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PROPOSED RESIDENTIAL DEVELOPMENT ON INDUSTRIAL SITE AT CHIPPENHAM, WILTSHIRE

Dr N D Cogger

Arup Acoustics, Parkin House, 8 St Thomas Street, Winchester, Hampshire SO23 9HE, UK

INTRODUCTION

Current national and local government policies supporting sustainable development tend to promote urban renewal and the use of "brown field" sites in preference to new development in rural areas. Such policies also show preference to sites where alternative modes of transport to the car, including cycling and walking, are practicable. One result of these strategies is to favour developments which enable a proximity between residential areas and the commercial and employment areas which they support. This, in turn, can lead to residential development on land adjacent to industry, with the potential for conflict between noise generating and noise sensitive sites.

This paper examines one such site, subject to a recent planning inquiry, which highlighted the difficulty in the application of planning guidance (and particularly PPG 24 and BS 4142) to mixed residential and industrial areas.

The context of the site led to a significant difference in the interpretation of the definition of "transportation", "industrial" and "mixed" noise sources by the local Environmental Health Officer and the Consultant acting for the developer. The result of the Public Inquiry is not yet known and the uncertainty in interpretation remains unresolved.

PROPOSED DEVELOPMENT

A parcel of land at the boundary of a major industrial site near the centre of Chippenham has been determined as surplus to the requirements of the company for industrial or commercial development. The land is itself bounded on one side by a public road providing access to the town centre and M4 motorway and on the remaining three sides by site access roads. Nearby land has established residential usage. A context plan of the area is shown in Figure 1.

The company wishes to dispose of the land and, with limited suitability for commercial development, a proposal for residential development was submitted to the local authority. Planning permission was refused by the local planning authority on a number of issues, including loss of employment land, design and layout and emissions (including noise) from the industrial complex. The developer appealed against the decision, with the subject of noise forming a key element in the subsequent Public Inquiry.

Proceedings of the Institute of Acoustics

PROPOSED RESIDENTIAL DEVELOPMENT ON INDUSTRIAL SITE AT CHIPPENHAM, WILTSHIRE

NOISE ISSUES

Site surveys showed that noise levels at the boundaries of the site varied with location. To the north, a short term noise level of 50dB L_{Aeq} was measured, dominated by factory plant, including intermittent, but frequent compressed air discharges from dust extractors. At the western boundary, traffic on the public road only was audible, whilst to the south there were additional contributions from vehicles using the main site access road, as well as a low level of industrial noise. Daytime short term levels of 55dB L_{Aeq} were measured at the western boundary, with marginally higher levels of 56dB L_{Aeq} to the south. To the east of the site there was a mix of road traffic noise from the public and site roads and a contribution from industrial plant. Short term levels were generally lower at 50dB-56dB L_{Aeq} , but variable as a result of site vehicle movements.

The Local Authority EHO assessed the noise at the site for planning purposes using PPG 24¹ and concluded from Annex 1, paragraph 3 that, whilst noise from traffic on the public road was not a planning issue, noise due to site vehicle movements and plant was industrial in nature and the Noise Exposure Categories (NECs) for transportation and "mixed" sources were not applicable in this context. Where "industrial" noise is said to be dominant, PPG 24 advises that BS 4142² should be used. The EHO determined a notional background level at a point on the site shielded by buildings from industrial noise and compared this level with L_{Aeq} values measured at the north, east and south development site boundaries. This analysis resulted in the specific noise from use of the industrial site being more than 10dB above the notional background level and it was concluded that this would be likely to give rise to complaint. Planning permission was refused, with noise being a key issue in the reasons for refusal.

The developer appealed against the decision and Arup Acoustics acted as Expert Witness for the appellant at the subsequent Public Inquiry.

A site survey and measurements confirmed that noise to the west of the site was dominated by transportation sources using the adjacent public road; to the south and east there was a mix of noise from traffic on the public road (decreasing with distance from it), intermittent, but relatively frequent traffic on the main access road at the south boundary, less frequent vehicle movements on the site road to the east of the development site and noise from the industrial processes.

At the northern boundary of the site industrial noise was dominant and site traffic only occasional. Where industrial noise is dominant, the guidance of PPG 24 recommends an assessment based on BS 4142: 1990 and this indicated that complaints would be likely from occupants of residential properties adjacent to the boundary, unless noise control measures were introduced. It was also shown that the WHO target for night time noise limits in bedrooms³ may be marginally exceeded, if windows were open for ventilation.

Taking account of the types of sources affecting the south and east boundaries (road vehicle pass-bys and industrial plant) Arup Acoustics concluded that, since no source was particularly dominant in terms of the long term L_{Aeq} , it would be wholly appropriate to assess these areas and the area adjacent to the western boundary using the PPG 24 NECs relating to "mixed" noise sources.

It was clear from the measured day and night time noise levels that the site would fall into the lower band of NEC B (55dB-63dB $L_{Aeq,1hr}$ during the day and 45dB-57dB $L_{Aeq,1hr}$ during the night). On this basis, it was considered that, whilst "Noise should be taken into account when determining planning applications and, where appropriate, conditions imposed to ensure an adequate level of protection against noise", refusal of planning permission on grounds of noise exposure would be neither justifiable nor appropriate.

Proceedings of the Institute of Acoustics

PROPOSED RESIDENTIAL DEVELOPMENT ON INDUSTRIAL SITE AT CHIPPENHAM, WILTSHIRE

At the northern boundary, the sources of industrial noise were such that standard (and relatively inexpensive) noise mitigation, hitherto unnecessary, could be installed to ensure that complaints about industrial noise would be unlikely on the basis of a BS 4142 assessment and to enable the WHO guidelines to be met.

At the other boundaries with the industrial site, screening by bunding and/or fencing and the use of good quality double glazing systems could be shown to ensure that disturbance to occupiers of residential properties as a result of normal site operations would be unlikely. Reasonable and practicable planning conditions could, therefore, be imposed to ensure a satisfactory environment for residential development, in keeping with the intent of the planning guidance for NEC B.

The assessments of this site highlighted a key problem in the application of PPG 24 - when does noise become "mixed" rather than industrial and what is the definition of "transportation" and "industrial" noise?

In the view of the EHO, lorries being driven through an industrial site, on defined site roads, became a source of "industrial" noise, whilst similar operation on a public road could clearly only be regarded as giving rise to road traffic (ie "transportation") noise. Since the character of the noise from vehicle movements on site and on public roads is similar, there appears to be no justification or logical basis for this argument.

Noise from industrial development is not defined in PPG 24, although it is stated that it "can be assessed, where the Standard is appropriate, using guidance in BS 4142: 1990". In section 1 of BS 4142 (Scope) the Standard is said to describe methods for determining noise levels from "factories, industrial premises or fixed installations and sources of an industrial nature in commercial premises". The Foreword states that the Standard is intended for rating "noises of an industrial nature". Whilst this has generally been taken to include, by implication, the noise resulting from mobile plant on site (such as fork truck movements) or the limited manoeuvring of vehicles on site, for example, at a loading bay, it would not be considered to be generally applicable to transportation sources travelling normally on site access roads, where the character is quite different from factory and plant noise. Indeed, it is this very difference in character which is used to justify the exclusion of industrial noise from the NEC system. In the forthcoming revision of BS 4142 it has been decided not to exclude specific noise sources, such as transportation¹, a decision which is likely to result in the Standard continuing to be used for applications outside the original intended scope and provoke the type of conflict in interpretation which occurred in this case.

CONCLUSIONS

The lack of definition in related strategic guidance (PPG 24 and BS 4142) has been shown to lead to conflict in the interpretation and application of this guidance in what is likely to be a commonly occurring situation. In view of the general nature of PPG 24, it would seem relevant to provide clarification of the various types of noise referred to, particularly where there is potential for conflicting assessments. PPG 24 refers to the use of NECs where "transportation sources" are likely to affect proposed residential developments, but this particular application has emphasised the need for improved clarity and definition in cases where ambiguity can occur.

Proceedings of the Institute of Acoustics

PROPOSED RESIDENTIAL DEVELOPMENT ON INDUSTRIAL SITE AT CHIPPENHAM, WILTSHIRE

REFERENCES

- 1 Department of the Environment
 Planning Policy Guidance PPG 24
 Planning and Noise
 HMSO, 1994
- 2 BS 4142: 1990
 Method for rating industrial noise
 affecting mixed residential and
 industrial areas
 British Standards Institution, 1990
- 3 World Health Organisation
 Environmental Health Criteria 12
 Noise
 WHO, Switzerland, 1980

Proceedings of the Institute of Acoustics

PROPOSED RESIDENTIAL DEVELOPMENT ON INDUSTRIAL SITE AT CHIPPENHAM, WILTSHIRE

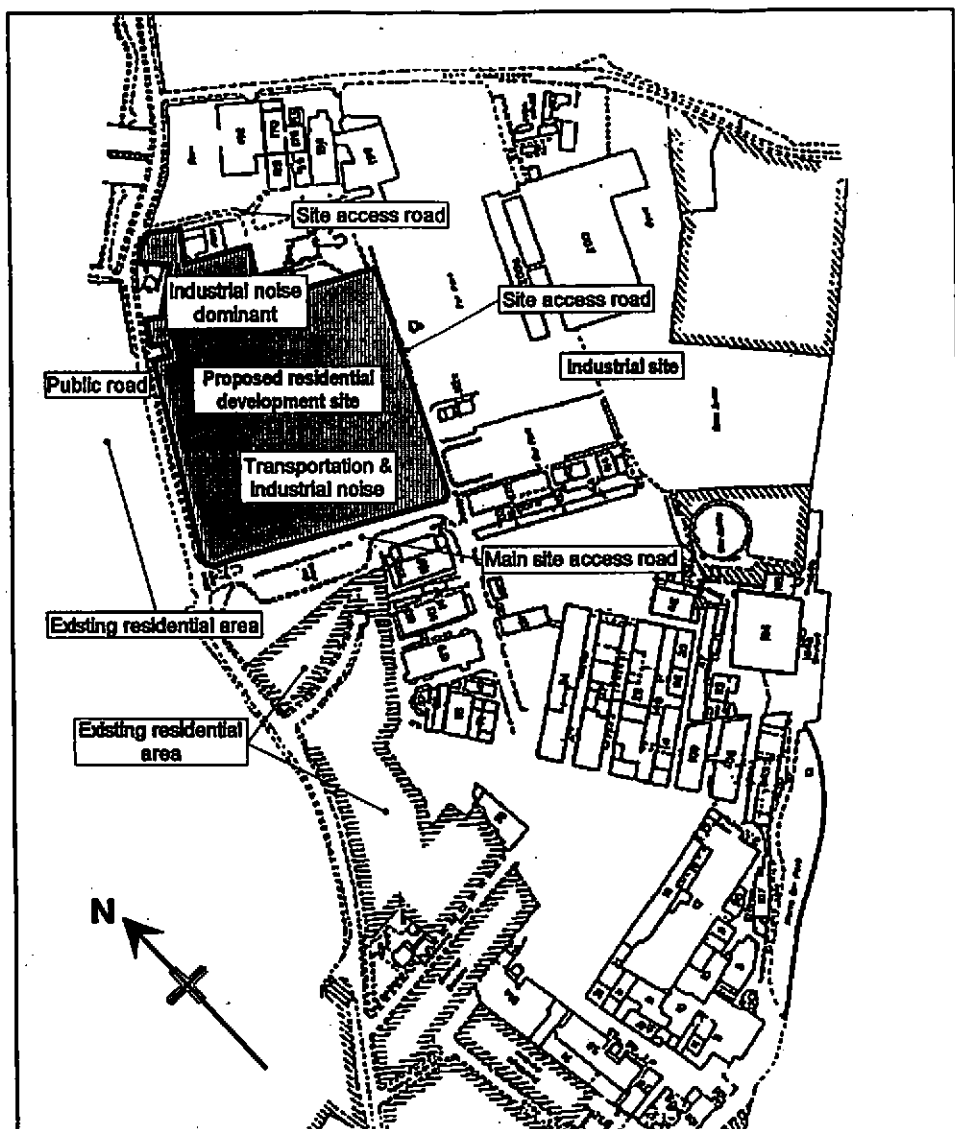


FIGURE 1: Context plan of site showing relationship between industrial and proposed residential areas