

**TOWN AND COUNTRY PLANNING ACT 1990 - SECTION 77 AND TOWN  
AND COUNTRY PLANNING (INQUIRIES PROCEDURE) (ENGLAND)  
RULES 2000**

**APPLICATIONS BY LONDON ASHFORD AIRPORT LTD**

**SITE AT LONDON ASHFORD AIRPORT LIMITED, LYDD, ROMNEY  
MARSH, TN29 9QL**

**REBUTTAL AND SUPPLEMENTARY  
PROOF OF EVIDENCE OF  
MALCOLM SPAVEN MA (Hons) MSc**

**on behalf of Lydd Airport Action Group**

**on**

**AVIATION OPERATIONAL ISSUES**

**PLANNING INSPECTORATE REFERENCE: APP/L2250/V/10/2131934**

**LPA REFERENCES: Y06/1647/SH and Y06/1648/SH**

**INQUIRY DOCUMENT REFERENCE: LAAG/10/E**

## 1. Scope of evidence

1.1 In this rebuttal and supplementary proof of evidence, I address issues relating to aircraft operations and flight paths arising from the proofs of evidence submitted by London Ashford Airport (LAA).

1.2 I have read all the proofs of evidence submitted by LAA which contain material relevant to aircraft operations and flight paths. My comments on matters arising from the evidence of Mr Maskens are set out in Section 2; the evidence of Ms Congdon is addressed in Section 3; Mr Perkins' evidence is considered in Section 4; Dr McLellan's evidence in Section 5; and Mr McGrath's evidence in Section 6.

1.3 My silence on a point made in any proof or the fact that I have not addressed it in this rebuttal proof of evidence should not be taken as my agreement with that point.

1.4 In Section 7 I present supplementary evidence relating to the flight path assumptions in the NII's assessment of the risk of aircraft collision with the Dungeness power stations. This supplementary evidence arises from material in Appendix 19 to John Large's evidence [LAAG/4/C], and in a July 2007 review by ESR Technology of the Dungeness B Aircraft Impact Hazard Analysis [CD 13.7]. Neither of these documents was available to me during the compilation of my main proof of evidence.

1.5 In addition I would like to advise the inquiry of a typographical error in paragraph 3.44 of my main proof of evidence [LAAG/10/A]. The fourth sentence of that paragraph, which reads "However for all other runway 21 departures..." should be replaced with "However for all other runway 03 departures...".

## 2. Evidence of Mr Maskens

2.1 In this section I address matters referred to in the evidence of Mr Maskens [LAA/3/A, LAA/3/B and LAA/3/C].

2.2 In paragraphs 3.3 to 3.6 of LAA/3/A, Mr Maskens sets out the limitations imposed on aircraft operations at LAA by the length of the runway and outlines the benefits which will accrue from extending the runway. However he makes no reference to the considerable limitations on operations at LAA imposed by the presence of the Lydd (and to a lesser extent Hythe) Range Danger Areas and the Dungeness Power Station restricted airspace R063. These constraints will continue to exist even after the runway is extended. They include inability of a Boeing 737 size aircraft to land on runway 03 except when the Lydd Range is not active. As I have set out in my main proof of evidence [LAA/10/A] these limitations are considerable, and will place significant constraints on the operation of LAA even after the runway is extended.

2.3 In paragraph 4.3, Mr Maskens states that:

*The remaining, existing, length of the runway also requires no alteration as it already possesses the required strip and RESA for commercial aircraft operations. The evidence of Dr Mark McLellan, the Applicant's Ecology witness, deals further with this (LAA/9/A).*

2.4 I have searched Dr McLellan's proof and appendices but can find no reference to Runway End Safety Areas (RESAs). While the ecology implications of RESA provision are not within my remit or competence, the operational implications of the length of the Runway End Safety Areas are potentially significant. The omission of detailed discussion of the RESAs at LAA is therefore a significant lacuna in the airport's evidence.

2.5 A Runway End Safety Area is defined in Volume I of Annex 14 to the Convention on International Civil Aviation as:

*An area symmetrical about the extended runway centre line and adjacent to the end of the strip primarily intended to reduce the risk of damage to an aeroplane undershooting or overrunning the runway.*

2.6 Section 3.5 of Chapter 3 of that document sets out the ICAO Standard (a provision which is mandatory for Contracting States to the Convention, such as the UK) that for a Code 3 or 4 runway, a RESA extending to a minimum of 90 metres from the end of the runway strip must be provided, and the ICAO Recommended Practice (which is not mandatory but should be followed) that the RESA for such a runway should extend to at least 240 metres beyond the end of the runway strip. These provisions are implemented in full in the UK, through the provisions of the CAA document CAP 168.

2.7 As Mr Maskens shows in his Appendix 4, the departure end RESA for runway 03, after the runway is extended, will extend to 300 metres from the end of the runway, or 240 metres from the end of the runway strip. I concur with Mr Maskens' statement in his paragraph 4.4 that this will be in accordance with CAA requirements.

2.8 However, Mr Maskens makes no reference to the RESA at the other end of the runway – the departure end of runway 21. At present, runway 21 has a Clearway – an obstacle-free area beyond the end of the runway over which an aeroplane may make a portion of its initial climb on take-off – extending to 176 metres beyond the end of the runway. The length of the Clearway is limited by the railway line to Dungeness Power Station, which crosses the take-off path approximately 200 metres beyond the end of the runway. The obstacle-free requirements for a RESA are similar to those for a Clearway and the railway line will also constitute a limit to the length of the runway 21 departure RESA. The RESA begins at the end of the runway strip, which is 60 metres beyond the end of the runway. Therefore, if the RESA extends to the same limit as the Clearway, its maximum length will be  $(176 - 60) = 116$  metres. This would meet the mandatory minimum of 90 metres for

a Code 3 or 4 runway. However it would not meet the ICAO and CAA recommended minimum of 240 metres.

2.9 In the event that the proposed developments are approved, the acceptability of a RESA shorter than the recommended minimum length at the end of runway 21 will be a matter for LAA to discuss with the CAA. For its part the CAA advises that:

*Licence holders should not assume that the minimum distance of RESA will necessarily be sufficient, particularly where there have been changes to the environment on or around the aerodrome, or to the type or level of traffic; it is recommended that RESAs extend to at least 240 m for code 3 and 4, and up to at least 120 m for code 1 and 2 instrument runways, wherever practicable and reasonable. Therefore, as part of their system for the management of safety, licence holders should review and determine on an annual basis the RESA distance required for individual circumstances<sup>1</sup>*

2.10 If the CAA determines that, due to the changes in types and levels of traffic using Lydd Airport after the runway is extended, the runway 21 RESA should be longer than its existing (estimated) 116 metres, LAA would have to reduce the declared take-off distances for runway 21 and landing distances for runway 03. Estimates of the effects on the declared take-off distances of different lengths of RESA at the end of runway 21 are set out in Table 1 below. It should be stressed that these are estimates, based on an assumption that the current RESA length is 116 metres. However the purpose of including these figures is to illustrate that any increase in the length of the runway 21 RESA will lead to aircraft not being able to use the full physical length of the runway in their take-off performance calculations.<sup>2</sup> In the event that this occurs, it will constitute a further constraint on the viability of commercial aircraft operations at LAA, particularly by larger aircraft such as the Boeing 737. I have seen no evidence in the documentation supporting the planning applications, nor in the LAA evidence to the Inquiry, that this issue

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<sup>1</sup> CAA, CAP 168: Licensing of Aerodromes, July 2010, Chapter 3, paragraph 5.3.

<sup>2</sup> There would also be corresponding reductions in the Landing Distance Available on runway 03 since any increase in the RESA length would require that the landing threshold is displaced from the end of the runway.

has been addressed by the airport. I reserve the right to amend this part of my evidence in the event that the airport produces evidence that the RESA issue for both ends of the extended runway has been addressed.

| <b>Table 1: Runway 21 declared distances with different RESA lengths</b> |  |   |  |
|--|--|---|--|
| (figures in metres)  | <i>Take-Off Run Available (TORA)<sup>3</sup></i> | <i>Take-Off Distance Available (TODA)</i> | <i>Accelerate-Stop Distance Available (ASDA)</i> |
| Existing runway  | 1505   | 1681                                      | 1505   |
| Extended runway with existing length of RESA                             | 1949   | 1979                                      | 1949   |
| Extended runway with 150m RESA   | 1915   | 1979                                      | 1915   |
| Extended runway with 240m RESA   | 1825   | 1979                                      | 1825   |

### *Flight paths*

2.11 Mr Maskens addresses questions relating to flight paths in his section 5. In paragraph 5.1 he refers to revised Figures 16.1 and 16.2 which have been submitted "to correct a minor typographical error of labels 11 and 12 which became transposed in the final publication of the document." In fact the labels for Flight Paths 3 and 4 have also been corrected since they were also transposed. It should be noted that these errors were first pointed out by LAAG in April 2009, in its submission to Shepway District Council commenting on the airport's March 2009 Supplementary Environmental Information.

2.12 The corrected labels in Figures 16.1 and 16.2 of CD 1.41a and 1.41b are not simply a matter of a "minor typographical error". They relate directly to the depiction of flight paths for the noise assessments as set out in Appendix 16.5 of CD 1.41a and 1.41b. Mr Maskens does not address these questions. However they are addressed in Mr Perkins' evidence [LAA/5/A]. I consider this in Section 4 below.

<sup>3</sup> For definitions of TORA, TODA and ASDA, see LAAG/10/D, Appendix 31.

2.13 At paragraph 5.2, Mr Maskens notes that the general practice for depiction of flight paths is to represent them by a line which "represents the average route through a swathe of airspace which has lateral and vertical elements which takes account of dispersion, the range of aircraft/pilots' abilities and environmental factors". I concur that the factors he mentions are important in determining the 'swathe' of flight paths. However I do not agree that the general practice is to depict this swathe of flight paths as a single line. Rather, it is best practice to depict a swathe extending either side of the average flight path. LAA did this in its October 2007 SEI, when it first depicted the flight paths to be followed by aircraft [CD 1.24c, Appendix 7, Appendices 15.1 and 15.2]. However in all subsequent LAA submissions it abandoned that method and showed flight paths as a single line. This is unhelpful and misleading, not least because, as has been pointed out in previous LAAG submissions [CDs 3.3, 3.4 and 3.5], the single lines depicting flight paths have been crudely and inaccurately drawn.

2.14 In paragraph 5.5, Mr Maskens states that the flight paths have been depicted in the ES and the corrected maps in his Appendices 5 and 6 so as to "cater for a wide range of stakeholders...strike a balance between presenting the information in such a way as to make it comprehensible yet retain sufficient technical accuracy...focus on the local area where aircraft are flying lower and...enable consideration of relevant segments of flight paths for all sizes of aircraft". While these may be admirable aims, I am unable to see how they could be the basis for (a) depicting flight paths which the aircraft concerned would be physically incapable of flying; (b) omitting flight paths relating to some of the established instrument approach procedures; (c) depicting light aircraft affecting the noise climate onshore when they are flying several kilometres offshore; and (d) showing the principal constraints on flight paths in the immediate vicinity of LAA – the D044 and R063 airspace boundaries – in the wrong place.

2.15 At paragraph 5.6, Mr Maskens states that "(t)he flight path track allocations indicated...are currently usable by the existing mix of aircraft...and

will continue to be used when the runway is extended...There will be no requirement for the creation of any additional flight path tracks as a result of the runway extension." This issue is addressed in detail in my main proof of evidence. It is not necessary to repeat those remarks here. However, to summarise, I would submit that, contrary to Mr Maskens' statement quoted above:

- some of the depicted flight paths cannot be flown because the aircraft concerned could not fly those tracks and remain in compliance with regulatory requirements for operational safety
- some existing flight paths have been omitted
- some future flight paths have been omitted.

2.16 At paragraph 5.6, Mr Maskens states that "(i)n accordance with normal practice, the diagrams [of flight paths] were derived from the authoritative document on airport operations, the CAA publication UK AIP". There are three problems with this. First, the UK AIP is a poor source for the definition of some categories of flight path. It does not and cannot depict the flight paths flown by aircraft under radar control (not applicable at Lydd) or which are flying a visual approach. Appendix 12 to my main proof of evidence [LAAG/10/D] shows the existing standard flight path for arriving VFR traffic. This is not reflected in the flight path diagrams submitted in the ES and as Mr Maskens' Appendices 5 and 6.

2.17 Second, if the AIP is the "authoritative document" for depiction of flight paths, it remains unclear why LAA has consistently refused to depict the following specified flight paths which are published in the AIP:

- the NDB instrument approach procedure to runway 21
- the GPS instrument approach procedures to runway 21
- the GPS instrument approach procedure to runway 03.

2.18 Third, for an airport such as Lydd which is outside controlled airspace, the AIP provides only very basic information on the routes to be flown by IFR aircraft (such as all commercial traffic) on departure. The CAA only designs



and approves departure routes for airports which are inside controlled airspace.<sup>4</sup> It is the responsibility of aircraft operators to take account of obstacles in the take-off path in their flight performance calculations, and to determine the appropriate departure route on the basis of meeting prescribed vertical or lateral clearance minima from those obstacles.

2.19 Finally on this point, Mr Maskens states that "(t)he contents of the UK AIP are only published following a rigorous application process, and remain subject to ongoing CAA audit." This would seem to imply that the CAA in some way endorses the flight paths depicted in Mr Maskens' appendices. However, since none of these flight paths – with the exception of the ILS approach to runway 21 - actually appear in the UK AIP, it would be unreasonable to expect that the CAA would endorse them – the more so because some flight paths which are depicted in the AIP are not depicted in LAA's flight path maps.

2.20 In paragraph 5.9, Mr Maskens acknowledges that LAAG has made criticisms of the airport's depiction of flight paths, but states that these are "not justified", "inaccurate" and "incomplete". However I have been unable to find any part of the evidence of Mr Maskens or any other airport witness where they respond to any of the detailed points of criticism on flight paths raised by LAAG in its submissions to Shepway District Council on 26 April 2007, 15 November 2007, 24 October 2008, 7 April 2009 and 14 January 2010 [CDs 3.2, 3.3, 3.4, 3.5 and 3.6]. These are important matters since they are crucial to the definition of the environmental and nuclear safety impacts of the proposed developments. It is therefore disappointing that the airport has not engaged with the detail of these points since LAAG first submitted its critique of the planning applications in April 2007.

2.21 As regards Mr Maskens' point in 5.9 that LAAG has falsely sought to claim credibility for its maps of flight paths, it should be noted that the maps to which he refers were first produced by LAAG as Appendices 3 and 4b to their

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<sup>4</sup> See Civil Aviation Authority, Directorate of Airspace Policy, *CAP 778: Policy and Guidance for the Design of Departure Procedures in UK Airspace*, April 2010.

submission to Shepway District Council dated 26 April 2007, responding to the airport's planning applications [CD 3.2]. Appendix 3 of that LAAG submission was clearly labelled "NATS Standard Route Document" and it can be seen that the map at Appendix 4b (corresponding to Mr Maskens' Appendix 9) is derived from the routes depicted in Appendix 3, showing four departure routes from Lydd – one to the north/north west; two to the south west; and one to the north east. These were, as the title of Appendix 3 states, taken directly from the NATS Standard Route Document (SRD). These are "preferred" or "optimum" routeings published by NATS, the UK's en route air traffic service provider, to enable aircraft operators to plan routes which fit in with the air traffic control system. The four SRD-recommended departure routes from Lydd depicted in those diagrams remain unchanged today. Since NATS – the authors of the SRD – are the sole CAA-licensed providers of en route air traffic services in the UK, I see no problem in describing these as "approved" routes. Indeed, I would submit that it is a critical failing on the part of the airport that, unlike LAAG, they have consistently failed to base their flight path assumptions on the available information on the officially-recommended routes for aircraft inbound to and outbound from Lydd from/to the airways system, which all the proposed commercial air transport flights from/to Lydd must use.

2.22 Section 6 of Mr Maskens' evidence outlines the responsibilities of the CAA in relation to the procedures in place at Lydd Airport. While I concur that the published procedures at a licensed aerodrome such as Lydd Airport are subject to CAA approval and ongoing audit, it is important to note that the CAA has no role, nor any authority, in specifying the arrival and departure flight paths at an airport outside controlled airspace, other than approving instrument approach procedures in terms of meeting specified obstacle clearance and procedure design criteria. In addition, it is important to note that the one department of the CAA which Mr Maskens does not mention – the Flight Operations Inspectorate – has the responsibility for ensuring that licensed commercial air operators meet the safety standards set down in ICAO, EU and UK regulations and in their own company operations manuals.

*Fleet mix*

2.23 In his paragraph 7.1.2(a), Mr Maskens notes that some of the aircraft types listed in Appendix 16.4 of the original ES are being phased out and will be replaced by quieter aircraft types. While this may be generally true of trends in civil aircraft, it is not clear that the specific noise model constructed for the LAA proposals uses conservative assumptions about fleet mix. Mr Maskens gives no specific examples of older noisier aircraft which are retained in the noise model but which are being phased out. One aircraft type which has been phased out at Lydd is the Trislander. This might be taken to be one of the older noisier types to which he refers. However when one compares the fleet mix in Appendix 16.4 of CDs 1.41a and 1.41b with the fleet mix applied in the noise model (Appendix 16.5 of the same document, now updated by Tables NV05 in LAA/5/C), one can see that the Trislander is not replaced by any aircraft type – it is simply removed from the analysis. The aircraft which has replaced the Trislander in LyddAir's fleet – the Piper Chieftain – is not accounted for in the noise model. The nearest equivalent in Appendix 16.5/Tables NV05 is the Piper Seneca, but this has only 63% of the engine power and Maximum Take-Off Weight of the Chieftain.

2.24 It is also unclear that phasing out of older types of commercial airliner assumed in the 2005 baseline will necessarily lead to a reduction in noise levels to below those calculated in the noise model. This is because the replacement aircraft type, while it may have lower overall noise levels, may be larger and/or heavier than the type it replaces, and may therefore be operating closer to its performance limits, particularly on take-off. In these circumstances the aircraft is more likely to be using maximum power and may be at lower altitude at a given location than its predecessor.

2.25 Similarly, Mr Maskens' point (paragraph 7.1.2(b)) that newer aircraft have better climb performance than those assumed in the ES cannot be tested unless specific examples are quoted. Without these it is not valid to make the general assertion that climb performance improves.

*Runway utilisation*

2.26 LAA has consistently proposed that the relative utilisation of the runways will be 70% runway 21 and 30% runway 03. Mr Maskens repeats this, adding that these proportions are based on "historical utilisation, but recognising that runway 21 is the preferential landing runway for the largest aircraft in the future fleet mix." [para 7.1.3(a)]

2.27 The problems with assuming a 70/30 split in the use of the runways are set out in paragraphs 3.21 to 3.27 of my main proof [LAAG/10/A]. I do not repeat them here. However in response to Mr Maskens points I would re-iterate that (a) in the airport's evidence to the 1988 inquiry it was stated that the runway utilisation was 80%/20% - and the most significant change since then has been a decreased availability of runway 03, not an increase; and (b) runway 21 is not the "preferential" landing runway for the largest aircraft, it is the only possible landing runway when danger area D044 is active. If wind conditions mean that these aircraft could only land on runway 03, then if D044 is active they will have to cancel the flight or divert.

2.28 Mr Maskens goes on to quote the runway utilisation split at Southend and Manston. However, while Manston does have a preferential departure runway for noise abatement reasons, neither Southend nor Manston have restricted airspace across their final approach tracks/climb-out paths which significantly restrict operations to one runway. Consequently I do not believe that their runway utilisation figures can be any guide to the validity of the 70/30 split which the airport asserts is the past, current or future norm at Lydd.

2.29 In conclusion on the runway utilisation point, the airport has yet to explain how Group 2 (and some other) aircraft will manage to fly approaches to runway 03 when D044 is active. I submit that the practical difficulties which the airport already accepts will prevent Group 1 aircraft landing on 03 when D044 is active will also apply to Group 2 and some Group 3 aircraft; and that, consequently, runway utilisation will be greater than 70% on runway 21 and less than 30% on runway 03. This will mean that the noise model is not valid.

*Responses to Rule 6 party comments*

2.30 Mr Maskens refers in paragraph 8.2 to "the absence of any detail as to the specific points of objection relating to operations at the Airport in the LAAG Statement of Case". The notion that LAAG has been insufficiently detailed in its responses to the airport's proposals is completely untenable. I have conducted a detailed review of each one of the airport's submissions in support of its two planning applications, and my reports have formed part of the LAAG's responses to Shepway District Council on 26 April 2007, 15 November 2007, 24 October 2008, 7 April 2009 and 14 January 2010 [CDs 3.2 to 3.6]. I would expect that these LAAG submissions would have been copied to LAA by Shepway District Council. In addition all of these LAAG submissions have been publicly available on the LAAG website since the day of their submission.

2.31 I turn now to Mr Maskens' responses to particular criticisms raised by LAAG. I would note here that the lack of detail referred to above does not seem to have prevented Mr Maskens from addressing some of the specific criticisms made by LAAG.

2.32 In paragraph 8.3, Mr Maskens responds to the LAAG criticism of serious flaws in the flight paths and modal split by stating that "I do not consider this assertion to be justified or properly explained". However he does not offer a substantive response to any of LAAG's points of criticism, despite the fact that these have been spelled out in considerable detail in five separate submissions over a period of three years, and provides no examples of criticisms which he considers unjustified, let alone the basis on which he considers them to be unjustified.

2.33 In paragraph 8.4, Mr Maskens states that it is "inaccurate" to say that the GPS (otherwise known as 'RNAV') approaches have been ignored in constructing the flight paths which form the basis of the noise assessment. However he simply does not address the fundamental point, which I will

repeat here. The GPS approach tracks do not appear on any of the flight path diagrams, for either runway 21 or runway 03, in his Appendices 5 and 6 and in Figures NV01 and NV02 of LAA/5/C. If they are not depicted on those diagrams, the onus is on the airport to explain how the noise and other impacts generated by aircraft flying on those flight paths are accounted for in their assessments. I have seen no evidence that the airport has altered its assessments since August 2009 to take account of those new flight paths.

2.34 In paragraph 8.5, Mr Maskens states that "(t)here is no basis or justification" for LAAG's assertions that Lydd Airport has significant operational shortcomings, "particularly when the Airport's operations are compared with those of other thriving airports throughout the UK." However Mr Maskens does not submit any evidence to counter any of the points raised by LAAG on this issue since 2007. Nor does he cite any other UK airport which "thrives" with operational limitations similar to those at Lydd. Table 2 below provides a summary comparison of the constraints at Lydd Airport compared to all other licensed aerodromes in the UK. I conclude that, particularly when compared with other airports throughout the UK, Lydd has a number of challenging operational constraints.

2.35 Mr Maskens also continues to assert [paragraph 8.5] that the airport will not move the ILS localiser aerial. If this is the case, the airport must accept a reduction in the declared landing distance for runway 21 in order to meet ICAO standards, as set out in my main proof. [LAAG/10/A, paragraphs 7.26 to 7.30]

| <b>Table 2: Operational constraints at Lydd and other UK airports</b> |  |  |
|---|--|--|
|   | <i>Criterion</i>   | <i>UK examples other than Lydd</i>   |
| 1   | Airports with 5° offset ILS localiser  | None   |
| 2   | Airports with offset ILS localiser where the localiser intercepts the extended runway centreline at a point where the glideslope is lower than 180 ft      | None   |
| 3   | Airports with 3.5° ILS glideslope <sup>5</sup>   | Farnborough, Hawarden, Kirkwall, Leeds-Bradford, Woodford, Plymouth, Prestwick, Southend |
| 4   | Airports with nuclear power station restricted airspace within 5km   | None   |
| 5   | Airports with military danger area crossing final approach track within 2.5km  | None   |
| 6   | Airports with runway width less than 45m supporting commercial operations by B737/A319 size aircraft   | None   |
| 7   | Airports supporting commercial operations by B737/A319 size aircraft where only one runway direction is available for landing for the majority of the time | None   |
| 8   | Airports with any combination of two or more of the above constraints  | None   |

2.36 In paragraph 8.6, Mr Maskens seeks to challenge LAAG's point that the number of passengers handled at the airport has declined since 2005 by stating that the CAA passenger numbers do not include those carried on air taxi flights (commercial movements by aircraft of less than 15 tonnes maximum take-off weight) and local pleasure flights. I agree that the CAA figures do not include those categories. However Mr Maskens goes on to challenge the point by stating that "in the first ten months of 2010, the total movements of aircraft above 5.7 tonnes more than doubled compared with

<sup>5</sup> Excludes London City, which is a unique case with a specially-approved 5.5° glideslope.

the whole of 2009." Mr Maskens does not provide any detail of these figures. However he offers no evidence that this doubling of movements by aircraft over 5.7 tonnes has resulted in any increase in numbers of passengers carried on air taxi and pleasure flights.

2.37 Table 3 below shows the numbers of aircraft movements of different categories at Lydd Airport for the period January to October 2010, compared to the equivalent numbers for the whole of 2009. This shows that the number of air taxi movements between January and October 2010 was 31% lower than in the calendar year 2009, and the number of 'Local Movements' – the category under which commercial pleasure flights would be recorded – was 8% lower. It is therefore clear that any increase in the movements of aircraft heavier than 5.7 tonnes at Lydd in 2010 was not by aircraft on any type of commercial passenger flight.

2.38 It can be seen that one category of movements – Business Aviation – did double over this period. Most of these movements are likely to be by aircraft of greater than 5.7 tonnes. However this increase was from a very small base of only 36 movements in 2009, and when the numbers of business aviation movements in the period 2005-2009 are considered (see Table 4), it can be seen that these have a tendency to fluctuate but the 2010 total is likely to be broadly in line with the annual average for the previous five-year period.

2.39 The key point, however, is that LAA is not seeking permission for a runway extension and a new terminal building in order to accommodate increased business aviation activity, nor indeed for air taxi or pleasure flights. All of these categories of activity could and do use the existing runway and terminal. LAA has submitted these planning applications in order to attract airlines providing scheduled and charter passenger services. There can be no doubt that the airport has failed to attract any such companies so far. The question is, has this failure been due to insufficient runway length and/or terminal capacity, or does it have other origins?



|              | <i>Total</i> | <i>Air Transport Total</i> | <i>Of which Air Taxi</i> | <i>Positioning Flights</i> | <i>Local Movements</i> | <i>Test &amp; Training</i> | <i>Other Flts by ATOs</i> | <i>Aero Club</i> | <i>Private</i> | <i>Official</i> | <i>Military</i> | <i>Business Aviation</i> |
|--------------|--------------|----------------------------|--------------------------|----------------------------|------------------------|----------------------------|---------------------------|------------------|----------------|-----------------|-----------------|--------------------------|
| Total 2009   | 21785        | 269                        | 132                      | 474                        | 98                     | 958                        | 2108                      | 3296             | 14351          | 39              | 156             | 36                       |
| Jan-Oct 2010 | 18716        | 208                        | 91                       | 444                        | 90                     | 1080                       | 1677                      | 3809             | 11222          | 27              | 87              | 72                       |
| % change     | -14.1%       | -22.7%                     | -31.1%                   | -6.3%                      | -8.2%                  | +12.7%                     | -20.4%                    | +15.6%           | -21.8%         | -30.8%          | -44.2%          | +100.0%                  |

Source: CAA statistics

|                       |     |
|-----------------------|-----|
| 2005                  | 45  |
| 2006                  | 154 |
| 2007                  | 102 |
| 2008                  | 61  |
| 2009                  | 36  |
| Annual average 2005-9 | 80  |

Source: CAA statistics

2.40 In paragraph 8.7 Mr Maskens considers the LAAG objections on grounds of nuclear safety. In dealing with this issue in my main proof [LAAG/10/A, Section 6], I have restricted myself to contrasting the detailed restrictions on flight paths that were imposed by the NII on the 1988 runway extension application, notably those involving aircraft pointing at the power stations, with the apparent lack of such restrictions in respect of the current applications. I deal with this issue in more detail in my comments in Section 6 below on the evidence of Mr McGrath.

2.41 In relation to the 1992 permission, Mr Maskens asserts that this was "for the same type of development but with a greater number of aircraft movements". While it is true that the overall cap on aircraft movements in the 1992 permission was 56,000, compared to 42,000 for the current proposals, the NII insisted in 1988 on a sub-limit for the fastest and heaviest aircraft. It is understood that this was because the greater kinetic energy of these aircraft poses higher consequences in the event of any collision with the power station. The limit imposed was a maximum of 6,000 movements per annum by jet or turbofan aircraft or propeller-driven aircraft greater than 5.7 tonnes maximum take-off weight.[CD 13.5, Appendix C] Neither the NII nor the airport has proposed any equivalent limit in relation to the current applications, but the proposed number of movements by jet/turbofan/>5.7 tonnes aircraft types under the current proposals is more than 15,000 per annum.[see LAA/10/A, paragraph 6.10]

2.42 In Section 9 of his evidence Mr Maskens summarises the proposed planning conditions and Section 106 obligations on aircraft operations. Several aspects of these deserve comment.

2.43 In relation to the "limit on helicopters, and a noise preferential flight path", LAA proposes a cap on the number of helicopter movements of 2,000 per annum. Airport movement records indicate that in 2005 the airport handled 1434 helicopter movements and in 2009 the figure had reduced to 736 movements.[LAA-LAAG Statement of Common Ground, paragraph 3.15]

and Appendix 4] Therefore the proposed limit allows for an increase of between 50% and 170% over current overall levels of helicopter activity.

2.44 In addition, the limit of 2,000 helicopter movements does not apply to "Emergency and Governmental Activities and the Air Show" [Draft Conditions, 28 September 2010, Condition 11]. The definition of "Governmental" encompasses all operational and training flights by military helicopters from any country. In 2009, at least 128 of the 736 helicopter movements (17% of the total) were by military aircraft. Thus the "limit" of 2,000 helicopter movements would exclude a significant proportion of future helicopter activity.

2.45 The proposed 2,000 movement cap on helicopter movements also contrasts sharply with the limit of 600 helicopter movements per annum that was imposed as a condition on the 1992 Lydd Airport runway extension planning permission by the Nuclear Installations Inspectorate, in order to remain within the NII's assessment of the risk of aircraft collision with the Dungeness power stations.[CD 13.5, Appendix A; LAA Statement of Case, Appendix 1: 1992 Secretary of State's Decision, paragraph 66(2)]

2.46 Finally on the helicopter movements limit, it should be recalled that in its request to the applicant in March 2008 for further information on helicopter movements [CD 1.34a, paragraph 1.1.3], Shepway District Council stated:

*Our preliminary view is that if the Council were minded to grant planning permission there would need to be a restriction in the 106 agreement preventing any increase in helicopter movements over and above whatever figure is agreed to be the existing level and has been assessed as part of the existing noise impact.*

2.47 In its response to this request, LAA proposed maintaining the 2,000 limit on the grounds that helicopter movements as a proportion of total movements would remain below the figure of 6.6% recorded during the period of the noise survey in early 2005.[CD 1.34a, paragraph 2.7.5]

2.48 As regards the "preferential flight path" for helicopters, this also emerged from Shepway District Council's requests for further information from the applicant in March 2008 concerning helicopter movements. In response, LAA stated: "It is also proposed that an appropriate planning mechanism is used to restrict the flight path of all helicopters (save for emergency movements and the Air Show) departing and landing at LAA to a north-westerly flight path as illustrated in Appendix 6." [CD 1.34a, paragraph 2.7.6]

2.49 However, as set out in the draft S.106 Agreement, the commitment to restrict the flight path of all helicopters has been weakened by certain caveats: [Draft S.106 Agreement, 28 September 2010, Clause 10.2]

*Save where incompatible with safe flying operations and where destination or origin is within the UK, the Airport Operator will use reasonable endeavours to ensure that helicopters departing from or landing at the Airport will use a north-westerly flight path in order to avoid the towns of Lydd and New Romney.*

2.50 In addition to the destination/origin and "reasonable endeavours" caveats, the proposal for a preferential flight path now excludes not only "emergency" helicopter movements, but all military helicopter movements.

2.51 The helicopter flight paths proposal is also incompatible with Lydd Airport's current instructions for helicopter routing, set out in the airport's entry in the UK AIP [CD 16.1, at EGMD AD 2.16]. This states: "Small helicopters, ie: R22/44, Hu30, AS55, BH06 will be air taxied to park on Apron Bravo. Larger helicopters, ie: SK76, Puma, CH47 will make an approach to the runway in use and ground taxi (if possible) to Apron Bravo." This means that the noisiest helicopters are currently instructed not to use the north-westerly flight path outlined in clause 10.2 of the draft S.106 Agreement, but instead to use the fixed-wing flight paths for approach to runways 03 and 21. This will specifically route these helicopters over both Lydd and New Romney.

2.52 In paragraph 9.2.4, Mr Maskens refers to "a restriction on the number of passengers" in the proposed planning conditions and S.106 Agreement. There are indeed commitments in proposed Condition 12 for the Runway Extension and Condition 16 for the Terminal Building for passenger numbers not to exceed 300,000 and 500,000 respectively. However, crucially, these limits are defined as "passenger numbers using the Airport for Public Transport Flight Movements", and the term "Public Transport Flight Movements" is defined as being a public transport movement by an aircraft with a take-off or landing weight in excess of 45 tonnes.[Draft Conditions, p.17] This means that any passengers carried on aircraft weighing 45 tonnes or less would not be counted towards the passenger limits. This definition would exclude jet airliners such as the BAe146, RJ85/100, Fokker 100, CRJ-900, Embraer 170 and Embraer 175, as well as all twin-turboprop airliners including the Dash 8-Q400, from the passenger limits.

2.53 The wording of the definition behind the passenger number limits may also allow aircraft whose maximum take-off weight (MTOW) is greater than 45 tonnes to evade the passenger numbers limit, since the definition quoted above refers to "aircraft with a take-off or landing weight in excess of 45 tonnes", not a maximum take-off or landing weight. Thus an aircraft with an MTOW greater than 45 tonnes, but whose actual take-off or landing weight when operating at Lydd is less than 45 tonnes, would not be counted.

2.54 If the revised projected movements figures from Tables NV05 in LAA/5/C are used, the omission of all aircraft of 45 tonnes MTOW or less from the passenger number limits would mean that any passengers carried on Dash 8 aircraft would be excluded. Assuming a 70% load factor on these flights, this would exclude up to 109,000 passengers from the 300,000 limit for the Runway Extension, and up to 148,000 passengers from the 500,000 limit for the Terminal Building.

2.55 In paragraph 9.2.5, Mr Maskens refers to "a restriction on the largest aircraft permitted to operate" in the proposed planning conditions and S.106 Agreement. I can find no reference to any such restriction in the Draft

Conditions and Draft S.106 Agreement dated 28 September 2010. However, following the analysis by Ms Congdon [LAA/4/A], it would appear that LAA now assumes that the largest Airbus aircraft using the airport will not be the A319, as proposed in all previous submissions, but the A320. The A319 has a MTOW of 75.5 tonnes and a maximum of 160 seats. The A320 has a MTOW of 77 tonnes and a maximum of 180 seats. As I have set out elsewhere in my evidence, there are likely to be significant practical operational limits on the ability of aircraft of this size to operate in and out of Lydd Airport. However, there is no reference to any limit on aircraft size in the Draft Conditions or S.106 Agreement.

2.56 In paragraph 9.2.6, Mr Maskens refers to "a limitation of maximum hours of operation for take-offs and landings to 0700-2300 " in the proposed planning conditions and S.106 Agreement. However this excludes – amongst other categories - all military training and operational flights.

2.57 I conclude from the above that:

- it is not clear that the airport has considered the requirements for a longer Runway End Safety Area at the southern end of the runway;
- the depiction of flight paths remains inaccurate and unreliable;
- the assumption of a 70%/30% split in the use of the runways remains problematic;
- there is considerable evidence that Lydd Airport has a number of practical constraints on its operations which are not present at any other UK airport;
- there is no evidence of commercial air traffic growth at Lydd Airport;
- the 1992 planning permission allowed for a higher number of overall aircraft movements but had a more stringent limit on heavier and faster aircraft which pose the greatest risk in terms of nuclear safety;
- the limits on movements, flight paths and passenger numbers in the proposed conditions and S.106 Agreement contain significant caveats and exclusions which will restrict their applicability and effectiveness.

### 3. Evidence of Ms Congdon

3.1 In this section I consider aspects of the evidence of Ms Congdon [LAA/4/A] relating to aviation operations.

3.2 At paragraph 4.10 Ms Congdon states "*the current runway is too short for operations by the aircraft types commonly used to operate commercial passenger services*". However at paragraph 4.12 she states:

*With the current runway length, the Airport is capable of handling a number of regional aircraft types and corporate jets. In terms of commercial traffic, the runway is adequate for regional turboprops such as the Bombardier DHC-8-Q400 and the ATR-42/72 family and would allow all currently operated turboprops to operate unrestricted, allowing points into Europe to be served. The runway is also suitable for use by some regional jet aircraft, particularly the Embraer E170/190 family, albeit some of these models would need to operate with restricted payloads which would prevent them serving their full range in Europe from LAA. Regional aircraft such as the BAe-146/Avro RJ could also operate from the current runway length and would be relatively unrestricted. However, many of these aircraft are now being retired from passenger fleets.*

3.3 I assume her reference to types being withdrawn relates only to the BAe146/Avro RJ, since the other types - Q400/ATR/E170/E190 - are likely to remain in service for some time.

3.4 I note that Ms Congdon makes no reference to factors other than the length of the runway as operational limitations on the use of Lydd Airport by particular aircraft types. However as I have set out in my evidence [LAA/10/A], the ability of an aircraft to make a turn of sufficiently small radius both on take-off from runway 21 and on approach to runway 03 will be a key

determinant of the viability of any type's operations at Lydd. Similarly, the ability to land on runway 21 in a tailwind will be an important consideration. The viability of commercial operations at Lydd cannot be assessed by looking at the runway length alone.

3.5 At paragraph 5.36 Ms Congdon states: *"the planned runway length will not be sufficient for Ryanair to operate international services."* This implies that Ryanair might be able to operate domestic services from the Lydd runway. However many of Ryanair's destinations in Europe – Bordeaux, Bergerac and Limoges are three examples in south-west France – are a similar or shorter distance from Lydd than domestic destinations such as Belfast, Derry, Glasgow and Edinburgh. The fact is that, taking all operational constraints into account, including the runway length, it is highly unlikely that any 737-800 operator would choose to provide services from Lydd.

3.6 At paragraph 5.43 Ms Congdon states: *"In my opinion, the Airport's failure to date to attract scheduled operations, even on domestic routes, with the exception of the limited Lydd Air service to France, demonstrates that such operations will not operate from an airport with a restricted runway length, even though it is technically possible with aircraft, such as the Dash8-Q400, frequently operated on such routes today."* This is not borne out by the evidence from other airports, some with runways shorter than Lydd's, which have attracted new scheduled services in recent years, such as Dundee (1400m), Gloucestershire (1319m), Oxford (1319m) and Plymouth (1161m). In addition Southend (1591m) is about to commence services with Aer Arann.

3.7 In paragraph 5.51 Ms Congdon explains the basis for her amendment of the growth scenarios contained in the ES thus: *"A smaller number of commercial aircraft movements is now projected to handle the same volume of passengers due to shift by airlines to larger aircraft since the original ES forecasts were prepared."* This is reflected in her Table 5.6 by the removal of any figures for the Airbus A319 (MTOW 75.5 tonnes, maximum seating capacity 160 seats) and their replacement by the larger A320 (MTOW 77 tonnes, maximum seating capacity 180 seats). However there is no indication



that Ms Congdon has made any assessment of the ability of the A320 to operate commercially at Lydd given the constraints of runway length and width, restricted airspace and instrument approach procedures. If the A320 is in fact unlikely to be capable of operation at Lydd without payload restrictions which would negate any capacity advantage it has over the A319, Ms Congdon's revised growth projections are unreliable.

#### **4. Evidence of Mr Perkins**

4.1 In this section I consider aspects of the evidence of Mr Perkins [LAA/5/A] relating to flight paths and aviation operations.

4.2 In paragraph 4.2.6 Mr Perkins states: *"The airport will adopt the preferential flight paths over the restricted Ministry of Defence D044 danger area to avoid the populated areas in Lydd whenever possible. Based on 2008 data, this will be possible for all flights before 08.30, and for 37% of days, therefore at least a third of the time."* As I set out in paragraph 3.28 of my main proof, this is a questionable proposition. It is not clear whether "37% of days" means that the range is not active at all on those days, or for a certain proportion of those days. In either case, since the days when the range is not active are variable and not capable of prediction, and since the consequence of the range being active is that larger aircraft could not land at Lydd when the wind is north-easterly, airlines could not plan a schedule in the hope that the wind might allow them to land.

4.3 At paragraph 4.3.8 Mr Perkins states:

*For the purposes of modelling airborne noise, a set of typical flight paths have been created, which are reproduced in Figures NV01 to NV03 (Appendix 1). A couple of typographical errors have been corrected from Figures 16.1 and 16.2 that appeared in CD1.41a and CD1.41b. Specifically, the labelling for the group*

*aircraft has been corrected for flight paths FP3, FP4, FP11, and FP12. This does not affect the accuracy of the noise contour maps reported. The assignment of each aircraft movement to each flight path for each scenario is provided in Appendix 3 of this proof.*

4.4 Mr Perkins' correction of the errors in the labels of FP3, FP4, FP11 and FP12 addresses the points raised in paragraphs 3.20 and 3.42 of my main proof. However the omissions and inconsistencies in depiction of flight paths which I set out in paragraphs 3.21 to 3.41 and 3.43 to 3.54 of my main proof remain unaddressed. To summarise, these include:

- invalidity of the 70/30 "modal split"
- invalidity of assumptions about flight paths through the Lydd Range
- failure to account for the flight paths of the new RNAV procedures
- inaccurate depiction of the boundaries of D044 and R063
- inaccuracy of depiction of turning flight paths
- inaccurate depiction of the lengths of flight paths affecting the noise climate
- inconsistency in assumptions about visual approaches and about the point where turns are commenced on departure.

4.5 There are additional difficulties with the depicted orientation of some of the flight paths. For example, FP4 on Figure NV01 is consistent with a departure direct to the Dover VOR, which is one of the recommended standard routes for airways traffic departing from Lydd. However, as shown on Figure NV01, FP4 would take aircraft through the Hythe Range D141. When this range is active, aircraft following FP4 would have to be certain of being capable of climbing above 3200 feet before reaching the boundary of the danger area. However, with most airliner types it is unlikely that the crew could guarantee being comfortably above 3200ft before reaching the danger area boundary. Therefore they would not follow FP4.

4.6 Similarly, FP5 is not consistent with a departure to the Detling VOR, which is the recommended departure route to the north-west. This would require a turn further to the north west. There is also no flight path depicted on Figure NV01 for aircraft departing to the south west from runway 03.

4.7 On runway 21 flight paths, as depicted by Mr Perkins in his Figure NV02, while this Figure accepts that there is a difference between the ILS flight path (FP7) and the flight path used by aircraft on straight-in visual approaches (FP8), which are separated by only 5°, there is still no depiction of the RNAV flight path, which is a further 9° west of FP7. The figures in Mr Perkins' Table NV05 show that the noise assessment assumes that 10% of Group 1 & 2 aircraft landing on runway 21 fly a visual approach (FP8). But there are no figures for aircraft flying the RNAV approach, because the RNAV flight path is not depicted. Having gone to the considerable effort of paying for the design and approval of an RNAV approach for all categories of aircraft it is not credible that LAA is assuming that no aircraft will use this approach. This is the case not only because the RNAV approach will be the procedure of choice when the ILS is out of service, but also because it can offer significant advantages over the ILS procedure in terms of track miles flown. The RNAV procedure allows aircraft to route direct to a point on the base leg or final approach track, whereas the ILS procedure requires aircraft to route to the ROMTI hold and follow a lengthy procedure from there.<sup>6</sup>

4.8 The confusion concerning the depiction of runway 21 approach paths continues with the depiction of FP9 and FP10 – flight paths joining the final approach to runway 21 from the east. While these continue to be labelled as being used by "All Groups" of aircraft, Mr Perkins' Tables NV05 show that the noise model is based on no Group 1 or 2 aircraft ever using these flight paths. This is a change from the information contained in CD 1.41a and CD 1.41b (at Appendix 16.4), which depicted all Groups of aircraft using these flight paths. But since Figure NV02 and Tables NV05 are at odds with each other on this

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<sup>6</sup> For an aircraft arriving from the west, the RNAV procedure for runway 21 offers a saving of around 17 track miles over the ILS procedure – almost 6 minutes flying time at typical airliner speeds.

question, there remains a conflict between the flight paths depicted as being the basis of the noise model, and the tables depicting aircraft movements figures which are used in the noise model.

4.9 Further confusion arises because, while Figure NV02 depicts runway 21 visual approach flight paths from the east (FP9 and 10), there are no equivalent flight paths shown arriving from the west. This cannot be correct, since a substantial proportion of aircraft arriving at Lydd originate from points within the UK.

4.10 While Tables NV05 show that in fact Group 1 or 2 aircraft are no longer assumed to use FP9 and 10 (contrary to the labels in Figure NV02), aircraft as large as the Cessna Citation X (listed in Group 3) are assumed to be using these flight paths. This aircraft is a twin-jet with a maximum take-off weight of 16.375 tonnes. It has a length of 22.04m and a wingspan of 19.48m. Its approach speed puts it in the ICAO approach category C. By comparison, the airport's 'Group 2' contains aircraft as small as the Saab 340, which has a maximum take-off weight of 13.155 tonnes, a length of 19.73m and a wingspan of 21.44m. It is in the slower approach speed category of B.

4.11 In other words, Mr Perkins' Figure NV02 is suggesting that large business jet aircraft will use flight paths which join the final approach at a little over a mile from touchdown, but only from the east and not the west. It is not clear why the airport makes this assumption. But it is clear that, if a mirror image of FP9 and FP10, joining the final approach to runway 21 from the west, was added to Figure NV02, more jet noise would be generated over New Romney.

4.12 If, on the other hand, the airport has intentionally omitted visual approach flight paths to runway 21 from the west because it proposes to prohibit these on noise abatement grounds, they should clearly state this in their submissions, and should also explain what flight paths they would require aircraft arriving from the west to follow in order to make their final approach from the east via FP9 or FP10.

4.13 At paragraph 4.3.8 Mr Perkins states:

*It is again noted that the approach and departure flight paths used in the model represent the likely scenarios for most aircraft. They are not intended to represent the precise route all aircraft will follow, as this can depend on, for example, weather conditions. To account for this variability, dispersion tracks are used in the noise model.*

4.14 The use of dispersion tracks is entirely in accordance with normal procedure for noise assessment. However no information has been given on the lateral extent of the dispersion tracks. These were provided in the airport's October 2007 SEI [CD 1.24c, Appendix 7] but the flight paths therein were crudely drawn, incorrect and included dispersion tracks which would have infringed both D044 and R063 and were therefore invalid. Since the October 2007 SEI, none of the airport's submissions have shown, or described the basis of, the dispersion tracks.

4.15 The flight paths depicted in all of the airport's submissions, including Figures NV01 and NV02 of LAA/5/C, remain crudely drawn, showing turn radii and sharp changes of direction which are not achievable by some types of aircraft. If these basic assumed flight paths are invalid, as I continue to maintain they are, then the dispersion tracks, however they are defined, cannot be valid representations of the likely noise impact.

4.16 It should also be noted that, while Figures NV01 and NV02 - in common with their predecessors, Figures 16.1 and 16.2 of CDs 1.41a and 1.41b - are labelled 'Not to Scale', it would not be unreasonable to expect that they portray the locations of relevant aviation features with a reasonable degree of accuracy. However, as stated in my submission on behalf of LAAG to Shepway District Council on 7 April 2009, in response to the airport's March 2009 SEI, and repeated in paragraph 3.35 of my main proof [LAAG/10/A], the

depiction of the boundaries of the Lydd Range Danger Area D044 and the nuclear power station restricted airspace R063 remains inaccurate. Since these two boundaries are the main determinant of the flight paths of aircraft departing from runway 21 and arriving on runway 03, any inaccuracy in their portrayal has direct consequences for the assumed flight paths of aircraft and therefore for the reliability of any assessment of the noise and other environmental impacts of the developments. This is particularly true for the depiction of the northern boundary of D044, because this is such a severe constraint on runway 21 departures/runway 03 arrivals that even a 100 metre error in the location could make a significant difference to the viability or otherwise of assumed flight paths.

4.17 This is now the sixth time since April 2007 that LAAG has pointed out, in publicly-available submissions, inaccuracies in the depiction of the D044 and R063 boundaries. If the determination of the two planning applications before the inquiry is to be based on accurate data on the flight paths, then the airport needs to correct the depicted restricted airspace boundaries and provide evidence that it has conducted a re-assessment of the flight path assumptions – including dispersion tracks – following those corrections.

4.18 At paragraph 4.3.12 Mr Perkins states:

*It is also proposed that a preferential flight path of all helicopters is imposed (excluding emergency and governmental activities and the Air Show) as illustrated in CD1.41a Figure 16.29. The cap on movement numbers and the use of a noise preferential flight path is sufficient to mitigate helicopter noise at the Airport.*

I address this issue at paragraphs 2.43 to 2.51 above.

4.19 After quoting LAAG's criticisms of the omission of RNAV flight paths and the accuracy of the flight path information, Mr Perkins goes on to state at paragraphs 7.1.14 and 7.1.15:

*The flight paths are set out in some detail and are addressed in the Proof of Evidence of Tim Maskens LAA/3/A. I can confirm that the data contained in the Environmental Statement and Proofs of Evidence are correct, and that the new modelling presented in this proof appropriately considers the noise impact of the Applications based on the relevant flight paths and that LAAG are wrong in suggesting that the RNAV paths alter that assessment.*

*I consider that the modelling and assessment work undertaken is accurate and the amount of modelling and sensitivity testing of the models undertaken for these Applications has been extensive and the “worst case” scenario in terms of noise effects has been assessed. I do not regard LAAG’s criticisms as justified.*

4.20 This statement fails to address any of the points raised by LAAG. In relation to the RNAV flight paths, they clearly exist; they are different from any of the pre-existing instrument or visual flight paths depicted in the noise assessment; but there is no indication from Mr Perkins' text, from his Figures NV01 and NV02, or from his Tables NV05, that any assessment has been made of the noise impact of aircraft flying on these flight paths.

4.21 As regards other points raised by LAAG's numerous submissions on omissions and inaccuracies of flight paths, these remain as set out in my main proof and above. LAA's failure to address them means that their noise assessment remains unreliable. To assist the inquiry I have attached, at Appendices 1 and 2 to this proof of evidence, annotated versions of Mr Perkins' Figures NV01 and NV02, summarising the flight paths which in my submission have been omitted or are inaccurate.<sup>7</sup>

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<sup>7</sup> It should be noted that the diagrams at Appendices 1 and 2 are illustrative only and do not depict all of the omissions and inaccuracies set out in my evidence.

## 5. Evidence of Dr McLellan

5.1 In this section I consider aspects of the evidence of Dr McLellan [LAA/9/A and LAA/9/C] relating to flight paths and aviation operations.

5.2 At paragraph 4.5.9, Dr McLellan states: "*the Airport would not support scheduled night flights, and lights would be turned off or dimmed at night thereby reducing moth attraction.*" However the airport will be open until 2300, which gives up to six and a half hours of official night at Lydd in winter and over an hour of official night even in mid-summer.<sup>8</sup> The airport's commitment to no night flights relates to the 2300-0700 period; clearly extensive lighting will be required in the period before 2300.

5.3 As noted above in my paragraphs 2.3 and 2.4, Mr Maskens states that issues connected with Runway End Safety Areas (RESAs) are addressed in Dr McLellan's proof. However I can find no reference to RESAs in LAA/9/A or LAA/9/C.

## 6. Evidence of Mr McGrath

6.1 In this section I consider aspects of the evidence of Mr McGrath [LAA/14/A and LAA/14/C] relating to flight paths and aviation operations.

6.2 In his paragraph 4.14, Mr McGrath states: "*Two military areas close to the Airport have been in existence for many years. They do not materially affect the Airport's current or proposed operations.*" This is untenable. Both the Hythe and the Lydd danger areas have significant material impacts on the airport's operations, ranging from having to accept a maximum offset ILS procedure for runway 21, with its associated penalties in terms of operating minima, to preventing instrument and other approaches to the airfield when the wind requires use of runway 03. These constraints have been set out in

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<sup>8</sup> In UK air law, 'night' is defined as the period from half an hour after sunset until half an hour before sunrise.



detail in my evidence and in LAAG's submissions in response to the planning applications and supplementary information.

6.3 In his paragraph 7.19, Mr McGrath states:

*It should be noted that the 1992 permission imposed a cap of 56,000 aircraft movements per annum. The current Applications propose a reduced cap of 40,000 aircraft movements per annum. Accordingly, any effects from the current Applications will be materially reduced from that which was considered to be acceptable in 1992.*

6.4 I do not accept this conclusion. The effects generated by larger aircraft are, in general, greater than those generated by smaller aircraft. As I set out above at paragraph 2.41, and in my main proof [LAA/10/A] at paragraph 6.10, there is no proposed limit in the current applications on the number of movements by the heaviest (and, in general, fastest and noisiest) aircraft types, but the airport's projections envisage more than 15,000 movements a year by these types. In the 1992 permission these categories of aircraft were restricted to 6,000 movements per annum.

6.5 In his paragraph 11.18, Mr McGrath states:

*It is demonstrated in the Evidence of Mr Tim Maskens (LAA/3/A) that flight paths do not change materially from the current flight path pattern. Flight paths to and from any airport are largely governed by the orientation of the runway. The Applications are seeking an extension to an existing runway, rather than a new one of a different orientation. Extending the length of the existing runway will not alter the current direction of approach and departure. The pattern of flight paths as a result of the implementation of the Applications will*

*not, therefore, be materially different to the present situation.*

6.6 I have set out my responses to Mr Maskens' evidence in Section 2 above and do not repeat them here. However, on the basis of those detailed comments, I submit that it remains the case that the airport has consistently failed to fully and accurately depict the flight paths which are and will be used by aircraft using the airport.

6.7 In his paragraph 11.59, Mr McGrath states:

*I consider that subject to appropriate flight path restrictions which will be controlled by planning obligation, the potential risk associated with an aircraft crashing into Dungeness power stations would be so low as to ensure that there are no grounds to refuse the Applications on the risk to nuclear safety.*

6.8 I agree that the key issue here is "*appropriate flight path restrictions which will be controlled by planning obligation*". However there remain serious questions about the basis for the NII's assessment of the flight paths issue in relation to the current applications, compared to their assessment of the 1988 runway extension application.

6.9 Mr McGrath has submitted copies of correspondence between the NII and Shepway District Council in his Appendix 5 [LAA/14/C]. In the e-mail from Tim Allmark of NII to Terry Ellames of SDC dated 13 October 2008, Mr Allmark points out that the noise assessments in the August 2008 SEI [CD 1.34a] continued to show aircraft of up to 29 tons turning left<sup>9</sup> on departure from runway 21, in conflict with a commitment that had already been made by the airport to the NII that all aircraft over 5.7 tonnes would turn right on departure from runway 21.

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<sup>9</sup> Unfortunately there is a typographical error in Mr Allmark's e-mail, which mistakenly refers to these aircraft turning right on departure from runway 21.

6.10 While the correspondence in Mr McGrath's Appendix 5 highlights the NII's concern to correct the inaccurate depiction of flight paths of aircraft >5.7 tonnes in the August 2008 SEI, it reveals two other aspects of the NII's engagement with the flight paths issue which give cause for concern.

6.11 First, at the time of Mr Allmark's e-mail to the council on 13 October 2008, not only did the airport's then-current submissions in support of the planning applications show large aircraft continuing to turn left on departure, but also the flight paths of those aircraft (and all other aircraft turning left from runway 21) were depicted infringing the 1.5nm radius restricted airspace around the power station by some 0.3nm and would therefore have rendered any pilot flying these routes liable to prosecution under the Air Navigation Order.[see CD 3.4, Appendix 1, paragraphs 4.4.1 and 4.4.2] The fact that the NII correspondence does not mention this is disturbing.

6.12 Secondly, while it would appear that, by October 2008, the NII had reached a position that one flight path – a left turn on departure from runway 21 by aircraft greater than 5.7 tonnes – was unacceptable from a nuclear safety point of view, their original letter of no objection of 28 November 2007 [CD 13.4] contains no caveats whatsoever about flight paths. It simply states "The Inspectorate is satisfied that the risk to the Nuclear Installations at Dungeness in their current plant states is sufficiently remote that we have no grounds for objection to the proposed development on the grounds of Nuclear Safety."

6.13 Additional evidence relating to this point became available to me on 26 January 2011, at a late stage of the preparation of this proof of evidence. This was a document obtained by Large Associates under the Freedom of Information Act, consisting of a review by ESR Technology for the NII of the Dungeness B Aircraft Impact Hazard Analysis. This has been submitted to the inquiry as CD 13.7. I address the issues it raises in relation to flight path assumptions in Section 7 below.

## 7. Supplementary evidence on the basis for the NII's risk assessment

7.1 In this section of my evidence I present material supplementary to that in Section 6 of my main proof [LAAG/10/A], relating to the flight path assumptions in the NII's assessment of the risk of aircraft collision with the Dungeness power stations. This supplementary evidence arises from my reading of two documents which were not available to me at the time of writing my main proof of evidence:

- Appendix 19 to John Large's evidence [LAAG/4/C] – the "Lydd Airport Briefing Note" sent from the NII to the Department for Energy and Climate Change in May 2009; and
- ESR Technology, Lydd Airport Planning Application: Review of Dungeness B Aircraft Impact Hazard Analysis, July 2007 [CD 13.7].

7.2 At the end of the second page of the "Lydd Airport Briefing Note" [LAAG/4/C, Appendix 19], NII states:

*Whilst there will be an increase in the numbers of large commercial aircraft (which have high reliability but more significant accident consequences), there will be a significant decrease in the numbers of light aircraft and helicopters using the airport. Light aircraft and helicopters have a much lower reliability but also lower accident consequences. The combined effects of these factors mean that the overall risk to the Dungeness licensed site posed by air traffic using the airport will be more or less unchanged and still dominated by the background risk.*

7.3 The assertion by NII that "there will be a significant decrease in the numbers of light aircraft and helicopters" is not supported by any material submitted by LAA in support of their planning applications. On the contrary,

the proposals provide for a significant *increase* in movements by light aircraft and helicopters.

7.4 Appendix 16.4A of CD 1.41a shows that in the 2005 baseline, there were just over 54 movements a day by the four 'light aircraft' types - C152, C172, PA28 and PA34.<sup>10</sup> However, all the figures in Appendix 16.5 of the same document, for C152, C172, PA28 and PA34 movements after the runway extension or terminal building are constructed, show these types flying a total of 75 movements a day. Further, the table at paragraph 4.5 of CD 1.38 shows these types flying a total of 80 movements a day. The lowest figures set out in Mr Perkins' Tables NV05 [LAA/5/C] show these four light aircraft types flying 73.28 movements a day. These figures represent increases for those light aircraft types of between 35 and 47% over 2005 baseline levels. That cannot by any stretch of the imagination be described as a "significant decrease".

7.5 As regards helicopters, figures provided by LAA show that there were 1434 helicopter movements at the airport in 2005, and 736 in 2009.[LAA-LAAG Statement of Common Ground, paragraph 3.15 and Appendix 4] These figures include all helicopters, civil and military. The airport proposes to limit helicopter movements to 2,000 a year excluding all government, military and search and rescue helicopters. Taking the most permissive position that 2005 levels were typical, and that none of these were in the excluded categories (an incorrect assumption), this would represent an increase of 39% in helicopter movements. A worst case analysis (using 2009 traffic levels as the baseline and taking account of military and other flights being excluded from the 2,000 limit) would suggest that a trebling of helicopter movements could be permitted. Again, this cannot by any stretch of the imagination be described as a "significant decrease".

7.6 The NII "Lydd Airport Briefing Note" states: "*The combined effects of these factors* [increased movements by large aircraft and the asserted

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<sup>10</sup> This figure excludes the Trislander, which has since been withdrawn from service and not replaced in the assumed Fleet Mix.

decreased movements by light aircraft and helicopters] *mean that the overall risk to the Dungeness licensed site posed by air traffic using the airport will be more or less unchanged*". Clearly, if the NII's assumptions about the levels of traffic are fundamentally wrong, as I have shown above, their conclusion that *"the overall risk...will be more or less unchanged"* is unreliable.

7.7 Additionally, the NII "Lydd Airport Briefing Note" only refers to light aircraft, helicopters and large commercial aircraft. There is no reference to movements by business jets, which are planned to grow at Lydd, are mostly heavier than 5.7 tonnes, fly as fast as commercial airliners and mostly do not operate to commercial air transport safety standards.

7.8 On the first page of the NII briefing note, it is noted that the NII lifted its objection to the 1988 proposals *"provided certain caveats on flight paths and flight mix were in place (enforced via a Schedule [sic] 106 agreement on the planning consent)*. *The latest proposed expansion of operations will also require caveats on flight paths and flight mix to be put in place.*" However, in contrast to the 1988 position, only one flight path has been partly restricted – left turns on departure from runway 21 by aircraft greater than 5.7 tonnes – and it is not clear whether this restriction was a result of a stipulation by NII, or simply because the airport realised that aircraft of this size were physically incapable of turning left from runway 21 and remaining outside the R503 restricted airspace. The original December 2006 planning application ES [CD 1.17, Chapter 4, paragraph 4.3.4] stated that "(l)arger aircraft and jets using Runway 21 will still be required to turn right shortly after take-off to avoid the Dungeness and Lydd Ranges restricted airspace". However the current proposals, after NII had made its submissions, involve a weaker restriction, since jets less than 5.7 tonnes are not prevented from turning left on departure from runway 21.

7.9 I conclude from the additional evidence in LAAG/4/C Appendix 19 that the basis for the NII's conclusion that the risk will be "more or less unchanged" is flawed in several respects and should not be relied upon.

7.10 As regards the ESR Technology report [CD 13.7], this was submitted to NII in July 2007 and can therefore be assumed to have been taken into account in NII's assessment leading to their letter of no objection to Shepway District Council on 28 November 2007.

7.11 While there are numerous redactions in the released copy of the report, it is clear on a number of points related to flight path assumptions, notably:

- the standard risk model cannot take account of situations such as at Lydd where approach and departure paths are curved, rather than aligned with the runway [Executive Summary points 5 and 7; report p.15]
- the use of circling approaches to runway 03 may lead to a greater probability of a crash at the Dungeness site than if aircraft followed runway-aligned approaches throughout [Executive Summary, point 6; report pp.27, 31].

7.12 The ESR report provides clear evidence that the NII did consider, in reaching its conclusions in November 2007, scenarios involving flight paths which would require aircraft to point at the power station. The ESR report concludes on this point that:

- the offset ILS approach "does not lead to a significant increase in crash probability above the level estimated by using the AEA Technology crash location model" [CD 13.7 p.27]
- circling approaches to runway 03 may lead to an increased risk of crash at Dungeness "but the magnitude of any increase is hard to evaluate" [CD 13.7 p.31].

7.13 It would appear that the NII concluded from this evidence in the ESR report that no flight path restrictions were required other than a prohibition on aircraft greater than 5.7 tonnes turning left on departure from runway 21. This remains in contrast with the NII's position in 1988, when it determined that any increased risk resulting from aircraft pointing at the power station was unacceptable.

7.14 To summarise the position, Table 5 below sets out the restrictions on flight paths which point at the power station, as set out in 1988, compared to those proposed for the current applications.

|   | <i>Flight path</i>  | <i>Restriction in 1988</i>  | <i>Restriction in 2011</i>   |
|---|---|---|--|
| 1 | Circling or visual approaches to runway 03 from west when D044 active | Not permitted for aircraft >5.7 tonnes  | No restriction (but acknowledged that B737/A319 physically incapable of flying this approach)  |
| 2 | Circling approach to runway 03 to east of airfield                    | None required; manoeuvre not permitted by any category of aircraft, even before the proposed runway extension <sup>11</sup> | Available to Category A aircraft (up to light twin-engined size)   |
| 3 | Left turn on departure from runway 21                                 | Only permitted for aircraft less than 5.7 tonnes remaining in the visual circuit  | Permitted for aircraft less than 5.7 tonnes remaining in the visual circuit <u>or</u> departing visually <u>or</u> departing under IFR |
| 4 | Go-around from offset NDB approach to 21                              | None required; NDB approach aligned with runway   | None   |
| 5 | Go-around from offset ILS approach to 21                              | None required; ILS approach aligned with runway   | None   |
| 6 | Go-around from offset RNAV approach to 21                             | None required; no RNAV approach in existence  | None   |

7.15 In addition, the ESR report was written prior to the introduction of the RNAV approaches at Lydd in 2009. At the top of p.5 the report discusses the issue of the offset ILS approach to runway 21. It states:

<sup>11</sup> Circling to the east of the airfield was, however, permitted for Category A and B aircraft landing on runway 32 (the now-disused cross runway).



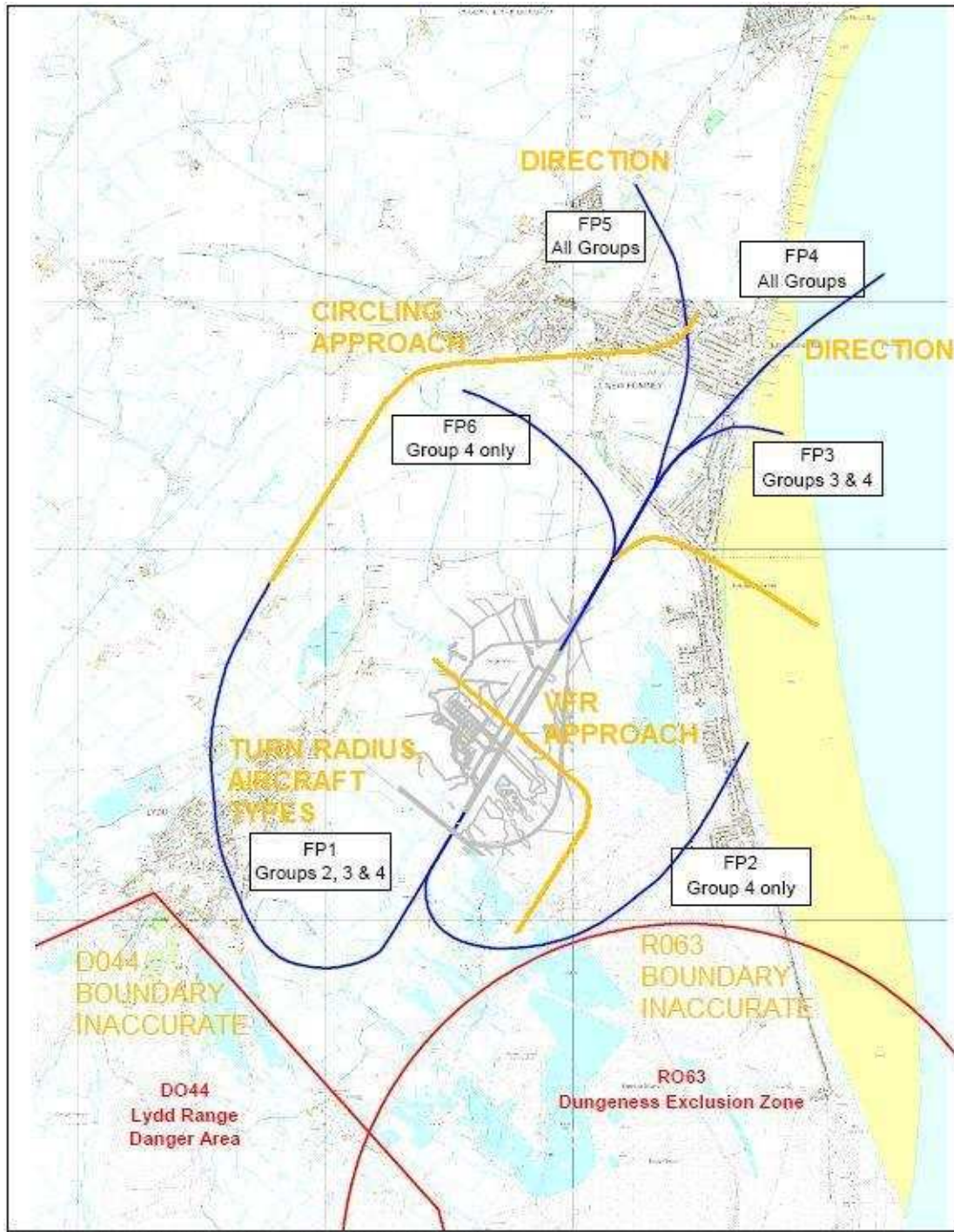
*any change in future operations is most unlikely to increase the angle of offset of the approach and that, if any change in approach procedures were to occur, this would be more likely to reduce and perhaps eliminate the offset.*

However, the RNAV procedures for runway 21 are, contrary to the above, offset by a further 9° to the west of the offset ILS approach. An aircraft experiencing a problem in the late stages of this approach and being unable to execute the required right turn missed approach – a scenario acknowledged on pp.27 and 31 of the document – would pass some 1.7 to 1.9 km (depending on aircraft category) to the west of the power stations (defined as the centre of the restricted airspace R503). This compares with a 'miss distance' of some 3.0 km for a similar scenario involving an aircraft flying the ILS approach to runway 21. Thus the report's conclusions on the risk presented by the fact that the instrument approach to runway 21 is offset by 5° are unreliable.

7.16 I conclude from the additional evidence considered in this section that, between 1988 and 2007, the NII has moved from a position that any increase in the risk of an aircraft collision with the power stations, as a result of flight paths pointing at the power stations, was unacceptable, to a position that a "not significant" increase from aircraft approaching runway 21, together with an unquantifiable increase in risk from aircraft carrying out circling approaches to runway 03, are acceptable. I have seen no evidence to explain that considerable shift in the NII's conclusions.

7.17 Since the NII reached its conclusions in 2007, a further increase in the risk of aircraft using flight paths which point towards the power stations has occurred with the introduction of the RNAV approach procedures to runway 21 in 2009. I have seen no evidence that this has been taken into account by the NII.

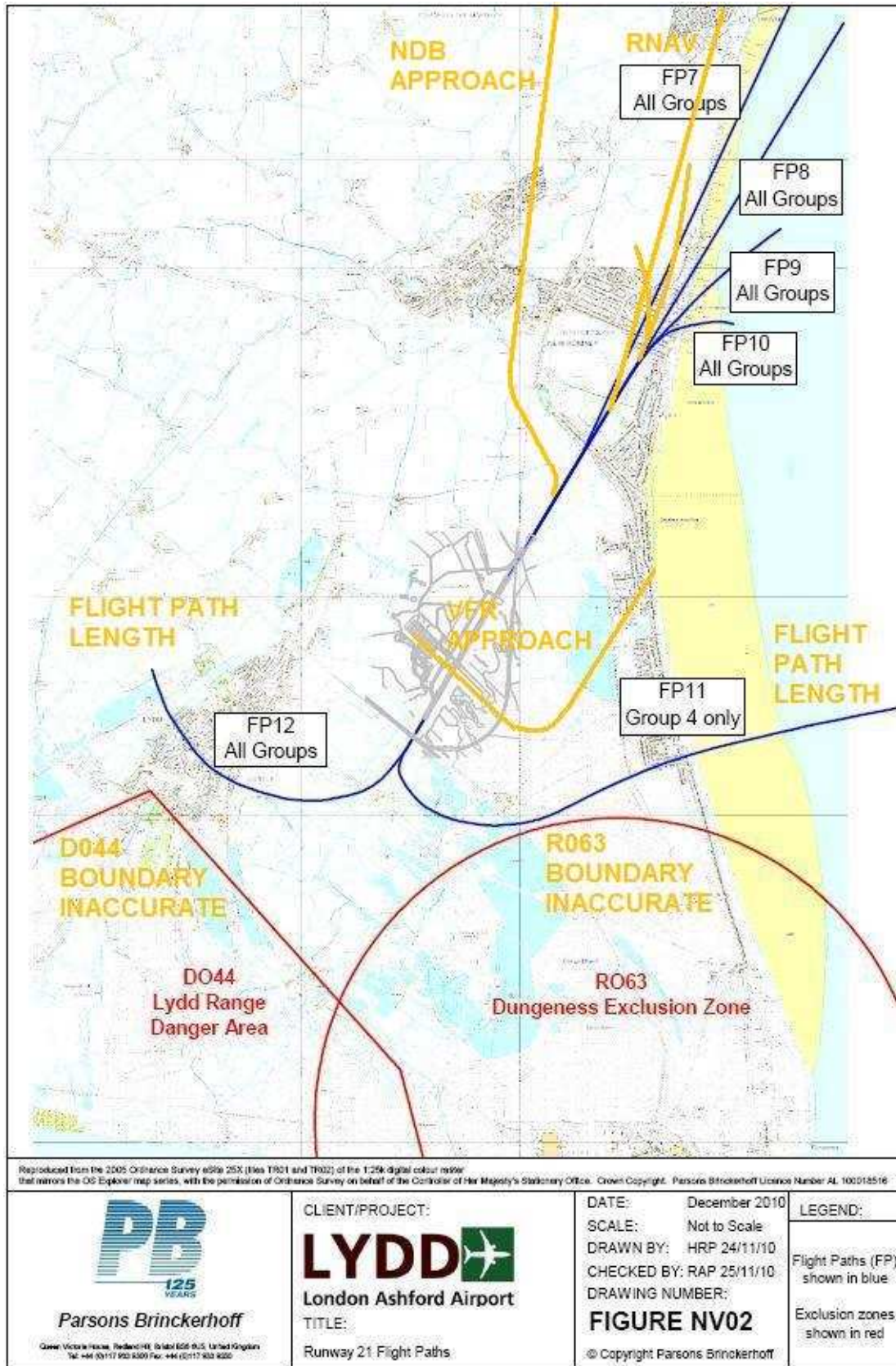
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|---|---|--|---|

Annotated version of LAA/5/C Figure NV01



Annotated version of LAA/5/C Figure NV02