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The Secretary,
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AN COIMISIÚN PLEANÁLA
LDG- 088039-26
ACP- ___
25 MAY 2026
Fee: € 50 Type: Cash
Time: 15:10 By: Hand

BY HAND

25th May 2026

Our ref: 4202-26/JN
ACP ref.: ACP-324165-26

Applicant: Maughanaclea Ltd.
Development: Wind turbines (14no.) and associated infrastructure
At: Maughanaclea, Co. Cork
Under: Application under Section 37E of the Planning and Development Act 2000, as amended for a Proposed Renewable Energy Development in the townlands of Ardrah, Maughanaclea, Ballynamought, Gortloughra, Cousane, Coomclogh, Derragh, Glanycarney, Keenrath, Derrynacaheragh, Shiplough, Coolsnaghtig, Mallabracka, Derrylahan, Derreens, Demesne, Dunmanway North, Milleenanannig, and Ballyhalwick, Co. Cork

Our client: Annabel Seymour, Maughanclea, Kealkill, Co. Cork. P75 E0623

Devising appropriate measures to avoid WTN nuisance at the planning and development stage is clearly of critical importance to the achievement of the State's aim of substantially increasing renewable energy.

- Egan J. in **Webster and Rollo v Meenacloghspar (Wind) Ltd**, High Court, Judgment No. 2, delivered 27th May 2025, at paragraph 204.

A chara,

We act on behalf of Annabel Seymour, Maughanclea, Kealkill, Co. Cork. P75 E0623. Our client's home properties are identified as HO13 and HO19 in the applicant's Figure 7 showing Proposed Turbine Layout, 2km receptors. (Enclosed at Tab 1).

Eight of the proposed turbines are planned to be built in a sector running from the South-west of her home, through the South, and over to the South-east, the nearest being 800m approx,

The remaining six turbines would lie to her North-east.

As can be seen from the map, save for the North-west quadrant Ms Seymour's home would be almost completely encircled by the turbines.

Our client wishes to make a submission in relation to the application. We enclose payment in respect of your €50 fee. Please acknowledge.

Ms Seymour's submission consists of –

(a) her own letter to you dated 17th May 2026, which is enclosed at Tab 2,
(b) Report of Planning Consultant Hazel McCarthy BA MSc MRUP (Tab 3),
(c) Report of Consultant Acoustician Dick Bowdler (Tab 4),
(d) Report of Chartered Ecologist Dr Will O'Connor (Tab 5),

together with our letter and its attachments, principally comprising recent relevant High Court judgments.

Preliminary

1. We note the letter from the Commission to the applicant's agent dated 1 May 2026 which states *inter alia* that *"the Commission hereby confirms at this stage that it is satisfied that the application includes all the information required to process the application ... "*.

2. That letter is issued pursuant to section 37JA of the Planning and Development Act 2000, as amended.

3. Notwithstanding that confirmation, the Commission at this stage in the process is of course obliged to consider what other parties have to say about the application and must undertake its role with an open mind and without any pre-judgment.

4. We submit that the Commission's conclusion that the application includes all the information required to process it is not supported by a proper examination of the application and the relevant law, including Part X of the Planning and Development Act 2000 as amended. Further reasons will be set out in the course of our client's submission.

The importance of renewable energy development

5. This is an application for a renewable energy development. Promoting greater renewable energy development is an essential policy goal.

6. That is not an unqualified or unconditional goal: not every such application automatically receives planning permission. Each application has to be assessed in light of the proper planning

and sustainable development of the area in which it is proposed to be located and applying the rules and procedures required in relation to environmental impact assessment and appropriate assessment under the relevant Directives and national implementing measures, as interpreted by the Courts.

7. The High Court has confirmed that devising appropriate measures to avoid wind turbine noise nuisance at the planning stage is of *critical importance* to achieving this aim:

   Devising appropriate measures to avoid WTN nuisance at the planning and development stage is clearly of critical importance to the achievement of the State's aim of substantially increasing renewable energy.

   - Egan J. in *Webster Rollo*, second Judgment, dated 27th May 2025, para 204 **(Tab 7)**

8. It is, in part, against that legal background that we make our legal submission to the Commission, as one element of our client's overall submission.

9. That said, we endorse much of what is said in the MKO Planner's Report on the general subject of policy and applicable targets for the promotion of renewables.

10. We also agree with the EIAR Non-technical Summary when it states:

    One of the principal concerns during the development process is that human beings, as individuals or communities, should experience no significant diminution of their quality of life from the direct, indirect or cumulative effects arising from the construction, operation and decommissioning of a development.

11. In summary, individuals, such as Annabel Seymour, or the community in which she lives, should experience no significant diminution in her or their quality of life from the construction or operation of this development, whether it is assessed alone or in combination with others. Although providing a succinct acknowledgment of what they say is a principal concern, the Applicant fails to provide the information to the Commission which it needs in order to fully assess this specific proposed development in the area in which it seeks permission to locate and operate.

12. Not only is the Commission left without essential information but, regrettably, it is instead offered assurances as to the nature of impacts that are not well founded, do not reflect current scientific knowledge and overlook relevant legal obligations.

13. The final paragraph of section 2.4 of the MKO Report includes this sentence:

    The approval of well-planned, appropriately located renewable energy projects, such as the Proposed Project, is not just beneficial, it is imperative.

14. This sentence is correct in general terms only. When it is examined in the context of this application, - *'such as the Proposed Project'* - it is evidently not correct: there is no imperative on the Commission to approve this development. On the contrary, the Commission is to exercise independent judgment on it, having heard all points of view and weighed all relevant factors. Our client submits it should be refused permission, *inter alia* because the proposed development is neither well-planned nor appropriately located. The proposed development poses a direct and proximate threat to our client and to her ability, based on a right protected under the Constitution, to continue living peaceably in her home and to continue to enjoy the amenities of her community and her place.

15. The Supreme Court in the *Coolglass* case made the position about the continuing importance of the Commission bringing proper scrutiny to bear on each application very clear. The Court expressly rejected the suggestion that renewable energy developments has anything approaching an automatic right to approval by reason of s.15(1) of the Climate Action and Low Carbon Development Act 2015 (as amended by the Climate Action and Low Carbon Development (Amendment) Act 2021):

"The outcome of such a test would likely be the replacement of a sophisticated and already complex and detailed process of assessment by reference to development plans and national policies within the structure of the 2000 Act, by an unclear and unpredictable test, which would likely give rise to uncertainty at the level of planning decisions and (since the test advanced is a legal one said to follow from statute provisions) increase challenges and consequent delay within the planning system."

16. Our client has commissioned three expert report which are enclosed:

(i) Planning Consultant's Report of Hazel McCarthy BA MSc MRUP (Tab 3);

(ii) Noise Report of Acoustic Consultant Dick Bowdler (Tab 4) and

(iii) Ecology Report of Dr Will O'Connor, CBiol, CEnv, FRSB, MCIEEM (Tab 5).

17. Our client relies on these reports in submitting that the application should be refused, for the multiple reasoned grounds advanced therein. In addition to those grounds emerging from and elaborated in the reports of these experts, our client wishes to draw the particular attention of the Commission to recent relevant legal developments in relation to the centrally important issue of wind turbine noise assessment and control and the law of nuisance as it relates to wind turbine noise.

18. Wind turbine noise – including its nature, assessment and control - has received detailed and lengthy consideration in two recent sets of High Court proceedings. The judgments in these cases are invaluable for the purposes of assessing this application as they have clarified the

issue with great precision, and have set out the relevant legal principles, which we will address at some length. Even though we refer to extracts in this letter, please note that the entirety of the judgments are expressly part of our client's submission.

19. We take issue with the assertion by the Applicant, seen in the EIAR Non-technical Summary (p.38) and echoed in the EIAR that the noise impact from the operation on nearby homes will not be significant. That assertion is central to the applicant's case and it is wholly wrong.

20. We take issue with the implication in the Noise section of the EIAR that wind turbine noise does not give rise to adverse health effects on people living near turbines. That implied assertion is also central to the applicant's case and it is equally wrong. This is evident from the health effects found to have been caused by wind turbine noise in the High Court judgments enclosed, and otherwise as explained below.

21. We say that the Commission will have to form a conclusion on the dispute between the Applicant and our client (supported by her expert and by this submission) on this fundamental issue of noise impact and that it will have to state the reasons for its conclusion.

Noise impact cannot be assessed as acceptable on basis of the material presented by Applicant

22. The Commission is required to arrive at reasoned conclusions in making its decision on the application. Those conclusions *inter alia* will relate both to the proper planning and sustainable development of the area, and to the likely significant environmental impacts of the proposed development.

23. We say that Wind Turbine Noise impact cannot be adequately or reliably assessed by the Commission, so as to enable it to grant permission, on the basis of the material presented by Applicant.

24. When the additional material our client is providing to the Commission with this letter is considered, we submit that the Commission will have no rational basis on which to conclude that the proposed development will not significantly adversely impact on our client and her home. That has fatal consequences both in planning terms and in EIA terms.

25. As stated, our client's properties are identified as HO13 and HO19 in Figure 7 of the applicant's maps. Eight of the proposed turbines would be situated very close to her home, in a sector from the South-west, through the South, to the South-east. Six would lie to her North-east. Her home would be almost encircled by the turbines. Accurate noise impact assessment by the Commission is a critical issue for her. Ms Seymour's ability to continue living in her home depends upon it.

Recent relevant High Court decisions

26. In her recent High Court judgments, Ms Justice Egan points out how a failure to assess and deal with wind turbine noise at the planning stage undermines the essential goal of promoting the development of renewable energy in this country.

27. This is a fundamentally important statement from the Courts.

28. We reiterate this statement of Ms Justice Egan, in the *Webster and Rollo,* second Judgment, dated 27th May 2025 (Tab 7) para. 204 about the critical importance of devising appropriate measures to avoid Wind Turbine Noise nuisance at the planning and development stage to the aim of achieving the aim of substantially increasing renewable energy:

    Devising appropriate measures to avoid WTN nuisance at the planning and development stage is clearly of critical importance to the achievement of the State's aim of substantially increasing renewable energy.

29. We also refer to this statement from Quinn J. in the *Byrne and Moorhead* v ABO Wind and others, judgment of 5th June 2025, para 381 (Tab 9):

    ... engaging with the public and addressing legitimate concerns is essential to the goal of rolling out substantial wind energy. The conduct and approach of the defendants in this case represents a threat to the goal of developing wind farms and wind energy.

30. Two consequences, at least for present purposes, flow from these judicial statements:

i. First, the Commission must have regard to these warnings as it considers this application and, in its decision, it must deal expressly with them.

ii. Second, the Commission will have to review its historical approach to the assessment and regulation of Wind Turbine Noise. Its previous approach of imposing conditions setting decibel limits alone in an effort to protect residential amenity from adverse noise impacts from Wind Turbine Noise has been tested in real world conditions and repeatedly found inadequate, as now proven by six householders in three sets of proceedings heard before two Judges in the High Court.

Decibels alone are not an adequate noise control parameter

Neither WEDG nor present planning practice can determine the matter at hand because they do not reflect current expert scientific knowledge on WTN.

- Egan J. in **Webster and Rollo v Meenacloghspar (Wind) Ltd**, High Court, Judgment No. 1, at paragraph 369.

31. Planning permission conditions to date issued by the Commission and its predecessor the Board, have tended to focus solely on setting absolute decibel levels. The limitations inherent in this approach have now been proven in repeated Court cases to be inadequate for the purpose of protecting residential amenity and have been found not to be in line with current scientific knowledge or best practice.

32. Among the critically important nuisance issues with noise from wind turbines apart from absolute noise levels are the character of the noise and the context of the noise. *Only one third of noise annoyance can be attributed to the decibel level*, according to the World Health Organisation.

33. As the WHO Guidance to Local Authorities on Noise and Health published in 2000[1] explains:

*"**Non acoustical factors influencing noise effects**: While sound can be measured with the help of acoustical instruments such as sound level meters, **the actual extent of noise nuisance cannot be measured in this way**.*

*One of the negative noise effects is annoyance. Large-scale population studies show that **only one third of noise annoyance can be accounted for through exposure to varying sound levels**. Non-acoustical factors, including personal factors such as noise sensitivity, and social factors, can have as much effect as the sound level."*

*"The most important factor affecting a person's reaction, is the time of exposure. The results of an international field study show that people wish most of all to have peace during nights, evenings and weekends. **The annoyance caused by noise increases if the exposure is not only during the day, but during the evening and night**."* (Our emphasis).

34. In relation to sleep the WHO 2000 Guidance to Local Authorities also identifies:

***"Sleep and noise:** Noise deteriorates the course of sleep in different levels. Long-term or repeated noise exposure during sleep causes nervous and endocrine activation .... Intermittent noise (flight noise) results in fragmentation in the course of sleep; while continuous noise (a distant motorway) results in a shallow sleep. Both kinds of noise reduce deep sleep (sleep stages 3 and 4) and dream sleep (REM sleep). Falling asleep is more difficult and after awakening the mood is affected and quite often during the day, people feel tired and have headaches."*

"The noise-induced activation depends, among other factors, upon the noise level and the number of noise events per night; the speed of the level increase; and the difference between the background noise and the maximal level. Not only are these acoustical factors important for the effect on the sleeping person, but also the information content of the noise. The hearing sense is

[1] World Health Organisation, 2000. Local Authorities Health and Environment. Noise and health

able to put the body on alarm and cause the sleeping person to wake up, even at very low noise levels, if the noise indicates danger."

"Frequent disturbances of the physiologically programmed course of sleep have to be evaluated as a possible detriment to health. Noise-induced phases of awakening are abnormal and must be valued as a health risk if they become chronic. Not only are awakening reactions detrimental to health, but also disturbances of the physiological functions below the threshold of awakening (compare the two figures on page a25). It makes little sense, therefore, to infer from empirical results of noise-induced awakening, a preventive medical threshold for sleep protection."

35. We pause here to recall the claim by the applicant that the Commission need not be concerned about any possible adverse health effects from their proposed operation. That claim does not stand up to scrutiny and must be rejected by the Commission. Noise is a well documented health risk to humans. Noise pollution is second only to air pollution in the view of the WHO in terms of adverse impacts on people. The 2018 WHO European Region publication on Noise and Human Health (at whose launch in Basel, Switzerland the writer was an invitee) includes a chapter on wind turbine noise for the first time, joining such well known sources of harmful noise impacts as traffic, rail, and airport noise, precisely because it is now accepted as a source that can be seriously problematic in terms of human health. The claim advanced by the Applicant that this finding can be overlooked because harm is not reproduced in laboratory conditions, as that is their essential point, is unsustainable and quite alarming to see in the EIAR.

Features requiring assessment and control other than decibels

36. Protection of residential amenity requires conditioning that has regard to and imposes suitable and enforceable controls for other essential factors, including:

- character - both of the noise and of the area
- duration and time of occurrence
- loudness which is relative and may not relate to decibel level but character
- message imparted by the noise
- variation in noise over time
- spectral content of the noise
- frequency of occurrence
- regularity/predictability of the noise
- variability in the noise even when predictable
- respite from the noise, length/duration of respite
- how easily the noise can be avoided
- impact of the noise on basic needs such as sleep and communication
- cumulative impact of noise intrusions (different noise sources from single or
- multiple sites)

- degree of care taken to avoid noise intrusion upon neighbours and protections provided
- visual or other impacts associated with the noise

37. The character of the noise from large industrial wind turbines of the scale proposed by the applicant includes Amplitude Modulation. This fact has been generally accepted for well over ten years now, since the presentation of definitive research results by experts working independently in Japan and England. It is no longer a matter of serious dispute.

38. Amplitude Modulation is the sudden rise and fall of a soundwave within a very short period of time, approximately one second. During this short time noise can rise and fall by 10 decibels or more; at other times it could be 3 or 4 decibels moment by moment. Amplitude Modulation can be completely and totally dominant in a noise environment. Amplitude Modulation is often described by a person as a thumping or whooshing.

39. The *changeable nature* of the noise means that (i) it attracts attention and (ii) it is not possible for people to acclimatise to it, unlike certain other types of noise that may have a comparable decibel level with a more steady and predictable character.

40. The *context* of the noise relates to the dominance, persistence and variability of both the general windfarm noise and the Amplitude Modulation, particularly in a quiet rural sound environment.

Summary of why the 'decibel only' approach fails

41. After setting out his findings on the multi-factorial nature of wind turbine noise impact on humans in careful detail in paras. 37-54 of his judgment in the *Byrne Moorhead* case, Quinn J. observed:

    As can be readily appreciated from the foregoing therefore, in considering whether or not the sounds emitted from a wind farm can objectively and reasonably be considered to constitute a nuisance, it is clear from the evidence of the experts on both sides in this case that it is not simply a question of assessing the loudness of the noise or, accordingly, therefore the precise distance of the person from the wind farm.

42. We emphasise that when assessing noise nuisance, it was clear to the Judge *from the evidence of the experts on both sides* in the case that it was not simply a question of assessing loudness or distance.

43. The 'decibel only' approach relies on controlling absolute noise levels as expressed as LA90 or LAeq.

44. LA90 describes the A weighted noise level in the lower percentile of the period being measured. It represents the level that is exceeded for 90% of the timeframe being measured. A condition typically provides that the noise be averaged over a 10 minute period. Averaging

makes peaks invisible. Peaks are what people hear and what cause annoyance or sleep disturbance. This type of condition is wholly inadequate to protect residential amenity.

45. LAeq describes the A weighted equivalent for continuous sound levels averaged over a certain time period. This is favoured by the WHO. It is also susceptible to the problem arising from averaging, described above.

46. Assessing *on average* that sleep disturbance does not arise is unhelpful when two or three times a week there is significant sleep disturbance but on average, four or more nights a week sleep is not disturbed.

47. The levels set under the historical approach do not deal with internal noise at all. Internal noise levels are not taken into account when drafting planning noise conditions. Yet internal noise will often the most intrusive issue within a home, especially at night. It is there that the noise is heard and experienced when a person is in most need of peace and quiet.

Litigation: noise nuisance disputes and outcomes

48. The first seven High Court nuisance cases taken on behalf of clients of our firm alleging intolerable wind turbine noise impact, commenced in the High Court in 2011. They were resolved six years later, following open admissions of liability in all seven cases, made in the High Court by Counsel for the operators.

49. The admissions were made in public. The Irish Examiner for example reported on the admissions of liability in its edition of 6 February 2017 (enclosed at Tab 10): https://www.irishexaminer.com/news/arid-20442172.html

50. Several other such Court actions have been undertaken by us since then on behalf of other families and individuals suffering from intolerable wind turbine noise nuisance and brought to a successful conclusion.

51. In each such case people had been frankly let down by the planning system which had failed to appreciate the extent of the noise impacts from the relevant developments, and which had relied, mistakenly and unscientifically, on assurances of 'no significant noise impacts' contained in the respective applications and particularly in their EIARs

52. The *Webster, Rollo, Shorten, Carty, Byrne and Moorhead* cases were the first wind turbine noise nuisance actions to go to fully contested trials in this country. The High Court found in favour of the plaintiffs in each of the cases and found intolerable noise nuisance from the operation of wind turbines at varying distances up to in excess of 1000m.

53. Our submission to the Commission on this issue is essentially that it refrain from repeating past errors but instead applies the lessons emerging from the Court cases and from the published Court judgments.

Lessons to be applied

54. It was of course never the intention of the Planning Authorities to place homeowners in a dire position where they would have to mount High Court cases to defend their families and their right to live in peace in their homes - but that was the predictable consequence of inadequate noise impact assessment and of reliance on demonstrably ineffectual (in some cases actually unenforceable) noise conditions.

55. Even after the High Court judgments, with their painstaking examination of the evidence and their clear conclusions on the deficits of current planning practice, we still see Planning Authority decisions with vague and unenforceable noise conditions. The Commission has to take this in hand and formulate an approach that is evidence-based, scientifically robust, so that Planning Authorities nation-wide can be helped make good decisions in what is a difficult and highly technical area.

56. It is notoriously hard and expensive for private citizens to bring High Court cases. Prevention of wind turbine noise nuisance is infinitely better than seeking a cure.

57. This brings us to a critical point:

    Both Egan J and Quinn J identify that Wind Farms which cause noise nuisance to neighbours **can get be inimical to the development of renewable energy in the country.** It is essential to avoid this by proper assessment at the planning stage combined with effective conditioning if a grant of permission is considered appropriate.

58. Sustainable development of wind energy in Ireland depends on the Commission learning that lesson and it can only do effectively so if it improves its approach in relation to Wind Turbine Noise assessment and control.

59. Otherwise the efficient development of further wind energy will be hindered, contrary to national and EU policy.

60. While the *Byrne Moorhead* case drew a belated admission of liability by the defendants, please note that the defendant in the *Webster Rollo & Shorten Carty* cases does not accept the judgments of the Court and is exercising its right of appeal. The injunction ordered by the Court is operative notwithstanding.

Discredited assertions about noise impact in this application

61. The EIAR asserts that noise levels from the operation will comply with 2006 WEDG noise criteria, ETSU-R-97 and the IOA GPG, and claims that therefore there will be no significant effects on people living and working nearby.

62. We refer to the analysis by eminent Acoustician Mr Dick Bowdler which, we submit, takes that assertion of 'no significant impact' apart. **(Tab 3)**

63. The 2006 WEDG noise criteria and noise limits derived therefrom do not protect residential amenity, as the High Court has found in the cases of **Webster and Rollo, and Shorten and Carty v Meenacloghspar Wind Ltd.**

64. See the first Judgment of Egan J. dated 8 March 2024, **(Tab 7)**. The effort by the operator to mitigate the noise wholly by changing the operation of the relevant turbine failed as the Court found in its second Judgment, dated 27th May 2025 **(Tab 8).**

65. Similarly, in the case of **Byrne and Moorhead v ABO Energy Ireland Ltd and others**, it was once more established that noise nuisance of a profoundly disturbing nature can be experienced in a home over one kilometre from turbines. See Judgment of Quinn J. dated 5 June 2025, **(Tab 9)**.

66. The expert evidence in Court of adverse intolerable noise impact was so overwhelming in this case that on the eleventh day of the trial, the defendants abandoned their defence to the noise nuisance claims and admitted full legal liability for the harm done to the long-suffering family.

67. In both the **Webster Rollo** case and in the **Byrne Moorhead** case, the High Court granted orders restraining turbine operations at the respective windfarms. In the **Byrne Moorhead** case three turbines were ordered to be shut down permanently.

68. It took the plaintiffs eight years in the first instance and over 12 years in the second case to a point where they could satisfy a Judge that their lives had been gravely and unlawfully affected by wind turbine noise emanating from developments which had been given planning permission including noise conditions and which insisted they were operating in line with their permission.

69. The problems were predictable, and in the Byrne and Moorhead case had specifically been predicted by the family, at the planning stage. Their predictions of noise nuisance were soundly based, yet they were ignored. These cases illustrate repeated and harmful failures within the planning system.

Lessons not yet applied

70. This present application relies on what these forensic Court judgments show to be a wholly outdated and discredited basis for predicting, assessing and controlling wind turbine noise impacts.

71. We submit that the Commission cannot accept the assurances given on behalf of the Applicant in light of these Court findings which are based on direct evidence of experts describing the current state of knowledge within the science of acoustics as it relates to Wind Turbine Noise.

72. The EIA process is designed be forward looking, not retrospective. This means that the Commission in a position to assess likely significant impacts *before* it makes its decision.

73. The judgments of the High Court in the cases of **Webster Rollo** & **Shorten Carty**, and **Byrne and Moorhead** serve also as narratives of the harm done when that essential step is not properly carried out at the planning application stage.

74. Amplitude modulation is now recognised as a significant, widespread and problematic feature of wind turbine noise. Low frequency noise is also now recognised as a potential phenomenon of wind turbine noise requiring specific attention and control.

75. Notwithstanding the vague mitigation assurances in the EIAR, there is no example given of any such *after the fact* mitigation measures being successfully adopted. That *post hoc* mitigation was tried in Webster Rollo and failed dismally, as the Judge found. See her second judgment dated 27th May 2025 (Tab 6).

76. The Commission needs to have regard to the implications of the EIAR making such unsubstantiated assertions on crucial issues and the Commission must, we submit, learn an important lesson from the failed Amplitude Modulation mitigation exercise attempted in *Webster Rollo*.

77. The Commission is aware that it obliged by law to address in its decision all points of substance made by parties to an appeal. These are, we submit, all points of substance. The Commission must therefore not only take account of these facts but also address them specifically in its decision documents.

A long road

78. The noise and shadow flicker sections of WEDG 2006 have been declared unfit by the Minister when he issued a press statement and placed them under review *over thirteen years ago* in January 2013. The Commission cannot continue to rely solely on them.

79. This is not a new issue for planners to address. Fully a decade ago, in 2016, a Cork County Council Senior Planner accepted that the 2006 WEDG were no longer fit for purpose. Mr Kevin

Irwin in his report to Cork County Council on Planning Application Reg Ref 15/730 (windfarm at Carrigareirk) dated 22nd February 2016 wrote:

"I am of the view that the existing 2006 Wind Farm Guidelines are not-fit-for-purpose given the changes in wind-turbine development over the past 10 years: [...].

I acknowledge the National Renewable Energy Efficiency Targets and the commitment to reach these targets by 2020. I am aware that wind energy as a renewable-energy resource is expected to provide the bulk of the planned renewal energy in the period to 2020. ***However, a balance must be struck between such national targets and the property rights of those with the potential to be adversely affected by windfarm development. I believe that each case must be assessed on its merits by having regard to national energy policies and the local impact on the natural environment and the lives of local people.***

80. Mr Irwin's words, unfortunately not heeded at the time, have been vindicated by the recent High Court judgments.

The Webster and Shorten Cases

81. We will look closer now at the judgment in the two cases, heard together, of **Webster/Rollo and Shorten/Carty v Meenacloghspar (Wind) Limited [2024 IEHC 136]** delivered on the 8th March 2024. (Tab 5).

82. The Court heard evidence from all parties and their noise experts in a trial of exceptional length that ran for over 54 hearing days. The Court travelled to the properties to hear for itself. The Court heard recordings of the noise, compiled at different times and representative of the situation at the homes under differing conditions, day, evening and night. The Court concluded that the method of noise assessment used by the planning authorities had been deficient and that noise conditions which were based on use of simple decibel limits – as proposed by the present applicant in this case and as invariably to date applied by the Commission and its predecessor the Board - do not protect the public.

83. After a meticulous examination of all the evidence tendered during a hearing that ran from November 2022 until May 2023, Ms Justice Egan held that wind turbine noise (WTN) had special characteristics including low frequency noise and Amplitude Modulation (AM).

84. The noise was of a character, volume and frequency of occurrence that it unlawfully interfered with the ordinary use and enjoyment of the two sets of plaintiffs in their homes. The interference was such that any reasonable person would find it intolerable.

85. Each such case must of course be decided on its own facts.

86. The distances from the turbines in this application to Ms Seymour's home are comparable to the distance to the home in the **Byrne Moorhead** case and in some instances they are even closer. The wind turbine generators in this case are significantly more powerful than those causing the noise nuisance in **Byrne Moorhead** and are therefore liable to create greater noise impact.

87. The turbine towers are much taller here than in that case, with greater rotor diameters and they are to be fitted with significantly larger 4.8MW generators than the smaller, quieter 2.3MW turbines in the Wexford cases. (The application does not specify the generating capacity of each individual generator; we here assume they are all to have the same capacity; we derive the 4.8MW figure by dividing the declared total estimated generating capacity (see MKO Planning Report p.23) of 67.2MW by the number of turbines proposed, being 14no.)

i. Amplitude Modulation

88. The recent High Court judgments have set out clearly the lawful approach to the assessment of noise nuisance complaints concerning wind turbines. They have specifically highlighted the fundamental error of the planning system relying on out-dated methods of noise control involving noise averaging and conditioning by reference to dBA values alone. Appreciating the character of wind turbine noise is key to understanding and controlling noise impact from wind turbines.

89. All of this was fully ventilated at length in the High Court in the **Webster Rollo** case, which is why the judgment is of central importance and assistance to the Commission in considering this application. We refer to the full text of the judgment which is essential reading for anyone seeking to understand current thinking in the science as well as the applicable legal principles both from a planning law and a nuisance law perspective. (Tab 5). The Court identified a number of distinct issues and dealt with them in turn. While the entire judgment is of relevance and is relied on by our client for the purpose of this submission, we draw attention to the following issues and paragraphs in particular:

90. Paragraphs 11, 12, 13, 14, 21, 22;

11. Two categories of wind turbine AM have been identified in the literature and guidelines: The first is AM in the mid and upper frequency[6] ranges. The sound which this produces, is that which we commonly associate with windfarms and is best described as a swishing sound. This blade swish, which I will refer to as ("swish AM") is commonly described as "normal AM". The second category of AM has a lower frequency sound character and is best described as a "whoomph" or thump sound ("thump AM"). Thump AM is commonly described as "abnormal AM", "adverse AM" or "excessive AM".

12. In broad terms[7], the extent to which AM fluctuates as the rotors turn is measured by the differential between the peak and the trough of the sound levels – i.e., the peak to trough differential ("the AM value"). If the AM value is high, then the perception will be of a louder

sound changing to a quieter sound, and vice versa. This will increase the intrusiveness of the WTN. Conversely, if the AM value is low, then the perception will be of a sound which is more steady and monotonous. Swish AM and thump AM can each display either high or low AM values.

13. In addition to variations in its spectral content (swish AM/thump AM), and its AM value (high or low values), AM can also exhibit other distinct characteristics such as:

- *regular AM with little variation in rhythm.*
- *erratic AM with no clear periodicity or rhythm which exhibits sudden bursts or isolated peaks of noise and is often accompanied by high AM values.*
- *Intermittent or variable AM which disappears and returns again, or which fades in and out.*

14. Although the plaintiffs complain that the WTN causes an unwelcome general increase in noise levels at their properties, the key feature of their case is that the AM associated with these turbines (but primarily the closest turbine, T2) renders it objectively unreasonable.

21. At the outset, I will summarise my findings on the issues to be tried in this case. After outlining the legal test for nuisance, I will set out the key factual evidence and then detail the court's site visit. Next, I will provide a brief overview of the expert evidence.

22. To place the arguments of the parties in context, it will then be necessary to review the regulatory framework under which planning authorities set noise conditions for wind farm developments.

91. Also please see paragraph 582:

582. I find that there are frequent and sustained periods during which AM values are conservatively in excess of 5 or 6 dBA. I also find that there are regular periods during which the AM values are considerably in excess of 6 dBA, in the order of 10 dBA or more. I find that such high AM values exacerbate the other intrusive features of the AM such as its erraticism, impulsivity and intermittency. I find that although noise levels will be lower when the windows are fully closed, high AM values remain. ***I find that there is a significant audible lower frequency component to the WTN. This produces clear whomping, thumping and whacking sounds. These whoomphing and thumping sounds are themselves highly variable and unpredictable. In addition to being heard, this lower frequency WTN is felt as a vibration or a sense of pressure. The WTN is audible and "felt" both outside and inside NF and HH, including in the master bedrooms at both properties. I find that, when even with the windows are entirely shut this lower frequency noise is clearly audible throughout both houses and that thump AM can be felt as a vibration in the structure of NF and in particular HH. I am satisfied that this thump AM is commonly present over sustained periods.***

ii. The role of the Defra criteria

92. Issue 4 on pages 9-10 *'What criteria ought the court consider in the assessment of nuisance?'*

93. Issue 6 on pp. 11-13 *'Does an analysis under the DEFRA criteria support the argument that the characteristics of the WTN [Wind turbine noise] amount to a substantial interference with the plaintiffs' use and enjoyment of their land?'*

94. This is of great importance as the court finds the answer to be Yes. Helpfully for the present purpose, it gives detailed reasons, taking into account the level of noise, the type of noise, the spectral content of the noise as an aggravating feature, the character of the quiet rural locality, the exceedance of WTM over background noise, the impact of the noise on basic needs such as sleep, inability to avoid the noise, frequency of occurrence of noise and time of day or night.

381. I accept that the Defra Guidance is of considerable assistance. Although the Defra Guidance relates to complaints of (United Kingdom) statutory noise nuisance and not to private nuisance, it is a recognised 'standard or guidance' on the assessment of WTN nuisance. The Defra Guidance provides a helpful framework under which to analyse the various elements of a WTN nuisance complaint.

95. We submit that in examining claims made by the developer that their operational noise nuisance will not be significant, the Commission should pay close attention to the Court's finding in paragraph 381.

96. Defra criteria are listed at paragraph 385 of the judgment. The Defra guidance document can be accessed at: https://assets.publishing.service.gov.uk/media/5a795184e5274a3864fd5f82/pb-13584-windfarm-noise-statutory-nuisance.pdf

385. The criteria identified by the Defra Guidance as relevant to the "bespoke investigation" - together with certain other pertinent considerations identified by the plaintiffs' experts – which purely for the sake of brevity I will refer to collectively as "the Defra criteria"- are as follows:

- *sensitivity of the complainant.*
- *the level of WTN;*
- *the type of noise – e.g., the prevailing AM value and the variability, regularity and predictability of the noise;*
- *whether any aggravating characteristics are present in the WTN - the spectral content of the WTN and whether thump AM is present;*
- *the characteristics of the neighbourhood where the WTN occurs;*
- *the exceedance of WTN over background noise;*
- *the impact of the WTN on basic needs such as sleep;*
- *how easily the WTN can be avoided and what measures could reduce or modify the*

WTN
- *the time of day or night when the WTN occurs;*
- *the duration and how often the WTN occurs.*

97. The next paragraph is crucial:

> *386. The above factors reflect the fact that human hearing is obligatory in the sense that our brains are constantly analysing and interpreting sound. Human responses to sound therefore combine both physiological and psychological responses. Noise is related to human response and is routinely described as unwanted sound or sound that is considered undesirable or disruptive. The difference between a sound and a noise is dependent on a number of objective and subjective variables. This all means that the characteristics of a given sound can have a considerable influence on our reactions.* ***I accept Ms. Large's evidence that constant sound with minor change to volume, frequency or character can be easily accustomed to. By contrast, sound characteristics that attract attention and render the sound more discernible are generally considered to increase annoyance. Negative responses are therefore associated with variable, unpredictable sounds and with unexpected changes in loudness such as impulsivity, erraticism and intermittency. Assessment of noise nuisance must consider all of these variables.***

98. The Court makes mention of the EPA publication NG4:

387. I also note that the Defra criteria are quite similar to those listed by the EPA in EPA NG4: Environmental Protection Agency Office of Environmental Enforcement (OEE) Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities ("EPA NG4") 48. ***Although this guidance, unlike the Defra Guidance, is not windfarm specific, it can only be seen as an endorsement of the view that both quantitative and qualitative factors must be weighed and assessed with care and professionalism in each case.***

99. We submit that the Commission will have to take account of every one of these factors in assessing the suitability of the proposed development and publish its reasoned conclusions on each of them.

iii. WEDG is outdated

100. Issue 10 on pp. 13-14 *Does the Court find that the WTN is a substantial interference with the plaintiffs' use and enjoyment of their land? Is liability in nuisance established?*

101. Paragraphs 34-37, 174-218, 361-373.

102. We will reproduce a small selection of those paragraphs here.

103. For example, in paragraph 369 you will find an echo of a key claim made in this application by the developer, a claim rejected by the Court in **Webster**. The Court finds that 'Neither WEDG nor present planning practice can determine the matter at hand **because they do not reflect current expert scientific knowledge on WTN.**' (Emphasis added). We say that finding must be respected by the Commission in this case. If the Commission disagrees, it will need to say so and give reasons.

368. Yet the defendant and its experts do not see this logic through. Although it maintains that it complies with draft WEDG 2019, the defendant also distances itself from that guidance. The defendant emphasises that although consideration was being given in draft WEDG 2019 to changing the basis of regulation from that set out in WEDG 2006 – principally to bring down maximum noise limits from 45 dBA L90 to the 43 dBA L90 or 5 dBA over background and to reflect a penalty for AM - this draft guidance has not been brought forward. The defendant's uncontradicted evidence is that the present practice of planning authorities is to fix permission noise limits for wind farms in accordance with WEDG 2006 - i.e., by reference to fixed decibel limits only with no penalty for AM.

369. The defendant therefore argues that because this is the present practice of local authorities, the court ought to adopt a similar approach in its assessment of nuisance in this case. I do not agree. The issue is not whether or not WEDG 2006 remains the current regulatory framework for windfarms in this country or indeed whether the Ballyduff WTN complies therewith. ***Neither WEDG nor present planning practice can determine the matter at hand because they do not reflect current expert scientific knowledge on WTN.*** *Current expert scientific knowledge at least informs more recent publications such as draft WEDG 2019 and the ETSU Review (although of course the first of these has been withdrawn and the second has yet to be formally adopted). Unlike these more recent publications, WEDG 2006 does not even consider the extent to which those aspects of the WTN which are the source of complaint in this case may be said to be objectively reasonable.*

370. The fact that AM and thump AM remain to be regulated does not mean that the court should ignore these characteristics. I fail to see how it can credibly be said that merely because an acknowledged problem has not been regulated in the planning sphere the court should now ignore the problem in the context of a nuisance action.

371. This review of WEDG 2006 is clearly a difficult and long-drawn-out process and the same is evidently the position in the UK. In and of itself this demonstrates just how complex and multifactorial the impact of WTN can be.

At paragraph 373: *I think it is fair to conclude that the current direction of travel in wind energy planning guidance is towards setting decibel limits combined with a penalty for character such as AM together with limits on low frequency noise.* [...]

In the Planning System, Senior Inspector Kevin Moore identified the AM problem, terming it a frequent concern

104. The nature of this dilemma was identified by An Bord Pleanála Senior Inspector Mr Kevin Moore when dealing with an application for a nearby Cork site in 2024. (Report dated 11th March 2024 on file ABP-315656-23.) He also suggests how the Board should respond to the dilemma.

105. We will first set out his analysis and opinion and explain their relevance to the present application before turning to the High Court judgments - which chime in many ways with his views so far as AM is concerned.

106. We note here that in the present application before the Commission, the applicant asserts three things: (1) that amplitude modulation is rare,
(2) that it is unpredictable at planning stage and
(3) that it can be addressed (they imply satisfactorily) if it arises, by some form of what they term mitigation measures.

107. Mr Moore was considering a wind farm application where the applicant – which we think was an associated company of the present applicant – made similar claims.

108. Mr Moore was not convinced.

109. He noted that amplitude modulation was a ***frequent concern*** *that requires consideration* and he advised that mitigation measures to deal with the issue should be *"known at the time of the making of the application in order that it can be assessed as an adequate response to the issue. What the applicant proposes to do is unknown".*

110. Please see the following extracts from Mr Moore's Report. We have added emphasis in certain parts.

5.5. Noise

5.5.1. Amplitude Modulation

I note from the third party appellant's submission that the Commission is informed of a study on amplitude modulation of wind turbine noise. It is submitted that the standard method applied by the Commission in comparable wind farm cases, which relies on specific decibel limits, does not address the problem of amplitude modulation from large wind turbines. It is also noted that this problem is not discussed in the 2006 Wind Energy Development Guidelines. Reference is made to WHO observations and guidance on noise impacts. Amplitude modulation and its impacts on residents are set out.

I note my considerations on noise in my report on ABP-308244-20. Some of my observations included:

- The residents in this remote area generally experience an environment where there are low background noise levels at present.

- There was a wind farm previously on this site and wind farm-related activities comprised a source that influenced the noise environment in recent times.

- The swishing of blades from the large turbines proposed could potentially affect sleep patterns and could potentially generate stress where turbine noise is audible, particularly where windows may be left open in houses in the vicinity.

- I am aware of the extensive public concerns relating to infrasound, amplitude modulation causing periodic thumping at low frequencies, and the negative health effects seen to arise from wind farm development on some people exposed to such development.

- There is extensive conflicting research on these issues.

- I acknowledge the WHO Environmental Noise Guidelines for the European Region. Such guidance may influence the review of the existing Wind Energy Guidelines. However, at present I must determine that the prevailing guidance on noise is that set out in the current national Wind Energy Guidelines.

- I accept that this is a particularly complex issue, with extensive conflicting research and a wide range of international guidance and standards. Evidently much can be learned from international best practice but the guidance to which the Commission would ultimately be required to have due regard to at this time is set out in the Wind Energy Guidelines.

My conclusion on operational noise was:

"Overall, I submit that there is no information to refute or counter the applicant's methodologies applied in assessing the likely operational noise impacts arising from the proposed development and the conclusions drawn that the proposed development would not have significant adverse environmental impacts relating to noise."

Inspector Moore then makes a very important statement:

I must acknowledge that my assessment did not address the issue of amplitude modulation. This should have been considered in my original report. I must acknowledge that, in my experience, it now often presents as a significant concern from third parties on submissions on wind farm developments and is an issue that merits consideration.

The applicant acknowledges the potential of amplitude modulation (AM) in Section 11.4.2.2.2 of the EIAR. Reference is made to UK research on this issue. The applicant submits that AM is associated with wind turbine operation and that it is not possible to predict an occurrence of AM at the planning stage. It is also submitted that it is a rare event associated with a limited number of wind farms, being the exception rather than the rule. The applicant notes that research and guidance on this issue is ongoing, with reference being made to the Institute of Acoustics (IoA) Noise Working Group (Wind Turbine Noise) Amplitude Modulation Working Group (AMWG). The applicant concludes:

"Where it occurs, AM is typically an intermittent occurrence, therefore assessment may involve long-term measurements. The 'Reference Method' for measuring AM outlined in the IoA AMWG document will provide a robust and reliable indicator of AM and yield important information on the frequency and duration of occurrence, which can be used to evaluate different operational conditions including mitigation."

It is my submission that the applicant acknowledges the potential for amplitude modulation. The response, however, to address this issue, in the event it arises as an adverse effect from the proposed development on residents in the wider area, is unclear. If amplitude modulation becomes an adverse impact due to its frequency and duration during operational conditions then there would reasonably be an expectation to employ mitigation to address such impact. This should be known at the time of the making of the application in order that it can be assessed as an adequate response to the issue. What the applicant proposes to do is unknown.

There is no guidance set out in the Wind Energy Development Guidelines 2006 on this issue. Notwithstanding this, as the applicant acknowledges the potential for adverse environmental effects from amplitude modulation, there should be an understanding of what is going to be done to address these effects in the application. This may be a matter that the Commission considers should be addressed by the applicant and a request for information from the applicant on the proposed measures to address it in the event it arises could be sought.

5.5.2. Implications arising from Balz and Heubach v An Bord Pleanála

I note the third party appellant's grounds of appeal and the covering letter submitted with them. I further note that the contents were acknowledged in my report on ABP-308244-20 and that some of the details set out were not expressly addressed in this original report.

My original report placed a strong reliance on the Wind Energy Development Guidelines 2006. One of the inadequacies of these guidelines as they relate to noise are referenced above. The Commission are in a most difficult position when having to have regard to such outdated guidance. There are no other Section 28 Guidelines to which the Commission can refer to when considering the issue of noise or any other environmental impacts from wind energy development.

The appellant has referred to WHO guidance, a wide range of documentation relating to noise and wind farm development, and to the MAS Environmental Ltd. report on the draft Wind Energy Development Guidelines dating from February 2020. I note and acknowledge this documentation and their detailed and informed considerations offered on noise from wind energy development. I particularly note the MAS Environmental Ltd. *report.*

[**NLCC comment:** Mr Mike Stigwood and Ms Sarah Large of MAS Environmental Ltd were the expert witnesses on acoustics/noise whose evidence was presented in the recent High Court litigation cited above and which is analysed and decisively accepted in the respective judgments.]

There is a distinct vacuum in which the Commission finds itself on this matter, in my opinion. As I have referred to in my original report, there is extensive conflicting research on noise related to wind farm development. I again note the WHO guidance. ***At this time of no updated Section 28 Guidelines, my principal observation is that the precautionary principle should reasonably apply. The lack of finalised Wind Energy Development Guidelines, which would be expected to provide an updated, informed and relevant guide for planning authorities, leaves the Commission at this time without adequate Section 28 Guidelines.***

It could reasonably be determined that failure to be able to adequately assess noise impact (and other environmental issues) measured against informed Guidelines must lead to the application of the precautionary principle because the environmental and/or human health hazard that arises is uncertain.

I again note the third party position in its submission. I also acknowledge the referenced decision Balz and Heubach v An Bord Pleanála. *I query how much weight the Commission can place on the WHO guidance and how much can override the existing 2006 Guidelines. I note the draft Wind Energy Development Guidelines 2019. The term 'draft' would indicate caution when giving consideration to them, in my opinion.* ***I query how the Commission can reasonably balance one set of research studies which determines that there is no (or no proven) adverse effect arising from noise from wind turbines against a competing set of studies which determines that there is. I pose the question: How can one adjudicate on what constitutes reliable data and preferred conclusions in such an instance?***

The existence of this vacuum results from the failure to provide finalised and up-to-date Wind Energy Development Guidelines. I submit that perhaps it is time to give consideration over to stalling determinations on applications for wind farm development where no new guidance is in place. I submit that this would likely be the incentive to ensure an early delivery of new finalised Guidelines. Perhaps approvals for wind farm development could, thus, be determined to be premature pending the delivery of new finalised Guidelines*. While there is much emphasis in public policy on promoting renewable energy and the benefits which would accrue from it, there appears to be little urgency in producing critically important up-to-date guidance which would allow for informed decision-making on the delivery of it in the right*

locations in a sustainable manner. ***I submit that this lack of up-to-date guidance is likely to continue to result in more court challenges as the Commission and planning authorities are left isolated in seeking to deal with matters where the principal Guidelines are almost 20 years old, indeed archaic, when due regard is had to how wind energy development has significantly evolved in form and scale since then.***

111. The Commission must address the issues which Mr Moore has so carefully and reasonably set out. Fortunately the Commssion now has the benefit of the recent High Court judgments to guide it in this task.

Low frequency noise – the Byrne Moorhead case

112. Low frequency noise impact is dismissed by the applicant in the EIAR, lumped in with infrasound and disposed of as if the two were to be considered together. This is disingenuous for two reasons: first. they are not the same thing and do not belong together in this context, and second, the Court in **Byrne Moorhead** specifically finds low frequency noise from wind turbines to be intolerable and unlawful in a residence just over 1000m distant from source.

113. Having heard both sides in that case, Mr Justice Quinn was in no doubt about the intrusion by and the harmful effect of low frequency noise, accepting the empirical evidence on low frequency noise impacts given by Mr Stigwood of MAS Environmental Ltd. His judgment also sets out how low frequency noise can be a bigger problem inside a dwelling than outside. (Thus we observe that the evidence accepted by the Court demonstrates why conditions relying only on external measurements can be deficient, can miss the impact within a home and are thus not fit for purpose.)

114. The judgment requires to be read in full on the issue *inter alia* of low frequency noise and its intolerable effects on the family living *over 1000m* from the turbines. We will give one extract by way of example.

127. In summary the evidence gathered by Mr. Stigwood and his colleague Ms. Large demonstrated that there was amplitude modulation from the wind farm which was measured inside the plaintiffs' home which exceeded the low frequency criteria for unacceptable noise. In addition, this noise was exacerbated in its intrusiveness by virtue of the fact that it was highly modulating. In addition, the measurements indicate that the noise exhibits a tonal droning beat. The measurements referred to in evidence by Mr. Stigwood showed fluctuations well in excess of 10dB and sometimes of the order of 15dB. This is a highly noticeable level of modulation. According to Mr. Stigwood he recorded average levels of low frequency noise well above the 34dB limit recommended by the guidelines. He recorded average levels of low frequency noise in or around 160Hz, with a tonal quality where the noise is within 1/3 of an octave, and with decibel values in the order of 38dB to 41dB. He described these as exceedances which are substantial. In his opinion these noise levels

would produce considerable disturbance especially when recipients are exposed over a long period of time. He said the distinct droning or tonal character measured on a second-bysecond basis adds notably to the intrusiveness.

Removing a threat to the goal of development windfarms

115. The High Court has made clear that a change is necessary in how wind turbine noise is assessed and conditioned if decision-makers within planning system are to remove a current threat to the goal of developing more wind energy capacity.

116. The following extracts convey the Court's views:

I accept therefore that property rights may need to be balanced with the activity of the defendant, where that activity is in the public interest. On the other hand, because it is widely recognised that WTN may unreasonably interfere with the amenity of local residents, there is also a public interest in acknowledging and constructively addressing such problems at a national and an individual level. ***Devising appropriate measures to avoid WTN nuisance at the planning and development stage is clearly of critical importance to the achievement of the State's aim of substantially increasing renewable energy.*** *However, it is also critically important that turbine operators engage constructively with genuine WTN nuisance complaints and devise appropriate abatement measures. I accept Mr. Mayer's view that acoustic experts, engineers and turbine manufacturers such as Enercon, would have a wealth of experience in such matters that the defendant could have leveraged, had it chosen to do so. It was within the defendant's purview to propose a strategy that would abate the nuisance, whilst preserving power generation as much as possible.*

- Webster and Rollo, second Judgment of Egan J, dated 27th May 2025 **(Tab 6),** para 204:

... engaging with the public and addressing legitimate concerns is essential to the goal of rolling out substantial wind energy. The conduct and approach of the defendants in this case represents a threat to the goal of developing wind farms and wind energy.

- Byrne and Moorhead, Judgment of Quinn J. 5 June 2025, **(Tab 8),** para 381.

I am in total agreement with Quinn J. that such behaviour represents a threat to the goal of developing wind farms and wind energy.

- Webster and Rollo, third Judgment of Egan J dated 31st October 2025 **(Tab 7),** para 214.

EIA

117. Up to this point we have been addressing planning issues. There is a separate EIA point.

118. The material in the EIAR does not meet the mandatory requirements set out in Part X of the Planning and Development Act 2000 as amended, and Regulations made thereunder on the content of EIARs; neither is it reliable; and it does not support the conclusion claimed for by the applicant, in particular concerning wind turbine noise impact.

119. Noise impact is a fundamental issue of concern. It is not one that can be discarded or discounted in any overall weighting exercise. We reiterate this admission contained in the EIAR Non-technical Summary, emphasis added:

*One of the principal concerns during the development process is that **human beings**, as individuals or communities, **should experience no significant diminution of their quality of life** from the direct, indirect or cumulative effects arising from the construction, operation and decommissioning of a Development.*

120. If the Commission in exercise of its separate EIA function has been given insufficient data or decides not to accept the conclusion urged on it by the applicant concerning noise impact, then we submit that refusal is the only proper decision open to the Commission.

Failure to address the Court's findings

121. The applicant in this case does not address the judgments' findings or the science considered by the Court in the cases cited which are of immediate and patent relevance. This oversight is profoundly significant.

122. Instead the applicant clings to the outdated 2006 WED Guidance and to ETSU-R-97, making a reference to the IOA GPG.

123. That approach is not tenable in the wake of the High Court judgments and on its own gives the Commission a basis for rejecting the application.

124. It follows that the application cannot be considered for approval as it does not meet the preconditions to the County Development Plan designation *'open to consideration.'*

Selected ABP WF decisions quashed by the High Court for inadequate assessment or unfairness

125. We list here some of our cases in which the Board, as predecessor to the Commission, or the Commission itself in the most recent case, have had decisions to grant permission to wind turbine developments quashed by the High or Supreme Court.

126. Generally put, this outcome was because the Board had not assessed impacts in accordance with its legal obligations and/or had not dealt with our clients' submissions in a manner required by the principles of fairness and proper procedures. In the most recent case

from early this year - Barna Wind Action Group no. 3 - the Commission had apparently lost an expert report from our clients' noise consultants, with the result that it had given planning permission without taking what our client's expert report contained into account in the process at all.

127. The outcomes in these cases confirm the legally binding nature of the duties on the statutory decision maker as well the effectiveness of the legal protections available to members of the public should a statutory decision maker fail to discharge those duties.

Ó Grianna no.1, [2014] IEHC 632.
Ó Grianna no.2, [2015] IEHC 248.
Barna Wind Action Group no. 1, 2016 614 JR.
Ó Grianna no. 3, [2017] IEHC 7.
Balz and Heubach no. 1, [2018] IEHC 309.
Balz and Heubach no. 2, [2019] IESC 90.
Barna Wind Action Group no. 2, [2020] IEHC 177.
Barna Wind Action Group no. 3, H.JR.2026.0000114.

Conclusion
This application is presented expressly as if it is *imperative* for the Commission to permit it. That would be an error which the Commission ought not fall into. It must instead conduct and report on its examination of the application under the multiple lenses through which it must be scrutinised – planning, environmental impact, impact of protected species or habitats.

An Coimisiún Pleanála has an opportunity with this application to improve its approach to assessing windfarm planning applications, the better to achieve a correct balance between conflicting interests in line with current law, reflecting the current state of knowledge in acoustical science, in conformity with national and EU policy and in accordance with the detailed legal guidance recently issued by the High Court.

On the grounds and for the reasons set out in her submission with its supporting materials, our client requests the Commission to refuse permission for the proposed development.

Le meas,

Joe Noonan

Joe Noonan
NOONAN LINEHAN CARROLL COFFEY LLP

Tab List

1. Map – Proposed Turbine Layout, 2km receptors
2. Letter from Annabel Seymour dated 17 May 2026
3. Planner's Report by Hazel McCarthy BA MSc MRUP
4. Noise Report by Mr Dick Bowdler, Consultant Acoustician
5. Ecology Report by Dr W O'Connor, Chartered Ecologist
6. No. 1 Judgement of Ms Justice Emily Egan in the linked cases of Webster, Rollo, Shorten, Carty v Meenacloghspar (Wind) Ltd, delivered 8 March 2024
7. No. 2 Judgement of Ms Justice Emily Egan in those cases, 27 May 2025
8. No. 3 Judgement of Ms Justice Emily Egan in those cases, 31 October 2025
9. Judgment of Mr Justice Oisin Quinn in Byrne and Moorhead v ABO Energy Ireland Ltd and Others dated 5 June 2026
10. Irish Examiner report on admission of liability in seven linked cases, Shivnen and others v Enercon Windfarm Services Ltd and another, dated 06/02/2017

Proposed Development Turbine Layout - 2km Receptors

Map Legend
- Potential Turbine Location
- 1km Setback
- 2km Setback
- Receptor Location

T01 T02 T03 T04 T05 T06 T07 T09 T10 T11 T12 T13 T14

Beara Gougane Barra Cycling Route

Douce Mountain / Damhais · Inchinroe · Gortloughra · Gortloughra River · Owvane River / Abha Mheáim · Mass Rock · Cillin · Cappaboy Bog · Cappaboy More · Cummerlibawn · Maughna · Knockanecosduff · Illane · Coomhola River / Abha Chom Sheola · Derryfadda · Foilmore · Kilnaknappoge · Shronagreehy · Maulavanig / Meall an Mhanaigh · Maughanaslilly · Lough Atooreen · Tooreen · Owenboy River · Lackareagh · Ahil Beg · Ahil More · Ahildotia · Carrigana · Cahermoanteen · Cahermuckee · Coomclogh · Baurnamought · Coomlogh · Shehy Beg / An tSeithe Bheag · Fulacht Fia · Cousane Gap · Cousane / An Cuasán · Glanycarney · Keealkill / An Chaolchoill · Gearagh · Inchigeelagh Br · Breeny Beg / Na Bruíne Beaga · Lisheen · Dromlickacrue · Breeny More / Na Bruíne Mora · Maularaha · Ardrah · Gortnacorriy · Maulikeeve · Laharanaarmeen · Cappanaboul · Derryarkane · Ards Beg · Ards More · Shandrum · Meelagh River · Meelagh Br · Barnagowlane · Barnagowlane East · Cnoc na nAbhann · Cullenagh · Kelmeen · Glanareagh · Tremeloagh · Barroy · Goulacullin · Cooliclagh East · Cooliclagh West · Nowen Hill

Standing Stone · Stone Row · Stone Circle · Standing Stones · Cairn · Burial Ground · Megalithic Tomb · Castle · Church · Mound · Holy Well · Ford · Tomb · Lough Beg · Lough Nabrinn · Lough Canignaneane · Sheep's Head · Sheep's Head West · R584 · R585

MKO

17th May 2026

Maughanaclea
Kealkill
Cork
P75 E0623

Planning Application Reference: ACP-324165-26
Applicant: Maughanaclea Ltd / Enerco
Development: Maughanaclea Wind Farm (14 turbines and associated infrastructure)
Location: Maughanaclea, County Cork

To: An Coimisiún Pleanála

1. INTRODUCTION

I am Annabel Seymour, owner and full-time occupier of a property identified as H013. I have lived at this location for over 11 years.

The property is both my home and my place of work. I work as a ceramic artist from this location on a full-time basis, and I am present on site throughout the day and night. The surrounding land is also actively managed as a smallholding, including the keeping and breeding of livestock.

The property therefore functions as a combined residential, working and agricultural environment, with continuous occupancy and a high level of sensitivity to environmental change.

The 'receiving' environment is one of an exceptionally quiet rural setting, with very low baseline noise levels, a high degree of landscape openness, and an absence of artificial lighting. These characteristics are fundamental to the use, enjoyment and value of the property.

I have reviewed the Environmental Impact Assessment Report (EIAR), together with the associated documentation submitted in support of the application and I do not believe they fully reflect the reality of this location, or the likely impact of the development on my home, land and daily life.

This submission sets out concerns across a number of key areas, including:

- noise, residential amenity and human health;
- hydrology, private water supplies and agricultural use;
- ecology and biodiversity;
- landscape and visual impact;
- night-time visual impact and aviation lighting;
- consultation and procedural issues; and
- overall compliance with the planning framework.

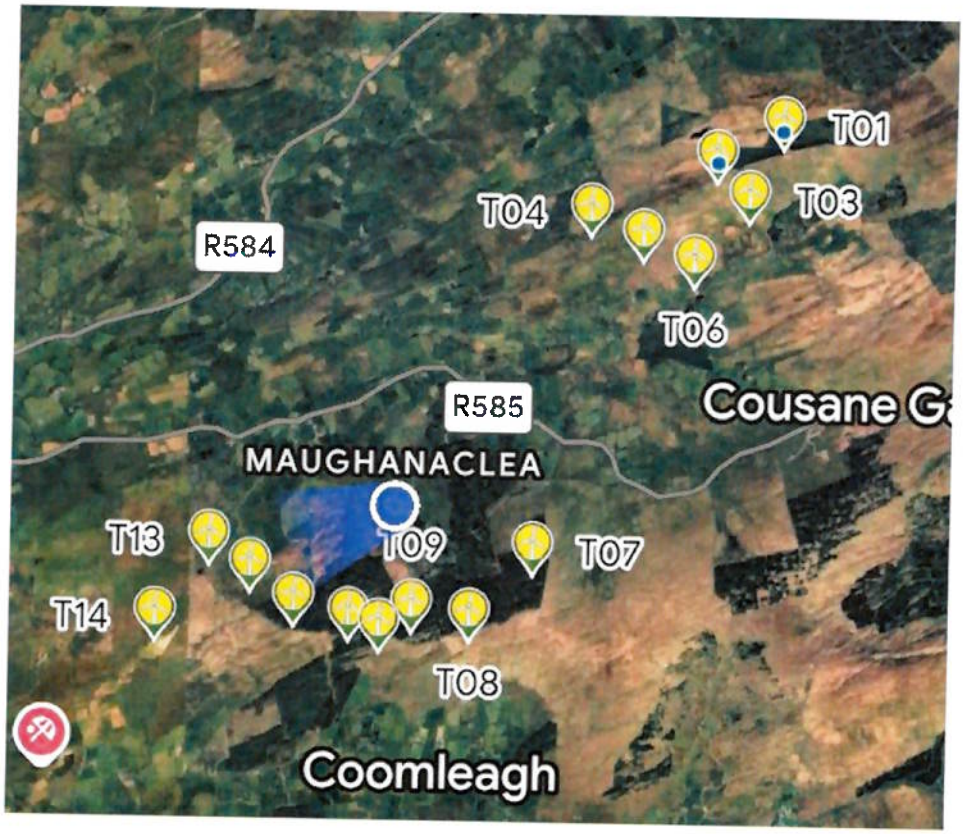
The same issues come up repeatedly across different sections of the EIAR, particularly in how the existing environment is described, how nearby properties are assessed, and how impacts are evaluated.

For the reasons set out in the following sections, it is considered that the proposed development would give rise to significant adverse effects which have not been adequately assessed or mitigated, and that permission should therefore be refused.

The following image is panoramic view from H013. Based on the EIAR layout drawings, multiple turbines (up to five) would be located within this view at distances of approximately 800 metres, illustrating the open landscape and absence of meaningful screening – three further turbines would be visible from the house on the far right slightly out of shot:

This image is a panoramic view from a bedroom window (H013) showing the principal field of view, within which up to seven turbines would be prominently visible, with the nearest located in close proximity (in the order of 800 metres based on EIAR layout drawings), demonstrating the absence of meaningful screening and the extent of direct visual exposure:

Site context map showing the location of the primary residence (H013 – blue marker) in relation to the proposed turbines. The layout illustrates the multi-directional and encircling nature of the development, with turbines located on several sides of the dwelling, including the nearest located in close proximity (in the order of 800 metres based on EIAR layout drawings).



Further images showing peaceful, rural, undeveloped nature of the receiving landscape:

2. SUMMARY OF KEY ISSUES

This section summarises the main concerns I have after reviewing the EIAR and supporting documents.

Many of these issues come up repeatedly across different sections, particularly in how the existing environment is described, how nearby properties are considered, and how impacts are assessed.

- the characterisation of the receiving environment;
- the identification of sensitive receptors; and
- the assessment of likely effects.

The key issues are summarised below.

Noise, Residential Amenity and Human Health

- The noise assessment relies on averaged figures (LA90), which don't reflect how turbine noise is actually experienced in reality, including pulsing and changes in character.
- Predicted increases of around 13–17 dB above a very low baseline represent a major change to the existing environment.
- Despite this, the EIAR concludes the impact is "not significant," which does not match the scale of change being described.
- There is no clear assessment of how this would affect sleep, wellbeing or health, particularly in such a quiet rural location.
- A complaint-based approach is proposed, meaning issues are only addressed after they occur, rather than being avoided.
- No noise monitoring was carried out at my home (H013), with reliance instead placed on another property without clear justification.

Shadow Flicker

- Predicted shadow flicker at my home significantly exceeds recognised thresholds (around 47 hours per year before mitigation).
- Multiple turbines contribute to this, increasing how often and how long it would occur.
- The approach relies on shutting turbines down at certain times, rather than avoiding the issue through design.
- The assessment is based on modelling and does not reflect how the house is actually used day to day.

Hydrology, Private Water Supplies and Agricultural Impact

- There is a direct hydrological connection between the site and my land, with streams flowing from the development area onto my property.
- My private water supplies, including a surface well approximately 450 metres away, have not been properly identified or assessed.
- The assessment relies on incomplete baseline data and incorrect assumptions, including use of the GSI well database.
- The site has peat soils, shallow groundwater and high runoff, which makes it particularly sensitive to disturbance.
- There is no site-specific evidence showing that impacts on water quality or supply can be avoided.
- Compliance with the Water Framework Directive has not been clearly demonstrated.

Ecology and Biodiversity

- The ecological baseline data appears limited and does not reflect how the site is actually used by wildlife.
- Some sensitive species and habitats may have been screened out without sufficient justification.
- Peatland habitats are not properly described or assessed.
- A precautionary approach has not been taken, despite the sensitivity of the upland peatland environment.

Landscape and Visual Impact

- The LVIA relies on a limited number of viewpoints, many of which are constrained and do not reflect typical open views in the area.
- Turbines of around 169 metres would be highly visible and dominant at distances of 800m to 1km.
- The development would introduce a constant and unavoidable visual presence for nearby homes.
- Cumulative landscape impact in West Cork is not properly assessed.

Night-Time Impact and Aviation Lighting

- The area is currently dark with no artificial lighting, which is an important part of its character.
- Aviation lighting would introduce a constant and highly visible artificial presence.
- Due to the design of my house, light intrusion cannot be effectively mitigated.
- The EIAR understates how visible and intrusive this lighting would be in a rural setting.

Planning Framework, EIAR Reliability and Overall Assessment

- The EIAR shows repeated issues, including incomplete baseline data, reliance on modelling, and lack of joined-up assessment between topics.
- It relies heavily on mitigation and post-consent measures rather than avoiding impacts at the design stage.
- A precautionary approach has not been applied.
- It has not been demonstrated, based on clear and reliable evidence, that significant effects can be avoided.
- The distance between my home (H013) and the nearest turbine is not clearly stated across the EIAR.

Consultation and Procedural Issues

- Consultation did not show meaningful engagement or influence on the design of the project.
- Site-specific concerns raised were not addressed.
- The process raises concerns regarding transparency and fairness.

Property Value and Residential Impact

- The assessment relies on general studies that do not reflect the specific conditions of this property.
- The value of the property is closely tied to its quiet and undisturbed setting.
- The combined impacts of noise, visual change and shadow flicker would fundamentally alter those characteristics.

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3. NOISE, SHADOW FLICKER AND RESIDENTIAL AMENITY

INTRODUCTION:

This submission is supported by an independent acoustic review prepared by Dick Bowdler, Acoustic Consultant (1 May 2026), included in the appendices.

That review concludes that the EIAR's finding that noise effects are "not significant" is not supported and is incorrect. It confirms that compliance with guideline limits does not mean that impacts will be acceptable in reality, particularly in very quiet rural environments such as this.

3.1. How Turbine Noise is Assessed

A key issue for me is how turbine noise has been assessed. The EIAR relies on averaged noise levels (LA90), but that doesn't reflect how this type of noise is actually experienced in real life.

Wind turbine noise is not steady. It varies, pulses and changes in character. From living in this area, I know that these types of sounds can become very noticeable, especially at night when everything else is quiet.

When noise is averaged over time, these characteristics are smoothed out. Peaks, fluctuations and periods of increased audibility are effectively removed from the results. As a result, the assessment omits the very aspects of turbine noise that are most noticeable and most likely to disturb people, particularly during quiet night-time periods.

This isn't just a theoretical issue. Recently in the case, *Webster / Rollo v Meenaclogher Wind Ltd (2024 IEHC 136)*, the High Court ruled that noise from a wind farm constitutes a private nuisance due to its significant, frequent, and sustained nature. Justice Emily Egan held that adhering to planning permissions does not preclude a nuisance claim, awarding damages for noise impact and rejecting that compliance makes a noise reasonable.

In this context, it is also relevant that the Health Service Executive has emphasised the need for clear and explicit assessment of human health within EIARs. This requires more than technical compliance and requires an assessment of how identified impacts may affect the health and wellbeing of nearby residents.

Taken together, this means that the methodology used does not provide a reliable representation of the likely real-world noise environment or its effects.

The independent acoustic review also identifies that, while these types of noise (including amplitude modulation and tonal noise) are acknowledged, there is no enforceable mechanism proposed to control them.

Instead, the EIAR relies on a complaint-based approach after the development becomes operational. This does not prevent impacts from occurring and places the burden on residents to demonstrate harm after the fact.

3.2. My Home and Its Use

This submission relates to the likely impacts on:

- My home (H013)
- An adjacent dwelling under my ownership (H019)
- The surrounding land

This is not just a dwelling. It is also my full-time workplace and an active smallholding.

I live and work here full time as a ceramic artist. I chose this location specifically because it is quiet, remote and free from mechanical noise, a core part of how I live and work and is essential to both.

In planning and environmental terms, this constitutes a sensitive receptor due to:

- Permanent residential use
- Use as a workplace
- Dependence on a quiet environment
- The presence of livestock on the surrounding land

3.3. Exceptionally Quiet Baseline Environment, Baseline Noise Monitoring and Receptor Identification

No noise monitoring was carried out at my home (H013).

Monitoring was instead carried out at a neighbouring property (H031), but no explanation is given as to why this represents conditions at my home. This is consistent with a wider pattern within the EIAR of incomplete receptor identification and reliance on proxy or assumed data rather than site specific assessment.

These are distinct locations with different characteristics, including orientation, exposure to turbines, screening and local topography.

In addition, the EIAR contains inconsistencies in the identification of Noise Measurement Location 5 (NML5), with conflicting references to both H031 and H013.

This makes it difficult to rely on the conclusions about noise at my home.

This is a very rural and isolated area with no through roads, very few nearby houses and no existing industrial noise. At night in particular, it is extremely quiet.

The EIAR records background noise levels (at H031) of approximately 26–30 dB at night. This reflects long periods of near silence and that is consistent with my lived experience.

This baseline condition is central to understanding the potential impact. In such environments, even relatively small increases in noise are highly perceptible.

Night-time conditions are especially sensitive, as disturbance during these periods has the greatest potential to interfere with sleep.

Environmental noise is recognised as a public health issue. Guidance from the World Health Organization identifies links between noise exposure and sleep disturbance, stress and wider health effects. However, the EIAR does not clearly translate these recognised effects into a structured, location specific assessment of how the proposed noise environment would affect residents in this very quiet rural setting.

In addition, the EIAR does not clearly identify the separation distance between H013 and the nearest turbines within the noise assessment. This limits the ability to verify the modelling and further reduces confidence in the conclusions presented.

3.4. Scale of Change to the Acoustic Environment

The EIAR predicts turbine noise levels of up to 43 dB at night. Compared to existing levels of approximately 26–30 dB, this represents an increase of around 13–17 dB.

This is a major change, not a minor one:

- A 5 dB increase is clearly noticeable
- A 10 dB increase is commonly perceived as a doubling of loudness

In this setting, turbine noise would not stay in the background, it would become the main sound, especially at night.

The use of averaged data further masks the reality of this change. Very quiet nights, when turbine noise would be most perceptible and most likely to disturb sleep, are blended with noisier conditions, effectively obscuring worst-case scenarios.

This creates a long term exposure scenario involving continuous mechanical noise in an otherwise quiet environment. While the EIAR sets out predicted noise levels, it doesn't clearly explain what this would mean in practice for sleep, stress or day to day living.

The independent acoustic review further highlights that the conclusion of "not significant" is inconsistent with the EIAR's own assessment approach.

The methodology used identifies increases of 5 dB or more as significant. In this case, predicted increases are in the order of 13–17 dB.

On that basis, the effect should properly be considered significant.

3.5. Application of Wind Energy Guidelines

The EIAR relies on the 2006 Wind Energy Guidelines, which allow a fixed night-time limit of 43 dB.

However, the 2019 Draft Wind Energy Guidelines introduce a more sensitive, location-specific approach, whereby turbine noise limits are derived from no more than 5 dB above background levels, together with an absolute range typically between 35 and 43 dB.

If the more recent 2019 draft approach is applied to this location, lower limits would apply because the existing environment is so quiet:

- 31–35 dB at lower wind speeds
- 35–39 dB at higher wind speeds

Predicted turbine noise levels of approximately 37–38 dB would therefore represent increases of 10–15 dB or more above existing conditions and would approach or exceed appropriate limits under the 2019 draft framework, particularly during quieter periods.

In a very quiet rural environment such as this, this represents a substantial change to the acoustic environment rather than a minor change.

The continued reliance on the 2006 Guidelines does not remove the obligation to adequately assess and protect residential amenity and human health, particularly where more recent policy clearly reflects a more precautionary approach.

The independent acoustic review also identifies that the 2006 Guidelines, as applied in the EIAR, allow for significantly higher noise levels than the ETSU approach on which they are said to be based.

In quiet environments such as this, ETSU guidance would typically limit noise to around 35–40 dB. The approach used in the EIAR allows materially higher levels, resulting in a less protective standard for nearby residents.

3.6. Modelling, Assumptions and Uncertainty

The predicted noise levels are based on modelling rather than measurements at my home.

This modelling relies on a number of assumptions, including:

- General ground conditions rather than peat-specific conditions
- Standard propagation models
- A turbine type that has not yet been finalised

This introduces uncertainty, but the EIAR presents the results as if they are precise, without clearly addressing potential variability in real world conditions.

Given the potential impact on people living nearby, this uncertainty should be treated more cautiously. However, this is not reflected in the assessment.

The independent acoustic review also identifies that the turbine noise levels used in the EIAR may be underestimated.

The assessment is based on a sound power level of 104.5 dB. However, turbines of this scale may operate at levels closer to 107 dB.

This represents a difference of approximately 3 dB, which is acoustically significant and represents a doubling of sound energy. This uncertainty is not adequately addressed in the EIAR.

3.7. Local Topography and Sound Behaviour

The landscape around my home consists of hills, slopes and a defined valley.

From living here, I know how sound behaves in this landscape. Sound can:

- Carry over long distances
- Be channelled through the valley
- Reflect off slopes
- Appear to come from multiple directions

These effects are particularly noticeable at night and in still conditions, when sound propagation is most efficient.

The EIAR relies on standard modelling assumptions which do not appear to account for these local effects, including:

- Valley amplification
- Reflection from hillsides
- Interaction between multiple turbines located around the dwelling.

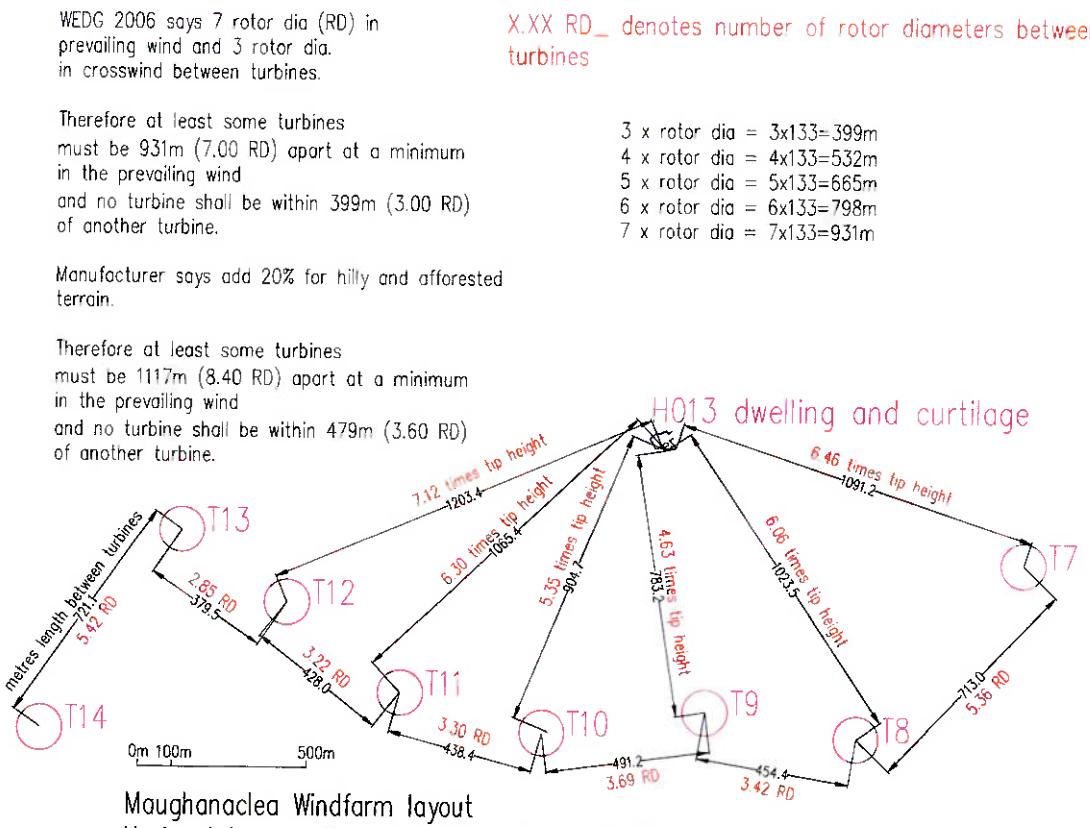
Given that turbines are proposed on multiple sides of the landscape, there is a real possibility of overlapping and interacting noise sources which may increase audibility and intrusion.

There is no clear evidence that this has been specifically assessed.

A review of the turbine layout also indicates that several turbine groupings appear relatively closely spaced when expressed as multiples of rotor diameter, including separations of approximately 3–4 rotor diameters in some locations (see attached turbine spacing map).

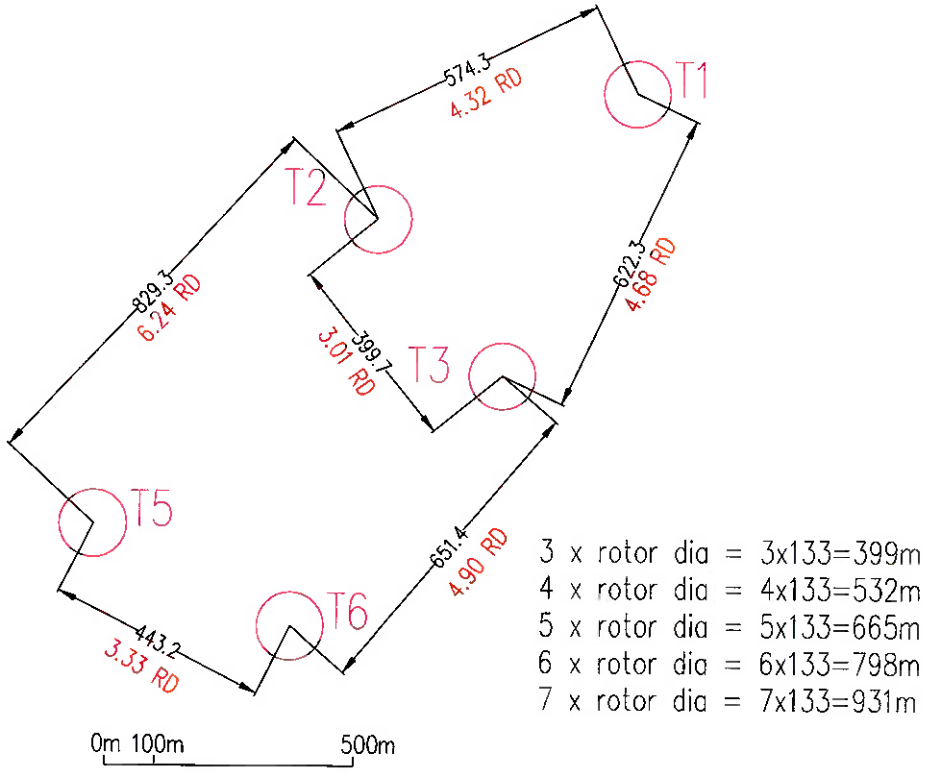
While the EIAR states that turbine layout optimisation considered wake and turbulence effects, the application documentation reviewed does not clearly explain the operational assumptions, wake modelling criteria or prevailing wind assumptions used to justify these spacings.

In the context of a dominant south-westerly wind regime and the valley landscape setting surrounding H013, this raises concern that the operational acoustic environment may be materially more complex than suggested by standardised modelling outputs alone, particularly where multiple turbines may operate within aligned wind flow conditions.



Maughanaclea Windfarm layout
Horizontal separation distances between turbines

Map 1

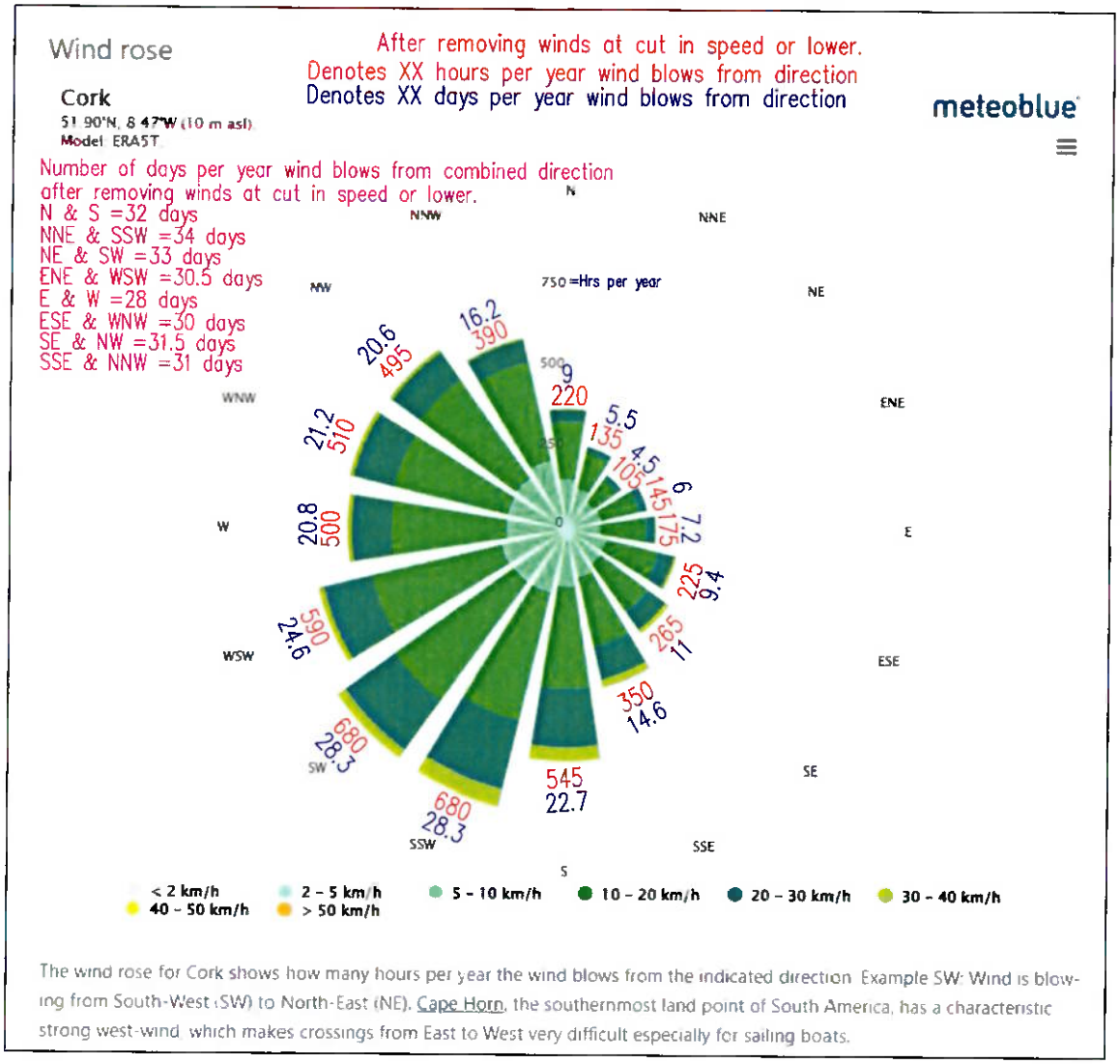


Maughanaclea Windfarm layout
Horizontal separation distances between turbines

Map 2

A prevailing wind rose for County Cork indicates that south-westerly and westerly wind directions occur frequently throughout the year (see attached wind rose).

In the context of the proposed layout, this broadly aligns operational wind flow from the southern turbine cluster (including T08–T14) toward H013. While standardised noise modelling has been undertaken, the EIAR does not clearly explain how the interaction between prevailing wind direction, turbine clustering and local valley topography has been assessed in relation to real-world sound propagation conditions at nearby dwellings.



The wind rose for Cork shows how many hours per year the wind blows from the indicated direction. Example SW: Wind is blowing from South-West (SW) to North-East (NE). Cape Horn, the southernmost land point of South America, has a characteristic strong west-wind which makes crossings from East to West very difficult especially for sailing boats.

3.8. Noise Mapping Limitations

The noise contour maps presented in the EIAR are generalised and smoothed.

They do not:

- Reflect conditions at individual dwellings
- Account for varying meteorological conditions
- Reflect very low background noise environments

Because of this, they don't provide a reliable picture of what noise would actually be like at my home.

3.9. Construction Noise Impacts

The construction phase would involve prolonged and intensive noise-generating activities over a period of up to two years, including rock breaking, excavation, heavy machinery and vehicle movements.

Rock breaking in particular produces loud, sudden and unpredictable noise, which is fundamentally different from background environmental noise.

As I live and work on site full time, I would be exposed to this on a daily basis. This would directly affect my ability to live and work here.

These impacts must also be considered alongside operational noise, as part of the overall effect of the development.

3.10. Impact on Livestock (Including Emus and Rheas)

I actively use the land for livestock breeding, including goats, sheep and ratites (emus and rheas).

These are not typical farm animals. They are large, sensitive birds known to react strongly to sudden, unfamiliar or irregular noise.

From experience:

- They can panic easily when startled
- Panic can lead to injury, collisions and escape
- Repeated disturbance can cause stress and affect feeding and breeding

Disturbance during breeding periods may result in reduced fertility, abandoned eggs or failure to rear young.

Despite this:

- The EIAR contains no species-specific assessment
- There are no mitigation measures addressing animal welfare
- Construction noise limits are based solely on human receptors

In this case, the most sensitive receptors may be the animals themselves, which are located closer to the proposed works.

This represents a clear gap in the assessment.

3.11. Human Health Impacts

The assessment focuses primarily on compliance with numerical limits but does not provide a clear or integrated evaluation of likely effects on human health.

Long term exposure to noise like this is known to contribute to:

- Sleep disturbance
- Stress
- Annoyance
- Reduced wellbeing

These effects arise from long-term and repeated exposure, particularly in quiet environments where changes are more perceptible.

The EIAR does not clearly explain how this would affect people living here.

Given the number of homes in the area, this is not only an individual issue but a wider community level concern.

3.12. Complaint-Based Approach

The EIAR proposes a complaint based system for addressing noise impacts after the development becomes operational.

This is not an adequate safeguard in practice. It places the burden on residents to identify and demonstrate impacts after they have occurred, rather than ensuring that those impacts are properly assessed and avoided in advance.

3.13. Lack of Site Specific Engagement

Despite the proximity of the development to my home and land, there has been no direct engagement with me regarding:

- How the property is used
- The nature of my work
- The presence and sensitivity of livestock

This reinforces the conclusion that the assessment is not sufficiently site specific.

3.14. Shadow Flicker

Shadow flicker is a separate but closely related issue in terms of its impact on residential amenity and wellbeing.

The EIAR confirms that my home (H013) is predicted to experience approximately 47 hours and 41 minutes of shadow flicker per year, even after adjustment for regional sunshine levels. This significantly exceeds the commonly referenced guideline threshold of 30 hours per year and represents a substantial exceedance rather than a marginal one.

The effect arises from multiple turbines (T08, T09, T10 and T11), meaning that shadow flicker is likely to occur repeatedly and from different directions.

The proposed approach is not to avoid the impact through design, but to manage it by shutting down turbines at certain times. Even with this mitigation, the EIAR acknowledges that shadow flicker may still occur for up to 30 minutes per day.

This would be a regular and intrusive effect within the home. Repetitive changes in light and shadow are difficult to ignore and can be particularly disruptive.

This impact is especially significant in my case because I work from home in a room facing towards the turbines. As my working hours are not fixed and often extend into early mornings, evenings and low-light conditions, there is no predictable period during which the impact can be avoided.

The proposed mitigation assumes a standard pattern of occupancy, which does not reflect the actual use of the dwelling.

The assessment is based entirely on modelling and assumptions, including 360-degree exposure, no screening and reliance on regional sunshine data. There has been no site-specific verification of how shadow flicker would actually occur at my home, introducing further uncertainty.

Shadow flicker is recognised as a source of annoyance and disturbance, particularly where it occurs repeatedly. While it may not give rise to direct physical health effects, it can constitute a nuisance and may affect wellbeing.

Where turbine operation must be restricted to achieve compliance, this indicates that shadow flicker has not been avoided through design but is instead being managed after it has been created.

The reliance on a system which allows for up to 30 minutes of shadow flicker per day represents an acceptance of the impact rather than its avoidance. This approach is also out of step with the 2019 Draft Guidelines, which place increasing emphasis on avoidance at sensitive receptors.

The EIAR also relies on a complaint based approach, placing the burden on residents to identify and demonstrate impacts within their own homes.

The assessment does not adequately consider:

- The layout and use of the dwelling
- The orientation of key living and working spaces
- The way shadow flicker would actually be experienced

Given the scale of the exceedance, the reliance on modelling, the dependence on turbine shutdown and the lack of site-specific assessment, there is a real and credible risk of significant effects on residential amenity and wellbeing.

3.15. Overall Conclusion

This is my home, my workplace and an active smallholding.

The level of change proposed is fundamental and would permanently alter the acoustic and environmental character of this place.

The EIAR does not bring these impacts together in a way that reflects how they would actually be experienced:

- Residential amenity
- Human health
- Livelihood
- Animal welfare

Across both noise and shadow flicker, the assessment:

- Relies on averaged or modelled data that does not reflect real-world experience
- Does not adequately account for the very low baseline environment
- Underestimates the scale and nature of change
- Relies on assumptions and contains unacknowledged uncertainty
- Applies outdated guidance
- Fails to adopt a precautionary approach

As recognised in *Webster / Rollo v Meenaclogher Wind Ltd*, compliance with numerical limits does not ensure that impacts will be acceptable in reality.

In this case, there is a clear and evidence-based risk of significant adverse effects, including:

- Sleep disturbance
- Chronic annoyance
- Stress and reduced wellbeing
- Loss of residential amenity
- Impacts on livelihood and animal welfare

These effects arise from the combination of:

- Continuous turbine noise
- A very quiet receiving environment
- Complex local topography
- Prolonged construction activity
- Repeated shadow flicker exposure

When all these impacts are taken together, this represents a cumulative and ongoing impact which has not been adequately assessed.

In these circumstances, the proposed development would give rise to significant adverse effects on residential amenity and human health and should not be permitted.

NOISE APPENDICES

Maughanaclea Wind Farm - Distances to House

House Coordinates (ITM): E 509235 / N 556136
Table sorted by nearest turbine to the house.

Turbine	ITM Easting	ITM Northing	Height (m)	Nearest Turbine	Nearest Distance (m)	Distance to House (m)	Distance to House (km)
T9	509359	555344	316	T8	454.4	801.6	0.8
T10	508872	555280	300	T11	438.4	929.8	0.93
T8	509807	555268	376	T9	454.4	1039.5	1.04
T11	508449	555395	290	T12	427.9	1080.2	1.08
T7	510300	555783	348	T8	712.9	1122.0	1.12
T12	508113	555660	246	T13	379.4	1218.8	1.22
T13	507799	555873	232	T12	379.4	1459.9	1.46
T14	507383	555284	224	T13	721.1	2038.6	2.04
T4	510753	558366	212	T5	445.4	2697.6	2.7
T5	511153	558170	276	T6	443.2	2795.7	2.8
T6	511548	557969	220	T5	443.2	2951.2	2.95
T3	511969	558466	258	T2	399.7	3592.2	3.59
T2	511718	558777	290	T3	399.7	3624.9	3.62
T1	512234	559029	308	T2	574.2	4166.9	4.17

The proposed turbines have a rotor diameter of 133m and a blade tip height of 169m. Section 4.4.1.1.1 of the EIAR states that the turbine layout was optimised using WindPro software "while maintaining sufficient distances between the proposed turbines to ensure turbulence and wake effects do not compromise turbine performance."

However, several turbine separations appear relatively limited when expressed as multiples of rotor diameter, including turbine pairs spaced at approximately 2.8D–3.4 rotor diameters apart in some locations.

The EIAR documentation reviewed does not clearly disclose:

- the prevailing wind assumptions adopted;
- the wake modelling methodology;
- the operational turbulence criteria applied; or
- the basis upon which these turbine separation distances were determined to be acceptable.

Appendix 12-3 (Noise Modelling Parameters) also states that "No meteorological corrections were applied to all calculations."

In the absence of transparent disclosure of the wind resource assumptions and wake modelling methodology underpinning the layout design, it is difficult to fully assess whether the proposed turbine spacing has been adequately justified from a noise and residential amenity perspective, particularly if the site experiences a dominant south-westerly wind regime typical of exposed upland areas in West Cork.

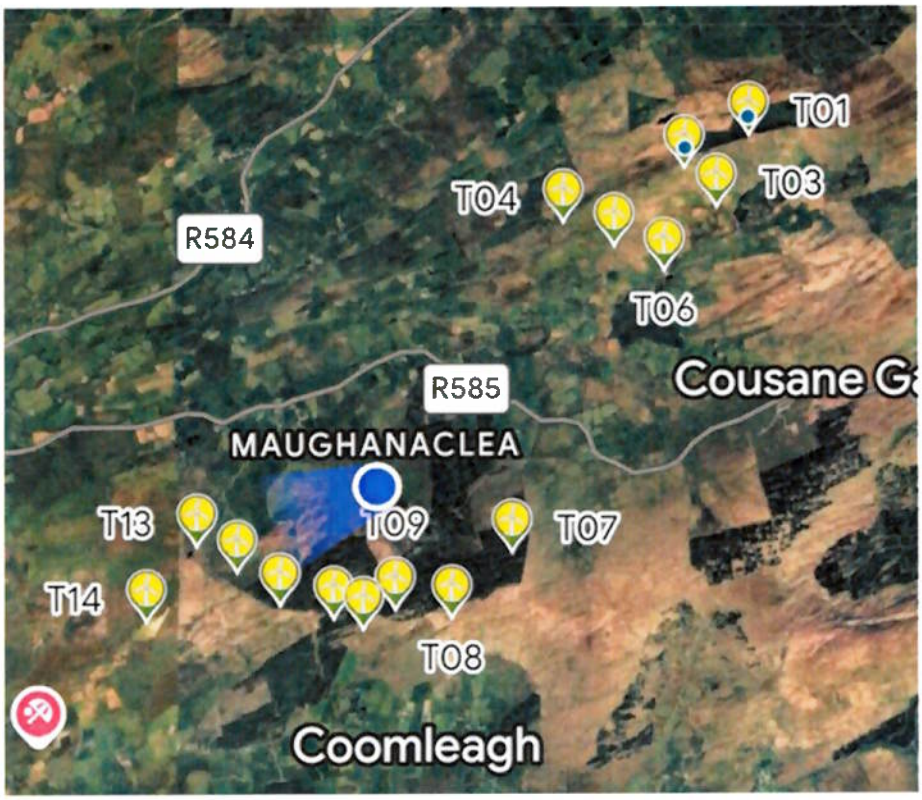
The prevailing south-westerly wind direction typical of upland West Cork would broadly align from the T08–T14 cluster toward the house, potentially increasing the likelihood of direct noise propagation under certain conditions.

Several of the nearest turbines are also positioned within the same broad valley landscape setting as the house. Combined with the close clustering of turbines in the southern portion of the site, this raises concern that the operational noise environment may be materially more complex than suggested by standardised modelling outputs alone.

While the EIAR states that wake and turbulence effects have been considered within the turbine layout optimisation process, the basis for concluding that these relatively close turbine spacings are acceptable has not been clearly explained within the application documentation reviewed.

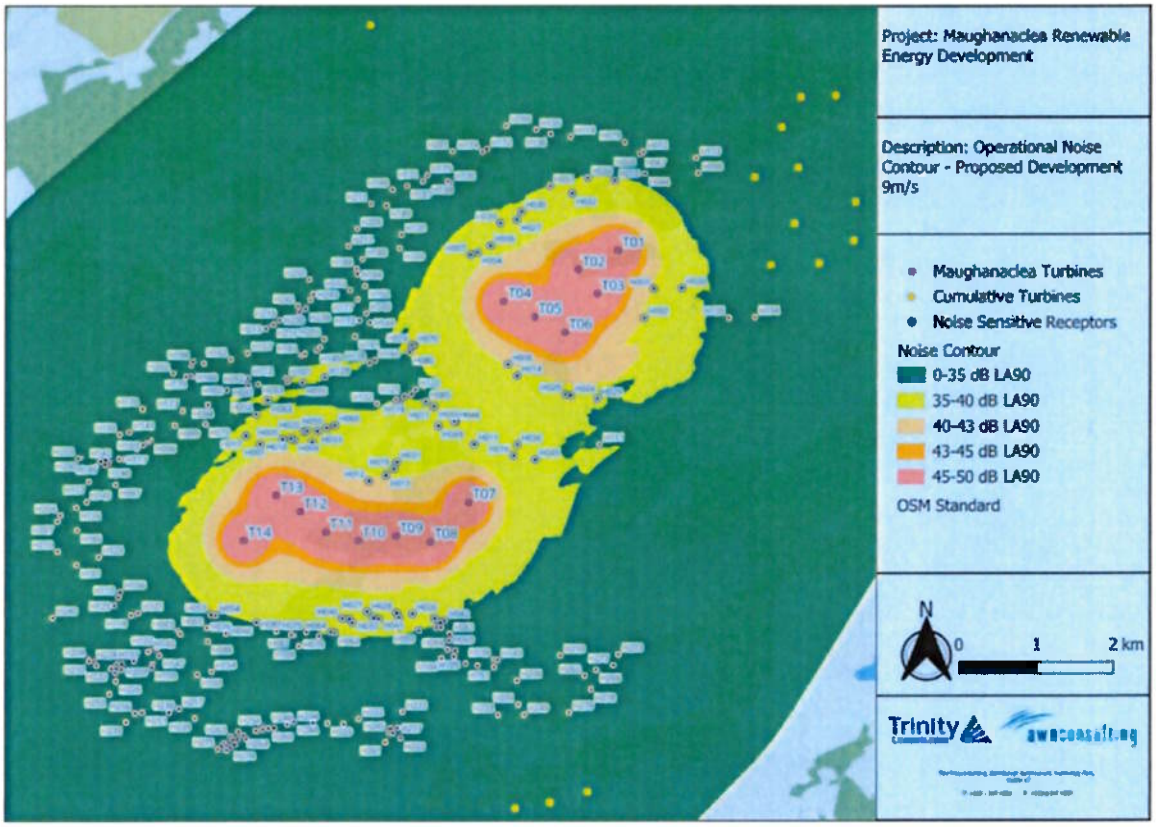
Noise – Site Context and Proximity

- My primary residence (H013) is identified by the blue marker.
- The layout of turbines shows the encircling nature of the development, with multiple turbines positioned in different directions relative to the dwelling.
- Prevailing wind direction is typically from T08 to T14 toward the house, increasing the likelihood of direct noise propagation.
- There is also potential for sound reflection and propagation across the valley from turbines T01–T06.
- A second dwelling under my ownership (H019) is located approximately 120 metres east of H013



Noise Mapping Context

- The noise contour mapping places H013 at the threshold of the higher impact (orange) zone.
- This represents a transition from an extremely low baseline noise environment to one of the more affected receptor locations within the study area.



Photographic Context

- The images show:
    - The isolation of both dwellings (H013 and H019)
    - The absence of roads, traffic or neighbouring noise sources
    - The surrounding land used for livestock, which depends on a quiet and stable environment

These images illustrate the existing baseline conditions, which are central to understanding the magnitude of change proposed.

4. HYDROLOGY

INTRODUCTION

I have reviewed Chapter 9 of the EIAR (Hydrology and Hydrogeology), together with the associated appendices.

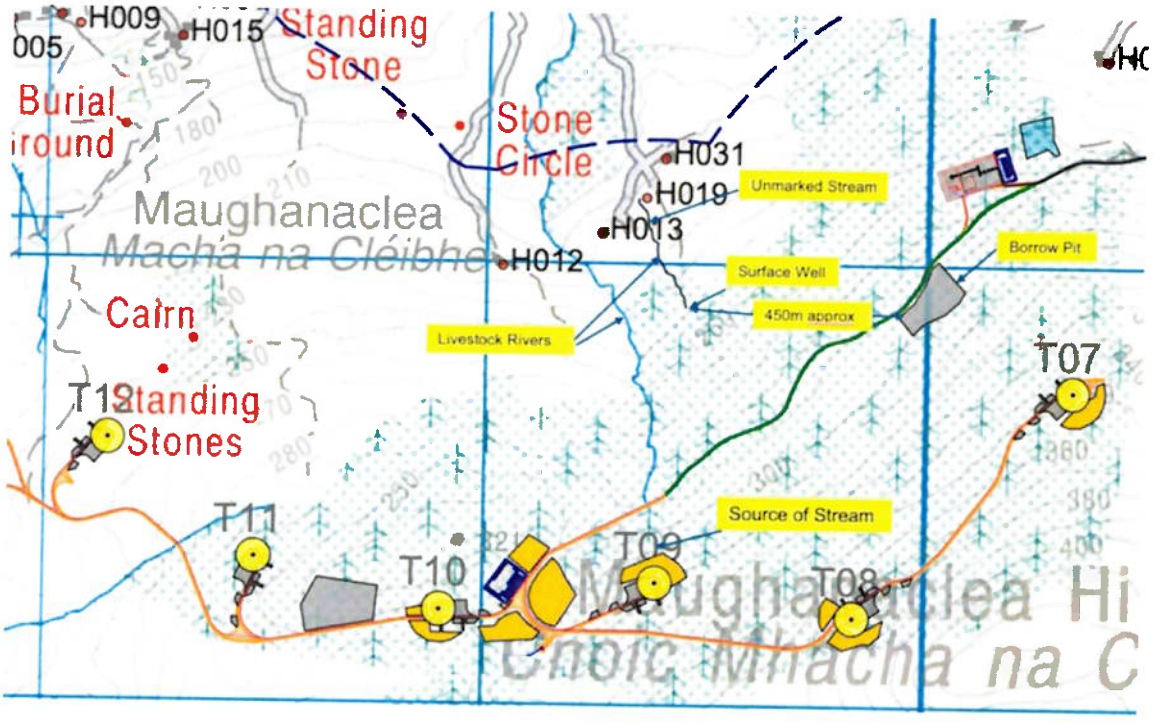
I have also considered the related information in Chapter 8 (Land, Soils and Geology) and the Non-Technical Summary.

I am concerned that it understates the potential impact of the development on water flowing through my land, my private water supplies, and how I use that water:

- Surface water flowing through my land
- My private water supplies
- The agricultural use of these watercourses

The same issue comes up repeatedly - connections are acknowledged, but their actual implications are played down.

This diagram illustrates the direct hydrological connection between the proposed development area (including borrow pit and turbine infrastructure) and the land associated with H013. Surface water originates within the development site and flows downslope via established stream pathways through the land, where it is used for livestock and is hydrologically connected to a private surface well located approximately 450 metres from the proposed excavation area. This means there is a direct connection between the site, the streams, and my land.



4.1. Existing Situation – Direct Hydrological Connection

Two streams originate within the footprint of the proposed development, including areas of:

- Proposed turbines
- Construction roads

These streams flow directly through my land.

In simple terms, water from the site flows directly onto my land through these streams.

My land is located directly downhill from the proposed development area. The site is therefore hydraulically upstream, with established surface flow pathways connecting construction areas to my property. Any change in water quality, sediment load or flow regime arising within the development area will be conveyed downstream onto my land.

This means anything that happens on the site, including sediment, pollution, or changes in flow, will be carried onto my land.

4.2. Use of Streams Within My Landholding

I actively use these streams as part of my smallholding.

They are an important and regular water source for my livestock, so any change in quality or flow would have a direct impact on the farm.

Any change in water quality or flow has immediate and practical consequences for the operation of the farm.

4.3. Proximity of Private Water Supplies

I rely on the following water supply:

- A surface well approximately 450 metres from a proposed borrow pit (based on measurement from EIAR layout drawings using mapping tools)
- A deep borehole approximately 700 metres from the same area

These are located within the same hydrological setting as the proposed works, in an area characterised by peat soils, shallow groundwater movement and a poorly productive aquifer.

The EIAR states that no private wells are mapped within 5km of the site and assumes a minimum separation distance of greater than 580m between potential wells and development infrastructure.

This does not reflect the actual conditions on the ground.

A private surface well exists at approximately 450m from a proposed borrow pit and has not been identified, mapped or assessed in the EIAR. Reliance on the GSI well database, which is known to be incomplete and assumptions that wells are located adjacent to properties, has resulted in an inaccurate baseline.

This shows that the data used in the assessment is incomplete and does not reflect what is actually there. As a result, the conclusions drawn in relation to separation distances and potential impacts on private water supplies are not robust.

It also indicates a failure to comply with HSE guidance requiring the identification of private water supplies in the vicinity of a development.

4.4. Surface Well – Sensitivity to Change

Surface wells like this are particularly vulnerable because they depend directly on local rainfall and shallow water movement.

Disturbance to these systems, including excavation, drainage works or peat disturbance, has the potential to affect both water quality and reliability.

Surface wells of this type are particularly vulnerable, as they are directly influenced by:

- Surface runoff
- Shallow subsurface flow
- Changes in local drainage patterns

At approximately 450 metres, and with a direct hydrological connection via streams originating within the development site, it has not been shown that this water supply will not be affected.

4.5. Deep Borehole – Not Isolated from Impact

The EIAR presents the deep borehole as if it is protected from impact, but this is not clearly demonstrated.

However, the EIAR describes the bedrock as a poorly productive aquifer, meaning:

- Water supply depends on limited fracture pathways
- Recharge depends on overlying soils and peat

In such systems, groundwater behaviour is closely linked to surface conditions.

Changes at surface level, including excavation and drainage, have the potential to influence recharge and groundwater movement over considerable distances. At approximately 700 metres from excavation works, no site-specific evidence is provided to demonstrate that this borehole is not hydraulically connected.

4.6. Borrow Pits and Construction Activities

The proposed development includes borrow pits and extensive excavation works involving:

- Removal of peat and subsoil
- Alteration of drainage patterns
- Exposure of underlying materials

These activities represent a significant disturbance of the hydrological system.

Borrow pits can act like artificial drains, intercepting and redirecting groundwater.

The EIAR acknowledges excavations of up to 3.5–8m depth, but concludes that no significant effects on private wells will arise based on assumed separation distances and generalised hydrogeological conditions.

Given the presence of a confirmed private well at a closer distance than assumed, this conclusion is not supported by the actual site conditions.

4.7. Peat Depth and Hydrological Function

The EIAR places emphasis on "thin peat", however the underlying data shows that peat depths across the site range from 0m to 4.5m, with localised areas exceeding 2m, and peat at turbine locations reaching up to 2.1m. Several turbines are therefore located on moderate to deep peat, including T07, T09, T11 and T02.

Even peat depths of 1–2 metres represent an actively functioning peatland system. Peat plays a key role in storing and moving water through the landscape..

The EIAR confirms that approximately 87% of rainfall becomes surface runoff,

Disturbance of peat through excavation, drainage and construction activities will therefore alter:

- Flow pathways
- Flow volumes
- Sediment transport

These effects are a natural part of how water behaves in peatland areas.

In peat-dominated catchments, disturbance can result in sediment mobilisation and transport over considerable distances, particularly during rainfall events.

4.8. Downstream Risk via Surface Water

Because the streams originate within the development site and flow through my land, any upstream impact will be conveyed downstream.

This includes:

- Sediment from disturbed peat and soils
- Potential contamination from construction activities
- Changes in flow patterns

The pathway is direct and established. In these conditions, the risk impact downstream are very likely.

4.9. Construction Phase – Highest Risk Period

The construction phase presents the highest risk, as it involves:

- Ground disturbance
- Drainage alteration
- Increased sediment mobilisation

In peatland environments, this can result in pulses of sediment and organic material entering watercourses, particularly during heavy rainfall.

There is no detailed assessment of how this would be managed under real conditions, particularly during heavy rainfall.

4.10. Livestock and Agricultural Impact

The use of these streams by livestock is not meaningfully addressed in the EIAR.

Any deterioration in water quality may result in:

- Livestock refusing to drink
- Adverse health impacts
- Requirement for alternative water supply

This would directly affect how I use the land and manage livestock..

4.11. General Approach – Reliance on Mitigation

The EIAR relies heavily on mitigation measures such as:

- Silt traps
- Drainage controls
- Good construction practice

These measures are not fail-safe and depend on proper maintenance and conditions on the ground.

There is no assessment of the consequences in the event that these measures do not perform as intended.

4.12. Lack of Site-Specific Assessment

There is no evidence that:

- Detailed hydrogeological modelling
- Assessment of connectivity between the site and my wells
- Evaluation of downstream impacts specific to my land

My water supplies have not been surveyed or assessed in terms of source, recharge area or pathway.

Instead, the assessment relies on general assumptions, including assumed well locations and separation distances, which are demonstrably inaccurate.

As a result, the EIAR does not provide a clear understanding of the hydrological system in this area.

4.13. Non-Technical Summary

The Non-Technical Summary presents hydrological impacts as controlled and not significant, relying on standard mitigation.

This does not reflect what is actually happening on the ground. There is a direct hydrological connection between the development and my land, and my private water supplies are located within the same system.

The simplified conclusions are not supported by a detailed, site-specific assessment.

4.14. Water Framework Directive

The proposed development must be assessed in the context of the EU Water Framework Directive (2000/60/EC), which requires that there be no deterioration in the status of surface water or groundwater bodies.

The Court of Justice of the European Union confirmed in the Weser Case that consent must be refused where a project may cause deterioration, even at a local level.

In this case, there is a direct hydrological connection between the development site and streams flowing through my land, together with private water supplies within the same system.

Despite this, no site-specific assessment has been provided demonstrating that deterioration can be avoided. The EIAR instead relies on general mitigation measures without evidence of effectiveness under real conditions.

Without this evidence, it has not been shown that the development complies with the Directive.

4.15. Intact Bog Habitat at T14 (Lough Naibiree / Ardrah Bog)

Further information indicates that the area around T14 and its access road includes an intact bog system associated with Lough Naibiree (Ardrah Bog).

This area supports typical bog vegetation including sphagnum moss, bog asphodel, devil's-bit scabious, bog myrtle, sundew, butterwort, bog bean and cross-leaved

heath. These species indicate a hydrology-dependent peatland system requiring stable, waterlogged conditions.

The access road to T14 would cross this bog. Construction in such areas typically involves peat disturbance, drainage installation and alteration of natural water flow patterns.

Such changes can result in drying of peat, degradation of vegetation and long-term habitat damage extending beyond the footprint of the works due to altered hydrology.

The EIAR does not identify or assess this as a distinct sensitive habitat and does not provide a site-specific evaluation of the hydrological impacts. This is a significant omission in the assessment.

Lough Naibree:

From Lough Naibree towards the proposed road from forestry:

4.16. Conclusion

In practical terms, the situation is clear:

- Two streams originate within the development site and flow directly through my land
- These streams are used for livestock
- My private water supplies are located 450m and 700m from excavation areas
- The site is characterised by peat soils and shallow groundwater systems
- A private surface well exists at a closer distance than assessed and has not been identified or evaluated

While elements of this are acknowledged in the EIAR, their combined effect has not been properly assessed.

The development introduces a clear risk to:

- Surface water flowing through my land
- Private water supplies
- Agricultural use of the land

There are documented cases of peatland wind farm developments where disturbance of peat and drainage has led to downstream water quality impacts, particularly during construction.

In this case, the presence of a private surface well at approximately 450 metres, within a hydrologically connected peat catchment, has not been identified or assessed. The assessment instead relies on incorrect assumptions and incomplete data.

Given the direct hydrological connection, the proximity of sensitive receptors, and the absence of a site-specific assessment, the EIAR has not demonstrated on an evidential basis that significant adverse effects can be avoided.

Accordingly, the conclusions of the EIAR in relation to hydrology and private water supplies cannot be relied upon as a robust assessment.

5. ECOLOGY AND BIODIVERSITY

INTRODUCTION

This section addresses the ecological and biodiversity aspects of the proposed development.

Hydrological matters have been addressed separately in Section 4. This section therefore focuses specifically on ecological receptors, habitats and species.

From reviewing the EIAR, I do not believe it fully reflects the ecological value of the site or how it is actually used by wildlife.

Detailed technical concerns in relation to ornithology and biodiversity are addressed in the submission by Sean Worboys, which I support.

5.1. Baseline Data and Characterisation

A key issue is that the baseline data appears limited and does not reflect what is actually present on the ground.

Some sensitive species and habitats do not appear to have been fully identified. As a result, the baseline presented does not fully reflect the ecological value of the site or the way in which it is used by wildlife.

From what I have observed living here, the site is actively used by wildlife and does not match the description of "limited ecological value" in the EIAR, particularly the area around Loch Naibree as described in section 4.15. The presence of active habitats, together with the role of streams and surrounding vegetation as movement corridors, indicates a more important ecological environment than is described in the EIAR.

5.2. Hydrological Connectivity and Peatland Context

The site is located within a peatland environment, which is sensitive and ecologically important.

Peatland systems support specialised vegetation and play a critical role in biodiversity, carbon storage and wider ecosystem function. These habitats depend on stable ground and water conditions and are particularly vulnerable to disturbance.

Excavation, drainage and construction activities have the potential to result in drying of peat, degradation of vegetation communities and long-term habitat damage. Despite this, the EIAR does not clearly describe or assess the ecological importance of these peatland areas.

5.3. Ecological and Ornithological Assessment

The same concerns apply to ecology and birdlife. The EIAR relies on limited survey data and the screening out of species, which does not reflect the likely level of activity within the site, particularly for wide-ranging species such as raptors.

From my own observations, species such as White-tailed Sea Eagles and red squirrels are present in and around the site. While these observations are not presented as a substitute for formal survey data, they reinforce concerns that the baseline assessment may not fully capture actual site usage.

Without a more detailed and precautionary assessment, impacts on protected and sensitive species cannot be ruled out.

5.4. Habitat Fragmentation and Disturbance

The proposed development would introduce turbines, roads and infrastructure into a largely undeveloped upland area.

This has the potential to fragment existing habitats, disrupt movement corridors and displace species from established areas. In peatland and upland environments, where habitats are limited and slow to recover, in these environments, these effects can be particularly significant.

The EIAR does not provide a sufficiently detailed or site-specific assessment of how these impacts would arise or how they would affect ecological receptors in practice.

5.5. Lack of Precautionary Approach

The assessment relies on screening assumptions, limited baseline data and mitigation measures rather than a precautionary assessment of risk.

Given the sensitivity of the receiving environment, a more precautionary approach is required, particularly in relation to protected species, peatland habitats and ecological connectivity. This approach is not evident in the EIAR.

5.6. Conclusion

Looking at all of this together, the EIAR does not show, based on clear evidence, that significant ecological impacts can be ruled out.

The assessment relies on incomplete baseline data, screening assumptions and mitigation measures rather than robust, site-specific analysis. In the context of a sensitive peatland environment, this approach is not sufficient.

As a result, there remains a clear and credible risk of significant adverse effects on biodiversity.

6. LANDSCAPE AND VISUAL IMPACT

INTRODUCTION

This section addresses the landscape and visual impacts of the proposed development, with particular regard to its effect on the receiving environment, residential amenity and the wider landscape context.

Having reviewed the Landscape and Visual Impact Assessment (LVIA) and associated photomontages, I do not believe they reflect how the development would actually be experienced in this landscape.

I also support the more detailed points made in Sean Worboy's submission in relation to landscape and visual impact.

6.1. Limitations of Photomontages and Viewpoint Selection

A key issue is how the photomontages and viewpoints have been selected.

Many of the selected viewpoints:

- incorporate foreground screening such as trees, vegetation or localised landform;
- are positioned in locations where visibility is reduced; and
- present turbines as partial or filtered views.

This does not reflect how the landscape is actually experienced on the ground.

Even where only part of a turbine is visible, the movement of the blades remains highly perceptible and continues to draw the eye. Even where part of a turbine is screened, the movement of the blades still draws attention.

In addition, there are extensive areas within the surrounding landscape—particularly along the R585 Scenic Route - where the landform opens up significantly beyond the chosen viewpoints. Small changes in position result in substantially more exposed and representative views, from which turbines would be clearly visible and visually dominant. These more open and typical views are not properly represented in the LVIA.

Specific Example – Viewpoint VP16 (H019 / H013 context)

The limitations of the LVIA are clearly illustrated by the treatment of Viewpoint VP16, which relates directly to a dwelling under my ownership (**H019**), located in close proximity to my primary residence (H013).

Both properties form part of a single residential and landholding unit and represent sensitive receptors with a high degree of visual exposure to the proposed development.

The photomontage understates the extent of visual impact.

In particular:

- The turbine (including T10 at approximately 1.0 km) is partially obscured by foreground vegetation, reducing its apparent scale and visual prominence;
- The dwelling (H019) is visually minimised within the composition, despite being a primary receptor; and
- The viewpoint framing does not reflect the open and unobstructed views available from both H019 and the adjacent primary residence (H013).

This does not accurately represent how the development would actually appear from these properties.

In reality, a significantly greater proportion of the field of view—approximately 44%—would contain turbines. This represents one of the highest levels of visual exposure within the study area and applies not only to H019 but also to the immediate setting of H013, which lies within the same visual envelope.

The use of partial screening and selective framing within VP16 therefore results in a material underestimation of both the scale and significance of visual effects at this location.

Given that this viewpoint relates directly to occupied residential properties, the failure to accurately represent visibility is particularly significant and undermines the reliability of the LVIA conclusions.

6.2. Residential Visual Impact

The area around my home is by open, with wide views and little screening.

As a result, turbines of approximately 169 metres in height would be clearly visible from both inside and outside the house.

At distances of approximately 800 metres to just over 1 kilometre, based on EIAR layout drawings:

- the turbines would appear large and difficult to ignore;
- they would occupy a central position within the main field of view; and
- they would not read as distant or background features.

From within the house, particularly from the main living areas, the turbines would be directly visible on a daily basis.

This is not a transient or occasional view – it would be part of my daily life. It represents a constant visual presence.

The movement of turbine blades would constantly draw the eye.

Externally, the current sense of openness and rural character would be significantly altered. The introduction of multiple large-scale moving structures across a wide arc of the skyline would fundamentally change how the property and surrounding landscape are experienced.

6.3. Proximity and Scale

The scale of the proposed turbines is a key issue.

At approximately 169 metres in height, these structures represent a substantial increase in scale compared to both the existing landscape and earlier wind energy developments in the area.

At the distances proposed, in practice, there is no meaningful way to reduce their visibility:

- there is no reliable or consistent screening;
- the turbines are too large to be absorbed into the landscape;
- visibility would persist in most weather and light conditions.

As a result, the visual impact would be both significant and unavoidable.

6.4. Cumulative Landscape Impact

The proposed development must also be considered within the wider context of wind energy development in West Cork.

There are already a number of wind farms in the wider West Cork area. These developments are visible across a number of upland areas and ridgelines.

When viewed cumulatively:

- turbines are already a noticeable feature within the landscape;
- the character of the rural landscape is being altered; and
- the addition of further turbines contributes to an increasing spread across the skyline.

The proposed development would add significantly to that change.

A continuous pattern of turbines across the hills, further eroding the distinctiveness and character of the landscape.

This cumulative effect is not adequately represented in the LVIA.

6.5 Functional Landscape and Ecology

These upland areas are important not just visually, but also for wildlife..

These areas provide:

- feeding grounds;
- movement corridors; and
- habitat for bird species and other wildlife.

The introduction of large-scale infrastructure in these locations has implications not only for visual character but also for ecological function.

This is not properly addressed in the EIAR.

6.6. Conclusion

The LVIA does not reflect how the development would actually be seen and experienced.

It relies on constrained viewpoints, under-represents open and exposed views, and does not adequately reflect the influence of turbine scale, movement or proximity.

In reality, the development would:

- introduce very large and highly visible structures close to homes;
- These effects would be continuous and long-term.; and
- contribute to an increasing cumulative presence of turbines across the wider area.

In this context, the proposed development would give rise to a significant adverse impact on both residential amenity and landscape character.

7. NIGHT-TIME VISUAL IMPACT AND AVIATION LIGHTING

INTRODUCTION

This section addresses the night-time and low-light visual impacts associated with aviation warning lighting on the proposed turbines.

It considers the effects on residential amenity, rural character, cumulative landscape impact and consistency with the Cork County Development Plan.

As with the daytime landscape assessment, the EIAR acknowledges the presence of aviation lighting but does not adequately assess its likely visibility or impact in the receiving environment.

7.1. Existing Night-Time Environment (Baseline Conditions)

At night here, it is completely dark. There are no streetlights and no significant sources of artificial light.There is:

- no public or street lighting;
- no significant light sources in the surrounding landscape; and
- a naturally dark night-time environment.

At night, the hills and skyline remain unlit, contributing to a strong sense of remoteness and rural character.

This natural darkness is a defining part of the area.

7.2. Evidence of Long-Distance Visibility

The application itself shows that aviation lights on turbines can be seen over long distances.

In particular, red aviation lights are clearly visible at a distance of approximately 13 kilometres during twilight conditions, prior to full darkness.

This shows that:

- aviation lighting is highly visible even in low-light conditions;
- visibility extends well beyond the immediate vicinity of a development; and
- these lights become very noticeable in an otherwise dark landscape.

At closer distances, the visual effect would be significantly greater.

7.3. Proximity and Scale of the Proposed Development

The proposed development would introduce aviation warning lights on turbines located approximately 700 metres to 2 kilometres from my dwelling, based on EIAR layout drawings.

At these distances, and within a dark rural setting:

- the lights would appear brighter and much more noticeable; and
- they would be visually prominent within the immediate landscape.

Unlike distant lighting, they would not be perceived as part of the horizon. They would be directly in view and difficult to ignore.

The contrast with the existing darkness would be very stark.

7.4. Direct Impact on the Dwelling

The way my house is built makes it particularly exposed to this kind of light.

The gable end of the house faces towards turbines T11 to T14 and includes a high-level triangular window positioned close to the roofline.

Due to its form and location:

- conventional curtains or blinds cannot be installed;
- the window cannot be effectively screened; and
- external light cannot be blocked.

As a result, there is no realistic way to block or reduce this light.

The introduction of aviation lighting would therefore result in:

- direct visibility of flashing red lights from within the dwelling;
- a continuous and unavoidable presence of artificial light; and
- internal as well as external impact on residential amenity.

This effect would be particularly significant during winter months, when hours of darkness are extended.

7.5. Understatement of Impact in the EIAR

The EIAR does not clearly describe the existing level of darkness or assess how the introduction of aviation lighting would alter it.

The requirement for aviation lighting is not in dispute. The relevant planning issue is the effect of that lighting on:

- residential amenity;
- landscape character; and
- the experience of the night-time environment.

There is no clear assessment of:

- the likely visibility of the lights from nearby dwellings;
- the degree of contrast within a dark rural setting; or
- the prominence of the lights at close range.

As a result, while the impact is acknowledged the likely impact is understated.

7.6. Cumulative Night-Time Effects

The proposed development must also be considered in the context of existing and permitted wind energy developments in West Cork.

Taken cumulatively, these developments would result in:

- multiple sources of aviation lighting across the landscape;
- repeated flashing lights visible across upland areas and ridgelines; and
- a progressive change in the character of the night-time environment.

Instead of a few isolated lights, there would be multiple flashing lights across the landscape.

Over time, this change the character of the night time landscape from one of natural darkness to one where artificial lighting is a constant feature.

7.7. Policy Context

The Cork County Development Plan recognises the importance of dark skies as an environmental and amenity resource.

It also emphasises:

- the protection of rural character;
- the preservation of scenic routes such as the R585; and
- the control of light pollution in rural areas.

The introduction of aviation lighting in this location is not consistent with these objectives, particularly given the existing absence of artificial light and the sensitivity of the receiving environment.

7.8. Conclusion

The proposed development would introduce constant and highly visible artificial lighting into an otherwise dark landscape.

This would:

- create a very noticeable and unavoidable presence at night;
- result in direct and unmitigated light intrusion into the dwelling; and
- contribute to a wider cumulative pattern of lighting across the landscape.

The EIAR does not adequately assess these effects and understates their likely significance.

In reality, the development would fundamentally change the character of the night time environment.

8. PLANNING FRAMEWORK, EIAR RELIABILITY, LANDSCAPE CONTEXT AND OVERALL ASSESSMENT

INTRODUCTION

I have reviewed the Environmental Impact Assessment Report (EIAR) in full, together with its appendices and supporting documentation and, I do not believe it provides a reliable basis for assessing the likely effects of the proposed development.

The concerns identified within this submission are not limited to individual technical findings. Rather, the same issues arise repeatedly across multiple parts of the EIAR, including hydrology, ecology, noise, landscape and human health.

Taken together, these issues raise broader concerns regarding the overall reliability of the assessment, the adequacy of the baseline information relied upon, and the extent to which the receiving environment has been properly characterised.

The following sections set out these concerns in more detail.

8.1. Failure to Address An Coimisiún Pleanála's Pre-Application Concerns

During pre-application consultation (ABP-321826-25), An Coimisiún Pleanála raised a number of specific concerns relating to ornithology, cumulative impact assessment, landscape and visual assessment, hydrology, and residential amenity. These concerns were clearly communicated to the prospective applicant at the meetings of 28 March 2025 and 18 November 2025.

Having reviewed the EIAR and supporting documentation, it is evident that several of these issues have not been addressed, or have only been addressed in a partial or superficial manner. Under the RED III framework, where Further Information cannot be sought, these omissions represent a material deficiency in the EIAR and prevent the Board from reaching a reasoned conclusion that significant adverse effects can be excluded.

This reinforces the wider pattern identified throughout this submission: the EIAR repeatedly relies on assumptions, incomplete baseline data, selective methodologies and post-consent mitigation, rather than providing the robust, evidence-based assessment required under the EIA Directive.

A summary of the Board's pre-application concerns and the applicant's failure to address them is provided in Appendix A. A separate Policy Conflict Table is provided in Appendix B.

8.2 Recurring Issues Across the EIAR

A consistent pattern of deficiency can be identified across multiple sections of the EIAR.

While the disciplines differ, the same underlying issues arise repeatedly throughout the assessment.

These include:

- incomplete or insufficient baseline characterisation;
- reliance on proxy data or assumptions rather than site-specific assessment;
- screening out of sensitive receptors without clear justification;
- dependence on mitigation measures to address uncertainty; and
- conclusions which understate the significance of identified effects.

This pattern is evident in several areas.

Within the hydrological assessment, private water supplies and downstream hydrological connectivity have not been fully identified or assessed, despite the presence of direct surface water pathways from the development site onto adjacent landholdings.

Within the noise assessment, conclusions regarding residential amenity are based on averaged modelling data and do not adequately reflect the experience of turbine noise within a very quiet rural environment.

Within the ecological assessment, the baseline description appears limited and does not fully reflect the sensitivity of the peatland environment or the extent of wildlife activity observed within the area.

Within the landscape assessment, viewpoint selection and photomontage presentation do not adequately represent the openness of the surrounding landscape or the degree of exposure experienced at nearby dwellings.

Taken individually, these issues raise concerns regarding the reliability of the relevant chapters.

Taken together, they indicate a broader problem with the overall assessment approach.

The EIAR repeatedly relies on assumptions, modelling and mitigation in circumstances where the receiving environment is highly sensitive and where a more precautionary and site-specific approach would be expected.

8.3. Lack of Integrated Assessment

A further critical deficiency is the lack of integrated assessment across different topics.

Hydrology, peat, ecology and human health are considered largely in isolation, despite being functionally interdependent.

In practice:

- peatland conditions influence hydrology and runoff;
- hydrology affects habitat condition and ecological receptors; and
- changes in these systems have consequential effects on human receptors, including water quality and residential amenity.

Similarly, noise, shadow flicker, visual impact and aviation lighting are assessed separately, despite their combined effect on residential amenity.

The failure to assess these interactions means the EIAR does not adequately reflect how impacts would arise or be experienced in reality.

8.4 Reliance on Mitigation and Post-Consent Measures

Another recurring feature of the EIAR is the extent to which it relies on mitigation measures and post-consent controls in order to conclude that effects will not be significant.

This approach is evident across multiple disciplines, including:

- hydrology;
- ecology;
- noise;
- shadow flicker; and
- construction impacts.

In many instances, impacts are not avoided through site selection or design, but are instead proposed to be managed through:

- operational controls;
- monitoring;
- drainage management;
- turbine shutdown protocols; or
- complaint-based procedures.

Examples include:

- reliance on drainage and silt control measures to manage hydrological risk;
- dependence on turbine shut-down systems to address shadow flicker exceedances;

- complaint-based procedures in relation to operational noise; and
- reliance on post-construction monitoring to address environmental uncertainty.

While mitigation measures form part of the EIAR process, they do not remove the requirement to properly identify and assess environmental effects at application stage.

In this case, the repeated dependence on mitigation and post-consent management measures indicates that a number of environmental risks remain unresolved within the assessment itself.

This is particularly important given the sensitivity of the receiving environment and the proximity of the development to residential properties, peatland systems and downstream watercourses.

8.5 Precautionary Principle and Water Framework Directive Compliance

The EIAR acknowledges uncertainty in a number of areas, including:

- hydrological connectivity;
- survey limitations;
- modelling assumptions;
- peat conditions; and
- operational mitigation requirements.

However, these uncertainties are not adequately reflected in the conclusions reached.

A precautionary approach is particularly important in environmentally sensitive upland peatland environments, where hydrology, ecology and downstream water quality are closely connected and where impacts may be difficult to reverse.

In this case, the site is characterised by:

- peat soils;
- shallow groundwater systems;
- high runoff rates; and
- direct hydrological pathways to downstream environments.

The EIAR confirms that surface water originating within the development site flows downslope toward surrounding landholdings and watercourses.

Despite this, private water supplies within the hydrological setting have not been fully identified or assessed, and no detailed site specific assessment has been provided demonstrating that deterioration of downstream water quality can be excluded.

This is particularly relevant in the context of the Water Framework Directive, which requires that development does not result in deterioration of water bodies.

In the absence of a robust site specific assessment of downstream hydrological connectivity and risk, it has not been demonstrated that significant adverse effects on water quality and hydrological systems can be avoided.

8.6 Landscape Sensitivity, Development Plan Context and Cumulative Impact

The proposed development must also be considered within the landscape framework established by the Cork County Development Plan.

The Development Plan distinguishes between areas which are:

- "Open for Consideration" for wind energy development; and
- areas where such development is "Normally Discouraged".

The proposed layout places turbines immediately adjacent to areas identified as "Normally Discouraged", particularly within the western and southern extents of the site.

This is an important planning consideration.

The purpose of this zoning distinction is to direct large-scale wind energy development away from the most sensitive upland landscapes.

However, the current proposal effectively pushes turbines of approximately 169 metres in height up to the edge of these higher sensitivity areas.

This gives rise to concerns regarding:

- landscape capacity;
- visual intrusion;
- cumulative impact; and
- consistency with the Development Plan strategy.

This issue is reinforced by the planning history of the area.

The previously refused Ardrah proposal related to a comparable upland landscape context and was refused on the basis of:

- adverse landscape effects;
- visual intrusion; and
- cumulative impact.

The current proposal introduces turbines of substantially greater height and visual influence.

At approximately 169 metres, these turbines would represent a significant increase in scale relative to both the receiving landscape and earlier wind energy developments within the wider area.

The EIAR does not adequately demonstrate that the surrounding upland landscape has the capacity to absorb development of this scale without significant adverse effects.

This concern is amplified by the cumulative context of wind energy development across West Cork.

Existing and permitted wind farms are already a visible feature across a number of upland ridgelines within the wider area.

The proposed development would contribute to an increasing spread of turbines across the landscape, resulting in further erosion of the undeveloped upland character which currently distinguishes this part of West Cork.

In this context, the proposal cannot be considered in isolation.

8.7 Development Plan Compliance

The Cork County Development Plan requires that development:

- protects residential amenity;
- safeguards water quality and hydrological systems;
- protects biodiversity and ecological integrity;
- protects landscape character and scenic value; and
- is supported by robust environmental assessment.

For the reasons set out throughout this submission, I do not believe the EIAR demonstrates compliance with these requirements.

In particular:

- the assessment of hydrological and private water supply impacts remains incomplete;
- the likely impact on residential amenity within a very quiet rural environment has been understated;
- the cumulative landscape and visual effects have not been adequately assessed; and
- ecological sensitivity within the peatland environment has not been fully characterised.

The proposal therefore raises significant concerns regarding consistency with the objectives of the Development Plan.

8.8 Climate Policy, Commercial Drivers and Appropriate Location

However, climate policy does not create a presumption in favour of wind energy development in all locations.

Renewable energy development must still be plan led, proportionate and appropriately located. It must also be assessed against the specific environmental, landscape, hydrological and residential amenity impacts arising at the site in question.

The contribution of a development to renewable energy targets does not remove the requirement to demonstrate that:

- environmental effects have been properly assessed;
- impacts on residential amenity are acceptable;
- landscape capacity has not been exceeded;
- water quality and peatland systems are protected; and
- the proposal is consistent with the Cork County Development Plan.

In this case, I do not believe the EIAR demonstrates that the proposed development represents an appropriate location for turbines of this scale, having regard to:

- the sensitivity of the receiving environment;
- the proximity of nearby residential properties;
- the hydrological and peatland context;
- the proximity to areas identified as "Normally Discouraged" for wind energy development; and
- the cumulative landscape effects within the wider West Cork area.

It is also relevant that Ireland is already experiencing significant dispatch down of renewable electricity due to grid and system constraints. This indicates that the issue is not simply a shortage of wind energy development, but also the capacity of the electricity system to absorb and distribute existing renewable generation.

In these circumstances, greater weight should be placed on whether large scale onshore wind development is appropriate in environmentally sensitive upland landscapes close to residential properties, particularly where significant impacts on landscape, hydrology and amenity arise.

I support renewable energy and climate action. However, renewable development must remain planned and appropriately located. Climate policy does not remove the requirement to demonstrate that a particular site can accommodate development of this scale without unacceptable environmental effects.

8.9 Planning Balance and Case-by-Case Assessment

The planning assessment must consider the proposal as a whole and in its specific location.

The applicant places significant reliance on national climate and renewable energy policy. However, the existence of climate policy does not mean that every individual wind farm proposal is acceptable.

The key question is whether this particular development, in this particular location, has been properly assessed and can be accommodated without unacceptable environmental, landscape, hydrological or residential amenity impacts.

For the reasons set out in this submission, I do not believe that has been demonstrated.

The proposed development would introduce turbines of approximately 169 metres in height into a sensitive upland landscape, close to residential properties, in an area with peatland hydrology, direct downstream connectivity and existing cumulative wind energy pressure.

The EIAR does not adequately resolve these issues. It relies heavily on general policy support for renewable energy, but does not show that this site is appropriate for development of this scale.

The planning balance therefore cannot be reduced to renewable energy output alone.

It must also take account of:

- residential amenity;
- human health and wellbeing;
- landscape character;
- hydrology and private water supplies;
- peatland and ecological sensitivity;
- cumulative impact; and
- consistency with the Development Plan.

When these matters are considered together, the proposal gives rise to significant concerns which have not been adequately addressed.

8.10 Conclusion

The concerns identified within this submission are not isolated technical disagreements.

The same issues arise repeatedly across multiple parts of the EIAR, including:

- incomplete baseline characterisation;
- limited site-specific assessment;
- reliance on assumptions and modelling;
- dependence on mitigation and post-consent controls; and
- underestimation of environmental sensitivity.

Taken together, these issues indicate that the receiving environment has not been fully or reliably assessed.

The proposed development would introduce very large-scale industrial infrastructure into a sensitive upland landscape characterised by:

- peatland hydrology;
- direct downstream connectivity;
- dark rural conditions;
- very low baseline noise levels; and
- close proximity between turbines and residential receptors.

In these circumstances, I do not believe the EIAR demonstrates, on the basis of sufficiently robust and site-specific evidence, that significant adverse effects can be avoided.

Accordingly, it is submitted that permission should be refused.

Appendix A - Review of Pre-Application Issues and Remaining Concerns

Issue Raised by ACP	Applicant Position	Relevant EIAR Material	Remaining Concern
Ornithology – need for comprehensive surveys; NPWS concerns regarding Chough and White-tailed Eagle	Applicant states that extensive surveys and robust methodologies were undertaken	EIAR contains ornithological surveys, mitigation proposals and cumulative assessment material	Concerns remain regarding treatment of wide-ranging raptors, screening assumptions, and reliance on post-construction monitoring
Cumulative impact assessment within wider West Cork landscape	Applicant states that a comprehensive cumulative assessment was undertaken	LVIA and cumulative assessment chapters consider existing and permitted wind farms	Outstanding concerns remain regarding landscape saturation, treatment of proposed/appeal-stage developments, and cumulative visual effects
Landscape and visual assessment methodology	Applicant states that best-practice LVIA methodology and photomontages were applied	EIAR includes wireframes, photomontages and viewpoint assessments	Concerns remain regarding viewpoint selection, constrained framing, and representation of open views from nearby receptors
Hydrology and downstream connectivity	Applicant states that hydrological impacts can be mitigated through standard measures and drainage controls	EIAR contains hydrological modelling, mitigation measures and construction management proposals	Outstanding concerns remain regarding downstream connectivity, private water supplies, peat disturbance and reliance on mitigation measures
Residential amenity and human health	Applicant states that operational impacts comply	Noise, shadow flicker and human health	Concerns remain regarding the adequacy of

	with applicable guidance	assessments are included in the EIAR	assessment within a very quiet rural environment and the combined effect of multiple operational impacts

Appendix B - Assessment Against Cork County Development Plan Objectives

Development Plan Objective	Relevant Proposal Element	Potential Planning Concern
Protection of residential amenity	Large-scale turbines located approximately 800m–1.2km from nearby dwellings	Potential for significant change to residential amenity arising from combined visual, noise and shadow flicker effects
Protection of water quality and hydrological systems	Peatland excavation, borrow pits and downstream surface water connectivity	Outstanding concerns regarding sediment mobilisation, downstream connectivity and private water supplies
Protection of landscape character and scenic routes	Turbines of approximately 169m height within sensitive upland landscape context	Potential tension with landscape sensitivity objectives and cumulative visual effects within the wider West Cork area
Protection of biodiversity and ecological integrity	Development within upland peatland and habitat network	Concerns remain regarding habitat disturbance, peatland hydrology and adequacy of ecological baseline assessment
Requirement for robust environmental assessment	Reliance on modelling, mitigation and post-consent controls across multiple EIAR disciplines	Potential concern regarding adequacy of integrated assessment and level of unresolved uncertainty

9. PRE APPLICATION CONSULTATION AND COMMUNITY ENGAGEMENT

INTRODUCTION

The applicant's Community Engagement Report presents the consultation process as comprehensive and meaningful.

This process included:

- written correspondence to local residents;
- a project website; and
- two public information events.

While these measures provided information, they do not, in themselves, demonstrate meaningful engagement.

Consultation in a planning context requires not only the dissemination of information, but clear evidence that feedback has been considered and has influenced the design of the development.

9.1. Lack of Evidence of Influence on Design

The report states that community feedback helped to shape the project. However, no clear examples are provided to demonstrate how this occurred.

A number of significant concerns were raised locally, including:

- proximity of turbines to dwellings;
- noise impacts in a very quiet rural environment;
- visual and landscape effects;
- hydrology and water impacts; and
- biodiversity concerns.

These are substantive planning issues.

However, within the report:

- concerns are listed but not analysed;
- no design changes are identified in response to specific issues; and
- there is no clear link between feedback received and decisions made.

This suggests that consultation did not materially influence the development.

9.2. Limited Scope of Engagement

Direct engagement appears to have been focused primarily on properties within approximately 2 kilometres of the site.

For a development of this scale, this represents a limited catchment.

The effects of wind energy development, particularly in relation to:

- landscape and visual impact;
- cumulative effects; and
- the character of the wider area, extend well beyond this distance.

This is particularly relevant in West Cork, where the wider landscape, including views from routes such as the R585, forms a key part of the receiving environment.

Attendance at the public information events was also relatively low, which raises further questions regarding the effectiveness of outreach.

9.3. Site-Specific Engagement

I engaged directly with a representative of the developer during the consultation process and outlined the specific sensitivities associated with my property.

These included:

- the scale and proximity of the proposed turbines;
- the exceptionally quiet baseline noise environment;
- the likely impact on residential amenity; and
- the implications for property value.

I also made constructive suggestions regarding alternative siting within the wider development area that I considered would reduce impact.

However:

- responses were general in nature;
- they relied on broad statements regarding compliance with guidelines; and
- they did not engage with the specific characteristics of the site or concerns raised.

There is no evidence that this engagement informed the design or layout of the development.

During engagement, I raised concerns regarding the complaint-based approach to operational noise and indicated that, if the development proceeded, I would intend to undertake independent noise monitoring at my property during construction and operation.

In response, the developer referred to dedicated project insurance and environmental cover being put in place prior to construction.

However, this did not address the underlying issue raised, namely whether the proposed development had been designed and assessed in a manner which would avoid significant impacts arising in the first place.

The exchange reinforced a broader concern arising throughout the EIAR, namely that potential impacts are repeatedly proposed to be managed after they arise through monitoring, complaint procedures and operational controls, rather than avoided through site selection and design.

9.4. Conditional Financial Offer

During the consultation process, I was offered a "near neighbour" payment above the standard community benefit provisions.

This offer:

- was made privately;
- was not part of a transparent or structured process; and
- was conditional on entering into an agreement not to submit an objection to the development.

I did not accept this offer, and it was subsequently withdrawn.

This raises concerns regarding:

- the transparency of the engagement process; and
- the extent to which participation in the planning process may have been discouraged.

The planning system relies on the ability of individuals to participate freely. Linking financial incentives to the withdrawal of objections is difficult to reconcile with that principle.

9.5. Community Benefit and Distribution of Gain

The Community Engagement Report places emphasis on the proposed community benefit fund.

However, there is a clear distinction between:

- private financial arrangements with landowners hosting turbines; and
- the broader community fund available to the wider area.

The larger financial benefits are directed towards a limited number of landowners through private agreements.

The community fund:

- is dependent on electricity generation;
- may vary over time; and
- does not directly correspond to the level of impact experienced by those living closest to the development.

As such, it does not offset or mitigate the planning impacts identified elsewhere in this submission.

9.6. Conclusion

The consultation process, as presented, does not demonstrate meaningful engagement in a planning sense.

While information was provided, there is insufficient evidence that:

- local concerns influenced the design of the development;
- site-specific sensitivities were addressed; or
- engagement extended beyond a standardised approach.

In addition, aspects of the process raise concerns regarding transparency and fairness.

In these circumstances, the consultation process cannot be considered to have fulfilled its intended role in informing the development or reflecting the concerns of those most affected.

10. PROPERTY VALUES, RESIDENTIAL AMENITY AND MARKET IMPACT

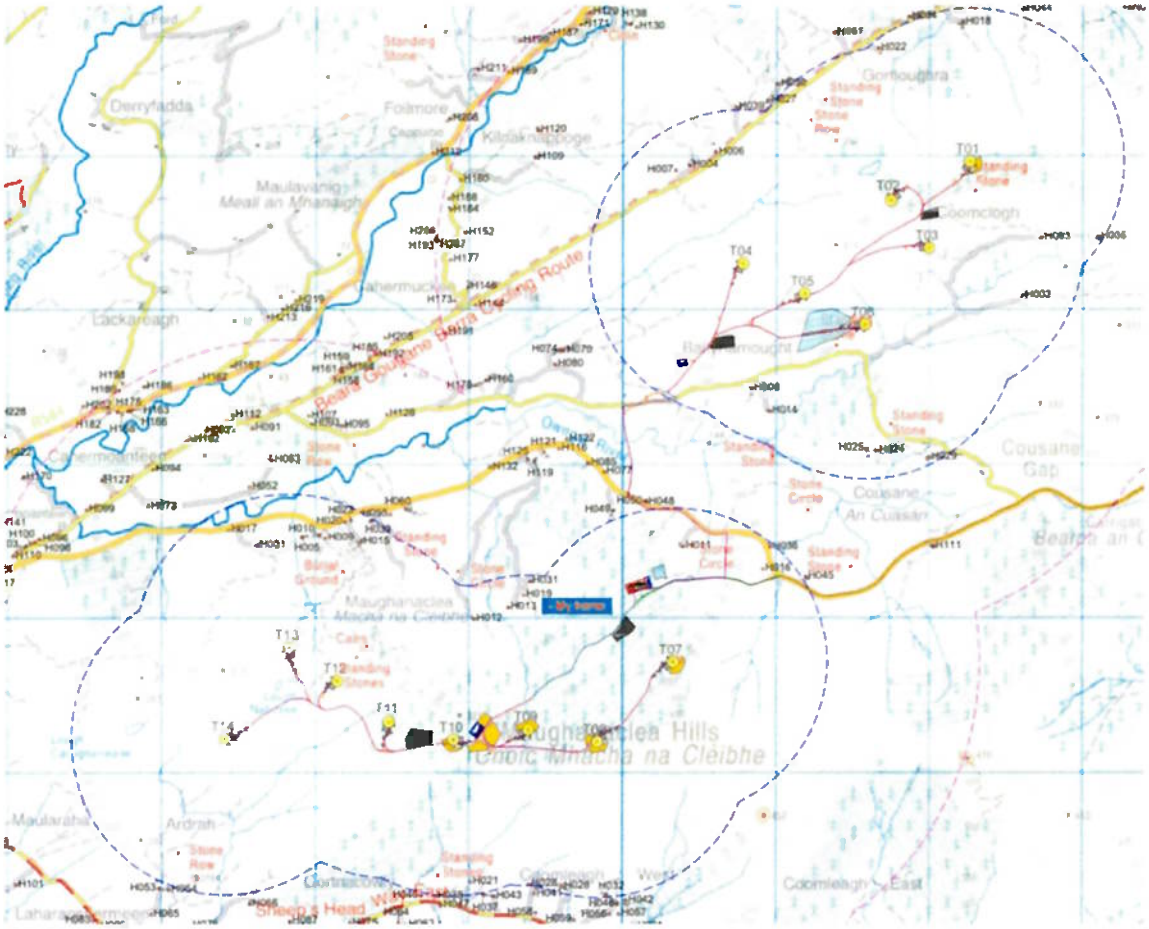
10.1. Introduction

I have reviewed the section of the EIAR dealing with property values and residential amenity.

The overall conclusion presented is that the proposed development will not have a significant effect on property values. However, that conclusion is derived primarily from a large-scale study of house prices in Scotland and is applied in a generalised way to this development.

The approach taken is broad rather than site specific. It relies on averaged outcomes across large datasets and treats property value as a general market phenomenon, rather than something determined by the characteristics of individual properties and their settings – this is particularly misleading for the unique and varied rural properties in and around the proposed development.

As a result, there is no meaningful assessment of how the proposed development would affect particular dwellings, including those which are most exposed to its effects. And in particular, there is no specific assessment of my property, despite its location in close proximity to multiple turbines and its exposure to a combination of impacts identified elsewhere in the EIAR, such as exposure to shadow flicker and an increase in dB from background noise.



I am H013 and H019 – end of a long lane – H012 is derelict. The only neighbour is H031 and is 220m away and completely screened.

10.2. Critique of the Studies Relied Upon

The study relied upon in the EIAR states that it does not find a consistent negative effect on property prices when results are averaged across the entire sample. That is a qualified conclusion. It does not demonstrate that there is no impact. It demonstrates that, across a large and varied dataset, no single consistent pattern emerges.

The study itself makes clear that outcomes vary between locations, that property prices respond differently in different regions, and that some areas may experience negative effects. It also acknowledges that the available data are not sufficient to identify the underlying causes of these variations.

This is a significant limitation.

The study does not isolate properties where value is closely tied to landscape, quiet or seclusion, nor does it examine how buyers respond to changes in those characteristics, therefore localised effects are inevitably diluted.

10.3. This Property – Nature and Sensitivity

This is not a typical rural dwelling. It is a highly secluded property, with no through roads, no immediate neighbours and no existing sources of noise or activity. That level of isolation is not incidental. It is the defining characteristic of the property and the primary reason it has value.

My home is in the centre. My cabin to the left and my neighbour far left – 220m away.

Looking from the area of development toward H013:

10.4. Extent of Exposure

My home is among the most affected locations within the development. Predicted noise levels are at the higher end for nearby dwellings – with predicted increases in dB at quiet periods of up 17dB. Shadow flicker exceeds guideline thresholds. These are continuous and combined effects. The EIAR considers noise, shadow flicker and property value largely as separate issues. Taken together, these effects create a very different living environment, especially in this exceptionally quiet and still rural environment.

10.5. Market Implications

The key issue is how the property would be perceived in the market. Properties of this type are bought by people seeking quiet, isolation and an undisturbed setting. If those characteristics are altered, the pool of potential buyers is fundamentally changed.

This is not a theoretical concern. It is supported by direct local market evidence.

An experienced estate agent with over 35 years' experience in the area (see letter below) has provided evidence of a comparable property at Dereenacknow, Bantry, located in proximity to Ballybane Wind Farm. That property was brought to market in 2022 with an expected valuation in excess of €725,000. Despite strong initial interest, consistent negative feedback was received from prospective purchasers regarding turbine noise and visual impact.

The property ultimately sold in February 2024 for €585,000, representing a substantial reduction from its expected value. The agent attributes both the reduced sale price and extended marketing period directly to the proximity of the wind turbines.

Importantly, this property is located approximately 600 metres from the nearest turbine (c.120m in height). Under the 2016 Wind Energy Development Guidelines, a turbine of this scale could be located as close as 500 metres to a dwelling. Therefore, this example demonstrates that significant adverse effects on marketability and value can arise even beyond guideline setback distances.

The agent further notes a broader emerging pattern in the local market, with properties in areas affected by existing or proposed wind farm development experiencing reduced demand, prolonged selling periods, or being withdrawn from sale entirely due to lack of interest.

This evidence is directly relevant to the current assessment. It demonstrates that:

- Buyer behaviour is sensitive to noise and visual presence of turbines
- Market impacts occur in real transactions, not just perception

- Effects are localised and property-specific, particularly for rural dwellings valued for peace and seclusion

In the context of my own property—where predicted increases in noise (up to 17 dB during quiet periods), shadow flicker exceedances, and a high degree of exposure are identified—the potential for a similar or greater impact on marketability is evident.

10.6. Conclusion

In my view, the EIAR does not provide a reliable basis for concluding that there would be no effect on property value in this case.

It relies on generalised research and methods which do not capture how individual properties are bought and sold.

This is a property whose value is closely tied to its quiet, isolated and undisturbed setting. The proposed development would alter those characteristics in a fundamental way.

In those circumstances, it is not realistic to assume that demand and value would remain unaffected – please see email from Estate Agent with 35 years experience and extensive local knowledge.

Re: MAUGHANACLEA, KEALKILL, P75 E062

Good morning, Annabel and Sean,

I hope you are both well and my apologies for not responding sooner.

As the selling agent responsible for your small farm purchase back in 2014 at Maughanaclea, Kealkil I am acutely aware of the distinct and unique privacy and peaceful offering the property was back then. In fact, the previous owners operated BOAB a wellness and meitation centre of yoga practice there.

I recall your instant appreciation of the countryside setting as it offered you the lifestyle choice that you searched extensively for, privacy and peacefulness.

Now in Spring 2026 I can fully understand your enormous concerns for the ongoing enjoyment of your farm holding. As you outlined in your visit to my office the likelihood of a wind farm development and the detrimental effects to both your enjoyment of your residence and lands not to mention a significant negative impact on your estate value.

In recent years we were appointed agents to sell Dereenacknow House at Dereenacknow, Bantry P75 HD21. The property was in the immediate proximity of Ballybane Wind Farm and had a very long selling campaign. The property comprises a superb detached period style countryhouse and landscaped gardens on ca. 3.5 acres. We went on the market in the Spring of 2022 and had a valuation expectancy in excess of €725,000.

There was a constant flow of interest and viewings however the feedback regarding the proximity of the wind turbines was regularly negative. In summary prospective buyers were upset by the sound and sights of these wind turbines. Depending on the weather and wind direction ir seemed that the sound varied quite a bit ultimately, we sold the property in February 2024 for €585,000.

Our view and that of the vendors was that we lost considerable value and time in our effort to engage with the open market due to the proximity of these wind turbines. In recent marketing of property through 2025 around the areas of Kealkil, Cousane and the Mealagh Valley we have had a number of sales either fall through upon realisation of the impending development or the properties were withdrawn from sale due to complete lack of interest.

The property market in general is performing well in all areas that Harrington Estates cover however though 2025 and up to the current day the areas of close proximity to this valley are showing an upset and negative property market.

There is a clear pattern of behaviour emerging on foot of this proposed development and that is one whereby property values and enjoyment are severely impacted in a negative manner. This negative atmosphere is causing distress to potential purchasers as well as the current property owners.

This brief outline is based on my day to day engagement with people from all strands of the property model and I hope it will be of assistance to you in your endeavours.

Regards,

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Web:- www.harringtonestates.ie
License No:- 002952

HARRINGTON ESTATES
AUCTIONEERS & VALUERS

11. FINAL CONCLUSION

This submission does not argue that renewable energy development should never occur in rural areas or upland landscapes. However, developments of this scale must be assessed in the context of the specific environment in which they are proposed and the extent to which that environment can realistically absorb the resulting change.

In this case, the proposed development would introduce turbines of approximately 169 metres in height into a highly sensitive upland landscape characterised by very low baseline noise levels, dark night-time conditions, open visual exposure and complex peatland hydrology with direct downstream connectivity.

The central concern arising from the EIAR is not simply that impacts have been identified, but that the implications of those impacts are repeatedly understated when considered together and in the context of how this area is actually experienced.

Throughout the assessment, individual effects are largely treated in isolation. Noise, shadow flicker, aviation lighting, visual dominance, hydrological disturbance and landscape change are each addressed separately through technical chapters and modelling exercises. In reality, however, these effects would not occur separately. They would arise simultaneously within the same receiving environment and would be experienced continuously by those living within it.

This is particularly important in circumstances where residential properties are located in relatively close proximity to turbines of this scale and where the surrounding landscape already experiences cumulative pressure from existing and permitted wind energy development.

While the EIAR frequently relies on mitigation, monitoring and operational management measures, I do not believe it adequately demonstrates that the receiving environment itself is capable of accommodating development of this scale without unacceptable consequences for residential amenity, landscape character and environmental integrity.

This concern is reinforced by the broader planning context. The site lies within a sensitive upland area close to lands identified in the Cork County Development Plan as “Normally Discouraged” for wind energy development. In my view, this is not a situation where the landscape can reasonably be described as having substantial remaining capacity for turbines of this height and scale.

The issue is therefore not whether renewable energy development is important in principle. It is whether this particular location represents an appropriate and proportionate location for development of this intensity.

Having considered the EIAR as a whole, together with the likely cumulative effects arising from the proposed development, I do not believe that this has been demonstrated.

For the reasons set out throughout this submission, I respectfully request that permission for the proposed development be refused.

For the reasons set out throughout this submission, I respectfully request that permission for the proposed development be refused.

12. PERSONAL STATEMENT

I've tried to keep this submission focused on facts, planning policy and technical issues. But it's important to say what all of this actually means in real life.

I have lived here for over 11 years. Over that time, this has become my home in every sense, not just somewhere I live, but where I work, where I spend my time, and where I expected to build my future. Having lived in various locations over the years, I have finally found somewhere I love and want to spent the rest of my life.

The past year, since this proposal emerged, has been extremely difficult. The stress and uncertainty of potentially having a wind farm surrounding me has had a real and ongoing impact on my day-to-day life. This isn't something abstract, it's something I am already dealing with, leading to sleepless nights and a definite impact on my mental health.

The impacts described throughout this submission are very real to me. Noise in what is currently an exceptionally quiet place. Shadow flicker within my home. Turbines occupying a significant portion of my view. A complete change to the character of the place I live.

Taken together, these are not small changes. They fundamentally alter what it means to live here.

I am faced with a situation where I may not be able to continue living here, but also will not be able to leave without significant financial loss. I would not be able to purchase an alternative home where I could home the livestock and it is deeply upsetting and very hard to accept.

There is also a broader sense of imbalance in all of this. Developers come forward with significant financial resources, time and expertise. Local residents are left trying to respond within limited timeframes, often without the same level of support. It is very difficult not to feel that the process is weighted against those most directly affected.

Communities like this are being asked to absorb very substantial and permanent change. At the same time, there is a lack of clarity around how the wider system is keeping pace in terms of infrastructure, or how the energy generated is ultimately used. From where I am standing, the impact is immediate and personal, while the benefits feel distant and uncertain.

I am not against renewable energy. But it has to be done in a way that is fair, proportionate and in the right locations. There has to be a limit to what people are expected to live with. Rural areas are not empty spaces, they are homes, livelihoods and communities. And once a place like this is changed at this scale, it cannot be returned to what it was, ever.

This place is difficult to fully understand through mapping, technical documents or selected viewpoints alone. Its value lies not only in what can be measured, but in the

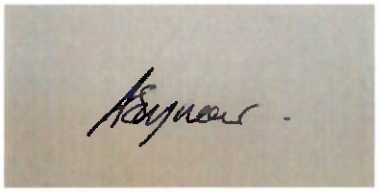
experience of being here - the quietness, darkness, openness and connection to the surrounding landscape.

I genuinely hope that the decision-makers will take the time to experience the area on the ground before reaching a conclusion on this application.

I would be very happy to allow access to my land and property to assist with any site inspection, so that the likely impacts on the home, landscape and environment can be understood in their real setting.

I have set out the planning and environmental reasons why this development is not appropriate in this location.

But behind all of that is something much simpler: this is my home, and this proposal puts my ability to live here, my wellbeing, and my future at real risk.



Annabel Seymour

annabelseymour@yahoo.co.uk

085 1234586

PLANNING REPORT TO BE SUBMITED AS PART OF THE FORMAL 3RD PARTY SUBMISSION BEING LODGED BY JOE NOONAN SOLICITOR ON BE HALF OF ANNABEL SEYMOUR TO AN COIMISIÚN PLEANÁLA RELATING TO MAUGHANACLEA WINDFARM DEVELOPMENT

Submitted Pursuant to the Planning and Development Acts 2000–2025 and the Planning and Development (Strategic Infrastructure) Act Procedures

Strategic Infrastructure Development Application Reference: ACP-324165-26

Prepared by:

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APPENDICES

Appendix 1 – Bibliography, Legislative References and Authorities

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1.0 INTRODUCTION

This submission is made to An Coimisiún Pleanála in respect of the proposed Strategic Infrastructure Development comprising 14 no. wind turbines and associated infrastructure at Maughanaclea, County Cork, under Planning Reference ACP-324165-26.

This submission has been prepared having regard to the Planning and Development Acts 2000–2025, the Cork County Development Plan 2022–2028, the Cork County Council Climate Action Plan 2024–2029, the Wind Energy Development Guidelines 2006, the Draft Wind Energy Development Guidelines 2019, the Environmental Impact Assessment Directive, the Habitats Directive, the Birds Directive, the Water Framework Directive, national climate policy, and relevant decisions of An Bord Pleanála and the Irish Courts.

The need for renewable energy development, decarbonisation, and Ireland's climate obligations is acknowledged. However, renewable energy policy does not create an automatic presumption in favour of development irrespective of environmental, residential, ecological, hydrological, landscape, tourism or cumulative impacts.

The issue before the Board is therefore not whether Ireland requires renewable energy generation in principle, but whether this particular proposal, at this specific location, constitutes proper planning and sustainable development.

It is respectfully submitted that it does not.

2.0 SITE CONTEXT, RECEIVING ENVIRONMENT AND DESCRIPTION OF DEVELOPMENT

The proposed development comprises 14 no. industrial-scale wind turbines and associated infrastructure at Maughanaclea and surrounding townlands in County Cork. The proposed turbines are stated to have an overall blade-tip height of 169 metres, a hub height of 102.5 metres and a rotor diameter of 133 metres. This scale is central to the assessment of the proposal. A turbine of 169 metres is not a localised structure. Its movement, height, skyline presence, night-time lighting and cumulative visual influence extend far beyond the footprint of the turbine base or the administrative boundary of the application lands.

The proposed development includes:

- 14 no. wind turbines with an overall tip height of 169 metres;
- turbine foundations and crane hardstanding areas;

- underground electrical and communications cabling connecting the turbines to the proposed on-site substation;
- a 110kV substation compound;
- underground 110kV electrical and communications cabling connecting the proposed substation to the existing Dunmanway substation;
- internal access tracks and site access infrastructure;
- approximately 12.1 kilometres of new access road within the proposed wind farm site;
- approximately 2.1 kilometres of upgraded existing roads and tracks;
- construction compounds;
- borrow pits;
- drainage infrastructure;
- a permanent meteorological mast, stated in SID pre-application material as being 30 metres high;
- turbine delivery route works, passing bays and associated temporary or permanent road works;
- all ancillary site development works.

The description of development is important because the assessment cannot be confined to the turbines alone. The environmental footprint of the project includes the access road network, borrow pits, hardstanding areas, substation infrastructure, grid connection works, drainage controls and construction activity. These ancillary elements materially increase the land-take, hydrological interaction, peat disturbance, visual impact and construction-phase effects of the proposal.

The proposed development is located within an upland rural landscape in West Cork between Kealkill, Bantry and Dunmanway. The receiving environment is environmentally sensitive and characterised by peatland systems, wet heath, blanket bog, hydrologically connected river catchments, protected ecological receptors, dispersed rural housing, tourism and wellness enterprises, archaeological features and dark sky landscape value.

The site lies within the Owvane River and Mealagh River catchments, while the proposed grid connection traverses the Bandon River catchment and crosses the Bandon River SAC.

The sensitivity of the receiving environment is repeatedly acknowledged throughout the EIAR itself. Notwithstanding this, the Applicant ultimately concludes that the proposal will

not give rise to significant effects. This submission respectfully disagrees with that conclusion.

The scale of the proposed turbines is also relevant to the Cork County Development Plan Wind Energy Strategy. Even where a site is mapped as *"Open to Consideration"*, the Development Plan requires avoidance of adverse impacts on residential amenity, visual amenity, landscape, biodiversity, water quality and heritage. The 169 metre height of the turbines means that the development cannot be assessed merely as a land-use within a mapped policy area. It must be assessed as a very large moving industrial structure within a wider landscape and community setting.

Planning conclusion: The proposal is not limited to 14 turbine bases. It comprises a substantial industrial energy development with 169 metre high turbines, extensive access roads, borrow pits, substation infrastructure, grid connection works and drainage intervention. The full project footprint and visual envelope must be assessed.

3.0 PRINCIPLE OF DEVELOPMENT AND PLANNING POLICY

The Applicant's Planning Report presents the principle of development as being acceptable primarily because the proposed wind farm would contribute to renewable energy generation and because the site is located within an area designated as "Open to Consideration" under the Cork County Development Plan Wind Energy Strategy.

That approach is overly simplistic and does not properly reflect the conditional and criteria-based nature of the Development Plan.

The central issue before the Board is not whether renewable energy is supported in principle. Renewable energy policy support clearly exists at national, regional and local level.

The proper planning question is whether this particular development, at this particular location, can be accommodated without giving rise to unacceptable impacts on:

- residential amenity;
- landscape character;
- biodiversity and ecology;
- hydrology and water quality;
- peatland stability;
- tourism and dark sky value;
- cultural landscape;
- and the wider rural environment.

The Cork County Development Plan 2022–2028 supports renewable energy development only where adverse impacts have been satisfactorily avoided.

Objective ET 13-2(a) supports renewable energy development only where:

"such development has satisfactorily demonstrated that it will not have adverse impacts on the surrounding environment (including water quality), landscape, biodiversity or amenities."

This wording is critically important because it demonstrates that policy support for renewable energy is conditional rather than absolute.

The "Open to Consideration" designation within the Wind Energy Strategy does not establish that development is automatically acceptable in principle.

Rather, the designation simply means that proposals may be considered subject to detailed environmental assessment and subject to the demonstration that unacceptable impacts can be avoided.

It is therefore a gateway to planning assessment rather than a presumption in favour of permission.

In the present case, the Applicant's own EIAR identifies a wide range of sensitive environmental receptors and acknowledged impacts including:

- residential receptors within the shadow flicker study area;
- substantial visual exposure;
- peatland and blanket bog disturbance;

- Freshwater Pearl Mussel pathways;
- hydrological connectivity to the Bandon River SAC;
- ornithological sensitivity;
- ecological fragmentation;
- dark sky tourism receptors;
- and cumulative landscape pressure.

These are precisely the types of constraints which the "Open to Consideration" designation requires to be carefully examined.

The Applicant's interpretation of policy also gives insufficient weight to the scale and influence of the proposed turbines themselves.

At approximately 169 metres to blade tip, the turbines would not function as modest landscape features confined to the immediate site area. Their visual, environmental and experiential influence would extend across a substantial geographical area including:

- neighbouring townlands;
- dispersed residential properties;
- tourism enterprises;
- scenic routes;
- recreational landscapes;
- and dark sky receptors.

The Board's previous decisions demonstrate that renewable energy policy support does not displace the obligation to protect landscape character, residential amenity and environmental quality.

An Coimisiún Pleanála has repeatedly refused or upheld refusals of wind energy projects where environmental impacts were considered excessive notwithstanding renewable energy policy support.

The planning balance therefore remains site-specific.

The Applicant also relies heavily upon national climate policy and the Climate Action and Low Carbon Development Act.

Those matters are material considerations and their importance is acknowledged.

However, climate legislation does not override:

- the Habitats Directive;
- the Birds Directive;
- the Water Framework Directive;
- the EIA Directive;
- or the Planning and Development Acts.

Section 15 of the Climate Action and Low Carbon Development Act requires public bodies to perform their functions consistently with climate objectives only "in so far as practicable."

That qualification is significant because it confirms that climate objectives must still operate within the wider environmental and legal framework.

European case law establishes that where protected habitats, species or European sites may be affected, the precautionary principle applies.

In *Waddenzee* (Case C-127/02), the Court held that consent may only be granted where no reasonable scientific doubt remains regarding the absence of adverse effects.

Similarly, in *Holohan v An Bord Pleanála* (Case C-461/17), the Court required:

"complete, precise and definitive findings and conclusions capable of removing all reasonable scientific doubt."

These principles are directly relevant in circumstances where the EIAR and Natura Impact Statement rely heavily upon:

- mitigation;
- adaptive management;
- construction controls;
- restoration measures;
- and operational monitoring

in order to conclude that impacts will not be significant.

The planning balance advanced by the Applicant is therefore incomplete.

The EIAR places substantial emphasis upon renewable energy need while materially underassessing:

- the sensitivity of the receiving environment;
- the scale of the proposed turbines;
- the cumulative industrialisation of the wider uplands;
- and the legal requirement to remove scientific doubt where protected habitats and species may be affected.

This submission does not contend that renewable energy is objectionable in principle.

Rather, it is submitted that this particular proposal would introduce industrial-scale infrastructure into a highly sensitive upland receiving environment where the Applicant has not demonstrated that unacceptable impacts can be satisfactorily avoided.

Key Planning Point

- The "Open to Consideration" designation does not create a presumption in favour of development.
- Renewable energy policy support is conditional upon environmental acceptability.
- Climate legislation does not override the Habitats Directive, Water Framework Directive or the requirement for scientifically certain environmental assessment.
- The Board must assess this proposal on the basis of its actual environmental effects within the receiving environment.

Planning conclusion:

Having regard to:

- the conditional nature of renewable energy policy support;
- the acknowledged sensitivity of the receiving environment;
- the scale and visual influence of the proposed turbines;
- the identified ecological, hydrological and residential constraints;
- the cumulative industrialisation of the wider uplands;

- and the obligations arising under European environmental law;

it is respectfully submitted that the Applicant has failed to establish the principle of development at this location and has failed to demonstrate that the proposed development would constitute proper planning and sustainable development.

4.0 THE PROPOSED PROJECT AND ECONOMIC BENEFIT CLAIMS

The EIAR places substantial emphasis on the alleged economic benefits of the proposal including:

- Construction employment;
- Commercial rates;
- Community benefit funding;
- Landowner payments;
- Renewable electricity generation.

However, the economic assessment within the EIAR is materially one-sided.

The Applicant refers to approximately 100 construction jobs during the construction phase, but acknowledges that the operational phase would generate only 3–4 long-term jobs.

The construction employment benefits are therefore temporary.

West Cork's economy is heavily dependent upon tourism, hospitality, landscape amenity and environmental quality. Fáilte Ireland identifies Cork as one of Ireland's principal tourism destinations, attracting approximately 981,000 overseas visitors in 2024 alone. Tourism currently supports approximately 22,500 jobs across County Cork, representing roughly one in every ten jobs in the county. These figures are highly material in planning terms because they demonstrate that tourism is not a peripheral activity but one of the principal long-term economic sectors sustaining employment, enterprise and investment throughout Cork and particularly within rural West Cork.

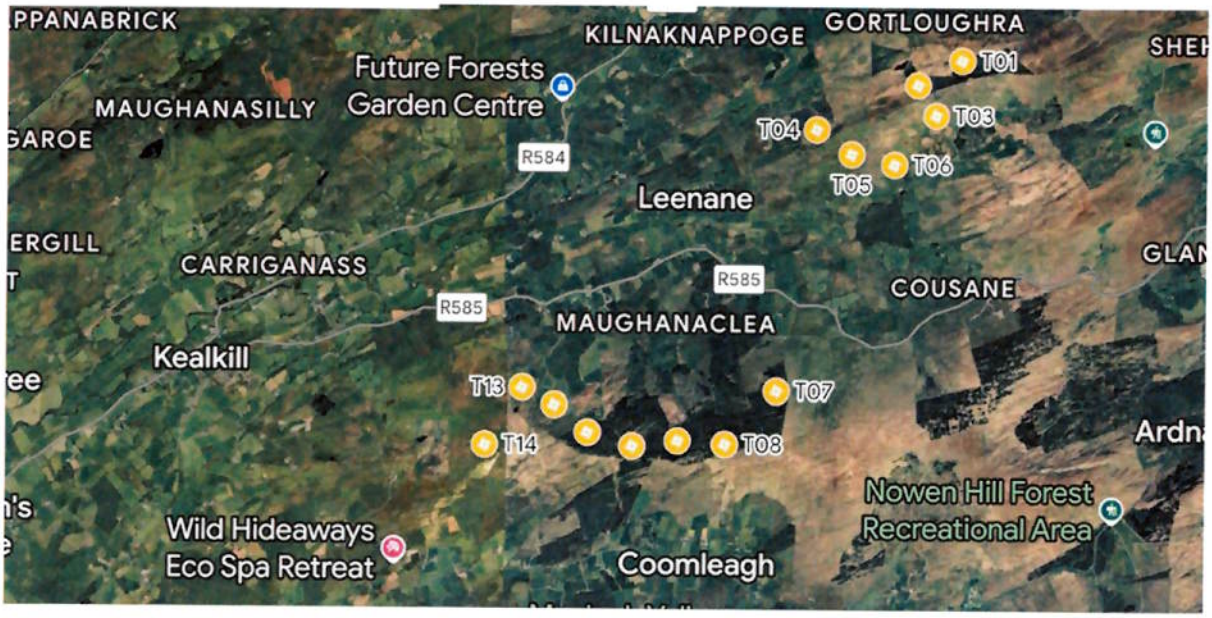
The tourism product associated with West Cork is fundamentally landscape-dependent. Visitors are drawn to the region because of its scenic uplands, coastal landscapes, biodiversity, tranquillity, environmental authenticity, dark skies, archaeological landscapes, cultural heritage and outdoor recreation opportunities. West Cork forms a significant component of the Wild Atlantic Way tourism strategy, itself dependent upon the preservation of scenic character and environmental quality.

The importance of this issue is understated within the EIAR. The existing landscape and environmental resources already generate substantial economic activity. The receiving environment is not an economically dormant landscape awaiting development; rather, it already sustains tourism, hospitality, wellness enterprises and recreation-based employment over the long term.

The proposal would introduce fourteen 169 metre industrial turbines, aviation lighting, extensive access roads, borrow pits, drainage interventions and associated infrastructure into a sensitive upland tourism landscape. The Board should carefully consider the contradiction between internationally promoting West Cork as a scenic and environmentally authentic destination while simultaneously permitting industrial-scale infrastructure of this scale within the same receiving environment.

Particular regard should be had to the fact that tourism in West Cork depends not merely upon isolated scenic viewpoints but upon broader experiential qualities including tranquillity, environmental immersion, remoteness, dark sky visibility and perceived naturalness. These are precisely the environmental qualities which the EIAR itself repeatedly identifies as sensitive receptors.

The impact upon Wild Hideaways illustrates this issue clearly. Wild Hideaways has developed a specialised wellness and dark sky tourism model centred upon stargazing, environmental immersion and escape from industrialisation. The business has invested substantially in dark sky infrastructure, low-lumen amber lighting systems and environmentally sensitive accommodation. The direct visibility of eight turbines, including Turbines 12, 13 and 14, would fundamentally alter the tourism experience being marketed and risks undermining the viability of a sustainable tourism enterprise whose commercial value derives directly from the surrounding environmental quality.



Proposed Turbine T14 is 1km from the existing business.(Wild Hideaways denoted in pink)

The EIAR materially overstates the long-term economic significance of the proposed development while underassessing the potential displacement effects on existing tourism and environmentally dependent enterprise. The EIAR acknowledges that the operational phase of the development would generate approximately only 3–4 permanent jobs. By contrast, tourism supports tens of thousands of jobs across Cork and is intrinsically dependent upon the continued protection of landscape quality and environmental character.

The Cork County Development Plan 2022–2028 and the Southern Regional Spatial and Economic Strategy both recognise tourism, landscape quality and environmental protection as strategic economic resources. Renewable energy policy must therefore be balanced against these established economic functions rather than treated as automatically overriding them.

By contrast, the proposal has the potential to give rise to long-term or permanent adverse impacts on:

- Residential amenity;
- Tourism enterprises;
- Dark sky tourism;
- Rural wellness businesses;
- Landscape quality;
- Existing local enterprise.

The EIAR fails to adequately assess economic displacement effects.

The Board should attach limited weight to temporary construction benefits where the potential exists for long-term harm to established rural economic activity.

Key Planning Point

- The EIAR assesses economic benefit but materially underassesses economic loss.
- Temporary construction employment cannot outweigh long-term environmental and tourism impacts.

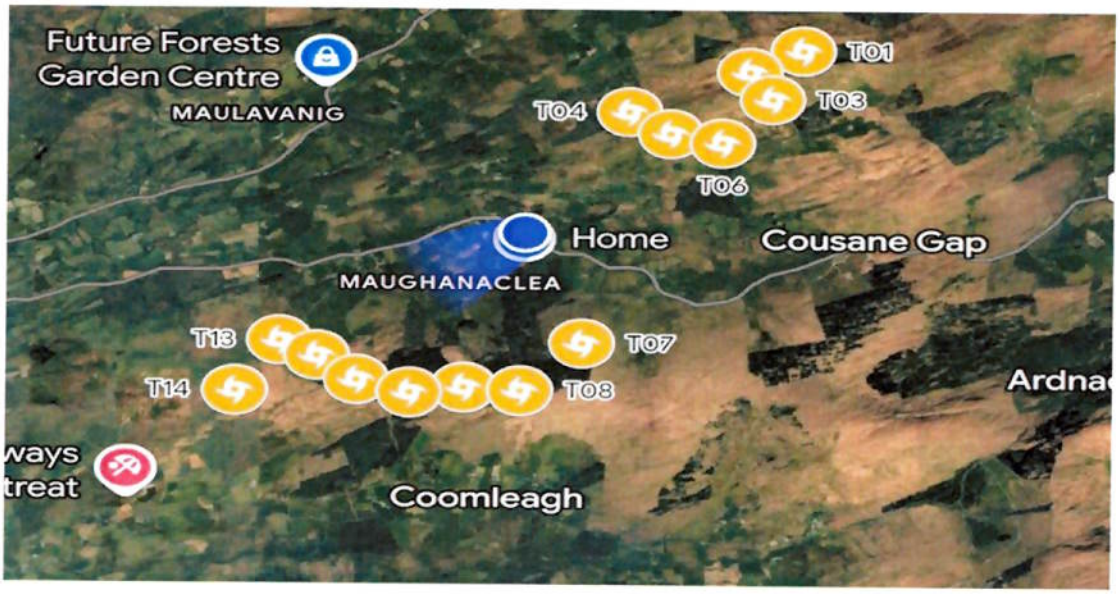
5.0 VISUAL OBTRUSIVENESS, RESIDENTIAL AMENITY AND HUMAN EXPERIENCE

The issue of visual obtrusiveness is central to the proper planning assessment of the proposed development. The proposed turbines are not modest landscape structures or incidental background infrastructure. At approximately 169 metres to blade tip, they would constitute exceptionally large moving industrial structures within an exposed upland rural landscape characterised by openness, scenic continuity, environmental tranquillity and relatively low levels of existing industrialisation.

The receiving environment is not an unoccupied upland landscape. It is a lived rural environment containing established family homes, tourism enterprises and residential properties whose outlook, setting and day-to-day experience are fundamentally connected to the surrounding landscape.

The proper assessment of visual impact is therefore not confined to theoretical visibility mapping or isolated photomontages. The Board must also consider the lived human experience arising from the introduction of turbines of this scale into close proximity with occupied homes and residential receptors.

Particular concern arises in relation to the dwelling of Virginie Laveau.



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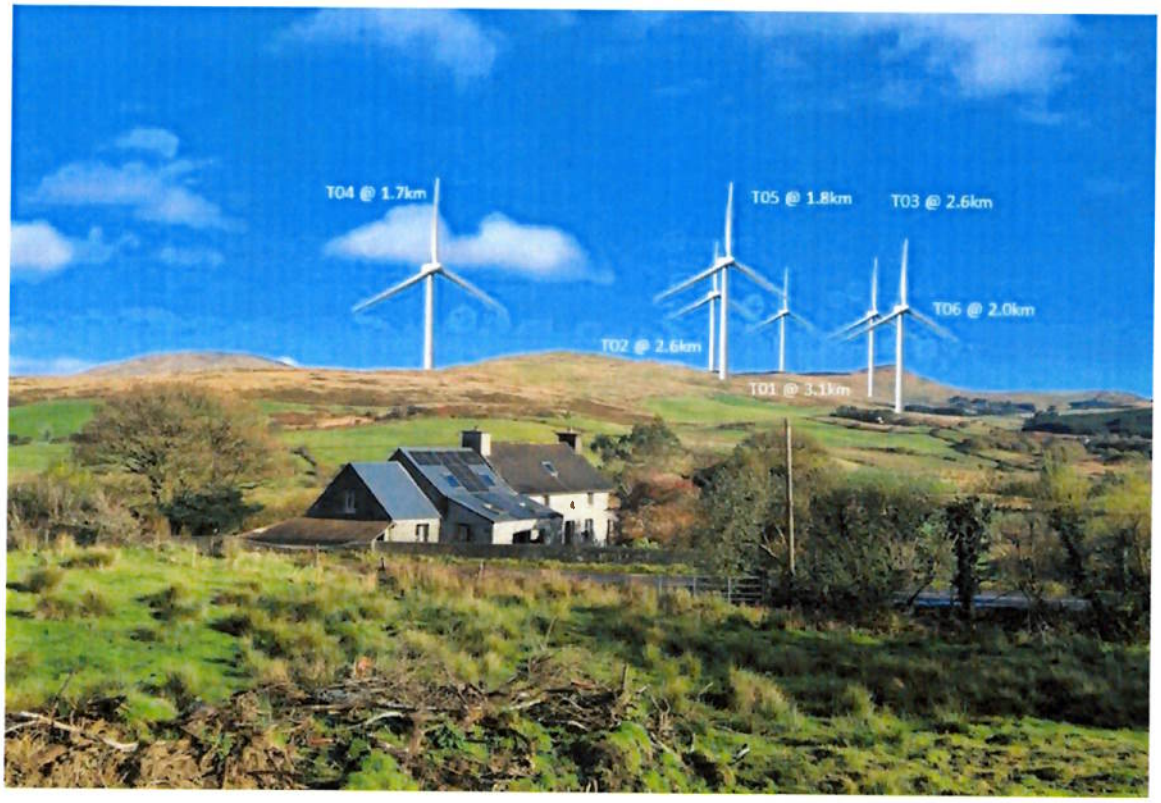
Map of proposed turbines in relation to Ms Laveau's home (shown in blue.)

The submitted mapping demonstrates that most of the proposed turbines are located within approximately 2 kilometres of Ms. Laveau's dwelling, with the nearest turbine, T7, located approximately 1.3 kilometres from the property.



Independent photomontage of the proposed Turbines in relation to Ms Leveau's Home

This relationship is highly material in planning terms having regard to the exceptional scale of the proposed turbines and their positioning relative to the dwelling.

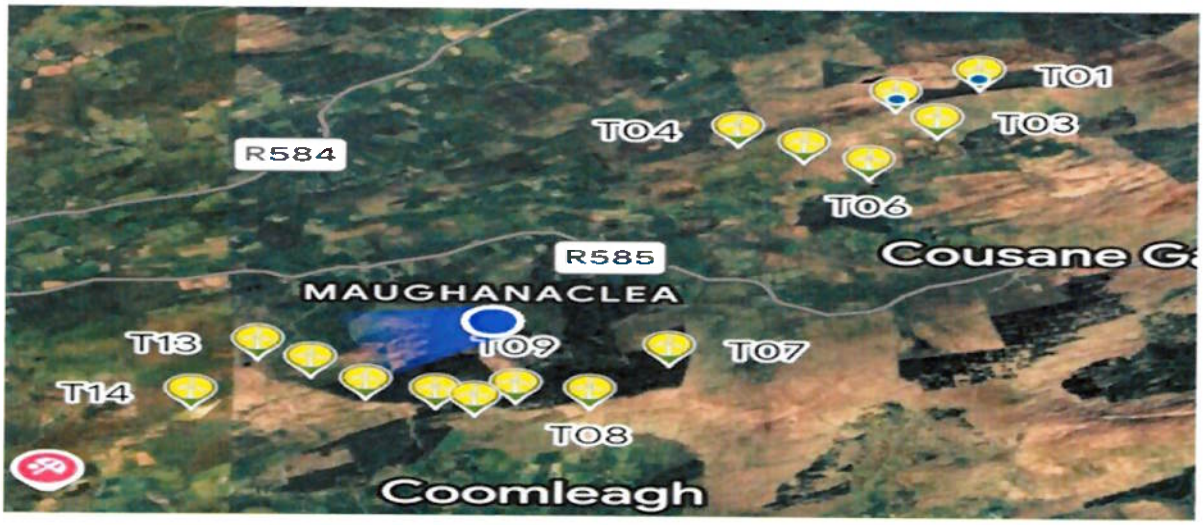
The visual material demonstrates that turbines would be experienced in multiple directions relative to the property, particularly in relation to Turbines 7, 8, 12, 13 and 14. This arrangement would create a pronounced sense of visual enclosure and cumulative turbine presence within the surrounding residential environment.

The turbines would not be experienced as distant background structures. Rather, they would form dominant moving vertical elements within the wider residential outlook associated with the dwelling.

The issue is not simply visibility. It is the extent to which the proposed development would alter the character of the residential environment itself.

The repetitive movement of turbine blades, the substantial vertical scale of the structures, skyline intrusion and the introduction of aviation lighting would fundamentally alter the environmental conditions presently experienced from the property.

This concern becomes even more acute in relation to the dwellings associated with Annabelle Seymour, particularly the primary dwelling identified as HO13 and the associated receptor identified as HO19.



Map of proposed turbines in relation to Ms Seymour's primary dwelling and place of work (shown in blue)

Existing View from Ms. Seymour's Bedroom

Image above of Ms. Seymour's primary dwelling showing uninterrupted views and the openness of the landscape.

The submitted mapping and visual material demonstrate that HO13 would experience exceptionally close and substantial visual interaction with the proposed turbine layout.

HO13 is located approximately 800 metres from the nearest proposed turbine and up to five turbines are located within approximately 800 metres of the dwelling.

These separation distances are exceptionally close in planning terms having regard to the extraordinary scale of the proposed turbines.

At such proximity, the turbines would not read as distant landscape features or occasional background elements. Rather, they would form dominant moving industrial structures within the immediate residential setting and principal outlook from the dwelling.

The submitted visual material demonstrates that multiple turbines would occupy substantial sections of the surrounding upland skyline directly within the primary outward outlook from HO13.

The proposed turbine arrangement would therefore materially and permanently alter the residential experience associated with the property.

This issue is particularly significant because the residential amenity presently enjoyed at HO13 derives substantially from:

- openness across the surrounding uplands;
- uninterrupted scenic outlook;
- environmental tranquillity;
- and the absence of major industrial infrastructure within the immediate visual environment.

The proposed development would fundamentally alter that relationship.

The turbines would not be experienced as isolated structures within a distant landscape. Their scale, movement and positioning relative to the dwelling would create a pronounced sense of visual dominance, industrial enclosure and loss of residential outlook.

The visual effect would be experienced continuously through day-to-day occupation of the dwelling including:

- from principal living areas;
- bedrooms and habitable rooms;
- gardens and outdoor residential spaces;
- approach roads;

- and wider views across the surrounding uplands.

The repetitive rotational movement of turbine blades, the substantial vertical scale of the structures and the introduction of aviation lighting would collectively create a constant industrial presence within what is currently a settled rural landscape.

The proximity of up to five turbines within approximately 800 metres of HO13 materially strengthens the concern regarding overbearing visual impact and unacceptable loss of residential outlook.

While visibility alone does not automatically render development unacceptable, the planning issue in the present case is the exceptional scale of the turbines, their close proximity to occupied dwellings and the extent to which the proposal would dominate the principal residential outlook from nearby homes.

The resulting visual relationship would exceed what would ordinarily be considered acceptable within a settled rural residential environment and would materially injure the residential amenities, outlook and living conditions of nearby occupiers.

The issue must also be considered cumulatively.

The proposed development would not introduce isolated infrastructure into an otherwise undeveloped landscape. Rather, it would contribute to the progressive industrialisation of the wider West Cork uplands through the introduction of fourteen additional turbines of exceptional scale within a landscape already subject to existing and proposed wind energy pressure.

The EIAR repeatedly attempts to reduce visual impact to questions of theoretical visibility and landscape capacity. However, visual obtrusiveness is not solely determined by whether turbines can technically be seen from a location. The proper assessment must also consider:

- the degree of visual dominance;
- interruption of skylines;
- cumulative turbine layering;
- movement within principal views;
- the effect on residential outlook;

- and the extent to which turbines become defining features within the surrounding environment.

The Board should also have regard to the lived experience of nearby residents. Visual impact is not experienced as a static photomontage. It is experienced continuously as part of daily life from homes, gardens, roads, outdoor spaces and the wider landscape setting.

Previous Board decisions and Irish court authority have recognised that turbine development may become unacceptable where the scale, proximity and cumulative dominance of turbines materially injure residential amenity and environmental quality.

Accordingly, the issue is not merely whether the turbines would be visible, but whether the scale, movement, proximity and industrial presence of the proposed development would result in an unacceptable degree of visual obtrusiveness and residential domination within a sensitive upland rural landscape.

It is respectfully submitted that they would.

Planning conclusion:

Having regard to:

- the exceptional scale and movement of the proposed 169 metre turbines;
- the close proximity of turbines to nearby dwellings;
- the cumulative positioning of turbines around nearby homes;
- the overbearing effect on residential outlook;
- the loss of openness and environmental tranquillity presently experienced within the receiving environment;
- the cumulative industrialisation of the wider upland landscape;
- and the resulting impact on the lived residential experience of nearby occupiers including Ms. Laveau and Ms. Seymour;

it is respectfully submitted that the proposed development would give rise to an unacceptable degree of visual obtrusiveness and would materially injure the visual amenities, residential outlook and living conditions of nearby residential properties.

6.0 Noise

6.1 Independent Acoustic Evidence of Dick Bowdler

The independent acoustic review notes that the selection of residential properties for assessment is described in Appendix 12.2 of the EIAR and specifically at Section 12.3.2.4.5. The Applicant states that the chosen properties consist of those where the *"predicted turbine noise levels from the proposed, consented, and existing wind turbines is greater than 35 dB LA90, and the predicted noise from the proposed turbines in isolation is 10 dB below the fixed lower threshold for turbine noise proposed for the Proposed Project"*.

The effect of this approach is that the EIAR assessment is framed primarily around compliance with selected numerical thresholds rather than around the full lived effect of introducing a persistent industrial noise source into a quiet rural environment. The independent report notes that most of the properties within the 30 dB contour line appear to have been selected, but it also demonstrates that the predicted operational effects at certain receptors remain highly material.

Particular concern arises in relation to receptors H013 and H019. The independent assessment identifies that H013 would experience turbine noise levels above 37 dB at wind speeds of 6 m/s and above. The report states that this is significant because it is the point at which the World Health Organization identifies the onset of adverse health effects, including annoyance. The figures for H013 are set out below.

Table 5.1 – Effect at H013

Source: Dick Bowdler Acoustic Review

H013 – Wind Speed m/s at 10m	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Turbine noise	30.2	35.6	39.4	39.8	39.8	39.8	39.8
Background Day	26.2	28.2	30.4	32.5	34.3	35.6	36.1
Background Night	24.4	25.7	27.2	28.8	30.3	31.6	32.6
Margin Day	4.0	7.4	9.0	7.3	5.5	4.2	3.7
Margin Night	5.8	9.9	12.2	11.0	9.5	8.2	7.2

The significance of these figures is not simply that a threshold is exceeded. The significance lies in the relationship between predicted turbine noise and the existing low background environment. At night, when residential sensitivity is greatest, the margin above background is shown as 12.2 dB at 6 m/s, 11.0 dB at 7 m/s and 9.5 dB at 8 m/s. These are substantial increases in a rural receiving environment.

The independent report concludes that a BS 4142 assessment would produce significant effects at night for most wind speeds, with moderate effects for the others, and significant or moderate effects at times during the day. The effect at H019 is identified as only approximately 0.6 dB less than H013, meaning that the practical effect would be little different.

The report further states that approximately **25 properties** around the wind farm would have turbine **noise levels of 37 dB or more**, and approximately **60 properties would experience turbine noise exceeding background noise by 8 dB or more at some wind speed**. These are **not isolated or exceptional effects**. They suggest a materially wider residential amenity issue.

6.2 Why Compliance with Noise Guidelines Does Not Automatically Make the Development Acceptable

The Applicant's EIAR places significant emphasis on compliance with the Wind Energy Development Guidelines 2006 and selected operational noise limits. However, compliance with guideline thresholds does not automatically establish that a wind farm is acceptable from a planning perspective.

In Ireland, there is currently no fixed statutory setback distance between wind turbines and occupied homes. The planning assessment is therefore not simply a mathematical exercise based on minimum distances or technical noise limits. The Board must assess the overall impact of the development on residential amenity and human experience.

The Wind Energy Development Guidelines 2006 are guidance documents issued under Section 28 of the Planning and Development Act. They are not mandatory legal standards and must be applied on a case-by-case basis having regard to:

- the scale of the turbines;

- the nature of the receiving environment;
- existing background noise levels;
- landscape sensitivity;
- and cumulative residential effects.

The Draft Wind Energy Development Guidelines 2019, although not formally adopted, are still highly relevant because they reflect an evolving understanding that modern turbines are substantially larger and may require greater separation distances and more robust protection of residential amenity.

This is particularly important in the present case because the proposed turbines are approximately 169 metres in height and are located within a quiet rural upland environment characterised by:

- low background noise;
- environmental tranquillity;
- dark sky value;
- and dispersed rural housing.

In such environments, operational turbine noise may be experienced much more acutely than in urban or infrastructure-dominated landscapes.

The independent acoustic review prepared by Dick Bowdler is therefore highly material.

The review concludes that while the proposal may technically comply with aspects of the 2006 Guidelines, the EIAR materially understates the likely residential impact of turbine noise.

The report states:

"WEDG 2006 is claimed to be based on ETSU-R-97. This application meets WEDG 2006 but it would not meet ETSU-R-97."

The report further concludes:

"It is my opinion, based on good and reliable evidence, that the conclusion reached in the EIAR that the effect of noise is not significant is quite wrong."

These findings are important because they demonstrate that formal guideline compliance does not necessarily mean that residents will avoid significant adverse effects.

The independent review identifies particular concern regarding receptors H013 and H019, where predicted turbine noise levels and margins above background noise remain substantial, particularly during night-time periods when residential sensitivity is greatest.

The planning issue is therefore not simply whether the proposal meets selected numerical thresholds.

The real issue is whether turbines of this scale, operating continuously within a quiet rural environment and in close proximity to occupied dwellings, would materially affect:

- residential amenity;
- sleep and night-time environment;
- environmental tranquillity;
- and the overall quality of life experienced by nearby residents.

The Supreme Court decision in *Balz & Heubach v An Bord Pleanála* [2019] IESC 90 is directly relevant.

The Court confirmed that the Board is required to "have regard" to the Wind Energy Development Guidelines but must not apply them mechanically or treat them as automatically determinative.

Importantly, the Court also recognised that scientific understanding and technical knowledge evolve over time.

That principle is highly relevant in the present case because understanding of:

- turbine scale;
- amplitude modulation;
- low-frequency noise;
- night-time disturbance;
- and cumulative residential effects

has developed significantly since the 2006 Guidelines were first issued.

The Board must therefore assess the actual residential effects of this proposal within its real-world receiving environment rather than relying solely upon historic guideline thresholds.

Key Planning Point

- Compliance with guideline thresholds does not automatically establish planning acceptability.
- The Wind Energy Development Guidelines are guidance documents rather than fixed statutory standards.
- The independent acoustic review materially challenges the EIAR conclusion that operational noise effects would not be significant.
- The Board must assess the lived residential impact of continuous turbine operation within a quiet rural environment.

Planning conclusion:

Having regard to:

- the scale of the proposed turbines;
- the low background noise environment;
- the proximity of nearby dwellings;
- the conclusions of the independent acoustic review;
- the likely night-time residential effects;
- and the evolving understanding of turbine noise and residential amenity;

it is respectfully submitted that compliance with selected guideline thresholds does not establish that the proposed development would avoid unacceptable impacts on residential amenity and human experience.

6.3 Inspectorate Recognition that Noise Character and Rural Tranquillity Matter

The Board's own inspectorate has recognised in previous wind farm cases that noise assessment cannot be reduced to a simple decibel threshold exercise.

In the Inspector's Addendum Report in ABP-315656-23, concerning a wind farm proposal in the Gougane Barra / West Cork area, the Inspector recorded that residents in a remote area generally experience low background noise levels. The Inspector expressly acknowledged that:

"The swishing of blades from the large turbines proposed could potentially affect sleep patterns and could potentially generate stress where turbine noise is audible, particularly where windows may be left open in houses in the vicinity."

That Inspector also considered amplitude modulation and stated that the standard method applied in comparable wind farm cases, which relies on specific decibel limits, does not address the problem of amplitude modulation from large wind turbines, and that the 2006 Guidelines do not discuss the problem. The Inspector concluded that where amplitude modulation is acknowledged as a potential adverse effect, there should be an understanding at application stage of what measures will address it.

The Inspector went further and observed that, in the absence of updated Section 28 Guidelines, the precautionary principle could reasonably apply because the environmental and/or human health hazard is uncertain. The Addendum Report proposed that the Board could include a reason for refusal stating that, having regard to the acceptance of potential adverse noise impacts from amplitude modulation, the lack of guidance in the 2006 Guidelines and the lack of proposed mitigation measures, the Board was not satisfied that the wind farm would not seriously injure residential amenities by way of adverse noise effects.

That reasoning is highly relevant to the present proposal. **The Dick Bowdler report does not merely raise a theoretical concern about turbine noise. It identifies specific receptors, specific predicted levels, specific margins above background and specific limitations in the EIAR's reliance on WEDG 2006. It also notes that the assessment does not include tones or amplitude modulation, and that if either occurred the effect would be more significant.**

This directly engages the type of concern identified in the Gougane Barra inspectorate analysis: where turbine noise character is uncertain, and where amplitude modulation is not fully resolved, a compliance-based assessment may not adequately protect residential amenity.

6.4 Court Recognition of Noise as Interference with Residential Enjoyment

The planning system is not the only context in which wind turbine noise has been recognised as capable of materially interfering with residential amenity.

In the Meenacloghspar wind farm nuisance proceedings in County Wexford, the High Court found that turbine noise could amount to an unreasonable interference with the use and enjoyment of neighbouring homes. Reporting of the judgment records that the Court looked beyond mere compliance with planning limits and considered the frequency, duration and intrusive character of turbine noise, including amplitude modulation. The Court found that the noise levels, when combined with other factors such as frequency and impact on sleep, gave rise to *"dominance and unacceptable intrusiveness"* by the wind farm.

That decision is important for planning purposes because it demonstrates that compliance with planning noise limits does not necessarily mean that turbine noise will be acceptable in real residential terms. A development may be modelled as compliant and yet still cause substantial interference with the enjoyment of homes.

The High Court decision in Nagle View Turbine Aware Group v An Bord Pleanála [2024] IEHC 603 also confirms the legal importance of how the Board engages with noise material. In that case, the Court upheld the Board's decision, but it did so because the Board and Inspector had considered not only the 2006 Guidelines but also other material including the 2019 Draft Guidelines, WHO 2018 Environmental Noise Guidelines, BS 4142 and the Institute of Acoustics Good Practice Guide. The significance of Nagle View for the present case is therefore that the Board's assessment must be evidence-based and must engage with the material before it. It is not enough to rely mechanically on WEDG 2006.

The same principle is supported by O'Brien v An Bord Pleanála, where the Court recognised that increased noise can impose a strict standard on a developer in order to ensure that there is no undue damage to existing amenities. The importance of baseline noise assessment and the receiving environment is therefore well established.

6.5 Application to the Present Proposal

The Dick Bowdler acoustic review provides precisely the type of site-specific evidence which Balz indicates must be considered and which Nagle View confirms the Board must engage with.

It demonstrates that:

- receptor H013 would experience turbine noise above 37 dB at wind speeds of 6 m/s and above;
- night-time margins above background would reach 12.2 dB at 6 m/s and 11.0 dB at 7 m/s;
- H019 would experience a materially similar effect;
- approximately 25 properties would experience turbine noise levels of 37 dB or more;
- approximately 60 properties would experience turbine noise exceeding background by 8 dB or more at some wind speeds;
- the proposal may comply with WEDG 2006 but not ETSU-R-97;
- the EIAR does not include for tones or amplitude modulation;
- and the assumed sound power levels may be materially lower than manufacturer data.

These points are not speculative. They arise from the Applicant's own predicted noise framework and from the independent acoustic review submitted with this observation.

It is respectfully submitted that the Board cannot safely accept the EIAR's conclusion that operational noise effects would not be significant. The more defensible conclusion is that there is credible evidence of significant and moderate adverse effects on residential amenity, particularly at night, and that uncertainty remains in relation to amplitude modulation, tonal characteristics and the adequacy of the assumed sound power levels.

7.0 BIODIVERSITY, ECOLOGY AND NATURA IMPACTS

The proposed development would introduce a substantial industrial-scale wind energy project into an upland landscape of acknowledged ecological sensitivity.

The receiving environment comprises interconnected peatland systems, wet heath, blanket bog, hydrologically sensitive watercourses and habitats used by protected bird and bat species.

The independent ecological review prepared by Dr. Will O'Connor of EcoFact concludes that substantial ecological survey work was undertaken. However, the principal concerns arise not from the absence of baseline information, but from:

- the interpretation of the data;
- the treatment of uncertainty;
- the degree of reliance placed upon mitigation;
- and the scientific certainty attached to the conclusions reached.

The review identifies particular concern regarding aquatic ecology and ecological connectivity associated with the Bandon River catchment and Freshwater Pearl Mussel pathways.

The aquatic surveys identified positive Freshwater Pearl Mussel eDNA detections at multiple locations associated with the proposed grid connection route, including a particularly strong positive detection at GC5.

These same areas were identified as supporting high-quality fisheries habitat within a receiving environment already recognised as:

- sediment-sensitive;
- hydrologically unstable;
- and environmentally vulnerable.

Despite this acknowledged sensitivity, the Natura Impact Statement concludes that adverse effects can be excluded primarily through reliance upon mitigation measures and HDD methodology.

The review raises legitimate concern regarding whether the level of scientific certainty required under Article 6(3) of the Habitats Directive has genuinely been achieved.

The biodiversity assessments also confirm the presence of degraded but still recognisable Annex I-type habitats including:

- Wet Heath;
- Dry Siliceous Heath;
- Wet Modified Bog;
- and Upland Blanket Bog.

Importantly, ecological degradation does not remove ecological value or restoration potential.

The review further notes that ecological restoration and biodiversity enhancement measures are relied upon extensively throughout the EIAR documentation. However, ecological restoration is inherently uncertain and frequently requires lengthy recovery periods.

The review also identifies concern regarding bats and ecological connectivity.

While the bat surveys are considered procedurally comprehensive, the surveys themselves recorded elevated levels of bat activity associated with several proposed turbine locations, including repeated use of forestry edges and linear habitats by higher collision-risk species such as Leisler's Bat.

A recurring concern identified throughout the ecological review is that the baseline surveys consistently demonstrate a relatively sensitive upland ecological landscape, yet the resulting impacts are repeatedly characterised as:

- slight;
- low;
- or not significant.

The Board has previously recognised the significance of cumulative ecological pressure within the wider Shehy Mountains and West Cork uplands.

In Inspector's Report ABP-308244-20, the Inspector concluded that cumulative wind energy development within the wider upland landscape would:

"substantially erode the quality of the environment"

through cumulative ecological pressure and habitat disturbance.

Article 6(3) of the Habitats Directive establishes a particularly high evidential threshold where European sites and protected habitats may be affected.

European case law including:

- *Waddenzee*;
- *People Over Wind*;
- *Holohan*;
- and *Sweetman*;

makes clear that consent may only lawfully be granted where complete, precise and definitive findings remove all reasonable scientific doubt regarding adverse effects on European site integrity.

Planning conclusion:

Having regard to:

- the acknowledged ecological sensitivity of the receiving environment;
- Freshwater Pearl Mussel pathways and hydrological connectivity;
- peatland habitats and ecological fragmentation;
- elevated bat activity;
- the cumulative ecological pressure already affecting the wider upland landscape;
- the remaining scientific uncertainty identified within the EIAR and EcoFact review;
- and the obligations arising under Article 6(3) of the Habitats Directive;

it is respectfully submitted that the Board cannot be satisfied that the proposed development would avoid unacceptable impacts on biodiversity, ecology, ecological connectivity and European site integrity.

8.0 ORNITHOLOGY

8.1 EIAR Conclusions on Ornithology and Residual Ornithological Risk

The ornithological assessment is one of the most significant environmental issues arising in this application.

The EIAR concludes that the proposed development would not give rise to significant ornithological effects and that residual impacts associated with habitat loss, disturbance, displacement and collision risk would be *"no greater than a long-term slight negative effect."* That conclusion is not accepted and materially understates both the sensitivity of the receiving environment and the degree of uncertainty which remains in relation to operational effects on bird populations.

The ornithology chapter itself acknowledges that the assessment adopts a *"precautionary approach"* and identifies a number of Key Ornithological Receptors (*"KORs"*) associated with the site and wider receiving environment. The EIAR further acknowledges that the proposed development lies within a wider ecological and hydrological landscape connected to designated European sites, including the Mullaghanish to Musheramore Mountains SPA and the Bandon River SAC.

The Board should have regard to the fact that the proposed turbines are exceptionally large structures at 169 metres to blade tip. The scale of these turbines materially increases:

- collision envelope;
- rotor swept area;
- visual movement within the landscape;
- disturbance range;
- and cumulative aerial obstruction effects.

The EIAR repeatedly attempts to minimise these effects by reference to mitigation and modelling assumptions. However, the presence of mitigation does not eliminate uncertainty, particularly where:

- upland landscapes are involved;
- peatland and open habitat systems occur;

- flight activity may vary seasonally;
- and cumulative interaction with other wind energy developments remains uncertain.

The EIAR itself accepts that a cumulative assessment was required in relation to other existing and proposed wind farms within a 25 kilometre radius of the site. This is a very important acknowledgement.

The Applicant's own ornithological material further acknowledges that bird activity associated with designated European sites extends beyond the formal boundaries of those sites and into the wider upland landscape surrounding the proposed development.

In particular, the Applicant accepts that protected bird species associated with the adjacent SPA are utilising lands within and surrounding the proposed turbine area itself.

This is highly significant in planning terms.

Bird species do not recognise planning boundaries, red-line application sites or mapped designation edges. Protected bird species move across the wider landscape to forage, migrate, breed, roost and utilise supporting habitat beyond the formal limits of designated European sites.

The ecological function of an SPA therefore cannot be artificially confined to the line shown on a planning map.

The fact that protected bird species associated with the adjacent SPA have been recorded within and around the proposed development area materially strengthens the concern regarding collision risk, displacement, disturbance and cumulative ecological pressure.

It also demonstrates that the proposed turbines would not operate in ecological isolation from the designated site network.

Rather, the turbines would introduce very large moving aerial structures directly into a wider functional landscape already being actively used by protected bird species associated with the adjacent SPA.

The pressures placed upon such species may build gradually over time as more and more turbine developments are introduced into the same upland environment.

For that reason, the potential impact on bird populations cannot be looked at in isolation or reduced to the effect of this development alone. Even where the impact of a single wind farm may appear limited when assessed on its own, the combined effect of multiple wind farms across the wider West Cork uplands may become much more significant over time. Repeated disturbance, habitat displacement, altered flight paths and cumulative collision exposure can gradually erode the ability of sensitive species to safely use the landscape.

This concern is particularly relevant in the present case because the wider receiving environment is already subject to existing, permitted and proposed wind farm development. The proposed Maughanaclea turbines would not be operating within an untouched landscape. They would form part of an increasingly industrialised upland environment where cumulative pressure on bird populations and ecological connectivity is already a material planning issue.

The proposal must therefore be assessed not merely in terms of direct collision mortality, but also in terms of:

- habitat fragmentation;
- displacement from foraging areas;
- behavioural avoidance;
- barrier effects;
- disturbance during breeding and wintering periods;
- cumulative collision risk;
- hydrological interaction with supporting habitats;
- and long-term alteration of upland ecological systems.

The EIAR's conclusion that effects will be *"slight"* relies heavily upon modelling assumptions and survey interpretation. However, the precautionary principle embedded within European environmental law requires that scientific uncertainty itself be treated with caution where protected species and designated ecological networks are concerned.

Article 4 of the Birds Directive (Directive 2009/147/EC) requires Member States to avoid deterioration of habitats and disturbance affecting protected bird species. Article 6(3) of the

Habitats Directive (Directive 92/43/EEC) requires that consent may only be granted where the competent authority is satisfied, beyond reasonable scientific doubt, that the integrity of European sites will not be adversely affected.

The Court of Justice of the European Union has repeatedly confirmed the strict nature of this test.

In Waddenvereniging v Staatssecretaris (Case C-127/02), the Court held that authorisation may be granted only where:

"there is no reasonable scientific doubt remaining as to the absence of such effects."

Similarly, in People Over Wind v Coillte (Case C-323/17) and Holohan v An Bord Pleanála (Case C-461/17), the Court emphasised the need for complete, precise and definitive findings capable of removing scientific doubt.

That standard is particularly important in the present case because the EIAR itself acknowledges:

- cumulative interaction with other wind farms;
- the presence of designated ecological receptors;
- and the need for mitigation and adaptive management.

Reliance upon post-consent mitigation or adaptive operational responses should not substitute for certainty at application stage.

The Cork County Development Plan 2022–2028 also requires a precautionary approach.

Objective ET 13-4 supports wind energy development only where it accords with objectives relating to:

"biodiversity, landscape, heritage, water management and environment."

Objective ET 13-5(b) further provides that wind energy proposals should generally avoid:

"sites and locations of ecological sensitivity."

The EIAR acknowledges that the proposed development occurs within a sensitive upland environment containing peatland habitats, wet heath, blanket bog, forestry interfaces and hydrologically connected systems. These are landscapes which support bird activity and ecological connectivity. The fact that the site falls within an *"Open to Consideration"* designation does not remove the obligation to avoid ecological harm.

Particular concern also arises regarding displacement and disturbance effects. The EIAR largely frames collision mortality as the principal issue. However, large turbines may also alter behavioural use of landscapes by sensitive species. Disturbance and avoidance effects may reduce habitat functionality even where direct mortality is limited.

This issue is especially important in the wider West Cork context having regard to the reintroduction of the White-tailed Sea Eagle (*Haliaeetus albicilla*) by the National Parks and Wildlife Service as part of the national White-tailed Sea Eagle Reintroduction Programme. The species was successfully reintroduced to Glengarriff and the wider West Cork region from 2020 onwards following extensive conservation and habitat restoration efforts. The White-tailed Sea Eagle is one of the largest birds of prey in Europe and is highly sensitive to habitat disturbance, collision risk and changes within open upland and coastal landscapes.

The significance of this reintroduction programme should not be understated. The return of White-tailed Sea Eagles to West Cork represents a major national biodiversity achievement and reflects the ecological importance of the wider receiving environment. It also demonstrates that the upland and coastal landscapes of West Cork are increasingly functioning as habitats and movement corridors for large protected raptor species.

It is understood that White-tailed Sea Eagles have been observed flying above and in close proximity to the lands surrounding Annabelle Seymour's property and the proposed turbine area itself. This is highly material in planning terms. While individual sightings do not in themselves establish nesting or permanent occupation, they do demonstrate the real-world interaction between large protected raptor species and the wider landscape within which the proposed turbines would operate.

The proposed turbines, at 169 metres in height with very large rotor swept areas, would introduce substantial moving aerial structures into this environment. The potential interaction

between very large raptor species and turbines of this scale cannot be dismissed lightly, particularly within a landscape already subject to cumulative wind farm pressure.

The reintroduction of White-tailed Sea Eagles also materially strengthens the precautionary approach which the Board is required to apply. The purpose of national species reintroduction programmes is not merely symbolic. It is to restore viable populations and ecological resilience over the long term. It would be contrary to that objective if major industrial infrastructure were permitted within a sensitive upland receiving environment without complete certainty regarding cumulative ornithological effects and collision risk.

This is especially relevant where:

- upland habitats;
- open peatland systems;
- forestry edge habitats;
- and wider ecological corridors are affected.

The Board has previously recognised in wind energy appeals that upland landscapes and ecologically sensitive areas may have limited capacity to absorb large-scale turbine development without cumulative ornithological impact.

Inspectors have repeatedly emphasised that:

- absence of certainty is not equivalent to absence of impact;
- cumulative effects require careful assessment;
- and mitigation measures cannot automatically be assumed to fully resolve ecological risk.

The proposed development must also be considered in the context of climate resilience and biodiversity obligations together. Climate policy does not displace biodiversity protection obligations. This principle is expressly recognised within the Cork County Development Plan and within European environmental law.

The EIAR's conclusion that no significant effects are anticipated is therefore overly definitive having regard to:

- the scale of the turbines;
- the sensitivity of the receiving environment;
- the cumulative wind farm context;
- the reliance upon mitigation;
- and the acknowledged ecological connectivity of the area.

The more cautious and defensible conclusion is that significant uncertainty remains regarding long-term ornithological effects and cumulative ecological pressure within the wider upland West Cork landscape.

Matters the Proposal Must Be Assessed Against

The proposal must be assessed having regard to:

- the Birds Directive (Directive 2009/147/EC);
- the Habitats Directive (Directive 92/43/EEC);
- Article 6(3) Appropriate Assessment obligations;
- the precautionary principle in European environmental law;
- the Cork County Development Plan 2022–2028;
- the Cork County Development Plan Wind Energy Strategy;
- cumulative impact obligations under the EIA Directive;
- the integrity of designated European sites;
- collision risk;
- displacement and disturbance effects;
- habitat fragmentation;
- cumulative ecological pressure;
- and the adequacy of mitigation and monitoring proposals.

Key Planning Point

The EIAR materially understates ornithological risk and overstates the certainty of its conclusions. The proposal involves 169 metre industrial turbines within a sensitive upland ecological landscape connected to designated European sites and wider bird-supporting habitats. Significant uncertainty remains regarding cumulative collision risk, displacement, disturbance and long-term ecological effects. In circumstances where scientific doubt

remains, the precautionary principle and Article 6(3) obligations require the Board to adopt a cautious approach.

9.0 LAND, SOILS AND GEOLOGY

The land, soils and geological characteristics of the proposed development site are not minor technical matters capable of being resolved solely through routine construction mitigation. They are fundamental environmental constraints arising from the nature of the receiving upland peatland landscape itself.

The proposed development would require extensive excavation, access track construction, drainage intervention, borrow pit activity, spoil management, forestry felling and significant ground disturbance across a hydrologically sensitive upland environment.

The independent ecological review prepared by Dr. Will O'Connor of EcoFact identifies significant concern regarding the treatment of peatland habitats, hydrology and geological uncertainty throughout the EIAR.

The review confirms the presence of degraded but still recognisable Annex I-type habitats including:

- Wet Heath;
- Dry Siliceous Heath;
- Wet Modified Bog;
- and Upland Blanket Bog.

The review further concludes that the principal issue arising is not the absence of baseline information, but rather the interpretation of that information and the degree of scientific certainty attached to the conclusions reached.

The EIAR records peat depths across the site ranging from 0 metres to 4.5 metres, with peat depths at turbine locations ranging from approximately 0.1 metres to 2.1 metres.

Peatland stability and hydrological behaviour are not governed by average depth. Risk may arise from:

- localised deeper peat pockets;
- slope instability;
- altered drainage patterns;
- spoil loading;
- borrow pit excavation;
- and increasingly intense rainfall events associated with climate change.

The Cork County Development Plan 2022–2028 expressly recognises the sensitivity of such receiving environments.

Objective ET 13-2(a) supports renewable energy development only where adverse impacts on:

- water quality;
- biodiversity;
- landscape;
- and environmental quality

can be avoided.

In Inspector's Report ABP-308244-20, concerning development within the wider Shehy Mountains landscape, the Inspector concluded that cumulative wind energy development would:

"substantially erode the quality of the environment"

through cumulative upland disturbance and ecological pressure.

European case law including *Waddenzee*, *Holohan* and *People Over Wind* establishes that environmental conclusions relied upon in Appropriate Assessment must be based upon complete, precise and definitive findings capable of removing all reasonable scientific doubt.

Planning conclusion:

Having regard to:

- the scale of excavation and ground disturbance proposed;

- the sensitivity of the upland peatland environment;
- peatland habitats and hydrological connectivity;
- the remaining scientific uncertainty identified;
- the precautionary principle;
- and the obligations arising under Article 6(3) of the Habitats Directive;

it is respectfully submitted that the Board cannot be satisfied that the proposed development would avoid unacceptable impacts on peatland stability, land, soils, geology and downstream ecological integrity.

10.0 HYDROLOGY AND HYDROGEOLOGY

The hydrological and hydrogeological context of the proposed development is one of the most significant environmental constraints arising in this application.

The EIAR confirms that the proposed wind farm is located within the Owvane River and Mealagh River catchments and that the proposed grid connection extends into the wider Bandon River catchment.

The receiving environment includes downstream ecological pathways connected to the Bandon River SAC together with multiple downstream drinking water abstractions.

The proposed development would involve:

- peat excavation;
- extensive track construction;
- borrow pits;
- spoil storage;
- drainage intervention;
- trenching works;
- HDD crossings;
- forestry felling;
- and multiple watercourse interactions.

The independent ecological review prepared by Dr. Will O'Connor of EcoFact identifies aquatic ecology and hydrological uncertainty as one of the most significant weaknesses within the EIAR documentation.

The review notes that Freshwater Pearl Mussel eDNA detections were identified at multiple locations associated with the proposed grid connection route, including a particularly strong positive detection at GC5.

Despite this acknowledged sensitivity, the EIAR and Natura Impact Statement conclude that adverse effects can be excluded largely through reliance on mitigation measures and HDD methodology.

The independent review raises legitimate concern regarding:

- reliance on HDD crossings without fully site-specific hydrogeological assessment;
- frac-out risk;
- sediment mobilisation pathways;
- drainage connectivity;
- and the assumption that mitigation measures will function precisely as intended.

The Water Framework Directive requires prevention of deterioration in water body status.

European case law including *Waddenzee*, *Holohan* and *People Over Wind* establishes that Appropriate Assessment conclusions must be based upon complete, precise and definitive findings capable of removing all reasonable scientific doubt.

The Cork County Development Plan 2022–2028 similarly recognises the importance of protecting hydrological systems, water quality and ecological integrity.

Planning conclusion:

Having regard to:

- the hydrological sensitivity of the receiving environment;
- Freshwater Pearl Mussel pathways and downstream SAC connectivity;
- the scale of excavation and drainage intervention proposed;
- the remaining scientific uncertainty identified within the EIAR and EcoFact review;

- the obligations arising under the Water Framework Directive and Article 6(3) of the Habitats Directive;
- and the precautionary principle;

it is respectfully submitted that the Board cannot be satisfied that the proposed development would avoid unacceptable impacts on hydrology, downstream water quality, aquatic ecology and European site integrity.

11.0 CUMULATIVE IMPACT

The Applicant's own landscape material acknowledges that the proposed turbines are not being introduced into a landscape with no existing wind energy presence. Appendix 13-2 of the EIAR identifies, within the relevant landscape character context, the existing Shehy More, Cleanrath and Derragh Wind Farms, the permitted Carrigarierk Extension, the proposed Gortloughra Wind Farm, the proposed Curraglass Wind Farm, and one turbine of the permitted Gortyrahilly Wind Farm. The same appendix further notes the proposed Dereenacreenig West Wind Farm along the boundary of the landscape character type and identifies existing Carrigarierk Wind Farm along an adjacent boundary.

This acknowledgement is important because it confirms that the cumulative baseline is already significant. The issue is not whether this proposal alone is visible or harmful in isolation. The issue is whether the addition of fourteen 169 metre turbines would result in further cumulative industrialisation of an upland West Cork landscape already subject to wind energy pressure.

Cumulative impact is not confined to adding up turbine numbers. It includes the combined effect of existing, permitted and proposed wind farms on landscape character, residential amenity, bird movement, ecological connectivity, tourism experience, night-time lighting, dark sky quality, road infrastructure, peatland disturbance, grid infrastructure and public perception of place. A landscape may reach a point where additional turbines no longer read as isolated renewable infrastructure but as a dominant industrial land use.

The EIAR attempts to minimise cumulative impact by stating that the proposed development would introduce few new areas from which wind energy would become visible for the first time. That is the wrong emphasis. The fact that an area already sees turbines does not mean

that additional turbines are acceptable. In cumulative visual assessment, the question is whether the additional development intensifies, extends, consolidates or tips the balance of the landscape character toward wind farm dominance. Where a landscape already contains multiple wind farms, the planning concern is not only new visibility but saturation, layering, sequential exposure and loss of remaining visual relief.

This issue is particularly acute in the present case because the proposed turbines are very large structures of 169 metres to blade tip. Their height, movement and aviation lighting would materially increase the cumulative visual and experiential burden, particularly when viewed from residential properties, local roads, elevated viewpoints, tourism receptors and dark sky locations. The proposed development would not merely add another small background element to an existing turbine landscape; it would place a new 14-turbine development of very substantial scale into an already pressured upland landscape.

11.1 Legal and Policy Basis for Cumulative Assessment

The requirement to assess cumulative impact arises directly under:

- the EIA Directive;
- the Habitats Directive;
- the Birds Directive;
- the Water Framework Directive;
- the Planning and Development Acts;
- and the Cork County Development Plan 2022–2028.

Cumulative assessment is not an optional add-on. It is an essential part of identifying likely significant environmental effects.

The principle has also been emphasised in Irish wind farm litigation. In O'Grianna v An Bord Pleanála, the High Court held that a wind farm and its grid connection could not be artificially separated for the purposes of environmental assessment where both formed part of the same overall project. The significance of that case is that environmental assessment must consider the real project and its combined effects rather than fragmenting impacts into separate elements. The same principle applies to cumulative wind farm assessment: the Board

must consider the combined pattern of development rather than viewing each project in isolation.

In Balz & Heubach v An Bord Pleanála, the Supreme Court confirmed that the Board must engage with material submissions and must not mechanically rely on guidelines or incomplete assessment where substantive concerns are raised. In the present case, cumulative landscape, noise, ecological and tourism concerns are substantive and arise from both the EIAR itself and the wider planning context.

The Cork County Development Plan Wind Energy Strategy also recognises cumulative impact as a relevant consideration in *"Open to Consideration"* areas. The designation does not mean that the landscape has unlimited capacity for turbines. It requires assessment of whether additional development would avoid adverse effects on residential amenity, landscape quality, ecological receptors and wider visual character.

European case law establishes that cumulative effects must be assessed comprehensively and precautionarily.

The Court of Justice of the European Union has repeatedly confirmed that environmental assessment cannot artificially isolate developments from their wider cumulative context.

Article 6(3) of the Habitats Directive requires that consent may only be granted where complete, precise and definitive findings remove all reasonable scientific doubt regarding adverse effects on European site integrity.

These principles are particularly relevant where:

- multiple wind energy projects exist within the same receiving landscape;
- ecological pathways overlap;
- hydrological systems are interconnected;
- and cumulative landscape industrialisation is occurring progressively over time.

The Cork County Development Plan similarly requires that renewable energy development avoid unacceptable cumulative impacts on:

- landscape;

- ecology;
- biodiversity;
- residential amenity;
- and environmental quality.

11.2 Existing, Permitted and Proposed Wind Farms in the Vicinity

The following wind farms and proposals are relevant to the cumulative context. The table demonstrates that the proposed Maughanaclea development is not being assessed in a neutral landscape. The surrounding upland West Cork landscape is already subject to substantial existing, permitted and proposed wind energy development pressure. The addition of fourteen 169 metre turbines would materially intensify this cumulative landscape condition.

Table 11.2a – Existing, Permitted and Proposed Wind Farms in the Vicinity

Wind Farm / Proposal	Status	Turbine Numbers	Turbine Height / Scale
Shehy More Wind Farm	Existing / Operational	12 turbines	Approx. 125–126m tip height (older generation turbines)
Cleanrath Wind Farm	Existing / Operational	15 turbines	Approx. 150m–156.5m tip height
Derragh Wind Farm	Existing / Operational	6 turbines	Earlier generation turbines materially below proposed 169m turbine scale
Carrigarierk Wind Farm	Existing / Permitted Extension	Original scheme plus extension 8 turbines	Earlier generation turbine 140 m scale materially smaller than proposed 169m turbines
Gortloughra Wind Farm	Proposed	8 turbines	Up to approx. 175m tip height

Curraglass Wind Farm	Proposed	Approx. 3 turbines	Approx. 156.5m turbine height
Gortyrahilly Wind Farm	Permitted	13 turbines permitted	Approx. 179m–185m turbine height
Ballybane Wind Farm	Existing / Operational	Approx. 21 turbines	Earlier generation turbine 100-120m scale materially below proposed 169m turbines
Dereenacreenig West Wind Farm	Proposed	Approx. 3 turbines	Hub height approx.119.3m substantially smaller than proposed 168m turbines

Table 11.2b – Cumulative Planning Relevance in Relation to the Proposal

Wind Farm / Proposal	Distance / Landscape Context	Cumulative Planning Relevance
Shehy More Wind Farm	Immediately northeast of the proposed development area	Forms part of the established wind energy baseline within the same upland landscape character area.
Cleanrath Wind Farm	Wider West Cork upland landscape context	Contributes to cumulative visual, ecological and experiential impacts across the wider upland environment.
Derragh Wind Farm	Wider upland cumulative landscape context	Contributes to the existing pattern of turbine industrialisation.
Carrigarierk Wind Farm	Adjacent landscape boundary area	Relevant to cumulative landscape layering and sequential visibility.
Gortloughra Wind Farm	Approx. 2km northeast in the Shehy Mountains	Particularly significant due to comparable turbine scale and overlapping visibility.
Curraglass Wind Farm	Same wider upland landscape character area	Relevant to future cumulative baseline and sequential landscape perception.

Gortyrahilly Wind Farm	Wider West Cork cumulative landscape context	Significant due to turbine scale and contribution to cumulative landscape transformation.
Ballybane Wind Farm	Approx. 12km from proposed development	Contributes to the broader turbine landscape character of the receiving environment.
Dereenacreenig West Wind Farm	Landscape boundary context adjoining the wider receiving environment	Relevant to future cumulative wind energy pressure within adjoining upland landscape character areas.

The cumulative significance of the proposed development is materially increased by the scale differential between older operational turbines and the proposed Maughanaclea turbines.

Particular regard should also be had to the planning history associated with Dereenacreenig West. Cork County Council previously granted permission under Planning Ref. 10/857 for a seven-turbine wind farm proposal on the wider Dereenacreenig West lands. Available planning and Board documentation indicates that the permitted development was never constructed and that the permission subsequently expired. This historical context is material because it demonstrates the longstanding planning sensitivity associated with wind energy development within this receiving environment and the absence of any established operational wind farm at Dereenacreenig West. The failure of the earlier permitted scheme to proceed to construction also illustrates the longstanding complexity and sensitivity of commercial wind energy development within this upland West Cork landscape context. Many of the earlier wind farms in the wider area involve turbine heights in the order of approximately 120–150 metres or below. By contrast, the proposed Maughanaclea turbines would extend to 169 metres to blade tip, while nearby proposed schemes such as Gortloughra involve turbines up to approximately 175 metres in height.

This escalation in turbine scale is highly material in cumulative landscape terms. Modern turbines of this height introduce:

- substantially larger rotor swept areas;
- greater visual dominance;
- increased aviation lighting visibility;

- wider theoretical visibility envelopes;
- greater movement across skyline profiles;
- and increased perception of industrialisation within upland landscapes.

The cumulative issue is therefore not merely the number of turbines, but the progressive escalation in turbine scale across the wider West Cork upland landscape. The EIAR materially understates this issue by focusing primarily upon visibility rather than cumulative transformation of landscape character itself.

The Board should also have regard to the fact that the Shehy Mountains and wider West Cork uplands have become the focus of repeated wind energy proposals. This raises legitimate concerns regarding landscape saturation and the incremental erosion of the remaining undeveloped upland environment. Previous Board refusals and Inspector reports have recognised that cumulative impact may arise not simply because turbines are visible, but because successive wind farm developments fundamentally alter the character, experience and environmental perception of an entire landscape.

Key Planning Point

- The proposed development must be assessed within the context of an already heavily pressured upland wind energy landscape.
- The cumulative issue is intensified by the increasing height and scale of modern turbines, including the proposed 169 metre turbines at Maughanaclea and nearby proposed 175 metre turbines at Gortloughra.
- The EIAR materially understates the cumulative effect of progressively escalating turbine scale across the wider West Cork uplands.
- The cumulative effect on landscape character, tourism, dark sky value, ecology and residential amenity is therefore substantially greater than the Applicant suggests.

11.3 Cumulative Landscape and Visual Impact

The cumulative landscape issue is especially significant because the proposed development would occupy an upland setting with wide visibility and would consist of turbines of a scale substantially greater than many older wind farms in the region. Older turbine developments

often involved lower turbine heights and smaller rotor diameters. The cumulative effect of adding modern 169 metre turbines is not the same as adding turbines of a similar scale to the existing baseline. The scale differential itself can increase visual dominance and alter the perception of the entire wind farm landscape.

The EIAR's conclusion that cumulative effects are not significant appears to rely heavily on the argument that the landscape already accommodates wind energy. That reasoning is unsafe. The existence of wind energy development in a landscape may make cumulative impact more likely, not less likely. Each additional development reduces the remaining capacity of the landscape to absorb further change.

The Board has previously refused wind farm development on the basis of cumulative landscape and visual impact. The Ardragh Wind Farm refusal in County Cork is particularly relevant. The High Court subsequently dismissed the developer's challenge to An Bord Pleanála's refusal, which had been based on cumulative impact on landscape and visual amenity. That authority is important because it confirms that cumulative landscape harm is capable of justifying refusal even where renewable energy policy support exists.

Similarly, in Inspector's Report ABP-308244-20, the Inspector stated that due to the scale, height and siting of the proposed turbines, mitigation could not address likely adverse impacts, and that the cumulative impact of wind farm development in the vicinity of the Shehy Mountains would substantially erode the quality of the environment for sensitive bird species by distorting migratory routes, eroding habitat, encroaching on foraging areas and affecting opportunities for birds of conservation value. That reasoning is directly relevant here because the proposed development would add further large-scale turbine infrastructure within a West Cork upland context already affected by wind farm development.

The significance of cumulative impact is therefore not limited to landscape aesthetics. It extends to ecology, ornithology, habitat coherence, tourism, residential amenity and dark sky quality.

11.4 Cumulative Ornithological and Ecological Effects

The EIAR's cumulative ornithological assessment is also insufficiently precautionary. Bird species do not respond to planning boundaries or individual red-line sites. They use wider

landscapes for commuting, foraging, breeding and migration. The cumulative impact of multiple wind farms may arise through collision risk, displacement, barrier effects, loss of functional habitat, alteration of flight routes and increased energy expenditure.

Where a landscape is subject to multiple existing, permitted and proposed wind farms, the cumulative effect may become more significant than the impact of any single project. This is particularly relevant in upland and peatland landscapes which may support bird movement, raptor activity, wintering species, breeding species or wider ecological connectivity.

The EIA Directive requires cumulative assessment of likely significant effects. The Habitats Directive and Birds Directive further require that impacts on European sites and protected bird species be assessed on a precautionary basis. The Court of Justice has made clear in Waddenzee and Holohan that authorisation may only be granted where reasonable scientific doubt has been removed. In cumulative terms, that means the Board must be satisfied not merely that the Maughanaclea project alone is acceptable, but that its effects in combination with other existing, permitted and proposed projects will not adversely affect protected receptors.

The EIAR's repeated conclusion that cumulative effects are unlikely does not adequately engage with the combined burden of wind farm development already identified in the Applicant's own landscape assessment.

11.5 Cumulative Tourism, Residential and Dark Sky Effects

Cumulative impact also has a human and economic dimension. A single wind farm may be experienced as an isolated feature. Multiple wind farms across a landscape may change the character of a region. In West Cork, where tourism depends upon landscape quality, tranquillity, scenic value, dark skies and environmental authenticity, cumulative industrialisation is a material planning concern.

The proposed Maughanaclea turbines would be experienced together with existing and emerging wind energy development in the wider upland landscape. This has consequences for sequential views from roads and walking routes, perception of landscape saturation, night-time aviation lighting and dark sky degradation, tourism experience, residential outlook,

cumulative noise and shadow flicker perception, and the viability of landscape-dependent enterprises such as Wild Hideaways.

The EIAR's cumulative assessment does not adequately address this experiential dimension. It is not enough to state that cumulative effects are unlikely because technical thresholds are met or because visibility is already established. The Board must assess whether the development contributes to a wider pattern of unacceptable landscape transformation.

11.6 Conclusion on Cumulative Impact

The proposed development would not be introduced into an undeveloped or unconstrained landscape. The Applicant's own EIAR identifies a substantial existing, permitted and proposed wind farm context. The proposed Maughanaclea development would add fourteen 169 metre turbines to a landscape already experiencing cumulative wind energy pressure.

It is respectfully submitted that the EIAR materially understates cumulative impact by focusing too heavily on whether the proposal introduces visibility in new areas, rather than whether it intensifies an already significant pattern of turbine development. The appropriate planning question is whether the addition of this development would contribute to landscape saturation, ecological fragmentation, cumulative ornithological risk, tourism harm, residential amenity degradation and dark sky industrialisation.

On the evidence available, it would.

Key Planning Point

- Cumulative impact is a central issue in this application, not a residual issue.
- The Applicant's own EIAR identifies numerous existing, permitted and proposed wind farms in the relevant landscape context.
- The addition of fourteen 169 metre turbines would intensify an already significant pattern of wind energy development in the West Cork uplands.
- Cumulative impact must be assessed in terms of landscape, ornithology, ecology, hydrology, residential amenity, tourism and dark sky value.
- Previous Board decisions and Irish court authority confirm that cumulative impact can justify refusal where the combined environmental burden becomes unacceptable.

Cumulative impact is one of the most significant planning issues arising in this application.

The proposed development cannot be assessed in isolation.

The wider West Cork uplands and Shehy Mountains landscape already contain a substantial concentration of existing, permitted and proposed wind energy infrastructure.

The proper planning assessment must therefore consider not merely the individual effects of the proposed turbines, but the combined and interacting effects arising across the wider receiving environment.

The cumulative impact assessment must examine the combined consequences for:

- landscape character;
- visual amenity;
- ecology and ornithology;
- hydrology;
- tourism;
- dark sky value;
- residential amenity;
- and the wider environmental identity of the upland landscape.

The concern arising is not simply that additional turbines would become visible within the landscape.

The broader concern is that the receiving environment is increasingly transitioning from a rural upland landscape containing isolated wind energy projects into a progressively industrialised energy landscape.

12.0 PROPERTY VALUE, RESIDENTIAL DESIRABILITY AND AMENITY VALUE

The EIAR's treatment of property value is inadequate because it appears to approach the matter principally by reference to whether there is definitive empirical proof that wind farms depress property prices generally. That is too narrow a planning approach.

Property value is not normally a standalone planning ground in the same way as residential amenity, landscape, noise, shadow flicker or public health. However, concerns regarding property value are relevant where they are the consequence of recognised planning impacts. A reduction in market desirability will arise not because of market speculation alone, but because a dwelling's amenity, outlook, tranquillity, privacy, night-time environment, or freedom from industrial noise has been materially altered.

In this case, property value concerns cannot be dismissed as a private financial matter. They are directly linked to the planning impacts already identified in this submission: turbine noise, shadow flicker, visual dominance, night-time aviation lighting, loss of rural tranquillity, cumulative industrialisation of the landscape and the impact on tourism and dark sky amenity. Where those impacts affect the lived quality of a dwelling or rural enterprise, they are proper planning considerations.

The Cork County Development Plan 2022–2028 does not require the Board to prove depreciation in a valuation sense before refusing permission. Rather, the Development Plan requires protection of residential amenity. Objective ET 13-5(b) provides that commercial wind energy development in *"Open to Consideration"* areas is only open to consideration where proposals can avoid adverse impacts on *"Residential amenity particularly in respect of noise, shadow flicker and visual impact."* Objective ET 13-2(a) similarly supports renewable energy only where it has been satisfactorily demonstrated that the proposal will not have adverse impacts on *"the surrounding environment (including water quality), landscape, biodiversity or amenities."*

The relevant planning point is therefore that depreciation concerns are evidence of perceived and likely amenity loss. The Board should not treat property-value concerns as irrelevant simply because they are expressed in financial terms. Where property owners identify that their homes or businesses would be less desirable because of turbine noise, visual dominance or loss of tranquillity, the underlying concern is one of amenity and environmental quality.

Previous An Bord Pleanála inspector reports have often recorded applicants' assertions that there are no Irish empirical studies conclusively proving wind farm depreciation. For example, in ABP-312606-22, the Inspector recorded that the EIAR stated *"there have been no empirical studies carried out in Ireland on the impacts of wind farms on property value and prices."* This type of statement should not be treated as resolving the issue. The absence

of an Irish-wide empirical study does not prove absence of impact at a particular dwelling, in a particular landscape, affected by particular turbines.

This is especially important in the present case because the proposal is not remote from all receptors. The independent acoustic evidence of Dick Bowdler identifies potentially significant noise effects at receptors such as H013 and H019 and wider potential effects at approximately 25 properties above the WHO 37 dB threshold and approximately 60 properties where turbine noise may exceed background levels by 8 dB or more at some wind speeds. Where an expert acoustic report identifies significant or moderate adverse noise effects, it is reasonable to regard property desirability and amenity value as potentially affected.

Irish court authority also supports the proposition that the value of a home is not purely financial. In the County Wexford wind farm nuisance proceedings concerning Ballyduff / Meenacloghspar, the High Court found that turbine noise amounted to an unreasonable interference with the enjoyment of neighbouring homes. Reporting of the judgment records that Ms Justice Emily Egan awarded damages arising from nuisance caused by wind farm noise. The important planning point is not that the Court refused planning permission, because the case concerned nuisance after operation. Rather, it demonstrates that turbine noise can materially interfere with the use and enjoyment of homes even where wind farm development has previously passed through the planning system.

The same proceedings also illustrate why capital value alone is an incomplete measure. Reporting of the damages hearing records that the Court was concerned with the enjoyment, use and amenity of homes, not merely their market value. **This supports the planning submission that the Board should protect residential amenity before harm occurs, rather than leaving residents to pursue private nuisance remedies after a development becomes operational.**

It is important to distinguish between property value as a purely financial issue and property value as a consequence of planning harm. This submission does not argue that property depreciation alone should determine the outcome of a wind farm application. Rather, the concern is that where turbines give rise to recognised planning impacts such as noise, visual dominance, shadow flicker, loss of tranquillity or deterioration in residential amenity, it is entirely reasonable that the desirability and value of nearby homes and businesses may also

be affected. In planning terms, the issue is therefore not simply financial loss in isolation, but the underlying amenity and environmental impacts which give rise to that loss.

The Board should therefore consider property-value concerns as part of the wider assessment of residential amenity, environmental quality and economic impact. The proposed development would introduce fourteen 169 metre turbines into the setting of established rural homes and tourism enterprises. Where this results in increased noise, visual intrusion, shadow flicker, aviation lighting or loss of tranquillity and dark sky character, it is reasonable to recognise that the attractiveness and desirability of affected properties will also decline. In this context, any impact on property value is not a separate or speculative concern, but a foreseeable consequence of the wider environmental and amenity changes proposed.

In relation to Wild Hideaways, the issue is even more acute. **The property and business are valued by reference to tranquillity, dark sky quality, wellness tourism, stargazing and escape from industrialisation.** The visibility of eight turbines, with Turbines 12, 13 and 14 directly overlooking the business, would directly affect the qualities which give the property and business their commercial value. **This is not a generalised objection to wind farms. It is a site-specific economic and amenity impact on an existing rural enterprise.**

The Applicant's economic assessment is therefore imbalanced. It emphasises commercial rates, construction jobs and community benefit funds, while failing to properly assess the potential depreciation in value and market desirability of existing homes and sustainable tourism businesses affected by the proposal. That is not a proper planning balance.

Planning conclusion: Property-value concerns should be treated as part of the wider residential amenity and economic-impact assessment. The proposal's potential to reduce the desirability, enjoyment and amenity value of nearby homes and Wild Hideaways arises from identifiable planning impacts, including noise, visual dominance, shadow flicker, night-time lighting and loss of rural tranquillity. The EIAR does not adequately assess this site-specific effect.

13.0 OVERALL CONCLUSION AND REASONS FOR REFUSAL

The need for renewable energy generation and climate action is acknowledged.

However, the issue before the Board is not whether renewable energy is desirable in principle.

The proper planning question is whether this particular development, at this particular location, constitutes proper planning and sustainable development having regard to:

- the scale of the proposed turbines;
- the sensitivity of the receiving environment;
- the cumulative environmental context;
- the residential and tourism impacts identified;
- and the obligations arising under European and national environmental law.

It is respectfully submitted that the Applicant has failed to demonstrate that the proposed development can be accommodated without unacceptable harm to:

- residential amenity;
- landscape character;
- ecological integrity;
- hydrological systems;
- peatland stability;
- tourism and dark sky value;
- ornithological receptors;
- and the wider environmental quality of the West Cork uplands.

Throughout the EIAR and Natura Impact Statement, there is substantial reliance upon:

- mitigation assumptions;
- operational controls;
- adaptive management;
- restoration measures;

- and post-consent monitoring

in order to conclude that impacts will remain acceptable.

However, the consistent concern arising throughout this submission is that the receiving environment itself is fundamentally environmentally sensitive and constrained.

The issue is therefore not merely whether impacts can theoretically be reduced through future management measures.

The central issue is whether industrial-scale infrastructure of this scale is inherently appropriate within this upland receiving environment in the first instance.

The Board must also consider the cumulative environmental trajectory arising across the wider West Cork uplands and Shehy Mountains landscape.

The proposed development cannot be viewed in isolation.

Viewed cumulatively, the proposal would contribute to:

- progressive landscape industrialisation;
- ecological fragmentation;
- hydrological pressure;
- dark sky degradation;
- residential environmental pressure;
- and erosion of environmental authenticity.

The wider receiving environment derives much of its environmental, residential and tourism value from:

- scenic openness;
- tranquillity;
- remoteness;
- dark skies;
- environmental immersion;
- and freedom from industrial development.

The proposed development would materially alter those defining environmental characteristics.

The legal obligations arising under the Habitats Directive are particularly important.

Article 6(3) requires that consent may only be granted where complete, precise and definitive findings remove all reasonable scientific doubt regarding adverse effects on European site integrity.

European case law including:

- *Waddenzee*;
- *People Over Wind*;
- *Holohan*;
- and *Sweetman*;

confirms the strict precautionary approach required where ecological uncertainty remains.

The independent ecological review prepared by Dr. Will O'Connor of EcoFact identifies repeated concern regarding:

- the interpretation of ecological data;
- the treatment of uncertainty;
- the reliance placed upon mitigation;
- and the degree of scientific certainty attached to the conclusions reached.

Those concerns are highly material.

The Board is not required to establish that significant environmental harm will definitely occur.

Rather, **the legal test requires that the Board must be satisfied beyond reasonable scientific doubt that adverse effects on European site integrity can be excluded.**

It is respectfully submitted that this threshold has not been met.

13.1 Summary of Overall Reasons Why Permission Should Be Refused

Having regard to:

- the exceptional scale and visual dominance of the proposed turbines;
- the sensitive upland receiving environment;
- unacceptable visual and residential amenity impacts;
- shadow flicker and operational noise impacts;
- cumulative landscape industrialisation;
- tourism and dark sky impacts;
- ecological and ornithological sensitivity;
- Freshwater Pearl Mussel pathways and downstream SAC connectivity;
- peatland disturbance and hydrological uncertainty;
- the substantial reliance upon mitigation and adaptive management measures;
- the remaining scientific uncertainty identified within the EIAR and independent ecological review;
- and the obligations arising under the Habitats Directive, Water Framework Directive, EIA Directive and Cork County Development Plan 2022–2028;

it is respectfully submitted that the proposed development would:

1. materially injure the visual amenities and environmental character of the area;
2. give rise to unacceptable residential amenity impacts;
3. contribute to unacceptable cumulative landscape industrialisation;
4. give rise to unacceptable ecological, hydrological and ornithological risk;
5. adversely affect tourism, dark sky value and environmental quality;
6. materially conflict with the proper planning and sustainable development of the area;
7. and give rise to significant uncertainty regarding compliance with Article 6(3) of the Habitats Directive.

13.2 Refusal Reasons

The following are examples of non compositable reason which would be appropriate in light of the planning submission submitted above.

1. Having regard to the scale, height and siting of the proposed turbines, the elevated and visually sensitive upland receiving environment, the extensive visibility of the

proposed development, the cumulative wind energy context within the wider West Cork landscape and the resulting industrialisation of the landscape character, it is considered that the proposed development would seriously injure the visual amenities and landscape character of the area and would therefore be contrary to the proper planning and sustainable development of the area.

2. Having regard to the extent of predicted interaction between the proposed turbines and surrounding residential receptors, including the Applicant's own identification of 79 sensitive receptors within the shadow flicker study area, the reliance within the EIAR upon operational mitigation measures including turbine shut-down protocols and the acknowledged potential for adverse effects on sleep, stress and rural tranquillity within a low background rural environment, it is considered that the proposed development would result in an unacceptable interference with residential amenity and human wellbeing. The proposal would therefore be contrary to the proper planning and sustainable development of the area.
3. Having regard to the proximity of the proposed turbines to established residential receptors, the predicted operational noise environment, the independent acoustic evidence submitted in relation to receptors H013 and H019, the likely exceedance of WHO guidance thresholds under certain wind conditions, the low background rural noise environment and the likely adverse effects on residential amenity, sleep disturbance and rural tranquillity, it is considered that the proposed development would seriously injure the residential amenities of property in the vicinity and would therefore be contrary to the proper planning and sustainable development of the area.
4. Having regard to the sensitive ecological and upland peatland environment within which the development is proposed, the ecological connectivity of the site with downstream European sites and protected habitats, the continuing scientific uncertainty identified in relation to cumulative ornithological effects, habitat fragmentation and ecological disturbance, the precautionary principle established under European environmental law and the obligations arising under the Habitats Directive and Birds Directive, it is considered that the information submitted has not demonstrated beyond reasonable scientific doubt that the proposed development would not adversely affect the integrity of European sites, protected habitats, species or the wider ecological environment. The proposed development would therefore be contrary to the proper planning and sustainable development of the area.

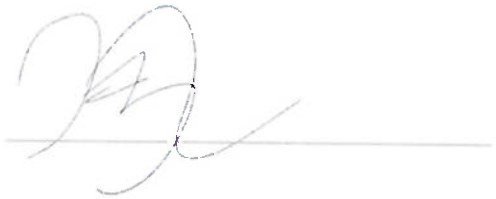
5. Having regard to the extent of peat excavation, spoil management, borrow pit activity, access track construction and associated hydrological intervention proposed, together with the sensitivity of downstream catchments, drinking water abstractions and hydrologically connected designated sites, it is considered that the proposed development would create an unacceptable risk of adverse effects on the hydrological environment, water quality and peatland stability and would therefore be contrary to the proper planning and sustainable development of the area.
6. Having regard to the cumulative pattern of existing, permitted and proposed wind farm development within the wider West Cork upland landscape, including the progressive increase in turbine scale and visibility, it is considered that the proposed development would contribute to an unacceptable cumulative industrialisation of the landscape, resulting in excessive cumulative visual, ecological, tourism and residential amenity impacts and would therefore be contrary to the proper planning and sustainable development of the area.
7. Having regard to the importance of the receiving environment as a tourism, wellness and dark sky landscape resource, the established tourism economy of West Cork, the impact on Wild Hideaways and the likely degradation of dark sky character, tranquillity and environmental authenticity arising from the proposed turbines and associated aviation lighting, it is considered that the proposed development would materially injure the tourism and amenity value of the area and would therefore be contrary to the proper planning and sustainable development of the area.
8. Having regard to the conditional nature of renewable energy support within the Cork County Development Plan 2022–2028, including Objectives ET 13-2(a), ET 13-4 and ET 13-5(b), and having regard to the failure of the Applicant to demonstrate that adverse impacts on residential amenity, biodiversity, landscape, heritage, tourism and water quality can be satisfactorily avoided, it is considered that the proposed development would materially contravene the proper planning objectives of the Cork County Development Plan and would therefore be contrary to the proper planning and sustainable development of the area.
9. Having regard to the inadequacies, omissions and uncertainties identified within the EIAR and associated documentation, including in relation to cumulative impact assessment, operational noise impact, ornithological assessment, landscape impact and ecological risk, it is considered that the environmental effects of the proposed development have not been fully, accurately or adequately assessed and that the

documentation submitted does not provide a sufficient basis upon which to conclude that the proposed development would not give rise to significant adverse environmental effects. The proposed development would therefore be contrary to the proper planning and sustainable development of the area.

10. Having regard to the extent of predicted interaction between the proposed turbines and surrounding residential receptors, including the Applicant's own identification of 79 sensitive receptors within the shadow flicker study area, the reliance within the EIAR upon operational mitigation measures including turbine shut-down protocols and the acknowledged potential for adverse effects on sleep, stress and rural tranquillity within a low background rural environment, it is considered that the proposed development would result in an unacceptable interference with residential amenity and human wellbeing. The proposal would therefore be contrary to the proper planning and sustainable development of the area.

Accordingly, it is respectfully submitted toAn Coimisiún Pleanála that permission be refused for the proposed development under Application Reference ACP-324165-26

Yours faithfully,



Signature

Hazel McCarthy BA Msc MRUP
Planning Consultant
Report Dated 22nd of May 2026.
Email: hazel.mccarthyplanning@gmail.com
Telephone: 00353 8782 87232

APPENDICES

Appendix 1 – Bibliography, Legislative References and Authorities

A. Primary Legislation

- Planning and Development Acts 2000–2025
- Planning and Development Regulations 2001–2025
- Climate Action and Low Carbon Development Act 2015
- Climate Action and Low Carbon Development (Amendment) Act 2021
- Wildlife Acts 1976–2023
- Forestry Act 2014
- European Communities (Birds and Natural Habitats) Regulations 2011–2025

B. European Directives and International Legal Framework

- Habitats Directive (92/43/EEC)
- Birds Directive (2009/147/EC)
- Environmental Impact Assessment Directive 2011/92/EU as amended by Directive 2014/52/EU
- Water Framework Directive (2000/60/EC)
- Aarhus Convention
- European Landscape Convention

C. National and Regional Planning Policy

- National Planning Framework – Project Ireland 2040
- Southern Regional Spatial and Economic Strategy 2020–2032
- Cork County Development Plan 2022–2028
- Cork County Council Climate Action Plan 2024–2029
- Wind Energy Development Guidelines for Planning Authorities (2006)
- Draft Revised Wind Energy Development Guidelines (2019)

D. Technical Guidance and Environmental Guidance Documents

- BRE 209 – Site Layout Planning for Daylight and Sunlight
- EPA Guidelines on Environmental Impact Assessment Reporting
- EPA Guidelines on Peatlands and Wind Energy Development
- Inland Fisheries Ireland guidance relating to sediment and fisheries protection
- National Parks and Wildlife Service Appropriate Assessment guidance
- Institute of Acoustics Good Practice Guide to the Application of ETSU-R-97

E. Case Law and Legal Authorities

Court of Justice of the European Union

- *Waddenzee* (Case C-127/02)
- *People Over Wind and Peter Sweetman v Coillte* (Case C-323/17)
- *Holohan v An Bord Pleanála* (Case C-461/17)
- *Sweetman v An Bord Pleanála* (Case C-258/11)

Irish Courts

- *Byrne & Anor v Abo Energy Ireland Limited & Ors* [2025] IEHC 330
- *Webster and Rollo v Meenacloghspar (Wind) Ltd* [2025] IEHC 300

F. Specialist Reports and Technical Material

- EIAR submitted with SID Application ACP-324165-26
- Natura Impact Statement submitted with SID Application ACP-324165-26
- Independent Review of Ecology Reports prepared by Dr. Will O'Connor, EcoFact Biodiversity and Ecology
- Ornithological, hydrological, peatland and landscape material referenced throughout this submission

Appendix 2 – Relevant Cork County Development Plan Extracts

Cork County Development Plan 2022–2028

Objective ET 13-2(a)

Objective ET 13-2(a) supports renewable energy development only where:

"such development has satisfactorily demonstrated that it will not have adverse impacts on the surrounding environment (including water quality), landscape, biodiversity or amenities."

This objective is central to the planning assessment of the proposed development because policy support for renewable energy is expressly conditional upon environmental acceptability.

Objective ET 13-5 – Wind Energy Strategy

The Wind Energy Strategy identifies certain areas as "Open to Consideration" for wind energy development.

However, the Development Plan makes clear that such designation does not create a presumption in favour of permission.

The designation instead requires detailed assessment of:

- landscape sensitivity;
- ecology;
- residential amenity;
- hydrology;
- cumulative impact;
- and environmental capacity.

Objective ET 13-9

Objective ET 13-9 requires that wind energy development be assessed having regard to:

- the Wind Energy Development Guidelines for Planning Authorities (2006);

- the Draft Revised Wind Energy Development Guidelines (2019);
- and all environmental and residential amenity considerations.

Biodiversity and Environmental Protection Policies

The Cork County Development Plan 2022–2028 requires protection of:

- Natura 2000 sites;
- biodiversity;
- hydrological systems;
- peatland habitats;
- ecological connectivity;
- landscape character;
- and residential amenity.

Tourism, Landscape and Environmental Quality

The Development Plan recognises:

- tourism;
- scenic landscape quality;
- dark sky value;
- environmental authenticity;
- and recreational landscapes

as important strategic economic and environmental resources.

Settlement and Placemaking Vision

The Development Plan emphasises the importance of:

- environmental quality;
- sense of place;
- landscape character;
- and protection of rural amenity

as components of proper planning and sustainable development.

Appendix 3 – Relevant Board Decisions and Case References Synopsis

Reference	Decision / Authority	Relevance to Present Submission
ABP-308244-20	Inspector identified cumulative wind farm development within the wider Shehy Mountains landscape as likely to "substantially erode the quality of the environment".	Supports cumulative landscape, ecological and environmental industrialisation arguments.
PL04.244095	Board imposed operational limits relating to turbine noise and shadow flicker "in the interest of residential amenity".	Supports residential amenity and cumulative lived-environment arguments.
Waddenzee (C-127/02)	Consent may only be granted where no reasonable scientific doubt remains regarding absence of adverse effects.	Establishes precautionary legal threshold under Article 6(3).
People Over Wind (C-323/17)	Mitigation measures cannot be relied upon at screening stage.	Relevant to Appropriate Assessment and mitigation reliance.
Holohan v An Bord Pleanála (C-461/17)	Requires complete, precise and definitive findings capable of removing all reasonable scientific doubt.	Supports argument regarding uncertainty and mitigation reliance.
Sweetman v An Bord Pleanála (C-258/11)	Even localised impacts may affect integrity of European sites where conservation objectives are affected.	Relevant to peatland, hydrology and ecological integrity arguments.
Byrne & Anor v Abo Energy Ireland Limited & Ors [2025] IEHC 330	High Court recognised substantial residential interference arising from turbine noise and granted injunctive relief.	Supports residential amenity and human experience arguments.

Webster and Rollo v Meenacloghspar (Wind) Ltd [2025] IEHC 300	Court imposed operational restrictions relating to turbine noise during sensitive periods.	Reinforces planning relevance of turbine noise and residential experience.

REFERENCES

The references, legal authorities, planning policy documents, technical guidance and specialist reports relied upon throughout this submission are contained within Appendix 1 and Appendix 3.

All policy quotations reproduced within this submission are taken from the Cork County Development Plan 2022–2028, the Cork County Council Climate Action Plan 2024–2029, national policy guidance or European and Irish legal authorities, unless otherwise stated.

All environmental, ecological, ornithological and hydrological commentary contained within this submission should be read together with the EIAR, Natura Impact Statement, technical appendices and independent review material referenced throughout the submission.

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PROPOSED MAUGHANACLEA RENEWABLE ENERGY DEVELOPMENT

REVIEW OF CHAPTER 12 OF THE EIAR – NOISE AND VIBRATION

1ST MAY 2026

INSTRUCTED BY ANNABEL SEYMOUR LIVING AT H013

PREPARED BY Dick Bowdler. REF: W613

The Haven, Low Causeway, Culross, Fife. KY12 8HN

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1 INTRODUCTION

This report is prepared for Annabel Seymour who lives and works at the property designated H013 and owns and rents out the property H019.

1.1 Scope of this Report

This report looks at three main aspects of the noise section of the application set out in Chapter 12 of the EIAR and other sections:

- The acoustic procedures used to prepare the noise section of the EIAR to establish whether they conform to best practice and whether the conclusions are correct.
- The nature and origins of the 2006 noise guidelines which are used to prepare the noise section and the attempts that have been made to improve them over the years. I explain what compliance with the guidelines means in terms of the effect on neighbours.
- The impact of the turbine noise and what the significance of the effects would be for Ms Seymour and other neighbours living closest to the turbines.

1.2 Abbreviations and Technical Notes

WEDG 2006 is Wind Energy Development Guidelines 2006 by Department of the Environment, Heritage and Local Government.

ETSU-R-97 is "The Assessment and Rating of Noise from Wind Farms" ETSU-R-97 (1996), prepared by the Working Group on Noise from Wind Turbines on behalf of ETSU for the UK DTI.

IOAGPG means "A Good Practice Guide to the Application of Etsu-R-97 for the Assessment and Rating of Wind Turbine Noise.

EIAR Guidelines means "Guidelines on the Information to be Contained in Environmental Impact Assessment Reports, (EPA, 2022)".

Quotations from other documents in this report are in purple.

Unless I refer to turbine sound power level or the alternative is stated, "dB" in this report means dB(LA90) or A-weighted decibels exceeded for 90% of the time.

2 NOISE SECTION OF THE EIAR

In this section I report my review of the noise section of the EIAR in chapter 12 including relevant figures and appendices to establish whether the assessment has been done in accordance with good practice.

I have not visited the site so I have not verified any matters requiring a site visit. I have not seen anything that suggests I need a site visit. I have looked at a number of issues on mapping and satellite and street views.

2.1 Selection of Properties for Assessment

The selection of properties for assessment is described in Appendix 12.2 and specifically at 12.3.2.4.5 where it says the chosen properties consist of those where the "predicted turbine noise levels from the proposed, consented, and existing wind turbines is greater than 35 dB LA90, and the predicted noise from the proposed turbines in isolation is 10 dB below the fixed lower threshold for turbine noise proposed for the Proposed Project". It appears that most of the properties within the 30dB contour line have been selected.

In my view this is a sufficient number of properties.

2.2 Background Noise Baseline Data

I have not seen the raw data for background noise but I have looked at the data graphs in 12.5 of the EIAR. It is normally possible to pick out anomalies from these graphs and they seem consistent with what would be expected in an area such as this. In addition, I note that the authors say that the lowest background noise has been taken at each wind speed – I deal with this in the next sub-section.

NML5 is called H013 in some tables but this appears to be incorrect and it is H031.

2.3 Noise Limits

In 12.5.3.1 it says "For the purpose of this assessment, a conservative 'envelope review' will be applied to all non-surveyed locations. The envelope review is a conservative approach that adopts the lowest noise criteria derived from the measured background noise levels and applies it to all non-surveyed locations". This seems to mean that those houses where a survey has taken place will have limits derived from the measurements made at that house and all other houses will have limits based on the lowest measured background noise levels which would be those set out for NML2 in Table 12.19.

That does not seem to have been done completely. In Table 12.28 for example H002 and H004 are not NMLs but they do not have the limits for NML2. Similarly in Appendix 12.4 many properties – starting with 7, 10, 16, 20, 23, 26 and 30 do not have the limits for NML2. This will make no difference to whether the development complies with WEDG 2006 but it will allow a bigger margin for increasing the noise level of an alternative turbine.

I also note that H005 has limits of 55dB.

2.4 Turbine Sound Levels

The candidate turbine in the EIAR at 12.4.5.3 is the Nordex 133/4.8. The sound power levels for these turbines according to the EIAR are 104.5dB at 7m/s wind speed and above to which 2dB uncertainty has been added in accordance with good practice. I agree that the calculated turbine noise levels at houses as shown in the EIAR are correct based on this sound power level.

However, the maximum sound power level at higher wind speeds that I have from the Nordex 133/4.8 data sheet is not 104.5dB but 107.5dB or 106dB with serrated trailing edge (STE) blades. It can meet 104.5dB in mode 3 with STE. I would expect other turbines of this size and power to be around

107dB before uncertainty is added. IOAGPG requires verification of turbine sound power levels.

This would mean that the levels at houses would be up to 3dB more than those stated in the EIAR.

2.5 Assessment of Turbine Noise

The noise modelling parameters are set out in Appendix 12-3 of the EIAR and are consistent with good practice.

There are about 60 properties that will have turbine noise levels of 35dB or more.

2.6 Acoustic Characteristics

Acoustic characteristics are those features of the noise that contribute to its perception by people in addition to the noise level. There are no provisions in WEDG 2006 for any acoustic characteristics. There are penalties in ETSU-R-97 for tonal noise but not for amplitude modulation. Amplitude modulation is becoming more of an issue at least in the UK where there have been planning conditions in some wind farm consents.

On the other hand, tonal noise is less common than it used to be when ETSU-R-97 was published, though it still occurs.

Both tonal noise and amplitude modulation are impossible to predict in advance so the best procedure is to apply a planning condition to their occurrence.

12.7.4.2 of the EIAR sets out a procedure for assessing and mitigating tonal noise and amplitude modulation. In 12.4.5.3 it refers to the ETSU-R-97 penalty system for tones. Appendix 12.7 of the EIAR sets out a protocol for dealing with complaints of tonal noise or amplitude modulation. However, there does not appear anything to enforce these in the event that the application is granted unless a proper noise condition or conditions is applied to such a grant.

2.7 Impact of Operational Noise

The conclusion of Chapter 12 at Table 12-30 is that the effect of turbine noise on neighbours is not significant because they meet the limits in WEDG 2006. In my view that this is quite wrong and I will look at it in more detail later in this report.

3 Noise Guidelines WEDG 2006

The applicable noise guidelines are those in section 5.6 of WEDG 2006. However, the guidelines do not suggest that compliance means there is no effect on neighbours. I use this section to explain the origin and intent of WEDG 2006 and also to explain briefly the two revisions that have been proposed – though neither of them has been adopted.

3.1 WEDG 2006 and ETSU-R-97

In 12.3.2.4 of the EIAR it says "The Guidelines (DoEHLG, 2006) are based on detailed recommendations set out in ETSU-R-97". I don't think it is correct to say they are based on the detailed recommendations of ETSU-R-97 though it is certainly the case that some of the wording and some of the noise limits are taken from ETSU-R-97. For example Noise limits should apply only to those areas frequently used for relaxation or activities for which a quiet environment is highly desirable is almost identical to the wording in ETSU-R-97 and the night time noise limit is the same. However, the day time limit as normally interpreted in EIARs is usually significantly higher in Ireland at 5dB above background noise or 45dB (whichever is the higher) as opposed to ETSU-R-97 which is 5 dB above background noise or somewhere between 35 and 40dB. The crucial difference between the limits in the two arises because of the statement in the first full paragraph of page 30 of WEDG 2006, "In general, a lower fixed limit of 45 dB(A) or a maximum increase of 5dB(A) above background noise at nearby noise sensitive locations is considered appropriate to provide protection to wind energy development neighbours". Then follows the text about areas that are "very quiet (where background noise is less than 30 dB(A))" where it says "the use of a margin of 5dB(A) above background noise at nearby noise sensitive

properties is not necessary ... the wind energy development noise be limited to an absolute level within the range of 35-40 dB(A)".

So the default day time limit in WEDG 2006 is 45dB or 5dB above background noise, whichever is the higher, except when background noise levels are below 30dB. There is no indication where the assertion that 45dB "is considered appropriate". If it came from another document in 2006 it is likely that it was measured as LAeq in that document and did not apply to wind farms.

What ETSU-R-97 says is quite different - that the noise level should be no more than 5dB above background noise, except that (on page 63) "in low noise environments the daytime level of the LA90 wind farm noise should be limited to an absolute level within the range of 35-40dB(A). We believe that limits within this range offer a reasonable degree of protection to wind farm neighbours without placing unreasonable restriction on wind farm development. The levels are low compared to some of the advisory documents reviewed and this is because of our concern to properly protect the external environment".

The effect of this is that the limits under WEDG 2006 are quite different and usually higher than those under ETSU-R-97. This can be seen if we look at the case of the properties at Maughanaclea (In the EIAR the background noise levels at nearly all properties are taken to be the same).

Table 1 – Background noise and noise limits on the site

	Wind Speed (m/s)							
	3	4	5	6	7	8	9	10
Background Noise	24.6	26.2	28.2	30.4	32.5	34.3	35.6	36.1
EIAR Noise Limit (WEDG)	40.0	40.0	40.0	45.0	45.0	45.0	45.0	45.0
Minimum ETSU	35.0	35.0	35.0	35.4	37.5	39.3	40.6	41.1
Maximum ETSU	40.0	40.0	40.0	40.0	40.0	40.0	40.6	41.1

The first line of levels is the background noise, the second is the derived levels using WEDG 2006 as in the EIAR, the third is the lowest ETSU-R-97 noise limit and the last line is the highest noise limit which ETSU-R-97 would permit.

As can be seen WEDG 2006 permits much higher noise levels than ETSU-R-97 – in this case up to nearly 15dB above background noise at 6m/s which is normally the wind speed where turbine noise will be closest to background noise and most noticeable.

The argument put forward in 12.5.3 of the EIAR justifies the use of 40dB (from the range 35 to 40dB) using EPA NG4 and precedent from other developments. As the EIAR says clearly, WEDG 2006 is based on ETSU-R-97 so it would be more appropriate to look at what guidance ETSU-R-97 would give.

As regards the night limit that is the same in both guidelines – 5dB above background or 43dB whichever is the greater.

3.2 Draft Replacement Guidelines

There have been two sets of draft guidelines since 2006, neither of which has yet been adopted. The first was in 2013 in which the proposal was that the night and day limits should be a fixed limit of 40dB at all times and in all wind speeds.

The second was in 2019. The limits were 5dB above background noise at night, 10dB above in the evening and 15dB above during the day but in all cases turbine noise should be not less than 35dB nor more than 43dB. Tonal and amplitude modulation penalties were added to the measured turbine level.

Many houses in the current application would not have complied with either of these drafts at least during the night. While these drafts are not adopted, they show that the current view is that lower noise levels are appropriate – as does ETSU-R-97 as discussed above.

4 The EIAR and Significance of Effects

A planning decision is a balance. Environmental assessments are based on the principle that the developer sets out the impact of their development on the one hand and the need for the development on the other. Other parties

may present different opinions on the impact and on the need and then the decision maker weighs one against the other. It is not the case that neighbours to a development would necessarily feel no impact but they would expect an appropriate balance to be made. Almost all developments have an impact on somebody or on some part of the environment.

4.1 What do the guidelines tell us?

The WEDG 2006 guidelines are not setting out the impact of noise but they are setting out a policy decision as to where the balance lies between the need for the development and impact of noise on people. The balance is devised in a generic manner prior to any planning decision and so the guidance cannot take account of specific local factors.

This is set out in WEDG 2006 at page 29 where it says "An appropriate balance must be achieved between power generation and noise impact".

In the draft guidelines of 2013 at 5.6.1 it says "The approach to the assessment and control of wind turbine noise recommended in these guidelines seeks to achieve a balance between the protection of residential amenity of neighbouring communities in the vicinity of wind energy developments, and facilitating the meeting of national renewable energy targets".

At 5.7.1 of the 2019 draft guidelines it says that they seek "to achieve a balance between the protection of the amenity of communities in the vicinity of wind energy developments and meeting Ireland's renewable energy targets in a cost-effective manner while providing security of future supply for the country".

In ETSU-R-97, at paragraph 1 of the Executive Summary it says that the document "gives indicative noise levels thought to offer a reasonable degree of protection to wind farm neighbours, without placing unreasonable restrictions on wind farm development or adding unduly to the costs and administrative burdens on wind farm developers or local authorities".

4.2 What is required of the EIAR

It is stated in 1.7.2 of the EIAR:

"As stated in the 'Guidelines on the Information to be Contained in Environmental Impact Assessment Reports' (EPA, 2022), an assessment of the likely significant effects of the potential impacts of a development is a statutory requirement of the EIA process. The statutory criteria for the presentation of the characteristics of potential impacts requires that the likely significant effects of potential impacts are described with reference to the extent, magnitude, complexity, probability, duration, frequency, reversibility and trans--boundary nature (if applicable) of the impact".

In addition, following this, there is Table 1.2 which sets out the terminology of impact classification. I will return to this later.

Specifically regarding noise it says at 12.3.1: "The significance of effects of the Proposed Project shall be described in accordance with the EPA guidance document Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (EIAR), (EPA, 2022). Details of the methodology for describing the significance of the effects are provided in Section 1.7.2 of Chapter 1: Introduction".

The Institute of Sustainability and Environmental Professionals (when it was called IEMA), of which some of the EIAR authors are members, published "Guidelines for Environmental Noise Impact Assessment" in 2014. With respect to the UK it says that even though ETSU-R-97 is endorsed by government "this does not mean, however, that there would be no effect (consequences) and it is important to acknowledge any impact (change in noise level) that is identified even if the government limit or guideline value is not exceeded." The same must surely apply in Ireland to WEDG2006.

In the UK, the report by the consultancy WSP for the Department for Business, Energy & Industrial Strategy entitled "A review of noise guidance for onshore wind turbines" supports this view. In the conclusions in the Executive Summary it says "The research also indicates that the common application of the ETSU-R-97 noise limits as a binary test of acceptability is considered to be potentially inconsistent with the wider policy frameworks in

England and Northern Ireland (which require noise impacts to be addressed in a more nuanced way, with reference to expected effects and in view of guiding principles on sustainable development)". Again, the same must apply to WEDG 2006.

So there is no doubt what is required of the EIAR. It is important that, as well as assessing the noise level against WEDG 2006 limits, the impact should be described.

4.3 Comments on the Conclusions in the EAIR

At 12.6.3.1.1 it says "The predicted noise levels associated with the proposed turbines are within best practice noise criteria therefore it is not considered that a significant effect is associated with turbine noise from the Proposed Wind Farm". The operational noise from the development is therefore rated as negative but not significant.

In terms of Table 1.2 of the EIAR which describes the effects "not significant" means "An effect which causes noticeable changes in the character of the environment but without significant consequences". I do not agree that this is a reasonable interpretation of the evidence.

Looking at this in a little more detail, 12.6.3.1.1 of the EIAR also says:

"While noise levels at low wind speeds will increase due to the Proposed Project and specifically the operation of the turbines, the predicted levels will remain low, albeit new sources of noise will be introduced to the soundscape.

What this development will do is introduce an alien noise into a predominantly rural area. The statement that the predicted levels "will remain low" is merely an assertion and I suggest that many people would not consider a turbine level of 40dB in an otherwise quiet rural area "low".

Alternatively, if we look at how Moderate Significance is defined in the same Table 1.2 it is "An effect that alters the character of the environment in a manner consistent with existing and emerging baseline trends". The turbine noise will not be consistent with existing and emerging baseline trends, it will be a completely new noise with a totally different character from the

baseline. The definition of Significant Effect is "An effect, which by its character, magnitude, duration or intensity alters a sensitive aspect of the environment" which is a better description of the new alien turbine noise coming into a quiet rural area.

5 REALISTIC ASSESSMENT OF EFFECTS

With noise, the impact depends on many factors. It depends on the noise level, on the various characteristics of the noise, on the sensitivity of the receiver, on the pre-existing soundscape at the receiver and on factors that are non-acoustic. Some, at least, of these are specific to the local environment and local circumstances.

Technically, there are various ways of assessing the significance of the impact. One is looking at how people are impacted by the absolute noise level such as in WHO. Another is to reference turbine noise to background noise, for example as in BS4142 .

5.1 WHO Guidelines

The WHO publication in 2018 titled "Noise Guidelines for the European Region" (ENGER) sets out advice for wind turbine noise. This uses a methodology relating impact to the absolute noise of the turbines. The guidance uses Lden which is an annual average turbine noise level in which evening and night levels are weighted (by 5dB and 10dB respectively) to allow for the increased sensitivity at these times. Whilst Lden has been adopted as a European measure it is not very practicable for wind turbines particularly for carrying out compliance tests. The report says at the beginning of 3.4 that it "conditionally recommends reducing noise levels produced by wind turbines below 45 dB Lden, as wind turbine noise above this level is associated with adverse health effects".

Lden and the studies used by WHO to derive the 45dB level are all in terms of LAeq, not LA90. WHO arrived at their figure of 45db Lden by starting with a number of studies that had been published in which the levels were (generally) stated as noise level downwind (DL) of turbines with a wind speed

around 8m/s. So to compare the turbine noise levels in the EIAR (which are DL) with WHO we need to reverse the procedure that WHO went through to get Lden.

To do this I am going to quote an extract from Appendix 2 of a submission made a group of acoustic consultants from Ireland and the UK (including me) to the consultation request from the Government for comments on the draft Wind Energy Guidelines 2019. This is the same response as referred to at 12.3.2.4.7 of the EIAR. It is dated 19th February 2020.

"First in regard to the WHO noise guidance for wind turbines (Ref 1) the key recommendation states at 3.4, that "For average noise exposure, the GDG conditionally recommends reducing noise levels produced by wind turbines below 45 dB Lden, as wind turbine noise above this level is associated with adverse health effects". It is important in interpreting this to understand how it is derived. The methodology is set out at the bottom of page 81 of the WHO guidance and it is worth repeating the relevant part here:

"Two publications containing descriptions of four individual studies were retrieved (Janssen et al., 2011; Kuwano et al., 2014). All four studies used measurements in the vicinity of the respondents' addresses; the noise exposure metrics used in the three original studies (Pedersen, 2011; Pedersen & Persson Waye, 2004; 2007) included in Janssen et al. (2011) were recalculated into Lden. The noise levels in the studies ranged from 29 dB to 56 dB. Different scales were used to assess annoyance, with slightly different definitions of "highly annoyed" and explicit reference to outdoor annoyance in the data used for the Janssen et al. (2011) curve. Construction of the ERFs provided in the two publications differed and they were therefore not further combined in a meta-analysis. Fig. 16 shows the %HA from the two publications. The 10% criterion for %HA is reached at around 45 dB Lden (where the two curves coincide)."

"The recommendation is based on the level as Lden at which 10% of people are highly annoyed (HA) and we can follow the procedure adopted by WHO in reaching its conclusion. In deriving the appropriate Lden level, WHO used four research projects: the two Swedish and the one Dutch surveys summarised in Ref 2 and the Japanese survey in Ref 3. The graph at Fig 16

of Ref 1 is made up of two parts. The thinner curves are identical to the lower set of curves (HA) in the right hand graph (outdoors) in Fig 1 of Ref 2. The thicker blue curve is taken directly from the blue curve in Fig 12 of Ref 3. According to WHO the 10%HA point is reached where the curves from the two papers cross "at around 45dB" though the actual figure is less than this. It can be seen from the right hand graph of Fig 1 of Ref 2 and, more accurately, from the last of the four equations in Section C of Ref 2, that 10% highly annoyed (HA) occurs at an Lden of 43.5dB.

"We can also see from Ref 2 that the original relationship between annoyance and noise level in the three constituent studies was based on the downwind noise level at each property calculated at a wind speed of 8 m/s at a height of 10 m ("Downwind Level" - DL). This was converted in Ref 2 to Lden by the addition of 4.7 dB as shown in Paragraph B on p3747. In the case of Ref 3, the value used to convert to Lden (in fact to Ldn but the small difference appears to have been ignored) was an addition of 6 dB. It is not clear whether the original data are downwind levels or some sort of average.

"So when we look at the WHO value of 45dB as a recommended Lden value, it should be noted that this is derived from DL in the case of the Ref 2 reports and from a similar but perhaps not identical measure in the case of Ref 3. Taking Ref 2 as an example a DL in the original survey methodology of 38.8dB resulted in 10%HA, which was translated by WHO into an Lden of 45 dB. Taking Ref 3 the equivalent value in the original survey would be 37.5 dB. In Ireland and some other countries the measure used is LA90 so the limit of 45dB Lden recommended by WHO is based on an L90 DL of 36.8dB – say around 37 dB from Ref 2. It is not clear whether the lower level of 35.5 from Ref 3 is a DL or not and so the more reliable level is an LA90 of 37 dB.

"In summary, the WHO recommendation of 10%HA at 45 dB Lden is derived from the original data that shows 10%HA at a DL of around 37 dB. The uncertainties in the studies referenced should be borne in mind.

"The Health Canada study (Ref 4) which post dated the deadline for consideration in the WHO report, broadly supports this conclusion and says: "Consistent with Pedersen et al. (2009), the increase in WTN annoyance was clearly evident when moving from [30–35) dB to [35–40) dB, where the

prevalence of WTN annoyance increased from 1% to 10%. This continued to increase to 13.7% for areas where WTN levels were [40–46] dB. The prevalence of WTN annoyance was higher outdoors, during the summer, and during evening and nighttime hours. Pedersen et al. (2009) also found that annoyance with WTN was greater outdoors compared to indoors." The Pedersen report referred to (Ref 5) relates to the Netherlands study in Ref 2".

So, in summary, the WHO recommendation is that a DL measured as LA90 of 37dB at properties would result in 10% of people being highly annoyed. In other words, in WHO terms, a DL of 37dB is the level at which adverse health effects start.

The WHO recommendation is conditional because it says the evidence is poor. However, I would make 2 points regarding this:

- The method is better than EIAR which produces no evidence to justify the conclusion that the effect is not significant other than it meets WEDG 2006.
- The Health Canada study, referred to above, was too late to be considered by WHO. This came to more or less the same conclusions as the reports considered by WHO and included a much larger number of people.

5.2 BS 4142:

BS4142 is not generally used for wind farm noise because it was rejected in ETSU-R97. Wind farms were one of the exclusions in the draft version of the 2014 edition of BS 4142 but they were removed from the final version while other exclusions were left in. There were three reasons why it was rejected in ETSU-R-97 and these are set out on page 50 of the document:

- "a) Wind farms are likely to be developed in largely rural areas and not in the areas to which the standard is principally addressed, namely mixed residential and industrial areas". This seems to be a spurious reason. If a farmer wants to build a biomass plant in the middle of the countryside in the UK they will have to assess it by BS 4142 because

it would create a mixed residential and industrial area and I do not see that wind farms are any different.

- "b) the scope of BS 4142 specifically precludes situations where background noise levels are below 30dB(A)". This is no longer the case though it is suggested now that when levels are low it may be more appropriate to use absolute levels.
- "c) BS 4142 recommends that noise measurements should not be taken in extreme weather conditions such as high wind speeds greater than 5 metres per second average ". This is also a spurious argument because we have to take noise measurements at high wind speeds whatever standard is used and appropriate windshields are used to mitigate this.

BS4142:2014 +A1:2019 (the latest version) sets out a rating method for industrial noise. It says:

- a) Typically, the greater this difference, the greater the magnitude of the impact.
- b) A difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context.
- c) A difference of around +5 dB is likely to be an indication of an adverse impact, depending on the context.
- d) The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, depending on the context.

As regards the context, this is a rural area without significant industrial type noise. Wind turbines will not just introduce higher levels of noise but industrial noise of a totally different character. The context is more likely to increase the effect than to reduce it.

It should be noted that, because turbine noise is measured by a parameter different from normal – L90 - these margins must be reduced by 2dB. So where turbine noise exceeds background noise by 8dB or more the level is

an indication of a significant adverse impact depending on the context. A margin of 3dB or more suggests adverse impact depending on the context.

Taking all these points together the following table can be constructed to describe the significance in terms of the EIA Directive.

- A difference of 1dB or less – Not significant
- A difference of 2 to 4dB – slight effect
- A difference of 5 to 7dB – moderate effect
- A difference of 8dB or more – significant effect

5.3 The effects at Neighbouring Properties.

The effect of turbine noise at H013 is shown in Table 2 below. The figures are decibels. The line "turbines" shows the downwind turbine noise levels and those highlighted in purple are more than 37dB, the point at which WHO says that health effects (including annoyance) start. The last two lines show the margin of turbine noise above background noise in the day and at night with the darker orange highlight showing conditions where there is a significant effect and the paler orange showing conditions where there is a moderate effect.

Table 2 – Effect at H013

H013	Wind Speed m/s at 10m						
	4	5	6	7	8	9	10
Turbine	30.2	35.6	39.4	39.8	39.8	39.8	39.8
Backgound Day	26.2	28.2	30.4	32.5	34.3	35.6	36.1
Background Night	24.4	25.7	27.2	28.8	30.3	31.6	32.6
Margin Day	4.0	7.4	9.0	7.3	5.5	4.2	3.7
Margin Night	5.8	9.9	12.2	11.0	9.5	8.2	7.2

It can be seen that the WHO threshold of health effects (37dB) would be exceeded at wind speeds of 6m/s and above day and night and that a BS 4142 assessment would produce significant effect at night for most wind speeds and a moderate effect for the others and a significant and moderate effect at times during the day.

These comments apply to conditions where the house is downwind of the turbines. Downwind from a turbine includes directions at least 45 degrees either side of direct downwind. Because of the proximity of the turbines even when the house is upwind there will not be much attenuation of noise in many weather conditions. The arrangement of the turbines may mean that some of the time the house will not be downwind of all the nearest turbines, but on the other hand it will be downwind of the nearest group of turbines for a much longer time. It will be downwind of some turbines from a wind direction from north-east through south to north-west.

H019 is about 0.6dB less than H013 and the effect would be little different from that at H013.

There are about 25 properties around the wind farm that will have turbine noise levels of 37dB or more and so breach the WHO threshold for health effects. There are about 60 properties where turbine noise would exceed background noise by 8dB or more at some wind speed and so could be classed as a significant effect.

6 CONCLUSIONS

WEDG 2006 is claimed to be based on ETSU-R-97. This application meets WEDG 2006 but it would not meet ETSU-R-97.

The procedure in the EIAR to assess whether the application will meet the noise limits set out in WEDG 2006, while being standard procedure, is not in accordance with the EIAR Guidelines. It is my opinion, based on good and reliable evidence, that the conclusion reached in the EIAR that the effect of noise is not significant is quite wrong.

If we look at the effect by using established methods it is clear that there is a widespread significant effect and that, at H013 and H019 (as well as some other properties) there is a significant effect for long periods of time and in a wide range of conditions.

The established methods are, in the words of WHO "conditional", that is to say they are based on limited evidence but they are much better than the

simple unsupported proposition in the EIAR that compliance with WEDG 2006 means there is no significant effect.

The assessment I have made is based on the sound power levels assument by the authors of the EIAR. As I pointed out earlier, these appear to be significantly less than those provided by the manufacturer.

The assessment I have made does not include for the presence of any tones or amplitude modulation. Were either of these to occur then the effect would be more significant.

7 APPENDIX

7.1 Documents Referred to

EIAR-Ch.-1-Introduction-
EIAR-Ch.-12-Noise-and-Vibration-
EIAR-Appendix-12-1-Glossary of Acoustic Terms
EIAR-Appendix-12-2-Noise-Study-Area
EIAR-Appendix-12-3-Noise-Modelling-Parameters
EIAR-Appendix-12-4-Predicted-Noise-Levels-N133
EIAR-Appendix-12-5 Noise Contour Map
EIAR-Appendix-12-6 Noise Meter Calibration Certificates.
EIAR-Appendix-12-7-Protocol-for-Management-of-Complaints
Nordex N133 - Datasheet
WEDG consultation joint response
Wind Energy Guidelines 2006
EIAR Guidelines 2022 Web

7.2 My Qualifications:

I am a professional noise specialist. I am a Chartered Engineer and a Chartered Physicist. I have been a member of the Institute of Acoustics since its foundation in 1974 and have been a Fellow of that body since 1977. In 2022 I was awarded the Institute of Acoustics Engineering Medal, awarded every two years in recognition of outstanding contributions to research and developments in the field of engineering acoustics. Since 2009 my main speciality has been wind turbine noise but I also prepare reports and give evidence in noise induced deafness cases and in nuisance cases.

I am keen to promote good acoustic consultancy and to ensure that our profession uses best practice. As part of this I encourage debate and am active in organising conferences and meetings. I was co-editor, with Dr Geoff Leventhall, of a book entitled "Wind Turbine Noise" which was published in 2011. I was the organiser of the biennial International Wind Turbine Noise Conferences run by Institute of Noise Control Engineering, Europe, between 2015 and 2023. I was on the group that commissioned the

Salford Report on amplitude modulation and I was on the steering group for the RenewableUK study on amplitude modulation, both referred to in the EIAR at 12.3.2.4.10

I have given evidence at 46 public inquiries, 39 of which have been for wind farms including for Perth & Kinross and Angus councils in Scotland, Maldon and Cornwall councils in England and Powys and Denbigh councils in Wales and objectors groups in Donegal and Antrim. I have also given evidence in the Scottish Court of Session and in Sheriff courts in 23 cases including noise induced deafness, nuisance and others.

My current work centres around providing reviews of applications for wind farms, mostly for local planning authorities.

Review of ecology reports

Maughanaclea Renewable Energy Development, Co. Cork

Version: 21st May 2026

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1. INTRODUCTION

This review considers the ecology reporting prepared for the proposed Maughanaclea Renewable Energy Development, Co. Cork. The review concerns the following reports submitted as part of the planning application.

- MKO (2026a) Appropriate Assessment Screening Report and Natura Impact Statement. Maughanaclea Renewable Energy Development, Co, Cork.
- MKO (2026b) Chapter 6 Biodiversity. Environmental Impact Assessment Report. Maughanaclea Renewable Energy Development, Co, Cork.
- MKO (2026c) Chapter 7 Ornithology. Environmental Impact Assessment Report. Maughanaclea Renewable Energy Development, Co, Cork.
- MKO (2026d) Botanical Survey Report. Appendix 6.1. Environmental Impact Assessment Report. Maughanaclea Renewable Energy Development, Co, Cork.
- MKO (2026e) Bat Survey Report. Appendix 6.2. Environmental Impact Assessment Report. Maughanaclea Renewable Energy Development, Co, Cork.
- MKO (2026f) Aquatic Baseline Report. Appendix 6.3. Environmental Impact Assessment Report. Maughanaclea Renewable Energy Development, Co, Cork.
- MKO (2026g) NIS Schedule of Mitigation Measures. Appendix 6. Environmental Impact Assessment Report. Maughanaclea Renewable Energy Development, Co, Cork.

The full, application was reviewed and comments on other supporting documents in the application are also made as relevant. The review has been undertaken in an objective and balanced manner. The purpose is not to identify issues for the sake of objection, but to assess whether the reports provide a sufficiently robust, complete and scientifically certain basis for the competent authority to exclude adverse effects on the integrity of European sites and the receiving ecological environment in general.

1.1 Statement of Authority

My name is Dr. Will O'Connor, and I am a Senior Ecologist with over thirty years' experience in professional ecological management. I am the Managing Director of Ecofact Environmental Consultants Ltd. which I established in 1999. Ecofact is an independently owned environmental consultancy based in Limerick City.

I hold a BSc degree in Marine Science from the National University of Ireland, Galway, an MSc degree in Applied Hydrobiology from the University of Wales, Cardiff, and a PhD degree in Zoology from the National University of Ireland, Galway. I am a Fellow of the Royal Society of Biology and a full member of the Chartered Institute of Ecology and Environmental Management. I am registered as a Chartered Biologist and a Chartered Environmentalist. I was employed as a Senior Fisheries Biologist with the Electricity Supply Board from 1992 until 1999, when I established the Ecofact consultancy firm.

I have extensive experience in environmental consultancy and have managed hundreds of Environmental Impact Assessment (EIA) and Appropriate Assessment (AA) studies for a wide range of projects, including numerous renewable energy developments.

2. REVIEW

2.1 AA Screening and NIS

2.1.1 Review of the AA Screening

The screening report follows the broad structure expected for Stage 1 Appropriate Assessment. It identifies European sites within the potential zone of influence, considers source-pathway-receptor relationships, and determines whether likely significant effects can be excluded. The screening stage correctly applies a precautionary approach in respect of Bandon River SAC and Mullaghanish to Musheramore Mountains SPA, both of which are brought forward for Stage 2 Appropriate Assessment in the NIS. This is appropriate given the hydrological connection with Bandon River SAC through the proposed grid connection route and the potential ecological relationship between the wind farm site and Hen Harrier associated with Mullaghanish to Musheramore Mountains SPA.

The screening is therefore not obviously defective in its overall approach. The exclusion of other European sites is also sufficiently precautionary and the reasoning is supported by the ecological evidence.

2.1.2 Review of the Natura Impact Statement

The NIS follows the usual Article 6(3) structure. It identifies the relevant European sites, describes qualifying interests and conservation objectives, assesses potential impact pathways, proposes mitigation, and reaches conclusions regarding adverse effects on site integrity. It also uses the correct broad legal language, including reference to the requirement for complete, precise and definitive findings.

The supporting ecological survey work is also substantial. The aquatic baseline, ornithology, botanical and bat reports provide a considerable amount of site-specific information. This is a strength of the application documentation. However, the same supporting information also demonstrates that the receiving environment is ecologically sensitive. The NIS sometimes treats the availability of mitigation and the degraded condition of some habitats as sufficient to remove risk, when the underlying data arguably support a more precautionary interpretation.

2.1.2.1 Bandon River SAC and Aquatic Impact Pathways

The most significant AA issue relates to Bandon River SAC. The aquatic baseline report confirms extensive aquatic ecological sensitivities along the proposed grid connection route and in connected catchments. These include salmonid habitat, eel habitat, lamprey habitat, high-quality fisheries habitat at certain crossing locations, and positive Freshwater Pearl Mussel eDNA detections. The positive eDNA results are particularly important because Freshwater Pearl Mussel was detected at GC5, GC6 and GC11, with GC5 returning 12 out of 12 positive replicates.

This confirms the ecological pathway to Bandon River SAC. It also means that the NIS cannot rely on the absence of instream works as the main basis for excluding adverse effects. Freshwater Pearl Mussel is highly sensitive to sedimentation, nutrients and pollution events. Construction works along road corridors, watercourse crossings, HDD locations and drainage pathways can generate sediment or pollution risks even where works are not directly within the channel.

The NIS relies heavily on construction mitigation, including standard pollution prevention measures, HDD methodology, silt control and environmental monitoring. These measures are important and may well reduce risk substantially. However, the assessment does not include a quantitative analysis of sediment risk, accidental pollution risk and HDD frac-out risk at the most sensitive crossing locations. The aquatic baseline report identifies existing siltation, unstable banks, eroding channels and watercourses with Poor or Moderate biological classifications in parts of the catchment. These conditions reduce ecological resilience and increase the importance of avoiding any additional sediment or pollution loading.

A weakness is that the NIS appears to move from identifying sensitive aquatic receptors to concluding no adverse effect largely on the basis that mitigation will be implemented. For a European site supporting Freshwater Pearl Mussel and other sensitive aquatic qualifying interests, this may not provide the level of certainty required under Article 6(3), unless the mitigation is sufficiently detailed, enforceable, site-specific and demonstrably effective.

2.1.2.2 HDD and Watercourse Crossings

The proposed use of HDD is preferable to open-cut watercourse crossings in sensitive locations. However, HDD is not risk-free. The principal concern is accidental drilling fluid breakout, mobilisation of fine sediment, and pollution entering connected watercourses. The NIS acknowledges this risk but does not provide a sufficiently detailed hydrogeological or geotechnical risk assessment for the most sensitive crossings.

This is particularly important where crossings are close to known or suspected Freshwater Pearl Mussel habitat or where the aquatic baseline confirms positive eDNA detections. The absence of instream works is helpful, but it does not by itself exclude indirect impacts. A more robust NIS would provide site-specific HDD risk assessment, clear frac-out response protocols, drilling pressure controls, stop-work triggers, monitoring locations and evidence that the proposed methodology is specifically suitable for the ground conditions at each sensitive crossing.

2.1.2.3 Mullaghanish to Musheramore Mountains SPA and Hen Harrier

The ornithology assessment is one of the stronger components of the overall assessment package. The survey effort is substantial and includes multiple breeding and winter seasons, vantage point surveys, dedicated Hen Harrier surveys and other species-specific surveys. The report is therefore difficult to criticise on the basis of survey absence or obvious procedural inadequacy.

However, the ornithology data also confirm repeated Hen Harrier use of the wind farm site, including post-breeding and winter use. The report acknowledges that the origin of these birds cannot be confirmed and that they may be associated with Mullaghanish to Musheramore Mountains SPA. Once this possible ecological connection is accepted, the assessment must consider whether the wind farm site provides functionally linked habitat supporting the SPA population.

The NIS appears to place considerable weight on distance from the SPA and typical breeding-season foraging ranges. That is relevant, but it is not necessarily determinative for post-breeding or wintering Hen Harrier ecology. The surveys indicate that the site is used for hunting and movement by Hen Harrier, and the assessment arguably gives insufficient weight to the functional importance of such *ex situ* habitat. Under Article 6(3), the issue is not simply whether similar habitat exists elsewhere. The question is whether the affected habitat contributes to the ecological function of the SPA population and

whether that function can be lost, degraded or displaced without undermining the conservation objectives of the SPA.

2.1.2.4 Botanical and Peatland Issues Relevant to the NIS

The botanical report confirms the presence of Annex I-type habitats within the wind farm site, including Dry Siliceous Heath, Wet Heath and Upland Blanket Bog. It also confirms that some infrastructure is located within or across degraded examples of these habitats, including wet heath near T04 and T14, dry heath near T13, and upland blanket bog along the T14 access road.

The report repeatedly emphasises that these habitats are degraded. That may be accurate in terms of condition assessment. However, degradation does not remove ecological value or restoration potential. In the context of Appropriate Assessment, degraded peatland and heath habitats can remain important because they affect hydrology, carbon storage, downstream water quality and ecological connectivity. The construction of roads, hardstands and drainage infrastructure through peatland habitats can also create indirect hydrological pathways relevant to downstream European sites.

The NIS should have more fully integrated peatland hydrology, habitat degradation, restoration potential and downstream sediment risk. The reliance on the Biodiversity Management and Enhancement Plan to offset or restore wet heath also needs careful treatment. If these measures are being relied upon to avoid or reduce adverse effects, they must be treated as mitigation within the NIS and assessed with sufficient certainty. If they are compensatory or enhancement measures, they cannot be used to justify a conclusion of no adverse effect on integrity.

2.1.2.5 Bat Assessment and Relevance to AA

Bats are not the central issue for the NIS unless there is a specific European site connection, particularly in relation to Lesser Horseshoe Bat. The bat report confirms that Lesser Horseshoe Bat was recorded on site and that known roosts occur in the wider landscape, but it concludes that there is no significant functional linkage with any SAC designated for this species.

That conclusion appears broadly reasonable on the information provided. However, the bat report is still relevant as supporting ecological information because it confirms the use of forestry edges, tracks, watercourses and linear habitats by bats, and it demonstrates that the site is ecologically important. It also shows that substantial reliance is placed on post-construction monitoring and adaptive mitigation for collision risk. This is more of an EIAR and species protection issue than a central AA issue, and is discussed further in Section 2.5.

2.1.2.6 Cumulative and In-combination Effects

The cumulative assessment is one of the weaker parts of the NIS. The documents identify multiple existing, permitted and proposed wind farms and other infrastructure projects in the wider area. However, the assessment appears largely qualitative and relies heavily on the conclusion that each individual project includes mitigation and is not expected to have significant effects.

This approach risks becoming circular. The correct in-combination assessment should consider whether multiple projects may together contribute to cumulative sediment loading, hydrological alteration, habitat fragmentation, disturbance, displacement or collision risk. This is particularly relevant for the Bandon catchment, Freshwater Pearl Mussel, upland peatland hydrology and Hen Harrier. A more robust assessment would include a clearer catchment-scale analysis of cumulative water quality

risks and a more detailed landscape-scale assessment of cumulative effects on Hen Harrier habitat function.

2.1.3 Conclusions

The Appropriate Assessment Screening Report and Natura Impact Statement are professionally prepared, follow the expected broad methodology, and are supported by a substantial body of ecological survey work. The decision to screen in Bandon River SAC and Mullaghanish to Musheramore Mountains SPA is appropriate and precautionary. The survey effort for aquatic ecology and ornithology is also significant and provides a strong factual baseline.

However, the main weakness is that the NIS conclusions are more certain than the underlying evidence appears to justify in several key areas.

For Bandon River SAC, the aquatic baseline confirms a sensitive receiving environment, positive Freshwater Pearl Mussel eDNA detections, salmonid and eel habitat, existing biological pressures, and sediment-sensitive watercourses. The NIS relies heavily on mitigation to conclude no adverse effect, but does not provide sufficiently detailed, site-specific or quantitative analysis of sediment mobilisation, HDD frac-out risk, accidental pollution risk or cumulative catchment pressures.

For Mullaghanish to Musheramore Mountains SPA, the ornithology surveys are extensive, but they demonstrate repeated Hen Harrier use of the wind farm site. The NIS arguably underplays the potential functional importance of post-breeding and wintering habitat and relies too heavily on distance from the SPA, breeding-season foraging ranges and the availability of alternative habitat elsewhere.

The botanical information also confirms that the project affects degraded but still recognisable peatland and heath habitats, including Annex I-type habitats. These habitats are relevant not only as ecological receptors in their own right, but also because of their hydrological and sediment-control functions within upland catchments.

Overall, the NIS provides a substantial assessment, but it does not fully demonstrate, beyond reasonable scientific doubt, that adverse effects on the integrity of Bandon River SAC and Mullaghanish to Musheramore Mountains SPA can be excluded.

2.2 Chapter 6 Biodiversity

2.2.1 General Structure and Methodology

This chapter broadly follows the structure expected for a biodiversity chapter within an EIAR. The assessment includes desktop study, habitat mapping, protected species surveys, aquatic ecology, ornithology, bat surveys, impact assessment, mitigation measures, residual effects assessment and cumulative effects assessment. The methodologies used throughout the chapter generally align with accepted Irish ecological assessment guidance and draw upon recognised standards including NatureScot wind farm guidance.

The ecological survey effort informing the chapter is substantial. Dedicated surveys were undertaken across multiple seasons during 2024 and 2025 and included detailed botanical assessments, aquatic ecology surveys, electrofishing, macroinvertebrate surveys, eDNA analysis, ornithology surveys, bat surveys and mammal surveys.

From a procedural perspective, the biodiversity chapter would likely be considered relatively comprehensive by the standards of many Irish wind farm EIARs. However, the principal issue is not an absence of ecological information, but rather the interpretation of that information and the degree to which ecological sensitivity and residual uncertainty are downplayed within the assessment.

2.2.2 Characterisation of the Site and Ecological Value

A recurring theme throughout the biodiversity chapter and supporting reports is the description of the site as degraded, modified, agriculturally improved, heavily grazed or forestry dominated. There is clear evidence within the surveys that the site has been significantly modified by commercial forestry, grazing, drainage, turf cutting, erosion, and land reclamation. However, the assessment at times appears to use habitat degradation as a basis for reducing ecological importance.

Under Irish and European ecological policy, degraded peatland and heath habitats often remain ecologically important because they retain restoration potential, continue to support Annex I habitats, influence hydrology and downstream water quality, and contribute to ecological connectivity across upland landscapes. The botanical report confirms the presence of Annex I-type habitats within the site, including Wet Heath (HH3), Dry Siliceous Heath (HH1) and Upland Blanket Bog (PB2).

Although these habitats are repeatedly described as degraded, the relevés recorded within the site still contain characteristic peatland and heathland species including *Erica tetralix*, *Calluna vulgaris*, *Trichophorum cespitosum*, Sphagnum species, *Eriophorum*, *Myrica gale*, *Andromeda polifolia*, and *Vaccinium myrtillus*. The site therefore cannot reasonably be characterised as an ecologically poor upland landscape. Rather, it comprises a modified but still ecologically sensitive peatland and heathland system with significant hydrological and biodiversity functions.

2.2.3 Peatland Habitats and Hydrological Sensitivity

One of the most significant biodiversity issues relates to peatland habitats and associated hydrology. The chapter acknowledges that infrastructure is proposed within wet heath areas, that access roads cross blanket bog, and that peatland habitats occur throughout substantial portions of the site.

The condition assessments completed under Irish Wildlife Manual 79 repeatedly identify failures associated with drainage, erosion, disturbed bare ground, grazing impacts and low dwarf shrub cover. These findings are important because they demonstrate that the peatland systems are already under pressure and potentially hydrologically vulnerable.

The chapter repeatedly states that "*high quality*" peatland habitats have been avoided through design. However, infrastructure is still proposed within degraded wet heath and blanket bog systems, and the project involves extensive peat excavation, access roads, borrow pits and drainage interactions across peat soils.

The ecological assessment should have provided a more integrated treatment of peatland hydrology and downstream ecological connectivity. In particular, there is relatively limited discussion of indirect hydrological impacts, peatland restoration potential, long-term drainage effects or sediment mobilisation associated with disturbed peatland systems.

This is especially relevant given the hydrological connectivity with sensitive aquatic systems downstream.

2.2.4 Aquatic Ecology

The aquatic ecology section of the biodiversity assessment is comprehensive, but it also raises some of the most important ecological concerns.

The aquatic baseline surveys were extensive and included fisheries habitat assessment, electrofishing, macroinvertebrates, otter surveys and eDNA analysis. The surveys confirmed the presence of Atlantic salmon, brown trout, eel habitat, lamprey habitat and Annex I macrophyte communities, together with positive Freshwater Pearl Mussel eDNA detections at several locations associated with the grid connection route.

The aquatic report also identifies GC5 and GC11 as supporting the highest quality fisheries habitat along the route. This is highly significant because these locations are also associated with Freshwater Pearl Mussel eDNA detections.

The surveys repeatedly identify unstable banks, active erosion, siltation, suspended sediments and ecologically sensitive headwater systems. This demonstrates that the receiving environment is already sensitive and, in places, under ecological pressure.

Despite this, the biodiversity chapter frequently moves from identifying these sensitivities to concluding that impacts will not be significant because mitigation measures will be implemented. There is relatively limited quantitative assessment of sediment generation, suspended solids loading, hydrogeological connectivity or cumulative catchment-scale effects. This is particularly important given the extent of HDD crossings, peatland disturbance, road construction, borrow pit development and drainage interactions proposed as part of the project. The aquatic ecology survey results support a more precautionary interpretation than the chapter ultimately adopts.

2.2.5 Ornithology

The ornithology component of the biodiversity assessment is also comprehensive. The surveys included multiple breeding and winter seasons together with dedicated Hen Harrier, Chough, Red Grouse and raptor surveys. The surveys confirm repeated use of the site by Hen Harrier, together with breeding Chough, Red Grouse, Peregrine activity and other upland-associated bird species. However, again the principal issue is not survey adequacy, but interpretation of the results.

The chapter repeatedly concludes that effects will not be significant because habitat is widespread elsewhere or because displacement and collision risks are considered low. However, the surveys themselves demonstrate that the site forms part of an active upland ecological landscape used by multiple protected bird species.

The assessment arguably gives insufficient weight to the functional role of *ex situ* habitat used by Hen Harrier, cumulative fragmentation of upland landscapes and the ecological significance of post-breeding and winter habitat use. This is particularly important in the context of multiple existing and proposed wind farm developments across the wider landscape.

2.2.6 Bat Assessment

The bat assessment is generally detailed and comprehensive also. Extensive survey effort was undertaken including static detectors, walked transects, habitat suitability appraisal and roost assessments.

However, despite repeatedly describing the site as "*Low suitability*" for bats overall, the surveys recorded more than 73,000 bat passes, including substantial activity by Leisler's Bat, Common Pipistrelle and other species.

Several turbines are associated with elevated bat activity zones, particularly around T02, T03 and T14. The assessment concludes that collision risk remains acceptable primarily because habitat suitability is considered low overall, bat buffers will be implemented, and adaptive mitigation and curtailment can be introduced if required.

This introduces an important degree of uncertainty because substantial reliance is placed on future adaptive management, operational monitoring and potential curtailment regimes that are not fully specified in advance.

Therefore again, while the bat assessment is comprehensive, the conclusions reached arguably present a greater degree of certainty than the survey data fully support.

2.2.7 Reliance on Mitigation and Habitat Enhancement

One of the recurring issues throughout Chapter 6 is the degree to which the conclusions depend upon future mitigation, restoration and enhancement measures. The Biodiversity Management and Enhancement Plan proposes habitat restoration, wet heath enhancement, native woodland planting, scrub and hedgerow replacement and ecological management measures. These measures may provide ecological benefits in the long term. However, ecological restoration outcomes are inherently uncertain and often require lengthy timescales before habitats become functionally equivalent to those affected by development.

The chapter frequently presents habitat restoration and enhancement as offsetting ecological losses associated with the project. The distinction between avoidance, mitigation, restoration, compensation and enhancement is not clearly maintained within the assessment.

The biodiversity chapter should have clearly acknowledged the uncertainties associated with long-term restoration success and the time lag between habitat loss and habitat recovery.

2.2.8 Cumulative Effects

The cumulative assessment is one of the weaker aspects of the biodiversity chapter. The chapter identifies multiple existing, permitted and proposed wind farms together with other infrastructure projects within the wider landscape. However, the cumulative assessment remains largely qualitative and repeatedly concludes that cumulative effects will not be significant because mitigation is proposed or because individual effects are considered low.

There is relatively limited cumulative hydrological assessment, cumulative habitat fragmentation analysis, cumulative collision risk modelling or landscape-scale ecological connectivity analysis. This is particularly important for Hen Harrier, Leisler's Bat, peatland hydrology, Freshwater Pearl Mussel catchments and upland ecological networks.

The cumulative assessment should have included a more quantitative and landscape-scale analysis of ecological connectivity and cumulative ecological pressure.

2.2.9 Conclusions

Chapter 6 Biodiversity is a substantial and professionally prepared ecological assessment supported by an extensive programme of field surveys. The extent of survey work undertaken is generally above average for Irish wind farm EIARs and demonstrates a considerable level of ecological investigation. The chapter correctly identifies many of the principal ecological sensitivities associated with the site and surrounding environment, including peatland habitats, aquatic ecological pathways, protected bird species and bat activity associated with forestry edges and linear features. However, the key weakness is not the absence of ecological data, but rather the interpretation of the baseline information and the degree of certainty attached to the conclusions reached.

The surveys repeatedly demonstrate ecologically sensitive aquatic systems, peatland hydrological sensitivity, degraded but still recognisable Annex I habitats, active use of the site by protected bird species, elevated bat activity around certain turbines and ecological connectivity across the wider landscape. Despite this, the biodiversity chapter frequently downplays ecological significance because habitats are degraded, assumes restoration and enhancement measures will fully offset impacts, relies heavily on future adaptive mitigation, and presents relatively optimistic conclusions regarding residual and cumulative effects.

The most significant concerns relate to peatland and hydrological impacts, sediment-sensitive aquatic systems, Freshwater Pearl Mussel pathways, cumulative upland fragmentation, ex situ Hen Harrier habitat function and reliance on adaptive mitigation measures for bats.

Overall, while Chapter 6 Biodiversity is supported by extensive ecological survey work, it is clear that some of the ecological sensitivities are understated, significant residual uncertainty remains in several areas, and the overall conclusions regarding the significance of biodiversity effects are more optimistic than the underlying ecological evidence fully supports.

2.3 Chapter 7 Ornithology

2.3.1 General Structure and Methodology

The ornithology chapter broadly follows accepted methodology for wind farm ornithological assessment. The assessment includes desktop review, baseline surveys, vantage point surveys, breeding bird surveys, winter bird surveys, species-specific assessments and cumulative effects assessment. The chapter also demonstrates awareness of recognised guidance documents and appears to rely substantially on NatureScot guidance, which is commonly used in Ireland in the absence of detailed Irish-specific wind farm ornithology guidance.

The survey effort underpinning the assessment is substantial. Surveys were undertaken over multiple breeding and winter seasons between 2022 and 2025 and included vantage point surveys, Hen Harrier surveys, breeding raptor surveys, Chough surveys, Red Grouse surveys, Woodcock surveys, winter walkovers and waterbird surveys.

From a procedural perspective, the survey effort would likely be considered relatively comprehensive by Irish wind farm standards and is difficult to criticise strongly on the basis of survey absence or obvious methodological inadequacy.

The principal issues instead relate to the interpretation of the ecological data and the extent to which the chapter downplays ecological sensitivity, habitat function and cumulative landscape effects.

2.3.2 Characterisation of the Site and Ornithological Sensitivity

One of the strengths of the ornithology chapter is that it does not attempt to portray the site as ornithologically unimportant. The surveys clearly demonstrate that the wider upland landscape supports a range of species of conservation concern including Hen Harrier, Chough, Red Grouse, Peregrine Falcon and other upland-associated bird species.

The chapter openly acknowledges repeated Hen Harrier activity within the site, post-breeding and winter use by Hen Harrier, confirmed breeding Chough, breeding Red Grouse territories, Peregrine activity associated with likely breeding territories and the presence of multiple raptor species. This gives the assessment a degree of credibility because it demonstrates that the ecological sensitivity of the site has not been ignored.

However, despite this, the assessment repeatedly concludes that the resulting impacts are generally slight, low or not significant. In several areas, these conclusions appear more optimistic than the underlying survey data fully support.

2.3.2.1 Hen Harrier

Hen Harrier is the most important ornithological issue arising from the assessment. The surveys recorded repeated use of the site by Hen Harrier during post-breeding and winter periods. The report acknowledges that up to three individuals utilised the site and concludes that this represents a population of National Importance.

The chapter also acknowledges that the origin of the birds cannot be determined and that the birds may originate from Mullaghanish to Musheramore Mountains SPA, and that the site is used for hunting, and that birds were recorded within 500m of proposed turbines. Despite this, the assessment ultimately concludes that no significant effects arise primarily because the SPA lies outside the "typical" breeding foraging range, suitable habitat is widespread elsewhere, and no communal roost was identified within the site.

The assessment places considerable emphasis on breeding-season foraging distances, but modern understanding of Hen Harrier ecology increasingly recognises the importance of post-breeding and winter habitat use. Juvenile dispersal, winter foraging habitat and movement corridors can all be ecologically important components of SPA population dynamics.

The surveys themselves demonstrate that the site is not merely incidental habitat, but forms part of the functional landscape used by Hen Harrier. Once the possibility is accepted that SPA-associated birds utilise the site, the assessment must consider whether the site contributes functionally to SPA conservation objectives. The chapter arguably gives insufficient weight to this issue and instead relies heavily on the existence of apparently similar habitat elsewhere in the landscape. Under ecological impact assessment principles, however, the existence of alternative habitat does not necessarily mean that ecological function can be replaced without consequence.

The treatment of displacement effects is also relatively limited. Wind farm developments can affect Hen Harrier not only through direct mortality, but also through behavioural displacement, reduced habitat use, fragmentation of foraging areas and cumulative landscape avoidance. While the chapter acknowledges some potential displacement effects, these are generally characterised as low significance. Given the repeated use of the site demonstrated by the surveys, this conclusion arguably understates the potential ecological importance of the area.

2.3.2.2 Chough

The chapter confirms breeding Chough within the site and acknowledges the importance of grazed upland habitats for this species. The assessment generally concludes that impacts on Chough will not be significant because habitat loss is limited and suitable habitat remains available elsewhere. Again, the assessment appears to rely heavily on habitat substitution arguments. However, upland habitats used by Chough are often dependent upon specific grazing regimes, prey availability and landscape structure. The assumption that similar habitat elsewhere fully offsets local habitat alteration may therefore oversimplify the ecological reality.

This is particularly relevant where cumulative habitat fragmentation from multiple wind farm developments is occurring across the wider upland landscape.

2.3.2.3 Other birds species

The surveys identified breeding Red Grouse territories within and adjacent to the development footprint. The chapter acknowledges that habitat loss and disturbance effects on Red Grouse may be of medium magnitude locally but ultimately concludes that effects are of low significance overall. This conclusion is not necessarily unreasonable, but it does illustrate a recurring issue throughout the chapter whereby ecological effects are frequently down classified through significance matrices despite substantial ecological sensitivity being acknowledged within the baseline.

The wider upland bird assemblage, including Snipe and raptors, is similarly characterised as resilient because habitats are widespread and effects are localised. However, the chapter gives relatively limited consideration to long-term cumulative fragmentation of upland ecological mosaics and disturbance-sensitive species.

2.3.3 Collision Risk Assessment

The collision risk assessment follows recognised methodologies and provides species-specific collision estimates. However, there are several limitations which reduce confidence in the conclusions reached. The assessment relies heavily on low observed flight rates, assumed avoidance behaviour and standard collision modelling assumptions.

Collision risk modelling for raptors and upland birds inherently contains uncertainty because bird behaviour can vary significantly between years, avoidance rates are often derived from wider datasets, and flight behaviour may change under varying weather conditions or habitat disturbance.

The assessment generally concludes that collision risk is low. While this may ultimately prove correct, the certainty expressed in some conclusions arguably exceeds the precision of the available evidence.

2.3.4 Cumulative Effects

The cumulative assessment is one of the weaker aspects of the ornithology chapter. The chapter identifies multiple existing, permitted and proposed wind farm developments within the wider landscape. However, the cumulative assessment repeatedly concludes that no significant cumulative effects arise largely because previous EIARs for nearby developments also concluded that significant effects were unlikely. This creates a potentially circular approach to cumulative assessment.

There is relatively limited quantitative or landscape-scale analysis of cumulative habitat fragmentation, cumulative displacement, cumulative collision mortality, barrier effects or progressive reduction in habitat connectivity across the wider upland landscape. This is particularly important given the increasing density of wind energy developments across upland areas in southwest Ireland.

For species such as Hen Harrier, Chough and Red Grouse, the cumulative alteration of upland landscapes may become ecologically significant even where individual projects are assessed as having relatively small effects in isolation.

2.3.4 Reliance on Mitigation

The chapter proposes a range of mitigation measures including micrositing, habitat management, timing restrictions and ecological monitoring. These measures are generally appropriate and may reduce ecological risk. However, several conclusions within the assessment depend heavily on assumptions regarding the effectiveness of mitigation and the resilience of upland bird populations to disturbance and habitat alteration. In particular, the assessment appears to assume that birds will continue to utilise surrounding habitats without significant displacement, that collision rates will remain very low, and that habitat management measures will compensate for localised habitat alteration.

2.3.5 Conclusions

Chapter 7 Ornithology is supported by a substantial programme of field surveys undertaken over multiple years. The chapter follows recognised methodology and demonstrates a relatively high level of ornithological investigation compared to many Irish wind farm assessments.

The surveys clearly demonstrate that the site forms part of an active upland ecological landscape supporting multiple protected bird species including Hen Harrier, Chough, and Red Grouse. The main weakness of the chapter is therefore not the absence of ecological data, but rather the interpretation of the survey results and the degree of certainty attached to the conclusions reached.

The surveys themselves demonstrate repeated Hen Harrier use of the site, including by birds potentially associated with Mullaghanish to Musheramore Mountains SPA. The assessment arguably underestimates the ecological significance of post-breeding and winter habitat use and relies too heavily on breeding-season foraging ranges and the availability of alternative habitat elsewhere.

Similarly, while the assessment acknowledges local impacts on Chough, Red Grouse and other upland bird species, it frequently downplays these impacts through significance matrices and habitat substitution arguments.

The cumulative assessment is also relatively weak and does not fully address the long-term implications of cumulative upland fragmentation and increasing wind farm density across the wider landscape.

There are legitimate ornithological grounds to conclude that ecological sensitivity is understated in several areas, residual uncertainty remains regarding Hen Harrier habitat function and cumulative landscape effects, and the overall conclusions regarding the significance of ornithological impacts are more optimistic than the underlying ecological evidence fully supports

2.4 Botanical Survey Report

2.4.1 General Structure and Methodology

This report follows a generally appropriate structure. It describes the survey scope, field survey methodology, relevé approach, habitat classification and results for each turbine, access road, borrow pit, construction compound and associated infrastructure. This is a strength of the report, as it provides a relatively clear link between the proposed infrastructure footprint and the habitats affected.

The field surveys were undertaken during 2024 and 2025, including visits in May, July and August, which fall within the accepted survey season for vegetation assessment. The report states that the surveys were undertaken in accordance with the Heritage Council's habitat survey guidance and that habitats were classified using Fossitt, with Annex I habitat assessment and condition assessment informed by Irish Wildlife Manual 79 and other NPWS guidance.

The use of relevés, Irish Vegetation Classification analysis and habitat condition assessment is appropriate and gives the report a reasonable technical foundation. The report also includes photographs and detailed species lists for infrastructure locations, which improves transparency.

From a methodological perspective, the botanical survey effort appears broadly adequate for describing the habitats present within the proposed wind farm site. The main concerns relate less to survey coverage and more to the interpretation of the results.

2.4.2 Characterisation of the Site

The report describes the proposed wind farm site as being dominated by conifer plantations, clear-fell areas, peatlands, wet heath, upland blanket bog, dry siliceous heath, eroding/upland rivers and smaller unmapped tributaries. It confirms that peatlands are a prominent feature within and adjacent to the site boundary. This is important because the report does not describe a low-value agricultural or forestry site alone. Rather, it identifies a modified upland landscape containing degraded but still ecologically important peatland and heathland systems. The report confirms the presence of three Annex I habitat types within the proposed wind farm site: Dry Siliceous Heath, Wet Heath and Upland Blanket Bog. This is one of the most important findings in the report.

Although the report repeatedly emphasises that these habitats are degraded, degradation does not remove ecological value. Many Irish peatland and heath habitats are degraded nationally, but remain important because they retain characteristic vegetation, hydrological function and restoration potential.

2.4.3 Annex I Habitats and Degradation

A recurring issue in the report is the way in which degraded Annex I-type habitats are characterised. The report repeatedly notes that wet heath, dry heath and upland blanket bog areas have failed condition assessment criteria due to grazing, drainage, bare ground, erosion, low dwarf shrub cover, negative indicator species and other pressures. These findings are important and appear to be technically well supported.

However, the fact that a habitat is degraded does not mean it is of low ecological importance. In some respects, the opposite may be true, because degraded peatland and heath habitats can have high restoration value and may remain part of a wider ecological and hydrological system. The report's

repeated emphasis on degradation risks understating the conservation significance of the habitats affected.

This is particularly relevant because the relevés still recorded characteristic peatland and heathland species, including Cross-leaved Heath, Ling Heather, Purple Moor-grass, Deergrass, Cotton-grass, Bog Rosemary, Bog Myrtle and Sphagnum species. These species indicate that, although modified, the affected habitats retain recognisable peatland and heathland character.

2.4.3.1 Wet Heath

Wet Heath is recorded in several parts of the proposed wind farm site, including in the vicinity of Turbines T04 and T14 and at the northern temporary construction compound. The report acknowledges that these areas have links to the Annex I habitat Northern Atlantic Wet Heath with Erica tetralix.

The wet heath condition assessments show repeated failures for positive indicator species, ericoid cover, negative indicator species, disturbed bare ground and drainage/trampling impacts.

The report attributes this degradation largely to intensive sheep grazing and other land-use pressures. That appears reasonable. However, infrastructure is still proposed within degraded wet heath, and the report relies heavily on the argument that higher-quality wet heath has been avoided.

This is a reasonable design principle, but it does not remove the impact on wet heath. The report should have given greater weight to the ecological value and restoration potential of the degraded wet heath areas that remain within the development footprint.

2.4.3.2 Upland Blanket Bog

The proposed access road to T14 runs through Upland Blanket Bog, Wet Heath and Dense Bracken habitats. The report notes that this area has been affected by turbary, drainage and grazing, but also records wetter peatland patches with Sphagnum content.

The blanket bog condition assessment records failures in the local vicinity for disturbed bare ground, drainage, trampling, peat cutting and erosion gullies. These findings demonstrate that the bog is degraded, but they also indicate hydrological sensitivity.

Blanket bog systems are vulnerable to indirect effects, and road construction through or adjacent to degraded blanket bog can alter drainage, increase erosion and affect downstream water quality. The report identifies the botanical condition of the bog but does not fully develop the wider implications for hydrology, sediment mobilisation or peatland restoration potential.

Given the proposed construction of access infrastructure through this area, the assessment should have provided a clearer explanation of how indirect hydrological effects on the bog and connected habitats will be avoided.

2.4.3.3 Dry Siliceous Heath

Dry Siliceous Heath is recorded in the south of the site, particularly in association with Turbine T13 and the access road. The report describes this habitat as fragmented and degraded due to surrounding land reclamation and intensive grassland management.

The condition assessment for dry heath records several failures, including excessive Bracken cover, disturbed bare ground and lack of appropriate Calluna structure in the local vicinity. Again, this supports the conclusion that the habitat is degraded. However, the species recorded, including Western Gorse, Ling Heather, Bilberry, St Patrick's Cabbage and bryophytes, demonstrate that the habitat retains ecological character.

The report's conclusion that the habitat is fragmented is reasonable, but fragmentation itself is a biodiversity concern. The presence of infrastructure within or adjacent to fragmented heath could further reduce ecological connectivity unless carefully managed.

2.4.3.4 Conifer Plantation on Peat

A large proportion of the proposed infrastructure is located within conifer plantation. The report repeatedly describes these areas as Conifer Plantation (WD4), often dominated by Sitka Spruce.

This may appear to reduce ecological sensitivity. However, many of these conifer plantation areas are located on peat soils and contain wet ground, bryophyte carpets and Sphagnum species. The report records Sphagnum and peatland-associated vegetation within several plantation areas, including around turbines and proposed infrastructure. This is important because conifer plantation on peat can still have hydrological relevance and may represent modified peatland rather than simply low-value forestry.

The report should have clearly distinguish between low botanical value in terms of plantation vegetation and the continuing hydrological sensitivity of peat soils beneath forestry.

2.4.4 Watercourses and Drainage Features

The report identifies eroding/upland rivers, drainage ditches and smaller unmapped tributaries throughout the site. It also notes that the access road to T04 crosses an unmapped upland/eroding river, and that the access road from T12 to T13 crosses an unmapped eroding/upland river.

This is significant because botanical and habitat impacts are not confined to vegetation loss. In upland peatland systems, vegetation, drainage and watercourse connectivity are closely linked. The presence of unmapped headwater streams and drainage pathways increases the potential for sediment mobilisation and downstream aquatic impacts.

The Botanical Survey Report records these features but does not fully assess their ecological implications. The presence of these features strengthens the case for a more precautionary treatment of construction impacts.

2.4.5 Avoidance and Habitat Restoration

The discussion section states that all high-quality, intact heath and bog habitats within the proposed wind farm site have been deliberately avoided in the project design. This is an important and positive design commitment. However, the report also confirms that infrastructure is still located within degraded wet heath, fragmented dry heath and upland blanket bog. This means that the highest-quality examples may have been avoided, but not that Annex I-type habitats have been avoided altogether.

The report proposes that the loss of wet heath habitat near T04 and T14 will be offset through the Biodiversity Management and Enhancement Plan, including the felling of 5.4ha of young conifer plantation in areas where wet heath previously occurred.

This may provide ecological benefits in the long term, but there is inherent uncertainty in habitat restoration. Wet heath restoration can take many years and depends on hydrology, grazing control, soil conditions, seed sources and long-term management. The report should have clearly acknowledged this uncertainty and avoided presenting restoration as an immediate or guaranteed offset for habitat loss.

2.4.6 Conclusions

The Botanical Survey Report is a detailed and generally comprehensive assessment. The survey timing, habitat classification, relevé recording and use of recognised condition assessment guidance are broadly appropriate. The report provides a relatively transparent description of habitats within the proposed infrastructure footprint.

However, the report also confirms that the site contains degraded but recognisable Annex I-type habitats, including Wet Heath, Dry Siliceous Heath and Upland Blanket Bog. These habitats are not pristine, but they retain ecological character, hydrological relevance and restoration potential.

The key weakness of the report is not the botanical survey effort itself, but the interpretation of degraded habitats. The report repeatedly uses degradation as a basis for reducing ecological significance, whereas degraded peatland and heath habitats may still be important in terms of restoration value, hydrological function and ecological connectivity.

The report also relies significantly on the avoidance of higher-quality habitats and on future habitat restoration through the Biodiversity Management and Enhancement Plan. These are positive elements, but they do not remove all residual uncertainty, particularly where infrastructure is still proposed within degraded wet heath, fragmented dry heath and blanket bog systems.

Overall, the conservation importance of degraded peatland and heath habitats is understated, that restoration potential is not given sufficient weight, and that the conclusions regarding habitat effects are more optimistic than the botanical and hydrological sensitivity of the site fully supports.

2.5 Bat Survey Report

2.5.1 General Structure and Methodology

The Bat Survey Report also broadly follows recognised guidance for wind farm bat assessment and demonstrates a good awareness of current best practice methodologies. The report references NatureScot guidance, Bat Conservation Trust guidance, Bat Conservation Ireland guidance and NIEA guidance. The report includes a detailed desktop review, habitat suitability assessment, roost assessment, manual activity surveys, static detector surveys, collision risk assessment, mitigation measures, post-construction monitoring proposals and cumulative effects assessment.

The survey effort itself is relatively extensive. Static detector surveys were undertaken over spring, summer and autumn periods with a substantial deployment duration and multiple detector locations distributed throughout the proposed wind farm site. Manual walked transects were also undertaken across multiple seasons.

The report also demonstrates a relatively high level of technical detail in relation to acoustic analysis, detector calibration, species identification, activity thresholds and collision risk methodology.

From a procedural perspective, the survey effort and methodology would likely be regarded as relatively comprehensive by Irish wind farm standards. The principal issues again relate not to survey absence, but to interpretation of the ecological data and the degree of certainty attached to the conclusions reached.

2.5.2 Characterisation of the Site and Bat Habitat

A recurring theme throughout the report is the characterisation of the proposed wind farm site as generally "Low suitability" for bats. The report repeatedly emphasises that the site is dominated by conifer plantation, peatland and improved agricultural grassland, that habitat connectivity is relatively limited, that linear features are sparse, and that broadleaved woodland is limited.

There is some ecological basis for this conclusion. The site is clearly not a classic high-quality bat landscape dominated by mature broadleaf woodland, river corridors and dense hedgerow networks. However, the report simultaneously demonstrates that the site supports substantial bat activity and that several habitat features within the site are actively utilised by multiple species.

Indeed, the surveys recorded more than 73,000 bat passes overall, including very substantial activity by Common Pipistrelle, Leisler's Bat, Soprano Pipistrelle and Myotis species, together with detections of Nathusius' Pipistrelle and Lesser Horseshoe Bat. These are not ecologically insignificant results.

The report itself confirms that bat activity was concentrated along forestry edges, tracks, treelines and watercourses. This is ecologically predictable, but also important because several proposed turbines are located in close proximity to these same habitat features.

The site is repeatedly described as low suitability overall. However, this is somewhat contradicted by the survey data which demonstrates substantial activity associated with forestry edges and linear habitats within the site itself.

2.5.3 Collision Risk Assessment

The collision risk assessment is one of the most important aspects of the report. The report correctly identifies Leisler's Bat, Common Pipistrelle, Soprano Pipistrelle and Nathusius' Pipistrelle as high collision-risk species. The report also identifies elevated activity around several detector locations associated with proposed turbines, particularly D02 near T02, D03 near T03 and D08 near T14. Importantly, the report acknowledges High median Common Pipistrelle activity at D02 and D03, High Leisler's Bat activity at D08, and Medium peak collision risk for several species.

However, despite these elevated activity levels, the assessment repeatedly concludes that overall collision risk remains low or acceptable because the site itself is considered low suitability overall, habitat buffers will be implemented, and future adaptive mitigation can be introduced if required.

The report places substantial reliance on future adaptive management and post-construction monitoring. In particular, the report repeatedly states that operational monitoring will be undertaken, curtailment may be introduced if required, and mitigation can be adapted following Year 1 monitoring.

This introduces an important level of uncertainty because the final curtailment regime is not yet defined, trigger thresholds are not fully specified, and the effectiveness of future adaptive mitigation is not demonstrated in advance. The assessment therefore depends heavily on future operational management rather than relying entirely on mitigation measures already fixed within the project design.

2.5.3.1 Leisler's Bat

Leisler's Bat is one of the most important species recorded within the site because it is considered a high collision-risk species, it is relatively scarce nationally, and substantial activity was recorded within the site. The report acknowledges Medium peak collision risk for Leisler's Bat and identifies elevated activity around D08/T14 during summer. Despite this, the assessment concludes that effects will not be significant because activity is generally localised, habitat suitability is low overall, and mitigation measures will be implemented.

However, the surveys themselves demonstrate that Leisler's Bat actively utilises parts of the site associated with proposed turbine locations. The assessment understates the uncertainty associated with collision modelling, the ecological significance of localised high activity areas, and the cumulative effect of multiple wind farm developments across the wider landscape for a high-ranging species such as Leisler's Bat.

2.5.3.2 Common Pipistrelle and Soprano Pipistrelle

The report records extremely high levels of Common Pipistrelle activity at certain locations, particularly D02 and D03 during spring. The report also identifies Medium peak collision risk for Common Pipistrelle during multiple seasons. Soprano Pipistrelle activity was lower overall but still substantial, and the report acknowledges Medium peak risk during autumn periods.

The report ultimately concludes that risks remain acceptable because median activity levels are generally low and because activity peaks are localised. However, bat mortality at wind farms is often associated with episodic periods of elevated activity during specific weather conditions and migration periods rather than with average nightly activity levels. The assessment places too much emphasis on median activity levels and insufficient emphasis on the ecological significance of localised high activity periods.

2.5.3.3 Lesser Horseshoe Bat

The report records occasional Lesser Horseshoe Bat activity within the site and confirms the existence of known roosts within the wider landscape. The report strongly downplays risk to this species on the basis that activity levels are low, no SAC designated for the species lies nearby, and Lesser Horseshoe Bat is considered a low collision-risk species. The report confirms that forestry edges and linear features within the site are occasionally utilised by the species. The certainty expressed in the conclusions exceeds the strength of the evidence somewhat, particularly given the cumulative alteration of upland landscapes across the wider area.

2.5.6 Habitat Loss and Forestry Edge Effects

The report repeatedly argues that removal of conifer plantation for bat buffers may actually improve habitat conditions by increasing edge habitat. There is some ecological validity to this argument. Forestry edges can support increased insect activity and commuting opportunities. However, the report

simultaneously relies on removal of forestry edges and vegetation buffers as a mechanism for reducing turbine collision risk.These two arguments are contradictory ecologically.

The surveys themselves demonstrate that forestry edges are precisely the areas where elevated bat activity occurs. The assumption that edge habitat creation will not simultaneously maintain or attract bat activity near turbine locations therefore introduces additional uncertainty.

2.5.7 Cumulative Effects

The report identifies multiple existing wind farms, proposed wind farms and infrastructure projects within the wider landscape. However, the cumulative assessment is qualitative and largely concludes that cumulative effects are unlikely because no significant residual effects are predicted from the proposed development alone.

There is relatively limited detailed assessment of cumulative collision mortality, cumulative habitat fragmentation, cumulative barrier effects or cumulative displacement across the wider upland landscape.

2.5.8 Overall Conclusion

The survey effort for bats is substantial, the methodologies used are broadly appropriate, and the report has a relatively high level of technical detail. However, the key issue is with the interpretation of the survey results and the degree of certainty attached to the conclusions reached.

The surveys themselves demonstrate substantial bat activity within the site, including elevated activity associated with several proposed turbine locations and repeated use of forestry edges and linear habitats by high collision-risk species. Despite this, the report repeatedly characterises the site as low suitability overall and concludes that collision risks and habitat effects will not be significant primarily because mitigation measures will be implemented, forestry buffers will be created, and future adaptive management can be introduced if required.

The assessment therefore relies heavily on future operational mitigation and post-construction monitoring to support conclusions of no significant effect. The cumulative assessment is also relatively limited and does not fully address the potential long-term implications of cumulative wind farm development across the wider upland landscape for high-ranging bat species.

Overall, the ecological significance of the recorded bat activity is understated in several areas, substantial reliance is placed on future adaptive mitigation, residual uncertainty remains regarding collision risk for high-risk species, and the conclusions regarding likely significance of impacts are more optimistic than the underlying survey evidence fully supports.

2.6 Aquatic Baseline Report

2.6.1 General Structure and Methodology

The Aquatic Baseline Report follows a generally appropriate structure for a large upland wind farm development with hydrological connections to sensitive downstream catchments. The report includes fisheries habitat assessment, electrofishing, macroinvertebrate surveys, otter surveys, eDNA analysis, aquatic habitat characterisation and watercourse assessments.

The methodologies referenced are generally appropriate and include recognised guidance from Inland Fisheries Ireland, EPA biological monitoring methodologies, NPWS lamprey guidance and standard aquatic ecology survey approaches.

The survey effort itself is substantial and represents one of the stronger technical aspects of the overall ecological assessment package. The report demonstrates a relatively good understanding of fisheries ecology, hydromorphology and headwater stream function.

However, while the survey work itself is generally robust, the interpretation of the resulting ecological data is more problematic in several respects.

2.6.2 Characterisation of the Aquatic Environment

One of the most important aspects of the report is that it demonstrates the receiving environment is considerably more ecologically sensitive than some of the later impact assessments appear to acknowledge. The report confirms the presence of Atlantic salmon, brown trout, European eel, lamprey habitat, Annex I macrophyte communities and positive Freshwater Pearl Mussel eDNA detections.

The report also repeatedly identifies areas of good salmonid spawning habitat, nursery habitat, eel habitat and high-quality fisheries habitat, particularly at locations GC5 and GC11. Importantly, the report explicitly identifies GC5 and GC11 as supporting the "overall highest quality fisheries habitat" along the proposed grid connection route.

2.6.3 Freshwater Pearl Mussel eDNA Findings

The Freshwater Pearl Mussel eDNA findings are among the most important ecological results within the entire assessment package. Positive eDNA detections were recorded at GC5, GC6 and GC11. The GC5 result is particularly significant because all twelve replicates returned positive detections.

The methodology appendix also confirms that even a single positive replicate is treated as evidence of species presence upstream or at the sampling location.

These findings substantially reinforce the ecological sensitivity of the Bandon River catchment and materially strengthen the potential significance of hydrological pathways associated with the proposed grid connection crossings.

The report therefore establishes likely Freshwater Pearl Mussel presence within connected catchments, sensitive salmonid systems and hydrological connectivity with protected downstream receptors. However, despite these findings, the broader assessment framework later appears to place considerable reliance on mitigation measures to conclude that impacts will not be significant.

Given the extreme sensitivity of Freshwater Pearl Mussel to sedimentation and nutrient enrichment, the baseline data arguably support a more precautionary interpretation.

2.6.4 Existing Ecological Pressure and Catchment Sensitivity

Another important aspect of the baseline report is that it repeatedly documents existing ecological pressure within parts of the catchment. Several sites recorded Poor or Moderate Q-values together with Group D pollution-tolerant taxa, siltation, unstable banks and elevated fine sediment deposition. The report repeatedly describes "*silt plumes evident underfoot*", "*fine sediments remaining readily in*

suspension", "*high degree of siltation*" and active erosion. These observations are ecologically important because they indicate that portions of the receiving environment already have reduced ecological resilience.

This is particularly relevant for Freshwater Pearl Mussel, salmonid spawning habitat and macroinvertebrate communities, all of which are highly sensitive to additional sediment loading.

The report therefore demonstrates that the receiving environment is not a pristine but resilient system capable of readily assimilating additional pressure. Rather, it is an already sensitive and, in places, stressed headwater catchment system.

2.6.5 Hydromorphology and Headwater Systems

The report provides relatively good descriptions of hydromorphology and headwater stream conditions. The surveys identify steep upland streams, actively eroding channels, flashy hydrology, peatland-influenced systems and sediment-sensitive headwaters. This is important because upland headwater systems are often particularly vulnerable to sediment mobilisation, drainage alteration, peat disturbance and hydrological modification.

The baseline report clearly demonstrates that many of the surveyed watercourses are small, hydrologically responsive systems where relatively minor sediment or pollution inputs may have disproportionate ecological consequences. However, the report itself does not substantially develop this issue into a detailed assessment of sediment sensitivity or catchment-scale risk.

5.6.6 Fisheries Assessment

The repeated use of the terms 'fisheries' and 'fisheries habitat' throughout the assessment is questionable from an ecological perspective. A fishery is fundamentally a human exploitation or management activity, rather than an ecological receptor. The terminology risks framing rivers primarily as resources for angling or fish production, rather than as ecosystems supporting a wide range of protected and ecologically important aquatic species and ecological processes, including species with little or no conventional fisheries value.

The surveys are nonetheless comprehensive and confirm widespread salmonid habitat, nursery areas, spawning gravels and eel habitat. The report also correctly acknowledges that even apparently marginal upland streams can function as locally important nursery or spawning habitat.

However, several watercourses are described as supporting good fisheries habitat, possessing good ecological function or containing important spawning habitat, while simultaneously being assigned Poor or Moderate biological classifications.

2.6.7 Survey Limitations and Uncertainty

The report is generally transparent regarding survey limitations. Several surveys were undertaken during high flows, spate conditions or difficult weather conditions. The report acknowledges that electrofishing could not always be fully completed, kick-sampling was constrained, depths were prohibitive and flows were torrential at certain sites.

These limitations do introduce uncertainty which is not always fully reflected in the confidence of the later impact assessment conclusions.

In several cases, the inability to fully sample a site under difficult conditions arguably supports a more precautionary interpretation rather than a more confident one.

2.6.8 Otter Surveys

The otter surveys recorded relatively limited direct evidence of otter activity, with only one spraint identified and no confirmed holts or couches recorded. However, the report repeatedly acknowledges that several watercourses provide suitable habitat for otter and are likely to be utilised by the species.

Otters are highly mobile and signs can be difficult to detect within heavily vegetated upland catchments. Absence of extensive field signs during limited survey windows cannot reliably demonstrate absence of regular use.

The otter assessment is generally acceptable, although the confidence attached to the low level of recorded activity should be treated cautiously.

2.6.9 Relationship Between Baseline Data and Impact Assessment

Perhaps the most important overall issue arising from the Aquatic Baseline Report is the relationship between the ecological data collected and the conclusions later reached within the broader EIAR and Natura Impact Statement. The baseline report clearly demonstrates ecologically sensitive headwater systems, fisheries importance, Freshwater Pearl Mussel pathways, unstable and sediment-sensitive channels, and existing ecological pressures. However, the later assessment framework frequently concludes that impacts will not be significant primarily because mitigation measures will be implemented.

The baseline survey results support a more precautionary treatment of sediment risk, greater uncertainty regarding HDD crossings, and a more cautious interpretation of cumulative hydrological impacts.

2.6.10 Conclusions

The Aquatic Baseline Report is supported by a substantial programme of field surveys undertaken using recognised methodologies. The survey effort itself appears broadly comprehensive and proportionate to the scale and sensitivity of the receiving environment.

However, the baseline data collected also demonstrate that the receiving environment is ecologically sensitive and, in places, already under pressure. The surveys confirm sensitive salmonid systems, eel habitat, lamprey habitat, Freshwater Pearl Mussel eDNA detections, unstable and sediment-sensitive channels and ecologically important headwater systems.

The main concern arising from the report is therefore not the adequacy of the surveys themselves, but the interpretation of the resulting ecological data within the broader impact assessment framework. The baseline findings again support a more precautionary interpretation regarding sediment mobilisation risk, hydrological disturbance, HDD crossing uncertainty and cumulative catchment effects.

2.7 Schedule of Mitigation Measures

2.7.1 General Structure and Scope

The document is presented as a mitigation schedule with reference numbers, mitigation descriptions, reference locations and audit fields. In principle, this is a positive approach because it attempts to provide a traceable implementation schedule linked back to the Natura Impact Statement.

However, the most significant issue is that the schedule is extremely limited in scope relative to the wider Natura Impact Statement and supporting ecological assessments.

The document contains only three mitigation measures, all of which relate specifically to water quality protection associated with the proposed grid connection and HDD crossings. While these are undoubtedly important measures, the schedule does not appear to capture the full range of mitigation commitments relied upon elsewhere within the NIS and supporting ecological reports.

This is a significant weakness because the purpose of a mitigation schedule is normally to provide a consolidated and auditable list of all mitigation measures relied upon to support the conclusions of the Appropriate Assessment.

2.7.2 Relationship with the Natura Impact Statement

One of the principal concerns with the document is that it does not appear to comprehensively reflect the mitigation framework described elsewhere in the NIS.

The Natura Impact Statement and associated ecological reports rely upon a broad range of mitigation and management measures relating to peatland protection, sediment management, construction timing, habitat protection buffers, biodiversity management, invasive species management, pollution prevention, drainage management, HDD methodology, restoration measures and ecological monitoring. However, the schedule itself only captures a very narrow subset of these measures. This creates an important risk because some mitigation relied upon in the NIS may not be formally scheduled for implementation, some measures may therefore lack enforceable traceability, and there may be ambiguity regarding which commitments are actually binding components of the project.

In practice, a competent authority or contractor relying solely on this schedule would not obtain a complete understanding of the mitigation framework relied upon within the NIS.

2.7.3 Aquatic Mitigation Measures

The mitigation measures included within the schedule are generally sensible and technically appropriate. The proposed temporary drainage measures include blocking roadside drains, temporary blocking of culverts and manholes, and installation of double silt fencing within watercourse buffer zones. Similarly, the proposed watercourse crossing mitigation measures include restrictions on stockpiling, refuelling and concrete washout, together with requirements for spill response, temporary drainage blocking and suspension of works during heavy rainfall.

The frac-out contingency measures are also broadly appropriate and include the use of biodegradable drilling fluids, bunding, silt fencing, pressure monitoring, stop-work procedures and review of drilling alignment where breakout risk remains high.

However, while the mitigation measures themselves are generally appropriate in principle, several concerns arise regarding the level of detail and enforceability provided.

2.7.4 Lack of Site-Specific Detail

A recurring issue throughout the schedule is the relatively generic nature of the mitigation wording. The mitigation measures describe broad construction management principles, but they do not provide substantial site-specific detail regarding exact crossing locations, receptor sensitivity rankings, trigger thresholds, monitoring frequencies, sediment limits, rainfall thresholds or operational response protocols.

For example, the schedule states that works shall not take place during periods of high rainfall and shall be suspended if heavy rain is forecast. However, "high rainfall" is not defined, no rainfall threshold is provided, and no decision-making protocol is identified.

Similarly, the frac-out contingency measures refer to monitoring drilling pressures and stopping drilling if signs of breakout occur. While this is appropriate in principle, the schedule does not identify how breakout risk will be monitored, who will supervise the monitoring, what constitutes a trigger event, or what downstream ecological thresholds apply.

Given the ecological sensitivity identified elsewhere within the assessment, particularly in relation to Freshwater Pearl Mussel pathways, the mitigation schedule should contain more detailed operational criteria and clearly defined response thresholds.

2.7.5 Reliance on Temporary Drainage Blocking

One notable aspect of the schedule is the repeated reliance on temporary blocking of drains, culverts and manholes during works. While temporary drainage isolation may reduce sediment transport locally, the schedule does not clearly explain how blocked drainage will be managed during heavy rainfall, how overtopping risks will be addressed, or how ponded runoff will be controlled and discharged.

This is particularly relevant because the aquatic baseline report identifies flashy upland hydrology, unstable channels, peatland drainage systems and sediment-sensitive receiving waters. The mitigation schedule therefore appears somewhat simplified relative to the hydrological complexity of the receiving environment.

2.7.6 Lack of Monitoring and Compliance Framework

Another important limitation is the absence of a detailed ecological monitoring and compliance framework. Although the schedule includes "Audit Result" and "Action Required" columns, these are blank and no actual audit methodology is provided.

The document does not clearly identify who is responsible for implementation, who is responsible for auditing, inspection frequency, reporting requirements, corrective action procedures or ecological supervision requirements. This significantly reduces the practical enforceability of the schedule.

For a project with hydrological pathways to sensitive aquatic receptors including Freshwater Pearl Mussel catchments, a more robust schedule would normally include named responsibilities, inspection protocols, stop-work authority, ecological clerk of works responsibilities, incident reporting procedures and water quality monitoring requirements.

2.7.7 Omission of Other Ecological Mitigation

Perhaps the most important overall issue is that the mitigation schedule does not include many of the ecological mitigation measures relied upon elsewhere in the NIS and EIAR.

There is no apparent inclusion of peatland restoration measures, biodiversity management measures, habitat protection buffers, ornithological mitigation, bat mitigation, invasive species management, ecological monitoring commitments or habitat reinstatement measures. This is particularly problematic because the wider ecological assessments repeatedly rely on restoration measures, habitat enhancement, adaptive mitigation and future ecological management to support conclusions of no significant effect.

If those measures form part of the mitigation relied upon for Appropriate Assessment purposes, they should be captured within a consolidated and auditable mitigation schedule.

2.7.8 Relationship Between Mitigation and Scientific Certainty

The limited scope of the mitigation schedule also reinforces a wider concern identified elsewhere within the review process, namely the extent to which the Natura Impact Statement depends upon mitigation measures to exclude adverse effects.

The mitigation schedule demonstrates that the conclusions of the NIS rely heavily on sediment control, HDD management, pollution prevention and construction management procedures. However, the schedule itself does not provide sufficient technical detail to fully demonstrate how these measures will consistently achieve the required level of protection for sensitive downstream aquatic receptors.

This is particularly important given the Freshwater Pearl Mussel eDNA detections, the sediment-sensitive nature of the receiving environment, and the ecological pressures already identified within the aquatic baseline report.

2.7.9 Conclusions

The NIS Schedule of Mitigation Measures is relatively narrow in scope and does not comprehensively capture the full range of mitigation commitments relied upon elsewhere within the Natura Impact Statement and supporting ecological assessments.

The schedule is heavily focused on water quality mitigation associated with the proposed grid connection and does not include many of the habitat management measures, peatland measures, ecological monitoring commitments, ornithological mitigation, bat mitigation or biodiversity enhancement measures which appear elsewhere within the assessment package.

In addition, many of the measures included within the schedule are relatively generic and lack the detailed operational criteria, monitoring thresholds, auditing protocols and compliance framework that would normally be expected for a project with hydrological pathways to sensitive aquatic receptors.

Overall, the schedule incompletely communicates the full mitigation framework relied upon in the NIS, several measures lack sufficient site-specific operational detail, monitoring and enforcement mechanisms are underdeveloped, and the document provides less certainty regarding implementation and compliance than would ideally be expected for a project of this ecological sensitivity.

3. CONCLUSIONS

A relatively substantial amount of ecological survey work has been completed as part of the application. The key issues that have been identified in the review arise less from absence of baseline data and more from the interpretation of that data, the treatment of uncertainty, the reliance on mitigation, and the degree of scientific certainty attached to the final conclusions.

The single most important issue is probably the treatment of aquatic ecological risk within the Bandon River catchment, particularly in relation to Freshwater Pearl Mussel pathways. The aquatic baseline report confirms positive Freshwater Pearl Mussel eDNA detections at multiple locations associated with the proposed grid connection route, including a very strong positive signal at GC5. The same areas are also identified as supporting the highest quality fisheries habitat along the route. At the same time, the receiving environment is shown to be sediment-sensitive, already under ecological pressure in places, and characterised by unstable and flashy upland headwater systems. Despite this, the NIS ultimately concludes that adverse effects can be excluded largely on the basis of mitigation measures and HDD methodology. The key objection point is therefore not that mitigation is absent, but that the level of scientific certainty required under Article 6(3) may not have been fully achieved, particularly given the sensitivity of Freshwater Pearl Mussel to sedimentation and pollution.

Closely related to this is the reliance on HDD crossings and frac-out contingency measures without a fully developed site-specific hydrogeological or geotechnical assessment. The mitigation schedule and NIS contain sensible high-level HDD mitigation measures, but the actual assessment of frac-out risk, drilling pressures, subsurface connectivity and sediment mobilisation remains relatively generic. Given the ecological sensitivity identified in the aquatic surveys, this is of concern.

Another important issue is the extent to which the Natura Impact Statement relies upon mitigation measures to support conclusions of no adverse effect. Across the NIS and supporting reports there is substantial reliance on future construction management, sediment controls, restoration measures, adaptive management and operational monitoring. In several places, the conclusions appear to assume that mitigation will function exactly as intended, rather than demonstrating beyond reasonable scientific doubt that adverse effects can be excluded. This is particularly important in the context of Freshwater Pearl Mussel, sediment-sensitive headwaters and ex situ Hen Harrier habitat use.

The treatment of Hen Harrier and the wider upland bird assemblage is also and issue identified. The ornithology surveys are relatively extensive and demonstrate repeated Hen Harrier use of the site during post-breeding and winter periods. The surveys also acknowledge that the birds may originate from Mullaghanish to Musheramore Mountains SPA. However, the assessment then places considerable emphasis on breeding-season foraging distances and the availability of habitat elsewhere in the landscape to conclude that effects will not be significant. It is concern therefore that the assessment may understate the functional importance of ex situ wintering and post-breeding habitat used by SPA-associated birds.

There are also issues in relation to the way cumulative effects are considered. This weakness appears consistently across the biodiversity assessments. Multiple existing, permitted and proposed wind farms occur across the wider upland landscape, yet the cumulative assessments remain relatively qualitative and frequently conclude that no significant cumulative effects arise because each project individually concludes no significant effects. There is relatively little landscape-scale or catchment-scale quantitative analysis of cumulative fragmentation, cumulative collision risk, cumulative sediment loading or cumulative ecological pressure.

There are also further concerns related to peatland habitats and hydrology. The botanical and biodiversity reports confirm the presence of degraded but still recognisable Annex I-type habitats including Wet Heath, Dry Siliceous Heath and Upland Blanket Bog. The reports repeatedly emphasise degradation, but degradation does not remove ecological value or restoration potential. Infrastructure is still proposed within wet heath and blanket bog systems, and the wider hydrological implications of peat disturbance, drainage alteration and sediment mobilisation are arguably not fully developed within the assessment. This may not be a major issue on its own, but it adds to wider concerns regarding downstream aquatic impacts and cumulative ecological effects.

There are also concerns in relation to the extent to which restoration and enhancement measures are relied upon to offset impacts. Across the biodiversity assessments there is substantial reliance on future habitat restoration, biodiversity enhancement and adaptive management. While these are positive measures in principle, ecological restoration is inherently uncertain and often requires long timeframes. The assessments do not always clearly distinguish between avoidance, mitigation, restoration and compensation. This creates uncertainty regarding the degree to which some conclusions depend upon future ecological outcomes that cannot be guaranteed at the time consent is granted.

Procedurally, the bat surveys are well done and are considered to be comprehensive. However, the surveys themselves recorded very substantial levels of bat activity, including elevated activity associated with several proposed turbine locations and repeated use of forestry edges and linear habitats by high collision-risk species such as Leisler's Bat. Despite this, the report repeatedly characterises the site as low suitability overall and relies heavily on future adaptive mitigation and curtailment. The key issue here is therefore not that the surveys are deficient, but that the ecological significance of the activity recorded and the residual uncertainty regarding collision risk may be understated.

There is also limited integration between the NIS Schedule of Mitigation Measures and the wider ecological assessment package. The mitigation schedule itself is relatively narrow and focuses almost entirely on aquatic mitigation associated with the grid connection. It does not appear to comprehensively capture many of the mitigation and ecological management commitments relied upon elsewhere in the NIS, biodiversity chapter, bat assessment and ornithology chapter. This potentially weakens the enforceability and traceability of the mitigation framework as a whole.

Across many of the reports there is a recurring pattern whereby the baseline ecological surveys demonstrate a relatively sensitive upland ecological landscape, but the resulting impacts are repeatedly characterised as slight, low or not significant through the use of significance matrices, habitat substitution arguments and reliance on mitigation. Individually, many of these conclusions may be arguable. However, taken together, there is a legitimate concern that the assessment package consistently adopts an optimistic interpretation of ecological sensitivity and residual risk.

Overall, the documentation prepared for the proposed development is extensive and, in several respects, substantially more detailed than is often encountered for comparable wind farm projects. The ecological survey effort is generally significant and the assessments are professionally presented. However, the fundamental concern arising from this review is not the absence of ecological information, but rather the interpretation of that information and the degree of scientific certainty attached to the conclusions reached.

Taken collectively, the baseline surveys demonstrate that the proposed development is located within a considerably more ecologically sensitive upland landscape than the final conclusions of the EIAR and Natura Impact Statement fully acknowledge. The assessments repeatedly identify sensitive headwater

catchments, Freshwater Pearl Mussel pathways, unstable and sediment-sensitive hydrology, degraded but still ecologically important Annex I peatland habitats, repeated use of the site by Hen Harrier and other protected upland bird species, and elevated activity by high collision-risk bat species at several turbine locations. Despite this, the resulting impacts are frequently reduced to "slight", "low" or "not significant" through reliance on mitigation, habitat substitution arguments, restoration assumptions and future adaptive management.

The key issue therefore is one of residual uncertainty. In several key areas, particularly in relation to aquatic ecology and Appropriate Assessment, the conclusions reached appear more optimistic than the underlying ecological evidence fully supports. The assessments rely heavily on the assumption that mitigation measures, HDD methodologies, sediment controls, habitat restoration and future operational management will function precisely as intended in a highly sensitive receiving environment. However, Article 6(3) of the Habitats Directive requires complete, precise and definitive findings capable of excluding adverse effects on the integrity of European sites beyond reasonable scientific doubt. There are substantive grounds to conclude that this evidential threshold may not have been achieved.

From a legal perspective, the findings of this review are significant because the obligations imposed by Article 6(3) of the Habitats Directive establish a particularly high evidential threshold where European sites and qualifying interests may be affected. Under Article 6(3), consent can only be granted where the competent authority has ascertained, on the basis of complete, precise and definitive findings and conclusions, that the proposed development will not adversely affect the integrity of any European site. This principle has been repeatedly reinforced by the Court of Justice of the European Union, including in People Over Wind and Peter Sweetman v Coillte (C-323/17), which confirmed that mitigation measures cannot be relied upon at screening stage, and in Waddenzee (C-127/02), which established that consent may only be granted where no reasonable scientific doubt remains as to the absence of adverse effects. Similarly, in Sweetman v An Bord Pleanála (C-258/11), the Court emphasised that even partial or localised impacts may undermine site integrity where they affect the ecological characteristics underpinning the conservation objectives of the site. More recently, the Irish and European courts have repeatedly stressed that uncertainty, reliance on assumptions, reliance on future management measures, or reliance on mitigation that is not fully specified and demonstrably effective, cannot lawfully support an Article 6(3) conclusion.

In this context, the key findings of the present review are legally important. The ecological assessments repeatedly identify sensitive aquatic pathways, Freshwater Pearl Mussel eDNA detections, sediment-sensitive headwaters, degraded but ecologically important Annex I peatland habitats, and functional use of the site by protected upland bird species. However, the final conclusions of the NIS and supporting assessments rely heavily on construction management, HDD contingency measures, future restoration, adaptive mitigation and operational monitoring to exclude adverse effects. The legal difficulty arising is that the greater the reliance placed upon mitigation and future management to remove ecological risk, the greater the evidential burden on the competent authority to demonstrate that such measures are sufficiently certain, enforceable, effective and scientifically proven to exclude adverse effects beyond reasonable scientific doubt. Viewed in light of the applicable Habitats Directive jurisprudence, the cumulative effect of the uncertainties identified throughout this review may therefore create a material legal vulnerability in the Appropriate Assessment process.

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THE HIGH COURT

[2024] IEHC 136

[2018 8457 P]

BETWEEN:

MARGARET WEBSTER AND KEITH ROLLO

PLAINTIFFS

AND

MEENACLOGHSPAR (WIND) LIMITED

DEFENDANT

AND

[2018 8458 P]

BETWEEN:

ROSS SHORTEN AND JOAN CARTY

PLAINTIFFS

AND

MEENACLOGHSPAR (WIND) LIMITED

DEFENDANT

JUDGMENT of Ms. Justice Emily Egan delivered on the 8th day of March 2024

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Glossary

GLOSSARY Term	Definition
Aerodynamic Noise	Noise emitted by a wind turbine due to the passage of air over the blades.
Amplitude modulation, AM	In the context of wind turbine acoustics, this normally refers to a periodic variation in the sound level of the broadband spectrum of the aerodynamic sound.
AM Value	In broad terms I refer to this as the measurement of the peak to trough differential in AM noise levels
Background Noise	The ambient noise level already present within the environment in the absence of wind farm operation.
Bin	A bin is a subset or group into which data can be sorted; in the case of windspeeds, bins are often centred on integer windspeeds with a width of 1 m/s. For example, the 4m/s windspeed bin would include all data with windspeeds of 3.5 to 4.5 m/s.
Blade Pitch	The pitch motor turns (or pitches) blades out of the wind to control the rotor speed, and to keep the rotor from turning in winds that are too high or too low to produce electricity.
Broadband	A wide range of sound frequencies

BS 4142	*BS4142: 2014 Method for rating and assessing industrial and commercial sound.* BS 4142 is a method to assess the impact on humans in residential premises. It is appropriate for assessing sound levels outside a building that are from: industrial premises, manufacturing premises or fixed installations, mobile plants, vehicles, trains or ship movements.
Cut-in Windspeed	The windspeed at which a turbine produces a net power output.
dB	Decibel, the unit of measure of sound.
dBA	A-weighted decibels, the unit of measure of sound adjusted to reflect the perception of sound to the human ear.
Defra Guidance	*Windfarm Noise Statutory Complaint Methodology, 2011* A methodology developed by the Department for Environment, Food and Rural Affairs for the assessment of statutory noise nuisance complaints pertaining to wind turbine noise.
Draft WEDG 2019	Draft revised Wind Energy Development Guidelines issued by the Department of Housing, Local Government and Heritage in December 2019 and since withdrawn.
EPA	Environmental Protection Agency

EPA NG3	*EPA Guidance Note on Noise Assessment of Wind Turbine Operations at EPA Licensed Sites, EPA NG3* (June, 2011).
EPA NG4	*Environmental Protection Agency Office of Environmental Enforcement (OEE) Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities* (January, 2016)
ETSU	*ETSU-R-97: The Assessment and Rating of Noise from Wind Farms* published by the Department of Trade and Industry in 1996. ETSU is the primary framework by which planning conditions pertaining to wind farms are set in the United Kingdom
ETSU Review	*A Review of Noise Guidance for Onshore Wind Turbines produced by WSP UK Limited* commissioned by the Department for Business, Energy and Industrial Strategy and published in February 2023.
Façade Level	The noise level closer to a façade of a building which is subject to a higher noise level than in an open area (free field conditions) due to reflections.
Fixed noise limit	A noise condition in a planning permission which does not limit WTN by reference to background noise levels but instead sets a fixed limit (or a range of fixed limits)

Free Field	An environment in which there are no reflective surfaces affecting measurements within the frequency region of interest.
GPG	*A Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise*' published by the Institute of Acoustics (IOA) in 2013.
Hertz (Hz)	Hertz, the unit of measure for the frequency of a sound in cycles per second.
Hub	The centre of the rotor
Hub Height	Height of wind turbine tower from the ground to the centre-line of the turbine rotor.
10-metre standardised windspeed	A formula pursuant to which, irrespective of the hub height of the turbine, windspeed is extrapolated down to a 10 metre height using a standard wind shear profile.
Hub Height Windspeed	The windspeed at the hub height of the turbine or at the centre of the rotor.
IOA	The Institute of Acoustics
IOA RM	A reference method published by the Institute of Acoustics in 2016 for measuring and rating amplitude modulation in wind turbine noise.
ISO 1996-2	A standard published in 1996 by the International Organization for the

	standardisation of measurements "*Acquisition of data pertinent to land use*" ("ISO 1996-2")"
ISO 1996-2, 2017	The 2017 edition of ISO 1996-2
L5	The sound level exceeded for 5% of the measurement period.
L90	The sound level exceeded for 90% of the measurement period. For example, L90 (10 min) is the level exceeded for 90% of the measurement time of 10 minutes.
L95	The sound level exceeded for 95% of the measurement period.
Lden	This is a composite of long term leq valued for day, evening and night. It is determined by averaging the L day with the L evening plus a 5 dB penalty and the L night plus a 10 dB penalty.
Leq T, energy time-averaged sound level	A sound level measurement index, which averages all of the sound energy in a period over the measurement time T. For example, Leq $_{10}$ is the average sound level over a 10 minute period.
Lmax	This represents the upper value of the sound pressure levels measured in a given period.

Low frequency noise	The definition of low frequency noise can vary, but it is generally accepted to be within the range of 10Hz to 150Hz.
Masking	The process by which the threshold of audibility of one sound is raised by the presence of another (masking) sound.
Mechanical Noise	Noise emitted by a wind turbine from machinery usually within the nacelle.
m/s	Metres per second.
Night Hours	2300-0700 hours on all days
Noise	Sound that is subjectively judged to be undesired in a given context.
Phase 2 Report	*Wind turbine AM review: Phase 2 report.* 3514482A Issue 3 WSP | Parsons Brinckerhoff, 2016. Department for Business, Energy & Industrial Strategy. A study suggesting a range of decibel penalties by reference to **AM values** for inclusion in planning permissions for wind turbines.
Quiet Waking Hours	1800-2300 hours on all days plus 0700-1800 hours on Sundays and 1300-1800 hours on Saturdays.
Relative noise limit	A noise condition in a planning permission which limits WTN to a certain level above background noise.

SCADA data	SCADA is a computer system with software tools used for controlling and monitoring the wind turbine. It measures *inter alia* windspeed, speed of rotation, blade pitch and decibel level. SCADA data is retained and can be re-produced. The SCADA data for both T1 and T2 was included in the defendant's discovery.
Shadow Flicker	Term used to describe the short-lived effect of shadows cast by rotating blades of wind turbines when the sun passes behind them, which occurs under certain combinations of geographical positions and time of day.
Sound	Energy that is transmitted by pressure waves in air or other materials and is the objective cause of the sensation of hearing. Commonly called noise if it is unwanted.
Sound Frequency	Sound comprises a range of frequencies extending from the very low, such as a rumble of thunder, to high frequencies, such as those generated by a small bell. Allowing for individual variation, the audible range of frequencies for the human ear is generally in the region of 20Hz to 20,000Hz.
Sound Pressure	Sound pressure is usually measured in A-weighted decibels, which are generally denoted as dBA. The decibel scale is logarithmic and not linear in nature. This means that if, for example, two instances of the same sound level occur at the same time and each has a sound

	level of 30dBA, their combined level will be 33dBA, and not 60dBA.
Spectrogram	A visual representation of the spectrum of frequencies in a signal as it varies with time. In acoustic terms it shows the acoustic frequency content of the raw noise data which is helpful in identifying the main sources of noise and clarifying whether it is wind turbine related.
Spectrum, spectral content	Sounds are typically made up of acoustic energy present in many frequencies of the audible spectrum. The frequency spectrum describes this signal 'content'.
Stable atmospheric conditions	Conditions under which the mixing of layers in the atmosphere is minimised. This leads to a much greater increase in wind speed with height.
Supplemental Guidance Note 5	One of six Supplementary Guidance Notes to the GPG published by the IOA in 2014. *Supplementary Guidance Note 5 on Post Completion Measures* governs the technical aspects of ETSU planning compliance assessments.
Total operational noise (level)	In the context of wind turbine acoustics, this normally refers to the total sound environment considered at a given location. In the present case, total operational noise comprises the wind turbine noise and the background noise.

WEDG 1996	*The Wind Farm Development Guidelines for Planning Authorities* issued by the Department of Local Government in 1996.
WEDG 2006	*The Wind Energy Development Guidelines 2006*, issued by the Department of the Environment, Heritage and Local Government in December, 2006.
WHO 2009	*Night Noise Guidelines for Europe* (2009) ISBN 978 92 890 4173 7
WHO ENGER	*Environmental Noise Guidelines for the European Region* (2018)
Wind Shear	A description of the increase in windspeed with height above ground level.

Introduction

1. The plaintiffs are two couples[1] who claim they have been interfered with, over a substantial period of time, in the use and enjoyment of their homes, at Ballyduff, Enniscorthy County Wexford. The claim is for private nuisance in the form of noise and vibration generated by two nearby wind turbines, owned and operated by the defendant. The plaintiffs also complain of shadow flicker.

2. Ms. Webster and Mr. Rollo ("the Webster Rollos"), own Hill House (HH), and until recently Ms. Carty and Mr. Shorten ("the Carty Shortens") owned Nettlefield (NF). The nearer of the two turbines, Turbine 2, ("T2") is located some 359 m from the Carty Shorten house and some 369 m from the Webster Rollo house and the further turbine, Turbine 1, ("T1") is some 652 m from the Carty Shorten house and some 655 m from the Webster Rollo house. Each of the turbines are 74.5 m in hub height and as they are located on a height, the height difference between the plaintiffs' houses and T1 and T2 respectively is 169 m and 152 m. The relative locations of the turbines and the plaintiffs' houses means that the prevailing south westerly winds blow from the direction of the turbines towards the plaintiffs' houses. It is also common case that because the plaintiffs' houses are located in the lee of a hill (on which the turbines are placed), they are sheltered from the prevailing wind and are in a "wind shadow" (which I understand to mean a location that is generally calm and sheltered).

3. The windfarm was built on foot of a grant of planning permission dated 16th April, 2004. Condition 15 states that noise levels from the turbines when measured at the nearest inhabited house shall not exceed 40dBA (15 minute leq[2]) at a windspeed of 5 m/s and 45dBA (15 minute leq) at a windspeed in excess of 10 m/s. Due to grid connection difficulties, there was a delay in the implementation of this planning permission and the two turbines did not become operational until February 2017.

4. In addition to seeking damages for nuisance and an injunction to prevent nuisance, the plaintiffs maintain that the windfarm is operating otherwise than in compliance with its planning

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[1] Although the Webster Rollos have since separated.
[2] In this judgment, I will in general refer to this as "leq" regardless of the time interval involved. This is primarily to distinguish this measurement from L90.

permission and seek relief pursuant to section 160 of the Planning Development Act, 2000 (as amended).

5. O'Moore J. directed that the trial of the proceedings would proceed in a modular fashion with module 1, which is the subject matter of this judgment, dealing only with the issue of liability and module 2, if required, dealing with the issue of damages and remedy. However, during the course of the trial of module 1, it was agreed that this module would also determine the entitlement or otherwise of the Webster Rollos to damages for personal injuries[3] and that the assessment of the quantum of such damages (if any) would be taken up in module 2.

6. It was expected that module 1 would run for five weeks. However, it is clear that the parties' estimate of the time required to try the numerous factual, technical and legal issues in dispute was utterly unrealistic . It should be noted that this is the first private nuisance claim in relation to WTN that has run to judgment in this jurisdiction, or it appears in the United Kingdom. The only comparable authority cited to me by the parties is a judgment of the Supreme Court of Victoria of Australia of 12th March, 2022, *Noel Uren v Bald Hills Wind Farm Pty Ltd* [2022] VSC 145.

7. The trial of module 1 very significantly over-ran its original estimate and was heard over the course of 51 days between 22nd November, 2022 and 6th November, 2023. In total, the plaintiffs called 11 witnesses and the defendant called five witnesses. The combined book of transcripts of the hearing of the proceedings runs to over 6000 pages.

The nature of wind turbine noise ("WTN")

8. Wind turbine noise ("WTN") typically consists of both aerodynamic noise caused by the interaction of the rotors with the surrounding air and mechanical noise created by the mechanical elements of the turbine. It is the first of these that is in issue here.

9. Wind turbine aerodynamic noise is typically broadband in nature in the sense that it is evenly distributed across the frequency spectrum; but it can exhibit lower frequency content.

[3] In the form of pure psychiatric injury.

Sound with significant lower frequency content is both more intrusive and less effectively attenuated by barriers such as windows, walls and insulation.

10. Although WTN can be constant it usually exhibits periodic fluctuations in level, the frequency[4] of which is related to the blade passing frequency of the turbine rotors. This volume change is known as amplitude modulation ("AM")[5].

11. Two categories of wind turbine AM have been identified in the literature and guidelines: The first is AM in the mid and upper frequency[6] ranges. The sound which this produces, is that which we commonly associate with windfarms and is best described as a swishing sound. This blade swish, which I will refer to as ("swish AM") is commonly described as "*normal AM*". The second category of AM has a lower frequency sound character and is best described as a "whoomph" or thump sound ("thump AM"). Thump AM is commonly described as *"abnormal AM", "adverse AM"* or *"excessive AM"*.

12. In broad terms[7], the extent to which AM fluctuates as the rotors turn is measured by the differential between the peak and the trough of the sound levels – i.e., the peak to trough differential ("the AM value"). If the AM value is high, then the perception will be of a louder sound changing to a quieter sound, and vice versa. This will increase the intrusiveness of the WTN. Conversely, if the AM value is low, then the perception will be of a sound which is more steady and monotonous. Swish AM and thump AM can each display either high or low AM values.

13. In addition to variations in its spectral content (swish AM/thump AM), and its AM value (high or low values), AM can also exhibit other distinct characteristics such as:

- regular AM with little variation in rhythm.
- erratic AM with no clear periodicity or rhythm which exhibits sudden bursts or isolated peaks of noise and is often accompanied by high AM values.

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[4] Note the two different uses of the word frequency, i.e., to define spectral content and, as here, to describe the temporality of blade passing.
[5] Graphs prepared by one of the plaintiffs' experts derived from the noise monitoring on site which are attached at paras 434 and 435 might be helpful in illustrating AM.
[6] Here "frequency" refers to spectral content.
[7] There are some nuances to this which I will outline below when discussing eh IOA RM.

- Intermittent or variable AM which disappears and returns again, or which fades in and out.

14. Although the plaintiffs complain that the WTN causes an unwelcome general increase in noise levels at their properties, the key feature of their case is that the AM associated with these turbines (but primarily the closest turbine, T2) renders it objectively unreasonable.

Summary of plaintiffs' and defendant's case

Plaintiffs' case

15. In brief, the plaintiffs' case is that whilst the assessment of WTN nuisance is an objective and not a subjective exercise, it is not determined by decibel level alone but by reference to all of the characteristics of the WTN. The assessment is not purely quantitative but also qualitative. Close attention must therefore be paid to all the characteristics of the WTN such as its decibel level, whether there is swish or thump AM, its AM values, the erraticism, impulsivity or variability of its AM and the duration, frequency and timing of the intrusion occasioned thereby.

16. The plaintiffs maintain that even if a windfarm benefits from planning permission, the noise conditions in the permission cannot provide the litmus test for determining whether the WTN constitutes an unreasonable interference with amenity.

17. To demonstrate the features of the WTN complained of in this case, the plaintiffs' experts carried out noise monitoring over extensive periods both externally and internally at HH and NF. The plaintiffs present the results of this noise monitoring in audio recordings and in graphical format. They maintain that, when assessed against relevant quantitative and qualitative criteria, this data supports the contention that the WTN poses a substantial nuisance.

Defendant's case

18. The defendant argues that the noise conditions in the windfarm planning permission comprise a wholly reliable indicator as to what levels of WTN are objectively reasonable at this location. Therefore, because the WTN is said to comply with the conditions in the planning permission, nuisance cannot be established.

19. The defendant argues that the plaintiffs' experts' audio recordings and graphs were not recorded or analysed in accordance with established methodologies. It maintains that the plaintiffs' experts' approach is novel and bespoke and therefore of little assistance to the court.

20. A further overarching argument of the defendant is that the plaintiffs' complaints are subjective only and that the test for nuisance is objective. The defendant relies on three key items of evidence that it submits established that the expectations of an objectively reasonable ordinary person have not been *"exceeded"* in this instance:

i. The evidence of its acoustic experts, to the effect that the noise conditions incorporated into the planning permission for the windfarm comprise a reasonable objective standard in respect of noise emissions.
ii. Evidence said to demonstrate that the windfarm is operating in compliance with the said noise conditions.
iii. The evidence of Ms. McGinn the purchaser/occupier of NF to the effect that in general the WTN is not adversely affecting her enjoyment of the property.

Structure of this judgment

21. At the outset, I will summarise my findings on the issues to be tried in this case. After outlining the legal test for nuisance, I will set out the key factual evidence and then detail the court's site visit. Next, I will provide a brief overview of the expert evidence.

22. To place the arguments of the parties in context, it will then be necessary to review the regulatory framework under which planning authorities set noise conditions for wind farm developments.

23. Moving on to the main body of the judgment, I will first consider the defendant's argument that the noise conditions in the planning permission for this windfarm are binding on the court because they comprise a wholly reliable indicator of what constitutes objectively reasonable WTN at this location. The defendant also contends that the WTN complies with these noise conditions. This means that if this argument were to succeed, it would be dispositive of the claim.

24. Thereafter, I will consider the reliability of the evidence of the plaintiffs' experts, including the audio recordings (and associated graphs) derived from their noise monitoring at the plaintiffs' homes. After this, I will consider what criteria ought to best guide this court in the nuisance assessment and then analyse the WTN as against a range of relevant quantitative and qualitative criteria.

25. After making certain findings of fact, I set out my reasons for concluding that nuisance is established in this case.

26. I will then explain why I direct the parties to re-engage in mediation in an attempt to identify appropriate and proportionate mitigation measures. Finally, I will examine the plaintiffs' claim to damages for personal injuries and close by briefly considering the plaintiffs' application pursuant to s. 160 of the Planning and Development Act 2000.

Issues to be tried and summary of the court's findings

27. I set out below the issues for determination together with an overview of my conclusions in relation to each issue. It should be emphasised that this is only a very brief summary of my reasons for those conclusions and that the real analysis thereof is set out in the body of the judgment.

Issue 1: Is the court bound by the noise condition in the planning permission in assessing what is objectively reasonable for the purposes of determining a claim for nuisance? Is the noise condition in the planning permission a wholly reliable indicator of what WTN is reasonable?

No.

Is the permission binding on the court in its nuisance assessment?

The defendant argues that, *as a matter of law*, a permission which specifically regulates the matter complained of – in this instance, WTN – prevents the court from concluding that operation in accordance therewith constitutes a nuisance. The defendant relies upon *Smyth v Railway Procurement Agency and anor* [2010] IEHC 291 (*"Smyth v RPA"*) in which Laffoy J. held that, if operated in accordance with the Line B order, the operation

of the LUAS would be in accordance with law and could not constitute a nuisance. Effectively, the defendant seeks to equate the legal impact of the Ballyduff planning permission with that of the Line B Order in *Smyth v RPA*. However, the two cannot be equated. This aspect of Laffoy J.'s reasoning is concerned with the defence of statutory authority in respect of a development authorised by legislation. Its logic cannot be read across to a decision made by a planning authority in the form of a single planning permission.

Is the permission a wholly reliable indicator of what WTN is reasonable?

In any event, I am not satisfied that the permission does specifically regulate the matter complained of by the plaintiffs. The Ballyduff permission regulates WTN by way of decibel levels only and cannot establish an objective yardstick for the particular aspects of the WTN complained of by the plaintiffs in this case – the AM.

Neither the Ballyduff permission nor the planning file as a whole reveal any consideration, assessment or regulation of this feature of WTN. The permission cannot therefore be seen as a wholly reliable indicator of what AM values and other AM characteristics are objectively reasonable.

This lacunae in the permission may be contrasted with the evidence in *Smyth v RPA*. The process under consideration in *Smyth v RPA* incorporated a searching and comprehensive investigation, analysis and assessment of all noise aspects of the project. On the evidence therefore, Laffoy J. was satisfied that the noise conditions thereby derived were a wholly reliable indicator as to what the ordinary person whose requirements[8] are objectively reasonable would expect in terms of noise control.

Furthermore, I do not accept that in the circumstances of this case the defendant can profit from an argument that the court must show curial deference to the Ballyduff planning permission. Curial deference was urged on the court because, it is said, the Ballyduff permission reflects prevailing standards and expertise pertaining to WTN at the time of the grant of permission (and indeed to date). However, the interpretation of the permission argued for by the defendant does not reflect prevailing planning guidance at the time of the grant of the Ballyduff permission - the 1996 Wind Energy

[8] Even if I am wrong in this, I am not in any event satisfied that the defendant has demonstrated that the WTN complies with the noise limits set out in the permission. See para 341 for a summary of why this is so, with the full analysis preceding that.

Development Guidelines (WEDG 1996) [9]. Conversely, if the Ballyduff permission is interpreted in harmony with WEDG 1996, then I am far from being satisfied that the WTN complies therewith. Further, contrary to the defendant's argument, the noise limits laid down in the Ballyduff permission do not reflect current expertise on the impact of the relevant characteristics of the WTN complained of here-such as high AM values and thump AM.

Issue 2: Is compliance with the planning permission demonstrated?

2 (a): For the purposes of the nuisance case, which party bears the onus of demonstrating compliance or non-compliance (as the case may be) with the noise condition set out in the planning permission?

In the nuisance action, the defendant bears the onus of proving the defence advanced; namely that the WTN complies with the noise condition in the Ballyduff permission when correctly interpreted.

2 (b): What is the correct interpretation of the noise condition in the permission?

There is an ambiguity in the planning permission. It is clear that at a windspeed of 5m/s, WTN may not exceed 40 dBA leq. It is also clear that at windspeeds in excess of 10m/s WTN may not exceed 45 dBA leq. However, the permission does not specify the applicable limit at windspeeds between 5 m/s and 10 m/s.

The correct interpretation of the planning permission is that noise levels from the turbine may not exceed 40 dBA leq at windspeeds between 5 m/s and 10m/s. The higher limit of 45 dBA leq only applies for windspeeds in excess of 10 m/s.

2 (c): What does the compliance data show?

The defendant seeks to demonstrate compliance with the Ballyduff noise condition by reference to noise monitoring conducted at HH, rather than at NF. However, compliance with the noise condition cannot be demonstrated by noise measurements taken at HH because NF is the measurement location designated in the permission.

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[9] Which provided that noise levels measured externally at any dwelling house should not exceed 40 dBA Leq as to which see para 184 below.

On the correct interpretation of the noise condition in the Ballyduff permission, compliance is not demonstrated by reference to the NF data because total operational noise- i.e., WTN and background noise - at night-time exceeds 40 dBA leq from windspeeds of 7m/s. Total operational noise also exceeds 45 dBA leq at windspeeds in excess of 9.5 m/s. Although the defendant argues that this is not attributable to WTN, but to other factors, it bears the onus of so demonstrating by reference to background noise studies. No such studies have been tendered to the court.

Even if one overlooked the fact that HH is the incorrect measurement location, there is a paucity of data at HH during night-time at windspeeds in excess of 8m/s such that the HH data could not reliably demonstrate planning compliance. Further, even if one were to overlook this frailty, total operational noise at HH exceeds the limit of 40 dBA leq set in the noise condition at windspeeds in excess of 6m/s. Therefore, in the absence of background noise studies, compliance cannot be demonstrated.

Issue 3: Is the character of the locality to be assessed on a "windfarm basis" or a "no windfarm basis"?

Nuisance is to be assessed by reference to the character of the relevant locality. There is permission for a windfarm at this location. Because of the planning permission, the plaintiffs cannot fairly contend that audible WTN (with some degree of AM) is in and of itself an unreasonable interference. On the other hand, the defendant cannot contend that because WTN is known to occasionally demonstrate certain particularly intrusive characteristics – for example high AM values or thump AM - these characteristics are necessarily part of the locality. WTN which entirely dominates the plaintiffs' sound environment could not have been reasonably anticipated by the grant of permission. Therefore, whilst a windfarm at this location is part of the locality, WTN with the characteristics identified above cannot be said to form part of the locality.

Issue 4: What criteria ought the court consider in the assessment of nuisance?

The methodology developed by the (United Kingdom) Department for Environment, Food and Rural Affairs for the assessment of statutory noise nuisance complaints pertaining to WTN, the *Windfarm Noise Statutory Complaint Methodology, 2011* ("the Defra Guidance") is of considerable assistance in establishing an assessment framework. The Defra Guidance identifies both quantitative and qualitative criteria

("the Defra criteria") to be weighed and assessed with care and professionalism in adjudicating upon statutory WTN nuisance complaints.

Issue 5: Does the court accept that the criticisms advanced by the defendant undermine the reliability of the plaintiffs' acoustic experts' evidence and the data on which same is based?

In general, no.

In so far as concerns the 2017 external NF data, the 2017 internal HH data and the 2021 internal NF and HH data, the court is satisfied that the audio recordings and associated time domain graphs presented by the plaintiffs' experts, MAS Environmental Ltd ("MAS"), reliably present the general noise character at the plaintiffs' homes.

The IOA RM published by the Institute of Acoustics for "rating" AM values is not the exclusive permissible method for presenting and analysing AM. In considering AM values and the general impact of AM on site, regard may therefore be had to the MAS audio recordings (and associated graphs) prepared on foot of the 2017 external NF data, the 2017 internal HH data and the 2021 internal NF and HH data.

MAS's calculation of AM values as derived from the time-domain graphs is sufficiently reliable to inform this court's analysis. The AM levels thereby derived will differ by a reasonably modest extent from those likely to be derived over the same time intervals under the IOA RM.

Furthermore, the impression of AM gained from the audio recordings and time domain graphs is confirmed by the IOA RM analysis performed by MAS of the internal 2021 HH and NF data. Although precise AM values cannot be calculated for the HH master bedroom specifically, one can approximate the relevant AM values by reference to the AM values presenting in another room in the same house.

Due to an inadvertent error, the external NF 2021 audio recordings were recorded at façade level rather than in the free field and furthermore a double skinned windshield was not used. I will therefore have no regard to these audio recordings, to the MAS time domain graphs pertaining to these audio recordings or to MAS's purported IOA RM analysis of this data.

Issue 6: Does an analysis under the Defra criteria support the argument that the characteristics of the WTN amount to a substantial interference with the plaintiffs' use and enjoyment of their land?

Yes, for the reasons which follow:

Sensitivity of the complainant

To quote Henchy J. in *Hanrahan v. Merck Sharp Dohme (Ireland) Ltd* [1988] ILRM 629 ("*Hanrahan*") the *"notions and standards of behaviour and responsibility* [of all four plaintiffs] *correspond with those generally pertaining among ordinary people in our society at the present time, who seldom allows his emotions to overbear his reason, whose habits are moderate and whose disposition is equable."* In short, the plaintiffs are "*ordinary persons with reasonable objective expectations*".

Level of the noise/ loudness

The noise levels presenting, when combined with other features, give rise to significant potential for dominance and unacceptable intrusiveness.

Type of noise

Even on the most conservative analysis, the MAS audio recordings and time domain graphs show that, at the time of measurement, the WTN at the plaintiffs' homes exhibits AM values in excess of 5 or 6dBA. I accept that this is a regular and sustained state of affairs. Regular and sustained peak to trough differentials of 5 or 6 dBA, if audible at a sufficient level will suggest an unreasonable impact. I find that clearly audible AM values of this order (and higher) are a substantial feature of the WTN at the plaintiffs' homes. Indeed, AM values of 10 dBA are regularly present both externally and internally.

Irrespective entirely of its high AM values, the WTN displays considerable intermittency/variability (when the AM disappears and returns again or fades in and out), impulsivity (sudden changes in sound level) and erraticism (i.e., when AM exhibits no clear periodicity or rhythm). These characteristics are particularly evident in light of the high AM values. The WTN also commonly presents as a clear whoomphing sound and exhibits distinct thump AM, both of which are highly variable

and unpredictable. This is WTN that an objectively reasonable person should not be expected to tolerate.

Aggravating features - Spectral content of the noise

Whilst lower frequency noise is not the dominant characteristic of this WTN, there is a significant element of audible lower frequency noise which manifests as thump AM.

Characteristics of the neighbourhood

The character of this quiet rural locality includes a permitted windfarm development. However, the characteristics of the neighbourhood do not include WTN which dominates the plaintiffs' sound environment or WTN which displays excessive AM values, thump AM and other particularly attention drawing characteristics.

The exceedance of WTN over background noise

Planning guidance for wind turbines commonly recommends a "relative noise limit" of 5 dBA over background noise for each windspeed bin. The plaintiffs have not proven on the balance of probabilities that the WTN exceeds background noise by in excess of 5 dBA at a range of windspeeds. On the other hand, as a result of the characteristics of its AM, the WTN regularly dominates the plaintiffs' sound environment.

The impact of the noise on basic needs such as sleep

The World Health Organisation Night Noise Guidelines, 2009 and its Environmental Noise Guidelines for the European Region, 2018 are not of particular assistance in deciding whether this WTN is such as to unreasonably impact upon sleep. I find that the WTN displays characteristics of high AM values and thump AM which have a very high potential to disturb sleep. I find as a fact that, particularly when turning at moderate to higher speeds of rotation, the turbine regularly disturbs the plaintiffs' sleep.

How easily the noise can be avoided/ Measures to reduce or modify the noise

The plaintiffs' ability to avoid the WTN externally is extremely limited. Internally, shutting the windows and attempting to mask the noise may assist. However, such measures will often be ineffective to mitigate sleep impacts in particular.

How often the noise occurs and the time of day or night when the noise occurs

I accept the evidence of the plaintiffs' experts and the plaintiffs themselves that the conditions so demonstrated occur commonly and on a sustained basis. I also accept that these unreasonably intrusive conditions are particularly prevalent during the most sensitive times of the day; in the early morning and at night and in the evenings.

Issue 7: What is the response of the defendant and its experts to the plaintiffs' case? Does the evidence of the defendant's experts suggest that the WTN is not a substantial interference with the plaintiffs' use and enjoyment of their land?

No. The defendant's experts have provided no persuasive evidence in response to the points discussed in the above analysis. The defendant's experts did not engage in any meaningful way with the characteristics of the WTN as demonstrated on the audio recordings, time domain graphs and spectrograms prepared by MAS which are identified as amounting to unreasonable interference with amenity.

Issue 8: Did the acoustics experts fail to discharge their duties to the court?

No. I do not find that either Mr. Stigwood (one of the plaintiffs' two acoustic experts) or Mr. Carr (one of the defendant's two acoustic experts) failed to discharge their duties as experts to the court. However, the testimony of both these witnesses, displayed less of a sense of balance than one would expect, which inevitably impacts to some degree upon the weight to be afforded to their evidence.

The defendant's second acoustic expert (Mr. O'Reilly) gave evidence only in relation to planning compliance and offered no evidence on the issue of nuisance.

In assessing whether nuisance is present therefore, I have therefore placed considerable weight upon the evidence of the plaintiff's other acoustic expert, Ms. Large, who I find to be a non-partisan and reliable witness.

Issue 9: Does the court accept the plaintiffs' evidence as to the characteristics of the noise and that such characteristics occur commonly and on a sustained basis?

Yes, for the reasons set out above.

Issue 10: Does the court find that the WTN is a substantial interference with the plaintiffs' use and enjoyment of their land? Is liability in nuisance established?

Yes, for the reasons set out above. Two particular features of the WTN render the noise an unreasonable interference. First, there are frequent and sustained periods of WTN with AM values widely acknowledged to be associated with high levels of annoyance. Second, the WTN exhibits thump AM which is a characteristic known to lead to adverse reaction in the community.

I accept that the noise impact demonstrated on the audio recordings (and associated graphs) occurs commonly and for sustained periods. WTN which exhibits these characteristics on a regular and sustained basis is unreasonable and exceptional.

I find that the plaintiffs' complaints are objectively justified in that the WTN interferes with the ordinary comfort and enjoyment of their homes. When it occurs, this interference is a substantial interference.

While the WTN is liable to annoy during the working day, higher prevailing background noise levels and the fact that the occupants are not trying to relax, or sleep means that, objectively speaking it does not in general substantially interfere with the plaintiffs' enjoyment of their property.

On the other hand, I find that the WTN poses a nuisance to the plaintiffs in the evenings and at weekends when one could reasonably expect to be enjoying recreation in the garden and/or peace in one's dwelling.

Demonstrably the WTN also poses a nuisance at night and in the early morning when a quiet environment is at a premium.

The plaintiffs are entitled to damages for unreasonable interference with the enjoyment of their property. The measure of such damages is for module 2. The issue of whether an injunction ought to be granted and if so the terms of such injunction is also for module 2. Likewise, the issue of whether the plaintiffs ought to be confined to damages in lieu of an injunction is for module 2.

I direct the parties, in advance of module 2, to engage in mediation to devise appropriate mitigation measures and if possible, to resolve all outstanding issues between them.

Issue 11: Does the court accept the defendant's submission that the evidence of Ms. McGinn means that nuisance is not made out in this case?

No. Whether or not interference by way of noise is, to quote Henchy J. in *Hanrahan,* "*beyond what an objectively reasonable person should have to put up with*" will depend

on the objective nature of the noise and not on the reaction of particular individuals to the noise. Ms. McGinn's reaction to the WTN whilst undoubtedly of relevance to the issues in the case, does not outweigh the other evidence to the effect that objectively speaking, the WTN is intolerable and unreasonable.

Issue 12: Are Mr. Rollo and Ms. Webster entitled to an award of damages for personal injuries in the form of pure psychiatric injury?

No.

I reject the defendant's submission that the claim to personal injuries must be struck out as being in breach of s. 12 of the Personal Injuries Assessment Board Act 2003. However, I take the view that reasonable foreseeability of pure psychiatric injury is a precondition to the award of damages for such an injury. In my view, the defendant could not reasonably have foreseen a risk of either personal injury or recognisable psychiatric illness as a consequence of the noise emitted by the turbines. Mr. Rollo may not therefore recover damages for pure psychiatric injury even though same was caused by the WTN and its consequences.

Issue 13: Is the defendant guilty of negligence?

No. The parameters of the contended for duty of care and the specifics of any breach of such duty have not been identified with sufficient particularity to establish liability in negligence. In my view, therefore, the plaintiffs cannot succeed in a claim for negligence.

Issue 14: Have the plaintiffs made out a case for relief under s. 160?

Although for reasons already explored, I am not satisfied that the defendant has demonstrated that the WTN complies with the noise condition in the planning permission, this issue was not part of the pleaded case. I am not satisfied that the plaintiffs have made out a case of breach of planning permission on any of the grounds pleaded. As such, the present application pursuant to s.160 must fail.

The legal test for the tort of nuisance

28. As observed by Laffoy J. in *Smyth v RPA*, the definitive statement of what is required to establish the tort of private nuisance is to be found in the judgment of the Supreme Court in *Hanrahan*. Henchy J. identified the legal basis of the tort in nuisance as follows:-

> *"To provide a basis for the award of damages for the private nuisance relied on, the plaintiffs have to show that they have been interfered with, over a substantial period of time, in the use and enjoyment of their farm, as a result of the way the defendants conducted their operations in the factory..."*

29. Later in the judgment Henchy J. confirmed that:

> *"The plaintiff is not entitled to insist that his personal nicety of taste or fastidiousness of requirements should be treated as inviolable. The case for damages in nuisance... is made out if the interference is so pronounced and prolonged or repeated that a person of normal or average sensibilities should not be expected to put up with it. It is not necessary that an interference by objectionable smell should be so odious or damaging that it affects the plaintiffs' health. It is enough if it can be said that a reasonable person in the plaintiffs' circumstances should not be expected to tolerate the smell without requiring the defendants to make financial amends."*

30. Thus, to succeed in a claim for nuisance, the plaintiff must show interference with the ordinary use, enjoyment and comfort of their property. As I will come to at para 346 below, nuisance is always assessed by reference to the character of the particular locality.

31. The interference with the ordinary use, enjoyment and comfort of the property must be substantial in the sense that it is pronounced and prolonged or repeated. The intrusion must be "*pervasive, persistent, frequent and intolerable*", per Charleton J. describing noise nuisance in *Lanigan & ors v. Barry & ors* [2008] IEHC 29.

32. In *Lanigan v. Barry,* Charleton J. observed that *"There must be a real and definitive infringement on the comfort and convenience of the persons occupying or using the premises or land in order to establish an actionable wrong"*. Furthermore, the temporal quality of the alleged problem is of relevance. Close attention must be paid to the timing, duration and impact of the occurrence complained of.

33. Likewise, the frequency of occurrence must be considered. Occasional, temporary or fleeting events cannot in general give rise to a nuisance However, depending upon the nature of the particular interference in issue, there may be no requirement that the nuisance is

continuous and unremitting 24 hours a day. Provided the impact occurs with sufficient regularity and frequency, nuisance may be established even though the relevant interference waxes and wanes somewhat. Further, the same level or character of noise that may not be a nuisance during the day can be a nuisance in the evenings if it regularly disturbs rest and relaxation, or at night if it regularly disturbs sleep.

34. In *Hanrahan*, Henchy J. stated:

> *"...In so far as the nuisance alleged consists of interference with the ordinary comfort and enjoyment of the property of the plaintiff, his evidence must show sensible personal discomfort, including injurious affection of the nerves or senses of such a nature as would materially diminish the comfort and enjoyment of, or cause annoyance to, a reasonable man accustomed to living in the same locality..."*

35. Central to the assessment of whether nuisance is made out in a particular case is therefore the notion of the reasonable person, of which Henchy J. stated:

> *"To my mind the reasonable man connotes a person whose notions and standards of behaviour and responsibility correspond with those generally pertaining among ordinary people in our society at the present time, who seldom allows his emotions to overbear his reason, whose habits are moderate and whose disposition is equable.*
>
> *It is clear from the authorities on the law of nuisance that what an occupier of land is entitled to as against his neighbour is the comfortable and healthy enjoyment of the land to the degree that would be expected by an ordinary person whose requirements are objectively reasonable in all the particular circumstances. It is difficult to state the law more precisely than that."*

36. Later in the judgment to similar effect:

> *"As I have pointed out earlier in this judgment, by reference to the cited passage from the judgment of Gannon J in* Halpin and Ors v Tara Mines Ltd, *where the conduct relied on as constituting a nuisance is said to be an interference with the plaintiffs' comfort in the enjoyment of his property, the test is whether the interference is beyond what an objectively reasonable person should have to put up with in the circumstances of the case.*

37. The court must try to discern what could reasonably be "*expected by an ordinary person whose requirements are objectively reasonable in all the particular circumstances*". The court is concerned with what could reasonably be expected by an ordinary member of society - the putative objectively reasonable person.

38. What amounts to a material or substantial interference is not judged by what the plaintiff (or indeed any other identified individual) subjectively find annoying or inconvenient. As stated by Laffoy J. in *Smyth v RPA* the "*nub of the matter is whether the evidence establishes that the plaintiffs' complaints... [are] objectively justified*"..;

39. Society is entitled to expect that its ordinary members will exhibit a reasonable degree of tolerance, that they will be guided by a "live and let live" ideology. The question is whether making allowances for that, objectively unreasonable interference is established. The primary focus must remain on the objective nature of the interference itself, rather than on the response of the plaintiff (or indeed the response of any other identified individual). The question is whether the *interference* is objectively unreasonable. The court must hold the balance and the assessment is one of degree, applying the common sense of ordinary people.

40. The onus of proof in establishing nuisance is clearly on the plaintiff throughout. Once, however, nuisance is established, *"it is no defence to such a claim, if established, that the activities complained of were carried out with the highest standards of care, skill and supervision and equipment"* (Henchy J. in *Hanrahan*). Unlike a plaintiff who pursues a claim for negligence, it is not necessary to show any breach of duty of care to succeed in a nuisance action.

41. This case concerns the production of renewable energy, which is clearly of vital importance to society and to everyone who lives in it. Nevertheless, and correctly in my view, the defendant does not argue that this factor carries decisive weight in determining whether nuisance is established[10]. In *Hanrahan*, Henchy J. stated that it is no defence to a nuisance claim, if established, *"that such activities are of great public importance and cannot conveniently be carried out in any other way"*.

42. On the other hand, however, the public interest may be of relevance in the context of remedy. Although a plaintiff who establishes nuisance has a *prima facie* right to an injunction such that the defendant bears the legal burden of demonstrating that damages rather than an injunction is an appropriate remedy, the public interest must inevitably be a factor in the court's

[10] Note that I deal separately below with the legal relationship between a grant of permission and the entitlement to sue for nuisance arising from conduct that is said to be consistent with that permission.

assessment of an appropriate remedy. At the very least it means that a generalised injunction ought not to be granted where a tailored injunction more suitable to the particular interference held to constitute nuisance is warranted.

43. This case comes before the court at a time when existing planning guidance regulating, *inter alia*, the noise aspects of wind farm developments in Ireland, the Wind Energy Development Guidelines, 2006 ("WEDG 2006") is presently under review. Whilst draft revised *Wind Energy Development Guidelines* were published in 2019, ("draft WEDG 2019"), these have now been withdrawn. In the absence of clear policy guidance from the government on WTN, the assessment in an individual case is a classic matter of degree on which the court must exercise judgment. As Henchy J. states "*it is difficult to state the law more precisely than that*".

44. In terms of damages, it appears that the approach of the Irish courts might differ from the courts of England and Wales in awarding damages for personal injuries to a plaintiff who succeeds in a nuisance claim. In this case, choosing between these differing approaches would not be decisive. This is because, in my view, lack of foreseeability would in any event, prevent recovery for the particular personal injuries claimed here - pure psychiatric injury.

45. Finally, before closing out this brief review of the legal test for nuisance, it is convenient to deal with the defendant's submission that the claim of the Carty Shortens for private nuisance should fail, *in limine,* because they no longer own, or occupy NF.

46. The defendant correctly submits that it is an essential element of the tort of nuisance that the plaintiff has a right to occupy the land affected and, further, that the plaintiffs have produced no authority for the proposition that a former owner of an interest in land has standing to maintain a claim for damages for historic nuisance even after the land in question has been sold to a third-party

47. The point, however, is that at the time of the institution of these proceedings in 2018, the Carty Shortens were the owners of NF. In my view, they do not lose *locus standi* as a result of having sold the property during the currency of the proceedings. Rather, they retain an entitlement to advance a claim to damages in nuisance for any unreasonable interference with amenity occasioned during the period of their ownership and potentially for diminution in the

sale price. Further argument on heads of damage, and quantum of damages, etc. is a matter for module 2.

Factual evidence

Evidence of Ms. Margaret Webster

General impact of turbines

48. HH and NF are situated in a quiet rural valley close to the Sliabh Bhuí mountains in County Wexford. It was put to Ms. Webster that there were other windfarms in the area, the closest of which is "*some two or three kilometres*" away. Ms. Webster's evidence is that, absent the Ballyduff turbines, ambient noise is generally characterised by the sounds of nature. The rear elevations of both HH and NF are sheltered from the prevailing south westerly winds by a high hill on which the turbines are placed.

49. Although the Ballyduff windfarm comprises two turbines, it is the closer turbine, T2 which is the source of complaint. When T2 is shut down for maintenance, one can still hear T1 turning; but it is not intrusive.

50. When they noticed the turbines being erected Ms. Webster and Mr. Rollo were initially optimistic. They assumed that because of their location in a sheltered valley some distance beneath the turbines, HH would be shielded from impact. However, their view is that the opposite is the case; because HH is so sheltered, the wind rarely approaches the house from a direction that would mask the sound of the turbine. Combined with the prevailing low level of other background noise, this substantially increases the impact of the turbines.

51. Ms. Webster's evidence is that the WTN is annoying and ever changing. The noise varies with wind direction and windspeed which dictate blade orientation and speed of rotation respectively. Windspeed is of more obvious influence than wind direction; in general, the faster the rotors turn, the worse the noise. In addition, time of day and weather impact on the intensity of the WTN. The noise is considerably louder at night and in winter. It also varies according to whether there is rain, cloud cover or clear skies. Taking into account atmospheric conditions, the effect of the WTN is more often than not *"very intense"*. Ms. Webster recounts that when the noise and vibrations from the turbine are intense, she experiences a feeling of anxiety and overall unease that she cannot shake off.

52. Ms. Webster's evidence was that, when turning quickly, T2 emits a range of distinctive sounds. In addition to a swishing sound, it emits *whoomph* and *whump* sounds and intermittent louder *thumping* or *whacking* noises. These sounds are often accompanied by disturbing vibration, meaning that she could regularly *"feel"* as well as hear the noise. This is perceived as pressure coming from the air as the blades rotate, which feels like *"a pummelling inside* [her] *body"*. All of this, Ms. Webster states, is a frequent characteristic of the WTN, particularly at night.

53. The noise is highly variable and unpredictable in loudness, intensity and character. It can change from a *thump thump* or a *whump whump* to a kind of *whack whack* noise within minutes or even seconds. The noise can dissipate overnight and then pick up in the morning or the opposite can happen.

54. In cross-examination, Ms. Webster fully accepted that there are periods, perhaps for several days at a time, when the noise is not intrusive. When turning slowly, T2 makes a light whooshing sound which is quite consistent. At times, particularly during the summer, this sound might be barely audible inside the house. However, she stated that, for the most part, particularly in the wintertime, the noise is more rather than less intrusive. As a very broad guess, Ms. Webster estimated that the noise is intrusive 80% of the time.

55. The turbine is audible both outside and inside the house at all times of the day including at night with the windows closed. It is audible in all rooms of the house even in the sitting room which was the furthest room away from the turbine. When the turbine is rotating quickly, the WTN is not merely audible but dominant both inside and outside the house, with the windows open and closed. The sounds of daily activities such as boiling a kettle, using the washing machine or watching television generally mask the WTN. However, without such masking noise, one can hear the WTN in all areas of the house, The WTN frequently intrudes to the extent that Ms. Webster finds it difficult to concentrate or relax. At its worst, and particularly at night, Ms. Webster described a sensation of being able to hear and feel every rotation of the turbine. Ms. Webster accepted that other sounds - such as passing cars or farm machinery- might also occasionally be heard in her bedroom with the window closed. However, such noise ceases at a certain point in the day. By contrast, when it is turning rapidly, the noise and vibrations of the turbine intrude into Ms. Webster's bedroom, even when the window is closed, on a "*24/7*" basis.

56. The HH master bedroom is at the front of the house, but its gable wall faces broadly (if obliquely) towards T2. It was put to Ms. Webster that the defendant's experts would say that it was "*beyond the realm of physics*" that the WTN could be heard in the master bedroom at the front of HH, but the defendant's experts did not give such evidence. Although Mr. Carr did not hear WTN in the master bedroom of HH at the time of his site visit, he only spent between five and ten minutes in the bedroom on this occasion.

57. Ms. Webster's evidence was that the WTN and vibrations pass through the gable wall into the master bedroom. She stated that, in her experience, the WTN was much louder, more annoying and more easily audible than it appeared on the internal audio recordings taken by her experts in HH in 2017 and 2020/2021.

58. Prior to the erection of the turbine, Ms. Webster had slept well. Her evidence is that the WTN causes three different kinds of sleep disturbance. The first is difficulty in falling asleep. Ms. Webster states that there have been countless nights when she can hear the WTN in her bedroom and needs to use music or other background sound to distract attention from this unpleasant sound and aid sleep. This occurs at least ten times a month. Second, when the WTN is at its worst, it can completely wake her up "*bolt upright*". What wakens her is not so much the absolute level of the noise but a change in its character which has a jarring effect, particularly if she is in a light sleep. These sudden awakenings occur ten to fifteen times a year. Third, even when the WTN is lower, there is a general detrimental impact on sleep quality; although she would sleep through the night, Ms. Webster nonetheless wakes exhausted. To mitigate the noise from the turbines, Ms. Webster tried to sleep with the windows closed as often as possible, which particularly, in the summer months can be quite uncomfortable.

59. Ms. Webster also described shadow flicker, which occurs in early spring and late summer, as follows; "*the light on a sunny day would change from the kind of dappling light that occurs when sunlight comes through trees to a full shadow falling suddenly followed by an instant return of light.*" This would herald alternate periods of darkening and lightening occurring with great rapidity. Shadow flicker occurs in the valley in front of HH, in their garden and on the walls or floors of rooms in their house. It is very difficult to escape the flicker which is visible even with the curtains drawn. Although shadow flicker would only be inside the house a couple of weeks a year, it is present in the valley and garden for longer periods which is still disconcerting.

Interactions with Mr. Brazil

60. In July 2017, the Webster Rollos alerted the director of the defendant company, Mr. Brazil to their experience of the noise. Initially, Mr. Brazil suggested improving their windows and insulation towards which he would contribute €4,000. The Webster Rollos felt that insulation was a large financial undertaking which would not in any event be effective as against low frequency WTN.

61. On 14th August, 2017, Mr. Brazil and Mr. Conor Brennan attended HH for a meeting with the Webster Rollos and the Carty Shortens. As an alternative to contributing towards the cost of insulation, Mr. Brazil suggested that the plaintiffs sign a *"noise acceptance agreement"* pursuant to which they would receive an annual inflation linked payment of €4,000 per annum for the duration of the planning permission for the turbine. This agreement would be noted on the title deeds of HH (and NF) and would bind all purchasers thereof. A further requirement of the agreement was that Mr. Brazil would have a right of first refusal if their property was ever put on the market.

62. The plaintiffs asked Mr. Brazil if the turbines could be turned off or turned down at night or at weekends. This request was not acceded to.

63. Mr. Brazil also informed the plaintiffs that it would be possible to install a computer programme to turn off the turbines when there was a risk of shadow flicker. However, this proposal was not actioned by the defendant.

64. A few days after the August 2017 meeting, Mr. Rollo telephoned Mr. Brazil to reject the proposal of a noise acceptance agreement, and an initiating letter followed from the plaintiffs' solicitor. It was suggested to Ms. Webster in cross examination that this rejection had been premature as the proposal of €4,000 per annum was *"just opening negotiations"* which could have continued were it not for their solicitor's correspondence. Ms. Webster's response was that they wanted to enjoy living in their house and did not want to be paid to endure the noise.

Impact on the Webster Rollo relationship

65. Ms. Webster's evidence was that after a few years of living with the turbine, her 16 year relationship with Mr. Rollo started to disintegrate. In Ms. Webster's view the pervasive

noise and ongoing lack of sleep caused by the WTN was a significant factor in the destruction of the relationship. Her belief is that the WTN brought the couple to the stage where they were both so exhausted, discouraged and low that they could no longer fight for the relationship. Ms Webster was worried for Mr. Rollo's safety and well-being, and she suffered episodes of panic and tearfulness.

66. By December 2020, it was obvious that Mr. Rollo needed to remove himself from the situation and wait out the legal process. In early 2021, the couple having made the decision to separate in any event, Mr. Rollo moved out of HH. This was clearly a very low point for both Ms. Webster and Mr. Rollo.

Noise diaries

67. Ms. Webster (and for the majority of this time, Mr. Rollo) kept a noise diary from August 2018 to October 2021. This diary chronicles their experience of the WTN, both day and night.

68. The Webster Rollo noise diary records intrusive, unpredictable WTN varying in intensity. In harmony with their oral evidence, the diary describes, whoomphing, thumping, banging, hacking, slapping and whacking sounds. It regularly records that the house vibrates and hums with these sounds which appear to hit the gable wall of the master bedroom and come through the walls and ceilings. The diary very regularly records the couple's inability to have a restful night's sleep and the exhaustion which follows.

69. An intermittent but consistent feature of the diary is that it records the Webster Rollo's relief and gratitude when the turbines are quiescent marred by trepidation of the inevitable recommencement of the noise. The strong impression is of being unable to control one's own private environment which is dominated by the turbine. Ms. Webster encapsulated this in stating that she and Mr. Rollo felt "*at the mercy of whatever way the turbine was going to be acting on a particular day to ensure that it produced a maximum output of energy.*"

70. Ms. Webster was cross-examined at length about entries in the couples' diary. Counsel for the defendant noted that she occasionally records "*I can hear the turbine*" (or words to similar effect) and suggested that she was therefore intolerant of any level of audible WTN,

particularly at night. Having reviewed all of the diary entries, it is abundantly clear that Ms. Webster and Mr. Rollo do not equate mere audibility with nuisance. The evidence is that, when turning slowly, the light noise produced by the turbine is not a cause of nuisance even if it can be heard internally. What primarily disturbs Ms. Webster's relaxation and sleep is when the turbine is turning "full tilt". At such times, there is no respite anywhere in the house irrespective of whether the windows are open or closed. Ms. Webster stated: *"I can tell you with honesty and with certainty it wakes me from my sleep"*. It was also suggested to Ms. Webster that her diaries were overly dramatic. She accepted that some of her entries focussed on her poor experience but that there were also other more routine entries. This is correct.

71. The primary theme of this cross-examination was by way of a compare and contrast exercise as between (a) particular diary entries, (b) a ten minute extract from the SCADA[11] data recorded at T2 pertaining to the same 24 hour period as the diary entry and (c) the SCADA data at the time of the court's site visit. Counsel noted that Ms. Webster - and indeed all of the plaintiffs - had confirmed that at the time of the court visit, the WTN was not intrusive either externally or internally. It was suggested to Ms. Webster that this compare and contrast exercise showed that, even when the SCADA data revealed identical conditions to those then pertaining at the time of the court's visit, the diaries still record high levels of nuisance[12].

72. However, any such exercise will be heavily influenced by the precise segment of SCADA data chosen as a comparator with the relevant diary entry. Given that the plaintiffs' unanimous experience is that the WTN can change in character within a matter of minutes, there is little weight to be attached to a disconnect between an isolated 10-minute segment of SCADA data and the correlating diary entry which seeks to summarise the main features of the WTN over the preceding 24 hour period. It is also important to bear in mind that, often several diary entries might even be completed together in a "clump" after a few days.

73. By way of example, Mr. Rollo's diary entry for 19th August, 2018 reads –"*Awakened by turbine again! Left for work at 5.30 extremely noisy. Turbine quiet late afternoon.*" Counsel for the defendant cross examined Ms. Webster (and not Mr. Rollo who authored the diary entry

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[11] The SCADA data records windspeed, speed of rotation, blade orientation and power output at ten minute intervals.

[12] I have been informed that the 10 m standardised windspeeds at the time of my visit varied between a minimum windspeed of 3m/s and a maximum windspeed of 6.2 m/s with 10 minutes averaging between 4.1 and 4.8 m/s over the time of the visit.

in question) by reference only to 10 minutes of SCADA data ending at 5.30 am. This SCADA data shows that windspeed, speed of rotation and wind direction were similar to those pertaining at the time of the court's visit. However, when plaintiffs' counsel re-examined Ms. Webster by reference to the full 24 hour SCADA data it became clear that earlier in the night, both windspeed and speed of rotation were significantly higher (particularly between midnight and 3 am approximately). It was also evident that, as noted by Mr. Rollo, both windspeed and speed of rotation dropped in the late afternoon.

74. The same limitation applies to the cross examination conducted by reference to Mr. Rollo's, dairy entry of 8th September, 2018 which records :"*Kept awake by turbine all night. Noise the same all day."* The SCADA data for 4 am - on which Ms. Webster was cross examined - shows windspeed and speed of rotation only modestly above levels recorded at the time of the court visit. However, the complete SCADA data for the day in question reveals higher windspeeds and speeds of rotation for the night hours both before and after this particular time. It also records higher windspeeds and speeds of rotation throughout the bulk of the day (particularly from 2.30pm).

75. Ms. Webster also emphasised that in addition to windspeed and speed of rotation , wind direction and weather conditions have a huge impact on how noise and vibration would be experienced. The latter two of these factors are not captured by the SCADA data. She further emphasised that one should not interpret a particular diary entry in isolation. Rather, entries have to be placed in the context of the days that surround them. Several days of lack of sleep tend to wear one down, reduce tolerance and increase frustration levels which might naturally influence diary entries later in the relevant sequence.

76. This in my view is the case for Ms. Webster's diary entry of 3rd December, 2021 which records: "Turbine very loud all day and night. Turing very fast and "aggressive" almost when outside feels like I'm being pummelled by force from turbine if I stand in back yard near driveway". Counsel pressed Ms. Webster on a 10 minute segment of SCADA data captured at 2pm on 3rd December. Such an exercise entirely glosses over the fact that the preceding night's SCADA data - again only put to Ms. Webster in re-examination - shows that windspeed and speed of rotation were indeed high. This dovetails with Ms. Webster's diary entry for 2nd December which records "very loud" noise that night. A different picture however emerges during the day of 3rd December. Although I accept that Ms. Webster's experience of being

"pummelled" occurred when she went outside late in the evening (at which stage the wind had picked up), it is fair to say that the SCADA data suggests that during much of the day windspeed and speed of rotation were not high when compared to conditions at the time of the court's visit (indeed they are generally lower). The point, however, is that this entry followed what could fairly be described as a bad week. Ms. Webster describes the WTN during the preceding week as "very noisy", as making "whooshing and clapping" sounds at night and "very distracting". As stated, it is also recorded as "very loud" overnight on 2nd/3rd December. Ms. Webster was not challenged on any of these entries, whether by reference to the SCADA data or otherwise. Ms. Webster also records an earache for the whole of the preceding week which of course will accentuate the impact of WTN (and, I assume of all noise). In reality, the entry for 3rd December, 2021 is probably more consistent with Ms. Webster's experience of the week as a whole than with the specific day it records. The entry also supports the impression of Prof. Kevin Gournay, Chartered Psychologist - who gave evidence on behalf of the plaintiffs
- that Ms. Webster's level of tolerance of the WTN is decreasing over time. Overall, I find that the entry for 3rd December, 2021 represents a rare and uncharacteristic occasion on which Ms. Webster allowed her more generalised frustration – most likely accentuated by physical discomfort resulting from persistent earaches - to bleed into a specific diary entry. Whilst I accept Prof. Gournay's view that such increasing sensitivity is not unusual, I have nonetheless been cognisant of it.

77. In my view, the themes pursued in this part of the cross examination ought to have been put to the plaintiffs' experts-which did not occur. This is because, whilst it is clear that windspeed and speed of rotation heavily influence the level and characteristics of WTN, a range of other factors are also highly relevant. Such factors include relatively small changes in wind direction and blade pitch and, as Ms. Webster states, prevailing meteorological conditions. These factors all influence thump AM, which is described as the most intrusive aspect of the WTN at Ballyduff. Demonstrably, Ms. Webster, as a lay witness, is unqualified to explain such matters. Rather, she stated that the diary is intended to be experiential and deferred to experts to explain what factors might influence or explain the characteristics of the WTN which she records in her diary entries.

78. Overall, I find that Ms. Webster's diary entries, like her oral evidence, presented a balanced and truthful account of her experience of the WTN. I make a similar finding in relation

Mr Rollo's diary entries up until mid to late 2020[13]. From over three years of diary entries, the defendant pointed to only a handful of diary entries which it contends are inconsistent with the SCADA data. Of these, I find that only one – that of 3rd December, 2021 – can fairly be characterised as inconsistent with the SCADA data for the day in question. Further, this inconsistency pertains to only part of the relevant 24 hour SCADA data and further arises only if one considers the diary entry in isolation from the week of which it forms part. As Ms. Webster states: "*We are people living in our home; it is not a scientific experiment, it's our home and we are experiencing this on a continuous basis*". Bearing in mind the quality of other evidence supporting Ms. Webster's account of the overall characteristics of the WTN, I attach very little weight to a frailty in a single diary entry.

Evidence of Mr. Keith Rollo

79. Mr. Rollo has worked as a rigger for many years and is accustomed to heavy machinery and loud noise. The WTN is highly variable and unpredictable. He described it as horrendous during the winter months when its accompanying vibration penetrates the fabric of the building throughout the house. Mr. Rollo shared Ms. Webster's view that the internal audio recordings taken in HH under-represent the general impact of the WTN in the house. This is partly because, as Mr. Stigwood explains, human hearing is directional (in the sense that one is more conscious of a sound from a specific source) and also because the audio recordings could not convey the sense of vibration and pressure that is felt in the house.

80. The impact of the noise affected Mr. Rollo most profoundly through his sleep. At night, the turbine frequently makes a thumping, whacking and slapping noise; like the side of the house was being hit by something. When it was suggested to him that shutting the windows would diminish the sound, Mr. Rollo accepted that the turbine is less noisy with the windows closed. However, although on windy winter nights he would sleep with the windows closed, Mr. Rollo's general preference is to sleep with the windows slightly open. In any event, Mr. Rollo stated that, even with the windows closed, and despite wearing professional noise cancelling headphones, the noise and vibrations caused by the turbine still disturbed his sleep. Like Ms. Webster, Mr. Rollo's sense is that the noise and vibrations come through the walls of the house. At times, the whole house vibrates with the noise. As a result, all attempts to mask the WTN using both professional noise cancelling headphones and industrial earplugs (which

[13] See para 461 for an analysis of Mr. Rollo's reaction to the turbine from mid to late 2020.

he had obtained from work) were unsuccessful because, he could still feel the noise "*through my bones*".

81. When unable to sleep, Mr. Rollo moved to the sitting room because it was at the front of the house and did not have a gable wall facing the turbine. Although the noise intruded, as it did in every room of the house, he would try to sleep with the television on to mask it. However, Mr. Rollo's sleep pattern remained extremely disrupted, and on many nights, he would get no more than two hours sleep. This meant that he frequently rose feeling exhausted and stressed. This exhaustion was hazardous as Mr. Rollo's job involves working at heights.

82. Mr. Rollo's evidence was that the constant noise and lack of sleep "*broke* [him] *down*". He developed mental health problems and ultimately contemplated suicide. In late 2020, Mr. Rollo's solicitor became concerned and referred him to Prof. Gournay who recommended that he see his General Practitioner, Dr. Ford. Dr. Ford in turn referred Mr. Rollo into a self-harm counselling programme where he attended ten or twelve sessions. After the conclusion of this programme, Mr. Rollo's employer arranged further counselling which concluded very recently.

83. In early 2021, Mr. Rollo accepted that because of the dark thoughts he was having, he had to leave the house urgently. He moved out in March 2021, initially staying with family friends. Mr. Rollo's current residence is about half an hour from HH in an estate in Wexford town.

84. On leaving the house, Mr. Rollo's sleep pattern initially improved but then disimproved again. He is still suffering from depression and continues to take anti-depressant medication.

Evidence of Ms. Joan Carty and Mr. Ross Shorten

85. Ms. Carty and Mr. Shorten owned NF until comparatively recently and sold it to Ms. Maura McGinn in August 2021 (as to which see further below). Ms. Carty described the range of sounds emanating from the turbine, the most difficult and intrusive of which is a loud whomping or thumping sound with associated reverberation and vibration. This loud whomping and thumping noise is very hard to listen to for any period of time and is audible from every room in the house. Mr. Shorten's evidence was to a similar effect; he recounted that the noise, the vibration and the sense of pressure in the air are overpowering and upsetting.

86. The couple's evidence was that as a result of the WTN, and its associated vibrations, it was impossible to sleep in the master bedroom, even with the window closed. The noise intrusion forced them to vacate the master bedroom which is a dormer and move to a somewhat quieter bedroom downstairs. However, the WTN still disturbed their sleep.

87. Because of the WTN, Ms. Carty and Mr. Shorten no longer enjoyed visiting NF. They found the WTN to be extremely intrusive during a 5 day period they spent working on the patio outside their house in August 2017. Even with a music speaker outside to try and mask the WTN (albeit at a volume at which they could still converse), they were disturbed by the whomp whomp sound as the blades cut through the air. Ms. Carty said that after the turbine started turning, she never again sat on the patio to read. In addition, they stopped having guests to the house because they were embarrassed about the noise and intrusion from the turbine.

88. When the couple raised these difficulties with Mr. Brazil, he indicated that he might, in due course, be prepared to buy NF as he had known that it was previously on the market. He also arranged for monitoring equipment to be installed at NF on the understanding that the results would be furnished to the Carty Shortens. Although Mr. Shorten requested this data both verbally and in writing, it was never furnished.

89. The couple's evidence was that the house was placed on the market in September 2018 and was ultimately sold at a price significantly below its full value, to Ms. McGinn.

90. Two additional witnesses as to fact were called by the plaintiffs.

Evidence of Ms. Maura McGinn

91. The plaintiffs called Ms. Maura McGinn, the current occupant of NF. She purchased NF from the Carty Shortens on 12th April, 2021. Ms. McGinn stated that the WTN was pretty obvious when she viewed the house. She knew that she could not have afforded to buy the house were it not for the presence of the turbines.

92. On her first night in the house, Ms. McGinn was shocked by the WTN which was exceedingly loud and kept her awake. Ms. McGinn was concerned that she made a mistake in

purchasing the house and worried that she would be unable to sleep in the master bedroom upstairs. However, Ms. McGinn "persevered" and continues to sleep upstairs.

93. Ms. McGinn does not generally spend the whole week in the house as she works in Dublin a few days a week. When she is going to bed at night, the rhythmic nature of the noise can *"get in on"* her and it can be hard to fall asleep. Alternatively, she might wake to the WTN and then find it more difficult to get back to sleep. As she points out, when you hear the turbine, it is very difficult to un-hear it. Overall, although the turbine can interrupt her sleep, Ms. McGinn stated she was a good sleeper.

94. The turbine generally makes noise all the time, apart from on very still days. The noise outside is louder and stronger. Inside the noise is much quieter downstairs, but it can definitely be heard upstairs. Ms. McGinn describes the noise as a *"whoomph, whoomph, whoomph kind of noise"*.

95. In general, Ms. McGinn is careful not to focus on the noise and tries not to let it bother her. She would be afraid that if she did focus on the WTN for too long, it would start to get in on her.

96. Ms. McGinn is from a large family and lots of people come to visit. She finds herself being quite defensive of the turbine and therefore warns her family about the turbine before they visit. Whenever workmen come to the property, they refer to the turbine and to the noise. Her surveyor recommended that she put in additional insulation for the house. Although she followed this advice, this made no real difference in the noise levels.

97. Under cross-examination, Ms. McGinn confirmed that she did not regret buying the property. Her first night in the property had been a particularly noisy night and her general approach is to try not to pay too much attention to the turbine. She has managed to get used to the noise or has learnt to ignore it such that she conceded[14] that *"it doesn't seem... to be creating a terribly great problem for[her]in [her]enjoyment of the property"*.

[14] In answer to a question posed by counsel for the defendant.

Evidence of Ms. Ashley Doran

98. Ms. Ashley Doran lives at Ballyduff. Ms. Doran's house is located 313 metres from the Webster Rollo's house. There is a distance of 601 metres between T2 and Ms. Doran's house and a distance of 808 metres between T1 and Ms. Doran's house.

99. Ms. Doran stated that the turbines make a deep, heavy reverberating noise which she describes as groaning and whomping sounds. Reverberations are experienced both inside and outside the house. The WTN is disturbing and disorientating making it hard to focus or concentrate. On occasion the intensity of the sound and vibration makes her dizzy and queasy. At times, the sound of the turbines hurts her ears. It is difficult to cope with the inconsistency of the WTN which varies from *"quiet"* to *"thunderous"* depending on the meteorological conditions. The WTN disturbs her sleep and Ms. Doran has started sleeping in the room furthest from the turbine. Both she and her husband sleep with earphones which they use to mask the sound of the turbines. Overall, although Ms. Doran's husband, finds the turbine "*a bit annoying*" he manages to put it out of his head and get on with things.

Evidence of Mr. John Brazil

100. Mr. Brazil, who is an experienced developer of on-shore windfarms, and director of the defendant company gave evidence to the following effect. WTN will always be greatest directly downwind. In his view, the higher noise levels on the MAS NF crosswind planning compliance graph[15] was not reflective of WTN but of extraneous noise. Mr. Brazil's view is that the Ballyduff WTN is not abnormal or out of the ordinary as regards either to its noise levels or its AM. In his experience, the AM was of normal "blade swish" variety. However, he accepted that he had only been on the plaintiffs' properties for very limited periods of time. Mr. Brazil accepted that from time to time, there would inevitably be audible windfarm noise internally at both HH and NF. He maintained however that there would be no real audible noise in the HH master bedroom or that it would be "*very very low*".

101. Mr. Brazil confirmed that although the audio recordings taken by the plaintiffs' experts accurately recorded the sound where the microphones were placed, these were only "snapshots" and would not necessarily be typical of the normal day to day experience of the

[15] As to which see para 115 above and para 335 -340 below.

windfarm. This assertion was not taken up by the defendant's experts who did not suggest that the audio recordings were unrepresentative of general WTN at the measurement locations.

102. Mr. Brazil accepted that he had not asked his experts to assess the character of the WTN. He had not requested them to either listen to or assess its AM or other characteristics. Rather, he had relied entirely upon the fact that the planning compliance graphs prepared by his experts showed that external noise measurements were compliant with the planning permission and with WEDG 2006. Mr. Brazil also confirmed that if WEDG 2006 had applied at the time of the Ballyduff planning application, planning permission would not have been granted for turbines within 500 metres of an existing house without consent of the householders.

103. Mr. Brazil also indicated that the average capacity factor for the windfarm would be in the mid-30s percent. This means that most of the time, the wind is insufficient for the turbine to operate at full capacity. Even on a very windy week one would anticipate only a 50% capacity factor.

Site visit

104. As agreed, the court carried out a site visit on 1st December 2022.

105. The plaintiffs' residences are in the lee of a high hill on which the turbines are situate. T2 is clearly visible on a height behind the houses. The dwellings are off a minor road in a quiet and tranquil rural area, which is sparsely populated. The ambient sounds of the locality are those generated in the natural environment such as wind noise, foliage stirring and birdcalls. One could also expect the usual array of domestic sounds from human activities and the sounds of the Webster Rollo's dogs. In addition, although not apparent on the day of the court visit, I gather one encounters the sounds of farm machinery and local traffic. There are no other businesses in the area.

106. At the time of the court's site visit, it was a dry, mild day. One could discern that HH and NF are in a sheltered location almost scooped into the hill. The air was very still close to the plaintiffs' houses. Having said that, bearing in mind the clement day, the wind was generally quite calm even some short distance away from the plaintiffs' houses. Indeed, at the

time of my visit, average 10 minute 10 m standardised windspeeds for T2 varied between only 4.1 m/s and 4.8 m/s and T2 was rotating only slowly.

107. The WTN was audible outside and inside both houses including in the master bedroom at NF and in the master bedroom at HH with the windows open (but not with the windows closed). When asked, all four plaintiffs expressed the view that although it was audible both inside and outside their houses, they would not consider the WTN presenting at the time of the court's visit to be intrusive. I am in agreement with this assessment.

Brief Overview of Expert Evidence

Acoustics experts called by parties

108. The plaintiffs called two acoustics experts. Mr. Mike Stigwood, a qualified environmental health officer, is an Environmental Health Consultant and Acoustician and Director of MAS. At the time of reporting, Ms. Large was a Senior Acoustic Consultant at MAS.

109. The defendant also called two acoustic experts. Mr. Shane Carr, a qualified environmental health officer with a post graduate diploma in acoustics and is a Director of Irwin Carr Consulting. Mr. Brendan O'Reilly is an Acoustic Engineer and Director of Noise and Vibration Consultants Ltd.

110. Although I will now briefly summarise the evidence of the acousticians, I will in due course consider same in more detail as I proceed through my analysis of key issues in the case. This will unavoidably involve some repetition, which I will attempt to keep to a minimum.

111. Later in this judgment, I will also consider the arguments advanced by each party that the opposing acoustics experts failed in their duty to the court.

Noise data presented by plaintiffs' experts

112. Ms. Large carried out two noise surveys at the plaintiffs' houses between 10th November, 2017 and 15th December, 2017. Monitoring equipment was set up which recorded long term high quality - 100 milli-second audio - internally at HH (on foot of which the "2017

HH internal data"[16] was derived) and externally in the garden / patio area at the rear of NF, (on foot of which "the 2017 NF external data" was derived). The internal HH audio recordings were recorded by a microphone placed in a home office/bedroom on the ground floor at the back of HH. Audio was recorded with the window both open and closed. The external NF audio recordings were recorded with a microphone placed approximately 3.5m away from the house façade-which is an appropriate free field location. Where relevant, I refer to this collectively as "the MAS 2017 data".

113. The second noise survey was carried out in December 2020 and January 2021. Due to Covid restrictions, neither Ms. Large nor Mr. Stigwood could travel to Ireland and the monitoring equipment was sent to Ireland and set up under their instruction by the plaintiffs' solicitor. Audio recordings were recorded internally at HH between 4th December, 2020 and 19th February, 2021 (on foot of which the "2021 HH internal data" was derived) and internally at NF between 22nd February, 2021 and 10th March, 2021 (on foot of which "the 2021 NF internal data" was derived). Finally, there was also an external survey at NF between 10th March, 2021 and 21st May, 2021 (on foot of which "the 2021 NF external data" was derived). The internal HH audio recordings were recorded with a microphone placed in the same home office/bedroom as in 2017. The internal NF audio recordings were recorded with a microphone placed in the master bedroom of NF, which is a dormer at roof level. Once again, the windows were sometimes open and sometimes closed. The external NF audio recordings were recorded with a microphone which, inadvertently, was placed closer to the exterior façade than would be appropriate for free field measurements[17]. It also appears that, again inadvertently, the microphone was not protected with a double skinned windshield. Where relevant, I refer to this collectively as "the MAS 2021 data".

114. The evidence tendered on behalf of the plaintiffs as describing or representing the WTN noise at HH and NF was therefore advanced in a number of ways, as follows:

i. The factual evidence of the plaintiffs, Ms. Doran and Ms. McGinn as to their experience of the noise on site

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[16] In each case, such data consists of audio recordings, time domain graphs of the said audio recordings and spectrograms showing the correlation between the noise and spectral frequency. Where applicable I refer to these graphs collectively together as "the associated graphs"

[17] It appears that this only came to light shortly before the trial.

ii. extracts from Webster Rollo diaries,

iii. factual and opinion evidence from Ms. Large and Mr. Stigwood as to their personal experience of the noise on site during their site visits in 2017 and 2021.

iv. (as just described at para 112 and 113 above) long term high quality 100 millisecond audio of the sound taken within the dwellings and in the patio of NF. Approximately 25 of these audio recordings were played to the court ranging in duration from 30 seconds to 10 minutes. [18]Certain internal audio recordings were played to the court in a sound studio. These audio recordings were tendered to demonstrate the features of the WTN such as its dominance, the presence of both swish and thump AM and the erraticism of the AM;

v. 100 millisecond time-domain graphs (i.e., temporal graphs plotting the noise levels against time) presenting the audio recordings at iv above. The MAS reports included approximately 100 of these graphs[19] ranging in duration from 25 seconds to 25 minutes. These graphs were tendered to demonstrate the features of the WTN such as its AM values[20] and the presence of thump AM;

vi. graphs plotting the WTN by frequency spectra (spectrograms) together with graphs comparing the noise on site to permitted levels of low frequency noise. These graphs were tendered to demonstrate the presence and significance of thump AM;

vii. opinion evidence from Ms. Large and Mr. Stigwood and, to a limited extent Mr. Mayer, in respect of all of the aforesaid;

viii. in respect of the AM specifically, Mr. Stigwood prepared further graphs on foot of the MAS 2021 data by way of purported IOA RM analysis. The IOA RM is explained at paras 194 *et seq* below)[21].

ix. Mr. Stigwood also prepared a planning compliance graph in respect of NF demonstrating noise levels in crosswind conditions (at the wind quadrant northwest

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[18] Disregarding, the 2021 NF external audio recordings, approximately 25 external and internal audio recordings were played to the court. The vast majority of the internal audio recordings played to the Court were recorded with the window slightly ajar.

[19] Ms Large's first report includes approximately 55 separate time domain graphs- approximately 30 external NF graphs, and 25 internal HH graphs (most of which were recorded with the window ajar). Ms Large's second report includes approximately 20 further internal HH time domain graphs (with the window ajar). Mr Stigwood's first report includes approximately 10 further internal HH time domain graphs (with the window ajar) and approximately 20 internal NF time domain graphs (with the window ajar). As stated, I disregard, the 2021 NF external data.

[20] An example of two of these graphs is to be seen at paras 434 and 435 below.

[21] Mr Stigwood's IOA RM graphs of the internal NF and HH data as derived from the noise monitoring on site is attached at para 451.

through to northeast[22]). I will refer to this as "the MAS NF crosswind planning compliance graph"[23]

Evidence of Ms. Sarah Large and Mr. Mike Stigwood

115. Mr. Stigwood accepted that Mr. O'Reilly's planning compliance graphs demonstrated planning compliance in the downwind direction using the ETSU methodology. By contrast, his evidence was that the MAS NF crosswind planning compliance graph showed a fairly consistent exceedance of the noise limits in the permission.

116. However, MAS's overall opinion was that planning compliance (and planning guidance generally) was of limited relevance to the nuisance assessment. They view planning control and nuisance as separate frameworks with different aims and objectives. The purpose of the planning system is to regulate the development of land in the public interest. Planning authorities perform their functions by reference to a range of environmental, social, economic and policy considerations. Although they will consider the potential effect of proposed development on the amenity of any neighbouring properties, planning authorities are not obliged to give this factor any particular weight in the assessment. By contrast, MAS state that the impact on amenity will be the key consideration in a nuisance assessment.

117. Ms. Large and Mr. Stigwood consider that the Defra Guidance, which assesses both qualitative criteria (dominance, erraticism, impulsivity and variability etc) and quantitative criteria (decibel level, AM values) provides a more suitable methodology for the assessment of nuisance. In contrast to planning controls which proceed on the basis of external noise measurements only, the Defra Guidance recognises that as most complaints of noise nuisance relate to sleep disturbance, internal monitoring should be undertaken to see whether it corroborates complaints.

118. MAS also contended that *BS 4142:2014-Method for rating and assessing industrial and commercial sound* (BS 4142) provided a useful methodology of assessment of WTN nuisance.

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[22] In this respect, Mr. O'Reilly's planning compliance graphs all relate to directly downwind conditions.
[23] This is attached and further discussed at para 335 below.

119. The results of the 2017 and 2021 external and internal noise monitoring were presented and analysed in four separate expert reports prepared by Ms. Large and Mr. Stigwood [24] which were extensively opened in evidence to the court. As stated, Mr. Stigwood also played extracts from the audio recordings to the court.

120. Ms. Large and Mr. Stigwood observe that the plaintiffs' houses are in wind shadow and that the area is extremely quiet. In Mr. Stigwood's opinion, absent the windfarm, this would be a *"low noise environment"* as defined in WEDG 2006.

121. In Ms. Large's view, the plaintiffs' noise environment was entirely dominated by the WTN on every day of her lengthy noise survey. Moreover, the period of adverse impact was almost continuous. The WTN causes a stark and significant change in the sound environment which will be perceived as a doubling of the overall loudness, and at times, a quadrupling of the overall loudness. MAS was of the view that WTN exceeds background noise by considerably more than 5 dBA.

122. In Ms. Large's opinion, the impact is further exacerbated by excessive AM values, thump AM and the overall unpredictability of the WTN which means that one cannot predict and plan, adding a further layer of intrusion. MAS's evidence is that the 2017 and 2021 data demonstrates that long periods of high AM value are a very common feature of this WTN. In Ms. Large's view, the 2017 data shows that the levels of AM frequently modulate by 10 dBA and that AM values in excess of 13 to 15dBA are common. In MAS's view, the audio recordings also demonstrate prominent thump AM. Spectrum analysis confirms the presence of lower frequency noise, which is heard as thump AM, felt as vibration and perceived as a sense of pressure. This is a particular feature of the internal environment in HH. The 2017 and 2021 data also shows that the AM is impulsive (with a pattern of rapid rise and fall), erratic (with no clear periodicity or rhythm) and intermittent/variable (it disappears and returns again or fades in and out). Mr. Stigwood's view was that, due to stable atmospheric conditions enhancing sound propagation, this AM intrusion occurs more during the night.

123. Ms. Large did not apply the IOA RM to her data to "rate" the AM values as, in her view, such an exercise is directed only towards the calculation of a penalty for planning

[24] MAS reports dated: 27th June, 2018, 12th January 2021, 3rd October, 2022 and 6th November, 2022.

purposes. As the IOA RM is a 10 minute averaging method, it tells one nothing about what is happening within each 10 minute segment in terms of spectral frequency or the character of the WTN. As such, Ms. Large felt that the IOA RM would not tell her anything that had not been already established from her own analysis of the data.

124. Mr. Stigwood accepts that the IOA RM analysis is "*pretty good at giving you certainly a first glance at whether there is an AM problem*". However, it is not the only method of evaluating AM values. Mr. Stigwood maintains that the application of the IOA RM analysis to the 2021 NF external audio recordings yields average AM values of 8 dBA which would attract an average 5dBA penalty pursuant to draft WEDG 2019. Mr. Stigwood also opines that, when a noise nuisance complaint relates to the indoor noise environment, the IOA RM analysis should be applied to internal measurements. In this case, doing so yields similar results to those derived externally.

125. In Ms. Large's view, the sleep disturbance reported by the plaintiffs was consistent with and supported by her noise data and by her own experience of the WTN on site which all demonstrated significant adverse noise impact. The WHO criteria[25] for night-time sleep disturbance (which is based on the Lmax[26] of noise rather than its average decibel level) are exceeded by the WTN. Indeed, due to low background noise and significant lower frequency energy, one would expect sleep impacts at even lower levels.

126. In Ms. Large's view, the WTN, which occurs all day and all night is dominant and oppressive both outside, and within the dwellings. There is no respite from the WTN, and its worst impact often coincides with the most sensitive times of the day. The sound character is highly changeable with multiple attention-drawing characteristics. At a basic level, the ability to be "quiet" in one's own home and undisturbed by unwanted noise is prevented by the operation of the wind farm. The WTN causes annoyance, disturbs sleep and then inhibits recovery by preventing subsequent rest and relaxation.

127. In MAS's view, the 2017 and 2021 data comprises objective evidence to corroborate the plaintiffs' complaints of significant adverse impact on the use and enjoyment of their

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[25] WHO 2009 Night Noise Guidelines for Europe
[26] The maximum AM peaks of noise

dwellings. The WTN exceeds normal boundaries of acceptability and expected intrusion by a substantial margin. When compared to a substantial number of windfarms that she has previously assessed, Ms. Large views the Ballyduff WTN as exceptional. Overall, she viewed the noise intrusion from the Ballyduff turbine as worse than any other case of WTN that she had previously encountered.

Noise data presented by defendant's experts

128. The evidence tendered by the defendant as to the WTN at HH and NF was advanced in the following ways:

i. planning compliance graphs prepared by Mr. O'Reilly at both HH and NF[27]
ii. Mr. Carr's opinion evidence on the HH compliance graphs. Mr. Carr did not address the NF compliance graphs.
iii. the factual evidence of Mr. Carr as to his experience of the noise in the bedroom at HH for a period of 5 to 10 minutes on the day of the joint site inspection.
iv. Comment by Mr. Carr on some of the plaintiffs' experts' evidence.

Evidence of Mr. Shane Carr

129. Mr. Carr observes correctly that all WTN assessments assume that as windspeed increases so too does the background level. In comparing the "turbine on" and "turbine off" scenarios, MAS does not take account of the expected increase in background noise levels associated with windier conditions. MAS is therefore not comparing like with like. Mr. Carr also criticises MAS's failure to correlate its data with windspeeds, wind direction or meteorological conditions.

130. Mr. Carr's view was that the planning condition sets a fixed limit at different windspeeds, namely 40 dBA leq at 5 m/s and 45 dBA leq at 10 m/s. In his view, no noise limit applies between those windspeeds.

131. Mr. Carr assessed planning compliance by reference to Mr. O'Reilly's HH compliance graphs. In Mr. Carr's view, these show that total operational noise complies with the noise

[27] Mr. O'Reilly's planning compliance graph for night-time in downwind conditions at both NF and HH are attached at paras 326 and 308 below.

limits in the planning permission in directly downwind conditions. There was therefore no necessity for background noise measurements.

132. Further, Mr. Carr and Mr. O'Reilly (and indeed one of the plaintiffs' experts, Mr. Mayer) all gave evidence that WTN noise would be expected to be at its greatest in this downwind quadrant. In Mr. Carr's view, crosswind conditions are associated with a 2dBA reduction in turbine noise. In Mr. Carr's view therefore, any exceedances of the noise conditions in the planning permission shown on the MAS NF crosswind planning compliance graph were not caused by turbine noise.

133. Mr. Carr also viewed the WTN as compliant with WEDG 2006. Further, Mr. O'Reilly's HH planning compliance graph for daytime hours showed that measured noise levels at low windspeeds without the windfarm operating, were above 30dBA L90. This was not therefore a *"low noise environment"* as defined in WEDG 2006.

134. Mr. Carr [28] also expressed the view that the measured noise levels at HH complied with the recommended limits set out in draft WEDG 2019. Indeed, he stated that the HH noise levels were so low as to ensure that there was "*sufficient headroom*" to incorporate any penalty for AM that might be imposed by draft WEDG 2019.

135. Mr. Carr's view is that a planning compliance assessment is a key aspect of a nuisance assessment. Both planning regulation and nuisance consider the impact on residential amenity within established frameworks.

136. By contrast, the MAS analysis is qualitative and *"generic"*. He also criticises the MAS approach as "*novel* "and "*bespoke"*. In Mr. Carr's opinion, MAS failed to rigorously apply any appropriate guidelines to the assessment of nuisance. Whilst he noted that the Defra Guidance does not measure nuisance by reference to a particular fixed decibel limit, one must still assess nuisance in accordance with *"some recognised standards or guidance*" (such as the planning permission, WEDG 2006, the IOA RM or draft WEDG 2019).

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[28] The defendant's planning expert, Mr. Lawlor, agreed with Mr. Carr in this regard.

137. Under the Defra Guidance, the plaintiffs must, by reference to such guidance show that an established threshold of impact or "*threshold of significance*" is being exceeded. That "*threshold of significance*" was not exceeded in this case because, in Mr. Carr's view the overall noise levels at Ballyduff were generally "*very low*". This was not therefore a borderline or "*critical*" case requiring him to either carry out any further monitoring or to listen and form a view on the character of the noise. In any event, Mr. Carr rejected the view that one should or even could assess nuisance by listening to the noise. This is because various people have various different opinions about what constitutes an unreasonable interference. In essence therefore, whilst he accepted that the audio recordings accurately capture the sound environment where they were situated, Mr. Carr viewed them as of little value in determining whether nuisance was made out.

138. Mr. Carr rejected the relevance of BS 4142 as it applied to industrial noise generally but not specifically to WTN.

139. Mr. Carr's evidence was that MAS had also failed to ensure that their noise measurements were taken in accordance with best practice. Mr. Carr accepted that the MAS 2017 audio recordings (i.e., the HH internal audio recordings and the 2017 NF external audio recordings collected on foot of Ms. Large's noise survey) accurately measured sound levels at the point of the microphones. However, due to sound reflections, the 2017 HH internal audio recordings (and associated graphs) were not necessarily reflective of noise levels in the wider room or in different rooms in the same house.

140. Mr. Carr's most trenchant criticism was reserved for the MAS 2021 data which was recorded by the plaintiffs' solicitor who is not an appropriately qualified "*competent person*". As regards the 2021 NF external audio recordings, good practice requires that that measurements are made in the free field between 3.5 and 20 metres from a dwelling. However, due to inadvertence this did not occur, and the noise was recorded at façade level. As a result, although Mr. Carr accepts that the audio recordings accurately captured the noise environment where the microphones were placed, the use of façade level measurements (instead of free field measurements) increases overall noise levels. Moreover, the 2021 NF external audio recordings were gathered without the use of an appropriate windshield which means that wind contamination cannot be excluded. Mr. Carr noted that MAS had screened that part of the MAS 2021 data that was included in the expert reports and had also screened the audio recordings

played to the court. However, he does not accept that this screening is effective to exclude wind contamination because one cannot always hear how wind affects the microphone. Furthermore, Mr. Carr also stated that one cannot take façade measurements where there is a significant low frequency content to the noise.

141. As regards the 2021 NF internal audio recordings and the 2021 HH internal audio recordings, Mr. Carr again contended that the noise levels at the point of the microphone would not necessarily reflect noise levels in other parts of the house.

142. Mr. Carr was extremely critical of MAS's methodology in presenting AM. He stated that the IOA RM defines AM and sets out a strict methodology (in terms of measurement methodologies and postprocessing) for rating AM values. This in turn allows for consistent assessment. By contrast, the MAS approach to calculating AM values (computing the differential between AM peaks and AM troughs on the time domain graphs) exaggerates the level of AM. To explain this, Mr. Carr noted that Mr. Stigwood himself had accepted that the AM values as calculated on foot of the MAS time domain graphs would typically overstate the AM values when compared to those produced by the IOA RM by *"1 to 2 dB"*.

143. Mr. Carr noted that Mr. Stigwood also had purported to undertake an IOA RM analysis of the MAS 2021 data discussed above (the 2021 NF external audio recordings and the 2021 HH and NF internal audio recordings). In Mr. Carr's view, this data could not form the basis for a valid IOA RM assessment. This was for several reasons.

144. First the 2021 NF external audio recordings were taken at façade level which distorts AM. Related to this is the criticism that Mr. Carr maintains that one cannot take façade measurements where there is a significant low frequency content to the noise.

145. Second the 2021 NF external audio recordings were captured without the use of an appropriate windshield. In this latter respect, Mr. Carr opined that even if one were to accept that the screening exercise carried out by MAS was adequate to exclude contamination from the specific data included in their reports and from the audio recordings played to the court, this was irrelevant to the IOA RM assessment which was based on a far more extensive cache of data - 6 weeks of continuous data. Mr. Stigwood had not screened this more extensive cache of data for contamination and yet had input it all into the IOA RM analysis.

146. Third, as stated above, Mr. Carr viewed Mr. Stigwood's IOA RM analysis of the 2021 NF and HH internal data as of no value. This was because - in addition to the fact that the monitoring equipment was set up by the plaintiffs' solicitor rather than by MAS - the IOA RM analysis is not intended to be carried out on internal measurements.

Evidence of Mr. Brendan O'Reilly

147. Mr. O'Reilly confined himself to presenting the defendant's evidence in relation to compliance with the planning permission. Mr. O'Reilly's view was that the Defendant was fully compliant on both the HH and NF data. He accepted however that the polynomial line (or trendline) for the NF night-time graph was 43.5 dBA L90, which is above the planning permission limit of 43dBA L90. In Mr. O'Reilly's view this potential exceedance could be fully explained by the noise of the wind in the trees close to the NF measurement location.

148. Mr. O'Reilly also accepted that the MAS NF crosswind planning compliance graph shows an exceedance of total operational noise above the permission limits but stated that "*it had nothing to do with the turbine*" and was more likely noise from wind in the trees. In Mr. O'Reilly view, contributions from wind were evident on both the daytime and night-time compliance graphs. Although in rural Ireland, the biggest contribution to increased noise levels is the wind in the trees, people are generally habituated to it and therefore never complain about it or even notice it. Mr. O'Reilly accepted that the plaintiffs' properties were in a wind shadow and that the wind environment at hub height was very different to the wind environment at the properties.

Planning experts called by parties.

Evidence of Ms. Ann Mulcrone and Mr. Gavin Lawlor

149. The evidence of the plaintiffs' expert, Ms. Ann Mulcrone, a town planner and former president of the Irish Planning Institute, was restricted to the pleaded allegations of breach of the permission for the purposes of the s. 160 application. I will detail this evidence when considering issue 14 below.

150. Similarly, the evidence of the defendant's expert, Mr. Gavin Lawlor, a town planner recently elected to the Council of the Irish Planning Institute, was largely responsive to the s. 160 application. In addition, in harmony with Mr. Carr, he also expressed the view that the

whole purpose of the fixed noise limit in planning permissions is to protect the residential amenity of nearby residents. In essence, such a noise condition is inserted to eliminate nuisance. In his view, the noise limits in the permission carefully balance the acceptable noise and the desired outcome of renewable energy. He stated that the WTN was "*meticulously compliant*" with condition 15. In addition, Mr. Lawlor tendered a similar view to that of Mr. Carr in relation to the interpretation of the planning permission with which I deal with below.

Evidence of Mr. Dietrich Mayer

151. The plaintiffs led evidence from Mr. Dietrich Mayer, a qualified Mechanical and Automotive engineer who now operates as a Wind Energy Consultant advising on the execution of wind development. Although Mr. Mayer clearly has a high degree of practical experience in wind farm developments, I entertain some doubt as to whether he is sufficiently qualified to give expert evidence. I will therefore briefly summarise Mr. Mayer's evidence but will have regard to it for the purposes of context only.

152. Mr. Mayer's view is that bearing in mind their proximity to the plaintiffs' homes and the local topography it ought to have been recognised at the time of the installation of the turbines that there was a significant risk of unacceptable noise and high levels of AM.

153. In their present location, the usual proportionate relationship between noise levels at the receptors and at the rotor tips is distorted due to their respective heights and to the fact that the houses are in a wind shadow.

154. The speed of rotation of the blades is a critical factor for the generation of noise. If windspeeds accelerate steeply, the blade angle will change, and extra noise will be produced because of a disruption of the laminar flow. In gusty conditions the turbine has to exert a lot of control, producing frequent fast pitching activities and associated peaks in noise.

155. Other factors that can increase noise emission are the misalignment of blades and blade pitch. In addition, air inflow turbulence could play a role here because the operation of T1 will create a wave effect in the airflow towards T2 which will cause increased loads and sound emission from T2.

156. The WTN could be reduced by a number of methods. One ought first check that the rotors were clean, undamaged and properly aligned. The turbine rotors could be serrated, or appliances could be added to the blades to reduce the sound power level. One could also, if required, de-rate T2 at certain times and operate it in power reduced mode. As noted in the manufacturer's technical data sheet: *"For a noise sensitive site it is possible to operate the E70 with a reduced rotational speed and a reduced rate of power during the night."* Enercon can also provide a software programme to eliminate shadow flicker at impacted properties.

Evidence on shadow flicker

157. Although this is fundamentally a noise nuisance case, the plaintiffs also complain of nuisance in the form of shadow flicker.

158. By agreement, the parties submitted a shadow flicker report of Jennings O'Donovan & Partners dated 24th May, 2017 prepared by Mr. David Kielty. Mr. Kielty's report, which was based on modelling rather than on-site assessment, found that the plaintiffs' dwellings could potentially experience an impact from shadow flicker as they are within ten rotor diameters of the Ballyduff windfarm. The report shows that the total predicted hours per year of the shadow flicker at HH and NF on a *"worst case"* scenario is:

NF (34.2 Hours Per Year)
HH (35.6 Hours Per Year)

159. This calculation is based on topography alone and assumes that the sun is always shining and that there is no cloud cover. It also excludes vegetation, forestry, buildings and other man made buildings which in a *"real"* context would screen the flickering effect of the wind turbines. The report states that T2 is the largest contributor to shadow flicker occurrence.

160. The report then finds, by way of a desktop survey, that the actual hours of sunlight at Ballyduff represent 35% of the total hours of daylight and that therefore shadow flicker will only potentially occur for 35% of the predicted worst case time. Reduction factors were therefore applied which produced the following results:

NF (34.2 Hours Per Year) Reduction @ 35% = 12.0 Hours shadow flicker per year

HH (35.6 Hours Per Year) Reduction @ 35% = 12.5 Hours shadow flicker per year

161. The conclusion is as follows: *"Although there is no agreed standard for shadow flicker impact in Ireland, the [WEDG 2006] recommends that shadow flicker at dwellings within 500m of a turbine should not exceed either 30 hours per year or 30 minutes per day."*

162. The report concludes that the Ballyduff Windfarm has the potential to introduce shadow flicker impacts that may exceed this WEDG limit of 30 minutes per day when sunshine occurs. However, the predictions do not take into account weather conditions or the presence of natural features e.g., trees and hedges which will reduce sunlight. The report concludes that the impact of such factors renders it likely that the 30-hour guidance limit is satisfied in practice.

Medical evidence of Prof Kevin Gournay and Dr. Declan Murray

163. As Ms. Webster and Mr. Rollo seek damages for personal injuries, the psychological impact of the WTN was addressed by Prof. Kevin Gournay, Chartered Psychologist and Prof. of the Institute of Psychiatry, Psychology and Neuroscience, Kings College, London - who gave evidence on behalf of the plaintiffs - and Dr. Declan Murray consultant psychiatrist of Glebeview Clinic- who gave evidence on behalf of the defendant. Both experts were eminently experienced and qualified and gave evidence in a measured, considered and independent manner.

Medical opinion in respect of Margaret Webster

164. There was a divergence of views as between the medical experts in relation to Ms. Webster. Prof. Gournay's view is that she satisfied the criteria for a recognisable psychiatric illness; a depressive disorder, which he classified as mild to moderate. This resulted from a complex range of synergies; principally anxiety concerning Mr. Rollo together with sleeplessness and irritability caused by the WTN.

165. Dr. Murray's view was that Ms. Webster had not suffered from an identifiable psychiatric disorder. Whilst there is no doubt that the WTN and the disintegration of her relationship with Mr. Rollo had imposed considerable stress on Ms. Webster, she has coped with that stress. Therefore, although Dr. Murray accepted that Ms. Webster experienced sleep difficulties, felt down in herself and had become tense and irritable, his key point is that her

reaction was understandable; she succeeded in managing her emotions and reactions. In short, her psychological reaction to the circumstances was not disproportionate. Nor did Dr. Murray view Ms. Webster's symptoms of depressed mood and diminished interest as sufficiently pervasive or prolonged to qualify as a psychiatric injury.

166. With respect for the contrary view of Prof. Gournay, I agree. Ms. Webster has had to tolerate an extremely difficult situation for the past number of years. Overall, however I accept the evidence of Dr. Murray that her reaction to the WTN is not disproportionate to the circumstances that she is experiencing. As such, I also accept his view that Ms. Webster has not suffered from a recognisable psychiatric illness and does not currently so suffer.

Medical opinion in respect of Keith Rollo

167. When Prof. Gournay first examined Mr. Rollo in December 2020 he was extremely concerned for his mental well-being. Mr. Rollo's history was of expressed emotions of hopelessness and helplessness in the face of unremitting WTN and impulsive thoughts of suicide. These red flags for suicide, when juxtaposed with the fact that Mr. Rollo worked at heights, providing him with suicidal means and opportunity, prompted Prof. Gournay to take the extremely unusual step of intervening in the legal proceedings. He informed the plaintiffs' solicitor of his concern and strongly suggested that the wind turbine was turned off at night so that Mr. Rollo's chronic sleep disturbance might be mitigated. As I note above, a request to this effect was refused by the defendant.

168. Prof. Gournay diagnosed Mr. Rollo as suffering from a major depressive disorder of at least moderate severity with low mood, sleep disturbance, irritability and anger. Dr. Murray did not substantially disagree.

169. There was some disagreement between Prof. Gournay and Dr. Murray in relation to Mr. Rollo's progress after diagnosis. On this, I find that Mr. Rollo's depression improved significantly after he moved away from the turbine in early 2021. However, in mid-2022, he experienced a recurrence of his symptoms. This recurrence was characterised by anxiety rather than depression and was in the mild to moderate range. Mr. Rollo attributed this recurrence to the upcoming court case which is an entirely reasonable explanation. I accept Dr. Murray's view that Mr. Rollo's depression has now substantially resolved, albeit that some residual

symptoms persist at a subclinical level. In addition, Mr. Rollo remains vulnerable to further episodes of depression and anxiety in the future.

170. In terms of causation, Dr. Murray opined that although the windfarm contributed to Mr. Rollo's depression, other potential risk factors mean that it is possible that he could have developed depression in any event. I find that this is improbable as most of the vulnerabilities described were longstanding and yet Mr. Rollo had never before suffered from depression. Mr. Rollo's past history appears to have been of a robust person. He had not previously experienced sleep disturbance or psychiatric symptoms save for a brief transient episode of anxiety.

171. Given the absence of any prior insomnia and the temporal relationship between the operation of the turbine and the onset of Mr. Rollo's sleep disturbance, I conclude that the WTN is the sole cause of this sleep disturbance. Further, in light of the well described relationship between sleep disturbance and depression, I accept Prof. Gournay's view that Mr. Rollo's depression was entirely reactive to the external stressor posed by the WTN and the resulting long term sleep disturbance.

172. Accordingly, I find on the balance of probabilities that the cause of Mr. Rollo's depression was the WTN and the sleeplessness associated therewith. I am fortified in this view by the fact that the medical records demonstrate significant improvement - no doubt assisted by modalities such as antidepressant medication and counselling - once Mr. Rollo moved away from the turbine.

173. I accept Prof. Gournay's view that the unremitting WTN, his lack of sleep and his depression ultimately affected Mr. Rollo's personality and outlook. I further accept that for a period of time, probably commencing in mid to late 2020 and perhaps continuing for a couple of months after he moved out of HH, this impacted upon Mr. Rollo's overall response to the WTN which was often characterised by obsessive ruminations. I also accept that this personality change was a manifestation of Mr. Rollo's illness and was also therefore precipitated by the WTN.

Planning Guidance in relation to Wind Energy Developments

174. The defendant's primary defence is that it is not open to this Honourable Court to find that the threshold for nuisance impact should be set at a specific level other than the noise limit set out in the planning permission and that because the WTN complies with this noise limit, nuisance is not established. I should consider this argument at the outset because, if accepted, it would be dispositive of the case.

175. Before embarking on this exercise, however, it is necessary to refer to planning guidance on wind turbine developments at the time of the grant of the Ballyduff planning permission. This is important to the interpretation of the Ballyduff planning permission (which, as we shall see is a matter of dispute between the parties). An understanding of the planning framework is also required to assess another aspect of this argument; namely the defendant contends that both the noise limits set in the Ballyduff permission and the WTN which it produces comply with all appropriate planning guidance on WTN at the time of the grant of permission. In addition, an appreciation of more recent planning guidance on wind turbine developments is similarly of relevance as the defendant also argues that both the noise limits set in the Ballyduff permission and the WTN are in compliance with current expertise on WTN[29]. Therefore, in addition to summarising planning guidance at the time of the grant of permission and to date, I will where relevant, highlight how same might be applied to the Ballyduff permission or to the WTN itself. At a later section of this judgment, I deal separately with the Defra Guidance (which is not planning guidance but rather guidance on the assessment of statutory nuisance complaints concerning WTN).

Guidance pre-dating the planning permission

176. The parties opened two key pieces of guidance pre-dating the permission: first, the ETSU-R-97 guidelines, *The Assessment and Rating of Noise from Wind Farms* published by the Department of Trade and Industry in 1996 ("ETSU") and second, WEDG 1996.

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[29] Thus, the defendant argues that "*the permission limits continue to reflect the current combined wisdom and expertise of appropriately qualified experts as to what levels of WTN*" [are reasonable]. It further contends that because the WTN complies with those permission limits, it reflects that current wisdom and expertise and is by definition not unreasonable.

ETSU

177. ETSU sets out a framework for noise levels thought to offer a reasonable degree of protection to windfarm neighbours without placing unreasonable restrictions on windfarm developments. Since its adoption, ETSU has been the primary framework by which planning conditions pertaining to wind farms are set in the United Kingdom. It is also the primary methodology by which planning compliance continues to be assessed in both the United Kingdom and Ireland.

178. ETSU assumes that WTN relative to background noise is likely to be greatest at low windspeeds. However, it acknowledges that this assumption does not always hold true for turbines on hillier sites which may experience high winds, whilst the sheltered receptor will experience low levels of wind generated noise.

179. ETSU recommends that noise limits should be set relative to existing background noise at the nearest noise sensitive properties and that the limit should reflect the variation in both the WTN and background noise with windspeed.

180. Ultimately, a combined relative and fixed limit was recommended. In general, WTN would be limited to 5 dBA L90 above the background sound levels (the relative limit) or a value in the range of 35 to 40 dBA L90 (the fixed limit), whichever is greater. In low noise environments, the day-time level of the L90 of the wind farm noise should be limited to an absolute level within the range of 35-40 dBA L90.

181. An absolute night-time limit of 43 dBA L90 was recommended as appropriate to protect sleep. This limit was not felt to offer sufficient protection to external amenity in quiet areas during the day.

182. The ETSU approach applies the noise limit only to WTN and not to total operational noise, which is a combination of WTN and background noise. As it will often be difficult to isolate one from the other, ETSU assumes that if total operational noise is below the relevant noise limit, then no further action is necessary. Conversely, if total operational noise is above the relevant noise limit, then a correction for the influence of the existing background noise should be performed. In such circumstances, compliance cannot be demonstrated without ascertaining background noise.

183. In 2013, the Institute of Acoustics (IOA) released a *Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise* ("GPG") which addressed many technical aspects of ETSU. In 2014, the IOA published six Supplementary Guidance Notes to the GPG, which provided further information on specific aspects of the assessment procedures. For present purposes the most important of these is Supplementary Guidance Note 5 on Post Completion Measures ("Supplementary Guidance Note 5") which governs the technical aspects of ETSU planning compliance assessments.

WEDG 1996

184. WEDG 1996 were the relevant planning guidelines at the time of the grant of planning permission in this case. These provided that noise levels measured externally at any dwelling house should not exceed 40 dBA Leq and that tonal or impulsive qualities in the noise should be avoided. I pause to note that although I find that the noise limits set in the Ballyduff permission are generally in accordance with WEDG 1996, total operational noise is frequently above 40 dBA Leq.

Guidance post-dating the planning permission

WEDG 2006

185. The current assessment framework applying to the grant of planning permission for wind farms is set out in the planning guidelines issued by the Department of the Environment, Heritage and Local Government in December, 2006, WEDG 2006.

186. WEDG 2006 characterises aerodynamic noise from wind turbines as general broadband noise which can display some "character" ("swish"). The possibility of thump AM is not mentioned. Noise limits should be applied to external locations. The chosen measurement index is L90 which is intended to allow reliable measurement without corruption from relatively loud transitory noise events from other sources.

187. In general, significant noise problems are unlikely where the distance from the nearest turbine to any noise sensitive property is more than 500 metres. I pause to note that T2 is of course 359/369 metres from the plaintiffs' dwellings.

188. During the day, WEDG employs a combination of relative and fixed noise limits. The language here is somewhat ambiguous. The guidelines provide for "*a lower fixed limit of 45 dBA or a maximum increase of 5 dBA background noise*" without specifying whether it is intended that the lower or greater of these two limits apply. I accept the defendant's argument that planning authorities are free to choose whichever of these limits is greater. Therefore, save in low noise environments, WEDG 2006 deems it acceptable to set a limit of 45 dBA L90 irrespective of background noise levels.

189. WEDG 2006 notes that during the night the protection of external amenity becomes less important, and the emphasis should be on preventing sleep disturbance. It provides that a fixed limit of 43 dBA will protect sleep inside properties during the night.

190. The defendant argues that the Ballyduff permission complies with the recommendations in WEDG and that the WTN experienced at the plaintiffs' homes also so complies. Strictly speaking, confirming compliance with WEDG requires an assessment of whether or not this is a low noise environment. There is presently no compelling evidence either way on this issue[30]. I will therefore give the defendant the benefit of the doubt and assume that the above noise limits apply.

191. As such, the two noise limits set out in the Ballyduff permission (40 dBA leq and 45 dBA leq), which are either below or equal to the WEDG noise limits (45 L90 during the day and 43 L90 during the night) therefore comply with WEDG 2006.

192. The defendant consequently argues that because the Ballyduff WTN complies with the noise limits in the permission, this means *a fortiori*, that the WTN also complies with WEDG 2006.[31] I will accept, for the sake of argument, that this is so.

193. The key point however is that the issue of compliance or otherwise with the WEDG 2006 limits is largely beside the point. This is because, for reasons I will explain in due course,

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[30] See para 512 below for an analysis of the parties' respective evidence on background noise levels.

[31] For reasons I will detail below, I am of the view that the Ballyduff WTN is not in fact in compliance with the permission because the defendant has misinterpreted the permission limits. That however is not of immediate relevance because, as at this point of my discussion, I am considering whether the defendant is correct in submitting that the Ballyduff WTN complies with the *WEDG* noise limits.

I do not view WEDG 2006 as delineating the parameters of WTN nuisance in this particular case.

Developing understanding of AM and the Institute of Acoustics (IOA) Reference Method (IOA RM)

194. Whilst ETSU and WEDG 2006 continue to be applied in the UK and Ireland respectively, it is now recognised that there is a need to address noise impacts in a more nuanced way.

195. Although the ETSU methodology is intended to absorb any additional impact due to AM into the noise limits it recommends, it does not fully address the potential impact of AM in WTN in at least three respects. First, ETSU understood AM as overwhelmingly of the "swish" variety and no real account is taken of the possibility of AM of a lower frequency character, "thump AM". Second, ETSU primarily contemplates AM values of *"up to"* 3 dBA. Indeed, the ETSU Review[32] points out that on the basis of the comments in ETSU, the value of 3 dBA is sometimes referred to as the 'expected level' of AM. However, it is now apparent that AM can display AM values much greater than this. Third, ETSU assumes that as distance from the turbine increases beyond 50 metres, the rhythmic swishing would become less pronounced, reducing audibility. It is now clear that "thump AM" - compared with "swish AM"- can be discerned at longer ranges and over different wind directions.

196. Concerns about AM, particularly lower frequency "thump" AM, led to the commissioning of several UK government funded surveys. Ultimately, in 2016, the findings of two parallel AM studies were reported. The first was the IOA led investigation ("the IOA AM report") which states:

> *It is now generally accepted that there are two manifestations of wind turbine AM. An observer close to a wind turbine will experience 'blade swish' because of the directional characteristics of the noise radiated from the trailing edge of the blades as it rotates towards and then away from them. This effect is ... not generally expected to be significant at typical separation distances, at least on relatively level sites. The Renewable AM project... has coined the term 'normal' AM (NAM) for this inherent characteristic of WTN, which has long been recognised and was discussed in ETSU-R-97 in 1996 (ETSU, 1996)*

[32] As to which see further para 216 below.

> *In some cases, a form of AM is observed at residential distances from a wind turbine (or turbines). The sound is generally heard as a periodic 'thumping' or 'whoomphing' noise containing relatively low frequencies... The prevalence of this type of modulation is subject to debate. On sites where it has been reported, occurrences appear to be occasional, although they can persist for several hours under some conditions, dependent on atmospheric factors, including windspeed and direction....The Renewable UK AM report adopted the term 'Other AM' (OAM) for this characteristic. Elsewhere it might be reported as Excessive Amplitude Modulation (EAM).*

197. The purpose of the IOA AM report was to devise a method for measuring and rating AM in WTN. The primary goal was to develop a methodology to be used within the planning regime. I will consider in due course[33] the relevance of the methodology ultimately developed by the IOA for rating AM ("the IOA RM") to the exercise currently being conducted by this court.

198. The second 2016 study, the Phase 2 report, concluded that AM controls were needed at development planning stage and that this was best achieved by means of a suitable penalty scheme whereby, increasing levels of AM would attract a decibel penalty which would be added to the relevant sound power levels for the purposes of fixing decibel limits.

199. In simple terms the combined effect of the IOA RM and the Phase 2 Report is as follows: first, pursuant to the IOA reference, turbine related AM is calculated over ten seconds blocks. This is measured by deducting the L95 (the sound power level exceeded for 95% of the time) from L5 (the sound power level exceeded for 5% of the time). Provided that at least 50% of the ten second blocks contain detectable AM, average AM is logged for that 10 minute period. Thereafter, the AM value for each ten minute period is to be converted to a penalty which is then correlated with the relevant windspeed and incorporated into the decibel limit at the windspeed in question.

Proposed revisions to WEDG 2006

200. In Ireland, the Department of the Environment, Community and Local Government has produced three different draft guidance documents proposing various revisions to WEDG 2006.

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[33] See para 421 *et seq.*

Proposed revision to Wind Energy Development Guidelines 2006 – targeted review in relation to noise, proximity and shadow flicker, December 11th, 2013.

201. On 11th December, 2013, the Department published proposed revisions to WEDG 2006 on which it invited submissions ("the 2013 draft revision"). The 2013 draft revision recognised that distinctive special audible characteristics of WTN including impulsiveness, AM and low frequency presented a challenge. WTN can be influenced by a variety of factors not directly related to distance such as topography, ground cover, windspeed and direction.

202. The 2013 draft revision recommended 40 dBA L90 as an outdoor limit which would apply irrespective of day or night. Exceptions were possible in the case of consent of the windfarm neighbour impacted. I note that total operational noise at NF is in excess of 40 dBA L90 at windspeeds above approximately 8 m/s. Total operational noise at HH is in excess of 40 dBA L90 at windspeeds above approximately 6 m/s.

2017 Preferred draft Approach.

203. In 2017, a preferred draft approach was circulated. The preferred draft approach proposed a relative noise limit of 5 dBA above existing background noise within the range of 35 to 43 dBA L90 with 43 dBA L90 being the maximum noise limit permitted day or night. The noise limit would be further reduced to take account of AM and low frequency noise. I note that total operational noise at NF is in excess of 43 dBA L90 at windspeeds of 9.5 m/s and above.

204. The preferred draft approach provided that shadow flicker would be eradicated in full by technology and appropriate modelling at design stage. It was expected that strategic environmental assessment would be undertaken and that guidelines would be finalised and issued by the first quarter of 2018.

Draft revised Wind Energy Development Guidelines December 2019 ("draft WEDG 2019").

205. Draft WEDG 2019 was issued for public consultation in December 2019 ("draft WEDG 2019"). Their aim was "*to strike a better balance between addressing the concerns of the local communities in relation to wind farm proposals, whilst maintaining Ireland's ability to deliver on its binding energy policy obligations, and ensuring that there is greater, and earlier, community engagement by windfarm developers*".

206. The noise limits in the draft WEDG 2019 were undoubtedly more onerous than the WEDG 2006 and afford a higher level of protection to people who live in the vicinity of any future wind farm developments. The defendant in the present case submits that the WTN complies with draft WEDG 2019. Although I emphasise that WEDG 2019 is draft guidance only and further that it has now been withdrawn, I will nonetheless consider whether the defendant is correct in this argument.

207. Draft WEDG 2019 notes that the principle of a 5 dBA increase above background levels has been regarded as good practice for many years and proposed the adoption of this basic structure subject to a lower limit value of 35 dBA L90 and an upper limit value of 43 dBA L90. Effectively, this imposed a limit of 35 dBA L90 as a default until the 5 dBA above background levels exceeds this and 43 dBA L90 is the maximum noise permitted day or night, regardless of background noise level. Therefore, although the defendant contends that the Ballyduff WTN complies with draft WEDG 2019, compliance cannot be assessed, still less confirmed, absent a background noise study at this site.

208. Draft WEDG 2019 also recognised the particular challenges posed by thump AM. It notes that although the characteristic sound close to a wind turbine could be described by the listener as a regular 'swish' which decreases rapidly with distance, under adverse conditions at a distance of several hundred metres from the turbine, whoomphing or thumping type noise can dominate and cause annoyance at lower levels than noises without such characteristics. While such AM can occur over extended periods it tends to vary in intensity, adding to the annoyance.

209. Draft WEDG 2019 proposed a rating penalty for certain special audible characteristics (tonal noise and AM) in addition to a fixed threshold for low frequency noise. It was felt that subjective listening tests and direct measurements did not provide a reliable method of quantifying AM for the purposes of applying the penalty scheme. Accordingly, draft WEDG 2019 recommended the application of the IOA RM as an objective and reliable methodology for quantifying AM.

210. Draft WEDG 2019 acknowledged that the setting of a threshold for excessive AM is not straightforward. It notes that available research at that time did not identify a clear level at which the impact of WTN AM becomes "significant" "excessive" or "unacceptable". However,

research suggested an onset of perception at an AM value of about 2 dB and above this, rising annoyance with increasing AM values is expected. Moreover, the research highlighted a very strong relationship between annoyance and the overall sound power level - i.e., overall loudness- of the WTN.

211. The penalty scheme proposed in draft WEDG 2019 operates by penalising higher AM values as follows:

- AM with an AM value of less than 3 dB - no penalty
- AM with an AM value of 3dB to 10 dB - sliding scale of penalties ranging from 3 to 5 dB
- AM with an AM value of more than 10 dB - 5 dB penalty.

212. Draft WEDG 2019 recommended using only night-time measurements to isolate WTN from other potential noise sources. Draft WEDG 2019 noted that AM has been shown to occur in both downwind and crosswind conditions and that where a complaint relates to AM noise all wind directions associated with AM should be included in determining the rated noise level. I pause here to note that the defendant's compliance data only relates to one wind direction: directly downwind.

213. In any event, total operational noise at NF is in excess of 43 dBA L90 at windspeeds above 9.5 m/s. If therefore the Ballyduff WTN attracts any AM penalty, then total operational noise would exceed the recommended maximum noise limit in draft WEDG 2019. The plaintiffs' experts have purported to perform an IOA RM analysis which is said to suggest an AM penalty of 5 dB. For various reasons, I accept the defendant's argument[34] that the plaintiffs' IOA RM cannot be relied upon to calculate likely penalties under draft WEDG 2019.

214. I deal separately at para 471 below with the defendant's expert's contention that the WTN would comply with the recommended limits in draft WEDG 2019 regardless of any character penalty that could be applied. Suffice it to say for the moment that, as the defendant has not even attempted to estimate background noise or to calculate what penalties might apply, I am at a loss to see how it can confidently contend that the WTN complies with draft WEDG 2019.

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[34] The defendant's argument is set out at para 143 above.

215. Draft WEDG 2019 also recommended that shadow flicker ought not to be tolerated at all. It notes that shadow flicker can easily be prevented through the installation of sensor-based switches / control mechanisms.

ETSU Review

216. The Department of Business, Energy and Industrial Strategy in the UK commissioned a review of ETSU, which was completed in October 2022 and published in February of 2023 ("the ETSU Review"). The primary aim of the ETSU Review was to make a recommendation on whether, in view of United Kingdom government policies on noise and Net Zero, and available evidence, ETSU required updating. The ETSU Review concludes that current regulation in relation to the potential impact of AM in particular should be reviewed and updated. Although, unsurprisingly, its recommendations have not yet been actioned, the ETSU Review provides a helpful objective overview of how the science has moved on since ETSU.

217. The ETSU Review observes that the need for official guidance on the control of AM in wind turbine sound was the single most common theme arising in its review. AM annoyance is influenced by both the AM values and the spectral frequency of the WTN. Increased annoyance is associated with thump AM, which propagates further, and is more effective at transmitting through structures. The ETSU Review notes that AM values for thump AM can be greater than for swish AM. It also notes that there is strong evidence demonstrating that thump AM is more prevalent at night, due to atmospheric conditions. Although thump AM is difficult to predict, it can potentially be mitigated by control of the blade pitch angle.

218. The ETSU Review concluded that AM is secondary to the overall sound level in determining subjective responses, and that the added impact of AM can be quantified as a change in the equivalent sound level. For planning purposes, the ETSU Review therefore favours a methodology similar to that recommended by draft WEDG 2019 - i.e., the use of IoA RM to rate AM combined with a decibel penalty system for AM.

219. In summary, in so far as relevant, my view in respect of the application of all the above planning guidelines to the Ballyduff windfarm is as follows:

220. I am satisfied that, as correctly interpreted, the noise limits set in the Ballyduff planning permission comply broadly with WEDG 1996. These noise limits also broadly comply with WEDG 2006. However, as the permission does not purport to relate the noise limits to background noise or to regulate AM, the permission does not "comply" with draft WEDG 2019. In other words, the permission does not reflect draft WEDG 2019.

221. I am not satisfied on the balance of probabilities that the WTN on site complies with WEDG 1996. I accept for the sake of argument that the WTN complies with WEDG 2006. Although the defendant maintains that the WTN also complied with the recommendations in draft WEDG 2019, this has not been demonstrated. Clearly, in the absence of a background noise assessment and a fully compliant IOA RM assessment of possible AM penalties, one cannot be satisfied one way or the other on whether the WTN complies with draft WEDG 2019. In any event, as draft WEDG 2019 has now been withdrawn this is not in my view an issue which I have to determine.

Relevance of planning permission-two potential zones of relevance of the permission

222. The grant of planning permission for a particular use is of potential relevance to a nuisance claim in two distinct ways.

223. First, the grant of planning permission (and its terms and conditions) may permit the very intrusion (for example, noise) which is alleged by the plaintiff to constitute a nuisance. In the present case, the question is the extent, if any, to which the planning permission (or the noise condition specified therein) can be relied on as a defence to this nuisance claim.

224. Second, as stated at para 30 above, nuisance is always assessed by reference to the character of the particular locality. The grant of permission for the development impugned may authorise the use of the defendant's property for certain purposes potentially changing the character of the locality. In the present case, the question is whether the plaintiffs' locality should be seen as including the defendant's windfarm at Ballyduff.

Issue 1: is the court bound by the noise condition in the planning permission in assessing what is objectively reasonable for the purposes of determining a claim for nuisance? Is the noise condition in the planning permission a wholly reliable indicator of what WTN is reasonable for the purposes of determining a claim for nuisance?

The defendant's argument

225. In *Cork County Council v. Slattery Pre Cast Concrete Ltd* [2008] IEHC 291, Clarke J. observed:

> *"It is, of course, the case that the mere fact that a party operates in accordance with a valid planning permission does not give that party the right to commit a civil wrong to neighbouring properties. Therefore, the mere fact that [the defendant] might operate in accordance with a valid planning permission does not, of itself, preclude the possibility that there might nonetheless be a nuisance actionable at the suit of neighbouring property owners."*

226. The defendant does not dispute that as a matter of common law and statute,[35] planning permission cannot deprive a property owner of a right to object to what would otherwise be a nuisance. The grant of planning permission for a particular development does not mean that the development is lawful, but that a bar to the use imposed by the planning law in the public interest has been removed.

227. Notwithstanding this, the defendant nonetheless argues that the court is *"bound"* by the terms and conditions of the planning permission in assessing what is objectively reasonable for the purposes of this nuisance claim. This argument was advanced in a number of different ways which I will consider below.

228. In its oral submissions the defendant argued that the court was bound to accept and apply the noise limits in the planning permission as a wholly reliable indicator of what the ordinary person would expect in terms of noise control. Although purporting to accept that planning permission cannot *per se* provide a defence to nuisance, it was argued that *as a matter of law*, a permission which specifically regulates the matter complained of – in this instance,

[35] Section 34 (13) of the Planning and Development Act 2000 provides that a person shall not be entitled solely by reason of a planning permission to carry out any development.

noise – prevents the court from concluding that operation in accordance therewith constituted a nuisance. That, it was said[36] was "*the end of the matter*".

229. The defendant's closing written submissions were more nuanced and argued that the planning permission is "*a key item of evidence*" establishing that the expectations of an objectively reasonable person had not been "*exceeded*" in this instance. The permission noise limits therefore comprise evidence of a "*reasonable objective standard*".

230. Finally, the defendant argues that the noise limits in the permission ought to benefit from curial deference.

231. The defendant maintains that *Smyth v. Railway Procurement Agency* is binding authority in support of these arguments. It is therefore necessary to consider *Smyth v. RPA* in considerable detail.

Smyth v. RPA

232. The plaintiffs' ("the Smyths") case was that the newly established Green Line LUAS light railway system operated by the defendant ("RPA") caused them a noise nuisance. They sought an order directing the RPA to erect an appropriate acoustic barrier together with damages for nuisance, negligence and breach of statutory duty.

233. Supported by several of their neighbours, the Smyths maintained that the noise of the trams had an adverse impact on the amenity of their back gardens (which backed on to the LUAS tracks); that it was difficult to hold a normal conversation in the garden; that the noise of the trams was very intrusive in the kitchen, dining area and living areas of their house and that the noise impact in the bedrooms at the rear of the house (which were roughly level with the tracks) was such as to cause serious sleep disturbance which was their single greatest complaint. The Smyths experienced difficulty getting to sleep and were obliged to close their bedroom windows and ultimately to move out of their master bedroom at the back of the house.

234. An understanding of the statutory context and process underlying the development of the Green Line, a major public infrastructural project, is crucial to appreciating the approach

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[36] Quoting from para 34.9 of *Smyth v RPA*, as to which see para 252 below.

taken by Laffoy J. in *Smyth v RPA to* (1) the legal effect of the Line B Order pursuant to which the LUAS was established; and (2) the consequent ascertainment of the appropriate objective standard to apply to the Smyths' nuisance complaint.

235. The Transport (Dublin Light Rail) Act 1996 ("the 1996 Act") enabled the Minister for Public Enterprise ("the Minister") by order to authorise the construction and operation of the light rail. The statutory process required that the application to the Minister was accompanied by an Environmental Impact Statement ("EIS") including detailed forecasting on noise emissions. The EIS included detailed analysis of the likely noise impacts on an area by area basis. The likely exceedance of the noise of the trams over the background noise was rated into three categories: *"slight"*, *"moderate"* and *"significant"*. Where necessary, mitigation measures in the form of acoustic screening were proposed for certain areas.

236. The application was published and any persons likely to be affected had a statutory entitlement to make submissions to the Minister. The Minister was mandated to appoint an inspector to conduct a public inquiry and submit a report of the resulting findings and recommendations. All affected landowners and occupiers and other interested parties were entitled to appear at the inquiry.

237. Judge Sean O'Leary ("the inspector") was appointed as inspector to conduct the inquiry which proceeded in three stages considering first, the *prima facie* need for the light rail, secondly whether the scheme was practicable, viable and safe and thirdly the impact of the Green Line on local communities. The issue of noise and vibration was a key issue to the third stage. The inspector heard evidence from an acoustic engineering consultant who had contributed to the sections of the EIS on noise. The inspector considered the area by area analysis conducted by this expert, commended the objectivity of his evidence and ultimately concluded that if operated in accordance with the noise conditions set out in the EIS, the noise and vibration impacts of the LUAS would be "*slight*". The inspector recommended the inclusion of detailed noise conditions in the Line B order together with general conditions in relation to monitoring noise emissions.

238. S.I. No. 280/1999- Transport (Dublin Light Rail) Act, 1996 (Line B – St. Stephen's Green to Sandyford Industrial Estate Light Railway) Order, 1999 ("the Line B Order") promulgated in September 1999- expressly authorised the construction and operation of the

Green Line and as recommended by the inspector, included a condition (condition 28) obliging RPA's predecessor ("NPS") to agree daytime and night-time limits at each relevant location with the appropriate local authority. Condition 28 further required that; in default of agreement, such matters would be determined by the Minister.

239. Two particular findings assist in understanding the significance of *Smyth v. RPA* to the issues at hand. First, Laffoy J. found that - as NPS had not in fact sought to agree or have such limits determined, condition 28 had not been complied with. Second, the court found, as a fact, that the LUAS operated in accordance with the conditions set out in the EIS and also within the more exacting limits published by the National Roads Authority in October 2004.

240. The courts' reasoning in *Smyth v. RPA* has two primary components.

First component of court's reasoning in *Smyth v RPA* - possible application of the defence of statutory authority

241. First, Laffoy J. determined that if the Green Line had been operated in strict accordance with the Line B Order, then that would be a complete answer to the claim in nuisance. In such circumstances the defendants would be operating the Green Line in accordance with the law and there could be no question of the perpetration of a civil wrong. Thus, at para. 3.7, Laffoy J. states:

> *"The real issue, the liability of the defendants for noise generated by the operation of the Green Line, is primarily determined by what the Acts of the Oireachtas and the secondary legislation under which the defendants operate the Green Line authorise them to do."*

242. Paragraph 32.10 is to broadly similar effect:

> *"The defendant is a statutory body, which by virtue of (the 1996 Act) has power to operate the Green Line in accordance with the terms of the Line B Order. If, as a matter of the proper construction of the Line B Order, the defendants are entitled to operate the Green Line at the rear line of No. 3 in the manner in which they are operating it, they are operating it in accordance with law, that is to say, in accordance with an Act of the Oireachtas and the secondary legislation made under it, both of which enjoy the presumption of constitutionality and that is a complete answer to the plaintiffs' claim. Alternatively, if the defendants are not operating the Green Line at that location in accordance with the terms of the Line B Order, the ordinary principles of common law apply in the defence to the plaintiffs' claim for nuisance."* (Emphasis added)

243. Counsel for the defendant invoked the language of para 32.10 and submitted that, *"at a high level"* its logic provided a *"complete answer"* to the plaintiffs' claim in the present case. This aspect of the defendant's approach is somewhat contradictory. On the one hand it accepts that these passages in *Smyth v. RPA* concern the defence of statutory authorisation and cannot be read across to a grant of planning permission. On the other hand, it relies upon para 32.10 (and similar passages) to argue that because the planning permission for the Ballyduff turbines sets specific noise limits (with which it is asserted it complies), this provides a complete defence to a claim in nuisance in a manner equivalent to that provided by the Line B Order.

244. This cannot be correct. This component of Laffoy J.'s reasoning concerns an argument based on the defence of statutory authority. *Smyth v. RPA* does not support an argument that compliance with specific noise limits in a planning permission is necessarily a complete answer to a claim for noise nuisance. There is a difference between development specifically authorised by legislation and development on foot of a decision made by a planning authority in the form of a single planning permission. Indeed, it is relevant to note that although she reviews Irish and England & Wales authorities in relation to the impact of planning decisions on nuisance, Laffoy J. ultimately considered these authorities to be of "*little relevance*" to the case before her.

Second component of court's reasoning in *Smyth v. RPA*-"*wholly reliable indicator*"

245. The second component of Laffoy J.'s reasoning – pithily framed in the concluding sentence of para 32.10 (see above) - was that because the Line B Order had not in fact been strictly complied with (due to non-compliance with condition 28), the ordinary principles of common law applied in assessing the claim to nuisance. As the present case does not concern the defence of statutory authority, it is this second component which is of direct relevance.

246. Laffoy J. observed that the kernel of the plaintiffs' case was that the Green Line subjected them to serious noise nuisance, including sleep disturbance. Laffoy J. accepted the *bona fides* of the Smyths and concluded that there was no doubt on the evidence that they subjectively perceived that the operation of the Green Line interfered with the ordinary comfort and enjoyment of their home. However, the existence of nuisance is established by applying an objective standard. The defendant emphasises to this court that, in determining what that objective standard was, Laffoy J. adopted the noise conditions set out in the Line B Order itself.

247. The crucial passage of the judgment upon which the defendant places most reliance appears at para. 34.2:

> *"Even though the Line B Order has not been strictly complied with in the operation of the Green Line by the defendants since 2004, because of non-compliance with condition 28, the process which led to the making of the Line B Order in accordance with the Act of 1996, and its outcome, in my view, is a wholly reliable indicator as to what the ordinary person whose requirements are objectively reasonable would expect in terms of noise control and noise mitigation in the operation of the Green Line.*
>
> *"Every person who was likely to be affected by the operation of the Green Line had a statutory entitlement to make submissions to the Minister and to attend at the public inquiry conducted pursuant to the Act of 1996 and to make submissions,* inter alia, *on the proposals in the EIS in relation to noise and to noise mitigation. The question of noise was addressed at the public hearings and in the Inspector's report. He took cognisance of the views of the members of the public who appeared and made representations. On the basis that the projected noise levels identified in the EIS would be observed, and subject to compliance with conditions in relation to specific areas, and the general condition in relation to monitoring and fixing day-time and night-time limits, the Inspector found that the noise aspects of the project appeared to be satisfactory. There has been no challenge to that finding.*
>
> *...Therefore, I consider that I am entitled to treat the inspector's finding* [that the noise aspects of the project as set out in the EIS was satisfactory] *as the starting point of identifying the yardstick in applying the objective test. But for the fact that it has not been fully implemented, as conditioned into the Line B Order by (the NPS), it would be conclusive."*(Emphasis added)

248. Here, Laffoy J. is not solely concerned with the defence of statutory authority but with the common law principles governing the tort of private nuisance. The learned judge considered that the noise conditions in the EIS and the Line B Order were a proxy for the objective test of what is reasonable. She was satisfied that the inspector's finding in relation to the noise levels predicted in the EIS were a "*wholly reliable indicator*" as to what the ordinary person whose requirements are objectively reasonable would expect in terms of noise control. Therefore, operation of the Green Line within the noise levels predicted in the EIS – which were conditioned in the Line B Order - did not infringe the comfortable and healthy enjoyment expected by an ordinary person whose requirements are objectively reasonable in the particular circumstances. Laffoy J. therefore held that the Smyths had not established nuisance.

The proposition of law contended for by this defendant

249. This defendant effectively seeks to substitute the words "*the 2004 planning permission*" for the words "*the process which led to the making of the Line B Order in accordance with the*

Act of 1996" in para. 34.2 of Laffoy J.'s judgment. Counsel opened this particular passage to the court and stated, *"we say exactly the same thing pertains here."*- in other words that the limits in the permission are, as a matter of law, a wholly reliable indicator of what is objectively reasonable in terms of noise.

250. However, this aspect of Laffoy J.'s finding in *Smyth v. RPA* was based on the evidence before her. Weight is placed on the statutory genesis of the process culminating in the Line B Order. Weight is also placed on the robustness of the process, the evident depth of the consideration of the noise impacts complained of and the need for acoustic barriers. All this provides the context for Laffoy J.'s finding that the noise limits were *"a wholly reliable indicator"*.

251. This is evident from the very passage relied upon by this defendant (para. 34.2) in which Laffoy J. highlighted the following pertinent aspects of the statutory process and the resulting noise conditions: (a) every person who was likely to be affected by the operation of the Green Line had a statutory entitlement to make submissions; (b) such a person had a statutory entitlement to attend at the public inquiry and to make submissions *inter alia* on the proposals in the EIS in relation to noise limits and mitigation; (c) the question of noise was addressed at the public hearings and in the inspector's report; (d) the inspector took cognisance of the views of the members of the public who made representations; (e) the inspector determined that on the basis of the projected noise levels and mitigation measures identified in the EIS the noise impact of the project would be satisfactory and (f) there had been no challenge to that finding. These factors permitted the court to treat the inspector's finding as the yardstick to be applied in determining the objective test.

252. It cannot be gainsaid that the process under consideration in *Smyth v. RPA* was not only of statutory origin; it also incorporated a searching and comprehensive investigation, analysis and assessment of all noise aspects of the project. The relevance of these considerations to Laffoy J.'s finding is further evident at para. 34.9. Laffoy J. stated that if the NPS had complied with condition 28 and if the daytime and night-time limits set had accommodated the level of noise complained of by the Smyths then "... *that would have been the end of the matter."* She continued:

> *"The defendants would be operating the Green Line in accordance with the law and there could be no question of the perpetration of a civil wrong on the plaintiffs. Where, in pursuance of a statutory process*

of the type formerly provided for in the Act of 1996, and now provided for in the Act of 2001, standards are established for permitted environmental effects and impacts of the construction and operation of a major public infrastructure, such as a public transport system, those are the standards by reference to which the statutory undertaker is authorised and required to act. In such circumstances, it is not open to an occupier of property in the vicinity of the infrastructure to contend that some other standard should be applied. In this case, in my view, as a matter of law, it was not open to the plaintiffs to contend that the Green Line must be operated in accordance with the WHO guidelines or the BS Code requirements so as to avoid committing a nuisance."(Emphasis added)

253. This finding of the court was on the evidence before it. The statement of principle expressed in this passage may not simply be applied to a totally distinguishable process such as a grant of planning permission for a single windfarm, particularly where (as will be further discussed below) that process does not reveal detailed consideration of the impact of WTN. In short, the above passage does not support the proposition of law advanced by this defendant.

Key item of evidence/ wholly reliable indicator of what noise is reasonable?

254. The defendant also relies upon *Smyth v. RPA* to argue that the planning permission is "*a key item of evidence*" establishing that the expectations of an objectively reasonable person *"have not been exceeded"*.

255. However, there is no comparison between the statutory process culminating in the Line B Order and that culminating in the granting of Ballyduff planning permission and, in particular, the adoption therein of the condition 15 noise limits.

256. The process leading to the grant of permission in this case was as follows. On 25th November 2003, the defendant applied to Wexford County Council ("the planning authority") for planning permission. The application includes no specific information on expected noise emissions. In contrast to the large number of submissions considered by the inspector prior to the making of the Line B Order, although duly advertised, no submissions were made by any affected landowners in relation to the Ballyduff application generally or in relation to the anticipated noise aspects specifically.

257. The report prepared by the planning authority's planner ("the planner's report") of 22nd January, 2004 noted that the proposed site was in an elevated rural area which might prove suitable for a windfarm. Whilst the planning authority had not yet formally adopted a wind

strategy for the locality, the draft strategy identified certain areas in north Wexford where windfarms could be encouraged and the proposed Ballyduff turbines were in one such designated area. In contrast to the inspector's highly specific, area by area consideration of the likely noise impacts of the Green Line, the planner's report contains no assessment – formal or otherwise - of the likely levels of background noise or of the potential impacts of WTN (or shadow flicker) on residential amenity.

258. On 16th April, 2004, the planning authority granted permission for a period of 20 years duration. Condition 15 provided that noise levels from the proposed development when measured at the nearest inhabited house shall not exceed 40 dBA leq and 45 dBA leq at windspeeds of 5m/s and in excess of 10 m/s respectively. Beyond stating that the noise limits set out in condition 15 were "*In the interests of residential amenity and the proper planning and development*", the rationale for the selected noise limits is not elucidated. Although I believe the noise limits broadly reflect the limit of 40 dBA leq generally recommended in WEDG 1996, there is no express reference to that guidance.

259. As the grant of permission was not appealed, there was no consideration by An Bord Pleanála – or its inspectors – of the anticipated noise impacts.

260. Therefore, whilst it goes without saying that the permission is a "*planning consent ... given after due process for a development*" (in the words of Charleton J. in *Lanigan v Barry*,), the process is not comparable to the process held by Laffoy J. in *Smyth v. RPA* to establish a wholly reliable indicator of what is reasonable in terms of noise impacts.

Planning permission does not fully regulate the matter complained of

261. In any event, even if the specific noise limits set out in the planning permission were a wholly reliable indicator of what is objectively reasonable in this locality in terms of absolute noise levels, this would not assist the defendant for two important reasons.

262. First, the Ballyduff permission essentially regulates WTN decibel levels only. Although the ETSU approach takes into account blade swish and absorbs a certain level of AM into the recommended noise limits, AM values were then anticipated to be in the order of 3 dBA and of the swish variety. The ETSU methodology - upon which both the Ballyduff planning permission and WEDG 2006 is based - cannot therefore establish a yardstick for the particular

aspects of the WTN complained of by the plaintiffs in this case, high AM values, thump AM and the intrusion and dominance that accompanies those features. Neither the Ballyduff permission nor the planning file as a whole reveal any consideration, assessment or regulation of these features of WTN. How then can the permission comprise a wholly reliable indicator of whether the noise characteristics complained of here - high AM values and thump AM etc - are objectively reasonable?

263. Second, for reasons which I will explain below, compliance with the noise limits in the Ballyduff planning permission is not in any event demonstrated. Therefore, even if a grant of planning permission were to provide an absolute defence to a private nuisance action or to provide a wholly reliable indicator of what WTN must be considered reasonable at this location, it could not on the facts provide a defence in this case.

264. In short, I find that neither as a matter of law nor fact is the permission a wholly reliable indicator of what is objectively reasonable at this locality in terms of WTN.

The condition 28 argument

265. The defendant makes a related argument that if a development benefits from planning permission, but that permission does not fully regulate aspects of the noise complained of (AM, particularly, thump AM), then the court must (a) attempt to ascertain whether, and if so, how the planning authority might have regulated this impact had it directed its mind to it and (b) proceed accordingly.

266. This argument is based on a specific aspect of *Smyth v. RPA*. At 34.2, Laffoy J. stated:

> *"However, in light of what I consider to be the proper construction of the Line B Order and in particular, condition 28, it is necessary to consider what day-time and night-time limits would have been agreed to, or determined, if the (NPA) had complied with condition 28 prior to the commencement of operation of the Green Line in 2004 and to consider whether the operation of the Green Line at the rear of No. 3 would have come within those limits"*

267. In other words, having determined that the RPA had not complied fully with the terms of the Line B Order by failing to set specific daytime and night-time limits, Laffoy J. turned to consider as a matter of probability what daytime and night-time limits might have been agreed or determined had condition 28 been complied with.

268. The defendant gears off this logic to argue that as a matter of law this court is confined to considering *"what...*[AM] *limits...would have been ... determined"*, by the planning authority at the time of the grant of permission in 2004.

269. However, this misses the rationale for Laffoy J.'s approach to the condition 28 issue. Consideration of what daytime and night-time limits might have been set under the Line B Order was relevant for two reasons. First, because, correctly construed, this is what condition 28 required. The exercise was therefore performed to simulate what would have occurred had the statutory process been correctly complied with. Second, such consideration was relevant in light of the court's finding that, for reasons I have already explored, the noise limits which would have been set in accordance with the statutory process (and all it entailed) were themselves a wholly reliable indicator - a conclusive yardstick - for what was objectively reasonable. This aspect of the *Smyth* case is in my view *sui generis.*

270. I therefore cannot accept the defendant's submission. The court is not bound by the approach that the planning authority might have taken in relation to AM in 2004. At that time, this feature of WTN was, to put the matter neutrally, incompletely understood.

Curial deference

271. In *Kelly v Simpson* [2008] IEHC 374, Charleton J. noted that:

> *"The effect of a planning decision can be that what would have been a nuisance because of the intrusion on the quiet, comfort and enjoyment of those occupying the area, as it was prior to the lawful grant of a development through planning permission, may be changed into something which those living in the area will simply have to tolerate ... Those who are elected to fulfil the role of the local planning authority can be hoped to take a longer term view as to how the development of their area could best be effected through fitting in housing and industry within an appropriate setting and without ruining the economic draw of an area."*

272. The defendant in the case before me accepts that the granting of planning permission does not create an immunity from being sued for nuisance. It nonetheless contends that very significant weight must be attached to the views of the planning authority. When asked to identify an authority in support of this proposition, the defendant points to a passage from *Lawrence & Anor v Fen Tigers Ltd & Ors* [2014] 2 All ER 622, in which the Supreme Court accepted that there are circumstances in which the terms of a planning permission will be relevant in a nuisance case, with Lord Neuberger stating as follows at paragraph 96:

> *"However, there will be occasions when the terms of a planning permission could be of some relevance in a nuisance case. Thus, the fact that the planning authority takes the view that noisy activity is acceptable after 8.30 am, or if it is limited to a certain decibel level, in a particular locality, may be of real value, at least as a starting point as Lord Carnwath says in para 218 below, in a case where the claimant is contending that the activity gives rise to a nuisance if it starts before 9.30 am, or is at or below the permitted decibel level. While the decision whether the activity causes a nuisance to the claimant is not for the planning authority but for the court, the existence and terms of the permission are not irrelevant as a matter of law, but in many cases they will be of little, or even no, evidential value, and in other cases rather more."*

273. This passage is hardly a ringing endorsement of the proposition for which the defendant contends - i.e., that the court is bound to accept the planning conditions as a wholly reliable indicator of what is reasonable in terms of noise impact.

274. In a slightly different argument, the defendant contends that the planning permission is a *"pre-baked"* determination of what is reasonable. It is argued that an assessment of what WTN a reasonable person would be prepared to put up with at this location is "*hardwired into the process*" leading to the grant of permission.

275. This, the defendant asserts is evidenced by the fact that the noise limits in the Ballyduff permission reflect and incorporate (a) planning guidance at the time of the grant of permission, (b) the practice of planning authorities and An Bord Pleanála at the time of the grant of permission (c) current planning guidelines, i.e., WEDG 2006 and (d) current expert scientific knowledge both nationally and internationally in relation to the regulation of windfarm noise.

276. I cannot agree.

(a) Planning guidance at the time of the grant of permission

As I explain below at para 285 *et seq*, as the defendant interprets the Ballyduff permission, the noise limits do not in fact reflect or comply with WEDG 1996 which was the applicable planning guidance at the time of the grant of permission[37]. Conversely, as I will also explain at para 301 *et seq* below, if the Ballyduff permission is interpreted in accordance with the

[37] WEDG 1996 provides that noise levels measured externally at any dwelling house should not exceed 40 dBA Leq and yet the defendant argues that the planning permission permits noise levels of 45 dBA Leq for all windspeeds over 5 m/s.

applicable noise limits in WEDG 1996, then total operational noise exceeds the condition 15 noise limits.

(b) the practice of planning authorities and An Bord Pleanála at the time of the grant of permission

Planning practice at the time of the grant of permission was by no means homogenous. Mr. Lawlor furnished the court with 28 different planning decisions taken by a range of planning authorities and by An Bord Pleanála as representing planning practice roughly contemporaneous with the grant of the Ballyduff permission. Approximately half of these planning permissions applied a 5 dB penalty to WTN if the noise contained *inter alia* distinct impulses such as bangs, clicks, clatters or thumps or if the noise was irregular enough in character to attract attention. Clearly therefore, even at the time of the grant of permission, certain planning authorities and An Bord Pleanála were attempting to regulate and limit precisely the kind of characteristics of which the plaintiffs here complain. In light of this I find it difficult to see how the defendant can maintain that a planning permission which sets only an absolute decibel limit and effectively ignores AM reflects planning practice at the time of the grant of permission.

(c) Current planning guidelines, i.e., WEDG 2006

and

(d) current expert scientific knowledge both nationally and internationally in relation to the regulation of windfarm noise

Although I accept for the sake of argument that the noise limits in the Ballyduff permission and indeed the WTN itself comply with WEDG 2006, I cannot accept the defendant's submission that *"the permission limits continue to reflect the current combined wisdom and expertise of appropriately qualified experts as to what levels of WTN would and would not be objectively reasonable"*. Although the defendant contends that the permission complies with draft WEDG 2019, a comparison would not support this proposition. The essential methodology of draft WEDG 2019 sets maximum decibel limits by reference to background noise and penalises "excessive" AM. Demonstrably a permission which permits noise emissions up to 43 dBA L90 without regard to either background noise or possible AM impact does not reflect draft WEDG 2019.

Conclusion on issue 1

277. Depending upon the evidence, the court may in a nuisance action place considerable weight on the terms of a planning permission. The fact that the planning authority takes the view that a particular noise is acceptable at a particular locality, may be highly relevant. However, there is a spectrum of relevance depending upon the circumstances. At one end of the spectrum are cases where there is no assessment at all of the matter complained of. Such planning permissions are likely to be of no relevance in a nuisance case. At the other end of the spectrum are cases where the particular aspect of the development complained of is the subject of detailed conditions reflecting modern guidance and best practice. Such permissions (and the planning guidance on which they are based) are likely to constitute a strong indicator of what is objectively reasonable. At the mid-point will be cases where, for example the planning permission is opaque in its rationale, where the science in the area has moved on since the grant of permission or where the particular matter complained is incompletely regulated by the permission. Such permission is certainly not irrelevant to the nuisance assessment; but, in a WTN case, it can only assist on those aspects of the WTN which it purports to regulate.

278. I find that, at best, the Ballyduff planning permission is at this mid spectrum point. The permission regulates only one aspect of the WTN, the absolute decibel limit. The basis for the decibel limit chosen is unclear. Scientific knowledge and best practice now establish that significant elements of the noise impact are not regulated by the permission.

279. Indeed, the defendant's argument that the noise limits set out in the permission are paramount is particularly weak here. Although the planning permission was granted in 2004, it was not implemented until 2017 due to grid connection difficulties. If the permission had been implemented in April 2004, the turbines would be de-commissioned in the next few months. When such a long hiatus ensues between grant and implementation of a permission, there will always be a risk that evolution in scientific knowledge and amenity standards will bear down on the operation of the development.

Issue 2: Is compliance with the planning permission demonstrated?

Issue 2 (a): For the purposes of the nuisance case, which party bears the onus of demonstrating compliance or non-compliance (as the case may be) with the noise limits in the planning permission?

280. An unusual feature of this case is that, although the planning permission is a key piece of evidence, neither party had apparently adverted to an obvious ambiguity in the noise condition in the planning permission.

281. Condition 15 states:

> *"15. Noise levels from the proposed development when measured at the nearest inhabited house shall not exceed 40dBA (15 minute leq)[38] at a windspeed of 5 metres per second and 45dBA (15 minute leq)[39] at a windspeed in excess of 10 metres per second. Measures shall be made in accordance with I.S.O. Recommendations R1996/1 'Acoustics – Description and Measurement of Environmental Noise. Part 1 : Basic qualities and procedures...'*

282. It is clear that at a windspeed of 5 m/s, WTN may not exceed 40 dBA leq. It is also clear that at windspeeds in excess of 10 m/s, WTN may not exceed 45 dBA leq. However, the permission does not specify the applicable limit at windspeeds between 5 m/s and 10 m/s. There is therefore an ambiguity in the permission. Moreover, the resolution of this ambiguity impacts on whether or not the defendant has demonstrated that the WTN complies with condition 15.

283. The defendant suggests that the resolution of this ambiguity is not a justiciable issue in the context of the nuisance case because the plaintiffs have not pleaded any specific breach of the condition at windspeeds between 5 m/s and 10 m/s. I am satisfied that in the nuisance action, the defendant bears the onus of proving the defence advanced; namely that the WTN complies with the permission, correctly interpreted.

284. As it was therefore apparent that this ambiguity in the permission had to be resolved, I re-listed the matter and heard legal submissions from both parties on the interpretation of the permission. Although I take the view that the interpretation of a planning permission is primarily a legal matter for the court and does not turn on factual or expert evidence, I also afforded the parties an opportunity to call such further evidence as they deemed necessary

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[38] For brevity, 40dBA leq
[39] For brevity, 45dBA leq

either relating to or arising from this issue. The defendant re-called its acoustician, Mr. Carr, and its planning expert, Mr. Lawlor, who both gave evidence on the interpretation of condition 15. The defendant did not call further evidence to demonstrate that the WTN complied with the permission as interpreted by its counsel in argument or as interpreted by the testimony of its experts (which were quite different). Nor did the defendant call evidence on whether the WTN complied with the permission limits as interpreted by the plaintiffs. The plaintiffs did not consider it necessary to call any further evidence concerning the interpretation of the permission or relating to whether the WTN complied with the permission limits.

Issue 2(b): What is the correct interpretation of the noise limits in the permission?

285. As noted in Simons on Planning Law, 3rd Ed'n (Browne) at 1-141: Planning permission enures for the benefit of the land, and all persons who may be interested. A planning permission is therefore to be construed objectively, with the words given their ordinary and natural meaning, as would be understood by members of the public without legal training, as well as by developers and their agents. It appears that there are four alternative constructions of condition 15.

I. The interpretation urged upon the court by the defendant's experts Mr. Carr and Mr. Lawlor is that condition 15 sets only two defined limits; namely a limit of 40 dBA leq at 5 m/s and a limit of 45dBA leq at 10 m/s. If the WTN complies with these two specific limits, then that is the end of the matter. The defendant's experts therefore maintain that there is no noise limit at windspeeds between 5 m/s and 10 m/s. I pause to note that this was not the interpretation urged by counsel for the defendant in legal submissions to the court.[40]

Mr. Carr argued that this interpretation is in compliance with WEDG 2006 which permits WTN of up to 45 dBA L90 without apparent reference to windspeed. However, any suggestion that one should interpret the permission by reference to WEDG 2006 is entirely incorrect. No evidence has been given that these guidelines were available, even in draft form at the time of the grant of this permission in April 2004. Indeed, even if they had been published in draft form, they could not inform the interpretation of the permission until formally adopted.

By contrast, whilst extrinsic evidence may not generally be admitted in the interpretation of a planning permission, as the present permission is ambiguous, regard

[40] See part III below.

may be had to WEDG 1996 which provides the policy context referable to the determination of the planning permission. WEDG 1996 proceeds on the assumption that WTN is most perceptible at lower windspeeds because of lower background noise. As such, it is all the more difficult to discern a valid rationale for apparently imposing a noise limit at 5 m/s and at 10 m/s but imposing no limit between 5 m/s and 10 m/s. Where appropriate, a planning permission is to be given a purposive interpretation to achieve its objective. The interpretation contended for by the defendant's experts would rob condition 15 of much of its utility. The turbine reaches maximum power output at approximately 9 m/s and, on the interpretation contended for, would at that point be subject to no noise limit.

As WEDG 1996 viewed WTN as being most impactful at lower windspeeds, this suggests that the intent of condition 15 was to control noise levels at low as well as at high windspeeds. Members of the public will give a planning permission a common sense interpretation, not a technical interpretation. It is in my view most unlikely that ordinary and reasonably informed members of the public without legal training would favour an interpretation which would permit the turbine to reach its natural maximum power out-put with no applicable noise limit.

The defendant's experts stated that as wind rises, so too does speed of rotation and consequently WTN. They therefore argue that, by definition, if WTN is no greater than 45 dBA leq at windspeeds of, or in excess of, 10 m/s, then compliance with that limit at lower windspeeds can be assumed. Conversely, if WTN were to rise to e.g., 50 dBA leq at a windspeed of 7 m/s, then it would necessarily also be significantly higher than 45 dBA leq at a windspeed of 10 m/s. Hence, they argue, it is necessary only to measure compliance at these two specified levels.

This ignores the fact that the turbine might require to be de-rated and operated in a constrained mode in order to secure compliance with the permission noise limits. Indeed, it is common case that noise emissions for this model of turbine are predicted to climb by 14 dBA leq between cut in speed (which is slightly below 5m/s) and maximum power output (at approximately 9 m/s). If WTN is already or close to 40 dBA leq at comparatively low windspeeds (between 5 m/s and 10 m/s) then an increase of 14 dBA leq would bring WTN at maximum power output at 9m/s to a level substantially in excess of the 45 dBA leq permission limit. In short, even if compliant at 5m/s and/or 10 m/s, unconstrained, WTN might considerably exceed the condition 15 limits at windspeeds of 6m/s, 7m/s, 8m/s and 9m/s.

Therefore, one cannot comfortably assume that simply measuring noise emissions at 5 and 10m/s will necessarily protect residential amenity from WTN at these intermediate windspeeds. On the contrary, ensuring compliance at all windspeeds might require operational constraints and such operational constraint must be benchmarked against some noise limit. I therefore take the view that there must therefore be some noise limit between 5 m/s and 10 m/s. The question is: what is that noise limit? There are three candidates.

II. One might conceivably interpret the permission as providing that WTN may not exceed 40 dBA leq at 5 m/s and 45 dBA leq for all windspeeds above that. In a moment of refreshing harmony, neither party contended that this was the correct interpretation. I agree. This is a most unlikely interpretation as the permission specifically uses the words *"in excess of 10 metres per second"*, in permitting noise of 45 dBA leq. To interpret the permission as permitting noise of 45 dBA leq at windspeeds between 5 m/s and 10m/s would be to wholly ignore the words *"in excess of 10 metres per second"*.

III. The interpretation urged upon the court in the defendant's legal submissions[41] is that the noise limit permits WTN to increase incrementally between 5 m/s and 10 m/s, such that the noise is limited to 40 dBA leq between 5 m/s and 6 m/s, 41 dBA leq between 6 and 7 m/s, 42 dBA leq 15 between 7 and 8 m/s, 43 dBA leq 15 between 8 and 9m/s, and 44 dBA leq 15 between 9 and 10 m/s. This interpretation would require the court to insert detailed text into the condition to govern these intermediate windspeeds. If such a sliding scale of noise limits was the intended meaning, one would expect the permission to specify the interval windspeeds and corresponding noise limits. One would at the very least expect the condition to reference the principle of a sliding scale.

IV. The interpretation for which the plaintiff contends is that noise levels may not exceed 40 dBA leq at windspeeds of between 5 m/s and 10m/s and that the higher limit of 45 dBA leq only applies for windspeeds in excess of 10 m/s.
WEDG 1996 provides that generally noise levels measured externally at any dwelling house should not exceed 40 dBA leq. As the condition 15 limit of 45dBA leq is

[41] Albeit not supported by the defendant's experts.

considerably in excess of this generally applicable limit, there is little reason to assume it should be engaged at lower windspeeds.

Rather, it is reasonable to interpret the condition as reflecting the assumption that because background noise is lower at low windspeeds, this is when the impact of WTN is greatest. It is reasonable to assume that the permission means just what it says and is intended to restrict noise levels to the generally recommended limit of 40 dBA leq until windspeeds were comparatively high - in excess of 10m/s - at which point an uplifted limit of 45 dBA leq was judged acceptable.

I note that Mr. Carr indicated that he would not expect WTN to be as high as 40 dBA leq at the cut in speed of 4 m/s or 5 m/s. This is consistent with an interpretation pursuant to which the noise levels are permitted to gradually rise from a low base at cut in speed to 40 dBA leq at 10 m/s, but not beyond that until windspeeds exceed 10 m/s. A natural gradual ramp up of WTN with windspeed to 40 dBA leq is thus catered for.

286. In short, it is my view that, logically, some noise limit must apply at windspeeds between 5 m/s and 10m/s. Both the specific wording of the condition and the policy context drive me to the conclusion that the relevant permission limit between 5 m/s and 10 m/s is 40 dBA leq.

287. I emphasise that I do not purport to interpret any planning permission other than the one now before me. In particular, if similar wording were to appear in a windfarm permission granted after WEDG 2006, then this might affect matters. WEDG 2006 permits noise levels up to 43 dBA L90 (45 dBA leq) and 45 dBA L90 (47 dBA leq) for night-time and daytime, respectively. With reference to these guidelines, therefore, the argument that the permission is intended to limit WTN generally to 40 dBA leq would be significantly weaker.

Technical approach to assessment of compliance with planning compliance

ETSU approach

288. I accept the defendant's argument that although not expressed as such, condition 15 is an ETSU derived limit. The defendant's approach was therefore to assume that if the total operational noise is below the level set in condition 15, planning compliance may definitively be concluded. I accept that this approach complies with ETSU.

289. I also accept the defendant's contention that in accordance with standard practice, the GPG and Supplementary Guidance Note 5 govern the technical aspects of compliance (windspeed calculation, sound measurement, data collection, data filtering etc). [42]

290. Technical aspects of compliance are also referred to in condition 15 itself which states that measurements shall be made in accordance with ISO 1996-1, "*Description and measurement of environmental noise*" (ISO 1996). ISO 1996 comprises 3 parts. Part 1, which does not deal with measurements *per se* but rather with "*Basic quantities and procedures*", and cross - refers to Part 2; "*Acquisition of data pertinent to land use*" ("ISO 1996-2"). ISO 1996-2 which includes recommendations on measurement methodologies has been updated twice since 1996; in 2007 and 2017 ("ISO 1996-2, 2017") respectively. As the parties agree that it would not be standard practice to apply these later editions to a planning compliance assessment, I will apply the 1996 version.

291. The application of the following principles in assessing planning compliance are, to a greater or lesser extent in dispute. On each such contest, I prefer the defendant's approach.

L90

292. In measuring noise levels, the defendant's expert, Mr. O'Reilly used the L90 rather than the Leq metric specified in condition 15. The plaintiffs object on the basis that the L90 metric will have a smoothing effect on intermittent noise sources and will therefore fail to represent AM. Further, as L90, is a measure of the sound power level exceeded 90% of the time, it will of necessity be lower than the leq sound power level. Its use, however, is standard practice in the ETSU methodology which uses a conversion metric of plus 2 dBA as between L90 and Leq. The defendant's expert adopts this approach which I accept as an entirely legitimate approach.

[42] As we will see, the GPG/ Supplementary Guidance Note 5 are of particular relevance to the impact of wind direction on noise levels at the plaintiffs' houses in assessing planning compliance ("directionality").

10 or 15 minute leq?

293. Condition 15 sets the noise limits by reference to 15-minute leq intervals. However, I accept that, because the SCADA data is recorded in 10-minute intervals, it was appropriate to assess compliance by reference to 10 minute intervals.

Windspeed

294. Because windspeed varies with turbine hub height (which differs from turbine to turbine), setting noise limits by reference to hub height windspeed would result in inconsistency. A formula was therefore developed pursuant to which, irrespective of the hub height of the turbine, windspeed is extrapolated down to a 10 metre height using a standard wind shear profile. This enables sound emissions from turbines of different physical heights to be compared and regulated. The GPG states that unless otherwise stated, reference to windspeed is to the 10-metre standardised windspeed.

295. The defendant's planning compliance evidence and argument was presented as against both standardised 10 metre height windspeed and hub height windspeeds (without contending for either one or the other). As argued by the defendant I apply the GPG in other contexts. In the interests of consistency therefore, I will proceed on the assumption that compliance is also to be assessed as against standardised 10 metre height windspeed.

296. As I understand it, the standard practice for plotting windspeeds is that bins are centred on integer windspeeds with a width of 1 m/s. For example, the 5 m/s bin would include all data at windspeeds of 4.5 to 5.5 m/s etc. When applied to this permission, this would mean that condition 15 permits WTN of 40 dBA leq for windspeeds of 4.5 m/s to 9.5 m/s and 45 dBA leq for windspeeds in excess of 9.5 m/s.

Filtering

297. To minimise the effects of extraneous noise sources, ETSU recommends that measurements are taken during quiet waking hours (1800-2300 hours on all days plus 0700-1800 hours on Sundays and 1300-1800 hours on Saturdays) and night hours (2300 to 0700). The defendant's compliance data is therefore limited to these times.

298. I accept the view of both parties that planning compliance should be assessed primarily by reference to night-time data. Mr. O'Reilly has filtered out all night-time data between the hours of 4am to 7am to exclude elevated noise levels due to extraneous bird song during the dawn chorus. Mr. Stigwood is critical of this approach which excludes over a third of the time data irrespective of the fact that the dawn chorus lasts for a comparatively short time.

299. Mr. Carr accepts that a more nuanced approach to filtering the dawn chorus might have been more appropriate, particularly because at higher windspeeds (i.e., at the right hand side of the graph) one would not expect the dawn chorus to have an appreciable impact on overall noise levels. However, having considered the GPG and Supplemental Guidance Note 5, I am satisfied that Mr. O'Reilly's approach is consistent with the ETSU methodology and I accept its validity.

300. Supplementary Guidance Note 5 provides that compliance measurements should be undertaken in downwind conditions unless there is a specific requirement to measure in other wind directions (such as complaints during cross wind conditions), and that all data except that corresponding to such conditions should be filtered out. Mr O'Reilly took this approach and filtered out all wind directions other than directly downwind of the turbine. Mr. Stigwood disputes the validity of this and maintains that the worst case noise propagation conditions at this site actually occur in crosswind conditions. For reasons I will explain, I accept the validity of the defendant's approach as being more consistent with Supplementary Guidance Note 5.

Issue 2 (c): What does the compliance data show? - Evidence tendered on planning compliance

301. Mr. O'Reilly carried out noise monitoring at NF from 18th May 2017 to 15th June 2017. His evidence is that the noise monitoring equipment was placed on a terrace in the back garden approximately 17 m from the house at a height approximately level with the eaves of the house. Mr. O'Reilly prepared two charts on foot of this monitoring and informed Mr. Brazil that the noise levels complied with the planning permission.

302. A month or so later Mr. O'Reilly was instructed to carry out monitoring at HH which he found strange. Mr. O'Reilly proceeded to conduct monitoring at HH between 6th August to 4th September, 2017. His evidence is that the noise monitoring equipment was placed on a bag

of sand in the patio at the back of the house 4.5 metres from the façade of HH, and 2.1 metres from the "end of" an adjacent garage door. Mr. O'Reilly informed Mr. Brazil that this monitoring also demonstrated planning compliance. He was, however instructed to hold off from writing a compliance report.

303. It was not until January 2021 that Mr. O'Reilly was instructed to write a compliance report. He was requested to present the HH data only. In the meantime, the NF noise monitoring data (referred to immediately above) appears to have gone missing and was only recovered from Mr. O'Reilly's computer in December 2022.

HH planning compliance data

304. The primary data advanced by the defendant was in the form of compliance graphs in respect of HH showing WTN in downwind conditions.

Incorrect measurement location

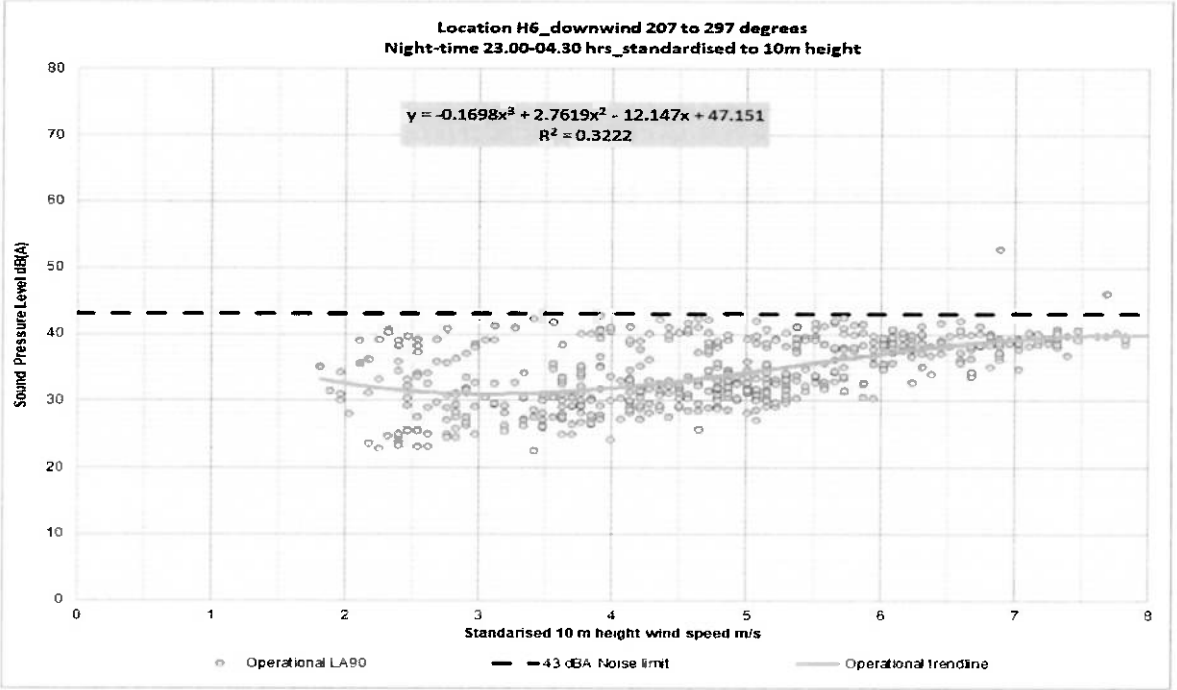
305. Condition 15 requires the measurement of noise levels at the nearest inhabited house. The nearest inhabited house is NF and not HH. Although as I say, Mr. O' Reilly took compliance measurements at NF in June 2017, for reasons which are not entirely clear to me, only the HH data was referenced in the defendant's experts' reports as the basis for the planning compliance assessment.

306. The defendant argues that as the two houses are only ten metres apart, it is unlikely that there is a substantial difference between their respective compliance levels. However, the data derived from HH and NF is quite different both as regards total operational noise and as regards the background sound levels they suggest.

307. As this was the approach taken by the defendant, I will consider the HH compliance data first. Having done so, I will turn to consider the NF compliance data.

Incorrect interpretation of condition 15

308. Mr. O'Reilly produced a number of graphs in which he presents total operational noise at HH during the period of his monitoring. The downwind HH night hours compliance graph (with the dawn chorus removed) is below.



309. Each data point represents a ten-minute period of noise measurements on the L90 metric. Each data point is therefore an average of the L90 noise levels (i.e., the noise level exceeded for 90% of the time during the 10-minute measurement period). In the graph below, these data points are then plotted as against windspeeds (standardised to 10 m), and a trend line is derived. This trend line represents an average of the data points which themselves represent the lowest 10% of the noise levels obtained. The trend line is then compared to the permission limits. In order to compare this data, which was on the LA 90 metric with the Leq metric used in the planning permission, Mr. O'Reilly applied a 2 dBA correction. He therefore assumed that the condition 15 limits of 40 dBA leq at a windspeed of 5 m/s and 43 dBA leq was 38 dBA L90 and the condition 15 limits at a windspeed in excess of 10 m/s was 43 dBA L90.

310. The above HH compliance graph demonstrates that the trend line is below 38 dBA L90 (40 Leq 10) at 5m/s and below 43 dBA L90 (45 Leq 10) at 8 m/s during quiet waking hours. Mr. O'Reilly therefore interpreted this graph as demonstrating compliance and the plaintiffs' expert did not demur in this particular respect.

311. However, neither expert had adverted to the ambiguity in condition 15. I have determined that, correctly interpreted, condition 15 limits WTN to 40 dBA leq between 5 m/s and 10 m/s. Although neither party's experts therefore tendered on this precise basis, the data

speaks for itself. It suggests that total operational noise at HH is in excess of 40 dBA leq for windspeeds in excess of 6 m/s.

312. Total operational noise above the permission limits does not of course establish planning non-compliance as the noise limit applies only to WTN and not to total operational noise. However, if total operational noise exceeds the noise limit, then the developer must ascertain and deduct background noise levels from total operational noise. The defendant has not carried out this exercise. Therefore, whilst non-compliance with the permission has not been conclusively demonstrated, nor has compliance been demonstrated[43].

Insufficient data

313. There is no data at moderate to high windspeeds on the HH night-time graph. Mr. O'Reilly stated that the NF data is far more complete, robust and overall "*better data*" than the HH data. Mr. O'Reilly had been happy with the NF data and expressed surprise that he had been asked to prepare a second set of readings. As such, it is hard to fathom the defendant's focus on the HH data to the complete exclusion of the NF data.

314. There is no noise data at HH during night hours at windspeeds above 8 m/s. It is not possible to reliably assess compliance at 8 m/s (which includes all data in the 7.5 to 8.5 windspeed bin) as there are no data points between 8 and 8.5 m/s. Indeed, there are apparently only 5 valid data points between 7.5 m/s and 8 m/s. Compliance at night may therefore only be assessed up to 7 m/s (which includes all data in the 6.5 m/s to 7.5 m/s windspeed bin). For the same reason one cannot assess compliance at windspeeds of 9, 10, 11, 12 etc m/s.

315. Mr. Carr's response to this problem was to rely upon the data collected during quiet waking hours which shows that total operational noise increased from 39.5 dBA L90 at windspeeds of 7m/s to 42.4 dBA L90 at 9 m/s. Mr. Carr suggests that one could assume the same increase at night-time thereby combatting the paucity of data above 8m/s at night. With respect, this is to urge a rather *à la carte* approach to compliance assessment. I have been referred to no guidance which would permit of such an approach.

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[43] I deal separately below with whether a façade level deduction may be made in light of the measurement location.

316. On the contrary, the GPG requires that compliance data reflect either likely worst case noise conditions or the conditions complained of by the complainant (or both). Supplementary Guidance Note 5 provides that it will usually be necessary to carry out noise monitoring for around 1 month to obtain the necessary range of windspeeds and wind directions to ensure that noise limits are being met for worst case downwind propagation conditions.

317. As the plaintiffs' greatest complaints are at higher windspeeds, the absence of data at moderate to higher windspeeds, means that there is no assessment of the potential worst case WTN. Further, whilst they also complain of noise intrusion during the day, the plaintiffs' primary complaint is of noise disturbing their sleep at night. Reliance on the quiet waking hours data at HH cannot fill the lacunae in the monitoring data.

318. This is no mere matter of detail. Although windspeeds during Mr. O'Reilly's monitoring were considerably lower, higher windspeeds are by no means unusual at this location. Mr. Carr prepared two tables of indicative windspeeds which show that windspeeds in excess of 7 m/s occurred 60% of the time during the MAS 2017 monitoring period and 35% of the time during the MAS 2021 monitoring period. Planning compliance clearly could not be established without including these windspeeds in the compliance data.

319. In addition, the inability to assess compliance at windspeeds in excess of 8 m/s means that even if I were to accept the defendant's expert's interpretation of the permission (which would require compliance testing at only 5 m/s and 10 m/s) compliance could still not be demonstrated. Nor, in the absence of data at the relevant windspeeds could compliance with the "sliding scale" interpretation contended for by counsel for the defendant be demonstrated.

Incorrect positioning for façade deduction

320. ETSU and Supplementary Guidance Note 5 require the placement of a microphone at a free field location, which as per ISO 1996-2 is at least 3.5 metres from the façade of a building. Mr. O'Reilly's report states that he positioned the microphone 4.5 metres from the façade of HH, and 2.1 metres from the *"end of"* an adjacent garage door. The measurements are neither free field measurements nor façade measurements, but a hybrid of both.

321. ISO 1996-2 states *"Note:-if measurements are made 1 to 2 m in front of the façade of a building...an approximation to the incident sound level may be obtained by subtracting 3dB from the measured value"*. Mr. O'Reilly relies on proximity to the garage door to make a deduction of *"at least 2 dBA"* from the measured values. There are two difficulties with this.

322. First, I am unconvinced of the robustness of these measurements insofar as concerns the location of his microphone. It was put to Mr. O'Reilly in cross-examination that his measurements were inaccurate, and that the monitoring equipment had in fact been placed 8.8 metres rather than 4.5 metres from the house façade. He freely conceded that this could be the case as he had only *"stepped out"* rather than measured distance to the house. This means that the reported measurements contain at least one significant inaccuracy, potentially almost doubling the distance from the house façade. It was also put to Mr. O'Reilly that he had also underestimated the distance from the microphone to the garage door. Mr. O'Reilly denied this and said that he had measured this distance with a tape measure. However, Mr. O'Reilly did not recall the site visits and did not take contemporaneous notes of same. As such, I must doubt the accuracy of a measurement first committed to paper several years after his site visit. This is not a reliable basis for claiming a 2 to 3 dB deduction in the measured sound levels.

323. Second, a façade deduction is dependent upon the angle of incidence as between the microphone and the façade. ISO 1996-2 applies this deduction to the measurements taken *"in front"* of the façade. In this case, the angle of incidence as between the microphone, the turbine and the contended for façade (the "garage door") is entirely unspecified. Mr. O'Reilly's report states that the microphone was positioned 2.1 metres from *"the end"* of the garage door, which does not suggest that it was perpendicular to the door. Indeed, nor do the photographs taken by Mr. O'Reilly of the monitoring equipment *in situ* so suggest.

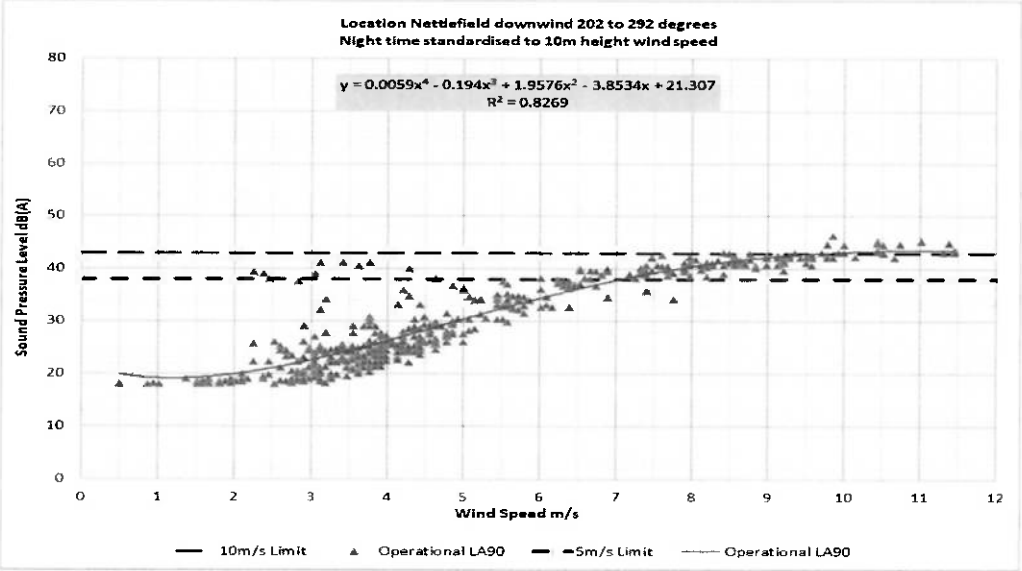
324. The onus is on the defendant to demonstrate planning compliance. In the absence of reliable measurements of both the distance to the façade and the angle of incidence, this is an exercise in conjecture. Whilst it is therefore perfectly possible (and indeed is likely) that some deduction should apply, one cannot without more know what that deduction should be.

325. In any event, this issue is largely academic as it appears unlikely that a 2-3dB reduction would bring total operational noise between 5 m/s and 10 m/s into compliance with the permission limit of 40 dBA leq.

NF planning compliance data.

326. On foot of his noise monitoring in May/June 2017, Mr. O'Reilly prepared downwind NF planning compliance graphs. However, these were not referenced in either Mr. O'Reilly's expert report or in Mr. Carr's reports. Further, no evidence was tendered in relation to the NF compliance data by the defendant's primary acoustics expert Mr. Carr over the course of his 7 days of evidence to the court. This data was only first introduced by Mr. O'Reilly on day 47 of the trial. In addition, notwithstanding repeated requests over a period of over five years the NF data was not at any stage furnished to the Carty-Shortens or to their solicitor. Furthermore, the NF data was not, (as the defendant accepts it ought to have been) included in the defendant's affidavit of discovery. In fact, the continued existence of the NF data only came to light in December 2022 during the course of the trial. It was first furnished to the plaintiffs on day 24 of the trial.

The downwind NF night hours compliance graph (with the dawn chorus removed) is below:



327. The NF graphs show that total operational noise exceeds the permission limit of 40 dBA leq at windspeeds between 7 m/s and 10 m/s. At a windspeed of 9m/s, it exceeds the limit by perhaps as much as 4 dB.

328. In addition, Mr. O'Reilly accepted that the NF graphs demonstrate that total operational noise at night exceeds even the 45 dBA leq limit in the permission from windspeeds of 9.5 m/s. As such, total operational noise exceeds the upper permission limit of 45 dBA leq even under the interpretation favoured by the defendant's experts whereby compliance is assessed only at 5 m/s and at 10 m/s.

329. For a number of reasons, the defendant argues that this exceedance is not attributable to WTN but to wind noise.

330. First, it emphasises that the turbine reaches maximum power levels at 9 m/s and that one would not therefore expect WTN levels to increase beyond 9 m/s. As such, it is argued that the exceedance of total operational noise over 45dBA leq at windspeeds in excess of 9 m/s cannot be WTN and must be background noise, specifically wind noise. Although I have been furnished with thousands of pages of guidance, not one document suggests that one could safely make this assumption.

331. Second, the defendant argues that these measurements were taken 17 m from NF and thus closer to the turbine. However, ETSU permits noise monitoring to be carried out some distance from a residence and states: *"In order to ensure that measurements of wind turbine noise are not influenced by reflections off buildings the microphone should be positioned at least 10m away from the façade"*. Indeed, Mr. Carr states that the GPG permits measurements between 3.5 and 20 m from a dwelling. Given the distance from the turbine to NF - 369 m - I fail to see how this additional distance could make an appreciable difference to the level of WTN.

332. Third, the defendant submits that the NF noise levels are elevated because they were taken at a height approximately level with the roof of NF. Yet, no effort has been made by the defendant to calculate what the impact of the additional height may be. Moreover, I have been referred to no guidance which would permit of an unspecified reduction in noise levels by reason of height.

333. Finally, the defendant suggests that because the monitoring equipment was placed 17 m back from the house and thus closer to the tree line, the increased noise levels can be explained by wind in the trees. Mr. Stigwood rejects the suggestion that such noise could have an appreciable impact on the noise levels recorded on Mr. O'Reilly's compliance graphs. His view is that although not as sheltered as the house, the monitoring location chosen is still sheltered. There is therefore a conflict of views on this issue upon which the court has entirely insufficient evidence to adjudicate.

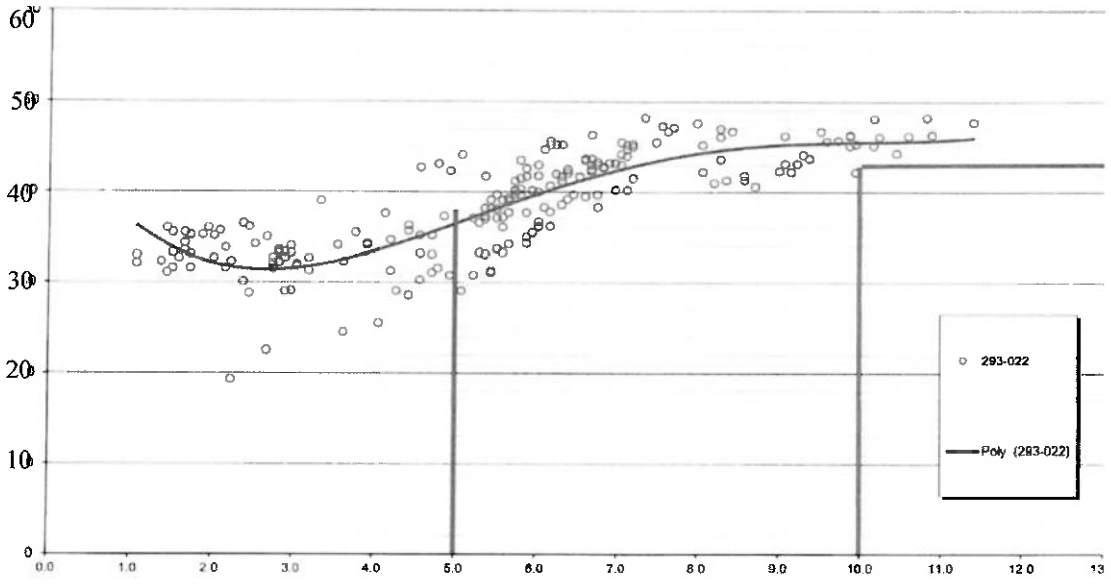
334. The point, however, is that I do not need to decide upon the merits of any of the defendant's above arguments. ETSU is crystal clear. If total operational noise is in excess of the relevant permission limit, then it is for the defendant to ascertain background noise levels at the relevant measurement location and deduct same from total operational noise. The defendant has made no effort to do this. Accordingly, whilst it may be that background noise levels are a substantial contributor to the noise levels appearing on Mr. O'Reilly's NF graphs, the present state of the evidence means that compliance is not demonstrated.

Wind Direction - the MAS NF crosswind planning compliance graph

335. The key to compliance monitoring is to ensure that the compliance testing is carried out under worst case conditions. According to the GPG, this is generally assumed to be downwind unless there are complaints in other wind directions. Mr. O'Reilly therefore presented compliance data only for downwind conditions and the other three quadrants were filtered out.

336. As referenced above, the defendant did not discover the NF monitoring data until mid-trial. When this data was finally made available, Mr. Stigwood interrogated it and formed the view that the worst case of WTN (in terms of absolute dBA or sound power level) apparently applied in crosswind and not downwind conditions.

The MAS NF crosswind planning compliance graph is below.



337. Mr Stigwood contends that this graph demonstrates that total operational noise exceeds the permission limits.

338. As the NF data was not made available until well into the trial, the purported non-compliance demonstrated in crosswind conditions could not have been pleaded. I will therefore admit this evidence and will, accordingly consider whether it impacts upon planning compliance.

339. The defendant contends, with some merit, that it would be extremely unusual if worst case noise propagation were to occur in crosswind conditions. It argues that the higher readings in crosswind conditions at NF are not attributable to WTN but to the fact that wind coming from this direction would be incident upon the treeline located to the west of the plaintiffs' house. This could be a perfectly coherent explanation for the elevated levels[44]. On the other hand, if the elevated levels were attributable to wind noise one would expect the noise to continue to climb as the wind increases. This however is not what the graph shows. Rather the noise increases up to 10 or 11m/s and then levels off. Mr Stigwood therefore argues that it is more likely that these elevated levels reflect WTN which levels off when maximum power output is reached at 9m/s approximately.

340. However, I accept the defendant's argument that compliance measurements need only be undertaken in downwind conditions unless there is a specific requirement to measure in other wind directions such as complaints during cross wind conditions. Overall, the evidence is not particularly consistent with complaints in cross wind conditions. As such, compliance monitoring in cross wind conditions was not required. I will therefore place no reliance upon the MAS NF crosswind planning compliance graph.

Summary and conclusions in relation to planning compliance.

341. In summary, it does not seem to me that the defendant's data demonstrates compliance with the planning permission for the following reasons:

a) Compliance cannot be demonstrated by reference to the HH compliance data because NF is the appropriate measurement location. Further, there is a paucity

[44] The Good Practice Guidelines acknowledge that in rural or semi-rural areas noise generated by wind in the trees is generally a dominant noise source at higher windspeeds and therefore proximity of the monitoring location to trees and vegetation and the type of such vegetation may be significant.

of night hours HH compliance data at all windspeeds above 8m/s. One cannot be confident that worst case WTN has been assessed.

b) Although this issue is largely academic due to point a) above, I am not satisfied on the balance of probabilities that Mr. O'Reilly correctly positioned the measuring equipment - either as regards distance from the façade or angle of incidence - to capture façade level measurements, I do not accept therefore that it is appropriate to deduct 3 dB from the HH measurements.

c) In any event, on the correct interpretation of condition 15, the HH night hours compliance graph shows that total operational noise exceeds the limits set out in the permission at windspeeds above 6 m/s.

d) Furthermore, the inability to assess night hours compliance at HH at windspeeds in excess of 8 m/s means that even if I were to accept the defendant's experts' interpretation of the permission (which would require compliance testing only at 5 m/s and 10 m/s) compliance could still not be demonstrated in the absence of data at 10 m/s.

e) Compliance at HH has therefore not been demonstrated.

f) NF is the closest inhabited house and the NF data is more complete and therefore robust. For that reason, compliance ought to have been adjudged by reference to the night hours NF compliance data.

g) The NF monitoring was not carried out at façade level and no façade deduction is indicated from the noise levels measured.

h) On the correct interpretation of condition 15 total operational noise as shown on the NF night hours compliance graph exceeds the limits set out in the permission at windspeeds above 7m/s.

i) Total night hours operational noise at NF also exceeds 45 dBA leq at windspeeds in excess of 9.5 m/s. Therefore, even if I were to accept the defendant's experts' interpretation of the permission (which would require compliance testing only at 5 m/s and 10m/s) compliance could still not be demonstrated.

j) Although the defendant argues that any exceedance of total operational noise over 45 dBA leq at NF is attributable to background noise/wind noise, the onus is on the defendant to so demonstrate by reference to background noise studies. No such evidence has been tendered to the court.

k) In addition, although the defendant contends that this exceedance may be due to monitoring height, it bears the onus of so demonstrating. No such robust evidence has been tendered to the court.

l) Compliance at NF has therefore not been demonstrated.

342. In the case of HH total operational noise exceeds 40 dBA leq between 6 m/s and 10 m/s by approximately 2 dBA. The exceedance at NF - which is the correct property for compliance testing - is greater, perhaps up to 4 or 5 dBA. An exceedance of this order is potentially a material deviation from the noise limits in condition 15.

343. I accept that on the defendant's experts' interpretation of the permission, the exceedance of total operational noise over 45 dBA leq at 9.5 m/s and above is marginal, perhaps no more than a decibel overall. However, this is largely beside the point as I do not accept that this is the correct interpretation of the planning permission. Moreover, the defendant's chosen defence to this action is to maintain that the planning permission is the appropriate metric for assessing nuisance. In contrast to the plaintiffs, who argue that the test for nuisance is both quantitative and qualitative, the defendant argues that the test is purely quantitative and that the WTN is "*meticulously compliant*"[45] with the permission limits. Whilst I reject the argument that the nuisance assessment is exclusively quantitative, it could only ever carry weight if meticulous compliance is in fact demonstrated. Mr. Carr's evidence was that he would regularly advise wind farm developers in adopting mitigatory strategies to bring down WTN by a decibel or two to ensure compliance. There is no suggestion therefore that relatively modest exceedance would not be viewed by the planning authority as non-compliance or would not require the adoption of mitigation measures. Therefore, even if the interpretation that the defendant's experts place on the planning permission is correct, I would not be disposed to hold that compliance is demonstrated.

344. In short, I do not accept the defendant's arguments on Issue 1 or Issue 2.

345. The defendant's arguments are not therefore dispositive of this case, and I will now turn to the key question of whether nuisance is established on the evidence.

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[45] In the words of the defendant's planning expert, Mr. Lawlor.

Issue 3: is the character of the locality to be assessed on a "windfarm" or "no windfarm" basis?

346. The character of the locality is an important factor in any nuisance assessment. Here also a dispute arises as to the relevance of the planning permission.

347. The plaintiffs and their experts present the locality as a quiet rural location *simpliciter.* To assess nuisance, they therefore compare the current scenario to a "no turbine" scenario.

348. The defendant argues that the planning permission defines the character of the locality, which is therefore presented as a rural location with a windfarm at reasonably close proximity with all that that entails.

349. Should one assess the character of the locality with or without the Ballyduff windfarm?

350. In general, the Irish courts have tended to afford weight to the decisions of the planning authorities in determining the character and nature of the locality. In *Lanigan v. Barry*, Charleton J. considered the relevance of planning permission in determining whether an actionable nuisance had occurred. At para. 22 of the judgment, Charleton J. stated:-

> *"In considering the issue as to the amenity of an area, regard should be had to its immediate history and its character prior to the commencement of the activity complained of. The character of a neighbourhood may, however, change. This may be due to economic depravation or to the development within the area of enterprises and structures which change its character. In that regard, the wider question as to how an area is to develop is to be determined in accordance with the Planning and Development Act, 2000. The legislation is an example of the application of democratic principle to the important question as to how the area in which a citizen lives, or carries on his or her business, may change. ... Were the legal mechanism of the scrutiny of planning permission not to exist and were it not the case that notice must now be given in a direct manner through what is in effect an advertisement as to what may happen at the site of a proposed development, then persons might feel aggrieved at being taken by surprise when a factory, set of apartments or some house extensions, suddenly spring up beside them. The legal mechanism is there, however, to allow participation in decisions which may affect the environment, the value of property and the nature of such quiet and comfort as may be the settled expectation of people in any particular area. Therefore, where planning consent is given after due process for a development, including a change of use, the issue as to what is a nuisance will be determined according to the character of that neighbourhood as authorised by relevant planning permissions and as declared by the development plan."*(Emphasis added).

351. In *Gillingham Borough Council v. Medway (Chatham) Dock Company Ltd* [1992] 3 All ER 923 at 934 Buckley J. had noted that Parliament had set up a statutory framework and delegated the task of balancing the interests of the community against those of individuals to the local planning authority. The right to object, the provision for appeals and enquiries and the added safeguard of judicial review applied but, ultimately, a planning authority could, through its development plans and decisions, alter the character of a neighbourhood rendering innocent activities which, prior to that change, would have been an actionable nuisance.

352. In *Lanigan v. Barry,* Charleton J. quoted these passages which in his view emphasised the primacy of the planning process in setting local standards of amenity.

> *"24. This does not mean that a nuisance is authorised by a planning permission granted in accordance with the development plan of a local authority. On the contrary, people retain their rights but according to the standard, judged against the nature of the locality, that the law sets.*
>
> *25. All of this emphasises the primacy of the planning process in setting local standards of amenity. That process can not be ignored or flaunted or undermined by deception. The standard of amenity that is reasonably to be expected by people living in an area can change as an area is lawfully developed. The nature of businesses suitable for an area can also change as an area is developed by lawful means. Unless the business activity be regarded as unduly sensitive, and therefore unsuitable for the character of an area in which it is situated, no one is entitled to use a planning permission to destroy the business of a neighbour"* (Emphasis added).

353. In *Smyth v. RPA*, Laffoy J. also referred to the then recent English authority in *Watson v. Croft* [2008] 3 All ER 1171 in which the Court of Appeal restated the basic principle that a grant of planning permission does not affect the property rights of third parties but that the implementation of that planning permission may so alter the nature and character of the locality as to shift the standard of reasonable user which governs the question of nuisance or not.

354. I accept the defendant's submission that, as a matter of law and fact, part of the character of the locality where the plaintiffs' homes are located is that there is planning permission for a windfarm. I also accept that this inevitably brings with it some degree of visual and aural intrusion - some degree of aerodynamic noise and some AM - which the plaintiffs would be expected to tolerate. However, in the words of Charleton J, "*this does not mean that a nuisance is authorised by [the] planning permission... On the contrary,* [the plaintiffs] *retain their rights but according to the standard, judged against the nature of the locality, that the law sets*" i.e. as including a windfarm.

355. Here the plaintiffs do not base their claim to nuisance on the mere presence of the turbines in a quiet, rural area. Nor does their evidence suggest any objection to some aerodynamic noise or some swish AM of the kind one would usually expect.

356. On the other hand, no reasonable person could reasonably have expected that this permission had authorised WTN which regularly dominates the soundscape and exhibits AM and other characteristics rendering it unreasonably difficult to work, or uncomfortable to relax or sleep. Although the character of the locality includes a windfarm, it is still the case that depending upon the level of intrusion and on its duration and frequency, the WTN associated therewith might be such that ordinary people could not reasonably be expected to tolerate it without mitigation, without compensation, or possibly at all. Whilst the plaintiffs cannot expect their location to be as peaceful as if there was no windfarm, they can nonetheless expect that noise intrusion from the permitted windfarm will not be unreasonable.

357. The court's assessment here must be reasonably exacting. Because of the planning permission, the plaintiffs cannot fairly contend that audible WTN is by definition an unreasonable interference. On the other hand, the defendant cannot say that because (particularly in more recent times) WTN is known to occasionally demonstrate certain particularly intrusive characteristics - for example prominent or thump AM - the grant of planning permission means that the plaintiffs have no remedy if these characteristics present themselves in a manner that is unreasonable in all the circumstances. WTN of this latter nature could not have reasonably been anticipated on foot of the Ballyduff planning permission and is not therefore part and parcel of this locality.

Conclusion on issues 1, 2 and 3

358. In the circumstances of this case, the Ballyduff planning permission does not dictate the boundaries of actionable nuisance. While the decision of the planning authority grants planning permission at a general level for a windfarm at this location, it does not purport to address or regulate the key aspects of the WTN which are complained of here - AM with high AM values and low frequency characteristics.

359. Whilst a windfarm is part of this neighbourhood, this does not mean that the plaintiffs should be expected to tolerate any and all noise nuisance that goes with that use. All that the

planning permission can be said to authorise is WTN of a particular decibel level whereas this case is not about the decibel level of the noise but rather its character. It cannot be therefore said that the characteristics complained of are authorised by the planning permission and must be seen as part of the locality.

360. Furthermore, it has not been demonstrated that the WTN is within the noise limits specified in the permission in any event. Therefore, even if this case revolved around decibel levels only, I could not be satisfied that the permission authorises WTN at the level that presently pertains or that WTN at these levels is part of the character of the locality.

Issue 4: What criteria ought the court consider in the assessment of nuisance?

Defendant's argument-the line in the sand

361. The defendant correctly submits that the question of whether the WTN is an objectively unreasonable interference with the plaintiffs' amenity cannot be determined by reference to the plaintiffs' subjective evidence. It further argues that the plaintiffs have made no attempt to establish what their requirements are or, how they can be regarded as objectively reasonable.

362. Thus, the plaintiffs have failed to:

- identify by way of the ETSU methodology the decibel level beyond which noise becomes objectively unreasonable and poses a nuisance or;
- identify, in a manner analogous to the draft WEDG 2019 methodology, the precise parameters pursuant to which noise of a particular decibel level combined with a particular level of AM becomes objectively unreasonable and poses a nuisance.

363. In short, the plaintiffs have not identified a line in the sand, a line of acceptability. Unless and until such a line is identified and applied, it is said that the court cannot assess the matter. Irrespective of how the WTN is experienced by the plaintiffs, this line must determine

the outcome of the case. However, the defendant's attempt to identify what the line should be are in my view unconvincing.[46]

364. The primary "line" identified by the defendant and its experts is of course the planning permission. For all the reasons explained above, I find that the line cannot be supplied by condition 15 (with which in any event compliance has not been demonstrated) as it does not regulate what is said to be the most intrusive aspects of the Ballyduff WTN, namely AM, particularly thump AM.

365. Nor, for the same reason, can the line be supplied by WEDG 2006 (with which, for the sake of argument, I accept the WTN complies). WEDG 2006 does not provide the court with any yardstick - objective or otherwise - against which to assess what AM values or what degree of thump AM is objectively reasonable.

366. Similarly, although the defendant places huge reliance on IOA RM, that methodology is not intended to capture the subjective annoyance response and does not purport to be a yardstick for nuisance. The IOA RM cannot tell one what the noise sounds like. Crucially, the defendant's experts do not contend that the IOA RM differentiates between swish and thump AM. Despite Mr Carr's very heavy reliance upon it, the IOA RM is not a "recognised standard" capable of assessing the impact of AM, and thump AM in particular. The only yardstick of which I have been informed for identifying and assessing the impact of thump AM is the qualitative yardstick advanced by the plaintiffs' expert; to record, listen and analyse the WTN and to correlate same with spectral frequencies by means of a spectrogram.

367. Even leaving these difficulties aside, the IOA RM is not in any case "self-executing". The IOA RM only assists in establishing a "line" if it is used to rate AM values per windspeed on foot of which one then calculates a penalty and then incorporates that penalty into a defined decibel limit. In other words, the IOA RM could only even provide a yardstick for objectively reasonable noise if deployed in a manner analogous to the draft WEDG 2019 methodology.

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[46]As I note above in my summary of the expert's evidence, Mr Carr's opinion was that nuisance must be assessed in accordance with *"some recognised standards or guidance"*. In this respect, Mr. Carr relied primarily on the planning permission and WEDG 2006, but also mentioned draft WEDG 2019 with which he asserted the WTN complied. He also relied heavily on the IOA RM.

368. Yet the defendant and its experts do not see this logic through. Although it maintains that it complies with draft WEDG 2019, the defendant also distances itself from that guidance. The defendant emphasises that although consideration was being given in draft WEDG 2019 to changing the basis of regulation from that set out in WEDG 2006 – principally to bring down maximum noise limits from 45 dBA L90 to the 43 dBA L90 or 5 dBA over background and to reflect a penalty for AM - this draft guidance has not been brought forward. The defendant's uncontradicted evidence is that the present practice of planning authorities is to fix permission noise limits for wind farms in accordance with WEDG 2006 - i.e., by reference to fixed decibel limits only with no penalty for AM.

369. The defendant therefore argues that because this is the present practice of local authorities, the court ought to adopt a similar approach in its assessment of nuisance in this case. I do not agree. The issue is not whether or not WEDG 2006 remains the current regulatory framework for windfarms in this country or indeed whether the Ballyduff WTN complies therewith. Neither WEDG nor present planning practice can determine the matter at hand because they do not reflect current expert scientific knowledge on WTN. Current expert scientific knowledge at least informs more recent publications such as draft WEDG 2019 and the ETSU Review (although of course the first of these has been withdrawn and the second has yet to be formally adopted). Unlike these more recent publications, WEDG 2006 does not even consider the extent to which those aspects of the WTN which are the source of complaint in this case may be said to be objectively reasonable.

370. The fact that AM and thump AM remain to be regulated does not mean that the court should ignore these characteristics. I fail to see how it can credibly be said that merely because an acknowledged problem has not been regulated in the planning sphere the court should now ignore the problem in the context of a nuisance action.

371. This review of WEDG 2006 is clearly a difficult and long-drawn-out process and the same is evidently the position in the UK. In and of itself this demonstrates just how complex and multifactorial the impact of WTN can be.

372. This ongoing evolution reveals the fallacy of a related argument advanced by the defendant; namely that the plaintiffs must demonstrate non-compliance with WEDG 2006 and that the failure to do so effectively means that nuisance is not established. The plaintiffs do not

rely upon non-compliance with current planning guidance as establishing nuisance. They argue - correctly in my view - that existing planning guidance (WEDG 2006, effectively) is not responsive to the issues complained of - AM, thump AM etc.

373. I think it is fair to conclude that the current direction of travel in wind energy planning guidance is towards setting decibel limits combined with a penalty for character such as AM together with limits on low frequency noise. However, the recommended decibel levels in draft WEDG 2019 might go up or they might go down. The suggested penalties for AM might also go up or they might go down. The permitted exceedance over background noise might go up or it might go down. Likewise, the current low frequency curve may be adjusted.

374. Draft WEDG 2019 is perhaps a reasonably up to date indicator (2019) of what might have been considered appropriate in terms of WTN, AM, low frequency noise etc. However, it is no more than that. Draft WEDG 2019 has since been withdrawn. I therefore criticise neither party for failing to carry out a formal assessment of the Ballyduff WTN as against these draft guidelines. I do, however criticise the defendant's casual assertion that it complies with draft WEDG 2019 (indeed with "*headroom*") when there is little credible basis for this view.[47]

375. I should say that this court would place very considerable weight upon up-to-date, scientifically robust planning guidelines on wind energy developments which advised on the particular decibel level at which WTN, when combined with AM of a particular nature, is considered an acceptable interference with amenity. If responsive to the particular aspect of the noise complained of, such guidance would be highly persuasive in a nuisance action. A plaintiff who sought to argue that such guidance did not represent a reliable – if not a wholly reliable – indicator of what is objectively reasonable would, in my view, bear a heavy onus. However, no such guidance currently exists; planning guidance in this jurisdiction (and elsewhere) can fairly be described as in flux and cannot identify the line of acceptability.

376. This raises a further principled objection to the notion that the plaintiffs must identify a line in the sand upon which this court must rule. Although the defendant does not overtly request a line to be drawn for every windfarm, this would seem to be the terminus of its argument.

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[47] I explain this further at para 206 *et seq* above and 471 below.

377. Yet, there is currently a government policy in evolution in relation to wind energy development which one would expect to consider at least some of the crucial components of this line in the sand. WEDG 2006 is in the course of review. It would in my view represent a wholly unwarranted intrusion on the executive function for the court to attempt to draw the line of acceptability for windfarm noise. Not only does the court have no jurisdiction to do this, but it also lacks the expertise to even attempt this task.

378. In short, neither the parties' experts nor the court can or should attempt to set a line of acceptability for the community as to what constitutes unacceptable windfarm noise. That is not the purpose of this litigation.

The Defra criteria

379. Ms. Large and Mr. Stigwood identified BS 4142, *Methods for rating and assessing industrial and commercial sound* and the Defra Guidance as the methodologies of most assistance to the court in the assessment of WTN nuisance.

380. I accept the defendant's contention that BS 4142 applies to the assessment of industrial and commercial sound generally and that it is not appropriate to apply it when there is other more specific guidance on windfarms, such as the Defra Guidance.

381. I accept that the Defra Guidance is of considerable assistance. Although the Defra Guidance relates to complaints of (United Kingdom) statutory noise nuisance and not to private nuisance, it is a *"recognised standard or guidance"* on the assessment of WTN nuisance. The Defra Guidance provides a helpful framework under which to analyse the various elements of a WTN nuisance complaint.

382. Whilst not necessarily subscribing to the Defra Guidance to the same extent as the plaintiffs' experts, Mr. Carr referred to it in his direct evidence. In particular he referred on several occasions to the following passage:

> *"Because there are no fixed decibel levels and noise index based standards that act as thresholds for the onset or as a definitive test for Statutory Nuisance, the primary uses of noise measurement will be establishing the intensity of the noise complained of and whether an established threshold of impact is being exceeded as an indicator of impact; and to assist in deciding if the complainant is being more than*

ordinarily sensitive. Consequently, the choice of noise index will depend on what guideline, standard or limit value is used to assist in making this judgment or articulating the reasons for a decision".

383. Mr. Carr argues that this means that the plaintiffs must demonstrate that a threshold of impact or "*threshold of significance*" has been exceeded before they can establish nuisance. At a broad level, I accept that this is so. The courts will not entertain claims for minor annoyances and the interference with the use of the plaintiffs' land must exceed a minimum level of seriousness to justify the law's intervention.

384. However, I do not accept that this "*threshold of significance*" is determined by decibel level alone, by the noise limits in condition 15 or indeed by WEDG 2006. Sound levels which can be measured by a sound level metre or other measuring system describe only the amount of energy in a sound but do not provide any other information about its qualities. Therefore, as the Defra Guidance makes clear, noise measurements are helpful but not determinative. The Defra Guidance states that the assessment must be made *"in the context of the specific complaints made and the circumstances of each case, there is no one size fits all approach that can be applied in all situations; instead, a bespoke investigation is required in each case".* Ironically, one of the criticisms Mr. Carr levels at the MAS assessment methodology is just that - that it is, in his words, *"bespoke".*

385. The criteria identified by the Defra Guidance as relevant to the "*bespoke investigation*" - together with certain other pertinent considerations identified by the plaintiffs' experts - which purely for the sake of brevity I will refer to collectively as "the Defra criteria"- are as follows:

- sensitivity of the complainant.
- the level of WTN;
- the type of noise – e.g., the prevailing AM value and the variability, regularity and predictability of the noise;
- whether any aggravating characteristics are present in the WTN - the spectral content of the WTN and whether thump AM is present;
- the characteristics of the neighbourhood where the WTN occurs;
- the exceedance of WTN over background noise;
- the impact of the WTN on basic needs such as sleep;
- how easily the WTN can be avoided and what measures could reduce or modify the WTN;

- the time of day or night when the WTN occurs;
- the duration and how often the WTN occurs.

386. The above factors reflect the fact that human hearing is obligatory in the sense that our brains are constantly analysing and interpreting sound. Human responses to sound therefore combine both physiological and psychological responses. Noise is related to human response and is routinely described as unwanted sound or sound that is considered undesirable or disruptive. The difference between a sound and a noise is dependent on a number of objective and subjective variables. This all means that the characteristics of a given sound can have a considerable influence on our reactions. I accept Ms. Large's evidence that constant sound with minor change to volume, frequency or character can be easily accustomed to. By contrast, sound characteristics that attract attention and render the sound more discernible are generally considered to increase annoyance. Negative responses are therefore associated with variable, unpredictable sounds and with unexpected changes in loudness such as impulsivity, erraticism and intermittency. Assessment of noise nuisance must consider all of these variables.

387. I also note that the Defra criteria are quite similar to those listed by the EPA in *EPA NG4: Environmental Protection Agency Office of Environmental Enforcement (OEE) Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities* ("EPA NG4") [48]. Although this guidance, unlike the Defra Guidance, is not windfarm specific, it can only be seen as an endorsement of the view that both quantitative and qualitative factors must be weighed and assessed with care and professionalism in each case.

388. It is my view, that a robust assessment of a windfarm noise private nuisance complaint cannot be conducted without reference to factors such as the Defra criteria.

Issue 5: Do the criticisms advanced by the defendant undermine the reliability of the plaintiffs' experts' evidence - and the data on which it is based - on nuisance?

389. Before assessing the evidence presented in this case as against the Defra criteria, it is first necessary to consider the reliability of the audio recordings (and the associated graphs)

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[48] This notes that the potential impact of noise is dependent on a wide range of factors such as:
• *The subjective loudness/the measured sound pressure level;*

which the plaintiffs' experts placed before the court. In particular, it is necessary to determine whether the various criticisms levelled at this evidence by the defendant and its expert, Mr. Carr, mean that the court ought not to treat this evidence as reliable or probative in determining whether nuisance is made out.

Purpose of the plaintiffs' audio recordings and the associated graphs

390. Both parties agreed that the court should hear the MAS audio recordings and consider the associated graphs. However, the defendant contends that this data is relevant for "context" only. Beyond that, it is said, the court ought to pay it no further regard.

391. Mr. Carr contended that the MAS approach of presenting such data to the court was novel and bespoke and would not be considered best practice.

392. By contrast, Mr. Stigwood states that no other existing methodology allows one to appreciate the complainant's noise environment. He states that the same audio/graphical presentation method has been adopted both by MAS and by opposing experts in every wind farm nuisance case in which he has been involved.

393. Mr. Stigwood used a barking dog analogy to illustrate the drawbacks of relying solely upon average decibel levels to assess nuisance. The leq 10 of a barking dog over a ten-minute period tells one nothing about the character or intermittency of the barking. One loud bark might produce the same average decibel level as ten lower barks. Yet, a single bark might disturb for ten seconds whereas ten lower barks would pose considerably greater disturbance. Further, as L90 considers only the level exceeded 90% of the time, neither the single loud bark nor the ten lower barks would alter the L90 decibel level.

394. I accept that both the L90, and to a lesser extent the 10 or 15 minute leq averages, are relatively insensitive to rapid fluctuations in noise level such as AM. A complaint centred on the changing character and nature of AM cannot be analysed by average decibel level alone pursuant to either the L90 or leq metric. Moreover, WTN can present at higher or lower frequencies giving rise to swish and thump AM respectively. Yet, these cannot be distinguished using either L90 or leq.

395. Because the plaintiffs complain of high AM values, it would undoubtedly have been of considerable assistance if either party had performed a long term assessment of external AM values at NF or HH in strict accordance with the IOA RM. This however had not been achieved.[49] On the other hand, the defendant has not contended that the IOA RM can differentiate between the impact of swish and thump AM, which is one of the plaintiffs' crucial complaints. The plaintiffs also complain of other features which the IOA RM is not designed to capture or assess - such as erraticism, impulsivity, variability/intermittency and general unpredictability of the AM.

396. Any robust noise nuisance investigation must engage with the complaint actually made. It simply cannot be credibly argued that - an assessment of whether these plaintiffs' subjective complaints are objectively justified - requires no more than a comparison with the noise limits set out in the planning permission and in WEDG 2006.

397. Indeed, it appears that even a planning compliance investigation often involves actually listening to the noise, Supplementary Guidance note 5 advises:

> *Irrespective of the requirement to carry out tonal analysis, it may be useful to carry out audio recordings for 2 minute samples in every 10 minute interval in all cases to allow for subjective evaluation of any noise effects and particularly of any time histories produced to assist with any discussions about the acoustic character of the noise...., It should be noted that a subjective assessment of this nature would normally be carried out with regard to a diary of complaints or certain wind conditions that have been found to correlate with complaints since listening to all data would usually be impractical.*

398. In short, the nuisance assessment requires an engagement with and an evaluation of the plaintiffs' complaints in light of all of the evidence which tends to either corroborate or undermine those complaints. In my view the audio recordings of the WTN and the associated graphs are important components of this evidence.

399. I emphasise that the exercise undertaken by MAS is not simply to assess nuisance by listening to the WTN. Rather, the plaintiffs' evidence places the features of the WTN - such as its AM values and the presence of thump AM - in context. MAS estimate general AM values on site in a manner that enables one to compare these values to guidance (such as the Phase 2 Report and draft WEDG 2019) which identify AM values at which annoyance is known to

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[49] Indeed, MAS had intended to conduct a formal IOA RM analysis on foot of the 2021 NF external data. For reasons I will explain, however, this data is not sufficiently robust to provide a valid basis for IOA RM analysis.

occur. MAS does not merely identify thump AM on the audio recordings. It correlates the WTN by using spectrograms to confirm the presence of lower frequency sound energy manifesting as audible thump AM. Although Mr. Carr is no doubt correct in stating that various people have various different opinions about what constitutes an unreasonable interference; it is unfair for him to imply that MAS simply played the audio recordings of the WTN to the court and then said, "*isn't this awful?*".

Contamination/Differentiation

400. The defendant submits that the audio recordings might be contaminated by ambient noise, principally wind noise.

401. Mr. Stigwood and Ms. Large did not subjectively listen to the several months of audio recordings collected at both residences. However, Mr. Stigwood did listen to and screen - both aurally and visually (including by spectral correlation) - the audio recordings played to the court and forming the basis for the associated graphs presented in the MAS reports. Therefore, the data presented to the court, and to which I have had regard, has been screened by MAS.

402. Mr. Stigwood was confident that he could discriminate as between ambient sounds and WTN. After listening to almost 25 such recordings (excluding the 2021 NF external audio recordings), I accept that this is generally the case for both the external and internal audio recordings. When AM is present - as it was on virtually every single recording - the WTN is rhythmic in nature, albeit highly changeable and unpredictable. It rises and falls, often quite sharply, every couple of moments. It also disappears and returns again, fading in and out. This noise is distinctive and quite unlike wind or other extraneous noise. Wind gusts, birdsong, footsteps, etc can in the main be separately identified and discerned.

403. The defendant was furnished with all of the audio recordings and the associated graphs well in advance of the trial and has had a full opportunity to review the material. It was suggested to Mr. Stigwood in cross-examination that Mr. Carr would assert that "*many of the recordings*" included wind noise in addition to WTN. In fact, this evidence was not given by Mr. Carr who identified extraneous noise in only a handful of recordings. In each case, the extraneous noise was either entirely obvious or had already been highlighted by Mr. Stigwood in his graphs or oral evidence.

404. Furthermore, as Ms. Large and Mr. Stigwood note, different noise sources carry different frequencies. Therefore, spectrum analysis by means of a spectrogram informs one of the source of the noise and identifies - and thus assists in the exclusion, if necessary – of extraneous noise, such as wind gusts and birdsong.

405. Mr. Stigwood stated that in order for wind noise to play a significant role in the general character or loudness of the sound environment presented on the audio recordings, it would have to be of a nature and at a level far in excess of that which he would consider normal. No convincing evidence was given to contradict this.

406. In this regard, I note that it is not disputed that Ms. Large correctly set up and calibrated the monitoring equipment and used a double skinned windshield to protect the microphone from wind noise when capturing the 2017 external NF audio recordings.

407. The 2021 MAS data was set up by the plaintiffs' solicitor under the instruction of MAS. Inadvertently, the microphone was not fitted with a double skinned windshield. However, for internal recordings (the 2017 internal HH audio recordings and the 2021 internal NF and HH internal audio recordings) I consider this to be of minor importance. As Mr. Stigwood points out, the room in which the recording equipment was placed effectively serves as a windshield; internal audio recordings will only be materially affected by wind over the microphone when there is a through wind inside the room. This in turn requires windows or doors to be wide open on both sides of the room; these were not the conditions of measurement.

408. Therefore, save during stormy periods, which were clearly identified to the court, I find that wind noise does not contribute substantially to the sound environment on the 2017 internal HH audio recordings or the 2021 internal NF and HH internal audio recordings played to the court (and in the graphs presented in the MAS reports). I am satisfied that extraneous noise can be - or had been - separately identified and does not distort one's aural appreciation of the impact of the WTN on the audio recordings or one's interpretation of the associated graphs.

409. I accept the opinion of Mr. Carr that the position is different in respect of the 2021 NF external data which, as I say, was gathered without a double skinned windshield. I accept that wind contamination cannot confidently be excluded. I also accept that placing the monitoring equipment too close to the exterior façade will tend to increase noise levels by up to 3 dB,

which also has the potential to distort AM values. Mr. Carr's related criticism that one cannot take façade measurements where there is a significant low frequency content to the noise, was not put to Mr. Stigwood, which reduces its weight. However, in light of the first two difficulties just discussed, I have in any event entirely disregarded the 2021 NF external data (the audio recordings and all associated graphs) in all of my consideration.

Are the audio recordings selected for playback and analysis representative of the WTN on site?

410. Clearly, MAS did not record the plaintiffs' entire soundscape for the last seven years. Equally, it would not be possible to present to the court all of the audio recordings as this spans several months of monitoring. MAS therefore selected only certain audio recordings (and the associated graphs) on which to focus in their reports and only a subset of these were played to the court. No doubt the recordings (and the associated graphs) chosen were those adjudged to best represent the different features of the WTN complained of by the plaintiffs. Indeed, this is made clear by Mr. Stigwood in his report of October 2022.

411. However, this is really the only practical way to present the audio recordings (and the associated graphs) of the WTN to the court. Crucially, the defendant's expert made no suggestion that the audio recordings selected were unrepresentative of the features of the WTN of which the plaintiffs complain. Mr. Carr has listened to all of the audio recordings referred to in the MAS reports (and has presumably examined all of the associated graphs) and did not contend that those chosen for presentation to the court were unrepresentative of the audio recordings (and the associated graphs) as a whole.

412. Mr. Carr accepted that the audio recordings (and associated graphs) accurately captured and represented the sound environment at the positions where the microphones were placed. He was present in court throughout the presentation and analysis of the audio recordings (and the associated graphs) and did not demur from the opinions expressed by the plaintiffs' experts as to the identified features of the WTN. He did not suggest that the various features identified by MAS occurred only rarely or unusually on the audio recordings. There is no suggestion that these features were "outliers". Rather, Mr. Carr's view was that, having "*dipped in and out*" of the full suite of MAS audio recordings, (taken over several months), the general picture was broadly similar.

413. In short, therefore, the court can, and indeed should, have regard to the 2017 external NF data, to the 2017 internal HH data and to the 2021 internal HH and NF data, all of which together are representative of the character of the WTN.

Issues arising in relation to internal audio recordings

414. Although Mr. Carr accepted that the internal audio recordings accurately capture the sound at the location where the microphone was positioned, allowance must be made for *"room modes."* Noise measurements within buildings can be inconsistent due to the influence of room acoustics such as acoustic reflections from surfaces and absorption from soft furnishings, carpets and beds etc. This can create different sound fields resulting in potential over or underestimation of the typical exposure in the room.

415. The defendant contends that to counteract the impact of room modes ISO 1996-2, 2017 recommends the use of several different recording devices at various locations throughout the room rather than via a single microphone. I am concerned that this objection was not adequately put to Mr. Stigwood.

416. I note that ISO 1996-2, 2017 applies to all environmental noise sources such as road and rail noise, aircraft and industrial noise. Unlike the Defra Guidance therefore, ISO 1996-2, 2017 is not WTN specific. Ms. Large and Mr. Stigwood's evidence was that all internal measurements complied fully with the Defra Guidance which states that the effects of sound reflections and absorption can be appropriately managed by positioning the microphone at least 0.5m from any sound reflecting vertical room surface or sound absorbing objects such as items of furniture or curtains etc.

417. I accept that, for present purposes, this is an adequate response to the issue of room modes. This is particularly the case as the plaintiffs' primary complaint does not relate to noise levels *per se* but to noise character.

418. The plaintiffs' experts do not contend that the audio recordings played to the court precisely replicates WTN noise levels at every point in the room or indeed in every room in the house. Rather they are intended to convey an impression of the plaintiffs' sound experience

and to demonstrate and corroborate the features of the WTN of which the plaintiffs complain. I am satisfied that the internal audio recordings are more than adequate for that purpose.

419. The defendant also submits that because the 2021 HH and NF internal monitoring was set up by the plaintiffs' solicitor, rather than by experts, it ought to be disregarded. This, in my view, would be a wholly disproportionate response to the minor criticisms advanced by the defendant, such as for example, the position of the microphone flex. I can see no point of real substance here, and I will therefore have regard to this data.

Criticisms of the plaintiffs' experts' presentation and analysis of the AM on site

420. Ms. Large and Mr. Stigwood presented and analysed the AM on site by reference to the audio recordings and associated time domain graphs. Their opinion was supplemented by their own experience on site. In Ms. Large's opinion, the AM on site is substantial and excessive. Mr. Stigwood's view is to similar effect. He states that there are sustained periods of AM of the highest levels of modulation variation that he has ever seen occur commonly. His view is that this AM *"impacts on residential amenity in a manner and form rarely found so excessive"*.

421. The defendant advances several interrelated criticisms of the plaintiffs' experts' presentation and analysis of the AM on site:

a. AM may only be presented or analysed through the application of the IOA RM;
b. The MAS presentation and analysis of AM by way of audio recordings and time domain graphs is unreliable and ought to be disregarded in any nuisance assessment.
c. The MAS presentation and analysis of AM by way of audio recordings and time domain graphs exaggerates AM.

422. Separately, Mr. Stigwood also sought to apply the IOA RM to the 2021 MAS data and to present the results of that analysis. The defendant advances two interrelated criticisms of Mr. Stigwood's IOA RM analysis of the AM on site

d) The 2021 MAS data is unreliable and the IOA RM cannot be reliably applied thereto either to derive a penalty or at all.
e) The 2021 NF external data is unreliable and the IOA RM cannot be reliably applied thereto either to derive a penalty or at all.

f) The 2021 NF and 2021 HH internal data is unreliable and the IOA RM cannot be reliably applied thereto either to derive a penalty or at all.

423. I will consider these points in turn.

(a) Exclusivity of the IOA RM in nuisance investigations

424. The defendant's attitude towards the IOA RM is somewhat contradictory. On the one hand, the defendant contends that the only acceptable method for demonstrating AM to the court is via the IOA RM. Yet, despite acknowledging that "*this case is all about AM*", the defendant has not itself carried out an IOA RM assessment of the AM on site.

425. Ms. Large and Mr. Stigwood both accept that the IOA RM can provide useful information tending to confirm the level of AM present in the audio recordings (as depicted on the associated time domain graphs). However, in their view, the IOA RM provides no more than an overall impression of the extent and regularity of such impact. They reject the position that it is mandatory to apply the IOA RM to an AM complaint in a nuisance case and point out a number of drawbacks to the methodology (none of which were in substance disputed by the defendant's experts):

- The IOA RM depicts average AM values in a specific ten minute period as a point on a graph but tells one nothing about the quality of the AM during the period. It may not identify many features of AM said to be most intrusive in this case such as erraticism and impulsivity. Crucially, it is not contended by the defendant that the IOA RM can discriminate between swish and thump AM.
- The IOA RM produces a single value for a 10-minute period. It is not apt to fully represent AM that is variable or intermittent -i.e., AM that disappears and returns again or fades in and out - which is one of the plaintiffs' main complaints. Purely by way of example, if a particular ten minute period has five 60-second blocks of high AM value interspersed by five 60-second blocks of low AM value, the IOA RM will derive an AM value which is the approximate average of the AM depicted over the entire period. Alternating high and low AM, which can be extremely intrusive, is not accommodated by the IOA RM. The same lacunae might equally result from the requirement of the IOA RM that at least 50% of the 10-second blocks in the relevant 10-minute period contain detectable AM before even being included in the analysis.

- The IOA RM can produce both false negatives and false positives. As above, periods of substantial AM can, be smoothed out by the averaging effect. False positives, such as dogs barking, or cars backfiring cannot be recognised and filtered out because the IOA method is effectively automated.

426. The IOA AM report states that its primary goal is to develop a methodology which can be used within the planning regime. It also states that consideration could be given to its use within the (United Kingdom) statutory nuisance regime as well. The IOA RM has several merits and provides an objective benchmark for rating AM. However, the report emphasises that it is possible for AM to be evaluated in different ways, including subjectively. It states that noise nuisance investigations, for example, need not be limited to any particular method of assessing WTN and would often involve many other factors such as the time of day and the character of the neighbourhood. Furthermore, factors such as the duration and frequency of occurrence may be relevant in determining subjective responses. Therefore, the report acknowledges that the availability of the IOA RM does not preclude other assessments being made.

427. I therefore reject as ill-founded the defendant's argument as to exclusivity of the IOA RM in nuisance investigations. In considering the impact and level of AM on site, it is appropriate to have regard to the MAS audio recordings and associated time domain graphs even though these are not, and do not purport to be, presented by way of an IOA RM analysis.

428. Having said that, the IOA RM analysis, in contradistinction to the audio recordings and time domain graphs (which cover short periods only) is apt to demonstrate AM values over more extended time periods. However, in the present case such a more consistent picture is demonstrated by Mr. Stigwood's IOA RM analysis of the 2021 internal HH and NF data on which I comment below.

(b) can audio recordings and time domain graphs be used to present/assess the AM on site?

429. The defendant also criticises the use by MAS of time domain graphs to present and assess AM in this case. The IOA AM report considers their use as follows:

The use of the time-domain method

Most respondents agreed that a time-domain method, based on examination of a time-series plot to determine the typical, average, or maximum peak-to-trough values, is very suitable for the assessment of short-term 'clean' WTN data with minimal corruption by other ambient noise. The method has the benefit of relative simplicity. However, the strong majority view was that it was not suitable for rigorous assessment of AM, especially when there was significant noise from other sources, because it was unable to discriminate between fluctuations in noise levels resulting from wind turbine AM and those resulting from variations in other ambient noise. Significant subjective (visual or aural) screening is required to overcome this fundamental deficiency, which is considered to be impracticable for the analysis of long-term data (perhaps covering periods of weeks or months)…

AMWG comments

There is some benefit in having a simple method of assessing AM, for example for the purpose of forming an initial conclusion about the validity of a noise complaint…

Any output from such a method would be open to question unless accompanied by time histories which demonstrated (on subjective judgement) the presence of clear AM with no significant contribution from other ambient noise, or using tools such as autocorrelation spectra. However the AMWG does not consider that the method is a robust basis for an assessment metric which may be adopted in a planning condition. Wind turbine AM, where it occurs, is an intermittent occurrence. The assessment of AM on a particular site would generally involve long-term measurements to establish the frequency and duration of occurrence and the particular wind conditions. Reliance on a time-domain method only, which may appear more direct to non-specialists, is not considered to be practicable or robust, because unlike a frequency-domain method, it is unable to detect WTN AM on the basis of its distinctive periodicity and therefore requires significant subjective 'filtering'.

430. The concern of the IOA was that the time domain method would require significant subjective (visual or aural) screening to discriminate between fluctuations in noise levels resulting from wind turbine AM and those resulting from variations in other ambient noise. Therefore, the output would be open to question unless accompanied by time histories which demonstrated (on subjective judgement) the presence of clear AM with no significant contribution from other ambient noise, or using tools such as autocorrelation spectra.

431. This is in substance the exercise carried out by MAS in relation to the audio recordings and time domain graphs it presents.

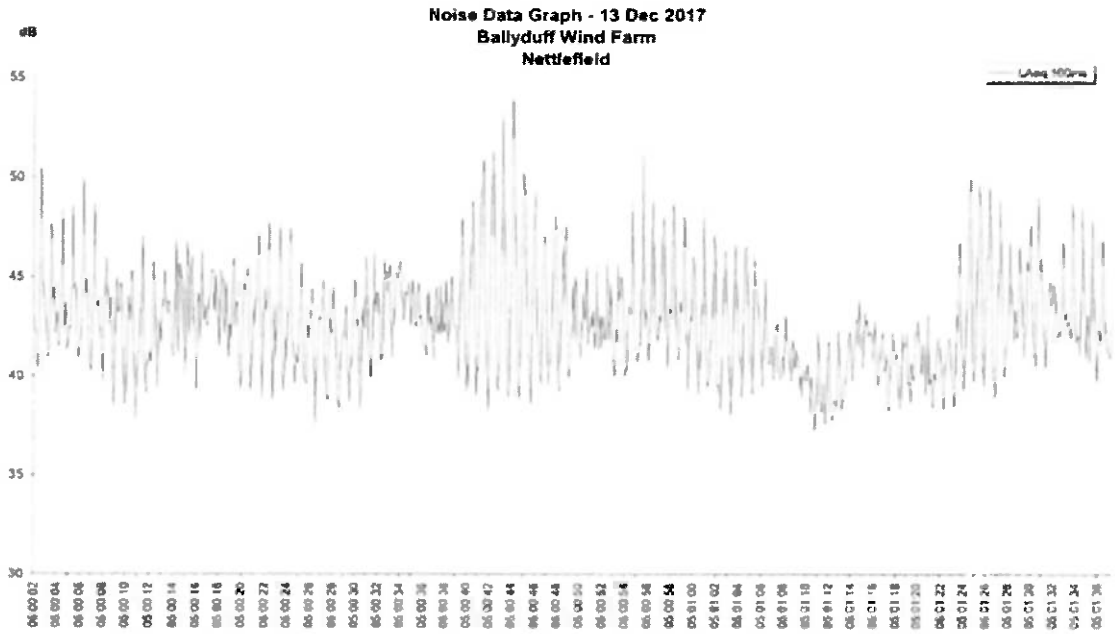
432. Further, the time domain data demonstrates consistency between the AM values typically presenting at both properties over both periods of monitoring. In my view, this

consistency strongly supports the proposition that, overall, MAS's method of presenting and calculating AM values is reliable.

433. With the exception of the 2021 NF external data, I therefore find that the MAS time domain data is sufficiently robust to reliably demonstrate the features of wind turbine AM and to calculate AM values over the periods presented in the graphs[50].

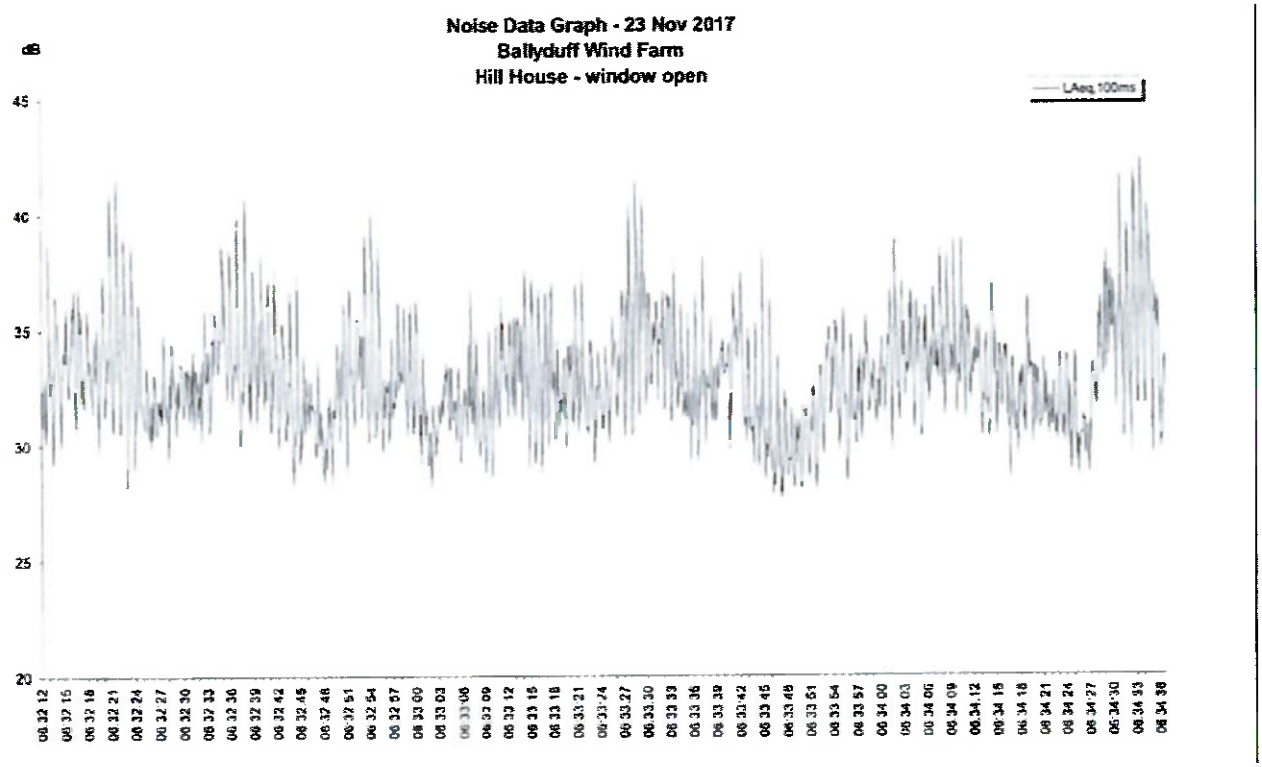
434. Purely for illustrative purposes, I attach below one of Ms. Large's time domain graphs demonstrating the AM externally at NF on 13th December, 2017 at 05.00.

Figure 26: Amplitude modulation -Nettlefield - 13/12/2017 05:00



435. I also attach one of Ms. Large's time domain graphs demonstrating the AM internally at HH (with the window open) on 23 November, 2017 at 06.32.

[50] I deal separately below with the far more extensive data used as an input to Mr. Stigwood's IOA RM analysis.



(c) Do time domain graphs exaggerate AM?

436. Ms. Large and Mr. Stigwood have computed AM values by calculating the differential between the highest peak and lowest trough sound levels in any particular modulation. The defendant states that this may overstate the AM when compared to the IOA RM. This is because the IOA RM calculates AM values by subtracting the L95 from the L5 over the relevant 10 second and 10 minute periods. Mr. Carr emphasises that Mr. Stigwood's report acknowledges that IOA RM derived values "*will typically understate AM peak to trough values*...(when compared with the time domain method) *by 1-2 dBA*". Mr. Carr did not however contend that the likely divergence as between the two methodologies would be any greater than this.

437. Although not calculated over specific 10-second or 10-minute intervals, I accept that the plaintiffs' experts' calculation of average or typical AM values as derived from the totality of the time-domain graphs is sufficiently reliable to inform this court's analysis.

(d) Use of 2021 MAS for IOA RM analysis

438. As stated, the plaintiffs' experts' calculation of AM value is derived from their time domain graphs. These graphs represent specific time intervals only. Although the defendant's experts did not contend that the audio recordings and time domain graphs were unrepresentative of the WTN generally, more extensive data would have been of value in

assessing long term average AM values at a range of windspeeds. Further, although I reject the proposition that the IOA RM is the exclusive methodology for presenting and analysing AM in general or AM values in particular, one would nonetheless reasonably expect that, in a case which is *"all about AM"*, the plaintiffs' experts (and indeed the defendant's experts) would have formally applied the IOA RM in this case.

439. Indeed, it is clear that Mr. Stigwood set out to perform just such an exercise and to apply the IOA RM to the six weeks of data gathered on foot of the 2021 monitoring. To that end, his October 2022 report presents three IOA RM graphs: first, an IOA RM graph prepared on foot of the 2021 NF external audio recordings; second, an IOA RM graph prepared on foot of the 2021 NF internal audio recordings and third an IOA RM graph prepared on foot of the 2021 HH internal audio recordings. Each such graph plots the average 10-minute AM value over the relevant six weeks as calculated in accordance with the IOA RM. However, for different reasons which I will now explain, none of these three graphs is prepared in full compliance with the IOA RM methodology.

(e) Use of 2021 NF external data for IOA RM analysis

440. Mr. Stigwood's opinion is that the IOA RM analysis of the 2021 NF external audio recordings suggests that average AM values over the six weeks of data were in the order of 8 dBA and would incur an AM penalty of 5 dB under draft WEDG 2019.

441. Mr. Carr indicated that he was unable to stress test this conclusion because he could not discern how the data had been post-processed and analysed by Mr. Stigwood. It is hard to give this much credence. The defendant has had Mr. Stigwood's report and all of the underlying data for some time and could have performed its own IOA RM analysis.

442. However, I accept that due to the absence of a double skinned windshield and because the external NF 2021 audio was recorded at façade level, it cannot form the basis of a valid IOA RM analysis, and I do not accept it for that purpose. I consider immediately below the IOA RM analysis of the 2021 NF and HH internal audio recordings.

(f) use of 2021 NF internal and 2021 HH internal data for IOA RM analysis

443. The defendant correctly observes that the plaintiffs' most serious complaints concern indoor noise particularly at night. It nonetheless objects to MAS's presentation of an internal IOA RM analysis.

444. The IOA AM report considers the usefulness, for its purposes, of internal measurements.

> **Is it appropriate to measure AM outdoors in free-field?**
>
> This question generated considerable discussion. Most respondents observed that complaints regarding AM often concerned indoor noise, particularly at night. It could therefore be thought logical to measure noise inside dwellings. Furthermore experience suggests that there is a variable 'transfer function' between indoor and outdoor perception of AM and in some cases, higher levels of AM may be detected indoors than outdoors. However, most respondents accepted the difficulties in measuring noise inside, including the influence of room modes and the resulting spatial variations in noise level, as well as the influence of domestic noise sources…
>
> For the purposes of defining and applying a method for rating AM, most thought that measuring indoors presented too many practical difficulties and outdoor measurements were strongly preferred. Measuring outside is also consistent with most other environmental noise assessment procedures. It was suggested by some that additional indoor measurements would be appropriate if complaints related specifically to noise indoors.
>
> **AMWG comments**
>
> The working group's objective is to define a metric that can be used reliably within the planning system, and external measurements are the only practicable option. For specific complaint or nuisance measurements, investigators are of course free to make internal measurements and assessments in connection with the specific issues. Indoor measurements are problematic for a variety of reasons including, access difficulties, corruption by other sources, and room modes which could result in different responses in different positions in the room. These factors can cause a large variation in noise levels which can affect reproducibility. It is considered unnecessary to account for all of these factors when wind turbine AM can be measured reliably outdoors.

445. Ultimately, therefore, the IOA AM report concludes that as the objective of the working group is to define a metric that can be used reliably within the planning system, external measures were the only practical option. This is entirely logical as it would not be possible for a planning noise condition to be set by reference to internal measurements at specific houses. However, the IOA AM report also acknowledges that for a specific complaint or for nuisance measurements investigators are free to take internal measurements.

446. In considering the robustness of the IOA RM analysis of the internal data, two specific issues arise.

447. First, unlike the other data presented to the court, MAS has not subjectively screened the six weeks of 2021 internal NF and HH data input into the IOA RM for contamination from domestic sources. However, I note that the Carty-Shortens moved out of the master bedroom at NF in July 2017. Even at the time of the 2017 MAS data collection[51] the master bedroom was therefore unoccupied. Moreover, at the time of collection of the 2021 MAS data[52] the whole house was unoccupied. This tends to mitigate if not exclude many potential sources of domestic contamination which might otherwise undermine the analysis of long term internal data under the IOA RM.

448. The position is different in relation to HH which was occupied during all monitoring periods. As there may be undetected contamination from domestic sources, the IOA RM of this data is less robust. However, as there is no suggestion that there is a significant difference between the AM or the AM values experienced as between the two properties, the 2021 NF internal data may be seen as a fair proxy for the AM values experienced internally at HH.

449. Second, as the IOA points out room modes could result in different responses in different positions in the room. This would be an obvious problem if one was using the data collected to calculate potential AM penalties for the purposes of a planning condition. This requires consistency and ease of replication as between different affected dwellings. However, as room modes have been adequately dealt with by compliance with the recommendations in the Defra Guidance,[53] there can be no objection to the use of the internal data to derive a general picture of AM values at the two properties.

450. I accept therefore that the IOA RM analysis of the 2021 NF internal data is sufficiently robust. Whilst therefore strictly speaking it is not a "formal" IOA RM analysis (because the IOA RM is only formally applicable to external free field data), it is nonetheless evidence of weight.

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[51] Note: the 2017 MAS data was not used for the IOA RM analysis but for the analysis of AM values using the time domain method.
[52] Note: this was the data used for the IOA RM analysis
[53] See para 416 above.

451. As such, I accept the opinion of Ms. Large and Mr. Stigwood that the impression of AM gained from the audio recordings and time domain graphs is confirmed by the IOA RM analysis of the internal data. I attach Mr. Stigwood's internal IOA RM analysis pertaining to both NF and HH for the time period 4th December, 2020 - 18th February, 2021 below.

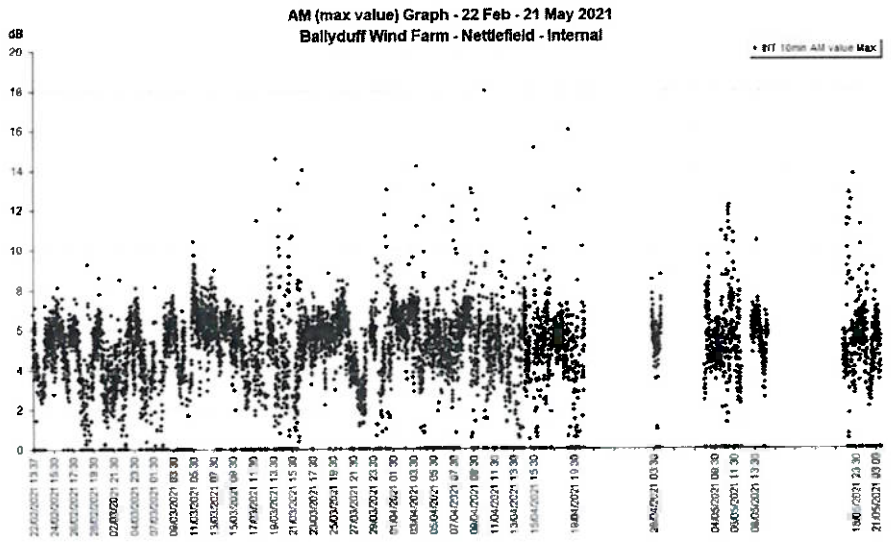
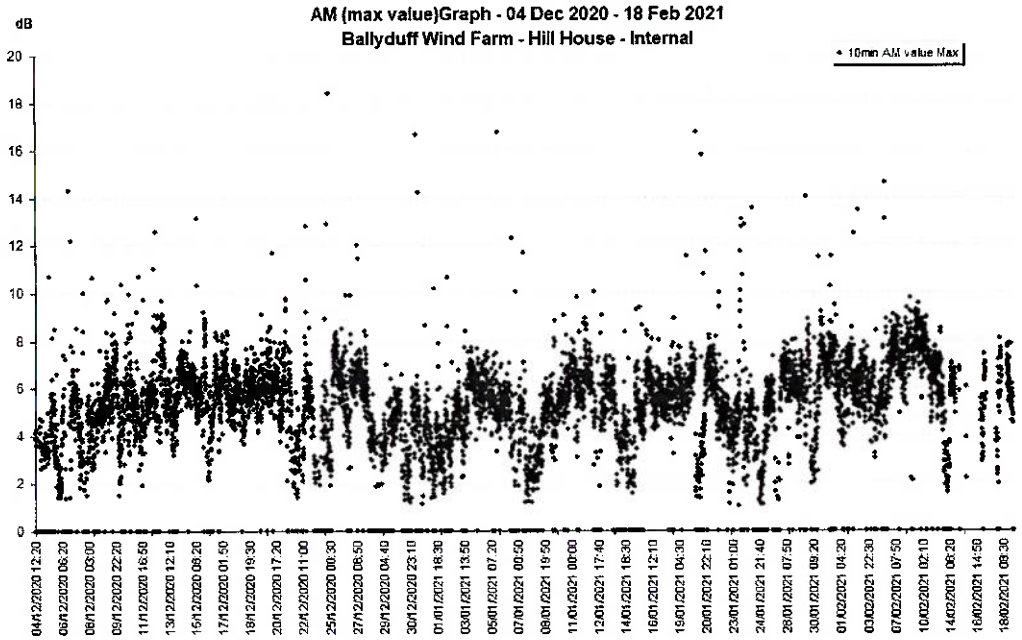


Figure 36: Summary of IoA AM analysis – Nettlefield - Internal



Absence of measurements in HH bedroom

452. In general, measurement errors can occur when a room is occupied at the time of noise monitoring. In NF, the master bedroom was unoccupied, and monitoring was conducted without difficulty. However, HH has been in continuous occupation. Further, due to the WTN,

Ms. Webster finds the master bedroom is the only room where she can sleep in. It would clearly not have been practical or reasonable to require her to vacate this room for an extended period of time to facilitate monitoring. Internal monitoring was therefore conducted in a home office situated downstairs at the back of the house facing the turbine. The master bedroom is on the other side of the house and faces the valley.

453. The defendant's legal submissions argue that Ms. Webster and Mr. Rollo have not made out a case in nuisance because there are no noise measurements or internal audio recordings from the master bedroom at HH.

454. Ms. Large's evidence was that an internal noise assessment is an assessment of the house in general. The intent is to find a location that is reasonably representative of the noise impact at that dwelling rather than to place a microphone in every single room. Ms. Large's view was that the home office where the microphone was placed was representative of the noise level in all of the rooms at the rear of the dwelling, upstairs and downstairs. Whilst she accepted that noise levels at the front of the house, where the master bedroom is situated, would probably be different, there was no evidence of a significant change in the overall character and impact of the noise.

455. Mr. Carr did not suggest that the AM values or indeed the impact of AM and thump AM would be appreciably reduced as one proceeds from the back to the front of the house. Whilst there will always be some variation throughout a dwelling, WTN, particularly with low frequency content, is not well attenuated by structures and will penetrate buildings.

456. Although therefore AM values cannot be accurately calculated for the HH master bedroom specifically, this is of little import. As I understand it, Mr. Carr, who has carried out many nuisance investigations, has never considered it necessary to take any internal readings at all for the purposes of measuring internal AM values. Nor has he ever performed an internal IOA RM analysis. There can therefore be little objection to approximating AM values in the master bedroom by reference to the values presenting in another room in the same house.

Issue 6: Does an analysis under the Defra criteria support the argument that characteristics of the WTN amount to a substantial interference with the plaintiffs' use and enjoyment of their land?

457. I set out below my analysis of the Ballyduff WTN under what I call the "Defra criteria". In doing so, I primarily consider the relevant expert evidence advanced by both parties on each criterion. In this regard, whilst the plaintiffs' experts carried out an in-depth analysis of the WTN by reference to the Defra criteria, the defendant's experts did not. However, in so far as the defendant's experts addressed the issues arising, I set out below the key aspects of their response to the evidence of the plaintiffs' experts in respect of each criterion. As will be apparent, although I do not accept all of the conclusions of the plaintiff experts, e.g., their calculation of background sound levels and their application of the 2009 WHO Lmax limit - I accept the substance of the other points made which together are more than sufficient to establish on the balance of probabilities that the impact of the WTN is objectively unreasonable.

Sensitivity of the complainant

458. In *Smyth v. RPA*, the uncontradicted evidence of the RPA's acoustic expert was that the Smyths were not among a group who could be classified as "ordinary". Rather they were highly sensitive and representative of only a very small proportion of the population - 2.5% - who would experience a high level of annoyance at the noise levels demonstrated. In the present case the defendant has tendered no evidence whatsoever that any of the plaintiffs are highly sensitive or hypersensitive to noise, or indeed otherwise.

459. On the contrary, the evidence of the medical experts is that Ms. Webster is a woman whose basic disposition is one of considerable resilience and fortitude who does not allow herself to become overwhelmed by emotion. She approached the turbine with an open and optimistic frame of mind and did not expect it to negatively impact on her enjoyment of her property to a substantial extent. In addition, there is no suggestion of significant sleep disturbance prior to the commencement of the operation of the turbine. In the case of Ms. Webster (and indeed Mr. Rollo), this is confirmed by discovery of several years of prior medical records.

460. I also accept Dr. Murray's opinion, that Ms. Webster has not suffered from any pathological reaction to the WTN. I find that Ms. Webster's reaction to her experience of the

windfarm at least for the first several years of its operation – was entirely proportionate and in no way hypersensitive. She has, as Dr. Murray said, coped with a difficult situation by managing her reaction to it and managing her emotions. In accordance with Prof. Gournay's view, I further find that, although Ms. Webster describes the WTN as getting worse - which objectively is unlikely to be the case – this perception can reasonably be attributed to its cumulative impact which is becoming more difficult for her to cope with.

461. In so far as concerns Mr. Rollo, the evidence of both medical witnesses is that he is a robust person who is not risk adverse or hypersensitive. I find that Mr. Rollo did not meet the diagnostic criteria for depression until mid to late 2020, three years after the turbine was erected. From mid to late-2020, I find that the WTN brought about a hypersensitive condition in Mr. Rollo who was formerly a well-balanced person. Even at this stage, Prof. Gournay's opinion was that whilst there will always be a difference between how two normal people will respond to the same stimuli, a substantial number of reasonable people would react in precisely the same way as Mr. Rollo. As Charleton J. stated in *Lanigan v. Barry*, although a plaintiff cannot be a sensitive soul who complains unreasonably, the defendant cannot use this argument if his own conduct has resulted in the plaintiff being hypersensitive to the intrusion in question (quoting from *Salmond on the Law of Torts* (London, Sweet & Maxwell, 1977).[54]

462. In short, all indications are therefore that the Webster-Rollos are reasonable, tolerant individuals. I have no reason to believe that the position is otherwise in relation to the Carty Shortens.

463. I also accept the truthfulness of their evidence as to their experience of the WTN. In this, I am assisted to some extent by the clinical impression of both medical witnesses that Mr. Rollo was very straightforward and was not attempting to present a false impression. Dr. Murray stated that "*everything points to a very genuine responder who was not exaggerating his symptoms*". Both medical witnesses also formed a similar impression in relation to Ms. Webster. I formed a similar view in relation to all four plaintiffs.

[54] As will become apparent, this observation may have a particular resonance with respect to Mr. Rollo.

464. Overall, I find that, to quote Henchy J. in *Hanrahan*, the *"notions and standards of behaviour and responsibility* [of all four plaintiffs] *correspond with those generally pertaining among ordinary people in our society at the present time, who seldom allows emotions to overbear reason, whose habits are moderate and whose disposition is equable.* In short, the plaintiffs are, to quote Henchy J. again, ordinary persons *"whose requirements are objectively reasonable in all the particular circumstances".* To quote from the defendant's legal submissions, the plaintiffs are *"ordinary* [persons] *with reasonable objective expectations".*

465. Establishing that the plaintiffs are ordinary persons *"whose requirements are objectively reasonable in all the particular circumstances"* and that their evidence of the turbine impact is unexaggerated is of course only one step in the assessment of nuisance. This is because the primary focus of the assessment must remain on the objective nature of the interference itself.

466. I therefore move on to consider the other Defra criteria.

Level of the noise/ loudness

467. The plaintiffs' experts time domain data presents only short term measurements and therefore does not inform one of general noise levels at a range of windspeeds. For this, one needs to rely upon the defendant's planning compliance data as described at 300 *et seq* above.

468. Mr. Carr's view was that the overall noise levels from these wind turbines should be a significant factor in determining whether nuisance is made out. He states that the Ballyduff noise levels are *"very low"*[55].

469. However, this tells us comparatively little as it would be the case with WTN in general. In contrast to other forms of industrial noise, WTN is not by its nature received at high dBA levels; hence the relatively low absolute noise limit suggested in draft WEDG 2019 of 43dBA L90/45dBA leq.

[55] This fed into Mr. Carr's impression that this was not a borderline or *"critical"* case requiring a more nuanced assessment.

470. In order to consolidate his view that the Ballyduff noise levels are "*very low*" Mr. Carr stated that the HH data demonstrates that the WTN complies with this recommended limit in draft WEDG 2019. Indeed, he states that there is "*headroom*" to spare. He further asserts that the WTN would comply with this recommended limit regardless of any character penalty that could be applied.

471. As I mention above at para 214, I fail to see a valid basis for this assertion. To summarise:

- Unlike WEDG 2006, draft WEDG 2019 proposed a relative rated noise limit of 5 dBA above existing background noise within the range of 35 to 43 dBA L90. Compliance cannot therefore be established without assessing background noise levels.
- Even if noise levels were within range, character penalty for AM may well result in non-compliance. The defendant has made no attempt to calculate - or even estimate - what level of possible character penalty might apply.
- There is no HH night hours data from comparatively low windspeeds of 8 m/s.
- The *"headroom"* contended for is in part at least premised on a 3 dB façade deduction from the measured noise levels at HH. In light of the lack of clarity as to Mr. O' Reilly's measurement position at HH and due to the failure to record and calculate the angle of incidence, I am not satisfied that this 3 dB façade deduction can be applied (see paras 320 -325 above)

472. The NF data - upon which Mr. Carr did not comment - is even less convincing in this respect. During night hours, total operational noise is either at or slightly beyond the maximum total permitted noise level in draft WEDG 2019 (43 dBA L90) from windspeeds of 9.5m/s. There is no assessment of either background noise levels or potential AM penalty. Depending upon how these factors play out, there is a clear potential for breach of the indicative limit in the draft WEDG 2019.

473. In Mr. Carr's view, the overall noise levels from these turbines are well below the point at which a breach of planning permission or nuisance would arise. In actual fact, on the correct interpretation of condition 15, total operational noise at both locations is well above the 40 dBA leq limit set in the permission.

474. One of the defendant's other key submissions was that average sound levels below 30 dBA leq could never constitute nuisance. Provided this is understood to apply to external sound levels, this is generally correct. It is also however somewhat beside the point as total operational noise during night-time exceeds 30 dBA leq at HH and NF at windspeeds above 4 m/s and 6 m/s respectively. In addition, the MAS 2017 NF external data includes numerous examples, albeit for brief time intervals, when external sound levels are 41, 42, 43 dBA leq.

475. Turning to internal sound levels, Mr. Carr states that noise levels below 30 dBA leq would not be expected to impact one's ability to sleep.

476. Again, this point goes nowhere as the defendant's planning compliance data shows that total operational noise externally at NF rises to 40 dBA leq at windspeeds of 7m/s and to 45 dBA leq at windspeeds of 9 m/s. Allowing for an external to internal transfer function of approximately 10 dBA (with windows slightly open), one would anticipate that internal levels would be above 30 dBA leq on a regular basis.

477. In direct examination, Mr. Carr was asked about his impression of the WTN in the main bedroom at HH where he spent 5 to 10 minutes during the site visit on 8th November, 2018. Mr. Carr confirmed that the purpose of this visit was "*more of a listening experience... just hearing it rather than there to take measurements to show any compliance or otherwise*". He stated that he could hear the wind turbine outside but that the impact of the turbine reduced significantly internally. Mr. Carr's evidence was that he stood in the HH master bedroom with the window open and couldn't hear the turbine.

> *Q. And in terms of your own experience inside the property, would you have considered the noise that you were able to barely hear to comprise a nuisance or not?*
> *A. No, not inside that bedroom.*

478. Although my own experience on the day of the site visit was different, I fully accept that Mr. Carr was unable to hear WTN in the HH master bedroom over this 5 to 10 minute period. However, it cannot realistically be contended that such a short visit could ever mirror the plaintiffs' experience of the WTN in the master bedroom over so many years.

479. Whilst the key complaint here is not of the absolute average decibel levels, I conclude that as total operational noise during night hours externally at NF reaches 45 dBA leq (and due to a paucity of data, maximum sound levels at HH are unknown), there is significant potential for dominance and unacceptable intrusiveness when combined with other features.

Type of noise

480. I fully accept Mr. Carr's opinion that the AM values calculated by Ms. Large and Mr. Stigwood on foot of the time domain graphs cannot be directly equated with values derived under the IOA RM. In other words, the application of different metrics will yield different AM values.

481. However, Mr. Stigwood's report suggests that the AM values calculated on his time domain method would differ by 1 or 2 dBs from those likely to be yielded on foot of the IOA RM. As I observe at para 436 above, Mr. Carr did not contradict this passage and indeed drew it to the court's attention. In my view, it is reasonable to expect that when the AM is regular rather than intermittent/ variable (i.e. AM that disappears and returns again or fades in and out), the AM values derived under both methods for a particular time interval would generally be of a similar order.

482. In this regard, I further accept Mr. Stigwood's opinion that the data derived from his application of the IOA RM to the 2021 NF and HH data is generally consistent with and confirmatory of the AM values shown on the time domain graphs produced by Ms. Large in 2017 (on foot of the 2017 NF external audio recordings and 2017 HH internal audio recordings). I further accept that this IOA RM data is also generally consistent with and confirmatory of the AM values on the time domain graphs produced by Mr. Stigwood in 2021 (on foot of the 2021 internal NF audio recordings and the 2021 HH internal audio recordings).

483. I further accept the views of both Ms. Large and Mr. Stigwood that the IOA RM analysis of six weeks of continuous internal data from NF and HH (the 2021 HH and NF internal data), demonstrates regular and substantial internal AM. The primary relevance of this internal IOA RM analysis is in demonstrating consistency of impact over a longer period of time than that represented by the intermittent audio recordings and time domain graphs. This

IOA RM analysis cannot be used for the purposes of calculating potential AM penalties for planning purposes. Indeed, it was not tendered by Mr. Stigwood for that purpose.

484. Draft WEDG 2019 notes, citing the Phase 2 reports that the setting of a threshold for excessive AM is not straightforward and that the available research does not identify a clear onset of increased annoyance from AM or a clear level at which the impact of WTN or AM becomes *'significant'*, *'excessive'* or *'unacceptable'*. It goes on to note an onset of perception for AM at about 2 dB and an association of rising annoyance with increasing depth of AM above 2 dB. Furthermore, Draft WEDG 2019 recommends attaching penalties for AM values in excess of 3dBA.

485. I accept Ms. Large's evidence that AM values of 5 dBA and above, if audible at a sufficient level, are capable of amounting to an unreasonable impact. This is consistent with the rationale behind the Phase 2 Report and draft WEDG 2019.

486. I further accept Ms. Large's evidence that, on foot of the 2017 monitoring, AM values significantly in excess of 5 dBA are a substantial feature of this WTN. The MAS reports summarise the time domain graphs as showing that: (a) typical AM values on foot of the 2017 HH internal data were 7-13 dBA, (b) typical AM values on foot of the 2017 NF external data were 8-13 dBA, (c) typical AM values on foot of the 2021 HH internal data were 5-12 dBA and 5-14 dBA and (d) typical AM values on foot of the 2021 NF internal data were 5-12 dBA and 5-10 dBA. Mr. Carr accepts that the time domain graphs accurately reflect the sounds at the microphone locations, and he did not dispute the accuracy of these summaries.

487. I conclude that even on the most conservative analysis, the time domain graphs reveal a common thread of AM values in excess of 5 or 6 dBA. Although, as I say these typical AM values cannot be directly translated to values of the same order derived on foot of the IOA RM, this conclusion is nonetheless highly significant. In this regard it must be recalled that the view that AM values in excess of 3 dBA leads to increasing levels of annoyance emerged well before the IOA developed the IOA RM for rating AM. This consensus as to the increased annoyance occasioned by higher value AM therefore developed before and independently of the IOA RM.

488. Ms. Large's evidence went even further. She stated that the time domain graphs show that an AM value of 10 dBA is frequently present both externally and internally. Mr. Carr did

not dispute this finding. He accepted that externally such AM values would be experienced as a doubling and halving of loudness.[56] Mr. Carr was inclined to emphasise that this doubling and halving of loudness was only momentary. I fail to see how this ameliorates matters. If anything, rapid peak to trough rise and fall can be particularly distracting and attention drawing.

489. When further cross examined on this issue, Mr. Carr's view was that internally these 10 dBA peak to trough differentials would not necessarily be appreciated as a halving and doubling of noise because the troughs would be below the level of audibility. I accept the logic of this. On the other hand, he also accepted that internally AM peaks of 40 dBA leq and above - which I emphasise are a regular occurrence internally - would be clearly audible. Indeed, the audio recordings demonstrate that this is manifestly the case. Although therefore internal AM values would not necessarily be experienced as a doubling and halving of loudness *per se*, it cannot reasonably be disputed that this characteristic is highly intrusive and unreasonable, particularly in HH where lower frequency sound and vibration also feature prominently.

490. I accept that the AM is likely to be experienced somewhat differently at each property and that it varies somewhat externally to internally as well as between different rooms and different floors of the houses. However, this does not alter the broad picture emerging.

491. Despite criticising the methodology of the plaintiffs' experts, Mr. Carr did not carry out any monitoring capable of identifying AM values. Nor did he engage with the vast amount of external and internal data collected by the plaintiffs' experts over two lengthy periods of monitoring. This data, which was then painstakingly presented by the plaintiffs' experts in almost 100 separate time domain graphs illustrating AM values (and the other characteristics of the AM), was just brushed over by the defendant's expert.

492. Irrespective entirely of its AM values, I also find that the audio recordings (and the associated graphs) support the plaintiffs' evidence as to the varying character of the WTN. I accept that on occasion the sound is more swishy, constant and monotonous with little variation. This in my view is a sound that one would be expected to habituate to. However, I also accept, and again this was not disputed by Mr. Carr, that the WTN also displays a clear

[56] In this respect, it is common case that a rise or fall of 10 dBA will be perceived as a doubling or halving of volume.

whoomphing sound and distinct thump AM. I accept the evidence of the plaintiffs that this whoomphing and thumping is highly variable and unpredictable.

493. I further accept that the audio recordings and time domain graphs support the plaintiffs' evidence that, overall, the WTN is highly changeable and unpredictable. I accept MAS's view that the AM displays considerable impulsivity (sudden changes in sound level), erraticism (with no clear periodicity or rhythm, exhibiting spikes and double spikes of AM) and variability/intermittency (when AM disappears and returns again). None of this was disputed by Mr. Carr. These latter characteristics, which are particularly evident in light of the high AM values, mean that the WTN lacks any pattern to which one could acclimatise and therefore impacts coping mechanisms.

Aggravating features - Spectral content of the noise

494. Low frequency noise (sound up to approximately 150 hertz) only slightly above the threshold of audibility can cause considerable disturbance and is more difficult to mask and get used to than other types of noise.

495. Ms. Large conducted a spectral analysis of the data collected during the 2017 monitoring period. Her conclusion is that whilst there is substantial variability in the spectral content of the noise, low and lower frequency energy is present externally and internally.

496. Ms. Large states that there are many periods when the sound energy is dictated by lower frequency energy at 200/250 hertz. This is important because it impacts upon the character of the AM. Thus, whilst AM in the range of 500 to 800 hertz would be heard as a swish, AM below 315 hertz will be heard as a lower pitched whoomph or rumble or thump. Sound at this end of the spectrum is rumbling in nature and is described as being felt like a vibration as well as merely heard. Ms. Large's evidence was that during the 2017 monitoring period there were also regular periods characterised by lower frequency sound within the 100 to 200 hertz third octave bands. This was manifest both externally at NF and internally at HH. If this low frequency noise occurs at peaks of AM, then it will be heard as a thump or a beat.

497. Ms. Large indicated that this low frequency impact is particularly prevalent internally at HH and notes that low frequency noise propagates further and is more effective at transmitting through structures. Thump AM will therefore be enhanced indoors because it is

less well attenuated by structures. In addition, the ETSU Review observes that thump AM is more prevalent at night, due to atmospheric conditions.

498. All of this is entirely consistent with Ms. Webster and Mr. Rollo's description of thumping noise which comes through the walls and ceiling of their bedroom, particularly at night. Ms. Large also referred the court to the Defra low frequency curve against which the acceptability and audibility of low frequency noise is assessed. Whilst spectrograms of the WTN at HH showed that average sound levels were just below the low frequency curve, lower frequency sound modulated above the curve and would therefore be audible. Ms. Large's report demonstrated that audible low frequency sound at peaks of AM were present on multiple occasions within measurement periods as short as 2 minutes.

499. Ms. Large also gave evidence that in both dwellings she personally experienced periods of significant low frequency noise producing thumps, rumbles and thudding. Subsequent correlation with spectral frequency identified that the periods were impacted by significant low and lower frequency sound energy. Mr. Stigwood's evidence was that the thumping rise and fall of the WTN was the dominant noise internally even with the window shut.

500. Mr. Carr's written report noted that a particular period of low frequency noise identified by Ms. Large would not fall within the audible range. However, he did not give any oral evidence to this effect. In any event, Mr. Stigwood referred the court to other data in Ms. Large's reports which demonstrated that lower frequency noise was clearly audible.

501. Mr. Carr did not conduct any monitoring capable of identifying low frequency characteristics. In his direct evidence to the court, he did not contradict the plaintiffs' experts in relation to the presence, and at times, dominance of sound at the lower frequency end of the spectrum. Nor did he contradict the proposition that the audio recordings and time-domain graphs (with associated spectral correlation) confirm that this lower frequency is manifesting as thump AM.

502. When cross examined about the impact of low frequency noise and low frequency AM in particular, Mr. Carr's response was once again to refer to the IOA RM as the appropriate manner in which to present, assess and rate AM. This, in my view, was a wholly inadequate response. Although the IOA AM report expressly recognises that there are two manifestations

of WTN – blade swish and periodic thumping or whoomphing noise containing relatively low frequencies - the metric described in the report does not reflect any change in subjective response with modulation frequency. The defendant does not contend that the IOA RM distinguishes between AM of the swish variety and AM of the thump variety. Therefore, whilst recognising the existence of whoomph or thump AM, the IOA metric is relatively insensitive to it.

503. In light of the above evidence, I find on the balance of probabilities that whilst low frequency noise is not the dominant characteristic of the WTN, there is a significant element of audible low and lower frequency noise which manifests as thump AM. I also accept the evidence of the plaintiffs, and indeed of Ms Large that, even with the windows entirely shut, thump AM is evident and further that one can feel the vibration of thump AM in the structure of both houses.

Characteristics of the neighbourhood

504. The impression I gained of the area during the court visit fully supported the plaintiffs' account of the character of the locality. This is a quiet, rural area and the sound environment is characterised by the sounds of nature. Absent the WTN, there would otherwise be a fairly predictable pattern of noise (e.g. decreasing noise levels at night-time, temporarily increasing noise levels at dawn during the dawn chorus and largely unintrusive levels of noise throughout the day from local traffic and other manmade noise).

505. As this is not in dispute, I accept that the location is in a wind shadow sheltered from the prevailing winds. One would expect that wind related noise at the plaintiffs' properties would, more often than not, be fairly low.

506. Generally, therefore there is little specific manmade noise in the area which the plaintiffs' experts argue contributes to the nuisance posed by the "*alien*" and "*industrial*" character of the WTN. In so doing the plaintiffs' experts assume that, absent the nuisance, the character of the locality would include no WTN at all.

507. This is a false comparison. Mr. Carr's opinion is that it is not appropriate to "set" baseline noise at the level that would be expected without any turbines in the vicinity. As a matter of principle, I agree with Mr. Carr. There is planning permission for a windfarm at this

location which carries with it the assumption of a level of WTN and associated AM and on occasion lower frequency noise. In assessing the character of the area, the court must have regard to the fact of the permission and the existence of such turbines.

508. As I state above, the wind was low at the time of the court's site visit and the 10 m standardised windspeeds at T2 varied and averaged between 4.1 and 4.8 m/s. Although T2 was therefore only turning slowly, the WTN was audible inside and outside both HH and NF. It is common case that, although audible, the WTN evident on this occasion would not be considered unreasonably intrusive.

509. However, the clear and unavoidable conclusion from the audio recordings is that both the external and internal soundscape is dominated by the WTN. Although certain background and extraneous noise is discernible, it rarely masks the characteristic rise and fall of the turbines which is the predominant noise. On the majority of the audio recordings, both external and internal, the WTN is the *only* noise that one can consistently identify. It constantly draws one's attention. Other ambient noise might ebb or flow, but it does not mask the WTN to any appreciable extent. With very few exceptions, the defendant did not by reference to the audio recordings, realistically contend to the contrary.

510. I cannot say whether this dominance is a function of the level of exceedance of the WTN over background noise levels (as to which see below), the high AM values, the comparatively low spectral frequency or the other attention drawing characteristics of the WTN. Most likely it is a combination of all these features. One can say however that this dominance exacerbates the dissonant qualities of the WTN to an extent that an ordinary person would not be expected to tolerate. I am satisfied that windfarm noise such as this cannot be considered part of the character of the locality.

511. Demonstrably, the degree of dominance evident on the majority of the audio recordings is not a constant state of affairs. For a start it must occur at speeds of rotation in excess of those pertaining at the time of the court visit. However, I accept the evidence tendered by the plaintiffs that such dominance occurs commonly and for sustained periods. Such dominance will also be particularly evident at night when the impact of AM - in particular thump AM - is more prevalent and when other background sounds are lower.

The exceedance of WTN over background noise

512. An overriding theme of the cross-examination of Ms. Large and Mr. Stigwood was that they had failed to assess background noise levels at a range of different windspeeds. There is no doubt that this impedes the analysis. For example, whilst total operational noise appears to be above the limits fixed in condition 15, without accounting for background noise one cannot draw a definitive conclusion on planning compliance. For present purposes, it also means that one cannot assess whether this is a "*low noise environment*" within the meaning of WEDG 2006. Nor can one assess the level of exceedance of WTN over background noise in order to benchmark the WTN against the commonly applied relative limit of 5 dBA over background noise (see both WEDG 2006 and draft WEDG 2019).

513. The problem, however, is that a formal background noise assessment cannot be carried out unless both turbines are turned off for a substantial period which is wholly outside the control of the plaintiffs and wholly within the control of the defendant.

514. Mr. Carr stated that the plaintiffs could have estimated background noise levels in a number of different ways, such as in upwind conditions. However, at this proximity, Mr. Stigwood says that WTN would elevate noise levels even in upwind conditions. Alternatively, Mr. Carr suggested that one could estimate background noise levels using a proxy location. However, given that Mr. Carr did not identify a suitable proxy location, I can comment no further on this.

515. In the absence of a formal background noise assessment, both parties advance other evidence to approximate background noise levels.

<u>Evidence of the plaintiffs' experts on background noise</u>

Comparing windy periods with still periods

516. Ms. Large and Mr. Stigwood compared noise levels during periods when T2 was turning very slowly - or not at all - with periods when it was turning more rapidly. The difference in sound levels is then said to approximate the "turbine off" noise level versus the "turbine on" noise level .The contention is that the former approximates "background sound" and that T2 increases background sound levels internally at HH by 10-15 dBA (with the window open) and by 9-11 dBA (with the window shut). In each case, Ms. Large states that

this is more than a doubling of volume.[57] It is also contended that T2 increases background noise levels externally at NF by 15-19 dBA above background noise levels - almost a quadrupling of volume.

517. However, this approach ignores that periods of high WTN are generally also characterised by higher windspeeds which, even absent the WTN, would be associated with commensurately higher levels of background wind noise. Windier periods are noisier than still periods.

518. To meet this difficulty Mr. Stigwood argues that residents will be disturbed by high WTN irrespective of the fact that it might be somewhat noisy even without the WTN. He states that psychologically speaking, residents will compare periods of high WTN to periods of calm when WTN and wind noise are absent. Not only do I find his view unconvincing but, in expressing it, Mr. Stigwood was beyond the limit of his area of expertise.

Comparing periods of lull in the windfarm activity with periods of activity at the same windspeed

519. To estimate background noise and approximate the "turbine off" noise level, Ms. Large's report presented data pertaining to a lull in WTN shortly after 4 a.m. on several mornings every week. By correlating this data with the SCADA data for T2, Mr. Stigwood ascertained that an adjustment of the blade angle of T2 occurred at the time of each lull. During the lull, there is a discernible drop in overall noise - by as much as 14 dBA - but crucially, no associated drop in windspeed. He therefore concludes that the drop in noise levels is attributable to the adjustment of T2 and further that background noise at the relevant time is less than the noise level pertaining during the lull (as T1 is still operational). This all suggests that at the times in question WTN exceeds background noise by substantially more than 5 dBA.

520. However, even assuming that this is correct, one cannot extrapolate from here to a proposition that this is generally the case. These lulls, although occurring on a regular basis, are of very short duration (no more than a minute or so).

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[57] In this respect, it is common case that a rise or fall of 10dBA will be perceived as a doubling or halving of volume.

521. In any event, a formal assessment of exceedance of WTN over background noise levels is calculated by reference to a range of windspeeds. The plaintiffs' experts merely estimate such exceedance at the particular time of each audio recording without reference to windspeed. This is not a robust assessment methodology.

522. In short, I cannot be satisfied on the balance of probabilities that the WTN exceeds background noise by in excess of 5 dBA such as to breach this aspect of modern planning guidance (WEDG 2006 and draft WEDG 2019).

Evidence of the defendant's experts on background noise

523. I am equally unconvinced by the defendant's suggested approach to the assessment of background noise levels. This was to derive same from Mr. O'Reilly's HH planning compliance graph. The HH planning compliance graph shows that at low windspeeds, the trend line is above 30 dBA L90 which Mr. Carr tentatively suggests might approximate background noise levels. This is not a recognised method of calculating background noise levels. A trend line is designed to present noise levels over the entire graph. Mr. Carr accepted that if a trend line were to be derived for these lower windspeeds only, this would "*pull down the polynomial line*".

524. In any event, applying the same methodology to Mr. O'Reilly's NF compliance graphs suggests very low background noise levels both during quiet waking hours (well below 30 dBA L90) and night-time hours (well below 20 dBA L90). Furthermore, a line of data points at 20 dBA on both the NF quiet waking hours graph and the NF night-time hours graph which is indicative of unrecorded sound levels below the level of sensitivity of the sound recording instruments. This would pull the trend line down still further, implying that background levels at NF are very low indeed.

Conclusion on background noise

525. Overall, I find that neither the plaintiffs nor the defendant's estimation of background noise levels are reliable.

526. It has not been established that the WTN is in breach of the commonly applied relative noise limit (5 dBA above background noise levels). Nor can I be satisfied on the balance of probabilities that this is a "low noise environment".

527. Notwithstanding this, and recalling my observations at para 509-511 above, I find that on account of its characteristics (rather than its absolute decibel level) the WTN commonly dominates the plaintiffs' sound environment over sustained periods of time.

528. The intent of a relative noise limit is that background sound might mask WTN to a degree, rendering it less distinguishable. Therefore, although it may not be possible to formally assess exceedance over background noise levels, I am nonetheless satisfied that WTN which dominates the plaintiffs' sound environment can fairly be characterised as inconsistent with the purpose and intent of relative noise limits.

The impact of the noise on basic needs such as sleep

EPA Guidance Note on Noise Assessment of Wind Turbine Operations at EPA Licensed Sites ("EPA NG3").

529. In June 2011, the EPA produced a guidance note on the noise assessment of wind turbine operations at EPA licenced sites, EPA NG3. Although EPA NG3 is not applicable to this windfarm, it is nonetheless relevant to note that it expressly recognises the additional annoyance and sleep disruption that can be occasioned by AM. EPA NG 3 records that excessive audible AM attracts attention, particularly if heard while trying to get to sleep either at the start of a night or when a person has been woken by other causes. It states that although the level of noise generated internally, even with windows open, is usually insufficient to cause sleep disturbance, the stress it may generate, even if only just audible, may be sufficient to extend the time required to fall asleep. Such effects may give the impression of a noise which is 5 dBA or more louder than a noise of the same level without any such components. EPA NG3 notes that it is therefore necessary to develop appropriate corrections for regulatory purposes.

WHO Guidance Lmax and Lden

530. Both parties rely on World Health Organisation guidance in relation to the level of sound thought to affect sleep, health and wellbeing. Ms. Large notes that the 2017 HH internal

data shows AM peaks (known as the Lmax) of 40-43 dBA leq with the window open and 20-21 dBA leq with the window closed. She also notes that the 2017 NF external data demonstrates that Lmax is regularly in the region of 50-50 dBA leq but also reaches 54-57 dBA leq. Ms. Large states that AM demonstrating Lmax of this magnitude would be viewed by the WHO 2009 Night Noise Guidelines for Europe ("WHO 2009") as likely to cause sleep effects.

531. However, this focus on the Lmax of noise has not been carried through to more recent WHO Guidance, the 2018 Environmental Noise Guidelines for the European Union (WHO ENGER). WHO ENGER, which, unlike WHO 2009, contains recommendations on WTN specifically sets a "*conditional recommendation*" for WTN of 45 dBA leq on an Lden basis.

532. Mr. Carr suggests that the noise limits set out in the Ballyduff permission complies with the WHO ENGER recommendation. He also maintains that, as Mr. O'Reilly's compliance graphs show that total operational noise is below 45 dBA leq during quiet waking hours and night hours, the WTN also complies with WHO ENGER.

533. However, Lden is an entirely different measurement metric to either L90 or leq. The Lden (also referred to as "DENL") indicator is calculated as the A-weighted average sound pressure level, measured over a 24-hour period, with a 10 dB penalty added to the average level at night, a 5 dB penalty added to the average level during the evening and no penalty during the daytime. The penalties are introduced to indicate people's extra sensitivity to noise during the evening and night.

534. Neither parties' experts have even attempted to calculate how one might convert the data in Mr. O'Reilly's compliance graphs to the appropriate Lden metric, which in any event should presumably be ascertained for all wind directions (and not solely downwind).

535. Overall, there is entirely insufficient evidence to apply the WHO Lden conditional recommendation in ENGER to this site.

536. In any event, ENGER acknowledges the low quality of the evidence reviewed in the formulation of this recommendation, which is conditional only. Therefore, although the guidance of WHO clearly carries much weight, I do not consider it a robust framework for

assessing whether or not the WTN in the present case is likely to disturb sleep to the extent of posing a nuisance.

Conclusion on sleep impacts

537. Rather, the potential impact of this WTN on sleep must be assessed by reference to the audio recordings (and the associated graphs), all of the expert evidence as to the characteristics of this WTN and to the factual evidence of the plaintiffs, Ms. Doran, Ms. McGinn and the plaintiffs' experts as to the "real world" sleep impacts experienced as a result of this WTN. For the reasons set out above, I am satisfied that high AM values and thump AM due to the presence of lower frequency sound energy are common and sustained features of this WTN. These are also the primary characteristics of which the plaintiffs complain. ENGER notes that these characteristics are not captured by standard methods of measuring and that this differentiates WTN from other noise sources. These are characteristics which are known to heighten annoyance and disturb peace, rest and sleep. I therefore find that there is more than adequate evidence in this case to make the case of substantial sleep impacts.

How easily the noise can be avoided/ Measures to reduce or modify the noise

538. Externally, limited measures are open to the plaintiffs to reduce or modify the noise. Although they can attempt to mask the noise by playing music or wearing headphones, this is an unsustainable long term solution. I also find that given its characteristics (e.g., with typical AM values exceeding 5 or 6 dB and regular thump AM etc), the WTN regularly intrudes to an unacceptable degree into the plaintiffs' homes over sustained periods of time. Although overall noise levels will be lower with the windows completely shut, at higher speeds of rotation the WTN- and associated vibration-still intrude to an unacceptable degree. In any event, a large part of the population desire to sleep with their windows slightly open and having to close windows affects fresh air and connection with the outside world. In a quiet rural location such as this (albeit one which includes permission for two turbines), it is not reasonable to compel residents to shut their windows in an attempt to partially mitigate the impact of unacceptable noise intrusion.

539. During the day, this WTN may be somewhat masked by the sounds of household appliances, the dogs and conversation. However, it will be obvious during times of calm. At

night, the plaintiffs have already taken such measures as are reasonably open to them to mask the sound to aid sleep.

540. Whilst the defendant contends that insulation would assist, Ms. McGinn states that this has made very little difference at NF.

541. I do not find the defendant's suggestion that the plaintiffs should simply avoid the worst affected rooms is a reasonable means of escape from the noise. There is no authority whatsoever for this proposition. A resident should be able, without nuisance, to relax or sleep in any room they chose. Having to avoid the rooms where the noise is most intrusive merely demonstrates adverse impact on the ordinary comfort and enjoyment of the house as a whole.

542. There are, however, a range of options identified by Mr. Mayer which could be implemented by the defendant to modify or reduce the noise such as constraining the speed of rotation of T2. None of these have been adequately explored to date by the defendant.

How often the noise occurs and the time of day or night when the noise occurs

543. The intrusiveness of the noise varies as between different audio recordings, each of which will be rendered more or less intrusive by reference to a range of factors such as their sound pressure level, their AM characteristics etc. Moreover, the intrusion noise likely to arise varies with the time of day and the duration over which the noise represented by the recording persists.

544. Unquestionably, the most intrusive feature of the WTN is its AM and thump AM in particular. I accept that, as is typical, this is more pronounced at night. The ETSU Review suggests that the same is true of the early mornings and evenings. This means that the worst noise is likely to conflict with the most sensitive periods of the day when background masking sound levels are lower as compared to WTN. This all tallies entirely with the evidence of the plaintiffs and their experts.

Frequency and duration of noise impact

545. Frequency and duration of impact are critical factors in assessing whether nuisance is made out. One can confidently say that if the conditions complained of pertained only for short periods or on rare occasions then nuisance would not be made out. Equally, if there were a less

intrusive noise source present all day every day, then this also might not be a cause of nuisance. There is no hard and fast level of intrusion which can be set as the barometer for nuisance. One has to make a judgment call based on all of the factors identified above as to how the plaintiffs as objectively reasonable people could be expected to relate to the noise.

546. However, bearing in mind that the defendant's experts did not contend that the MAS audio recordings (and the associated graphs) were unrepresentative of the general WTN on site, I accept the evidence of the plaintiffs' experts (and the plaintiffs themselves) that the conditions so demonstrated occur commonly and on a sustained basis.

Issue 7: What is the response of the defendant and its experts to the plaintiffs' case? Does the evidence of the defendant's experts suggest that the WTN is not a substantial interference with the plaintiffs' use and enjoyment of their land?

547. As will be apparent from the above, I find that the analysis of the WTN - as demonstrated by the MAS audio recordings and the associated time domain graphs and spectrograms - under the Defra criteria strongly corroborates the plaintiffs' evidence of unreasonable interference with residential amenity. It is now appropriate to relate the overall response of the defendant and its experts to all of the above. Does this argument or evidence suggest that the WTN is not a substantial interference with the plaintiffs' use and enjoyment of their land or otherwise incline the court towards a finding that nuisance is not made out?

548. In the preceding sections of this judgment, I have set out and analysed the defendant's experts' evidence on the various issues falling for consideration under the Defra Guidance. At substantial risk of repetition, I will make the following more general observations.

549. Mr. Carr , the defendant's principal witness, gave evidence over the course of approximately 6 days. He appears to have attended the properties for a total of 40 minutes on 8th November, 2022.

550. The following extract from the beginning of his cross-examination assists in an appreciation of Mr. Carr's general approach to this case.

Q. So you got that material [the 2017 and 2021 MAS data]. And what I'm concerned about is, you're

complaining about the listening, and my impression is that you don't see value in the [MAS] recordings, is that right?

A. *Yes.*

Q. *You don't see value in the recordings, is that your evidence, is that right?*

A. *It is. I don't -- I don't believe that the [MAS] recordings were taken in a way that the conclusions or the information that came out of them stand over for the reasons that we have said in relation to how the recordings were taken.*

Q. *Well I'll go back then to my question. Why did you not advise Mr. Brazil to make his own recordings?*

A. *Judge, as I understand this, we have to meet the case that's put to us. We assess the site for compliance with the guidelines and the guidance as I know them and then I reviewed the additional information [i.e. The MAS recordings and their reports], and to my mind the evidence wasn't there to show a nuisance.*

Q. *I see. So, at this point, on reflection, do you think you might be better advised, and Mr. Brazil be better advised, if he had his own measurements?*

A. *Judge, the requirements on Mr. Brazil was to assess -- my understanding of it was to assess compliance with the planning and then to look at any evidence in relation to the other guidelines. And to my mind there still isn't evidence of a nuisance there because the way the other data was obtained.*

Q. *Because of the way the other data was obtained?*

A. *And presented.*

Q. *So, the reality of it is then that the Defendant is meeting this case relying on compliance and relying, in essence, on your advice that there isn't a nuisance, isn't that right?*

A. *Well --*

Q. *Isn't that right?*

A. *The overall noise levels from this wind turbine are a significant factor on whether there is going to be a nuisance there or not. In my mind the overall noise levels from these turbines are well below a threshold that would be significant which point to breach of planning, breach of licensing or a nuisance.*

Q. *So that's the advice you gave to Mr. Brazil and that's really the basis on which this case is fought, is it?*

A. *Well that's my advice.*

This passage exemplifies the three main components to Mr. Carr's evidence.

1. The starting point appears to be to assess whether the WTN complied with the planning permission and with "*guidelines* "and "*guidance*" which in Mr. Carr's opinion it did. The only real data pertaining to the WTN on site put before the court by either of the defendant's witnesses was the planning compliance graphs prepared by Mr. O'Reilly. Mr. Carr's report and oral evidence were based exclusively upon the HH planning

compliance graphs and he did not appear to have informed himself of the NF planning compliance graphs.

For all of the reasons already set out, I do not accept that planning permission is the determinant of nuisance in this case. Furthermore, I do not accept that planning compliance is demonstrated in this case.

The primary pieces of "guidance" relied upon by Mr. Carr were WEDG 2006 the IOA RM and draft WEDG 2019. Although I accept that compliance with WEDG 2006 is demonstrated on the balance of probabilities, this guidance does not in my view, delineate the parameters of nuisance in this case. The IOA RM does not set any "*threshold*" for "*noise levels*" at all, whether by decibel level or AM values. The defendant's attitude to draft WEDG 2019 varies. On the one hand its counsel submitted that WEDG 2019 is draft only and cannot be the determinant of nuisance. On the other hand, Mr. Carr asserted that the WTN complies with draft WEDG 2019, "*with headroom*". I prefer the point made by counsel: whilst draft WEDG 2019 might give some indication of the likely future approach to balancing wind turbine development with protection of amenity (which, it appears likely, will involve a combination of relative noise limits and character penalty), it has since been withdrawn and cannot be the determinant of nuisance.

Further, although Mr. Carr asserts that the WTN complies with draft WEDG 2019, this is not even close to being demonstrated on the balance of probabilities.

2. Mr. Carr's view is that the overall noise levels are "*very low*" and well below any "*threshold of significance*". Given his overall assessment of the noise levels, this was not a "*critical*" case requiring him to listen to the WTN or to engage in further monitoring.

However, how is this threshold of significance to be set? In a case which is "*all about AM*", it cannot be set by the bare noise limits designated in the planning permission or in WEDG 2006.

Further, in so far as draft WEDG 2019 might be said to provide any indication of the "*threshold of significance*", there is no valid basis for Mr. Carr's assertion that the WTN is well below this threshold or otherwise "*low*". On the contrary, Mr. O'Reilly's NF compliance graph shows that from windspeeds of 9 m/s total operational noise levels at NF are right at or slightly over the 43 dBA L90 maximum threshold recommended by draft WEDG 2019 (irrespective entirely of any possible character penalty). The noise levels on the HH planning compliance graphs are admittedly lower,

but these graphs can only inform one on noise levels at comparatively low windspeeds. Likewise, background noise is an unknown so compliance with the draft WEDG 2019 relative limit cannot be assessed at either location.

In short, I do not see compliance with draft WEDG 2019 *"with headroom"*.

3. Mr. Carr sees no value in any of the MAS data by reason of the manner in which it was collected and presented.

   Insofar as concerns the collection of the MAS data, there could be no legitimate criticism of the manner in which Ms. Large collected the 2017 MAS data. The 2017 NF external data was recorded with a double skinned windshield in an appropriate free field location and the 2017 internal HH data was recorded in accordance with the Defra Guidance for internal measurements.

   I am fully satisfied that even if one relied upon the 2017 data alone, same is sufficient to confirm high AM values, lower frequency sound content, thump AM etc. Moreover, Ms. Large's opinion, on which she was not contradicted, is that there is no material difference between the 2017 and 2021 data. This supports the conclusion that the 2021 internal data is reliable. Although therefore there is legitimate criticism of the 2021 NF external data (which I therefore disregard), the analysis of the internal NF and HH 2021 data is on balance robust.

   Insofar as concerns the presentation of the MAS data, I am satisfied that the methodology used reliably presents the key features of the plaintiffs' general sound environment - the dominance of the WTN and its erraticism, impulsivity and variability. I am also satisfied that reliance can be placed upon MAS's calculation of AM values which is supported by the application of IOA RM to the 2021 internal data (in particular the 2021 NF internal data which was recorded in an unoccupied house). I am further satisfied that spectral analysis demonstrates significant lower frequency sound manifesting as thump AM.

   For all these reasons, it is entirely illegitimate for Mr. Carr to place "*no value*" on all of this data and to effectively ignore it.

551. Beyond criticising their methodology, the defendant's evidence did not engage at all with the plaintiffs' expert's audio recordings (and the associated graphs). Unless one accepts the contention that the planning permission and WEDG 2006 are the determinants of nuisance, the defendant's experts gave the court very little to go on. Mr. Carr offered little or no substantive evidence in response to the audio recordings (and the associated graphs) illustrating

and analysing the features of WTN. He and Mr. O'Reilly ignored the propositions of the plaintiffs' experts outlined in exhaustive detail that this demonstrates that AM values are excessive, and that low frequency characteristics and thump AM are commonly present in the WTN.

552. The defendant's evidence did not engage in any meaningful way with the evidence of the plaintiffs as to their experience of the WTN. Mr. Carr has not read the Webster Rollo noise diaries. He did not comment in any detail on how the sound might present itself to the residents.

553. The defendant's experts, both of whom are extremely experienced in relation to windfarms, offered no substantive evidence that the impact of the WTN was not as described by the plaintiffs and their experts. There was, for example, no suggestion that the level of erraticism, impulsivity and variability described by the plaintiffs in the AM was not present on the audio recordings or on site. Nor did the defendant's experts contend that thump AM was not a regular feature of the WTN. They did not contradict the plaintiffs' experts' finding that this was evident on the audio recordings and indeed, during their visits to the site. Although many passages in the guidance to which he referred noted the distinction between swish and thump AM, Mr. Carr did not address the reported impact of regular, substantial and sustained thump AM at this site.

554. The defendant's experts did not assist the court in understanding how they contend that the experience described by the plaintiffs and features of the WTN highlighted by the plaintiffs' experts on the audio recordings (and the associated graphs) do not represent an unreasonable intrusion on amenity. If indeed this was their opinion it was not, by reference to any of the MAS data (or any other data), either explained or substantiated.

555. Neither Mr. Carr nor Mr. O'Reilly contradicted the view of Ms. Large and Mr. Stigwood that the noise from the Ballyduff turbines is exceptionally intrusive and out of the ordinary for WTN. I therefore accept the evidence of the plaintiffs' experts that this WTN is considerably more intrusive than one would usually encounter. Although Mr. Brazil states that the WTN is not unusual, I cannot accept this as Mr. Brazil has paid only a short visit to the plaintiffs' homes and beyond that has only heard the WTN from the public road which is set back from their properties.

556. Mr. Carr stated that in general he would advise wind turbine operators that if there is an issue with AM complaints, they should try and identify the environmental circumstances under which this occurs to ascertain if mitigation measures are required or can be devised. This is a step which for reasons best known to itself the defendant and its experts have steadfastly declined to take.

557. In many cases, in untangling an issue on which expert evidence has been given, particularly one on which the crux of the case in large part depends, only one of the two competing experts' views can be preferred. This case is somewhat different because whilst the plaintiffs' experts addressed the features of the WTN said to give rise to nuisance in detail, the defendant's experts have not. To emphasise the "appalling vista" that would present should this court find for the plaintiffs, the defendant and its experts stressed that a large number of windfarms are situated within 500 meters of a residence. I have no reason to doubt this. But this case is not about statistics. It is about *this* noise from *this* windfarm as heard at *these plaintiffs' residences*. This is the issue on which I would have appreciated the assistance of the defendant's experts.

Issue 8: Did the acoustic experts fail to discharge their duties to the court?

558. Both sides criticise the experts of the other for failing to understand their duty to the court. The defendant submits that the MAS reports (and Mr. Stigwood's oral evidence in particular) displayed many of the features which were sharply criticised by the Court of Appeal in *Duffy v. Mcgee* [2022] IECA 254. The plaintiffs maintain that Mr. Carr deliberately curated his evidence to focus only on planning guidance and that he deliberately ignored the separate issue of nuisance. It is said that he thereby brought only part of his expertise to the court.

Defendant's criticisms of Mr. Stigwood and Ms. Large

559. Mr. Stigwood is an acoustician who has no metrological, scientific or statistical qualifications. The defendant criticises him for giving evidence touching upon these issues. However, such evidence was not advanced in a vacuum. Rather, the vast majority of such evidence was advanced either by reference to the contents of established guidance and standards which were themselves the subject of extensive comment by both parties (such as ETSU, the IOA AM report, draft WEDG 2019 etc) or by reference to relevant guidance on the assessment of nuisance (such as the Defra Guidance and EPA NG 4). At other times the views

expressed - e.g. that the plaintiffs' residences were in a wind shadow or that the position of T2 on a height would increase the impact of windshear- was uncontested and /or was common sense. This criticism is not therefore merited.

560. The defendant criticises Ms. Large's first report for citing legal authority. However, it is evident that the primary purpose of these passages is to place the expert evidence in context and to draw attention to the factors which are viewed by the court as relevant to the assessment of noise nuisance. In any event, the factors discussed[58] either have their genesis in the Defra Guidance on assessing statutory nuisance or they are so self-evidently relevant to a noise nuisance assessment as to be uncontroversial. Detailing these factors does not imply a failure to understand an expert's duty to the court.

561. Nor do I view the evidence of either Ms. Large or Mr. Stigwood assessing the Ballyduff WTN as against these factors as anything other than relevant, helpful and thorough. Rather, I agree that Mr. Carr's failure to substantively engage with these factors is regrettable. As a result, Mr. Carr did not assist the court on matters which are demonstrably relevant and within his field of expertise.

562. The defendant also criticises the plaintiffs' experts for citing various publications and expressing their opinion in relation to the functioning of the human brain and aspects of neuroscience. In so far as concerns Ms. Large, this criticism is entirely ill founded. This is a case about noise annoyance and factors likely to decrease or increase noise annoyance are of obvious relevance. Ms. Large's written and oral evidence, whilst containing some limited commentary on one's physiological response to noise – in each case, citing appropriate publications – did not in my view stretch the limits of her expertise as an acoustician. Much of this evidence - for example in relation to the enhanced impact of low frequency noise – was in the field of (or intersected with) acoustics. Other considerations discussed by Ms. Large- e.g. that unpredictable, unexpected noise is more annoying than steady, monotonous noise - are common sense.

563. I agree that, at times, particularly under cross-examination, Mr. Stigwood's answers strayed over the line of his expertise into matters of physiology. I have rejected such evidence

[58] Essentially the Defra criteria.

where appropriate - e.g. Mr. Stigwood's view that one's appreciation of background noise levels should be calibrated by reference to periods of low windspeeds rather than by reference to increasing background noise levels at increasing windspeeds.[59] However, over the course of extremely lengthy testimony, this was a rare occurrence and does not overall undermine his evidence.

564. The defendant also criticises Ms. Large and Mr. Stigwood for expressing the opinion that the data collected by MAS "*corroborates*" the evidence of the plaintiffs. I accept that it is not the function of an expert to express views as to whether one piece of evidence corroborates another. This is clearly a matter for the court. On the other hand, context is everything. This opinion was offered as part of the presentation of the audio recordings of the WTN at the plaintiffs' homes (and the associated time domain graphs). In this context, the plaintiffs' experts presented the features of the WTN – high AM values, thump AM etc- to demonstrate correlation with the plaintiffs' complaints about those self-same features of the WTN. I do not view this as an illegitimate exercise.

565. The defendant submits that the court should attach diminished weight to Mr. Stigwood's evidence because he acted as a partisan advocate throughout the trial. Although there were times when this might have been so, I do not in general accept this characterisation. Much of Mr. Stigwood's dogged perseverance can be explained by the fact that for many years he has argued through his research and publications that the standard ETSU approach does not protect windfarm neighbours against excessive AM. In this, he has been largely proved by contemporary science to be correct. His views are therefore held, and expressed, with vigour, as one would expect in the circumstances. Further, it would be hard to escape the impression that Mr. Stigwood, and indeed, Ms. Large have considered the impact of AM - both in general and at Ballyduff in particular - at far greater length and in far greater depth than Mr. Carr, who did not even attempt to address or assess its impact.

566. Having said that, Mr. Stigwood was at times overly defensive, occasionally refusing to make legitimate concessions even when on somewhat thin ice. For example, I find little merit in his argument that it is legitimate to assess exceedance over background noise by comparing windy periods affected by WTN with still periods which are not. Likewise, Mr. Stigwood gave

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[59] See para 518 above.

evidence as to likely sleep impacts by reference to the WHO 2009 to the unwarranted exclusion of the more recent WHO ENGER. As will be apparent from my analysis above, I do not accept Mr. Stigwood's views in these two respects. In addition, I accept that at times, Mr. Stigwood's use of language appeared somewhat extreme. For example, in presenting the audio recordings to the court, he tended to refer to the WTN as a *"roar"* even when - albeit intrusive and dominant - it could not fairly be so described. Emotive language such as this is unhelpful.

Plaintiffs' criticisms of Mr. Carr

567. The defendant correctly submits that it is a matter for the court to determine whether nuisance has been made out or not on the evidence. Indeed, the defendant appears to have approached the case on the basis that the expert witnesses ought not to offer an opinion on this matter at all.[60] Mr. Carr therefore offered no real commentary on the aspects of the Ballyduff WTN which the plaintiffs and their experts say are demonstrated by the audio recordings (and associated graphs) and which are said to amount to nuisance.

568. However, this rather overlooks the fact that in order to assess whether or not this particular windfarm poses a nuisance, the court must engage with the plaintiffs' complaints and attempt to assess the nature and impact of the WTN at the plaintiffs' homes. In so doing, it is appropriate for the court to be guided by the evidence of experts as to what features of the WTN might be relevant to the noise nuisance assessment, as to the presence or absence of such features in the Ballyduff WTN and as to the extent to which, if present, such features are known or recognised to increase annoyance or can otherwise be characterised as adverse or unreasonable. Contrary to the view apparently held by the defendant and its experts, an informed qualitative commentary on such features is of assistance to the court.

569. Furthermore, in a case in which the defendant relies so heavily on the fact that there is planning permission for the wind turbines, one would expect that Mr. Carr would assist the court in assessing whether the features of the WTN complained of by the plaintiffs and highlighted by the evidence of MAS, are conventional features of WTN or are, as MAS

[60] The defendant's written legal submissions argue that it is not appropriate for expert witnesses to express a view on matters of law which are for the Court to determine and that the Court should accordingly disregard entirely the assertions which have been made by MAS to the effect that nuisance has been proven on the evidence.

contends excessive, out of the ordinary[61] or otherwise non-conventional for WTN? However, Mr. Carr's evidence did not illuminate the court at all on this issue.

570. This is unfortunate not least because this court has no expertise in distinguishing between conventional and non-conventional WTN. By contrast the experts on both sides have vast experience in this area. There is nothing improper therefore in the plaintiffs' experts expressing the view that the particular features of this WTN render it non-conventional and far more intrusive than would usually be the case.

571. Like Mr. Stigwood, there were times when Mr. Carr pushed his argument too far. For example, I was surprised by his insistence that compliance with the planning permission (and with WEDG 2006) defines the parameters of nuisance. This inevitably entailed a refusal to acknowledge that the science has changed since WEDG 2006. In fact, Mr. Carr appeared to view that the primary innovation of draft WEDG 2019 was the promotion of consistency in measurement methodologies and the reinforcement of the GPG and the IOA RM. It seems that the proposed introduction of a penalty for "excessive" AM barely merited a mention. Yet the theory behind draft WEDG 2019 (and indeed behind the IOA AM report, the Phase 2 Report and the ETSU Review) can only be seen as a significant departure from the "decibel limit only" approach to planning practice espoused by Mr. Carr. Furthermore, Mr. Carr's casual assertion that the WTN would comply with the recommended limits in draft WEDG 2019 regardless of any potential AM penalty was not only unsupported by the evidence but, in my view, displayed a partisan approach.

572. I was also struck by Mr. Carr's apparent dismissal of Mr. Stigwood's view that AM is often worse at night-time due to stable atmospheric conditions, However, the relevance of stable atmospheric conditions to the enhancement of WTN AM has been clear in this jurisdiction since at least 2011. Thus NG 3 notes that features which were thought to enhance AM included stable atmospheric conditions[62] particularly at night and topography leading to

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[61] Note that my reference to "out of the ordinary" or "non-conventional" WTN should not be read as a reference to a principle of the United Kingdom law of private nuisance that even where the defendant's activity substantially interferes with the ordinary use and enjoyment of the claimant's land, it will not give rise to liability if the activity is itself no more than an ordinary use of the defendant's own land. This is not a feature of the Irish law of private nuisance. My use of the words "out of the ordinary" is simply to denote particularly intrusive characteristics that are not thought to be a commonly occurring feature of WTN (such as high AM values and thump AM).

[62] Stable atmospheric conditions are conditions under which mixing of layers in the atmosphere is minimised. This leads to a much greater increase in windspeed with height.

different wind directions being seen by the blades at different points in their rotation. This view is also recently confirmed by the ETSU Review. It is difficult to understand how Mr. Carr, a highly expert witness operating in the field of acoustics, could depict Mr. Stigwood's views on this issue as somewhat exotic.

573. Overall, it is hard to disagree with the plaintiffs' submission that Mr. Carr displayed a stark failure to engage with the complaint actually made or with the evidence illustrating such complaint. There is force in the plaintiffs' argument that Mr. Carr's refusal to engage with any material which was inconsistent with his central thesis means that he brought only part of his expertise to the court.

Conclusion on issue 8

574. I should emphasise that my reservations as just outlined do not go nearly far enough to justify a finding that either Mr. Stigwood or Mr. Carr failed to discharge their duties as experts to the court. It is however the case that their evidence had less of a sense of balance than I would have expected, which inevitably impacts to some degree upon its weight. Particularly in the case of Mr. Carr, there was little sense that the propositions being put to him were being carefully considered. Rather, he repeatedly restated his central thesis.

575. By contrast, Ms. Large, gave the impression, through her evidence, of a witness who was trying to be helpful to the court and who did not in any way oversell the cogency of her argument. She conceded points where appropriate and answered all questions put with logic, thoroughness and diligence. I do not see how any complaint of partisanship or incompleteness could credibly be levelled at Ms. Large's evidence. Therefore, in adjudicating upon this complex case I have placed considerable weight upon her evidence.

Issue 9: What on the balance of probabilities are the characteristics of the Ballyduff WTN

576. I find on the balance of probabilities that the evidence supports the plaintiffs' account as to the characterises of the noise. I also find on the balance of probabilities that such characteristics occur commonly and on a sustained basis.

577. I am fortified in these conclusions by the following inter-related observations:

578. First, the descriptions given by all four plaintiffs of the particular characteristics of the WTN – (e.g. dominance, erraticism, impulsivity, excessive AM values and thump AM) - were mutually consistent and were not shaken in cross-examination. The Webster-Rollo's who gave detailed and extensive evidence about this were subject to exacting cross-examination over the course of 4 days. Mr. Shorten who gave similarly detailed and extensive evidence on the WTN was not cross-examined in relation to his experience of WTN and Ms. Carty, who did likewise, was not cross-examined at all.

579. Second, the experience of living with the WTN as described by Ms. Webster and Mr. Rollo in their evidence to the court is chronicled in daily diary entries going back over three years. As I observe above, the reliability of these diary entries was thoroughly tested in cross-examination and passed muster.

580. Importantly, Ms. Large's report correlated the description of the WTN in key parts of the 2020 diary entries with the contemporaneous audio recordings (and the associated graphs) to ascertain whether the plaintiffs' descriptions were borne out. Her report confirmed consistency between the two. Mr. Stigwood performed the same exercise in relation to key parts of the 2021 noise diaries. This is of significance as Ms. Webster and Mr. Rollo could not have known when making the diary entries what the audio recordings (and the associated graphs) would show.

581. The Webster-Rollo diary entries, Ms. Large's report and the full suite of audio recordings (and the associated graphs) have long since been furnished to the defendant. The defendant could have challenged the reliability of either the plaintiffs' diary entries or of Ms. Large's descriptions of the relevant data by contending for example that excessive AM or thump AM etc was not present on the recordings. It did not do so. This all suggests that the diary entries can be seen as a valid contemporaneous account of the plaintiffs' experience of the WTN.

582. None of this means of course that all of the features described in the diary entries (or indeed all of the features demonstrated by the MAS 2017 and the MAS 2021 data) were present on a constant basis over these years or even that all of the features described were continuously present throughout the individual days and nights represented by the relevant entries. However, the preponderance of the evidence is that these features were present on a common and

sustained basis - albeit not continuously – during the periods recorded in the diaries. Furthermore, there is no reason whatsoever to conclude that the nature of the WTN has changed since 2017 and 2021 and I accept the opinion of MAS that it has not.

583. Third, the plaintiffs' descriptions of these characteristics of the WTN were consistent with the personal on site observations of both Ms. Large and Mr. Stigwood on which neither expert was convincingly challenged. Ms. Large, spent an extended period of time at both NF and HH and gave evidence that the WTN at both sites was the worst case of WTN nuisance which she had ever experienced.

584. Fourth, the court is also informed by its own appreciation of the noise as it appears on the audio recordings presented by the plaintiffs' experts. On any fair assessment the audio recordings support the plaintiffs' evidence that the WTN disturbs their peace and disrupts their sleep. I find that the evidence comprised by the audio recordings (and the associated graphs) is consistent with the plaintiffs' description of the characteristics of the WTN.

585. Fifth, the observations of the plaintiffs' experts-- based on the audio recordings (and the associated graphs) – as to the characteristics of the WTN was consistent with the plaintiffs' own descriptions of same and further strongly supports the plaintiffs' evidence of significant adverse impact. This is important because the observations of the plaintiffs' experts (to the effect that the audio recordings and associated graphs demonstrated erratic, impulsive AM together with high AM values and thump AM) was scarcely challenged in cross-examination or in the defendant's experts' evidence. Thus, although Mr. Carr did contend that AM values should not be derived from the time domain graphs, he did not dispute that the graphs themselves, which correctly captured the noise at the microphone locations at HH and NF showed that high AM values were present over the periods depicted in the graphs. The defendant's primary response to much of the above was that the sound levels were "low" which has not been demonstrated and which furthermore misses the heart of the argument. As I explain above, WTN levels are generally "low". The point however is that, even if the decibel level of the Ballyduff WTN is roughly as one might generally expect, it is its other features thereof which render it objectively unreasonable and, indeed, dominant.

Findings of fact in relation to the characterises of the WTN

586. On the basis of all of the above, the following are my findings of fact:

587. Generally, T1 is barely audible from the plaintiffs' homes and, when audible is not intrusive.

588. By contrast, when it is turning, T2 is audible at all times in the gardens and recreational area outside the plaintiffs' properties. When T2 is turning, even slowly, WTN is also audible from inside the plaintiffs' homes with the windows only slightly ajar. Whether the WTN is audible with the windows closed will depend upon the speed of rotation of the rotors and on other ambient noise. Likewise, whether at any given time audible WTN - and associated vibration - causes an unreasonable interference externally or internally- will also vary with the speed of rotation of the rotors, with other ambient noise and with meteorological conditions.

589. I find that there are frequent and sustained periods during which AM values are conservatively in excess of 5 or 6 dBA. I also find that there are regular periods during which the AM values are considerably in excess of 6 dBA, in the order of 10 dBA or more. I find that such high AM values exacerbate the other intrusive features of the AM such as its erraticism, impulsivity and intermittency. I find that although noise levels will be lower when the windows are fully closed, high AM values remain. I find that there is a significant audible lower frequency component to the WTN. This produces clear whomping, thumping and whacking sounds. These whoomphing and thumping sounds are themselves highly variable and unpredictable. In addition to being heard, this lower frequency WTN is felt as a vibration or a sense of pressure. The WTN is audible and "felt" both outside and inside NF and HH, including in the master bedrooms at both properties. I find that, when even with the windows are entirely shut this lower frequency noise is clearly audible throughout both houses and that thump AM can be felt as a vibration in the structure of NF and in particular HH. I am satisfied that this thump AM is commonly present over sustained periods.

590. I find that when the turbine is turning slowly- as exemplified at the time of the court's visit – it is not particularly intrusive. However, I also find that at higher speeds of rotation as a result of the characteristics outlined above, the WTN dominates the plaintiffs' sound environment both externally and internally. I find that at moderate to high speeds of rotation

the impact of the WTN far exceeds masking levels; it is the primary noise that is experienced in the plaintiffs' sound environment.

591. I further find that although internal noise levels are lower in both houses when the windows are shut, at higher speeds of rotation the WTN is nonetheless dominant particularly due to the sense of vibration associated with thump AM.

592. I further find the WTN AM is more prevalent during the night, early morning and evening periods than during the daytime. This is in all likelihood due to the atmospheric and situational conditions that prevail at these times, contributing to increased AM occurrence, and potentially enhanced sound propagation.

593. As I explain above,[63] bearing in mind current scientific uncertainty on this issue, the most that the various guidelines (such as the WHO guidance variously relied upon by both parties' experts) can do is illustrate the likely sound level at which sleep impacts are anticipated. As in *Hanrahan* such evidence cannot dethrone the factual evidence of the plaintiffs that the combined characteristics of the WTN are such as to regularly disturb their sleep. I accept that the WTN is such as to cause sleep disturbance at both NF and HH with the windows open and with the windows closed. I accept the evidence of all four plaintiffs as to the sleep difficulties experienced as a result of the WTN. I accept that Ms. Webster continues to do all that she can to mask the noise but nonetheless continues to experience serious sleep disturbance. In Mr. Rollo's case I accept that the impact of the sleep disturbance was profound and unremitting. I accept that this sleep deprivation was ultimately instrumental in causing Mr. Rollo to suffer a psychiatric injury.

594. I accept that during spring and autumn the turbines intermittently cause shadow flicker, albeit that I am not satisfied that this pertains for more than 30 minutes per day such as to exceed WEDG 2006.

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[63] See para 536 above.

Issue 10: Does the court accept the plaintiffs' evidence that the characteristics of the noise amounts to an unreasonable interference with the plaintiffs' enjoyment of their property? Is liability in nuisance established?

595. As will be apparent from all of the foregoing, the answer to this question is a resounding affirmative.

596. The Ballyduff planning permission does not delineate the parameters of noise nuisance in this case principally because it does not assess or regulate the aspect of the WTN complained of, which is AM. Even if the planning permission did delineate the parameters of noise nuisance, total operational noise at both NF and HH is above the applicable 40 dBA leq limit for windspeeds above 7 and 6ms/ respectively. Although, the absence of a formal background noise assessment means that planning non-compliance has not been demonstrated on the balance of probabilities, nor can the defendant make out the defence advanced.

597. I find that two features in particular of the WTN AM render the WTN an unreasonable interference. First, there are frequent and sustained periods during which the AM manifests typical AM values at a level widely acknowledged to be associated with high levels of annoyance. Second, this WTN displays periods of thump AM. The oral evidence of all four plaintiffs and the Webster-Rollo diary entries all suggest that thump AM, together with its associated vibration, is the most intrusive quality of the WTN. This thump AM vastly adds to the nuisance posed by the wind farm. In combination, I find that this is WTN which reasonable people would find it impossible to habituate to.

598. Regular and sustained AM values of this order and thump AM combine to produce WTN which is a world away from the usual noise that one would associate with wind turbines – viz. reasonably regular and monotonous swish AM. Mr. Lawlor, the defendant's planner, stated that the understanding of planners is that blade swish is "*normal AM*". He stated that whoomphing or thumping AM is called "*adverse AM*" or "*other AM*". As the ETSU Review notes it is also commonly described as *"abnormal AM"* or *"enhanced"* AM. Mr. Lawlor acknowledged that whoomphing or thumping AM, "*is likely to cause adverse reaction in the community*". Although he stated that this form of AM is thought to occur only for short durations of time at very specific meteorological conditions, I am satisfied that the evidence

establishes that it is a common and sustained feature of the Ballyduff WTN, particularly at night, in the early morning and in the evening.

599. I am satisfied that these two features combine to render the WTN the dominant noise in the plaintiffs' sound environment. These are the features of WTN that one hears and feels both outside and inside HH and NF with the windows open and closed. Such an intrusion of noise and vibration into the plaintiffs' homes could not be an objectively reasonable impact of a windfarm located in a quiet rural environment such as this, albeit one which includes permission for a windfarm.

600. I accept the evidence of the plaintiffs' and their expert witnesses that the noise impact demonstrated on the audio recordings and graphs occurs commonly and for sustained periods. To expand on this somewhat, I do not find that high AM values and thump AM occur constantly in the Ballyduff WTN. Their level and presence fluctuates. However, I accept that these features occur commonly albeit at irregular intervals. These irregular intervals are frequent and can occur on repeated occasions in a 24 hour period. Sometimes these intervals are sufficiently frequent and sustained in duration as to define the relevant day or night from the perspective of those experiencing it. On such occasions, the overriding impression will be of adverse impact punctuated by periods of more acceptable WTN; e.g. when it is more steady and monotonous with AM of the swish variety. On other occasions the opposite might be the case and the adverse intervals will be infrequent or of short duration meaning that the overriding impression will be of acceptable WTN punctuated by periods of adverse impact.

601. This provides context to Ms. Webster's broad estimation that the WTN unreasonably intrudes on her comfort and enjoyment up to 80% of the time. Objectively speaking, it is unlikely that these adverse intervals persist for 80% of the time overall. Such periods of adverse impact are of their nature likely to be intermittent. However, I am equally satisfied that there are few 24 hour periods that escape substantial intervals of sustained adverse impact. Even if not present for the majority of a given 24 hour period, a substantial number of intervals of sustained adverse impact means that the day/night in question cannot fairly be characterised as a period of respite. Crucially, the unpredictability of occurrence and the plaintiffs' lack of control over when and for how long these unacceptable impacts manifest increases the level of nuisance overall. Although therefore adverse impact comes and goes, the annoyance occasioned thereby largely persists. My strong sense is that if the overall intensity or prevalence of these adverse

intervals were mitigated, then the perception of overall nuisance would reduce considerably and probably exponentially.

602. For all the reasons set out above, the plaintiffs' complaints of nuisance are objectively justified. The WTN interferes to a substantial extent with the ordinary comfort and enjoyment of their homes. I am satisfied and find, on the balance of probabilities, that nuisance is established.

603. As appears from the audio recordings, the plaintiffs' evidence and that of their experts, T1 does not cause a nuisance to the plaintiffs. However, I hold that T2 causes a nuisance to Ms. Webster and Mr. Rollo and also caused a nuisance to the Carty-Shortens while they lived at NF.

604. While the WTN is liable to annoy during the working day, it does not substantially interfere with the plaintiffs' enjoyment of their property. This is because, although there will still be some intrusion, AM is likely to be less prevalent due to meteorological conditions and further it is reasonable to expect that during this time the occupants of NF and HH would be working and further that ambient noise will assist in masking the WTN. Although this is a narrow judgment call, I therefore find that the noise can reasonably be tolerated and/or masked during working hours.

605. On the other hand, I find that the noise from the turbine poses a nuisance to the plaintiffs in the evenings and indeed at weekends (in other words during quiet waking hours) when one could expect to be enjoying recreation in the garden and/or peace in one's dwelling. Although one is more likely to be spending time outside during the summer months, one should also be able to do so during the winter months.

606. Equally, I have no hesitation whatsoever in finding that the WTN poses a nuisance at night (in other words during night hours) when a quiet environment is at a premium. Although it is more likely that windows will be closed in winter one should, if one chooses to be, able to open windows for ventilation at night. It is unreasonable to expect occupants of a house to have to sleep with windows shut in an attempt to mitigate unreasonable WTN. In any event, as a result of its characteristics, the WTN-and associated vibrations-is an unreasonable interference even when the windows are shut.

607. I also find that in spring and autumn the shadow flicker caused by the turbines is intrusive and unpleasant. Whilst this is not in and of itself sufficient to constitute nuisance, this shadow flicker is wholly avoidable with inexpensive mitigation measures. Such mitigation should long since have been put in place and ought now to be actioned.

608. As such, the plaintiffs are entitled to damages for unreasonable interference with the enjoyment of their properties (but not to damages for personal injuries, as to which see below). The measure of such damages is accepted by both parties as being for module 2. The plaintiffs argue that nuisance has been established and that the defendant has not suggested any mitigation measures. As such the plaintiffs argue that they are entitled to a permanent injunction as of right to restrain the nuisance. However, I accept the defendant's argument that whether an injunction ought to be granted and if so the terms of such injunction is for module 2. Likewise, the issue of whether the plaintiffs ought to be confined to damages in lieu of an injunction is for module 2.

Issue 11: Does the court accept the defendant's submission that the evidence of Ms. McGinn means that nuisance is not made out in this case?

609. I considered Ms. McGinn's testimony as part of my overall assessment of the evidence in the case. However, in light of the reliance placed by the defendant on Ms. McGinn's evidence, it is convenient to separately explain here my approach to her testimony.

610. As stated above, I accept that the plaintiffs represent *"ordinary person/s with reasonable objective expectations"*. Although I find that Mr. Rollo's reaction to the WTN ultimately became disproportionate by mid to late 2020, this was not the case for the vast majority of the time that he lived beside the turbines. Nor is there evidence that this was ever the case in respect of the other plaintiffs. Further, there was no suggestion that any of the plaintiffs are generally "bad sleepers", hypersensitive to noise or unusually intolerant.

611. The defendant submits that *"Ms McGinn represents an ordinary person with reasonable objective expectations, and, these expectations are not being exceeded by the Defendant herein"*. The defendant argues that this rules out interference with the ordinary comfort and enjoyment of the property of the plaintiffs *"beyond what an objectively reasonable*

person should have to put up with in the circumstances of the case" (to quote Henchy J. in *Hanrahan).*

612. Liability in nuisance depends on whether the amenity *of the property* has been unreasonably interfered with. Would ordinary members of society - the putative reasonable person - consider that their amenity is unreasonably impacted by the WTN?

613. Although Ms. McGinn is a *"good sleeper"*, there is no evidence that she is hypersensitive to noise. I fully accept that, in everyday parlance, Ms. McGinn is a reasonable person - indeed she struck me as such. However, the question is whether, in her response to the WTN, Ms. McGinn represents the putative objectively reasonable person, which as a legal construct, is a different issue.

614. The plaintiffs rely on aspects of Ms. McGinn's evidence which they contend demonstrate that, even from her perspective, the WTN interferes with her comfort and enjoyment of NF. The WTN is "*pretty obvious*". It makes a "*whoomph*" noise as the blades spin that can generally be heard all the time, both externally and internally. As a result of the WTN, Ms. McGinn takes longer to fall asleep. WTN wakes her from her sleep, albeit only occasionally. Ms. McGinn has made a conscious effort to ignore the WTN and is afraid that if she focussed on it, the noise would "*get in on [her] more"*. All of this is indicative of some degree of "*interference with"* Ms. McGinn's "*ordinary comfort and enjoyment of the property.*"

615. The defendant relies upon other aspects of Ms. McGinn's evidence. Although the WTN kept her awake on her first night in the house, this was the loudest night she experienced it. She likes the master bedroom in NF and is "*sticking with it*". Ms. McGinn gave evidence that she has either got used to the noise or ignores it and that she did not regret buying NF (albeit that her view is that she purchased NF for a lower price which reflected the presence of the turbines). The defendant places significant emphasis upon the following extract from Ms. McGinn's cross-examination:

> *Q. Yes. So you have effectively habituated to it, and it doesn't seem, just from what you have said, to be creating a terribly great problem for you in your enjoyment of the property?*
>
> *A. In general, no.*

616. Despite her answer to this particular question, in light of the general tenor of Ms. McGinn's evidence, the submission that the WTN "*does not adversely affect Ms McGinn's enjoyment of the property*" goes too far. Ms. McGinn has clearly made a conscious and deliberate effort to ignore the WTN and, to that extent, she has habituated to it. Such coping strategy is necessary because the WTN is audible both outside and inside her home. The very need for such a coping strategy suggests some level of interference with the comfort and enjoyment of NF. Despite this, Ms. McGinn is prepared to "*put up with*" the WTN.

617. However, as the defendant says, the test is objective. Whether or not interference by way of noise is beyond "*what an objectively reasonable person should have to put up with*" will depend on the objective nature of the noise. The individual experience of particular occupants of the relevant property - past or present - whilst relevant, is not determinative.

618. In so far as coping strategies are concerned, one must assess whether it is reasonable to expect occupants of a property to deploy such coping strategies, and of course whether, if reasonable, such coping strategies are likely to be effective or ineffective for the putative reasonable person. None of this can be determined solely from the individual perspective of either Ms. McGinn or the plaintiffs themselves.

619. Ms. McGinn is not a litigant in the case and her evidence is of course more impartial than that of the plaintiffs. She also lives in one of the affected properties unlike Ms. Doran (albeit that the latter lives in the locality). Ms. McGinn's evidence is therefore non-partisan and relevant. As part of the overall assessment, the court must therefore pay careful attention to her evidence.

620. Overall, although there are features of Ms. McGinn's evidence which can be said to support either party's case, in the round, her depiction of the WTN is undoubtedly less negative than the evidence of the plaintiffs. The point however is that such dichotomous thinking - in which only the evidence of Ms. McGinn or that of the plaintiffs can be accepted - is somewhat simplistic. Despite their superficial discordance, both sets of evidence can be and, to my mind are, simultaneously, true.

621. It is perfectly plausible that a reasonable person - in the lay sense of the term - would be prepared, for their own reasons, to put up with a particular noise even though it is objectively

unreasonable. Indeed, I imagine that this occurs reasonably regularly. I find that, for her own reasons, Ms. McGinn is prepared to put up with noise that, objectively speaking, she should not have to put up with. I find that, although she is a reasonable person (in everyday parlance), in her reactions to the turbine, Ms. McGinn does not represent the putative objectively reasonable person. I hold that the reaction of such an objectively reasonable person would be akin to that of the plaintiffs.

622. The assessment of whether the noise is an unreasonable interference with amenity is not a numbers game; it is an exercise in judgment in which the court must consider the totality of the evidence. This includes that of Ms. McGinn, Mr. Brazil and the defendant's acoustic, medical and planning experts. It also includes that of the plaintiffs, Ms. Doran and the plaintiffs' acoustic, medical and planning experts. Further, the court must consider the audio recordings of the noise on site (and the associated graphs) and the evidence gained on its site visit. The court must also consider guidance concerning the appropriate noise measurement techniques and the features of WTN thought to contribute to the annoyance levels. Ms. McGinn's reaction to the noise is undoubtedly of relevance to the issues in the case. But the court would be falling into error were it to conclude that the evidence that she is prepared to put up with the WTN outweighs the other evidence in the case which in my view established that, objectively speaking, the WTN is intolerable and unreasonable.

623. It is reasonable to expect people to be tolerant and to cope as best they can with the vicissitudes of living beside a turbine for which permission is granted. If, judged objectively, the noise can be ignored and effectively habituated to, then the noise is unlikely to be adjudged a nuisance. However, there will be circumstances in which, although some people will be prepared to deploy coping strategies to tolerate the noise, the fact remains that the character of the noise is such that it is unrealistic to expect that such strategies will, in the main be effective or successful. Having regard to the totality of the evidence and to my above analysis of the WTN under the DEFRA criteria, I find that this point has been well passed in the present case. The WTN causes a serious adverse noise impact exceeding reasonable tolerability by a substantial margin.

Concluding remarks on nuisance

624. The Defra Guidance recognises that the emission and propagation of WTN is often strongly dependent on meteorological conditions, investigation of statutory noise complaints should therefore include detailed measurement and recording of the windspeed and direction,

rainfall, temperature and relative humidity simultaneously with any noise observations or measurements. The plaintiffs' experts did not adhere to this aspect of the Defra Guidance. Their view is that their data clearly establishes unreasonable noise impact and that it is for the defendant to investigate the cause of this and the possibility of mitigation measures.

625. I have some sympathy for the defendant's frustration at this failure to identify the prevailing conditions under which adverse impact arises. Presently, the court has data from the defendant correlating windspeeds with noise levels (at certain wind directions) and data from the plaintiffs illustrating the features of the WTN complained of. However, there is no correlation between the two.

626. My sympathy for the defendant is not unlimited. The defendant undertook several weeks of monitoring at both NF and HH in 2017 which Mr. O'Reilly used to populate the planning compliance graphs. In addition, the defendant has long since been furnished with all of MAS's audio recordings (and the associated graphs) detailing the noise impact complained of. If the defendant had wished to further analyse either set of data, as against IOA RM or otherwise, it could presumably have done so. It could also have used the SCADA data to correlate periods of adverse impact identified by the plaintiffs' experts with speed of rotation, blade pitch, windspeeds and other meteorological conditions.

627. The plaintiffs' experts do not control the operation of the turbine or have real time access to the SCADA data for simultaneous correlation with noise observations as required by the Defra Guidance. Nor could the plaintiffs' experts secure turbine shut down to ascertain potential exceedance of WTN over background noise at a range of wind speeds. Such constraints might explain why modern planning conditions require the wind turbine operator, and not the complainant, to carry out noise monitoring in response to a WTN complaint in order to identify the conditions under which the alleged nuisance presents and, more importantly to devise appropriate mitigation measures.

628. I am satisfied that it is not necessary for the plaintiffs to establish the precise conditions under which nuisance arises in order to succeed on liability. Rather, this will inform module 2 which will determine the appropriate remedy for nuisance.

629. One cannot presently know why this particular turbine is causing WTN nuisance. Counsel for the defendant emphasised that this Court should turn its face against any finding which suggests that all turbines within 500 metres of a residence are likely to cause nuisance. I make no such finding. It is clear that although planning guidance since WEDG 2006 has recommended a separation distance of at least 500m, this is primarily to combat visual intrusion and not noise intrusion. Although it is quite possible that proximity to the plaintiffs' homes is part of the problem here there are many other factors which may contribute to the particular characteristics of this WTN. I have in mind factors such as the relative height of T2 as compared to the plaintiffs' homes, the fact that these homes are in a sheltered location/wind shadow, the blade pitch of T2, inflow turbulence from T1, unanticipated wake effects and the many acoustic and meteorological factors associated with thump AM, which presently are not well understood.

630. On the other hand, as discussed above, it is reasonable to conclude that adverse impact occurs at windspeeds/speeds of rotation in excess of those which were prevalent at the time of the court's visit. Indeed, although absolute sound levels are not a reliable determinant of nuisance, there is a strong link between WTN sound levels, and the annoyance caused by other characteristics of the WTN. Even if high value AM is present on a fairly sustained basis, I believe that it is at higher speeds of rotation that this characteristic comes to the fore. This impression is endorsed by the ETSU Review which concludes that the interaction between absolute sound levels and AM value influences response. In other words, the louder the WTN, the more likely the AM is to annoy. Further, although thump AM is slightly different - in the sense that it is experienced as a vibration as well as heard- rapidly turning rotors is a common denominator in the plaintiffs' descriptions of its impact.

631. Albeit that this will potentially require to be re-visited in module 2, it is highly likely that the worst features of this WTN are associated with at least moderately higher speeds of rotation. It is also highly likely that these features often coincide with the most noise sensitive periods of the day (early morning, evening and nighttime). However, it is not presently possible to be more specific than that.

632. Due to the complex range of interrelated causative factors, identifying the conditions under which unreasonable adverse impact presents and discerning mitigatory measures will be an iterative exercise. Such an exercise is uniquely unsuited to the adversarial arena. As Mr.

Carr states, mitigation of WTN nuisance is often a process of trial and error. This is best approached on site and not in a court room. A court order is an unsuitably blunt instrument with which to tailor a solution to address the WTN nuisance without unnecessarily inhibiting the operation of T2.

633. The defendant cannot rest its laurels on the proposition that the generation of renewable energy is a socially valuable activity which it is in the public interest to continue. As noted by Richards J. in *Noel Uren v. Bald Hills Wind Farm Pty Ltd,* there is not a binary choice to be made here between the generation of clean energy by the wind farm, and a good night's sleep for its neighbours. It should be possible to achieve both.

634. However, effective mitigation will require a far more constructive attitude than has thus far pertained in this case. In their insistence that planning compliance negates nuisance, the defendant has exhibited an unwarranted rigidity in its response to the plaintiffs' complaints. On the other hand, the plaintiffs must realise that, in light of its social utility, this court will be reluctant to order the shutdown of T2, even just at sensitive periods (early morning, evening and nighttime) if a more tailored solution can ameliorate the nuisance.

635. I set out the above as a prelude to the exercise of my inherent jurisdiction to direct the parties, in advance of module 2, to engage in mediation in relation to appropriate mitigation measures and with a view to resolving all outstanding issues between them. I am conscious that mediation has not thus far proved fruitful. However, with the benefit of this court's judgment, it is reasonable to expect that mutually acceptable mitigation measures are capable of being agreed.

Issue 12: Are Mr. Rollo and Ms. Webster entitled to an award of damages for personal injuries?

636. I am satisfied on the balance of probabilities that Mr. Rollo has suffered personal injury in the form of a recognisable psychiatric illness. I also find that this injury was caused by the sleeplessness caused by the WTN, and so caused by the nuisance in suit.

637. The following matters arise:-

- The impact of the Personal Injuries Assessment Board Act 2003 ("the 2003 Act") on the claim to damages for personal injuries

- The recoverability of damages for pure psychiatric injury unaccompanied by physical injury

Application of the Personal Injuries Assessment Board Act 2003

638. The defendant states that this aspect of the plaintiffs' claim is in breach of s. 12 of the 2003 Act and ought be struck out.

Section 12 of the 2003 Act provides:-

> *"Unless and until an application is made to the* [Personal Injuries Assessment Board] *under section 11 in relation to the relevant claim and then only when the bringing of those proceedings is authorised..., no proceedings may be brought in respect of that claim."*

639. Section 3 applies the 2003 Act to civil actions which, in turn, are defined by s. 4 as *"an action intended to be pursued for the purpose of recovering damages, in respect of a wrong, for personal injuries, or for both such injuries and damage to property"*.

640. As originally instituted, these proceedings sought both injunctive relief and damages for nuisance together with injunctive relief pursuant to s. 160 of the Planning and Development Act 2000 (as amended). No claim to damages for personal injuries was originally advanced. It is common case that at inception, the proceedings were not a civil action.

641. After Mr. Rollo's diagnosis with a major depressive disorder, the plaintiffs notified the defendant by letter dated 21st December, 2020 that they intended to include a claim for personal injuries. The plaintiffs took no step to amend the pleadings until very shortly prior to the trial.

642. The plaintiffs' application to amend the proceedings was objected to by the defendant, *inter alia*, on the basis that it infringed s. 12 of the 2003 Act. On the authority of *Clarke v. O'Gorman* [2014] 3 IR 340, I determined that s. 12 of the 2003 Act did not operate as a jurisdictional bar to the initiation of personal injury proceedings (or to the amendment to include such a claim). The application of the 2003 Act was rather a matter for the defendant to plead in its defence. Accordingly, I allowed the amendments sought and the defendant duly delivered an amended defence pleading, *inter alia*, that, as the necessary PIAB authorisation had not been obtained, the claim ought to be struck out.

643. Relying upon *Clarke v. O'Gorman*, the defendant maintains that, even if the claim to damages was based on nuisance, the term "civil action", as defined by s. 4(1) of the 2003 Act does not refer only to the particular cause of action pursued. It is a description of the type of damage suffered as a result of the facts giving rise to the cause of action. Civil actions for personal injury are, therefore, not limited to those wrongs in which proof of personal injury is a necessary element of the cause of action. As such an action in nuisance is still capable of being a civil action within the meaning of the 2003 Act where the remedy sought includes damages for personal injuries. Therefore, a claim to nuisance which, *inter alia*, advances a claim to damages for personal injuries cannot proceed without the relevant authorisation.

644. In response, the plaintiffs invoke the *caveat* set out at s.4(b)(i) of the 2003 Act which exempts an action intended to be pursued in which, in addition to damages for personal injuries, it is *bona fide* intended and not for the purpose of circumventing the operation of the Act to claim damages or other relief in respect of any other cause of action. The plaintiffs argue that the proceedings are intended to claim relief in respect of another cause of action, namely both the underlying nuisance claim and the claim to injunctive relief pursuant to s. 160.

645. If the plaintiffs' only cause of action - whether based in nuisance or otherwise - advanced a claim to damages for personal injuries, then there would be merit in the defendant's argument. However, this is not the case. Here the plaintiffs also pursue a s. 160 application. It has not been submitted that the plaintiffs' application for injunctive relief pursuant to s. 160 is advanced for the purposes of circumventing the operation of the 2003 Act. Indeed, both parties called extensive evidence on the issue of planning compliance. It is not, of course, necessary for this additional cause of action to succeed in order for the proceedings as a whole to benefit from s. 4(b)(i). Accordingly, I reject the defendant's submission that the claim to personal injuries must be struck out as being in breach of s. 12 of the 2003 Act.

May damages for personal injury may be sought in the context of a claim to nuisance?

646. The defendant argues that nuisance is a property-based tort which imposes liability in respect of a substantial interference in the enjoyment of land and that damages for personal injury may not be awarded.

647. This is established law in England and Wales. In *Hunter v. Canary Wharf*, [1997] AC 655 where a claim for nuisance was brought by residents who claimed that construction work had been interfering with their television signal strength, Lord Hoffman gave the leading judgment and stated :-

> *"In the case of nuisances "productive of sensible personal discomfort," the action is not for causing discomfort to the person but, as in the case of the first category, for causing injury to the land. True it is that the land has not suffered "sensible" injury, but its utility has been diminished by the existence of the nuisance. It is for an unlawful threat to the utility of his land that the possessor or occupier is entitled to an injunction, and it is for the diminution in such utility that he is entitled to compensation."*

648. Lord Hoffman suggested that any personal injury claim should be pursued through negligence, rather than through nuisance.

649. As an adjunct to the principle that damages for personal injuries were not payable, Lord Hoffman also found that damages are not increased by there being more than one occupier.

> *"I cannot therefore agree with Stephenson L.J. in* Bone v Seale [1976] 1 W.L.R. 797 *when he said that damages in an action for nuisance caused by smells from a pig farm should be fixed by analogy with damages for loss of amenity in an action for personal injury...*
> *There may of course be cases in which, in addition to damages for injury to his land, the owner or occupier is able to recover damages for consequential loss. He will, for example, be entitled to loss of profits which are the result of inability to use the land for the purposes of his business. Or if the land is flooded, he may also be able to recover damages for chattels or livestock lost as a result. But inconvenience, annoyance or even illness suffered by persons on land as a result of smells or dust are not damage consequential upon the injury to the land. It is rather the other way about: the injury to the amenity of the land consists in the fact that the persons upon it are liable to suffer inconvenience, annoyance or illness."*

650. It appears that this has not been the approach taken in this jurisdiction. In *Patterson v. Murphy*, [1978] ILRM 85 (*"Patterson"*) blasting on the defendant's land caused physical harm to the plaintiffs' residence. The plaintiffs were awarded damages for the repair of the property, but it was also held that general damages were payable to each of the plaintiffs separately for annoyance, discomfort, inconvenience and mental distress.

651. More importantly, some of the discussion in *Hanrahan*, appears to run directly counter to the proposition that a personal injury claim should be pursued in negligence, rather than through nuisance. The Supreme Court, per Henchy J., noted that although originally advanced in both negligence and nuisance, the claim had centred on nuisance and would be determined accordingly. Having concluded that the defendant was liable in nuisance, the court then went on to hold that its environmental pollution has caused Mr. Hanrahan to suffer damage to his health - in the form of lung disease.

652. The question of whether, as a matter of principle, damages for personal injury were recoverable as a property based tort does not appear to have been argued in *Hanrahan*. Rather, the court's consideration focused upon causation. However, there is no suggestion that the Supreme Court viewed damages for personal injuries as restricted to negligence and in terms of outcome, the case was remitted to the High Court for the assessment of damages.

653. The plaintiffs submit that irrespective of whether the matter was argued in *Hanrahan*, I am bound to apply that authority if satisfied that the interference found to constitute the nuisance in this case is causative of personal injuries. In so far as concerns this *"property based tort"* ground of objection, I accept that this is so.

654. However, it seems to me that the present case is distinguishable from *Hanrahan* as Mr. Rollo does not allege personal injury in the form of damage to his physical health but rather personal injury comprising pure psychiatric injury. The entitlement to damages for pure psychiatric injury unaccompanied by physical injury has always been treated by the courts as somewhat *sui generis*. As the recoverability of damages for this type of injury was not in issue in *Hanrahan*, I must therefore consider separately whether different considerations might apply.

Does *Kelly v. Hennessy* apply to all claims for damages for pure psychiatric injury?

655. The defendant maintains that there is no basis for recovery of damages for purely psychiatric injury in this jurisdiction save when occasioned by a sudden calamitous event. The defendant relies upon *Warren Harford v. Electricity Supply Board* [2021] IECA 112. In that case, the Court of Appeal, per Noonan J., considered a claim brought by a network technician employed by the defendant for damages for posttraumatic stress disorder occasioned as a result

of his apprehension that he had narrowly missed being electrocuted and suffering death or very serious injury in the course of his work.

656. It is important to emphasise that the claim in *Harford* was not of course for the tort of nuisance but negligence. Specially, it was a claim for nervous shock. It was therefore common case that the plaintiff had to satisfy the 5 criteria set out in *Kelly v. Hennessy* [1995] 3 IR 253, in which, Hamilton C.J. in a judgment in which Egan J. concurred, held that:

> *"1. ...a plaintiff must prove that he or she suffered a recognisable psychiatric illness...*
>
> *2. A plaintiff must establish that his or her recognisable psychiatric illness was 'shock-induced'...*
>
> *3. A plaintiff must prove that the nervous shock was caused by a defendant's act or omission...*
>
> *4. The nervous shock sustained by a plaintiff must be by reason of actual or apprehended physical injury to the plaintiff or a person other than the plaintiff.*
>
> *5. If a plaintiff wishes to recover damages for negligently inflicted nervous shock, he must show that the defendant owed him or her a duty of care not to cause him a reasonably foreseeable injury in the form of nervous shock.*
>
> *...It is not enough to show that there was a reasonably foreseeable risk of personal injury generally. Deane J. stated in Jaensch v. Coffey,* 155 C.L.R. 540*:*
>
> > *'a duty of care will not arise unless risk of injury in that particular form (i.e. psychiatric injury unassociated with conventional physical injury) was reasonably foreseeable.'"*

657. In *Harford*, although, satisfied that the plaintiff had suffered a recognisable psychiatric illness, the court was not satisfied that he fulfilled either the second or fourth criteria in *Kelly v. Hennessy*. In particular, the Court of Appeal was not satisfied that the plaintiff's injury was *"shock induced"*.

658. The defendant accepts that Mr. Rollo's claim to damages for psychiatric injury is not a claim to nervous shock *per se*. However, it relies upon para. 34 of the judgment in *Harford* in which Noonan J. states *"Thus, psychiatric injury is not compensable, even though reasonably foreseeable, unless it is accompanied by physical injury or alternatively is the result of "shock"."*

659. The defendant therefore submits that, in this jurisdiction, damages for pure psychiatric injury can never be recovered outside the boundaries of a nervous shock claim.

Thus articulated, the defendant's submission overreaches. It is clear that damages for negligence causing a recognisable psychiatric illness have been awarded beyond the strict confines of nervous shock cases. For example, in the case of employer's liability, damages may be awarded for psychiatric injury occasioned as a result of workplace bullying or occupational stress.

660. However (although once again in the negligence context), it is undoubtedly the case that the courts have been extremely cautious in expanding the boundaries of cases in which damages will be awarded for pure psychiatric injury. In the negligence context, control mechanisms on the recovery of such damages have been developed over time to restrict both the limits of the duty of care and the limits of the types of damage recoverable. The second of these considerations – the limits of the types of damage recoverable - is in my view relevant here. In this respect, the issue of reasonable foreseeability has been key to the question of remoteness and to the consequent imposition of liability in cases of pure psychiatric injury. I will now consider the approach adopted to foreseeability of pure psychiatric injury in negligence before turning to the question of foreseeability of both physical injury and pure psychiatric injury in nuisance.

The role of foreseeability

The role of foreseeability of pure psychiatric injury in the tort of negligence

661. In *Fletcher v. Commissioner for Public Works* [2003] 1 IR 465 the Supreme Court considered whether, and if so, to what extent and subject to what limitations an action may lie in negligence where the sole injury is a psychiatric condition resulting from fear of contracting an illness (in that case, asbestos related disease) in the future, as a consequence of the admitted negligent acts and omissions of the defendant.

662. Keane CJ. emphasised the requirement of foreseeability in an action in negligence in which the plaintiff claimed damages for pure psychiatric injury:

> *"The issue, accordingly, which this court has to resolve is whether the plaintiff was entitled to recover damages for the impairment of his "mental condition" which, according to the evidence of the psychiatrist, has resulted from his exposure to the risk of contracting mesothelioma, a risk which, it is beyond argument, was created by the failure of the defendants to take the precautions which a reasonable employer would have taken to ensure that he was not exposed to any such risk.*

That in turn depends, initially at least, on whether the consequences which have ensued for the plaintiff ought reasonably to have been foreseen by the defendants.
It is unnecessary, in my view, to arrive at any conclusion as to whether this is so because, if the personal injury was not foreseeable, liability in negligence cannot arise or because, if it was not foreseeable, the damage was too remote. In either case, reasonable foreseeability is a precondition to liability. The question as to whether those consequences were reasonably foreseeable cannot, of course, be answered by assessing the state of knowledge of the defendants at the material time. The test is an objective one, i.e., as to whether a reasonable person would have foreseen that the consequences suffered by the plaintiff might be the result of the defendant's want of care."(Emphasis added)

663. In his concurring judgment, Geoghegan J. noted that *Kelly v. Hennessy* did not govern the claim as it should only be taken to relate to "aftermath damages". Given that the courts in all common law jurisdictions show caution in relation to the circumstances in which damages for psychiatric injury could be recovered, Geoghegan J. stated that it was important to consider each kind of liability situation separately. Unless, therefore, one puts all psychiatric injury on an exact par with all physical injury, it makes little or no sense to regard a nervous shock case as being analogous to a fear of disease case. Therefore, in approaching the fear of disease case, Geoghegan J. regarded the court as being in virgin territory.

The role of foreseeability of (physical) personal injury in the tort of private nuisance

664. There has been no express consideration in this jurisdiction of the requirement of foreseeability of personal injury in a nuisance claim.

665. This may be because foreseeability has generally been analysed in a negligence context as being one of the components of the imposition of a duty of care. As liability in nuisance does not require want of care, it may at first blush be doubted that foreseeability is a necessary ingredient for recovery of damages for nuisance.

666. However, foreseeability has a role to play, not only in the imposition of a duty of care, but also more generally in tort in relation to remoteness of damages. The dual relevance of foreseeability was referenced by Keane CJ. in the extract quoted above: " *if the personal injury was not foreseeable,* liability *in negligence cannot arise or because, if it was not foreseeable, the damage was too remote.*". Whilst I fully appreciate that this consideration was in the context of negligence, foreseeability - in the sense of remoteness - is a more general ingredient in the law of tort.

667. Returning to *Hanrahan,* on the facts of that case, it is unsurprising that foreseeability was not separately analysed. The plaintiffs (and many others in the vicinity) had complained of the emissions for years. Once causation was held to have been established, damage to health may be seen as a wholly foreseeable impact of the particular nuisance in issue, i.e. toxic emissions. In a less stark case, foreseeability of personal injury is likely to require closer examination - even in the case of physical injury. However, it is not necessary to consider this further as this case does not involve physical injury of the kind considered in *Hanrahan* but pure psychiatric injury which, as I say, has always been treated as *sui generis.*

The role of foreseeability of pure psychiatric injury in the tort of private nuisance

668. It is clear that foreseeability of damage "*of that particular kind*"[64] is an essential precondition to recovery of a claim for pure psychiatric injury arising from a defendant's negligence. However, in considering Mr. Rollo's claim to pure psychiatric injury arising from the defendant's noise nuisance, this court is, *"in virgin territory"*[65] unguided by any Irish precedent.

669. It is important at the outset to delineate the ingredients of nuisance from those of negligence. The former tort unlike the latter does not depend on the establishment of breach of duty of care. There is in my view no room for arguing that liability in nuisance (as opposed to negligence) turns upon foreseeability. In *Hanrahan,* Henchy J. stated:

> *It is sufficient if it is shown as a matter of probability that what they complain of was suffered by them as occupiers of their farm in consequence of the way the defendants ran their factory...*
> *In this case the plaintiffs' main complaints, namely that the emissions from the factory damaged their health and that of the livestock on the farm, are of so pronounced and serious a nature that no question of nicety of reaction arises. Either those complaints were caused by the emissions from the factory or they were not. If on the balance of probabilities they can be said to derive from factory emissions, then the case for nuisance has been made out.*

670. Therefore, foreseeability is not relevant to the establishment of liability in nuisance. However, as emphasised above, foreseeability plays a dual role and *Hanrahan* does not analyse its second iteration. This is that, whilst, foreseeability of the risk of harm may be irrelevant in establishing liability in nuisance, foreseeability of the type of harm suffered is nonetheless relevant in considering the issue of remoteness of a particular category of damages.

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64 As per Geoghegan J. in *Fletcher.*
65 To coin a phrase also from Geoghegan J's judgment in *Fletcher.*

671. This accords with common sense. If a plaintiff in a negligence action may claim damages for pure psychiatric injury only where they can prove foreseeability of that particular kind of injury, it is difficult to see why a plaintiff should be in a stronger position to claim such damages for interference with the enjoyment of land which has occurred without any negligence or want of care?

672. As a matter of principle and practicality, I am of the view that, in the tort of nuisance, reasonable foreseeability of pure psychiatric injury is a precondition to the award of damages for such injury. The test is an objective one, i.e., as to whether a reasonable person would have foreseen that the consequences suffered by the plaintiff might be the result of the nuisance alleged.

673. In analysing whether this test of remoteness has been met one must distinguish between mental distress and psychiatric injury. Damages for mental distress may be awarded - as in *Patterson* - as an aspect of damages for loss of amenity. It is in my view, wholly foreseeable that constant and intrusive noise will lead to mental distress – annoyance, frustration and lack of calm. It is also foreseeable that it will lead to loss of sleep, irritability, loss of concentration etc. It is not however generally foreseeable that a recognisable psychiatric illness would ensue.

674. There is likely to be significant overlap as between the damages for loss of amenity and diminished enjoyment on the one hand, and any damages likely to be awarded to Mr. Rollo for pure psychiatric injury. The former includes damages to reflect inability to relax in the property and sleep disturbance. Although it may seem illogical to compensate the plaintiffs for mental distress but not for psychiatric injury, this is because the former can be accommodated in loss of amenity and the latter cannot.

675. Although this was not determined in *Hanrahan*, I would tend to the view that foreseeability is also relevant in a claim to damages for (physical) personal injury. However, even if I am wrong in this, the approach of the courts to pure psychiatric injury has always been to proceed with caution and, most particularly to insist on a form of supercharged foreseeability in which not just injury but psychiatric injury specifically must be foreseeable. To proceed otherwise in this case would not be in harmony with the courts' cautious approach to damages for pure psychiatric injury. In short, I believe that foreseeability of damage *"of that particular kind"* is a separate ingredient in a claim for pure psychiatric injury caused by nuisance.

Conclusions on issue 12.

676. In summary, on this issue, the relevant questions and my answers are as follows:

1. **Should the claim to damages for psychiatric injuries be struck out as being in breach of the 2003 Act?**
   No.
2. **Is foreseeability necessary to establish liability in nuisance?**
   No. This was not expressly addressed in *Hanrahan* but seems to me to have been impliedly excluded. As a matter of first principles and given that nuisance does not depend upon the establishment of a duty of care and its breach, foreseeability of the risk of harm is irrelevant in establishing liability in nuisance.
3. **Can general damages for personal injuries be recovered for nuisance given that same is a property based tort?**
   The question of whether damages for personal injury were recoverable for the tort of private nuisance does not appear to have been argued in *Hanrahan.* It will fall to the Supreme Court in an appropriate case to consider whether, as a matter of principle, damages for personal injuries should be awarded for a property based tort.
   However, one can say that the outcomes of *Hanrahan* and *Patterson* suggest that the answer to this question is in the affirmative. It seems that such general damages can include compensation for loss of amenity, property damage, damage to capital value, loss of rent, temporary relocation costs, damage to human, animal health and plant life, damages for diminution in enjoyment, (which can include e.g. sleeplessness, lack of ability to rest and enjoy the property and mental distress).
4. **Is foreseeability of the type of harm necessary to establish liability for general damages for personal injuries in nuisance?**
   In my view, yes. Although this issue was not the subject of argument or analysis in *Hanrahan,* I take the view that whilst foreseeability is generally irrelevant in determining whether liability for nuisance is established, foreseeability of the type of harm remains relevant in determining whether the type of injury claimed is too remote.
5. **Even if I am incorrect at 4 above, is foreseeability of the type of harm suffered nonetheless a prerequisite to recovery in the case of pure psychiatric injury?** Yes.

677. In this case, I am not satisfied that psychiatric injury was reasonably foreseeable. Therefore, echoing Noonan J. in *Harford,* imposing liability for such injury in this case would

involve an extension of the existing law in this jurisdiction of the circumstances in which an award is made for such injuries. This would ultimately be a matter for the Supreme Court.

Issue 13: is the defendant guilty of negligence?

678. The case in negligence was not in truth pressed with any real vigour and can be briefly dealt with.

679. It seems that the primary evidence relied upon to establish negligence is Mr. Mayer's opinion that the defendant ought to have recognised at the time of installation that there was a significant risk of unreasonable WTN impact.

680. As stated above, I am not satisfied as to Mr. Mayer's expertise to give this opinion evidence. In any event, this evidence provides far too vague a basis for a finding of breach of duty of care. The plaintiffs have not detailed the kinds of investigations which the defendant ought to have carried out prior to applying for or implementing the planning permission. No evidence has been given as to industry standards in this regard. For the avoidance of doubt, I wholly reject any suggestion that it can be considered negligent to locate a wind turbine within 500 meters of a residence or that in doing so, one ought to reasonably anticipate a noise nuisance.

681. Post implementation, I am of the view that the defendant adopted an inflexible and overly rigid attitude towards the plaintiffs' complaints. This however does not amount to a breach of duty of care.

682. Although the plaintiffs complained about the WTN in 2017, the defendant was not put on notice of the severe difficulties experienced by Mr. Rollo as a result of his sleep disturbance until this psychiatric condition had already emerged. There was no intervening occasion on which a duty of care could have arisen.

683. As neither the parameters of any duty of care nor the specifics of any breach thereof have been identified, the plaintiffs cannot succeed in a claim for negligence.

Issue 14: Have the plaintiffs made out a case for relief under Section 160?

Alleged breaches of the planning permission

684. Arising from a report of Ms. Mulcrone, the plaintiffs plead that the defendant has breached the terms of the planning permission and seeks an injunction pursuant to s. 160 of the 2000 Act. The defendant's response to this case was based on the evidence of Mr. Lawlor.

685. As I explain above, compliance with the planning permission is part of its defence to the nuisance action and, in that context, the defendant bears the onus of proving such compliance.

686. The position is arguably slightly different in the context of the s. 160 application. In such applications, the usual position is that the onus of proving compliance with the relevant planning permission would be on the developer. In the present case, I have concluded that total operational noise exceeds the condition 15 limits and further that the defendant has not demonstrated that this exceedance may be explained by background noise. In other words, the defendant has failed to discharge the onus of proving compliance with planning permission.

687. Does this mean that the plaintiffs can and should succeed in their application for a s. 160 injunction? I would answer this question in the negative.

688. There is generally no provision for exchange of pleadings in a s. 160 application. Notwithstanding this, in the present case, the plaintiffs fully pleaded each and every aspect in which they contended that the defendant had breached the planning permission (with each of which I deal below). No case was advanced in pleadings - or indeed in expert evidence - that the WTN exceeded the condition 15 permission limits. Likewise, as neither party had apparently directed their mind to the correct interpretation of condition 15 of the permission, it goes without saying that no case was advanced to the effect that the WTN exceeded the permission limits as interpreted above. Therefore, whilst it is not in general permissible for a defendant to pray in aid a pleading point as a ground for resisting a s.160 injunction, this case is an exception.

689. Granting a s.160 injunction at this stage for non-compliance with condition 15 would in my view perpetrate a significant unfairness upon the defendant. In the present case, the

defendant had no prior notice that the plaintiffs would allege breach of the condition 15 limits and prepared its case on that basis. In addition, because the correct interpretation of the permission only arose for the first time during the course of trial, the defendant also had no real opportunity to carry out appropriate background noise studies to demonstrate whether the exceedance of total operational noise over the permission limits - when correctly interpreted - may be attributed thereto. This also means that the court has not been able to properly weigh and apply many of the important discretionary factors which would usually influence the grant or withholding of relief pursuant to s. 160. For example, this court has no evidence as to the extent of any breach of the permission limits. Is the exceedance minor or technical; or is it significant? None of this is yet established or even argued as of yet.

690. For all of these reasons, I do not believe it is feasible for this court to presently attempt to adjudicate upon whether the exceedance of total operational noise over the permission limits is such as to merit an order pursuant to s.160. Furthermore, remedy is in any event for module 2.

691. I will therefore confine this analysis to the breaches advanced in the plaintiffs' pleadings and evidence.

692. Ms. Mulcrone contends that the defendant is in breach of conditions 1, 10 and 15.[66]

Condition 1

693. Condition 1 required *"the development to be carried out strictly in accordance with the plans and particulars lodged with the planning application except.... as otherwise required by the conditions of (the) permission"*. The stated reason was *"to ensure that the proposed development strictly accords with the permission and that effective control is maintained"*.

694. Ms. Mulcrone's view is that the defendant has breached condition 1 because the grid connection did not follow the indicative route set out in the planning application documents but was secured via a different substation (which at the time of the initial planning application was neither built nor permitted).

[66] Although breach of condition 9 was initially alleged, this was not proceeded with.

695. In my view, the indicative grid connection did not bind the defendant to comply rigidly therewith. It was made clear in the planning application that the proposed route was indicative only and that a firm grid connection offer had not yet been made by ESB networks.

Condition 10

696. It is common case that the laying of underground cables and the construction of overhead transmission lines for conducting electricity would usually be exempted development pursuant to Classes 26 and 27 of Schedule 2, Part 1 of the Planning and Development Regulations 2001 ("the Regulations"), as amended. However, Article 9 (1) of the Regulations de-exempts such development if same contravenes a condition attached to the grant of planning permission.

697. Condition 10 provides that *"prior to the commencement of the development, planning permission shall be obtained for the erection of power lines to facilitate the connection of the proposed wind turbines to the national grid"*. The stated reason is "*in the interests of proper planning and development*".

698. The plaintiffs argue that the combined effects of Article 9 (1) and Condition 10 is to de-exempt the grid connection, which is therefore required planning permission. By contrast, the defendant maintains that condition 10 only applies to a grid connection facilitated by overhead powerlines and not to underground grid connection which is in issue here.

699. Ms. Mulcrone's view is that if the planning authority had wished to confine condition 10 to an overground route only, it would have stated this quite clearly. The Oxford dictionary defines "erection" as to "*establish or build*". The definition of "*development*" under the Planning Act comprises works in, on or under land and would therefore catch an underground connection route. Ms. Mulcrone contends that this is a pre-commencement condition, meaning that lawful implementation of the permission is predicated on a second permission for the grid connection, which has not been obtained. This, Ms. Mulcrone classified as a *"very serious breach of the planning code"* rendering the entire infrastructure unauthorised *ab initio*.

700. As pointed out by Mr. Lawlor, the indicative grid connection route in the permission application documents included both overhead and underground elements. In my view, the

reference to the *"erection of powerlines"* refers to the overground element only. The words *"erection of powerlines"* are more likely to be interpreted by the reasonable person having some knowledge of these matters as referring to overhead powerlines and not to an underground connection. As such, the condition only obliges the defendant to apply for permission in respect of an overground grid connection.

701. In support of her interpretation of condition 10, Ms. Mulcrone relies on four decisions of An Bord Pleanála on s. 5 references in respect of four other wind farms in the locality. In each case, the Bord determined that permission had been required for the relevant grid connection. However, these s. 5 references were determined against a different factual backdrop. Three of the relevant permissions required the developer to apply for permission for a grid connection *simpliciter* (with no reference to overhead or underground connection). Although the condition in the fourth permission also expressly referred to overhead lines, the grid connection for the wind farm in question was via a combination of underground and overground lines/cables. As such, the failure to apply for permission for that grid connection appeared to be in breach of the parent permission irrespective of whether or not same applied only to grid connection by overhead lines.

702. In short, I find that, because grid connection in this instance was completed wholly by way of underground cables, no enabling planning permission was required.

Condition 15

703. Ms. Mulcrone correctly observed that there is no evidence of assessment of likely noise impact in either the planning application or on the planning authority's file. The only reference to noise is in condition 15 which, after setting out the specific noise limits already discussed, states: *"...In the event that the reviews show that any turbine may have a detrimental impact, mitigating measures shall be proposed and submitted for the agreement of the Planning Authority."* The stated reason is *"In the interests of residential amenity and the proper planning and development."*

704. In Ms. Mulcrone's view, the two parts of condition 15 must be read disjunctively. The defendant must comply with the noise limits specified. In addition, even if the WTN complies

with the noise limits on the permission, *"reviews"* must be carried out to establish if detrimental impact is shown and, if so, the developer must propose mitigation measures to the planning authority for its agreement.

705. Mr. Lawlor accepts that the condition is poorly worded. Although it provides for "reviews" there is no express statement as to what triggers such review. Nor is there any indication by whom or how frequently such reviews may be requested and/or must be carried out. One would expect that a planning condition such as this would set out a methodology for post completion noise surveys and reporting together with a documented complaints handling process.

706. I cannot accept the plaintiffs' argument that condition 15 must be read disjunctively. This interpretation would render the condition so vague as to be unworkable. In my view, the requirement to carry out reviews and mitigation is triggered by WTN in excess of the condition 15 limits and not by a more general complaint of *"detrimental impact"*. Overall, therefore, I agree with the defendant that if the windfarm is operating in compliance with the noise limits set out in condition 15, the permission does not require the developer to carry out further review or mitigation.

707. In the present case, I have found that the defendant has not demonstrated that the windfarm is operating in compliance with the noise limits set out in condition 15. If non-compliance is borne out, this could trigger the condition 15 requirement for reviews, assessment of detrimental impacts and potentially mitigation measures. However, in light of the considerations outlined at para 689 above, I do not view this potential non-compliance as having been fully investigated by the defendant. For that reason, I am not presently prepared to make any order under s. 160 in this regard.

Conclusion on issue 14

708. I am not satisfied that the plaintiffs have made out a case of breach of permission on any of the grounds pleaded. As such, the application pursuant to s.160 must fail.

THE HIGH COURT

[2025] IEHC 300

Record Number: 2018 8457P

BETWEEN:

MARGARET WEBSTER AND KEITH ROLLO

PLAINTIFFS

AND

MEENACLOGHSPAR (WIND) LIMITED

DEFENDANTS

AND

Record Number: 2018 8458 P

BETWEEN:

ROSS SHORTEN AND JOAN CARTY

PLAINTIFFS

AND

MEENACLOGHSPAR (WIND) LIMITED

DEFENDANTS

JUDGMENT of Ms. Justice Emily Egan delivered on the 27th day of May, 2025

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Summary of judgment

At the conclusion of Module 1 of this trial, I held that one of the two turbines operated by the defendant ("T2"), caused a nuisance to the plaintiffs during night hours and quiet waking hours ("sensitive periods"). I directed the parties to attempt to agree appropriate mitigation measures to abate the nuisance in advance of module 2. The defendant trialled just one potential mitigation measure: it operated T2 in a lower power mode. This reduces the rotational speed of the turbine blades and marginally reduces WTN.

The plaintiffs maintain that this lower power mode has not abated the nuisance and seek an order directing the shutdown of T2 during sensitive periods. The defendant's principal argument is that the WTN does not pose a nuisance even in its *"full"* power mode and that no mitigation is therefore required.

The defendant sought to adduce new evidence to persuade the court to revisit the finding on liability made at module 1. This new evidence comprises an analysis of the raw noise monitoring data presented to the court by the plaintiffs in the course of module 1. The defendant contends that this shows that, even allowing for amplitude modulation ("AM"),[1] the WTN levels are lower than the noise limit fixed by current Irish planning guidance on wind energy developments (WEDG 2006).

I have determined that this new evidence could with reasonable diligence have been obtained for use at module 1. I reject the defendant's argument that a new technical specification on noise measurement techniques provides scientifically robust guidance on what level and nature of WTN causes unacceptable interference with residential amenity. I also conclude that the defendant's new evidence does not comprise a useful or complete baseline assessment for the purposes of crafting abatement measures. I further find that, even if admitted, the defendant's new evidence would not substantially impact or alter my finding on liability. I therefore decline to admit this evidence or to revisit my finding on liability.

[1] In brief, AM refers to periodic variation in WTN levels.

As such, I have not found it necessary to decide whether the plaintiffs are correct in their argument that the new evidence does not in fact show that night time WTN levels are within the noise limits fixed by WEDG 2006, as contended by the defendant.

After reviewing the evidence I find as a fact, on the balance of probabilities, that the lower power mode trialled by the defendant does not ameliorate the nuisance. Applying the principles set out in *Shelfer v. City of London Electric Company*, I hold that the plaintiffs are entitled to an injunctive remedy.

Renewable energy is of benefit to the public, which is of relevance in crafting an injunctive remedy. Therefore, if I can be satisfied that measures short of the complete shutdown of T2 during sensitive periods would abate the nuisance, it is appropriate to fashion a remedy accordingly.

I then consider what form of injunction is just in all the circumstances of the case. It seems that the only potential way to abate the nuisance is to reduce noise levels (at relevant windspeeds/wind directions) by a clearly noticeable degree. A 5dB reduction or increase is thought to be an easily noticeable noise differential. However, to simply order a 5 dB reduction in the WTN would require further extended monitoring and ongoing court supervision. It would also lead to further dispute and continuing nuisance. I therefore prefer to proceed by restricting the operation mode of T2 provided this can, when necessary, reliably and consistently reduce WTN by 5dB.

I am satisfied that it is reasonable to restrict T2 to certain lower operating modes during quiet waking hours at certain wind speeds and wind directions. However, this would not be an acceptable solution during night hours. This is partly because I am not satisfied that the noise level reductions which are predicted to occur by altering the power mode of the turbine can be reliably and consistently achieved at night. It is also because constant sudden changes to the WTN at night, as the wind rises and falls, would have a jarring effect, disturb sleep and thus cause ongoing nuisance. I therefore order the shut down of T2 at night for windspeeds of 5m/s to 11 m/s inclusive in those wind directions associated with high AM values and thump AM.

Issues arising for determination at module 2

1. On 14th July 2022, O'Moore J. directed a modular trial of this nuisance action. Module 1 was to determine the issue of liability for nuisance. If required, module 2 would then determine the appropriate remedy and quantum of damages for nuisance.

2. The trial of Module 1 concluded on 6th November 2023. By judgment of 8th March 2024 ("the principal judgment"), I held that one of the two turbines operated by the defendant ("T2"), caused a nuisance to the plaintiffs during night hours and quiet waking hours ("sensitive periods"). Although a *"narrow judgment call",* I decided that the wind turbine noise ("WTN") could be tolerated during other times.

3. I was satisfied that, on the majority of the audio recordings, the WTN is the *only* noise that one can consistently hear. It was also clear from the audio recordings that the WTN displayed the

particular intrusive characteristics complained of by the plaintiffs such as "*erraticism, impulsivity, excessive AM values and thump AM*".[2] I was also satisfied that the clear and unavoidable conclusion from the audio recordings taken by the plaintiffs' experts was that their external and internal soundscape was dominated by the WTN. In all likelihood, this dominance arose from a combination of the level of exceedance of the WTN over background noise levels, its high AM values, its comparatively low spectral frequency and its other attention drawing characteristics.[3]

4. I found that two features in particular contributed towards this dominance rendering the WTN an unreasonable interference: first, frequent and sustained periods of AM values widely acknowledged to be associated with high levels of annoyance and second, thump AM which, together with its associated vibration, was the most intrusive quality of the WTN.

5. In the principal judgment, I determined that the dominance of the WTN which was evident on the majority of the audio recordings was not a constant state of affairs. On the contrary, the nature of WTN is that periods of adverse impact are likely to be intermittent. However, I accepted that adverse impact occurs commonly, persists for sustained periods, and would be particularly evident at night.

6. Liability having been determined, remedy and quantum of damages would require to be adjudicated in module 2.

7. In the principal judgment, I found that due to the complex range of interrelated causative factors,[4] identifying the conditions under which unreasonable adverse impact arises and devising mitigation measures would be an iterative exercise. As noted by the defendant's expert, Mr. Carr, mitigation of WTN is often a process of trial and error. This is best approached on site and not in a courtroom. A court order is an unsuitably blunt instrument with which to tailor a remedy to address WTN nuisance without unnecessarily inhibiting the operation of T2. In light of the social utility of renewable energy, I would not order the shutdown of T2, even just at sensitive periods, if a more tailored solution could ameliorate the nuisance. I therefore directed the parties to engage in mediation in an attempt to agree appropriate mitigation measures to abate the nuisance in advance of module 2.

8. The mitigation exercise subsequently ran from 15th July to 30th September 2024. The defendant trialled just one potential mitigation measure. T2, which was manufactured by Enercon, normally operates in Enercon mode 2,300 KW ("the 2300 mode"). The defendant trialled Enercon mode 1,600 KW (" the 1,600 mode") . This operation mode reduces the speed of the rotors at higher wind speeds, with the aim of lowering WTN levels which potentially reduces power output by up to 30%. The defendant collected noise monitoring data on foot of this trial ("the 2024 1,600 mode data"). It did not carry out any further monitoring of the WTN in the 2,300 mode, to provide a baseline for mitigation measures or to investigate the conditions under which adverse impact occurs. It did not implement a period of turbine shutdown to assess background noise levels.

9. The plaintiffs maintained that the 1,600 mode does not abate the nuisance. The defendant disagreed. Both remedy and quantum of damages therefore required to be determined in module 2. In respect of remedy, the defendant submitted at case-management hearings, that the plaintiffs

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[2] See para. 576 *et seq*. of the principal judgment.
[3] The meaning of each of these concepts discussed is explained in the principal judgment. In brief, AM refers to periodic variation in WTN noise levels. AM values are a measurement of the peak to trough differential in such noise levels. When, as here, the WTN is of lower frequency, AM will manifest as a "thump" rather than a "swish".
[4] Such as windspeed, wind direction, meteorological conditions and time of day.

ought to be confined to damages in *lieu* of an injunction ("damages in *lieu*"). If the court held for the defendant on this issue, then it would be necessary to assess damages for both past and future nuisance. The court was informed that, if it ordered damages in *lieu*, Ms. Webster intended to leave Hill House ("HH") and would then seek the costs of alternative accommodation ("the accommodation claim") as part of her claim to damages for future nuisance. Irrespective of the merits or de-merits of the accommodation claim, its adjudication would add to the duration and costs of the hearing of module 2.[5] On the other hand, the accommodation claim would not arise at all should the court decide to grant an injunction restraining future WTN nuisance (rather than confining the plaintiffs to damages in *lieu* for such future WTN nuisance).[6] I therefore determined that module 2 ought to be subdivided into two parts. The first part of module 2 would determine whether the plaintiffs ought to be confined to damages in *lieu* for future WTN nuisance or whether future WTN nuisance should be abated by injunction (and the precise terms of any such injunction). If the plaintiff were to be confined to damages in *lieu,* the second part of module 2 would then assess damages for both past and future WTN nuisance. If on the other hand, future WTN was to be restrained by injunction, then the second part of module 2 would assess damages for past WTN nuisance only.

10. Accordingly, the issues for determination in this judgment are whether the plaintiffs ought to be confined to damages in *lieu* or whether the nuisance should be abated by injunction and, in the latter instance, whether this court should order turbine shut down or some other form of restricted operation. The assessment of damages for WTN nuisance does not presently arise.

11. Because they maintain that the mitigation mode has not resulted in an abatement of the nuisance, the plaintiffs seek an order directing the shutdown of T2 during sensitive periods. The defendant's position is somewhat hard to discern. Its original argument, subject to its right to appeal, was that restricting T2 to the 1,600 mode during sensitive times fully abated the nuisance. Now, however, the defendant's principal argument is that the WTN does not pose a nuisance to the plaintiffs even in the 2,300 mode and that no mitigation is therefore required.

12. The defendant has always reserved its right to appeal this court's finding on liability in module 1. There is nothing controversial about this. Such appeal should, in accordance with established principles, proceed on the evidence presented to the court in the course of module 1.

13. However, rather than confining itself to the matters falling for determination in module 2, the defendant has sought to adduce new evidence on the issue of liability, to which the plaintiffs take objection. The defendant also argues that, on the basis of this new evidence, I should revisit my finding on liability made at module 1. The plaintiff resists the re-opening of the principal judgment.

14. As same is in dispute, it is first necessary to delineate the evidence which I will admit in module 2 and to decide whether this court will re-visit its principal judgment.

The delineation of the evidence for module 2

Background chronology

15. In preparation for module 2, the parties exchanged expert reports and statements of evidence. A substantial part of Mr. Carr's report and statement is devoted to demonstrating that,

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[5] It appears that both parties intended to call a combination of expert valuers, architects, estate agents and quantity surveyors to deal with the accommodation claim.

[6] Although, of course, damages for past WTN nuisance would need to be assessed regardless.

in the 2,300 mode, total operational noise levels[7] do not cause a nuisance to the plaintiffs and that there is no requirement for noise mitigation (save where the context otherwise requires, I will refer to this as "the disputed new evidence"). The parties' reports and statements were furnished to the court several weeks before the hearing of module 2. On considering same, I listed the matter for mention. I queried the basis upon which the defendant sought to adduce the disputed new evidence given that, subject to an argument that the plaintiffs should be confined to damages in *lieu*, module 2 was confined to determining what abatement measures ought to be ordered to obviate the WTN nuisance. I indicated that the court did not propose to have regard to evidence which did not pertain to these issues.

16. No application was made by the defendant for leave to adduce the disputed new evidence. Nor, prior to the hearing of module 2, was any application made by the plaintiffs to redact or exclude same. On day 1 of module 2, I requested legal submissions from the parties on the admissibility of the disputed new evidence. Unfortunately, neither party appeared ready to address this issue at that time. I therefore took up the evidence of Mr. Brazil, the director of the defendant company. In his direct evidence, Mr. Brazil referred to part of the disputed new evidence. Before commencing his cross examination, counsel for the plaintiffs applied to exclude the disputed new evidence. I directed the plaintiffs to identify the precise portions of Mr. Carr's report and statement to which they took objection and to notify same to the defendant overnight. I directed that, in the first instance, the parties should explore whether redaction of any portion of Mr. Carr's report and statement could be agreed.

17. When the matter resumed the next morning, the parties informed me that no agreement had been reached on redaction. I therefore proceeded to hear legal submissions on the admissibility of the disputed new evidence.

18. At the conclusion of the legal submissions, I ruled that certain portions of the disputed new evidence could not, on any conceivable basis, fall within the scope and rationale of the defendant's argument for admissibility. I therefore ordered the redaction of limited portions of Mr. Carr's report.

19. I determined that, in light of a particular argument advanced by counsel for the defendant (which I will explain at para. 55 *et seq.* below), it was necessary to hear expert evidence before reaching a conclusion on the admissibility of the bulk of the disputed new evidence. I therefore received Mr. Carr's report and statement (save for the limited portions already redacted) on a *de bene esse* basis and deferred my final ruling on admissibility to this judgment. I now set out this court's ruling on admissibility.

Nature of the disputed new evidence

20. In order to understand the court's ruling on admissibility, it is necessary to describe the disputed new evidence in some detail. It comprises Mr. Carr's new analysis of the raw noise monitoring data presented to the court by the plaintiffs in the course of module 1. The raw data consists of external audio recorded by Ms. Sarah Large in 2017 at Nettlefield, which was at that time owned by Mr. Shorten and Ms. Carty ("the 2017 NF data").

21. The defendant has now carried out what Mr. Carr terms an *"AM assessment"* of the 2017 NF data. An *"AM assessment"* can be explained as follows: older planning guidelines such as *The Wind*

[7] Total operational noise comprises the WTN and the background noise

Energy Development Guidelines 2006, issued by the Department of the Environment, Heritage and Local Government in December, 2006 ("WEDG 2006"), make no express allowance for AM. However, in 2014, as the impact of AM came to be appreciated, the Institute of Acoustics ("the IOA") developed a method for measuring AM, the Reference Method ("the IOA RM").[8] Although the IOA RM sets out the methodology for calculating AM values, it does not set a limit of acceptability for AM values, either for planning or for nuisance purposes. In 2016, a Report, commissioned by the Department for Business, Energy & Industrial Strategy ("the Phase 2 Report") recommended that AM controls at the planning and development stage were best achieved by means of a suitable penalty scheme, whereby increasing levels of AM would attract a decibel penalty ("AM penalty"), which would be added to the relevant WTN levels for the purposes of fixing decibel limits and testing compliance therewith. The Phase 2 Report suggests the following AM penalties:

- For AM with a peak to trough level of less than 3dB: no AM penalty
- For AM with a peak to trough level of 3dB to 10dB: a sliding scale of AM penalties ranging from 3dB to 5dB
- For AM with a peak to trough of equal to or greater than 10dB: a 5dB AM penalty

22. The Phase 2 penalty scheme has not been adopted in either Great Britian or Ireland. However, the *Draft Revised Wind Energy Development Guidelines,* published by the Department of Housing, Local Government and Heritage in December 2019 ("draft WEDG 2019") does utilise it. Although draft WEDG 2019 has since been withdrawn, the methodology it employs, as opposed to the detailed noise limits therein, is still instructive.

23. The disputed new evidence is a new analysis of the 2017 NF data consisting of the following steps:

2017 NF data: calculation of noise levels by windspeed

24. Mr. Carr analyses the raw data gathered by Ms. Large and tabulates total operational noise levels by windspeed.

2017 NF data: calculation of AM value in accordance with the IOA RM

25. Mr. Carr has measured AM values per windspeed in accordance with the IOA RM ("Carr's IOA RM analysis").

2017 NF data: calculation of AM penalty in accordance with the Phase 2 Report

26. Mr. Carr has calculated the applicable AM penalty per windspeed in accordance with the Phase 2 Report[9] and presented same on a series of spiderweb graphs.[10]

2017 NF data: add AM penalty to the calculated noise level per windspeed

27. Mr. Carr has calculated and tabulated total operational noise levels plus AM penalties ("the penalised noise level") per windspeed.

2017 NF data: comparison of the penalised noise level per windspeed with WEDG 2006

28. Mr. Carr has then compared the penalised noise level per windspeed with the fixed night time limit in WEDG 2006, which he contends is 43dB.[11]

2017 NF data: Mr. Carr's conclusions

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[8] This methodology is explained at para 194 *et seq.* of the principal judgement
[9] The plaintiffs dispute that the Phase 2 Report has been properly applied. See paras. 102-112 below.
[10] One can see the equivalent spiderweb graphs in respect of the 2024 1,600 mode data at para. 161 below.
[11] One can see the equivalent table in respect of the 2024 1,600 mode data at p. 32 below.

29. Mr. Carr concludes that the penalised noise levels in the 2,300 mode are lower than the WEDG 2006 noise limit and that nuisance is thereby excluded. I will refer to this entire analysis as "the Carr comparative exercise". I should say that Mr. Carr has carried out precisely the same analysis of the WTN in the 1,600 mode and has reached a similar conclusion: the penalised noise levels in the 1,600 mode are lower than the WEDG 2006 noise limit and nuisance is thereby also excluded.

Legal principles regarding the admissibility of new evidence and the re-opening of a court's prior judgment

30. The defendant cites *Greenwich Project Holdings Ltd v. Con Cronin* [2021] IEHC 145 in which Hyland J. observed that where an application is made to revisit a judgment, the court must decide if there are strong reasons for so doing. The defendant argues that strong reasons exist in this case, and that, accordingly I should admit the disputed new evidence and revisit my finding on liability. In oral argument, counsel for the defendant invoked the following principles identified by Finlay C.J. in *Murphy v. Minister for Defence* [1991] 2 IR 161:

> *"1. The evidence sought to be adduced must have been in existence at the time of the trial and must have been such that it could not have been obtained with reasonable diligence for use at the trial;*
>
> *2. The evidence must be such that if given it would probably have an important influence on the result of the case, though it need not be decisive;*
>
> *3. The evidence must be such as is presumably to be believed or, in other words, it must be apparently credible, though it need not be incontrovertible."*

31. These principles were developed in the context of the admission of new evidence on appeal. However, in *Re McInerney Homes Ltd* [2011] IEHC 25, Clarke J. (as he then was), applied them to a case in which judgment had been delivered, but final orders had yet to be made. Clarke J. held that the test for the admission of new evidence in such circumstances should be at least as exacting as the test applying at the appeal stage. This was approved by the Supreme Court on appeal [2011] IESC 31.

32. In *Inland Fisheries Ireland v. O'Baoill* [2015] IESC 45, the Supreme Court applied the above principles to an application to admit new evidence in a modular trial. Clarke J. acknowledged that, in a modular trial, no formal issue of *res judicata* arises out of the findings of an earlier module. Nevertheless, formal findings of the court on a specific issue determined in an earlier module should only be reopened in exceptional circumstances. It would defeat the purpose of a modular trial if a party could easily and for little good reason, seek to reopen matters already determined, when the court came to consider later modules. Whilst the court has room for manoeuvre to do justice between the parties, it should not, without good and strong reason, enable any finding to be revisited in a subsequent module. In essence therefore, a modular trial remains in being until all modules are concluded and there is no formal jurisdictional barrier to allowing new evidence in to reopen a point already decided. However, this is a jurisdiction to be exercised sparingly.

33. Costello J. (as she then was) also considered when it might be appropriate to admit new materials to re-open a judgment in *Hinde v. Pentire Property Finance Designated Activity Company*

& Kavanagh [2018] IEHC 575.[12] Costello J. observed that the test to re-open a judgment contains two elements, namely:

- The new materials would probably have an important influence on the result of the case and be credible.
- Such new evidence will not ordinarily be permitted to be relied on, if it could, with reasonable diligence, have been put before the trial court.

34. More recently, in *Bailey v. Commissioner of An Garda Siochana* [2018] IECA 63, the Court of Appeal confirmed that a court of first instance has jurisdiction to revisit an issue decided in a written judgment. The test is whether the court is satisfied that there are " *exceptional circumstances"* or *"strong reasons",* which warrant it doing so.

Application of legal principles in relation to the admissibility of new evidence

35. The parties' oral legal submissions focussed primarily on *Murphy* criterion 1, whether the evidence sought to be adduced could with reasonable diligence have been obtained for use at the trial.

36. During the course of module 1, both Ms. Large and Mr. Stigwood gave extensive direct evidence presenting and commenting upon, *inter alia,* the 2017 NF data. A substantial number of graphs derived from this data were placed before the court in reports by Ms. Large, running to 150 pages. Ms. Large also gave oral evidence in relation to the features of the WTN appearing on these graphs. In addition, audio recordings taken from the 2017 NF data were played to the court by Mr. Stigwood (along with audio recordings of other data), who also provided his professional opinion in relation to the features of the WTN. Both Ms. Large and Mr. Stigwood were subject to lengthy cross examination.

37. Having considered the expert reports, the audio recordings, the evidence emerging from the direct and cross examination of Ms. Large, Mr. Stigwood, Mr. Carr and Mr. O'Reilly, together with all of the factual evidence in the case, the court accepted Ms. Large's opinion (and much of Mr. Stigwood's opinion) as to the intrusive features of the WTN and delivered judgment on that basis. The defendant may not belatedly challenge the evidence and opinion of Ms. Large (and Mr. Stigwood) by *ex post facto* analysis of the data she presented.

38. The 2017 NF data was furnished to the defendant in advance of the trial of module 1. It had every opportunity to comment upon this data, to advance a contrary analysis thereof and to challenge the opinions of the plaintiffs' experts in relation thereto. Further, although the defendant had ample opportunity to conduct the IOA RM analysis of the 2017 NF data now sought to be adduced, it carried out no analysis of its own of this data for the purposes of module 1. Indeed, I was extremely surprised that it did not do so. The defendant also had every opportunity to subject the 2017 NF data to the Carr comparative exercise now sought to be adduced. Furthermore, the defendant elected not to perform an IOA RM analysis on any of the data gathered by its own expert in Module 1, Mr. O'Reilly.

39. On this basis it could not possibly be said that the disputed new evidence *"could not have been obtained with reasonable diligence for use at the trial?"*

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[12] Cited with approval by the Court of Appeal in *Gaultier v. The Registrar of Companies* [2025] IECA 58.

Does the new technical specification published by the International Electrotechnical Commission provide a justification for the introduction of the disputed new evidence?

Justification advanced in Mr. Carr's report

40. It is common case that the defendant could have put an IOA RM assessment of either the 2017 NF data or its own data before the court at module 1. Permitting the introduction of new evidence at module 2 simply because the relevant matters were not advanced at module 1 would be a recipe for procedural chaos. In apparent reply to this objection, Mr. Carr's report cites para. 375 of the principal judgment as follows:

> *"I should say that this court would place very considerable weight upon up-to-date, scientifically robust planning guidelines on wind energy developments which advised on the particular decibel level at which WTN, when combined with AM of a particular nature, is considered an acceptable interference with amenity. If responsive to the particular aspect of the noise complained of, such guidance would be highly persuasive in a nuisance action. A plaintiff who sought to argue that such guidance did not represent a reliable – if not a wholly reliable – indicator of what is objectively reasonable would, in my view, bear a heavy onus. However, no such guidance currently exists; planning guidance in this jurisdiction (and elsewhere) can fairly be described as flux and cannot identify the line of acceptability."*

41. Mr. Carr's report states since the date of the principal judgment, an important new IEC technical specification has been published *(IECTS 61400-11-2:2024, acoustic noise measurement techniques, measurement of wind turbine sound characteristics in receptor position)* ("the IEC"). The defendant argues that the IEC was not in existence and could not have been obtained with reasonable diligence for the use at the trial. Essentially, therefore, the defendant argues that the IEC is new evidence emerging since the trial and, further, that it meets the lacuna identified in para. 375 of the principal judgment. I will take these points in reverse order.

The IEC does not meet the lacuna identified in para. 375

42. The IEC does not constitute *"scientifically robust planning guidelines on wind energy developments which [advise] on the particular decibel level at which WTN, when combined with AM of a particular nature, is considered an acceptable interference with amenity"* in the sense contemplated by para. 375 of the principal judgment.

43. The IEC does not dictate or even recommend any regulatory metrics. Rather, it provides guidance on how best to isolate WTN for comparison with local regulation. It also provides guidance for the quantification of the impact of the sound characteristics of the WTN, such as AM values, again for comparison with local regulation. The IEC does not delineate what level of noise or what AM values are acceptable in terms of interference with amenity. The proposition that the IEC is responsive to the lacunae identified at para. 375 is entirely erroneous.

The IEC is not the disputed new evidence

44. It is well established that where the new evidence tendered is in respect of matters occurring after the judgment from which an appeal is brought, no special leave is required. If the evidence was not in fact *"in existence at the time of the trial"*, then the failure to adduce it is not attributable to any omission on the part of the party seeking to introduce it. The power of the court to receive

such evidence is discretionary. The interests of justice may require its admission, particularly if it would have an important influence on the result of the case.

45. In the present case, however, this does not assist the defendant. Although the IEC post-dates the principal judgment, the disputed new evidence sought to be adduced is not the IEC *per se*. The disputed new evidence is Mr. Carr's IOA RM analysis of the 2017 NF data and his ensuing comparative exercise. The IEC is merely the vehicle through which the defendant seeks to introduce this evidence.

46. The fact that the IEC had not been published prior to the hearing of module 1 cannot reasonably justify or explain the defendant's failure to carry out, and to tender to the court, an IOA RM analysis and the ensuing comparative exercise at that time. The IEC cannot justify the defendant's 13th hour attempt, after judgment has been handed down against it, to attempt to plug this very obvious lacuna in its proofs.

47. In order to link the disputed new evidence to the IEC, Mr. Carr explains that the IEC *"implements"* the IOA RM *"for quantifying AM"*. He observes that the IEC identifies the IOA RM as the chosen AM assessment method. The argument appears to be that the IEC represents best practice in the measurement and assessment of WTN and that its endorsement of the IOA RM is a new development legitimising the late admission of the disputed new evidence.

48. However, endorsement of the IOA RM is nothing new. As observed in the principal judgment, draft WEDG 2019 also identified the IOA RM as the most robust methodology for measuring AM, as did the ETSU Review of 2023. In the principal judgment, I fully accepted that the IOA RM was a robust methodology.[13] The further endorsement of the IOA RM by the IEC neither explains why the IOA RM analysis of the 2017 NF data was not presented at module 1, nor justifies its admission now.

49. Mr. Carr emphasises that the IEC is specific to WTN. However, this is irrelevant as the IOA RM was also WTN specific. He also points out that the IEC defines AM as including both swish and thump AM. This was also the case in respect of IOA RM. There is little new here to justify the admission of the disputed new evidence.

50. Despite suggestions to the contrary in legal argument and in aspects of Mr. Carr's oral evidence, the IEC is not an international standard. It is a technical specification. Para. 3.1.5 of the *'ISO/IEC Directives, Part 2', Principles and rules for the structure and drafting of ISO and IEC documents* (9th edn, 2021), defines a technical specification as being one in respect of which there is a future possibility of agreement on an international standard but for which at present:

- the required support for approval as an international standard cannot be obtained,
- there is doubt on whether consensus can be achieved,
- the subject matter is still under technical development, or
- there is another reason precluding immediate publication as an international standard.

51. Mr. Stigwood also gave evidence that the IEC has not yet been adopted by the relevant Irish or European authorities. No evidence to the contrary was presented by the defendant.

52. Furthermore, the relevant sections of the IEC dealing with the assessment of AM are said to be *"informative"*, rather than *"normative"*. Whilst a normative element of a document provides rules or guidelines, an informative element is merely intended to assist the understanding or the use of the document or to provide contextual information about its content, background or relationship with other documents. This also undermines the weight to be attached to this aspect of the IEC.

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[13] Albeit that I did not accept that it conveys the impact of AM for the listener, which Mr. Carr now concedes.

53. The IEC is not therefore a transformative piece of evidence sweeping away the defendant's omission to present the disputed new evidence. The position is all the more stark in light of the defendant's trenchant criticism at module 1 of Mr. Stigwood's failure to carry out a formal IOA RM assessment. Despite contending that the IOA RM was a robust methodology, and indeed that it was the exclusive methodology for assessing WTN AM,[14] the defendant did not carry out such an analysis. As it would stretch credulity to suggest that it had not occurred to the defendant to do so, its failure to carry out (or if carried out, to present) an IOA RM analysis at module 1, can only be seen as a deliberate decision.

54. In short, the report of Mr. Carr and its accompanying statement reveal no argument that the IOA analysis of the 2017 NF data (and the entire Carr comparative exercise) could not, with reasonable diligence have been adduced at module 1.

Alternative justification advanced by the defendant in oral legal submissions: substantial differences between the IOA RM analysis and the IEC AM analysis

55. In legal argument on day 2, the defendant introduced the concept of separate and defined IEC analysis of AM ("IEC AM analysis"). Counsel argued forcefully that there are material and substantial differences between the IOA RM analysis and the IEC AM analysis. When compared with the IOA RM analysis, the IEC AM analysis was *"a different standard that reaches a different result"*, such that Mr. Carr's IEC AM analysis is in fact new evidence that could not with reasonable diligence have been adduced at module 1.[15]

56. This was a surprising submission because Mr. Carr's report and statement did not refer to any significant or material differences between the two methodologies and their results. On the contrary, Mr. Carr's written evidence depicts the IEC as endorsing the IOA RM.

57. The nature and relevance of the apparent distinction between the IOA RM and IEC AM methodologies (and their results) appeared to me to be highly technical. In legal argument, counsel frankly conceded that he did not fully understand it. As such, I was persuaded that I could not rule on admissibility on the basis of legal argument alone. I therefore decided to receive the disputed evidence *de benne esse* so I could hear expert evidence before ruling on the admissibility of the disputed new evidence.

58. When Mr. Carr came to give evidence it became apparent that any difference between the two methodologies could not possibly justify the admission of the disputed new evidence. Mr. Carr explained that for technical reasons which it is not necessary to detail here, the IOA RM has the capacity to miss low frequency AM, and that this issue had been remedied in the IEC AM assessment methodology.[16] [17]

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[14] In my principal judgment, I fully accepted that the IOA RM was a robust assessment method but not that it was the exclusive AM assessment method for the purposes of WTN nuisance.

[15] Although not advanced as such in submissions, this also effectively amounts to a further argument that the disputed new evidence was not *"in existence at the time of the trial"*.

[16] This apparently profound innovation was not referred to, even in passing, in Mr. Carr's report.

[17] Mr. Stigwood's witness statement states that there are some *"important variations"* as between the IEC and the IOA RM. However, the point being made is that the IEC directs the measurement and reporting of an extensive range of data that was not presented in Mr. Carr's IEC AM analysis. Mr. Stigwood did not accept that there are significant variations as between the two methodologies in the sense argued by counsel for the defendant.

59. This potential under-estimation of low frequency AM neither explains nor justifies the defendant's failure to present an IOA RM analysis at module 1. Indeed, such rationale is entirely contrary to the defendant's committed position throughout module 1. This was that the IOA RM analysis was not just a reliable methodology to assess AM, including thump AM, but that it was the *only* acceptable methodology. The defendant offered no qualification to its support of the IOA RM and never allowed for the possibility that it could miss thump AM. Nor, as I recall, did the plaintiffs' experts dwell on this issue; and I did not refer to it at all in reaching my findings at module 1.

60. In addition, far from producing materially different results, Mr. Carr's evidence at module 2 was that one could expect the results of the two assessments to be broadly similar, albeit that the IEC AM assessment was *"more conservative"* than the IOA RM, because it took full account of thump AM.

61. Therefore, whilst I accept that there are some differences between the IOA RM and the IEC AM analysis, these are not of particular relevance to the issues that were before the court in module 1 (or indeed those arising in the present module) and in no way explain the defendant's failure to perform and present an IOA RM analysis at the appropriate time.

Conclusion on criterion 1 of Murphy v. Minister for Defence

62. With any diligence, the disputed new evidence could have been adduced at module 1. I am driven to conclude that the defendant has seized upon the IEC as a contrivance to, as it sees it, mend its hand. The IEC does not set a new standard for nuisance. It is a measurement methodology which is still in development. It has not yet been adopted in Ireland. The IOA RM analysis and the IEC AM analysis are not substantially different. Any distinctions between the two are of no real relevance to the issues arising in this case. The IEC cannot possibly justify the defendant in now presenting an analysis of data that was furnished to it in 2022.

63. As O'Donnell J. (as he then was) observed in *Emerald Meats v. Minister for Agriculture* [2012] IESC 48, a trial is not a laboratory experiment where one element can be substituted, all other elements maintained and a different outcome obtained. There are very few cases in which the losing side does not regret that different witnesses were not called, different evidence given or different points made in cross examination or submission. There are few cases which in hindsight could not be rerun with different witnesses, evidence, arguments or advocates. But to consider that such a course is in the interests of justice is to engage in the delusion that endless litigation is a desirable, rather than a tormented state. The court has made its decision on the evidence advanced over 51 days. The defendant may reasonably dispute the merits of this court's conclusion; but it cannot doubt that it is the conclusion. In short, the *Murphy* criteria do not permit the admission of the disputed new evidence.

Is the disputed new evidence admissible *qua* baseline assessment?

64. The defendant also submits that the purpose of collecting the disputed new evidence was not to challenge this court's findings at module 1, but to establish a baseline to guide potential mitigation strategies.

65. I fully accept that a mitigation strategy is best devised on foot of complete and reliable baseline data. However, if the defendant had wished to carry out a baseline assessment then it should have gathered data directed to that purpose, rather than re-interring the plaintiffs' 2017 NF data.

66. I am not satisfied, as a matter of fact, that the IOA RM analysis (and the ensuing Carr comparative exercise) was a *bone fide* baseline assessment. The defendant's evidence on this issue is inconsistent. In closing argument, counsel for the plaintiffs directed the court to evidence suggesting that the defendant only analysed the 2017 NF data after the 1,600 mode mitigation trial had been completed. The defendant did not reply at all to this aspect of the plaintiffs' closing submissions.

67. If the disputed new evidence was, as the defendant contends, gathered to guide the mitigation trial, then why did it not inform that mitigation? Surely a mitigation programme guided by the disputed new evidence would have focussed on reducing noise levels at windspeeds associated with the highest AM values. Yet the defendant designed a mitigation programme which did precisely the opposite; the 1,600 mode produces no reduction whatsoever in WTN at the windspeeds when AM values are highest.

68. More importantly, the disputed new evidence does not comprise a useful or complete baseline assessment. As it presents only total operational noise, it does not actually inform one on WTN levels. The disputed new evidence does not include an assessment of background noise levels in what is clearly a very quiet and sheltered rural area. It does not assist on the question of whether this is a *"low noise environment"* within the meaning of WEDG 2006.[18] No data or analysis whatsoever is presented on the important issues of emergence of the WTN over background noise or low frequency noise/thump AM (even though the IEC treats of both). As will become apparent, the lack of evidence on background wind noise levels and its efficacy in masking WTN at different windspeeds is a critical omission. The disputed new evidence does not even present AM values in the manner required by either the IOA RM or the IEC. Instead of presenting AM values, it rather presents AM penalties only.

69. A *"baseline"* is a starting point to be used for comparison. It will only be of value if it comprehensively presents the relevant data points. Here, the defendant has cherry-picked from the IEC and has presented only one suite of data (AM penalties and total operational noise levels), whilst omitting other important data, which one would expect in any valid baseline study.

70. Furthermore, whilst the disputed new evidence does present AM penalties in the 2,300 mode at a range of wind directions and windspeeds, the same information can be gleaned from the 2024 1,600 mode data. This is because it is common case that the turbine's operational mode does not alter AM values. Nor does the operational mode impact upon spectral frequency, thump AM, erraticism or impulsivity.[19] Therefore, any findings of fact that I may make in relation to these WTN characteristics in relation to the 1,600 mode apply equally to the 2,300 mode. Analysis of the 2017 NF data does not assist one's understanding of these features of the WTN.

71. I conclude that the evidence already put before the court at module 1, the 2024 1,600 mode data and the totality of the other evidence from module 2, are sufficient for the court to determine the issues at hand. I therefore decline to admit the disputed new evidence and will admit Mr. Carr's report and statement and Mr. Brazil's statement in redacted form only. Essentially whilst I admit the data pertaining to the 2024 1,600 mode, I exclude the 2017 NF data.

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[18] A low noise environment is one where background noise levels are less than 30dBA

[19] Thus, the only change in the WTN brought about by altering its operation from the 2,300 mode to the 1,600 mode is to reduce WTN by a maximum of 2.1 dB at windspeeds of 9 m/s and above.

72. However, lest I am wrong in any of my above analysis, I will now explain for completeness why the disputed new evidence (if admitted) would not have an important influence on the result of the case. In other words, even if admitted the disputed new evidence would not substantially impact or alter my findings on liability at module 1.

The disputed new evidence would not substantially impact or alter my finding on liability

The IOA RM analysis of the 2017 NF data supports, rather than undermines this court's finding on AM values in the principal judgment

73. The IOA RM analysis of the 2017 NF data, which I have decided to exclude supports, rather than undermines, this court's finding of regular and sustained periods of typical AM values at a level widely acknowledged to be associated with high levels of annoyance. This finding in the principal judgment had three components.

74. As a first component, I accepted Ms. Large's evidence that on foot of her 2017 monitoring, AM values significantly in excess of 5 dB are a substantial feature of the WTN. I found that the time-domain graphs revealed a common thread of AM values in excess of 5 or 6 dB and that they also showed that AM values of 10 dB are frequently present, both externally and internally. Indeed, this was not disputed by the defendant. Although the disputed new evidence does not comply with the IEC reporting requirements for AM assessment, it is nonetheless common case that at night in the downwind direction *average* AM values at windspeeds between 4m/s and 8m/s are between 6.5 and 10dB. Clearly, there will be periods when AM values are lower than this. However, there will also be periods when AM values are higher. Indeed, the prevalence of AM average penalty points of 4-5 dB on the spiderweb graphs, demonstrates that AM values of 10 dB occur regularly.

75. As a second component, I accepted Ms. Large's evidence that AM values of 5 dB and above, if audible at a sufficient level are capable of amounting to an unreasonable impact. This finding is in no way impacted by the disputed new evidence.

76. As a third component, this court's findings of fact that the WTN AM *was "audible at a sufficient level"* was based, *inter alia*, on its own experience of the audio recordings. I found that on the majority of the audio recordings, both internal and external, the WTN is the *only* noise that one can consistently identify. Its nature is such that it constantly draws one's attention and it was not masked by other ambient noise. This finding of fact was also based on the oral evidence of the plaintiffs themselves in relation to their experience of the WTN and on the direct evidence of their experts, none of which was undermined in cross examination. I fail to see how the disputed new evidence should incline this court to revisit any of this. In short, the evidence sought to be admitted would not have an important influence on the court's findings as to the nature and impact of the AM values.

The disputed new evidence does not undermine this court's finding on low frequency noise and thump AM

77. The principal judgment finds that there is a significant audible lower frequency component to the WTN. This is both heard and felt as a vibration or sense of pressure. This also manifests as thump AM which I found was the *"most intrusive"* element of the WTN. This finding was based on the audio recordings, the evidence of the plaintiffs and the expert evidence of Ms. Large in particular (which in this respect was essentially uncontradicted by Mr. Carr's testimony).

78. The disputed new evidence does not even address, still less undermine this finding. The defendant carried out no analysis of low frequency sound at module 1. This remains the position.

79. It is common case, that neither the IOA RM nor the IEC AM analysis differentiate between swish and thump AM. Although thump AM is widely acknowledged to be more annoying and intrusive than swish AM, these methodologies assign the same value to both forms of AM. This may be a perfectly good starting point from a regulatory perspective but it does not provide a complete answer to a nuisance claim in which thump AM is the most intrusive element.

The disputed new evidence does not undermine this court's finding on dominance

80. Para. 510 of the principal judgment, concludes that the dominance of the WTN is most likely due to a combination of high AM values, low frequency AM, the emergence of the WTN over low background noise levels ("emergence") and to its other intrusive features such as erraticism, impulsivity, unpredictability, etc. At module 1, the defendant declined to carry out or present any reliable analysis of background noise levels, emergence or of the other intrusive features just discussed. That omission persists.

The defendant's reliance on a combination of WEDG 2006, the IEC and the Phase 2 penalty scheme is misplaced

81. The defendant's "Eureka moment" is that the Carr comparative exercise shows that penalised noise levels in the 2,300 mode do not exceed *"the 43dB limit level in the WEDG 2006"*. This is said to foreclose WTN nuisance in the 2,300 mode (and *a fortiori* in the 1,600 mode).

82. To develop this a little further, the defendant points to several passages in the principal judgment. These are to the effect that WEDG 2006 is not the determinant of nuisance because it is not a yardstick, objective or otherwise, against which to assess what particular AM values or what particular degree of thump AM is objectively reasonable. The defendant argues that the Carr comparative exercise now accounts for these deficits in WEDG 2006, because it penalises AM values. The Carr comparative exercise is said to supply the missing yardstick.

83. There are, to put it mildly, difficulties with this approach.

Argument inconsistent with the defendant's position at module 1

84. First the argument that such comparative exercise is the determinant of nuisance, is entirely inconsistent with the case presented by the defendant at module 1, which was that the 2004 planning permission was a wholly reliable indicator of what was objectively reasonable at this locality.

Lacuna: WEDG 2006 does not address thump AM

85. Second, even within its own four corners, the Carr comparative exercise contains a serious lacuna. It addresses only one of the two omissions just discussed. It addresses only the failure of WEDG 2006 to account for AM values. It does not address the second omission, the failure to take account of the added intrusion of thump AM.

WEDG 2006 was not drafted with nuisance in mind

86. Third, the principal judgment does not state that were it not for these two specific omissions, the WEDG 2006 noise limits (with which, for the sake of argument, the principal judgment accepted

the WTN complied), would be the determinant of nuisance. WEDG 2006 was not drafted with nuisance in mind.

WEDG 2006 was not drafted with AM in mind

87. Fourth, WEDG 2006 was also not drafted with AM in mind. The IOA RM and Phase 2 Reports, postdate WEDG 2006 by a decade. The IEC, upon which the defendant now places reliance, postdates WEDG 2006 by almost two decades. There is no logic in bolting penalties for AM developed 10 to 20 years later onto the noise limits set out in WEDG 2006. Indeed, this is clear from the IEC itself, which states that any adjustments to noise limits *"are typically defined in local regulation"* (emphasis added). WEDG 2006 does not define, or even contemplate, adjustments to noise limits by reference to AM values. WEDG 2006 is an entirely different methodology. WEDG 2006 is a round hole into which the defendant seeks to force a square peg, the Phase 2 penalties scheme.

WEDG 2006 is under review and takes no account of low frequency WTN

88. Fifth, if the Phase 2 penalty scheme is to be bolted on to any methodology as the determinant of nuisance, then why logically should that methodology be WEDG 2006? The defendant's answer to this question appears to be: WEDG 2006 is still relied upon in the planning and development of windfarms. I accept that s. 28 of the Planning and Development Act 2000 continues to require planning authorities and An Bord Pleanála to have regard to ministerial guidelines such as WEDG 2006. However, that does not imbue WEDG 2006 with talismanic significance for the purposes of a nuisance assessment.

89. WEDG 2006 is currently under review. There is evidently a range of potential methodologies that the Government might adopt to replace it for planning and development purposes. There is no reason to assume that new Guidelines will ape the *"flat"* night time noise limit of 43 dB (whether including AM penalties or not). Still less can one assume that new Guidelines will apply this noise limit irrespective of the frequency of the WTN or of background noise levels. Indeed, I would have thought that this is unlikely.

90. There is therefore no reason why this court should accept that a *"flat"* night time noise limit of 43 dB (whether including AM penalties or not) is the determinant of nuisance. The principal judgment observes that the current direction of travel in wind energy planning guidance ("the modern planning approach") is towards setting decibel limits, combined with a penalty for character such as AM. I accept that the Carr comparative exercise, which combines WTN levels and AM penalties, reflects this aspect of the modern planning approach. However, the principal judgment goes on to observe that the modern planning approach incorporates limits on low frequency noise. For example, unlike WEDG 2006, draft WEDG 2019 limits low frequency noise. This important criterion is absent from the Carr comparative exercise.

WEDG 2006 takes no account of night time background noise levels

91. Sixth, the modern planning approach in publications such as draft WEDG 2019, is to take background noise levels into account in setting WTN limits. Draft WEDG 2019, notes that the principle of a 5 dB emergence has been regarded as good practice for many years.

92. WEDG 2006 appears to consider that WTN should assessed by reference to background noise levels. It provides:

> *"Noise impact should be assessed by reference to the nature and character of noise sensitive locations.... Noise limits...should reflect the variation in both turbine source noise and background noise with wind speed."*

93. Ultimately, however WEDG 2006 appears to allow the planning authority to select a higher WTN day time noise limit of up to 45dB if considered appropriate[20] (save in "low noise environments"). It also imposes a *"flat"* 43dB noise limit at night, regardless of background noise levels.

94. By contrast, draft WEDG 2019 generally limited WTN to 5 dB above background noise levels at night time as well as during the day time (irrespective of whether the windfarm is in a low noise environment). In a typical quiet rural site this would tend to limit night time WTN to levels below 43 dB for low to moderate windspeeds. However, this modern planning approach is not reflected in the defendant's comparative exercise.

95. In short, the Carr comparative exercise translates AM values into an estimated decibel level for regulatory purposes but ignores all other important characteristics of the WTN such as low frequency noise, emergence over background noise and the time of occurrence of the AM. I am not convinced that such a methodology remotely accords with the modern planning approach or with best practice in the assessment of WTN nuisance.

S. 28 is not the yardstick of nuisance

96. Seventh, the defendant relies on *Nagle v. An Bord Pleanála* [2024] IEHC 603 (*"Nagle"*) as endorsing WEDG 2006 for all purposes, including nuisance assessment. I cannot see how *Nagle* greatly assists the defendant. It is true that Humphreys J. held that WEDG 2006 remains the relevant ministerial guideline for the purposes of s. 28. However, he also stated in the course of his judgment[21] at paras. 99-101, that a planning permission granted in accordance with WEDG 2006 would not be immune to a nuisance action by virtue of that fact.

97. I agree with Humphreys J., Planning guidelines, such as WEDG 2006 (and individual planning permissions) predict that, as regulated, WTN will not be an unwarranted intrusion on amenity. However, that prediction may transpire to be incorrect in a given location. This may be because the WTN displays unanticipated characteristics such as substantial low frequency noise or thump AM. It may be because low background noise at a sheltered location such as this has not been fully considered in the noise limits set. The WTN nuisance in this case is attributable to a combination of factors, only some of which have been assessed by the comparative exercise now undertaken by the defendant. Although I repeat that a plaintiff who asserts nuisance will bear a heavy burden if the WTN is in accordance with up to date and robust planning guidelines, which are responsive to the relevant WTN characteristics complained of, none presently exist, and the Carr comparative exercise is a world away from meeting that lacuna.

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[20] As interpreted by the defendant, WEDG 2006 does not limit WTN by reference to background sound levels save in low noise environments where the limit is 35-40 dB. See para. 188 of the principal judgment where I accept this interpretation of WEDG 2006.

[21] Referring in passing to this court's principal judgment.

WEDG 2006 does not address most of the Defra criteria

98. Eighth, the defendant argues that because neither this court nor the plaintiffs have identified a specific WTN decibel limit (whether combined with AM penalties or otherwise) as marking the boundary of nuisance, it had *"no option"* but to devise a comparative exercise which applies the *"flat"* night time limit of 43 dB set out in WEDG 2006.

99. As stated in the principal judgment a robust assessment of a WTN nuisance complaint cannot be conducted without reference to factors such as those discussed in the Defra methodology.[22] In all its evidence in the course of module 1, the defendant addressed only three of the ten criteria derived from Defra ("the Defra criteria")[23]: the level of WTN, the time of day or night when the WTN occurs and, to a limited extent, the sensitivity of the complainant. The disputed new evidence partially addresses one of the ten Defra criteria, the *"type of noise"*, by presenting average AM penalties. However, this evidence does not address other important aspects of the noise *"type"* such as variability, regularity and predictability of the noise. Further, the defendant has not considered at all the following seven important Defra criteria: whether any aggravating characteristics are present in the WTN (the spectral content of the WTN and whether thump AM is present); the characteristics of the neighbourhood where the WTN occurs; the exceedance of WTN over background noise; the impact of the WTN on basic needs such as sleep; how easily the WTN can be avoided; what measures could reduce or modify the WTN; and finally the duration and how often the WTN occurs.

The Phase 2 penalty scheme is under review

100. Ninth, Mr. Stigwood's uncontradicted evidence at module 2 is that the Phase 2 penalty scheme, which is an essential component of the Carr comparative analysis, is currently under review. In particular, consideration is being given to injecting an element to reflect modulation frequency -in the sense of the rapidity-of the AM. This could be relevant at higher speeds of rotation when AM values are lower but when AM is likely to occur with greater frequency. Mr. Carr himself drew the court's attention to clause 4.5.30 of the Phase 2 Report which includes the statement that *"This method is by necessity an interim recommendation based on the available evidence to date..."* Insofar, therefore, as the defendant relies upon the Phase 2 penalty scheme, it is under review, which lessens its evidential weight.

The IEC does not apply the Phase 2 penalty scheme

101. Tenth, the IEC itself does not, as the defendant suggests, propose that the Phase 2 penalty scheme is applied to the local regulatory limit (in this instance, WEDG 2006). The Phase 2 penalty scheme is only an example of a potential local penalty scheme. Therefore, the importance attached by the defendant to the Phase 2 penalty scheme is not, on greater scrutiny, borne out.

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[22] This methodology was developed by the Department for Environment, Food and Rural Affairs for the assessment of statutory WTN nuisance complaints. The criteria outlined are similar to the criteria applied to such complaints by the Environmental Protection Agency.

[23] These are set out at para. 385 of the principal judgment.

Plaintiffs' further argument: the Carr comparative exercise misapplies the Phase 2 penalty scheme

102. I will finally deal with a *"fall back"* argument advanced by the plaintiffs' acoustic expert Mr. Stigwood. He argues that the defendant has misapplied the Phase 2 penalty scheme. This would mean that, even if I had admitted the disputed new evidence, it does not in fact show that the penalised WTN levels are lower than the WEDG 2006 noise limit.

103. To explain, Mr. Carr's comparative exercise purports to calculate penalties under the Phase 2 penalty scheme and then compare the penalised noise to the 43 dB *"flat"* night time limit under WEDG 2006. Mr. Stigwood observes that the Phase 2 penalty scheme fundamentally differs to WEDG 2006 in its approach to night time noise limits. This is particularly relevant in low noise environments. In low noise environments, WEDG 2006 limits day time noise to 35-40 dB. However, this lower limit is not translated across to night time limits, which are set at a *"flat"* 43 dB, irrespective of background noise levels. In a low noise environment, therefore the WEDG 2006 night time limit is higher than the WEDG day time limit.

104. By contrast the Phase 2 Report recognises that noise limits which are generally higher at night time than during the day, "raise the question about whether...noise limits... which are generally higher at night, *accord with current Government policies to avoid, significant adverse noise impacts, and mitigate or minimise adverse impacts."* . Therefore, if day time noise limits are lower than night time limits, the Phase 2 penalty scheme effectively applies the lower day time noise limit at night by the application of additional penalties.

105. Mr. Stigwood's opinion has always been that, absent the WTN, Ballyduff is a low noise environment and that the WEDG 2006 day time noise limit is 35-40 dB. As the WEDG 2006 night time noise limit of 43 dB is higher than this, the Phase 2 penalty scheme would apply the lower of these two limits at night. On this methodology, the WTN would exceed the relevant night time noise limit.

106. The defendant does not dispute that, correctly interpreted, the Phase 2 penalty report imposes an additional penalty *"if, and only if, the numerical limit for night-time is set higher than that for daytime".* However, it argues that this does not result in any change to the night-time noise limit in this case. This is because the defendant contends that Ballyduff is not a low noise environment. As such the night-time limit of 43 dB is lower, not higher, than the daytime limit of 45 dB and no additional penalties apply.

107. The defendant asserts that the court concluded that Ballyduff was not a low noise environment in the principal judgment. This is incorrect. Background noise levels were a live issue in module 1, which I considered at paras. 512-528 in particular. At para. 512, I expressly noted that the absence of background noise data meant that I could not assess whether this is a low noise environment within the meaning of WEDG 2006. Therefore, as the plaintiffs contended that nuisance arose *inter alia* by virtue of the fact that Ballyduff was a low noise environment, and thus bore the burden of proof on that issue, I held that I could not be so satisfied on the balance of probabilities.

108. For the purposes of module 1, I therefore assumed *for the sake of argument* that Ballyduff was not a low noise environment.[24] I accepted *arguendo* that the WEDG 2006 day time limit was up to 45 dB and that the night time limit was 43dB. On that assumption, I was satisfied that the noise

[24] See paras. 190, 192, 221, 276, 365 and 512 - 518 of the principal judgment.

limits in the planning permission and the WTN itself, were in accordance with WEDG 2006. The key point however, was that compliance with the WEDG 2006 limits did not delineate the parameters of WTN nuisance in this particular case. Irrespective therefore of whether or not Ballyduff was a low noise environment, compliance with WEDG 2006 was not determinative.

109. In summary, whether or not Ballyduff was a low noise environment was a live issue at module 1 which I did not have to decide, but which I assumed *arguendo* would fall in the defendant's favour. In doing so, however, I emphasised that there was no compelling evidence which would permit me to make a finding one way or the other on the issue. This remains the case.

110. At module 1, I determined that the onus of demonstrating nuisance remained at all times on the plaintiff. However, the onus of proof in substantiating its positive defence, which at that time was that the WTN complied with its planning permission, was on the defendant. We are now at a different stage of the litigation at which the defendant must surely substantiate its positive defence, which is now that on the application of the Phase 2 penalty scheme, the WTN complies with the relevant WEDG 2006 night time limit. I am satisfied the Phase 2 penalty scheme, properly interpreted, applies higher night time penalties to low noise environments. A strong argument can therefore be made that the onus of proof on this issue is now reversed and that the defendant bears the burden of proving that Ballyduff is not a low noise environment. Indeed, this would be entirely logical as only the defendant can reliably assess background noise levels which requires turbine shut down. As the defendant has not even attempted to investigate background noise, it is hard to see how this burden could have been discharged. This would tend to suggest that the defendant has not discharged the burden placed upon it of demonstrating compliance with the Phase 2 Report/WEDG 2006 night time noise limits, as properly interpreted.

111. Having said that, I accept that the defendant's argument that low background noise was not a live issue in module 2. It was not addressed in module 2 in either parties' expert reports. The argument arises from a single observation in Mr. Stigwood's oral evidence, which I accept the defendant did not anticipate. Although I afforded the defendant an opportunity to recall Mr. Carr to deal with this issue, I accept that by that stage, it was far too late for either side to present background noise data to the court. The low background noise issue remains incompletely explored in evidence and undetermined by the court. In these unusual circumstances, irrespective of the onus of proof, I am persuaded that it would be unfair to the defendant to hold against it on this specific point.

112. I will therefore decline to place any reliance on Mr. Stigwood's low noise environment argument. It is, in any event, entirely unnecessary to do so. Even if one fully ignores this argument, the analysis outlined at paras. 73 to 101 above admits of only one conclusion: even if I had admitted the disputed new evidence, this would not disturb this court's finding on liability in module 1.

Conclusion in relation to the disputed new evidence and in relation to the application to re-visit the principal judgment.

113. The defendant's written legal submissions cite the Supreme Court decision in *Re McInerney Homes Ltd.* in which O'Donnell J. (as he then was) expressed the view that the jurisdiction to reopen a judgment arises where a trial judge has proceeded on the basis of a particular assumption of fact which has transpired to be incorrect. In such circumstances, it could be said that the hearing, and indeed the judgment, had proceeded almost on the basis of a common mistake and that justice

requires that the matter should be reconsidered. The defendant submits that there is *"strong reason to re-visit the judgment"* because new evidence has come to light (in the form of the IEC AM analysis of the 2017 NF data) which establishes that T2 is operating below the threshold set out in WEDG 2006.

114. However, this demonstrates no incorrect assumption of fact or common mistake in the hearing of module 1 or in the principal judgment. In the principal judgment, I assumed *arguendo* that the WTN noise levels did comply with the WEDG 2006 noise limits, but nonetheless found as a fact that WTN nuisance was proven on the evidence.

115. At para. 31 of their submissions, the plaintiffs state:

> *"What the Defendant says provides the full answer to the Plaintiffs' complaints and the test of acceptability for nuisance in Ireland is an unadopted measurement methodology linked to a proposed 2016 UK penalty scheme (itself apparently under revision) judged against an averaged overall decibel limit in a 2006 planning guidance."*

116. I cannot disagree with that characterisation. In *G v. A Judge of the District Court* [2023] IEHC 386[25] Simons J. noted that a judge asked to review their own judgment should have regard to the fact that, on most occasions, the appropriate avenue of redress for a person aggrieved by a judgment is to exercise their right of appeal. The parties to litigation are entitled to assume that, absent an appeal, a written judgment which has been approved by the judge and has been published, is conclusive. In the present case, the defendant has provided no credible basis for the court to exercise its rare and exceptional jurisdiction to revisit its prior judgment. Regrettably, the defendant's approach has served only to add an additional layer of delay, costs and judicial decision making to already protracted proceedings.

117. I will now turn to the proper business of module 2: the assessment of the mitigation measures trialled by the defendant and the appropriate remedy.

118. I will first set out the evidence of the parties. Although the defendant's witnesses gave evidence before the plaintiffs' witnesses, this judgment will be better understood if I reverse this order.

Plaintiffs' evidence

Evidence of Ms. Webster

119. Ms. Webster continues to live alone at HH since Mr. Rollo, co-owner of the house and her former partner, left in March 2021. On foot of the principal judgment, the plaintiffs' solicitors wrote to the defendant on 15th March 2024, proposing arrangements for mediation and asking whether, pending mediation, the defendant would mitigate the noise nuisance in response to the court's findings. The defendant did not agree to any mitigatory measures pending mediation.

120. A mediation agreement was signed on 27th June 2024,[26] which provided that the defendant would implement *"an iterative process of trial and error to achieve a restricted operation of T2 so that its operation does not give rise to excessive AM and WTN"*. The defendant would trial different modes during the mitigation period of July to September 2024. The precise design of the trial was a

[25] Cited with approval by the Court of Appeal in *Gaultier*.
[26] Which it is agreed is to be read together with a letter from the plaintiffs' solicitors on 17th June 2024.

matter for the defendant and not the plaintiff. The plaintiffs agreed that the defendant could place noise monitoring equipment *"on their land"* at HH and that Ms. Webster would keep a noise diary to record the impact of the noise. It was also noted that the plaintiffs may want to place noise monitoring equipment externally and/or internally at HH and that any raw data from the plaintiffs' noise monitoring equipment would be exchanged simultaneously with the defendant's raw data.

121. The defendant's acoustic expert, Mr. Carr, placed noise monitoring equipment in the front and rear gardens of HH. In addition, Mr. Daniel Baker, Acoustic Consultant, was engaged to undertake outdoor and indoor monitoring on behalf of the plaintiff. External monitoring was carried out in the rear garden and internal monitoring was carried out in the same ground floor back bedroom as previously.

122. Ms. Webster's evidence was that the noise from the turbines was unchanged over the two month mitigation trial period. It remained most intrusive in the evenings and at night time. There was no noticeable change in the AM or in the WTN levels. Ms. Webster continues to find it difficult to enjoy her time at HH and her sleep remains disturbed. Ms. Webster's evidence was that seven and half years after her first complaint to Mr. Brazil, she continues to suffer intrusive, dominant and unreasonable WTN, which has all of the features previously found to exist by the court: *"The noise rises and falls, it's not a single instance like a car passing where it passes very quickly or a dog barking even. It's unpredictable. The intensity,... rises and falls. It can be quite thumpy, then it can go quiet, then it can go up and down and so on and so on."*

123. Aside from the fact that she views the nuisance as remaining unabated, three features of Ms. Webster's evidence bear emphasiss.

124. First, Ms. Webster is stressed and worried about the wind turbine. She has been worn down by the WTN and finds it increasingly difficult to stay in the house. She is understandably disappointed by the approach to the mitigation process in which the defendant trialled only one different operating mode as part of what was intended to be a *"trial and error exercise".*

125. I formed the impression that Ms. Webster's disappointment and frustration, justifiable though they may be, now impact her perception and tolerance levels of the WTN. An obvious example of this is Ms. Webster's approach to the issue of audibility of the WTN inside HH. During module 1, Ms. Webster was cross-examined as to whether she equated nuisance with mere audibility internally. The thrust of Ms. Webster's answers was that it was not audibility alone that disturbed her concentration, relaxation and enjoyment and caused her difficulty falling asleep. Rather, it was audibility, combined with low frequency impacts, such as vibration and a sense of pressure. Ms. Webster also relayed being woken *"bolt upright"* from her sleep by the WTN, which clearly implies a higher level of noise than mere audibility. I believe that there has been hardening in Ms. Webster's position. She now takes the view that if the turbine is audible at all indoors it is thereby a nuisance. I cannot agree. One cannot equate audibility, even internally, with nuisance.

126. Second, in cross-examination, counsel for the defendant laid great emphasis upon para. 70 of this court's judgment reciting Ms. Webster's evidence. I stated *"what primarily disturbs Ms. Webster's relaxation and sleep is when the turbine is turning "full tilt"".* The defendant relied upon Ms. Webster's use of the phrase *"full tilt"* in two ways; first it suggests that it is inconsistent with Mr. Stigwood's findings at module 2, that the worst noise intrusion occurs at moderate to higher windspeeds (but not at the highest windspeeds). Second, the defendant maintains that the phrase

"full tilt" led it to assume that mitigation was only required at the highest windspeeds, leading it to select the 1,600 mode (which only limits rotational speeds and noise at windspeeds above 7.8 m/s) for the trial and error process.

127. This was an entirely unreasonable position for the defendant to adopt. Ms Webster's use of the phrase *"full tilt"* cannot justify the defendant's conclusion that the WTN is not a nuisance at windspeeds below the maximum. Ms. Webster's complaints of intrusive WTN usually occur at night when she is in bed and is clearly not counting turbine blade rotations. Rather, her sense that the turbine is turning fast will be a general impression gained from the rhythm of the noise in her room. Even during the day, Ms. Webster would be unable to count the turbine rotations with the naked eye.

128. In any event, the defendant fails to distinguish between the court's recital of Ms. Webster's evidence at para. 70 and the court's findings. The court did not find that the WTN was most intrusive, still less that it was only intrusive, when the turbine was turning at its very fastest level. Rather, I concluded at para. 631 that whilst this would potentially need to be revisited in module 2, it was likely that the worst features of the WTN were associated with at least *"moderately higher speeds of rotation"*. Similarly, at para. 590, I found that *"at moderate to high speeds of rotation"* the impact of the WTN far exceeds masking levels and is the primary noise experienced in the environment.

129. This court's reference to moderate to high windspeeds was based in part on my finding that the WTN at the time of my site visit to the plaintiffs' houses did not give rise to nuisance. Nuisance therefore arises at windspeeds greater than 3.8 m/s to 4.8 m/s. It follows that my reference to moderate to high windspeeds may be interpreted as windspeeds above 5m/s in any event. In addition, the evidence at module 1 was that the turbine reaches its maximum speed of rotation at 9 m/s and that, beyond that, the WTN does not increase with rising wind speeds. Further, at very high windspeeds background wind noise progressively increases masking the WTN. These factors in themselves imply that any assumption that the greatest problems occur at the very highest windspeeds is misplaced. I also found that the WTN was more intrusive at night time, when ambient background levels are low and stable atmospheric conditions both enhance sound propagation and render high AM values and thump AM more prevalent.

130. Third, Ms. Webster states that on 12th July 2024, the defendant's solicitors wrote to request that audio recording equipment to be placed in her personal bedroom which she would be required to turn on and off in order to record the noise. Ms. Webster states that she was surprised to receive this additional request as it was not part of the mediation agreement which had been signed two weeks earlier. Ms. Webster considered this an intrusive and unnecessary request and did not agree to it.

131. Ms. Webster states that the defendant could have used five other bedrooms in her home for monitoring. There is a dispute between the parties as to whether or not the defendant was willing to carry out monitoring in one of the other bedrooms in the house as a proxy for Ms. Webster's bedroom and, if so, whether she was willing to permit this. The defendant's position is that Ms. Webster refused any internal monitoring. The plaintiffs' position is that internal monitoring was not ruled out, provided it was not in Ms. Webster's bedroom. One way or another, internal monitoring was not agreed at mediation and the plaintiffs were evidently not prepared to depart from the terms of the detailed mediation agreement.

132. It may have been more constructive had Ms. Webster responded to the defendant's letter of 12th July 2024, with a formal counter offer of noise monitoring in another bedroom. However, I attribute any inflexibility to Ms. Webster's increasing frustration over the defendant's general response to her complaints, no doubt copper fastened by its attempt to depart from the monitoring procedures agreed at mediation. In any event, this is largely by the by. The lack of internal monitoring by the defendant in Ms. Webster's bedroom does not prevent this court from deciding the issues which fall for resolution in this module.

Evidence of Mr. Stigwood, plaintiffs' acoustician

Misinterpretation of the principal judgment

133. Parts of Mr. Stigwood's module 2 report suggest that he interpreted the principal judgment as holding that the mere presence of high AM values and/or thump AM is sufficient to establish nuisance.

134. Much of Mr. Stigwood's module 2 report focuses on demonstrating high AM values and thump AM, without analysing how these features correlate with overall WTN levels. As a result, in much of the data that Mr. Stigwood presents, AM levels are high (and thump AM is present), but overall noise levels are quite low, particularly when compared to the data previously gathered by Ms. Large.

135. The defendant disputes Mr. Stigwood's interpretation of the principal judgment. I agree with the defendant on this point. This court's conclusion was not that the mere presence of high AM values and thump AM constitutes nuisance. Rather, high AM values are liable to create nuisance if audible at a sufficient level. Similarly, thump AM is liable to constitute nuisance if within the audible range; or if giving rise to unacceptable vibration and pressure (always bearing in mind that low frequency noise can annoy at lower levels). Thus, I found that thump AM, which is both heard and felt, as vibration or as a sense of pressure, was the most intrusive feature of the WTN.

136. However, Mr. Stigwood's testimony did not suffer from this frailty. He accepted that high AM values and thump AM are not *per se* evidence of nuisance. Overall noise levels must also be taken into account. This is consistent with the court's findings, and with the evidence of Mr. Stigwood and Ms. Large (upon whose testimony the court placed particular emphasis) in module 1.

Has the 1,600 mode abated the nuisance?

137. Mr. Stigwood's analysis of the WTN in the 1,600 mode is set out in a lengthy report running to almost 100 pages containing almost 100 different time-domain graphs and other graphs. His evidence is that the 1,600 mode, does not result in the abatement or improvement of the nuisance. Intrusive AM continues externally and internally,[27] including at nighttime, in the evenings and weekends.

138. Mr. Stigwood states that, in the 1,600 mode, high AM values are measured on the time-domain graphs and on the application of the IOA RM. Several of these time-domain graphs showed AM

[27] In oral evidence, Mr. Stigwood clarified that the outdoor/indoor noise level differential though an open window would be in the order of 10-12 decibels. For a window open only for ventilation, one would expect a slightly lower differential. This was in accordance with the evidence of both parties at the earlier module that, with a window very slightly open for ventilation purposes, one could assume a 10 dB reduction externally to internally.

values of 10 dB, the highest possible value using the IOA RM. IOA RM analysis shows that high AM values are associated with at least moderately high speeds of rotation (as opposed to the highest rotational speeds). AM values are highest at windspeeds between 5.1 and 8.7 m/s, and are maximal at 7m/s approximately.

139. Unconstrained, maximum T2 rotations are in the order of 22 or 23 rotations per minute. The 1,600 mode caps turbine rotations at 18.6 revolutions per minute. It does not therefore *"kick in"* until revolutions have reached that speed and only starts to have an effect when windspeeds are in excess of 8 m/s.

140. When visiting HH during the mitigation trial, Mr. Stigwood experienced erratic, dominant and impulsive WTN externally and internally. He correlated his experience (and that of Ms. Webster) with the raw data noise collected and with the SCADA data, and found that same concurred.

141. By listening to the WTN and correlating it with the spectrograph, Mr. Stigwood concluded that thump AM is dominant for substantial periods and is particularly prominent internally. In Mr. Stigwood's opinion, thump AM remains the primary cause of nuisance even in the 1,600 mode. This thump AM is worst under conditions of meteorological stability, which most often occurs at windspeeds below those at which the cap applies.

142. Mr. Stigwood summarises his view on the 1,600 mode as follows: *"in a short few words, the cap has not stopped the AM and its exceedance over the background, its dominance, its erraticism, its intermittency, the impulsive character, all those elements within it, its excessive AM values, it hasn't stopped any of those. So the cap has not prevented these occurring. They have continued to occur."*

143. Mr. Stigwood's uncontradicted evidence is that Mr. Carr's 2024 1,600 mode noise monitoring data demonstrates noise levels 2 to 3 dB lower than his own data. This must be taken into account in interpreting Table 3.

144. Unlike Mr. Carr, Mr. Stigwood presents a full IOA RM analysis of the WTN during the mitigation mode. Although this provides the court with some of the important data omitted from Mr. Carr's reporting, as Mr. Stigwood uses Mr. Carr's 2024 raw noise data for this IOA RM analysis, the data set is necessarily incomplete for the reasons just explained.

145. Fortunately, it is not necessary to grapple with the minutiae of this analysis in order to determine whether or not the 1,600 mode has abated the nuisance. This is because two things are common case: First, AM values and thump AM are not impacted *per se* by the 1,600 mode (or in all likelihood by any of the operation modes). Second, the impact of the 1,600 mode is to reduce WTN by a maximum of 2.1 dB at windspeeds of 9 m/s and above. At windspeeds of 3 m/s and 4 m/s, the 1,600 mode brings about no change in WTN noise levels. At 5 m/s, it actually increases WTN by slightly less than a decibel. At 6 m/s, 7 m/s and 8 m/s the 1600 mode is estimated to reduce WTN by between .8 and 1.2 dB.

146. It is common case that, from the perspective of one listening to the WTN, a noise level change of 3 dB is on the boundary of perception and that a change of 2.1 dB is either barely perceptible or imperceptible. Therefore, as the 1,600 mode has effected no improvement in AM values or thump AM and has merely reduced noise levels to an effectively imperceptible degree, it could not be expected to ameliorate the nuisance to an appreciable extent.

The IEC

147. Mr. Stigwood was unimpressed by the defendant's use of the IEC which he said had not been adopted in Ireland. He disagreed with the proposition that the IEC represented a significant change in the assessment of thump AM. The only way to differentiate between swish and thump AM is to look at the spectrum data. Mr. Stigwood was also critical of the defendant's failure to apply Appendix C of the IEC, which deals with low frequency noise evaluation.

Other evidence from Mr. Stigwood relevant to the potential abatement orders this court might make

148. Mr. Stigwood's view is that it is not for the plaintiffs to suggest mitigation measures for the wind turbine. However, in most cases of intrusive AM, turbine shut down at sensitive times is required.

149. Mr. Stigwood criticised the defendant for seizing upon Ms. Webster's comment that the turbine most disturbed her when it was spinning *"full tilt"* and then trialling a cap that only kicked in at the highest windspeeds. In his view, the blades rotate quickly at windspeeds of 6 m/s and up. Mr. Stigwood states that an observer would not visually perceive a difference between rotational speeds at, say 6 m/s and 9m/s. Both could in his view fairly be described as *"full tilt."* It is preposterous to expect an observer to reliably discriminate between turbine rotational speeds of 16.33 revolutions per minute (RPM) at windspeeds of approximately 6m/s and 18.59 RPM at windspeeds of approximately 9m/s. As there are three blades, the difference in blade passing frequency between these two windspeeds will not be apparent to the naked eye. I agree.

150. The defendant relies upon data from the turbine manufacturer, Enercon, which predicts likely reductions in WTN at different windspeeds in a range of different operational modes ("the Enercon prediction data"). Mr. Stigwood notes that the predicted noise level reductions are averaged out over all wind directions. The predicted reductions cannot therefore be assured in any particular wind direction. Further, the predictions are based on measurements taken very close to wind turbines in unstable meteorological conditions. In Mr. Stigwood's view, the predicted noise level reductions may not therefore be achieved, particularly at night when meteorological conditions are stable and wind shear is high. On the other hand, Mr. Stigwood appears to accept that the 2024 1,600 mode noise monitoring does demonstrate WTN level reduction in the broad range predicated by Enercon (when averaged over 24 hours and in all wind directions).

151. The most adverse impact of the WTN occurs when rotations are moderate to high, which he defined as windspeeds of above 6 or 7 m/s. High AM values and thump AM virtually disappear at very high windspeeds, which he defined at above 12 m/s. At windspeeds above 12m/s, WTN is a rumbling type of noise with very little character which is less intrusive, particularly in the presence of other masking noises, such as wind noise. The exception would be when there are extremely stable atmospheric conditions.

152. Generally wind direction can make a big difference to AM and WTN levels. However, Mr. Stigwood stated this was not necessarily the case on Mr. Carr's spiderweb graphs, particularly in crosswind conditions.

153. Mr. Stigwood acknowledges that restricting the operation of T2 to its lowest power mode of 1,000 KW ("the 1,000 mode") could potentially provide a noticeable difference to overall sound

levels. However, this may not ameliorate intrusive AM. I have some difficulty with this. The ETSU Review, notes a strong association between the annoyance posed by AM and the absolute sound level of the WTN. In my view, therefore, it is generally safe to assume that a noticeable reduction in noise levels will have an appreciable beneficial impact. This is of relevance in crafting fair and proportionate injunctive orders.

Evidence of Mr. Mayer, Mechanical and Automotive engineer

154. Mr. Mayer who operates as a Wind Energy Consultant advising on the execution of wind development, states that noise mitigation is well established in the wind industry due to complaints of noise nuisance caused by technical failure, inadequate distance, or irregularities in wind flow. Mr. Mayer considers that the mitigation exercise undertaken by the defendant was a poorly structured process and lacked the required professionalism and expert input. The adoption of a single alternative mode for T2 during a two month period is inadequate. Mitigation ought continue for at least six months.

155. Mr. Mayer criticised Mr. Brazil's failure to consult in detail with Enercon prior to commencing the mitigation process. If this court's judgment had been discussed with Enercon, it could have devised a tailored and effective mitigation process. The turbine can be programmed to trigger a wide range of noise reduction modes to mitigate specific noise generating constellations of wind speed and wind direction whenever they appear.

156. In addition to offering different operating modes, further mitigation could have been achieved by modalities such as trailing edge serrations, blade feathering and other mechanical or electrical interventions.

Defendant's evidence

Evidence of Mr. Brazil

157. Mr. Brazil's evidence was that the new IEC was applied to the 2017 NF data to obtain a thorough description of the sound characteristics of the WTN when operating in the 2,300 mode with a view to this data providing a starting point for mitigation purposes. In his oral evidence, Mr. Brazil referred to Mr. Carr's spiderweb graphs as derived from the 2017 NF data but not to any further data and in particular not to the Carr comparative exercise.

158. Mr. Brazil gave evidence that *"there is meaningful [noise] reductions in my opinion".* He did not, however explain how he had reached this conclusion.

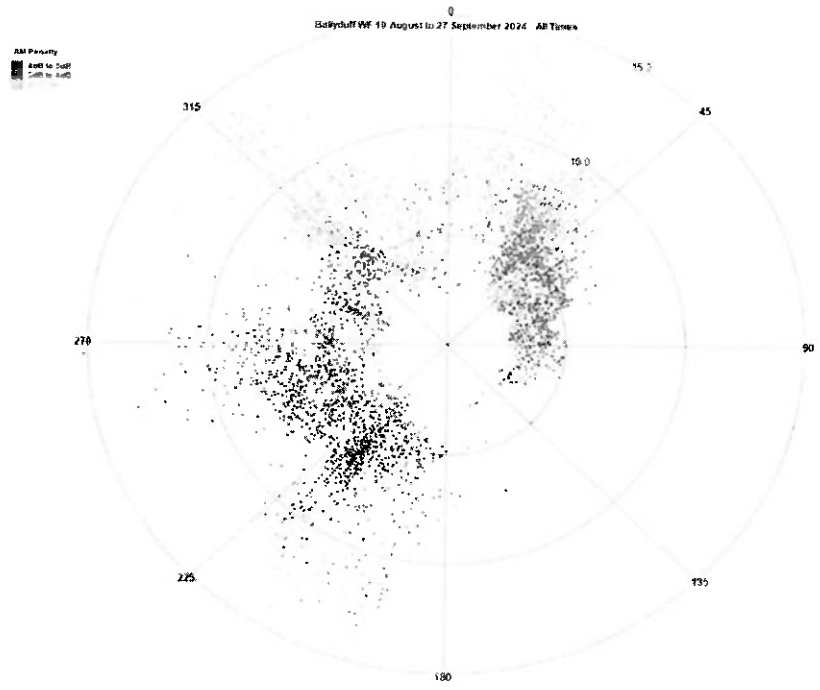
Evidence of Mr. Carr, defendant's acoustician

159. The primary purpose of Mr. Carr's report and statement was to set out his comparative exercise which he contends shows that there is no nuisance in either the 2,300 mode or the 1,600 mode and that no mitigation is required.

160. Mr. Carr carried out an AM assessment of the 2017 NF data and the 2024 1,600 mode data. He sets out the results in several graphs. As I have decided to admit only the 2024 1,600 mode data, only those graphs are relevant. Further, it is not disputed that the noise levels for the front garden are elevated as compared to the rear garden due to external sounds, I will focus on the rear garden 2024 1,600 mode data.

161. I reproduce below figures 5 and 6 of Mr. Carr's report. These are the spiderweb graphs analysing the rear garden 2024 1,600 mode data pursuant to IOA RM/IEC. Figure 5 presents results for the rear garden on a 24 hour *"all data"* basis and figure 6 presents the results for nighttime.[28]These graphs set out derived AM penalties rather than AM values per 10 minute segment, as would generally be required. Figures 5 and 6 shows a significant number of AM penalties of 4 to 5 dB, indicating AM values between 6.5 dB and 10dB and AM values above 10 dB, respectively. I also reproduce Table 3 which sets out the comparative exercise for the rear garden 2024 1,600 data at night time[29] in the downwind direction only.

Figure 5: IOA RM results – 2024 1,600 rear garden 24 hour data



[28] Mr. Carr restricts this to between the hours of 23.00 and 04.00 to avoid the dawn chorus. However, I prefer to adopt the most conservative approach and to use the spiderweb graph for the entire period of 23.00-07.00 hours.

[29] Mr. Carr restricts this to between the hours of 23.00 and 04.00 am to avoid the dawn chorus.

Figure 6: IOA RM results – 2024 1,600 mode rear garden night-time (23:00 to 07:00hrs) data

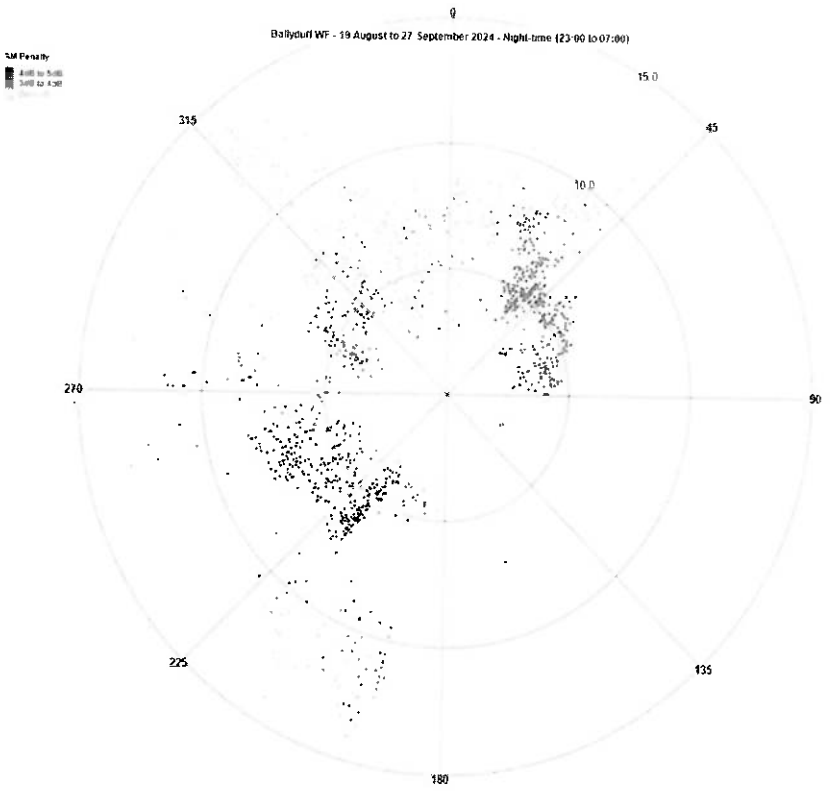


Table 3 2024 1,600 mode rear garden 23:00 to 04:00hrs data- downwind only

Wind Speed m/s	Total measured noise level L_{A90},dB	Total measured noise level L_{A90},dB + AM Penalty	Difference (dB)
4	25	29	4
5	30	34	4
6	34	38	4
7	36	40	4
8	37	41	4
9	38	41	3
10	38	41	3
11	38	41	3
12	39	41	2

162. Mr. Stigwood did not quibble with the penalties derived by Mr. Carr or with Table 3. For this reason, I will accept that, save for a potential underestimation of sound levels by 2 or 3 dB, the data summarised at Table 3 is accurate. Table 3 shows that AM values are at their highest at windspeeds of 4 to 8 m/s. AM values drop at windspeeds of 9m/s to 11 m/s and drop again at windspeeds of 12 m/s. The acoustic experts therefore agree that AM values are highest at windspeeds below the level at which the cap becomes fully operational.

163. Mr. Carr states that the downwind sector,[30] when the wind is blowing from the turbine to the receptor location, generates the loudest noise. He contends that the crosswind and upwind sectors produce lower levels of WTN at HH. He does not however present any data which would inform the court as to noise levels in the crosswind and upwind sectors.

164. This is an unfortunate and significant omission from the defendant's perspective. It means that the court can only apply the broadest discrimination between different wind directions in setting abatement measures.[31]

165. Mr. Carr's evidence is that having examined Ms. Webster's diary entries and Mr. Stigwood's report, there is no obvious pattern to any specific wind speed or direction that can be correlated with the AM complaints set out in the noise diaries.

166. In cross examination, Mr. Carr did not agree that, rather than looking at averages, nuisance is concerned with the minute by minute experience of the plaintiffs. He denied that this experience is better illustrated on the time-domain graphs than by the averages presented in his reports. He agreed however that the IOA RM cannot tell one what the noise sounds like and that it does not differentiate between swish and thump AM.

167. Mr. Carr accepted that his report omits important data which the IEC requires to be reported, such as average 10 minute AM values and the percentage of 3dB modulation depths, 6dB modulation depths and 9 dB modulation depths in the data presented. Mr. Carr's data informs the court only of average AM penalties per windspeed. I cannot know what makes up those averages. The penalty averages may be the mean of very high and very low AM penalties over 10 minute periods or they may represent the most commonly occurring penalty. This omitted information would be highly relevant in determining the specific circumstances under which high AM values may give rise to nuisance at HH. Although the defendant argues that Mr. Stigwood's *"compliant"* IOA RM analysis fills this lacuna, the lacuna is entirely unsatisfactory in the first place.

168. Both experts are agreed that because the IEC essentially adopts the IOA RM methodology, very high AM values would not be reflected in the data unless present for more than 50% of any particular 10 minute block. This inexorably means that a greater number of short, intermittent episodes of high AM values will be experienced on site than are reflected in Mr. Carr's analysis. His data is liable to significantly under-represent Ms. Webster's lived experience of high AM values on a day to day basis.

169. Mr. Carr maintains that the average modulation depth for the mitigation period was approximately 3 or 4dB. This may well be correct. However, this is an average for all windspeeds and all wind directions. Even leaving aside low frequency/thump AM, emergence, etc, this in no way

[30] Downwind would usually be considered within 45 degrees either side of the Ballyduff windfarm turbines.
[31] As to which see para. 218 below.

forecloses nuisance at times when AM values are greater than this, which the evidence shows is a common and regular occurrence.

170. Mr. Carr's opinion on whether the 1,600 mode has abated the nuisance is so inconsistent as to be meaningless. He accepted that reducing the power mode does not reduce AM values or thump AM *per se* and that effective abatement can only be achieved through overall noise reduction. He then supported the defendant's contention that the maximum noise reduction of 2.1 dB effected by the 1,600 mode was *"significant"* and not *"negligible"*. However, he also accepted that, from the point of view of one listening to the WTN (a "receiver"), a noise level reduction of 3 dB would be on the very boundary of perception. I cannot reconcile these two positions and nor, I suspect, can Mr. Carr.

Has the 1,600 mode abated the nuisance? Onus of proof

171. As the defendant submits, the burden of proof in relation to nuisance rests with the plaintiffs. In *Hanrahan v. Merck Sharp and Dohme (Ireland) Ltd* [1988] ILRM 629, the Supreme Court found that it *"would be contrary to authority"* to require the defendants to disprove that the plaintiffs had suffered the mischief complained of or that same was caused by emissions from its factory. In the present case, this burden has already been discharged in relation to the 2,300 mode and the court has ruled on liability.

172. There is a dispute between the parties as to who bears the onus of proof on the question of whether the 1,600 mode has abated the nuisance. The plaintiffs maintain that the onus of proof is on the defendant and the defendant maintains that the contrary is the case. I accept the plaintiffs' submission on this point. The plaintiffs have proved, on the balance of probabilities, that the WTN is a nuisance. It is not necessary for them to prove this again and again for each adjustment to the turbine that the defendant might choose to make. Rather, the onus is on the defendant to prove that the adjustment that it proposes, the 1,600 mode, abates the nuisance.

Findings of fact regarding the 1,600 mode

173. In the principal judgment I was satisfied that:

1. The WTN is a nuisance at night[32] and during the quiet waking hours.[33]
2. Adverse impact occurs at windspeeds in excess of those which prevailed at the time of the court's visit (i.e. at windspeeds in excess of 5m/s).
3. Albeit that it would potentially require to be re-visited in module 2, it is likely that the worst features of high AM values and thump AM are associated with at least moderately higher speeds of rotation when WTN levels are sufficient to bring these characteristics to the fore.

174. On the basis of the evidence adduced at module 2, I now make the following findings of fact:

1. Table 3 shows that in the 1,600 mode, average night time downwind AM penalties at windspeeds between 4 and 8 m/s are 4 dB. Average night time downwind AM values are therefore between approximately 6.5 and 10 dBs. However, these

[32] Between 23.00-07.00 hours on all days.

[33] Between 18.00-23.00 hours all day plus 07.00-18.00 on Sundays and 13.00-18.00 on Saturdays.

penalties are averaged over several weeks. In any event, the IOA RM only captures those high AM values which are present for more than 50% of any 10 minute period. I am therefore satisfied that there are also regular periods of higher AM values at these windspeeds.

2. In the 1,600 mode, average night time downwind AM penalties at windspeeds of between 9 m/s and 11 m/s are 3dB. Average night time downwind AM values are therefore between 3 dB and approximately 6.5 dB. However, by the same logic, I find that there are also regular periods of higher AM values at these windspeeds.
3. Thump AM continues to be a regular feature in the 1,600 mode. This has been confirmed by spectrograph analysis.
4. In the 1,600 mode, erraticism, impulsivity, unpredictability and dominance continue as before.
5. I find on the balance of probabilities that, in the 1,600 mode, the WTN continues to disturb Ms. Webster's concentration, relaxation, enjoyment of her home and sleep to an unreasonable extent.

175. As will be evident, it is not even necessary to rely on the onus of proof to conclude that the 1,600 mode does not abate the nuisance. It is common case that, from a receiver's point of view, a noise level change of 3 dB is on the boundary of perception and that a change of 2.1 dB is barely perceptible or imperceptible. It is also common case that the 1,600 mode has effected no change to AM values, thump AM and other intrusive features such as erraticism, impulsivity, unpredictability, etc. A maximum reduction in WTN of 2.1 dB will not abate WTN nuisance arising from high AM values, thump AM, erraticism, impulsivity and unpredictability, which together dominate the plaintiffs' noise environment.

176. I therefore find as a fact, on the balance of probabilities, that the 1,600 mode does not ameliorate the nuisance to any appreciable extent. The defendant suggests that it had insufficient time for the mitigation exercise. Its written submissions note that on 2nd July 2024, prior to the trial and error process commencing, senior counsel for the plaintiffs applied for a hearing date for module 2. The defendant now submits that, despite objections raised by its counsel, who argued that more time was required, this court directed a November 2024 hearing date. This is a mischaracterisation of what occurred on 2nd July 2024. The mediation agreement, which was before the court on 2nd July 2024, specifies that the mitigation exercise terminate by September 2024. The defendant did not request the plaintiffs or the court to extend the mitigation period for the purposes of trialling other potential turbine modes. Rather, counsel contended that as the mitigation exercise would not be completed until September 2024, the defendant would not be ready for the trial of module 2 until the New Year of 2025. This, I regarded as being an excessive delay.

Analysis and findings of fact relevant to the potential abatement orders this court might make

177. Citing *Lanigan. v Barry* [2016] 1 IR 656 (*"Lanigan"*), the defendant argues that there are insufficient findings of fact in the principal judgment to determine the appropriate form of injunction. This requires some explanation. In *Lanigan*, the High Court had determined that a significant increase in activity at a motor racing circuit since its grant of planning permission amounted to a material change of use, meriting an injunction pursuant to s. 160 of the Planning and Development

Act 2000. The trial judge also found that the motor racing circuit caused a noise nuisance to the plaintiff's neighboring stud farm also meriting an injunction. The trial judge granted an injunction on both grounds significantly restricting the operation of the motor circuit. The injunction was principally focused on bringing the situation back to that authorised by the planning permission as interpreted by the trial judge. On appeal, it was contended that the injunction was excessive. The Supreme Court found that the trial judge had failed to have regard to the fact that some of the intensification, held to be a material change of use, was immune from enforcement as same was statute barred. As such, the s. 160 injunction could not stand. Further, because the High Court's injunction for nuisance was simply a reproduction of the planning injunction, it was also set aside. The Supreme Court also held that it could not determine the precise form of planning injunction to be granted in the absence of clear findings of fact regarding the level of use before and after the expiry of the enforcement limitation period. Likewise, in respect of the case in nuisance, the Supreme Court determined that there were insufficient findings of fact to allow it to craft an appropriate injunction designed to do justice in all of the circumstances.

178. In remitting the matter to the High Court, Clarke J. stated at para. 48:

> *"While the findings of fact sufficient to establish that there is a nuisance cannot, therefore, be disturbed, there are, in my view, insufficient findings of fact to allow this court to craft an appropriate form of injunction designed to do justice in all the circumstances pertaining to the nuisance claim. That is not to say that some form of injunction will not, almost inevitably, follow in order to deal with the established nuisance. However, this court does not have sufficient definitive findings of fact to enable a decision to be made as to the precise form in which any such injunction should be imposed."*

179. The key point is that this lacuna arose because the trial judge had formulated the injunctive relief for nuisance largely by reference to the planning permission. There were therefore few findings of fact which could inform the appropriate injunction to grant solely in respect of nuisance.

180. The present case is distinguishable. This court has determined on the basis of extensive findings of fact that the WTN poses a nuisance to the plaintiffs at specific times of the day and night and has explained why. It stands to reason that the conditions giving rise to nuisance such as moderate to high windspeeds, stable atmospheric conditions and high windshear will occur on an intermittent basis, albeit regularly and for sustained periods during these sensitive periods. When such conditions occur, nuisance arises in the manner already described.

181. The defendant submits that *"it is not open or appropriate for this court to determine the precise form of injunction that should be granted in the absence of definitive findings of fact as to where the threshold for nuisance lies, or when and under what circumstances the nuisance occurs"*. Effectively, it argues that before granting an injunction, the court must (1) prescribe the precise combination of WTN decibel level and AM value that amounts to WTN nuisance and (2) must determine the precise combination of wind speed, wind direction and metrological conditions that render the Ballyduff WTN liable to cause a nuisance. I disagree.

182. The defendant's approach is simplistic and reductive of this court's findings at module 1. The WTN nuisance is not a product only of the WTN decibel level and its AM values. All of the *"Defra* factors" considered in the principal judgment are crucial to the assessment. It is neither necessary, nor indeed even possible, for this court to adjudicate upon the scientific and acoustic *causes* of the

WTN nuisance in this case, particularly not to the level of detail insisted upon by the defendant. Naturally, WTN nuisance caused by the interaction of the blades with the atmosphere and the environment will not be constant. It will wax and wane. Nor will the impact be wholly consistent at a given windspeed and wind direction.

183. In short, because the existence and cause of the WTN nuisance in this case is multifactorial, this court cannot prescribe the precise combination of WTN decibel level and AM values at which it is or is not a nuisance. Still less can it determine the precise combination of wind speed, wind direction and metrological conditions that render the Ballyduff WTN liable to cause a nuisance.

184. However, I can and have determined that, as presently operated the WTN causes a nuisance to the plaintiffs on a regular basis, for sustained periods of time, many of which correspond with the most sensitive times of the day.

185. The defendant must bear the onus of proof in demonstrating that the WTN does not give rise to a nuisance at particular windspeeds or in particular wind directions. It is for the defendant to bring forward evidence on foot of which I can carve out particular windspeeds or particular wind directions as being unlikely, on the balance of probabilities, to cause nuisance. In so far as there is insufficient evidence to carve out particular windspeeds or particular wind directions, it is also for the defendant to bring forward evidence to demonstrate that particular mitigation measures, such as a specified reduced power mode, will reliably and consistently abate the WTN nuisance and that shut down is not necessary at those particular windspeeds or particular wind directions. Insofar as the defendant has not brought forward such evidence, the court will make such findings of fact as are open to it on foot of the other evidence in the case.

186. Bearing all of the above in mind, and on the basis of the evidence of both parties adduced at module 1 and module 2, I now make the following findings of fact of relevance to potential abatement orders:

1. The WTN is most intrusive at moderate to high windspeeds of 5m/s to 8 m/s. I draw this conclusion for a number of reasons. First, as explained at para. 129 above, the WTN does not pose a nuisance at windspeeds below 5m/s. Although high AM values and even thump AM may occur at these low windspeeds, the WTN level is low enough that such features are not liable to annoy. In the second place, Mr. Carr's 2024 1,600 mode data shows that at night time, windspeeds of 5 m/s to 8 m/s are associated with the highest AM values which is widely recognised to be intrusive if audible at a sufficient level. As it is common case that the 1,600 mode has effected no change to AM values (or indeed to thump AM, erraticism, impulsivity, unpredictability, etc), this conclusion applies equally to the 2,300 mode. In the third place, thump AM is more likely to be noticeable when combined with these high AM values. Fourth, thump AM is more prevalent under conditions of meteorological stability, which most often occur at windspeeds below 8 m/s. Fifth, at these windspeeds, background masking levels in the form of wind noise will be low when compared to higher windspeeds. I therefore find that the WTN gives rise to nuisance at windspeeds of 5m/s to 8m/s and that this occurs intermittently but commonly, and for sustained periods, throughout quiet waking hours and at night.

2. At windspeeds of 9m/s, high AM values and thump AM also occur intermittently but regularly and for sustained periods. I accept that this causes a nuisance during quiet waking hours and at night. I draw this conclusion for a number of reasons. First, Mr. Carr's Table 3 shows that at a windspeed of 9m/s, average downwind night time AM penalties are 3 dB. At 9m/s average AM values are thus between 3 and 6.5 dB. Second, in light of the limitations of averaging and given that the IOA RM analysis will not reliably capture erratic or intermittent high AM values, I find that there are also regular and sustained periods of higher AM values at windspeeds of 9m/s. Third, I accept Mr Stigwood's evidence that thump AM regularly accompanies these high AM values. Fourth, I find stable atmospheric conditions, which occur most frequently at night, further exacerbate WTN nuisance. Fifth, I accept Mr. Stigwood's uncontradicted evidence that modern thinking now considers that high AM values and thump AM are more likely to disturb sleep when occurring with rapidity, which is a feature of higher rotational blade speeds caused by higher windspeeds, such as 9m/s. Overall, at a windspeed of 9m/s, high AM values and thump AM, causing vibration and pressure, occur with frequency and rapidity (in the sense just described). There features combine with the emergence of the WTN over background noise, and its erraticism, impulsivity and unpredictability, to dominate the sound environment on an intermittent but regular basis.
3. Table 3 presents average AM penalties of 3 dB at windspeeds of 10 m/s and 11 m/s in the 1,600 mode. As it is accepted that the 1,600 mode has not impacted AM values (or thump AM), the same AM values should broadly apply to the 2,300 mode.[34] Therefore, at windspeeds of 10 m/s and 11 m/s average AM values are between 3 and 6.5 dB. Thump AM regularly accompanies these high AM values. Although, at these higher windspeeds of 10 m/s and 11 m/s, AM and thump AM will be less intrusive due to the masking effect of wind noise, in very stable atmospheric conditions, sleep will still be disturbed. This, in turn, is due to at least three factors: the rapidity of blade rotation, the fact that thump AM will be more prevalent internally than externally and the fact that masking wind noise will be less effective internally than externally. I therefore find that the WTN is liable to give rise to nuisance in the form of sleep disturbance at night and in the early morning on an intermittent but regular basis at windspeeds of 10 m/s and 11 m/s. On the other hand, I do not find nuisance is likely to arise during quiet waking hours at windspeeds of 10m/s and 11 m/s.
4. At the very highest windspeeds (which Mr. Stigwood puts at 12m/s and above), high AM values, thump AM and the other features of the WTN will be even less common. Masking wind noise will be of considerable benefit at windspeeds of 12m/s and above. However, WTN nuisance will still arise, albeit on a fairly intermittent basis in

[34] Part of the he disputed new evidence includes a Table summarising AM penalties in the 2,300 mode. This suggests that AM values are somewhat lower at these high windspeeds in the 2,300 mode than in the 1,600 mode. Neither expert has commented upon this. I will adopt the more conservative approach and assume that AM values are generally as set out in table 3.

very stable atmospheric conditions at night and in the early morning. I do not find that nuisance is likely to arise quiet waking hours at windspeeds of 12m/s and above.

5. Figure 5 shows that in the 1,600 mode, high day time AM values (i.e. AM values which would attract penalties of 3 to 5 dB) occur in all wind directions bar the 135 to 180 degree sector. Figure 6 shows that in the 1,600 mode, high night time AM values occur in all wind directions bar the 90 to 180 degree sector. This applies equally to the 2,300 mode.
6. Other than as indicated at point 6 above, high AM values can occur in all wind directions.
7. Despite the limitations of averaging and accepting that the IOA RM will not capture high AM values if present for even as much as 49% of a particular 10 minute period, it is reasonable to conclude that if figures 5 and 6 show virtually no high AM values in a given wind direction, then same are unlikely to be a substantial or regular feature of the WTN in that particular wind direction.
8. As Mr. Stigwood's evidence was that thump AM accompanies high AM values, I also conclude that, when AM values are low, thump AM is unlikely to cause a nuisance.
9. The features giving rise to WTN nuisance in this case go well beyond mere high AM values. However, I am satisfied that where the data shows no (or virtually no) high AM values in a particular wind direction, then nuisance can on the balance of probabilities be excluded in that wind direction. As such, I am satisfied that nuisance does not occur, in the 1600 mode, the 2,300 mode or in any other operational mode during quiet waking hours in the 135 to 180 wind direction or during the night in the 90 to 180 wind direction.
10. Although noise levels are generally likely to be lower in crosswind and more particularly upwind directions, the defendant has not provided any evidence on which I could determine how much lower WTN levels might be.
11. I find that, although there is clearly a margin of error, the noise level reductions that Enercon predicts for different operational modes should be broadly achievable during the day. However, due to stable meteorological conditions, such an outcome is uncertain at night. In the absence of evidence to verify that these predictions can consistently be achieved at night, I cannot be so satisfied.

Are the plaintiffs entitled to an injunction?

187. The plaintiffs submit that the appropriate remedy is an injunction restraining the operation of T2 such that it does not cause noise nuisance at HH.

188. In *Lawrence v. Fen Tigers Ltd* [2014] 2 All ER 622 at para.121, Lord Neuberger stated that once nuisance has been established *"the prima facie position is that an injunction should be granted, so the legal burden is on the defendant to show why it should not".* Likewise, in *Patterson v. Murphy* [1978] ILRM 85, Costello J. stated that when an infringement of the plaintiffs' rights and further threatened infringement have been established, the plaintiffs are *prima facie* entitled to an injunction of which they will only be deprived of *"in very exceptional circumstances".* He then stated, echoing *Shelfer v. City of London Electric Company* [1895] I Ch 287, as follows:

"If the injury to the plaintiffs' rights is small, and is one capable of being estimated in money, and is one which can be adequately compensated by a small money payment, and if the case is one in which it would be oppressive to the defendant to grant an injunction, then these are circumstances in which damages in lieu of an injunction may be granted.

The conduct of the plaintiff may be such as to disentitle him to an injunction. The conduct of the defendant may be such as to disentitle him from seeking the substitution of damages for an injunction.

The mere fact that a wrong-doer is able and willing to pay for the injury he has inflicted is not a ground for substituting damages."

189. Although it is maintaining the position that there is mitigation at 1600 mode wind speeds, it appears that the defendant is now offering no suggestion of mitigation to the court. Rather, it adopts the primary position that mitigation is not required because nuisance is not established. It appears to contemplate no further adjustment to T2 unless mandated by the court. It also maintains that the plaintiffs ought to be confined to damages *in lieu* on the application of the *Shelfer* principles. It is clear that the nuisance will therefore continue if not interrupted by an order of this court.

190. The plaintiffs contend that their injury is not *"small"* or capable of being compensated by a *"small"* award. The defendant contends that damages are *"easily quantifiable at this point"*. However, perhaps because quantum of damages is not for determination in this judgment, it goes no further than that and does not actually submit that such damages would be *"small"*.

191. I am satisfied that the injury to the plaintiffs is not *"small"* in the sense described above by Costello J. Ms. Webster and Mr. Rollo's home life has been very seriously impacted by the nuisance and Mr. Rollo now lives away from their home. The noise seriously intrudes on Ms. Webster's enjoyment of her home; she is deprived of the healthy and comfortable enjoyment of her home and her sleep is disrupted.

192. As regards the conduct of the parties, the defendant submits that it has at all times acted in good faith in the hope of resolving the dispute between the parties. The plaintiffs maintain that the defendant's conduct was cynical in the extreme because:

- The defendant did not engage in any serious effort at mitigation, but rather used the opportunity presented to it by the court to adduce new evidence to dispute this court's finding on liability.
- Despite only reducing nuisance by a level now acknowledged to be barely perceptible or imperceptible from a receiver's point of view, the defendant maintained that the 1,600 mode had abated the nuisance. Mr. Brazil gave evidence to this effect. The defendant robustly cross-examined Ms. Webster on this premise. Only at the conclusion of the hearing was it apparently conceded that the mitigation had *"not changed anything appreciable"*.

193. I agree that aspects of the defendant's conduct are unimpressive. However, I interpret this behaviour as indicative of the defendant's deeply entrenched positions rather than as *"conduct which disentitles [it] from seeking the substitution of damages for an injunction"*.

194. The defendant cites the following passage from *Lawrence & Anor v. Fen Tigers Ltd & Ors* [2014] 2 All ER 622, in which Lord Neuberger stated, *inter alia,* as follows:

"I would cautiously (in the light of the fact that each case turns on its facts) approve the observations of Lord MacNaghten in Colls [1904] AC 179, 193, where he said:

... if there is really a question as to whether the obstruction is legal or not, and if the defendant has acted fairly and not in an unneighbourly spirit, I am disposed to think that the Court ought to incline to damages rather than to an injunction.."

... If, as I suspect, Lord MacNaghten was simply suggesting that, if there was no prejudice to a claimant other than the bare fact of an interference with her rights, and there was no other ground for granting an injunction, I agree with him."

195. These considerations cannot avail the defendant. Even if I were convinced that the defendant had *"acted fairly and not in an unneighbourly spirit,"* which I am not, the WTN nuisance in this case involves far more than an intrusion on a bare legal right. It has, for a period of seven years, utterly deprived the plaintiffs of the enjoyment of their property.

196. The defendant submits that the potential financial implications render an injunction oppressive and disproportionate. Such a submission requires substantiation by evidence. The defendant failed to adduce any evidence to assist the court in understanding the financial implications of operating in a lower power mode or of turbine shut down at sensitive periods.

197. The defendant has failed to respond to the plaintiffs' legitimate complaints for many years. Ultimately, in response to this court's principal judgment, it has implemented a *"mitigation strategy"* that, had any thought been given to the matter, was always bound to fail.

198. I am also satisfied that this degree of intrusion on a family home may not fairly be compensated by monetary compensation alone. In *Patterson v. Murphy*, Costello J. indicated that *"the mere fact that a wrongdoer is able and willing to pay for the injury he has inflicted is not a ground for substituting damages"*. To confine the plaintiffs to damages in *lieu* would be to permit substantial WTN nuisance to continue for many more years. This would not do justice between the parties. On the basis of my findings of fact above, and applying the *Shelfer* principles, the plaintiffs have made out an entitlement to an injunctive remedy.

Relevance of the public interest

199. The plaintiffs do not seek an order shutting down the turbines completely, but rather an order shutting down T2 during quiet waking hours and night hours. They submit that such an injunction would not be overly oppressive.

200. The defendant argues that, in considering what remedy to award, I ought to place weight upon the public interest in clean renewable energy. The plaintiffs do not accept that the public interest is of particular relevance to the matters falling for adjudication. They observe that the public interest is not referenced in the *Shelfer* principles. However, as noted by Lord Legatt in *Fearn and others v. Board of Trustees of the Tate Gallery* [2023] UKSC 4, ("*Fearn*"), there had been a move away from *"the strict criteria derived from of Shelfer"*. Ultimately, departure from the *Shelfer* principles, on grounds of public interest or otherwise, is to be determined by the courts on a case by case basis.

201. The plaintiffs also refer to *Bellew v. Cement Ltd* [1948] IR 61 in which Maguire C.J. found (at p. 64) that the court was *"not entitled to take the public convenience into consideration when dealing with the rights of private parties"*. However, I note that, in the same case, Black J. took a different view and held that although public convenience cannot affect the right of a private individual to a remedy for nuisance, it can be considered in determining which remedies should be granted. Furthermore, in *Patterson v. Murphy*, Costello J. acknowledged (pp. 99-100) that the public interest was to be taken into consideration (albeit that he found that none arose in the case before him).

202. In my principal judgment I stated:

> *"Although a plaintiff who establishes nuisance has a prima facie right to an injunction such that the defendant bears the legal burden of demonstrating that damages rather than an injunction is an appropriate remedy, the public interest must inevitably be a factor in the court's assessment of an appropriate remedy. At the very least it means that a generalised injunction ought not to be granted where a tailored injunction more suitable to the particular interference held to constitute nuisance is warranted."*

203. The plaintiffs concede that this passage is consistent with *Fearn* in which it was held that whilst public interest considerations are not relevant to liability in nuisance cases, they might be relevant to remedy.

204. I accept therefore that property rights may need to be balanced with the activity of the defendant, where that activity is in the public interest. On the other hand, because it is widely recognised that WTN may unreasonably interfere with the amenity of local residents, there is also a public interest in acknowledging and constructively addressing such problems at a national and an individual level. Devising appropriate measures to avoid WTN nuisance at the planning and development stage is clearly of critical importance to the achievement of the State's aim of substantially increasing renewable energy. However, it is also critically important that turbine operators engage constructively with genuine WTN nuisance complaints and devise appropriate abatement measures. I accept Mr. Mayer's view that acoustic experts, engineers and turbine manufacturers such as Enercon, would have a wealth of experience in such matters that the defendant could have leveraged, had it chosen to do so. It was within the defendant's purview to propose a strategy that would abate the nuisance, whilst preserving power generation as much as possible

205. The defendant's argument of public interest based on loss of the environmental benefit of renewable energy is made in the most general terms only. No specific evidence has been provided as to how much of the power produced by T2 at night is actually deployed to the national grid.

206. Notwithstanding, it cannot be denied that that restricting the power output from T2 will inevitably reduce the renewable energy it produces. Accordingly, if I can be satisfied on the balance of probabilities, that measures short of the complete shutdown of T2 during quiet waking hours and night hours would abate the nuisance, then I will fashion a remedy in those terms. Ultimately, for the reasons set out below, I am so satisfied and this court's injunction is crafted accordingly.

Crafting the injunction

207. In *Lanigan,* Clarke J. stated, that where nuisance is established, the court should adopt whatever remedy appears just in all the circumstances of the case having regard to the need to protect those who suffer by virtue of the nuisance to whatever extent might be considered just and reasonable. He emphasised that planning permission for an activity does not permit the commission of a civil wrong. The injunctive relief which may be justified for nuisance purposes may, either generally or in a specific respect, go further than that which might be justified on planning grounds. The two jurisdictions are not coextensive.

208. Because WTN nuisance will wax and wane with prevailing meteorological conditions an injunction which either shuts down or restricts the operation of T2 will unavoidably be too broad at

certain times and too narrow at others. For this reason, the parties were encouraged to investigate these issues and to proceed by trial and error. Unfortunately, this was a fruitless endeavor.

209. Before explaining how I have crafted the abatement order, it is necessary to make three preliminary observations:

210. First, the defendant's position is that that AM values and thump AM cannot be controlled or lessened by any engineering or mechanical alterations to the turbine. I am surprised that the defendant did not investigate the improvements that trailing edge serrations, blade feathering or other mechanical or electrical interventions could bring about in the WTN. I am also surprised it made no effort to investigate the meteorological conditions under which high AM values and thump AM manifest with a view to seeking Enercon's advice on how best to abate the WTN. Be that as it may, that opportunity has now passed.

211. As matters stand therefore, short of turning off T2 at sensitive times, the only potential abatement method is to reduce noise levels (at relevant windspeeds/wind directions) by a clearly noticeable degree. From a receiver's point of view, a reduction of 2.1 dB is barely perceptible or imperceptible . On the other hand, 5dB is thought to be an easily noticeable noise differential, which is why it is commonly used to limit the emergence of WTN over background noise levels. Therefore, all other things being equal (and strictly subject to the point made at para. 214 below), a 5 dB reduction in the WTN at relevant windspeeds/wind directions is likely to abate the nuisance to an appreciable extent at the windspeeds/wind directions concerned.

212. Second, I am convinced that to simply order a 5 dB reduction in the WTN would be fraught with difficultly. Such an approach would first require the assessment of background noise levels in order to isolate the WTN and discern its level at each relevant windspeeds/wind direction. This would involve extended noise monitoring. It would then be necessary to devise and trial a bespoke turbine mode to achieve the required noise level reduction at each relevant windspeed/wind direction. This is turn would require further extended monitoring to verify the noise reduction. As a matter of certainty, this would lead to further dispute and to ongoing nuisance whilst the matter is regularised. This would be entirely unjust to the plaintiffs who have long awaited a fair resolution to their complaints.

213. An order requiring a 5 dB reduction in WTN (at relevant windspeeds/wind directions) would not therefore be sufficiently clear or enforceable and would require ongoing court supervision. Instead of ordering a 5 dB reduction in WTN, I prefer to approach nuisance abatement during quiet waking hours by restricting T2 to an appropriate Enercon operating mode, provided that this is predicted by Enercon to achieve a 5dB reduction in WTN noise level at relevant windspeeds. I am of the view that, with some margin of error, this is a reasonable and fair approach to mitigation during quiet waking hours. At night time however, I accept that, for the reasons outlined by Mr. Stigwood,[35] the predicted WTN reductions are unlikely to be reliably and consistently achieved. Accordingly, I am not be satisfied that restricting T2 by operation mode only would be effective at night. Therefore, save at very high windspeeds (i.e. at 12 m/s and above), restricting T2 by operation mode only would not be a reasonable or fair approach to mitigation during night hours.

[35] See para. 149 above.

214. Third, Ms. Webster gave evidence at module 1 that what often disturbs her sleep is a sudden change in the WTN, rather than the absolute loudness or quality of the WTN at a given time. Sudden changes in windfarm noise occur as a result of high AM values, changes in the spectral content of the WTN and as a result of its erraticism, impulsivity and unpredictability. Sudden changes in the WTN would also of course occur if the turbines were to be continually switched on and off as windspeeds rise and fall. I am therefore satisfied on the balance of probabilities, that continually switching on and off the turbine with each increase or decrease in windspeed would in itself be jarring, disturb sleep and cause nuisance at night. Therefore, this should be avoided in crafting the abatement order. On the other hand, even if such jarring effect is likely to be somewhat annoying and distracting during quiet waking hours, I find that it can reasonably be tolerated and would not in itself amount to nuisance.

215. I have determined that nuisance is established but also that the public interest requires that the operation of T2 should be restricted no more than is necessary. On the basis of the findings of fact made at para. 186, I must now determine what precise operation modes ought to be directed per windspeed/wind direction in order to abate the nuisance at sensitive times and then tailor an injunction accordingly.

Windspeeds of 5 m/s to 7m/s inclusive

216. For reasons already set out, I find that the WTN is most intrusive at windspeeds of 5 m/s to 8 m/s inclusive. In line with the starting point identified at para. 211 above, and subject once again to the concern expressed at paras. 212 - 214 above, I have in the first instance considered a 5 dB noise reduction at windspeeds of 5 m/s to 8 m/s can be achieved by directing a change in the operating mode of T2. If so, this could potentially provide an effective mitigation strategy during quiet waking hours.

217. However, a 5dB reduction in noise levels at windspeeds of 5 m/s to and 7 m/s is not predicted to occur on any of operating modes presented by the defendant to the court. Even the lowest power mode, the 1,000 mode is only predicted to affect a maximum noise level reduction of 4.1 dB (at windspeeds of 7m/s only). As I am satisfied (a) that windspeeds 5 m/s to 8m/s are those of greatest adverse impact and (b) that a clearly noticeable detection in noise levels cannot be secured by adopting one of the operating modes presented, shutdown of T2 at night at windspeed of 5m/s to 7 m/s is required.

218. As regards, wind direction, some reduction in overall noise levels probably occurs in wind directions other than directly downwind. However, Mr. Carr has not addressed this in any detail in his evidence in module 2. Therefore, even if I were satisfied that some variation were appropriate in other wind directions, I am in the dark as to what that might be. This is regrettable; but it is the inexorable result of the manner in which the defendant has chosen to litigate module 2. On the other hand, I am satisfied that T2 does not cause WTN nuisance at any windspeed during quiet waking hours in the 135 to 180 wind direction or at night in the 90 to 180 wind direction. I am satisfied, on the balance of probabilities, that it is not necessary to order turbine shut down (or indeed other abatement measures) at any windspeed during quiet waking hours in the 135 to 180 wind direction or at night in the 90 to 180 wind direction.

219. Accordingly, I order shut down of T2 at windspeeds of 5m/s to 7 m/s during quiet waking hours for all wind directions save in the 135 to 180 wind direction. No restriction is necessary during quiet waking hours in the 135 to 180 wind direction. At night time, I order shut down of T2 at windspeeds of 5m/s to 7 m/s for all wind directions save in the 90 to 180 wind direction. This same wind direction limitation applies *seriatim* below.

Windspeeds of 8 m/s

220. At 8m/s, the 1,000 mode predicts an average reduction in WTN of almost 6 dB. Although this precise reduction may not be consistently achieved, I am nonetheless of the view that this measure will sufficiently abate the nuisance during quiet waking hours. I will therefore restrict T2 to the 1,000 mode during quiet waking hours at a windspeed of 8 m/s.

221. However, the position is different at night. Due to stable meteorological conditions, I am not satisfied that this deduction can be reliably or consistently achieved at night across all of the relevant wind directions between 180 and 90. As sleep disturbance is, and has always been the primary complaint , it is essential that any night time abatement measure is clear, certain in its effectiveness and enforceable. If not, a requirement for further court supervision would be inevitable. I am also satisfied that the sudden commencement and cessation of WTN as the wind increases and drops above and below 8m/s would have a jarring effect liable to disturb sleep. I therefore find that, due to a combination of high AM values, thump AM and this jarring effect, permitting the commencement of operation of T2 as the wind reaches 8m/s would cause a continuing nuisance at night. Accordingly, I order that T2 remain shut down at night at a windspeed of 8m/s.

Windspeeds of 9 m/s

222. AM values drop somewhat at 9 m/s. However, I have found that, due to a combination of relatively high AM values and thump AM, both of which are likely to occur with increasing frequency (in the sense of rapidity at this high windspeed) the WTN poses a nuisance at this windspeed.

223. I order that during quiet waking hours the turbine shall operate in the 1,200 mode at windspeeds of 9m/s. This is predicted to bring about an average 3.6 dB noise level reduction. Although this reduction is somewhat less than 5dB, I am satisfied that when balanced with the higher background masking noise levels which winds of 9m/s will provide this will sufficiently abate the nuisance during quiet waking hours. I will therefore restrict T2 to the 1,200 mode during quiet waking hours.

224. At night, the points made at para. 221 above apply with equal force. Although the masking background noise level from the wind will be higher at 9m/s, the defendant has provided no detail in this regard. No evidence has been put before me upon which I could be satisfied either that the predicted noise level reduction can be consistently and reliably achieved in stable atmospheric conditions at night or that that background wind noise would mask the jarring effect of the sudden and unpredictable commencement and cessation of operation as the wind rises to and falls below 9m/s. Accordingly, I order that T2 remain shut down at night at a windspeed of 9m/s.

Windspeeds of 10 m/s and 11 m/s

225. Table 3 shows that AM values at windspeeds of 10 m/s and 11m/s are on average the same as at 9m/s. Whilst, it is common case masking wind noise will increase at these higher windspeeds,

I have no specific data as to the extent of this increase. In stable atmospheric conditions, high AM values and thump AM are liable to disturb sleep at night and thus cause a nuisance.

226. I have carefully considered whether to permit the turbine to operate at night at these windspeeds in a reduced power mode. However, I am once again constrained by a lack of evidence as to the reliability of the predicted noise level reductions at night. I am also constrained by a lack of evidence as to the efficacy of background wind noise in masking either the WTN or the jarring effect of a sudden and unpredictable commencement and cessation of operation of T2. Without such evidence, I cannot be satisfied that operation in a lower power mode will abate the nuisance. If I were to craft a mitigation order without such evidence, it would in reality be little better than a guess. I will therefore continue to order the shut down of T2 at night at windspeeds of 10 m/s and 11 m/s.

227. By contrast, stable atmospheric conditions are unusual in the day time. In any event, the primary concern at higher windspeeds was of sleep disturbance. As such, I am satisfied that it is not necessary to restrict the operation of T2 at windspeeds of 10m/s and 11 m/s during quite waking periods.

Windspeeds of 12 m/s and above

228. At night time I will order that T2 operate in the 1,200 KW mode at windspeeds of 12 m/s and above. This is predicated to reduce WTN by between 3 and 4 dB. Even if this noise reduction is not consistently achieved over all relevant wind directions, I am satisfied that wind noise will mask turbine noise to a large extent and that this measure will abate the nuisance. I impose no restriction on the operation of T2 at windspeeds of 12 m/s and above during quiet waking hours.

Conclusion

229. I close by once more regretting the defendant's failure to engage constructively with the mitigation process. It trialled only one entirely ineffectual mitigation mode and instead devoted itself to disproving nuisance. The defendant therefore failed to adduce important evidence such as properly presented AM values, WTN levels in different wind directions, background noise levels/masking noise levels or verification of the WTN level reductions in the Enercon prediction data. Had it done so, then it would probably have been open to me to devise more nuanced abatement measures inuring to the benefit of the defendant and the public. Instead, having caused a nuisance for seven years, the defendant has squandered its opportunity to partake in any meaningful way in the design of fair, proportionate and effective abatement measures. Any difficulties that the defendant may encounter on foot of this court's order are entirely self-inflicted

THE HIGH COURT

Record No: 2018/ 8457P

BETWEEN:

MARGARET WEBSTER AND KEITH ROLLO

PLAINTIFF

AND

MEENACLOGHSPAR (WIND) LIMITED

DEFENDANT

AND

Record no: 2018/ 8458P

BETWEEN:

ROSS SHORTEN AND JOAN CARTY

PLAINTIFF

AND

MEENACLOGHSPAR (WIND) LIMITED

DEFENDANT

JUDGMENT of Ms. Justice Emily Egan delivered on the 31st day of October 2025

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INTRODUCTION

1. This is my third judgment in these proceedings. At the conclusion of module 1, I held ("the principal judgment") that the Wind Turbine Noise (WTN) from one of the two turbines operated by the defendant (T2) caused a nuisance to the plaintiffs during night hours and quiet waking hours ("sensitive periods"). At the conclusion of module 2, I determined that the plaintiffs were entitled to an injunction to abate the nuisance during sensitive periods and outlined the restrictions to be imposed upon the operation of T2 during those times.

2. There are four main issues to be considered in this judgment. The first concerns the assessment of general damages for each plaintiff for the defendant's WTN nuisance, which has caused them to suffer substantial, pronounced, prolonged and repeated interference with the ordinary use, comfort and enjoyment of their homes beyond what an objectively reasonable person should have to put up with (for the sake of shorthand, I will refer to this as "general damages for nuisance"). The second issue concerns Mr. Rollo's past and future accommodation claims. The third main issue concerns property devaluation and the fourth concerns aggravated and exemplary damages. I summarise below the issues arising in respect of each of these issues.

General damages

3. Although the legal principles governing the assessment of general damages for nuisance are the same in respect of each of the plaintiffs, their particular factual circumstances differ considerably.

4. Ms. Webster continues to live at Hill House ("HH"). In her case, therefore, I must assess general damages for nuisance from the date of the commencement of the operation of the turbines in February 2017, until the date upon which this court's order abating the nuisance will take effect.

5. The situation is different in respect of Ms. Webster's former partner, Mr. Rollo. In my principal judgment, I found that the WTN caused Mr. Rollo to suffer from a major depressive disorder of at least moderate severity with low mood, sleep disturbance and irritability. He therefore suffered a recognisable psychiatric injury.[1] Mr. Rollo's case is that, due to the severity of the WTN impact, it was necessary for him to urgently *"remove himself from the situation"*[2] and leave HH, which he did in March 2021. Mr. Rollo contends that, as he no longer lives at HH, he continues to be denied the benefit of any amenity whatsoever in that property, which he continues to co-own with Ms. Webster; this, he argues, ought sound in an award of ongoing general damages for nuisance (or in an award in respect of his future accommodation, as to which see below). By contrast, the defendant maintains that Mr. Rollo was directly exposed to the nuisance for a shorter time than Ms. Webster and is only entitled to general damages for nuisance up to March 2021. It is therefore necessary to consider the appropriate approach to the assessment of general damages for nuisance for Mr. Rollo in the period while he lived at HH and his entitlement, if any, to general damages for nuisance (or other compensation) after he left HH in March 2021.

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[1] Albeit that I held that, because this psychiatric condition was not reasonably foreseeable, Mr. Rollo could not recover general damages for personal injuries.
[2] In Ms. Webster's words.

6. The Carty Shortens are in a different situation again. They had purchased Nettlefield ("NF") with the intention of retiring to the country and making it their permanent home. However, even prior to the commencement of the operation of the wind farm, the Carty Shortens had decided, for family reasons, to sell NF. The Carty Shortens maintain that the sales process was very protracted and difficult. Ultimately, NF was sold in August 2021. This means that general damages for nuisance fall to be awarded to the Carty Shortens only during the period of their occupation of NF between February 2017 and August 2021.

Mr. Rollo's past and future accommodation claims

7. The second main issue concerns Mr. Rollo's past and future accommodation claims. Ms. Webster and Mr. Rollo maintain that the impact of the WTN caused the breakdown of their relationship by the summer of 2020, at which point they decided to separate. By reason of that separation, and by reason of the passage of four years since Mr. Rollo left HH, it is no longer possible for him to return to HH even if the nuisance is now abated by this court's order. Mr. Rollo's past accommodation claim arises because, after he left HH in March 2021, he had to rent alternative accommodation. The total amount of rent paid by Mr. Rollo between March 2021 and the present time is €42,900. I must consider whether all or part of this sum is recoverable by way of either general damages for nuisance or by way of special damages. Mr. Rollo's future accommodation claim arises because he can now no longer return to HH which, he maintains, is substantially attributable to the WTN nuisance. Mr. Rollo therefore claims the cost of securing future accommodation in a comparable property. This future accommodation claim is advanced on two alternative bases. Mr. Rollo seeks either the current cost of purchasing a house similar to HH or alternatively full "reinstatement costs" (to again adopt the term used by the parties), consisting of the building costs of a property similar to HH on a stand-alone greenfield site in the vicinity. As regards the quantum of the first alternative, it is common case that the present value of HH absent the WTN nuisance is €400,000. As regards the quantum of the second alternative, the plaintiff has presented evidence that reinstatement costs are in excess of €1 million. It is fair to say that Mr. Rollo did not advance reinstatement costs as an item of special damages *per se*. Rather, this narrative, and the figures just set out, were tendered to the court as an aspect of the overall circumstances of the case which the court might consider relevant in assessing damages.

Property Devaluation

8. There are two aspects of property devaluation which are said to arise from the WTN nuisance.

9. The first devaluation claim concerns HH. Ms. Webster and Mr. Rollo maintain that even though the court has made orders which it considers will fully abate the nuisance, the capital value of HH will still be devalued in the context of a future sale. This claim is advanced on three separate factual grounds. First, they say that, even though this court has indicated that the order which it will make will fully abate the nuisance, a potential purchaser of HH will still have a lingering uncertainty as to whether the court's order will be effective in fully abating the nuisance and that this will impact the price that they are prepared to offer for the property. Second, the

Webster Rollos argue that a potential purchaser will be concerned that the defendant may not wholeheartedly comply with the terms of this court's order, which will also impact the price. Third, the plaintiffs observe that this court will be making very detailed orders concerning the ongoing operation of T2, which will inevitably involve the future owners or occupiers of HH, in the short to medium term at least, in some level of ongoing engagement with the defendant and in verifying the effectiveness of the measures taken by the defendant in response to this court's order. The Webster Rollos claim that this ongoing requirement for engagement/ verification will also discourage buyers, reducing the open market price of HH. In short, it is maintained that, notwithstanding the order of this court abating the WTN nuisance, HH will still be devalued, which sounds in "stigma damages" (to adopt the term used by the parties).

10. The second devaluation claim concerns NF. The Carty Shortens claim that the WTN impacted the sale price of NF. This devaluation claim was originally quantified as the differential between the August 2021 valuation of NF in the absence of WTN nuisance and its sale price date in August 2021 (at which stage of course, the nuisance was still continuing). However, during the course of module 3, this devaluation claim was altered. The Carty Shortens now quantify the devaluation of NF as the differential between the total expenditure outlaid in the purchase, renovation and furnishing of NF and its sale price in August 2021. This is a somewhat higher figure than previously advanced.

Aggravated and Exemplary Damages

11. The fourth and final issue in this judgment concerns the plaintiffs' claim to aggravated and exemplary damages which is said to arise by reason of the defendant's conduct before and during the trial of these proceedings and after the delivery of this court's judgments in modules 1 and 2.

SUMMARY OF CONCLUSIONS

12. My decision on each of these main issues is set out from paras 121 to 227 below. In summary, I find as follows:

General damages

13. In relation to the assessment of general damages for nuisance, I follow the approach set out by Quinn J. in the landmark judgment of *Byrne v. Abo Energy Ireland Ltd* [2025] IEHC 330 ("*Byrne*"). Having regard to the particular nature and effect of the nuisance on each plaintiff, I have decided to award general damages to each plaintiff as follows: to Ms. Webster €10,000 for each year of the nuisance commencing in February 2017 and continuing to the date of this court's order or in the event of a stay pending appeal, until any final orders take effect; to Mr. Rollo, €18,500 for each year of the nuisance commencing in February 2017 and concluding in March 2021. I make no award of general damages in respect of Mr. Rollo's psychiatric injury, in respect of the breakdown of the Webster Rollo relationship or in respect of the period after Mr. Rollo left HH. I have huge sympathy for Mr. Rollo. I fully accept that the WTN nuisance which he was forced to endure, the consequent exhaustion, frustration and helplessness and indeed the recognisable psychiatric disorder caused thereby, all contributed to the breakdown of his relationship with Ms.

Webster. However relationships break down for a number of reasons and I do not believe that there is sufficient evidence before me to conclude on the balance of probabilities that the breakdown of the Webster Rollo relationship can be attributed to the WTN or that but for the WTN, Mr. Rollo and Ms. Webster would still be living together as a couple and further that they would have continued to do so into the future. I should also say that, even if I had held with the plaintiffs on this aspect of causation and concluded that but for the WTN, Ms. Webster and Mr. Rollo would still be living together as a couple in HH, this eventuality is not in my view a reasonably foreseeable consequence of WTN nuisance. In short, I am not satisfied that the breakdown of the relationship, Mr. Rollo's departure from HH in March 2021 and the ongoing consequences thereof were either caused by the defendant's nuisance or were foreseeable consequences thereof.

14. As to Mr. Shorten and Ms. Carty, I award damages of €7,500 each per annum from February 2017 to August 2021, the date of the sale of NF. This lower annual figure for damages reflects the fact that, for the period in question, NF was not the Carty Shorten's full-time home, but rather a place which they visited most weekends and to which they eventually planned to retire.

Mr. Rollo's past and future accommodation claims

15. I am not satisfied that Mr. Rollo's past and future accommodation are recoverable items of either general or special damages. As regards the past rental costs, I am not satisfied that the breakdown of the Webster Rollo relationship which was always going to require that they were separately accommodated, was either caused by the defendant's nuisance or was a foreseeable consequence thereof. As regards Mr. Rollo's future accommodation claim, the WTN is not presently preventing Mr. Rollo from enjoying HH and, due to this court's abatement orders, it will not do so in the future. Rather, Mr. Rollo cannot return to HH because of the couple's separation. Whilst it is quite possible that the WTN nuisance has made a material contribution to the difficult circumstances in which Mr. Rollo now finds himself, no submission was made to me that I should apply a modified causation test to this aspect of the case. This all inexorably means that I cannot be satisfied that Mr. Rollo's inability to return to HH can be attributed to the WTN nuisance and that no damages can flow in respect of the past or future accommodation claim.

Property devaluation

16. Insofar as concerns the claims relating to property devaluation I decide as follows. *Vis a vis* HH, I reject any argument for stigma damages based on the premise either that this court's order will not fully abate the nuisance, or that the defendant may not wholeheartedly comply with this court's order. However, I find as a fact on the balance of probabilities, that potential buyers will be put off by the requirement for ongoing engagement with the defendant and by the potential requirement to verify the effectiveness of the measures taken by the defendant in response to this court's order. Stigma damages therefore fall to be awarded. Insofar as concerns the quantum of these stigma damages, I award an amount of €30,000.

17. In respect of NF, I am satisfied that, were it not for the WTN nuisance in this case, the market value of NF at the time of its sale to Ms. McGinn would have been approximately

€350,000. As such, the Carty Shortens, who sold NF to Ms. McGinn for €295,000, sustained a loss of €55,000.

Aggravated and exemplary damages

18. Finally, I am not satisfied to award either aggravated or exemplary damages. I view the approach of the defendant prior to and during the trial of these proceedings as unimpressive and as prolonging the upset, disturbance and distress experienced by the plaintiffs. However, I do not think that this is a case in which the criteria set out by Finlay C.J. in *Conway v. INTO* [1991] 2 IR 305 ("*Conway*") for the award of aggravated damages can fairly be said to be met. The same is the case in relation to exemplary damages. I am not sufficiently satisfied that the defendant's behaviour has been so bad as to amount to a conscious and deliberate violation of the plaintiffs' rights such as to merit the sanction of an award of exemplary damages. I am also influenced by the fact that, when the case is looked at in the round and in light of the injunction which I propose to grant, compensatory damages are sufficient to indicate that the defendant's failure to properly engage with the substantial and *bona fide* complaints of the plaintiffs is to be deprecated.

APPLICABLE LEGAL PRINCIPLES

Causation and remoteness/foreseeability

19. It is trite law that there are two elements to establishing causation in respect of tort claims. The plaintiff must demonstrate:

a. that the defendant's breach, in fact, resulted in the damage complained of (factual causation); and
b. that this damage should, as a matter of law, be recoverable from the defendant (legal causation).

20. It appears to be common case that factual causation is established by the application of the "*but for*" test. If the defendant's conduct was not, as a matter of fact, the cause of the alleged loss, then the plaintiffs may not recover damages in nuisance for that loss.

21. Thereafter, in considering legal causation, one examines how far removed the damage suffered is from the contemplation of the defendant. This engages the concepts of remoteness and foreseeability. This means, as the defendant submits, that it is not liable for a particular type of damage, for example, the breakdown of the Webster Rollo relationship and its consequences, if this fallout could not have been foreseen. The test is an objective one; the question is whether a reasonable person would have foreseen that the consequences suffered by the plaintiff might be the result of the nuisance alleged.

22. In my principal judgment, I applied this test of reasonable foreseeability to Mr. Rollo's claim for general damages for personal injuries in the form of pure psychiatric injury. I was satisfied that Mr. Rollo had sustained a recognisable psychiatric injury which, in terms of factual causation, was caused by the WTN. I then considered whether legal causation was established and observed that the courts generally adopt a cautious approach towards the recovery of damages for pure psychiatric injury. I concluded that, where a pure psychiatric injury is occasioned by nuisance,

reasonable foreseeability of *"that particular kind of injury"*[3] is a precondition to an award of damages for such injury. I held that the defendant would only be liable for Mr. Rollo's psychiatric injury if an injury of that kind was a reasonably foreseeable consequence of the WTN nuisance.

23. In my principal judgment, I also noted that in applying this test of remoteness, one must distinguish between mental distress and psychological injury. In this jurisdiction, damages for mental distress may be awarded for nuisance- as in *Patterson v. Murphy* [1978] ILRM 85 *("Patterson")*. It is wholly foreseeable that constant and intrusive noise would cause mental distress, annoyance, frustration and lack of calm. It is also foreseeable that WTN would cause loss of sleep, irritability, loss of concentration, impairment of function, etc. However, I held that it is not generally foreseeable that a recognisable psychiatric illness would ensue.

24. Applying these principles, I held that although Mr. Rollo's psychiatric injury was caused by the WTN, he was not legally entitled to succeed in a personal injuries claim for pure psychiatric injury; this was, because such an injury was not a reasonably foreseeable consequence of WTN nuisance. Legal causation was not therefore established.

25. In the present module it will be necessary to apply these same principles to the plaintiffs' argument that the WTN nuisance destroyed the Webster Rollo relationship, which should sound in general damages in an award of special damages in respect of Mr. Rollo's past and future accommodation costs. In each case, I must consider both whether the WTN nuisance is the factual cause of these losses and whether these losses are a reasonably foreseeable consequence of WTN nuisance.

The assessment of general damages for nuisance

26. *Hanrahan v. Merck Sharp & Dohme (Ireland) Ltd* [1988] ILRM 629 ("*Hanrahan*") was a claim for damages for, *inter alia*, discomfort caused by smells from the defendant's nearby factory which the Supreme Court analysed as a private nuisance claim. The High Court had held that the intense and frequent objectionable smells from the defendant's factory were so frequent, pronounced and prolonged that each of the plaintiffs had made out a case for damages in nuisance. The judgment of Henchy J. established the following principles in relation to the law of private nuisance:

- What an occupier of land is entitled to as against his neighbour is the comfortable and healthy enjoyment of the land to the degree that would be expected by an ordinary person whose requirements are objectively reasonable in all the particular circumstances.
- Where the nuisance comprises an interference with the plaintiffs comfort in the enjoyment of their property, the test is whether the interference is beyond what an objectively reasonable person should have to put up with in the circumstances of the case.
- The plaintiff is not entitled to insist that their personal fastidiousness should be treated as inviolable.

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[3] See, in this respect, para 668 and 671 of my principal judgment referencing Geoghegan J. in *Fletcher v. Commissioner for Public Works* [2003] 1 IR 465 who stated : *"What clearly emerges from the judgments in that case is that the control mechanism applied in the case of actions for pure psychiatric damage is that that particular kind of damage must have been reasonably foreseen. This is in line with the judgment of this court in Kelly v. Hennessy."*

- The case for damages in nuisance is made out if the interference is so pronounced and prolonged or repeated that a person of normal or average sensibilities should not be expected to put up with it.
- The plaintiff must show sensible personal discomfort, including injurious affection of the nerves or senses of such a nature as would materially diminish the comfort and enjoyment of, or cause annoyance to, a reasonable person accustomed to living in the same locality.
- It is not necessary that an interference be so odious or damaging that it affects the plaintiffs' health. It is enough if it can be said that a reasonable person in the plaintiffs' circumstances should not be expected to tolerate it without requiring the defendant, to make financial amends.

27. In my principal judgment, I cite and apply these principles in finding that nuisance is established on the facts of this case and that the plaintiffs are entitled to relief, including general damages. In *Hanrahan*, the Supreme Court upheld the finding of liability and the matter was then remitted to the High Court for the assessment of damages. Because the case thereafter settled, the precise basis upon which general damages for nuisance might be assessed was not considered further.

28. The legal principles applying to the assessment of damages for private nuisance caused by WTN have recently been comprehensively analysed in the *Byrne*. In *Byrne*, a married couple brought a claim in respect of a six turbine wind farm situated near their home in Bunclody, Wexford. The plaintiffs claimed that the noise, vibration, and shadow flicker emanating from three of the six turbines interfered with the enjoyment and use of their property. Quinn J.'s judgment considers the legal and factual issues arising in respect of the assessment of general damages, the appropriate remedy, aggravated and exemplary damages and the plaintiffs' claim to stigma damages (notwithstanding the order for permanent shut down of the turbines). In other words, *Byrne* considers many of the same legal issues that arise in the present case (albeit that the claim to stigma damages was differently formulated to that presented before me). Moreover, *Byrne* was decided on foot of evidence from many of the same expert witnesses featured in this case. Thus, acoustic evidence was given by Mr. Stigwood and Ms. Large on behalf of the plaintiffs and Mr. Carr on behalf of the defendant. In addition, Mr. Mayer provided testimony in relation, *inter alia,* to the science behind the plaintiffs' experience of the WTN and potential mitigation measures. There was a further overlap in expertise in relation to property valuation which, as in this case, was provided by Mr. O'Regan on behalf of the plaintiffs and Mr. Corr on behalf of the defendants.

29. Quinn J. noted that in considering whether WTN objectively constitutes a nuisance, one does not simply assess the loudness of the noise. Rather, he observes that there was no substantial disagreement as between the experts[4] that a number of features can typically be relevant to the degree to which WTN may constitute a nuisance. The features listed include loudness, pitch or frequency, amplitude modulation, different noises simultaneously emitting from the same sound source, changeability, erratic or unpredictable changes, tonal noise,

[4] I assume that Mr. Carr ascribed to this general consensus. If so, then his views have evolved considerably since he gave evidence in module 1 of these proceedings.

duration of the noise, timing of the noise, nature of the receiving environment, sensitisation and attenuation. I considered many, but not all, of these features as relevant in reaching my finding of nuisance in module 1 of this case.

30. As liability was admitted in *Byrne*, the first issue considered was the assessment of damages for nuisance to date and whether, as the defendants contended, this should be measured by reference to the notional capital damage to the value of the plaintiffs' property, or, as the plaintiffs contended by reference to broader principles relating to the assessment of general damages focusing on the impact of the nuisance on each plaintiff in the use and enjoyment of their home.

31. After a comprehensive review of the relevant common law authorities - including this court's principal judgment - Quinn J. held with the plaintiffs on this issue. The learned judge was satisfied that *Hanrahan* and *Patterson,* together with this court's principal judgment, set out the appropriate guiding principles for assessing damages in such cases and moreover confirmed that general damages can be awarded to each plaintiff for the effect upon them of the nuisance to date.

32. I am in complete agreement with Quinn J. that it would be unjust and potentially discriminatory if persons who endure nuisance in their home life such as that caused by excessive noise, could be awarded wholly different amounts of compensation for the same type of interference primarily by reference to the capital value of their property. Indeed, I note that the defendant in the present case did not contend that that notional capital damage measure should apply. The true value of a person's home in the context of the enjoyment they get from its ordinary use and amenity, as a place of refuge, rest and relaxation cannot be measured fairly by reference to its capital value. In assessing general damages for nuisance, it is necessary to consider and assess the nature, effect and duration of the impact on the amenity of the home by reference to an objectively reasonable person in the circumstances of the plaintiff.

33. In addition to the principles set out at para 26 above, Quinn J. summarised the following principles in relation to the assessment of general damages for private nuisance, which I also gratefully adopt:

- the general purpose of such general damages is to compensate the plaintiff by restoring them fairly and reasonably to the position they were in prior to the nuisance (known as the principle of *restitutio in integrum*);
- in the assessment of those general damages for private nuisance, the measure of the damages should be fair and reasonable to both sides and proportionate to the wrong sustained and to the general approach of the courts to awards in analogous cases;
- the court should consider all the relevant factors in the particular case, including the nature of the plaintiff's property, the plaintiff's relation to it, the nature of the wrongful act causing the nuisance, the conduct of the parties subsequent to the wrongful act, and the pecuniary, economic or other relevant implications or consequences of the wrongful act complained of;
- as the tort of private nuisance protects a property right, it may well be helpful to consider whether the nuisance complained of has caused a notional damage to the capital value or income generating value of the property. Whether this is appropriate will depend on all the circumstances of the case.

34. I pause to note that, in the present case,[5] the defendant has not submitted that the plaintiffs ought not be entitled to both general damages for the period of their exposure to the WTN[6] and to damages for property devaluation/ damage to the capital value of NF.[7]

35. In *Byrne*, Quinn J. found that the WTN interfered with the plaintiffs' general ability to experience and enjoy their home. This interference was particularly acute in terms of sleep disturbance and loss of substantial enjoyment of the plaintiffs' garden. Finally, both Mr. Byrne and Ms. Moorhead worked in the home (the former generally only in the evenings) and their ability to do this was also interfered with.

36. Quinn J. awarded general damages to Mr. Byrne of €10,000 for each year of the nuisance and to Ms. Moorhead of €15,000 for each year of the nuisance. This differential reflected the fact that the position for the second named plaintiff, Ms. Moorhead was in general appreciably worse because she was at home more, than the second named plaintiff, Mr. Byrne and because her depths of resilience were already stretched by various health difficulties. As the admitted nuisance had continued for twelve years, the award of general damages for nuisance to date in respect of each plaintiff was €120,000 and €180,000 respectively.

Property devaluation, stigma damages and reinstatement costs

37. I have not been referred to any specific authorities setting out the approach to be followed by the court in approaching the issues of property devaluation or stigma damages arising in this case. However, as Quinn J. points out in *Byrne*, the well accepted general principles underlying the court's jurisdiction when it comes to damages guide the court in private nuisance cases such as this.

38. In *Munnelly v. Calcon Ltd* [1978] IR 387 ("*Munnelly*"), Henchy J. considers the principle of *restitutio in integrum* which underpins the law of damages. In *Munnelly* part of the plaintiff's house collapsed as a result of the alleged negligence of the defendants who were building a house next door. Although dealing with the particular issue of a claim for reinstatement costs, Henchy J.'s judgment contains helpful *dicta* such as the following:

> *"The particular measure of damages allowed should, in my view, be objectively chosen by the court as being that which in all the circumstances of the particular case is best calculated to put the plaintiff fairly and reasonably, so far as a pecuniary award can do so, in the position in which he was to be found before the happening of the damage complained of."*

39. Kenny J. reinforced this point, stating:

> *"The dominant rule of law in assessing damages is the principle of restitutio in integrum and subsidiary rules can be justified only if they give effect to that dominant rule."*

40. Henchy J. emphasised that the damages to be awarded are to be reasonable, that is as between the plaintiff on the one hand and the defendant on the other and continued:-

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[5] Which of course is not to overlook the defendant's argument-which I accept as correct- that Mr. Rollo's past and future accommodation claims are inadmissible.

[6] Save for an argument advanced by the defendant at module 1 -which I did not accept-that the claim of the Carty Shortens for private nuisance should fail, *in limine,* because at the time of the trial they no longer owned, or occupied NF.

[7] The position is slightly different in relation to the Webster Rollo claim for stigma damages in respect of HH. I deal with the defendant's argument in respect of this claim separately at para.s 155-165 below.

"I accept those two principles as being basic to, although not necessarily exhaustive of, the concept of restitutio in integrum on which the law of damages in cases such as this rests. It is in the application of those principles that difficulty may arise, for a court, in endeavouring to award a sum which will be both compensatory and reasonable, will be called on to give consideration, with emphasis varying from case to case, to matters such as the nature of the property, the plaintiff's relation to it, the nature of the wrongful act causing the damage, the conduct of the parties subsequent to the wrongful act, and the pecuniary, economic or other relevant implications or consequences of reinstatement damages as compared with diminished-value damages.....

41. In *Byrne,* the plaintiffs had also advanced a claim for *"stigma damages"*. It will be recalled that Quinn J. made an order for the permanent shutdown of the three turbines causing the WTN nuisance. Despite this, the plaintiffs' valuer, Mr. O'Regan, gave evidence that in his opinion the house would still suffer damage to its capital value. The rationale for the claim to stigma damages was that future purchasers would discount their offer based on the noise nuisance history. However, Mr. O'Regan could not provide any examples of this actually happening. The court was not persuaded that the weight of his evidence was sufficient to make out the claim to stigma damages. Quinn J. observed that there was planning permission for a wind farm and that the three other turbines were to be allowed to continue to operate. He noted that the award of damages made was designed to properly compensate the plaintiffs for the duration and effect of the nuisance to date and that the court's order for the full shutdown of the three relevant turbines meant there will be no ongoing nuisance into the future. The claim to stigma damages was "*... too speculative and [was] lacking in supportive examples. In addition, there is a sense in which it would not be reasonable to impose such damages on the defendants where the nuisance, as a result of the orders made, will have been fully abated.*"

42. The rationale for the plaintiffs' claim for stigma damages in the present case, is quite different to that advanced in *Byrne* (in which the plaintiffs valuer equated a fully resolved private nuisance claim with a *"haunted house"* syndrome). In the present case, the plaintiffs' argument is that stigma damages will arise by virtue of a well-founded and reasonable fear on the part of a potential purchaser of HH that the injunction will not fully abate the WTN nuisance or that the defendant will not wholeheartedly comply with the terms of the injunction. Separately the present claim to stigma damages arises from the requirement for ongoing engagement with the defendant and verification of the effectiveness of the measures taken by the defendant in response to this court's order. The Webster Rollos argue that this will be off-putting to potential purchasers. None of these three arguments were applicable in *Byrne* because Quinn J. ordered the shutdown of the turbines causing nuisance.

43. *Munnelly* is also of relevance to the measure of any award to Mr. Rollo for future accommodation, and to his claim for reinstatement costs in particular. The Supreme Court considered whether damages should be measured on a reinstatement basis or on the basis of diminution in value. Although the plaintiff's building had been negligently destroyed by the defendant's negligence, Henchy J. held that the authorities did not establish that an award of "*reinstatement damages, which may vastly exceed damages based on diminished value, are to be awarded as a prima facie right or, even if they are, that the plaintiff's intention as to*

reinstatement should be the determining factor". Noting that that the pre-damage value of the property was £35,000 and that reinstatement would cost £65,000, Henchy J. stated that reinstatement damages would *"enrich the plaintiff excessively and unnecessarily and would mulct the defendants unreasonably".*

44. A claim for reinstatement costs was advanced by the plaintiffs in *Byrne* and was rejected on similar logic. Quinn J. stated that the figures claimed would leave the plaintiffs with a house of equivalent standard but as a new build, whereas the plaintiffs' home was by that time over twenty years old.

Aggravated damages

45. In *Conway v. INTO* [1991] 2 IR 305 *("Conway")* Finlay C.J. noted that three headings of damages in Irish law are potentially relevant to any particular tort or breach of constitutional rights:

> *(1) Ordinary compensatory damages being sums calculated to recompense a wronged plaintiff for physical injury, mental distress, anxiety, deprivation of convenience, or other harmful effects of a wrongful act and/or for monies lost or to be lost and/or expenses incurred or to be incurred by reason of the commission of the wrongful act.*
>
> *(2) Aggravated damages, being compensatory damages increased by reason of*
>
> > *(a) the manner in which the wrong was committed, involving such elements as oppressiveness, arrogance or outrage, or*
> >
> > *(b) the conduct of the wrongdoer after the commission of the wrong, such as a refusal to apologise or to ameliorate the harm done or the making of threats to repeat the wrong, or*
> >
> > *(c) conduct of the wrongdoer and/or his representatives in the defence of the claim of the wronged plaintiff, up to and including the trial of the action.*
>
> *Such a list of the circumstances which may aggravate compensatory damages until they can properly be classified as aggravated damages is not intended to be in any way finite or complete. Furthermore, the circumstances which may properly form an aggravating feature in the measurement of compensatory damages must, in many instances, be in part a recognition of the added hurt or insult to a plaintiff who has been wronged, and in part also a recognition of the cavalier or outrageous conduct of the Defendant.*
>
> *(3) Punitive or exemplary damages arising from the nature of the wrong which has been committed and/or the manner of its commission which are intended to mark the Court's particular disapproval of the Defendant's conduct in all the circumstances of the case and its decision that it should publicly be seen to have punished the Defendant for such conduct by awarding such damages, quite apart from its obligation, where it may exist in the same case, to compensate the plaintiff for the damage which he or she has suffered.*

46. In *Shortt v. Commissioner of An Garda Siochána* [2007] 4 IR 587 ("*Shortt*"), Hardiman J. emphasised that injury to feelings, loss of dignity, humiliation, frustration, helplessness and

despair are all aspects of compensatory damages. The factors just listed relate to the feelings and perceptions of the plaintiff. Aggravated damages, on the other hand, focus not on the feelings of the plaintiff but on the actions and demeanour of the defendant. Aggravated damages reflect factors such as those set out at para 2 (a), (b) or (c) in the above passage, which exacerbate the wrong.

47. As Quinn J. points out, *Uren v. Bald Hills Wind Farm* [2022] VSC 145 *("Uren")* provides a good example of how a court can deal with the issue of aggravated damages in a WTN nuisance claim. Richards J. noted that *"a reasonable neighbour would have tried to reduce the noise; Bald Hills has not"*. In *Uren*, the wind farm never responded to the plaintiffs' complaints by trying to reduce the WTN at their homes. Rather, it denied that they had any cause for complaint, minimised their lived experience of the noise, and treated them as hypersensitive troublemakers. Richards J. noted that the operator had disputed the complaints even when approached by the local authority when it ought to have directed its attention to finding a solution to *"the gearbox tonality issue"* that arose in that case. Richards J. concluded that the defendant had not dealt properly with the plaintiffs' reasonable and legitimate complaints and that this "*at least doubled the impact of the loss of amenity each of them suffered at their homes*".

48. In *Byrne*, Quinn J. held, in the context of his consideration of general damages, that the general response of the defendants was exceedingly poor. He noted that, whilst they had admitted liability during the trial, for twelve years the defendant had avoided engaging properly or substantively with the plaintiffs' complaints. The defendants had also declined, without explanation, to properly cooperate with the legitimate investigations of the local authority or to provide requested information. Aggravated damages were merited because, *"the only sensible inference that can be drawn is that the defendants made a decision not to engage in any substantive or proper way with the claims being made by the plaintiffs and that this has aggravated the obvious distress suffered by the plaintiffs and significantly prolonged the duration of the nuisance"*. Quinn J. measured aggravated damages at 20% of the award of compensatory damages.

Exemplary Damages

49. The test for exemplary damages is set out in para 3 of the extract from *Conway*, at para 45 above. Exemplary damages arise from the conduct of the defendant and Griffin J. refers to whether or not its actions are a *"deliberate and conscious disregard of the constitutional rights of the plaintiff"*.

50. In *Shortt*, Hardiman J. emphasised that compensatory and aggravated damages serve an entirely different function to exemplary damages. The latter damages are awarded to *"make an example of the wrongdoers...by marking in terms that everyone can understand the sheer evil of what was done and the detestation which the courts, speaking for civil society in general, must feel and express for it"*. Hardiman J. acknowledged that exemplary damages may be awarded against a wrongdoer who is not a government or state agency and stated that in such circumstances the means of the wrongdoer are to be taken into account in the calculation.

51. In *Conway*, Finlay C.J. indicates that exemplary damages should not be awarded if, in the opinion of the court, the amount necessarily payable by the wrongdoer in the form of

compensatory damages constitutes a sufficient public disapproval of and punishment for the particular form of wrongdoing.

52. In *Byrne*, Quinn J. was concerned by the largely unexplained failure of the defendants to properly engage with the plaintiffs' complaints at a time when the wind farm was generating substantial revenues of over €1,000,000 a year. However, he was not satisfied that this behaviour was so clearly a conscious and deliberate violation of the plaintiffs' rights as to merit the sanction of an award of exemplary damages. In so holding, Quinn J. took account of the positive manner in which the defendants had behaved during the trial, including making an admission of liability on day 11, initiating a partial shutdown of the turbines and making an apology to the plaintiffs at the end of the hearing. Quinn J. also admonished the wind industry against repeating the conduct of the defendants and observed that *"a failure to properly engage with substantial and bona fide complaints is to be deprecated"*.

53. Having set out the relevant legal principles, I now turn to analyse the factual and expert evidence tendered in module 3

EVIDENCE

Ms. Webster and Mr. Rollo

54. Ms. Webster did not give additional evidence in module 3. I summarise her evidence as to the impact of the WTN at paras 48 to 78 of the principal judgment and at paras 119 to 132 of the module 2 judgment.

55. Mr. Rollo provided relatively brief additional testimony at module 3, in which he described long term sleep disturbance and depression by reason of the WTN. He is particularly hurt that the defendant failed to take any steps to mitigate or reduce the impact of the WTN at HH even after it was notified of his mental illness in December 2020 and furnished with Prof. Gournay's report expressing grave concern for Mr. Rollo's life and requesting that, as an interim measure, T2 was switched off at night to allow respite.

56. Mr. Rollo states that he was forced to move away from the WTN nuisance and left his home in March 2021. On the other hand, he also accepts that he and Ms. Webster had decided to separate in the summer of 2020. This predates the significant mental illness precipitated by the WTN which Mr. Rollo developed later the same year. Mr. Rollo and Ms. Webster are also both of the view that the WTN, Mr. Rollo's reaction to it and his ensuing mental illness caused the breakdown of their relationship.

57. Mr. Rollo states that by reason of the impact of the WTN and of the defendant's failure to respond adequately when notified of the impact, he has lost his home, his relationship and his plans with Ms. Webster to have children and a future together as a family.

58. Mr. Rollo is understandably distressed that these proceedings have been ongoing since 2018 and that, notwithstanding the two judgments of this court, he and Ms. Webster are *"still fighting"* the case. As a result, he feels that he is stuck and cannot move on with his life and make any plans.

59. Whilst he retains shared ownership of HH, Mr. Rollo has been obliged to live in rented accommodation for the past four years. From March 2021 to August 2021, Mr. Rollo resided with

family friends paying €300 per month. In August 2021, he secured his current rental accommodation in a flat in Wexford at a cost of €900 per month payable in advance. Mr. Rollo's total rent to date is agreed (without prejudice to liability) at a figure of €42,900.

60. Mr. Rollo wishes to leave rented accommodation and live in a home with a similar aspect and views to HH but further away from the Ballyduff wind farm. This, he states could be achieved either by awarding him a sum which would permit him to buy an existing similar house or by an award of reinstatement costs.

Mr. Ross Shorten

61. Mr. Shorten's direct evidence was brief. NF had been built as a fulltime permanent house with a view to the Carty Shortens ultimately retiring to the country. Mr. Shorten confirmed that he and Ms. Carty had purchased the site, built the house and garage and landscaped the garden, performing much of the work themselves and directly supervising the rest.

62. Mr. Shorten stated, as he had previously indicated at module 1, that he and Ms. Carty spent approximately €500,000 on the purchase of the site, the development and the furnishing of NF. In circumstances, therefore, where the property was sold for €295,000 plus €10,000 for the contents in August 2021, Mr. Shorten's view is that the couple's loss should be reflected in a devaluation claim of €195,000.

63. Under cross-examination, Mr. Shorten accepted that this calculation had not previously been part of the NF devaluation claim, which had been pleaded on the basis of an estimated differential between the August 2021 market values of NF with and without the WTN nuisance, respectively.

Mr. Anthony O'Regan

64. Mr. Anthony O'Regan is an experienced estate agent, auctioneer and valuer. He has acted as a valuer for 47 years specialising mainly in countryside properties. Although his practice is based in Cork city, he is familiar with the area of Wexford where HH and NF are situated.

65. Mr. O'Regan has prepared two separate valuation reports in respect of HH, the first dated June 2020 and the second, May 2025. In his first report, Mr. O'Regan values HH without the negative impact of the wind farm at €270,000. His report states that there is continuing scientific uncertainty over the adverse health consequences of wind farms creating apprehension in the general public which perpetuates the debilitating effect of wind farms on property prices. He states that, depending on their proximity, wind farms can negatively affect the value of property by varying degrees.

66. I pause here to observe that much of the literature opened to the court by the defendant's valuation expert, Mr. Corr, also suggests that mere proximity to a wind farm can impact property values– irrespective entirely of nuisance due to WTN or shadow flicker.

67. Ultimately, however, the professional experience of both Mr. O'Regan and Mr. Corr is that the recent and current buoyancy of the Irish property market is sufficient to neutralise the potential negative impact of the mere presence of a wind turbine. I expect that this may also be due to the fact that the imperatives of climate change have also brought about a more positive attitude towards renewable energy sources, including wind farms. Regardless of the cause, the valuers' joint experience is that, absent nuisance, one would not presently expect property values

to be impacted by the mere presence of a wind turbine. As the experts are unanimous in this view, I will accept it to be correct.

68. By contrast, both valuers are agreed that WTN nuisance and/or shadow flicker nuisance will negatively impact property values albeit to different degrees. In this respect, Mr. O'Regan's view was that as of 2020, the open market value of HH as impacted by the WTN nuisance was €150,000. This would suggest a reduction in value associated with the WTN nuisance at €120,000 or 44%.

69. In May 2025, Mr. O'Regan prepared a second report in respect of HH. As of that date, he valued HH with a turbine present but with no WTN nuisance at €400,000. Mr. Corr agrees with this valuation but not with Mr. O'Regan's view that the present value of HH as impacted by the WTN nuisance is €275,000. This suggests a discount for WTN nuisance of €125,000 or 31%.

70. As regards stigma damages, Mr. O'Regan's May 2025 report opines that should the WTN nuisance be fully abated by this court's injunction, the open market value of HH will nonetheless be reduced to a figure in the order of €300,000 i.e. a loss in value of €100,000 or 25%.

71. In Mr. O'Regan's view, any potential purchaser of HH would need to be informed of the contentious court proceedings against the neighbouring wind farm operator and of the specifics of the court's injunction restricting the nearby turbine. I interpret him as contending that this would limit the pool of potential purchasers in three ways. First, a potential purchaser would be concerned that the court's order may not be effective in abating the WTN nuisance. There would be a lingering apprehension that WTN would remain an issue impacting the amenity of the property. Second, a potential purchaser would fear that the defendant may not wholeheartedly comply with this court's injunction. They would worry that this would lead to dispute with the neighbouring wind farm and that they might be exposed to the inconvenience and legal costs associated with future enforcement proceedings. Thirdly, a potential purchaser would also be deterred by the fact that to be effective, the court order abating the nuisance must contemplate ongoing engagement as between the owners or occupiers of HH and the defendant. An effective court order will involve the owners or occupiers of HH in retaining appropriate experts to verify the effectiveness of the measures taken by the defendant in response to this court's order.

72. Mr. O'Regan accepted that there was no literature or piece of research which studies stigma damages after the abatement of WTN nuisance by order of a court. Although the defendant criticises him for this, I do not. Given the uniqueness of this scenario, it would be surprising if such literature existed.

73. Although not addressed in his direct oral evidence, Mr. O'Regan's opinion as to the impact of the WTN on the valuation of NF is advanced in a report dated 17th June 2020. Thus, in June 2020, Mr. O'Regan viewed the current market value of NF absent the WTN nuisance as €325,000. In his opinion the WTN nuisance reduced the open market value of NF as of that time to €200,000. This represented a €125,000 discount in value or approximately 38.5%.

74. Under cross examination, Mr. O'Regan accepted that, in reaching his opinions on the likely open market value of HH and NF with and without the WTN nuisance (or, in respect of HH the ongoing stigma damages) he not been able to locate any directly comparable properties ("comparables") which were similarly impacted to support his opinion. He also accepted that he had not reviewed the relevant literature in his report. He acknowledged that his assessment of

the impact of the WTN on the value of the properties was essentially based on a *"hunch"* or a *"gut"* instinct.

75. Under cross examination, Mr. O'Regan was asked whether he had had regard to Ms. McGinn's evidence as to the ongoing impact of the WTN on her enjoyment of NF. It will be recalled that Ms. McGinn did not complain of very significant ongoing impact. In Mr. O'Regan's view, Ms. McGinn purchased NF for a very good price which will impact her attitude to the turbine. Overall Mr. O'Regan's view remained that, whilst it is possible to sell properties impacted by WTN nuisance, it is nonetheless extremely difficult to do so.

76. Mr. O'Regan's high estimation of the likely reduction in value of both HH and NF as a result of the WTN is undermined by the ultimate sale price received for NF in August 2021. Thus, in June 2020, Mr. O'Regan estimated that if sold, NF would command a sale price of no more than €200,000. Ultimately, it achieved €295,000, albeit over a year later in August 2021. The valuers are agreed that house price inflation in the South East of Ireland over the 14 month period ending in August 2021 was 16%. This would mean that Mr. O'Regan's 2020 estimate can be increased by 16% to €232,000. Even allowing for this increase however, Mr. O'Regan's estimated devaluation in market value by reason of the WTN nuisance was wide of the mark. Indeed, as will become apparent, Mr. O'Regan's estimated devaluation of 38.5% is over double that which I find is likely to have pertained at NF (15% approximately, see para 173 below). In fairness, I ought also point out that Mr. Corr's estimated devaluation of 7% is also wide of the mark, coming in at only half of that which I find ultimately pertained.

Mr. Alan Fitzgerald

77. Mr. Fitzgerald is a loss adjusting expert specialising in claims pertaining to properties damaged by flooding, fire and other contingencies. The purpose of Mr. Fitzgerald's report was to calculate the full reinstatement cost of HH on a *"new for old basis"*. The defendant did not call a loss adjuster.

78. Mr. Fitzgerald's opinion is that the full reinstatement cost of HH is €1,009,260, plus €45,400 per annum for rental accommodation whilst the new property is being built, together with the costs of moving the house contents.

79. This sum is significantly greater than the agreed full market value of the HH, absent WTN nuisance. Of course, it is also significantly greater than the diminution in value which Mr. O' Regan contends flows from the WTN nuisance, or ongoing stigma damages (€120,000 and €100,000, respectively).

80. Mr. Fitzgerald's opinion is that an award of full reinstatement costs is nonetheless merited. If Mr. Rollo recovers only the diminution in value of HH, he would be forced to buy a house significantly less appealing than that in which he lived before, which would not represent *restitutio in integrum*.

81. Mr. Fitzgerald observed that home insurance policies, of which he has extensive experience, provide for a full reinstatement and permit the insured to rebuild on a new for old basis without any deduction for wear and tear. Betterment is therefore permissible subject to the adequacy of the sum insured. In any event, Mr. Fitzgerald did not believe that the difference between a house of similar proportions to HH on a new for old basis would result in any measurable betterment.

82. On the other hand, Mr. Fitzgerald conceded that the present case was unusual, both because there was no physical damage to the property and because reinstatement was sought, not of the original property, but of an identical property on a green field site.

Mr. Tom Corr

83. Mr. Corr is a chartered valuation surveyor. He is a fellow of the Royal Institution of Chartered Surveyors and an associate of the Chartered Institute of Arbitrators. Mr. Corr has over 40 years' experience in property valuation. For the past 25 years, Mr. Corr has focussed on property valuations and on compulsory purchase cases requiring assessment of injurious affection (devaluation) to dwelling houses from various types of infrastructure including road schemes, pipeline easements, rail schemes and so on.

84. Mr. Corr was initially engaged by the defendant to assess the June 2022 market value of HH and NF with and without the Ballyduff wind farm. Mr. Corr's opinion is informed by three factors: first, his site visit to and the inspection of the subject properties in May 2022 together with a further *"drive- by inspection"* conducted in 2025; second, the sale prices achieved for comparable properties which were then adjusted to take account of the specific attributes of the subject properties; and third, what he terms "scientific research" (as to which see below).

85. As of June 2022, Mr. Corr valued HH at €390,000 in the absence of the wind farm and at €365,000 with the wind farm fully operational. This comprised a €25,000 discount in capital valuation attributable to the wind farm, a discount of 6.5%.

86. Mr. Corr was re-engaged in June 2025 to assess the market value of HH under the following three scenarios (a) the market value of HH with the wind farm operating as present; (b) the market value of HH on the assumption that the wind farm was operational but did not pose any WTN nuisance; and (c) the market value of HH on the assumption that the wind farm did not exist at all.

87. On scenario (a), Mr. Corr's view is that the June 2025 open market value of HH (impacted by the WTN nuisance as found by this court), is €375,000. Indeed, he states that, based on the "scientific research", this figure could well be higher and closer to €400,000. This potential devaluation of €25,000 is the maximum likely figure; in the current strong housing market, there may in fact be no impact on the market value at all.

88. Mr. Corr proposes scenario (b), in which the wind farm is operational but does not pose any WTN nuisance, as equivalent to Mr. O'Regan's stigma damages scenario. His opinion is that the open market value of HH on scenarios (b) and (c) is in the same: €400,000 as of June 2025. On scenario (b), any negative impact on the valuation of HH would be completely eliminated by the abatement of the WTN nuisance by court order. There would be no residual impact on the market value of HH.

89. Mr. Corr was also instructed in June 2022 to report on the valuation of NF and visited the house for that purpose. This inspection took place during the day and there was a *"fair wind"*. Mr. Corr described the WTN - a vroomph noise- as intermittent and *"actually quite loud"*.

90. As of June 2022, Mr. Corr estimated the open market value of NF in the absence of the wind farm WTN as €360,000. Allowing for the presence of the wind farm as presently operating, the open market value at that time was estimated to be €335,000. This comprised a €25,000 discount

in capital valuation attributable to the WTN, a discount of 7%. Mr. Corr attributed this comparatively low reduction in valuation to the strength of the property market at the time of the sale of NF.

91. In his updated valuation report of June 2025, Mr. Corr states that the actual market value of NF with the wind farm fully operational as it presently is (equivalent to scenario (a) above), was crystallised on 12th August 2021, when the property was sold for €295,000. His opinion is that, taking account of the presence of the wind farm but assuming that same did not pose any WTN nuisance (equivalent to scenario (b) above), the open market value of NF at that time was €318,000. This is the same as his valuation in the absence of any wind farm at all (equivalent to scenario (c) above). On either scenario the WTN nuisance produces a discount of 7%. As regards the delay and difficulty in selling NF, Mr. Corr did not view the fact that there had been eighteen viewings of NF and that six potential buyers put in no bid at all as unusual. He states that it would not be unusual for a rural property to take some time to sell, particularly one located near a wind farm.

Mr. Corr's comparables

92. Mr. Corr uses essentially the same comparables in respect of both HH and NF. However, the primary focus is NF, as this property was sold at a time when the WTN was ongoing (whereas, the devaluation claim in relation to HH is now necessarily limited to stigma damages).

93. Mr. Corr advances 7 different comparables. Comparables 1, 2 and 3 are intended to demonstrate that proximity to the Ballyduff turbines has no appreciable effect on the market value of either HH or NF. Comparables 4, 5, 6 and 7 are primarily intended to support the estimated open market value of NF absent the turbine, at the time of its sale in August 2021, which as I say Mr. Corr puts at €318,000.

94. I will examine these comparables in a little more detail.

95. Comparables 1, 2 and 3 are 700 metres, 2 km and 1.9 km respectively from nearest Ballyduff turbine.

96. Mr. Corr relies upon the fact that, although comparable 1 is located relatively close to the Ballyduff turbines, it sold for €475,000 in August 2024. Mr. Corr states that this sale price, when compared to comparables 2 and 3 indicates that proximity to the Ballyduff wind turbines had no impact on the value of comparable 1 (or, inferentially on the value of NF (or HH)).

97. The difficulty with this, however, is that comparable 1 on the one hand, and comparables 2 and 3 on the other, are not truly comparable. Comparable 1 is a significantly larger house than comparables 2 and 3. It has an additional bedroom and is situated on a larger site. Therefore, the mere fact that comparable 1 achieved a sale price significantly in excess of comparables 2 and 3 tells us very little about the likely value of comparable 1 were it not for the proximity of the Ballyduff turbine.

98. More particularly, this exercise tells us very little about the impact of the WTN on NF (or HH). Comparable 1 is located 700 metres from the turbine. This is a far greater distance than that as between NF and T2. Indeed, it is also a greater distance than that as between NF and T1, the further of the two Ballyduff turbines. It was never contended that T1 gives rise to WTN nuisance at NF (or HH). There is equally no suggestion that the Ballyduff turbines give rise to a

WTN nuisance at comparable 1. One cannot therefore deploy the open market value of comparable 1 to assess the impact of WTN nuisance on the open market value of NF (or HH).

99. The sale prices achieved for comparables 1, 2 and 3 in 2024 and 2025 are of little assistance in assessing the likely market value of NF at the time of its sale in August 2021. Mr. Corr therefore relies on comparables 4, 5, 6 and 7 which sold between early 2021 and mid-2022.

100. Mr. Corr conceded that it is very difficult to find two houses which are truly comparable unless they are located in the same housing estate. In rural Ireland, where one is dealing with one off houses built to spec, true comparability is extremely elusive.

101. Comparable 4 sold for €395,000 in March 2022. Mr. Corr's report states that comparable 4 is more valuable than NF for a number of reasons including its superior location, its larger site and its level ground. There is surely little purpose in putting a comparable before a court and then arguing that it is not in fact comparable to the subject property which ought therefore attract a lower value than the comparable tendered. In any event, comparable 4, which was built in 1995 is a much older property than NF which was constructed in 2004; its square footage is also less than that of NF. Furthermore, Mr. Shorten's evidence was that Mr. Corr had underestimated the internal square footage of NF by omitting the attic bedroom. This issue was not addressed at all in Mr. Corr's oral evidence. If Comparable 4 is accepted as a comparable, then even allowing for a "dialling back" of the sale price to August 2021, this would still suggest that the open market value of NF (absent the WTN nuisance) was considerably higher than Mr. Corr's estimate of €318,000. Comparable 5 sold for €339,000 in February 2021. Mr. Corr states that the location of this property is also superior to that of NF and that its square footage is larger. Subject to Mr. Shorten's point that Mr. Corr has underestimated the internal square footage of NF, this may well be correct. However, comparable 5 is on a smaller site than NF and it is also a considerably older property. If comparable 5 is accepted as a comparable to NF, this would also suggest an August 2021 open market valuation of NF above that estimated. Comparable 6, which sold for €325,000 in June 2022 is a smaller house than NF on a smaller site, although it was constructed more recently in 2017. Comparable 7 which sold in June 2022 for €340,000 is also smaller than NF but is said to be in a superior location because it is less remote. Overall, there is little insight to be gained from the sale prices of these two disparate comparables in June, 2022 (€325,000 and €340,000 respectively).

102. In summary, although it is of course good practice to have regard to valid comparables, I do not believe that it has been adequately demonstrated that any of the properties tendered are in fact comparable to NF.

Mr. Corr's scientific research

103. Mr. Corr estimates that the WTN nuisance as found by the court, reduces the open market value of HH and NF by between 6.5 and 7%. He maintains that his opinion is supported by what he called *"the scientific research"*, which comprises both Irish and international studies on the impact of wind farms on property values.

104. The first of these is a North American book by Bond, Sims and Dent, *"Towers, Turbines and Transmission Lines"* (Blackwell 2013), which concludes that there is no significant evidence that the value of properties is affected by the mere proximity of wind turbines. That

premise does not cover the factual situation here. The plaintiffs do not argue that the sale price of NF was impacted by the *"mere presence of the turbine"* but by the WTN nuisance associated therewith. In any event, the definition of close proximity to a turbine used in this study (i.e. within two kilometres of a turbine) encompasses properties significantly further away than NF and HH are from T2. Further the authors qualify their conclusion, stating that any impact will depend on the nature of the property, its location and the overall value attributable to either the vista or the area.

105. The second paper relied upon by Mr. Corr is a paper by Hoen, et al. published in December 2009, *"The Impact of Wind Power Projects on Residential Property Values in the United States"*. This is based on data comprising 7,500 sales of single family homes situated within ten miles of existing wind facilities and concludes that there is no conclusive evidence of widespread property value impacts. This distances between the properties examined and the turbines in this data set is entirely distinguishable from the present circumstances.

106. The third study relied on is Brunner, et al. *"Commercial Wind Turbines and Residential Home Values: New Evidence from the Universe of Land-Based Wind Projects in the United States"* published in 2023, which examines data from house sales between 2005 and 2020. The study finds that, on average, the value of homes within one mile of proposed wind farms experienced a decline of approximately 11% following the announcement of a new commercial wind energy project, relative to counterfactual homes located three to five miles away. Once again the study is concerned with the impact of the mere presence of wind farms rather than with the impact of either potential or established WTN nuisance. Mr. Corr also accepts that, due to its large land mass, the North American housing market is distinguishable from its European counterparts. In North America, purchasers who are sensitive to wind farms simply do not buy property in their vicinity and capital values are not impacted in the manner that might occur in a comparatively smaller country with a comparatively smaller potential market such as Ireland.

107. Mr. Corr emphasises that the *Brunner* study found that the negative impact on market values diminished considerably over time; by nine years after project announcement it was statistically insignificant. This is consistent with other research which also finds price impact at its highest in the planning and construction phases of wind farms. This is quite logical. Planning permission for wind farms, at least in this country, are time limited and one would expect any negative impact on property values to decay over time. Furthermore, I have no difficulty accepting Mr. Corr's view that the negative effect on valuations is associated with increased community awareness at the time of the grant of permission for the relevant wind farm. However, in the present case, NF was sold during the currency of WTN nuisance litigation which is likely to have focussed community awareness. In addition it is unfortunately inevitable that the litigation itself will, as it were, refresh such community and market awareness in so far as concerns the potential sale of HH in the future.

108. Third, Mr. Corrs relies on a large scale data analysis published by *Guo, et al.* in 2024, on foot of data from more than 300 million home sales and 60,000 wind turbines in the US between 1997 and 2020. A drop of only 1.12% in home values within view of a wind turbine was

found and this devaluation was no longer detectable by the end of the 20 years. This study had no relevance as it is concerned only with visibility of turbines and not with WTN nuisance.

109. Fourth, Mr. Corr refers to a study published by the Centre for Economics and Business Research carried out in the United Kingdom in 2014, which finds no negative impact on house values from wind farms across seven sites in England and Wales. This, however, is contradicted by a fifth study, Gibbons, *'Gone with the wind: valuing the local impacts of wind turbines through house prices'* (London School of Economics, 2014) which finds that impact on market value varies with proximity. Properties within two kilometres of larger wind farms suffered a price reduction of 12%.

110. The most relevant paper identified by Mr. Corr, Gillespie and McHale, "*Wind Turbines and House Prices Along the West of Ireland*" (University College Galway, 2023), presents data collected on foot of the impact of wind farms on house prices in seven counties along the western and southern coast of Ireland in the years 2016 to 2021. *Gillespie* finds a robust and significant reduction in value of 14.7% in the house prices for properties within one kilometre of a turbine. It also found that the effect increases with turbine height, the number of turbines and the level of urban influence. It notes that, despite the benefits associated with wind energy, wind turbines impose undesirable externalities on residents mainly through aural and visual pollution and are often fiercely opposed at a local level. *Gillespie* further observes that the negative effects of turbines, which are highly localised, are not appropriately distributed among the population benefitting from renewable energy.

111. *Gillespie* uses proximity alone as a proxy for any negative effects of the wind farm. It is clear that the authors had no access to WTN information as pertained to any of the properties in its cohort. One is therefore left to assume that the average 14.7% includes many properties where WTN is not intrusive and, presumably, some properties where it is intrusive or may even amount to WTN nuisance. There is however no breakdown as between these categories.

112. Mr. Corr emphasises that the methodology set out in the *Gillespie* paper is objective and robust. Notwithstanding this, neither Mr. Corr nor Mr. O'Regan appear to agree with its finding that mere proximity to a turbine will negatively impact property values. They agree that, at least in recent times, the buoyancy of the Irish property market is sufficient to neutralise the potential negative impact of the mere presence of a wind turbine. As stated above, I would expect that society's more positive attitude towards renewable energy developments may also be a factor here. In 2025, a potential purchaser may not view mere proximity to a wind farm in the same negative light as they would have done in for example, 2016.

113. *Gillespie* concludes that its findings are consistent with existing European studies finding significant negative price impacts on residences near turbines. Most of these studies correlate distance to turbines with both noise and visual disturbance and ultimately recommend that turbines are laced in highly remote areas to minimise impacts on residents. These European studies find that house prices remain significantly low -reduced by between 2% and 25% - within two kilometres of turbines for up to eight years post construction. Price effects are greatest at close proximity to turbines and increase non linearly as distance increases, culminating in insignificant effects beyond four kilometres.

114. Mr. Corr emphasised that *Gillespie* also notes that the price impact decays over time, becoming insignificant after ten years.

115. Mr. Corr's overall view is that, notwithstanding the findings of the *Gillespie* paper showing a 14.7% reduction in house valuation for properties within one kilometre of a turbine, the value of the properties in issue here, were reduced by only half that figure- 6 to 7%, even in the presence of WTN nuisance. Why precisely this should be is not explained. The subject properties in the *Gillespie* study, were located within one kilometre of a turbine. HH and NF are substantially closer: they are located within approximately 350 metres of a turbine. Furthermore, the impact of the turbines on the valuation of HH and NF in this case arises not merely from mere proximity, but also from a complaint of WTN nuisance which, incidentally, has been found by the court to be substantiated.

Material not considered by Mr. Corr

116. Mr. Corr stated that he did not read this court's principal judgment prior to preparing his report and had considered only the module 2 judgment. Nor did he familiarise himself with the evidence of the plaintiffs or their acoustics experts as to the impact of the Ballyduff WTN as he apparently only *"scanned"* these transcripts. By contrast, Mr. Corr placed considerable emphasis on the evidence of Ms. McGinn.

117. In giving evidence for the defendant wind farm in *Byrne,* Mr. Corr's opinion as to the impact of the WTN on the capital value of the plaintiffs' home changed dramatically, increasing seventeen- fold from 1% to 20% (albeit that 2% of this was attributable to the visual impact about which no complaint was made). Quinn J. sets out Mr. Corr's explanation for this as follows: prior to giving evidence he had been sent the plaintiffs' witness statements and transcripts and the transcripts of plaintiffs' primary acoustic expert, Mr. Stigwood. Mr. Corr explained to Quinn J. that having read this material his view had completely changed because the case was an *"outlier".*

118. Given Mr. Corr's experience in the *Byrne* litigation, it is unsatisfactory that he failed to carefully read the statements and transcripts of the evidence of the plaintiffs and their acoustic experts in this case and that he has only a passing acquaintance with this court's judgment. This court has found that the WTN in this case causes an objectively unreasonable interference with the plaintiffs' enjoyment of their property and with its amenity. Mr. Corr has failed to take this properly into account.

119. Instead, Mr. Corr prefers to base his valuations on comparables which are not in my view comparable and on *"scientific"* research, the most relevant of which finds that mere proximity to a wind farm reduces property values by 14.7%, even in the absence of WTN nuisance. Mr. Corr's expressed opinion is that that such statistical analysis of actual sales data is a more accurate and useful indicator of price impacts than an analysis based only on the personal opinion of valuers and agents (such as Mr. O'Regan and himself). As such, he should have explained how it has informed his analysis here.

120. Mr. Corr acknowledges that there are multiple variables that feed in to the price that purchasers are prepared to pay for a particular property including location, size of the house, site area, house condition, landscaping, BER, etc. Whether or not there is a wind farm close to the

subject property is only one of these variables. This is of course correct. However, whether this wind farm causes WTN nuisance at the subject property is surely an exceptionally important variable. Moreover, whether the abatement of this WTN nuisance requires ongoing engagement and verification is also likely to be an important variable.

APPLICATION OF LEGAL PRINCIPLES TO THE FACTS OF THE CASE

General damages and Mr. Rollo's accommodation claims

121. I will not repeat the evidence already summarised in this court's principal judgment as to the impact of the WTN on the plaintiffs' enjoyment of their properties. In short, the WTN gives rise to a serious adverse noise impact exceeding reasonable tolerability by a substantial margin. The enjoyment of the plaintiffs' homes, as places of rest and relaxation, has been substantially interfered with by annoying, distracting, unpredictable and intrusive noise, as well as vibration and a sense of pressure emanating from T2. The erratic and unpredictable amplitude modulation, thumping, vibration and low frequency pressure is disturbing, distracting and distressing both externally and internally, particularly at night, in the early mornings and at sensitive times of the day. The plaintiffs have no control over their own sound environment. They have no ability to simply be quiet in their homes, despite their secluded rural locations. There is no real respite from the noise open to the plaintiffs. The interference caused all four plaintiffs to experience serious and frequent sleep disturbance with all that that entails. The WTN and the exhaustion caused by lack of sleep interfered with the plaintiffs' ordinary ability to concentrate, read and at times, to work. In addition, the plaintiffs were deprived of the enjoyment of their gardens as places to rest, relax and cultivate. The level of interference was objectively supported by the plaintiffs' expert acousticians, the material in their reports and the recorded sound data. I accept that, particularly during sensitive periods, the nature of the interference was extreme and well beyond what an objectively reasonable person should have to put up with in the circumstances of the case. The behaviour and response of the plaintiffs to the WTN was in general that of objectively reasonable and patient people and the general response from the defendant was, in my view, exceedingly poor.

122. At the court's request in the present case, both parties made submissions on the appropriate level of general damages. All parties agree that the law in relation to the assessment of general damages in cases of this nature is as stated by Quinn J. in *Byrne*. However, each party seeks to argue that, in certain respects, the annual damages award made in that case is not applicable here.

123. The plaintiffs propose general damages for Ms. Webster of €30,000 per annum for the period since the wind turbines commenced operation, continuing until this court's order takes effect. Damages for Mr. Rollo are proposed at €50,000 per annum up to March 2021, when he was obliged to leave his home and €20,000 per annum for the period since March 2021. Damages for Mr. Shorten and Ms. Carty were proposed at €25,000 each per annum for the period up to August 2021 when they sold NF.

124. The plaintiffs relied upon the following features as supporting a higher damages award in this case than in *Byrne*.

125. First, it is said that in contrast to *Byrne*, three out of the four plaintiffs before me have been forced to leave their homes as a result of the unremitting WTN.

126. Mr. Rollo could find no escape from the WTN anywhere in his house and suffered sleep disturbance, mental distress and depression which, he argues, ultimately forced him to leave HH in March 2021. The plaintiffs emphasise that, prior to this, Ms. Webster and Mr. Rollo had been partners for life. When they bought HH in July 2015 they believed that they had found their *"home for life"* and had planned to start a family together. The couple had been trying to conceive since 2014 and had also discussed fostering or adoption. All of these plans were ruined because the couple were deprived of the healthy and comfortable enjoyment of their home and suffered distress and discomfort in their home with no way of controlling their environment. It is argued that the WTN nuisance arrived for Ms. Webster and Mr. Rollo at a crucial time in their lives and at a crucial age period, with the result that even when these proceedings are resolved, the consequences of the damage caused by the defendant will remain with both plaintiffs indefinitely.

127. Mr. Shorten and Ms. Carty built their home, NF in 2004 and a studio was added for Ms. Carty's graphic design interests. They too considered that they had found *"the home of their dreams in a beautiful setting."* It was a place full of their treasured memories to which they escaped from Dublin, where they enjoyed hosting friends and family and to which they intended to retire. Mr. Shorten and Ms. Carty were unable to tolerate the WTN experienced indoors and in their garden. After the Ballyduff turbines became operational, Mr. Shorten and Ms. Carty found visiting NF frustrating and upsetting. Ms. Carty, in particular, found that she was unable to bring herself to spend time at the house any more. The plaintiffs argue that, because they had lost the peaceful calm and amenity of NF, Mr. Shorten and Ms. Carty considered they had no option but to sell. After a protracted and disappointing process, the sale closed in August 2021, at a figure that the plaintiffs contend represents a very substantial undervaluation.

128. It is therefore argued that what distinguishes the present case is that, unlike the plaintiffs in *Byrne*, the lives of both couples have been fundamentally altered and irrevocably damaged by the noise nuisance. Essentially, therefore the plaintiffs argue that quantum ought to reflect that this case is more serious than *Byrne*.

129. In response to these arguments, the defendant submits that, as the court has already determined that the psychiatric injury suffered by Mr. Rollo was not reasonably foreseeable, he is not entitled - as a matter of law - to be compensated for either that injury or its subsequent consequences. It is also argued that the evidence given by the plaintiffs does not support the proposition that Mr. Rollo was forced to leave HH as a result of the WTN. Rather, the defendant submits that the reason Mr. Rollo departed HH in March 2021, was because his relationship with Ms. Webster had by that stage ended. The defendant therefore submits that the Webster Rollos are not entitled to be compensated on the basis that the WTN was so extreme as to drive Mr. Rollo from the house and to ruin the couple's relationship. For the same reason, the defendant argues that Mr. Rollo is not entitled to recover general damages after he left HH. Nor, it is said, is he entitled to recover rental payments from March 2021 to date, as he would have incurred this expenditure in any event consequent upon his separation from Ms. Webster.

130. Insofar as concerns the Carty Shortens, the defendant submits that the evidence demonstrates that the Carty Shortens had already decided to sell NF before the Ballyduff wind farm commenced operation. The sale is therefore for reasons entirely unrelated to the WTN nuisance. I accept that the defendant's interpretation of this aspect of the evidence is correct.

131. As such, the defendant argues that the four plaintiffs are not entitled to be compensated on the basis that the WTN forced them to leave their home. The defendant also argues that, for a number of reasons, the interference with the plaintiffs' reasonable amenity in this case is less than that which pertained in *Byrne*.

132. First, in *Byrne* the plaintiffs experienced WTN from three different turbines and from the interaction between the sounds emanating from each. In this case, only one turbine is implicated which the defendant argues attracts lesser damages. I am not attracted to this argument. What the court ought focus upon in assessing general damages is the nature and characteristics of the WTN itself and on the interference occasioned thereby from the perspective of an objectively reasonable person. I acknowledge that the interaction of the three turbines in *Byrne* added a particular feature whereby the sound waves overlapped, but did not synchronise, drawing attention to the WTN. I appreciate that this particular feature is not replicated here. However, the Ballyduff WTN nonetheless has multiple attention drawing features such as impulsivity (sudden changes in sound level), erraticism (with no clear periodicity or rhythm, exhibiting spikes and double spikes of AM) and variability/intermittency (when AM disappears and returns again). I found that these features, which are particularly evident in light of the high AM values displayed, mean that the WTN lacks any pattern to which one could acclimatise and therefore impacts coping mechanisms. What precise scientific factors give rise to these features- and whether they are attributable to the WTN of one turbine or the interaction in the WTN of three turbines- is not particularly pertinent at this stage of the inquiry. Irrespective of whether it is caused by one or by three turbines, the noise is the noise and the impact is the impact. In this case, I have found the impact to be unacceptable.

133. Second, the defendant argues that in *Byrne* there were three elements to the WTN nuisance: amplitude modulation, low frequency noise and a tonal droning noise. In this case, however, only the first two elements are present and there is no complaint of tonal noise. This statement is correct so far as it goes. However, my analysis of this issue would be similar to that just outlined. Whether or not the noise is intolerable by reference to each of the same three factors as pertained in *Byrne* is not of primary importance. The key point is that, in both cases, the court has found that the noise is intolerable and represents an objectively unreasonable interference with the plaintiffs' amenity and enjoyment of their homes. The reasons for this finding will differ from case to case just as the features of the WTN will differ. Although tonal noise was not a feature complained of by the plaintiffs in the present case, this does not in itself mean that the Ballyduff WTN is less intrusive than the WTN in *Byrne*. Other features may be more prevalent in the present case than in *Byrne*. For example, my reading of the judgment in *Byrne* suggests that the unsettling and physiologically distressing sense of vibration and pressure emanating from the turbines in this case is a more prominent feature of the WTN than was the case in *Byrne*. In the present case, all four plaintiffs vividly describe how their houses vibrate with the WTN, which appears to reverberate through the walls and ceilings.

134. The defendant's third argument is that in *Byrne,* the defendant admitted that the turbines caused a nuisance to the plaintiffs 24 hours a day, seven days a week. By contrast, in the present case, the court has found that whilst the turbine noise is liable to annoy at other times of the day, it can reasonably be tolerated or masked during working hours. The WTN in this case only gives rise to actionable, compensable nuisance during night hours and during quiet waking hours. This point has some force. On the other hand, it is important to note that in *Byrne*, Mr. Byrne generally worked away from home over much of the period of operation of the turbines.[8] As a result, any compensation payable to him was generally in respect of his exposure to the nuisance when he was at home in the evenings, nights and weekends - effectively at sensitive periods- rather than on a 24 hour basis. This factor cannot, in itself, therefore, justify awarding a lesser sum to Ms. Webster and Mr. Rollo than was awarded to Mr. Byrne.

135. The defendant appears to acknowledge this in proposing general damages for Ms. Webster in the amount of €10,000 per annum from February 2017 to the date of cessation of the nuisance. General damages for Mr. Rollo are also proposed at €10,000 per annum from February 2017 up to the date he left HH in March 2021. General damages for Mr. Shorten and Ms. Carty are proposed at €5,000 per annum from February 2017 to the date they sold NF in August 2021.

136. In *Byrne,* Quinn J. emphasised that the measure of damages should be fair and reasonable to both sides and proportionate to the wrong sustained and to the general approach of the courts to awards in analogous cases. There is no doubt that *Byrne* is an analogous case, and I accept entirely its precedential value, as do the plaintiffs and the defendant in this case. This inexorably means that this court should award general damages which are proportionate with, but not necessarily identical to, the awards made in that case.

Ms. Webster

137. For reasons explained at paras 140 to 144 below, I conclude that Ms. Webster is not legally entitled to general damages for the breakdown of her relationship with Mr. Rollo. Leaving that issue aside, as I must, I view the impact of the WTN upon Ms. Webster as broadly comparable to the impact of the WTN on the first named plaintiff in *Byrne*. Taking this into account, I award Ms. Webster general damages in the amount of €10,000 per annum from 2017 to the date of cessation of the nuisance. This amounts to approximately €87,500 from 1st February 2017 to the date of this judgment.

Mr. Rollo

138. Mr. Rollo's claim to general and special damages is complex and requires detailed analysis. As is evident from my principal judgment, I accept that Mr. Rollo sustained a recognisable psychiatric injury as a result of the WTN. I have no difficulty accepting that this put significant pressure on his relationship with Ms. Webster. I also further accept that the serious deterioration in Mr. Rollo's mental health in December 2020 was in response to the WTN and that as a result of this serious deterioration, Mr. Rollo urgently needed to leave HH.

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[8] In *Byrne*, the turbines commenced operation in 2013. Mr Byrne generally worked away from home save for the period after his retirement from the Law Reform Commission in 2021.

139. However, for reasons already outlined, I am not satisfied that Mr. Rollo's psychiatric injury was reasonably foreseeable such as to impose liability on the defendant for this chain of events. In any event, the evidence establishes that, because of the prior breakdown of his relationship, it was inevitable that either he or Ms. Webster would, in due course, have to move out of HH. This explains why, despite the cessation of the nuisance, Mr. Rollo cannot, and will not, return to HH. As such, the breakdown of the relationship between Ms. Webster and Mr. Rollo is the primary cause of Mr. Rollo leaving HH[9] (and of his ongoing future inability to return even after the WTN nuisance is abated). Therefore, Mr. Rollo (and Ms. Webster) could only recover general damages reflecting the breakdown of the relationship, and its downstream consequences (including Mr. Rollo's accommodation requirements), if they establish both that the WTN "factually" caused the breakdown of the relationship and also that this breakdown was a reasonably foreseeable consequence of the WTN nuisance.

140. I cannot be satisfied on the balance of probabilities that the breakdown of the relationship between Ms. Webster and Mr. Rollo, which is the cause of Mr. Rollo leaving HH, was caused by the WTN. Although I accept that both the WTN and Mr. Rollo's resulting psychiatric illness put the relationship under significant strain, I cannot be satisfied that, but for these factors, Ms. Webster and Mr. Rollo would have remained together and would remain together in the future. It is impossible to attribute the breakdown of a relationship between two people to a single cause. On the contrary, there are invariably a myriad factors at play.

141. Even if I am incorrect in this and the WTN is the factual cause of the breakdown of this relationship, for reasons I now explain, I am nonetheless of the view that such an event was not reasonably foreseeable by the defendant.

142. My principal judgment references the relevant World Health Organisation guidance in relation to WTN, namely the Environmental Noise Guidelines for the European Region ("WHO ENGER 2018").[10] WHO ENGER 2018 states that evidence on health effects from WTN (apart from annoyance) is either absent or rated as *"low"* or *"very low"* quality. One would expect wind turbine operators to be aware of this. This specific aspect of WHO ENGER 2018 is also quite extensively referenced the Irish Draft Revised Wind Energy Development Guidelines 2019, of which one would also expect Irish wind turbine operators to be aware. None of the scientific evidence cited to me in module 1 established a link between WTN and severe mental health consequences such as those suffered by Mr. Rollo. In light of this, there was no evidential basis to support a finding that a wind turbine operator in the position of the defendant could reasonably have foreseen that Mr. Rollo would suffer a recognisable psychiatric injury as a result of the WTN. Therefore, even if it were established that, Mr. Rollo's psychiatric illness was the factual cause of the relationship breakdown, foreseeability is not established.

143. Leaving aside Mr. Rollo's psychiatric illness, one searches in vain in the literature for any suggestion of a link between WTN and family or relationship disharmony. Although WHO ENGER 2018 is an extremely detailed document discussing a wide range of reported and potential

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[9] Albeit that the urgency of his departure - in terms of its timing - was accelerated by his acute psychiatric deterioration in December 2020.

[10] WHO ENGER 2018 sets out a conditional recommendation for WTN levels. In my principal judgment, I concluded that there was insufficient evidence to test the WTN in issue here against this conditional recommendation.

WTN impacts, it contains no suggestion that WTN is associated with family or relationship disharmony. Nor is there any such suggestion in the multitude of studies, guidance documents and peer reviewed literature opened to this court in any of the three modules of this hearing. There is therefore no evidential basis to support a finding that a wind turbine operator in the position of the defendant could reasonably have foreseen that the Webster Rollo relationship would come to an end as a result of the WTN

144. This compels me to four conclusions: first, Ms. Webster and Mr. Rollo are not legally entitled to general damages reflecting the very sad breakdown of their relationship; second, Mr. Rollo is only legally entitled to general damages during the period of his occupation of HH, but not after he left in March 2021. Third, Mr. Rollo is not legally entitled to recover the rental payments which he has expended since he left HH in March 2021. Fourth, Mr. Rollo is also not legally entitled to recover the cost of future alternative accommodation on either of the bases tendered.

145. In assessing Mr. Rollo's general damages for the period of his occupation of HH between February 2017 and March 2021, I have had regard to the fact that the WTN caused Mr. Rollo to suffer profound sleep disturbance. Critically, this exhaustion continued to impact upon him on a 24/7 basis even when he was away from HH. Thus, Mr. Rollo's levels of exhaustion adversely impacted his concentration and mood, making it difficult and, eventually, dangerous for him to work at heights. The relentlessness of the WTN and his inability to control, prevent, ameliorate or escape it, particularly at night, caused Mr. Rollo to suffer irritability, frustration, helplessness and despair, which impacted almost every aspect of his daily life. All of these reactions were those of an objectively reasonable person in the circumstances of Mr. Rollo. Likewise, all of this was, in my view, an entirely foreseeable consequence of the defendant's nuisance.

146. These foreseeable impacts of the WTN are to be distinguished from the recognisable psychiatric injury[11] which Mr. Rollo later suffered as a result of the WTN. For reasons already explained, this psychiatric injury was not reasonably foreseeable and Mr. Rollo cannot be compensated for its additional impact. For the avoidance of doubt, as stated in my principal judgment, I am satisfied that Mr. Rollo did not fulfil the criteria for a psychiatric injury until mid-to-late 2020. Up to that point in time, Mr. Rollo's reaction to the turbine was within the band of a reasonable and foreseeable response and he is entitled to be fully compensated for its impact on his life.

147. It is indisputable that, even ignoring the psychiatric injury which he later developed, the foreseeable impact of the WTN on Mr. Rollo over this period (from commencement of the operation of the turbines until mid-to-late 2020) was more severe than the impact on any of the other plaintiffs in this case. It also seems to me that the WTN had a dramatically more negative impact on Mr. Rollo than on either of the two plaintiffs in *Byrne*. As such, I award Mr. Rollo compensation of €18,500 per annum from February 2017. As the psychiatric injury which Mr. Rollo suffered in mid to late 2020 was unforeseeable, I award no uplift in general damages in that regard. Rather, I will continue general damages at the previously stated rate of €18,500 up

[11] And from the consequences of that psychiatric injury.

to the date that Mr. Rollo left HH in March 2021. This amounts to approximately €77,000.00 between February 2017 and March 2021.

The Carty Shortens

148. NF was not a permanent residence of the Carty Shortens. This means that, even while they still owned NF these plaintiffs were less exposed to the WTN nuisance than the Webster Rollos and, it follows, less than the *Byrne* plaintiffs. The couple's evidence is that prior to 2006 or 2007, they were at NF either every weekend or every alternative weekend and over holiday periods. As the defendant argues, because the couple found that they were spending less time at NF, they decided to place NF on the market in 2016 for reasons unconnected to the wind farm. I will award general damages to both Mr. Shorten and Ms. Carty somewhat below the level awarded to Ms. Webster at €7,500 per annum from February 2017 to August 2021. This amounts to approximately €34,000.00 each between 1st February 2017 and 10th August 2021.

Property devaluation

Preliminary remarks in respect of the property devaluation claims

149. The *Gillespie* study finds a 14.7% reduction in valuation as a result of mere proximity to a wind turbine (even leaving aside noise nuisance). As stated, this does not accord with the recent experience of either Mr. O'Regan or Mr. Corr. For the avoidance of doubt, I should state that even if this 14.7% devaluation were made out in a given case, absent nuisance, there would generally be no legal basis for recovery of damages for property devaluation arising from mere proximity of a wind farm. Presumably, the vast majority of wind farm developments in the State operate in a manner that does not give rise to nuisance; compensation cannot be awarded simply because a wind farm[12] has been constructed nearby which has reduced the value of one's home.

150. However, in the case of NF (and HH to date), it is common case[13] that the defendant's tortious acts in causing or permitting WTN nuisance caused property devaluation at the time of its sale. The question is not whether such property devaluation has occurred or is compensable; property devaluation has occurred and, as it is due to WTN nuisance it is clearly compensable.[14] Rather, the question in the case of NF is what percentage property devaluation pertained at the time of its sale. The question in respect of HH is whether the property devaluation is likely to continue even after this court's order abating the nuisance and, if so, in what percentage.

151. Ideally, the issues thus presenting would be resolved with the assistance of the evidence of independent valuers. In this case however, such evidence is scarce assistance.

152. I am wholly unconvinced by Mr. Corr's evidence. For reasons already set out, the comparables advanced by Mr. Corr do not demonstrate anything of value in relation to this particular case. Mr. Corr presented the *Gillespie* paper and then propounded a 7% devaluation

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[12] Provided that the wind farm benefits from planning permission and operates in compliance with that permission.
[13] For the purposes of the present module and subject of course to the defendant's right of appeal on liability.
[14] Subject once again to the defendant's right of appeal on liability.

notwithstanding a court finding of persisting nuisance at the time of the sale of NF. Moreover, notwithstanding his assertion in the context of the *Byrne* proceedings that reading the plaintiffs' evidence caused him to increase his valuations by a factor of 17, he failed to read the equivalent material in this case and failed to read this court's principal judgment. These factors are sufficient to undermine the value of Mr. Corr's opinion on the impact of the WTN on property valuation. However, I am also concerned by the fact that Mr. Corr placed repeated and heavy emphasis on Ms. McGinn's evidence and yet somehow failed to refer to a facet thereof which is particularly relevant to valuation: her clear statement that *"the house itself is a house that I'd never have been able to afford only for the wind turbine being behind it."* Ms. McGinn therefore viewed herself as having secured a reduction in the NF purchase price by reason of the impact of the Ballyduff wind farm. It is well recognised that persons who believe they have obtained a financial benefit from a wind farm are less likely to be annoyed by WTN. Ms. McGinn is certainly in that category. Mr. Corr's heavy emphasis on her testimony to the exclusion of this factor and of other highly pertinent testimony, is striking. All of these unexplained omissions and inconsistencies cast doubt on Mr. Corr's objectivity and independence as a witness. I therefore place comparatively little weight on his opinion on the likely valuation of NF in August 2021, in the absence of the WTN nuisance or on the claim to stigma damages in respect of HH.

153. Mr. O'Regan's evidence as to the valuation of both NF and HH is not particularly impressive or well-reasoned. Mr. O'Regan's 2020 report does put forward some comparables, so his various valuations of NF at that time is not, as the defendant contends, reached in an absolute vacuum. Having said that, I accept that in many respects, Mr. O'Regan's opinions are, as counsel for the defendant fairly observed, no more than a gut feeling or hunch. On the other hand, the instinct of an estate agent as experienced as Mr. O'Regan is nonetheless of value to this court. I agree with Quinn J.'s assessment that, in comparison to Mr. Corr, Mr. O'Regan had substantially more experience of working in the residential property market and that his approach to valuation was more rooted in real life experiences of sales. Crucially, Mr. O'Regan's testimony is, at least, non-partisan.

Stigma damages in respect of HH

154. The plaintiff argues that HH will suffer a diminution in value irrespective of this court's order, which ought to sound in stigma damages. The plaintiffs' case is that a potential purchaser of HH would be concerned that the court's order may not be effective in abating the WTN nuisance and that the defendant may not wholeheartedly comply with this court's injunction. They would also worry about the ongoing need to engage with the defendant and to retain experts to verify the effectiveness of the measures taken in response to this court's order.

155. The defendant did not contend that, as a matter of legal principle, stigma damages cannot be awarded in this jurisdiction. Likewise, it did not contend, as a matter of legal principle, that a claim for damages cannot be made out in circumstances where it is established that a court order required to abate a nuisance will inexorably result in property devaluation. Aside from *Byrne* and *Uren*, the defendant has cited no authority to me on the legal issues arising in respect of this aspect of the plaintiffs' claim. It relies on *Byrne* as establishing that it is not reasonable to award stigma damages when the WTN is to be fully abated by order of the court. As I understand it, the defendant's primary argument in respect of the stigma damages claim

appears to be that I cannot be satisfied, as a matter of fact, that the value of HH will be impacted by the requirements of engagement and verification. I will first consider this argument before returning to consider the argument based on *Byrne*.

156. The defendant argues that Mr. O'Regan's analysis proceeds on the factually (and legally) erroneous assumption that, regardless of the injunction, *"there is going to be a nuisance in some shape or form."* It contends that this assumption ignores my ruling that the injunction will eliminate the nuisance fully. Likewise, the defendant argues that Mr. O'Regan's analysis assumes that it will not comply with this court's order. It states that there is no evidence that this will occur. Indeed, by letter dated 12th June 2025, the defendant specifically confirmed its intention to fully comply with the order of this court.

157. I should say that I did not understand Mr. O'Regan to argue that the WTN nuisance would necessarily continue after this court's abatement order. Rather, I understood him to say that a potential purchaser would be concerned that the nuisance might continue. Likewise, Mr. O'Regan did not assume that the defendant would not comply with the intended injunction. Rather he apprehends that a potential purchaser would fear that this may occur and be deterred from putting in an offer for HH.

158. Regardless of whether the two concerns just mentioned are ascribed to Mr. O'Regan or to a potential purchaser of HH, they are not in my view legally relevant considerations in the assessment of damages for property devaluation. I accept the defendant's submission that, in assessing damages for property devaluation, I must assume that this court's order will fully abate the WTN nuisance and also that the defendant intends to fully comply with that order. Neither of the two factors just discussed can therefore found a claim to stigma damages.

159. However, there is force in the third factor relied upon by the plaintiffs. It appears to be common case that the court order abating the nuisance must contemplate ongoing engagement as between the owners or occupiers of HH and the defendant. An effective court order will involve the owners or occupiers of HH in retaining appropriate experts to verify the effectiveness of the measures taken by the defendant in response to this court's order. This requirement for ongoing engagement and verification is likely to continue in some fashion for the life time of the planning permission.

160. I accept Mr. O'Regan's view that different people will take a different view of the risks posed by the litigation and the consequences of the court orders in this case. Some purchasers will be put off by the requirement for ongoing engagement and verification and some will not. Inexorably though, as a matter of logic and common sense, this requirement will reduce the range of potential purchasers prepared to bid on the property. The defendant correctly observes that Mr. O'Regan is unable to point to comparable properties which have been devalued by the impact of an ongoing WTN abatement order. It argues that, as in *Byrne,* the claim to stigma damages is *"too speculative and...lacking in supportive examples".* However, both the present case and the form of remedy that I order, are unique. One would not expect comparators to be available.

161. Mr. Corr's view is that the value of HH will not be impacted by the requirements of engagement and verification. His view is that a potential purchaser would view the abatement order as *"insurance or protection"* against future WTN nuisance. However, this only goes to meet

the arguments that a potential purchaser will fear that the WTN nuisance will continue or that the defendant might not intend to comply with the injunction. For reasons already discussed, I hold both these potential considerations to be irrelevant in any event. Mr. Corr's *"insurance or protection"* thesis does not meet the argument that the open market value of HH will be negatively impacted by the requirements of ongoing engagement with the defendant and the potential need to retain appropriate experts to verify the effectiveness of the measures taken by the defendant.

162. It appears that Mr. Corr's primary counter-argument to the proposition that this will deter potential purchasers is that the market will be a cure-all. Such is the buoyancy of the housing market that, no matter when it comes to market, there will inevitably be two purchasers prepared to enter into a bidding war to acquire HH, irrespective of any stigma arising from the requirements of engagement and verification. However, that is a matter of pure speculation.

163. I am satisfied on the balance of probabilities that the requirement for ongoing engagement with the defendant and ongoing verification will give rise to a reduction in the open market value of HH.

164. I also hold that it is unlikely that the stigma impact arising from the foregoing factors will decay in the foreseeable future. There is, in all likelihood, a further year to eighteen months minimum to run in this litigation. Thereafter, a further judgment will be handed down by the appellate court. All this will keep the WTN nuisance and the requirement for ongoing engagement and verification of compliance *"current"* in the mind of potential purchasers. There is also a further twelve years to run on this planning permission and it is likely that the requirement for the owners or occupiers of HH to continue to engage with the defendant and to verify effectiveness of the measures adopted, will continue for the entirety of that period. Whilst I accept that the open market value of HH may ultimately recover should the defendant's wind farm not be granted an extension of its planning permission on expiry thereof, that is a distant contingency.

165. I do not accept the defendant's argument that, where the nuisance is fully abated and an award of general damages is made, it is not reasonable to also award the plaintiffs an additional sum for stigma damages. For the avoidance of doubt, it is clear that the requirement for ongoing engagement and verification, which is the proximate cause of the devaluation of HH, would not have occurred were it not for the defendant's WTN nuisance. It is wholly attributable to the defendant's tortious acts. It is also a foreseeable consequence thereof. In circumstances where I am satisfied on the balance of probabilities that, notwithstanding the abatement of the nuisance, the capital value of the plaintiffs' house will be reduced, it would be unreasonable to fail to reflect same in an award of damages. This requirement for ongoing engagement with the defendant and ongoing verification also renders the present case entirely distinguishable from both *Byrne* and *Uren,* in which Quinn J. and Richards J. respectively, ordered a total shutdown of the offending turbines and therefore declined to award stigma damages.

166. The plaintiffs are therefore entitled to stigma damages for property devaluation which is wholly attributable to the defendant's tortious acts to date. The quantum of damages for diminution in value can usually be resolved by expert evidence. In the present case, I find the evidence of both valuers on this issue to be of limited assistance. However, difficulties in estimating the likely percentage devaluation, cannot disentitle the plaintiffs to compensation and

the court must, if necessary, deploy some degree of estimation. Although I view the devaluation in the open market price calculated by Mr. O'Regan as too high, I accept that the impact of the requirements of engagement and verification on the market value of HH will be appreciable. I am also influenced by the *Gillespie* study which found evidence of reasonably substantial property devaluation by reason of mere proximity to a turbine. Although, the valuers in the present case are agreed that this does not reflect their present experience, Mr. Corr does not suggest that I should disregard the *Gillespie* findings. Likewise, the defendant makes no submission to that effect. As such, I procced on the assumption that, in reasonably recent times (2016-2021), mere proximity to wind turbines was capable of giving rise to a sustained 14.7% property devaluation. Matters have moved on since 2016-2021, in terms of market buoyancy and, in terms of community attitudes towards (and indeed experience of) wind farms. However, if mere proximity to wind turbines is shown to have impacted property values by 14.7% in the recent past, then it does not seem unreasonable to estimate that protracted court proceedings resulting in an order requiring ongoing engagement and verification will cause a devaluation of, perhaps, half that amount. Indeed, I would view such an estimate as highly conservative.

167. I therefore will assess stigma damages in this case at approximately 7.35% of €400,000 (the agreed present value of HH). This amounts to approximately €30,000. In my view, there is no injustice to the defendant or disproportionality in awarding this figure. It is modest and, on any measure, is insignificant in comparison to the profit which the defendant would have lost if this court had directed the total shut down of T2.

Devaluation of NF

168. Shortly before the hearing of module 3, Mr. Shorten and Ms. Carty substantially amended the basis of their devaluation claim. Their reformulated claim is based on the differential between acquisition and renovation costs on the one hand and the August 2021 sale price on the other. They therefore claim a loss of €195,000 due to the WTN nuisance.

169. I cannot accept this reformulated claim.

170. The issue of devaluation should be approached by reference to the likely differential in the value of the subject property at the time of sale, with and without the nuisance.

171. NF was sold for €295,000 plus €10,000 which it is common case was less than it would have commanded were it not for the WTN nuisance. Both valuers are agreed that the sale price achieved for NF is unlikely to have been reduced by the mere presence of the Ballyduff turbines. I therefore hold that any reduction in the value of NF at the time of its sale in August 2021 was attributable to the WTN nuisance and will be compensable as such. So far, so straightforward.

172. Ideally the court would be guided by the evidence of expert valuers as to this sale price differential. However, I can place little weight on the defendant's valuation evidence and although I have greater faith in the plaintiffs' valuation evidence, it is not of high quality.

173. I find, on the balance of probabilities, that a figure of €350,000 is likely to represent the value of NF in August 2021, absent the WTN nuisance; the market price reduction on account of the WTN nuisance is therefore €55,000. I reach this conclusion on two separate

grounds. First, I have greater faith in Mr. O'Regan's opinion than in Mr. Corr's opinion. I accept that the true valuation of NF in the absence of the WTN nuisance is closer to the estimate put forward by Mr. O'Regan than to that put forward by Mr. Corr. Mr. O'Regan's opinion as expressed in his report, is that the value of NF in June 2020 was €325,000. Updating this valuation by the agreed percentage for house price inflation - 16% - would suggest a valuation of just over €375,000 in August 2021. An assumed August 2021 valuation of €350,000 (absent the WTN nuisance) is well short of €375,000 . It is therefore a conservative starting point. Assuming that the value of NF absent the WTN nuisance would have been €350,000, the sale at €295,000 represents a devaluation of €55,000. Second, Mr. Corr estimates that a 7% reduction in the market value of NF applied on account of the WTN nuisance in August 2021 which he calculates produces a loss of €25,000. The *Gillespie* paper leads me to conclude that this proposed 7% deduction significantly under-estimates the price impact of WTN nuisance. In my view, 14.7% represents a conservative estimate of likely property devaluation in a case such as the present where ongoing WTN nuisance is occurring at the time of the relevant sale. 14.7% is just over twice the 7% devaluation put forward by Mr. Corr. Applying this increase to Mr. Corr's figure of €25,000 and rounding up slightly, produces the same loss as that just calculated: i.e. €55,000. Incidentally, €55,000 also represents the approximate midpoint as between the devaluation opinions of the two valuers and is in my view a fair, reasonable and proportionate assessment.

Aggravated Damages

Plaintiffs' submissions

174. The plaintiffs assert that the defendant's behaviour and conduct is significantly more egregious than that of the defendants in *Byrne*. They argue that the following aspects of the defendant's conduct, which I group under the potentially applicable *Conway* criteria, ought to attract an award of aggravated damages.

a) the manner in which the wrong was committed, involving such elements as oppressiveness, arrogance or outrage; or

b) the conduct of the wrongdoer after the commission of the wrong, such as a refusal to apologise or to ameliorate the harm done or the making of threats to repeat the wrong

Failure to respond the plaintiff's legitimate complaints

175. In April 2017, very shortly after the two turbines at Ballyduff commenced operation the plaintiffs asked Mr. Brazil to address the unacceptable nature and character of the WTN penetrating their properties. At a meeting in HH on 14th August 2017, the plaintiffs inquired about mitigating and reducing WTN and requested that the turbines were turned off at night and at weekends. Mr. Brazil did not accede to this request. The plaintiffs submit that rather than taking any practical steps to ameliorate the WTN nuisance, the defendant requested that they sign a *"noise acceptance agreement"* in exchange for €4,000 per annum per house. He also stated that,

some years into the future, he could potentially purchase one of their houses on a first come first served basis.

176. The Webster Rollo plaintiffs argue that the defendant's response to the psychological report of Prof. Gournay in December 2020, outlining concern for Mr. Rollo's life and requesting that the turbines were switched off at night to allow respite, is a distinct aggravating factor which is significantly more pronounced than those held to give rise to aggravated damages in *Byrne*. They maintain that, despite this acute emergency, the defendant continued to operate T2 without restriction.

177. The plaintiffs observe that, to date, Ms. Webster has endured WTN nuisance for over 8 years and that it continues. Mr. Rollo endured it for 4 years until he left his home. The suffering for Mr. Rollo also continues as, it is said, he remains forced out of his home. Both plaintiffs still contend with the defendant's utter disregard for their plight.

178. The plaintiffs emphasise that, even to date, the defendant here has made no apology to them. It has shown no remorse for the harm that it has caused. Instead, as in *Shortt,* the defendant has shown *"a callous self-serving disregard for the plight of the plaintiff[s]... throughout".*

179. The plaintiffs argue that this unneighbourly conduct is relevant to the public interest. In *Byrne*, Quinn J., regretting the *"shallow"* level of engagement by the defendant with complaints of nuisance, noted that *"engaging with the public and addressing legitimate concerns is essential to the goal of rolling out substantial wind energy. The conduct and approach of the defendants in this case represents a threat to the goal of developing windfarms and wind energy"*. I made a comment to a similar effect at para 204 of my module 2 judgment.

Conway criterion (c) conduct of the wrongdoer and/or his representatives in the defence of the claim of the wronged plaintiff, up to and including the trial of the action

Conduct during the course of the proceedings and during the trial of module 1

Abject failure to engage with the substance of the plaintiffs' legitimate complaints

180. The plaintiffs sent initial letters of claim to the defendant on 27th September 2017 and 13th October 2017. The defendant's solicitors responded rejecting the plaintiffs' allegations of serious and intolerable nuisance and denying that they were suffering distress or injury due to the operation of the wind farm. The plaintiffs argue that a full defence was filed in December 2020, before the defendant had a written report from any acoustician.

181. Mr. Carr was engaged by the defendant in January 2021, as its lead acoustician. He critiqued the methodology of the plaintiffs' experts rather than engaging with the substance of the complaints made. He chose not to listen to or to monitor the WTN, or indeed to attend the plaintiffs' homes before writing his reports. Furthermore, despite the plaintiffs' complaints of significant AM, Mr. Carr did not carry out any monitoring capable of identifying AM values. Nor did he engage with the vast amount of external and internal data collected by the plaintiffs' experts over two lengthy periods of monitoring. Similarly, Mr. Carr did not conduct any monitoring capable of identifying low frequency characteristics.

182. The plaintiffs note that the defendant's essential approach in module 1 was to assert compliance with an averaged decibel level set out in its planning permission as a full answer to the complaints of nuisance. It did not consider the nature, character, frequency, emergence, dominance or erraticism of the WTN.

Failure to disclose noise monitoring data gathered at NF

183. Mr. Brazil arranged for Brendan O'Reilly, an acoustician, to monitor noise at NF in June 2017, and agreed both orally and in correspondence that the noise compliance report would be provided to Mr. Shorten. Despite repeated requests, no such report was ever made available prior to the trial of module 1. Nor was the underlying data gathered at NF by Mr. O'Reilly disclosed to the plaintiffs in discovery, even though it is common case that it fell within the scope of the defendant's discovery obligation. Graphs of this NF data were not referenced in either Mr. O'Reilly's expert report or in Mr. Carr's reports. The data only came to light in Mr. Brazil's second supplementary discovery affidavit, well into the trial of module 1. In my principal judgment, I found that *"the NF graphs show that total operational noise exceeds the permission limit of 40dBA leq at windspeeds between 7m/s and 10 m/s. At a windspeed of 9m/s, it exceeds the limit by perhaps as much as 4 dB"*. It is abundantly clear that this undisclosed NF data was not favourable to the defendant's liability case and the plaintiff is highly critical of the defendant for, as they maintain, withholding it.

Allegation that the WTN was inaudible inside the Webster Rollo bedroom

184. The defendant commissioned Mr. O'Reilly to provide a written commentary in response to the December 2020 psychological report of Prof. Gournay, concerning Mr. Rollo's acute psychiatric deterioration. In this report, Mr. O'Reilly, who had never been inside the plaintiffs' houses asserted repeatedly that *"noise levels from the windfarm, even when at maximum sound power output and when facing directly down towards the house, will be inaudible inside this bedroom (even with the front window open)"*. The plaintiffs submit that although they themselves and their acousticians were extensively cross-examined in module 1 on this false premise, with counsel saying that this evidence would be tendered by the defendant's experts, neither Mr. O'Reilly nor Mr. Carr gave this evidence. The inference seems to be that this was either an intimidation tactic or that the defendant was simply flying a kite in full knowledge of the lack of underlying evidence to support the argument made.

Response to the court's module 1 judgment on liability

185. The court heard evidence and legal submission over 51 days in module 1 and held that the WTN from T2 poses a nuisance to the plaintiffs.

186. The plaintiffs argue that, when facilitated by the court, recognising the public interest of wind energy, with an opportunity to mitigate the nuisance, the defendant squandered its opportunity. The plaintiffs argue that the defendant's entire approach to the mitigation phase and to module 2 of this trial was cynical and self-serving. In my module 2 judgment, I found that the defendant had *"implemented a "mitigation strategy" that, had any thought been given to the matter, was always bound to fail"*.

187. The plaintiffs note that in module 2, the defendant's expert, Mr. Carr, presented a report which wholly ignored the court's findings on nuisance and on the interpretation of the planning permission noise condition and which attempted to adduce new evidence to challenge the court's findings on liability. The plaintiffs argue that this was a deliberate strategy and that the defendant attempted to use module 2 to confound the court's findings in order to mend its hand to improve its chances on appeal.

188. In my module 2 judgment, I found that the defendant's approach in module 2 was entirely inconsistent with the case it had presented at module 1, that its new evidence was inadmissible and that, even if admitted, this evidence would not alter this court's finding on liability. I found that the arguments sought to be advanced on foot of this new evidence were factually and legally unsustainable.

189. The plaintiffs also submit that the two judgments of this court have been disrespected by the defendant which is intent on appealing. The plaintiffs both question and indeed criticise the currently stated rationale for the defendant's intended appeal which its counsel has articulated as being *"because its survival depends on it"* and in order to secure clarity for the wind industry.

Defendant's submissions

190. The defendant submits that the present proceedings are readily distinguishable from *Byrne* and that no award of aggravated damages is merited.

191. In *Byrne*, Quinn J. found that the defendants had made a decision not to engage in any substantive manner with the claims being made by the plaintiffs, which the defendant states did not occur here. This non-engagement explains why the defendants in *Byrne* called only one witness as to fact, Mr. Spicer, who had never met or had any direct interactions with either plaintiff. The defendants in *Byrne* did not call any evidence to address the plaintiffs' allegation that they had failed to engage with their complaints and did not seek to explain this refusal. By contrast, in the present case, the defendant emphasise that Mr. Brazil gave evidence in module 1 and module 2.

192. The defendant contends that it is clear from the evidence in the present case that Mr. Brazil did engage with the plaintiffs in an effort to find a resolution to their complaints, *inter alia*, in the following ways:

- An initial February 2017 complaint of mechanical malfunction was immediately investigated and rectified by the defendant;
- The defendant maintained regular contact with the plaintiffs between March and August 2017. Ms. Webster confirmed that Mr. Brazil was very approachable;
- Noise and shadow flicker surveys were commissioned prior to the delivery of the defence in an attempt to investigate the complaints;
- On 14th August 2017, a meeting was held at NF with a view to resolving all concerns; the defendant offered the following forms of mitigation and/or resolution: (a) sound proofing the properties; (b) a noise acceptance agreement with payment per property of €4,000 per year indexed to inflation for the operational lifetime of the wind farm; (c) the installation of shadow flicker measures; and (d) the purchase of the properties;

- On 12th September 2017, Mr. Brazil wrote to the plaintiffs making a proposal in relation to HH and NF being purchased by the defendant for their full market value.

193. The defendant contends that negotiations on the above offers, which could otherwise have continued, ended following receipt of letters threating legal action on 27 September 2017 and 13 October 2017.

194. The defendant fairly points out that it did not ignore Prof. Gournay's psychological report in December 2020 concerning Mr. Rollo and immediately invited the plaintiffs to mediation. The defendant also engaged in a second mediation as directed by the court which took place on 11th and 27th June 2024. The defendant emphasises that following this second mediation, it trialled the Enercon 1,600kW Operating Mode on a 24/7 basis ("the 1,600 mode").[15] The defendant also observes that, in the course of their evidence in module 2, its experts and some of the plaintiffs' experts expressed the view that there had not been enough time to trial any other mitigation measures in advance of module 2.

195. The defendant's response to the allegation on non-engagement with the plaintiffs' legitimate complaints is that, from the outset, it took advice from appropriately qualified experts who offered an informed expert view to the effect that the WTN levels were planning compliant and that there was no nuisance.

196. In response to the plaintiffs' criticism in relation to the *"missing"* NF data, the defendant acknowledged oversight on their part but noted that it did provide the data via a supplemental affidavit of discovery, albeit half way through the trial of module 1. It submits that a mistake of this character in making discovery does not warrant making an award of aggravated damages.

197. The defendant submits that at all times it acted reasonably in procuring and following expert advice and could not reasonably have foreseen that the competing evidence of the plaintiffs' experts would be preferred. There was a significant dispute between the acoustic experts in module 1, which required weeks of complex technical evidence to resolve. Although the court found that the plaintiffs had established nuisance on the basis, *inter alia*, of the expert evidence adduced, the defendant argues that the mere fact that its expert evidence did not prevail at trial cannot provide a basis for awarding aggravated damages. The defendant also emphasises that, although the court was troubled at the partisanship of both parties' experts during the course of module 1, it did not ultimately conclude that either had failed to discharge their duty to the court.

198. The defendant also observes that this court has now fashioned a bespoke injunction to eliminate the WTN nuisance. The solution identified by the court was not one which had previously been identified by the experts on either side. It submits that it would not therefore be appropriate to award aggravated damages by dint of the defendant's failure to implement these specific measures during the attempted mitigation process or at any earlier stage.

199. The defendant also emphasises that the court has already rejected the plaintiffs' claim that it acted negligently. This court has found that the defendant's attitude towards the plaintiffs' complaints, while inflexible and overly rigid, did not amount to a breach of a duty of

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[15] This is more fully explained in my module 2 judgment.

care. This, it is said, prevents the court from finding that the defendant was guilty of oppressive, arrogant, or outrageous conduct such as might justify an award of aggravated damages.

200. The defendant argues that it is not reasonable to interpret its intended appeal as any form of disrespect to either the court or the plaintiffs. The issues in the present case are of sufficient importance as to warrant review by an appellate court. The fact that the defendant proposes to exercise its right of appeal, rather than, for example, acknowledging and/or apologising for any form of wrongdoing, is not a basis for making an award of aggravated damages.

Discussion and conclusion in relation to aggravated damages

201. It seems to me that, despite the alleged remedial actions outlined by the defendant at para 192 above, the defendant's general approach towards the plaintiffs has been distinctly unneighbourly. Although the defendant offered to make some contribution towards sound proofing the plaintiffs' properties, this exercise was pointless without first investigating the low frequency elements of the WTN, which cannot be effectively ameliorated by such attenuation measures. I view the defendant's offer of compensation of €4,000 per annum per house as entirely derisory, particularly when the defendant also required that this noise acceptance agreement would be noted on the title deeds of HH and NF and would bind all purchasers thereof. A further requirement for the execution of this agreement was that Mr. Brazil would have a right of first refusal if either property was ever put on the market. Similarly, the letter of 12th September 2017 was not, as now contended by the defendant, an offer to buy the plaintiffs' properties. Rather, the letter stated that, as a strictly without prejudice goodwill gesture, the defendant would be prepared to make an offer to buy each of the plaintiffs' properties at the fair open market value (absent the wind farm). However, the defendant would only make such an offer when it was *"in a position to satisfy and maintain its required banking covenants."* The letter indicated that the defendant would let the plaintiffs know *"as soon as this [was] likely to happen"* and would also let them know of any adverse circumstances likely to imperil or delay its ability to make such an offer, such as a significant shortfall in expected revenue. This cannot be fairly be characterised as an offer to buy the plaintiffs' properties, even if the plaintiffs might have otherwise been willing to sell their homes.

202. By way of further example of the defendant's neighbourliness, it has been aware since 2017 of substantial shadow flicker emanating from the turbines. Whilst I held that the degree of shadow flicker was not, in itself, sufficiently intrusive as to give rise to actionable nuisance, there is no doubt that this issue was amenable to a simple and inexpensive technical solution. It is extremely disappointing that, despite commissioning a shadow flicker report in May 2017, the defendant did not take the minimal step of addressing this legitimate complaint until seven years later (after this court's principal judgment).

203. Finally, there is no reason why the defendant could not have tendered an apology to the plaintiffs either before the proceedings commenced, or throughout the proceedings. An apology is not an admission of liability. It is a human gesture that, occasionally and if sincerely made, can make a real difference.

204. However, I must bear in mind that aggravated (and exemplary) damages are in general an exception to the usual approach, which is to confine a plaintiff to compensatory damages, if same can adequately compensate the plaintiff. I do not believe that these instances of unneighbourliness can, in themselves, amount to oppressive, arrogant or outrageous behaviour within the meaning of *Conway* criterion (a).

205. Likewise, in examining both criteria (a) and more particularly criteria (b) of *Conway*, it is important to bear in mind that cases such as the present are distinguishable from cases in which aggravated damages are claimed for a once off tort. In cases of the latter kind, there is no temporal overlap between the commission of the tort and the actions of the defendant and its legal representatives in defending the claim. In other words, the actionable wrong will have been committed (or not, as the case may be) before the initiation and *a fortiori* the defence of the claim. By contrast, in this case, as in other nuisance cases in which an interlocutory injunction is either not sought or not granted by the court, the reverse will be the case. In nuisance cases, the alleged nuisance will continue throughout the trial unless the defendant agrees to desist or is ordered to desist by the court on an interlocutory basis. In cases such as the present, it can always be argued that the continuation of the nuisance is unneighbourly, particularly as pleadings are exchanged, evidence is heard and legal submissions are furnished setting out the impact on the plaintiff of the nuisance alleged. However, this cannot and does not mean that nuisance actions are in a separate category, meriting a more permissive approach to aggravated damages. These plaintiffs emphasise that not only did the defendant refuse to ameliorate the harm and make threats to repeat the wrong, it did in fact continue to repeat the wrong and continues so to do; in reality however, that is the nature of a private nuisance action consisting of ongoing emissions (rather than a one off escape of noxious material or an identifiable event causing damage). A defendant is legally entitled to rest on the onus of proof and require the plaintiff to prove their case before ceasing the activity alleged to constitute the nuisance. This cannot, in itself, give rise to aggravated (or exemplary) damages.

206. Turning to *Conway* criterion (c), the starting point must be to fully acknowledge that a party has a right to defend proceedings brought against it. The defendant cannot be criticised for deciding to defend these proceedings, even if such defence is ultimately unsuccessful.

207. The particular defence advanced by the defendant to the plaintiffs' claim was, in my view, deeply flawed. The defendant utterly failed to engage with the particular characteristics of the WTN exhaustively identified by the plaintiffs and their experts. It also wed itself to the thesis that planning permission conclusively establishes the boundaries of acceptability and reasonableness of use in the context of a private nuisance claim. In my view, this line of defence is, and always has been, contrary to legal authority. Having said that, I do not believe that mounting a factually and legally unsustainable defence merits an award of aggravated damages, still less an award of exemplary damages.

208. In addition, I remain perplexed by the decision of the defendant during the course of module 1 not to collect, or if collected, not to place before the court, and IOA RM reference method assessment. Instead of placing this evidence before the court, which it could and should have done, the defendant relentlessly criticised the plaintiffs' expert for not doing just this. When this IOA RM reference method assessment finally came to hand in the course of module 2, it

showed very high levels of AM. Had the court accepted the defendant's criticism of the plaintiffs' expert's approach to AM then, irrespective of the objective fact that AM levels are extremely high at this location, the plaintiffs might well have lost the case. It is also troubling that, when the defendant did finally put evidence before the court in the course of module 2, it did so in a manner that was incomplete and selective.

209. I also was, and remain, extremely unimpressed by the defendant's failure to discover the NF data during the course of module 1. As pointed out in my prior judgment, this data was not convenient to the defence advanced. It demonstrated both that total operational noise exceeded the limits in the planning permission, even as interpreted by the defendant, and furthermore that, applying the analysis urged on the court by Mr. Carr, background noise levels were extremely low. I do not draw an inference that the defendant deliberately withheld this documentation as, unlike in the *Byrne* case,[16] there is insufficient evidence to so conclude. However, the explanation tendered by the defendant for why this information was not furnished to the Carty Shortens notwithstanding their repeated requests is unconvincing. Whilst the actions of the defendant may not in this respect have been deliberate, they were, at the very least, careless and displayed a lack of appropriate respect and care for their neighbours, as well for the court processes and the obligations of discovery inherent therein.

210. However, in my view, all of the above whilst regrettable, is not sufficiently reprehensible as to merit an award of aggravated damages.

211. Turning now to the period after this court handed down the principal judgment.

212. In light of the public benefit of renewable energy as enthusiastically emphasised in the submissions of counsel for the defendant, the court decided to permit the parties a period of time in which to attempt to agree mitigation measures.

213. I view the defendant's approach to this mitigation phase as entirely unconstructive. The defendant was repeatedly informed by this court that its mitigation strategy and expert reports at module 2 must engage with the particular aspects of the WTN found to give rise to nuisance. I am satisfied that the defendant fully understood this.[17] I am further satisfied that the defendant made no real attempt to do this. As will be clear from this court's module 2 judgment, the report, statement and evidence of Mr. Carr, did not address itself to the characteristics and features of the WTN identified by this court as giving rise to nuisance. Further, the sole mitigation measure trialled by the defendant, the 1,600 mode, was incapable of abating those characteristics. Rather the primary focus of the defendant's efforts at module 2 was, once more, to dispute liability. Furthermore, although the defendant now suggests that there was inadequate time to trial mitigation measures other than the 1,600 mode prior to the module 2 hearing,[18] it did not request either the plaintiffs or the court to extend the mitigation period for the purposes

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[16] In which Quinn J. concluded that the defendant had made a deliberate decision not to engage with the Council's requests for information.

[17] It is clear from submissions made at the case management hearing 2nd July 2024 that the defendant understood that it was to embark upon an iterative process of trial and error to try determine how best to mitigate the particular features of the WTN identified by the court in its principal judgment as giving rise to WTN nuisance. The court was informed that the parties had reached agreement as between as to the appropriate time frames and procedures for this iterative process. The parties informed the court that all of the relevant data would be gathered by September 2024 and the trial of module 2 was set for late November 2024.

[18] Para 45 of the defendant's module 2 submissions and para 112 of the defendant's module 3 submissions.

of trialling other potential turbine modes. Rather, the position which the defendant adopted at the case management hearing on 2nd July 2024 was only that further time would be required to prepare reports at the conclusion of the mitigation trial in September 2024. Likewise, at the subsequent case management hearing of 8th October 2024, the defendant indicated that the 1,600 mode was the lowest operating mode that it was prepared to deploy as otherwise the wind farm would not remain *"viable"* in a meaningful way.

214. This case has many of the features exhibited by *Byrne.* Thus, it is clear that the level of engagement by the defendant was poor right from the outset. The defendant filed a full defence without conducting a substantive assessment of the particular characteristics of the WTN complained of and relied instead on planning grounds. From an early point, the defendants were armed with very substantial and fulsome reports from the plaintiffs' experts. Despite this, whilst liability remained fully in issue throughout the case, there was little meaningful engagement with or challenge to the substance of either the plaintiffs' complaints or their experts' evidence. Rather than engaging with the evidence of the plaintiffs' experts, Mr. Carr merely advanced technical objections thereto. In a further echo of *Byrne,* despite being given every opportunity to put forward meaningful proposals of mitigation, the defendant failed to do so. It did not call evidence from an Enercon engineer or some other independent engineer to assist in developing a meaningful mitigation strategy. In short, as in *Byrne*, this defendant chose not to carry out any straightforward assessment of whether the plaintiffs' claim had any substantive merits, did not give the plaintiffs' claim serious or substantive consideration and then chose not to engage with the case as pleaded and as advanced. As in *Byrne*, the defendant paid no heed to the serious complaints of the plaintiffs even though those complaints, on any analysis, had all the *indicia* of genuine and substantive complaints and were supported by an abundance of expert data. I am fully satisfied that all of the above has caused, and continues to cause, the plaintiffs additional upset and distress. Further, as in *Byrne*, throughout the entire period of the proceedings and continuing to date, this defendant is continuing to make substantial profits. I am in total agreement with Quinn J. that such behaviour represents a threat to the goal of developing wind farms and wind energy.

215. On the other hand, I accept that there are also factors which render this case distinguishable from *Byrne*. Thus, in *Byrne* the defendants had withheld cooperation and engagement not just from the plaintiffs but from the planning authority who had served enforcement notices. The evidence demonstrated that this was also part of a deliberate strategy. In addition, the defendants had put forward no person capable of giving any evidence as to the decisions taken by it, either in relation to the manner in which they operated the wind farm, or in relation to the defence of the case. The defendants thus failed to call any person who had actually interacted directly with the plaintiffs or who was directing the litigation strategy. Although I am deeply unimpressed by the defendant's behavior in this case, it did tender Mr. Brazil who gave evidence, on which he was cross examined at length, as to its approach to the plaintiffs' WTN nuisance complaints.

216. The plaintiffs submit that the defendant has in many ways acted in complete disregard for this court's judgment and in many ways in defiance of it. However, refusing to accept the correctness of the judgment of a court of first instance when one still has a right of

appeal cannot possibly found a claim to aggravated or exemplary damages. The position would clearly be quite different in respect of a court of final appeal. It would be rare that fully defending a case, attempting to bring in new evidence or exercising one's right of appeal could found a claim for aggravated damages.

217. Here, I cannot ignore the fact that in these proceedings there were two separate mediations; the first of which was at the request of the defendant. The second mediation was of course directed by the court at the conclusion of module 1. Although neither of these mediations were fruitful, I cannot speculate as to why that may be.

218. Although the defendant ought to have taken honest and constructive steps to address the plaintiffs' complaints, I accept that it could not have foreseen the precise injunction that the court would grant. Whilst this court's judgments substantially uphold the plaintiffs' complaints and although it is to be hoped that the remedy crafted will give Ms. Webster relief in the future, I have not granted the relief specifically sought by the plaintiffs, which was the full shutdown of T2 at night. Therefore, insofar as the plaintiffs demanded that the turbine was turned off at night and the defendant declined to do so, neither party has ultimately been found to be entirely correct or entirely incorrect.

219. Taking account of all of the factors outlined above, I am not satisfied that the conduct of the defendant in the defence of the proceedings gives rise to aggravated damages.

Exemplary damages

220. Exemplary damages are intended as per *Shortt* at paras 108-109 *"to mark the Court's disapproval of outrageous conduct on the part of a defendant... They may financially punish a defendant as a deterrent to that defendant as well as a deterrent generally to the arrogant use or abuse of power. In their purely punitive dimension the means of a defendant may be relevant in order to ensure that the punishment is proportionate".*

221. The plaintiffs submit that the conduct of the defendant in this case has been markedly worse than that of the defendants in *Byrne* and has been such as to require condemnation by way of an award of exemplary damages.

222. The plaintiffs argue that this is not a case where compensatory damages alone will suffice to demonstrate the *"public disapproval of and punishment for the particular form of* [the defendant's] *wrongdoing".* Murray C.J. in *Shortt* interpreted *Conway* as providing *"a wide discretion in determining the circumstances in which a separate award for exemplary damages ought or ought not to be made."*

223. As regards quantum of exemplary damages, the plaintiff submits that the means and earnings of the defendant is relevant. O'Flaherty J. in *McIntyre v. Lewis* [1991] 1 IR 121, held that *"the means of the parties, irrelevant in the assessment of compensation, are material in the assessment of exemplary damages. Everything which aggravates or mitigates the defendant's conduct is relevant."* The Supreme Court allowed £5,000 in general damages and £20,000 in exemplary damages.

224. The plaintiffs rely upon a letter dated 24th June 2025, in which the defendant provided financial information including an estimate of an anticipated 18% loss in revenue should the court's proposed injunction be imposed. The plaintiffs observe that the defendant has

substantial annual revenue, with €1,738,631 in y/e 30th April 2024 and €2,225,963 in y/e 30th April 2023. They note that 18% of the revenue for y/e 30th April 2024, the less profitable of the 2 years, is €312,954, or €26,079 per month. The plaintiff argues that this monthly figure, applied for the 101 months of unlawful operation, indicates that the defendant have earned revenue of €2,633,979 by operating T2 in a manner that causes a nuisance.

225. The plaintiffs therefore submit that an award of exemplary damages is merited and that the Court ought to have regard to the level of financial benefit accruing to the defendant in the course of the past 8 years arising from its continued unmitigated operation of T2.

226. The defendant recalls that in *Conway*, Griffin J. stated that exemplary damages may be awarded where there has been, on the part of a defendant, wilful and conscious wrongdoing in contumelious disregard for another's rights. It observes that a similar claim for exemplary damages was advanced by the plaintiffs in *Byrne* and was expressly rejected by Quinn J. notwithstanding a finding that the defendants had behaved in a reprehensible manner in deciding not to engage with the legitimate complaints of the plaintiffs, Quinn J. stated:

> *"Notwithstanding this, I am overall, not satisfied that I can safely conclude that the defendants behaved the way they did out of a deliberate and conscious decision to violate the plaintiffs' rights"*

227. I accept that the same logic applies here. Like many commercial entities, the defendant has sought, albeit in an unneighbourly, rigid and unconstructive manner, to advance its own financial and litigious interests. I explain above in my rejection of the plaintiffs' claim to aggravated damages, why I do not ultimately regard the defendant's behaviour or conduct, either in the commission of the tort or in the defence of the proceedings, as oppressive, arrogant or outrageous in the sense used in *Conway*. For similar reasons, I cannot conclude that the defendant has acted on foot of a deliberate and/or conscious decision to disregard or violate the rights of the plaintiffs. I therefore make no award of exemplary damages in this case.

CONCLUSION

228. It follows from the foregoing that I make the following awards of damages in this case:

- general damages to Ms. Webster in the amount of €87,500 to date, such general damages to continue until the abatement order takes effect;
- general damages to Mr. Rollo in the amount of €77,000;
- general damages to Mr. Shorten in the amount of €34,000;
- general damages to Ms. Carty in the amount of €34,000;
- Damages in respect of reduction in the capital value of NF in the amount €55,000;
- Damages in respect of reduction in the capital value of HH in the amount of €30,000.

THE HIGH COURT

[2025] IEHC 330

Record No.: 2018/3928P

RAYMOND BYRNE AND LORNA MOORHEAD

PLAINTIFFS

- AND -

ABO ENERGY IRELAND LIMITED, ABO ENERGY O&M IRELAND LIMITED

AND

WEXWIND LIMITED

DEFENDANTS

JUDGMENT of Mr. Justice Oisín Quinn delivered on the 5th day of June 2025

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I. Introduction

1. The defendants' wind farm causes, by means of noise, a substantial interference with the plaintiffs' day to day enjoyment and use of their home and garden in Wexford.

2. Midway during this six week trial (which ran from 25 February 2025 to 4 April 2025) the three defendants admitted liability for nuisance and partially abated the problem by switching off the relevant turbines at nighttime from 10pm to 7am.

3. At the end of the case the defendants apologised for the nuisance, and they proposed that in addition, they would switch off the turbines during the morning from 7am to 11am at weekends and on public holidays but would continue the nuisance into the future during the remaining periods of the day and they proposed paying damages for this future ongoing nuisance, together with damages for the nuisance to date, in part relying on the fact that the turbines contribute to Ireland's renewable energy needs. The defendants also made a proposal to address the plaintiffs' complaint about sporadic shadow flicker from the turbines.

4. Consequently, there are two main issues in this judgment. The first concerns the approach to the assessment of the damages for the nuisance to date and whether, as the defendants contend, this should be measured by reference to a notional capital damage to the value of the plaintiffs' property, or, as the plaintiffs contend, this should be assessed by reference to broader principles relating to the assessment of general damages focussing on the impact to each of the plaintiffs in their use and enjoyment of their home.

5. The second main issue is whether the noise nuisance should be fully abated by means of an order restraining the operation of the relevant turbines at all times or whether the defendants should be allowed pay damages for committing an ongoing nuisance into the future, that they agree substantially interferes with the plaintiffs' normal use and enjoyment of their home, in circumstances where the activity causing the unlawful interference contributes to Ireland's efforts to meet its renewable energy targets as part of the State's national Climate Change Plan.

6. In addition to the foregoing, the issues of whether to award aggravated and exemplary damages arise, together with a subsidiary question as to whether, even if the court were to order a full shutdown of the turbines, there remains a damage to the capital value of the plaintiffs' property by virtue of what the plaintiffs' expert valuer described as a stigma damage.

II. Summary of Conclusions

7. The detailed decision, and supporting reasons, on each issue are set out from para.s 303 to 399 in Section XI below. For convenience, this Section contains a summary of the conclusions reached. In regard to the first issue, I am satisfied that the plaintiffs' contentions are broadly correct. The defendants, having admitted liability for nuisance, asked the court to assess damages based on a notional capital damage to the plaintiffs' home to date, which the defendants' valuer estimated at up to approximately €150,000; the plaintiffs' valuer estimated the notional capital damage at about €394,000. For reasons described more fully later in this judgment, had I been required to evaluate this competing evidence, I would have favoured a figure closer to the plaintiffs' valuer on this issue. However, to measure the damages for the nuisance to date by reference to a notional drop in the capital value of the plaintiffs' property attaches too much significance to the capital value of the person's home in cases of this nature. As it happens, in this case the plaintiffs have a valuable home, but the true *value* of a person's home in the context of the enjoyment they get from its ordinary use and amenity, as a place of refuge, rest and relaxation, cannot necessarily be measured fairly by reference to its capital value. It is more likely to do justice in individual cases to consider and assess the effect, duration and impact on the amenity of the home from a nuisance, which causes no physical damage and is stopped, by reference to an assessment of the impact on an objectively reasonable person in the circumstances of the plaintiff. The defendants' approach, albeit well supported by English caselaw, has the risk of leading to vastly different awards that would not in general appropriately reflect the underlying constitutional rights protected by the tort of nuisance.

8. The law of nuisance, interpretated this way, is sufficient to vindicate and protect the underlying constitutional rights engaged in a case like this. However it would be unjust and potentially discriminatory if persons who endure a nuisance to their home life, such as that caused by ongoing excessive noise (which causes no physical damage to their property and is ended by order of the court), could be awarded wholly different amounts of compensation for the same type of interference primarily by reference to the capital value of their property.

9. The accepted expert evidence in this case indicated that the nuisance was "one of the worst cases of wind farm noise impact" (*per* the plaintiffs' expert, which was admitted by the defendants) and "an outlier" (*per* the defendants' expert). Consequently, for the reasons more fully set out hereunder, and having regard to the particular nature and effect of the nuisance on each plaintiff, I have decided to award general damages to each plaintiff as follows:- to the first named plaintiff €10,000 for each year of the nuisance; and to the second named plaintiff €15,000 for each year of the nuisance. As the admitted nuisance commenced in May 2013, this amounts to twelve years, bringing the award of general damages for the effect of the nuisance to date in respect of each plaintiff to €120,000 and €180,000

respectively. These awards will be made as against all three defendants jointly and severally.

10. As for the second issue, in general a defendant should not be able to pay damages to be allowed to continue to commit a nuisance that remains substantial and will continue for many years.

11. In this case the fact that the defendants' activity contributes to Ireland's renewable energy is highly significant. Ireland's Climate Action Plan requires the State to substantially increase the amount of energy generated from renewable sources, of which wind is the major one. The importance of the goal of the Climate Action Plan is the very environmental future and sustainability of the planet.

12. While the proportion of energy generated by the turbines in question constitutes a tiny percentage of the renewable energy supplied to Ireland's grid, that fact alone is not sufficient to preclude a serious consideration of whether or not the full injunction sought by the plaintiffs should be granted. Inevitably, in any individual case, the likely contribution to the grid of the wind turbines in any nuisance action will be small.

13. The evidence provided by the expert witnesses demonstrated that a multitude of different solutions short of a full shutdown are usually possible to sufficiently abate a problem of excessive noise from wind turbines (it is not an unusual problem) without having to shutdown the turbines completely.

14. At the Case Management Conference two weeks prior to this trial on 12 February 2025, the court pointed out to the defendants that they had no proposed evidence in their witness statements or expert reports which put forward any solution to abate or reduce the noise in the event that the court were to find a nuisance.

15. The defendants very belatedly appeared to contemplate that they might be unsuccessful in defending the nuisance claim. Early in the trial the defendants did then apply and were given liberty to deliver additional evidence (on foot of which they submitted an additional witness statement as to fact and an additional expert report). Nonetheless, the defendants' expert confirmed during the trial that, based on the evidence before the court, the only order that would stop the nuisance would be to order the turbines to be switched off.

16. Wind turbine noise is a recognised problem from wind farms. Addressing it in a substantial way is seen, according to the expert evidence in this trial, as critical to the future success of wind as a major source of renewable energy. The evidence adduced at this trial indicates that engineers, acoustic experts and turbine manufacturers are used to engaging with nearby residents and regulatory authorities to assess and address genuine problems. There are usually many solutions available, short of shutting down the turbines.

17. For reasons that are not entirely clear, the defendants in this case chose not to engage in any meaningful way with the genuine and substantive complaints made by the plaintiffs (which were fully conceded during the trial by the defendants). Even when they were facing having to defend a substantial High Court action they chose not to explore or develop any evidential basis for making a proper submission as to what meaningful steps might be taken to substantially reduce the nuisance or mitigate the problem. Even when Nordex, the manufacturer of the turbines, offered to the defendants to help develop a "mitigation plan" back in 2019, when the defendants were facing an Enforcement Notice from Wexford County Council, they took no action. If an evidential basis for a solution or combination of solutions had been put forward then this could have readily resulted in an order that would not have involved directing the full shutdown of the three turbines.

18. In this case, for the reasons more fully set out below, I have decided that the fair, just and appropriate outcome is to make a permanent order directing that the three turbines in question be shut off completely. That is the only order based on the evidence, in the opinion of both sides' experts, which will prevent the nuisance which the defendants admit is a serious one.

19. The option of allowing the defendants to essentially pay damages to be allowed continue the nuisance during the daytime and evenings is not appropriate in this case - notwithstanding the hugely important public interest in maintaining and increasing the supply of renewable energy to our grid – principally on the grounds that the defendants have failed to put forward any proper evidential basis for mitigation measures that might have made some meaningful impact on the noise nuisance problem and would have allowed the machines to continue to operate, notwithstanding the factual and expert evidence that this could have been done.

20. This conclusion therefore is limited to the circumstances here and including the defendants' decision to largely ignore and then to fail to engage in any meaningful way with a substantial and serious problem which they have belatedly admitted.

21. As to the question of whether aggravated and exemplary damages should be awarded, for the reasons more fully set out hereunder, I am of the view that aggravated damages are appropriate but not exemplary damages. The response and approach of the defendants for the period of twelve years prior to the trial was seriously unimpressive. They did not substantially engage with the plaintiffs' complaints and declined, without explanation, to provide requested information or properly co-operate with the legitimate investigations of the local authority. The approach of the defendants significantly aggravated and prolonged the upset, disturbance and distress experienced by the plaintiffs, and for the reasons more fully described in this judgment, I have decided to award them the additional sums of €24,000.00 and €36,000.00 respectively in aggravated damages.

22. While the defendants failed to offer much answer to the plaintiffs' claim for exemplary damages and while I am concerned at the largely unexplained failure of the defendants to properly engage with the plaintiffs' complaints at a time when the wind farm was generating substantial revenues (over €1m per year for the last four years), I am not sufficiently satisfied that this behaviour has been shown to be so bad or so clearly a conscious and deliberate violation of the plaintiffs' rights as to merit the sanction of an award of exemplary damages. While this conclusion was a relatively close run decision, it is partly informed by my consideration that when the outcome of the case is looked at in the round, I am of the view that the order for the permanent shutdown of the three machines combined with the award of compensatory damages (based in part on the duration of the nuisance) and aggravated damages is probably sufficient in this case to indicate that a failure to properly engage with substantial and bona fide complaints is to be deprecated. In addition, I have taken account of the positive manner in which the defendants behaved during the trial, including making an admission of liability in respect of the nuisance on Day 11, initiating a partial shutdown of the machines at nighttime on Day 12, and making an apology to the plaintiffs at the end of the hearing.

23. Finally, in circumstances where the court is making an order for the permanent shutdown of the machines in question, I am not persuaded, for the reasons more fully set out hereunder, to award any damages for the contended for stigma impact on the plaintiffs' property. There is a planning permission for a wind farm. The three other turbines are allowed to continue to operate. The award of damages is designed to properly compensate the plaintiffs for the duration and effect of the nuisance to date. The court's order for the full shutdown of the three relevant turbines means there will be no ongoing nuisance into the future from these turbines pursuant to the current planning permission. Accordingly I do not propose to award any sum of damages other than in respect of the awards described above in respect of the general damages for the effect of the nuisance to date and for aggravated damages.

III. Background

(a) The plaintiffs

24. In Wexford, about three and half kilometers to the northeast of Bunclody, there is a large hill called Gibbet Hill, which rises to about 315m in height. Just to the west of this hill is an area called Curragh. The hill slopes steeply down to Curragh and is partly covered by a coniferous forest owned by Coillte. In 1998 Raymond Byrne and Lorna Moorehead purchased a one-acre plot of land in Curragh with a view to building their family home.

25. Both Mr. Byrne and Ms. Moorhead had strong connections to the area. Ms. Moorehead's parents are from Bunclody, while Mr. Byrne's parents lived not too far away in Fearns where he had grown up. The family home was built by 1999, and the plaintiffs have lived there ever since raising their two sons and building a life in the local area. They had the benefit of being near their respective parents, who in turn were able to enjoy being near their grandchildren, the plaintiffs' sons.

26. The family home is reached by a narrow laneway from the nearby main road which runs to Bunclody. It is located in a very rural area and has a generous and well laid out garden. Ms. Moorhead's father helped with laying out the garden. Once the family had settled in Curragh, Ms. Moorhead became very actively involved in the local community. She became a member of both the Parents' Council and the Board of Management of the local primary school and she also joined the board of the Bunclody Community Council. She was soon asked to assume positions of responsibility on those local bodies.

27. Prior to moving to Curragh Ms. Moorhead had worked in Dublin as an international brand manager with a background in market research for a substantial international drinks company.

28. Mr. Byrne had qualified as a barrister in the early 1990s and has since pursued a successful career as a legal academic and a law lecturer. He has written a number of legal textbooks and has held positions with the Law Reform Commission as Director of Research and, from 2016 to 2021, he was the full-time Commissioner at the Law Reform Commission.

(b) The wind farm

29. In 2008 the third named defendant (Wexwind) applied for planning permission for a six-turbine wind farm at Gibbet Hill. The plan was to place four turbines at the high part of the hill overlooking Curragh and a further two turbines a little further to the east, at a second

slightly lower high point of the hill (291 meters high) which was considered to be also well exposed to wind. The turbines were to have a tower or 'hub' height of 80 meters. They would then consist of a three blade Nordex turbine with a blade length of 45 meters, giving a blade diameter of 90 meters. Five of the turbines were to have a rated energy output of 2.5 megawatts (MW) and one would be limited to 2.3MW giving a total combined output of 14.8 MW which was necessary to comply to the overall Grid Connection Capacity.

30. As part of the application, an Environment Impact Statement (EIS) was submitted. The EIS contained a predicted noise assessment which estimated the predicted noise likely to emanate from the wind turbines in downwind conditions when the wind was blowing at 10meters per second at 10 meters hub height. At Curragh, the predicted noise contribution of the turbines was estimated to be 39db(A) (decibels A-weighted, i.e. the recognized adjusted decibel measurement to more accurately correlate to the perceived noise level).

31. As it happens the plaintiffs were unaware of the application and apparently there were no objections lodged by any member of the public. On 16 November 2009 Wexford County Council granted permission for the wind farm for a period of 20 years from the date of commissioning of the facility (unless permission for a further period is granted). The permission required that within the first year of operation a report on actual noise levels and shadow flicker experienced in nearby homes would be prepared and submitted and if "abnormal results" were identified by reference to the EIS then the developer was to submit proposals to reduce these impacts by means of "mitigation measures" and/or "limiting the use of the turbines at sensitive periods".

32. Construction of the wind farm did not begin until 2012, and the facility become operational in May 2013. The facility consists of six turbines which connect to a local substation. The entire facility is designed to be unmanned, and the turbines largely operate automatically based on preprogrammed software which controls typically the directional positioning of the blades, the rotor speed, the blade pitch etc., or they are otherwise typically controlled by Nordex technicians from a Nordex engineering control room in Germany or occasionally an engineer on site using a laptop or other device.

(c) The defendants

33. The first and second named defendants (together ABO Energy Ireland) admit to being the operators of the wind farm. The ABO Energy Ireland companies are subsidiaries of ABO Energy Gmbh & Co KGaA, (ABO Energy Germany) a company based in Germany. Another ABO company, ABO Energy O&M GmbH through a contractual agreement with Wexwind was said to provide certain technical and commercial management services to Wexwind in

relation to the Gibbet Hill wind farm. ABO Energy Ireland then provides some of these services to Wexwind.

34. Wexwind is a special purpose vehicle which was set up to own the Gibbet Hill wind farm. It has one shareholder, a Luxembourg based investment fund called UniInstitutional Infrastrukter SICAV-SIF (the Luxembourg Fund).

35. The defendants called only one witness as to fact, a Mr. Spicer who is a director and employee of the second named defendant. He described his role as coordinating the activities of the various contractors to the wind farm and looking after "invoice handling". He works from an office in Cornelscourt in Dublin. He never met with or ever had any direct interactions with either plaintiff.

36. Mr. Spicer said he took his instructions from representatives of the asset managers of the Luxembourg Fund called Union Investments property Infrastructure GmbH. These representatives are based in Germany. ABO Energy Germany, Mr. Spicer explained, was still majority owned by the two persons who he described as the "founders", namely a Jochen Ahn and Matthias Bockholt. He explained that in general they build and develop wind farms and then "sell them on to investors after that". The accounts of Wexwind indicate that in recent years it has been paying down financing with payments of more than €1million per year from the income it is receiving for the energy supplied by the Gibbet Hill wind farm.

(d) General features of wind turbine noise (WTN) in a noise nuisance claim

37. Wind turbine noise (WTN) (along with shadow flicker, considered below) is one of two common and well recognised challenges with wind farms. Independent expert evidence was given on behalf of the plaintiffs about WTN and shadow flicker from an environmental health and acoustics expert, a wind energy engineer and an engineer with specialist expertise in acoustics from wind farms. The defendants called an independent acoustics expert.

38. In the context of the admitted nuisance in this case there are a number of features to noise that can typically be relevant to the degree to which WTN may constitute a nuisance. There was no substantial disagreement as between the experts with expertise in relation to WTN in that regard.

(i) Loudness

39. The first significant feature is how loud the noise is. This is measured in decibels which are typically A weighted (dbA) to give a more accurate correlation between the amount of energy represented by the sound, and how it is perceived by the human ear.

(ii) Pitch or Frequency

40. The next feature of importance is the pitch or frequency of the sound. This is measured in Hertz (Hz). WTN from the rotation of the blades of a wind turbine is typically emitted at a mid to high frequency range (500-800 Hz). However, depending on the machine in question and in particular depending on the manufacturing tolerances or operating efficiency of the gearbox, a wind turbine can also emit low frequency noise. It is now generally recognised that low frequency noise, typically in this scenario between 160 and 200 Hz, is significantly more intrusive to the human ear than mid to high frequency noise.

(iii) Amplitude Modulation

41. The third feature of WTN is whether or not the noise is modulating. This modulation, or changeability, can relate to the loudness and the frequency. Amplitude modulation (AM) is a recognized intrusive feature of WTN. This is typically caused by the movement of the blades through the air which can create a swishing or swooshing sound.

(iv) Different noises simultaneously emitting from the same sound source

42. The fourth feature of WTN that can affect the perceived intrusiveness of the sound energy emitted from a wind farm is whether or not there is an overlapping of different noises simultaneously from the same source. For example, a wind turbine can emit noise from the passing of the blades through the air which may be a mid to high frequency noise, meanwhile the gearbox contained in the nacelle of the same machine can emit a low frequency noise. In addition, depending on the positioning of various different turbines within a wind farm and the nature of the local topography (ground conditions, trees, different elevations etc.) the different towers can emit different noises depending on their position *vis. a vis.* the direction of the wind. The blades can be turning at slightly different speeds and the modulation and loudness may be different adding to the intrusiveness of the overall noise reaching the human ear.

(v) Changeability

43. The fifth feature that may be relevant is whether or not there are changes to the above features. The changes can arise in loudness due to rotator speed changing (due to changing wind speed or operating limits contained in the programming of the turbine) or to the frequency or pitch of the sound or indeed to the modulation changing. This can give the

sound a quality that indicates the machine noise is 'speeding up' or 'slowing down' or 'getting louder'. The experts indicated that this draws the attention of the listener.

(vi) Erratic or unpredictable changes

44. Sixthly, there may be an unpredictability or erratic nature or random fluctuation to the changes or sounds. This can be intrusive because the ear and attention of the human listener is drawn to uncertain or unpredictable noises.

(vii) Tonal noise

45. The seventh feature is whether or not the noise emitted has a tonal quality. This, according to the experts, is where the noise energy is largely contained within 1/3 of an octave. It is recognized, according to the experts, in the science and studies around intrusiveness of noise from wind turbines that a tonal feature to the noise can be particularly intrusive.

(viii) Duration of the noise

46. An eighth feature is the duration of the noise and whether there are gaps and breaks. In other words, an intrusive noise that only occurs for a very short period of time and only rarely or sporadically, can have a considerably smaller effect in terms of disturbing people who live nearby compared to a noise that continues for a longer and considerable period of time, for example for long periods throughout the day or night.

(ix) The timing of the noise

47. A ninth feature that can have an impact on the level of intrusion is the timing during the day of the noise. In that regard nighttime or times perceived as being associated with rest or relaxation such as the evening or at weekends are typically seen as more sensitive times when, for example, people in their own home or garden can have an expectation of peace and quiet or rest and relaxation. In addition, the timing can be relevant insofar as there may be more or less other noises or sounds which may mask or reduce the intrusiveness of the noise from the wind turbines.

(x) Wider context

48. Then a tenth factor is the wider context in which the WTN is experienced. This means that any consideration of the effect of the WTN should take account of whether the environment is typically rural and peaceful or urban, and if urban whether it is a quiet residential area or a residential area close to busy roads or other noisy activities can be relevant.

49. Included in a consideration of the wider context is a feature which one expert described as "messaging". This feature can involve the listener as experiencing more intrusion or irritation from noise when they know of and can see the source of the noise and can associate the noise with the context in which it is occurring.

50. In addition, this wider context can involve consideration of the character of the noise and whether it is natural or industrial or man-made. In that regard many natural sounds such as from rain, thunder, wind, birdsong, animals or water sources are typically recognised as being considerably less intrusive than the sounds from industrial or man-made sources.

51. In relation to the sixth feature described above, namely whether or not the changes are unpredictable or erratic or, on the other hand steady or rhythmic, this feature can be affected by local meteorological conditions and the topography of the site. While it is usual, according to the experts, that WTN as a problem is more typically associated with a person living downwind from a wind farm, both acoustics experts for each side in this case agreed that the plaintiffs in this case were experiencing an unusual feature of *upwind* amplitude modulation from this wind farm.

52. In this case the experts agreed that the amplitude modulation which is commonly described in terms of a "swish" or "whoomp" or a "thump" or a "whoosh" was occurring across a range of wind directions and was commonly both upwind and downwind. In that regard both the plaintiffs and defendants' experts agreed that "this case is unlike many others where it is normally limited most of the time to downwind conditions" (i.e. the amplitude modulation) and that, because of this unusual feature, this had a relevance and impact on the frequency and duration of the impact of the noise nuisance that was admitted.

(xi) Sensitisation and attenuation

53. Finally, the experts alluded to a number of features that can occur when a person is exposed to a noise nuisance over a prolonged period of time. The first feature is sensitisation. In this scenario a person who is regularly exposed to a particularly irritating noise becomes - and it is commonly acknowledged that this can occur - sensitised to the noise. In other words they are more attuned to noticing the noise and finding it irritating. This is, as it were, in contradistinction to habituation, where the person may get used to a noise that is regular, steady and predictable.

54. The other concept relevant to considering the impact and amount of interference being caused by noise is the concept of attenuation. This relates to the impact on the noise of moving from outdoors to an indoor setting (the effect of the noise energy moving through walls or windows). Typically moving indoors will lead to a drop in the energy levels of mid to high frequency noises, which can include the sounds of nature such as birdsong or wind and the rustling of nearby trees and so on. When these sounds reduce due to attenuation, the human ear can then more readily notice a low frequency man-made tonal noise such as can be emitted from wind turbines.

55. As can be readily appreciated from the foregoing therefore, in considering whether or not the sounds emitted from a wind farm can objectively and reasonably be considered to constitute a nuisance, it is clear from the evidence of the experts on both sides in this case that it is not simply a question of assessing the loudness of the noise or, accordingly, therefore the precise distance of the person from the wind farm.

(e) Shadow flicker

56. Shadow flicker is recognised as a potential intrusive feature for nearby residents from a wind farm. Shadow flicker occurs when, depending on the position of the sun *vis a vis* the wind turbines, a rapid flickering of light is experienced by nearby residents.

57. In this case the defendants conceded that shadow flicker was a problem at particular times of the day during particular times of the year for the plaintiffs. This problem is well recognised and given the ease with which it can be predicted it is very easy to ameliorate the effect of shadow flicker without any substantial impact on the energy production generated by the wind farm. In other words, at any given time for the particular periods during the year it is possible for the owner and operator of a wind farm to identify when shadow flicker will be a particular problem and it will only arise at any particular moment from one particular turbine. This problem can be ameliorated by making adjustments to the software that controls the turbines and the defendant agreed to implement such a measure and this was identified and proposed by the defendants towards the end of the case.

IV. THE NATURE OF THE NUISANCE EXPERIENCED BY THE PLAINTIFFS

(a) Introduction

58. The nuisance experienced by the plaintiffs was particularised in some detail in the pleadings delivered on their behalf and was then elaborated upon in the witness statements prepared and delivered on behalf of the plaintiffs. The plaintiffs then gave evidence on Days 2, 3 and 4 of the trial. No objection was made on behalf of the defendants that either of the plaintiffs'

evidence had extended outside the ambit of the pleaded claim. Then on Day 11 all three defendants admitted liability for nuisance in respect of the entirety of the plaintiffs' pleaded claim for nuisance. As a consequence, the plaintiffs dropped their claim that the wind farm was operating in breach of its planning conditions. Accordingly, there is no issue of fact arising in relation to the evidence given by the plaintiffs as to their experience of the nuisance.

59. The plaintiffs explained that they had chosen to build their home and live in a quiet and peaceful rural area to raise their children. They explained that this decision was in part informed by the fact that they had grown up in the area and both of their parents were alive at the time and they wished for their children and their grandparents to enjoy each other's company for as long as possible.

60. Each of the plaintiffs had both enjoyed their own childhoods in nearby Fearns and Bunclody respectively. As a result, their home is extremely precious to them and is naturally full of rich memories of their children growing up, spending time as a family and with their grandparents.

61. The plaintiffs gave evidence how the first turbine became operational in May 2013. The plaintiffs' home is approximately 1,050 meters from the nearest turbine on Gibbet Hill. While the overall experience of each plaintiff was similar, the noise nuisance did affect them in different ways.

(b) The first plaintiff's experience

62. Initially in May 2013 the operation seemed to involve the testing of individual turbines but Mr. Byrne gave evidence that almost immediately he found himself disturbed by both the loudness and the nature of the noise from the turbines.

63. He said he realised he was experiencing what the experts acknowledged to be a feature of wind turbine noise namely amplitude modulation (AM). He said that this has been a regular and persistent feature of the wind turbines since 2013 and he described the AM sound as a whoop or whoosh noise and sometimes a thump.

64. However, he also described hearing what he said was a distinctive humming noise. This was the low frequency noise that was identified by the independent experts. He described this noise as an intrusive base tonal sound which was not predictable and was, he felt, competing

in an a-rhythmical fashion with the mid to high frequency noise. He said he found this very disruptive. He said he found the low frequency tonal sound particularly disturbing when he was inside the house and at night. This was supported by the expert evidence in relation to the phenomenon of attenuation described above.

65. He said that during the first few months of the following year he also noticed the shadow flicker problem. He described this as a rapid flickering shadow that falls across the property and comes through into the house. Videos were shown by the plaintiffs during the trial of this phenomenon and it can best be described as having a strobe-like effect which is extremely distracting and intrusive. Mr. Byrne said it was impossible to avoid it. Nonetheless it was of relatively short duration, lasting on average roughly 10 minutes or so and only during particular months of the year.

66. The plaintiffs gave evidence that as a result of the efforts they were making to engage with the defendant and then due to subsequent requests from the acoustic engineer from the local authority (which was considering and ultimately did serve enforcement notices on the defendants) that they were asked to keep noise diaries and logs.

67. Mr. Byrne described the area in which their home was built as a very quiet uplands area. There would be occasional noise at harvest time or early morning traffic however he said the local road was a quiet road. He said that since the wind farm became operational the noise environment is now highly intrusive and pervasive. He said it was especially intrusive late in the evening and he described the WTN as a pervasive, invasive and intrusive noise. He described the noise from the blades as being a whooshing or swishing sound but that when the rotor blade speed increases it can become a whoop sound. He said it was particularly difficult to get to sleep.

68. In relation to enjoying the garden outside the house he said that before 2013 he very much enjoyed being out in the garden and doing gardening work but that when the turbines are operating fast it takes the joy out of being outside. He said that when he has to do gardening work, he puts on ear pods and plays a podcast to drown out the intrusive noise, but even with the volume up loud he explained that it does not always drown out the noise from the turbines. In addition to the swish sound or the whoop when the blades are moving faster, he described also hearing a hum or droning noise which he said had the character of a mechanical noise.

69. Mr. Byrne described that when the blades are moving very fast that he could feel a kind of pressure occasionally and that he had to pop his ears.

70. Mr. Byrne explained that his study is in the front of the house where the house faces Gibbet Hill and the turbines. His study is on the ground floor and even when he is in his study with the window closed and the turbines are rotating quickly, he can hear the whoosh and the thump and also the hum sound. He said that the sound can break his concentration and then he will hear the hum sound so that he rarely has the windows open now.

71. In relation to the sleep disturbance, he said that this began at the beginning in May / June 2013. He said initially it was a shock as the noise intruded into the plaintiffs' bedroom. He found it difficult to get to sleep straight away so initially he would listen to the news on the radio to try to help mask the noise. However, he explained that this only sometimes worked. Accordingly, he said he began to work late so that he would go to bed feeling really tired. Usually, he had retired to bed at 11:00pm but due to the noise he had begun to work later and sometimes would not go up to bed until 1:00am so that he might fall asleep due to tiredness.

72. He described how both he and his wife used podcasts with a familiar voice that they had listened to before to try to mask out the noise. As a result, he said he was getting approximately only five hours sleep from approximately 2:00am to 7:00am. He described however that his wife would sometimes wake up during the night and this might wake him up. He described how she would go downstairs to watch news stations on the television at a loud volume.

73. He described how his work practices changed over the years from 2013 due to changes in his working role and then due to the COVID pandemic. Initially from 2013 he was commuting to Dublin and would leave the house shortly after 7am and he would drive up to get the Dart from Greystones. His working day meant he did not get home until after 7:00pm. However, after a number of years he was getting increasingly more tired and began to take the bus from Fearns so he could sleep on the bus.

74. He had been the Director of Research at the Law Reform Commission and then the full time Commissioner from 2016. He described how his wife was diagnosed with a serious illness in 2017. From the evidence, it was clear that both plaintiffs have busy lives and were significantly and substantially struggling as a result of the effect and intrusion of the noise on their home.

75. Mr. Byrne described that as he became more sensitised to the noise that he was able to discern that the three particular turbines near to the plaintiffs' home were not operating identically. This was confirmed by the independent expert who analyzed the SCADA data made available from the defendants on discovery.

76. Mr. Byrne described the impact when he was out in the garden that he would not be able to have the peace and comfort that he had enjoyed prior to the wind farm operating in 2013. This was something that he had really valued. He said the noise impacted on him when working in his study and particularly at nighttime and he described this. The disturbance to his sleep was something that really started to impact him over time. He described the effect as unrelenting and that there was no escape from it.

77. Based on his evidence, it was clear that one of the features that added to the distress was that Mr. Byrne felt there was essentially no escape from the noise either outside or inside, whether he was trying to work or whether he was trying to read a book or relax. Then in particular there was no escape at nighttime.

78. He described as intrusive the character of the whooping sound which he had come to understand was the phenomenon recognised by the experts as amplitude modulation. He was also aware of the hum which he described as like a kind of low drone.

79. During the course of the hearing the court attended, at the request of and with the agreement of the parties, a sound studio where various samples of the noise emanating from the wind farm as recorded by the plaintiffs' independent expert were played to the court. One of these recordings indicated the tonal droning noise which had a frequency of 160Hz. The noise recording of this sound had been made internally and had a decibel level of 43.2dB.

80. It could be clearly heard that the tonal noise was modulating. In addition, some of the sound samples clearly contained an identifiable swoosh of the blades *and* also a tonal drone that to the courts ear was modulating as well. This observation which was indicated by me during the sound recording was confirmed by the expert. In other words, it was possible to hear both a separate swoosh noise from the blades but also a modulating low tonal drone.

81. Mr. Dietrich Meyer, another independent expert of the plaintiffs (whose evidence is discussed in more detail below), explained that the lower frequency tonal drone noise was in all probability emanating from the gearbox within the nacelle of the wind turbine and that it had a modulating effect because the sound was radiating out through the rotating blades.

82. Mr. Byrne described the whooping sound when the blade speed increases to 15 rotations or more per minute which amounts to 45 blade passes (each turbine has three blades) as creating a whomping sound nearly every second, which he described as being impossible to avoid. He then pointed out that this thumping noise could be competing with the hum. He said it was impossible to try to read on the patio or at times even in the study and his coping mechanisms became news radio and familiar history podcasts. He pointed out however that even while listening to the radio or to a podcast with the headphones on, that it was still possible to detect the noise from the wind turbines. These features, and the fact that the plaintiffs found the noise intrusive in this manner, was confirmed by the independent experts as objectively likely based on the known effects of these types of sounds and based on the experts' independent sound recordings.

83. He also pointed out that the noise was not predictable and that it was erratic and could change not only from one day to the next but during the day. As a result, he found it very difficult to concentrate, to relax, to read or to get to sleep.

84. He described being able to detect both the whomping sound and the hum in between the whoops of the blades and that this was like listening to a "terrible competition".

85. He indicated that it was not the visual impact of the turbines or simply the loudness that was disturbing, but it was rather the strange character of the noise and the erratic and unpredictable nature of it.

86. The plaintiffs described how they had moved a mattress into the back of the house and at one stage tried moving their bedroom to the back of the house into a smaller room that had been used initially as one of the children's bedrooms when he was a baby and then subsequently as essentially a walk-in wardrobe. However shortly after this they realised that the noise was permeating into this room as well and that this move gave no relief.

87. One of the experts explained how low frequency noise can be more discernible indoors due to the phenomenon of attenuation described above. In other words, there are other masking mid to higher frequency noises from nature that can be heard outside but these noises are

less intrusive and are lost indoors, leaving the ear only to detect the mechanical low frequency tonal noise. After a few months accordingly, the plaintiffs moved back to their bedroom at the front of the house.

88. As Mr. Byrne explained to the court on Day 3 (page 33 line 7) *"judge this is our home, we want to stay in our home, we have for 11 years asked ABO and Wexwind please allow us to stay in our home, please stop this AM and hum in our house, please come and talk to us please listen to what we're listening to, we want to stay here and we think you can do something about that. We want to stay here."*

89. Mr. Byrne explained how a home is far more than simply a capital asset. On Day 3, page 34, he explained how their home carried with it both joyful and painful memories associated with the life he and the second named plaintiff had shared there. He explained that:-

> *"these are all things that are part of that home that is not just bricks and mortar it is full of memories it is full of strength it is full of all those things that are indescribable in any other terms than being all about life. Life is about those joyful times those terrible times but that's I think some of the things that give us the greatest resilience as human beings the strength as human beings to say please to ABO and Wexwind, please come to our home experience what we experience. We will tell you all about the joy, we will tell you why it is so important, we will bring you around, we will show you all of the things that we put into this in terms of all of the wonderful things that are, there's structure but also these memories that we want to hold on to and will you please come and talk to us at some point."*

90. Mr. Byrne explained that he has been largely working from home since he retired from the Law Reform Commission in 2021 and therefore his study in the house is also his workplace.

91. Mr. Byrne explained that towards the end of 2017 the plaintiffs were worn down and that was when they had to make a decision to hand the matter over to their legal team and then in 2018 the litigation commenced.

(c) The second plaintiff's experience

92. Ms. Moorhead experienced similar noise intrusion to that described by her husband. She noticed and was aware of the tonality or hum noise and the amplitude modulation and she described the low frequency noise being occasionally felt as a vibration or pressure. She also found the unpredictable and changing nature of the noise as intrusive and that despite using coping mechanisms she was unable to acclimatise to the noise.

93. She explained that by the summer of 2017 she was unwell having been diagnosed with a serious illness which required treatment but exposed her to experience increased fatigue and tiredness. At this time on occasion, she felt an overwhelming sense of despair when she was trying to rest at home. It was clear from her evidence that she found the failure of the defendants to meaningfully engage in a significant way aggravated her feelings of helplessness, frustration and caused her additional aggravation and upset.

94. Overall, she described the noise from the wind turbines as one that can pervade the house, is intrusive and disturbing, and on occasion can be associated with vibration. She explained that in her experience the AM varies in terms of loudness and can occur on its own or occasionally is associated with the tone and low frequency noise which fades in and out.

95. She explained that the modulating tone is constantly ramping up and down in volume and therefore repeatedly catches her attention. She explained that on many nights she had to get up and goes downstairs and watch the television at a loud volume. She described the tonal noise as if someone is standing in the corner of the bedroom striking a tuning fork with varying force so that the resonance is constantly changing and fluctuating.

96. In 2004 the second plaintiff had been diagnosed with vestibular migraine and suffers occasional bouts of vertigo. She explained that the prolonged impact of the wind turbine noise on her sleep was unhelpful to these conditions.

97. She explained that she also used to get great enjoyment from gardening and reading outdoors but that at certain times with the noise from the relevant turbines she is only able to spend time outdoors with on-ear headphones. She also described how the noise outdoors has impacted on the family's use of the garden for social occasions.

98. She expressed the view that she was perplexed at the failure of the defendants to properly engage with the complaints and she pointed out that the first time anyone was sent on behalf of the defendants to conduct a noise monitoring exercise was in August and September 2024 in preparation for the court hearing.

99. Ms. Moorhead's evidence clearly conveyed her awareness of the intrusion of the fluctuating hum and the rise and fall in volume and the fact that the noise fades in and out and in

addition she indicated she was aware of and her attention was drawn to the tone within the hum. This description was backed up by the independent acoustics expert evidence.

100. In terms of watching television she explained that normally the television is set to volume 15, whereas when she goes down during the night and turns on CNN or Sky News she puts the volume up to 50 to try to mask out the noise from the wind turbines.

101. At times the second plaintiff became visibly upset during the giving of her evidence. She conveyed that she had endeavoured to remain calm and to constantly carry on but she explained that the wind turbine noise was tapping into her reserves and her resilience.

(d) Site visit on 4 March 2025

102. By agreement between and at the request of the parties, I visited the plaintiffs' home on 4 March 2025 (the parties were represented, and the stenographer made a transcript of the visit). On the day of my visit there was a mild light breeze coming from the south. Outside the house a clear but gentle 'whoosh' of the blades could be heard, the blades were turning at about 18 rotations per minute. There was also a low rumble to be heard. Initially, to the unsensitised ear, it sounded as if an aircraft might be flying overhead. To my ear, the noise on the day was moderately intrusive. Ms. Moorhead in evidence subsequent to the site visit said that she would have rated the conditions as a '1' in terms of her noise logs (10 being the most severe). Having said that, this was based on the conditions just before I arrived and it was indicated by Counsel that the wind had increased somewhat during the visit (this observation was based on a counting of the turbine blade rotations per minute).

(e) Overall impression of the plaintiffs' evidence

103. The first plaintiff was cross examined for two hours on Day 3. Nothing of substance was put in terms of contradictory evidence. It was not suggested he was oversensitive or being unreasonable. It was not suggested that his recollections or diary entries were inconsistent with any of the data collected by the experts.

104. He was measured and reliable. He described highly intrusive whoomp, AM and droning/tonal hum which interferes with sleep and interfere with the normal use and enjoyment of the home, especially at times that would be associated with rest (the evenings, nighttime and the weekends). The level of disruption is substantially in excess of what an ordinary reasonable person should have to endure. It effects his sleep, work, rest and enjoyment of his home.

105. He described moving bedrooms, waking in the night, going to bed extremely late so as to be tired, wearing headphones, being unable to enjoy his garden, listening to talk radio and podcasts at nighttime to try to drown out/minimise the noise. He described it as intrusive and attention grabbing. His evidence was supported by the emails and correspondence, by the data recorded by the acousticians and by contemporaneous diary entries.

106. The second plaintiff gave clear and cogent evidence. She is a person clearly very well regarded in her local community and is involved in lots of community groups. She is clearly well respected and trusted by her neighbours and peers. Her evidence was supported by diaries and logs. While these were snapshots they indicate a clear pattern of highly intrusive WTN. The tonal hum and the whoomp clearly intrude and disrupt rest and relaxing time, gardening, evening time and sleep. Her sleep has been substantially and regularly disturbed.

107. Based on her evidence it is clear that the shadow flicker is also highly intrusive. It is like an alien form of light pulse. Watched on a screen (as it was shown to the court) it resembles the screen pulsing or flickering as if resetting. In the natural environment it is clearly highly visually intrusive.

108. The plaintiffs' evidence was clear and coherent and was supported by their logs and noise diaries. These Diaries indicated for example instances where the plaintiffs' children and their friends no longer wanted to play outside in the garden because of the turbine noise.

109. In addition, the particular features of the noise described by the plaintiffs were supported by the independent experts who made sound measurements. Furthermore, certain sound recordings were played to the court and these supported the descriptions given of the noise intrusion by the plaintiffs.

110. The cross examination of the plaintiffs was careful and appropriate and it was not suggested at any stage that the plaintiffs' descriptions of the noise were inconsistent with any of the independent or objective data or recordings or notes or records.

(f) The Plaintiffs' accounts were supported by the independent experts

111. The plaintiffs obtained reports from independent experts which supported their case in objective terms.

112. It should be a observed at this stage that when both plaintiffs gave their evidence and referred to their logs and the diaries that these demonstrated firstly a consistency with the independent measurements taken by the acoustics experts but also indicated that the plaintiffs were able to identify levels of noise that on occasion they did not consider intrusive and these attracted low scores in the ratings system they have been asked to adopt by the County Council.

(i) Mr. Stigwood

113. Mr. Stigwood's evidence, commenced on Day 6 and was helpful to the plaintiffs' case in relation to establishing nuisance. He reviewed Ms. Large's first report and then he was taken to his own reports. In reviewing Ms. Large's first report he explained the various findings which showed the following combination of features:-

i. as part of the noise emanating from the wind turbines firstly there is amplitude modulation namely a rising and falling of the loudness at a medium 500 Hz frequency;

ii. this is caused by the movement of the rotor blades of the turbines through the wind;

iii. this is typical AM noise from wind turbines and is accepted by the defendants' expert as occurring in this case;

iv. however, in addition there is also a low hum noise that is also modulating;

v. this tonal or droning noise is at approximately 160 Hertz frequency;

vi. this low frequency tonal noise is also modulating;

vii. Mr. Stigwood explained that this may be due to the fact that it is emanating from the motor or hub contained within the nacelle and is then radiating out through the rotor blades – this explanation was endorsed as the likely cause of the modulating low frequency tone by Mr. Meyer;

viii. as a result, there are two modulating frequencies: one at approximately 160 Hz and a second one at 500 Hz;

ix. in addition, the changing noises emanating from the wind turbines is affected by the fact that there are three turbines and depending on the wind and the precise alignment of the rotors which are adjusted mechanically to face the wind and allowing for the fact that the wind can be moving in different directions and at different speeds in different positions due to the topography of the site (this surprising account was confirmed by the defendants' SCADA data from the turbines), then on occasion the noise data recorded by Ms. Large and as analysed and explained by Mr. Stigwood appears to contain overlapping noises where the peaks

and troughs are accentuated by virtue of the fact that the sound wave is arriving simultaneously thereby accentuating the peak and the trough;

x. this is occurring at both the low and the medium frequency, but then on occasion the waves can detach or desynchronize which gives the effect to the listener that the pulsing noise or the modulating noise is speeding up but in effect what is happening is that the peaks and troughs from the two or three different wind turbines are arriving at slightly separate times;

xi. they can then re synchronize again depending on the conditions;

xii. as a result of all of the foregoing when there is amplitude modulation which can occur in particular in either upwind or downward conditions, and unusually here it can occur in upwind conditions, the noise level - the decibel level - and the modulation can change and fluctuate and these changes and fluctuations draw the attention of the listener.

114. Mr. Stigwood explained that low frequency noise is considered more intrusive. He referred to the UK Defra NANR guidelines which place a limit for modulating indoor noise at the 160 Hertz frequency and he explained based on Ms. Large's data how this has been exceeded in several of the monitoring samples by a considerable degree. In particular he referred to one data set which showed that on one occasion the amount of noise at the 160 Hertz frequency which was modulating indoors was at approximately 43dB (the limit is 34dB). He said this would be a considerable and substantial amount above the Defra limit which is considered to be the limit of what is tolerable.

115. He also explained that the WHO guideline of 42dB as the threshold for nighttime noise which would cause disturbance from traffic or cause somebody to awaken was also breached.

116. On Day 7 Mr. Stigwood gave specific descriptions of data recordings which confirmed or supported the accounts given by the plaintiffs of the noise intrusion from the wind turbine noise.

117. His analysis of the data indicated that the wind turbine noise has a significant AM feature. This AM fluctuates in terms of the peaks and troughs and also fluctuates in terms of how quickly the modulations occur.

118. He explained that his data also indicated that low frequency noise in the one third octave around 160Hz is a significant component of this wind turbine noise. This is heard by the

human ear as a tonal noise. He confirmed that when the low frequency noise was isolated, the data indicated that the low frequency noise itself is modulating.

119. He explained on Day 7 how low frequency noise can be more intrusive indoors because while the noise passing through walls or windows, or open windows, reduces but in particular the higher frequency noise reduces - this makes the low frequency component which remains more noticeable and intrusive.

120. He stated that the SCADA data, when analysed indicated quite dramatically the different wind conditions at each of the three turbines which face towards the plaintiff's home. This analysis demonstrated the unpredictable and turbulent nature of the wind conditions on the top of Gibbet Hill from the perspective of the plaintiffs' home.

121. He explained that in most wind conditions there was some level of noise intrusion and that accordingly there was little are no respite to be had, save when there was essentially no wind blowing.

122. Mr. Stigwood also referred to the various planning standards and statutory nuisance standards that have been adopted and / or are developing in the United Kingdom. These indicated, in his opinion, that over time there has been an increasing awareness and acceptance that amplitude modulation and low frequency noise are particularly intrusive. There are recommendations for noise penalties where wind turbine noise contains substantial amplitude modulation and more recently a recommendation that where the amplitude modulation increases in frequency that this would also lead to a corresponding increase in the noise penalty. The practical effect of an increase in noise penalty is to add the decibel penalty to the existing overall loudness which can push the loudness over a limit in the planning condition, this means that an operator will have to reduce the operation of the turbine to reduce the overall decibel level (sound energy) being produced by the turbines. These types of arrangements are far more specific than the basic decibel level limit contained in the 2009 permission for this wind farm. In addition, however, this evidence was referred to by Mr. Stigwood to demonstrate the growing acceptance of the unacceptable intrusiveness of both AM and low frequency noise.

123. Mr. Stigwood explained that in the context of a nuisance assessment one should look at a multiplicity of factors from the perspective of the neighbour who claims that their home is being unreasonably intruded by wind turbine noise.

124. In his opinion, this case he said was extreme and one of the worst cases of wind turbine noise he had come across for a number of reasons. Firstly, there is a high component of low frequency noise. Secondly, the low frequency noise component is itself modulating. Thirdly the low frequency noise is intrusive and is very noticeable indoors and is above the Defra NANR45 recommended threshold for low frequency noise of 160Hz, which is at 34dB on the reference curve.

125. He regularly measured low frequency noise at the 160 Hertz frequency indoors that was substantially above this threshold and he explained that this would be intolerable; would be intrusive to sleep; and would be disruptive and cause interference and he said the likely effect of this type of noise correlated with the accounts of the intrusion given by the plaintiffs.

126. This case was unusual and exceptional he said and one of the worst he had ever come across. He explained that the standards are a touchstone of what is objectively considered intrusive and they indicate that amplitude modulation and low frequency noise above the threshold and increased speed of modulation are all features that are reasonably to be considered more intrusive (see his evidence on Day 7 from 15:00 onwards).

127. In summary the evidence gathered by Mr. Stigwood and his colleague Ms. Large demonstrated that there was amplitude modulation from the wind farm which was measured inside the plaintiffs' home which exceeded the low frequency criteria for unacceptable noise. In addition, this noise was exacerbated in its intrusiveness by virtue of the fact that it was highly modulating. In addition, the measurements indicate that the noise exhibits a tonal droning beat. The measurements referred to in evidence by Mr. Stigwood showed fluctuations well in excess of 10dB and sometimes of the order of 15dB. This is a highly noticeable level of modulation. According to Mr. Stigwood he recorded average levels of low frequency noise well above the 34dB limit recommended by the guidelines. He recorded average levels of low frequency noise in or around 160Hz, with a tonal quality where the noise is within 1/3 of an octave, and with decibel values in the order of 38dB to 41dB. He described these as exceedances which are substantial. In his opinion these noise levels would produce considerable disturbance especially when recipients are exposed over a long period of time. He said the distinct droning or tonal character measured on a second-by-second basis adds notably to the intrusiveness.

128. His conclusions were sent out in his report in relation to this issue in paragraphs 4.25 to 4.28 as follows:-

> *"4.25 In my experience such high levels of exceedance of the NANR45 criteria are consistent with unreasonable intrusion and exceed any point of acceptability*

by a substantial margin. This is where the noise intrusion is absent of cumulative impact from other elements of disturbance from the source of noise. In other words where the low frequency content occurs on its own. These other impacts include the turbine amplitude modulation noise within mid and high frequencies, tonal / droning modulations and the general rumbling sound generated. These additional elements exacerbate noise that is appropriately judged highly unreasonable due to the low frequency constituents in isolation.

4.26 Unfortunately the nature and character of low frequency noise disturbance and human reaction to it is not sufficiently understood to evaluate cumulative impacts from a range of noises and how one type exacerbates another. What is reasonably concluded is the combined impact means unreasonable intrusion occurs with lower sound energy levels and less frequency in the number of periods of disturbance.

4.27 In this case exceedance of low frequency noise criteria is sufficient to conclude this element is unreasonable, exceptional and intolerable to the normal reasonable person in isolation of the other characteristics. Its measurement and observations of occurrence are consistent with the resident's complaints of it.

4.28 The DEFRA Report on wind farm noise nuisance NANR277 specifically references the NANR45 criterion curve and states: "Should local authorities consider that low frequency noise is a substantial element of any complaint, they may wish to consider incorporating the advice of the Salford University Contract NANR45 procedure for the assessment of low frequency noise into their investigation."

129. At paragraph 7.41 Mr. Stigwood states:-

"7.41 This combination of unreasonable and intrusive constituents to the noise renders it one of the worst wind farm noise intrusion experiences I have observed in my career in a neighboring house. The LHS inset graph in Figure 24 shows a point in time where the fluctuating low frequency tone / drone exceeds the adjacent bands by 15-18dB which means the character is all the more intrusive than the average value indicates."

130. At paragraph 10.8 Mr. Stigwood states:-

"10.8 My independent analysis and the objective observations during 2024 confirms what I consider to be overwhelming evidence of unreasonable noise intrusion in this case. The complaints are strongly supported and normal

limits of tolerance by people are exceeded by a significant margin. In general in my career I am struggling to recall wind farm noise impact worse than experienced in this case. In some cases there are higher peaks or average sound energy levels experienced but the low frequency content and tonal / droning seriously exacerbate the already intrusive impact in this case."

131. At paragraph 10.12 Mr. Stigwood states:-

"*10.12 In my expert opinion and experience the objective evidence is consistent with the residents' complaints. The noise is unreasonable and exceptional especially comparatively with other environmental and industrial sources. It exceeds normal boundaries of acceptability and expected intrusion by a substantial margin. This is one of the worst cases of wind farm noise impact that I have witnessed in my career, not due to the decibel levels but the cumulative intrusive factors of low frequency nose noise, tonal / droning content, amplitude modulation and occurrence over a wide range of wind directions."*

(ii) Mr. McKeown

132. As will be described later in more detail, Wexford County Council served an enforcement notice and commenced an enforcement process against the defendants. These enforcement notices were based on the investigations and findings of a Mr. Eugene McKeown of RPS, who were independent experts retained by the Council.

133. Mr. McKeown was called as an independent witness by the plaintiffs on Day 14. His evidence is also discussed below in the context of the approach that he said the defendants were taking to the problem (of which he was critical). Mr. McKeown is a member of the Institute of Acoustics and a member of the Acoustical Society of America and he has a master's degree in applied acoustics. He is also a chartered engineer and a fellow of the Institute of Engineers of Ireland. At the time he was giving evidence in this trial he was working in Galway University doing research funded by the Environmental Protection Agency looking at noise from offshore wind farms and studying the effects on the soundscape of offshore wind farms and coastal sites. He explained that in the early years of the wind farm industry in the 1990s amplitude modulation was not seen as an issue because the turbines were smaller at that point in time. He explained that it was critical for the industry to have and maintain public support to ensure the ability of the industry to roll out and install wind energy.

134. In the context of the substance of the plaintiffs' complaints, he said his data supported their concerns. Mr. McKeown's evidence during the early part of Day 14 indicated that his measurements demonstrated considerable substantial low frequency noise with a prominent tonal quality and significant low frequency noise in the 165 Hertz region. His evidence also confirmed that his recordings indicated that 75% of the time they were recording significant levels of amplitude modulation. He said on Day 14 at page 61 line 19 that the:-

> *"outstanding feature from my perspective is the amplitude modulation and I felt that the amplitude modulation was such that that was the important issue. The total penalties, we had detected some, we had detected some at high levels. I had, you know, listened to tones when I was down there under attended measurements. But in terms of Wexford County Council, for the want of a better term, pursuing the wind farm for non-compliance, tonal noise on the basis of our measurements, wouldn't have presented a strong case, whereas amplitude modulation did. But I just qualify that by referring to what I said previously, that we were measuring externally and in those circumstances masking noise is likely to be higher -- if the tonal level is here, the masking level is likely to be here, whereas if you filter it as in you're inside a structure or building, it is likely to be lower and the tones more prominent"*

135. Mr. McKeown also gave evidence by referring to his field notes which showed amplitude modulation, plus humming, and he confirmed tonal noise with amplitude modulation and overall, he confirmed the plaintiffs' description of tonal noise, low frequency noise and amplitude modulation.

136. Mr. McKeown confirmed that even with the three relevant turbines turned off there might still be some noise from the 4th turbine T4 but he offered the view that the level of noise from this turbine would not in his opinion constitute a nuisance. There is no application in these proceedings (and nor would there be a basis for same) to restrict the operation of this fourth turbine, or indeed the two other turbines further to the east.

137. In Mr. McKeown's report he called this 4th turbine T5 (he had a different numbering system for the turbines). Mr. McKeown also confirmed the plaintiffs' account about low frequency noise. He explained that with low frequency noise, which he had measured outdoors, that if you step indoors what happens is a lot of the masking noise is reduced so low frequency tones become more prominent and amplitude modulation becomes much more prominent.

(iii) Mr. Meyer

138. Mr. Mr. Meyer is a mechanical engineer and an automotive engineer who had spent 35 years working in the renewable energy industry mainly with wind turbines in Germany. He worked as a partner in a company that manufactured wind turbines for seven years and headed various project development companies as managing director. He also worked in research on the reduction of wind turbine noise by sound decoupling, variable rotor speed operation and airfoil optimization. He was involved in that research beginning in the early 1990s. In addition, he worked for a German manufacturer before becoming a manufacturer himself and was involved in developing wind turbines in Germany. His experience has involved him in the development of approximately one hundred and fifty wind farm projects across the world including eight in Ireland. Mr. Meyer's evidence both corroborated and explained the science behind what the plaintiffs described on the one hand, and also outlined the variety of potential causes of and solutions to the problems identified, on the other. In this part of the judgment, I summarise those portions of his evidence that tended to corroborate and explain what the plaintiffs had described. Later, this judgment will return to his evidence on the potential to mitigate the noise from wind turbines without having to turn them off as this becomes relevant to the issue around what kind of injunction to grant.

139. Firstly, it is useful to quickly set out some of the factual context for his evidence. The plaintiffs' house is largely due west of the wind farm. As the prevailing wind is from the west, the plaintiffs' house is quite often upwind of the wind farm. Nonetheless for reasons that were explained by the expert evidence on both sides, unusually the plaintiffs in this case were experiencing considerable noise intrusion even when upwind of the turbines. In that regard the EIS and the approach to the planning assessment was based simply on a downwind analysis and the only condition placed on the operation in terms of noise was a simple decibel level. As explained above, the experts in this case agreed that unlike many other cases the amplitude modulation here was being experienced in both upwind and downwind conditions.

140. As Mr. Meyer explained, the software controlling the turbines takes readings from a wind gauge and adjusts the position of the turbines and the blades automatically through motors so that they face into the wind. This is to maximize energy production. In other words when the wind is coming from the west and the plaintiffs' house is accordingly upwind of the turbine, the turbines and the blades turn to face towards the plaintiffs' home.

141. Mr. Meyer explained how the local topography may be contributing to this unusual effect where amplitude modulation is heard in these upwind conditions. He described how he had visited the plaintiffs' site in March 2022. He explained that the three turbines in question T6 was 1127 meters from the plaintiffs' home, T3 was 1050 meters and T5 was 1288 meters. He explained that on visiting the site he was struck by the fact that the turbines were visible

and the sound emitted by the turbines hits the plaintiffs' house without a natural barrier. He said that when he first saw the turbines, he was about two kilometers away in his car. He stopped and got out of his car and that even from this position the operating noise of the wind turbines was clearly audible. He then said that arriving at the house the operating noise was louder than on the approach even though the wind flow was from the southwest and the rotors were not facing the house on the day of his visit. He said he could hear the low frequency noise and the low frequency noise that was audible was in his opinion generated from the gearbox and showed a strong tonality.

142. The wind coming from the west travels on the down slope as it passes the plaintiffs' house, but then as it enters the valley this lower wind or air is pushed upwards by the steep facing slope of Gibbet Hill. This air then passes through a forest on this facing slope of Gibbet Hill which adds to the turbulent nature of this air, which then, as it arrives at the three facing turbines, mixes with the air travelling at the height of the turbines thus creating a potentially turbulent set of air conditions which in turn can affect each of the three wind turbines facing the plaintiffs homes slightly differently and causing additional noise problems.

143. Mr. Meyer explained that when he was at the plaintiffs' home, he described how turbine T6 stopped but he said that the noise from turbine T3 was still clearly audible. He explained that when the house is upwind from the turbines the wind has to climb the hill which leads to an acceleration of the wind flow in the layers close to the ground and that in addition the wind has to flow over a forest which causes turbulence. He explained in his evidence on Day 15 at 12:08 that the mixture of the two results in a very unsteady air flow to the wind turbine rotors and thus creates high aerodynamic and mechanical loads. He said that in such a situation the rotor blades cause more noise due to oblique flow and turbulence and the gearboxes, which in his opinion generated a strong single tone, radiate this tone via the rotor to which they are mechanically connected. He explained that this can create a modulating effect for the low frequency noise, which is in addition to the modulating effect of the noise from the blades themselves.

144. As to the impact of the amplitude modulation being a change of loudness of the same tone, he described this as being:-

> *"the problem that makes people crazy, because if you listen to a tone which always has the same sound and the same volume, you ignore it after a while. Now, if that changes constantly, you go mad. And like if the sound is transferred from gearbox into the blades and there is - say the wind is changing, there is more or less load on the turbine, then you have a change in the - not in the frequency, but in the power, yeah, that - in the power with which the sound is emitted. And the rotor is an ideal vehicle to propagate it"*; see Day 15, pages 102-103.

(iv) Mr. Corr

145. Next, and somewhat unusually perhaps, the substantial nature of the plaintiffs' experience was reflected in the manner in which one of the defendants' experts altered his view as to the level of the impact of the noise nuisance on the capital value of their home. Mr. Corr, a valuer, was called by the defendants to offer an expert opinion on the question of the impact of the nuisance on the capital value of the plaintiffs' home.

146. Leaving aside for the moment the question as to what weight to attach to his evidence in that regard (it will be considered later), Mr. Corr's evidence was nonetheless stark and instructive in relation, at least in one respect, to how extreme this wind turbine noise nuisance is.

147. Mr. Corr gave evidence on Day 18. He explained in his evidence that he had initially formed the view in his expert report that the wind turbine noise would have an impact of only 1% on the capital value of the plaintiffs' home. He felt the total impact of the wind farm on the capital value of the plaintiffs' home was 4%, comprising 2% for the visual impact (about which complaint is not made) and then 1% for the shadow flicker and a further 1% only in respect of the noise.

148. Mr. Corr explained how he had initially been sent a huge amount of documents by the solicitors for the defendants who were instructing him to prepare his report. On Day 18 page 94 he very candidly conceded: "*to be honest with you I didn't actually read them because I thought there was a possibility that the case might settle and that effectively I'd have read potentially hundreds of pages that in a settlement scenario might not be relevant.*"

149. He then explained that prior to giving his evidence he had been sent the plaintiffs witness statements and the transcripts from Days 2, 3 and 4 when the plaintiffs gave evidence, together with some transcripts from Mr. Stigwood, the plaintiffs primary acoustics expert. He then candidly explained that having read *this* material his view had completely changed. Having reviewed this material, he felt that the case was an outlier and that his estimate of the potential impact of the noise nuisance on the value of the plaintiffs' home had increased massively, potentially up to seventeen times, so that now he was of the opinion that the impact of the noise from wind farm on the capital value of the plaintiffs' home was up to 20%, with 17% (17 times more than his original assessment) being due to the effect of the noise.

150. In real terms this meant that his pretrial view (which was, on his own admission, made without really reading the papers) was that the impact of the noise on the value of the plaintiffs' home should be worth about €8,440.00 (this was based in part on studies that he felt showed that over time the impact of a nearby wind farm on the capital value of a property *decreases*) and now, having read their witness statements and transcripts of their evidence and that of their expert, it had jumped to €143,480.00 (or €151,920.00 including the 1% damage for the shadow flicker).

151. He agreed in cross-examination that the plaintiffs' house is dramatically affected by wind turbine noise intrusion and he reiterated that essentially the position was so bad in his revised opinion to make it an outlier. It is to be noted that this was the reaction of an independent person briefed to offer an opinion on behalf of the defendants.

(v) Mr. Carr

152. Mr. Shane Carr of Irwin Carr was retained as the defendants' acoustics expert in 2017 and he gave evidence on Day 17. However, he had worked with ABO prior to that on other sites. Prior to the commencement of the trial, he had prepared six reports between 2018 and 2025, although he only ever first engaged in any substantial analysis of the noise at the plaintiffs' home during August and September 2024. During the trial the defendants were giving liberty to deliver an additional report of Mr. Carr dated 7 March 2025. This report was also prepared prior to the admission of liability.

153. In addition to those seven reports, Mr. Carr prepared a joint statement (the "Acousticians' Joint Statement") with Mr. Stigwood in late February 2025, shortly before the commencement of the trial. This joint statement was prepared following the Case Management Conference of the 12 February 2025 when the Court had directed the parties to arrange for a joint report from the acousticians.

154. In his first five reports prepared 2018 and 2019 there was no substantive engagement with the plaintiffs' complaints. Rather Mr. Carr's approach was largely focused on the planning permission issues and the Enforcement Notices that had been served by the Council. In his sixth report of 16 January 2025, Mr. Carr continued to focus on the question of compliance with the planning permission and, in addition, he made technical criticisms of the approach of the plaintiffs' experts. In his seventh report of 7 March 2025, he explained that any mitigation of the noise, short of turning off the turbines, would involve a significant period of trial and error, possibly a year or more. However, none of his suggestions were put to the plaintiffs' experts and no submission on behalf of the defendants was made relying on any of the suggestions mooted by Mr. Carr, other than turning off the machines.

155. Following the admission of liability for nuisance and the consequential abandonment of the plaintiffs' application for a planning injunction, Mr. Carr's role in the case become more limited. Even though the defendants admitted liability in respect of the noise nuisance, including in relation to the low frequency tonal noise, Mr. Carr's January 2025 report did not identify low frequency noise as a problem. Mr. Carr offered no explanation for his failure to identify the substantial problems experienced by the plaintiffs consistently for many years. Nor did he explain why he failed to hear, record, or measure the noise nuisance being experienced at the plaintiffs' home that had been heard, recorded and verified by Mr. Stigwood and his colleague Ms. Large, by Mr. McKeown of RPS (after he was retained by the Council) and then by Mr. Meyer. If this failure troubled him, it was clear he had not dwelled on it.

156. In the Acousticians Joint Statement, Mr. Carr had stated that the IEC TS 61400 Standard (a standard published by the International Electrotechnical Commission in relation to wind turbines) stated that it was "impossible to accurately measure low frequency noise from wind farms". This statement was not agreed to by Mr. Stigwood. During cross-examination, Mr. Carr accepted that this was an incorrect description of the relevant standard. Mr. Carr went on to say that in his opinion based on the guidance, that the appropriate way to measure for low frequency noise indoors, was not to actually measure it indoors at the location, but rather it should be estimated using predicted levels of LFN based of the manufacturer's trials of the same type of turbines in Scotland and Denmark. Despite the fact that the wording of the Institute of Acousticians standard which he referred to applies to the necessarily predictive exercise required at a planning stage when a Noise Impact Assessment (NIA) is required (NIAs are required during the planning process in the UK, i.e. *before* the facility is built), Mr. Carr explained that he had spoken to one of his colleagues who sat on a body along with the chairperson of the energy body in the Institute of Acousticians, and he understood that this person shared his view as to what he thought the standard meant. In this case the uncontradicted expert evidence was that low frequency tonal noise problems can be caused due to problems in the gearbox (a view that is consistent with the communications to the defendants from Nordex in 2019 referred to below in Section VI). Consequently, the opinion of Mr. Carr that complaints of low frequency noise from these particular turbines in Wexford should be assessed by relying on predicted low frequency noise levels based on tests by the manufacturer carried out in wind farms in Denmark and Scotland was unconvincing irrespective of his interpretation of the standard.

157. While Mr. Carr did not assist the court with an understanding of the extent or causes or potential methods of ameliorating the admitted low frequency noise, he did indicate, in his evidence and through the Acousticians Joint Statement delivered just before the trial began, that he agreed with Mr. Stigwood that amplitude modulation was occurring in this case under

a range of wind directions "commonly both upwind and downwind" and that "this case is unlike any others where it is normally limited most of the time to downwind conditions. This is relevant to the frequency and duration of impact."

158. Finally, during his evidence on Day 17, Mr. Carr was asked by the Court (page 100, line 13) "what order would the Court have to make to stop the daytime nuisance that the defendant says it is committing?" and Mr. Carr replied "In the evidence that you've [been] given, as this is agreed, it would be switching them off" (Day 17, page 100, line 16).

V. INTERACTION BETWEEN THE PLAINTIFFS AND THE DEFNDANTS AND WEXFORD COUNTY COUNCIL

159. Both plaintiffs gave evidence of their efforts to interact with the defendants in the hope that their complaints would be taken seriously and that the defendants would carry out some proper substantive analysis of the problem and engage with them in an effort to mitigate or ameliorate the noise intrusion. Those efforts were unsuccessful.

160. Ms. Moorhead described how after a particularly bad night of noise at the beginning in June 2013, where she found it impossible to sleep, she had sent an email to ABO asking them to take some action to mitigate the noise. She received a response from a Mr. Egan stating that the defendants' staff had not identified any untypical noise. Mr. Egan's email of the 19 June 2013 also indicated that ABO would be organising an independent noise monitoring program.

161. Ms. Moorhead described how she had written a number of initial letters to the defendants in 2013. However, the defendants did not indicate they would engage in any substantive testing of the wind turbines but rather their initial replies were in general based on an approach that assumed their legal obligations to nearby residents were limited to complying with the conditions of the planning permission. As a result, the plaintiffs then got in touch with Wexford County Council.

162. On 5 July 2013 Wexford County Council informed the plaintiffs that they had opened an enforcement file in respect of the Gibbet Hill wind farm and they asked the plaintiffs to keep a noise diary. The Council's engineer, Mr. Cooney, carried out some external noise monitoring at the plaintiffs' home but for reasons that are not clear that data was subsequently lost. Meanwhile a firm called Hayes McKenzie was retained by the defendants. Their instructions appear to have been largely limited to assessing whether or not the defendants were operating the wind farm in accordance with the planning permission. In view of the admission of liability, the proposed witness from Hayes McKenzie was not called

by the defendants. In any event the Hayes McKenzie monitoring did not include attending at the plaintiffs' property and it appears to have been solely limited to addressing the position from the point of view of the planning permission.

163. On 13 February 2014 Wexford County Council wrote to Mr Spicer of ABO and in this letter they indicated that:

> *"On the recommendation of our Senior Executive Scientist, it is recommended that an investigation should be carried out to ascertain the source of noise and if breach in limits are due to the Wind Farm, that you submit remediation measures to bring the Wind Farm into compliance. The investigation should include a further noise survey, both during and post investigation, to indicate subsequent compliance."*

This was accompanied by a formal warning letter from the County Council to ABO.

164. Subsequent to this on 3 November 2014 Mr Cooney sent an email to Mr Egan in the following terms:

> *"Hi Emmet,*
>
> *Regarding the Gibbet Hill wind farm, we have been carrying out a noise survey to premises to the south of the wind farm from 11 August to 24 October 2014 [it was not disputed that this was in fact the plaintiffs' premises].*
>
> *In order to progress our investigation and ascertain the veracity of the complaint that it is the wind farm which the origin of the noise, can you forward the following SCADA details, so that I can cross-reference it to the noise data collected.*
>
> *Wind speed,*
>
> *Wind direction*
>
> *For the wind turbine marked with a yellow square below,*
>
> *Kind regards,*
>
> *Brendan Cooney." (sic)*

165. Mr. Spicer was involved in this and passed the request on to, amongst others, a René Werner of Union Investment and a Martin Gromus, also of Union Investment, the advisers for the Luxembourg Fund that owns Wexwind. On 7 November 2014 Mr. Spicer wrote:-

> *"Hi Rene,*
>
> *Please see below request from the council.*

Can you please advise if you would like this data released to them or not.

Regards

Robert"

Later that same day Mr Werner replied as follows:

"Hi Robert

Martin and I decided to not provide any information.

Kind regards

Rene"

This was relayed by Mr Egan to Mr Cooney on 10 November 2014:

"Hi Brendan

We have to ask the owners of the wind farm for permission where requests for data to be released are made; unfortunately they did not agree to it on this occasion.

Regards emmet" (sic)

166. These documents were made available on discovery and despite the specific pleas that the defendants had failed to engage properly with the plaintiffs, the defendants chose not to call any evidence to address this nor did they seek to explain this refusal. During the re-examination of Mr Spicer, an attempt was made to suggest to Mr. Spicer that in fact this request had been responded to positively and he agreed. However, this answer was incorrect and Mr. Spicer was actually referring to an earlier email exchange. There was no evidence that the defendants changed their approach. In addition, it was clear from Mr Spicer's evidence that he was unfamiliar with the documents.

167. There had been various delays in the Council carrying out noise surveys including in one instance where data was lost and secondly when a procurement process had to be carried out. Eventually in 2016 the plaintiffs were told by Wexford County Council that a consultancy firm RPS had been appointed to undertake an assessment. Mr. Eugene McKeown of RPS was the relevant expert and he gave evidence in this case as a witness called by the plaintiffs.

168. Mr. McKeown gave evidence on Day 14 of the trial; his evidence in so far as it corroborated the accounts of the plaintiffs is largely described above. However, he also gave relevant evidence in relation to the issue of the nature of the interaction with the defendants which is relevant to the claims for aggravated and exemplary damages (and will be discussed

further in Section XI(4). Mr. McKeown pointed out that the defendant had not provided him with all the SCADA data; Day 14 page 97. Mr. McKeown's evidence on Day 14 page 100 made it clear that the defendants' level of cooperation was not satisfactory. He explained that short term switch offs which was all that the defendants ever offered was not practical. According to his evidence, in terms of his experience he explained (on Day 14 page 101) that the defendant "had been dragged kicking and screaming to facilitate anything". This was to be contrasted with other wind farms where "things were sorted out with a phone call an e-mail or a cup of coffee". Nothing of substance was put to Mr. McKeown to challenge this and no evidence of any substance was called by the defendants to contradict this.

169. By the time of the trial Mr. McKeown was no longer working for RPS. He explained that his earlier report carried out for RPS was designed to establish whether there was compliance with the planning conditions. On the 26 June 2017 RPS issued a report which concluded that the noise levels at the plaintiffs' house were such as to render the Gibbet Hill wind farm non-compliant with the grant planning permission. This ultimately led on 29 November 2017 to the first Enforcement Notice issuing from the Council regarding non-compliance with the noise limits and requesting the defendants to submit proposals within four weeks to reduce the noise impact.

170. When the formal initiating letter of 6 March 2018 was sent to Wexwind indicating a claim in nuisance, the defendants failed to take this seriously or engage in any substantive way. Indeed without having undertaken any substantive tests in relation to the plaintiffs' claim of nuisance, the defendants' solicitors issued a blanket denial that the wind farm's operations were causing a nuisance. No evidence was adduced by the defendants to justify sending this letter. The only explanation that Mr. Spicer could give for this approach was that the defendants had been focused on the planning issue. On Day 16 page 137 in reply to a question from the Court, Mr. Spicer stated, "*I would agree that ABO and the defendants were very much focused on the planning side of things and did not focus as much on the nuisance aspect*".

171. Mr. McKeown gave evidence of a meeting with representatives of the Council and ABO and he referred to the minutes of the meeting; Trial Book 8A, page 253. ABO were represented at this meeting by Mr. Shane Carr and he took a technical approach by arguing that the matter should only be examined by looking at data in a downwind direction only. This meeting took place on the 22 May 2018 at ABO's offices. Mr. Carr did not want to look at the wider picture but made a technical argument based on the ETSU standard that only downwind measurements should be looked at. At this stage ABO did not, according to the

evidence, have any substantive data of its own in relation to the noise impact from the wind farm on the plaintiffs' home.

172. Mr. McKeown explained that he had followed the correct guidelines when carrying out his assessment of the noise nuisance. He was not challenged about this in cross-examination. Mr. McKeown's detailed analysis as to why Mr. Carr's approach was incorrect both substantively and from a technical point of view was set out in detail in the letter he wrote to Mr. Cooney (the Council engineer) dated the 24 May 2018. The substance of this was not seriously disputed on behalf of the defendants.

173. Ultimately after a significant period of time, during which various technical reports were exchanged, the Council withdrew the first Enforcement Notice and issued a second Enforcement Notice. In addition the Council requested the defendant to investigate the incidence of shadow flicker. That request was made on 25 January 2019. On 28 August 2020 the Council decided that it was no longer proceeding with the Enforcement Notice.

174. Overall, the evidence of Mr. McKeown, together with the correspondence of the defendants and their own internal emails demonstrates that the defendants were not willing to properly cooperate with the Council in its investigation. In addition the evidence demonstrated that the defendants were not interested in carrying out any substantive analysis of the merits of the plaintiffs' complaints. The evidence in this regard indicated a continuing pattern of the defendants to not engage in any substantive way with the complaints being made but to rely on technical and, based on the evidence of Mr. McKeown, frequently incorrect technical arguments that served only to avoid substantive engagement. These findings are relevant to my decision in relation to the plaintiffs' application for aggravated damages.

175. While this was occurring, the defendants had decided to contact Nordex, the manufacturers of the turbines. Those contacts are best understood in the context of a consideration of the expert evidence that related to the actual potential to mitigate the noise nuisance by taking steps that would ameliorate the problem while continuing to facilitate the turbines operating.

VI. THE POTENTIAL TO MITIGATE NOISE NUISANCE FROM WIND FARMS

176. It was notable that in advance of the trial the defendant had not proposed to call any evidence either from a factual witness or an expert as to how the noise from the wind farm might be mitigated or ameliorated.

177. While the defendant was given liberty to and did adduce additional evidence, they were still not in a position to make any proposal to mitigate the noise nuisance other than turning off the machines and the defendants' only expert on this issue, Mr. Carr, accepted that based on the evidence, turning off the machines was the only way to abate the noise nuisance (see above in Section IV).

178. It is important however to note that the expert evidence before the court indicated that there is usually an abundance of solutions short of turning off the wind turbines that can be tested and adopted in cases like this. These solutions typically require a substantial willingness on the part of the wind farm operator to engage wholeheartedly with genuine concerns, to investigate them properly and to then devote some time to testing potential solutions and indeed spending some resources potentially on making adjustments or upgrades to the equipment.

179. In keeping with the overall lack of engagement by the defendants with the issues in the case, the defendants did not retain or adduce any evidence from an engineer, either an engineer employed by the defendants or by Nordex who maintain the machines, or alternatively an independent engineer. The plaintiffs on the other hand called evidence from Mr. Dietrich Meyer. As described earlier in this judgment (in Section IV), he gave evidence corroborating the account of the plaintiffs. He also gave evidence indicating the likely causes of the problems and outlining potential solutions.

180. Mr. Meyer explained how the topography of the site near Gibbet Hill was likely to be contributing to the noise nuisance problem at the plaintiffs' house. He had an illustration in his report which he discussed on Day 15 which demonstrated how the prevailing wind from the west passes over the plaintiffs' house and then briefly down into a valley before rising up the facing slope of Gibbet Hill and passing through and over a forest. This air then impacts with air travelling at the height of the turbines creating a turbulent air flow and he explained that these "flow irregularities" can disturb the flow of air around the rotors thus contributing to the noise being emitted from the wind turbines.

181. He explained that the noise from turbines can come from the rotor blades, the generator, the gearbox, the hydraulic pump, or the yaw brake or the cooling fans; although the latter three sources he said were not relevant in this case. Here, he felt the most likely source of the noise was the blades, the generator and the gearbox. He said the gearbox was most probably the cause of the low frequency noise; see Day 15 from pages 16 onwards to page 21, and in particular page 21 answer 40. He also explained that the topography was likely contributing to the problem; see Day 15, page 25-27.

182. He explained that studies around the world had emphasised the effect of low frequency noise and amplitude modulation. He explained that amplitude modulation, because it contains periodic loudness fluctuations, is a "carrier of information" to the human ear and that therefore the human ear is especially sensitive to this noise characteristic. He said that the science now recognised that low frequency noise had negative effects on human beings. He also indicated that as well as the wind direction and the turbulence factor, that the technical condition of the components of the turbines and the maintenance condition could also be relevant factors.

183. He then gave evidence about the potential for the operator to reduce these problems. He explained that wind turbines have different operational modes and these are used to optimize the performance of the turbine but can also be used to reduce the sound emission. He said in general the rotational speed of the rotor must be reduced as noise emission from the blade tips is amongst the most powerful sources of noise. He explained that the rotator speed can be reduced by either pitching the blades or by increasing the torque. In this latter scenario, by increasing the torque in the generator this will reduce rotator speed but will not reduce power or energy generation.

184. His report however explained that the downside of this operational mode is that the load on the generator and gearbox increases which can result in heat and vibration which is audible by increased humming and a strong single tone. He explained that the manufacturing quality and material quality of the gearbox and the generator would be relevant in this context.

185. As described earlier, Mr. Meyer had described that when he visited the plaintiffs' home, he was struck by the fact that the turbines were visible and the sound emitted by the turbines hits the plaintiffs' house without a natural barrier.

186. He gave evidence as to the turbine manufacturer figures from Nordex (the manufacturer of these turbines) and he said from his impression the tonality at the site was out of range of the manufacturer's figures; see Day 15 at p41-42.

187. He then said "*in my opinion either the gearboxes used in these turbines are of a high tolerance class which means that mechanical tolerances of the gear wheels are at the upper limit, resulting in higher sound emission of the gearbox or the gear boxes are worn out or damaged*"; see Day 15, page 42. This evidence was not challenged by the defendants. As discussed above, see Section IV(f)(v), this evidence (which preceded the evidence of the

defendants' acoustics expert Mr. Carr) undermines the rationality of Mr. Carr's evidence when he stated that the correct way to assess the low frequency noise at the site was not to measure the low frequency noise at the site but rather to use data from the manufacturer's facilities in Scotland and Denmark.

188. Mr. Meyer explained that a number of things can be done to ameliorate these problems. First of all, a full check of the condition of the rotor blades should be carried out to check whether they are damaged, polluted, dirty or requiring some repair. He said, secondly it was important to make sure the blade angles are correctly adjusted so that they will work with the same angle to the wind and then he said changes can be made to the operational speed or to change the load conditions of the system. In general, he said that every manufacturer has their own way to do it depending on the problem but that there were ways to do it and it needs some time to implement these solutions.

189. He explained on Day 15, page 100 that the speed can be reduced by reducing the uplift of the blades, although this will lead to less power being generated and he explained that this could be done with the Nordex machines from the control room and he then explained that the second method was to increase the torque in the generator.

190. Mr. Meyer explained that the proper operation of the gearbox could be assessed by the carrying out of an endoscopy which enables you to look into the gearbox and to look at the gear wheel.

191. Mr. Meyer explained that with a low tolerance gearbox there is very little 'play' (loose movement) between the gear wheel teeth and this reduces noise but is more expensive. The defendant did not engage with this evidence and did not call any engineering evidence to indicate with any precision or detail as to precisely what checks had been carried out and what the outcome of those checks were, or what the tolerance levels were for these machines.

192. While the defendants and their acoustics expert Mr. Carr did not engage with these possibilities during the trial, they were not unknown to the defendants. The documents which the plaintiffs obtained on discovery and introduced in evidence, demonstrated that at the time when the defendants were at risk of prosecution after the service of the Enforcement Notices, they were actually advised by Nordex of a range of possibilities to solve the problems.

193. On 4 March 2019 Mr. Timm Greinig of Union Investment (the corporate advisers to the Luxembourg Fund that owns Wexwind) sent an email to Mr Spicer in relation to the Enforcement Notice asking as follows:

> *"Hi Robert*
>
> *Does it make sense to check out technical options for the worst case scenario? I don't know if Nordex offers trailing edge serration retrofits for N90 turbines, but I guess there are at least some alternative operating modes available*
>
> *Regards,*
>
> *Timm"*

On the 11 March 2019 Mr Spicer sent an email in Nordex as follows:

> *"Can you provide details of noise optimisation modes available for the turbines in Gibbet Hill.*
>
> *Can you also advise on possible retrofits to reduce the noise/increase the power output such as trailing edge's serrations?"*

On the 11th March 2019 a representative of Nordex sent an email to Mr Spicer in relation to this issue as follows:

> *"Hi Robert*
>
> *I should be able to pick up on this for you. I have attached a document outlining the noise power modes available from the N90/2500 Gamma turbines. This should provide some details on what is available.*
>
> *In terms of retrofits there are no official upgrades which we can offer however we have had success with softer elastomer bearings for tonal noise. If the noise issues seem to be in that area we can provide more details.*
>
> *Have there been noise studies carried out you may be willing to share? If we have access to results we may be able to assist with a mitigation plan" (underlined for emphasis).*

Mr Spicer then sent an email to Mr Greinig on 19 March 2019 in relation to this issue as follows:

> *"Hi Timm,*
>
> *As just discussed, see attached latest info from Nordex on various operation modes.*
>
> *Nordex confirmed that there are no official upgrades (including trailing edge serrations) available however Nordex have had some success with softer elastomer bearings for tonal noise.*
>
> *Below are the conclusions from the RPS report for tonal noise"*

There was then an email from Nordex to Mr Spicer on 19 March 2019 at 13:05 on the subject of noise operating modes which states as follows:

> *"Hi Robert,*
>
> *Unfortunately the specification document I have is in German however it is attached for review in case that helps.*
>
> *Essentially the retrofit exchanges softer elastomer bearing rubber components which assists in deadening the gearbox vibration noise. We have had some success on another site with this retrofit so it may be an option you would like to consider.*
>
> *One thing to note is that as they are softer components Nordex cannot give a guaranteed operational life of new elastomer bearings. Any replacement required during the turbine life will be at ABO cost. We will need to include visual check at each Type 3 service." (underlined for emphasis).*

194. Notably therefore, the evidence demonstrated that there was an indication in these communications from Nordex during 2019, who are the manufacturers of the turbines, of:-

- a willingness to engage in relation to developing a potential "*mitigation plan*";
- a clear awareness of the potential issue of "*tonal noise*" (which was not something that was related to the planning permission or its conditions);
- an indication that the machines had different "*noise power modes available*" already on the machines;
- an indication of retrofits involving softer elastomer bearings with which Nordex had already "*had success with*" but which would have some costs if replacements were required; and
- a request for "*noise studies carried out*".

195. Despite this engagement from Nordex, the defendants decided not to pursue *any* of these options. Nor did they give any explanation for why they did nothing in this regard. Essentially in terms of the evidence nothing happened thereafter.

196. However these interactions and in particular the evidence of Mr Meyer, indicates that there were a range of potential solutions to address the concerns such as those being raised by the plaintiffs. Mr Meyer, in an updated report, indicated that a range of potential mitigation measures were available which would in general require to be evaluated over periods of between six and twelve weeks and then could take potentially up to fifteen months to test.

197. Some of the proposed measures involved dealing with the gearbox, the generator and the rotor blades and could involve potentially making upgrades and adjustments to the machines and some involved potential adjustments to the software operating the machines.

198. The defendants did not indicate any willingness to carry out such a process and the only curtailment option offered by them was the shutting down of the machines during nighttime and in the mornings at weekends, but otherwise operating the machines as they are currently operating and paying damages for this ongoing future nuisance.

199. The significance of this will be discussed further below, in the context of the issue of whether to grant a full injunction or to accede to the defendants' request to allow them to continue with the nuisance and to pay damages for the future impact of the interference caused to the plaintiffs.

VII. THE ISSUES

200. Accordingly, the issues that arise in this case are as follows:

(1) How much damages should be awarded for the effect of the nuisance from May 2013 to date? Related to this issue, is question as to the *basis* by which the damages should be assessed.

(2) Allied to the damages issue, is the claim by the plaintiffs that the defendants' operation of the wind farm amounts to an infringement of their constitutional rights, separate from the claim in nuisance.

(3) Should the court grant an injunction to fully restrain the operation of the three relevant turbines or alternatively should the court allow the turbines to operate during the daytime (7am to 10pm) and from 11:00am to 10:00pm on weekends and public holidays, and thereafter award damages to the plaintiffs for the future ongoing nuisance? In this context, the issue arises as to what weight should be given to the public interest in energy generated from wind.

(4) Should the court award aggravated damages for the manner in which the defendants engaged with the plaintiffs' complaints and the claim?

(5) Should the court award punitive/exemplary damages on the basis of the plaintiffs' claim that the defendants deliberately declined to engage with their complaints while continuing to generate substantial revenues from the wind farm?

VIII. THE PLAINTIFFS SUBMISSIONS

201. I propose to outline a summary of the main submissions on behalf of the plaintiffs on these five issues.

(1) The assessment of damages for nuisance to date

201. In relation to the assessment of damages, the plaintiffs submit that they should each be awarded general damages for the period of the nuisance from May 2013 to date. It was submitted that the amount of damages must be meaningful and should reflect the almost totally continuous nature of the ongoing nuisance and the substantial effect it had on the plaintiffs enjoyment of the property, in particular by reference to the nature of the intrusion, the sense of being intruded upon, the lack of sleep, the stress and the anxiety.

202. It was submitted that this was a claim relating to the plaintiffs' property rights. Reference was made to the interference with the ability of the plaintiffs to work in their home and to enjoy their home and to enjoy their garden.

203. The essential principle was submitted to be that of *restitutio in integrum*.

204. The plaintiffs referred to *Patterson v Murphy* [1978] ILRM 85, *Hanrahan v Merck Sharpe & Dohme* [1988] ILRM 629 and to *Webster and Rollo v. Meenacloghspar (Wind) Ltd* [2024] IEHC 136 (*Webster (No.1)*). In *Patterson,* Costello J. states at p99 in the context of a noise nuisance case that general damages are payable to each of the plaintiffs separately for annoyance, discomfort, inconvenience and mental distress. This is also referred to be Egan J. in *Webster (No.1)* at para.s 643 and 644 who refers to the fact that general damages were payable to each plaintiff separately for the nuisance in *Patterson.*

205. Counsel for the plaintiff submitted that the law of nuisance was grounded in the protection of property and that accordingly it would not be appropriate to take account of or to make any comparison with the guidelines issued in relation to personal injuries cases.

206. It was submitted that the injury in this case was injury to the quiet and peaceful enjoyment of the plaintiffs' property. In addition the nuisance, even if fully injuncted now, had, according to one of the plaintiffs' experts, caused a permanent "stigma" damage to the capital value of the plaintiffs' property that should be compensated for.

(2) The constitutional claims pursuant to Articles 40.3 and 40.5

207. It was submitted that the plaintiffs' property rights under Articles 40.3 and 40.5 of the Constitution had been violated.

208. Reference was made to the interference with the use of the plaintiffs' home and garden. In summary it was submitted that the operation of the wind farm constituted a violation of the dwelling of the plaintiffs so as to engage Article 40.5 of the Constitution which provides: "*the dwelling of every citizen is inviolable and shall not be forcibly entered save in accordance with law.*"

(3) Whether to grant a full injunction or a partial injunction & damages

209. It was submitted that the defendants had not engaged in a way that would entitle them to avail of damages *in lieu* of an injunction. They had not behaved in a neighbourly way. They had not given any advance notice that they would make this argument. It was submitted that the injury to the plaintiffs' rights was not small and could not be adequately compensated by a small money payment. Furthermore, the fact that the defendants might be able or willing to pay for the future nuisance was not an appropriate ground to substitute damages. Overall, it was submitted that this was not an appropriate case for an order allowing the nuisance to continue.

210. It was submitted that the plaintiffs are *prima facie* entitled to an injunction and while there was a broad discretion there were no significant factors that would disentitle the plaintiffs to an injunction to fully restrain the nuisance.

211. Without prejudice to those arguments, it was submitted that if the nuisance was to be allowed to continue in part and damages awarded, then these damages should take into account the profits that the defendant makes by continuing the nuisance, as this was an indicator of what the defendants might consider reasonable to pay to acquire the plaintiffs' property right. At a minimum, the damages in this scenario should take account of the reduction in capital value of the plaintiffs home.

212. In addition, it was submitted that if the nuisance in part was to be allowed continue then the plaintiffs would have to give serious consideration to moving from their home. In that scenario, the plaintiffs should be awarded a sufficient sum to enable them to buy an equivalent site and rebuild a home to the equivalent standard of their current home; in other words, reinstatement value.

213. Attention was drawn to some of the English cases and the judgments therein, in particular Lord Mance who in *Lawrence v Fen Tigers Ltd* [2014] 2 AER 622 expresses the view that the right to enjoy ones home without disturbance *"is one which I would believe that many, indeed most, people value for reasons largely if not entirely independent of money"*; see page 664, para. 68.

214. In addition attention was drawn to the authorities (for example *AIB v Diamond* [2012] 3 IR 549, Clarke J. at p590) that point out that even if a value can be put on the loss of a property right that in general a defendant should not be entitled to pay damages to be allowed infringe a person's property rights.

(4) Aggravated damages

215. It was submitted that the defendants approach to the complaints of the plaintiffs and their lack of substantive engagement and their failure to make any efforts to ameliorate the nuisance had caused additional hurt and distress to the plaintiffs and therefore merited an award of aggravated damages.

(5) Punitive / Exemplary damages

216. It was submitted that the pleaded case in relation to punitive / exemplary damages had not been answered substantially by the defendants. The evidence adduced was not contradicted and this evidence indicated that substantial revenues were being generated from the wind farm and the defendants had made a number of identifiable decisions to simply ignore, or not engage in any substantial way, with the plaintiffs' complaints. This merited, it was submitted, punitive/exemplary damages.

IX. THE DEFENDANTS' SUBMISSIONS

217. I propose to outline a summary of the main submissions on behalf of the defendants on these five issues.

(1) The assessment of damages for nuisance to date

218. The defendants submit that, based principally on the English caselaw (see *Hunter v Canary Wharf* [1997] AC 655 and *Dobson v Thames Water* [2009] 3 AER 319), the damages for the nuisance to date should be measured by estimating the notional impact on the capital value of the plaintiffs' property. According to the defendants' expert this was in a range of 13% up to 18% (being 17% for the noise and 1% for the shadow flicker) of the agreed value of €844,000.00.

219. The defendants' figure for the damages for the nuisance to date is, using this approach, therefore up to €151,920. On the other hand, using this approach, the plaintiffs' valuer estimated that the reduction in the capital value was €394,000 (the plaintiffs' expert estimated that the house was only worth €450,000 due to the nuisance). According to this approach, separate awards are not to be assessed for each plaintiff and nor is the amount of the damage to be based on the duration of the nuisance (save to the extent that same might influence the estimated drop in capital value) nor the amount of people living in the house; see *Hunter* and *Dobson*.

220. It was submitted that any comparison with the damages regime for personal injuries would not be appropriate; reference was made to *Hunter v Canary Wharf*.

221. That said, the defendants submitted that damages are a flexible remedy and should be flexible enough to ensure justice in each case and that accordingly, the court was not "hide bound by any particular rule". The defendants referred to *Munnelly v Calcon* [1978] IR 387 where Kenny J. states at p405: *"The dominant rule of law in assessing damages is the principle of restitutio in integrum and subsidiary rules can be justified only if they give effect to that dominant rule."*

(2) The constitutional claims pursuant to Articles 40.3 and 40.5

222. It was submitted that there was no basis for considering any claims under the Constitution as the tort of nuisance adequately protected the relevant rights and interests of the plaintiffs; reference was made to *Hanrahan* and *Clarke v O'Gorman* [2014] 3 IR 340, where it is well established that a plaintiff may only rely on constitutional torts where the ordinary law of tort is insufficient to protect the rights asserted.

(3) Whether to grant a full injunction or a partial injunction & damages

223. The defendants accepted that the threshold for granting an injunction had been passed and that the only issue in this regard was the extent of the injunction.

224. They submitted that the court had an undoubted wide discretion as to whether to grant the full injunction or, whether instead, to grant a partial injunction combined with an award of damages for the future nuisance that the defendants admitted they would be committing.

225. They referred to the fact that the proposed shutdowns would address the most sensitive times of intrusion on the plaintiffs. Based on the defendants' proposal of nighttime shutdowns (10pm to 7am) and shutdowns during the morning at weekends and on public holidays (7am to 11am), the defendants' valuer estimated that the damage to the capital value of the plaintiffs' home would be approximately half his estimate for the damage to date, in other words up to €71,740 (it is to be assumed that the shadow flicker is sorted out, so the "half" is actually half of a range of 12-17%). This would be, it was submitted, the quantification of the damages for allowing the defendants to continue the nuisance outside of those hours. This was said to be based on a timeframe of eight years (i.e. up to 2033) when the planning permission will expire. The total award of damages then to the plaintiffs would, *according to the defendants*, be up to €223,660. This figure would be higher again if the court leaned more towards the values expressed by the plaintiffs' valuer.

226. The defendants submitted that the damages for future nuisance should not be assessed on the basis of the re-instatement cost of the plaintiffs' home as this measure of damage was reserved for cases where there is physical damage to the property.

227. The defendants accepted that they could not meet the *Shelfer* test (*Shelfer v City of London Electric Company* [1895] 1 Ch 287), not least because on their own analysis, the damages that should be awarded to the plaintiffs are substantial. Even on their figures, the damages for past and future nuisance (with a partial shutdown of the facility) are €223,660 and could not be described as 'small'. Rather, they submitted that this was no longer fatal and they relied on English authorities for this argument, such as *Lawrence v Fen Tigers* [2014] 2 AER 622, which view the *Shelfer* test as just one, rather than the only, pathway towards avoiding an injunction and being allowed pay damages instead.

228. They said that the public interest was relevant to the remedy and they referred extensively to Ireland's legal and international commitments to climate action and developing renewable energy and to the decision in *Coolglass v An Bord Pleanala* [2025] IEHC 1 and to *Webster (No. 1)* at para 42 and to the existence of the planning permission for the wind farm.

229. They referred to the discretion to award damages instead of an injunction as stemming from Lord Cairns Act (section 2 of the Chancery Amendment Act, 1858) and they said this was still law in Ireland. The defendants contended that Lord Cairns Act along with the common law principles of nuisance, should be interpreted and applied where possible in a manner consistent with Ireland's EU and ECHR climate obligations. Overall though, it was accepted that the public interest was not a 'trump card' in this case but was a factor to be weighed in the exercise of the court's discretion.

230. They also submitted that to order a full shutdown would be excessively oppressive to the defendants and would cause Wexwind to become insolvent. In their submission, their own proposal of partial shutdowns would bring the wind farm close to the edge of viability and would, it was submitted, require re-financing.

(4) Aggravated damages

231. The defendants referred to the fact that liability had been admitted on Day 11 and an apology had been made on Day 19 and they submitted that "*latterly, at the very least, the Defendants have behaved appropriately before the Court*."

(5) Punitive / exemplary damages

232. The defendants submitted that these types of damages would not be appropriate and are only for exceptional cases such as where the defendants behaviour is, as in *Crofter Properties v Genport (No.2)* [2005] 4 IR 28, "*...quite beyond the bounds of normal civilised behaviour and quite outside accepted commercial relationships to gain benefit for the plaintiff. Such an award should not be excessive but should be sufficient to punish the behaviour on behalf of the plaintiff to intentionally publish defamatory matter of the defendant*".

X. RELEVANT LEGAL PRINCIPLES

233. The relevant legal principles will now be discussed in the context of each of the aforementioned issues.

(1) The assessment of damages for nuisance to date

234. Firstly the legal test for the tort of nuisance has recently been comprehensively considered by the High Court in the judgment of Ms. Justice Egan of 8 March 2024 in *Webster (No.1)*; see paragraphs 28 et seq. Both sides adopted the analysis of Egan J. as to the approach to

be taken to assessing a noise nuisance from a wind farm. As indicated by Egan J. in *Webster (No.1)* the relevant legal principles are described by the Supreme Court in *Hanrahan* where Henchy J. identified the legal basis of the tort of nuisance as follows:

> *"To provide a basis for the award of damages for the private nuisance relied on, the plaintiffs have to show that they been interfered with, over a substantial period of time, in the use and enjoyment of their farm, as result of the way the defendants conduct their operations in the factory..."*

Later in *Hanrahan* Henchy J. states:-

> *"The case for damages in nuisance... is made out if the interference is so pronounced and prolonged or repeated that a person of normal or average sensibilities should not be expected to put up with it.... It is enough if it can be said that a reasonable person in the plaintiff's circumstances should not be expected to tolerate the smell without requiring the defendants to make financial amends".*

235. As Egan J. states in *Webster (No.1)* *"to succeed in a claim for nuisance the plaintiff must show interference with the ordinary use, enjoyment and comfort of their property ... nuisance is always assessed by reference to the character of the particular locality"*, see para.s 30 and 346 of *Webster (No.1)*.

236. As indicated above in Sections VIII and IX there was some divergence between the parties as to the approach to be taken to measuring and assessing the damages for the nuisance to date. While the defendants urged that the matter should be approached on the basis of a notional decrease in the capital value of the plaintiffs' property, they nonetheless conceded that damages is a sufficiently flexible remedy to ensure that justice is done in the case and the court is not hidebound by any particular rule or dictum.

237. In *Webster (No.1)* at paragraph 640, Egan J. refers to the approach adopted in England as set out in the case of *Hunter v. Canary Wharf* [1997] AC 655 where Lord Hoffman indicated that the correct approach was to consider the injury to the amenity of the land and not to the persons thereon. Consequently, as was found in *Hunter,* the damages are not therefore increased by there being more than one occupier. At para. 643 Egan J states as follows:

> *"It appears this not been the approach taken in this jurisdiction. In Patterson v. Murphy [1978] ILRM 85 blasting on the defendant's land caused physical harm to the plaintiff's residence. The plaintiffs were awarded damages for the repair of the property, but it was also held that general damages were payable to each of the plaintiff separately for annoyance, discomfort, inconvenience and mental distress."* *(underlined for emphasis).*

238. In *Patterson* Costello J at page 99 states that "*general damages are payable to each of the plaintiffs separately for annoyance, discomfort, inconvenience and mental stress*". *Patterson* included a claim for damages for nuisance as a result of, amongst other things, the noise being generated by the blasting operations taking place at the defendant's quarry.

239. At page 99 Costello J states as follows in relation to general damages:

> *"General damages are payable to each of the plaintiffs separately for annoyance, discomfort, inconvenience and mental distress. In measuring the sums payable I have taken into account not just the conditions at Shillelagh Lodge from the summer of last year until 12 December [Note: a period of approximately six months, from early summer to 12 December of 1977] but also the fact that the plaintiffs had to move to rented accommodation with all the inconvenience thereby resulting. Whilst it may be that Mrs Paterson suffered more acutely than Mr Patterson from the nuisance it must be borne in mind that Mr Patterson had an additional strain associated with his professional career as he was most particularly affected by the lack of proper facilities for his practice in the rented accommodation. I conclude that a sum of £500 should be paid to each under this general heading and that both defendants are jointly liable for these payments."*

240. In *Hanrahan v. Merck Sharp & Dohme (Ireland) Ltd* [1988] ILRM 629 the Supreme Court had to consider a case involving a claim for damages for, inter alia, discomfort caused by smells from the defendant's nearby factory. The Supreme Court treated the claim as one in nuisance. The evidence in the High Court was that the plaintiffs complained of intense and frequent objectionable smells from the defendant's factory and that these were so frequent, pronounced and prolonged that each of the plaintiffs had made out a case for damages in nuisance for offensive smells from the factory. At page 640 Henchy J. states as follows:

> *"As I have pointed out earlier in this judgment, by reference to the cited passage from the judgment of Gannon J. in Halpin v. Tara Mines, where the conduct relied on as constituting a nuisance is said to be an interference with the plaintiffs comfort in the enjoyment of his property, the test is whether the interference is beyond what an objectively reasonable person should have to put up with in the circumstances of the case. The plaintiff is not entitled to insist that his personal nicety of taste or fastidiousness of requirements should be treated as inviolable. The case for damages in nuisance - we are not concerned here with the question of an injunction - is made out if the interference is so pronounced and prolonged or repeated that a person of normal or average sensibilities should not be expected to put up with it. It is not necessary that an interference by objectionable smell should be so odious or damaging that it affects the plaintiffs' health. It is enough if it can be said that a*

reasonable person in the plaintiffs' circumstances should not be expected to tolerate the smell without requiring the defendants, to make financial amends. I consider that the plaintiffs have made out such a case.

I would hold that each of the three plaintiffs has made out a case for damages for nuisance caused by offensive smells from the defendants" factory." (underlined for emphasis)

241. The matter was then remitted to the High Court for the assessment of those damages. Nonetheless, the precise basis upon which those general damages for nuisance caused by offensive smells might be assessed does not appear to have been argued or considered in *Hanrahan*. Accordingly, it is worth turning to some of the underlying principles by which general damages should be assessed.

242. There are well accepted general principles in relation to any assessment of general damages. For example in *MN v SM* [2005] 4 IR 461 at para 38 Denham J. states *"the three elements, fairness to the plaintiff, fairness to the defendant and proportionality to the general scheme of damages awarded by a court, fall to be balanced, weighed and determined".*

243. These principles underlie the Court's jurisdiction when it comes to general damages. These principles require awards of damages to be fair and reasonable to both claimant and defendant. The award must be proportionate to the level and nature of the injury or damage sustained and must also be proportionate when viewed in the context of awards of damages commonly made in cases involving injuries of a greater or lesser magnitude, *per* Denham J. in *MN v. SM* and Clarke C.J. in *Morrissey v. HSE* [2024] 1 IR 103.

244. In addition, further helpful general principles are set out in the case of *Munnelly v Calcon Ltd* [1978] IR 387 where Henchy J. considers the principle of *restitutio in integrum* which underpins the law of damages in cases such as this. *Munnelly* was a case dealing with a claim for damages for negligence. Part of the plaintiff's house collapsed as a result of the alleged negligence of the defendants who were building a house next door. At p. 399 Henchy J. states:

> *"In my view the particular measure of damages allowed should be objectively chosen by the court as being that which is best calculated, in all the circumstances of the particular case, to put the plaintiff fairly and reasonably in the position in which he was before the damage occurred, so far as a pecuniary award can do so".*

245. *Munnelly* was dealing with the particular issue of a claim for reinstatement costs. The judgment of Henchy J. contains helpful *dicta* in relation to some of the underpinning principles to a court's assessment of damages. Henchy J. cites from May J.'s judgment in *C.R. Taylor Ltd v. Hepworths Ltd* [1977] 1 WLR 659 at page 667 where May J. states:

> *"The various decided cases on each side of the line to which my attention has been drawn, and to some of which I have referred in this judgment, show in my opinion merely the application in them of two basic principles of law to the facts of those various cases. These two basic principles are, first, that whenever damages are to be awarded against a tortfeasor or against a man who has broken a contract, then those damages shall be such as will, so far as money can, put the plaintiff in the same position as he would have been had the tort or breach of contract not occurred. But secondly, the damages to be awarded are to be reasonable, reasonable that is as between the plaintiff on the one hand and the defendant on the other."*

246. Henchy J. then states at p.400:-

> *"I accept those two principles as being basic to, although not necessarily exhaustive of, the concept of restitutio in integrum, on which the law of damages rests in cases such as this. It is in the application of those principles that difficulty may arise, for a court, in endeavouring to award a sum which will be both compensatory and reasonable, will be called on to give consideration, with emphasis varying from case to case, to matters such as the nature of the property, the plaintiff's relation to it, the nature of the wrongful act causing the damage, the conduct of the parties subsequent to the wrongful act, and the pecuniary, economic or other relevant implications or consequences of reinstatement damages as compared with diminished-value damages. The reported cases, therefore, require to be viewed primarily as exemplifications of the application to special facts of the two principles to which I have referred.*

247. In *Munnelly*, Kenny J. states at p.405:

> *"The dominant rule of law in assessing damages is the principle of restitutio in integrum and subsidiary rules can be justified only if they give effect to that dominant rule."*

248. As indicated above in Section IX, the submissions made on behalf of the defendants were that the court should follow the approach set out in the English cases and in particular in *Hunter* and in *Dobson v. Thames Water Utilities Ltd and another* [2009] EWCA civ. 28.

249. The Court of Appeal in *Dobson* indicated that the issue of damages in the context of a nuisance was normally to be assessed by means of the damage to the value of the property.

250. In *Hunter,* Lord Hoffman states on page 706:-

> *"[I]nconvenience annoyance or even illness suffered by persons on land as a result of smells or dust are not damage consequential upon the injury to the land. It is rather the other way about: the injury to the amenity of the land consists in the fact that the persons upon it are liable to suffer inconvenience, annoyance or illness.*
>
> *It follows that damage for nuisance recoverable by the possessor or occupier may be affected by the size, commodiousness and value of his property but cannot be increased merely because more people are in occupation and therefore suffer greater collective discomfort. If more than one person has an interest in the property, the damages will have to be divided among them."*

251. In *Dobson*, Waller LJ, commenting on the case of *Bone v Seale*, which dealt with nuisance caused by smells from a pigsty, stated at page 331:

> *"it seems to me that the value of the right to occupy a house which smells of pigs must be less than the value of the occupation of an equivalent house which does not. In the case of a transitory nuisance, the capital value of the property will seldom be reduced. But the owner or occupier is entitled to compensation for the diminution in the amenity value of the property during the period for which the nuisance persisted. To some extent this involves placing a value on intangibles. But estate agents do this all the time. The law of the damage is sufficiently flexible to be able to do justice in such a case."*

252. Commenting on the judgments of the House of Lords in *Hunter v. Canary Wharf* Waller LJ at p333 in *Dobson* states as follows at para. 31:

> *"31. The speeches of the majority thus clearly establish that damages in nuisance are for injury to the property and not to the sensibilities of the occupiers. That is so, as much for the case of the transitory nuisance interfering with the comfort and enjoyment of the land as it is for the case of the nuisance which occasions permanent injury to the land and to its capital value, or other pecuniary loss."*

253. In the context of how to assess damages Waller L.J. refers again to *Hunter* at para. 32 and states:

"Lord Hoffmann contemplated estate agents valuing the difference between the right to occupy a house without the nuisance and the right to occupy one with it that is to say valuing in the loss of (notional) rental value."

254. Then at para. 35, Waller L.J. in *Dobson* states:

"It follows that the actual impact upon the occupiers of the land, although not formally the measure of common law damages for loss of amenity, will in practice be relevant to the assessment of such damages in many cases, including such as the present where a family home is in question and no physical injury to the property loss, of capital value, loss of rent or other pecuniary damage, arises."

255. In the Australian case of *Uren v. Bald Hills Wind Farm* [2022] VSC 145, Ms. Justice Richards, then in the High Court, in the context of a noise nuisance claim from wind turbines awarded both the plaintiffs damages for past loss of amenity by means of general damages in particular amounts of AUD$12,000.00 each, per year of the nuisance.

256. Richards J. then considers the legal principles relating to the assessment of damages for the future nuisance and indicates that, had she decided to award damages for future nuisance, that she would have approached the matter by assessing the decline in value of the plaintiff's property, see para 373 of *Uren*.

257. On the assessment of damages *Binchy* Law of Torts 4th Edition at para. 24.73 state as follows: -

"The Irish courts have addressed this issue after Hunter. In RDS v. Yeats, Shanley J. having referred to the Hunter restrictions, observed that in Hanrahan "a different and more flexible approach appears to have been taken on the issue of who has the right to sue". In the instant case, the plaintiff was not just the occupier of the lands but also their owner and was entitled to their exclusive possession. Since on any view it had the right to sue for private nuisance, Shanley J. found it unnecessary to consider the difference of approach that appeared to have emerged between the Supreme Court and the House of Lords."

258. While this commentary refers to a divergence with the approach in England as to who could sue, in so far as the underpinning principles referred to in the English cases may have had a limiting effect on who could sue, I am also satisfied that the approach identified in *Hunter* and *Dobson* places too much emphasis on the capital value of the property in the context of assessing damages for what may be a transitory nuisance such as from noise or smells.

259. Overall, I am satisfied that the dicta referred to in the Irish cases sets out the appropriate guiding principles for assessing the damages in this case. *Hanrahan, Patterson* and *Webster (No.1)* confirm that general damages can be awarded to each of the plaintiffs in this case for the effect of the nuisance to date. The implications of this analysis will be discussed further in Section XI below.

(2) The constitutional claims pursuant to Articles 40.3 and 40.5

260. In *Sullivan v. Boylan (No.2)* [2013] IHEC 104 Hogan J considers the plaintiffs claim pursuant to Article 40.5 of the Constitution rather than the tort of nuisance and he relied on both Article 40.3 and Article 40.5. The court granted relief for the plaintiff against a defendant who was effectively watching and besetting the plaintiff's home in circumstances where the court felt that the tort of nuisance might not be adequate to address the situation. In relation to Article 40.5 the court held that the rights of the residents of a dwelling to security and protection against all comers and privacy were all necessary features of the inviolability of the dwelling and were rights enjoyed by all who resided in the dwelling and not simply by those who had legal title to the property. This case indicates the ability of the court to rely on the Constitution if there is some deficiency, or limitation, to the existing torts that might otherwise normally apply.

261. In general however, the law is clear, that there is no need to invoke a constitutional right where an existing common law remedy applies. In *Hanrahan* Henchy J. at page 635-636 states as follows:

> *"The plaintiffs have also invoked the Constitution in support of their argument as to the onus of proof. They contend that the tort relied on by them in support of their claims is but a reflection of the duty imposed on the State by Art. 40.3 of the Constitution in regard to their personal rights and property rights. The relevant constitutional provisions are:*
>
> > *"The state guarantees in its laws to respect, and, as far as practicable, by its laws to defend and vindicate the personal rights of the citizen" (Art. 40.3.1).*
> >
> > *"The State shall, in particular, by its laws protect as best it may from unjust attack and in the case of injustice done, vindicate the life, person, good name, and property rights of every citizen" (Art. 40.3.2).*
>
> *I agree that the tort of nuisance relied on in this case may be said to be an implementation of the State's duties under those provisions as to the personal rights and property rights of the plaintiffs as citizens. The particular duty pointed to by the*

plaintiffs is the duty to vindicate the personal right to bodily integrity and the property right to their land and livestock. They say that the vindication of those rights under the constitutional guarantee is not properly effective by leaving them to their rights as plaintiffs in an action for nuisance and that the vindication they are guaranteed requires that once they show that they have been damnified in their person or property as alleged, it should be for the defendants to show that emissions from their factory were not the cause. So far as I am aware, the constitutional provisions relied on have never been used in the courts to shape the form of any existing tort or to change the normal onus of proof."

262. Henchy J. says that it must be shown that the tort of nuisance is *"plainly inadequate to effectuate the constitutional guarantee in question"* and he continues on page 636 *"... but when he founds his action on an existing tort he is normally confined to the limitations of that tort. It might be different if it could be shown that the tort in question is basically ineffective to protect his constitutional right".*

263. In *Hanrahan*, the court was dealing with was an argument that the onus of proof should be reversed and the Supreme Court upheld the High Court's rejection of that argument.

264. The question is dealt with further in the case of *Clarke v. O'Gorman* [2014] 3 I.R. 340. The Supreme Court held that it is only where it could be shown that the existing law did not adequately protect the constitutional rights of the plaintiff that a separate claim for breach of constitutional rights could be invoked. O'Donnell J. (as he then was) at page 359 addresses this question in further detail where he states at paragraph 34:

"The intersection between claims for damages for breach constitutional rights and claims in tort was discussed in Hanrahan v. Merck Sharp & Dohme. The effect of that decision is that the existing torts and other causes of action known to common law are to be considered the method by which the State performs its obligation to vindicate the constitutional rights of the citizen. It is only therefore if it can be shown that the existing law does not adequately protect the constitutional rights of the citizen that a separate claim for breach of constitutional rights can be invoked." *(underlined for emphasis).*

265. In addition, the plaintiff in this case invited the court to rely on Article 40.5 of the Constitution which provides:

"The dwelling of every citizen is inviolable and shall not be forcibly entered save in accordance with law".

266. Article 40.5 of the Constitution has some overlap with Article 8.1 of the European Convention on Human Rights which provides as follows:

> *"Article 8.1 Everyone has the right to respect for his private and family life, his home and his correspondence."*

267. The ECtHR considered Article 8 in the context of the climate crisis in the case of *Verein Klimaseniorinnen Schweiz and Others v. Switzerland, Application Number 53600/20,* ECtHR, Grand Chamber judgment of the Court, Ms. Justice Síofra O'Leary President, 9 April 2024. The case involved applicants who were older women in Switzerland and who had been exposed, by virtue of climate change, to the increasing occurrence and intensity of heat waves in their homes. The ECtHR considered the degree to which environmental nuisances could come within the scope of Article 8 of the ECHR. At para. 514 the European Court of Human Rights state as follows:

> *"514. According to the existing case-law, in order to fall within the scope of Article 8 of the Convention, complaints relating to environmental nuisances have to show, first, that there was an "actual interference" with the applicant's enjoyment of his or her private or family life or home, and, secondly that a certain level of severity was attained. In other words, they have to show that the alleged environmental nuisance was serious enough to affect adversely, to a sufficient extent, the applicants' enjoyment of their right to respect for their private and family life and their home."*

268. The resonances between this analysis of the interaction between Article 8 of the ECHR in relation to environmental nuisances (in that case excessive heat waves) and the common law development of the law of nuisance are readily apparent.

269. The judgment of the Court (O'Leary P.), went on to conclude that the applicant's Article 8 rights had been violated by Switzerland's failure, amongst other things, to quantify adequately through carbon budgets national Greenhouse Gas emissions limitations.

270. The question raised therefore from the foregoing principles are the degree to which the plaintiffs here have rights engaged pursuant to Article 40.3 and Article 40.5 and whether the existing tort of nuisance can be said to *"not adequately protect the constitutional rights of the citizen"* such *"that a separate claim for breach of constitutional rights can be invoked".*

(3) The issue of whether to grant a full injunction or a partial injunction & damages

271. The parties referred extensively to the UK Supreme Court decision in *Lawrence v. Fen Tigers Ltd* [2014] 2 AER 622 and *Fearn v. Tate Gallery* [2023] 2 AER 1, where Leggatt J. helpfully discusses *Lawrence*.

272. *Lawrence* concerned a claim for damages and an injunction in the context of a noise nuisance from a motor racing stadium and motocross circuit.

273. The lead judgment was delivered by the President of the Court, Lord Neuberger. This judgment points out how the grant of planning permission for a particular use can be relevant to a nuisance claim in potentially two ways. Firstly the planning permission can permit the very noise complained of and secondly it facilitates the defendant making an argument that the character of the locality has been altered as a result of the permission. At para. 100 on page 649 Lord Neuberger addresses the question of awarding damages instead of an injunction in considerable detail. At paragraph 101 Lord Neuberger refers to Lord Cairns Act and discusses the question as to what principles govern the exercise of the court's jurisdiction to award damages instead of an injunction. The 19th century decision of *Shelfer* mentioned above is referred to in considerable detail. At paragraph 105 he refers to the decision of Lord McNaughton in *Colls v. Home and Colonial Store Ltd* [1904] AC 179 who at page 193 refers to the question of whether "the defendant has acted fairly and not in an unneighbourly spirit". The judgment discusses how during the 20th century there had been considerable discussion as to the *Shelfer* approach and he concludes at para. 123 on p. 655 as follows:

> *"Where does that leave A L Smith LJ's four tests? While the application of any such series of tests cannot be mechanical, I would adopt a modified version of the view expressed by Romer LJ in Fishenden v. Higgs and Hill Ltd [1935] AER 435 at 448. First, the application of the four tests must not be such as to be fetter on the exercise of the court's discretion. Secondly, it would, in the absence of additional relevant circumstances pointing the other way, normally be right to refuse an injunction if those four tests were satisfied. Thirdly, the fact that those tests are not all satisfied does not mean that an injunction should be granted."*

274. This judgment also addresses whether or not the court should take account of the public interest and he concludes that it is difficult to envisage any circumstances in which the public interest arises that it could not as a matter of law be a relevant factor. Neuberger P. also states at paragraph 124 as follows:

> *"The fact that the defendant's business may have to shutdown if the injunction is granted should, it seems to me, obviously be a relevant fact, and it is hard to see*

why relevance should not extend to the fact that a number of the defendant's employees would lose their livelihood, although in many cases that may well not be sufficient to justify the refusal of an injunction".

275. He also concludes that planning permission for the activity is relevant. At para. 125 he states:

"Accordingly, the existence of a planning permission which expressly or inherently authorises carrying on an activity in such way as to cause a nuisance by noise or the like, can be a factor in favour of refusing an injunction compensating the claimant in damages. This factor would have real force in cases where it was clear that the planning authority have been reasonably and fairly influenced by the public benefit of the activity where the activity cannot be carried out without causing the nuisance complained of. However even in such cases the court would have to weigh up all the competing factors."

276. Lord Neuberger also agrees with Lord Mance (who in turn agrees with "Lord Neuberger's nuanced approach") and with the statement at paragraph 168 in particular, where Lord Mance states as follows:

"I would only add in relation to remedy that the right to enjoy one's home without disturbance is one which I would believe that many, indeed most, people value for reasons largely if not entirely independent of money".

277. Lord Neuberger refers to proportionality in para. 126 in this context:

"In some such cases, the court may well be impressed by a defendant's argument that an injunction would involve a loss to the public or a waste of resources on account of what may be a single claimant, or that the financial implications of an injunction for the defendant would be disproportionate to the damage done to the claimant if she was left to her claim in damages. In many such cases, particularly where an injunction would in fact stop the defendant from pursuing the activities, an injunction may well not be the appropriate remedy."

278. In relation the process of assessing damages in lieu of an injunction in the context of awarding damages for what will be a future nuisance, Lord Neuberger observed the following paragraph 128:

"A final point which it is right to mention on this issue is the measure of damages, where a judge decides to award damages instead of an injunction. It seems to me at least arguable that where a claimant has a prima facia right to an injunction to

restrain a nuisance, and the court decides to award damages instead, those damages should not always be limited to the value of the consequent reduction in the value of the claimant's property. While double counting must be avoided, the damages might well, at least where it was appropriate, also include the loss of the claimant's ability to enforce her rights which may often be assessed by reference to the benefit to the defendant of not suffering an injunction."

279. This approach gets support from the reasoning of Bingham MR in *Jaggard v. Sawyer* [1995] 2 AER 189. The same approach was supported by Millett LJ in *Jaggard*:

> *"... there is no reason why compensatory damages for future trespassers and continuing breaches of covenant should not reflect the value of the rights which she has lost, or why such damages should not be measured by the amount which she could reasonably have expected to receive for their release."*

280. *Fearn* was a case involving nuisance whereby it was claimed that members of the public visiting the Tate could view directly into the apartments of the plaintiffs from a viewing gallery walkway that had been added to the Tate Gallery. In *Fearn* the UK Supreme Court emphasised that the law of private nuisance was concerned with maintaining a balance between the conflicting rights of neighbouring landowners and that therefore not every interference with the persons use and enjoyment of their land was actually nuisance. The Supreme Court also pointed out that it was not a defence that the activity carried on by the defendant was for a public benefit. In deciding whether one party's use had infringed the others rights, the public utility of the conflicting uses was not relevant. The public benefit of the use causing the nuisance was, however, relevant to remedy. The Court held that the public interest might sometimes justify awarding damages rather than granting an injunction to restrain the defendant's harmful activity but it could not justify denying the victim any remedy at all.

281. Lord Leggatt gives the key speech for the majority and in his judgment from para. 9 onwards he discusses the scope of private nuisance. He states at para. 11:

> *"It follows from the nature of the tort of private nuisance that the harm from which the law protects the claimant is diminution in the utility and amenity value of the claimant's land, and not personal discomfort to the persons who are occupying it".*

282. Lord Leggatt addresses the concept of reciprocity in the context of the law of nuisance on page 15 of his judgment stating at para. 34:

"The underlying justification for those 'well-settled' tests was spelt out by Lord Millett in Southwark when he explained ([1999] 4 AER 449 at 464) that:

> *"The governing principle is good neighbourliness and this involves reciprocity. A landowner must have the same consideration for his neighbours as he would expect his neighbour to show for him."*

283. In relation to the public interest, Lord Leggatt states at para. 114 on page 36 that the public interest is relevant to the remedy but not to liability, and he explains why this is so from para. 121 *et seq*. At para. 127 *et seq* Lord Leggatt discusses the question of damages in lieu of an injunction and he refers to Lord Cairns Act and the seminal decision in *Shelfer*.

284. At paragraph 129 he turns to discuss the decision mentioned of the UK Supreme Court in *Lawrence,* discussed above. He states as follows:

> *"All the members of the court agreed that, in the words of Lord Carnworth at para [239], 'the opportunity should be taken to signal a move away from the strict criteria derived from Shelfer'. Different opinions were expressed, however, about how far this move should go. Lord Sumption saw "much to be said for the view that damages are ordinarily an adequate remedy for nuisance and that an injunction should not usually be granted in case where it is likely that conflicting interests are engaged other than the parties' interests". This drew a protest from Lord Mance, who emphasised that "the right to enjoy ones' home without disturbance is one which I would believe that many, indeed most, people value for reasons largely if not entirely independent of money". The majority agreed with Lord Nueberger, for whom the court's power to award damages in lieu of an injunction 'involves a classic exercise of discretion, which should not as a matter of principle, be fettered'. Lord Neuberger recognised that nevertheless 'it is appropriate to give as much guidance as possible so as to ensure that, while the discretion is not fettered, its manner of exercise is as predictable as possible'."*

285. Lord Leggatt continues however in para. 129 as follows:

> *"I think it is fair to say that - perhaps because of the divergent opinion of the Justices - there is little in the way of such guidance to be gleaned from his judgment. Lord Neuberger ended his discussion of this issue by acknowledging that 'we are at risk of introducing a degree of uncertainty into the law' but said that 'insofar as there can be clearer or more precise principles, they would have to be worked out in the way familiar to the common law, namely on a case-by-case basis'."*

286. In deciding to remit the matter to the High Court, Lord Leggatt states as follows at para 132:

> *"In the circumstances, if the parties cannot reach agreement on a solution, a further hearing will be required to address the question of remedy which should take place before a judge of the Chancery Division. Without constraining the matters on which the court may choose to hear argument, they may need to include:-*
>
> *(i) whether there is a public interest in maintaining the gallery with a 360° view capable of overriding the claimants' prima facie remedy of an injunction;*
>
> *(ii) whether any remedial measures which the Tate may propose are sufficient to avoid an injunction or damages;*
>
> *(iii) the scope of any injunction; and*
>
> *(iv) questions of quantification of any award of damages."*

287. The above guidance from Leggatt J. is useful as an approach to consider to this issue in this case. As it happens there was sufficient evidence adduced in this case to enable an analysis of similar questions.

288. Lord Cairns Act and the role of the Courts of Chancery are discussed in *Kirwan* Injunctions Law in Practice 3rd Edition at para.1 -17 et seq. *Kirwan* traces the origin of the Courts of Chancery at para. 1-18 and he describes how originally, as the Lord Chancellor's courts, they developed into a distinct judicial system retaining, from the period prior to the Reformation, concepts imported from the Ecclesiastical Courts and from Canon Law such as "conscience"; see para 1-19.

289. *Kirwan* also refers to the seminal decision of the Earl of Selbourne L.C. in *Ewing* v *Orr Ewing* (1883) 9 Appeal Cases 34 who states at p40:

> *"The courts of Equity in England are, and always have been courts of conscience, operating in personam and not in rem; and in the exercise of this personal jurisdiction they have always been accustomed to compel the performance of contracts and trusts as to subjects which were not either locally or ratione domicilii within their jurisdiction".*

290. On one view, Lord Cairns Act and the Judicature Act are essentially administrative in nature, so that for example, the provision we are concerned with here, section 2 of Lord Cairns Act enabled the Courts of Chancery to award damages in addition to or in substitution for an injunction. Equally in section 28 (11) of the Supreme Court of Judicature Act Ireland 1877

it provided that where there was a conflict between the rules of equity and the common law, then equity was to prevail; see Jessel MR in *Walsh v. Lonsdale* (1882) 21 Ch.D 9 at 14 and paragraph 1-39 of *Kirwan*.

291. *Kirwan* then discusses the *Shelfer* principles in light of the UK Supreme Court decision in *Lawrence*, discussed above. *Kirwan* contends "it is arguable that the approach in the *Lawrence* case is less dramatic than might at first appear; the fact that the principles in *Shelfer* were already approached as being working rules and no more than that is evident from the comments of Millett LJ in *Jaggard v Sawyer*". This analysis appears correct and gets recent support from the judgment of Egan J. in *Webster (No. 2)* [2025] IEHC 300 at para 200:-

> *"[A]s noted by Lord Legatt in Fearn and others v. Board of Trustees of the Tate Gallery [2023] UKSC 4, ("Fearn"), there had been a move away from "the strict criteria derived from of Shelfer". Ultimately, departure from the Shelfer principles, on grounds of public interest or otherwise, is to be determined by the courts on a case by case basis."*

292. Reference was to the decision of *Bellew v. Irish Cement Limited* [1948] I.R. 61 where the Supreme Court took the view that the court should not take the public interest into account in dealing with the rights of private parties in the context of an application for an interlocutory injunction to restrain a nuisance from a cement quarry, that was producing most of the cement, it was claimed, needed for the State's then public housing programme. As to whether this still remains good law is questioned in *McMahon and Binchy* Law of Torts 4th Edition at p1694 and in *Kirwan* at paras 4-143 to 4-148. In any event it is to be observed that *Bellew* was a decision in relation to an application for an interlocutory injunction and is therefore not strictly applicable to the scenario here. In addition, Egan J. in *Webster (No.2)* states as follows on this topic at para 201:-

> *"However, I note that, in the same case, Black J. took a different view [Black J. delivered a robust dissent] and held that although public convenience cannot affect the right of a private individual to a remedy for nuisance, it can be considered in determining which remedies should be granted. Furthermore, in Patterson v. Murphy, Costello J. acknowledged (pp. 99-100) that the public interest was to be taken into consideration (albeit that he found that none arose in the case before him)."*

293. There were a number of matters in relation to this issue that were not in dispute as between the parties. In the context of the admitted nuisance here which is ongoing, it is agreed that *prima facia* the plaintiffs are entitled to an injunction. The defendants agreed that the

Court's discretion is wide. In *Halpin v. Tara Mines* [1976/7] ILRM 28 Gannon J. (in a judgment that was approved of by the Supreme Court in *Hanrahan*) at page 30 states as follows:

> *"As a general proposition I take it to be the law that an occupier of land, or of premises thereon, who embarks on operations or activities out of the ordinary must not cause or permit, inter alia, noises or vibrations to pass into his neighbour's property in such a way as materially to interfere with the ordinary comfort of the occupier of such property or in such a way as to cause physical damage to the property of his neighbour. Where such interference or such damage is shown to be a matter of some continuity, repetition, or persistence it founds an action for nuisance for which the appropriate remedy would be an order of the court restraining the harmful activities or operations whether accompanied or not by an award of damages by way of recompense".*

294. In *Patterson v. Murphy* Costello J. at page 99 addressed the question of an injunction and states as follows:

> *"The defendants have submitted that even if an infringement of the plaintiffs' rights has been established the court has the discretion to award damages in lieu of an injunction and that it should do so in this case. I agree that relief by way of an injunction is a discretionary remedy. There are, however, well established principles on which the court exercises this discretion. The relevant ones for the purposes of this case can be summarised as follows:*
>
> 1. *When an infringement of the plaintiffs' right and a threatened further infringement to a material extent has been established the plaintiff is prima facie entitled to an injunction. There may be circumstances however depriving the plaintiff of this prima facia right but generally speaking the plaintiff will only be deprived of an injunction in very exceptional circumstances.*
> 2. *If the injury to the plaintiffs' rights is small, and is one capable of being estimated in money, and is one which can be adequately compensated by a small money payment, and if the case is one in which it would be oppressive to the defendant to grant an injunction, then there are circumstances in which damages in lieu of an injunction may be granted.*
> 3. *The conduct of the plaintiff may be such as to disentitle him to an injunction. The conduct of the defendant may be such as to disentitle him from seeking the substitution of damages for an injunction.*
> 4. *The mere fact that the wrong-doer is able and willing to pay for the injury he has inflicted is not a ground for substituting damages.*

In the foregoing dicta, Costello J was largely adopting the approach outlined in the case of *Shelfer v. City of London Electric Companies* [1895] 1 CH 287.

295. In *Patterson*, at page 100 Costello J. then continues:

> *"In the present case there are no circumstances which can deprive the plaintiffs of the relief to which they are prima facie entitled. The infringement of their rights is a most serious one; the injury which they have suffered and will suffer if the nuisance is permitted to continue has been and will be a considerable one; damages would not adequately compensate them. I should add that whilst I am conscious of the financial consequences for the defendants of the granting of an injunction I do not think bearing in mind that the sale to the plaintiffs took place at a time when Mr. Murphy was aware of the possibility that quarrying operations in the adjoining field might take place, and bearing in mind that both defendants must have fully appreciated the great inconvenience to the plaintiffs which the quarrying operations would cause, that relief by way of an injunction could be termed oppressive."*

296. Both parties referred to Lord Cairns Act, namely the Chancery Amendment Act 1858 and section 2 thereof which appears to be still in force:

> *"Section 2. In all cases in which the Court of Chancery has jurisdiction to entertain an application for an injunction against a breach of any covenant, contract, or agreement, or against the commission or continuance of any wrongful act, or for the specific performance of any covenant, contract, or agreement, it shall be lawful to the same court, if it shall think fit, to award damages to the party injured, either in addition to or in substitution for such injunction or specific performance; such damages may be assessed in such manner as the court shall direct."*

297. Finally, further useful factors, such as the "behaviour and attitude" of both sides and whether notice of such an application for damages in lieu has been given by the defendant, are identified by Lord Neuberger at para 149 in *Lawrence*, where he states as follows:

> *"The final point is whether the judge should have awarded damages rather than an injunction ... The decision whether to award damages instead of an injunction can be dependent on a number of issues, including the behaviour and attitude of the parties. It is therefore a matter on which the trial judge is particularly well positioned to assess in a case such as this, where there was substantial oral evidence. Further, a defendant who wishes to argue that the court should damages rather than an injunction should make it clear that he wishes to do so well in advance of the hearing, not least because the claimant may wish to adduce documentary or oral evidence on that issue which she would not otherwise consider relevant."*

298. The foregoing principles will be considered further in the context of the decision on this issue set out below.

(4) Aggravated damages

299. There was no significant dispute as to the legal principles relating to awarding aggravated damages. These are set out in *Conway v INTO* [1991] 2 IR 305; see the judgment of Finlay C.J. at page 317 who describes them thus:-

> *"2. Aggravated damages, being compensatory damages increased by reason of*
>
> > *(a) the manner in which the wrong was committed, involving such elements as oppressiveness, arrogance or outrage, or*
> >
> > *(b) the conduct of the wrongdoer after the commission of the wrong, such as a refusal to apologise or to ameliorate the harm done or the making of threats to repeat the wrong, or*
> >
> > *(c) conduct of the wrongdoer and/or his representatives in the defence of the claim of the wronged plaintiff, up to and including the trial of the action.*
>
> *Such a list of the circumstances which may aggravate compensatory damages until they can properly be classified as aggravated damages is not intended to be in any way finite or complete. Furthermore, the circumstances which may properly form an aggravating feature in the measurement of compensatory damages must, in many instances, be in part a recognition of the added hurt or insult to a plaintiff who has been wronged, and in part also a recognition of the cavalier or outrageous conduct of the defendant."*

300. The *Uren* case provides a good example of how a court dealt with the issue of aggravated damages in a noise nuisance claim involving a wind farm. At para. 387 the Ms. Justice Richards noted that "a reasonable neighbour would have tried to reduce the noise; Bald Hills has not". Richards J. noted there that the operator had disputed the complaints with the local authority and concluded that it would have been better directed to finding a solution to "the gearbox tonality issue". Richards J. concluded that the defendant had not dealt properly with the plaintiff's reasonable legitimate complaints and that this "*at least doubled the impact of the loss of amenity each of them suffered at their homes*".

(5) Punitive / exemplary damages

301. The plaintiff relied on the authorities of *McIntyre v Lewis* [1991] 1 IR 121 and *Conway v INTO* [1991] 2 IR 305. In *McIntyre v Lewis* McCarthy J states that it is inconsistent with the dynamism of the common law to delimit in any restrictive way the nature of the development

of awards of aggravated or exemplary damages. These authorities point out that exemplary damages must refer to the conduct of the defendant. In *Conway*, Griffin J. at page 323 refers to whether or not the actions are a "deliberate and conscious disregard of the constitutional rights of the plaintiff".

302. In *Conway* at page 321 Finlay C.J. indicates that any award should be considered in the context of the outcome of the case as a whole and states as follows:-

> *"Bearing in mind the reasons for the existence of a right to award exemplary damages and the purposes which in my opinion a court must be seeking to achieve in making an award of exemplary damages, as a general principle they should not be awarded if in the opinion of the court the amount necessarily payable by the wrongdoer in the form of compensatory damages constituted a sufficient public disapproval of and punishment for the particular form of his wrongdoing. The reference by the learned trial judge in his judgment in this case to the approximate total or aggregate sum by way of exemplary damages which the defendants might have to pay in the multiple actions which they were facing seems to me to constitute a clear recognition by him of this general proposition, bearing in mind that he was at the same time as assessing these exemplary damages, assessing in the individual case compensatory damages as well."*

XI. DECISION

The decision on each issue and the reasons for them, are now set out hereunder.

(1) The amount of damages for the effect of the nuisance to date

303. As indicated above, the defendants admitted liability for the nuisance as pleaded by the plaintiffs on Day 11 of the trial. Counsel for the defendants confirmed that there was no issue taken that any part of the plaintiffs' evidence exceeded the boundaries of the pleaded claim. The details and nature of the interference which the wind turbine noise caused to the plaintiffs use, comfort and enjoyment of their home is described in great detail earlier in this judgment in Section IV where there is a detailed summary of the experience of each plaintiff set out, followed by a summary of the independent descriptions and assessment of the level of the interference by the independent experts who gave evidence in the case.

304. Based on the decisions in *Patterson*, *Hanrahan* and *Webster (No.1)* referred to earlier in Section X (Relevant legal Principles), I am satisfied that it is appropriate to award each of the plaintiffs' general damages for the annoyance, discomfort, inconvenience and distress suffered as a result of the nuisance admitted by the defendants.

305. Those legal principles indicate that the amount to be awarded must be fair and reasonable to both sides; *MN v SN, Morrissey v HSE*. I am satisfied that the assessment must take account of the full duration of the nuisance and that the most straightforward manner in which to assess the damages in this case (where the nuisance and level of interference broadly continued in a similar manner from when it started) is to consider a sum appropriate to each plaintiff for each year of interference.

306. In that regard, in respect of each plaintiff the full account of their experience is set out above in Section IV. In particular, there are a number of particular features to the level of the interference which the nuisance caused. It interfered with their general ability to experience and enjoy their home as a place of refuge, rest and relaxation. There was no real escape from the noise for the reasons described earlier and explained by the experts. Secondly, the interference was particularly acute in terms of the sleep disturbance experienced by both plaintiffs. Next, they both experienced the loss of substantial enjoyment of their garden as a place to rest and relax and to carry out the ordinary tasks of maintaining and enjoying a sizeable garden in a rural location. The position for Ms. Moorhead was in general appreciably worse. She was in the home, in general, more than Mr. Byrne. Her depths of resilience and ability to cope were already stretched for the reasons described earlier in Section IV. Finally, both Mr. Byrne (usually in the evenings) and Ms. Moorhead worked in the home. Their ability to do this was also interfered with.

307. It is important to approach the assessment of damages through an objective lens. The experience and accounts of the interference by each plaintiff were supported by the independent experts. In terms of gauging where on the range of potential levels of interference these claims sit, Mr. Stigwood described the case as "extreme" and "one of the worst cases of wind turbine noise" he had come across. The international standards now recognise that amplitude modulation and low frequency noise have a deleterious effect on the wellbeing of people. The levels in this case often exceeded the levels considered tolerable. Mr. Corr, the defendants' valuer, described the case as an "outlier" and increased his original assessment of the value of the impact seventeen fold having considered the transcripts of the plaintiffs' evidence and that of Mr. Stigwood.

308. The tort of nuisance protects a property right and it permits of a remedy of general damages and permits of an award that is reasonable and fair to both sides. In this case, the common law remedy is protecting constitutional rights. Where there is substantial interference in the ordinary use and enjoyment of a person's home for a sustained period of time, I accept the plaintiffs' submission that such damages should be meaningful.

309. On the defendants' approach, the court would award a single sum for damages to date based on the evidence of the expert valuers as to the notional reduction in the capital value of the plaintiffs' home. The expert valuers agreed that, absent the wind farm, the capital value of the plaintiffs' property is €844,000.00. As referred to above in Section IV(f)(iv), the defendants' expert estimates that the damage done to the agreed capital value of the home by the wind farm is between 15-20%, although 2% of this is for the visual impact about which complaint is not made. That means his estimate of the notional capital damage is between 13-18% of the agreed sum of €844,000.00, in other words between €109,720 and €151,920 (this range has a midpoint of €130,820). It will be recalled from Section IV(f)(iv) above, that Mr. Corr felt this case was an "outlier" in terms of how bad it was and he had initially only assessed the noise impact on the capital value of the home at 1% of its value.

310. The plaintiffs' expert in this regard was Mr. Anthony O'Regan, an experienced estate agent. He agreed the sum of €844,000.00 with Mr. Corr, as the value of the plaintiffs' property without the wind farm. In his view, the effect of the wind farm was more significant and he estimated that the value of the home was only €450,000.00 due to the nuisance, in other words a drop of €394,000.00.

311. On the defendants approach, the court would assess the damages for the nuisance to date by weighing the competing evidence of these two valuers and, based on that exercise, assessing damages at either somewhere in the range of the defendants' expert (€130,820.00 being the midpoint of Mr. Corr's range) or €394,000.00 or somewhere in between (as a reference point for example, €262,410.00 being the midpoint of the two valuers).

312. The defendants' submissions in this regard were carefully made and, correctly anchored in weighty English authorities. However, I am not satisfied that this is the correct approach in this case. It places too much weight on the capital value of the person's home in the circumstances of a noise nuisance which will be restrained by the Court and where the house (which itself sustained no physical damage) has not been sold as a result of the nuisance. The defendants' approach could lead to drastically different awards of general damages in cases where neighbours might have experienced very similar interferences with the use and enjoyment of their homes. For example, the interference with sleep, rest or relaxation in a garden reading a book, will in general be similar irrespective of the value of a person's home. There is an underlying constitutional right involved here and the approach to assessing damages must take account of the principles of equality that underpins any consideration of compensation for breach of a constitutional right. As it happens the Court is assessing those damages pursuant to the principles that govern the tort of nuisance but that remedy is sufficiently flexible to ensure a just approach and damages for the same wrong should be coherent whether looked through the prism of the common law or the Constitution.

313. In addition, the defendants' suggested approach in a case of this sort does not readily reflect the duration of the experience of the plaintiffs. In that regard, the defendant's valuer indicated that based on his research and the research referred to in his report, it was his opinion that there was academic evidence to suggest that in some studies the impact on the capital value of a property near a wind farm *reduced* over time. In other words, the longer a nuisance went on, the less damages a plaintiff would get. It was not clear if these studies differentiated significantly between homes where the residents were experiencing a substantial interference in their ordinary use and enjoyment of their home on the one hand, and properties which were simply near a wind farm, on the other. In any event, his evidence as to the notional impact on the capital value of the plaintiffs' home was not particularly anchored in the duration of the nuisance and indeed his report suggested that the impact on the capital value of a home near a wind farm *decreased* proportionality to the duration of exposure to the wind farm; see para 9.2(f) of Mr. Corr's report where he states "any negative impacts [on the capital value] dissipate with passage of time after the construction phase of the wind farm" and at para 9.1.5 Mr. Corr referred to research which he said supports the view that "the price effect decays over time". In this type of case, I am not satisfied that an approach should be adopted that does not appropriately reflect the duration of the exposure endured by each plaintiff. Indeed, it would be a curious outcome if the plaintiffs could have been awarded a higher amount of general damages for nuisance to date had the case been considered as one involving an exposure to six years of nuisance for example, rather than twelve. The position of course might be different in a case where the plaintiffs have decided to move and sell their home due to the nuisance; in those circumstances the impact of the noise nuisance on the capital value of their home might well loom more significantly as the key factor in assessing the amount of damages according to the general principles. However, by virtue of the outcome of this case it is not necessary for the plaintiffs to sell their home to escape the nuisance. In those circumstances, for the avoidance of doubt, this is not a case where the plaintiffs should be awarded both general damages and damages for the notional drop in the capital value of their home. I am not satisfied that this would be appropriate. As a result of the full injunction there will be no ongoing nuisance. In those circumstances, it would not be reasonable or appropriate where general damages are to be awarded to also award the plaintiffs an additional sum for the notional drop in capital value estimated by the valuers.

314. Turning then to the assessment of an appropriate sum for general damages, it should first be observed that there is little guidance in either *Paterson* or *Hanrahan* as to *how* that should be done. A starting point therefore is the underlying principles. These are discussed above in Section X. Firstly, *Hanrahan, Patterson* and *Webster (No.1)* confirm that general damages can be awarded to *each* of the plaintiffs for the effect of the nuisance to date. The starting principles for assessing those general are those described above in *MN v SN* and then in

Munnelly. The sum should be fair to both sides, objectively reasonable and proportionate to the wrong done.

315. The principle of *restitutio in integrum* looms large in the cases referred to; see *Munnelly* discussed above in particular. While restoring, by means of pecuniary award, a plaintiff to the position he or she was in, prior to the nuisance, is less clear as a guide in a case involving discomfort caused by noise or smells (compared to a physically damaged building), the cases nonetheless helpfully establish the following general propositions:-

(i) the law of private nuisance protects a person's property right, namely the entitlement to the ordinary use, enjoyment and comfort of the person's property without substantial interference from their neighbour;

(ii) the assessment of whether the interference is substantial is considered from the perspective of an objectively reasonable person and the interference should be pronounced and prolonged or repeated;

(iii) a plaintiff who suffers such a nuisance so that it causes them upset, inconvenience or distress - even where these fall short of the level that would constitute a personal injury - due to for example noise or smells, is entitled to general damages;

(iv) the general purpose of those general damages is to compensate the plaintiff by restoring them fairly and reasonably to the position they were in prior to the nuisance;

(v) in the assessment of those general damages in such a case, the measure of the damages should be fair and reasonable to both sides and proportionate with the wrong sustained and with the general approach of the courts to awards in analogous cases;

(vi) the court should consider all the relevant factors in the particular case, including the nature of the plaintiff's property, the plaintiff's relation to it, the nature of the wrongful act causing the nuisance, the conduct of the parties subsequent to the wrongful act, and the pecuniary, economic or other relevant implications or consequences of the wrongful act complained of;

(vii) as the tort of private nuisance protects a property right, it may well be helpful to consider whether the nuisance complained of has caused a notional damage to the capital value or income generating value of the property. Whether this is appropriate will depend on all the circumstances of the case;

(viii) as the tort of private nuisance also protects a person's property rights under the Constitution, general damages should not be assessed in a manner that

would be discriminatory or produce unjust results in the context of persons who experience similar or equivalent levels of discomfort, inconvenience or distress as a result of a nuisance. Every person is entitled to the ordinary use, enjoyment and comfort of their home irrespective of the value of the property and general damages for nuisance should seek to reflect that entitlement equally. For example, a plaintiff whose enjoyment of his garden is disrupted by a noise nuisance from a nearby factory should not be treated substantially differently in the measurement of general damages to his neighbour who suffers the same nuisance, but who may happen to have a considerably more valuable garden.

316. Here the full effect of the interference is described above. It has been substantial for a period of twelve years from May 2013. While I am not minded, for the reasons set out earlier, to assess damages based on the notional impact on the capital value of the plaintiffs' property, the defendants' valuer has estimated that the effect of the nuisance as having a substantial effect, is in the order of €150,000. Using the defendants' approach, the amount would be €394,000.00 based on the plaintiffs' valuers opinion. The defendants accept therefore, that based on the principles as they see them (and they did not suggest those principles were in anyway irrational) that a sum in the range of the valuers' estimates would be "fair". In addition, the conduct of the defendants has been such as to allow the nuisance to continue for many years. This adds to the reasons for assessing the damages for each plaintiff based on an amount that reflects the duration of the nuisance and this is most straightforwardly done by an appropriate amount for each year of the interference. The nature of the interference has been described by the experts as "extreme", "one of the worst cases" and "an outlier". Both sides submitted that the court should not have regard to amounts awarded for personal injuries claims. Neither side wished to submit a figure for general damages and there are few enough precedents for this scenario and such precedents as exist are obviously very different. The amount of general damages awarded in *Patterson* for approximately six months noise nuisance in 1978 was IR£500 for each plaintiff (equivalent to €3,855 today according to the CSO inflation calculator, or €7,710 for a year – but a considerably higher sum if the inflation is tracked to property inflation). In Australia in *Uren,* decided in March 2022, each plaintiff was awarded the sum of AUD$12,000 (equivalent to €7,618 today) per year for noise nuisance from a nearby wind farm. Although that sum was then doubled for each plaintiff, due to the aggravation.

317. The level of interference in this case was extreme and therefore must be at the serious end of any appropriate range of damages. The interference seriously disrupted each plaintiffs ability to enjoy their home, their place of rest and relaxation, a place which they enjoyed with their children and their own parents, a place from which they did not feel they could or wish to move from, a place where they both also worked. The level of interference tested

their resilience, their reserves and their ability to cope. This level of interference was objectively supported by independent experts and recorded sound data. The nature of the noise, in particular the amplitude modulation and low frequency tonal noise, regularly passed limits recognised internationally as being the limit of what is considered tolerable. The behaviour and response of the plaintiffs was reasonable, patient and one which was seeking to engage with the defendants and the local authority to achieve a solution. The general response of the defendants was exceedingly poor. While they admitted liability during this trial, for twelve years they avoided engaging properly or substantively with the plaintiffs' complaints. Accordingly, taking all of the foregoing into account, and taking account of the different level of effect on each plaintiff and allowing for the fact that both sides experts viewed the case as "extreme" and an "outlier", I propose to measure the general damages per year for Mr. Byrne at €10,000.00 and at €15,000.00 for Ms. Moorhead. This means that Mr. Byrne will be awarded general damages to date for the nuisance in the sum of €120,000.00 and Ms. Moorhead's award is €180,000.00.

Stigma Damages

318. I do not propose to make an award of stigma damages or some additional award for a notional impact on the capital value of the property. For the reasons set out below, I propose to grant a full injunction directing the shutdown of the three turbines at all times. The defendants had in any event also indicated that they would implement a full adjustment of the software controlling the three turbines to remove the problem of shadow flicker. Therefore, there will be no ongoing nuisance. Such noise as emanates from the fourth turbine, near the three turbines complained of, does not generate enough noise to constitute a nuisance, based on the evidence of Mr. Meyer and, in addition and consequently, the plaintiffs do not seek and have not sought an order in relation to this turbine. There is therefore an operating wind farm nearby. It will have three remaining turbines that are not affected by the Court Order. While Mr. O'Regan gave evidence that in his opinion the house would still, even in this scenario, suffer a damage to its capital value, which was called a stigma damage, I am not persuaded that the weight of his evidence on this point was sufficient to satisfy me of this. Firstly, he had no examples of it actually happening. Second, he equated it to what he called a "haunted house" syndrome. In that regard, he may well be correct that there could be some future purchaser of this house (if and when it might ever be on the market) who will discount their offer based on the noise nuisance history (even though it will be fully abated by the result of this action) but that is not, in itself, sufficient to ground an award of damages. In my view it is too speculative. In that regard on Day 18 (page 22 at line 14) Mr. O'Regan in his direct evidence said in response to a question about the value of the house even if the turbines are "turned off completely", answered "*I would put it akin to – I mean, it might be – I don't know, I have no proof of this, but I would compare it to maybe a haunted house*". Mr. Corr the defendants' expert, did not agree with this. Mr. O'Regan's view was that the house might be worth €650,000 rather than €844,000 due to this stigma damage. I am not persuaded of this for the

foregoing reasons. It is too speculative and is lacking in supportive examples. In addition, there is a sense in which it would not be reasonable to impose such damages on the defendants where the nuisance, as a result of the orders made, will have been fully abated.

319. Finally, if I am wrong in this approach of not following the defendants submissions that the damages to date should be assessed based on the notional damage to the capital value of the house, and if the defendants submissions (based on the English cases discussed above) are correct, then I propose to indicate how I would have resolved the factual dispute between the two valuers, Mr. O'Regan for the plaintiffs and Mr. Corr for the defendants.

320. As indicated earlier, Mr. O'Regan assessed the notional impact on the capital value of the house at €394,000.00 (€844,000 less a remaining value of €450,000). Mr. Corr assessed the noise impact at between 13-18%, being a range of between €109,720 and €151,920 (this range has a midpoint of €130,820). Overall, I was slightly more persuaded of the evidence of the plaintiffs' valuer on this point. He had extensive and substantial experience of buying and selling properties for many decades. On the other hand, Mr. Corr's approach was more research and academic based. In each case, both expert opinions were in themselves estimates without many examples. In addition, Mr. Corr had initially significantly underestimated the degree of impact and his revision (based on a review of the actual evidence) indicates that overall Mr. O'Regan's view that the impact was serious is correct. Overall, therefore Mr. O'Regan had substantially more experience of working in the residential property market, his approach to valuation was more rooted in real life experiences of sales, Mr. Corr's approach was more academic and research based, Mr. Corr's revised valuation indicates that Mr. O'Regan's view and approach was more correct. While reaching a figure in these circumstances involves some degree of estimation I would have estimated the impact on the capital value of the plaintiffs' property as more probably a little closer to the estimate put forward by the plaintiffs' expert for the foregoing reasons and I would have awarded a sum of €275,000. Based on the approach contended for by the defendants, this sum would then be the entirety of the award to the plaintiffs jointly between them for the nuisance to date, as opposed to the plaintiffs each getting a separate award; see *Hunter* and *Dobson*.

(2) The constitutional claims pursuant to Articles 40.3 and 40.5 of the Constitution

321. Applying the dicta of O'Donnell J. (as he then was) in the Supreme Court in *Clarke* I am satisfied that the overarching consideration with respect to this issue is first to consider whether or not the common law tort of nuisance is in some way deficient. As O'Donnell J. states *"It is only if it can be shown that the existing law does not adequately protect the constitutional rights of the citizen that a separate claim for breach of constitutional rights can be invoked."*

322. That consideration is made in a context where, based on the legal principles described earlier in Section X, the conduct of the defendants on its face engages with the plaintiffs' Article 40.3 and 40.5 rights. The admitted nuisance amounted to a substantial interference for a protracted period with the ability of the plaintiffs to enjoy the ordinary use of their home and in a manner which caused them substantial annoyance, discomfort, inconvenience and mental distress. In addition, the nature of this interference and its level of severity, as attested to by the experts and as supported independently by the recordings and data collected by the experts, reaches the level of severity to fall within the scope of Article 8 of the ECHR; see the discussion in the context of environmental nuisances in *Verein Klimaseniorinnen Schweiz* decision of ECtHR. It also, for similar reasons, would appear therefore to engage the plaintiffs' Article 40.5 rights. The tort of nuisance is designed to protect a person's property rights and the admitted nuisance here unquestionably engages the plaintiffs' Article 40.3 property rights.

323. However, I am satisfied that the existing law of the tort of nuisance is adequate to protect the plaintiffs' constitutional rights in this scenario. As explained above, I have decided that the appropriate way to compensate the plaintiffs for the effect of the nuisance to date is by means of an award of general damages that reflects the effect of the nuisance on each plaintiff in a meaningful way and that takes account of the duration of the nuisance, the nature of it and the context in which it occurred.

324. This approach is, for the reasons explained above, consistent with the Irish authorities to date on the matter, albeit that part of the reasoning therein, in particular for not following the approach indicated by the English authorities, is informed by an understanding that the rights protected here are constitutional rights, including pursuant to Article 40.5.

325. In addition, for the reasons more fully described hereunder, I am satisfied that the established principles that govern the discretion of the court to consider awarding damages for a future nuisance, rather than granting a full injunction, are also adequate to protect the plaintiffs' constitutional rights. Again, for the reasons explained below, part of that reasoning is informed by an understanding that the rights protected here are constitutional rights. Accordingly, I do not propose to make any separate finding or grant any specific relief for a breach of constitutional rights.

(3) Whether to grant a full injunction or a partial injunction and award damages for an ongoing nuisance

326. The plaintiffs explained how they wish to stay in their home irrespective of the outcome of the case.

327. As described above in Section X, the authorities (see for example Lord MacNaughton in *Colls* and Neuberger P. in *Lawrence)* make it clear that a court can consider whether or not a defendant who requests to pay damages for an ongoing nuisance to avoid an injunction has acted in a neighbourly spirit. Lord Leggatt in *Fearn*, called it the "concept of reciprocity", stating at para. 34:

> *"The underlying justification for those 'well-settled' tests was spelt out by Lord Millett in Southwark when he explained ([1999] 4 AER 449 at 464) that:*
>
> > *"The governing principle is good neighbourliness and this involves reciprocity. A landowner must have the same consideration for his neighbours as he would expect his neighbour to show for him."*

328. This is relatively uncontroversial. For example, in *Larkin v Joosub* [2007] 1 IR 521, Finlay Geoghegan J. held that the owner of a neighbouring property owed a duty to his neighbour to take reasonable care to prevent his property becoming dangerous or a nuisance, to carry out periodic inspections and repairs as necessary and was liable for a nuisance once aware of it and had a duty to bring a nuisance to end or would otherwise be liable for the continuance of the nuisance.

329. This duty to act in a neighbourly spirit or to have regard to the concept of "reciprocity" (in the context of seeking permission to pay damages in lieu of stopping an ongoing nuisance – not in the context of any liability analysis) would seem in practice to reasonably involve taking account of the following factors in a case such as this:

i. it would involve the putative defendant, on receipt of a complaint, engaging with the person who has made the complaint and investigating whether the complaint has any substance;

ii. the next initial stage would involve, if the complaint appears to be genuine and to have some substance, some initial engagement on reasonable steps that can be taken, that may, during this initial phase, not be unduly burdensome, to address the concerns of the neighbour;

iii. finally, if the full investigation of the complaint leads to a conclusion that there is substance to the complaint, then the putative defendant should wholeheartedly engage in efforts to mitigate the nuisance complained of, informing and collaborating with the plaintiff in an effort to ensure that any steps taken to ameliorate the nuisance and/or to mitigate the problem are seen to be effective.

330. The assertion by Mr. Spicer that as far as he was aware the gearboxes were being maintained was wholly lacking in detail and he had no direct knowledge at all as to what condition the machines or gearboxes were in. While Mr. Meyer explained that the noise could be reduced by curtailing the speed of the blades in certain conditions and or by making adjustments to the gearbox the only curtailment option put forward by the defendant was the complete switching off of the turbines.

331. As set out in more detail in the analysis of the evidence relating to the potential to mitigate the WTN by measures other than shutting down the machines (see Section VI above), the evidence demonstrates that during 2019 (when the defendants were facing an Enforcement Notice from the Council) they had been in touch with the turbine manufacturers Nordex who had indicated:-

- a willingness to engage in relation to developing a potential "*mitigation plan*";
- a clear awareness of the potential issue of "*tonal noise*" (which was not something that was related to the planning permission or its conditions);
- an indication that the machines had different "*noise power modes available*" already on the machines;
- an indication of retrofits involving softer elastomer bearings with which Nordex had already "*had success with*" but which would have some costs if replacements were required; and
- a request for "*noise studies carried out*".

332. The evidence indicates that despite this engagement from Nordex, the defendants decided not to pursue *any* of these options. Nor did they give any explanation for why they did nothing in this regard.

333. The evidence from Mr. Meyer indicates that there were a range of potential solutions to address the concerns such as those being raised by the plaintiffs. Some of the proposed measures involved dealing with the gearbox, the generator and the rotor blades and could involve potentially making upgrades and adjustments to the machines and some involved potential adjustments to the software operating the machines. However, the defendants did not indicate any willingness to carry out such a process and the only curtailment option offered by them was the shutting down of the machines during nighttime and in the mornings at weekends, but otherwise operating the machines as they are currently operating and paying damages for this ongoing future nuisance.

334. The stark reality of the evidence in this case is that if the defendants had approached the plaintiffs' complaints in a wholehearted neighbourly manner and if they had engaged with them in a substantive way, then the evidence described above in Section VI indicates that within a period of year to fifteen months, many of the problems identified could have been substantially addressed, or at least significantly ameliorated.

335. While the evidence indicates that some cost and effort would have been required to this approach, it is quite conceivable that even if all of the complaints of the plaintiffs had not been fully addressed, they may not even have embarked on this High Court litigation in the event of genuine and substantial engagement and significant amelioration of the WTN problem. The course of the correspondence and the patience of the plaintiffs indicates that they were willing to afford a significant amount of time to trying to achieve a practical resolution of the problem.

336. Even if a claim was initiated following such a process and if the problems had been addressed by the type of process or measures identified in Mr. Meyer's report of 20 March 2025, then any claim for damages for nuisance would have been limited in time to a period of approximately 15 months, which would, based on my assessment of the appropriate measure of damages have meant that this case could comfortably have been dealt with in the Circuit Court, indeed each individual case could on its own probably have come within the jurisdiction of the District Court on the basis of some amelioration working well within the 15 month time period estimated by Mr. Meyer.

337. In *Fearn* (discussed above in detail in Section X), Lord Leggatt had described a series of questions that could usefully be considered by the trial court when weighing whether to award an injunction or damages *in lieu,* in respect of a future nuisance. In deciding to remit the matter to the High Court, Lord Leggatt stated as follows at para 132 of *Fearn*:

> *"In the circumstances, if the parties cannot reach agreement on a solution, a further hearing will be required to address the question of remedy which should take place before a judge of the Chancery Division. Without constraining the matters on which the court may choose to hear argument, they may need to include:-*
>
> > *(i) whether there is a public interest in maintaining the gallery with a 360° view capable of overriding the claimants' prima facie remedy of an injunction;*
> >
> > *(ii) whether any remedial measures which the Tate may propose are sufficient to avoid an injunction or damages;*

(iii) the scope of any injunction; and

(iv) questions of quantification of any award of damages."

338. The above guidance from Leggatt J. is useful as an approach to consider to this issue in this case. As it happens there was sufficient evidence adduced in this case to enable this issue to be analysed in the context of similar questions.

339. Firstly, as to the question of whether the public interest can be considered in the context of remedy, I am satisfied that it can. Humphreys J. in *Coolglass* admirably sets out the critical legal and environmental considerations that underpin the public interest in the State reaching its legal targets for the production of energy from renewable sources.

340. I also accept, for the purposes of this analysis, that the common law principles contained in the law of tort (in this particular regard in the context of the discretion of the court to award damages in lieu of an injunction where liability for a nuisance has been established) and section 2 of Lord Cairns Act (which refers to the discretion), merit being considered having regard to Ireland's EU legal obligations in relation to climate change. Equally, this must be balanced with a consideration of the expert evidence in this case, that a failure on the part of developers to engage with concerns about the impact of WTN represents a threat to the development of renewable energy and therefore, rewarding that lack of engagement, is, on the evidence in this case potentially a threat to the roll-out of wind energy.

341. In addition it must be remembered that, as explained by Kenny J. in *Cullen v Cullen* [1962] IR 268, Lord Cairns Act was not intended to turn the Court into a body that legalised wrongdoing and that the discretion, without laying down precise rules should only be exercised in exceptional cases. Kenny J. states in *Cullen* at p286:

> *"The effect of Lord Cairns's Act was explained by Lindley L.J. in Shelfer v. City of London Electric Lighting Co.(4).He said:—"The jurisdiction to give damages instead of an injunction is in words given in all cases . . . but in exercising the jurisdiction thus given attention ought to be paid to well settled principles; and ever since Lord Cairns's Act was passed the Court of Chancery has repudiated the notion that the Legislature intended to turn that Court into a tribunal for legalising wrongful acts; or in other words, the Court has always protested against the notion that it ought to allow a wrong to continue simply because the wrongdoer is able and willing to pay for the injury he may inflict. Neither has the circumstance that the wrongdoer is in some sense a public benefactor . . . ever been considered a sufficient, reason for refusing to protect by injunction an individual whose rights are being persistently*

infringed . . . Lord Cairns's Act was not passed in order to supersede legislation for public purposes, but to enable the Court of Chancery to administer justice between litigants more effectually than it could before the Act . . . Without denying the jurisdiction to award damages instead of an injunction, even in cases of continuing actionable nuisances, such jurisdiction ought not to be exercised in such cases except under very exceptional circumstances. I will not attempt to specify them, or to lay down rules for the exercise of judicial discretion."

342. The position is also succinctly addressed by Egan in *Webster (No.1)* where she states at para 42:-

> *"Although a plaintiff who establishes nuisance has a prima facie right to an injunction such that the defendant bears the legal burden of demonstrating that damages rather than an injunction is an appropriate remedy, the public interest must inevitably be a factor in the court's assessment of an appropriate remedy. At the very least it means that a generalised injunction ought not to be granted where a tailored injunction more suitable to the particular interference held to constitute nuisance is warranted."*

343. The fact that Wexwind has a planning permission for a wind farm is also clearly relevant for the reasons discussed by Neuberger P. in *Lawrence*, discussed above in Section X..

344. Accordingly, I am satisfied that in general there is clearly a public interest in maintaining energy production from wind at the Gibbet Hill wind farm. An injunction for the full shutdown of three turbines will have some impact on that, albeit, it will be miniscule in the context of the overall levels of renewable energy being provided to the grid. It should also be noted that the wind farm does have to "dispatch down" energy at certain times due to the needs and / or capacity of the grid. The defendants only belatedly provided information to the Court about this, at the Court's request, and the information was relatively limited.

345. The defendants have chosen to only propose one remedial measure – that is the shutdown of the turbines at certain "sensitive" times. Despite the expert evidence indicating that other solutions are usually possible, and despite being given ample opportunity to do so, the defendants chose not to explore or put before the Court any solution to abate the nuisance other than the shutdown of the turbines, As will be recalled, when the defendants were facing an Enforcement Notice from the Council back in 2019 they briefly explored potential solutions with Nordex, the manufacturer of the turbines, but did nothing to progress these options.

346. The defendants' expert conceded that, based on the evidence before the Court, the only measure that would fully abate the nuisance would be the full shutdown of the three turbines in question.

347. The evidence before the Court is that if such an order is made, that this will likely lead to the insolvency of Wexwind. Mr. Spicer indicated that in those circumstances an insolvency appointee would likely sell the wind farm to a purchaser who could then operate the wind farm with the remaining three turbines. These have a valid planning permission until 2033 or a further permission.

348. The defendants accepted they could not meet the *Shelfer* tests (adopted and applied in *Patterson*, as discussed above in Section X) on the basis, inter alia, that they accepted that the injury to the plaintiffs was not small. However, I agree that this is not determinative and that compliance with the *Shelfer* criteria is but a factor in the Court's overall consideration of this issue (see *Kirwan* and Egan J. in *Webster (No.1)* referred to earlier). They did submit that Wexwind would be insolvent if an order for the full shutdown of the three turbines was made but Mr. Spicer indicated that an administrator / liquidator would presumably sell the wind farm with the remaining three turbines to a new operator. It was not suggested that Wexwind had any employees or that anyone's livelihood would be affected.

349. In addition, while there is a planning permission for the facility and while the land zoning supports the use of this land for a wind farm, the expert evidence in this case and the evidence of the communications with Nordex, does not demonstrate that this facility could not be carried without causing the noise nuisance complained of; see the comments of Neuberger P. in *Lawrence* at para. 125, discussed above in Section X.

350. From the plaintiffs perspective, if the nuisance continues they will have to give serious consideration to selling their family home. It is a family home of longstanding and filled with decades of memories including of their children and parents. As Lord Mance observes in *Lawrence,* it is inevitably valued for reasons "independent of money". As will be seen in the paragraphs below, coming to a value for the damages for the future nuisance (which the court has elected to try to do on a provisional basis having heard the evidence) would not have been straightforward or indeed an entirely satisfactory task in this particular case. As Clarke J. (as he then was) observes in *AIB v Diamond* [2012] 3 IR 549 at 590 *"[t]he mere fact that it may, therefore, be possible to put a value on property rights lost does not, of itself, mean that damages are necessarily an adequate remedy for the party concerned is*

entitled to its property rights instead of their value". Even then, those comments were made in the context of the potential loss of a bank's property rights in its capital markets team, a scenario less likely to attract the comments of Lord Mance referred to above. To that extent, I am of the view that damages are not an adequate remedy for the plaintiffs in this case if a noise nuisance is allowed to continue into the future.

351. It is also clear that the plaintiffs are not guilty of any conduct that would disentitle them to an injunction. They were patient and measured in their approach to the problem and sought initially to engage with the defendants and then with the Council. They were patient with the process that ensued once the Council become involved. Their evidence was measured and supported objectively.

352. The conduct of the defendants on the other hand fails to meet most of the factors that might usually assist a defendant in securing the remedy of damages for a future nuisance in lieu of an injunction:-

(i) they failed to engage substantially with the nuisance complaints for years and even after proceedings were threatened and issued;

(ii) they failed to investigate the complaints properly;

(iii) they failed to initiate any substantive review of the facility or the turbines or to investigate and explore solutions to the problems complained of by the plaintiffs (in circumstances where the expert evidence and the evidence that emerges from the correspondence between the defendants and Nordex indicates multiple potential solutions);

(iv) they failed to notify the plaintiffs in advance of the trial that they would seek such an approach from the Court;

(v) they called no engineering witness or expert with evidence to give to address potential solutions;

(vi) the only expert witness called by the defendants made no proposal for mitigation (other than the shutdown of the machines) despite the defendants being given the opportunity to submit additional evidence;

(vii) they made a proposal to pay for the future damage based on a modest assessment by an expert valuer of the 'notional capital damage' if the nuisance continued into the future;

(viii) they submitted no clear evidence of the actual revenues that would be generated by the facility if they were to be allowed continue the nuisance.

353. In other words, to paraphrase the *dicta* from the case law referred to earlier, they did not behave in a neighbourly way in relation to the problem and they violated the concept of reciprocity. The nature of their conduct in this respect is discussed in further detail in the context of the decision to award the plaintiffs aggravated damages hereunder and that analysis contributes to my reasoning here not to exercise the Court's discretion to award damages in lieu of an injunction to fully restrain the nuisance.

354. In that regard, it is no bar to the relief of damages in lieu, that the owner of the wind farm is a special purpose vehicle (SPV) company with one shareholder which is a Luxembourg Fund, represented by corporate advisors based elsewhere. It is equally no bar to the application of the Court's discretion (which includes considering whether the operator of the nuisance behaves in a neighbourly way) that the Wexford wind farm facility is unmanned, controlled by technicians in a control room in Germany and with invoicing and scheduling of services handled by a man sitting in an office in Cornelscourt. Any corporate structure, devised for efficiency or otherwise, is entitled to be treated the same as, say for example, a wind farm owned by a collective of local farmers. However, if the owners structure their operation in this way, they will not escape the scrutiny of their behaviour that the caselaw indicates, in particular the questions as to whether they have behaved in a neighbourly spirit. If that does not come naturally, then while that may be as a result of the way they have chosen to set their business up, it is not an inevitable feature of same. It was within their control to have responded to the situation that arose differently.

355. On the other hand, if the Court were to accede to the defendants' application to allow the nuisance to continue between 7am and 10pm on weekdays and between 11am and 10pm on weekends and public holidays, then the plaintiffs will continue to suffer an admitted substantial interference in the ordinary use and enjoyment of their home. The interference will likely occur daily and in nearly all wind conditions. It will regularly surpass levels of interference considered intolerable by objective international standards. The plaintiffs do not want to receive damages for this interference. Nor do they want to have to leave their home, for all the reasons described above in Sections III and IV. The effect of not getting a full injunction will therefore be significant and difficult to assess in damages.

356. Weighing all of the above, I am not satisfied that the primary card of the defendants, that their facility supports an important public goal of increasing the supply of energy generated from renewable sources to the national grid, is sufficient in this case to disentitle the plaintiffs to their *prima facia* right to an injunction to restrain the wrong. The public interest involved here is an important one, but so are the plaintiffs' rights relating to their own home. The Court will always endeavour to strike an appropriate balance and to do justice as between the parties, while taking account of the important public interest invoked by the defendants

here, but the factors identified by the jurisprudence place weight on all the circumstances and the conduct of the parties. It is not an impressive approach to fail to engage with responsibilities to neighbours and to then hope to pay money to continue a serious interference with a neighbour's enjoyment and ordinary use of their home by relying on the broad public interest in renewable energy, particularly when other options were, on the evidence, available.

357. Accordingly, I propose to accede to the plaintiffs' application and to grant an injunction for the full shutdown of the three turbines referred to as T3, T5 and T6 at the Gibbet Hill wind farm. For the avoidance of doubt and for the same reasons, there is equally no proper basis for coming up with some slightly increased partial injunction (for example up to lunchtime, or a shutdown for the entire weekend). Such options would not be appropriate for the same reasons as the specific proposal made by the defendants above has been rejected.

358. If I am wrong in the exercise of discretion described above, and if the appropriate outcome should have been to allow the nuisance to continue in the context of a partial shutdown of the turbines as proposed by the defendants, and to award damages to the plaintiffs for this future nuisance, then I would have assessed damages based on an approach designed to facilitate the plaintiffs selling their home, if they wished, and moving to a property of equivalent comfort and value.

359. Firstly, it should be noted that this is therefore a different approach to that adopted by me in assessing the general damages for the nuisance to date. Secondly, there was insufficient evidence in this case to consider the value to the defendants of the partial injunction; a consequence perhaps of the failure of the defendants to give any notice that they intended to seek this approach from the court; in breach of the stricture proposed by Neuberger P. in *Lawrence* at para. 149, referred to above in Section X. Therefore, the application of the approach suggested by Millett LJ in *Jaggard* and Neuberger P. in *Lawrence* at para. 128 (described above in Section X) is best left to another case where it fully arises.

360. In the context of a future ongoing nuisance the plaintiffs are, in my opinion, therefore entitled to have the matter assessed from the perspective of the notional capital damage to the property so that they have the option of considering selling the property without suffering a capital loss. Even this approach does not fully take account of the strong personal attachment to a family home of longstanding, and in that regard doing this exercise (even on a hypothetical basis, lest the exercise of discretion above be considered in error) brings into real focus the force of the concept of damages not being an "adequate remedy" . In any event and pressing on with the exercise, without the presence of the wind farm the valuers

agreed that the plaintiffs' home would be worth €844,000.00. Based on the evidence of the plaintiffs' valuer, with the partial shutdown of the three turbines proposed by the defendants, then if the plaintiffs were to try and sell their home, he estimated that it would only be worth €450,000.00. Indeed, this was also his figure if the turbines remained on all the time. This would represent a drop in value of €394,000.00. On the other hand, the defendants' valuer, Mr. Corr felt that with the turbines operating fully the notional impact of the noise, without the shadow flicker, was between 12-17% of the value of the property, and with the partial shutdown "that would cut the noise component by about 50%" (Day 18, page 83, line 10) if the turbines were only operating partially, as proposed by the defendants. This would equate to a drop in value of between 6-8.5%, being a range of €50,640-€71,740 (having a midpoint of €61,190). The defendants proposed that this was the approach to be followed to assessing the damages for the future nuisance with a partial shutdown. These figures create a divergence in the view as to the notional impact on the capital value of the plaintiffs' home of a partial shutdown as between €394,000 on the plaintiffs' side and €61,190 on the defendants' side.

361. Overall, I would have preferred a figure closer to the estimate of the plaintiffs' expert on this issue for the following reasons. Mr. O'Regan had considerably more experience of buying and selling properties than the defendants' expert, who was not actually involved in buying or selling property at all. Mr. O'Regan's description of the likely impact on potential purchasers was more rooted in a real life set of experiences over decades, whereas as the defendants' expert had adopted a more academic and research-based approach to considering the impact of the noise nuisance on the likely sale price that might be obtained. Some of that research was based simply on proximity to wind farms as opposed to homes where the residents had actually experienced an objectively established and independently verified noise nuisance of a severe nature. In each case, the figures provided by the experts were necessarily rough estimates.

362. Accordingly, coming to a view as to the likely impact on the capital value of the plaintiffs' home in the event of a partial shutdown, also inevitably requires a degree of rough estimation. That, of course, is not a bar to the exercise. Damages in the present for wrongdoing to be committed in the future is, by definition, not perfect justice. However, the approach of the courts in these imperfect circumstances is to award an amount that is considered to be reasonable, proportionate and fair to both sides, and which is, in its assessment, reached in a manner which is reasoned, based on existing principles and which has a regard for analogous awards. While I prefer for these reasons a figure closer to that of the plaintiffs' valuer, I think, contrary to the view of the plaintiffs' expert on one point, some allowance has to be made for the partial shutdown of the turbines. The partial shutdown will undoubtedly reduce the nuisance. It would not be fair, not to reduce the capital impact accordingly. Ultimately, I would have assessed the likely impact on the capital

value of the plaintiffs' home in the event of a partial shutdown at €250,000. To that sum I would have added a further sum of €25,000.00 to allow for a period of time of potentially a year, during which an ongoing nuisance would be experienced, for the plaintiffs to find a home of equivalent standard. This figure of €275,000.00 would then have been awarded to the plaintiffs jointly as compensation for the future nuisance and would have been in addition to the figures for the general damages for the nuisance to date. I would not have proposed assessing damages based on a reinstatement basis as those figures would leave the plaintiffs with a house of equivalent standard but as a new build, whereas currently the plaintiffs' home is essentially twenty-six years old.

(4) Aggravated Damages

363. As can be seen from the summary description of the evidence in relation to the engagement as between the plaintiffs, the defendants and the local authority above in Section V, the level of engagement by the defendants was poor and it caused the plaintiffs additional upset and distress.

364. For example, Mr. Byrne explained that the defendants had filed a full defence without carrying out any substantive assessment of the noise nuisance complaint made by the plaintiffs. In addition, he also correctly drew attention to the fact that the defendants had not trialed, piloted or implemented any mitigation measures to address any of the issues raised by the plaintiffs since their complaints began in 2013. The defendants did not call evidence from any persons who had actually interacted directly with the plaintiffs.

365. The defendants only witness as to fact was Mr. Spicer who confirmed that he had no direct interactions with either of the plaintiffs. He endeavored to suggest that he believed the contents of correspondence that had passed to the plaintiffs was true and accurate but his evidence in this regard was generally lacking in specifics or detail. He was unable to give any significant evidence that substantially challenged the narrative of the plaintiffs that there had been a lack of engagement from the defendants. Indeed, when it was put to Mr. Spicer that he had refused to provide data to the sound engineer of the local authority who had requested it, he sought to suggest during the re-examination that he had done this but this evidence was inaccurate as he was referring to correspondence that preceded the particular request of the local authority.

366. Overall, I found Mr. Spicer to be a witness who did not appear to have been that involved and had a very limited role in making any decisions on behalf of the defendants. He made generalised statements about matters of which he appeared to know little and certainly had no detailed grasp of. He sought to give evidence about legislative climate change

requirements but as soon as he was asked any questions that fell outside of the prepared examination his answers were either incorrect or vague. Also, he was unable to give any detail as to the financing arrangements in relation to this wind farm. He could give no explanation as to whether the investment had been refinanced or why considerable financing appeared to be due in relation to the wind farm twelve years after its installation. He was unable to give any detail about the very considerable financial transfers being made each year of over €1,000,000.00 from Wexwind.

367. The evidence he endeavored to give in relation to the financial consequences of an injunction were hearsay and lacked detail or any real understanding of the underlying financial position. Indeed, when he was asked by the court as to whether provision had been made in the accounts of the first and second named defendants in relation to the case, he incorrectly stated without hesitation that provision had been made. The next day this was corrected but no explanation for this was given by Mr. Spicer, who was a director of the second named defendant and therefore should have had some familiarity with the accounts.

368. In fairness to Mr. Spicer, he was put forward by the defendants as the only witness as to fact and was tasked with dealing with many matters about which he appeared to be unfamiliar with. He knew very little about the level of engagement of the defendants with the plaintiffs and very little about the financial arrangements actually governing the wind farm. He also appeared to know very little about the climate change issues.

369. When he passed on requests from the local authority to the actual people in charge and in a position to make decisions, he did so in a relatively formalistic way and did not appear to engage in any meaningful way with those persons as to the actual decision being made, which in this regard was the decision to refuse to provide the data requested to the local authority.

370. By virtue of the continued failure of the defendants to engage in any meaningful or substantive way with the plaintiffs concerns and complaints an Updated Notice as to Damages was delivered on the 17 May 2021 on behalf of the plaintiffs. This Notice claimed aggravated and exemplary damages. In this Notice the plaintiffs asserted that by the continued operation of the Gibbet Hill wind farm the defendants were generating substantial revenue and also continued to generate nuisance in the form of noise, vibration and shadow flicker. It continued by claiming that the defendants continued to operate the wind farm notwithstanding their knowledge of the ongoing nuisance caused by the said operation. It also complained of their failure to mitigate the impact and pointed out that this was having an impact on the plaintiffs' constitutional rights. It further explained that because the

defendants had been notified of the plaintiffs' expert evidence that the defendants were aware of the position. The plaintiffs set out that they were claiming that the nuisance was continuing notwithstanding the ongoing protests of the plaintiffs and notwithstanding the defendants' awareness of the impact on the plaintiffs.

371. The defendants therefore have been on notice of the nature of this aspect of the claim and accordingly had ample opportunity to prepare a defence for this element of the case and to adduce any appropriate or relevant evidence to either demonstrate that they did not have the necessary knowledge that their actions were leading to the negative effects complained of or alternatively that they had some genuine or reasonable belief that what they were doing was not causing a nuisance.

372. The defendants failed to call any of the persons who had actually interacted directly with the plaintiffs. As explained above, Mr. Spicer was quite removed from the actual interactions that were taking place. It was also clear from the evidence that Mr. Spicer had no actual decision-making role in relation to any of the relevant matters relating to this litigation. The persons making the decisions chose not to give evidence. The persons who could have given evidence about the question of revenue or the "substantial revenue" as pleaded by the plaintiffs chose not to. In addition, Mr. Spicer, as the only factual witness put up by the defendants, was tendered in the knowledge that he would be left having to answer questions about this. In that context, Mr. Spicer did not dispute the analysis put to him in cross examination that in effect over €1million per year in the last four years was being paid out by the operating company Wexwind from the revenues being generated by the operation of the wind farm.

373. In addition, in relation to the nuisance, there was nothing new or surprising or outside the ambit of the pleaded case that emerged in the evidence given by the plaintiffs or their expert by the time the admission of liability for nuisance was made.

374. Even when liability was still an issue there was nothing in the cross-examination to suggest in any meaningful or substantive way that there was anything about the plaintiffs' evidence, as analysed by the defendants in advance of the trial, to suggest that there was any reasonable belief in an argument that the plaintiffs' likely evidence, or the examples given, or the details in their logs or diaries, were not substantially supported by the independent evidence and the recordings made by the experts.

375. In those circumstances I am satisfied that it is appropriate to make an award of aggravated damages. While there is an absence of explicit evidence that the defendants made a

conscious and deliberate decision to target profits while at the same time continuing the operation of their wind farm, their lack of engagement aggravated the sense of hurt and upset and distress suffered by each plaintiff.

376. The defendants were armed with the substantial results from the plaintiffs' experts. The knew what the view of the Council's independent expert was. They had been served with two different Enforcement Notices.

377. They had made a deliberate decision not to provide the Council's engineer with the necessary technical data. They had to be dragged "kicking and screaming" to co-operate with the Council's independent expert, according to Mr. McKeown. They had refused to provide the plaintiffs with the relevant technical data (until ordered by the court to do so). Their own expert had raised only technical objections. They knew that the plaintiffs had discovered that the business was returning substantial revenues all the while it was operating. They knew the nature of the case being made for both aggravated and, separately, exemplary damages. In the teeth of all this, they chose not to put forward any evidence from any actual decision maker to explain this behaviour. The one witness as to fact tendered conceded he had no direct interaction with either plaintiff ever. From his evidence it was clear he was not a decision maker in any real sense. Despite being given every opportunity to adduce additional evidence including to put forward meaningful proposals to mitigate the admitted noise nuisance the defendants failed to do so. They did not call evidence from an engineer, whether in-house, from Nordex or some independent engineer.

378. A defendant can of course seek to challenge the claims made for aggravated damages and exemplary damages. Where there is a real risk of proper inferences being drawn, they should do so by calling evidence from the persons who made the actual decisions. Those persons chose not to give evidence in this case even though on many days they were watching proceedings via the remote link from Germany.

379. In other words, the evidence overwhelmingly demonstrates that the defendants chose not to engage with the plaintiffs claim or to give it any serious or substantive consideration or to carry out any straightforward assessment of whether the plaintiffs claim had any substantive merits.

380. Here the defendants were benefiting from a business connected to the public electricity grid to which they were supplying energy generated from the renewable source of wind. They were making, based on the evidence, by any measure substantial revenues from doing so.

They had an unmanned facility. They were paying no serious heed to the complaints of the plaintiffs even though those complaints on any analysis had all the indicia of genuine and substantial complaints and were supported by an abundance of objective data and independent analysis.

381. As Mr. McKeown pointed out in his evidence on Day 14 engaging with the public and addressing legitimate concerns is essential to the goal of rolling out substantial wind energy. The conduct and approach of the defendants in this case represents a threat to the goal of developing wind farms and wind energy.

382. This evidence, which was not disputed by the defendants in this case, is also reflected in the comments of Egan J. in *Webster (No. 2)* at para 204: *"Devising appropriate measures to avoid WTN nuisance at the planning and development stage is clearly of critical importance to the achievement of the State's aim of substantially increasing renewable energy ... it is also critically important that turbine operators engage constructively with genuine WTN nuisance complaints and devise appropriate abatement measures".*

383. As described in Section V above, Mr. McKeown gave evidence about the failure of the defendants to provide him with all the SCADA data. He also gave unchallenged evidence that the defendants level of cooperation was not satisfactory in that, for example, short term switch offs were all that the defendants ever offered, and he explained why this was not practical. His overall view was that the defendant "*had been dragged kicking and screaming to facilitate anything*", Day 14, page 101, which was to be contrasted with other wind farms where "*things were sorted out with a phone call an e-mail or a cup of coffee*".

384. Based on the evidence before the court the only sensible inference that can be drawn is that the defendants made a decision not to engage in any substantive or proper way with the claims being made by the plaintiffs and that this has aggravated the obvious distress suffered by the plaintiffs and significantly prolonged the duration of the nuisance. This therefore merits an award of aggravated damages.

385. In part, by virtue of the approach I have taken to assessing the general damages for the nuisance to date (by taking into account how long the nuisance has continued and measuring compensatory damages on a yearly basis), the defendants are paying a price for their own lack of engagement.

386. In addition, this lack of engagement (and the corelated failure of the defendants to develop mitigatory measures to ameliorate the noise nuisance) is also a significant factor in my decision not to allow the defendants to partly continue the nuisance and to accede to the plaintiffs' application for an injunction fully shutting down the relevant turbines.

387. In addition, general damages have been assessed on the basis that the evidence indicates that this case should be considered a severe and extreme one and they have been measured in a way to reflect the duration of the nuisance, which in part is a feature that is related to the underlying factors that contributes to the decision to award aggravated damages.

388. Therefore, I not inclined in this case to follow the approach of Richards J. in *Uren* who made an award of aggravated damages in the same amount as the total award of compensatory general damages.

389. Accordingly, taking account of the legal principles in relation to how to assess an award of aggravated damages I am of the view that the aggravated damages in this case should be measured at 20% of the award of compensatory damages. Therefore, the first named plaintiff will be awarded the additional sum of €24,000.00 and the second named plaintiff the additional sum of €36,000.00 by way of aggravated damages.

(5) Exemplary damages

390. Despite a detailed claim, with particulars, seeking exemplary damages having been delivered to the defendants, there was a surprising failure on the part of the defendants to meaningfully engage with this aspect of the case.

391. Notwithstanding this, I am overall, not satisfied that I can safely conclude that the defendants behaved the way they did out of a deliberate and conscious decision to violate the plaintiffs' rights.

392. The level of engagement was shallow. The complaints were not treated seriously. On the other hand, as Mr. Spicer explained, it may have been that the focus was, in truth, really on the planning issues. In that context while the defendants took a technical approach to engaging with the Council, they did ultimately succeed in fending the Council off with their technical objections.

393. The evidence does indicate a deliberate lack of cooperation with the local authority and does indicate that during the last four years that Wexwind was generating substantial revenues in excess of €1million to repay financing. The defendants also decided not to call evidence from any actual decision maker to answer the claim for exemplary damages.

394. In those circumstances, it may seem naïve not to conclude that this approach is highly indicative of the behaviour that is intended to be captured by the second category of scenario justifying exemplary damages identified by the House of Lords in *Rookes v Barnard* [1964] AC 1129 (discussed in *Conway*, referred to earlier).

395. It may well be that the defendants did not care about the effect that the actual operation of the wind farm was having on the plaintiffs and that this attitude arose in a context where substantial amounts of money were being paid by Wexwind, an SPV set up to own the wind farm on behalf of the Luxembourg Fund which in turn was put in place by the ultimate owners. If the defendants had any different story to tell they had the opportunity to do so at the trial.

396. Nonetheless, while these facts are consistent with (if not fully probative of) a decision made deliberately in a context where the return from the wind farm and the benefits of that return were considered too far outweigh the potential downside of having to engage with the plaintiffs' claim, I am not satisfied that they are sufficient proof to make an award of exemplary damages.

397. I that regard I take account of the jurisprudence that also indicates that exemplary damages are for exceptional cases and, in general, where the evidence demonstrates a deliberate and conscious violation of the plaintiffs' rights.

398. In addition, this conclusion is partly informed by my consideration that when the outcome of the case is looked at in the round, I am of the view that the order for the permanent shutdown of the three machines combined with the award of compensatory and aggravated damages is probably sufficient in this case to indicate that a failure to properly engage with substantial and bona fide complaints is to be deprecated.

399. Finally, in that overview, I have taken account of the manner in which the defendants behaved during the trial, including making an admission of liability in respect of the nuisance on Day 11, initiating a partial shutdown of the machines at nighttime on Day 12, and making an apology to the plaintiffs at the end of the hearing.

XII. CONCLUSION AND FORM OF ORDER

400. Accordingly I propose to award the first named plaintiff the sum of €120,000.00 by way of compensatory damages, together with the further sum of €24,000.00 by way of aggravated damages. The second named plaintiff is awarded the sum of €180,000.00 by way of compensatory damages, together with the further sum of €36,000.00 for aggravated damages. These sums are awarded as against each defendant jointly and severally.

401. In addition, the Court grants the plaintiffs an injunction against each defendant, their servants and agents, directing them to take all steps necessary to forthwith fully shutdown the three wind turbines at the Gibbet Hill wind farm, Co. Wexford known as T3, T5 and T6 and which heretofore have operated pursuant to a planning permission from Wexford County Council 2009/0266. I will then hear from the parties as to any further orders required and as to costs.

KF26082

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Irish Examiner

Wind farm being sued by families admits its liability

Seven Cork families could be on course to receive damages after a wind farm operator admitted liability in a High Court action over noise pollution.

Mon, 06 Feb, 2017 - 00:00

Claire O'Sullivan

The case is next listed for hearing on April 25, and will be closely observed by many of the families living in close proximity to wind farms and who claim that there should be a greater distance between homes and turbines.

The case against Enercon Windfarm Services Ireland Ltd

and Carrigcannon Wind Farm Ltd was taken by the Shivnen family and another six households in Banteer including couples, families, and one single occupant.

The householders had claimed their health had been affected by the noise emanating from the turbines since they began operating in November 2011.

Planning regulation around wind turbines remain governed by 2006 guidelines which allow companies to build turbines within 500m of private dwellings.

Updated guidelines stipulating how far wind turbines should be set back from residential homes are three years overdue.

These guidelines will also deal with noise and 'shadow flicker' from the turning blades.

Up to 7,000 submissions were made in the public consultation process that followed the issuing of draft guidelines by the then minister for housing Jan O'Sullivan, which set down a mandatory minimum setback of 500m "for amenity considerations".

The draft guidelines also set a maximum day and night noise limit of 40 decibels for future wind energy

development, measured outdoors at the home nearest to the wind turbine.

The guidelines also stipulated that there should be no shadow flicker at home within 10 'rotor diameters' of a turbine.

The Shivnen case appeared before Mr Justice Gilligan on December 6 where the Court recorded that liability had been admitted by the defendants.

A spokesman for Enercon was unavailable for comment.

A spokesman for the Department of Housing, Planning Community, and Local Government said that, due to the programme for government, ongoing policy, and legal developments, the Department is continuing "to advance work on the guidelines and related matters in conjunction with the Department of Communications, Climate Action and the Environment, in order to bring the various issues to a conclusion as early as possible".

"It is expected that a statement on the matter will be made in the coming weeks, outlining the timelines for implementation of the various elements," said the spokesman.

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