


## **Environmental Noise Impact Report**

### **An Assessment of Noise Emissions from the Kitchen Ventilation System Serving the External Kitchen at The Roaring Donkey Public House 316 Holland Road, Clacton-on-Sea, Essex CO15 6PD**

**Report for Greene King Pub Company Ltd**

**Report Date: May 2021**

**ENL**  
*Acoustic Consultants  
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**NOISE SURVEY REPORT/GKP/May 2021**  
**GREENE KING PUB COMPANY LTD**  
**THE ROARING DONKEY, HOLLAND ROAD, CLACTON-ON-SEA, ESSEX**  
**AN ASSESSMENT OF NOISE EMISSIONS FROM THE KITCHEN VENTILATION**  
**SYSTEM SERVING THE EXTERNAL KITCHEN**

**1.0 INTRODUCTION**

- 1.1 Instruction: This report is to provide consultancy services including noise monitoring, advise and evaluation with reference to an assessment of noise emissions from the Kitchen Ventilation System serving the external kitchen at The Roaring Donkey Public House.
- 1.2 Client: Greene King Plc
- 1.3 Survey Location: The Roaring Donkey Public House, 316 Holland Road, Clacton-on-Sea, Essex CO15 6PD
- 1.4 Survey Dates: 29 April 2021 —environmental background and specific noise measurements.
- 1.5 Weather Conditions: No wind, warm and dry.
- 1.6 Instrumentation: CEL 633 C1 Precision Sound Analyser Type 1  
CEL 284/2 Acoustic Calibrator Type 1  
(Calibration Status: Current Cert from July 2019)
- 1.7 Report Date: 06 May 2021
- 1.8 Consultant: R B Parker MIOA, MCIEH, DMS.  
P E Gunter MIOA

**2.0 BACKGROUND INFORMATION**

**2.1 The Premises and the Development**

- 2.2 The Roaring Donkey is an existing single storey brick-built building. The rear single storey flat roof extension located on the south side of the building. A single storey timber building containing an external kitchen is located also on the south side of the premises. There is a separate kitchen extract system serving this external kitchen. It is located on the flat roof of this particular building.
- 2.3 The proposed external kitchen would be for burgers etc serving the customers using the garden facilities. It would more than likely be for daytime and early evening hours only. The premises trades (post Covid):  
Sunday – Thursday 1100 hours to 23:00 hours  
Friday – Saturday 1100 hours to Midnight.



#### 2.4 Location Details

2.5 the nearest residential property is a 3 storey flat development - Mansard Court. These properties overlook the external kitchen. These properties are about 20 metres from the kitchen extract system.

#### 2.6 Planning Requirement

2.7 Application No: 20/01807/FUL from Tendring District Council sets out the following condition:

*Condition 4 - A competent person shall ensure that the rating level of noise emitted from the proposed extraction system and condensers shall not exceed 5dBA above the background. Prior to the use hereby permitted coming into beneficial use, the assessment shall be made in accordance with the current version of British Standard 4142. The noise levels shall be determined at all boundaries near to noise-sensitive premises. Confirmation of the findings of the assessment shall be provided in writing to the local planning authority for written approval. The proposed ventilation and extraction system must be installed by a relevantly qualified technician and must be maintained and cleaned in accordance with the manufacturers guidance. All subsequent conditions shall comply with this standard.*

### 3.0 ENVIRONMENTAL NOISE MEASUREMENT CONSIDERATIONS.

3.1 In order to provide a background noise level from which to base assessments can be made, background noise readings were carried out at the boundary of Mansard Court. This position was selected to ensure extraneous noise from the various items of plant did not influence the measurements. These readings are in the table below and are used in the upcoming assessment tables.

3.2 In this case environmental measurements were made in accordance with BS7445:2003 Parts 1-3. The microphone was positioned 1.2 metres above ground level at the proposed monitoring positions as in para 4.1 above.

3.3 Measurements made have been assessed and rated under the guidance in the procedures in British Standard 4142:2014 - Method for rating industrial and commercial sound. This standard is extensively used to assess the impact of noise from commercial/industrial activity upon residential properties.

3.4 Measurement periods of 15 minutes are used during the survey to ensure these periods are considered an adequate range of measurements to be taken. Calibration of instrumentation was carried out at the beginning and end of each monitoring period, in accordance with good practice.



#### 4.0 ENVIRONMENTAL NOISE MONITORING RESULTS

##### 4.1 Table 1 – Environmental Background Noise Monitoring- 29 April 2021

Monitoring Positions	Period (hrs) of readings	SPL dB ref 2 x 10 <sup>-5</sup> Pascals				
		L <sub>Aeq</sub>	L <sub>A90</sub>	L <sub>AMAX</sub>	L <sub>AMIN</sub>	L <sub>A10</sub>
Position 1 – boundary of Mansard Court	1700-1800	55.1	48.0	72.3	45.0	57.0
	1800-1900	55.0	44.5	79.4	38.0	57.5
	1900-1930	54.6	47.0	74.4	42.0	57.0
	1930-2000	60.7	51.5	75.9	43.6	64.0
	2000-2030	57.9	49.0	77.3	41.6	60.5
	2030-2100	55.7	48.5	72.5	41.6	58.0
	2100-22130	57.5	49.0	78.1	43.6	60.5

#### 5.0 ASSESSMENT CONSIDERATIONS

##### 5.1 National Planning Policy Framework (replaces Planning Policy Guidance No 24).

5.2 The PPG24 was used in relation to planning approvals of any development. Under the new policy ie NPPF (July 2018) planning law requires that applications for planning permission must be determined in accordance with the development plan, unless material considerations indicate otherwise.

5.3 The National Planning Policy Framework must be taken into account in the preparation of local and neighbourhood plans, and is a material consideration in planning decisions. Planning policies and decisions must reflect and where appropriate promote relevant EU obligations and statutory requirements.

5.4 The guidance in BS 8233:2014 in relation to acceptable noise levels within buildings has been considered also and does not raise any issues in relation to the development. As part of the planning permissions process site boundary noise conditions are often set by local authorities. The method of calculating the effect of these conditions is as in BS 4142:2014.

##### 5.5 BS8233:2014

5.6. This British Standard sets out guidance on the internal comfort levels that should be aimed for within a dwelling space. Noise from unpredictable sources such as road traffic noise, outside the control of the company, are more likely to cause sleep disturbance problems in this area.

##### 5.7 Criterion for Plant Noise - Protection of Bedrooms and Nearby Houses

5.8 The criteria to be achieved from operational noise arising from external plant associated with the development will be dealt with later in this report. However, the minimum standards are as follows:

- i) Environmental Noise – Local Authority standards require -10dBA below background noise levels 1 metre from the nearest noise sensitive façade.



- ii) The internal noise standard requires minimum  $L_{Aeq(8 \text{ hours})}$  30dB during 2300 hours to 0700 hours from external sources. The required revision of the standards is yet to be clarified.

**6.0 NOISE ASSESSMENT.**

**6.1 Kitchen Ventilation Fan Associated with the External Garden Area Operation**

6.2 The following plant and equipment is located externally:  
Kitchen Extract system –AR400-41: 400Ø Single phase 240/1/50, Cased Otl et Blade Axial Fan -  $L_{Aeq}$  63dB at 1 metre.

**6.3 BS4142:2014 Assessment**

6.4 The British Standard 4142:2014 - 'rating of industrial and commercial sound - offers guidance and calculation procedures for the assessment of noise that is likely to give rise to complaint. Although the title indicates that any such assessment is restricted to industrial noise, in the absence of any other suitable environmental noise standard, is used extensively by acoustic professionals, local authorities and academics for the assessment purpose.

6.5 The measurement technique is a system which utilises the measures equivalent continuous A-weighted sound pressure level over a given reference time period, being 1 hour during the day (0700 hours to 2300 hours) and 5 minutes during the night (2300 hours to 0700 hours), of the specific noise to which are applied certain corrections which take into account any tone, impulsive or irregular character of the noise.

6.6 In Section 8 reference is made to the corrected noise level, called the 'rating level'. The background noise level ("BNL" BS4142:2014 Section 7.0), which is measured at the same position with the intrusive noise ceased, can be compared with the rating level.

6.7 In Section 9 reference is made to the assessment method. This section describes a methodology by which the simple arithmetic difference between the rating level and the BNL can be evaluated. It is stated that a difference of +5dB (ie Rating Level - BNL) is of marginal significance. A difference of +10dB or more (ie Rating Level - BNL) indicates that complaints are likely.

**6.8 Assessment for tha Timber Building External Kitchen Extract- During Period 1100 hours to 2200 hours at side elevation windows of Mansard Court.**

Assessment Criteria	Levels
1 Sound pressure level from Kitchen Extract fan system	63dB
2. Attenuation from Attenuation Devise	-12dB
3. Distance Correction to residential windows 20 metres	-26dB
4. Acoustic Feature Correction	+3dB
5. Façade reflection of houses	+3dB
6. Resultant	31dB
7. Lowest Background Noise Level (1100 - 2200 hrs)	48dB
8. Assessment Level (Line 6-7)	-17dB



- 6.9 The assessment undertaken for this plant as existing indicates that there is no exceedance of existing background levels at the residential properties from the external plant operating in the external kitchen. This is subject to the acoustic attenuation being installed.
- 6.10 BS8233:2014
- 6.11 In this case when the acoustic works have been recommended for the equipment to treat noise from the operation of the extract fan there is unlikely to be any issues within the adjacent residential properties. Noise emissions should fall within the guidance in the above standard and meet Tendring District Council's environmental noise requirements.

## 7.0 CONCLUSIONS

- 7.1 It is concluded that the technical detail provided in this report supports the retention of the plant and equipment, subject to installation of the acoustic arrangements. The recommended level of attenuation should ensure that during the hours of operation set out above does not cause disturbance and is unlikely to have an adverse impact on nearby residential occupiers.

## 8.0 RECOMMENDATIONS

- 8.1 At present the Kitchen Extract system operates without attenuation. Tendring District Council have reported that noise from the installation does not comply with the requirements of the planning approval ie Condition 3. The following recommendations are made to satisfy that condition and are in line with the assessment above.3

### 8.2 Kitchen Extract System

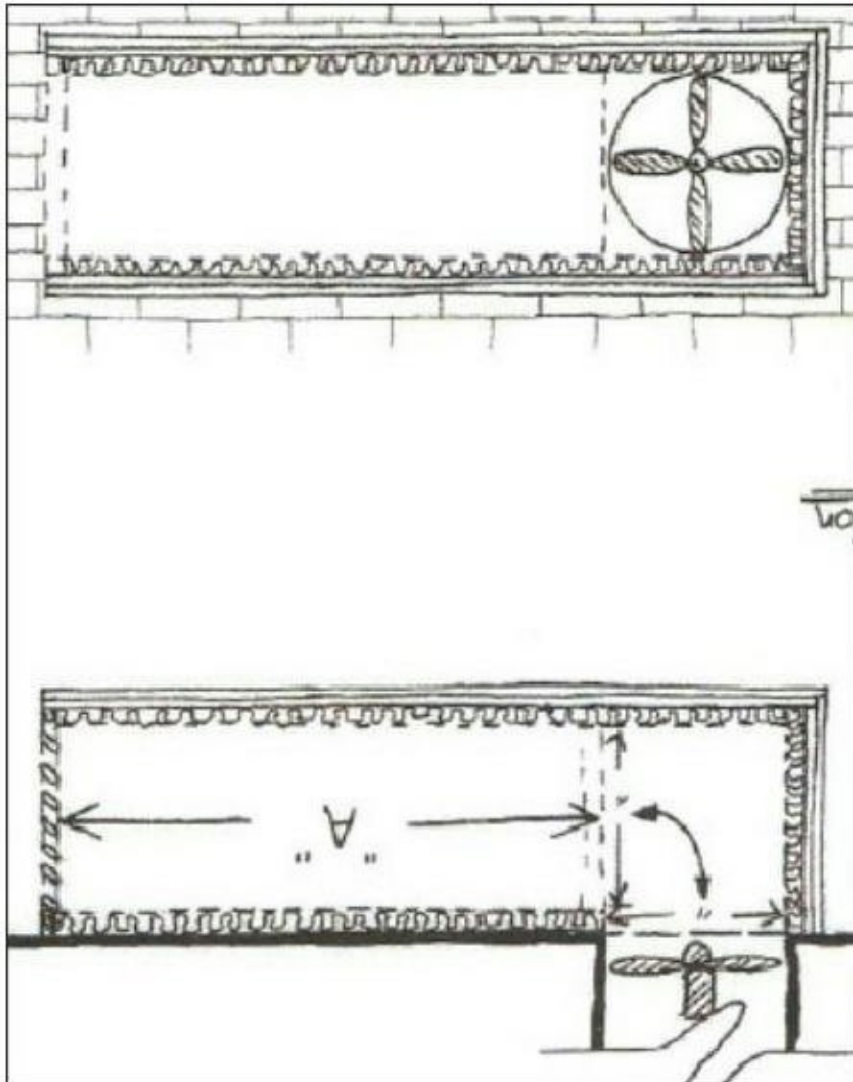
- 8.3
- i) Retain the existing fan and cowling.
  - ii) Attach to the fan casing a suitably dimensioned 1200mm long galvanized mild steel rectangular duct having 50mm ST30 Acoustic Foam Lining
  - iii) It should be suitably supported.
  - iv) Please note the outlet opening should face east (away from line of sight of the Mansard Court.  
N.B. The fan system should be fitted with a tamper proof speed controller on the system

### 8.4 Limitations of this Report.

- 8.5 Acoustic works of this type are heavy and should have an approval from a qualified Structural Engineer. The acoustic design proposed may vary due to site conditions. Should the acoustic elements of the design need to be changed ENL can advise if required. All other matters are the responsibility of the relevant adviser.

**APPENDIX 1 – SKETCH DRAWINGS OF KITCHEN INTAKE PROPOSAL**

**Drawing – Roof Mounted Attenuator**





## **APPENDIX 2 - GLOSSARY OF ACOUSTIC TERMS**

1. **A-weighted decibels - dB(A)** - Approximately equivalent to the human ear frequency response. A simulated measure of the loudness level of the noise as heard by the listener. Specific corrections are made to simulate this response.
2. **Ambient noise** - Totally encompassing sound in a given situation at a given time.
3. **Attenuation** - the amount by which a noise is reduced.
4. **Corrected Noise Level or Rating level  $L_{ArT}$**  - the specific noise level plus any adjustment for the character of the noise.
5. **Decibels** - a unit of sound level using a logarithmic scale. It is the ratio of the measured sound pressure and the reference level ie  $10 \log_{10}(P^2 / P_{ref}^2)$  where  $l = \text{rms pressure}$  and  $ref = 2 \times 10^{-5} \text{ N/m}^2$ .
6. **Frequency in Hertz** - sound is propagated in wave form. Sound frequency is expressed in cycles per second or Hertz. Most noises comprise many frequencies. One Hertz equals one cycle per second.
7.  **$L_{AeqT}$  - Equivalent Continuous A-weighted sound pressure level** - the value of the A-weighted sound pressure level in decibels of the continuous steady sound that within a specified time interval has the same mean square sound pressure as a sound that varies with time.
8.  **$L_{A90T}$  - Background Noise Level (BNL)** - the A-weighted level of the residual noise in decibels exceeded for 90% of a given time interval. The level of noise underlying all fluctuating noise s reaching a given location. This tends to be dominated by the more distant, non-local sources and events.
9.  **$L_{A10(1hour)}$  dBA - Road Traffic Noise** - the value of  $L_{A10(1hour)}$  dBA is the noise exceeded for 10% of a period of one hour.
10. **Noise** - A complex sound often defined as unwanted sound.
11. **Precision Grade Instrumentation** - There are 2 basic grades of instrumentation guaranteeing different grades of accuracy of which precision grade instrumentation is the most accurate.
12. **Sound Pressure Level** - the sound pressure level in decibels is given by:  
 $20 \log_{10} (P_1/P_2)$ .