RSP | Manston Airport

Manston Airport
ACP (ACP-C3-2)
Airport Noise Model

Table of Contents

Table of Contents (continued)

List of tables

List of figures

1. Introduction

1.1 Background

The Manston Airport Airspace Change Proposal (ACP) requires noise and overflight modelling in accordance with CAA guidance in CAP1616i to demonstrate the likely noise effects of the airspace change. Environmental Resource Management and Mitchell Environmental Ltd have been commissioned to undertake the noise modelling, and this report gives the methodology and main data and assumptions used to build the noise model, and results. In a meeting with the CAA case officers on 3rd June 2025 it was agreed that because Manston Airport has not had aircraft operating since 2014, this methodology report could be prepared for early submission to the CAA for comment to agree the modelling methods ahead of the ACP Stage 3 gateway submission. A report (ref ACP-C2-1) was submitted to the CAA on 30 September, but the CAA responded saying they could not comment before the formal Stage 3 submission expected on 30 October.

This report (ref ACP-C3-2) is that report which has now been updated with additional results for running noise modelling for the Final Approach Fix Option on Runway 10 (referred to as the ‘FAF2 Option’). Tracked Changes are used to identify all additional text which has only been added to Section 3.5.3 (aircraft profiles) and Section 4.1 Noise Contours. Table 4.2 has also been completed. We understand this report now contains all the noise and overflight information required for the State 3 submission. Finally, before publication for Stage 3 consultation commercially sensitive information on forecast operation types in Table 3.2 has been redacted with black text.

1.2 Scope

The ACP is now in Stage 3, and this requires reporting of the noise effects of changing the airspace. In a meeting with the CAA case officers on 3rd June 2025 and subsequent correspondence it was agreed that because Manston Airport has not had aircraft operating since 2014 it is not possible to model noise from a relevant baseline and in accordance with CAP1616 modelling and quantification of noise exposure is required for the first and 10th year of operation.

This is a technical report of the ACP noise model, version ACP-C2-1, for the first and 10th year of operation.

A Development Consent Order (DCO) was granted for the development of the airport. It includes a number of requirements to limit and manage aircraft noise. The current proposals to operate the airport have been developed to meet these requirements, for example the numbers of flights at different times of the day. Compliance with the DCO requirements will be demonstrated to the local planning authority, not the CAA, so is not the subject of this report.

1.3 Report Structure

Following this Introduction chapter the remainder of the report is structured as follows:

- Chapter 2 summarises the main CAA requirements for noise modelling and how they are met.
- Chapter 3 summarises the main model inputs and assumptions.
- Chapter 4 gives the noise modelling results.
- Chapter 5 draws conclusions.

2. CAA Requirements

This ACP will follow the latest (October 2023) CAP1616 guidance with the noise assessment following CAP1616i, November 2023. This ACP is unusual in that there is no operating airport at Manston with no air traffic or current flight paths to change. Nonetheless the CAP1616i methodology will be followed.

The ACP Stage 2B submission (Manston Airport Airspace Design and Procedures Initial Options Appraisal, Issue 3) summarises the DCO ES noise assessment as the basis for the qualitative assessment required in Stage 2, noting the routes will likely change in Stage 3. It also stated:

> 'The noise modelling methodology for this ACP will fall into Category E. Category E noise modelling as defined in CAP 2091 is shown below:

- Category E – There is no adaptation of the noise model and standardised reference values only are used. The standard ICAO dataset is used (flight profiles, noise data), with no amendments for local effects. Data reported from the modelled airport (rather than track-keeping data) is used to identify the usage of arrival and departure routes for a typical day. The track over the ground for each arrival and departure route is derived from the published coordinates in the UK AIP or as advised by the airport. Dispersion around the nominal track of each such route is based on the dispersion guidance contained in the latest version of ECAC Doc. 29.

CAP 2091 gives minimum noise modelling requirements for 5 categories of UK airport from A to E. The requirements are most stringent for the largest airports that affect the highest populations of people (e.g. Heathrow is category A) and least stringent for the smallest airports affecting the smallest number of people. In passing the Stage 2 ACP Gateway the CAA agreed Manston Airport is Category D for which there is no specific guidance and Category E guidance applies, for which the minimum noise modelling requirements apply, as summarised in the bullet point above.

The approach taken in the noise model is to meet these requirements but also to exceed them where information is available, as discussed in detail in the following chapter.

CAP1616i gives detailed requirements for the noise metrics to be modelled and reported; $L_{eq\ 16\ hr}$ day, $L_{eq,8hr}$ night, N65 Day and N60 Night. It also gives guidance on overflight contours to be modelled and reported, noting overflights are not a noise metric. The following chapter demonstrates how this guidance has been followed.

3. Noise Modelling Details

3.1 Software

Noise modelling was carried out using the Aviation Environmental Design Tool (AEDT) version 3g[1] that is used in the USA and widely around the world including in the UK. The model's computation procedures implement ECAC Document 29 recommendations. The main input data sources developed are discussed below.

3.2 Airport Layout

Table 3-1 gives the runway geometries, adopted in the Environmental Statement (ES).

Location	Latitude	Longitude	Elevation (AMSL)	Runway Width	Glide slope	Threshold Crossing Height
Runway 10	51.344550°	1.326830°	51 m	61 m	3.0°	15.2 m
Runway 28	51.339725°	1.365558°	52 m	61 m	3.0°	15.2 m

Departing aircraft are assumed to taxi to within 50 m of these runway ends where they start their roll along the runway on departure. Approach thresholds, where arriving aircraft cross at a height of 15.2 m, are at these same locations, i.e. 50 m from the runway ends. Final approached to both runways will be at 3 degrees.

3.3 Ground terrain

LIDAR Composite Digital Terrain Model (DTM) 10 m ground terrain data was obtained from the open source environment.data.gov.uk website, published in March 2023.

3.4 Meteorological Conditions

The following average metrological conditions were used, consistent with ES:

- Temperature: 14.7°C;
- Pressure: 759.97 mm Hg;
- Average Headwind: 14.8 km/h; and
- Humidity 70%.

3.5 Flight Paths

3.5.1 Flight Tracks

Figure 3-1 shows the departure and arrivals track centrelines that have been developed from information provided by Sagentia Aviation.

[1] Aviation Environmental Design Tool (AEDT) Version 3g, https://aedt.faa.gov/3g_information.aspx

Figure 3-1 - Flight Track Centrelines

This depicts the proposed airspace as follows.

Departures from Runway 28 will all turn north to route over the sea as soon as possible to minimise overflying land and hence populations any more than necessary, dispersing around the track centreline as simulated by the 6 sub-tracks shown in Figure 3 2. The 6 sub-tracks are closely packed when viewed at this scale as discussed further below.

Departures from Runway 10 will fly straight and then when over the sea turn onto one of three directions and disperse around each of three track centrelines, as simulated by the 6 sub-tracks in Figure 3 2.

Arrivals to Runway 10 will approach from one of two directions, dispersed around each track centreline as simulated by the 6 sub-tracks in Figure 3 3. Arrivals from each of these two directions will converge to a 4000 ft Initial Approach Fix (IAF) after which they will fly PBN or ILS approaches descending to the runway.

Arrivals to Runway 28 will approach from one of three directions, dispersed around each track centreline as simulated by the 6 sub-tracks in Figure 3 3. Arrivals from each of these three directions will converge to a 4000 ft Initial Approach Fix (IAF) after which they will fly PBN or ILS approaches descending to the runway.

Air Transport Movements (ATMs) will operate on the arrivals and departures routes described above. In addition, two types of circuits will be provided for training and other use in the longer term, as shown by the red visual circuit tracks in Figure 3 4 and described as follows. For larger commercial aircraft visual circuits are expected to operate at a height of 2,000ft to the south of the airport, making southernly turns on departure about 6km from the airport onto downwind legs 4-5km from the airport before making turns to approach about 3km from the airport. These relatively late approach turns were developed to minimise overflight in Ramsgate to the East and also at properties to the West.

For smaller light aircraft General Aviation a smaller visual circuit is expected to operate at a height of 1,000ft and above and has been modelled at 1,000ft. It will be located to the south of the runway as shown by the purple visual circuit tracks in Figure 3 4 following a common route, only reversed from each direction of runway use. This route was adjusted to avoid overflying properties in Minster.

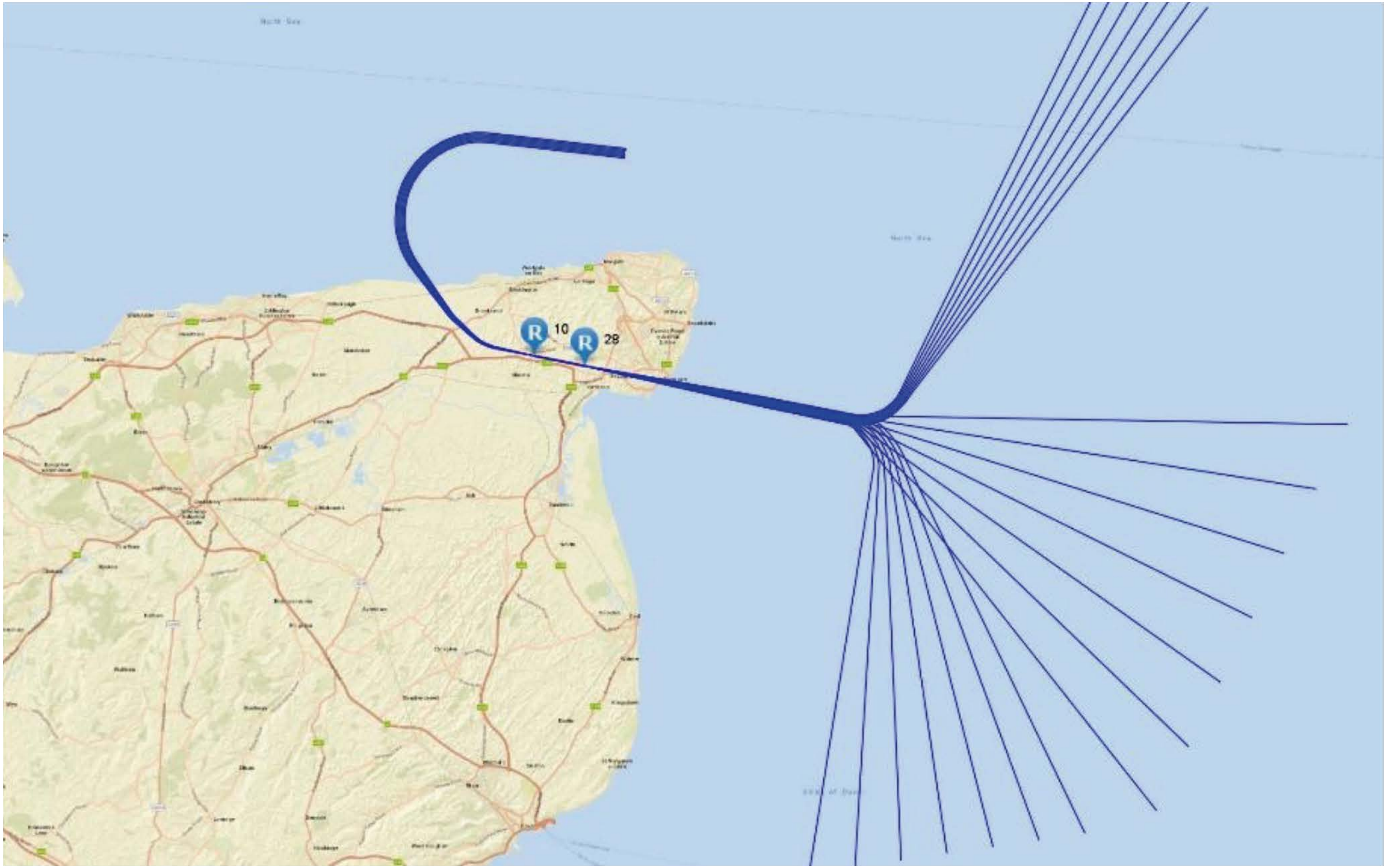

Figure 3-2 - Departure Flight Path Sub-Tracks

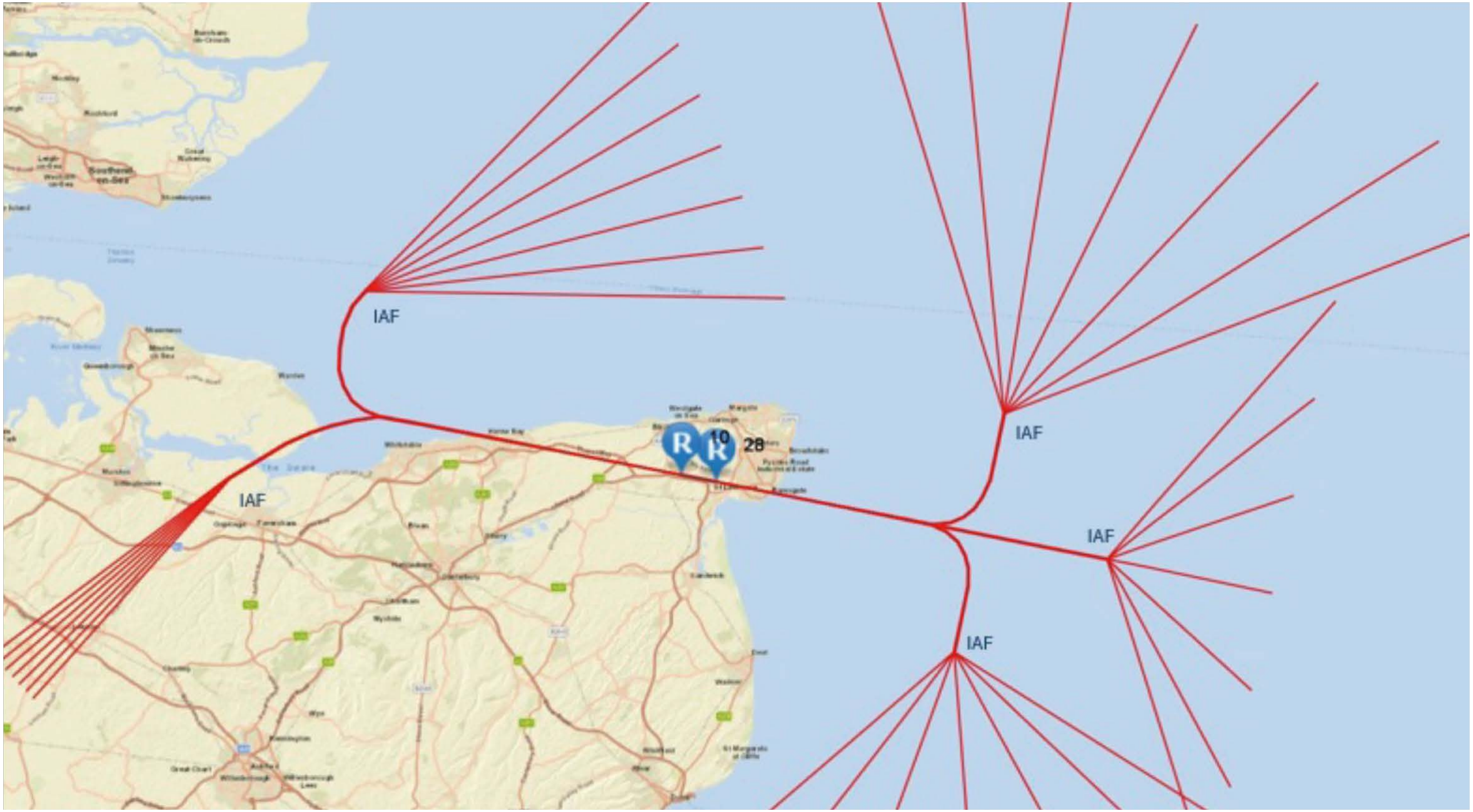

Figure 3-3 - Arrivals Flight Path Sub-Tracks

Figure 3-4 - Commercial And General Aviation Visual Circuits Tracks

The allocation of aircraft operations to each route has been based on the destinations to be served, and in the case of arrivals to Runway 10 avoiding conflict with the London Terminal Manoeuvring Area (TMA). Referring to the route names in Figure 3 1, the allocation of aircraft operations is as follows.

On easterly operations when Runway 10 is in use.

- **Arrivals:**
  - RW10ARR-N 80%
  - RW10ARR-S 20%
- **Departures:**
  - RW10DEP-C 40%
  - RW10DEP-S 40%
  - RW10DEP-N 20%

On westerly operations when Runway 28 is in use.

- **Arrivals:**
  - RW28ARR-S 40%
  - RW28ARR-C 40%
  - RW28ARR-N 20%
- **Departures:**
  - RW28DEP-N 100%

3.5.2 Dispersion

To simulate the natural spread of aircraft around a stated flight path due to wind conditions, pilot behaviour etc, aircraft noise models disperse the flight tracks across a series of sub-tracks, as illustrated in Figure 3-2 and Figure 3-3. CAP 1616i refers to guidance in ECAC Doc 29, Report on Standard Method of Computing Noise Contours around Civil Airports, the most recent edition of which is 4th edition, 2016. Section 3.4.2 of Volume 2 gives guidance on lateral dispersion, including the recommendation to use at least 6 sub-tracks, which has been followed. The proportion of flights on a route assigned to each sub-track follows the ECAC guidance as follows:

- track centreline – 28.2%
- first sub-track each side of centreline – 22.2%
- second sub-track each side – 10.6
- third (outermost) sub-track each side – 3.1%

Section 3.4.2 of Volume 2 also suggests Standard Deviations for the normal distribution of flights across these tracks if radar data of actual tracks flows is not available, as is the case here. However, the guidance is 9 years old and the ATC system to be developed at Manston for the future will use the latest technology including Performance-Based Navigation (PBN), not accounted for in the ECAC guidance. So instead, track dispersion data was drawn from operations at Gatwick Airport. For departures, the PBN dispersion function was taken from the Seaford Standard Instrument Departure route which includes a 90 degree turn. PBN arrivals procedures are not currently flown routinely at all UK airports and have only recently been implemented within the UK, so there is a lack of data relating to dispersion of routes flown. PBN approaches are proposed from the Initial Arrival Fix (IAF) waypoints discussed above to each runway. Gatwick Airport trialled PBN arrivals in its Reduced Night Noise Trial in 2024, so dispersion functions for the relevant final stages of arrivals were taken from that trial. The trial showed very good track-keeping, for example at distances of about 30km from the airport, (equivalent to where the Initial Approach Fix (IAF) waypoints will be at Manston) all aircraft were within 70m from the PBN centre line. Beyond the IAF waypoints aircraft are spread using a normal distribution across each of the arrivals swathes discussed above and seen in Figure 3-3.

3.5.3 Flight Profiles

The AEDT model computes the vertical profiles of each aircraft type consistent with the aircraft's standard operating procedures within the model's database, taking account of the aircraft's weight and the meteorological conditions. The model has been calibrated to some extent by providing aircraft weight in the form of the Stage Length for departures (see below) and local meteorological conditions as given above.

CAA guidance (see Section 2) requires no further calibration of the AEDT standard profiles. However, because PBN arrivals procedures have been developed for Manston, some arrivals profiles have been edited to ensure all aircraft pass the Initial Arrivals Fix (IAF) at or above 4,000ft and the Final Arrivals Fix (FAF) at 3,000ft, before descending at 3 degrees to the runway threshold. Figure 3-5 shows the approach profiles of each aircraft type.

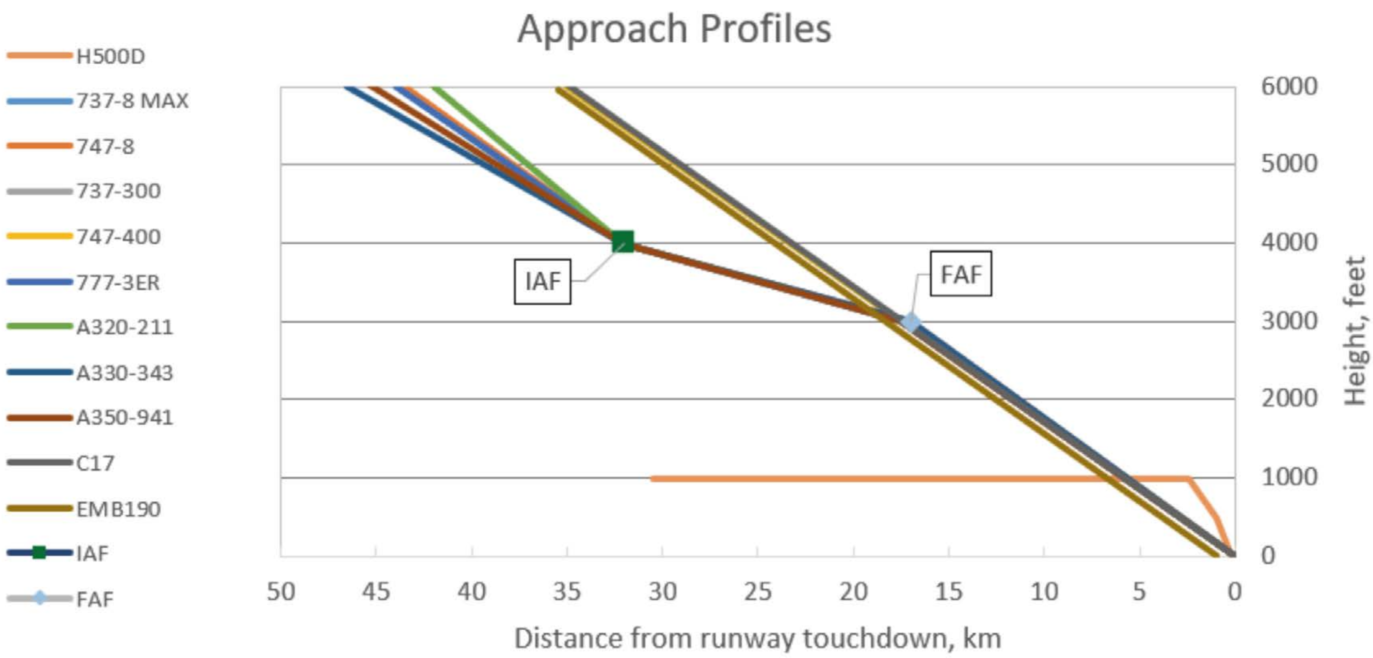

Figure 3-5 - Aircraft Approach Profiles

It can be seen that a few aircraft types (B737-300, B747-400, C17 and EMB 190) are modelled as flying perfect Continuous Descent Approached (CDA) at 3 degrees all the way from 6,000 ft to the runway threshold. But most aircraft types join this angle at the Final Approach Fix at 3,000 ft after flying via the Initial Approach Fix at 4,000 ft.

A Final Approach Fix Option is included in the Stage 3 submission that would lower the FAF to Runway 10 from 3,000 ft to 2,500 ft and move it proportionately nearer the airport from about 17 km to 15k. The Initial Approach Fix would stay at 4,000ft but also be moved nearer the airport from about 32 to 29km. The effect of this option would be to slightly increase aircraft heights around the 30km zone over the sea and to slightly lower them in the 15-17km zone in the sea beyond Herne Bay. To test of this could increase noise levels in the Herne Bay area the relevant aircraft approach profiles to Runway 10 were modified, as shown in Figure 3-6.

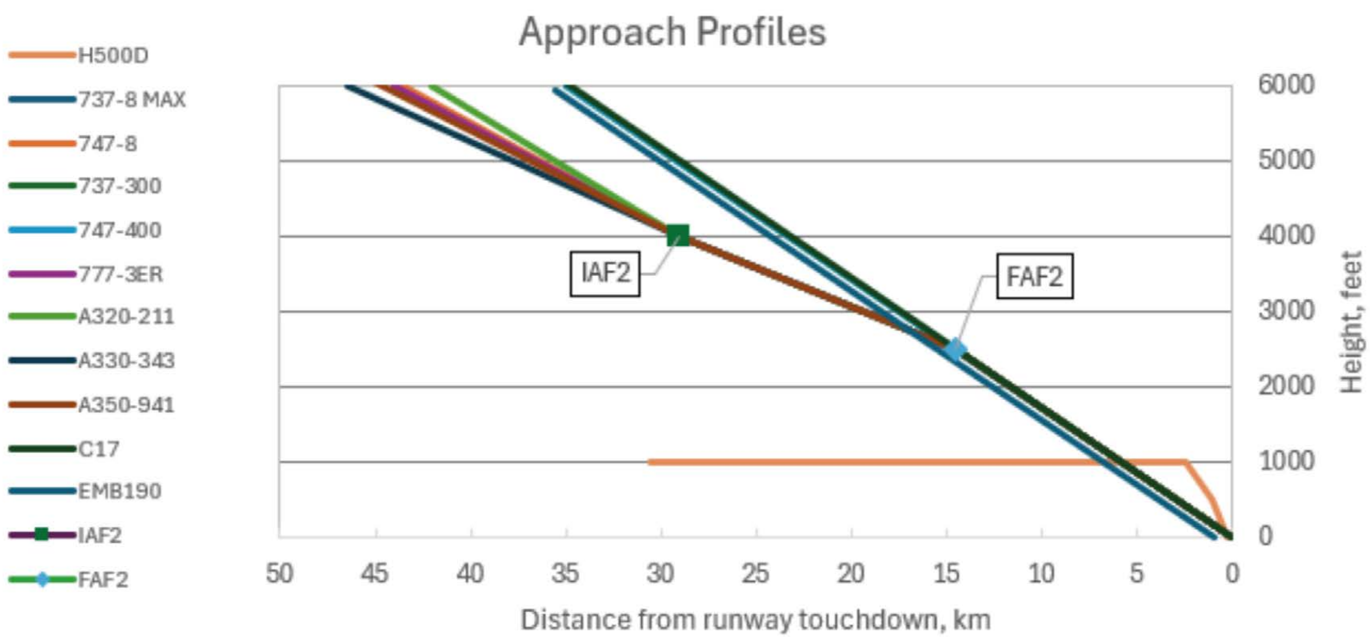

Figure 3-6 - Aircraft Approach Profiles FAF2 Option

For departures, standard AEDT departure profiles are assumed, as shown in Figure 3-7. This presumes there are no instructions to hold aircraft down.

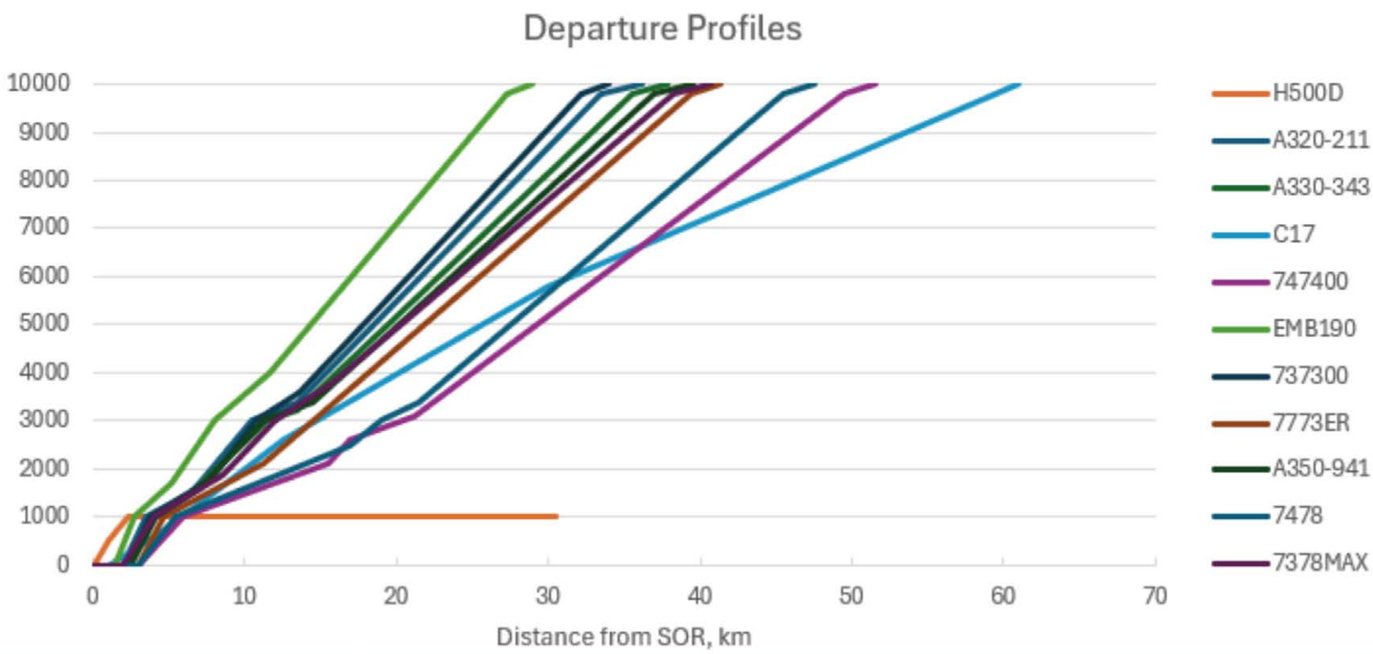

Figure 3-7 - Aircraft Departure Profiles

The slowest fixed-wing climbers are Boeing 747s. The Hughes OH-6 Cayuse helicopter is modelled at climbing rapidly to 1,000ft, note these are expected to be only occasional military visitors to the airport (assumed to be 1 every 20 days, see below).

3.6 Runway Modal Split

The split between easterly and westerly operations across the year is taken as 70% westerly and 30% easterly, based on the analysis of historical weather data as analysed by the Airspace Consultants reported in the ES.

The ES noted as a noise mitigation measure the feasibility of a runway preference to minimise overflying Ramsgate will be studied as part of the ACP.

The feasibility and benefits of a preferential runway strategy to reduce noise impacts over the populated area of Ramsgate was studied in 2017 and reported in the **Review of Potential Noise Mitigation Measures, 19 October 2017,** which concluded as follows:

> *The report found that a preferential runway strategy would have a significant noise reduction effect and was feasible for the majority of the time (68.8%). The biggest limiting factor to preferential runway operations will be the movement rate that Manston Airport would like to be able to achieve. Above a movement rate of 5 movements per hour, Manston Airport would no longer be able to support opposite runway direction operations.*

Discussions with Sagentia Aviation have shown that numerous factors will need to be taken into account at any moment in time when the airport is operating to determine if aircraft operations can be operated using departures from Runway 28 to the west and arrivals on Runway 10 from the west. To enable these, the wind conditions will need to be sufficiently neutral, and there will need to be adequate capacity to allow safe taxiing to take place when aircraft have vacated the runway. In addition, there will need to be sufficient separations between arrivals and departures to ensure that operations can meet the prescribed separation minima between flights. This mode of operation is more likely to be possible when there are fewer flights, for example, between 0600 and 0700 hours when a number of operating restrictions imposed by the DCO may limit the number of flights. It is currently impossible to predict what proportion of the year this mode of operation will be possible, as there are too many factors to consider, including meteorological conditions, which will vary by time of day and day of the year. In addition, this mode of operation will likely reduce over time as the airport gets busier. The use of preferential runway operations is therefore not be included in the noise modelling for the Manston Airport ACP and will instead be written into the Noise Management Plan and the associated airport operating procedures where possible.

3.7 Operations

Table 3-2 lists the numbers of each type of operation assumed in the noise modelling and the aircraft type, and the number of average summer day (16 June to 15 September) movements day and night. The table shows both the year one and year 10 forecasts separated by a '/'.

The year 10 forecast has been scaled up slightly to exactly meet the DCO limit of 17,170 freight ATMs, and assuming that the airport could be developed by that time for passenger use to the full DCO limit on annual passenger ATMs of 9,298. Passenger ATMs in the summer season are assumed to be 20% higher than in the remainder of the year.

It is expected that General Aviation could use the GA visual circuit from year 1, and commercial aircraft may use the commercial circuit in later years.

Operation Type	Aircraft Type	ATMs (24 hr)	ATMs Day (0700-2300)	ATMs Night (0600-0700)
[redacted]	Hughes OH-6 Cayuse	0.04/0.05	0.04/0.05	
[redacted]	C-17 Globemaster III	0.04/0.05	0.04/0.05	
[redacted]	B777-300	0.28/0.32	0.28/0.32	
[redacted]	B777-300	1.92/2.95	1.92/2.95	
[redacted]	B777-300	0.14/0.16	0.14/0.16	
[redacted]	B777-300	6.85/3.98	6.85/3.98	
[redacted]	B737-300	0.28/1.18	0.28/1.18	
[redacted]	A350 900	0/12.61	0/12.61	
[redacted]	A350 900	0/5.08	0/5.08	
[redacted]	A350 900	0/0.75	0/0.75	
[redacted]	A350 900	5.48/8.25	5.48/8.25	
[redacted]	747-800	0.85/2.43	0.85/2.43	
[redacted]	B747-800	0.27/1.77	0.27/1.77	
[redacted]	B747-400	0.05/0.06	0.05/0.06	
[redacted]	A330-200	0/7.37	0/7.37	
[redacted]	A320	0.03/0.03	0.03/0.03	
Total freight movements		**16.3/47.0**	**16.3/47.0**	**0/0**
Passenger	B737 800 MAX	0/26.47	0/22.87	0/3.6
Passenger	E190	0/3.42	0/2.42	0/1
Total Passenger Movements		**0/29.9**	**0/25.3**	**0/4.6**
Commercial Visual Circuits	B777-300	0/0.5	0/0.5	0/0
	A350 900	0/1.5	0/1.5	0/0
	B373 800 MAX	0/4.0	0/4.0	0/0
Total Commercial Circuits		**0/6**	**0/6**	**0/0**
GA Visual Circuits	CNA 172	8/8	8/8	0/0

Table 3-2 - 92 Day Summer Average Daily Aircraft Movements, Year 1/Year 10

The freight and passenger ATMs given in this table are the total of arrivals and departures. In most cases the number of arrivals is half this, and the number of departures is half this, with the exception of the year 10 passenger flights expected in the 0600-0700 hours period that are all departures (see below).

The modelled average summer daily number of flights in year 10 can be summarised as follows:

- Freight aircraft – 23.5 arrivals and 23.5 departures, total 47 ATMs, all during the day.
- Passenger aircraft – 15 arrivals and 15 departures, total 25.3 ATMs during the day (15 arrivals and 10.3 departures), and 4.6 departures in the 0600–0700-night period.
- Commercial Aircraft circuits – 6 each day.
- Visual Circuits – 8 each day.
- Total 72.3 Air Transport Movements (ATMs) and 14 circuits in the day, and 4.6 ATM departures at night between 0600 and 0700 hours.

3.8 Aircraft Types

The AEDT database has over 3,500 aircraft types including multiple variants and engine options. For each of the aircraft types forecast to operate an appropriate variant was chosen from the AEDT database. For freight aircraft this was done first by looking at the global fleets of aircraft operated by the top 10 cargo airlines. Then for the most common variant the noisiest engine option was chosen from the UK CAA register of aircraft licenced to operate in the UK. For passenger aircraft the most likely types to be operating were advised by the project team and similarly the noisiest engine option was chosen from the UK CAA register of aircraft licenced to operate in the UK. For aircraft using the Visual Circuit the Cessna 172 Spyhawk was chosen as a common GA training aircraft. Details of the specific aircraft variants and engine options modelled are provided in Figure 3-3.

Aircraft Type	Description	Airframe Model	Model (engine)	Stage Length
Hughes OH-6 Cayuse	Hughes 500D	Hughes OH-6 Cayuse	T63-A-5A	1
A320	A320-211\CFM56-5A1	Airbus A320-200 Series	CFM56-5B4/2	5
A330-200	A330-343\RR TRENT 772B	Airbus A330-200 Series	PW4168A	5
C17 Globemaster III	F117-PW-100 NM	Boeing C-17A	PW2041	1
747-400	BOEING 747-400/PW4056	Boeing 747-400 Series Freighter	RB211-524G-T	9
E190	ERJ190-100	Embraer ERJ190-LR	CF34-10E6A1	4
737-300	BOEING 737-300/CFM56-3B-1	Boeing 737-300 Series Freighter	CFM56-3-B1	4
777-300	BOEING 777-300/GE90-115-EIS	Boeing 777-300-ER	GE90-115B	6
A350-900	A350-941\RR Trent XWB-84	Airbus A350-1000 Series	Trent XWB-97	6
747-800	Boeing 747-8F/GEnx-2B67	Boeing 747-8	GEnx-2B67/P	9
737 800 MAX	737MAX8\CFMLeap1B27	Boeing 737-7	LEAP-1B25	4
CNA172	Cessna 172R	Cessna 172 Skyhawk	IO-360-B	N/A

Table 3-3 - Aircraft Types In AEDT

Also listed in Table 3-3 are the aircraft Stage Lengths used in AEDT. Stage lengths of all aircraft in AEDT range from 1 to 9 and equate to flight distances of 0 to 11,000 nm and are used in AEDT as a proxy for aircraft take-off weight because aircraft travelling further take off with more fuel so are proportionately heavier. Heavier aircraft climb more slowly, and are noisier, so considering stage length is useful in calibrating the model for the specific destinations being served.

4. Results

4.1 Noise Contours

The following 7 figures are provided to illustrate the noise modelling results:

Figure 4.1 2029 Daytime Noise Contours $L_{eq\ 16\ hour}$ 51, 54, 57, 60, 63, 66, 69dB

Figure 4.2 2029 daytime Noise Contours N65 5,10,20

Figure 4.3 2038 Daytime Noise Contours $L_{eq\ 16\ hour}$ 51, 54, 57, 60, 63, 66, 69dB

Figure 4.4 2038 Daytime Noise Contours N65 5, 10, 20, 50

Figure 4.5 2038 Night-time Noise Contours $L_{eq\ 8\ hour}$ 45, 48, 51, 54, 57, 60dB

Figure 4.6 2029 Overflights

Figure 4.7 2038 Overflights

Figure 4.8 2038 FAF Option Daytime Noise Contours N65 5, 10, 20, 50

Figures 4.1 and 4.3 show daytime $L_{eq\ 16\ hour}$ noise contours, for the year of opening 2029, and the tenth year of operation, 2038. $L_{eq\ 16\ hour}$ is a primary metric in CAP1616 and levels from the Lowest Observable Adverse Effect Level (LOAEL) 51dB upwards in 3dB steps are shown.

Figures 4.2 and 4.4 show daytime Number Above 65 (N65) contours for the year of opening 2029, and the tenth year of operation 2038. N65 is a secondary metric in CAP1616 and levels from 5 upwards to 10, 20 and where relevant 50 are shown.

Figures 4.5 shows night-time $L_{eq\ 8\ hour}$ noise contours for the tenth year of operation 2038. Leq 8 hr is a primary metric in CAP1616 and levels from the Lowest Observable Adverse Effect Level (LOAEL) 45dB upwards in 3dB steps are shown. No flights are forecast at night (2300-0700) in 2029.

Figures 4.6 and 4.7 show overflight contours for the year of opening 2029, and the tenth year of operation 2038. Overflights are a non-noise secondary metric in CAP1616 and levels from the 5 upwards are presented.

Figure 4.8 shows the daytime Number Above 65 (N65) contours for both the core option and the FAF 2 option in the tenth year of operation 2038.

Figure 4-1 - 2029 Daytime Noise Contours Leq 16 Hour 51, 54, 57, 60, 63, 66, 69db

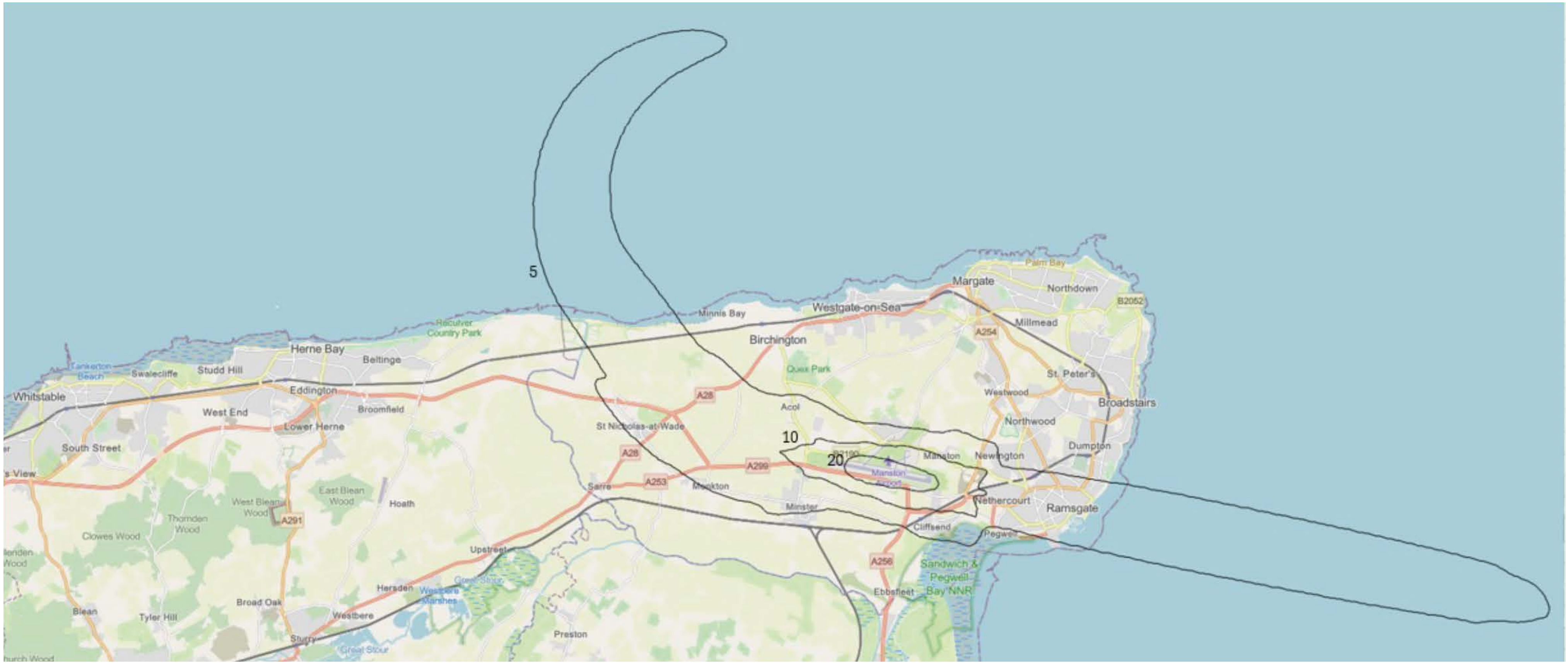

Figure 4-2 - 2029 Daytime Noise Contours N65 5,10,20

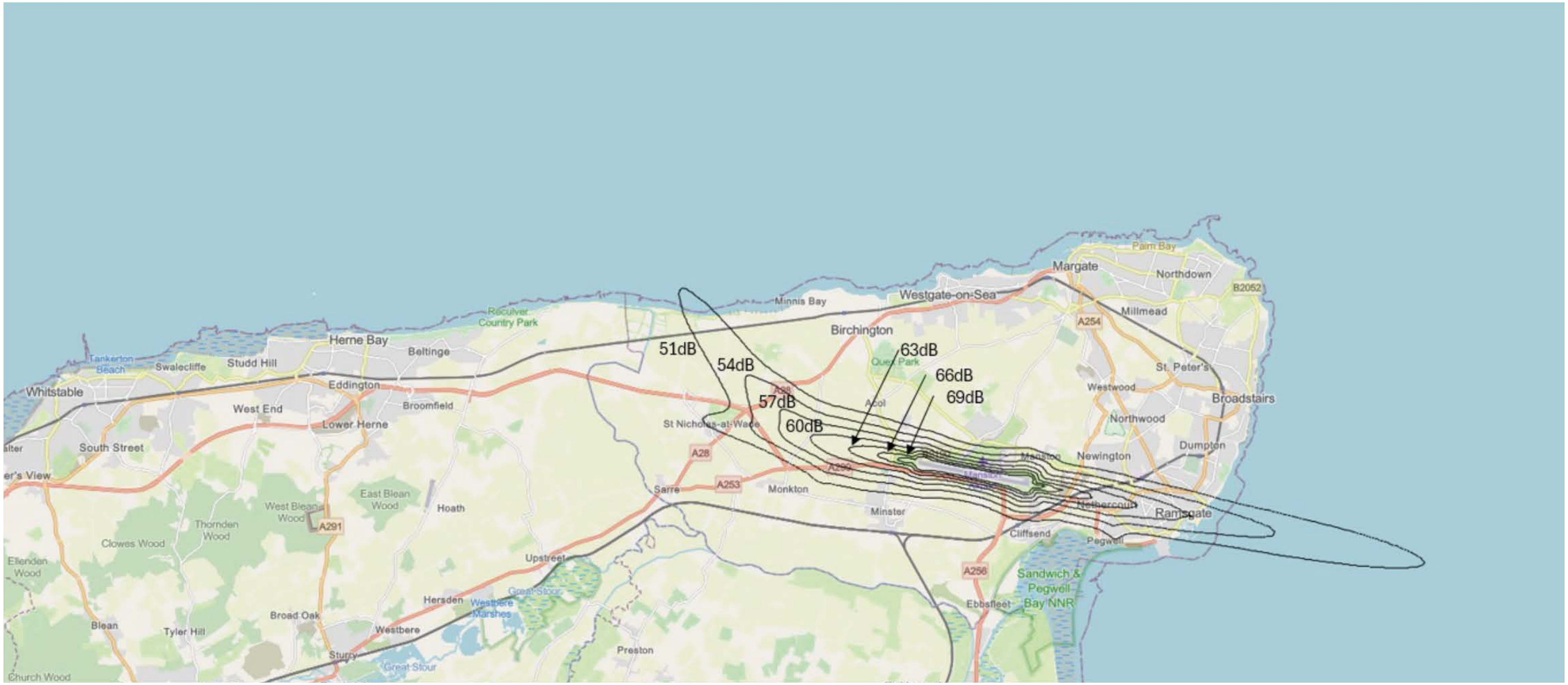

Figure 4-3 - 2038 Daytime Noise Contours Leq 16 Hour 51, 54, 57, 60, 63, 66, 69db

Figure 4-4 - 2038 Daytime Noise Contours N65 5, 10, 20, 50

Figure 4-5 - 2038 Night-Time Noise Contours Leq 8 Hour 45, 48, 51, 54, 57, 60db

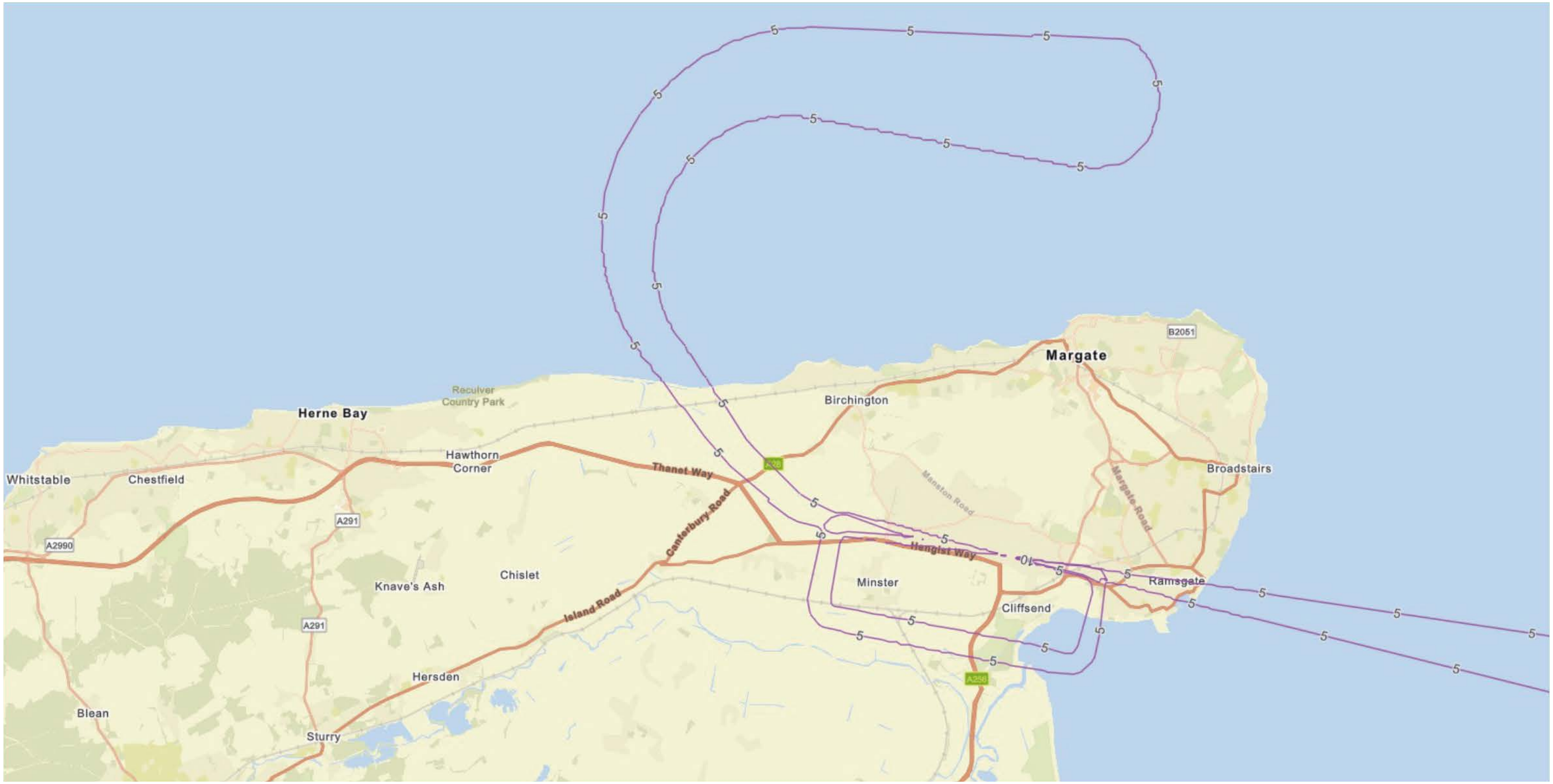

Figure 4-6 - 2029 Overflights 5, 10, 20, 50

Figure 4-7 - 2038 Overflights 5, 10, 20, 50

Figure 4-8 - 2038 FAF2 Option And Core Option Daytime Noise Contours N65 5, 10, 20, 50

4.2 Contour Areas and Populations

Table 4-1 and Table 4-2 give the areas and population counts for the key day and night noise contours for the noise model for 2029 and 2038 described above. The population data provide by CACI for 2038 is derived from 2025 data scaled up to allow for increases in population and developments. On aggregate over the whole dataset (that covers approximately 3,000km^2, this increases populations by about 8% from 2025 to 2038.

Figure 4.8 shows the difference in 2038 between the N65 Day contours in the core option and the FAF2 option. The only visible difference is between the 5 and 10 overflight contours which in the FAF2 Option are reduced in length by about 50m and 150m in the Herne Bay area. Given these contours extend more than 20km over land this difference is considered slight and not considered significant. However, because the differences in these contours are situated over the populated area of Herne Bay, the FAF2 Option N65 5 and 10 contours for 2038 give slightly lower population counts, and the values are shown after the '/' in Table 4-2 below. These 2038 N65 contours do not differ elsewhere. The 2029 N65 contours are smaller in the core option and do not differ for the FAF2 option. $L_{eq\ 16\ hr}$ and $L_{eq\ 8\ hr}$ contours for 2029 and 2038 are also smaller in the core option and do not differ for the FAF2 option. Therefore, the difference in the FAF2 option noise impacts is considered insignificant, and the populations are the same for the FAF Option and the Core case except for the 2038 N65 5 and 10 contours for which populations for both options are provided in the following tables.

Noise Metric	Contour Value	Area (km^2)	Population [1]
$L_{eq\ 16\ hr}$ day	51dB	10.4	13,000
	54dB	6.1	4,800
	57dB	3.7	1,200
	60dB	2.1	100
	63dB	1.3	0
	66dB	0.8	0
	69d	0.5	0
$L_{eq\ 8\ hr}$ night dB	There are no night flights in 2029		
N65	5	76.0	35,000
	10	6.5	1,600
	20	1.5	0
Overflights	5	Areas not required in CAP1616	7,500
	10		800
	20		0

Table 4-1 - Noise Contour Areas And Populations 2029

[1] Populations rounded to nearest 100.

Noise Metric	Contour Value	Area (km^2)	Population [1]
$L_{eq\ 16\ hr}$ day	51dB	25.8	26,200
	54dB	13.9	18,500
	57dB	7.88	9,600
	60dB	4.42	2,200
	63dB	2.4	300
	66dB	1.38	0
	69dB	0.85	0
$L_{eq\ 8\ hr}$ night 55 dB	45dB	8.0	2,000
	48dB	4.1	400
	51dB	2.3	100
	54dB	1.3	0
	57dB	0.8	0
	60dB	0.5	0
	63dB	0.3	0
N65 [2]	5	126.4	57,000 / 56,600
	10	85.4	44,300 / 44,000
	20	51.4	30,400 / 30,400
	50	4.1	800 / 800
Overflights	5	Areas not required in CAP1616	43,100
	10		40,000
	20		7,500
	50		550

Table 4-2 - Noise Contour Areas And Populations 2038

[1] Populations rounded to nearest 100.

[2] N65 populations for Core Option / FAF2 Option

4.3 Noise Sensitive Buildings

The PointX database from Landmark, September 2025, was used to map the following categories of Noise Sensitive Community Building:

1. Hospitals
2. Places of Worship
3. Schools – including Broad Age Range and Secondary State Schools, Higher Education Establishments, Special Schools and Colleges, Education Services, First, Primary and Infant Schools, Independent and Preparatory Schools, and Further Education Establishments

Community Buildings - including libraries, Halls and Community Centres

Table 4-3 and Table 4-4 give the numbers of each category of Noise Sensitive Building within each noise contour level. As with populations above, the numbers for each type of building are the total above the relevant noise contour level (rather than between a band of levels).

Noise Metric	Contour Value	Hospitals	Places of Worship	Schools	Community Buildings
$L_{eq\ 16\ hr}$ day	51dB	0	7	2	1
	54dB		2	0	0
	57dB		0		
	60dB				
	63dB				
	66dB				
	69dB				
$L_{eq\ 8\ hr}$ night dB	There are no night flights in 2029				
N65	5	0	22	12	13
	10		2	0	0
	20		0	0	0

Table 4-3 - Noise Sensitive Buildings 2029

Noise Metric	Contour Value	Hospitals	Places of Worship	Schools	Community Buildings
$L_{eq\ 16\ hr}$ day	51dB	0	16	8	5
	54dB		12	7	3
	57dB		6	0	1
	60dB		1		
	63dB		0		
	66dB				
	69dB				
$L_{eq\ 8\ hr}$ night	45dB	0	3	0	0
	48dB		1		
	51dB				
	54dB				
	57dB				
	60dB				
	63dB				
N65	5	1	32	17	14
	10	1	25	13	13
	20	0	16	8	7

Table 4-4 - Noise Sensitive Buildings 2038

5. Conclusions

The noise model has been developed compliant and exceeding the requirements of CAP2091 and following the guidance in CAP1616, based on currently available information from the project team, as reported above. This report summarises the modelling method and input assumptions, and is submitted to the CAA for their comment. Ahead of the ACP Stage 3 public submission, so as to ensure that full transparency has been provided on the methodology used.

RSP Manston Airport

www.rsp.co.uk

RSPManston @RSPManston