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THE IMPLICATIONS OF A DESIGN AND BUILD CONTRACT ON ASSESSING INDUSTRIAL NOISE AT THE PLANNING STAGE

P Hepworth

WS Atkins Engineering Sciences, Warrington, Cheshire

INTRODUCTION

WS Atkins Engineering Sciences were appointed by a local authority to assist in the assessment of a planning application. The application was for a factory and a gun barrel testing facility, in an area surrounded by housing. The Applicant intended to use a Design and Build contract for the development, and the impact of this course of action on the assessment of the noise aspects of the development is discussed.

HISTORY

The Applicant was an existing manufacturer located in a predominantly rural small town. The company was the largest employer in the town and was currently housed in buildings dating from the second world war. The development was the first phase of a gradual redevelopment of the whole site. The first phase would provide a modern factory for some of the machine tools, and would provide the facilities for testing gun barrels manufactured by the company.

Separate planning applications were submitted for the factory and for the gun barrel test facility. WS Atkins Engineering Sciences were appointed by the Local Authority on the 26th October 1987 with a brief to report by the 9th November 1987 in order to meet the deadline for the next Planning Committee meeting.

THE BRIEF

WS Atkins Engineering Sciences were required to carry out the following work:-

1) Monitor existing noise levels for one week at five locations around the application site.
2) Recommend criteria to control noise from the development.
3) Investigate the Applicant's proposals to determine whether the proposed development was likely to meet the noise criteria.
4) Identify any problem areas.

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THE ASSESSMENT

It was soon apparent that both the factory and test facility were potential noise problems, as there are residential properties situated within 30m of the proposed development. The test facility was potentially the greater noise problem. A visit was made to a similar facility where measurements were taken which recorded a level of 109 dB(A) at 2m from the entrance doors into the target end of the test facility. The noise survey around the application site indicated existing L_{90} levels of 40-45 dB(A) during the day and 30-35 dB(A) during the night. Noise measurements were taken inside the existing factory which indicated that maximum noise levels in the new factory would be approximately 80 dB(A). The factory is also likely to be used on occasions for night-time working. It was clear that in order to avoid causing noise nuisance, it would be necessary for attention to be paid to the details of noise control.

Once the monitoring of existing noise levels was completed, the next task was to recommend noise criteria for the development. These were proposed as follows:-

Monday - Friday 08.00 - 19.00

	L_{eq} (1 hr)	L_{max}
Western boundary of site	40	45
Any other point on the site boundary	45	50

Bank Holidays and any other period not covered above

	L_{eq} (1 hr)	L_{max}
Any point on the site boundary	33	38

It was acknowledged that these were relatively strict noise limits, but it was felt that they were necessary to avoid a 'creeping' increase in the background noise levels and to avoid nuisance from the gunshots.

The Applicant had supplied plans showing the location of the development and some details of construction, but at the time the original planning applications were considered, the Design and Build Contractor had not been chosen. The Applicant had appointed an Architect, but his role was solely to provide basic information to the tenderers, and to assist the Applicant in assessing the tenders when received. The Architects brief did not include any detailed design work.

The information provided by the Applicant contained no details of noise attenuation measures at all. The 'Outline specification for Rifle Testing Facility' provided by the Architect contained the following statement:-

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"Detailing on the method of sound proofing of points of access and of the ventilation will be provided at working drawing stage, for the approval of the Local Authority, by the Design Build Contractor."

It was not therefore possible to assess whether the proposed development was likely to meet the noise criteria. The Local Authority was not willing to approve the noise attenuation measures at a later stage, after planning permission had been granted. Therefore, a recommendation was made that consideration of the application be deferred until more detail was provided by the applicant. This was accepted by the Planning Committee on the 16th November 1987.

Eventually the Applicant chose the Contractor, who had appointed an Architect to carry out detailed design work. Despite our suggestion, the Applicant and Contractor would not appoint an acoustics consultant to carry out the design of the noise control measures. This was left in the hands of the Contractor's Architect. Eventually, towards the end of February 1988, following discussions with the Contractor's Architect, an acceptable noise attenuation scheme for the factory was approved, but the test facility application was still deferred due to lack of information.

During March 1988, the Contractor's Architect contacted a company who manufactured noise control hardware and requested them to provide a noise attenuation scheme for the test facility. The company initially came up with a scheme which would reduce noise levels at the boundary of the development to 60 dB(A). It was accepted that the test facility would only be used during the day, but this level was 15 dB(A) above the proposed L_{max} for daytime. Following further discussions, a new noise attenuation scheme was proposed incorporating additional noise attenuation measures. It was calculated that this would allow the boundary noise criteria for day-time to be met. On 31st March 1988, we were able to advise the Local Authority that the proposed noise attenuation measures, subject to careful implementation, were acceptable.

DISCUSSION

It is considered that the Design and Build type contract was inappropriate for the development because of the gun barrel test facility. It is accepted that this type of contract may limit the financial outlay of the applicant before planning permission is granted, but in this case planning permission was withheld for 5 months because of insufficient detail. The detailed noise design work required was beyond the scope of most architects and the obvious solution was for an acoustics consultant to be employed. The Contractor was unwilling to do this because it would increase his costs, and the Applicant was unwilling to do this because he saw it as possibly 'wasted money' if planning permission was not subsequently granted. The hardware manufacturer did eventually come up with an acceptable scheme, but an acoustics consultant may have proposed a cheaper scheme by looking at items such as moving the facility, which the hardware manufacturer would not have considered.

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CONCLUSION

Careful consideration should be given before using a Design and Build contract for a development where noise is a potential problem. For the developer it may result in delays in the granting of planning permission, and a noise attenuation scheme more expensive than necessary. For the Local Authority, if the exact noise attenuation scheme is not agreed before granting planning permission, there will be commercial pressures on the contractor to minimise the costs of noise attenuation, and the local authority may end up with a noise problem when the development is operational.