London Ashford Airport
Proposed Runway Extension

Second Review of Proposed Bird Control Management at LAA

Airport Solutions Ltd
International Aviation Consultancy

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Contents

		Page
Contents		i
1.0	Introduction	1
2.0	Documentation Reviewed	2
3.0	Aircraft Likely to Operate at LAA	2
4.0	Aircraft Noise	3
5.0	Aerodrome Licensing	5
6.0	Proposed Bird Control Management	5
7.0	Bird Hazard Risk Assessment	8
8.0	Aerodrome Safeguarding	10
9.0	Conclusion	12

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1.0 Introduction

1.1 Natural England initially commissioned Airport Solutions Ltd to evaluate the proposals submitted by London Ashford Airport (LAA) in connection with their Bird Control Management Plan (BCMP). Airport Solutions were requested to focus their review on the viability of the BCMP with respect to the management of Airport Operations rather than an assessment of the actual techniques which were proposed as these would be subject of separate review by experts in Wildlife Hazard Management.

1.2 Following this initial review Natural England requested Airport Solutions Ltd to evaluate further the material provided in the Applicant's proofs of evidence, but still maintaining a focus on the operational aspects of the BCMP and more specifically the operational management of birds overflying the airport and the immediate airspace.

1.3 This report contains statements on the following subjects which have been raised by Natural England:

- Aircraft types that may be likely to use LAA should the application be approved
- Aircraft noise
- Aerodrome Licensing
- The Proposed Bird Control Management Plan
- Aerodrome Safeguarding

1.4 This report is written by Mr Wally Walker, Principal Consultant at Airport Solutions Ltd. Wally Walker has over 35 years experience in the Aviation industry specialising in Airport Operations and Aerodrome Projects.

1.5 He commenced his career working at the British Aerospace factory in Woodford, Cheshire, UK working on quality control and management systems for various Civil and Military aircraft projects including Vulcan, Nimrod, ATP and 146 Regional Jet.

1.6 He was then involved in the establishment of a comprehensive Safety Management System for the Aerodrome where he was to become Senior Quality Auditor responsible for all Operational activities including ATC, Rescue and Fire Fighting and Aerodrome Safety.

1.7 Prior to joining Airport Solutions in 2007, Wally was the Airport Operations Manager at Manston Airport in Kent, UK. At Manston he was responsible for all aspects of the Airports operations, SMS and a number of key aerodrome development projects which included conversion and licensing of the Aerodrome for Code 4 E operations.

2.0 Documentation Reviewed

2.1 The following documentation was provided by Natural England between 25th November 2010 – 17th January 2011 and was subsequently reviewed by Airport Solutions Ltd:-

- Proof of Evidence of Ms Louise Congdon – Socio-economic case LAA/4/A dated 20th December 2010
- Proof of Evidence of Mr Tim Maskens, Airport Operations, LAA/3/A
- Appendices to the Proof of Evidence of Mr Tim Maskens, Airport Operations, LAA/3/C
- Draft Bird Control Management Plan (revised December 2010)
- Appendices to the Proof of Evidence of Mr Nigel Deacon, Ornithology and Bird Control, LAA/6/C, (revised December 2010), including the revised Bird Hazard Risk Assessment
- Proof of Evidence of Mr Richard Perkins, Noise
- Proof of Evidence submitted by Dr John Richard Allan dated December 2010

3.0 Aircraft Likely to Operate at LAA

3.1 There are some matters arising from the Applicant's proofs which require some clarification from an operational viewpoint.

3.2 In relation to aircraft type, paragraph 4.16 of Ms Congdon's proof makes reference to a seating capacity of 189 and also to 'two B737 sized aircraft being handled simultaneously'. There is no reference made to any specific airlines which may operate such aircraft in the future.

3.3 If we take these two statements, it can be seen that a Boeing 737-800 series aircraft, which has a maximum seating capacity of 189, was being used as a 'design base' for the expansion. The proof of Mr Tim Maskens also makes reference to B737 in paragraphs 3.3, 3.4, 3.5, 3.6.1 and appendix 3 in LAA/3/C.

3.4 The proof of Mr Richard Perkins, at paragraph 4.3.6.1, identifies Group 1 aircraft as 'B737 and A320'.

3.5 For clarity, the aircraft referred to in appendix 3 in LAA/3/C as a 'Boeing Business Jet (B737)' at paragraph 3.3 and shown in the appendix 3 photograph is a Boeing 737-100/200 Series, the only B737 series aircraft to be fitted with the JT8D engines. The Pratt and Whitney JT8D series engines are low by-pass engines whereas the later series Boeing 737 aircraft are fitted with the CFM International CFM56 turbofans, a higher by-pass engine. These engines are significantly different in appearance hence the comment above. The Boeing 737 700/800 BBJ/BBJ2 is the series marketed and commonly known as the Boeing Business Jet.

3.6 In relation to the likelihood of Boeing 737-300 series being used at LAA, and the number of B737-300 registered in active operation, there are approximately 60 still in service with European airlines such as cargo operator TNT, Swiftair of Spain, JAT of Serbia and Lufthansa of Germany and a significant number with UK based operator Jet2 who operate in excess of 20 aircraft that are used on a number of 'low cost' and charter flights throughout Europe. Therefore it is possible that these aircraft could operate from LAA in the future. There are many more B737-300 series in service outside EU countries.

4.0 Aircraft Noise

4.1 In respect of the future of the B737-300 operation from a noise perspective, reference to UK Government Standard Note SN/BT/261, 24th May 2010 makes the following statement:

'The Boeing 737-300/400, Boeing 767 and Airbus A319 are examples of "Chapter 3" aircraft types. In June 2001, on the basis of recommendations made by the fifth meeting of the Committee on Aviation Environmental Protection (CAEP/5), the Council adopted a new Chapter 4 noise standard, more stringent than that contained in Chapter 3. Starting 1 January 2006, the new standard became applicable to newly certificated

aeroplanes and to Chapter 3 aeroplanes for which re-certification to Chapter 4 is requested

4.2 The reference to 'Chapters' in respect of aircraft types refers to the International Civil Aviation organisation Annex 16 - Environmental Protection, Volume I — Aircraft Noise. The first generation of jet-powered aeroplanes were not covered by Annex 16 and these are consequently referred to as non-noise certificated (NNC) aeroplanes (e.g. Boeing 707 and Douglas DC-8). The initial standards for jet-powered aircraft designed before 1977 were included in Chapter 2 of Annex 16. Subsequently, newer aircraft were required to meet the stricter standards contained in Chapter 3 of the Annex. As referred to in paragraph 4.1 of this report the Council adopted a new Chapter 4 noise standard, more stringent than that contained in Chapter 3.

4.3 An ICAO document on Aircraft Noise states the same and goes on to say that 'In the case of Chapter 3 aircraft, the ICAO Assembly in 2001 urged States not to introduce any operating restrictions at any airport on Chapter 3 aircraft before fully assessing available measures to address the noise problem at the airport concerned in accordance with the balanced approach'. The Assembly also listed a number of safeguards that would need to be met if restrictions are imposed on Chapter 3 aircraft. For example, restrictions should be based on the noise performance of the aircraft and should be tailored to the noise problem of the airport concerned.

4.4 In the UK the prescribed London airports (London Heathrow, London Gatwick and London Stansted) are subject to limitations imposed to mitigate the effects of vibration and noise associated with aircraft operations. These limitations are specific to aircraft types, engine and modifications.

4.5 Introduced in 1993, the Quota Count system is based upon noise certification data. Each aircraft type is classified and awarded a quota count (QC) value depending on the amount of noise it generated under controlled certification conditions. The quieter the aircraft the smaller the QC value. Aircraft are classified separately for landing and take-off.

4.6 The QC rating system is widely used by many UK airports and also by some European airports

4.7 Aircraft were originally divided into six QC bands from 0.5 to 16, but following a review by the Department for Transport a seventh category - Quota Count 0.25 - was added in March 2007. Table 1 below indicates the Noise levels relative to the QC values applied.

Table 1 – QC Rating values

NOISE CLASSIFICATION	Quota Count
Below 84 EPNdB	Exempt
84 - 86.9 EPNdB	0.25
87 - 89.9 EPNdB	0.5
90 - 92.9 EPNdB	1
93 - 95.9 EPNdB	2
96 - 98.9 EPNdB	4
99 - 101.9 EPNdB	8
Greater than 101.9 EPNdB	16

Note: EPNdB - Effective Perceived Noise Level measured in Decibels, defined as 'The value of PNL adjusted for both spectral irregularities and duration of the noise. (The unit EPNdB is used instead of the unit dB). ICAO Annex 16, Volume 1, Appendix 2

4.8 These ratings are published by the UK National Air Traffic Services in the Supplements to the United Kingdom Aeronautical Information Publications (AIP).

4.9 Airports operating the system have a fixed quota for each of the summer and winter seasons. As each night-time aircraft movement takes place, an amount of this quota is used depending on the classification of the aircraft.

4.10 Reference the National Air Traffic Services AIP SUPP 037/2010 - It is recorded that the QC ratings for B737-300 Arrivals (QC1) are the same as B737-400 and B737-500. QC ratings for B737-300 departures (QC0.5) are generally the same for B737-400/500/700/800 series with some specific differences.

4.11 Therefore B737 series aircraft operating at the airport will have the QC ratings as described above.

5.0 Aerodrome Licensing

5.1 Where a UK aerodrome is licensed for operations by the regulator (Civil Aviation Authority, CAA) under the published UK guidance, Civil Aviation publication (CAP)168 – Licensing Of Aerodromes, an element of the licensing process is the requirement for a Bird Control and Management Plan to be in place.

5.2 The requirements for an aerodrome to be licensed are described in Article 208 of the Air Navigation Order, but may be summarised as applying to those aerodromes where flights for the purpose of the commercial air transport of passengers or the public transport of passengers, and/or flying training in aircraft above specified maximum total weights, are authorised take place.

5.3 At present LAA has an Ordinary License (P858) which relates only to use of the aerodrome by the holder of the licence and persons specifically authorised by him. It is considered most likely that any expansion of operations as proposed would require a Public Use license to be granted.

5.4 This would require the aerodrome to be audited by the CAA specifically, although all licensed aerodromes in the UK are subject to a programme of audits to assure their ongoing compliance with the regulations. The proof of Mr Tim Maskens makes reference to this process in paragraphs 6.2, 6.3 and 6.4.

5.5 Airlines intending to start to use any airport would initially take the issue of such a license as assurance that the airport was compliant with CAP 168. Whilst the issue of an aerodrome license would provide a degree of confidence that an airport is compliant with the licensing requirements, some airlines would make an additional audit of the airport operations prior to commencing a new service, depending upon the individual airline's own policies.

5.6 The airline audit should look at the bird control management plan and birdstrike risk assessment. As with any audit process in the aviation industry, any aspect of either documentation or practical application found to be falling short of the published requirements will be raised and corrective actions identified with the airport operator. Any audit process would be expected to raise the main issues noted in this report, and the previous Airport Solutions report, and the proof of Dr John Allan. If bird flights were not robustly managed, and there was a risk of significant delays from the 'warn and hold' approach on take off or landing, this would influence the decision of airlines and charter operators to use an airport. Airlines would want to minimise any risk of delays from bird hazards and would not want this to affect their operation or their passengers.

5.7 In response to those corrective actions and the resulting position, and any other considerations, a subsequent decision by the airline in respect of the operational safety levels or commercial viability of the proposed operation would be made.

6.0 Proposed Bird Control Management

6.1 The latest draft BCMP, dated December 2010, at paragraph 12.4.3, says 'overflying wildfowl will be observed, their identity, numbers, and timings recorded and warnings passed to aircraft as required (ATC will also have a direct involvement in watching for wildfowl movements), and at present this is the primary means of mitigating the wildlife birdstrike hazard'. This is a 'warn and hold' process.

6.2 CAP772 as the published UK guidance does not refer to this as a method of birdstrike risk reduction. It is used as a supplementary activity where, despite active bird control management, sudden appearance of birds from any source may occur. For example, ground living birds such as partridge may be hidden from view in long grass on the aerodrome.

6.3 The 'warn and hold' situation would normally occur only infrequently on an airport where active bird control takes place. It is an additional action intended to further safeguard the operation of the aircraft. Airlines would expect active bird management to be used by an airport to ensure that the bird strike risk was reduced to acceptable levels, through wildlife hazard management on and around the airport. A warn and hold approach would not be expected to be anything more than a secondary risk management tool.

6.4 Any observation of bird movement which may present an operational hazard should be acted upon immediately to preserve a safe operating environment. Aircraft departing may be held on stand or during the ground taxi phase. A take-off clearance may not be granted to aircraft on the runway immediately prior to take-off. Where aircraft are inbound to land, a 'missed approach' may be flown, i.e. to discontinue the approach in response to ATC instruction or initiation by the flight crew, both being in response to sighting of birds which may potentially conflict with the aircraft. The missed approach procedure is a standard and practised manoeuvre. However, it does have an operational penalty, both in

respect of time and fuel burn to reposition the aircraft for a further approach. Passengers who regularly experienced missed approaches may have their confidence affected. Missed approaches as a result of warnings about birds are very rare at UK airports generally.

6.5 Airlines accept that as they share the airspace with birds, there is the attendant likelihood that bird activity will impose on their operations. An airport BCMP is aimed principally at reducing the risk to aircraft safety associated with birdstrikes. The commercial impact of birdstrikes is usually very much a consequence of a birdstrike occurring. However, repeated delays as a result of extended holding, particularly prior to departure would have an impact on an airline's operation. Paragraph 5.40 of Ms Congdon's proof makes a reference to charter services being used to prove the market. Any delays experienced may be expected to be reported at this stage.

6.6 Any departure delays arising from repeated and extended hold times may in part counter the commercial benefits of reduced passenger transit times to and from the airport and cost as referred to in paragraphs 6.33 and 6.51 of Ms Congdon's proof. Similarly affected may be the potential for ticket cost reductions resulting from the benefit of shorter flying times being passed on as inferred in paragraph 6.37 of the proof. Whilst delays do arise at other airports, for example from congestion at London Heathrow airport, those airports have benefits which outweigh the problems caused by delays. LAA would not be in the same category, as its main operating advantage would be undermined by delays.

6.7 The issue of delays and 'despatch reliability' is a considerable issue for the airline industry. The International Air Transport Association (IATA) has standardized the format of transmission of delay information into these delay codes. These delay codes are used to find out who is responsible for the delay and who will be penalised. An aircraft on the ground costs money, therefore airlines make every effort to minimise ground time and recover costs where this is a contractual arrangement.

6.8 The majority of these codes apply to ground handling agreements, but some apply to airport and air traffic control. For example, Code 89 is for 'Restrictions at airport of departure, airport/runway closed due obstruction, industrial action, staff shortage, political unrest, noise abatement, night curfew, special flights, start-up and pushback'.

6.9 Any delays may also affect the passengers carried. As referred to in Ms Congdon's proof at paragraph 5.62, the expectation is that, once proven, a network of regional scheduled services to destinations such as Belfast, Dublin, Glasgow and Edinburgh along with other European cities will be serving a mix of business and leisure needs. Any business routes in particular will require premium route and air traffic control slots and at a time where air traffic flow control is at its busiest. Airports like Dublin, Edinburgh and Glasgow are busy, including for business travellers at peak times, and airlines would want to keep to their slots at their destinations from LAA. Anything that could affect that would be a concern to the airlines.

6.10 Any delay to departure during peak flow times could result in an air traffic slot being lost and a request having to be made for an extension or new departure slot time. Eurocontrol are the agency responsible for the safe coordination of air traffic in Europe and ensuring that airway capacity is not affected by traffic congestion. The operational unit responsible is the Central Flow Management Unit (CFMU). Any flight planned and regulated flight is subject to an ATC flow management slot time bracket of -5 / +10 minutes. There is some flexibility that may be applied dependent upon local conditions prevalent at the time. If the flexibility is not available then an aircraft would need to be given an alternative slot or routing change. Airlines would not want this to become routine.

6.11 In reference to the proof of Dr John Allen, paragraph 92 records a casual observation made by FERA staff of some 760 geese overflying the airport around dawn on the 15th September 2010. The subsequent vantage point survey on 10th November 2010, 06:45 – 07:45 (Figure 7 and Table 2) records a significant number and variety of birds on the aerodrome. This timing would coincide with flights that might normally be associated with business travel destinations.

6.12 As a further implication of holding aircraft on the ground, reference to paragraph 9.2.6 of the proof of Tim Maskens in respect of limitations on operating hours, shows that if aircraft departures or arrivals were scheduled to take place close to the operating time limitation of 23:00hrs closure then any significant delay could result in a time overrun.

6.13 It is best industry practice for airport operators to work with all stakeholders to minimise any delays to customers, be they airlines or passengers. Airlines need a reliable operation in order to make for a cost

effective service. Negative passenger perception of the airport may affect both airport and airline.

7.0 *Bird Hazard Risk Assessment*

7.1 Page 22 of the Bird Hazard Risk Assessment (Revised December 2010) paragraph 7, states - 'In the absence of improved mitigation measures' - 'based on local population data and observed behaviour (flight paths, etc), UK national birdstrike records, LAA birdstrike records, bird weight and flocking behaviour (e.g. grey partridge is given a higher "damage probability" because they are more often involved in multiple strikes than red-legged partridges). Birds falling into the "red" category are considered particularly high risk and additional specific procedures will be required to minimise the threat.'

7.2 Whilst a number of mitigation measures are then described within the document and supplemented by the BCMP, a further assessment is not then undertaken within the Bird Hazard Risk Assessment document to assess the revised hazard after the additional measures are put in place, for example whether the measures are sufficient to move out species of the red "unacceptable" area.

7.3 Moreover, the Bird Hazard Risk Assessment summary and matrix at paragraph 7 and the mitigation measures referred to above address only the bird species that fall into the 'Unacceptable' risk category. There are significant hazards presented by species which fall into the 'Review' category. As a point of clarification, the current CAA approach is to regard this category as 'continuous review'.

8.0 **Aerodrome Safeguarding**

8.1 The proof of Mr Nigel Deacon, at paragraph 2.3.2, makes reference to the question of the effects of the development on the SPA. Should LAA be granted planning permission for the proposed airport extension there is a question whether they may take steps to prevent the further enhancement of the SPA/SSSI habitat or land related to it as part of the aerodrome safeguarding process.

8.2 Part of this safeguarding process is to ensure that the aerodrome operating environment is as safe as possible to support aircraft operations. Hence it would be expected that any consideration of

development or habitat changes would need to identify any aviation safety concerns arising from it.

8.3 In a case where safety concerns were not identified as part of the safeguarding process, then it may be that the airport operator could be held liable should any subsequent bird strike occurrence be found to be directly related.

8.4 If such a situation arose, the commercial position of the airport may be affected through insurance premiums. Any incident of aircraft damage which occurs may be subject to investigation and, where grounds are established, airlines have made successful claims against airport operators previously.

8.5 As an example, in March 1998 an Air France A320 commenced its take-off roll and struck a flock of 20 gulls, ingesting some into an engine forcing a rejected take off. The birds had been attracted to the runway by the carcass of a hedgehog. It was judged by a French court that so many birds should have attracted attention and been managed by the airport. The airline was awarded 3 million Francs in damages.

8.6 In the UK, an accident occurred at Norwich Airport on the 12th December 1973 where a Dassault Fan Jet Falcon encountered three successive flocks of birds on take-off. The first two flocks were avoided by the flight crew but the third larger flock struck the aircraft. Both engines ingested birds and the airframe was struck and the aircraft made a force landing in a field beyond the runway end. The occupants escaped with only the flight deck crew suffering some injuries. The aircraft was substantially damaged. A total of around 35 bird remains (Black Headed and Herring Gulls) were found toward the end of the runway. The AAIB Investigation Report 24/74 makes reference to the bird control activities at the time as relying on ATC observation of birds and a vehicle being dispatched to disperse the birds. This had been reported by the bird action coordinator as largely ineffective and that other measures were required. Due to financial and manpower considerations the airport did not act on these reports by recommending equipment purchase. Subsequently a case was brought for claims against the Airport Operator.

8.7 A paper - **Bird and Other Wildlife Hazards at Airports: Liability Issues for Airport Managers** by Richard A. Dolbeer, PhD, U.S. Department of Agriculture/Wildlife Service's reports in respect of this accident – 'The judge presiding over the case wrote that the Defendants (airport operator)

owed the Plaintiffs (aircraft operator and occupants) the "common duty of care". After weighing the considerable evidence, the judge decided that the Defendants failed in their duty, and that there must be judgment for the Plaintiffs for damages. In other words, the airport operator failed to show due diligence in managing the airport's bird hazards (Michael 1986, MacKinnon et al. 2001). This paper also refers to several other similar cases, including the Air France A320 referred to in this report.

8.8 Whilst these examples are related to the airport bird management activity, the safeguarding process is an integral part of the BCMP and similar issues may arise.

8.9 The BCMP in section 12 details the aerodrome safeguarding with specific references to all the various conservation sites around LAA. Paragraph (incorrectly numbered 11.1.2 – should be 12.1.2) makes a reference to Changes to Annex 14 of the Convention on International Civil Aviation (Chicago Convention) which mean that the CAA now expect all aerodromes to make local safeguarding arrangements, and the procedures in place to achieve this are subject to external audit. A safeguarding regime should therefore be in place and should be operated rigorously.

9.0 Conclusion

9.1 The draft BCMP (revised December 2010) identifies in principle the appropriate measures which should be taken to effectively manage the aerodrome at LAA. There is also a recommendation that 'early implementation' of those measures is made. However, there is also suggested reliance on the 'warn and hold' procedure.

9.2 The financial costs of repeated and extended holding of aircraft particularly may have a detrimental impact on the airlines as well as passengers and airport, although it must be remembered that any control measure is ultimately aimed at creating a safe operating environment.

9.3 Should LAA gain permission to extend the runway for increased passenger operations, then they are likely to object to any developments in the surrounding area which would create additional attractants for birds. This would be done under the safeguarding process.

9.5 It is likely that B737-300 aircraft would operate from LAA, as there are a number of these aircraft in service both within the UK and also in Europe. These aircraft are QC1 on arrival and QC0.5 on departure.

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