THE HIGH COURT

JUDICIAL REVIEW

IN THE MATTER OF SECTION 50, 50A AND 50B OF THE PLANNING AND DEVELOPMENT ACT 2000

Record No: 2017/558 JR

2017/144 COM

Between:

KLAUS BALZ AND HANNA HEUBACH

APPLICANTS

- and -

AN BORD PLEANÁLA

RESPONDENT

- and -

CORK COUNTY COUNCIL

FIRST NAMED NOTICE PARTY

- and –

CLEANWRATH WINDFARM LTD

SECOND NAMED NOTICE PARTY

Judgment of Mr Justice Robert Haughton delivered this 30th day of May, 2018.

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94 Discussion

1. These proceedings arise out of a decision by the respondent, An Bord Pleanála ("the Board") to grant planning permission to the second named notice party, Cleanrath Windfarm Limited ("Cleanrath") for the construction of a Windfarm at Cleanrath, Inchigeelagh, County Cork.

Background
2. The development the subject of this application has a history having been before this Court on one previous occasion already. The developer originally applied for planning permission on 22 November, 2015, for a development comprising of eleven wind turbines. Although planning permission was initially granted for the development, that decision was subsequently quashed by the High Court on 25 February, 2016.

3. Planning permission was once again sought for the development, and was opposed, *inter alia*, by the applicants. The applicants are a married couple who since 1992 made their home at Bear na Gaoithe some 637 metres from what would be the closest turbine, and they run a family horticulture nursery/florist/gardening business from their property.

4. Planning permission was granted by Cork County Council on 3 June, 2016, subject to 40 conditions; Condition No.2 required the exclusion of five wind turbines, thus allowing six turbines, with a maximum ground-to-blade tip height of 150 metres. The development will involve roadworks, quarrying, excavation for underground cabling, grid connection works, works on the public road along the delivery route, an electricity substation, a control building, construction compound and ancillary works.

5. That planning permission was appealed by four parties, including the applicants; Cleanrath appealed Condition No.2. The applicants aver that their appeal was "professionally prepared" and it was accompanied by scientific materials. The applicants were most concerned with the noise impact due to the proximity of their family home to the development and the fact that they carry on their own business from their home.

6. The submission of appeals and circulation of Cleanrath's responses dated 3 August, 2016 to the appeals, occurred from June 2016 to August 2016. Mr. Balz avers that the applicants did not receive a copy of Cleanrath's response. On 4 August, 2016, an Inspector was appointed by the Board pursuant to s.146 of the Planning and Development Act, 2000 (as amended) ("PDA 2000"). The Inspector carried out site visits on the 7 and 8 September, 2016 and the 4 and 5 November, 2016. The Inspector compiled a report for the Board dated 18 November, 2016. The matter was not again considered by the Board until the 6 April, 2017, when the Board decided to defer the matter until a meeting of the 25 April, 2017.

The impugned decision
7. The Board Direction dated 16 May, 2017, recording its decision on 25 April, 2017, records that:

> *"The Board decided by a 3:1 majority to grant permission generally in accordance with the Inspector's recommendation and subject to the reasons, considerations and conditions set out below".*

The planning permission thus granted is for 11 turbines, rather than the 6 permitted by Cork County Council, and is subject to 22 conditions.

8. The Board Direction records that the Board "had regard to the following…" and thereafter lists *inter alia* –

> "(b) the provisions of the "Wind Energy Development Guidelines – Guidelines for Planning Authorities" issued by the Department of the Environment, Heritage and Local Government in 2006,
>
> (i) The distances from the proposed development to dwellings or other sensitive receptors,
>
> (j) the range of mitigation measures set out in the documentation received, including the Environmental Impact Statement, the Natura Impact Statement, the further information response submitted to the planning authority on April 12th, 2016 and the further submissions from the applicant to the Board,
>
> (l) the submissions and observations made in connection with the planning application and the appeal, including submissions in relation to the environmental and Natura impacts of the proposed development and the detailed submissions made in respect of the Gearagh SAC and SPA, and
>
> (m) the report of the planning inspector".

9. As to Environmental Impact Assessment the Board Direction states:

> "The Board considered that the Environmental Impact Statement submitted with the application, the additional documentation submitted at application and appeal stage and all other submissions on file, were adequate in identifying and describing the direct, indirect, secondary and cumulative effects of the proposed development. The Board adopted the Inspector's report on the environmental impact of the development and concurred with his conclusions. The Board completed an environmental impact assessment and concluded that the proposed development, subject to compliance with the mitigation measures proposed, and subject to compliance with the conditions set out below, would not have unacceptable effects on the environment."

10. Condition 7 provides:

> "Wind turbine noise arising from the proposed development, by itself or in combination with any other permitted wind energy development in the vicinity, shall not exceed the greater of:
>
> (a) 5 dB(A) above background noise levels, or
>
> (b) 43 dB(A)
>
> When measured externally at dwellings or other sensitive receptors.

> Prior to commencement of development, the developer shall submit to and agree in writing with the planning authority a noise compliance monitoring programme for the subject development, All noise measurements shall be carried out in accordance with ISO Recommendation 1996 "Acoustics – Description, measurement and assessment of environmental noise." The results of the initial noise compliance monitoring shall be submitted to, and agreed in writing with, the planning authority within six months of commissioning of the wind farm."

11. The Board officially issued the grant of permission on the 19 May, 2017, and the applicants sought and were granted leave to judicially review this decision ("the impugned decision") by Noonan J. on 10 July, 2017. On 31 July, 2017, the matter was admitted to the Commercial list.

Complaints not pursued

12. There are a great many grounds pleaded in the Statement of Grounds, but some of these were not pursued. At the outset, counsel for the applicant decided, in light of an explanation provided by the Board, not to pursue a complaint (Ground (39)) which related to the maps used by the Board in their determination of the planning application. The applicants also raised a complaint about devaluation of their property (Grounds (30) and (31)) and in their written submissions asserted that evidence was submitted to the Board during the planning process that a devaluation of their property would occur if the Windfarm development went ahead, but that this information was not properly considered or assessed by the Board. This was not pursued in oral argument and so will not be considered by the Court.

13. Another argument, which related to the baseline environment from which the Inspector conducted his Appropriate Assessment of the development to assess effect from tree felling on sediment/nutriment on the Rivers Toon and Lee downstream of the proposed development in the Gearagh SAC and Gearagh SPA, was raised in Grounds (45)-(48), and in written submissions, but was withdrawn by counsel during the course of the hearing in light of a recent decision by Costello J. on the same subject matter.

14. At Grounds (37) and (38) the applicants pleaded that, the Board having received on 4 August, 2016, Cleanrath's further response of 3 August, 2016, to the third party grounds of appeal, it failed to consider whether it was "appropriate in the interests of justice" to exercise its power under s.131 of the PDA 2000 to request further submission/observations from any person, and that the Board's direction in this regard on 25 April, 2017, was made in circumstances where it "had not directed its mind, in a timely faction or at all, to the circulation of the Cleanrath WF submission document dated 3 August, 2016 and the Board proceeded immediately thereafter to make the Impugned Decision". In their written submissions the applicants contended that the Board failed to consider whether Cleanrath's submission received on 4 August, 2016, should have been circulated to all of the relevant parties and whether further submissions were required by the parties pursuant to s.131.

15. However, having considered the relevant pleading and submissions, in the course of the hearing I expressed the firm view that the Board did properly consider this point, and expressly so stated in its Direction dated 16 May, 2016: "*The Board was satisfied that no further cross circulation of submissions was necessary and that all parties had adequate opportunity to participate in this case".*

In the light of this the applicant did not pursue this point any further, nor was it required to be addressed by counsel for the Board or Cleanrath. I adopt the view that I expressed during the hearing to reject Grounds (37) and (38).

16. There are a number of estimates as to the proposed power output of the windfarm referred to in the EIS. These range from 2.5 to 3 megawatts. At para. 3.4.1.5 of the description of the development in the EIS Cleanrath say "It is anticipated that the proposed wind turbines will have a rated electrical power output in the region of 2-4 megawatt (MW) range depending on further wind data analysis and power output modelling". The applicants submitted that the noise effect modelling should have been calculated on the basis of the highest possible output suggested of 4MW.

17. This was not pursued with any great vigour, and with good reason. In my view there was no evidential basis laid for such a complaint. The EIS expressly stated that a "rated output of three megawatts has been chosen to calculate the power output" (section 3.4.1.6). In section 9.4.2.3.1 the EIS records that for the purposes of noise assessment a Nordex N117, 2.4 megawatt turbine was adopted, and a footnote refers to the Nordex Technical Report. The court was informed, and the applicants accepted, that this model emits most noise, and that this occurs at wind speeds of 7 metres per second. The EIS then states:

> "While noise profiles of the Nordex wind turbines have been used for the purposes of this assessment, the actual turbine to be installed on the site will be the subject of a competitive tender process and could include turbines not amongst the turbine models currently available. Regardless of the make or model of the turbine eventually selected for installation on site, the noise it will give rise to will be of no greater significance than that used for the purposes of this assessment, to ensure the findings of this assessment remain valid."

The information appearing from the EIS was never challenged. Although the Inspector expressed the view that it "was not quite clear why this model was used" he did not express any reservations about methodology or the results of the modelling, including supplemental modelling and information furnished on 12 April, 2016, following additional survey after measurements at Point C (close to the applicants' residence). At point C the predicted noise levels calculated on a worst case assessment were 40.8 dBLa90, 10 min. Insofar as this complaint was pursued it is rejected as there is no evidential basis that the turbine noise modelling detailed in the EIS was the subject of complaint or so flawed as to justify quashing the impugned decision.

Remaining grounds

18. These can be grouped under two headings. The first heading relates to anticipated noise from the operation of the turbines, and to the environmental impact assessment ("EIA") carried out by the Board. This concerns the alleged failure of the Board to carry out and record an EIA as required by Directive 2011/92/EU of the European Parliament and of the Council of 13 December 2011 ("the EIA Directive") and Part X of the PDA 2000. This requires the court to determine whether or not the Board considered, and properly analysed and assessed, the submissions of the Applicants (1) in relation to wind turbine noise impact on human health, and in particular submissions to the effect that the scientific materials upon which the 2006 Wind Energy Development Guidelines ("the WEDG 2006") are based, which were applied by the Inspector and the Board, were out of date and not fit for purpose, and (2) in relation to a phenomenon known as "amplitude modification". (3) Thirdly the applicants complain that the Board departed from the wording recommended by the Inspector for what became Condition 7 above.

19. The second heading relates to appropriate assessment ("AA"). It is alleged that the Board failed to carry out an AA as required by Part XAB of the PDA 2000 and Article 6(3) of Directive 92/43/EEC ("the Habitats Directive") in respect of the Gearagh SAC, an area that has already suffered some degradation over the last number of years. Under this heading the Court must consider whether or not there was conclusive scientific evidence upon which the Board could make its decision.

Complaints in relation to EIA

20. The core complaint of the applicants in relation to the EIA is that the Board was required not just to acknowledge, consider or take into consideration, but also to examine, analyse and evaluate all of the submissions made to it in relation to environmental impact during the course of the planning process. The applicants submit that the Board failed to meet these obligations in several respects:

> (1) The Inspector failed to consider, analyse and assess the submissions and scientific/research materials presented to support the case that the WEDG 2006, and the UK Department of Trade & Industry, Energy Technology Support Unit publication "The Assessment and Rating of Noise from Wind Farms" (1996) ("ETSU-R-97") on which WEDG 2006 is based, were out-dated and not fit for purpose, and that noise from windfarms may have a profound effect on human beings.
>
> The applicants relied particularly on the following statement of the Inspector in his Report at para.10.8.2:
>
> > "Claims by objectors that this ETSU publication is out-dated and not fit for purpose is not a relevant planning consideration. The 2006 Guidelines are as they are, and remain in force."
>
> The applicants asserted that this was erroneous in law and was a breach of the Board's obligations under the EIA Directive.
>
> While it was accepted that the Board had a statutory obligation to consider the WEDG 2006, it was argued that it had no obligation to follow it as a guideline, and that it had a positive obligation arising from Article 3 not just to consider, identity and describe effects of the project but also to analyse and assess the applicants' observations and scientific submissions in relation to the direct or indirect effect and their criticisms of WEDG 2006, and to do so in light of the precautionary principle and the principle of effectiveness.
>
> (2) In the Inspector's report at para.10.8.8 he deals with "other amplitude modulation" or OAM, which "can result in a periodic 'thumping' or 'whoomphing' sound at relatively low frequencies, and often at greater distances from turbines (particularly downwind)". The applicants complain about his statement that occurrence of OAM "is the exception rather than the rule – based on studies of existing wind farms. Even at sites where it did occur, studies show that it was likely to occur only 7-15% of the time."
>
> The applicants plead that this is based on bare assertion in the EIS, ignored relevant evidence in contradictory OAM Reports, erred in finding an occurrence of 7%-15% to be trivial, and was a failure to analyse and evaluate.
>
> (3) Notwithstanding the Inspector's recommendation that the noise compliance monitoring programme for the Wind Farm should include "mitigation measures such as the de-rating of particular turbines in the event of noise exceedances or complaints in relation to Amplitude Modulation" (Condition 6 as recommended in his report), the Board in Condition 7 did not included the express reference to the said mitigation measure and Amplitude Modulation, without any reasons/explanation for such exclusion, and hence failed in its Article 3 obligations particularly as to its conclusion and recording.

21. These submissions are primarily based on Article 3 of the EIA Directive and the manner that the applicants allege this article was interpreted by the CJEU in their judgment in *Commission v Ireland* C-50/09. Article 3 provides:

> "The environmental impact assessment shall identify, describe and assess in an appropriate manner, in the light of each individual case and in accordance with Articles 4 to 12, the direct and indirect effects of the project on the following factors:
>
> (a) Human beings, fauna and flora,
>
> (b) Soil, water air, climate and the landscape,
>
> (c) Material assets and the cultural heritage,
>
> (d) The interaction between the factors mentioned in paragraphs (a), (b) and (c) above."

22. Specifically, the applicants cite paragraph 40 of *Commission v Ireland* where the Court states:

> "The competent environmental authority must thus undertake both an investigation and an analysis to reach as complete an assessment as possible of the direct and indirect effects of the project concerned and the factors set out in the first three indents of Article 3 and the interaction between those factors."

23. The applicants submit that the effect of this judgment is to require the Board in planning applications or appeals involving EIA, to examine, analyse and evaluate all submissions and information received by them.

24. Furthermore, the applicants submit that the EIA did not make adequate reference to the submissions of various parties, including the applicants, and in that regard was not properly recorded. The applicants submit that it is not sufficient for the Board to rely on additional documentation in the planning file but instead, the reasons for their decision and any relevant matters should be clearly laid out in the impugned decision.

Submissions and scientific papers relied on by applicants in relation to ETSU-R-97/WEDG 2006 and Amplitude Modulation

25. In dealing first with the noise impact, the applicants submitted, and it was not disputed, that there is an obligation on the board under s.171A(1)(a) of the PDA 2000 to assess the impact that a proposed development will have on the health and safety of human beings. Section 171A(1) provides:

> "(1) In this Part –
>
> 'environmental impact assessment' means an assessment [, which includes an examination, analysis and evaluation,] [The bracketed words were inserted by S.I. No.419 of 2012, following the decision in Case C-50-09 *Commission v Ireland* of 3rd March, 2011, where the CJEU found that the obligation to "assess" direct and indirect environmental effects in an

appropriate manner had not been properly transposed by Ireland] carried out by a planning authority or the Board, as the case may be, in accordance with this Part and regulations made there-under, that shall identify, describe and assess in an appropriate manner, in light of each individual case and in accordance with Articles 4 to 11 of the Environmental Impact Assessment Directive, the direct and indirect effects of a proposed development on the following:

(e) Human beings, flora and fauna,

(f) Soil, water air, climate and the landscape,

(g) Material assets and the cultural heritage, and

(h) The interaction between the factors mentioned in paragraphs (a), (b) and (c) above."

26. The WEDG 2006 are statutory guidelines issued by the Minister of the Environment, Heritage and Local Government under section 28 of the PDA 2000 (superseding 1996 government guidelines). In para.1.2 the Policy Context is the priority development of renewable energy, nationally and at European level, and to limit global emissions and Climate Change. Noise impact features in para.5.6, where noise limits/guidelines are given. These guidelines are based on a UK Department of Trade & Industry, Energy Technology Support Unit (ETSU) publication "The Assessment and Rating of Noise from Wind Farms" of 1996.

27. The applicants' appeal submission to the Board was prepared by Joe Noonan of Noonan Linehan Carroll Coffey, and contained 39 enclosures including Noise Studies (items 8-14) and Health Studies (items 15-26, also concerned with noise effect and human sensitivity). Mr. Noonan submitted that the Board's bias was in favour of National Policy in favour of renewable energy development, and did not carry out any balancing exercise in respect of other national policy such as the promotion of rural development including sustainable enterprise and preserving viable lifestyles supportive of the rural economy. At p.5 Mr. Noonan submitted:

> "It should be possible to strike a fair balance between the interests of people living and working in rural Ireland and the promoters of wind powered turbines. To find that balance involves, we submit, starting from a different place to the Board's current starting point. We submit in particular that these large scale industrial development applications should be demonstrably assessed in a way that establishes precisely, and records on the public file, how they will impact on local people, and what weighting the Board attributes to those impacts in coming to its ultimate decision. It is no longer sufficient, and in our view it is manifestly irrational, for the Board, as an example, to take refuge in the line from Section 5.6 of the 2006 Guidelines which blandly asserted, on the basis of zero substantiating evidence, that 'In general, noise is unlikely to be a significant problem where the distance from the nearest turbine to any noise sensitive property is more than 500 metres.' We will elaborate later on how mistaken a view that is."

28. Mr. Noonan noted that governmental review of the WEDG 2006, which in itself drew on the assumptions in the ETSU-R 97 which was then 10 years old, had been underway since January 2013. "Proposed Revisions to WEDG 2006 – Targeted Review in relation to Noise, Proximity and Shadow Flicker – December 11th 2013" had been published by the Department of Environment, Community and Local Government, and invited submissions by February 21st 2014, but not yet led to the adoption of revised guidelines.

The appeal submission relied, *inter alia*, on the following -

> • The view expressed by a Senior Cork Co. Co. planner Mr. Kevin Irwin in a report dated 22 February, 2016, in respect of another nearby Windfarm development that "the existing 2006 Wind Farm Guidelines are not-fit-for-purpose given the changes in wind-turbine development over the past 10 years: The 500m rule-of-thumb and fit-all set-back guideline is clearly not appropriate for turbines that stand at 140m in height with a rotor cut covering 10,300 square metres";
>
> • The refusal by the Board of permission for a five turbine wind farm at Ardglass in East Cork under Ref.PL 04.243630. [However, as counsel for the Board noted, this refusal involved an application of the WEDG 2006 showing a potential increase in noise level at a sensitive house in excess of the guideline]
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> • A paper ETSU-R-97 Why it is Wrong by Acoustic Noise Consultant Dick Bowdler of New Acoustics, July 2005. This paper puts ETSU-R 97 in historical perspective:

> "2.5 ETSU-R-97 was written by a Noise Working Group (NWG) of developers, noise consultants, environmental health officers and others set up in 1995 by the Department of Trade and Industry through ETSU (the Energy Technology Support Unit). The DTI's mission is prosperity for all by working to create the best environment for business success in the UK. It has no brief for the protection of the environment or for the protection of the citizen from nuisance, loss of amenity. ETSU was the UK Government executive agency for energy technologies.
>
> 2.6 The status of the ETSU-R-97 is perfectly clear. The preface says 'The aim of the Working Group was to provide information and advice to developers and planners on the environmental assessment of noise from wind turbines.' While the DTI facilitated the establishment of this Noise Working Group this report is not a report of Government and should not be thought of in any way as replacing the advice contained within relevant Government guidance. The report represents the consensus view of the group of experts listed below who between them have a breadth and depth of experience in assessing and controlling the environmental impact of noise from wind farms. The consensus view has been arrived at through negotiation and compromise and in recognition of the value of achieving a common approach to the assessment of noise from wind turbines.
>
> 2.7 The first paragraph of the executive summary says 'This document describes a framework for the measurement of wind farm noise and gives indicative noise levels thought to offer a reasonable degree of protection to wind farm neighbours, without placing the unreasonable restrictions on wind farm development or adding unduly to the costs and administrative burdens on wind farm developers or local authorities.'
>
> 2.8 It is thus, by its own admission, not a method of assessing impact. What is more the compromise reached by the NWG is so lacking in basis, so full of unfounded assertions and so badly thought out and argued that it comes up with standards for wind farm noise that are quite unlike any other noise standards. I need to explain in some detail why this is the case so that my point can be fully understood."

Commenting on this Mr. Noonan submitted:

"In the absence of any countervailing expert studies we submit that there is in this case no evidence before the Board to support a conclusion that the proposed development will not have an unacceptable negative impact on people living and working at properties nearby, including our clients."

• Further noise research studies provided with the applicants' appeal included:

☐ A 2015 study "Low Frequency Noise-Induced Pathology: Contributions Provided by the Portuguese Wind Turbine Cases" concerning the effect of "Infrasound and Low Frequency Noise (ILFN)" on a family and their thoroughbred horses, measured through medical examination, neurological testing and observation over time. This demonstrated neurological change (including possible balance disturbance), hypersensitivity to noise/growing intolerance to sound over time (termed since 1984 the medical concept of "annoyance"), and cognitive impairment. The authors refer to tests on rats the results of which were presented to the 8th International Meeting of the Commission on the Biological Effects of Noise held in Rotterdam in 2003 –

"…wherein it was postulated that the fusion of these actin-based structures could be an organic basis for the hypersensitivity to noise and intolerance to sound observed in ILFN-exposed populations, i.e. an organic-based hypothesis for annoyance [24,25]. If so, it would follow that annoyance is the product of cumulative exposures to ILFN, and not necessarily a hereditary trait related to an oversensitive auditory function. If this were indeed the case, however, *the needs of the many outweigh the needs of the few* would justify the exclusion of the 'sensitive' segment of the population from the decision-making process."

☐ A Danish study "Low-frequency noise from large wind turbines", Moller and Pedersen (2010), the summary of which reads:

"As wind turbines get larger, worries have emerged that the turbine noise would move down in frequency and that the low-frequency noise would cause annoyance for the neighbours. The noise emission from 48 wind turbines with nominal electric power up to 3.6MW is analysed and discussed. The relative amount of low frequency noise is higher for large turbines (2.3-3.6 MW) than for small turbines (<2MW), and the difference is statistically significant. The difference can be expressed as a downward shift of the spectrum of approximately one-third of an octave. A further shift of similar size is suggested for future turbines in the 10MW range. Due to air absorption, the higher low-frequency content becomes even more pronounced, when sound pressure levels in relevant neighbour distances are considered. Even when A-weighted levels are considered, a substantial part of the noise is at low frequencies, and for several of the investigated large turbine, the one-third octave band with the highest level is at or below 250Hz. It is thus beyond any doubt that the low-frequency part of the spectrum plays an important role in the house of the neighbours."

In this paper, that impresses the layman with the complexity of its scientific approach, the following passage appears as part of the authors' conclusions:

"Indoor levels of low-frequency noise in neighbour distances vary with turbine, sound insulation of the room, and position in the room, If the noise from the investigated large turbine has an outdoor A-weighted sound pressure level of 44dB 9the maximum of the Danish regulation for wind turbines), there is a risk that a substantial part of the residents will be annoyed by the low-frequency noise even indoors. The Danish evening/night limit of 20 dB for the A-weighted noise in the 10-160 Hz range, which applied to the industrial noise (but not to wind turbine noise) will be exceeded somewhere in many living rooms at the neighbours that are near the 44dB outdoor limit. Problems are much reduced with an outdoor limit of 35dB."

Their conclusions were based on data for turbines in the range 2.3-3.6 MW, but they state –"It must also be anticipated that the problems with low-frequency noise will increase with even larger turbines." They also state "A safety margin must be incorporated at the planning stage in order to guarantee that the actual erected turbines will comply with noise limits."

This study would suggest that for windfarms with large turbines an outdoor limit of 35 dBa should be considered, with a lower limit to provide a safety margin.

☐ "Soundscape of a wind farm – The Cape Bridgewater experience", Cooper, presented to the Acoustical Society of America, November, 2015. Conclusions included:

"In considering the development of soundscape for wind farms the use of A-weighted level has limited value.

…..The presence of inaudible infrasound signatures, modulation and tonal characteristics that do not get considered or picked up in general environmental acoustics needs to be measured, and studied in greater detail…

In considering the impacts of wind turbines one has to consider a noise contribution similar to or below the ambient background level. As such there needs to be an acknowledgment that the limited dose response data is very much out of date and if restricted to predicted A-weighted levels, not the actual sound level contribution, is therefore not appropriate for assessing the impact. The presence of special frequency characteristics (including infrasound and low frequency) are not the normal everyday concept in environmental acoustics, but are issues that require a different approach and a more detailed investigation into determining the soundscape of a wind farm.…

If one considers the impact of wind farms on an acoustic environment from the perspective of complaints, rather than from computer-generated predicted levels, undertaking acoustic assessments from that perspective will provide a more meaningful appraisal of the soundscape for such areas."

• Large and Stigwood, Inter Noise 2014. This paper explores complaints of noise despite compliance with control limits, and some of the "interrelating characteristics of wind farm noise measured and observed in the field that appear to influence complaints made by communities". Tonality is noted in ETSU-R-97 as the cause of complaints but has no further consideration of noise character. The authors state:

"As with ETSU-R-97, international guidance tends to relate noise impact to absolute decibel levels, affording a maximum reduction of 5-6dB for noise character. Of note, amplitude modulation is recognised internationally as an adverse noise characteristic of wind farm noise, in the UK this is still a matter of debate. It is the authors' experience that amplitude modulation is the main cause of noise complaints from large wind farms in the UK."

After assessing four examples of wind farms compliant with noise limits but giving rise to complaints, at para. 4.6 the authors opine that "the current penalty [of 5 dBa] approach is ineffective", and opine that in two of the examples that the noise would be intrusive even with a penalty of 10 dBa. Their opinion is that:

"A separate noise character assessment would certainly help assess the above examples but considerable thought is still needed to ascertain how this might be approached, which character features it would include and what metric is most appropriate and effective."

…..

It is concluded that assessment of character in wind farm noise is in need of serious review by the acoustics community. The current methods adopted to assess noise impact fail those affected and suggest compliance where significant adverse impacts exist. The above analysis suggests that metrics assessing amplitude modulation in isolation will help to provide an indication of intrusive noise character but still neglect many important characteristics. It is noted that the above examples focus on short extracts of wind farm noise. Long-term exposure to noise is likely to heighten perception and annoyance of specific characteristics. Studies investigating how multiple character features interrelate to judgment of impact and the longitudinal impact of noise with character are recommended."

29. In their appeal document at p.9/10 Mr. Noonan submitted:

"Our clients live in one of the quietest areas in Ireland. Their quiet environment would be taken from them by these turbines, that much is clear even from the material provided by the developer. (We point out here one of the fundamental flaws in the noise condition typically imposed by the Board which only limits noise measured using dBa weighted flirter. The consequence of this flawed approach are discussed in the paper enclosed written by Acoustician Dick Bowdler.)

The sensible and objectively reasonable approach taken by the Inspector, and supported in the Ardglass case by the Board, should be taken in this case also. There is no rational basis for proceedings any differently.

Internationally, planning and regulatory practice has already evolved as the need to protect the public was seen to require fresh thinking. We will cite just two examples. In Germany, home of some of the world's most advance wind turbine manufacturers, Bavaria has adopted a minimum separation distance of 10 times tip height for large industrial wind turbines, A Court challenge by turbine promoters seeking to overturn that policy was rejected. More recently, Poland has adopted a 2km separation distance.

The turbines in the present application measure 150 metres to tip. The Bavarian policy would keep them 1,500 metres from people's homes. Our clients and their children live just 635 metres from the nearest proposed turbine. The Board owes our clients and their children a duty of care. The only rational way to fulfil that duty is to refuse the application.

Noise – harmful to health

Noise is defined as unwanted sound. Our clients do not want the sound of the wind turbines within their property.

Exposure to noise can be harmful to health. That is self-evident yet it is necessary for the record to draw the attention of the Board to a series of scientific and medical studies on the topic, which we enclose.

The clear lesson from the literature is that there is a growing awareness of the fact that exposure to wind turbine noise can cause harm and annoyance. It can disrupt sleep. It can lead to health effects./ As the size of the turbines has increased in recent years, the zone of influence spreads. The regulations intended to protect the public always lag behind the science and that is what has happened in Ireland. It is for the Board to ensure that it is au fait with current studies and by applying the lessons learned when making its decisions.

Time does not permit a detailed summary of all of the enclosed literature, such is its extent. We rely on the Board to examine the enclosed materials in full and to consider them in their entirety as they form an essential empirical evidence base for any determination the Board makes on the impact of turbine noise on our clients' home and the homes of other neighbours in the area.

Having reviewed the enclosed literature we request the Board to address in clear and specific terms how it evaluates the evidence presented and how that evaluation bears on its conclusions on the noise issue. To be clear, this is a critical element of the overall assessment the Board must make under the EIA Directive (as implemented into domestic law through the Planning and Development Act 2000 as amended). It is also critical element in the balancing of competing rights which the Board must undertake in its capacity of Planning Authority. It must be possible for our clients to see from the Board's records at the end of this process how it has addressed the empirical evidence, and how it reaches a conclusion that is consistent with that evidence.

The Board is obliged under the EIA Directive to identify describe and assess the main impacts of the project on our clients and their home. Noise is clearly one of those impacts. The developer's EIS does not advert to much less discuss the enclosed material. The identification, description and assessment by the Board must have specific regard to this material."

30. Mr. Noonan's submission did not suggest a maximum dB(A) level for noise at the applicant's house, or a maximum increase above background noise, but seems to imply that the nearest turbine should be at a remove of 1500 metres. However the applicant's core case, as anticipated by the above quote from Mr. Noonan's submission, is that the Board did not examine and analyse or evaluate this literature, or take proper account of it, or record their reasons, and that the applicants' submissions were deemed by the Inspector and the board not to be relevant. The applicants submit that despite the specific references in the impugned decision to the board having had regard to and considered the applicant's submissions, and adopted the Inspector's report on the environmental impact, this falls short of the requirement imposed by Article 3 of the EIA Directive.

31. The applicants further emphasised to the court that the area in which the applicants reside is an exceptionally quiet area, as confirmed by the noise consultant deployed by Cleanrath. In this regard, stringent noise criterion must be adhered to. The applicants submit that the increase in the local noise environment will be circa 20dBA and that as per section 5.6 of the WEDG 2006 the Board in assessing noise impact should have regard to a significant increase in a particularly quiet area. It was in this regard that the applicants referred to the Ardglass Wind Farm application (Board Ref: PL04.243630) where the Board refused planning permission for a windfarm in a particularly quiet area where there was a predicted increase of noise by circa 6 to 15 dBA. Therefore, the applicants submitted, that the Board cannot have had regard to the exceptionally quiet environment.

32. The complaint of the applicants in relation to the manner in which the EIA was conducted relates to the use of the WEDG 2006 which they contend are outdated and no longer fit for purpose. The applicants point out that the WEDG 2006 have been under ministerial review since 2013. While not suggesting that the ministerial review of the WEDG 2006 was a basis for contending that the Board should have disregarded the guidelines altogether, they submitted (a) that the Board was not bound by the WEDG 2006, but merely must have regard to them, and (b) flowing from this, that the Board was obliged to take into account and evaluate any evidence presented which indicated that the guidelines were inappropriate or outdated or not suited to the particular planning application. This evidence should have been balanced with the WEDG 2006 and an assessment, analysis and examination of all evidence should have been conducted before any decision was taken. Instead, the Inspector's report explicitly states in response to the evidence proffered that the suitability of the WEDG 2006 or any evidence indicating that they are outdated or not fit for purpose "is not a relevant planning consideration. The 2006 Guidelines are as they are and remain in force." One important feature of the WEDG 2006 being adopted by the Board, allegedly without any proper consideration of contradictory information, is that the WEDG 2006 set a maximum noise level limit of 43dBA whereas the newer guidelines subject to ministerial review recommend a maximum noise level limit of 40dBA.

The Amplitude Modulation Materials

33. A further limb of the complaint that the Board did not have proper regard to the submissions of the applicants arises in the context of amplitude modulation. Amplitude modulation (AM) is a characteristic of wind turbine noise which is said to cause annoyance and relates specifically to the 'swish' noise generated from the movement of the turbine blades. During the course of the planning process, the applicants submitted three expert reports supporting the view that AM is a regular feature of windfarms. In addition to the Large and Stigwood (2014) quoted earlier, Mr. Noonan included a paper on "Audible amplitude modulation" delivered by Large and Stigwood (Denver Conference on Wind Turbine Noise 2013), in the Summary of which the authors state:

> "AM is generated by all wind turbines including single turbines. Propagation conditions, mostly affected by meteorology, and the occurrence of localised heightened noise zones determine locations that will be affected. Measurements form eleven wind farms have been presented and discussed in relation to current research and theory. Findings confirm that AM occurrence is frequent and can readily be identified in the field by measuring under suitable conditions and using appropriate equipment and settings. Audible features of AM including frequency content and periodicity vary both within and between wind farms. Noise character can differ considerably within a short time period. The constant change in AM character increases attention and cognitive appraisal and reappraisal, inhibiting acclimatisation to the sound. It is advised that those responsible for approving and enforcing wind energy development improve their understanding of the character and impact of AM. This can be achieved by attending a listening room experience which has been trialled and is discussed in this paper."

The paper states (p.2)

> "As wind farms have spread to more populated parts of the UK, and as turbine hub heights have increased, incidence and complaints of AM have risen."

In their "Conclusions" the authors state:

> "Single wind turbines cause AM. This has been recorded by several researches and addressed by us. It is also confirmed mathematically.
>
> AM appears to occur in heightened noise zones, where levels are greater than at some other nearby locations. This means meter location and site observations need to reflect the appropriate conditions and careful analysis of localities at the time of AM impact is required. These zones can vary with wind direction, synchronicity and meteorology (especially wind shear) although certain locations appear to regularly experience higher noise and levels of AM than others.
>
> Crosswind AM can arise at significant distances in excess of 400m.
>
> A range of features in the AM are experienced. Typically, AM will fluctuate with heightened peak to trough values for periods of a few seconds, The greater the atmospheric stability the less variance in the AM trace.
>
> Under a wider range of atmospheric conditions, the AM that commonly occurs has increases in peak to trough variations (fluctuating with periods of significant AM) for about 6-20 seconds which then gradually subside. In some circumstances the AM does not subside and continues with only minimal variation for periods of several hours. This appears to arise when there is a steady wind direction and wind strength as well as prolonged high wind shear.
>
> The spectrum of the AM depends on the distance from the individual turbines but also meteorological effects, the extent of refraction, synchronisation of separate turbine emissions and the frequency content emitted in the direction of the receiver. This leads to a wide range of variations with increasing lower frequency dominance within the AM peaks at greater distances typically approaching one kilometre or more."

34. However, at section 10.8.8/9 of the Inspector's report, the issue of AM is addressed as follows:

> "10.8.8… The issue of Amplitude Modulation (AM) is addressed in the EIS. Normal AM is characterised by a swish sound as blades pass the hearer. Other AM can result in a periodic 'thumping' or 'whoomphing' sound at relatively low frequencies, and often at greater distances from turbines (particularly downwind). Occurrence depends on the atmospheric factors including wind speed and direction, topography and blade design. It is concluded that it is not possible to be prescriptive as to whether any particular site or wind farm design is more or less likely to give rise to Other AM (OAM). Occurrence is the exception rather than the rule – based on studies of existing wind farms. Even at sites where it did occur, studies show it was likely to occur 7-15% of the time. The only mitigation measure is the cessation of operation of offending turbines during those conditions under which OAM is found to occur. This can only be established after monitoring and

measurement to establish the extent of the problem. It is possible that improvements in blade design and changes in operational parameters can lessen the incidence of OAM.

10.8.9 Operational Phase Mitigation Measures

Significant mitigation measures proposed include the following-

- Curtailment of turbine operation in certain wind conditions using the SCADA system.

- Noise monitoring to confirm if Amplitude Modulation is a problem once turbines have been commissioned and then control and regulation of the operation of turbine unit(s) in certain atmospheric and meteorological conditions, if required, using the SCADA system."

The applicants submit that the Board, in adopting the Inspector's report, did not have regard to the evidence put before them which differed from the views expressed by the Inspector in 10.8.8, particularly in stating that "occurrence is the exception rather than the rule…." and that even then "it was likely to occur 7-15% of the time." Thus they complain that no analysis, examination or investigation of the AM issue occurred.

Condition 6 recommended by Inspector
35. A further limb of complaint in relation to the EIA and AM arises from the manner in which the Board adopted the Inspector's report. At proposed Condition 6 of the Inspectors report, the Inspector recommends noise limits:

"shall not exceed the greater of:

(a) 5 dB(A) above background noise levels, or

(b) 43 dB(A) l90, 10 min

when measured externally at dwellings or other sensitive receptors."

The Inspector's Condition 6 then adds:

"Prior to commencement of development, the developer shall submit to and agree in writing with the planning authority a noise compliance monitoring programme for the subject development, *including any mitigation measures such as the de-rating of particular turbines in the event of noise exceedances or complaints in relation to amplitude modulation.*" [Emphasis added]

The Board in their report adopted this condition almost in its entirety at Condition 7, but excluded the italicised words relating to amplitude modulation. The applicants submit that this is indicative of a disagreement of the Board with the condition recommended by the Inspector, and also of a lack of consideration by the Board of this issue. No reasons are given for this departure from the report of the Inspector.

36. In light of all of the above, the applicants submit that in not having proper regard to all of the relevant materials put before it, that the Board did not properly record an EIA as required by law. The applicants submit that the final decision of the Board insofar as it relates to the required EIA is vague, uncertain and incomplete. Specifically, the applicants contend that the lack of analysis, investigation, assessment and evaluation of matters such as the particularly quiet environment where the development was being carried out, the acceptance and application of the WEDG 2006 despite evidence questioning their use in the particular development and the adoption of statements in relation to amplitude modulation without regard to contradictory evidence, are indicative of an incomplete EIA which was not carried out or recorded in accordance with the EIA Directive.

Submissions of the Respondent (the Board)

Failure to carry out or record an EIA
37. The Board at the outset submitted to the Court that the onus lies on the applicants to prove that an EIA was not properly carried out or recorded. They cited the decision in *Aherne v An Bord Pleanála* [2015] IEHC 606 where Noonan J. stated at para 21: "In the present case the applicants contend that no EIA was carried out by the Board. However, the decision of the Board clearly records that did carry out an EIA and the onus of proving otherwise rests on the applicants. No evidence has been adduced to contradict the assertion of the Board contained in its decision." They also referred to a number of decisions such as *Dunnes Stores v An Bord Pleanála* [2016] IEHC 226 at para 8.2 where it is stated:

"There is, moreover, a presumption that the decisions of a body such as An Bord Pleanála are valid until the contrary is shown. One must assume, in the absence of any evidence to the contrary, that statutory bodies, such as the Board in this case, exercise their powers and discharge their functions in a lawful and proper manner."

Failure to have proper regard to submissions
38. The Board submitted that the presumption that they acted lawfully extends to a presumption that they had proper regard to submissions put before them. It was further submitted that the onus on the applicants in these circumstances was to produce evidence to the Court that their submissions had been disregarded as claimed, however the Board submitted that the applicants have failed to produce any such evidence and instead have made a number of "bald assertions" (page 10 of the Board's written submissions).

39. In relation to the consideration of submissions, the Board submits that a lack of explicit reference to particular submissions by a party is not a ground upon which a claim of lack of regard to such submissions can be made out. In support of this, the Board cites the decision of Costello J. in *O'Sullivan v An Bord Pleanála* (unreported, High Court, 30 November 2017). There the applicants contended that a lack of express specific reference to the cumulative effects of the development did not mean that same was not considered by the Board. They also cited Kearns J., as he then was, in *Evans v An Bord Pleanála* [2004] WJSC-HC 4037 where he stated at page 4059 "I accept the respondent's submission that non-recitation of Guidelines in the reasons does not mean that proper

consideration was not given to the Guidelines or indeed to Government policy as required". The Board submits that a lack of reference to any particular third party submission is not enough to substantiate a claim that the Board did not have sufficient regard to them.

40. In addressing the complaint of noise specifically, the Board states first that the area in which the development is to be carried out does not qualify as a low noise area as envisaged in the WEDG 2006 and that this is made clear in the documentation put before the Board, including pages 9-28 of the planning application and Section 9.3.5.2 of the EIS. However, the Board further submits that even if the area did qualify as a "low noise environment" as envisaged by the WEDG 2006, the Board are not bound by the WEDG 2006 as these are merely guidelines to which they must have regard. In support of this they cite the decision of Peart J. in *O'Grianna v An Bord Pleanála* [2014] IEHC 632 at para 16 where he states of the WEDG 2006: "It cannot in my view be said that the Board failed in its statutory duty in this regard by not slavishly adhering to the Guidelines recommendation in relation to a low noise environment."

41. The Board further submits that any comparison drawn between the Ardglass Wind Farm decision to refuse on the basis of a low noise environment, and the present decision to approve, is misconceived, because the refusal in Ardglass was based on an application of the WEDG 2006. The Board submits that the noise environment for the proposed environment is very different to that of the Ardglass proposal, and that all of the relevant documentation in relation to these noise environments was before the Board during the decision-making process.

42. In relation to the WEDG 2006, the Board submits that this point is well settled by a case which came before this Court, *Element Power v An Bord Pleanála* [2017] IEHC 550. In that case, the applicants claimed that the Board ought to have had regard to the draft ministerial guidelines of 2013 which proposed to make drastic changes to the WEDG 2006. This Court found that there was no such obligation on the Board to apply or make decisions on the basis of guidelines which had not yet taken effect and that the Board was entitled, and indeed obliged, to take the WEDG 2006 into account.

43. In relation to AM, the Board submits that the Inspector devoted a significant portion of its report considering the issue of AM and concluded on the basis of preferred material that AM was not an issue which should concern the Board in a grant of planning permission but instead could be dealt with via mitigation measures in the future if necessary. In particular, the Board emphasises the significant mitigation measures which attach to the grant of planning permission. The Board submits that it was entitled to reach this conclusion and that although there was a possibility of reaching an alternate conclusion, the Board chose not to do so. The Board submitted that the applicants are encouraging the Court to engage in a merits-based challenge which would prefer one course of action over another; this, they submit, is not the function of judicial review.

Appropriate Assessment

Adopting the Inspector's Report
44. The Board submits that the contention by the Applicants that the Board had no power to adopt the report of the Inspector is incorrect. In this regard the Board relies on the decisions of Finlay Geoghegan J. in *Kelly v An Bord Pleanála* [2014] IEHC 400, Costello J. in *O'Sullivan v An Bord Pleanála* and this Court in *Ratheniska v An Bord Pleanála*. This Court dealt specifically with this point in *Ratheniska* where the issue raised by the applicants was whether a simple adoption by the Board of the decision of the Inspector was sufficient to meet the requirements of the Habitats Directive. In that regard I stated:

> "127. The court takes the view that in a case such as this, where the Board on due consideration accepts the relevant findings made and conclusions reached by its Inspector, the production and recitation of that report satisfies the obligations of the Board to give reasons for it's determination. In other words, where the Board, having considered all appropriate documents and matters, accepts the scientific knowledge and findings in relation to the European site, accepts the Inspector's examination and analysis and that the proposed development will not adversely affect the integrity of the European site, it is not necessary for the Board to set out yet again at length in its decision the same examination and analysis. Such an exercise would be both pointless and unnecessary. The mere fact that the resulting decision might be perceived to be "uninformative and perfunctory" clearly does not of itself amount to any ground for review."

45. The Board submits that any claim by the applicants that there is no statutory provision which allows them to adopt the Inspectors report in relation to AA is not borne out in light of the long line of authority which takes the approach taken by this Court in *Ratheniska*.

Uncertainty and the Best Scientific Evidence
46. In relation to whether or not the Inspector, and in turn the Board, was correct in concluding that the proposed development would not adversely affect the integrity of the relevant European sites (being the Gearagh SAC and SPA), the Board submits that the applicants have not established any lacuna or gaps in the findings of the Inspector sufficient to challenge the findings of the Board. The Board submits that the main concern raised by the applicants and other third parties in relation to the Gearagh SAC during the course of the planning permission was that increased tree felling during development would cause damage to the Gearagh SAC due to increased run-off. However, the Board submits that this argument was not substantiated in evidence before them during the course of the planning process.

47. The Inspectors report addresses these concerns and refers to the materials submitted to the Board in relation to the damage caused to the Gearagh SAC as a result of deforestation in recent years. The Inspector clearly states that the cause of this damage is unknown and that "no evidence to support this contention" that increased agriculture and blanket afforestation have caused damage to the Gearagh SAC was submitted. The Inspector further states that "There is simply not enough evidence to establish what the magnitude of the problem is, what caused it, and what could contribute to improvement or dis-improvement in the future."

48. Regardless as to the cause of previous damage to the Gearagh SAC, the Board submits that the Court here need only concern itself with whether or not the proposed development would have the adverse effects alluded to in the material before the Board. That is, is this proposed development likely to result in increased inflow to the Gearagh SAC resulting in an adverse impact to that environment? The key section of the Inspectors report in this regard is cited in full by the Board:

> "The claim that man-made drainage attenuation within wind farm sites has not worked is not borne out by any evidence submitted. The applicant has proposed a suite of drainage attenuation measures for this wind farm development site which will attenuate 1-in-100 year one-hour storm events to current 'greenfield rates' (already high due to rock outcrops and poor drainage of thin soils on site) through the use of swales, check dams, attenuation ponds and level spreader discharge to vegetation. The calculations allow for 20% increase in run-off due to climate change in the future. I would therefore be satisfied that such measures, if correctly constructed and maintained, will be effective in maintaining 'greenfield' run-off rates, with the result that there will be no increased run-off which could contribute to down-stream

flooding in The Gearagh SAC."

49. The Board submits that this disposes of the arguments of the applicants that there was some kind of lacuna or gap in the evidence before the Board in relation to the impact of the development. The Board submits that the applicants are raising issues of certainty in relation to past damage instead of the actual impact the proposed development will have, which has been addressed by the Inspector and adopted by the Board. Therefore, the Board submits that no issues in relation to AA and scientific uncertainty arise.

Submissions of the Notice Party (Cleanrath)
50. Cleanrath adopted the written and oral submissions of the Board. Cleanrath submitted that there was no obligation on the Board to assess, evaluate and investigate each and every submission which came before it. Cleanrath submitted that the obligation on the Board in relation to submissions is set out in section 172(1J) of the PDA 2000 which states that

> "(1J) When the planning authority or the Board, as the case may be, has decided whether to grant or refuse consent for the proposed development, it shall inform the applicant for consent and the public of the decision and shall make the following information available to the applicant for consent and for the public:
>
> …..
>
> (c) having examined any submission or observation validly made…"

Cleanrath submitted that the obligation on the Board in relation to third party submissions was limited to an examination of such submissions when coming to their decision. Cleanrath submitted that this is a separate obligation to that of Article 3 and that it required the Board to examine and consider such submissions, not to effectively traverse each and every submission received in their report.

51. Cleanrath also submitted that the object of the Applicants in this judicial review is a merits-based assessment wherein the Applicants are submitting that the Board should have preferred one set of expert evidence over another. Again Cleanrath emphasise that the Board are the competent authority with the relevant expertise to decide which expert evidence to prefer during the assessment of a planning application. Cleanrath also extend this argument to the submissions made in relation to noise. Cleanrath submit that the Inspector conducted a thorough examination of the expert evidence submitted to it which related to noise and noise impact. Cleanrath submit that the Inspector fully considered whether or not the development was being carried out in a particularly quiet area, whether or not the issue of amplitude modulation was validly raised and whether background noise and operational noise would be consistent with standard industry norms as well as fully assessing the WEDG 2006. Cleanrath submit that in this respect, it cannot be said that this evidence was not examined and considered and that in fact the applicants wish for the Court to come to a different conclusion on the same evidence. Cleanrath submits that there is no evidence before the Court that the Board acted irrationally or that they disregarded the submissions of the applicants. In light of this, Cleanrath submit that the applicants have failed to discharge the onus of proof on them as applicants in this matter.

52. In relation to AM, Cleanrath submit that the Board had ample evidence before it to come to the conclusion that it is not a recurring issue at windfarms and that where it was an issue it occurred only 7-15% of the time. In this regard the Inspector/the board adopted views expressed by Cleanrath in its EIS at p.9.14, supported by a number of expert reports which related to studies carried out in the UK. Included at p.9.14-9.15 was reference to the 'Research into Aerodynamic Modulation of Wind turbine Noise' (Salford/DEFRA/CLG and BERR) which states that of the 133 sites the subject of their study, AM was only confirmed to be an issue at 4 sites and was considered a possible issue at 8 other sites. Of the four sites where AM was confirmed to be an issue, it is stated that these issues and the conditions which were causative of AM occurred only 7-15% of the time. Cleanrath therefore submit that there was ample evidence before the Board from which they could conclude that AM would not be an issue.

53. In the context of AA, Cleanrath dealt with this issue in a similar manner to the Board and so no additions are required to be made.

The issues
54. The main issues to be decided by the Court are as follows:

> 1) Was the Board required to examine, analyse, evaluate and assess each and every submission and scientific paper put before it for the purposes of an EIA?
>
> 2) Did the Board examine analyse evaluate and assess the applicants' submissions and scientific evidence in relation to amplitude modulation?
>
> 3) Does the failure of the Board to adopt the Inspector's recommended Condition 6 in full invalidate the decision?
>
> 4) Was the Inspector entitled to conclude that there would be no adverse affect on the Gearagh SAC in circumstances where the cause of historic erosion is uncertain?

1) Was the Board required to examine, analyse, evaluate and assess each and every submission and scientific paper put before it for the purposes of an EIA?
55. The starting point is Article 3 of Directive 2011/92/EU as set out in paragraph 20 of this judgment, which essentially sets out how an environmental impact assessment should be carried out. Article 4 identifies the type of projects that must be subjected to EIA. Article 5 obliges Member States to adopt measures to ensure that the developer supplies the information necessary to make an EIA, including identifying "the aspects of the environment likely to be significantly affected by the proposed project" (Annex IV). Article 6 requires notification of authorities likely to be concerned, and public notification, and the making available to them of the Article 5 information. Article 6.4 stipulates that the public concerned are –

> "entitled to express comments and opinions when all options are open to the competent authority or authorities before the decision on the request for development consent is taken."

Article 7 concerns cross-border likely effect, and has no relevance to the present case.

Article 8 states: "The results of consultations and the information gathered pursuant to Articles 5, 6 and 7 shall be taken into

consideration in the development consent procedure."

56. In domestic legislation the proposed development falls within Part 2, Schedule 5 of the Planning and Development Regulations 2001, and s.172(1) of the PDA 2000 requires that an EIA be carried out. Section 171A(1) of the PDA 2000 defines an EIA as being an assessment -

> "which includes an examination, analysis and evaluation, carried out by a planning authority or the Board, as the case may be, in accordance with this Part and regulations made thereunder, that shall identify, describe and assess in an appropriate manner, in light of each individual case and in accordance with Articles 4 to 11 of the Environmental Impact Assessment Directive, *the direct and indirect effects of a proposed development on the following:*
>
> (a) human beings, flora and fauna,
>
> (b) soil, water, air, climate and the landscape,
>
> (c) material assets and the cultural heritage, and
>
> (d) the interaction between the factors mentioned in paragraphs (a), (b) and (c)." (Emphasis added).

Clearly therefore the Board must identify, describe and "assess in an appropriate manner" noise as one of the effects of the proposed development on human beings. The obligation to assess relates back to the earlier words "which includes an examination, analysis and evaluation".

Also relevant is the obligation of the planning authority/Board to inform the applicant and public of their decision, and their reasons, now set out in s.172(1J). The information that must be provided includes:

> (a) "the content of the decision and any conditions attached thereto;
>
> (b) An evaluation of the direct and indirect effects of the proposed development on the matters set out in section 171A;
>
> (c) Having examined any submission or observation validly made,
>
> (i) The main reasons and considerations on which the decision is based, and
>
> (ii) The main reasons and considerations for the attachment of any conditions, including reasons and considerations arising from or related to submissions or observations made by a member of the public;
>
> (d) Where relevant, a description of the main measures to avoid, reduce and, if possible, offset the major adverse effects…"

57. It is the position of the applicants that Article 3 of the Directive imposes an obligation on the relevant planning authority to analyse, assess, examine and evaluate all material which comes before it when conducting the EIA, including *all* information contained in third party submissions. Counsel relied on *Commission v Ireland*, particularly the following parts:

> "At the outset, it is to be noted that the Commission and Ireland give a different reading to Article 3 of Directive 85/337 and a different analysis of its relationship with Articles 4 to 11 thereof. The Commission maintains that Article 3 lays down obligations which go beyond those required by Articles 4 to 11, whereas Ireland submits that it is merely a provision drafted in general terms and that the details of the process of environmental impact assessment are specified in Articles 4 to 11.
>
> …
>
> 38. That assessment obligation is distinct from the obligations laid down in Articles 4 to 7, 10 and 11 of Directive 85/337 which are essentially, obligations to collect and exchange information, consult, publicise and guarantee the possibility of challenge before the courts. They are procedural provisions which do not concern the implementation of the substantial obligation laid down in Article 3 of that directive.
>
> 39. Admittedly, Article 8 of Directive 85/337 provides that the results of the consultations and the information gathered pursuant to Articles 5 to 7 must be taken into consideration in the development consent procedure.
>
> 40. However, that obligation to take into consideration, at the conclusion of the decision-making process, information gathered by the competent environmental authority must not be confused with the assessment obligation laid down in Article 3 of Directive 85/337. Indeed, that assessment, which must be carried out before the decision-making process (Case C-508/03 *Commission v United Kingdom* [2006] ECR I-3969, paragraph 103), involves an examination of the substance of the information gathered as well as a consideration of the expediency of supplementing it, if appropriate,, with additional data. That competent environmental authority must thus undertake both an investigation and an analysis to reach as complete an assessment an assessment as possible of the direct and indirect effects of the project concerned on the factors set out in the first three indents of Article 3 and the interaction between those factors."

58. Counsel contended that the information gathering process required by Articles 4-7 is inextricably linked to the assessment obligations under the "fundamental provision" Article 3, and cannot be satisfied by the information merely being "taken into consideration" under the Article 8 obligation. He argued that "the" direct and indirect effects in Article 3 must refer to the effects identified in the EIS, which comes at the start of the process, and also information obtained from the statutory consultees and members of the public, and that in this regard the applicant's submissions to the Board as to the likely effect of turbine noise on the environment enjoyed "parity" with the information in the EIS. It follows that the Board was obliged to examine, evaluate and assess the "comments and opinions" submitted by members of the public under Article 6.4. He argued that, as the CJEU stated at para. 40, this obligation relates to "substance of the information gathered".

Discussion

59. There is an immediate difficulty with this submission. It is clear that in *Commission v Ireland* the CJEU was not interpreting the Directive to impose a new, more onerous obligation on Member States in relation to EIA but was in fact dealing with the lack of transposition of Article 3 of the EIA Directive, and the obligation to "assess in an appropriate manner". The CJEU considered whether or not it was sufficient, as Ireland argued, that the other relevant Articles (namely Articles 4-8) had been transposed. After the reasoning in para.40 the court stated:

> "41. It follows therefore both from the wording of the provisions at issue of Directive 85/337 and from its general scheme that Article 3 is a fundamental provision. The transposition of Articles 4 to 11 alone cannot be regarded as automatically transposing Article 3." (emphasis added)

60. The key point in *Commission v Ireland* was not that the distinct obligation in Article 3 required the Board to analyse, assess, examine and evaluate *every submission* put before it, but that the Article 3 obligation was separate to that of the Article 8 consideration of submissions. Therefore, Ireland could not simply adopt all articles except for Article 3 as there was a distinct obligation on a Member State to carry out as full and complete an assessment as possible of the direct and indirect effects of the project on the specified grounds set out in Article 3. That is, it is not simply sufficient to "take into consideration", for example, the effect of the proposed development on "human beings, fauna and flora" as required Article 8. Instead a Member State has a distinct obligation to examine and assess the effect of a development on human beings, fauna and flora, as required by Article 3.

61. More fundamentally Article 3 and the amended definition of EIA in s.171A of the PDA 2000 refer to the "direct and indirect effects" of a project/proposed development. The focus on "effects" is carried through to s.172. The matters that must be considered are stipulated in s.172(1G), also inserted by S.I.419/2012 after *Commission v Ireland*:

> "In carrying out an environmental impact assessment under this section the planning authority or the Board, as the case may be, shall consider-
>
> (a) the environment impact statement;
>
> (b) any further information furnished to the planning authority or the Board pursuant to subsections (1D) or (1E);
>
> (c) any submissions or observations validly made in relation to the environmental effects of the proposed development;
>
> (d) the views, if any, provided by any other Member State under section 174 or Regulations made under that section."

At (c) it is the "environmental effects of the proposed development" that must be considered, and therefore examined, analysed and evaluated. That does not mean that the evaluation obligation extends to every piece of information, or that it extends to information or submissions that do not relate to the effects of the development that is proposed. If the "substance of the information" provided does not relate to the effects of the particular project for which approval is sought, then it must be doubted that there is any obligation to evaluate.

62. Shortly after the hearing of the within proceedings but before the preparation of this judgment, Costello J. delivered a judgment in the matter of *O'Brien v An Bord Pleanála* [2017] IEHC 733 which concerned similar complaints to the present case. This court had the benefit of further written submissions in respect of *O'Brien*, which was relied upon by the respondent and Cleanrath.

63. In *O'Brien*, the applicants were concerned with the impact that noise would have if permission for the proposed wind farm was granted. During the course of the planning process, the applicants submitted an acoustic expert report of Mr Bowdler who contended that the noise impact of the proposed development would have an adverse effect on people in the surrounding areas. Again in *O'Brien*, it was contended that the Board was required to carry out a full analysis and assessment of the material submitted to it in the course of an EIA.

64. The decision was somewhat different on its facts in that the report of Mr Bowdler was actually summarised by the Inspector in his report. Costello J. also found that the report of Mr Bowdler did not in fact put forward new material to the court but merely expressed his own interpretation of the relevant guidelines and information which the Board had on noise impact.

65. While the decision can be distinguished on its facts, it is of some assistance in that Costello J. considered the interplay between s.171(A) and s.172(1G)(c), and stated:

> "31. These are distinct and separate obligations imposed on the Board. Consideration of the submissions or observations is part of the process whereby the Board examines, analyses and evaluates the potential effects of the proposed development upon the environment. This distinction is important when considering the validity of the applicants' argument that an examination, analysis and evaluation of the Bowdler Report and the submissions of the applicants was required in this case.
>
> 32. The applicants have not established that the Board did not consider their submissions as required by s.172(1G)(c). The Inspector recited a detailed summary of their submission to the Board, including a summary of the points made by Mr. Bowdler in his report. The noise impact of the wind turbines was a significant part of the EIA and there were a total of eleven third party submissions which raised the issue of the noise of the wind turbines. It is not credible to suggest that this was not the matter of detailed consideration by the Inspector and indeed the applicants do not go that far. The Bowdler Report was the only scientific evidence other than that contained in the EIS before the Inspector and the Board."

66. In Supplemental Legal Submissions to this court Counsel for the applicants argued that Costello J. fell into error by separating the Article 3 and Article 8 obligations in para.31, and that this is precisely what the CJEU ruled against in *Commission v Ireland*. In my view this criticism is not justified, because she describes the consideration of the submissions as "part of the process" of examination and evaluation. [At para. 14 of the Supplemental Submission Counsel suggested that if the court considered the law was unclear notwithstanding *Commission v Ireland* the court should consider a reference pursuant to Article 267 TFEU. I do not consider this necessary.] That must be correct. The planning application/appeal, the EIS, and submissions arising from the public consultation process, and if it arises a request for further information and the materials that that elicits, produce the materials upon which the decision must be made; these must then be considered by the decision maker (Article 8), and that process leads into and is part of the "examination, analysis and evaluation" required to complete the EIA (Article 3 and s.171A of the PDA 2000).

67. At the end of para 43 Costello J. addressed a submission based on *Simonovich v. An Bord Pleanála* (Unreported, High Court, Lardner J., 24 July, 1988) to support the contention that the Inspector was required to give a fair and accurate summary of the Bowdler Report in his report to the board. She states:

> "It does not establish the principle that an Inspector must set out in his report to the Board his analysis of the submissions of every expert report submitted to the Board."

She goes on to state in paragraph 44:

> "The implications of the submissions of the applicants in this case are that the Inspector and the Board must examine, analyse and evaluate each of the submissions or observations validly made to the Board. This is not what is required by either the EIA Directive or the Act of 2000, which simply requires that the direct and indirect effects of a proposed development be so assessed, not the submissions or observations. The arguments advanced by the applicants leads to a result which would render the provision of s.172(1J)(c) effectively otiose. Why would the Oireachtas stipulate that the planning authority or the Board had an obligation to consider the submissions and observations submitted by third parties before the planning authority or the Board informed the public of the main reasons and considerations of their decision, if they were already obliged to examine, analyse and evaluate the individual submissions and observations and make that assessment available to the public under the provisions of s.172(1J)(b)?"

Two points are worthy of note. I entirely agree with Costello J. that what the EU and domestic legislation mandate requires is that the EIA focus on the direct and indirect effects of the proposed development – not all submissions, or all the content of a particular submission, will be relevant to this focus. Secondly, while the wording in the last sentence quoted is a little unclear, the point made is clear enough: in Costello J's view the obligation in s.172(1J)(c) after examination to give "main reasons and considerations" would be unnecessary if all the submissions in respect of direct and indirect effect were already evaluated and that evaluation made available to the public under s.172(1J)(b).

68. I find this point persuasive, and it tends to confirm the view of this Court that the EIA Directive does not go so far as to require a planning authority to conduct a thorough evaluation and assessment of *every* submission put forward to it. Rather the Board must take all submissions into consideration, but the duty to examine, analyse and evaluate extends only to submissions that are of substance and bear on the direct or indirect effect of the proposed development.

69. This is also lent support by the words in Article 3 that the EIA "shall identify, describe and assess *in an appropriate manner…".* It is inherent in the phrase "in an appropriate manner" that the assessment required will vary and will depend on the subject matter and level of direct or indirect effect.

70. Fundamentally in the present case the applicants ask the court to impose on the Board (and by extension planning authorities) an obligation to consider, assess and evaluate the general science around wind farm turbine noise emissions, and to reject the currency of ETSU-R-97 and the WEDG 2006 and apply some new science to the assessment of noise affect, particularly on humans, and to conditions under which wind farms developments should be permitted. This would involve making value judgments on the noise advice in section 5.6 of WEDG 2006, the guidelines which were promulgated by the Minister under s.28 of the PDA 2000. It would require the Board to consider in depth all of the scientific articles on noise and health relied upon in Mr. Noonan's submission, and balance against that all of the material presented by Cleanrath in its appeal and in its response to the third party submissions.

71. While there will be occasions where the Board's decision in a particular case may effectively have to decide a matter of policy, for example, where there is no national or local spatial policy on the location of windfarms [See the decision of this court in *Element Power v. An Bord Pleanála,* [2017] IEHC 550.], it is not the function of the Board to determine matters of policy where specific statutory guidance has been given and is extant. While the Board is an expert body, it is not designed or intended to address and evaluate such policy matters in the context of a planning application or appeal. Without conducting its own scientific research, or at least researching the broad range of scientific papers – and no doubt there are many more than those utilised by the parties in this planning appeal – it is difficult to see how it could come to a fully reasoned policy decision sufficient to override a statutory guideline. Such a decision would also fail to engage in the sort of public consultation that is under way in respect of the departmental revision of the WEDG 2006, and which should be integral to the development centrally of any new national policy on renewable energy which is likely to have wide ramifications for future development.

72. The Board "adopted the Inspector's report on the environmental impact of the development and concurred with his conclusions. The Board completed an Environmental Impact Assessment…". The Board's decision does not indicate that it examined, analysed or evaluated the scientific materials upon which Mr. Noonan's submission that the ETSU-R-97/WEDG 2006 were outdated/not fit for purpose. The statements in the Inspector's report at 10.8.2 demonstrate a cursory consideration of that claim, but are such as to persuade the court that that the Board probably did not examine, analyse or evaluate those materials in the context of EIA because they were not considered to be "a relevant planning consideration". Instead it is clear that the Inspector and hence the Board applied the WEDG 2006 in carrying out EIA. While there may be much that is cogent and persuasive in the scientific material presented by Mr. Noonan, it must be concluded for the reasons just given in the preceding paragraphs that the Inspector was entitled in law to state that a claim that ETSU-R-97 was out-dated and not fit for purpose "is not a relevant planning consideration", and that "The 2006 Guidelines are as they are and remain in force." It follows that the Board was not required to evaluate and assess the competing scientific research/papers that would tend to undermine ETSU-R-97 and the ongoing use of WEDG 2006 as a guideline. It is common case that the Board was obliged to have regard to WEDG 2006, and in my judgment the Board was entitled to proceed on the same basis as the Inspector and decide to grant permission based on the noise advice and limits that feature in WEDG 2006, and to condition the grant accordingly.

73. I am also satisfied that the Board was entitled to adopt the Inspector's report, and that it carried out an EIA that is adequately recorded in the decision. In this regard I adopt the Board's legal submissions.

74. To this should be added that in relation to the reliance by Mr. Noonan in his submission to the Board on the refusal of permission for the Ardglass Windfarm and the Inspector's report in that case, I accept the submission of Counsel for the Board that such reliance was misplaced. As is apparent from the extract relied upon by Mr. Noonan, the predicted potential noise increase at one house location was 11.9 (day) to 15.5 (night) dB L A90,10min above the baseline noise in that area – far in excess of the maximum increase of 5 dB(A) above background noise considered appropriate by WEDG 2006.

2) Did the Board examine, analyse, evaluate and assess the applicants' submissions and scientific evidence in relation to amplitude modulation?

75. The basis of this complaint is the statement in the Inspectors' report that the occurrence of AM "is the exception rather than the

rule – based on studies of existing wind farm. Even at sites where it did occur, studies show it was likely to occur 7-15% of the time".

76. The applicants submit that the Board cannot have had proper regard to the expert evidence put before it by Mr. Noonan, in particular the research and other evidence in the scientific papers of Stigwood et al [The "Noise Studies" listed at no's 8-14 in Mr. Noonan's appeal submission, but particularly those at no. 9 and 11.], some of which I have referred to earlier, which support the view that AM is a common occurrence at windfarms. In this regard Counsel emphasised that the EIA decision making process required that the Board examine the substance of this information.

77. Where the Board has come to a decision which a party claims is unlawful, it is for that party to establish on the balance of probabilities such unlawfulness has occurred. As stated by Noonan J. in *Aherne*, at para 22, "it seems to me that once it is clear from the terms of the decision and the documents therein referred to how the EIA was arrived at that this satisfies the Board's obligations." In *Evans v An Bord Pleanála*, Kearns J. stated at page 4061:

> "In an application of this nature, the Court is not concerned, nor is it permitted, to substitute itself for An Bord Pleanála to ask if it would have reached the same decision on the identical material. The Court is only concerned with the decision making process itself. That being so, the Court may only ask: was there material upon which the decision maker could make the decision which it did make? If so, was the decision taken one which flew or which flies in the face of fundamental reason? It seems to me the answer to the first question must be 'yes' and the answer to the second question must be 'no'."

Cleanrath EIS/Evidence to the Board on AM/OAM

78. Cleanrath addressed the issue of AM at some length in the EIS. Named experts from AWN Consulting Ltd were responsible for the completion of the noise and vibration section.

At p.9-11 the following introduction appears:

> "This section has been prepared with a view to reviewing the following:
>
> • Discussion of the principles of Amplitude Modulation (AM) in terms of 'current thinking' as to the causes of the issue and the conditions in which the issue is more likely to occur.
>
> • Discussion on the issue in terms of perceived impacts and issues experienced across Ireland and the UK including commentary on the frequency/regularity of the issue.
>
> • Review of current consultation processes in relation to the issue of 'Other' AM (OAM), and;
>
> • Discussion on typical mitigation measures that may be considered in terms of the management of OAM should the issue occur."

The discussion then takes place over six pages. It is accepted that AM (or normal AM), experienced as 'blade swish' has long been recognised and was discussed in ETSU-R-97, and in the Renewable UK AM project (2013). It notes OAM, a term adopted in the 2013 UK report, is usually heard as periodic 'thumping' or 'whoomphing' at relatively low frequencies, and that the cause of OAM was considered in the 2013 UK report – the prime candidate being "transient separation of airflow from each blade ['stall']." The occurrence of OAM however depends on complex factors including atmospheric conditions, local topography and blade design. The EIS states at p.9-13:

> "It is not therefore possible to be prescriptive as to whether any particular site or wind farm design is more or less likely to give rise to OAM being generated. This is considered likely to be due to a combination of site and installation-specific factors, including meteorology.
>
> Where a wind turbine installation exhibits OAM, it is then natural to consider how it can be assessed in terms of annoyance, and, in the event that the assessment shows that OAM requires to be mitigated, how this can be achieved."

At p.9-14 the EIS addresses 'Human Response' and notes the extensive tests and discussion in the 2013 UK research in relation to "annoyance responses". The following then appears –

> "Frequency of Occurrence of AM
>
> It should be noted that AM is associated with wind turbine operations but it should also be noted that is a rare event associated with a limited number of wind farms. That is to say while it can occur it is the exception rather than the rule.
>
> Salford University/DEFRA/CLG and BERR prepared a research study in order to investigate the issue of aerodynamic modulation associated with wind turbine noise. The results were reviewed and published in the report 'Research into Aerodynamic Modulation of Windturbine Noise'.
>
> The broad conclusions of this report were that aerodynamic modulation was only considered to be an issue at 4, and a possible issue at a further 8, of 133 sites in the UK that were operational at the time of the study and considered within the review. At the 4 sites where aerodynamic modulation was confirmed as an issue, it was considered that conditions associated with aerodynamic modulation is likely to occur between about 7 and 15% of the time."

The EIS then refers to Renewable UK (2013) to similar effect – at p.68 the report refers to OAM at the limited sites where it has been reported as being "at best infrequent and intermittent", and at p.6 Module F that "its occurrence may be relatively infrequent", and that –

> "There is nothing at the planning stage that can presently be used to indicate a positive likelihood of OAM occurring at any given or proposed wind farm site, based either on the site's general characteristics or on the known characteristics of the wind turbines to be installed."

The EIS then deals with "Possible Mitigation Measures" and quotes the 2013 UK conclusion –

> "In the immediate term, the only guaranteed solution to mitigate OAM if it occurs in practice on a particular site is the cessation of operation of offending turbines during those conditions under which OAM is found to occur."

Cleanrath then address "Ongoing Research" (p.9.16), referring to the recent working document of the Institute of Acoustics (IoA) Amplitude Modulation Working Group (AMWG) in the UK, published in August, 2016, which addresses methodology for the measurement of AM. On p.9.17 Cleanrath's EIS concludes:

> "Therefore in the unlikely event that OAM is identified in relation to the proposed development it will be measured and monitored using the preferred approach that is present in the final IoA AMWG guidance. This will most likely be in the public domain before the proposed development becomes operation."

79. In Cleanrath's response to the third party Grounds of Appeal, including the submission of Mr. Noonan on behalf of the applicants, received by the Board on 5 August, 2016, Cleanrath address the noise issue at para.2.3 and more particularly in the appended response of AWN Consulting (Appendix 1). In Section 2 AWN address the submissions that the WEDG 2006 are "outdated guidance". Section 4 consists of "Comment on the issue of Amplitude Modulation", and repeats reliance on the discussion in the EIS. In section 5 AWN engage with the "Health Impacts" and the scientific evidence adduced by objectors particularly in respect of Infrasound. AWN cite other sources such as the EPA document *Guidance Note for Noise Assessment of Wind Turbine Operations at EPA Licensed Sites (NG3)* indicating that infrasound "is no longer a significant feature" with modern turbines where the blades are upwind of the tower. The World Health Organisation document "Community Noise" is cited for the statement –

> "There is no reliable evidence that infrasounds below the hearing threshold produce physiological or psychological effects."

AWN also rely on statements from the UK Health Protection Agency – a 2010 report – and the UK Institute of Acoustics Bulletin March 2009 to the same effect. They also cite the Australian authority, the National Health and Medical Research Council review of 2009 and their report of 2010 which concluded –

> "There are no direct pathological effects from wind farms and any potential impact on humans can be minimised by following existing planning guidelines."

An information paper published by the same Australian authority in 2014 also states "There is no reliable or consistent evidence that wind farms directly cause adverse health effects in humans." Similar statements are quoted from Health Canada (2014), New South Wales Health Department (2012), Victorian Department of Health (2013), South Australian EPA Infrasound Study (2013), the Australian Medical Association (2014) and Massachusetts Institute of Technology (2014).

AWN state that –

> "If low frequency noise issues are identified appropriate mitigation measures, including site curtailment under conditions (i.e. wind direction/speed) that give rise to the issue will be implemented through the turbine control system associated with the development."

Discussion

80. There is no evidence that the Inspector did not consider the applicants' appeal submission or the scientific papers submitted dealing with AM/OAM. In this respect the complaints made by the applicants in respect of the treatment of AM/OAM are different to the those related to WEDG 2006 being out of date and not fit for purpose, where the thrust of the case was that their appeal submission and the scientific papers were not evaluated at all based on the Inspector's statement that they were not relevant. In his Report the Inspector notes and summarises submissions made by third parties – see p.15, 16, and the listing of Noise Studies on p.18 – and Cleanrath's response. In the light of the EIS and Cleanrath's further response there was clearly material before the Inspector from which it could be concluded, as he did:

> (a) As to Infrasound:
>
> > "…The separation distances of turbines from residential properties should ensure that infrasound is not perceptible to humans. The applicant notes that if future studies do identify problems with specific turbines and low frequency noise, then mitigation measures could be employed through curtailment of turbine operation."
>
> (b) As to AM/OAM,:
>
> > "10.8.8…It is concluded that it is not possible to be prescriptive as to whether any particular site or wind farm design is more or less likely to give rise to Other AM (OAM). Occurrence is the exception rather than the rule – based on studies of existing wind farms. Even at sites where it did occur, studies show it was likely to occur 7-15% of the time. The only mitigation measure is the cessation of offending turbines during those conditions under which OAM is found to occur. This can only be established after monitoring and measurement to establish the extent of the problem. It is possible that improvements in blade design and changes in operational parameters can lessen the incidence of OAM."

It is notable that in this passage the Inspector accepts that AM/OAM are phenomena that may occur, and the difficulty (or impossibility) of predicting when or with what frequency they may occur – matters that are reflected in much of the research relied upon by Mr. Noonan. It is true that the Inspector prefers the presentation of the issues and the solution proffered by AWN on behalf of Cleanrath. The Board adopted the Inspector's views, as it was entitled to do. In 10.8.9 the Inspector refers to mitigation measures – curtailment of turbine operation "in certain wind conditions using the SCADA system", and monitoring for AM with control and regulation of the operation of turbine unit(s) if required – and this is incorporated into his recommended Condition 6; the non-adoption of this fully in the Board's decision will be discussed below. However that does not take away from the court's conclusion that there was ample material before the Board from which it could take the decision that it did take in respect of AM and EIA.

81. At para 19 of *Aherne*, Noonan J. summarises and adopts this Court's judgment in *Ratheniska* and states "the court cannot substitute its own view for that of an expert body such as the Board once it has been shown that there is no manifest irrationality or unreasonableness in the decision arrived at." Although much expert evidence was put before the Board in relation to the AM issue, the fact remains that, as stated in *Aherne*, so long as the Board had before it material upon which it could come to the conclusion

that AM was rare and occurred only 7-15% of the time, the Board was entitled to adopt the Inspector's view. The applicants effectively ask this court to conduct a review on the merits. However, the applicants have not substantiated a claim that the Board acted irrationally or unreasonably and accordingly any submissions that the Board should have reached a different conclusion is concerned more with the merits of the decision that any procedural error.

3) Does the failure of the Board to adopt the Inspector's recommended Condition 6 in full invalidate the decision?
82. The Inspector recommended the imposition of his Condition 6 setting noise limits, the additional provision states:

> "Prior to commencement of the development, the developer shall submit to and agree in writing with the planning authority a noise compliance monitoring programme for the subject development, *including any mitigation measures such as the de-rating of particular turbines in the event of noise exceedances or complaints in relation to Amplitude Modulation*. All noise measurements shall be carried out in accordance with ISO Recommendation 1996 "Acoustics – Description, measurement and assessment of environmental noise". The results of the initial noise compliance monitoring shall be submitted to, and agreed in writing with the planning authority within six months of commissioning of the wind farm.
>
> Reason: In the interest of residential amenity." (Emphasis added)

83. In the Board's decision Condition 7 is in identical terms save that the words in italics are omitted. This is the subject of complaint in Ground (27) of the Statement of Grounds.

84. The reason Condition 6 has become no.7 is that the Board separated off as Condition 5 conditions (a) (b) and (c) related to access tracks, roads/ hard-standing areas and excavated material respectively which the Inspector had included in his recommended condition 4 at (e) (f) and (g).

85. It is not obvious whether the omission of the words in italics was a simple error, or intentional. No reason is given. What is expressly clear is that the Board "adopted the Inspector's report on the environmental impact of the development and concurred with his conclusions" and in the next sentence states "The Board completed an environmental impact assessment and concluded that the proposed development, subject to compliance with the mitigation measures proposed, and subject to compliance with the conditions set out below, would not have unacceptable effects on the environment." I am inclined to the view, based on this wording, that the words were omitted in error.

86. However even if that is not the case, I am satisfied on a reading and construction of the decision as a whole that the requirement that the developer undertake relevant mitigation measures as contemplated in the words in italics is encompassed by Condition 1. This sets forth the standard requirement that the development be carried out and completed in accordance with the plans and particulars lodged (as amended),

> "…except as may otherwise be required in order to comply with the following conditions. In this regard,
>
> (a) Where such conditions require details to be agreed with the planning authority, the developer shall agree such details in writing with the planning authority prior to the commencement of development, and the development shall be carried out and completed in accordance with the agreed particulars.
>
> (b) Specifically, the mitigation measures described in the Environmental Impact Statement, Natura Impact Statement and other details submitted to the planning authority and to An Bord Pleanála shall be implemented in full during the construction, operation and decommissioning phases of the development.
>
> Reason: In the interest of clarity."

87. Condition 1(b) is an extremely broad requirement. In my judgment it captures, *inter alia*, the following relevant mitigation measures described in the EIS:

(1) At para.9.2.2.2, on p.9-15, the following mitigation measure described in the Renewable UK AM work (2013):

> "In the immediate term, the only guaranteed solution to mitigate OAM if it occurs in practice on a particular site is the cessation of operation of offending turbines during those conditions under which OAM is found to occur."

(2) At page 9-17:

> "Therefore in the unlikely event that OAM is identified in relation to the proposed development it will be measured and monitored using the preferred approach that is presented in the final IoA AMWG [Institute of Acoustics Amplitude Modulation Working Group] guidance. This will most likely be in the public domain before the proposed development becomes operational."

(3) At para. 9.5.2:

> "Nonetheless, the following programme of measures would be implemented in order to address any perceived issue of aerodynamic modulation associated with the site:
>
> • A detailed noise survey conducted by an appropriately qualified acoustic consultant will be commissioned in order to confirm the presence of the issue, the extent of the issue (i.e. number of locations, wind speeds and environmental conditions in which it is occurring);
>
> • Based on the findings of this work a schedule of measures will be formulated and agreed with the planning authority, which would typically be envisaged to focus on control and regulation of the operation of turbine unit(s) in certain atmospheric and meteorological conditions."

(4) At para.9.6 (on p.9-57):

> "Commissioning noise surveys are recommended to ensure compliance with any noise conditions applied to the development. In the instance that exceedances of these noise conditions arise and are identified the curtailment of turbine operation can be implemented for specific turbines in specific wind conditions in order to ensure predicted noise levels are within the relevant noise criterion curves/planning conditions. Such curtailment can be applied to the wind farm SCADA system without undue impact of the wind farm operations."

It will be noted that with reference to turbines exhibiting AM/OAM "cessation" is specifically mentioned at (1) above, and "curtailment" at (4) above. These in substance cover the words in italics in the Inspector's Condition 6. That the developer is obliged in law to carry out these mitigation measures was fully accepted by Cleanrath, and such acceptance formed the basis of argument by Cleanrath before this court.

88. Accordingly while it might have given greater clarity if the Board had included the words in italics in its Condition 7, the effect of Condition 1(b) is to incorporate the mitigation measures that are identified in the preceding paragraph of this judgment, and these contain obligations that are enforceable in law against the developer. In these circumstances the challenge in Ground (27) must fail.

4) Was the Inspector entitled to conclude that there would be no adverse effect on the Gearagh SAC and SPA in circumstances where the cause of historic erosion is uncertain?

89. The Nature Impact Statement (NIS) submitted by Cleanrath described the Gearagh SAC and SPA, which were "screened in" for appropriate assessment (AA). The SAC covers an area of 558ha. The proposed wind farm has a hydrological linkage with the SAC via streams which flow into Lough Allua and the Lee River to the southwest, and via the Toon River which flows into the Lee just to the east of Toon Bridge, within the SAC. The development site is 7.9km from the SAC as the crow flies, and 10.4km via the Toon River watercourse. The SAC includes Annex 1 Alluvial Forest Habitat, and objectors expressed concern that the development would adversely affect the integrity of this habitat.

90. The Inspector addresses these concerns in section 11.15.1-10 of his report. He records at 11.15.3 that –

> "It is claimed that there is continued degradation of the hydrology of the Lee and Toon Rivers, primarily caused by agricultural reclamation and blanket afforestation. This, in turn, has an impact on hydrological features of the river such as alluvial forest, caused through flash-flooding and its consequent erosive effects. The sponge-like nature of the upland heaths and bogs of the Sheehy and Derrynasaggart Mountains help attenuate and stabilise the hydrology of the Lee and Toon Rivers – preventing highly erosive flash-flooding from occurring. The damage already done, and the ongoing threats posed to the Gearagh SAC, is no longer a case of reasonable scientific doubt but one of hard scientific evidence. It is claimed that no amount of soak pits, vegetation filters or artificial drainage ditches will replace the mitigating effects that the ecological habitats of uplands naturally provide…"

T he Inspector records and considers appeal documents from appellant West Cork Ecology Centre, that include reports from Professor David Harper (University of Leicester), Mr. Niall Cussen (Department of Environment) and Mr. Jervis Good (National Parks and Wildlife Service). He quotes from Professor Harper:

> "The Gearagh is unique for its anastomosing river channels [I.e. dividing and rejoining streams, or a network of criss-crossing channels]. Alluvial woodland exists around the core oak woodland on stable islands. Alluvial woodland has semi-aquatic species such as willow, alder and ash. Flood regimes create a range of island types and stabilities, upon which a mosaic of understory vegetation grows. The channels have enormous varieties of flow and depth. Some two thirds of The Gearagh was destroyed with the creation of Lee Hydroelectric Scheme in the 1950's. In the past 30 years, changes in the Toon River catchment have resulted in greater and more powerful flood events, eroding the formerly stable islands in the northern part of The Gearagh. This process must have started with the straightening of the Toon River some decades ago to make its floodplain amenable to intensive agriculture (hence unavailable for temporary flood storage). The concern is that the Toon River inflow will continue to push a single channel through The Gearagh to the detriment of the anatomising features…"

Turning to Mr. Cussen's report, which was undertaken following representations from the European Commission and in company of Jervis Good, and Kevin Corcoran of the West Cork Ecology Centre, the Inspector notes "It is claimed that local landowners have engaged in dredging the Toon River to alleviate flooding of lands – although the author could not confirm if damage was as a result of works carried out or severe flooding events." The Inspector records at 11.15.6:

> "The report concludes that "Taking account of all of the above and Mr. Jervis Good's report, causality between the evolution of local land use patterns and what may or may not be happening to the catchment of the [word(s) missing?] [Sic] cannot be proven on the basis of the evidence presented by Mr. Corcoran."

From the report of Jervis Good the Inspector quotes:

> "The site was examined by NPWS regional staff on 15 April 2015 with the complainant, Mr. Kevin Corcoran, who has over 30 years of detailed experience of the ecology of the site, and would have a subtle understanding of early warnings of structural changes in the system. However, if an independent assessment is required, the changes are yet too subtle for this ecologist, who lacks the fluvial geomorphological understanding necessary to definitively determine if such changes have occurred in the system as a result of works in the upstream floodplain, as opposed to the general increase in erosion due to the increase in magnitude of rainfall events".

In his assessment at para.11.15.17 the Inspector notes that there is no evidence to support the contention that 'agriculture and blanket afforestation' have resulted in increased flash-flooding, and that is only a hypothesis. Referring to the just quoted "too subtle" statement, the Inspector states:

> "This goes to the heart of the matter. There simply is not enough evidence to establish what the magnitude of the problem is, what caused it, and what could contribute to improvement or dis-improvement in the future."

In 11.15.8 the Inspector addresses the Department of Arts, Heritage and Gaeltacht report to Cork Co. Co. which stated "It is technically difficult to disassociate the effects of climate change …from increased surface runoff due to better land drainage…". The Inspector states:

> "The report further states, when commenting on 'in-combination' effects, that baseline knowledge of the erosion state of the habitat within the SAC, is not included within the NIS submitted by the applicant. I would not consider that it is the responsibility of an applicant to provide such information – particularly as such could require years of study within an SAC. The Department/NPWS would be better place to provide such information to applicants – although clearly in this instance such information is not available."

Then in 11.15.9 the Inspector states:

> "The claim that man-made drainage attenuation within wind farm sites has not worked is not borne out by any evidence submitted. The applicant has proposed a suite of drainage attenuation measures for this wind farm development site which will attenuate 1-in-100 year one-hour storm events to current 'greenfield' rates (already high due to rock outcrops and poor drainage of thin soils on site) through the use of swales, check dams, attenuation ponds and level spreader discharge to vegetation. The calculations allow for 20% increase in run-off due to climate change in the future. I would be satisfied that such measures, if correctly constructed and maintained, will be effective in maintaining 'greenfield' run-off rates, with the result that there will be no increased run-off which could contribute to down-stream flash-flooding in The Gearagh SAC".

91. The Board in its decision under "Appropriate Assessment" considered that the information before it "…was adequate to allow for the carrying out of an appropriate assessment". It records all the matters to which it had regard, and states that it "concurred with the Inspector's analysis in relation to these matters, and adopted his report and conclusions." Condition 1(b) requires generally that the mitigation measures in the NIS must be undertaken, and Condition 14 specifically requires the establishment of a hydrological monitoring programme for the following reason: "To demonstrate the effectiveness of the mitigation measures on surface water flow with particular regard to the Gearagh SAC and to inform any future overall catchment management programme for this SAC."

92. The applicants' complaints relating to AA are that it was conducted in light of uncertainty which is not permitted by the Habitats Directive. They further submit that there was no proper record of the AA as required by s177V(5) & (6) of the PDA 2000. The applicants submit that as opposed to setting out clear and definitive reasons for deciding that there would be no adverse impacts on the Gearagh SAC, the Board merely adopted the Inspector's report. The applicants submit that although the Board is entitled to adopt the report of the Inspector in terms of any EIA, the Board are not permitted to do so for the AA.

93. Section 177V(1) of the PDA 2000 sets out the obligation to carry out AA in accordance with the Habitats Directive. It requires that the competent authority – here the Board - assessing planning permission should determine whether a proposed development will affect the integrity of a European site before giving consent for same. This obligation was further expanded upon in *Waddenzee* Case C-127/02 (2004) ECR I-7405, where the ECJ. stated that AA must be carried out in a comprehensive manner, in light of any other projects or plans, using the best scientific knowledge in the field. At para 61 it is stated that such authority can only authorise a development where "they have made certain that it will not adversely affect the integrity of that site. That is the case where no scientific doubt remains as to the absence of such effects."

94. In *Kelly v An Bord Pleanála* [2014] IEHC 400, Finlay Geoghegan J. outlined the requirements which need to be met in order to comply with Art 6(3) of the Habitats Directive and s177(V)(1) of the PDA 2000. At para 40(iii) she stated that in order for an AA to be conducted lawfully it "may only include a determination that the proposed development will not adversely affect the integrity of any relevant European site where upon the basis of complete, precise and definitive findings and conclusions made the Board decides that no reasonable scientific doubt remains as to the absence of the identified potential effects."

Discussion

95. Clearly degradation of the Gearagh SAC has occurred over the last number of years as a result of flood events. The exact cause of this flooding has not been conclusively ascertained but could be attributed to the felling of trees, land drainage, dredging or the straightening of the Toon river for agricultural purposes or the relief of flooding, or climate change. The applicants submit that the lack of certainty in relation to the cause of this damage means that the Inspector, and the Board, could not have concluded beyond reasonable scientific doubt that the project would not adversely affect the integrity of the Gearagh SAC. The applicants submit that the Inspector and the Board misunderstood the onus of proof in finding that the presence of adverse effects had not been proved as opposed to finding that the absence of adverse effects had been proved, as required by statute.

96. I am not persuaded by this submission. It confuses the question 'what historically has caused the degradation of The Gearagh SAC' with the real question which is 'whether the proposed development, *including all proposed mitigation measures*, will affect the integrity of The Gearagh SAC in its current state'. The best scientific knowledge considered by the Inspector and the Board could not give a definitive answer to the first question, but this was not needed to answer the second.

97. That it is the integrity of the designated site that must be preserved, and that is therefore central to AA, was established in *Sweetman v An Bord Pleanála* Case C-258/11, and the Opinion of the Advocate General Sharpston (which was adopted by the ECJ. at para.39) gives useful guidance as to the decision-maker's task:

> "55. It follows that the constitutive characteristics of the site that will be relevant are those in respect of which the site was designated and their associated conservation objectives. Thus, in determining whether the integrity of the site is affected, the essential question the decision-maker must ask is 'why was this particular site designated and what are its conservation objectives?' In the present case, the designation was made, at least in part, because of the presence of limestone pavement on the site – a natural resource in danger of disappearance that, once destroyed, cannot be replaced and which it is therefore essential to conserve."

This passage was applied in *Kelly*.

98. In relation to the Gearagh SAC and SPA, the Board expressly stated that it had regard to the conservation objectives, which were in fact set out in the Inspector's report. There was no reasoned or scientific challenge to the efficacy of the mitigation measures which the NIS proposes will prevent 1-in-100 year flood events in so far as flood run-off from the development site is concerned. The NIS was prepared with hydrological expertise as set out in the EIS. The Inspector rejected such concern as was expressed about mitigation measures, and the Board concurred. The Board in carrying out the AA had regard to the best scientific (hydrological) knowledge in accepting that the mitigation measures would have the effect that the proposed development would not affect the integrity of the Gearagh SAC. Specifically it had regard to the NIS, the submissions of the parties to the appeal including those relating to the Gearagh SAC and SPA, the mitigation measures proposed and the content of the Inspector's report. The Board was in a position to make complete, precise and definitive findings in this regard, and there were no gaps in the evidence relevant to deciding this question.

99. The applicants' complaint about uncertainty must therefore fail.

100. With regard to the recording complaint, in *Ratheniska v An Bord Pleanála* [2015] IEHC 18 this court was similarly concerned with whether there had been compliance with the obligation to record the AA conducted. As in that case, I am satisfied that the AA is properly recorded in the impugned decision. The Board deals with this in a separate section headed "Appropriate Assessment" and relates it to the two sites which were screened and required AA – namely the Gearagh SAC and SPA. It recites the information that it considered, which as I have earlier stated includes all the documents and information that it was required to consider. It was entitled, having considered the Inspector's report, to concur with his analysis. The Board records that it considered it had adequate information to carry out the AA. It expressly states its conclusion that the proposed development "would not adversely affect the integrity of these European sites, in view of those sites' conservation objectives, or of any other European sites." That is a sufficient record of the Board's considerations, deliberations and decision.

101. Accordingly this application for judicial review is dismissed.