BRITISH ACOUSTCIAL SOCIETY

Meeting of the Society on Monday, 27th November '72 at the Institution of Mechanical Engineers, 1, Birdcage Walk,London,SW1.

"NEIGHBOURHOOD NOISE"

THE DELINEATION AND OPERATION OF NOISE ABATEMENT ZONES

Paper No.72/91.NOTEB BY THE NOISE ADVISORY COUNCIL'S WORKING GROUP ON MONITORING

INTRODUCTION

1. The Noise Advisory Council was set up in April, 1970 "to keep under review the progress made generally in preventing and abating the generation of noise, to make recommendations to Ministers with responsibility in this field and to advise on such matters as they may refer to the Council". The Chairman is the Secretary of State for the Environment and members are drawn from a wide variety of occupations outside central government to provide a cross-section of expert and lay opinion on noise.

2. One of the Council's first tasks was to consider the working of the Noise Abatement Act 1960 and they set up a Working Group of members under Sir Hilary Scott to report on the subject. Following publication of the report Neighbourhood Hoise" in September, 1971, and noting the growing interest by local authorities in conducting noise surveys, the Council set up a Working Group on Monitoring under Mr. Rupert Taylor with these terms of reference:

> "To consider what guidance might usefully be offered to local authorities on the need for and conduct of local noise surveys (with particular reference to the powers to create and operate Noise Abatement Zones as proposed in "Neighbourhood Noise"); the desirability of achieving technical consistency in the results of such surveys; and whether and how central government might provide practical assistance; and to report to the Council."

3. The task of the Working Group is by no means complete and, when it is, they are bound to report first in confidence to the Noise Advisory Council. However, the Working Group are looking to the British Acoustical Society's meeting on Neighbourhood Noise for data and opinions which will help them to formulate their views and therefore consider it fair to offer, with the consent of the Council, this factual note of their current findings relating to the purpose of the Society's meeting.

4. The Working Group's studies which are relevant to the Society's meeting are concerned first with the concept of Noise Abatement Zones, second with their identification and delineation and third with their operation. On the last topic, the Working Group have little as yet to offer and look forward to considering the views to be expressed at the meeting. They therefore confine themselves in this paper to a few notes on the first two topics.

THE CONCEPT OF NOISE ABATEMENT ZONES

5. The report "Neighbourhood Noise" presented the concept of Noise Abatement Zones as "areas in which it was desired..... to abate the general level of noise or vibration" and it was also expected that local authorities "would select, for initial designation, areas where there was an acute neighbourhood noise problem which they had been unable to deal with effectively under the nuisance provisions of the present Act " (paragraph 162). The report did not consider that air or road traffic noise was appropriate for treatment by means of Noise Abatement Zones (Paragraph 157) but it was pointed out that local planning authorities already have certain powers to control road traffic to improve amenity and that "there would clearly be scope for the exercise of these powers in the furtherance of noise abatement within designated zones" (paragraph 173).

6. As an addition to this concept, the Monitoring Working Group have considered the Noise Abatement Zone approach might also be applied to existing quiet areas in order to keep them quiet, though for such a purpose a change in nomenclature might be needed (e.g. to "Noise Control Areas").

THE IDENTIFICATION AND DELINEATION OF NOISE ABATEMENT ZONES

7. It is unlikely that the mere designation of a Noise Abatement Zone would have a significant effect on noise: the local authority would need to "operate" it in the sense of setting noise targets for the Zones and of allocating men and equipment to encourage and monitor progress towards their attainment. Initially, therefore, authorities will wish to concentrate their attention on the "problem areas". The questions therefore arise (a) how to identify a noise source or a group of noise sources which should be contained in a Noise Abatement Zone and then (b) how to delineate the boundaries of the Zone.

IDENTIFICATION

8. The Working Group have considered several ways to identify problem areas potentially suitable for designating as Noise Abatement Zones. These include comprehensive noise surveys and the use of local authorities' knowledge of their areas.

9. For comprehensive surveys, noise level measurements can be made at survey posts by either manually operated or automatic means or by combinations of the two methods. It seems likely that 24 hour surveillance would be needed. The locations of the survey posts could be selected by several different methods: at the intersections of rectilinear grid; at selected "noisy" and "quiet" points within the boxes of a grid; according to a land-use plan of the area; or by a totally random method of selection. It is probable that for any of these approaches a standard "code of practice" (including noise units to be used) could be drawn up to avoid excessive local variations in procedure.

10. However, it is clear that because the effects of industrial noise sources tend to be highly localized, not only due to distance attenuation but also due to the shielding effects of buildings, the network of monitoring posts would need to be very dense to ensure reliable results. The survey method would therefore be costly in men and equipment and probably a lengthy undertaking. Also, the noise survey alone would give data about noise levels, not about the distribution of population exposed to the noise.

11. For a local authority to use existing knowledge to identify possible Noise Abatement Zones would seem to be a relatively inexpensive and speedy approach. Being based largely on histories of complaints, the knowledge would bear most on those areas most likely to be considered problem areas and hence most appropriate as candidates for initial concentration of effort.

12. However, judgements based solely on complaints might be liable to error - as there are acknowledged to be many factors apart from actual noise characteristics which can affect the volume of complaints about noise - and liable to significant variations within a local authority's area and also between areas. It is not so easy to conceive of a code of practice to help local authorities in this approach.

13. Nevertheless, whichever method might be used to identify problem areas, the same difficulties would arise in deciding which problem areas finally to designate as Noise Abatement Zones. It seems clear that once possible Zone candidates are identified, a reasonably detailed local noise survey will be needed to find the magnitude of the noise levels in the vicinity and the extent to which people are disturbed by them. The Working Group are to consider the scope here for guidance to local authorities to provide for consistency in the units to be used - not only in noise levels but also on population exposure measurements. This need not involve standardisation of the noise levels and the extent of the disturbance due to them as it might be quite appropriate, if only as a first step, for different criteria to be used in different places. However, the Working Group have noted that in the report "Neighbourhood Noise" it is recommended that the order which specifies proposed target levels of noise "should be subject to confirmation by the Secretary of State for the Environment after considering any objections" (paragraph 170).

DELINEATION

14. It might be anticipated that once the designation of Noise Abatement Zones gets under way, and as the public begin to appreciate the possible benefits, there could be pressure by residents to be included in a Zone, with consequent disagreements as to where the Zone boundaries should be drawn. However, for nearly all cases of industrial noise, any abatement of noise at source to benefit a nearby resident would also benefit a resident further from the source. Having identified a group of noise sources therefore, and having drawn a minimum envelope to include them together with the nearby dwellings most affected by the noise, further expansion of the Zone is likely to be without significance (unless, of course, such expansion brought an extraneous noise source into the Zone). In practice, it might be convenient to relate the minimum boundary to geographical features or to boundaries already defined for other purposes.

15. This simple approach might not be suitable if the Zone is to be used, as mooted in paragraph 5, to protect an existing quiet areas against new noise sources.

Department of the Environment 10th November, 1972