

East Midlands Airport

Noise Review

December 2000

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1. INTRODUCTION

- 1.1 This report has been prepared by Rupert Taylor, F.I.O.A., Consultant in Acoustics and Noise Control for North West Leicestershire District Council in response to a request for advice. While its subject matter is noise control, it inevitably includes reference to Statutes, Regulations and other legal matters. However, references of this kind and any views expressed relating to them do not constitute legal advice and should all be subject to the opinion of the Council's legal advisers.
- 1.2 East Midlands Airport is subject to no controls on operational noise by day or night. The absence of night noise controls places it among the minority of UK airports including Cardiff, Liverpool, Newcastle and Prestwick that have unrestricted night flying. The majority, including Heathrow, Gatwick, Stansted, Birmingham, Bristol, Glasgow, Luton, Manchester and Southampton have night quota systems, and Bournemouth, Edinburgh and Leeds-Bradford have other controls on night flying including a complete ban at London City Airport.
- 1.3 The night restrictions at Heathrow, Gatwick and Stansted are made under section 78 of the Civil Aviation Act 1982. Those at the other airports were generally negotiated locally, often in conjunction with the determination of planning applications.
- 1.4 In 1998, EMA had 69,510¹ aircraft movements. A total of 11,760² aircraft movements occurred at night. This compares with 1998 limits for night aircraft movements as follows: Birmingham 4,200³; Manchester 11,300; Gatwick 16,450; Heathrow 5,800 and Stansted 12,000. Leaving aside the fact that the night aircraft movements for these five other airports give rise to less noise than those at EMA by virtue of their quota systems (see section 4 below), EMA is similar to Manchester and Stansted and significantly surpassed only by Gatwick in terms of numbers of night aircraft movements.
- 1.5 EMA forecasts that the figure of 69,510 will rise to 123,230 by the year 2016¹. (This is similar to the DETR's low scenario in their forecast for air traffic at UK airports.) They also forecast that there will be an increase in the size of the noise contours with a large increase in the population within them, which is referred to in section 5.3 below.
- 1.6 The impacts which result from the night aircraft movements at different airports depend not only on the noise levels of the aircraft concerned, but also on the populations affected; the environment of Heathrow, for example, is more densely populated than EMA.

¹ Source: Appendix B, Proposed Runway Extension, Environmental Statement, East Midlands Airport, August 2000

² Source: Bickerdike Allen Partners

³ The Birmingham Quota applies to Air Transport Movements—see section 4.2 below.

2. POWERS TO CONTROL NOISE FROM AIRCRAFT IN FLIGHT

- 2.1 A major issue, of course, is the availability of powers to impose night noise controls. Application has been made to the Secretary of State for the aerodrome to exercise his powers under Section 78 of the Civil Aviation Act 1982. This would make East Midlands Airport a “designated aerodrome” and enable the Secretary of State to prohibit specified aircraft of specified descriptions from taking off or landing and to limit the number of occasions on which other aircraft may take off or land during specified periods. Currently designated aerodromes are London Heathrow, London Gatwick and London Stansted, and the Secretary of State’s use of his powers in these cases is referred to in sections 4 and 5 below.
- 2.2 There is an outstanding planning application for further runway extensions at EMA which is currently being assessed. This may give rise to the possibility of negotiating a night flying policy (through a Section 106 agreement) particularly having regard to the DETR’s preference for locally agreed schemes advocated in their recent consultation document⁴.
- 2.3 Section 5 of the Civil Aviation Act 1982 places a duty on the CAA to take account of environmental factors in licensing any specified aerodrome. Applications have been made to the Secretary of State by local authorities with aerodromes in their district for those aerodromes to be specified pursuant to Section 5. Examples have been Lashenden (Headcorn) by Maidstone Borough Council and Manston by Thanet District Council, both of which were unsuccessful. The recent DETR Consultation Paper on the Control of noise from civil aircraft comments “We believe that aerodrome licensing does not necessarily offer the best possible way of resolving environmental problems. The CAA’s aerodrome inspectors should, we think, continue to concentrate on safety issues. Environmental matters should in general be looked at separately (though always subject to safety being the first consideration) with the involvement of local people, as happens now. We propose repealing section 5 and replacing it, in respect of noise, with new powers outlined above”. The proposed new powers include a new power to compel an aerodrome to prepare a noise amelioration scheme which would include provisions for local authority powers to enforce compulsory noise amelioration schemes.
- 2.4 The Local Government Act 2000 gives councils new powers to promote or improve the economic, social or environmental well-being of their area. Councils will now also be required to prepare comprehensive community strategies with local strategic partnerships and to fully involve local people in this process.
- 2.5 Despite the reference in the Act to a power to do “anything” which a local authority considers is conducive to the economic, social and environmental wellbeing of their areas, the power is in practice limited to promoting and improving the economic, social and environmental well-being of the area. The new power is primarily intended

⁴ Control of Noise from Civil Aircraft, DETR, July 2000

to overcome *vires* problems rather than to empower, for example, the retrospective imposition of planning conditions without compensation, and does not appear to confer any powers to impose restrictions on night flying at airports. Nevertheless, the matter of noise from East Midlands Airport and partnership working with the Airport becomes a key part of the statutory requirement to adopt community strategies and set up local strategic partnerships.

- 2.6 The Human Rights Act 1998, and the European Convention on Human Rights, have been and will continue to be used as a basis for actions concerning aircraft noise, but they do not confer any new powers on local authorities in this respect.
- 2.7 Local authorities have powers to impose retrospective planning conditions, but there is a potential liability for the payment of compensation. This was addressed in a recent Court of Appeal Judgement (*Moses v NWLDC and EMA*) April 2000, when the Court pointed out that there were ample powers outside planning controls to address noise restrictions, namely the powers of the Secretary of State under the provisions of Section 78(3) of the Civil Aviation Act 1982.
- 2.8 For most premises, the difficulty in imposing retrospective planning conditions as far as noise is concerned is overcome by the use of nuisance control powers instead (albeit subject, in the case of statutory nuisance, to the defence of best practicable means). However, legislation has stated, since the Air Navigation Act of 1920, that no action shall lie in respect of nuisance or trespass if an aircraft in flight is being operated in accordance with normal aviation practice. Section 76(1) of the Civil Aviation Act 1982 says

“No action shall lie in respect of trespass or in respect of nuisance, by reason only of the flight of an aircraft over any property at a height above the ground which, having regard to wind, weather and all the circumstances of the case is reasonable, or the ordinary incidents of such flight, so long as the provisions of any Air Navigation Order.....have been duly complied with”

- 2.9 Local authorities have powers to impose noise controls on premises without liability for compensation, and without having to prove nuisance, through Sections 63 and 66 of the Control of Pollution Act 1974 which provide for Noise Abatement Zones. The illustrative list of classes of premises to which notices issued under Section 63 may, according to Circular 2/76, apply include “transport installations—railway stations, bus garages, wharves, locomotives and aircraft repair shops, container bases;”. While noise from aircraft in flight could probably not be regarded as noise from premises, noise from aircraft made during take-off and landing runs could perhaps be so regarded. However it has to be said that Section 66 has never been used for operational aircraft noise, and it is likely to be considered an inappropriate use of the powers open to challenge.
- 2.10 It would, however, be entirely appropriate for the powers to be used for many non-operational noise aspects of East Midlands Airport, and this should be borne in mind in any negotiations. After making an order under Section 63, Section 66 provides

powers to serve a notice requiring the reduction in the level of noise emanating from the premises if the reduction would be practicable at reasonable cost and would afford a public benefit.

- 2.11 It seems likely therefore that the best course will be that of negotiation against the background of the extant planning application and the Section 78 application to the Secretary of State. A locally agreed night flying policy would mean that the local authority would retain control of it rather than pass control to the CAA under Section 5, or to the Secretary of State under Section 78, of the Civil Aviation Act 1982.
- 2.12 The indications are that an application under Section 5 of the Civil Aviation Act 1982 might not be successful given the DETR comments in the consultation paper, but a parallel application under this section should be considered.
- 2.13 The East Midlands Development Agency (EMDA) stated in the Regional Economic Strategy that it believes that "East Midlands Airport and its surrounding area is an important economic asset, though growth will need to be carefully managed". EMDA states that "we will work closely with our partners in the region to establish an approach that reflects sustainable development imperatives, based on the studies currently underway." The reference to sustainable development imperatives can be read as a reference to a need for environmental controls, i.e. that economic development initiatives relating to EMA are likely to be tied to environmental commitments from the airport. EMDA stated that it believes that the priorities for investment in transport which should be supported, recognising the need for sustainable solutions, include investment to improve the range of services, including access to Europe and beyond, offered by East Midlands Airport. This may provide an incentive for EMA to negotiate voluntary noise control measures outside the immediate framework of a planning application.
- 2.14 EMA indicated, in a presentation to the Independent Consultative Forum, areas of discussion relating to operational controls. These were listed as:
- Annual limit to night time movements by noisy aircraft
 - No more than 50% of the annual night time limit to take place during May to October
 - Maximum number of night time movements by noisy aircraft
 - Maximum number of night time movements by noisy aircraft during weekend nights
 - A separate limit to operations by Chapter II aircraft at night
 - Limits to night time operations by the noisiest aircraft to be subject to review by the District Council

- Noise sensitive preferred arrival and departure routing lanes
- Installation and operation of computerised aircraft noise monitoring systems
- Installation and operation of computerised aircraft track monitoring systems
- An Airport Liaison Committee to receive and consider various operational and environmental reports
- The production and monthly consideration of reports analysing deviation from preferred routing lanes
- The production and monthly consideration of reports concerning night time noise
- Unnecessarily noisy operators or those which do not adhere strictly to the designated tracks to be fined
- Proceeds from fines would be donated to local charities and community projects

3. CONTROLS ON AIRCRAFT NOISE

3.1 Aircraft noise is in a state of flux. Aircraft types have become quieter, weight-for-weight, stimulated by the world-wide imposition of progressively stricter noise limits through Annex 16 to the Convention on International Civil Aviation, but with the result that modern aircraft types are significantly quieter than the minimum requirements of the Convention. For a time, aircraft sizes grew, however, resulting in passengers being carried in fewer, larger aircraft. However, since the Annex 16 noise limits allow more noise for heavier aircraft, this tended to offset some of the benefit in terms of noise levels, even if the concomitant reduction in numbers provided a counterbalancing influence on the airport noise contours which are sensitive to both noise level and numbers of aircraft.

3.2 For regional airports, the effect of larger aircraft sizes is now being reversed, with the growth of successful smaller regional aircraft. This has contributed to greater than forecast growth in ATMs at, for example, Birmingham. However, these smaller regional aircraft tend to be quiet, and the increase in numbers is offset by lower noise levels.

3.3 Following the introduction of the quieter aircraft, action is being taken both internationally, by the UK Government, and by airports which have negotiated night flying policies, to prohibit the use of the older, noisier aircraft. In the UK this is effected through The Aeroplane Noise Regulations 1999 which will require, with very

limited exceptions, compliance with the requirements of Chapter 3 of Annex 16 from 1 April 2002.

- 3.4 Aircraft which are not certificated to the requirements of Chapter 3, i.e. are certificated to the requirements of the less strict Chapter 2, are also restricted in the Night Flying Policies of airports such as Birmingham.
- 3.5 It is important to recognise that the difference in noise levels between the requirements of Chapter 2 and Chapter 3 can be as little as 3 EPNdB, whereas “Chapter 3” aircraft are in practice typically much quieter than the limits given in Chapter 3. This gives rise to an issue associated with aircraft which were originally certificated to the requirements of Chapter 2, but which have been subsequently retrofitted with modifications or re-engined to achieve the requirements of Chapter 3. These modified versions may only just achieve the requirements of Chapter 3, and are therefore significantly noisier than “native” Chapter 3 types. For this reason, night flying controls expressed in terms of Chapter 2 and Chapter 3 aircraft are less prescriptive than controls using the quota count system. ICAO is currently looking at the introduction of a new noise standard and the introduction of Chapter 4 requirements in order to take advantage of the fact that many aircraft are significantly quieter than the requirements of Chapter 3.
- 3.6 The quota count system was introduced for Heathrow Gatwick and Stansted airports in 1993. It uses the actual certificated noise levels for each type of aircraft as the basis of assigning Quota Counts of either 0.5, 1, 2, 4, 8 or 16. (There is a class of exempt aircraft which includes small jet aircraft ($\leq 11600\text{kg}$) and quiet propeller aircraft). The Quota Counts are arranged so that they follow the principle of the L_{Aeq} index that a 3 dB change is equivalent to a doubling or halving of aircraft numbers. This arises from the characteristic of the decibel scale that a change by a factor of 2 is a change of 3 decibels. Thus 10 aircraft with a quota count of 2 will in principle have the same effect on the noise contours as 20 aircraft with a quota count of 1. The quota for a period such as summer, winter or a year is obtained by multiplying each aircraft movement in the period by the quota count for the aircraft (different for approach and departure) and summing the results.
- 3.7 In practice, however, there are important differences between quota counts (and the noise levels on which they are based) and noise contours on the ground. The first is that certificated noise levels are stated in terms of EPNdB, whereas noise contours are computed on the basis of the much simpler noise unit, the dBA, or its time-integrated derivative known as SEL. There is an approximate relationship between EPNdB and SEL, but it is not exact.
- 3.8 Of more importance is the fact that the conditions under which certificated noise levels are measured are not necessarily the same as those which occur in service. The points are fixed on the ground, on the extended runway centreline 6.5km from start of roll for departure, and 2km from the runway threshold on approach. The aircraft take-off procedure is prescribed, as is the approach procedure. The mass of the aeroplane is the maximum for which the certification is requested.

3.9 In normal service, the aircraft take-off profile may be different from that prescribed in the test procedure, as a result of which the noise level on the ground may be different. Nevertheless, the QC system does provide a reasonable comparison between aircraft and their noise levels.

3.10 The current night noise quotas, where they apply, are set out in section 3 below.

4. NOISE CONTROLS AT UK AIRPORTS

4.1 A summary of the existing night noise controls at UK and Channel Island airports is as follows. (Airports not listed have no night noise controls). In addition many airports have controls of engine ground runs and use of auxiliary power units. Many of the airports listed have noise preferential routings. There are noise insulation schemes in some cases. Where certificated noise levels are given e.g. 94/89/98 the figures are in EPNdB for Sideline, Take-off and Approach respectively. PPR = Prior permission required. The designations NN/A, NN/B and NN/C refer to a system of classifying aircraft according to the noise footprint which pre-dated the introduction of the QC system at the designated airports.

4.2 Some of the controls refer only to aircraft movements; others refer to Air Transport Movements (ATMs). The definition of an Air Transport Movement is a landing or take-off of an aircraft engaged on the transport of passengers, cargo or mail on commercial terms, i.e. it does not include general aviation and training flights which at some airports form a significant proportion of the total aircraft movements.

| | | |
|---------------|--------------------------|--|
| Aberdeen | Night Curfew | Surcharge on non-Chapter 3 aircraft |
| Belfast City | Night flights PPR | 45000 annual limit on ATMs |
| Biggin Hill | Night Curfew | Chapter 2 prohibited |
| Birmingham | QC system at night | Limited to aircraft certified at 94/89/98 |
| | | Monitored noise limits and surcharges for exceeding limits. Night ATMs limited to 5500 (Winter 1320; summer 4180). Total annual night noise quota 4000. Noise surcharge for violations of noise monitor limit. No night scheduled movements of QC/8 or QC/16 aircraft. |
| Blackpool | Normally closed at night | |
| Bournemouth | Night flights PPR | |
| Bristol | Night limits | Restrictions on night flights by aircraft with QC/4 or more. Night noise quota: winter 900; summer 1260 |
| Cambridge | Night flights PPR | |
| Coventry | Night flights PPR | |
| East Midlands | No controls | |
| Edinburgh | Night flights PPR | Night flights restricted to NN/B and |

| | | |
|----------------------------------|--|--|
| | | NN/C Surcharge on non-Chapter 3 aircraft Noise and track-keeping system to be installed |
| Exeter Farnborough Gatwick | Night flights PPR Night flights PPR QC system at night | Noise limits at specified noise monitors. Night ATM limits: 5250 (winter) 11200 (summer). Noise Quotas 6820 (winter) 9550 (summer). Quotas reducing annually to 6640 (winter) 9000 (summer) by 2003-2004. No night scheduled movements of QC/8 or QC/16. Surcharges for Chapter 2 and Chapter 3 over QC/1 and for exceeding night noise limits. |
| Glasgow | Night flights PPR | Night flights by non-chapter 3 only in exceptional circumstances. Noise monitoring system with noise level limits. Surcharge for non-chapter 3 and for exceeding noise limits. |
| Guernsey Heathrow | Night flights PPR QC system at night | Noise limits at specified noise monitors. Night ATM limits: 2550 (winter) 3250 (summer). Noise Quotas 4140 (winter) 5610 (summer) No night scheduled movements of QC/8 or QC/16. Surcharges for Chapter 2 and Chapter 3 over QC/1 and for exceeding night noise limits. |
| Humberside | Night restrictions | Night flights restricted to Chapter 3 and NN/C aircraft |
| Jersey | Night Curfew | Noise limits day and night Chapter 3 aircraft only plus some military and PPR. |
| Leeds-Bradford | Night flights PPR | No night departures by aircraft of QC 1 and above. No landings by aircraft with QC2 and above. Noise monitoring system with noise limits. |
| Liverpool | Night training flights by turbo-jets PPR | |
| London City | Night Curfew | Noise management scheme Daytime quota system linked to noise |

| | | |
|-------------|-------------------------------------|---|
| Luton | Curfew on Chapter 2 | monitoring Noise monitoring with limits. Surcharges for exceeding limits. |
| Manchester | QC system at night | Night ATM limits 8900 (summer 1998) 2800 (winter 1997/8). Noise Quotas 8750 (summer) 3900 (winter). No non-Chapter 3 at night. Surcharge on non-chapter 3 aircraft. Noise monitoring system with noise limits and financial penalties. No night scheduled movements of QC/8 or QC/16. |
| Norwich | Night Curfew | Noise monitoring system Stage 2 restrictions under review |
| Southend | Night flights PPR | |
| Southampton | Night restrictions on non Chapter 3 | Night movements limited to 10 movements per month |
| Stansted | QC system at night | Noise limits at specified noise monitors. Night ATM limits: 5000 (winter) 7000 (summer). Noise Quotas 3110 (winter) 4350 (summer) increasing to 3550 (winter) and 4950 (summer) by 2003-2004. No night scheduled movements of QC/8 or QC/16. Surcharges for Chapter 2 and Chapter 3 over QC/1 and for exceeding night noise limits. |

5. THE CASE FOR NOISE CONTROLS AT EMA

5.1 Restrictions on night flights at Heathrow were first introduced in 1962, at Gatwick in 1971 and at Stansted in 1978. The current night noise quotas are as follows, stated as annual figures. Though not designated airports, section 3 above also shows that night noise quotas are applied at Birmingham, Bristol and Manchester Airports

| Heathrow | Gatwick | Stansted | Birmingham | Bristol | Manchester |
|----------|---------|----------|------------|---------|------------|
| 9750 | 16370 | 7460 | 4000 | 2160 | 12650 |

The actual night noise quota which occurred at East Midlands Airport in 1999 was 13875.5⁵.

5.2 The cumulative populations within the Leq contours for Heathrow, Gatwick and Stansted for 1999 are as follows:

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|--|
| |
|--|

⁵ Source: Bickerdike Allen Parters

| | | | | | | |
|-------------|---------|---------|--------|--------|--------|-------|
| Leq 16hour: | >57 | >60 | >63 | >66 | >69 | >72 |
| Stansted | 5,800 | 2,900 | 1,300 | 500 | 200 | 200 |
| Gatwick | 7,800 | 3,200 | 1,400 | 500 | 300 | <100 |
| Heathrow | 329,300 | 170,700 | 87,300 | 36,700 | 14,300 | 3,900 |

For Manchester and Birmingham, the figures for 1992 and 1993 respectively (the latest available) are as follows:

| | | | | | |
|------------|--------|--------|--------|--------|-------|
| Birmingham | 88,100 | 47,050 | 22,650 | 12,950 | 7,650 |
| Manchester | 63,900 | | 10,900 | | 3,400 |

5.3 For East Midlands, the approximate population figures for 1996 are of the order of 1500 within the 57 Leq; 1000 within the 60 Leq contour and 100 within the 63 Leq contour. They are likely to rise rapidly between 1996 and 2006 as a result of the increased size of the noise contours, even without the proposed runway development, according to the 2000 Environmental Statement accompanying the runway extension planning application. This will increase the populations within the contours by perhaps a factor of two. This rate of increase will be greater than at most other airports, because of the conurbations (principally Castle Donington) which in 1996 were almost outside the contours, but will be included immediately the contours expand.

5.4 The underlying research which the DETR relies on in formulating its night noise policies is the 1992 NATS report "Report of a Field Study of Aircraft Noise and Sleep Disturbance". This concluded that outdoor noise events below 90 dBA SEL (equivalent to approximately 80 dBA L_{max}) are very unlikely to cause any increase in the normal rate of sleep disturbance, and that for noise events in the range 90-100 dBA SEL (80-95 dBA L_{max}) the likelihood of the average person being awakened by an aircraft noise event is in a range between 1 in 60 and 1 in 100. On this basis, the approximate number of people around each airport likely to be awakened is as follows (figures available for westerly operations only). Further research is in progress, which is likely to support the conclusions of the 1992 report.

| Airport | Runway(s) in use (westerly operations) | Estimated nos. of awakenings | Number of movements (80-95 dBA L _{max}) |
|----------|--|------------------------------|---|
| Heathrow | 27R (landings) 27L (take-offs) | 2050-3500 | 14 |
| Gatwick | 26 | 75-130 | 41 |
| Stansted | 23 | 20-35 | 18 |

No figures are available for Birmingham, but an estimate would be 600 to 1000.

- 5.5 The estimated number of awakenings for EMA is likely to be in the region 40 to 60, i.e. about double Stansted and half Gatwick, with a number of movements (80-95 dBA L_{Amax}) well in excess of those at Stansted.
- 5.6 The salient conclusion of this comparison of populations is that while East Midlands Airport appears to affect a much smaller population than the other airports considered on the basis of $L_{eq\ 16\ hour}$ contour comparisons, its position is quite different when night noise is considered, and it then lies well within the range of the designated airports. It is a prime candidate for the introduction of night noise controls.
- 5.7 Of all the controls either suggest by EMA or drawn from precedent at other airports, the two which would have the most direct benefit in controlling sleep disturbance would be the elimination of noisier aircraft and the introduction of a night noise quota to reduce the current quota count total.
- 5.8 There are many precedents for prohibiting the operation of aircraft of QC8 or QC16 at night, such as Heathrow, Gatwick and Stansted, Birmingham, Bristol, Leeds-Bradford and Manchester. Bristol prohibits QC4 as well, and Leeds-Bradford prohibits QC1 on departure and QC2 on landing.
- 5.9 Removal of all QC/8 and QC/16 aircraft at EMA would only reduce the 1999 night quota by 128 from 13875.5 to 13747.5. Aircraft with QC/4 or greater contributed 5132 to the 1999 total. If all aircraft with QC values of 4 or greater were reduced to QC/2, the annual quota count would be 11271.5 for 1999.

6. APPROPRIATE CONTROLS FOR EMA

- 6.1 The following measures are the minimum which would be reasonable.
- A night ban on movements by aircraft with high noise levels, e.g. prohibition of QC/8 and QC/16.
 - A limit on the number of night aircraft movements below QC/8 to a maximum of 10,000. Note that this refers to aircraft movements, not Air Transport Movements. A significant number of aircraft movements (about 45% of the total for 1999) at East Midlands are not Air Transport Movements.
 - A night noise quota based on the QC system with a quota limit of 10,000 for the first year, reducing by 10% per year, to be reviewed after three years.
 - Monitoring of noise and track-keeping with noise limits as installed, for example at Luton Airport.

- Early phasing out of non-Chapter 3 aircraft.
- A noise management scheme including surcharges and penalties.
- A noise insulation scheme to provide noise insulation to the standard of the Heathrow noise insulation scheme within the 90 SEL footprint.

7. SUMMARY AND CONCLUSIONS

- 7.1 East Midlands Airport is very much in the minority among major UK airports in having no noise controls, particularly at night. Using currently favoured measures of night noise impact, the estimated number of awakenings for EMA is about double Stansted and half Gatwick, with a number of movements well in excess of those at Stansted. Gatwick and Stansted, along with Heathrow, are designated airports with elaborate night noise controls based on the quota count system. Many other airports have adopted the Quota Count system.
- 7.2 There are no realistic immediate or imminent powers available to the District Council to impose noise controls, but it is clear that no further expansion or development of the airport is likely to be possible without the introduction of a noise régime, and there are clear indications that progress could be made with negotiations towards an appropriate set of controls. A set of controls which are considered to be the minimum that would be reasonable is given at paragraph 6.1 above.