

Memo

Subject: Cultural Heritage - Noise Assessment (ANCA RFI 14)

Introduction

This note has been prepared in response to a Request for Information (RFI) received from the Aircraft Noise Competent Authority (ANCA) for further information relating to the effect of overflying of sensitive heritage assets resulting from the proposed Relevant Action. Specifically, the RFI asked:

- *The Applicant is requested to clarify whether additional overflying of Dunsink Observatory (Protected Structure RPS No. 0687) at night has been considered.*
- *Furthermore, the Applicant is requested to clarify whether the effect of increased overflying of other sensitive cultural heritage receptors has been considered.*

This note reports on the results of the analysis of the potential increase in noise levels resulting from overflying aircraft (airborne noise) from the proposed Relevant Action on sensitive heritage assets, utilising data prepared for *Chapter 13: Aircraft Noise and Vibration* of the revised Environmental Impact Assessment Report (EIAR).

It should be noted that Dunsink Observatory lies within an area of very low change in noise level from the proposed Relevant Action (see *Chapter 13: Aircraft Noise and Vibration* of the revised EIAR for further information). Furthermore, in the Proposed Scenario Dunsink Observatory is unlikely to be overflowed at all, as the attached Figures from the revised EIAR (Appendix B.1), showing the centrelines of flightpaths in the segregated and mixed modes of operation, indicate. This asset is, therefore, not discussed further.

Methodology

This assessment addresses the impact of changes in noise levels on sensitive heritage assets as a result of changes to airborne traffic between the Permitted Scenario, which is the situation which will come into effect once the North Runway is operational and the Proposed Scenario, which is the situation which will come into effect if the proposed Relevant Action is consented. It analyses predicted changes in noise as identified in *Chapter 13: Aircraft Noise and Vibration* in the revised EIAR and overlays this with the location of sensitive cultural heritage receptors to establish those assets which will experience a change in noise level. These are then analysed to highlight where such a change would lead to a change in our ability to appreciate the importance of the asset. This note only considers assets recorded as Protected Structures on the Fingal County Development Plan 2017 in recognition of their national importance and associated sensitivity to change. There are no National Monuments within those areas experiencing a change in noise level.

Each asset which falls within a noise contour has been analysed to establish the likelihood of an impact to the importance of the structure. This takes into consideration the existing ambient noise levels already experienced

by the asset and forming part of its setting, and how the change will be perceived. For example, an asset within an existing urban townscape may not be adversely affected by a change in noise level. A landscaped park, in contrast, may be enhanced by the tranquillity of its setting. In accordance with the noise assessment, an increase in noise level of below 3 dB is considered to be low. An increase of between 3-5.9 dB is medium; 6-8.9 dB is high and anything above 9 dB is very high. This assessment therefore only considers assets which will experience a change of 3 dB or above (refer to Figures 1-2, Appendix B.2 and B.3). A full list of assets is included in Appendix A.

In accordance with the methodology outlined in *Chapter 13: Aircraft Noise and Vibration* of the revised EIAR, this note considers three Assessment Years of 2022, when the North Runway is expected to become operational, 2025, the first year when 32 million passengers per annum (mppa) is expected to be reached, and 2035 for an assessment over a longer term period. The assessment analyses the effect of changes in noise levels from the Proposed Scenario over the Permitted Scenario. It does not assess the impact of any increased noise resulting from the Permitted Scenario.

As the proposed Relevant Action will result in no changes to the design or construction of North Runway; therefore, no assessment has been made of noise impacts resulting from construction.

Baseline

2022

Within the study area, no increase in noise levels above 3dB has been predicted for the 2022 Assessment Year. Therefore, no Protected Structures will be affected. This Assessment Year has not been considered further.

2025

A total of 69 Protected Structures fall within the 3 dB or higher noise contours for the 2025 Assessment Year (Figure 1, Appendix B.2). All assets are listed in Appendix A.

The majority of the assets lie within the settlement of Malahide and are associated with its growth during the 19th century as a coastal retreat for wealthy Dubliners. The assets include a number of 19th century terraces, including James's Terrace, Castle Terrace, Carlisle Terrace, Killeen Terrace and Windsor Terrace, alongside individual houses such as those along Dublin Road and Coast Road. Alongside these are the associated public buildings necessitated by the growing village, including the library and schoolhouse. The settlement was also enhanced with the construction of a number of churches in the 19th and 20th century, many of which still stand, including those on Dublin Road and Church Road. Other structures reflect the arrival of the railway in 1844, including the extant station and stationmaster's house on Dublin Road and a stone bridge on Bissett's Strand.

Evidence for the earlier settlement of Malahide can be found at Malahide Castle (Protected Structure RPS No. 0383) set within the Malahide Demesne. The medieval castle is now largely concealed within the 18th century Gothic rebuild which itself has historic and architectural interest. The castle lies in an elevated position, surrounded by extensive formal gardens and designed parkland. To the east lies the medieval church which survives as part of a former abbey (Protected Structure RPS No. 0384). The church is maintained as a managed ruin.

Evidence for an earlier, motte and bailey castle can be found to the east within the Sainthelens area (Protected Structure RPS No. 0445). The feature survives as flat-topped mound heavily planted with thick vegetation, surrounded by open greenspace, including sports pitches.

Further evidence for the earlier settlement at Malahide is Sylvester's Well on Old Road (Protected Structure RPS No. 0390). Thought to date from at least the 5th century, the present structure was added at a later date and restored again in 2001. The well sits adjacent to the 20th century St Sylvester's RC Church, itself constructed on medieval foundations.

The importance of the coast around Malahide is emphasised by the incorporation of defensive features. Dating from the 15th century, Robswall Castle (Protected Structure RPS No. 0422) incorporates a four-storey tower house, with later Victorian residence added on one side. Further down the coast is a 19th century Martello

Tower (Protected Structure RPS No. 0421). The tower was decommissioned in the late 19th century and subsequently converted to residential use.

Situated close to the airport are three assets, only one of which remains extant. The Cloghran Holy Well (Protected Structure RPS No. 0608) is disused and survives as a slight hollow located within an area of open pasture. Located to the west of the well are the foundations of a medieval church (Protected Structure RPS No. 0609), situated alongside the remains of a later, 18th century church. Both are located within the Cloghran Cemetery retaining their historic setting. Castlemoate House (Protected Structure RPS No. 0611), in contrast, survives as a 19th century house, although heavily modified and converted to office use. The house sits on the busy R132 with Dublin Airport to the rear.

2035

A total of 57 Protected Structures fall within the 3 dB or higher noise contours for the 2035 Assessment Year (Figure 2, Appendix B.3). These are all located within the contours for the 2025 scenario and are discussed above.

Assessment

The noise assessment (*Chapter 13: Aircraft Noise and Vibration* of the revised EIAR) has assessed the potential change in noise level resulting from increased aircraft movements as part of the proposed Relevant Action. This identifies the change in level between the Permitted Scenario and the Proposed Scenario. In accordance with the noise assessment, any change over has been given a medium impact weighting. As such, only those changes of 3dB and above are considered in this assessment.

It should be noted that changes in the Lden (24 hour) noise contours and resulting difference contours are primarily a result of the change in usage of the North Runway between the hours of 06:00 and 07:00 in the Proposed Scenario.

No increases in noise have been identified above 3dB have been identified for the 2022 Assessment Year. Therefore, there will be no effects on sensitive cultural heritage assets.

A total of 69 Protected Structures fall within the 3dB or higher noise contours for the 2025 Assessment Year (Figure 1, Appendix B.2). The majority of Protected Structures fall within the area of Malahide to the east of the airport. The existing ambient noise experienced by these assets is generated by their urban setting, including traffic noise and industrial activity. The noise assessment for the 2025 Assessment Year has identified a potential increase in noise from aircraft movements of between 3dB and 5dB on these assets. The majority fall within the 4-4.9dB bracket, with a single milestone experiencing an increase of 5dB. This falls within the category of medium impact and will, therefore, be perceptible.

Malahide grew in size during the Georgian period and continued to expand throughout the 19th and 20th centuries. As a result, ambient noise from commercial and industrial activities has always been a characteristic of its setting, albeit increasing as the settlement grew. The increase in noise will, therefore, not significantly affect the appreciation of these assets.

There are assets within the settlement which are considered to be more sensitive to change. This includes Malahide Castle (Protected Structure RPS No. 0383) which is situated in an area of greenspace to the west of the historic settlement. The castle lies within the 4-4.9dB contour and will therefore experience a perceptible increase in noise. The castle can be appreciated within substantial grounds, alongside the ruins of the medieval abbey (Protected Structure RPS No. 0384) and its formal gardens. The area is appreciated as a calm and tranquil setting, associated with the 18th century stately home rather than the medieval castle. The increase in noise will be noticeable when appreciating the asset and will interrupt the peaceful setting during aircraft movements. The level of this distraction is low but will be perceptible.

Those assets identified in close proximity to the airport already experience high levels of noise from both ground based and airborne aircraft movements. These are all predicted to experience an 4dB increase in noise levels. For Castlemoate House (Protected Structure RPS No. 0611) this should be seen in the context of the busy R132 and is unlikely to have an effect on the appreciation of the asset. The Cloghran Well (Protected Structure RPS No. 0608) and remains of Cloghran Church (Protected Structure RPS No. 0609), in contrast, have a more secluded setting which forms part of their historic character. The increase in noise levels will affect

the experience of these assets. Taking into consideration their location close to the airport the effect would be negligible.

The noise assessment for the 2035 Assessment Year has identified a maximum increase of 3dB (Figure 2, Appendix B.3). For some assets this will be a slight decrease in the 2025 Assessment Year. This includes Malahide Castle and those assets located in Cloghran. However, these assets will continue to experience an effect as a result of the changes. It should be noted that the proposed Relevant Action seeks to amend the hours of use of North Runway to allow flight during the shoulder hours 06:00-07:00 and 23:00-00:00 and therefore the only potential change between Permitted and Proposed scenarios is in these hours.

Conclusion

This note has been prepared in response to a Request for Information (RFI) received from ANCA to establish the effect of any overflying traffic on sensitive heritage assets. This assessment has taken the noise contours prepared for *Chapter 13: Aircraft Noise and Vibration* of the revised EIAR and compared this against the location of Protected Structures. These contours assess the change in noise level between the Permitted Scenario and the Proposed Scenario (the Relevant Action). In accordance with the methodology set out in the noise assessment, any change in noise level of 3dB or above has been identified as a medium increase and assets assessed accordingly.

Three Assessment Years have been considered; 2022, 2025 and 2025. No increase of 3dB or above has been identified for the 2022 Assessment Year. A total of 69 assets have been identified with an increase of 3dB or above in the 2025 Assessment Year, falling to 57 for the 2035 assessment year. The majority of assets will not experience an effect on their importance as a result of the change. This is due mainly to their location, either within an existing urban location, or in proximity to the airport.

Adverse effects have been identified on Malahide Castle and associated assets (Protected Structure RPS No. 0383 and 0384). This is due to the peaceful setting created by the large gardens and parkland of the 18th century manor house. The increase in noise will be perceptible and may be distracting; however, the effect would only be apparent in the 06:00-07:00 period, when the additional aircraft noise would be discernible.

In addition, although in close proximity to the airport, the ruins of Cloghran Church (Protected Structure RPS No. 0609) and Holy Well (Protected Structure RPS No. 0608) will experience a change in their setting. Their setting is considered to contribute to their importance; therefore, the distraction of aircraft movements will interrupt the appreciation of the assets. Taking into consideration the aircraft movements and those of the Permitted Scenario, the effect is considered to be negligible.

Dunsink Observatory (Protected Structure RPS No. 0687) is unlikely to be overflowed. The asset lies within an area of very low change in noise level resulting from the proposed Relevant Action (see *Chapter 13: Aircraft Noise and Vibration* of the revised EIAR for further information) and will not be affected by the proposed Relevant Action.

Appendix A Asset List

RPS No.	Asset Name	Description	2025 (dB)	2035 (dB)
421	Hicks Tower, Coast Road (R106), Robswalls, Malahide, Co. Dublin	Former early 19th century Martello Tower, adapted in early 20th century for residential use	4-4.9	3-3.9
422	Robswalls Castle, Coast Road (R106), Robswalls, Malahide, Co. Dublin	Five-bay two-storey house connected to 15th century stone tower house	4-4.9	3-3.9
423	Railway Bridge, Bissett's Strand, Malahide, Co. Dublin	Mid-19th century stone rail bridge over road	3-3.9	3-3.9
424	Rosca, Dublin Road, Malahide, Co. Dublin	One of pair of 19th century semi-detached two-storey two-bay redbrick houses	3-3.9	3-3.9
425	Sonas, Dublin Road, Malahide, Co. Dublin	One of pair of 19th century semi-detached two-storey two-bay redbrick houses	3-3.9	3-3.9
426	Malahide Presbyterian Church, Dublin Road, Malahide, Co. Dublin	Mid-20th century Presbyterian Church with steeply pitch roof with flared eaves and copper clad spire	3-3.9	3-3.9
428	1 Carlisle Terrace, Church Road, Malahide, Co. Dublin	One of terrace of four pairs of semi-detached redbrick houses built in 1859	4-4.9	3-3.9
429	2 Carlisle Terrace, Church Road, Malahide, Co. Dublin	One of terrace of four pairs of semi-detached redbrick houses built in 1859	4-4.9	3-3.9
430	3 Carlisle Terrace, Church Road, Malahide, Co. Dublin	One of terrace of four pairs of semi-detached redbrick houses built in 1859	4-4.9	3-3.9
431	4 Carlisle Terrace, Church Road, Malahide, Co. Dublin	One of terrace of four pairs of semi-detached redbrick houses built in 1859	4-4.9	3-3.9
432	5 Carlisle Terrace, Church Road, Malahide, Co. Dublin	One of terrace of four pairs of semi-detached redbrick houses built in 1859	4-4.9	3-3.9
433	6 Carlisle Terrace, Church Road, Malahide, Co. Dublin	One of terrace of four pairs of semi-detached redbrick houses built in 1859	4-4.9	3-3.9
434	7 Carlisle Terrace, Church Road, Malahide, Co. Dublin	One of terrace of four pairs of semi-detached redbrick houses built in 1859	4-4.9	3-3.9
435	8 Carlisle Terrace, Church Road, Malahide, Co. Dublin	One of terrace of four pairs of semi-detached redbrick houses built in 1859	4-4.9	3-3.9
387	Former Station Master's House, Dublin Road, Malahide, Co. Dublin	Mid-19th century redbrick former station masters house converted to office use and extended	3-3.9	3-3.9
388	Malahide Railway Station, Dublin Road, Malahide, Co. Dublin	Mid-19th century Railway Station, Signal Box, Pedestrian Bridge & Entrance	3-3.9	3-3.9
389	St. Sylvester's Catholic Church, Dublin Road, Malahide, Co. Dublin	19th century Catholic Church, on site of earlier church and mound	3-3.9	v
390	St. Sylvester's Well, Old Street, Malahide, Co. Dublin	Holy Well - enclosed circular stone structure with conical roof	3-3.9	3-3.9
391	1 Castle Terrace, Dublin Road, Malahide, Co. Dublin	Terrace of seven three-storey 19th century houses incl gates & front railings	4-4.9	3-3.9
392	2 Castle Terrace, Dublin Road, Malahide, Co. Dublin	Terrace of seven three-storey 19th century houses incl gates & front railings	4-4.9	v
393	3 Castle Terrace, Dublin Road, Malahide, Co. Dublin	Terrace of seven three-storey 19th century houses incl gates & front railings	4-4.9	3-3.9

RPS No.	Asset Name	Description	2025 (dB)	2035 (dB)
394	4 Castle Terrace, Dublin Road, Malahide, Co. Dublin	Terrace of seven three-storey 19th century houses incl gates & front railings	4-4.9	3-3.9
395	5 Castle Terrace, Dublin Road, Malahide, Co. Dublin	Terrace of seven three-storey 19th century houses incl gates & front railings	4-4.9	3-3.9
396	6 Castle Terrace, Dublin Road, Malahide, Co. Dublin	Terrace of seven three-storey 19th century houses incl gates & front railings	4-4.9	3-3.9
397	7 Castle Terrace, Dublin Road, Malahide, Co. Dublin	Terrace of seven three-storey 19th century houses incl gates & front railings	4-4.9	3-3.9
402	1 Windsor Terrace, Church Road, Malahide, Co. Dublin	One of group of six semi-detached three-bay three-storey 19th century houses incl railings & gates	4-4.9	3-3.9
403	2 Windsor Terrace, Church Road, Malahide, Co. Dublin	One of group of six semi-detached three-bay three-storey 19th century houses incl railings & gates	4-4.9	3-3.9
404	3 Windsor Terrace, Church Road, Malahide, Co. Dublin	One of group of six semi-detached three-bay three-storey 19th century houses incl railings & gates	4-4.9	3-3.9
405	4 Windsor Terrace, Church Road, Malahide, Co. Dublin	One of group of six semi-detached three-bay three-storey 19th century houses incl railings & gates	4-4.9	3-3.9
406	5 Windsor Terrace, Church Road, Malahide, Co. Dublin	One of group of six semi-detached three-bay three-storey 19th century houses incl railings & gates	4-4.9	3-3.9
407	6 Windsor Terrace, Church Road, Malahide, Co. Dublin	One of group of six semi-detached three-bay three-storey 19th century houses incl railings & gates	4-4.9	3-3.9
408	Malahide Library, The Mall, Malahide, Co. Dublin	Early 20th century redbrick Carnegie Library with dutch-billy gable (incl front railings & gates)	4-4.9	3-3.9
409	Garda Station, James's Terrace, Malahide, Co. Dublin	One of group of twelve terraced houses - No1 & 2 are interlinked semi-detached two-bay two-storey former houses now in use as garda station	3-3.9	3-3.9
446	Wheatfield Blackwood Lane, Sainthelens, Malahide, Co. Dublin	Late 18th or early 19th century house, previously known as "St. Helen's", including historic outbuildings now converted to dwellings	3-3.9	3-3.9
381a	Thatch Cottage West, Bissett's Strand, Malahide, Co. Dublin	One of pair of semi-detached single-storey thatched dwellings	3-3.9	3-3.9
451	Lime Kiln, Feltrim Quarry, Feltrim Road, Feltrim, Swords, Co. Dublin	Remains of 18th or early 19th century stone limekiln	5-5.9	3-3.9
447	Milestone, Dublin Road (R107), Auburn, Malahide, Co. Dublin	Freestanding 19th century cast-iron milestone in granite setting at footpath near entrance to Little Auburn House	5-5.9	3-3.9
448	Auburn House, Dublin Road (R107), Auburn, Malahide, Co. Dublin	Late 18th or early 19th century house, outbuildings & walled garden	4-4.9	3-3.9
912	Kincora, Main Street, Malahide, Co. Dublin	Early 20th century redbrick two-storey house (excluding lean-to and single-storey extension and shed)	4-4.9	3-3.9

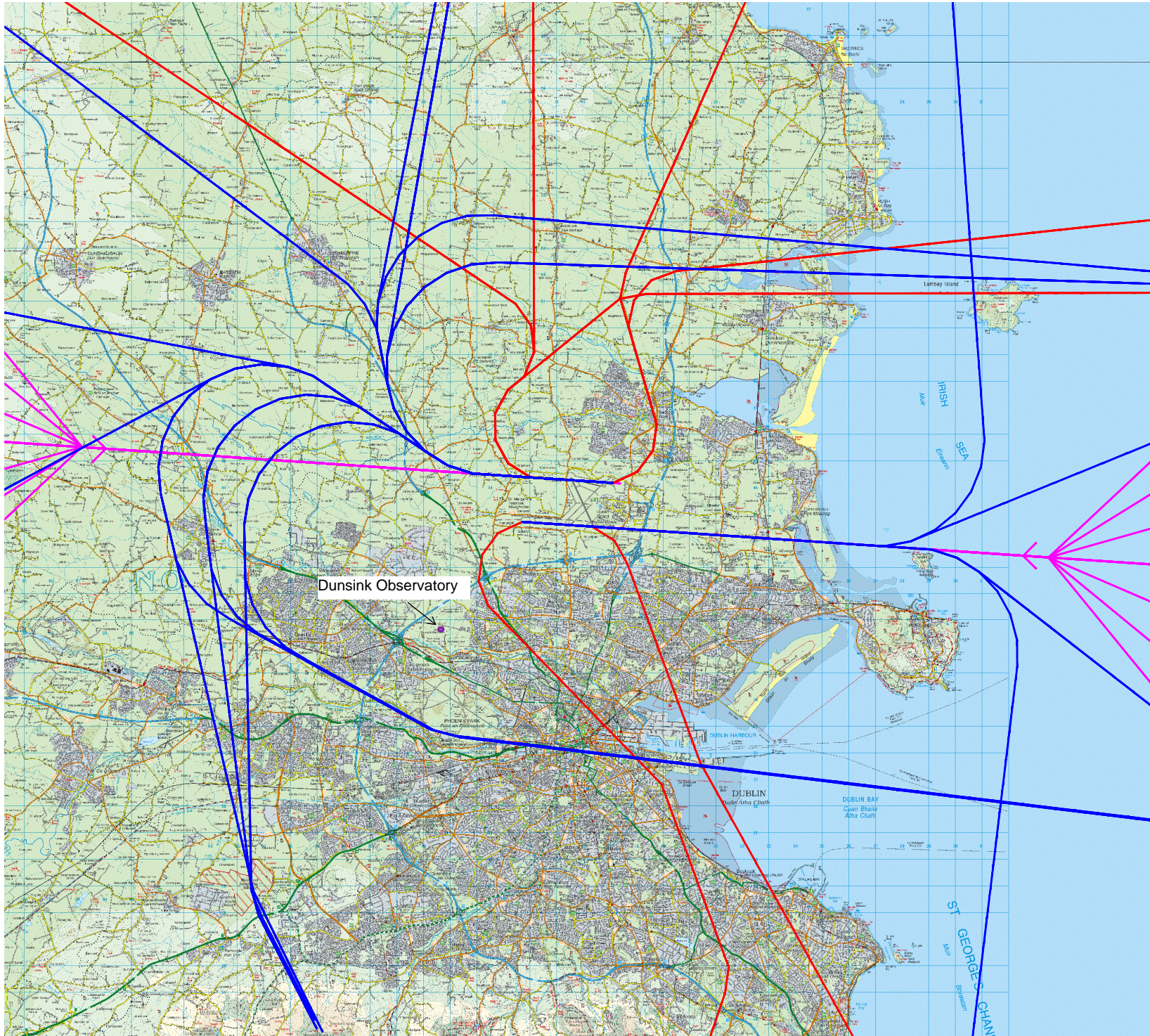
RPS No.	Asset Name	Description	2025 (dB)	2035 (dB)
410	3 James's Terrace, Malahide, Co. Dublin	One of group of twelve mid-19th century terraced houses - No. 3 is two-bay two-storey house	3-3.9	3-3.9
411	4 James's Terrace, Malahide, Co. Dublin	One of group of twelve mid-19th century terraced houses - No. 4 is two-bay three-storey house	3-3.9	3-3.9
412	5 James's Terrace, Malahide, Co. Dublin	One of group of twelve mid-19th century terraced houses - No. 5 is two-bay three-storey house	4-4.9	3-3.9
413	6 James's Terrace, Malahide, Co. Dublin	One of group of twelve mid-19th century terraced houses - No. 6 is two-bay three-storey house	4-4.9	3-3.9
414	7 James's Terrace, Malahide, Co. Dublin	One of group of twelve mid-19th century terraced houses - No. 7 is two-bay three-storey house	4-4.9	3-3.9
415	8 James's Terrace, Malahide, Co. Dublin	One of group of twelve mid-19th century terraced houses - No. 8 is two-bay three-storey house	4-4.9	3-3.9
416	9 James's Terrace, Malahide, Co. Dublin	One of group of twelve mid-19th century terraced houses - No. 9 is two-bay three-storey house	4-4.9	3-3.9
417	10 James's Terrace, Malahide, Co. Dublin	One of group of twelve mid-19th century terraced houses - No. 10 is two-bay two-storey house	4-4.9	3-3.9
418	11 James's Terrace, Malahide, Co. Dublin	One of group of twelve mid-19th century terraced houses - No. 11 is two-bay two-storey house	4-4.9	3-3.9
419	12 James's Terrace, Malahide, Co. Dublin	One of group of twelve mid-19th century terraced houses - No. 12 is two-bay two-storey house	4-4.9	3-3.9
436	Tir na nOg, Church Road, Malahide, Co. Dublin	Large redbrick late 19th century house	4-4.9	3-3.9
381b	Thatch Cottage East, Bissett's Strand, Malahide, Co. Dublin	One of pair of semi-detached single-storey thatched dwellings	4-4.9	3-3.9
382	Lime Kiln (in ruins) Within grounds of Malahide Castle, Malahide Demesne, Malahide, Co. Dublin	Remains of square stone lime kiln within grounds of Malahide Castle, west of castle building	4-4.9	3-3.9
383	Malahide Castle Back Road, Malahide Demesne, Malahide, Co. Dublin	Medieval castle and later additions (including within the demesne four gate lodges, stone outbuilding complex, entrance gates & piers)	4-4.9	3-3.9
384	Malahide Abbey (in ruins) Within grounds of Malahide Castle, Malahide Demesne, Malahide, Co. Dublin	Medieval church (in ruins) with Sheela-na-gig on external wall, sited within enclosed graveyard within grounds of Malahide Castle	4-4.9	3-3.9
385	Casino, Dublin Road, Malahide, Co. Dublin	Late 18th or early 19th century thatched dwelling in cottage orneé style	4-4.9	3-3.9
386	Milestone, Dublin Road, Malahide, Co. Dublin	19th century cast-iron milestone in granite setting in boundary wall of thatched house 'Casino'	4-4.9	3-3.9

RPS No.	Asset Name	Description	2025 (dB)	2035 (dB)
398	1 Killeen Terrace, Dublin Road, Malahide, Co. Dublin	Terrace of four three-bay three-storey 19th century houses incl gates & front railings recessed from street by common garden	4-4.9	3-3.9
399	2 Killeen Terrace, Dublin Road, Malahide, Co. Dublin	Terrace of four three-bay three-storey 19th century houses incl gates & front railings recessed from street by common garden	4-4.9	3-3.9
400	3 Killeen Terrace, Dublin Road, Malahide, Co. Dublin	Terrace of four three-bay three-storey 19th century houses incl gates & front railings recessed from street by common garden	4-4.9	3-3.9
401	4 Killeen Terrace, Dublin Road, Malahide, Co. Dublin	Terrace of four three-bay three-storey 19th century houses incl gates & front railings recessed from street by common garden	4-4.9	3-3.9
437	St. Andrew's Church (C of I) Church Road, Malahide, Co. Dublin	Early 19th century Church of Ireland church	4-4.9	3-3.9
438	Roseneath Church Road, Malahide, Co. Dublin	Large Tudor-Revival style early 20th century house	4-4.9	3-3.9
439	St. Andrew's National School Church Road, Malahide, Co. Dublin	Early 19th century three-bay two-storey schoolhouse	4-4.9	3-3.9
440	Seamount House & Gate lodge Seamount Road, Malahide, Co. Dublin	Early 20th century Tudor Revival style house and gate lodge	4-4.9	3-3.9
441	Muldowney House Coast Road (R106), Robswalls, Malahide, Co. Dublin	Three-bay two-storey 19th century house, home of artist Nathaniel Hone	4-4.9	3-3.9
445	Motte & Bailey Blackwood Lane, Sainthelens, Malahide, Co. Dublin	Archaeological site of large flat-topped elongated mound of Anglo-Norman motte (former castle and settlement site) in field north of Wheatfield House	4-4.9	3-3.9
608	Holy Well Stockhole Lane, Cloghran, Swords, Co. Dublin	Enclosed stone well at base of steps under tree in field	4-4.9	3-3.9
609	Cloghran Church (in ruins) & Graveyard Stockhole Lane, Cloghran, Swords, Co. Dublin	Site of early 18th century parish church (now demolished) and foundation remains of early medieval church within enclosed graveyard	4-4.9	3-3.9
611	Castlemoate House Swords Road (R132), Cloghran, Swords, Co. Dublin	19th century house, outbuilding & gates, now in use as offices (built in early 19th century but significantly altered in late 19th century in Italianate style)	4-4.9	3-3.9

Source: Chapter 13: Aircraft Noise and Vibration

Appendix B Figures

B.1 Revised EIAR Figures Showing Dunsink Observatory



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LEGEND:

- Category A&B Aircraft
Departure Route Centrelines
- Category C&D Aircraft
Departure Route Centrelines
- ← Arrival Routes

Rev	Date	Description	Initials

REVISIONS

**Bickerdike
 Allen
 Partners**
 Architecture
 Acoustics
 Technology

121 Salisbury Road, London, NW6 6RG
 Email: mail@bickerdikeallen.com T: 0207 625 4411
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**Dublin Airport
 Change to Permitted Operations**

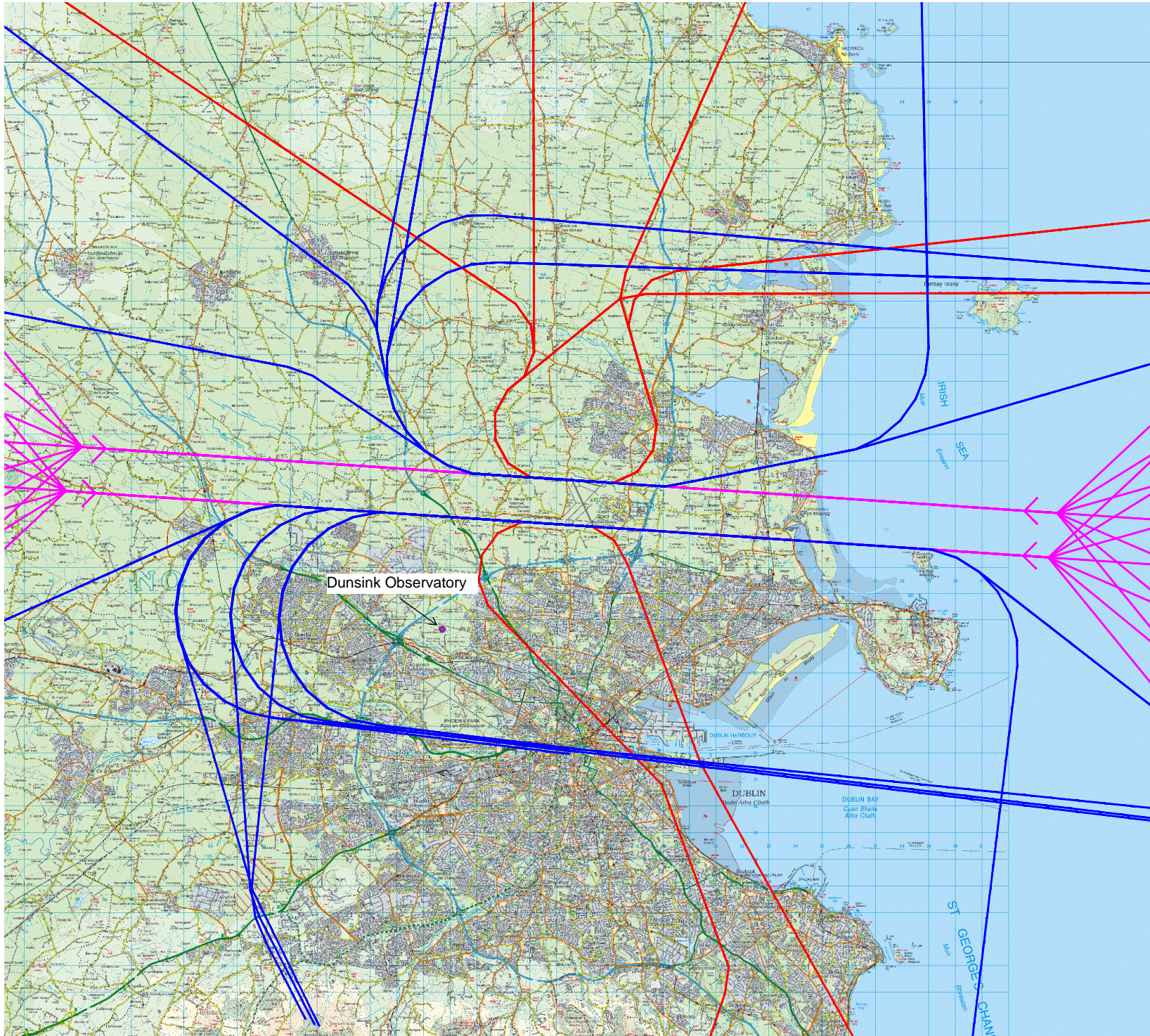
**Figure 13B-3
 Main Runway Modelled Routes
 Future Segregated Mode**

DRAWN: DR CHECKED: DC

DATE: November 2020 SCALE: 1:200000@A4

FIGURE No:

A11267_01_DR034_3.0



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LEGEND:

- Category A&B Aircraft
Departure Route Centrelines
- Category C&D Aircraft
Departure Route Centrelines
- ← Arrival Routes

Rev	Date	Description	Initials

REVISIONS

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**Dublin Airport
 Change to Permitted Operations**

**Figure 13B-4
 Main Runway Modelled Routes
 Future Mixed Mode**

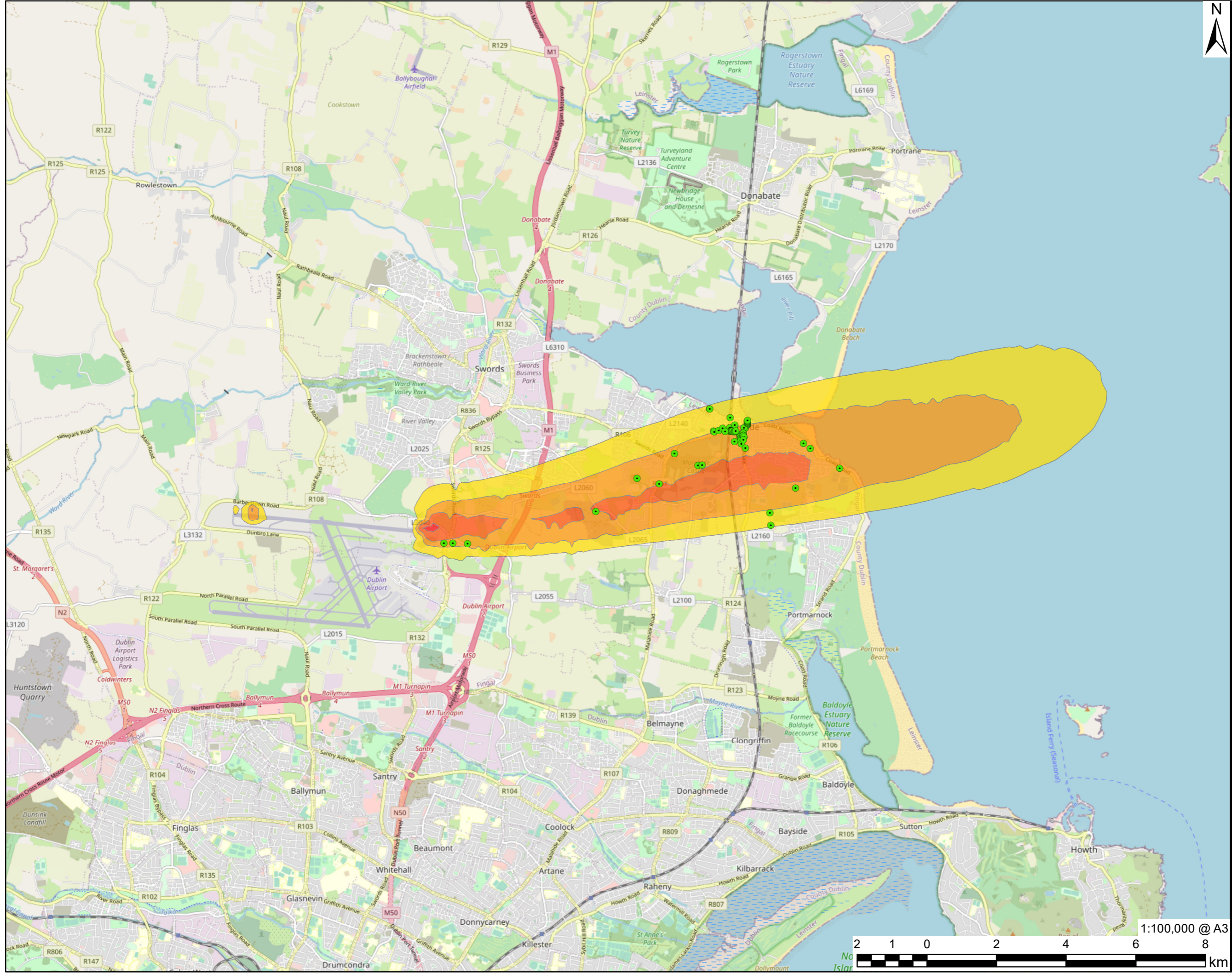
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DATE: November 2020 SCALE: 1:200000@A4

FIGURE No:

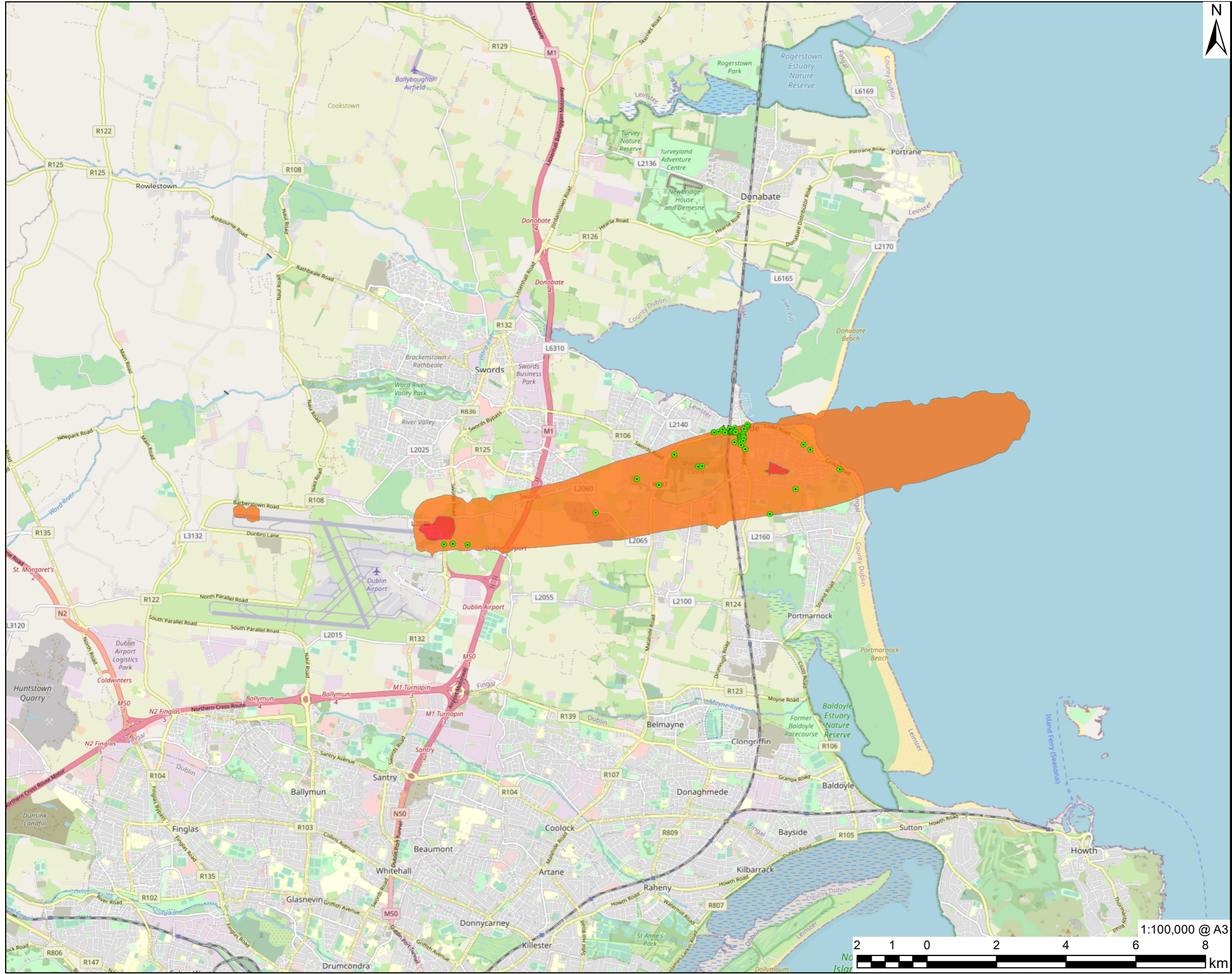
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B.2 Figure 1 2025 Permitted versus Proposed Scenario Difference in Forecast Noise Contours (L_{den})



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B.3 Figure 2 2035 Permitted versus Proposed Scenario Difference in Forecast Noise Contours (L_{den})



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