NOISE ABATEMENT ZONES - THE WAY FORWARD

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INTRODUCTION

Under Section 63 of the Control of Pollution Act 1974, local authorities in England and Wales were given the power to declare Noise Abatement Zones. There were two main reasons for this legislation. The first and primary objective was to attempt to control the insiduous increase in noise levels produced from industry and commerce, commonly referred to as the "creeping background". It is widely accepted that this phenomenon cannot be effectively contained under noise nuisance legislation. The extra control was to be achieved by measuring the existing noise levels around individual industrial and commercial buildings on Noise Control Boundaries. Subsequently, the measured levels were to be recorded in a Noise Level Register for each premises. These recorded noise levels were not thereafter to be exceeded without the written consent of the local authority.

The second objective was to reduce the existing noise levels produced by industry and commerce where it would be practical at reasonable cost and would afford public benefit. This was to be achieved by serving Noise Reduction Notices. The local authority serving such a Notice would not be obliged to prove that the noise in question amounted to a nuisance. However, it would be a legal defence for the company producing the noise to show that best practicable means had been used for preventing or counteracting its effects.

The object of this paper is to identify the problems that have occurred in Birmingham with the implementation of this legislation and to propose ways in which Noise Abatement Zones can be effectively employed in the future.

Progress with Noise Abatement Zones

It is widely accepted that the main objectives of the legislation have not been achieved. In this respect, Noise Abatement Zones must be considered a failure. Relatively few zones have been declared, even fewer are fully operational, and hardly any are effective. In fact, by 1986, only 45 zones had been created in England and Wales (1) and many of these were small or covered open field sites. The main reason cited for this failure is that the legislation was framed without fully considering the resources necessary for its implementation. In particular, the number of noise measurements required in order to comply with the guidance issued by the then Department of Environment (2) is quite staggering when applied to most practical situations. Proposals for alternative Noise Abatement Zones employing considerably fewer measurement positions have been suggested (3). In addition, the possibility of declaring Mini-Zones, covering individual factory premises or a few industrial units, has been examined by the Department of Environment and Transport and local authorities. However, at the present time, progress is almost non-existent and there is a very real danger that the legislation will never be used effectively.

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Experience in Birmingham

There is one existing Noise Abatement Zone in Birmingham. It was brought into operation in 1976 and covers approximately 130 acres in the West Heath area of the City. At the time when the zone was declared, the Noise Abatement Zone provisions of the Control of Pollution Act were relatively untried and the zone was set up as a pilot scheme designed to enable the technical and administrative problems to be assessed in order to determine future policy. The zone originally covered 69 commercial and industrial premises. Noise measurements commenced in 1977 and were carried out in accordance with the published guidelines (2). However, progress was painstakingly slow, mainly because of the inordinate number of noise measurements which were required. It soon became apparent that it would be impossible to deal with every premises originally identified and the Noise Abatement Zone Order was varied to exclude all but the 23 industrial sites in the area. The first Noise Registers for these premises were brought into force in 1980 and the last in 1983. Thus, the West Heath Zone has been semi-operational for seven years and fully operational for four years. A page from one of the Registers is reproduced in Fig.1 and a diagram of the relevant measurement positions is shown in Fig.2.

In recent years, the zone has been policed at least twice during the summer months. However, only minor contraventions have occurred and, in the most part, these have been resolved by routine maintenance of plant and machinery. The following lessons have been learnt from the experience gained on the pilot scheme:-

(1) It was over ambitious to declare a relatively large area a Noise Abatement Zone. Even after excluding all but the industrial premises from the Order, an immense amount of time and effort was spent measuring noise levels around premises where no environmental noise problems had occurred in the past and were extremely unlikely to occur in the future.

(2) On many of the industrial premises, the number of measurement positions were unnecessarily large. Efforts were made to reduce them where possible. For example, a Noise Control Boundary was declared around the whole of an industrial estate containing 13 factory units, instead of around each of the individual premises (Fig.3).

(3) In order to ensure that the typical noise levels were recorded, several attended measurements had to be made at each measurement location. It was not feasible to carry out these attended measurements at night because of practical difficulties with access and the staff time implications. Therefore, no noise levels were entered in the Noise Level Registers for night time. This is arguably the most important period to control industrial noise.

The overall conclusion from the study was that the amount of time and effort spent in setting up and operating the West Heath Noise Abatement Zone was out of all proportion to the resulting benefits to the community. In fact, it could be argued that there have been no direct benefits to the public, other than the fact that some factory managers and owners in the area have been made more aware of their environmental responsibilities. As a result of these lessons, no further zones have been declared in Birmingham.

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Proposals for new Noise Abatement Zone

Experience, both in Birmingham and elsewhere, has shown that without doubt traditional Noise Abatement Zones are not a viable proposition for local authorities. Mini-Zones offer an attractive alternative, but in order to make this approach practicable, the number of noise measurement positions must be kept to an absolute minimum and problem premises must be targetted.

In Birmingham, the operational problems have been considered for some time and it is believed that two situations have been identified where the legislation can be used to the benefit of the public, without causing an undue drain on resources.

Situation 1 The legislation should be used to control the acoustic environment around large factory complexes in mixed industrial and residential areas where there are existing noise problems or noise problems are likely to occur/recur in the future. In the summer of 1986, a survey was carried out at two such Birmingham-based companies, both of which were operating a 24-hour shift system. The results indicated that, at many dwellings adjacent to the factories, the noise levels, particularly at night , were unacceptably high. In some cases, these levels amounted to a nuisance, although the firms in question had taken best practicable means to control the noise. In these, and similar instances, Noise Abatement Zone legislation should be put to effective use, at least to prevent any further increases in noise level.

Firstly, instead of declaring an area a Noise Abatement Zone, the zone and the Noise Control Boundary should simply be the factory itself. Where shift work is practised, the survey indicated that the major noise problems occurred at night or in the early hours of the morning. Therefore, only the night-time noise levels need be measured and registered; for example, between 2300 and 0700 hours. The measurement positions on the Noise Control Boundary should be kept to an absolute minimum and should only be selected with a view to controlling noise at dwellings close to the factory where there are existing or potential noise problems. If new processes or equipment are introduced into the factory, such that problems are experienced or are possible at dwellings not previously adversely affected by noise, additional measurement positions should be added to the Noise Level Register at that time. In order to determine the typical night-time noise levels, initially it would be necessary to carry out a night-time survey. However, if unattended automatic noise monitoring was carried out close to the measurement positions at the same time, preferably from the most exposed property, it should be possible to subsequently police the zone using automatic techniques. Only if the results thus obtained indicatedthat the noise levels had increased, would it be necessary to repeat the attended measurements. By adopting this approach, it should be possible to control noise from large industrial complexes in environmentally sensitive areas with very few noise measurements and relatively little manpower input.

Situation 2 The legislation should be used when noise complaints concerning industrial or commercial premises of any type or size are made to a local authority. In such instances, the authority has a duty to carry out an investigation and, if a statutory nuisance is found to exist, they are required to take formal action against the company in question. As a result of this action, the nuisance should be abated or the company will have been

seen to have taken best practicable means to abate its effects. At this stage, the premises should be designated a Noise Abatement Zone, thus ensuring that the noise climate does not deteriorate in the future. Again, the noise measurement positions should be kept to an absolute minimum. One position on the noise sensitive boundary would provide adequate control in many cases.

It is important that the levels registered should only apply to the hours the firm were causing a nuisance when the complaint arose. Thus, typical entry in the register would be along the following lines:-

"The LA_{eq} level measured at position 1 on the Noise Control Boundary should not exceed 55dB(A) for any two-minute period between 0800 and 1800 hours".

If the time period is not limited in this way and the company in question commenced shift work, it could be argued that they were permitted to produce 55dB(A) at night. This situation may well result in a nuisance. The approach outlined above would require very little manpower input, as the vast majority of the work has to be carried out during routine investigation of the complaint.

One problem still remains with the approaches outlined to deal with situations 1 and 2. That is where the noise levels in either case are unacceptably high, but the company in question is judged to have taken best practicable means to reduce the disturbance to local residents. In such cases, there is an argument for introducing some form of grant scheme to enable companies to undertake remedial work before setting up the Noise Abatement Zone Register. The concept requires further deliberation, as it is in direct contradiction to the generally accepted "pollution pays" concept and could well be open to abuse. However, in many instances, it may well be the only practical way of reducing existing noise levels.

Conclusions

Noise Abatement Zones are not effectively employed at present, as traditional zones are not a viable proposition. However, the objectives of the legislation are highly desirable, especially in cities like Birmingham with many mixed residential and industrial areas. New and recurring environmental noise problems are still being dealt with exclusively under time-consuming and often ineffective nuisance legislation and, in certain situations, particularly around major industrial complexes, there is undoubtedly a "creeping background" condition. A fresh approach is required, possibly along the lines suggested in this paper. In addition, the concept of a grant system to reduce existing noise levels should be considered where legislation offers no remedy.

The views and opinions expressed in this paper are solely those of the author and do not necessarily reflect the views of Birmingham Environmental Services Department or the policies of the City Council.

References

(1) Noise Legislation - Its Effectiveness for Noise Control. The Noise Council, 1986

(2) Statutory Instrument No. 37 - The Control of Noise (Measurements and Registers) Regulations, 1976 - H.M.S.O.

(3) Alternative Noise Abatement Zones - D. R. Romaine - National Society for Clean Air Conference, October 1986

FIGURE 1 – REGISTER

CITY OF BIRMINGHAM ENVIRONMENTAL SERVICES DEPARTMENT
CONTROL OF POLLUTION ACT, 1974 - NOISE ABATEMENT ZONE (NO. 1) ORDER, 1976
NOISE LEVEL REGISTER

ENTRY REFERENCE			
Z1	1	A	9
Zone	Premises	Type	Page

POSITION NUMBER SEE PAGE Z1/1/A/8	LEQ LEVEL FOR ANY 2-MINUTE PERIOD BETWEEN 0800 AND 1630 HOURS	MAXIMUM LEVEL BETWEEN 0800 AND 1630 HOURS	DATES AND TIMES OF MEASUREMENTS	DESCRIPTION OF DOMINANT NOISE
1	60 dB(A)	-	24th August 1977 0700 to 1030 hours 1st September 1977 1000 to 1245 hours 5th September 1977 1330 to 1630 hours 13th September 1977 1200 to 1415 hours	Press type noise and extractor noise
2	63 dB(A)	-	As position 1	Press type noise
3	64 dB(A)	65 dB(A)	As position 1	Press type noise
4	61 dB(A)	63 dB(A)	As position 1	Press type noise
5	61 dB(A)	63 dB(A)	As position 1	Press type noise
6	60 dB(A)	62 dB(A)	As position 1	Press type noise
7	57 dB(A)	59 dB(A)	As position 1	Press type noise
8	51 dB(A)	52 dB(A)	As position 1	Press type noise
9	51.5 dB(A)	-	As position 1	Press type noise

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FIGURE 2. MEASUREMENT POSITIONS RE. FIGURE 1.

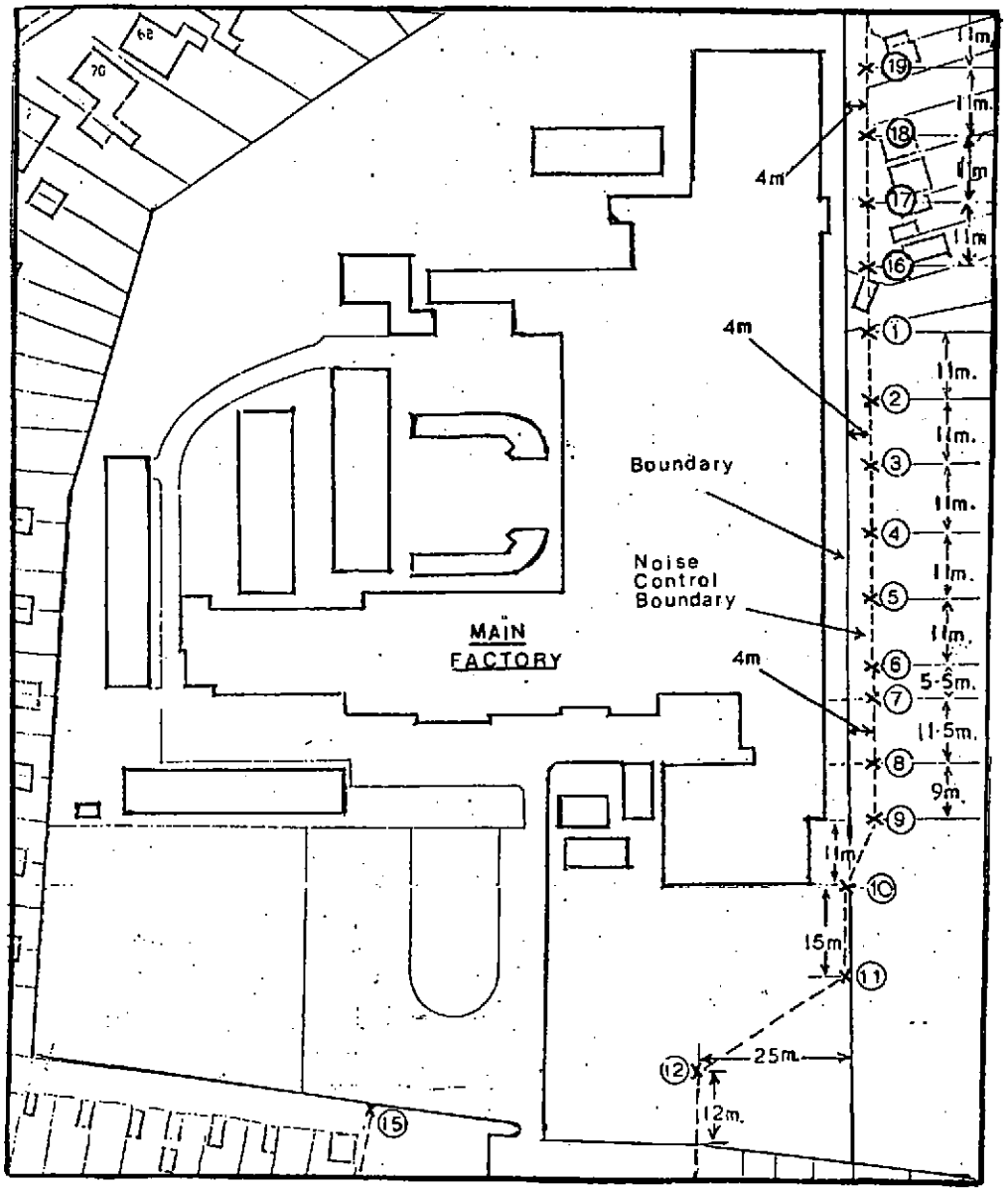

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FIGURE 3. INDUSTRIAL ESTATE NOISE CONTROL BOUNDARY