

# Proceedings of the Institute of Acoustics

## KESTON FRUIT FARM, BROMLEY: A CLAY PIGEON SHOOTING CASE STUDY

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### 1. INTRODUCTION

**Biggin on the Bump:** the world-famous Spitfire base of the Second World War. On a bump, it certainly is, in fact, several bumps. It is situated at a point where the North Downs form a number of folds, giving a succession of undulating hills and valleys, with a view over the whole of Central London and beyond on a clear day.

**Biggin Hill** is where rural Kent meets suburban Bromley. The expansion in the area during the past thirty years has been dramatic and small pockets of land are still being developed for residential use. On a larger scale, the old Ministry of Defence land is being redeveloped with much higher population densities. This expansion within the Green Belt is increasing the number of people who live within sight of open fields with all of the advantages and disadvantages that brings. The farming land in the area is not of the highest quality, and much is currently set aside. A variety of authorised and unauthorised uses have grown up, and we have enough activity here to keep our Planning Enforcement Officers occupied.

In addition, landowners in the area make full use of their Permitted Development Rights under Planning Law, and any given Sunday will see a migration from suburbia to the green fields of Biggin Hill for the boot fairs, motor cycle scrambling, microlight flying, and clay pigeon shooting. The residents are therefore under few illusions about the area in which they live and on the whole, are tolerant of most of these activities.

### 2. BACKGROUND

In May 1996 we received our first complaint from a resident of Leaves Green Road about the noise from a new clay pigeon shoot in the area. Our first visit was concerned with establishing whether or not there was a nuisance, and making contact with the organisers. The shoot was organised by a Gun Club and took place fortnightly on Sunday mornings. There was also the possibility of a couple more shoots on Bank Holidays to keep within the Permitted Development of twenty eight times a year. The shoot was laid out along one of the ridges running roughly north-south and parallel to Leaves Green Road, with the guns shooting away from the houses. There was no attempt to limit the amount of noise by barriers. The land on which the shoot was taking place was an old fruit farm. Still established largely as orchards the trees had been left for several years to go back to nature, and left an area which the Club considered to be challenging as it offered a number of different shooting possibilities.

The Organiser of the shoot was very co-operative. He had a large amount of land available and indicated right from the start his willingness to work with us in finding a solution to the problem. We, likewise, wanted to work towards an informal solution if we could. Although we had no doubt about there being a statutory nuisance, we did not know, without the Organiser's co-operation, whether we would be looking to modify the shoot in some way to reduce noise levels, or, if we would have to prohibit the shoot altogether. As the land on which the shoot was taking place amounted to approximately one hundred acres we thought it unlikely that we would be prohibiting the shoot completely.

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From our first discussions with the Organiser it was apparent that the owner had made a large area of the farm available to him for clay pigeon shooting, and he agreed voluntarily to move the shoot from the exposed ridge. We made it clear that the next nearest piece of land may also be unsuitable but would conduct noise tests to record levels at the nearest noise sensitive dwellings. By this time complaints had been received from the north, east and south of the shooting site and so we had to establish several monitoring positions. At this stage we considered three residential premises which we thought were the worst affected, the level of noise depending on the wind direction. The noise tests were carried out under still conditions and it was found that the loudest position in these circumstances was the initial complainant's house in Leaves Green Road.

In order to obtain the confidence of the Organiser we had to confirm the standards which we were seeking to impose. We wanted to reduce the noise level in any residential garden to less than 60 dB(A) fast (free field), which meant a reduction of about 20-25 dB(A). The Organiser was concerned that if complaints continued we would then impose a different higher standard, or, close the shoot. Confidence and trust was important at this stage and we confirmed that if the standard could be achieved then we would serve a formal notice under the Environmental Protection Act 1990 which would then confirm the noise levels.

A further area of land was cleared for the shoot and several hundred bales of hay were delivered to the site for the construction of two-sided enclosures around each shooting position. Readings were then taken of ten shots in each position, firing in several different directions. At the request of the Organiser we also took recordings of shooting outside straw-bale enclosures but in a position where there was more shielding from the contours of the ground. As a result of the first set of tests, the required 65 dB(A) was not achieved, but the levels were close enough that we were confident that further straw bales and an enlargement of the "exclusion zone" would meet the standard. The Organiser carried out further work but due to poor weather we were unable to verify the noise levels. Complaints continued to be received and when investigated the noise levels were about 70 dB(A) with a strong positive wind.

### 3. PROBLEMS ENCOUNTERED WHEN TAKING NOISE MEASUREMENTS

Some of the problems we encountered during the investigation are outlined below.

The initial problem was getting the right weather conditions to take noise readings. The area, being elevated, tends to be quite windy, and is affected regularly by mist and low cloud.

Then we had problems establishing the correct position to take noise readings. Complaints were received from residents to the north, east and south of the site. A small number of residents to the west may also have been affected if the shoot changed orientation.

We also had to identify the type of gun and cartridge on the shoot. We found that for a given position and discipline, noise levels varied by up to about 10 dB(A) depending on the gun, cartridge, and elevation of the muzzle.

Most monitoring involved two or even three Officers and at least two sound level meters. Mobile phones were used, although walkie-talkies would also have been suitable.

Drawing up the Notice gave a number of options. As there is no agreed national standard or Code of Practice, we looked at various Codes and drew up a standard which we felt was reasonable. Several of the residents were most

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insistent that nothing less than closure of the shoot would satisfy them, and these residents would also later state that there was no reduction in noise levels even though we could demonstrate through measurements that levels had reduced by about 20 dB(A).

## 4. NOISE ABATEMENT NOTICE

At this point we served a formal notice on the Organiser which confirmed the noise levels, as well as:

- Monitoring positions
- Operating times
- Shoot orientation
- Noise barriers
- Numbers of individuals at any one time
- Type of cartridges
- Public Address System (not to be used)

## 4. RESULT

The Notice was not appealed and the Organiser started to put in place the required measures. In the following weeks a small number of further complaints were received and monitoring was again undertaken. During one visit the Officers were told by the Organiser that the owner had sold the farm and would not renew the contract with the Gun Club and so they were no longer able to use the land.

## 5. CONCLUSION

In conclusion, we were very lucky in that we had an Organiser who was reasonable and who was as keen as we were to find a solution. He accepted that this may mean that the shoot could not continue on the land, or that there may be very severe restrictions on the activity.

The outcome was that the shoot on the land stopped, which clearly pleased many of the residents. The Schedule of the Notice served is given in the Appendix to this paper.

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## APPENDIX

### Noise levels

The noise level should not exceed 60 dB(A) when measured at any of the three locations listed below and shown in the maps on the following pages:

1. public car park, Leaves Green Road
2. shared entrance to 100, 102a Leaves Green Road and Vale Farm
3. Blackness Lane, outside Hansler, Kogarah and Orwell

The noise level is calculated as the arithmetic mean of the 25 loudest gunshots to occur in any 15-minute period when measured as FAST MAX setting. Noise measurements should be taken at least 3.5 metres from any reflecting surface and at a height of between 1.2 and 1.5 metres above the ground.

(n.b. this Notice does not grant or imply permission to enter on to any private land without the permission of the owner)

### EQUIPMENT

Instrumentation used for sound measurement purposes shall conform to the specifications of British Standards 5969 and 6698 Type 1 (Precision grade as appropriate) and shall be calibrated prior to and after use in accordance with the manufacturers' instructions. (any discrepancies to be noted)

### WEATHER CONDITIONS

Noise readings should not be considered valid if the wind speed (positive or negative) is more than 5 m/s, or during periods of precipitation.

### OPERATING TIMES

Shooting shall only take place between the hours of 10.00 a.m. and 4.00 p.m. subject to a maximum duration of four hours. Shooting should not take place on any Bank Holiday, Remembrance Sunday, Christmas Day, Boxing Day, Good Friday or Easter Monday. No shoot should take place within six days of the previous shoot.

### SHOOT ORIENTATION

The overall shooting orientation should be in the opposite direction from noise sensitive premises. Wherever practical, the target selection should ensure that ground-muzzle relationship is such that shotgun discharges occur predominantly when muzzles are parallel or pointing to the ground. Where this is not possible, for example with "high bird" shooting this area should be situated as far away as possible from noise sensitive properties.

### NOISE BARRIERS

A system of noise barriers should be built to re-direct, absorb and screen noise from the guns. The barriers should be as close to the noise source as possible, should be acoustically soft (such as soil, sand, straw, or proprietary sound insulation products). The barriers should be a minimum of 3.0 metres higher than the shooting position and should extend at least 2.5 metres to either side of the shooting position, or constructed in a U-shape, with the total internal length of at least 5 metres. (n.b. a Planning Application may be required for certain types of noise barrier, and compliance with this Notice does not imply or infer the granting of Planning Permission)

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## **NUMBER OF INDIVIDUALS**

The number of individuals shooting at any time shall be restricted to six.

## **CARTRIDGES**

East European cartridges should not be used.

## **PUBLIC ADDRESS SYSTEM**

Public Address Systems should not be used except in emergencies.

