

## CEA NOISE INFORMATION REPORT

### Report to

daa plc  
Old Central Terminal Building  
Dublin Airport  
Co Dublin  
Ireland

A11267\_23\_RP064\_1.0  
14 September 2023

**Bickerdike Allen Partners LLP** is an integrated practice of Architects, Acousticians, and Construction Technologists, celebrating over 60 years of continuous practice.

**Architects:** Design and project management services which cover all stages of design, from feasibility and planning through to construction on site and completion.

**Acoustic Consultants:** Expertise in planning and noise, the control of noise and vibration and the sound insulation and acoustic treatment of buildings.

**Construction Technology Consultants:** Expertise in building cladding, technical appraisals and defect investigation and provision of construction expert witness services.

<b>Contents</b>	<b>Page No.</b>
1.0 Introduction .....	4
2.0 Scenarios Considered .....	5
3.0 Noise Modelling, Population and Demographics Assessment Methodology .....	6
4.0 Noise Information .....	6

*This report and all matters referred to herein remain confidential to the Client unless specifically authorised otherwise, when reproduction and/or publication is verbatim and without abridgement. This report may not be reproduced in whole or in part or relied upon in any way by any third party for any purpose whatsoever without the express written authorisation of Bickerdike Allen Partners LLP. If any third party whatsoever comes into possession of this report and/or any underlying data or drawings then they rely on it entirely at their own risk and Bickerdike Allen Partners LLP accepts no duty or responsibility in negligence or otherwise to any such third party.*

*Bickerdike Allen Partners LLP hereby grant permission for the use of this report by the client body and its agents in the realisation of the subject development, including submission of the report to the design team, contractor and sub-contractors, relevant building control authority, relevant local planning authority and for publication on its website.*

## **1.0 INTRODUCTION**

An application for planning permission ref. F20A/0668 was lodged by Tom Phillips & Associates on behalf of the Dublin Airport Authority (daa) on 18th December 2020. The proposed development comprised the taking of a 'relevant action' only within the meaning of Section 34C(a) of the Planning and Development Act 2000, as amended, at Dublin Airport, Co. Dublin.

The proposed relevant action related to the night-time use of the runway system at Dublin Airport. It involves the amendment of the operating restriction set out in condition no. 3(d) and the replacement of the operating restriction in condition no. 5 of the North Runway Planning Permission (Fingal County Council Reg. Ref. No. F04A/1755; ABP Ref. No. PL0GF.217429 as amended by Fingal County Council F19A/0023, ABP Ref. No. ABP-305289-19), as well as proposing new noise mitigation measures.

The Application was referred to An Bord Pleanála (ABP) and is being assessed by them. In response to a request from ABP in April 2023, daa are producing updated environmental information. This includes an Environmental Impact Assessment Report (EIAR) Supplement and an update to the previous Cost Effectiveness Assessment (CEA) submitted in September 2021. The CEA update is being prepared by Ricondo.

daa have retained Bickerdike Allen Partners LLP (BAP) to prepare the noise modelling information required to update the CEA. This report sets out the information prepared, and details of its derivation.

## 2.0 SCENARIOS CONSIDERED

The scenarios considered are the same as those in the September 2021 submission. They are listed in Table 1 with a description of the runway use. In this it should be noted that:

- South Runway is the older main runway which is aligned approximately east west
- Cross runway is the runway aligned approximate north-west south-east
- 10R refers to movements on the South Runway heading in an easterly direction
- 28L refers to movements on the South Runway heading in a westerly direction
- 10L refers to movements on the North Runway heading in an easterly direction
- 28R refers to movements on the North Runway heading in a westerly direction

For all 2025 scenarios, the daytime runway use is that 10R and 28R are preferred for departures, and 10L and 28L are preferred for arrivals. The Cross Runway is only used when wind dictates.

Scenario 01 retains Condition 5 of the North Runway permission, i.e. a cap of 65 flights per night on average during the 92-day summer period. The other 2025 scenarios assume this cap is removed.

**Table 1: Scenarios Considered by CEA**

Scenario Description	Night-time Runway Use Description
2018	South Runway only
2025 Scenario 01	South Runway only
2025 Scenario 02	South Runway preferred 00:00-06:00. Otherwise as day
2025 Scenario 03	As day
2025 Scenario 04	10L and 28L preferred for departures, 10R and 28R preferred for arrivals (i.e. opposite to day)
2025 Scenario 05	Alternate between Scenarios 03 and 04
2025 Scenario 06	Departures modelled as using north or south runway depending on destination. Arrivals modelled as 50/50 split between runways unless runway capacity exceeded
2025 Scenario 07	Departures modelled as using north or south runway depending on destination. Arrivals modelled as per day
2025 Scenario 08	Departures modelled as per day. Arrivals modelled as 50/50 split between runways
2025 Scenario 09	North Runway preferred 00:00-06:00. Otherwise as day
2025 Scenario 10	Alternate between Scenarios 02 and 09
2025 Scenario 11	South Runway only
2025 Scenario 12	South Runway only 23:00-06:00. Otherwise as day
2025 Scenario 13	South Runway only 23:30-05:00. Otherwise as day

### **3.0 NOISE MODELLING, POPULATION AND DEMOGRAPHICS ASSESSMENT METHODOLOGY**

The noise modelling methodology utilises a noise model, the Federal Aviation Authority Aviation Environmental Design Tool (AEDT) version 3e, which is compliant with *ECAC/CEAC Doc 29 4th Edition Report on Standard Method of Computing Noise Contours around Civil Airports* and with *EU Commission Directive 2015/996 Establishing common noise assessment methods according to Directive 2002/49/EC of the European Parliament and of the Council*. The model has been used with forecast movement information provided by Mott MacDonald.

Existing dwelling data has been acquired from GeoDirectory. Population data has been estimated using the average dwelling occupancy by small area. This has been obtained for 2016 based on Census data from the Central Statistics Office.

Further details of the noise modelling and population and demographics assessment methodology are contained in replacement Appendix 13B of the EIAR Supplement being submitted alongside the CEA.

### **4.0 NOISE INFORMATION**

The following information has been provided for each scenario:

- Population exposed to at least 50 dB  $L_{night}$
- Population exposed to at least 55 dB  $L_{night}$
- Population assessed as Highly Sleep Disturbed (HSD) using the methodology set out in EU Directive 2020/367.
- Population assessed as Highly Annoyed (HA) using the methodology set out in EU Directive 2020/367.
- Number of dwellings exposed to at least 50 dB  $L_{night}$
- Number of dwellings exposed to at least 55 dB  $L_{night}$
- Number of people classed as significantly affected when compared to 2018, based on the  $L_{den}$  metric
- Number of people classed as significantly affected when compared to 2018, based on the  $L_{night}$  metric

All of this information has been provided separately for the following 4 cases:

1. No allowance for Sound Insulation Schemes (SIS)
2. Allowance for the existing SIS only

3. Allowance for the existing SIS and 55 dB  $L_{night}$  criterion
4. Allowance for the existing SIS, 55 dB  $L_{night}$  criterion, and “very significantly affected at night” criterion based on a comparison to 2025 Scenario 01.

The number of dwellings which would be eligible for the SIS in each scenario has also been provided.

The insulation scheme has been allowed for by subtracting 5 dB from the predicted noise level. As cases 3 and 4 only apply to bedrooms, this subtraction has only been made to the  $L_{night}$  level, and the  $L_{night}$  portion of the  $L_{den}$  level.

The results are presented in the following tables.

**Table 2: Population Results, No Allowance for SIS**

Scenario Description	Population $\geq$ 50 dB $L_{night}$	Population $\geq$ 55 dB $L_{night}$	Population HSD	Population HA
2018	12316	753	42260	110238
2025 Scenario 01	9972	315	22281	55041
2025 Scenario 02	8766	1463	23884	53854
2025 Scenario 03	8133	1391	21135	49066
2025 Scenario 04	21343	2552	25841	61716
2025 Scenario 05	12293	549	26313	58463
2025 Scenario 06	11562	562	25332	58973
2025 Scenario 07	6354	1367	25700	58737
2025 Scenario 08	19635	717	27841	62370
2025 Scenario 09	11702	641	21388	50454
2025 Scenario 10	11028	510	23546	52808
2025 Scenario 11	15958	2059	27935	62004
2025 Scenario 12	9013	1450	24564	55262
2025 Scenario 13	8560	1442	23549	51778

**Table 3: Dwelling Results, No Allowance for SIS**

Scenario Description	# Dwellings $\geq 50$ dB $L_{\text{night}}$	# Dwellings $\geq 55$ dB $L_{\text{night}}$	# Dwellings in SIS
2018	4131	276	0
2025 Scenario 01	3138	115	0
2025 Scenario 02	3113	466	0
2025 Scenario 03	2839	437	0
2025 Scenario 04	6969	935	0
2025 Scenario 05	4375	192	0
2025 Scenario 06	4172	196	0
2025 Scenario 07	2344	436	0
2025 Scenario 08	6554	321	0
2025 Scenario 09	4157	215	0
2025 Scenario 10	3967	169	0
2025 Scenario 11	5102	720	0
2025 Scenario 12	3177	461	0
2025 Scenario 13	3058	458	0

**Table 4: Significantly Affected Results, No Allowance for SIS**

Scenario Description	Population Significantly Affected vs 2018, $L_{\text{den}}$	Population Significantly Affected vs 2018, $L_{\text{night}}$
2018	n/a	n/a
2025 Scenario 01	1990	2
2025 Scenario 02	16133	1908
2025 Scenario 03	20268	2772
2025 Scenario 04	33579	30057
2025 Scenario 05	22767	21079
2025 Scenario 06	25893	25628
2025 Scenario 07	11153	14286
2025 Scenario 08	31548	28644
2025 Scenario 09	30549	19260
2025 Scenario 10	23493	11659
2025 Scenario 11	2943	298
2025 Scenario 12	15447	1705
2025 Scenario 13	18933	2284



**Table 5: Population Results, Allowance for Existing SIS Only**

Scenario Description	Population ≥ 50 dB L <sub>night</sub>	Population ≥ 55 dB L <sub>night</sub>	Population HSD	Population HA
2018	12237	548	42234	110196
2025 Scenario 01	9925	105	22250	54998
2025 Scenario 02	8675	1174	23855	53810
2025 Scenario 03	8109	1212	21107	49022
2025 Scenario 04	21231	2451	25815	61672
2025 Scenario 05	12239	178	26285	58419
2025 Scenario 06	11494	214	25303	58929
2025 Scenario 07	6259	1080	25672	58694
2025 Scenario 08	19506	548	27813	62326
2025 Scenario 09	11662	443	21360	50411
2025 Scenario 10	10830	331	23518	52765
2025 Scenario 11	15855	1946	27908	61959
2025 Scenario 12	8958	1099	24535	55218
2025 Scenario 13	8428	1198	23521	51734

**Table 6: Dwelling Results, Allowance for Existing SIS Only**

Scenario Description	# Dwellings ≥ 50 dB L <sub>night</sub>	# Dwellings ≥ 55 dB L <sub>night</sub>	# Dwellings in SIS
2018	4101	198	160
2025 Scenario 01	3121	37	171
2025 Scenario 02	3077	360	171
2025 Scenario 03	2829	373	171
2025 Scenario 04	6927	899	171
2025 Scenario 05	4353	57	171
2025 Scenario 06	4145	69	171
2025 Scenario 07	2307	330	171
2025 Scenario 08	6506	262	171
2025 Scenario 09	4143	144	171
2025 Scenario 10	3890	105	171
2025 Scenario 11	5065	680	171
2025 Scenario 12	3154	333	171
2025 Scenario 13	3007	368	171

**Table 7: Significantly Affected Results, Allowance for Existing SIS Only**

Scenario Description	Population Significantly Affected vs 2018, $L_{den}$	Population Significantly Affected vs 2018, $L_{night}$
2018	n/a	n/a
2025 Scenario 01	1987	0
2025 Scenario 02	16119	1860
2025 Scenario 03	20262	2738
2025 Scenario 04	33579	29954
2025 Scenario 05	22767	21062
2025 Scenario 06	25893	25613
2025 Scenario 07	11150	14253
2025 Scenario 08	31545	28543
2025 Scenario 09	30547	19254
2025 Scenario 10	23482	11642
2025 Scenario 11	2937	173
2025 Scenario 12	15441	1649
2025 Scenario 13	18919	2239

**Table 8: Population Results, Allowance for Existing SIS and 55 dB  $L_{night}$**

Scenario Description	Population $\geq 50$ dB $L_{night}$	Population $\geq 55$ dB $L_{night}$	Population HSD	Population HA
2018	n/a	n/a	n/a	n/a
2025 Scenario 01	n/a	n/a	n/a	n/a
2025 Scenario 02	8675	80	23790	53762
2025 Scenario 03	8109	88	21040	48974
2025 Scenario 04	21231	145	25677	61481
2025 Scenario 05	12239	37	26276	58409
2025 Scenario 06	11494	46	25293	58916
2025 Scenario 07	6259	77	25612	58652
2025 Scenario 08	19506	123	27788	62291
2025 Scenario 09	11662	56	21337	50383
2025 Scenario 10	10830	85	23503	52756
2025 Scenario 11	15855	148	27800	61846
2025 Scenario 12	8958	54	24472	55172
2025 Scenario 13	8428	83	23454	51687

**Table 9: Dwelling Results, Allowance for Existing SIS and 55 dB L<sub>night</sub>**

Scenario Description	# Dwellings ≥ 50 dB L <sub>night</sub>	# Dwellings ≥ 55 dB L <sub>night</sub>	# Dwellings in SIS
2018	n/a	n/a	n/a
2025 Scenario 01	n/a	n/a	n/a
2025 Scenario 02	3077	26	504
2025 Scenario 03	2829	29	514
2025 Scenario 04	6927	55	1001
2025 Scenario 05	4353	12	216
2025 Scenario 06	4145	15	226
2025 Scenario 07	2307	25	476
2025 Scenario 08	6506	47	380
2025 Scenario 09	4143	19	296
2025 Scenario 10	3890	28	245
2025 Scenario 11	5065	56	784
2025 Scenario 12	3154	17	487
2025 Scenario 13	3007	27	510

**Table 10: Significantly Affected Results, Allowance for Existing SIS and 55 dB L<sub>night</sub>**

Scenario Description	Population Significantly Affected vs 2018, L <sub>den</sub>	Population Significantly Affected vs 2018, L <sub>night</sub>
2018	n/a	n/a
2025 Scenario 01	1987	0
2025 Scenario 02	16119	1854
2025 Scenario 03	20262	2732
2025 Scenario 04	33579	29912
2025 Scenario 05	22764	21062
2025 Scenario 06	25893	25613
2025 Scenario 07	11135	14253
2025 Scenario 08	31543	28504
2025 Scenario 09	30541	19251
2025 Scenario 10	23464	11642
2025 Scenario 11	2937	125
2025 Scenario 12	15441	1643
2025 Scenario 13	18919	2233

**Table 11: Population Results, Allowance for Existing SIS, 55 dB  $L_{night}$  and Very Significantly Affected**

Scenario Description	Population $\geq 50$ dB $L_{night}$	Population $\geq 55$ dB $L_{night}$	Population HSD	Population HA
2018	n/a	n/a	n/a	n/a
2025 Scenario 01	n/a	n/a	n/a	n/a
2025 Scenario 02	8167	80	23764	53748
2025 Scenario 03	7159	88	20991	48943
2025 Scenario 04	12440	145	25227	60792
2025 Scenario 05	8736	37	26097	58161
2025 Scenario 06	7730	46	25100	58655
2025 Scenario 07	5765	77	25587	58637
2025 Scenario 08	13715	123	27496	61849
2025 Scenario 09	5900	56	21033	49977
2025 Scenario 10	8735	85	23396	52629
2025 Scenario 11	15855	148	27800	61846
2025 Scenario 12	8955	54	24472	55172
2025 Scenario 13	7819	83	23423	51669

**Table 12: Dwelling Results, Allowance for Existing SIS, 55 dB  $L_{night}$  and Very Significantly Affected**

Scenario Description	# Dwellings $\geq 50$ dB $L_{night}$	# Dwellings $\geq 55$ dB $L_{night}$	# Dwellings in SIS
2018	n/a	n/a	n/a
2025 Scenario 01	n/a	n/a	n/a
2025 Scenario 02	2909	26	652
2025 Scenario 03	2521	29	790
2025 Scenario 04	3860	55	3725
2025 Scenario 05	3114	12	1422
2025 Scenario 06	2816	15	1503
2025 Scenario 07	2140	25	623
2025 Scenario 08	4446	47	2260
2025 Scenario 09	2153	19	2206
2025 Scenario 10	3162	28	924
2025 Scenario 11	5065	56	784
2025 Scenario 12	3153	17	626
2025 Scenario 13	2808	27	688

**Table 13: Significantly Affected Results, Allowance for Existing SIS, 55 dB  $L_{night}$  and Very Significantly Affected**

Scenario Description	Population Significantly Affected vs 2018, $L_{den}$	Population Significantly Affected vs 2018, $L_{night}$
2018	n/a	n/a
2025 Scenario 01	1987	0
2025 Scenario 02	16119	1737
2025 Scenario 03	20260	2283
2025 Scenario 04	26298	28249
2025 Scenario 05	19706	18542
2025 Scenario 06	22719	23020
2025 Scenario 07	11091	14102
2025 Scenario 08	25865	24874
2025 Scenario 09	27522	17350
2025 Scenario 10	22132	10269
2025 Scenario 11	2937	125
2025 Scenario 12	15441	1643
2025 Scenario 13	18919	2037