

**OCCUPATIONAL AND ENVIRONMENTAL
MEDICINE WING**

NOISE AND VIBRATION DIVISION

Report: OEM/47/15

Dated October 2015

A REPORT ON AN ENVIRONMENTAL NOISE SURVEY
OF AIRCRAFT ACTIVITY AT RAF LAKENHEATH AND
RAF MILDENHALL

Approved for publication



Head of the
Noise and Vibration Division

Copy Number:

Date

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**OCCUPATIONAL AND ENVIRONMENTAL MEDICINE WING
NOISE AND VIBRATION DIVISION**

ROYAL AIR FORCE CENTRE OF AVIATION MEDICINE

Report No: OEM/47/15

**A REPORT ON AN ENVIRONMENTAL NOISE SURVEY OF AIRCRAFT ACTIVITY AT
RAF LAKENHEATH AND RAF MILDENHALL**

EXECUTIVE SUMMARY

1. The Noise and Vibration Division was tasked by the Defence Safety Authority-Corporate Policy and Assurance-Policy1a on receipt of a request from the Defence Infrastructure Organisation, following receipt of proposed residential developments in the vicinity of the airbase to carry out a re-assessment of aircraft activity at RAF Lakenheath and RAF Mildenhall, based on the last environmental noise study undertaken, detailed in report IHMT/36/94 to the contour levels defined in the Noise Amelioration Scheme (Military) criteria.
2. Original contours drawn at 83 and 70 dB $L_{Aeq,16hr}$ noise levels have been updated to the Noise Amelioration Scheme (Military) 72 and 66 dB $L_{Aeq,16hr}$ noise levels.
3. This re-assessment shows that the contour extent for RAF Lakenheath and RAF Mildenhall have expanded significantly.
4. The 72 and 66 dB $L_{Aeq,16hr}$ contours have been produced using the software modelling package as specified in JSP418.

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Authors: [REDACTED] and [REDACTED]

INTRODUCTION

1. The Noise and Vibration Division (NVD) was tasked by the Defence Safety Authority-Corporate Policy and Assurance-Policy1a (DSA-CPA) on receipt of a request from the Defence Infrastructure Organisation (DIO), following receipt of proposed residential developments in the vicinity of the airbase to carry out a re-assessment of aircraft activity at RAF Lakenheath and RAF Mildenhall, based on the last environmental noise study undertaken, detailed in report IHMT/36/94 to the contour levels defined in the Noise Amelioration Scheme (Military) (NAS(M)) criteria.

BACKGROUND

2. RAF Lakenheath and RAF Mildenhall are situated in Suffolk, approximately 20 miles to the northeast of Cambridge. At the time of the original assessment United States Air Force (USAF) F15E aircraft operated from RAF Lakenheath with USAF tanker and cargo aircraft operating from RAF Mildenhall.

3. Contours in the report were drawn to the standard at the time which was set by the Noise Insulation Grant Scheme (NIGS), requiring noise contours to be drawn at 83 and 70 dB $L_{Aeq,16hr}^1$ noise levels.

RELEVANT LEGISLATION

4. The main legislation regarding environmental noise control is the Environmental Protection Act 1990 (EPA 90). MOD has exemption from clause 79(1)(g) of the EPA 90 [smoke and noise emitted from premises for operational and training activities so as to be prejudicial to health or a nuisance (this exemption extends to Scotland and Northern Ireland)]. MOD policy regarding environmental noise is to mitigate, as far as is reasonably practicable, the effects of the environmental noise which its activities produce. In 1985 the MOD voluntarily introduced a NIGS to compensate those most affected by aircraft noise in the immediate vicinity of military airfields in the United Kingdom. The scheme was suspended in April 2005 on cost grounds. It was replaced by NAS(M) in 2010.

5. The parameters on which the NAS(M) is based are 16 hours equivalent sound pressure level ($L_{Aeq,16h}$) noise contours of 72, 66 and 63 dB(A).

ANALYSIS

$L_{Aeq,16hr}$ – The A-weighted equivalent continuous average sound pressure level over a set 16 hour period. Noise measurements are often A-weighted (using a dedicated filter) to account for the sensitivity of the ear.

6. Noise contours for the station at 72dB(A) and 66dB(A) were drawn using the $L_{Aeq,16hr}$ noise values in reference B for the 30 measurement sites. The distance from each measurement point required for the noise level to have fallen to the required contour level was then estimated based on distances in the original report.

RESULTS

7. Table 1, below, gives the $L_{Aeq,16hr}$ noise levels used to draw the contour.

Position	$L_{Aeq,16hr}$/dB
1	69
2	76
3	75
4	73
5	78
6	81
7	70
8	70
9	70
10	65
11	70
12	68
13	69
14	58
15	76
16	63
17	85
18	69
19	61
20	78
21	62
22	61
23	62
24	-
25	53
26	53
27	76
28	65
29	67
30	63

Table 1: $L_{Aeq,16hr}$ Values on which the Updated Contour is Based

8. Annex A presents the 72 and 66 dB $L_{Aeq,16hr}$ noise contours. The contours consider noise from aircraft only; it may be that in any particular area there may be other noise sources such as busy roads, railway lines etc that dominate the noise environment.

9. The report and contours were reviewed by the DSA-CPA.

RECOMMENDATIONS

10. It is recommended that the 72 and 66 dB $L_{Aeq,16hr}$ contours, detailed at Annex A, should be used as the basis for the NAS(M) at RAF Lakenheath and RAF Mildenhall.

11. It is recommended that the 72, 66 and 63 dB $L_{Aeq,16hr}$ contours should be produced using the software modelling package as specified in JSP418 for RAF Lakenheath and RAF Mildenhall.

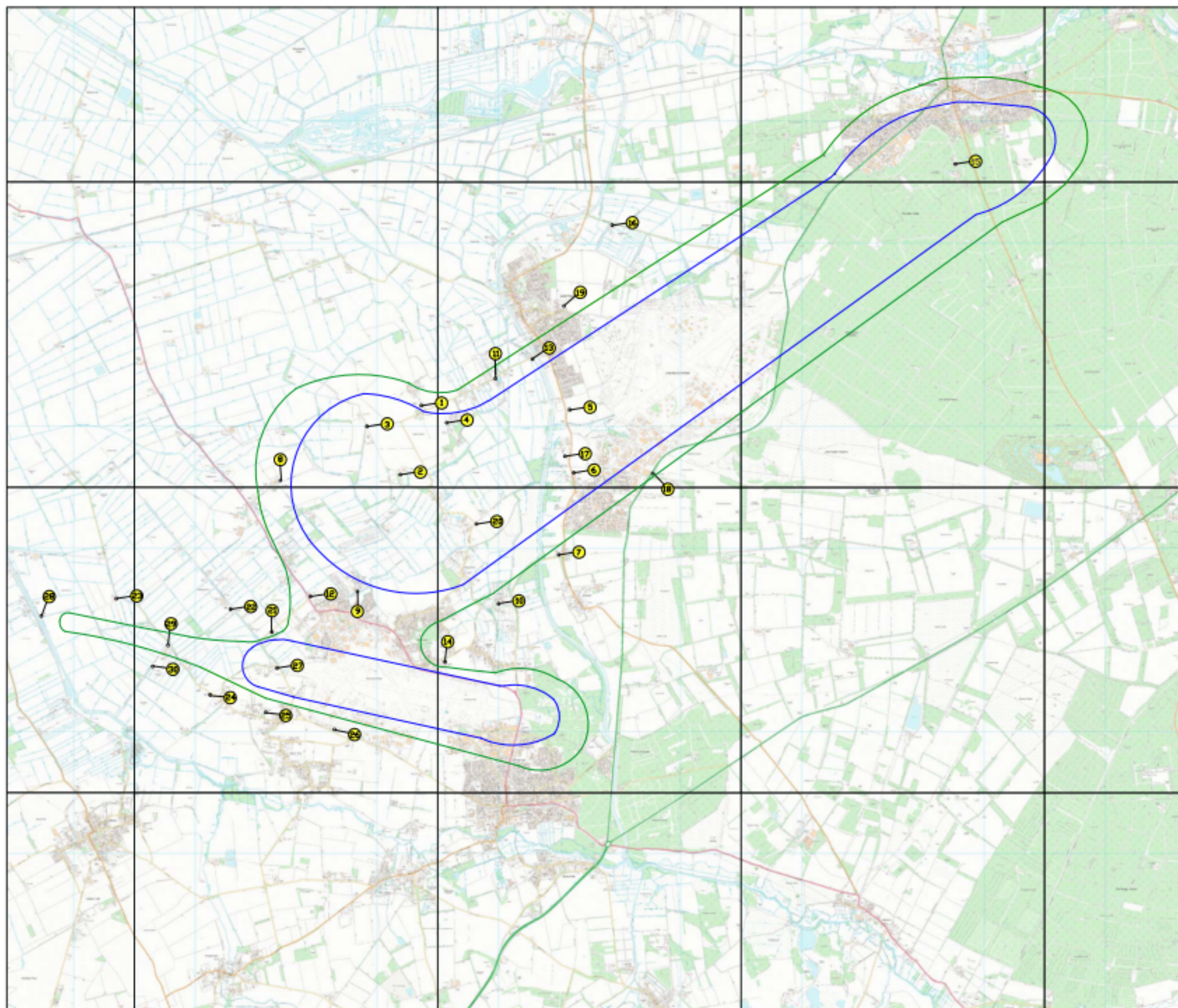
REFERENCES

- A. RAF CAM Tasking Proforma 19 Jan 15.
- B. Institute of Health and Medical Training report IHMT/36/94 dated August 1994.

Annex A To
DEM/47 /15
Dated Aug 15

KEY

- 72dB L_{Aeq,15h} Contour.
- 66dB L_{Aeq,15h} Contour.
- 63dB L_{Aeq,15h} Contour.



RAF CENTRE OF AVIATION
MEDICINE
NOISE AND VIBRATION DIVISION

PROJECT
RAF Lakenheath

TITLE
L_{Aeq,16} Hour Noise Contour - NASOM

DRAWING NUMBER
001

DATE
Aug 15

SCALE
RAF Lakenheath

CLASSIFICATION
Official

