

*Farnborough Airport*

*Environment Report October - December 2005*



# Farnborough Airport Environment Report

## October – December 2005

TAG Farnborough Airport Ltd  
Farnborough  
Hampshire  
GU14 6XA

## **INTRODUCTION**

- 1.1 In continued compliance with the requirements of the agreement in place under Sections 106 and 299A of the Town and Country Planning Act 1990, between TAG Farnborough Airport and Rushmoor Borough Council, TAG hereby submits a report for the fourth quarter of 2005 (October to December 2005), detailing results of environmental monitoring as required by that agreement. In line with the paragraph 2 (t), the content of this report was revised prior to the publication of the report covering January to March 2005, in consultation with Rushmoor Borough Council Planning department, to focus on monitoring results data only. For background information please refer to Environment Reports published prior to this date.

## **2 NOISE MONITORING**

- 2.1 The permanent noise monitoring terminals remain in operation. The portable noise monitor remained in its previously reported location in location Ewshot until mid November before being returned to the manufacturer for servicing. All efforts were made to obtain noise data while the monitor remained in this location. However very few aircraft registered sufficient noise to trigger the recording of noise events and poor telephone reception levels hampered automatic collection of data. System configuration problems were experienced particularly during December. Annual Calibration tests were carried out on the 1<sup>st</sup> November. The effect of the high decibel test tones can be clearly seen in the noise data recorded for this day, although passing aircraft at the time of the tests caused some of the noise to be recorded as aircraft noise events..

- 2.1 Figures 1, 2 and 3 below show Leq data for correlated aircraft Event noise, (E), Total Leq levels recorded (Total) and Background (Background) noise

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calculated as comparable Leq (A) values, by day of month and NMT for October, November and December respectively.

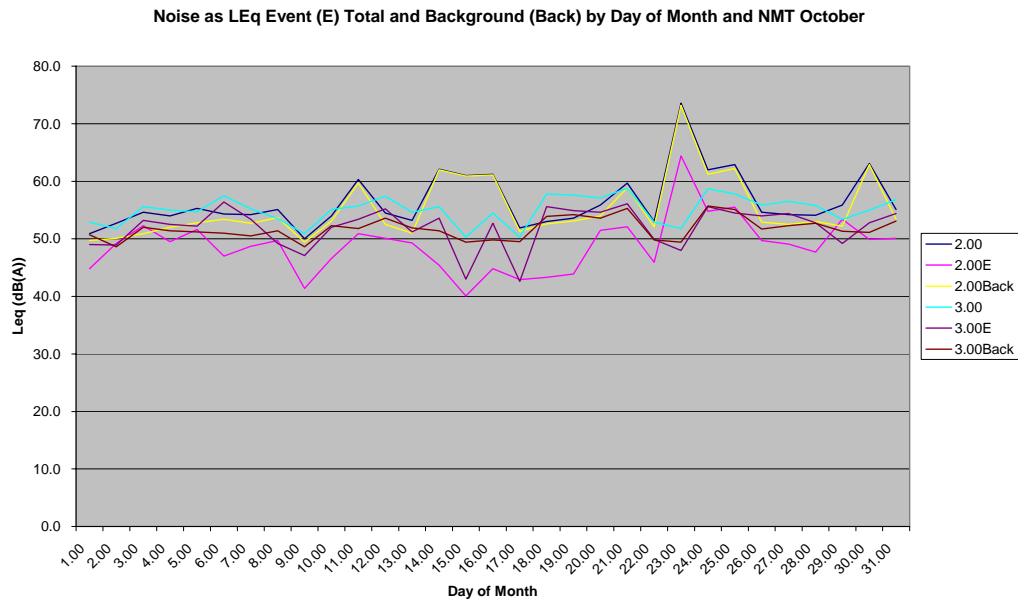


Figure 1: Noise as Leq Total, Event (E) and Background (Back) by Day of month and NMT for October 2005

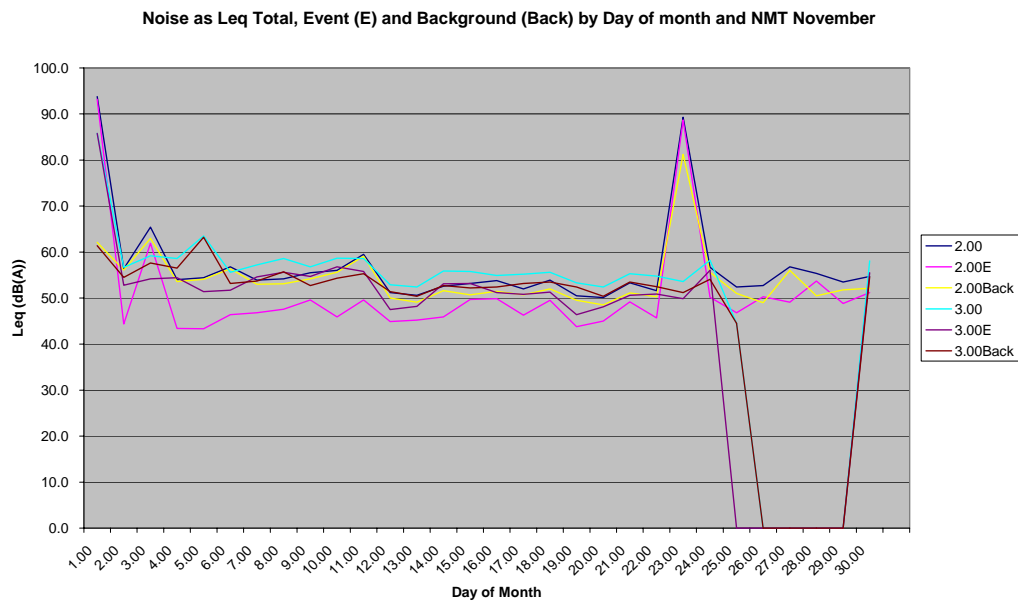
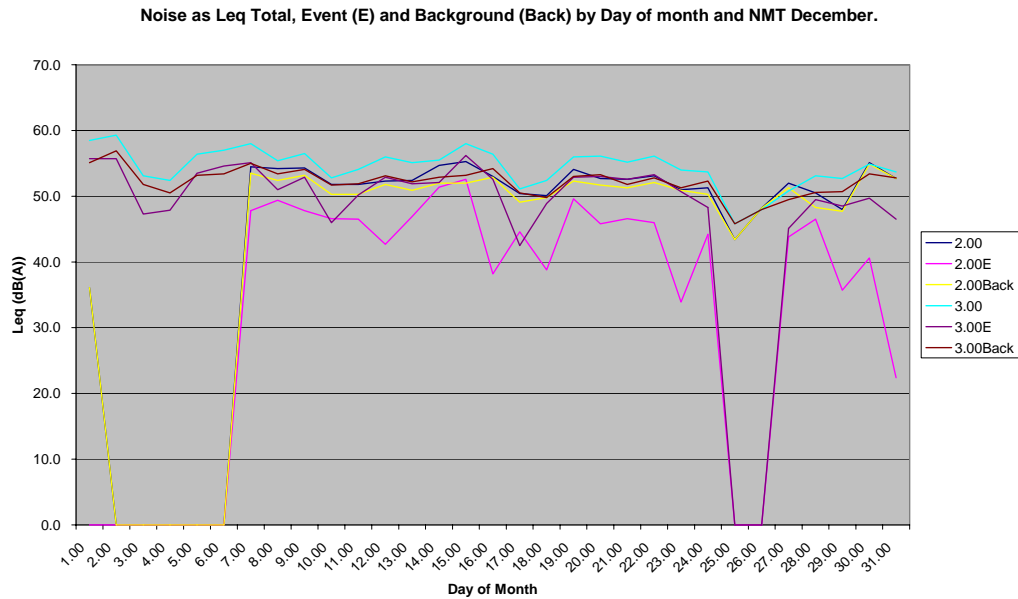


Figure 2: Noise as Leq Total, Event (E) and Background (Back) by day of month and NMT for November 2005



*Figure 3: Noise as Leq Total, Event (E) and Background (Back) by day of month and NMT for December 2005*

2.4 Preparation of noise contours using the FAA’s Integrated Noise Model (INM) for operations in 2005 is underway at present. The last modelling exercise undertaken (for the period January to June 2005) showed the total land area affected by noise at and above 55dB (A) to be 3.62km<sup>2</sup>. The predicted areas for the contours for operations July to December were 3.74km<sup>2</sup>.

The 55 dBA is below that deemed to be the trigger of "low annoyance" in the Wilson Committee Report (1963) which is traditionally used as a method of assessing the probability of annoyance due to aircraft noise.

2.5 The FAA’s INM is stated in the European Environmental Noise Directive (Directive 2002/49/EC) as the preferred European Standard tool for assessing noise impact from aircraft.

2.6 Daily Leq Figures are given in Appendix 1. No significant differences can be observed between aircraft noise monitoring results this quarter and the same

quarter last year. What is clearly in evidence in December are the two days (25<sup>th</sup> and 26<sup>th</sup> December) when the airport is closed and also the various configuration problems the system experienced during December. A breakdown of aircraft movement numbers by type is given in Table 1 below.

### 3 AIRCRAFT MOVEMENTS

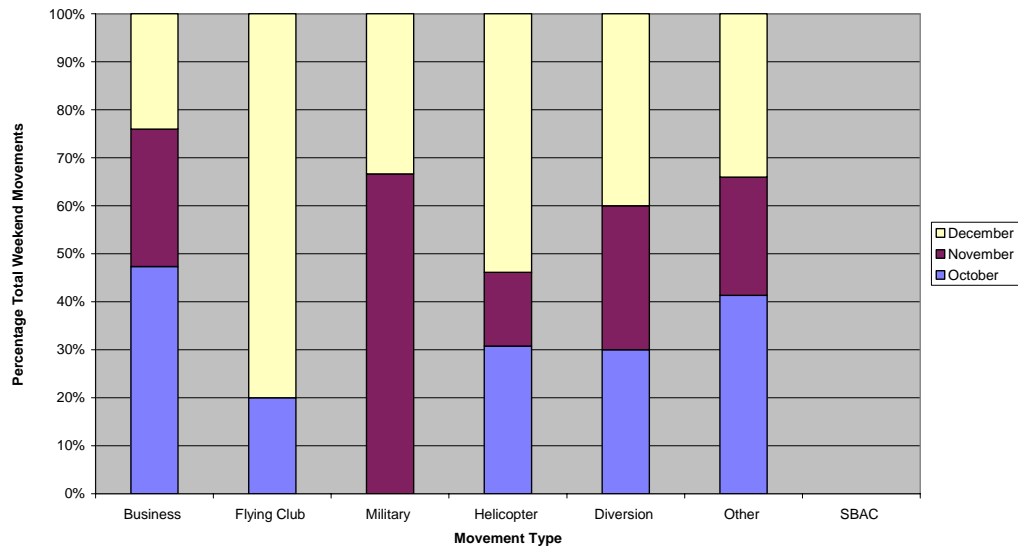
3.1 Table 1 shows all aircraft movements over the three-month period by movement category. Figure 5 gives a summary of movements by category, for weekends.

Category	October	November	December	Quarter 4, 2005	Total 2005
<b>Business</b>	1476	1400	1205	<b>4081</b>	<b>17549</b>
<b>Helicopter</b>	60	90	69	<b>219</b>	<b>920</b>
<b>Subtotal (Planning Agreement Movements)</b>	<b>1538</b>	<b>1490</b>	<b>1274</b>	<b>4300</b>	<b>18469</b>
<b>Flying club</b>	14	24	16	<b>54</b>	<b>613</b>
<b>Military</b>	16	16	6	<b>38</b>	<b>151</b>
<b>Diversion</b>	14	19	17	<b>50</b>	<b>193</b>
<b>Other</b>	97	92	89	<b>278</b>	<b>1080</b>
<b>SBAC</b>	0	0	0	<b>0</b>	<b>0</b>
<b>Total</b>	<b>1677</b>	<b>1641</b>	<b>1402</b>	<b>4720</b>	<b>20506</b>

Table 1: Movements by Category for Quarter 4, 2005

Figure 4: Weekend Movements\* by Type for Quarter 4, 2005

Weekend Movements By Movement Type October to December 2005.



\* Includes Bank Holidays

3.2 Figures 5 - 7 below give information on the runway split and shows all movements by runway used and operation. Operation refers to whether the movement was a Departure or Arrival. The overall runway usage split for arrivals and departures was 18% Runway 06, 80% on Runway 24 and 2% for helicopter movements (Other) for the quarter.

Movements by Runway Used and Operation October

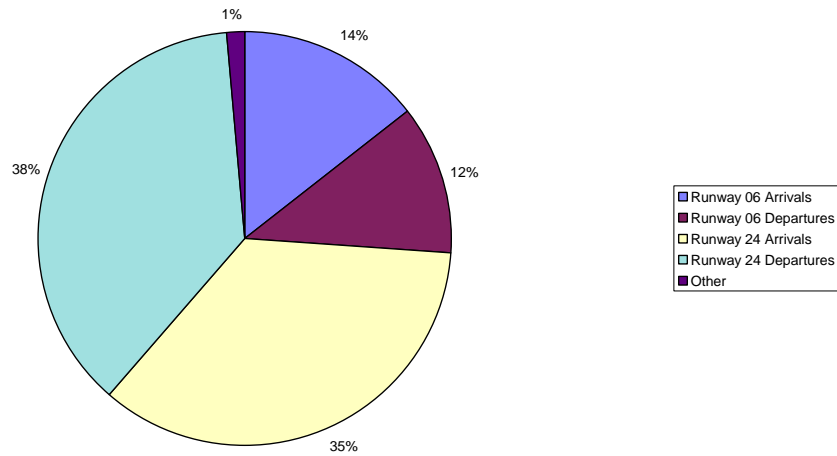


Figure 5: Monthly Movements by Runway Used and Operation October, 2005

Movements By Runway Used and Operation November

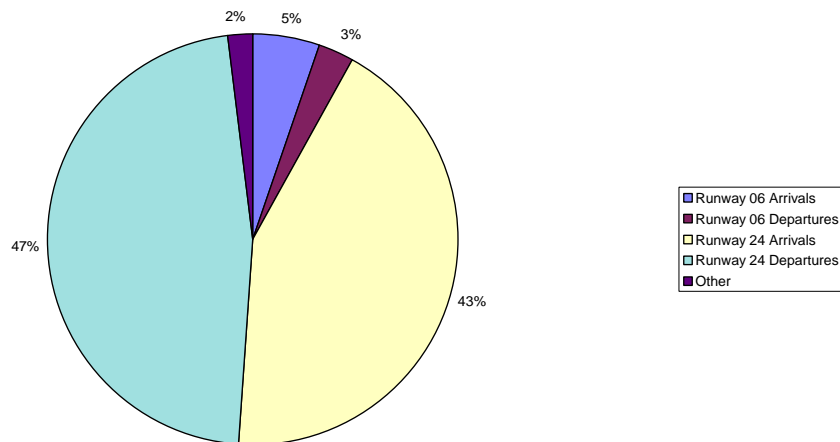


Figure 6: Monthly Movements by Runway Used and Operation November 2005

Movements by Runway Used and Operation December

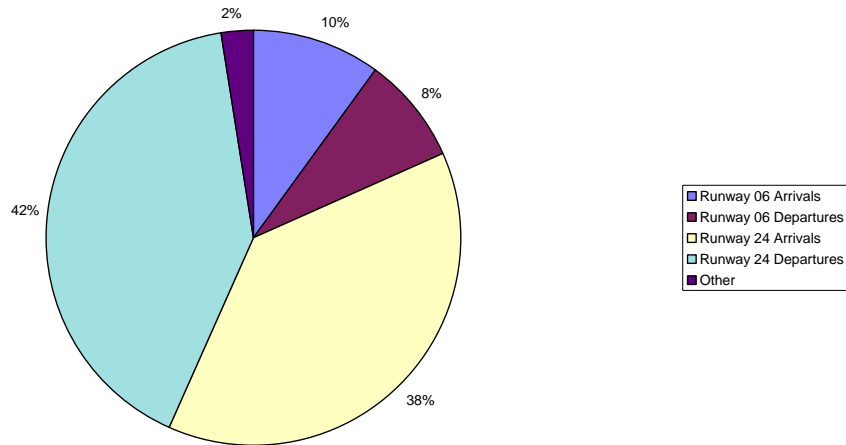


Figure 7: Monthly Movements by Runway Used and Operation December, 2005

3.3 The Maximum Take Off Weight (MTOW) for is recorded within the NTMS for all fixed wing aircraft. Figure 8 gives a summary of aircraft over 50,000kg MTOW for Quarter

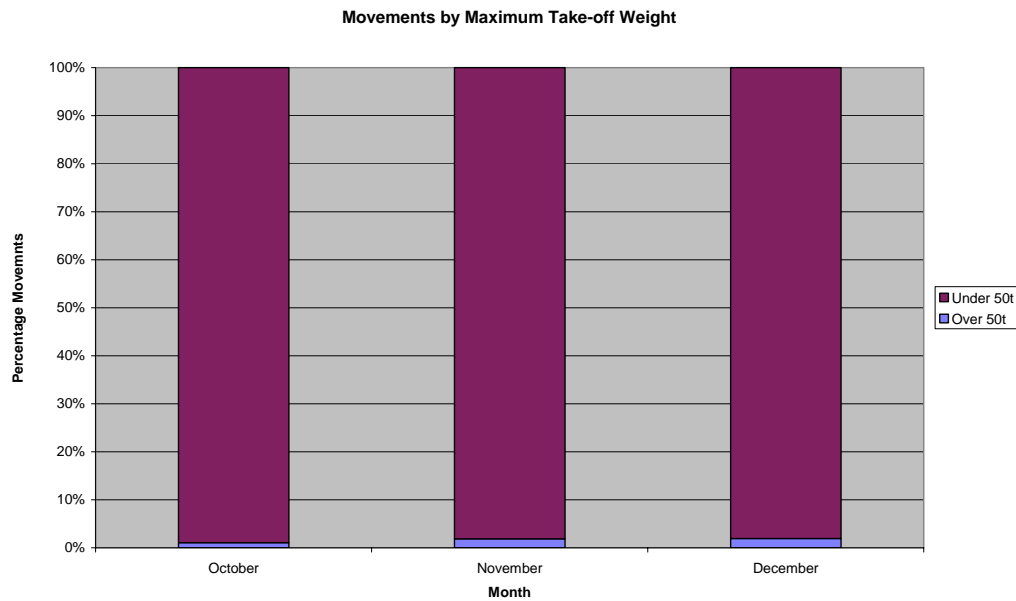


Figure 8: Movements by Maximum Take Off Weight (MTOW)



3.5 All civil aircraft using Farnborough were compliant with the International Civil Aviation Organisation (ICAO) Chapter 3 classification, (a classification based primarily on engine noise.) No hush kitted aircraft used the airport this quarter. The new more stringent ICAO Chapter 4 Classification is due for release very shortly. Details of the engine noise parameters included within this standard are yet to be released however such is the nature of the customers at Farnborough that it is understood that many of the aircraft operating already comply with the new more stringent standard.

3.6 Helicopters, light aircraft and military aircraft are not subject to the requirements of the ICAO noise certification scheme.

**4. AIR QUALITY MONITORING**

4.1 The locations of all of the nitrogen oxide diffusion tubes and Streetbox monitors have remained as reported previously. To see details of the locations of the monitors please refer to previous reports. Table 2 gives details of the National Air Quality Objectives applicable to NOx.

Pollutant	Air Quality Objective		Date to be achieved by
	Concentration	Measured as	
Nitrogen Dioxide*	200µg/m <sup>3</sup> when expressed as an hourly mean not to be exceeded more than 18 times a year.	Hourly mean	31/12/2005
* It should be noted that the Nitrogen Dioxide objectives are provisional.			

Table 2: The Air Quality (England) (Amendment) Regulations 2002

4.4 The results of the air quality survey consist of both raw and manipulated data taken from the diffusion tube laboratory analysis and downloaded computer data from the Learian automatic samplers.

4.5 Nitrogen oxide results taken from the diffusion tubes and Learian Streetbox samplers indicate that NO<sub>x</sub> levels around the airfield have achieved the objective as set out by the Air Quality Regulations Amendment Regulations 2002. Levels recorded by the monitoring network continue to remain at or below urban background levels. Continuing trends in the results obtained appear to indicate terrestrial sources of NO<sub>x</sub> as the predominate sources of the NO<sub>x</sub>; this is illustrated by the elevated levels consistently recorded for location 13 adjacent to the M3 motorway. During October a number of temperature inversions occurred in the Farnborough Area. The effect of such Meteorological conditions is to concentrate pollutants in the lower atmosphere, causing elevated levels of Nitrogen Dioxide.

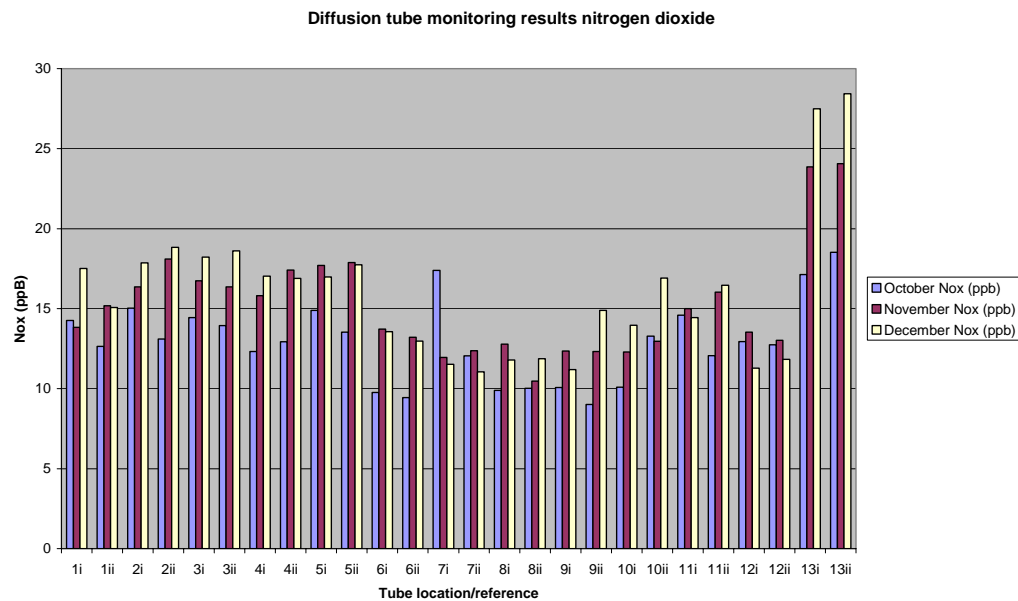


Figure 9: Nitrogen Oxides Diffusion Tube Results Quarter 4, 2005, and Air Quality Regulations\*, Hourly Mean

Key: **ppb** - parts per billion.

\*Air Quality Regulations 1997 (as amended 2000)

4.6 Table 3 below gives the air quality monitoring results obtained from the two Learian Street Box automatic samplers. The Streetboxes are collocated with diffusion tubes, references as given.

Location	October (ppb)	November (ppb)	December (ppb)
Kempton Close (co-located with diffusion tubes 1i and 1ii)	18.56	18.88	17.98
Farnborough College of Technology (collocated with diffusion tubes 2i and 2ii)	18.04	18.10	18.15

Key: **ppb** - parts per billion

Table 3: Learian Streetbox results for Quarter 4, October – December 2005.

## 5 CONCLUSION

- 5.1 Detailed environmental monitoring undertaken at the airport continues in accordance with the requirements of the Section 106 299A Agreement. Monitoring results obtained this quarter have once again demonstrated compliance with both regulatory requirements and those associated with the Town and Country Planning Act Section 106/299A Agreement.
- 5.2 Movement numbers at the airport continued to rise across all sectors, while remaining within the permitted movement limits. No movements by aircraft types other than those permitted by the planning agreement occurred over the duration of this quarter, no movements were accepted by aircraft fitted with hush kits. Ongoing monitoring has shown compliance with the noise abatement procedures to continue to be good.
- 5.4 No discernable trends are identifiable within the results of the Nitrogen Dioxide Monitoring undertaken in and around the site. Measured Nitrogen Oxide levels remained well within those considered as typical for urban background sites.

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5.5 The activities at the airport remain within those required by the Section 106/299A agreement.



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## **Appendix 1**

October 2005

Leq (Total) by Day of Month (by NMT)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
2	50,9	52,7	54,6	54,0	55,3	54,3	54,2	55,1	50,0	54,0	60,3	54,5	53,2	62,1	61,0	61,2	51,9	53,0	53,6	55,9	59,7	53,0	73,6	62,0	62,9	54,6	54,2	54,1	55,9	63,1	55,1
3	52,9	51,8	55,6	55,0	54,7	57,5	55,2	53,5	50,9	55,1	55,7	57,4	54,6	55,6	50,3	54,5	50,3	57,8	57,6	57,1	58,8	52,9	51,8	58,7	57,8	55,9	56,5	55,8	53,4	55,0	56,8

November 2005

Leq (Total) by Day of Month (by NMT)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
2	93,8	56,4	65,4	54,0	54,4	56,8	53,9	54,2	55,5	56,0	59,5	51,2	50,6	52,6	53,2	53,8	52,0	53,9	50,5	50,1	53,3	51,6	89,3	56,7	52,4	52,7	56,8	55,4	53,5	54,7
3	85,8	56,7	59,2	58,6	63,5	55,6	57,2	58,6	56,8	58,7	58,6	52,9	52,4	55,9	55,8	54,9	55,2	55,6	53,3	52,4	55,3	54,8	53,6	58,2	44,5	0,0	0,0	0,0	0,0	58,1

December 2005

Leq (Total) by Day of Month (by NMT)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
2	36,1	0,0	0,0	0,0	0,0	0,0	54,5	54,2	54,3	51,8	51,8	52,3	52,4	54,7	55,3	53,0	50,4	50,1	54,1	52,7	52,6	53,1	51,0	51,3	43,4	48,2	52,0	50,5	48,0	55,1	52,7
3	58,5	59,3	53,1	52,4	56,4	57,0	58,0	55,4	56,5	52,8	54,1	56,0	55,1	55,5	58,0	56,4	51,1	52,4	56,0	56,1	55,2	56,1	54,0	53,7	45,8	48,0	50,8	53,1	52,7	54,9	53,7

From 01 October 2005 to 31 December 2005

Selection criteria: NMT\_NUMBER in ( 2 , 3 )

Company: TAG Farnborough Airport

User: sgreener

Actual Time 30/01/2006

October 2005

Leq (Event) by Day of Month (by NMT)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
2	44,8	49,2	52,3	49,5	51,6	47,0	48,7	49,7	41,4	46,6	50,9	50,1	49,3	45,4	40,1	44,8	42,9	43,3	43,9	51,5	52,1	45,9	64,4	54,8	55,5	49,7	49,1	47,7	53,4	49,9	50,1
3	49,0	48,9	53,2	52,5	52,2	56,4	53,4	49,2	47,1	52,0	53,4	55,2	51,2	53,6	43,0	52,7	42,6	55,6	54,9	54,6	56,1	49,9	48,0	55,6	54,5	54,0	54,4	52,8	49,2	52,8	54,4

November 2005

Leq (Event) by Day of Month (by NMT)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
2	93,2	44,4	61,9	43,4	43,3	46,4	46,8	47,6	49,6	45,9	49,6	44,9	45,2	45,9	49,7	49,9	46,3	49,5	43,8	45,0	49,2	45,7	88,7	50,2	46,8	50,3	49,1	53,7	48,8	51,2
3	85,8	52,8	54,2	54,4	51,4	51,7	54,6	55,6	54,7	56,8	55,8	47,5	48,2	53,1	53,2	51,2	50,8	51,3	46,4	48,1	50,6	50,9	49,9	56,0	0,0	0,0	0,0	0,0	0,0	55,5

December 2005

Leq (Event) by Day of Month (by NMT)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
2	0,0	0,0	0,0	0,0	0,0	0,0	47,8	49,4	47,8	46,6	46,5	42,7	46,9	51,4	52,6	38,2	44,6	38,8	49,6	45,8	46,6	46,0	33,9	44,2	0,0	0,0	43,8	46,5	35,7	40,6	22,4
3	55,7	55,7	47,3	47,9	53,5	54,6	55,1	51,0	52,9	46,0	50,2	52,9	51,9	52,1	56,2	52,6	42,5	48,9	52,9	53,0	52,6	53,3	50,7	48,3	0,0	0,0	45,1	49,5	48,5	49,7	46,5

From 01 October 2005 to 31 December 2005

Selection criteria: NMT\_NUMBER in ( 2 , 3 )

Company: TAG Farnborough Airport

User: sgreener

Actual Time 30/01/2006

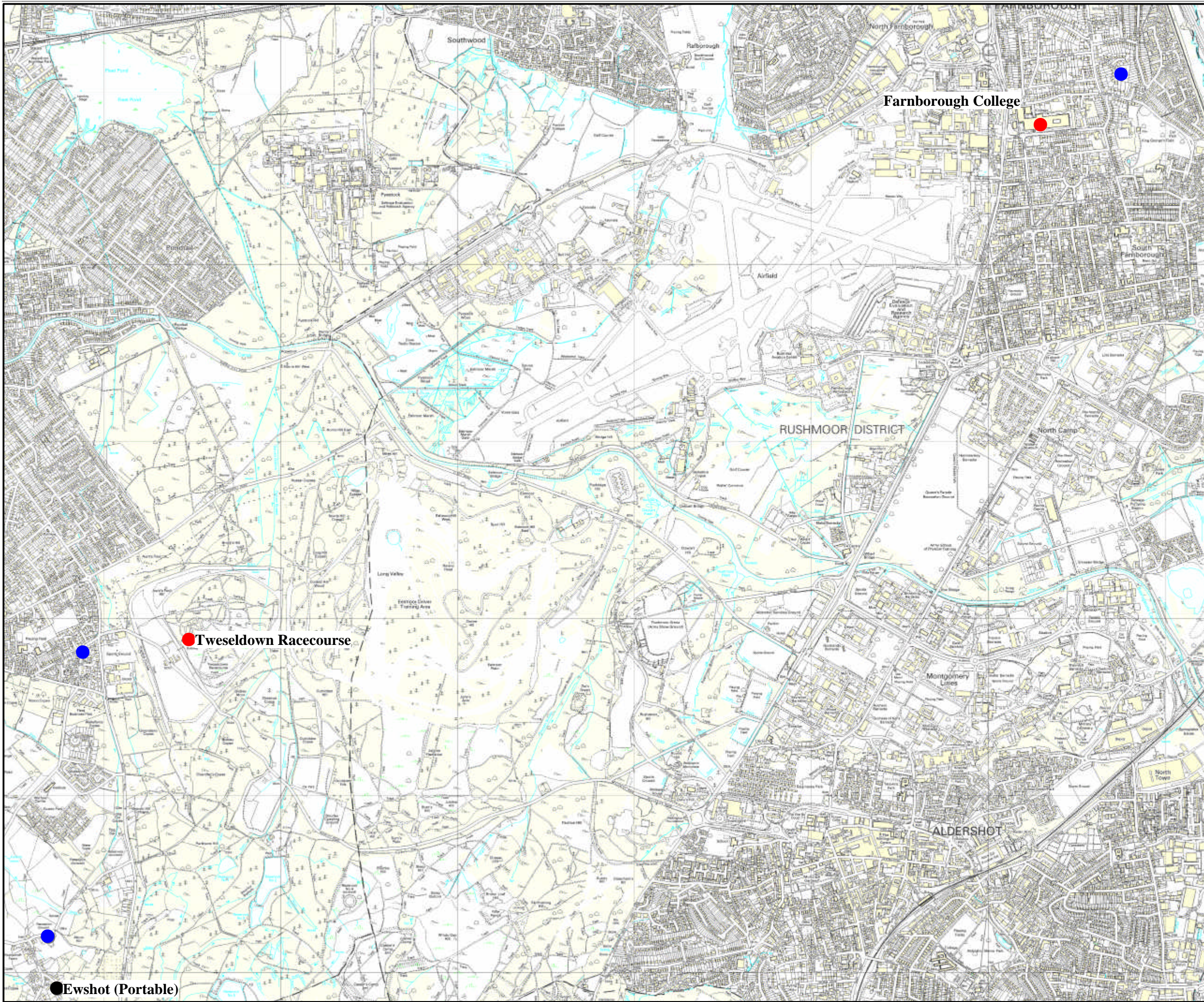


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## **Appendix 2**





- Key:
- Permanent Monitor
  - Portable Monitor
  - Previous Location of Portable Monitor

Revisions



**TAG Farnborough Airport Ltd**  
**Farnborough**  
**Hampshire**  
**GU14 6XA**

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 Based upon Ordnance Survey 1:1250 mapping  
 Licence Number: 1000 36221

Scale@A3	Date	Drawn by
1:20000	28/01/2003	SG

Title

**TAG Farnborough Airport**  
**Noise Monitoring Sites**

Drawing No.	Rev No.
<b>GN TG A OP 0150</b>	<b>D</b>

File

● Ewshot (Portable)