S. 37

File With _____

SECTION 131 FORM

Appeal NO:_ABP 314485-22

Defer Re O/H ☐

Having considered the contents of the submission dated/ received 12/12/2023 from

Grainne and Michael McFadden I recommend that section 131 of the Planning and Development Act, 2000 be/not be invoked at this stage for the following reason(s):_no new material issues (Inspector to advise)

E.O.: Pat B Date: 15/12/2023

For further consideration by SEO/SAO

Section 131 not to be invoked at this stage. ☐

Section 131 to be invoked – allow 2/4 weeks for reply. ☐

S.E.O.:_____ Date:_____

S.A.O:_____ Date:_____

M _____

Please prepare BP _____ - Section 131 notice enclosing a copy of the attached submission

to: _____ Task No: _____

Allow 2/3/4weeks – BP_____

EO: _____ Date: _____

AA: _____ Date: _____

Our Case Number: ABP-314485-22

Planning Authority Reference Number: F20A/0668

An Bord Pleanála

AN BORD PLEANÁLA
LDG- 068880-23
ABP-
12 DEC 2023
Fee: € Type:
Time: 10:57 By: Hand

Grainne and Michael McFadden
Kilcoskan
The Ward
Co. Dublin
D11 PY92

Date: 08 November 2023

Re: A proposed development comprising the taking of a 'relevant action' only within the meaning of Section 34C of the Planning and Development Act 2000, as amended, which relates to the night-time use of the runway system at Dublin Airport.
Dublin Airport, Co. Dublin

Dear Sir / Madam,

Further to the Board's letter of 3rd October 2023 in which you were informed that the Board had received significant further information from the applicant in relation to the above appeal, the Board is publishing a newspaper notice in accordance with Article 113 of the Planning and Development Regulations, 2001 (as amended). The notice will be published in the Irish Times newspaper on 10th November 2023.

This notice will enable written submissions in relation to the further information to be made to the Board **within 5 weeks** beginning on the date of publication of the notice. The further information will be available for inspection and purchase at the offices of Fingal County Council and An Bord Pleanála. The further information will also be posted on the website of An Bord Pleanála at www.pleanala.ie/en-ie/case/314485.

As you are an existing participant in this appeal, there is no requirement for you to pay a fee when submitting any further submission you may wish to make in this case.

Please contact the undersigned if you need any further information in respect of this process and quote the above appeal reference in any further telephone or written correspondence.

Yours faithfully,

pp Deirdre Mulcahy

Patrick Buckley
Executive Officer
Direct Line: (01) 8737167

BP77

Teil	**Tel**	(01) 858 8100
Glao Áitiúil	**LoCall**	1800 275 175
Facs	**Fax**	(01) 872 2684
Láithreán Gréasáin	**Website**	www.pleanala.ie
Ríomhphost	**Email**	bord@pleanala.ie

64 Sráid Maoilbhríde
Baile Átha Cliath 1
D01 V902

64 Marlborough Street
Dublin 1
D01 V902

An Bord Pleanála

Observation on a Planning Appeal: Form.

Your details

1. **Observer's details (person making the observation)**

If you are making the observation, write your full name and address.

If you are an agent completing the observation for someone else, write the observer's details:

Your full details:

(a) Name — Gráinne and Michael McFadden

(b) Address — Kilcoskan, The Ward, Co Dublin, D11 PY92

Agent's details

2. **Agent's details**

If you are an agent and are acting for someone else **on this observation**, please **also** write your details below.

If you are not using an agent, please write "Not applicable" below.

(a) Agent's name — Click or tap here to enter text.

(b) Agent's address — Click or tap here to enter text.

Postal address for letters

3. During the appeal process we will post information and items to you **or** to your agent. For this observation, who should we write to? (Please tick ✓ one box only.)

You (the observer) at the address in Part 1	☑	**The agent at the address in Part 2**	☐

Details about the proposed development

4. Please provide details about the appeal you wish to make an observation on. If you want, you can include a copy of the planning authority's decision as the observation details.

(a) Planning authority

(for example: Ballytown City Council)

Fingal County Council

(b) An Bord Pleanála appeal case number (if available)

(for example: ABP-300000-19)

PL06F.314485

(c) Planning authority register reference number

(for example: 18/0123)

F20A/0668

(d) Location of proposed development

(for example: 1 Main Street, Baile Fearainn, Co Abhaile)

Dublin Airport

Observation details

5. Please describe the grounds of your observation (planning reasons and arguments). You can type or write them in the space below or you can attach them separately.

Next pages attached

Observation details 5.

Noise Pollution

A noise assessment was conducted at our family home in December 2022, following the opening of the North Runway. Please find this assessment attached. The survey speaks for itself highlighting the noise levels over our home as the planes fly over head.

The survey also highlights the predicted noise contours in the planning permission submitted to Fingal Co Council in 2016 and the data from Bickerdike Allen Partners report "A11219-N01-DR" dated 29th August 2018 for the LAFmax Noise Levels have also been exceeded.

As a result of these findings, the daa predictions and the noise metrics in this planning permission does not take all factors into account and does not at all reflect the reality of what is happening in our home and community in relation to noise pollution and nuisance. People do not experience noise as an average nor are we averages, we are individuals in our own right and therefore reliance on a noise metric system does not work to protect the community.

A report carried out by ICCAN (Independent Commission on Civil Aviation Noise) in July 2020

"A review of aviation noise metrics and measurement"

https://gat04-live-1517c8a4486c41609369c68f30c8-aa81074.divio-media.org/filer_public/23/ad/23adc11f-e586-4b44-8f11-5cf91456ae64/1047_2020_08_11_iccan_review_of_aviation_noise_metrics_and_measurement.pdf

This report identifies the problems with monitoring noise accurately, as confirmed by the noise measurements taken at our home.

Local residents are entitled to live comfortably in their own homes although this entitlement is left wholly unfulfilled with a lack of significant amounts of sleep, in addition to having no peace throughout the day. The noise levels from the current flightpaths are intolerable.

The noise metrics used do not reflect the conditions that we are currently living under, nor is it a true reflection of what we will have to experience at night if this goes ahead. Currently at 7:04am in the mornings we wake with our hearts pounding with fright as the planes go over, thundering throughout the whole house with nowhere to escape from it. If nighttime restrictions changed to a noise quota system and extended hours, the average noise contours do not reflect the reality of noise in our home and community the noise report attached proves. Extending day hours is only going to cause more noise exposure and makes no sense as things are bad enough currently.

To listen to the planes, go over our house please visit the website below which is an interview carried out by Newstalk, (it's at the second listening part of the article at 7mins 11seconds.)

https://www.newstalk.com/news/stressful-and-disturbing-residents-near-dublin-airport-say-north-runway-noise-is-as-bad-as-ever-1446466

I have made requests to ANCA for noise monitoring to be carried out at our home, but this request was refused on the grounds that they only do measurements on the population as a whole. I have attached a copy of noise contours identifying our home from daa webTrak monitoring system as you can see from this map our road is flown over and as a community, we have no noise monitoring in place, which makes me ask the question, why as a community are we not being monitored, and a record being collected?

To highlight how measuring the noise as a population is unfair, I have attached a copy of a randomly selected day, (Thursday 28th September 2023), This list does not include all flights on this day. It was painful to be in our home. Absolutely no corner of our home to escape the noise and if the night-time cap was to be replaced by a noise quota system on flights and an extension of hours from 6am to midnight that allows even more unmonitored noise.

Our home has become almost uninhabitable now with endless noise and extending this into the night our home will be uninhabitable.

Noise pollution poses a significant hazard to human health, and with vast reports and articles to support this the facts are undebatable.

Another observation is that we live under the westerly departures of the North Runway and 70% to 90% this is the direction of the wind in our direction currently.

No noise mitigation, we are so far out on the daa noise contours that we would never be included in mitigation measures but yet as you can see from the noise monitoring at our home the levels of noise, we are continuously experiencing are way over the contour's description.

Given that ABP put the night cap on night flights and the hours of restrictions from 11 to 7am was to protect the people, this should remain in place, and the prospect of granting further changes to this when there is a major noise issue already in place seem ludicrous.

Flight Path Changes

The sky did not change since 2007.

The daa are currently flying planes over us and our local villages affecting 30,000 people without planning permission and this must be stopped before any further changes can be considered.

The 2007 planning condition documentation includes flight path assumptions which are completely different to the ones currently being used today. These flight paths must be changed back to what was proposed in 2007. The daa modelled the routes and contours as straight out for the insulation Scheme therefore confirming this and should stick to their planning permission.

This noise extends into our local villages We can't even go to anymore without the sound of planes pounding through the air. My children leave home to the sound of planes, and it continues as soon as we get out of the car in Ashbourne, at our secondary school Colaiste De Lacy, GAA club, shopping in the village, the park etc. Ratoath is the same for us as another of our local villages and again the same, the continuous sound of planes throughout the whole village. The sound is just everywhere no escaping, and this must be stopped, and the existing planning permission enforced to protect such a large population of people as there are major health risk due to excessive noise.

The applicants are basing their plans on an assumed acceptance of their illegal, unauthorised flightpaths. I would hope that An Bord Pleanála would not accidentally grant a retention on the current flight paths which are now a very important part of this relevant action submission and must be considered within, as they are affecting tens of thousands of people.

An oral hearing is necessary given the gravity of the situation.

Greenhouse Gases

Dublin Airport has been named as Irelands biggest greenhouse gas polluter, increasing aircraft activity during a climate crisis seems crazy.

We were granted planning permission in 1999 to build our home and could never have foreseen this.

Between the constant noise pollution and the worry of air quality we are now breathing, the enjoyment of our community, public space and home in Fingal has disappeared since the opening of the North Runway, our chosen surrounding environment has totally changed and become unbearable to live in.

Please see attached:

Item 1 Noise Assessment, by Wave Dynamics Acoustic Consultants

Item 2 Photograph of plane flying over our home

Item 3 Map from daa WebTrak Flight Monitoring System

Item 4 28th September 2023 record of flights going over our home

Item 5 Irish Examiner interview 19/08/23

Item 6 Front Cover of ICCAN report 2020 for reference

Item 7 CAA report- Aviation Noise & Health, The effects of aviation noise

Item 8 **Camfil – Living Near an Airport Could be a Matter of Life and Death**

Item 9 Emagazine – Is It Unhealthy to Live Near An Airport

Item 10 Copy of our Planning Permission 1999

Supporting materials

6. If you wish, you can include supporting materials with your observation. Supporting materials include:

- photographs,
- plans,
- surveys,
- drawings,
- digital videos or DVDs,
- technical guidance, or
- other supporting materials.

Fee

7. You **must** make sure that the correct is included with your observation. You can find out the correct fee to include in our on our website.

This document has been awarded a Plain English mark by NALA.

Last updated: April 2019.

WAVE DYNAMICS
ACOUSTIC CONSULTANTS

Technical Note

Project:	Coolquay Common, The Ward	**Title:**	Noise Assessment
Job Number:	WDA230104	**Prepared By:**	James Cousins
Date:	30/03/2023	**Reviewed By:**	Sean Rocks
Reference:	WDA230104TN_7_A_01	**Client:**	Grainne McFadden

1 Introduction

Following the commencement of operations of the new Dublin Airport North Runway, Wave Dynamics were engaged by Grainne McFadden, to review the noise measurements from the baseline noise survey undertaken at Coolquay Common, The Ward, Co. Dublin, D11 PY92

The objective of the assessment was to quantify the existing noise environment and the current noise levels from aircraft noise following the commencement of the operation of the North Runway. The measured noise levels have been compared with the predicted noise levels from the DAA noise contours and industry criteria.

1.1 Statement of Competence

This assessment and report were completed by James Cousins, Managing Director | Principal Consultant with Wave Dynamics who has extensive experience in assessing noise impact. His qualifications include BSc (Hons) in Construction Management and Engineering, Pg Cert in Construction Law and Diploma in Acoustics and Noise Control (Institute of Acoustics) and an IOA Competence Cert in Building Acoustic Measurements. James is a member of both Engineers Ireland (MIEI) and the Institute of Acoustics (MIOA) and is the current SITRI Chairman.

The assessment and report were peer reviewed by Sean Rocks, Director | Senior Consultant, Sean has experience of aircraft noise particularly for planning and complaints investigation. Sean's qualifications include BEng (Hons) in Mechanical and Manufacturing Engineering, Diploma in Acoustics and Noise Control (Institute of Acoustics), IOA Certificate of Competence in Environmental Noise Measurement and SITRI certified sound insulation tester. Sean is a member of both Engineers Ireland and the Institute of Acoustics.

2 Baseline Noise Survey

An unattended noise survey was undertaken to quantify the existing noise environment and current noise levels experienced. On review of the data the measurements commenced at 12:14 on Wednesday the 28th of December 2022 and finished at 14:46 on Saturday the 31st of December 2022. The measurement duration was set to 1 minute intervals.

2.1.1 Site Description and Measurement Locations

The site is located on the R130 in Coolquay, The Ward, Dublin. The area is mainly agricultural with sporadic residential dwellings and commercial properties. Dublin Airport is located to the Southeast of the residence approximately 5km from the edge of the new North Runway.

Item 1

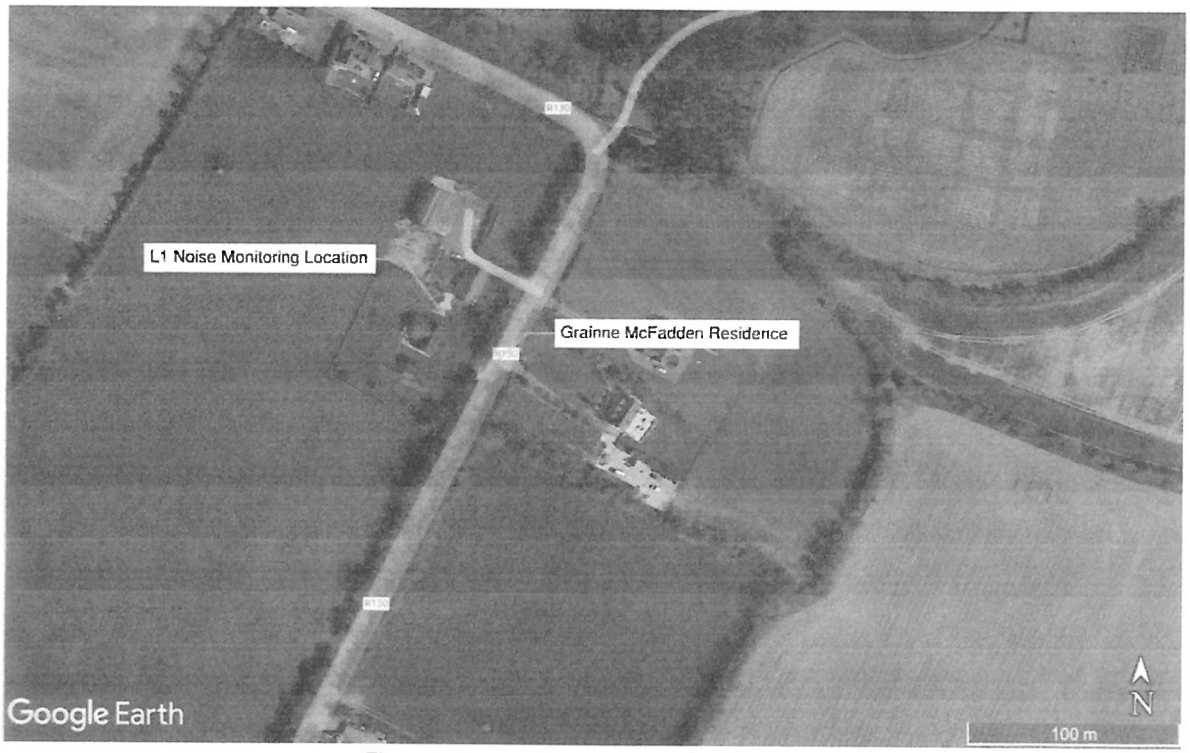


Figure 1: Site location and monitoring location L1

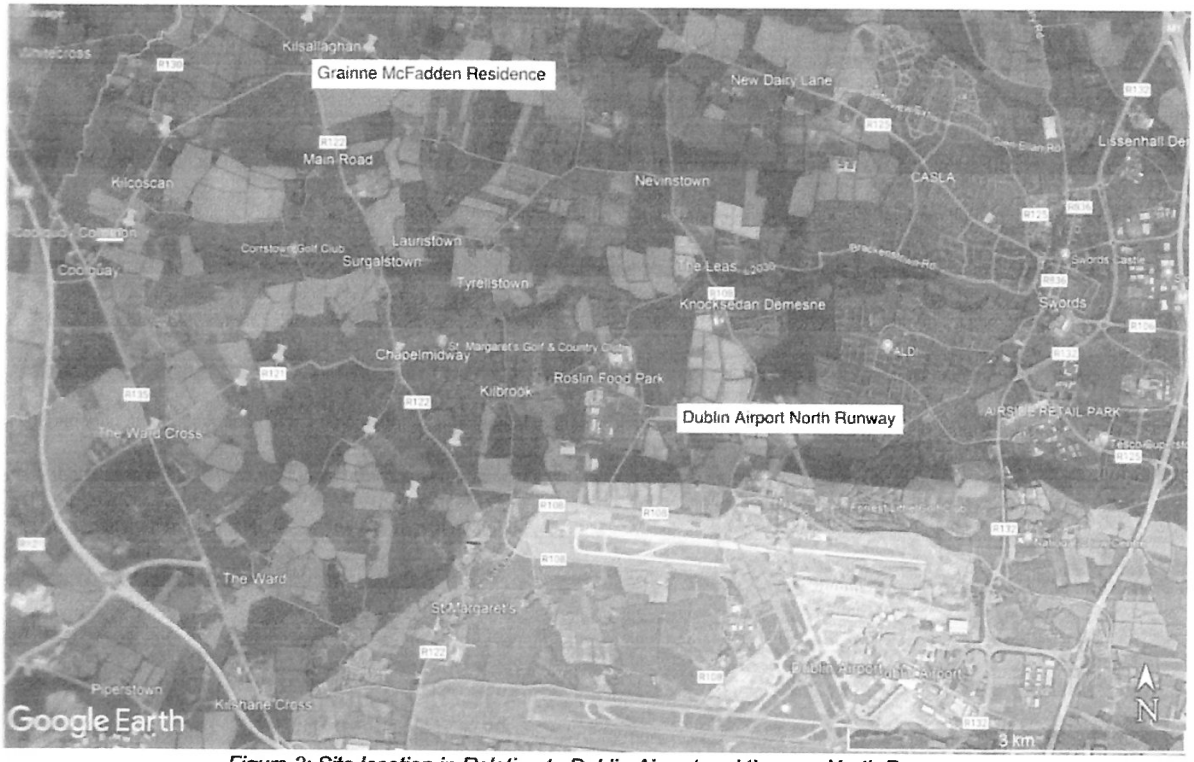


Figure 2: Site location in Relation to Dublin Airport and the new North Runway

Unattended Noise Measurements

An unattended noise logger was deployed in location L1 as per Figure 1 to the side garden of the residence. The logger was calibrated before and after the measurements and no significant drift was noted. The logger was deployed at a height of approximately 1.5m above the ground.

On review of the measurement data by WDA it was filtered for periods of unsuitable weather conditions where required.

Figure 3: Noise Logger Setup

2.1.2 Survey Period

Based on our review of the data, the measurements commenced at 12:14pm on Wednesday the 28th of December 2022 and finished at 14:46pm on Saturday the 31st of December 2022. The measurement duration was set to 1minute intervals. It is understood that flights were operational from the North Runway from 9am to 6pm throughout the measurement period.

2.1.3 Noise Measurement Equipment

A Class 1 sound level meter/noise logger in general accordance with IEC 61672-1:2013 was used for the attended measurements. Table 1 below summarises the measurement equipment used.

Table 1: Noise Measurement Equipment

Description	Model	Serial No.	Calibration Certificate No.	Calibration Due Date
Calibrator	B&K Type 4231	2205805	UCRT22/1592	03/05/2023
Sound Level Meter	Rion NL-52	1076330	UCRT23/1055	13/01/2025

2.1.4 Subjective Noise Environment

Based on the information provided during the attended noise survey and logger deployment the following noise sources were identified:

- Aircraft Noise from Aircraft Fly Overs.
- Road noise from the R130
- Birdsong
- Occasional activity from residents (cars arriving/departing, voices etc)

2.2 Noise Measurement Results

This section outlines the results of the unattended noise survey.

Unattended Monitoring Results

Based on the data provided, Table 2 outlines the results of the noise measurements at the unattended monitoring location L1. A full breakdown of all the unattended measurement results is available on request.

Table 2: Unattended Measurement Results

Start Date	$L_{Aeq,16hour}$ dB (07:00 - 23:00)	L_{Aeq} dB ($L_{Aeq,9hour}$ 09:00 - 18:00)	L_{Aeq} dB ($L_{Aeq,7hour}$ 07:00 - 09:00, 18:00 - 23:00)	L_{night} dB ($L_{Aeq,8hour}$ 23:00 - 07:00)	10th highest night-time L_{AFmax}[8]
28/12/2022	56[2]	58[2]	52[2]	48	66
29/12/2022	56	58	50	50	68
30/12/2022	57	59	50	45	66
31/12/2022	58[2]	60[2]	47[2]	N/A	N/A

(1) Where night-time period is referred to the date is the date the measurement commenced on at 23:00hrs and finished at 07:00hrs on the following calendar day.

(2) Shortened Measurement Duration

2.2.1 L_{AFmax} Noise Levels

The frequency of L_{AFmax} noise events for the four most common aircraft types over the monitoring period are shown below. The number of occurrences for these aircraft types are as follows:

- Airbus A330: 17 flights
- Airbus A320: 52 flights
- Boeing 737: 155 flights
- Boeing 737-8200: 25 flights

Information regarding aircraft types and flight times have been adapted from the following online flight tracker: https://sbeaney.com/track/v2/dublin_flights.html.

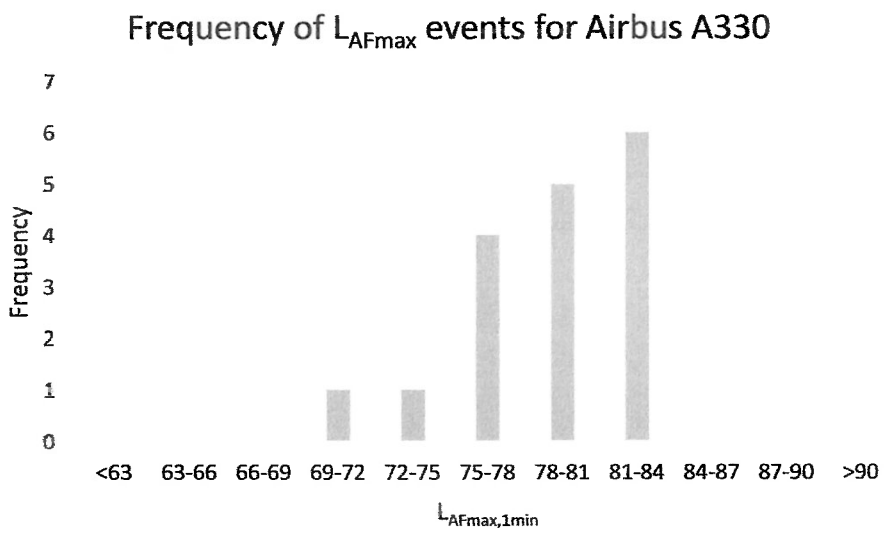


Figure 4: L_{AFmax} noise events for Airbus A330

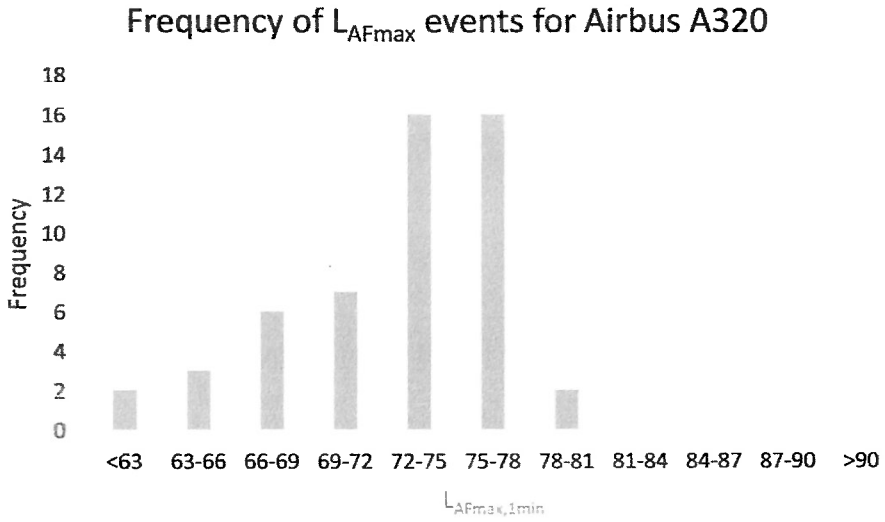


Figure 5: L_{AFmax} noise events for Airbus A320

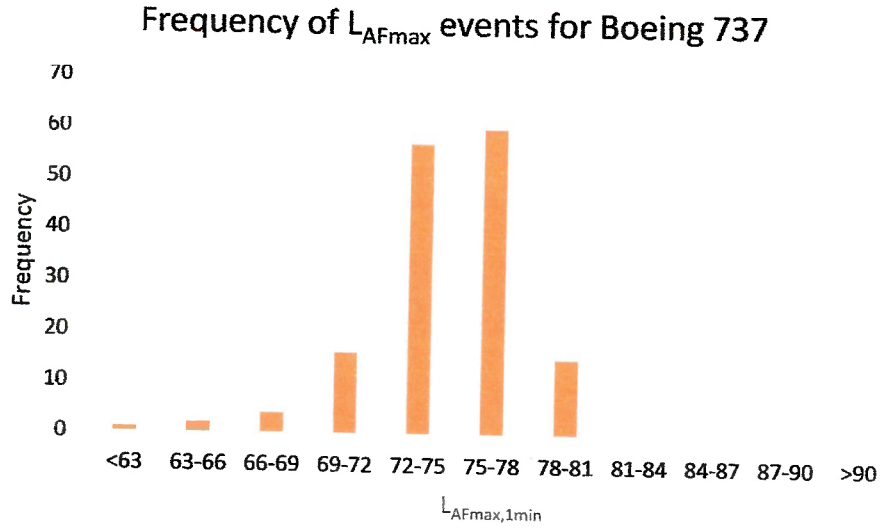


Figure 6: L_{AFmax} noise events for Boeing 737

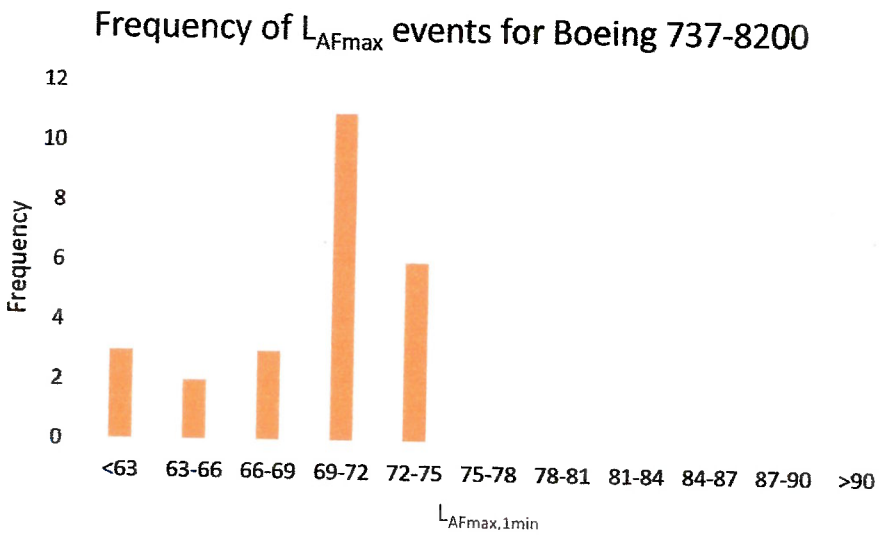


Figure 7: L_{AFmax} noise events for Boeing 737-8200

3 Analysis of Results

3.1 External Amenity Spaces

To consider the noise impact of the aircraft noise on the residence, the recorded noise levels have been compared to the industry criteria for the external amenity spaces. ProPG 2017 and BS8233:2014 provide the following guidance in relation to external amenity spaces which state that:

> *"the acoustic environment of external amenity areas that are an intrinsic part of the overall design should always be assessed and noise levels should ideally not be above the range 50 – 55 dB $L_{Aeq,16hr}$".*

It was not possible to assess the full 16hour range without contribution of the North Runway at this location. Instead, consideration was also given to the noise levels during the daytime periods outside of the North Runway operational time (07:00 – 09:00 and 18:00 – 23:00), for these periods the measured L_{Aeq} ranged from 47-52 dBA. Given the location of the residence and its proximity to local noise sources and consideration of the night-time

data, the external amenity spaces would be expected to be to achieve noise levels in line with the with the ProPG guidance without the effect of the North Runway operations.

3.2 L_{Aeq} Noise Levels

The most recently predicted noise contours for the North Runway operation as per the 2007 planning permission is the compliance contours submitted to Fingal County Council in 2016. Here predicted daytime noise contours (07:00 – 23:00) for Dublin Airport with the North Runway operational can be seen below in Figure 8. From the predictions, Grainne McFadden's residence is located outside the predicted contour of 60dB $L_{Aeq,16hour}$. From the results of the noise measurements outlined in Table 2 above, the corresponding $L_{Aeq,16hour}$ measured at the residence was typically 56-58dB, however this includes a period of 7 hours when the North Runway was not operational. The average noise level rises to 58-60dB for the North Runway operational hours (09:00 – 18:00).

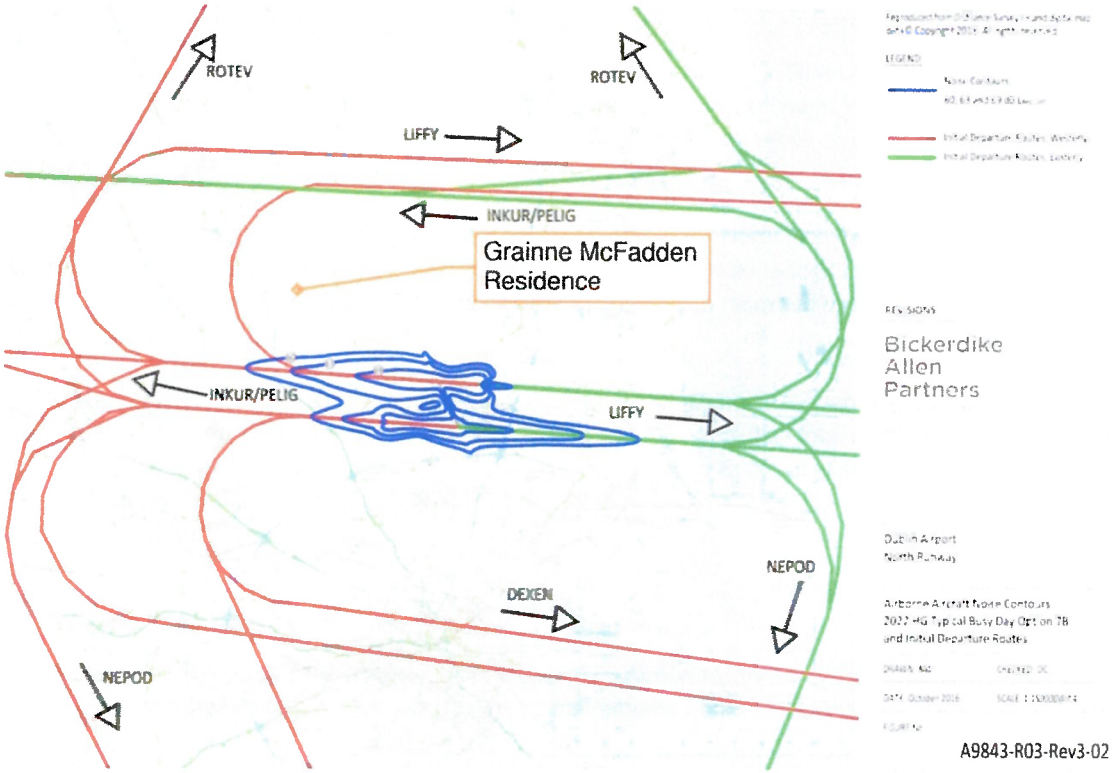


Figure 8: Predicted $L_{Aeq,16hour}$ airport noise contours with North Runway in operation.

3.3 L_{AFmax} Noise Levels

Table 3 below outlines the predicted L_{Amax} noise at intervals from the western-most point of the North Runway. The data has been extracted from Bickerdike Allen Partners report "A11219-NO1-DR" dated 29th August 2018.

Grainne McFadden's residence is located approximately 5km from the western-most point of the North Runway. A comparison of the recorded L_{AFmax} noise with those predicted in Table 3 below indicate that the predicted noise levels were exceeded.

Table 3: Predicted L_{Amax} noise levels at longitudinal distance from North Runway (most western point)

Operation	Aircraft Type	Noise Level, dB L_{Amax}							
		0.5km	1km	1.5km	2km	2.5km	3km	3.5km	4km
Departure	Airbus A320	86	83	78	78	77	77	76	76
	Airbus A330-300	91	90	89	88	87	83	82	81
	Airbus A380	89	88	87	86	85	84	83	83

Operation	Aircraft Type	Noise Level, dB L_{Amax}							
		0.5km	1km	1.5km	2km	2.5km	3km	3.5km	4km
	Boeing 737 Max8	87	84	81	79	78	77	77	76
	Boeing 737-800	90	87	83	81	80	80	79	79
	Boeing 737-200	96	94	93	92	90	87	86	85
Arrival	Airbus A320	94	90	87	85	83	81	80	79
	Airbus A330-300	97	93	90	87	86	84	83	82
	Airbus A380	95	91	89	87	85	83	82	81
	Boeing 737 Max8	94	90	87	85	83	81	80	79
	Boeing 737-800	94	90	87	85	83	81	80	79
	Boeing 737-200	84	90	88	86	84	82	81	80

The Airbus A320 is predicted to have an L_{Amax} of 76dB at 4km from the North Runway for departures. There was a total of 7 flight departures from the A320 over monitoring period which exceeded the predicted noise level at 5km distance. This figure corresponds to 13% of all Airbus A320 flights recorded over the monitoring period exceeding the L_{Amax} predicted noise levels.

The Airbus A330 is predicted to have an L_{Amax} of 81dB at 4km from the North Runway for departures. There was a total of 6 flight departures from the A330 over monitoring period which exceeded the predicted noise level at 5km distance. This figure corresponds to 35% of all Airbus A330 flights recorded over the monitoring period exceeding the L_{Amax} predicted noise levels.

For the Boeing 737 flights the predicted L_{Amax} at 4km from the North Runway for departures is predicted to range from 76-79dB for Boeing 737 Max8 and 737-800, up to 85dB for 737-200. The total number of flights for Boeing 737 exceeding 79 dBA was 5 at 5km distance. This figure corresponds to 3% of all Boeing 737 flights recorded over the monitoring period exceeding the 76-79dBA predicted noise levels.

4 Conclusion

Following the commencement of operations of the new Dublin Airport North Runway, Wave Dynamics were engaged by Grainne McFadden, to review the noise measurements from the baseline survey undertaken at Coolquay Common, The Ward, Co. Dublin, D11 PY92

The objective of the assessment was to quantify the existing noise environment and the current noise levels from aircraft noise following the commencement of the operation of the North Runway. The measured noise levels have been compared with the predicted noise levels from the DAA noise contours and industry criteria.

From the baseline noise survey, it is evident that the noise levels at the residence are impacted by the operation of the new North Runway.

When comparing the recorded maximum noise levels and predicted L_{Amax} noise contours it was noted that the measured noise levels exceed the predicted maximum noise levels with the North Runway in operation for a number of passbys.

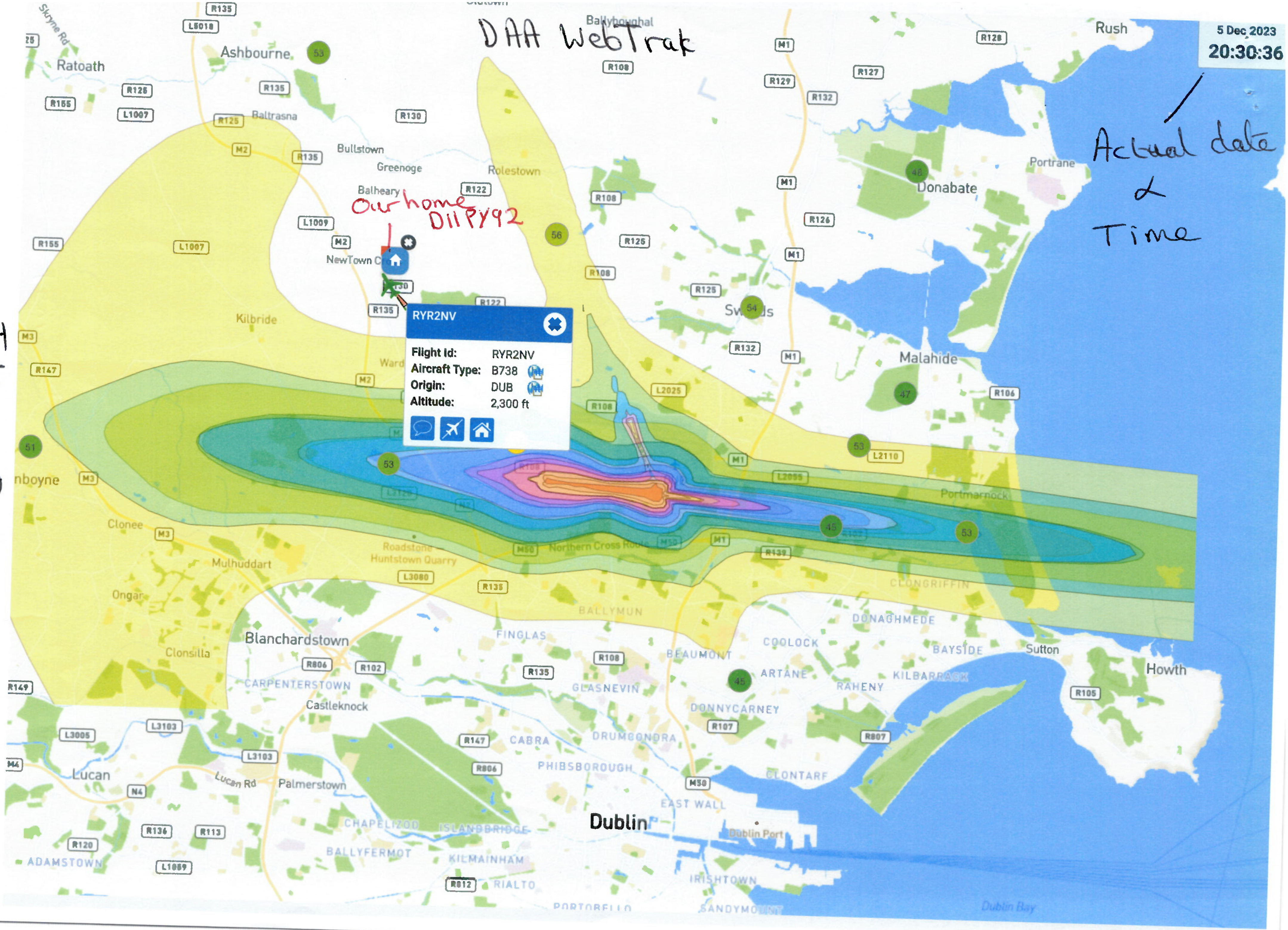
For the purpose of the assessment and data review WDA have relied on the accuracy and data provided.

Appendix A- Glossary of Terms

dB	Decibel - The scale in which sound pressure level is expressed. It is defined as 20 times the logarithm of the ratio between the RMS pressure of the sound field and the reference pressure of 20 micro-pascals (20 μPa).
dB(A)	An 'A-weighted decibel' - a measure of the overall noise level of sound across the audible frequency range (20 Hz – 20 kHz) with A-frequency weighting (i.e. 'A'–weighting) to compensate for the varying sensitivity of the human ear to sound at different frequencies.
Hertz	The unit of sound frequency in cycles per second.
L_{A90}	A-weighted, sound level just exceeded for 90% of the measurement period and calculated by statistical analysis. See also the background noise level.
L_{Aeq}	A-weighted, equivalent continuous sound level.
L_{AFmax}	A-weighted, maximum, sound level measured with a fast time-constant - maximum is not peak

20-3-23

Item 2



DAA WebTrak
5 Dec 2023
20:30:36
Actual date & Time
Our home D11PY92
RYR2NV
Flight Id: RYR2NV
Aircraft Type: B738
Origin: DUB
Altitude: 2,300 ft
Ratoath
Ashbourne
Baltrasna
Bullstown
Greenoge
Balheary
Rolestown
Kilbride
Clonee
Mulhuddart
Ongar
Clonsilla
Blanchardstown
Castleknock
Lucan
Palmerstown
Swords
Malahide
Donabate
Portrane
Rush
Portmarnock
Sutton
Howth
Finglas
Ballymun
Coolock
Artane
Raheny
Beaumont
Dublin
Dublin Port
Dublin Bay

Item 3

Thursday 28th sept

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15:07
15:14

I left the house for part of the day I came to

17:06
17:09
17:13
17:15
17:21
17:25
17:40
18:14
18:21
18:23
18:25
18:28
18:39
18:49
18:52
19:00
19:02
19:04
19:09
19:10
19:13
19:14
22:35

Only some from this one day

Item 4

Irish Examiner 19·8·2023

'From heaven to living in hell': Residents furious over noise from overhead jets

Amid the ongoing dispute between locals and Dublin Airport, one resident told the Irish Examiner he no longer lets his children cycle on local roads as the noise from overhead planes makes cars impossible to hear, writes Cianan Brennan

Gráinne McFadden

Niamh Maher, left, and her husband built a house in a rural area to live and raise their children. Gráinne McFadden, right, lived in her home for 17 years before the noise problem. Picture: Cianan Brennan

Breffni Canavan says he won't let his children out to cycle on the road as noise from the planes make cars difficult to hear

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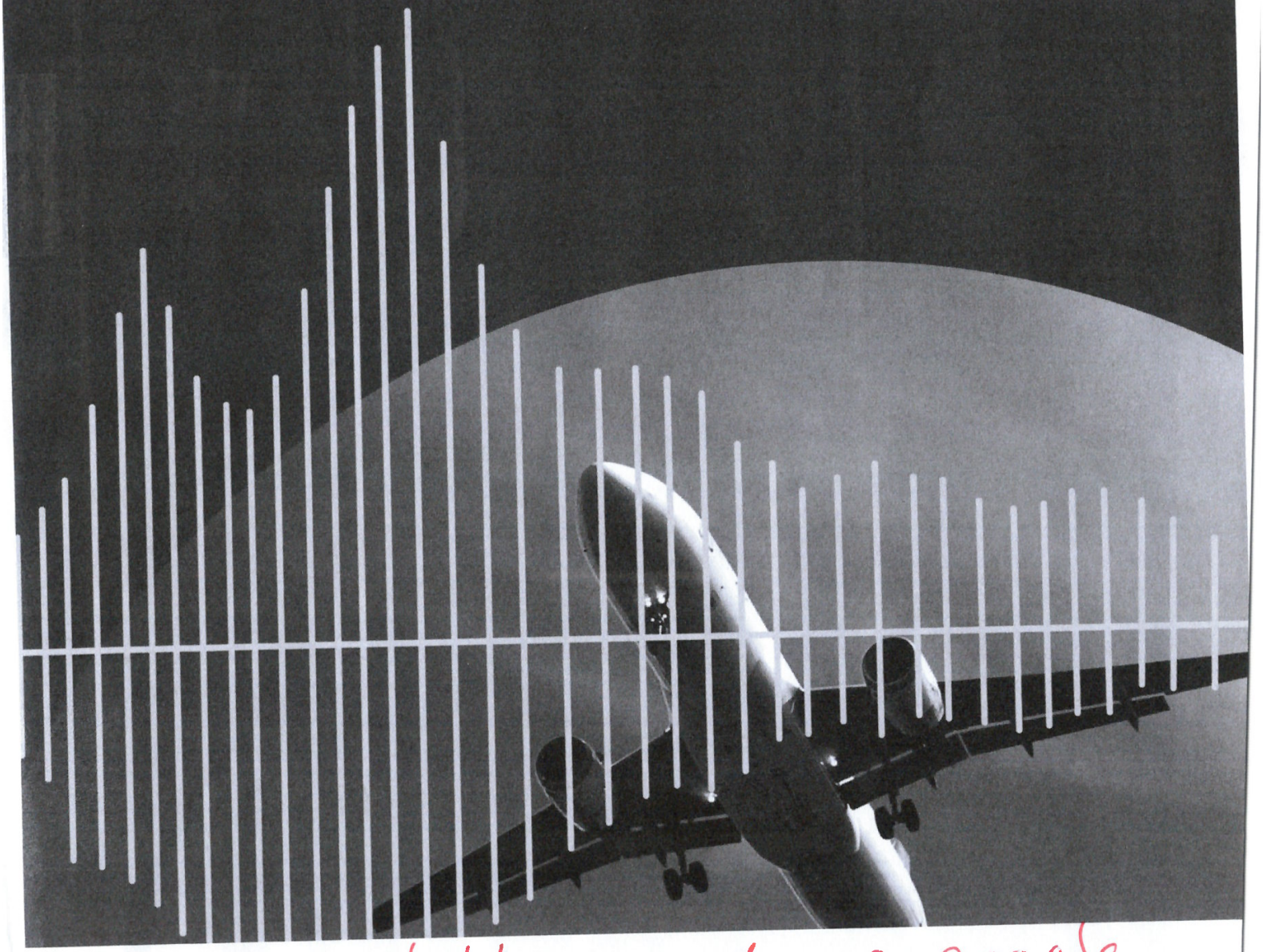
ICCAN

Independent Commission on Civil Aviation Noise

A review of aviation noise metrics and measurement

July 2020



Please find this report on google under its heading. Item 2

Aviation noise and health

UK Civil Aviation Authority CAA

The effects of aviation noise

Aviation noise can affect human health and wellbeing in a variety of ways. Here are some of the most common adverse health effects associated with aviation noise:

The most widespread and well documented subjective response to noise is annoyance; which can be defined as a feeling of resentment, displeasure, discomfort, dissatisfaction or offence which occurs when noise interferes with thoughts, feelings or activities. The annoyance of populations exposed to environmental noise varies not only with the sound itself (such as how loud it is, or its pitch), but also with social, psychological or economic factors.

There has been considerable research into the effect of aircraft noise on cognitive performance in school children, due to the interruptive nature of high levels of aircraft noise. Research has suggested effects on reading comprehension and memory. Cognitive performance affects attention, perception, mood, learning and memory.

Aircraft noise is intermittent in nature and exposure to it during the night may result in sleep disturbance. Noise-induced sleep disturbance refers to awakenings, changes to sleep structure such as changes to sleep stages, arousals in heart rate, and body movements. People can be aware of such disturbance, such as when they remember being awoken by noise, or the disturbance can go unnoticed at the time but may result in next-day fatigue.

Aircraft noise at high levels can be considered a stressor on the body, and research has found an association between high levels of aircraft noise and an increased risk of developing Cardiovascular disease (CVD). It is thought that this occurs due to the way such stressors interact with the body, and the fact that the cardiovascular response to noise does not decrease, even though the individual may no longer consciously notice or react to the noise. Cardiovascular disease includes all the diseases of the heart and circulation including coronary heart disease, angina, heart attack, congenital heart disease and stroke.

Quality Adjusted Life Years (QALYs) are a means of measuring both the duration and quality of life, and are typically used to measure the health benefits of medical interventions or the detriment caused by negative health effects.

A year of life lived at perfect health (or 'quality of life') is considered equal to one QALY, while a year lived in imperfect 'quality of life' would be considered to be less than a QALY. According to the National Institute for Health and Care Excellence (NICE): "Quality of life is often measured [on a 0 to 1 scale] in terms of the person's ability to carry out the activities of daily life, and freedom from pain and mental disturbance."

- If a health condition causes a person to live one year fewer than they would have otherwise, and that year would have been lived at perfect health, that health condition has caused the loss of one QALY.
- If a health condition reduces a person's quality of life from 1 to 0.5 for two years of their life, then that health condition would have also caused the loss of one QALY.

Research

Research has been undertaken to assess the levels at which aircraft noise exposure can lead to the health effects described above, and the effects of varying levels of noise exposure. The CAA has summarised the

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Further sources of information on aviation noise and human health

Reports on the relationship between aviation noise and human health and wellbeing cover:

- Aircraft Noise and Sleep Disturbance: A Review (K Jones, 2009) - ERCD report 0905: This review examines the physiological implications of noise induced sleep disturbance. It includes research finding that, when the level and duration of noise experienced is the same, aircraft noise is associated with more self-reported sleep disturbance than road traffic noise, and that road traffic noise is associated with more sleep disturbance than railway noise.
- Aircraft Noise, Sleep Disturbance and Health Effects: A Review (K Jones, D Rhodes, 2013) - ERCD Report 1208: This literature review provides an overview of the main findings in environmental noise and health research, and includes the effects of sleep disturbance due to aircraft noise. It finds that above dB Lnight, noise is a significant concern to public health; levels above 55 dB Lnight result in increased risk of heart attacks; and levels above 45 dB Lnight result in increased risk of hypertension, and this can lead to hypertensive strokes and dementia.
- Aircraft Noise, Sleep Disturbance and Health Effects (K Jones, 2014) - CAP 1164
  This paper reviews and takes account of several studies published after ERCD Report 1208 (above) including: two publications that use data around Heathrow airport to investigate cardiovascular impacts of aircraft noise; a meta-analysis of noise and exposure response curves for transportation noise and cardiovascular diseases by Babisch from the Federal Environment Agency in Germany; and a Harvard study that examined the cardiovascular impacts around 89 airports within the USA.
- Survey of Noise Attitudes 2014: Aircraft Noise and Sleep Disturbance - CAP 2161
  The main focus of the SoNA 2014 study was on annoyance responses and general attitudes to aircraft noise. However, there was also a subset of questions relating to self-reported sleep disturbance and night noise from aircraft. It is the responses to these questions that are described within this report. It should be noted that the SoNA 2014 study was not designed specifically with a view to analysing attitudes to aircraft noise at night, and therefore this is very much an exploratory examination, with the consequential limitations.
- Aircraft Noise and Sleep Disturbance: An update (2014-2022) - CAP 2370
  The aim of this report is to provide an update of the main findings on aircraft noise and sleep disturbance between 2014 – 2022. Such research findings include those from the NORAH study, the updated World Health Organisation (WHO) Environmental Noise Guidelines for the European Region (2018), the DEBATS study, the Survey of Noise Attitudes (SoNA) study, and other relevant publications.

- Survey of Noise Attitudes (SoNA) 2014: Aircraft (2017) - CAP 1506: This study examines evidence on attitudes to aviation noise around airports in England, including the effects of aviation noise on annoyance, wellbeing and health. If found that the level of noise exposure that leads to significant community annoyance has fallen from 57 dB LAeq 16h (in a previous survey) to 54 dB LAeq16h; evidence that people's average level of annoyance was associated with average summer day noise exposure, LAeq,16h; and evidence that non-acoustic factors such as noise sensitivity, approximated social grade, and expectations (both prior to moving to an area exposed to aircraft noise and in the future) influence reported aircraft noise annoyance.
- Aircraft Noise and Annoyance: Recent findings (2018 publication due) K Jones. - CAP 1588: This report provides an overview of the recent research into the state of knowledge on the effects of aircraft noise and annoyance responses. It: concludes that there has been a change in annoyance responses, with people now more highly annoyed by aircraft noise than 30 years ago; describes and assesses the results of the German NORAH study, which examined noise responses following the opening of a new runway, and implementation of a night curfew; and mentions that several attempts are being made at trying to

- Survey of Noise Attitudes 2014: Aircraft Noise and Annoyance, Second Edition - CAP 1506
The first edition of CAP1506 described the aims, sampling strategy, determination of noise exposure, analytical approach and the results of the SoNA 2014 study.

  This second edition of the report has been produced to address two issues identified in the noise modelling following publication in February 2017. The first concerned an underestimation of LASmax noise levels for several important aircraft types. It was also discovered that logarithmic averaging had been inadvertently used instead of arithmetic averaging when accounting for the runway modal split. Both of these issues are explained in this report, and any associated tables and figures have been changed. The overall conclusions of the SoNA 2014 study remain unchanged.

- Environmental Noise and Health: A Review (K Jones, 2010) - ERCD Report 0907 This review provides an overview of literature in the field of noise and health and suggests areas for future research. It focuses on transportation noise, particularly aircraft noise, and looks at the possible effects on health, including annoyance and psychological health, cardiovascular and physiological health, performance, and the effects of noise on children.
- Aircraft noise and health effects: Recent findings (K Jones, 2016) - CAP 1278: The report examines the evidence to date relating to transportation noise, particularly aircraft noise and the resulting impacts on various health endpoints. Research assessed shows an association with aircraft and road noise and cardiovascular disease. There is emerging evidence to suggest that cardiovascular effects are more strongly linked with night time noise exposure than to day or total (24hr) noise exposure. Regarding aircraft noise and children's learning, further explorations of past studies have taken account of other factors that might account for observed differences, such as air pollution. It concluded that these did alter the associations previously found. The study's findings suggested that the association between aviation noise and cognitive performance in children does not appear as strong in older children as it does in younger children.

- Aircraft Noise and Children's Learning (K Jones 2010) - ERCD Report 0908: This literature review looks at the relationship between aircraft noise and episodic memory, semantic memory, sustained attention and reading comprehension. The results are not completely in agreement, but there is evidence to suggest that long-term aircraft noise has a harmful effect on memory, sustained attention, reading comprehension and reading ability. Early studies highlighted that aircraft noise was also implicated in children from noisy areas having a higher degree of helplessness i.e. were more likely to give up on difficult tasks than those children in quieter areas. Reports often indicated that children exposed to long-term aircraft noise showed a higher degree of annoyance than those children from quieter areas. Evidence has been presented to suggest that children do not habituate to aircraft noise over time, and that an increase in noise can be correlated with a delay in reading comprehension compared to those children not exposed to high levels of aircraft noise.

- Metrics for Aircraft Noise (K Jones, 2009) - ERCD Report 0904: The aim of this paper, originally produced for the Aircraft Noise Monitoring Advisory Committee (ANMAC), is to provide an overview of the current metrics used to measure aircraft noise. The review is a factual account of the methods used to measure noise internationally and outlines the main strengths and weaknesses of each metric.
- Tranquillity: an overview (K Jones, 2012) - ERCD report 1207: This report aims to provide an overview of the current area and state of knowledge of tranquillity and tranquil spaces within the UK. It provides a summary of key research into tranquillity with special attention to aviation.

- The Effects of Aircraft Noise on Biodiversity - CAP2517: This report provides a concise overview of the current knowledge on the impacts of aircraft noise on biodiversity and contains summaries of the available findings in this research area.

We publish regular updates on recent work and findings in the field of aircraft noise and health effects to provide a succinct overview of new work relating to aviation noise and health.

You can subscribe to be notified when these updates are published (http://eepurl.com/hTRhl9).

- Aircraft Noise and Health Effects: A six-month update (March - September 2023)
- Aircraft Noise and Health Effects: A six-month update (September 2022 - March 2023)
- Aircraft Noise and Health Effects: A six-month update (March - September 2022)
- Aircraft Noise and Health Effects: A six-month update (September 2021 - March 2022)
- Aircraft Noise and Health Effects: A six-month update (March - September 2021)
- Aircraft Noise and Health Effects: A six-month update (September 2020 - March 2021)
- Aircraft Noise and Health Effects: A six-month update (March - September 2020)
- Aircraft Noise and Health Effects: A six-month update (September 2019 - March 2020)
- Aircraft Noise and Health Effects: A six-month update (April - September 2019)

Living Near an Airport Could Be a Matter Of Life And Death

By Content Team August 16, 2017

9 minutes to read

Studies have found that people living near an airport can experience a higher rate of respiratory problems due to elevated airplane emissions that contain hazardous contaminants.

Recent studies have found that living near an airport could be hazardous to your health.

One air quality study found that neighborhoods as far as 10 miles away from Los Angeles International Airport (LAX) are contaminated with high levels of ultrafine particles that can easily be swallowed or inhaled. These particles are hazardous to human health because they can penetrate in to the lungs and into breathing passages and worsen asthma symptoms, as well as lead to decreased lung function and impair cognitive ability in children.

Researchers have known for years that the exhaust from aircraft contains ultrafine particles that are harmful to human health. But a growing body of studies is finding that far from just being contained within a small area, airport pollution can spread much further out than previously thought, and cause real health problems in

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concern, because of the number of major airports throughout the U.S.

Another source of concern is the LAX study, which found that neighborhoods as far as 10 miles away from the airport had elevated particle levels due to airport emissions.

And the level of pollution at LAX was equivalent to the emissions generated by nearly 500 vehicles stalled in freeway traffic every day.

What's worse is that researchers have also detected other harmful pollutants in and around airports, such as nitrogen oxide – which creates smog – and black carbon, *"a major component of soot found in engine exhaust."*

And it's not just major airports that are a risk because the American Chemical Society reported that emissions from regional airports were *"significantly elevated when compared to background pollution levels."* (2)

Controlling Airport Related Pollution

Given these facts, controlling airport related pollution is vital to preventing the health problems caused by the dispersion of ultrafine particles into the atmosphere.

Some airports have acted on their own and implemented new policies in an effort to reduce emission levels.

According to Enviro Aero, some airports provide electric power and air supplies at terminal gates, which allows pilots to turn off auxiliary power in aircrafts, *"reducing fuel burn and pollutants."* (3)

Other airports have tried to shrink the amount of time that airplanes taxi on the runway waiting for a gate to open.

In addition, some airports have begun tackling the problem of emissions generated by vehicles used on the tarmac. They are exploring the effectiveness of alternative fuels, including liquid petroleum gas and compressed natural gas that have less

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Airports
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Birmingham, AL
Camfil Software
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Commercial Office Buildings and Retail Spaces
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COVID-19
Dallas
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Day of Clean Air
Energuard HEPA Filters for Cleanrooms
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Energy Efficiency
EPA
Excercising in Polluted Air
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Camfil is also one of the most global air filtration specialists in the world with 26 production units and R&D centers in four countries in the Americas, Europe, South East Asia and the Asia-Pacific region. Backed by over 50 years of experience and innovation, every Camfil product is designed to provide high-efficiency air filtration, low energy consumption, and a healthier environment. Camfil has a solution that is right for you.

Other Resources for you

1. **Learn about how an airport in Minnesota is trying to tackle air quality in our** Previous blog post
2. Read our blog post: **The quality of the air you may be breathing on your next flight.**

Lynne Laake

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EARTHTALK Q&A

Is It Unhealthy To Live Near An Airport?

By Dylan Stoll February 9, 2023

Dear EarthTalk: Is it unhealthy for you to live near an airport?

—M. Smith, Pittsburgh, PA

Living near an airport can have negative effects on health and quality of life due to noise pollution and air pollution from aircrafts. The noise from airplanes can disrupt sleep, increase stress levels and lead to hearing loss. Air pollution from aircrafts can have negative impacts on respiratory and cardiovascular health. However, the degree to which these negative effects occur can vary depending on factors such as the proximity to the airport, the number of flights, and the type of aircraft.

A study supported by the Robert Wood Johnson Foundation in collaboration with the University of California and Columbia University found that people who lived within six miles of 12 of California's largest airports exhibited higher levels of asthma and heart-related problems. Admissions for respiratory issues like asthma and chronic obstructive pulmonary disease (COPD) at nearby hospitals were 17 percent

saw an increase—by as much as nine percent.

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Living near an airport can exacerbate pre-existing health problems due to the increased load of pollutants in the air. Credit: Tanathip Rattanatum, pexels.com.

In another study led by Rima Habre, an associate professor of clinical population and public health sciences, it was found that the culprit may be something known as ultra-fine particulate matter (UFP), a form of pollution emitted by aircraft, especially in the vicinity of airports. In her study, she hoped to observe the effects of acute exposure by asking participants to take walks in a park that was near a Los Angeles airport, as well as a park that was further away. She discovered that the inhalation of UFPs led to an increased inflammatory response in not only the lungs, but the entire circulatory system of the participants with asthma shortly after exposure. As Habre further elaborates, UFPs are not regulated, and many individuals who live in the vicinity of high-traffic airports are assuredly at risk.

Lead exposure is another issue that many aren't aware of. A study published earlier this month in PNAS Nexus discovered elevated blood-lead levels in children who lived near the Reid-Hillview Airport in Santa Clara County, California. The source of the lead pollution was found to be piston-engine aircrafts–small single or two-propeller aircraft commonly used

Occupational Health Sciences (DEOHS) have stated that air quality inside a classroom can be worse than the air quality outside. Thankfully, the researchers are working on a solution that involves portable air purifiers, as well as upgrades to heating, ventilation and air conditioning systems.

Their research, known as the Healthy Air, Healthy Schools Project, is in part being conducted at 20 schools near SeaTac Airport, and will involve the use of purifiers with and without filters, along with an analysis of academic performance. Hopes are that the findings will inform future endeavors related to the improvement of air quality not only in schools, but in other buildings used by the public on a daily basis.

CONTACTS

- A review of health effects associated with exposure to jet engine emissions in and around airports
- Airport pollution linked to acute health effects among people with asthma in Los Angeles

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Fax: (01) 872 0195
PLANNING DEPARTMENT

NOTIFICATION OF DECISION TO GRANT PERMISSION
LOCAL GOVERNMENT (PLANNING AND DEVELOPMENT) ACTS, 1963 TO 1993

Decision Order Number 3796	**Date of Decision** 19/10/1999
Register Reference F99A/0594	**Date** 25th August 1999

Applicant Grainne O'Dowd

Development Construct dormer bungalow, road entrance, sewerage treatment unit, domestic garage.

Location Kilcoskan, The Ward, Co. Dublin.

Floor Area Sq Metres

Time extension(s) up to and including

Additional Information Requested/Received 15/07/1999 /25/08/1999

In pursuance of its functions under the above mentioned Acts, the Fingal County Council, being the Planning Authority for the County Health District of Dublin, did by Order dated as above make a decision to **GRANT PERMISSION** in respect of the above proposal.

Subject to the conditions (13) on the attached Pages.

Signed on behalf of the Fingal County Council

..... OCTOBER 1999
for Senior Administrative Officer

Grainne O'Dowd
Kilcoskan,
The Ward,
Co. Dublin.

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REG. REF. F99A/0594

Conditions and Reasons

1 The development to be carried out in its entirety in accordance with the plans, particulars and specifications lodged with the application, as amended by submitted additional information received on the 25th. August, 1999, save as may be required by the other conditions attached hereto.

REASON: To ensure that the development shall be in accordance with the permission and that effective control be maintained.

2 That the house, when completed, be first occupied, as a place of permanent residence, by the applicant and/or members of his immediate family. The Planning Authority will however consent to any sale of the property by a lending institution in exercise of its powers as mortgagee.

REASON: In the interest of the proper planning and development of the area.

3 That the entire premises be used as a single dwelling unit apart from such use as may be exempted development for the purposes of the Local Government (Planning and Development) Regulations.

REASON: To prevent unauthorised development.

4 That the proposed garage shall be used solely for use incidental to the enjoyment of the dwelling house and shall not be used for the carrying on of any trade or business.

REASON: To prevent unauthorised development.

5 That the water supply and drainage arrangements, including the disposal of surface water, be in accordance with the requirements of the County Council.

REASON: In order to comply with the Sanitary Services Acts, 1878-1964.

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REG. REF. F99A/0594

6 That the requirements of the Principal Environmental Health Officer be ascertained and strictly adhered to in the development.

REASON: In the interest of health.

7 Provide 24 hour water storage facility.

REASON: In the interests of public health.

8 The following requirements of the Roads Authority is to be strictly adhered to;

1) Ditch to be piped on site frontage with pipes of adequate size and strength to the satisfaction of the Area Engineer, Roads Maintenance.

2) Entrance gate to be recessed a minimum of 6.5 m from carriageway edge with wing walls/fence/hedgerow splayed at 45 degrees.

3) No development of any form including planting, fences or wing walls shall exceed a height of 0.9 metres within the area required to provide visibility from the site entrance point. The visibility requirements to be agreed with the Roads Engineer, Roads Planning Control.

4) Parking for two cars to be provided within the curtilage of the site with an adequate turning area.

REASON: In the interest of traffic safety.

9 That the proposed Biocycle Waste Water Treatment System on site shall accord with B.S. 6297.

Further to this the applicant shall enter into a permanent maintenance agreement with Biocycle Limited which shall be submitted to the Planning Authority for its written agreement within one year of this grant of permission.

REASON: In the interest of public health.

10 The proposed north, west and south boundaries are to be planted with native hedging during the first planting season following the occupation of the house.

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REASON: To maintain the rural character and visual amenity of the area.

11 The proposed roof slating shall be black/dark blue.

REASON: In the interests of visual amenity.

12 The proposed dwelling and detached garage shall be finished in a plaster finish with brick detailing as shown on submitted additional information drawing received on 25th August 1999.

REASON: In the interests of visual amenity.

13 That a financial contribution in the sum of £375 (Euro 476) be paid by the proposer to the Fingal County Council towards the cost of provision of public water supply in the area of the proposed development and which facilitate this development; this contribution to be paid before the commencement of development on the site.

REASON: The provision of such services in the area by the Council will facilitate the proposed development. It is considered reasonable that the developer should contribute towards the cost of providing the services.