

Consultancy Report
Ref: 10713-R01

Submitted to:

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BACKGROUND NOISE LEVEL ASSESSMENT FOR
PROPOSED INTALLATION OF PLANT AT
BEST ONE NEWS LTD,
39 MILL ROAD, WATERLOOVILLE

July 2019

10713-R01

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1. Introduction

ISVR Consulting was asked to carry out a background noise survey at Best One News Ltd, Mill Road, Waterlooville in order to set appropriate noise limits for any plant or machinery that is to be installed at the site.

Mr Patel intends to install chiller plant to the rear of the premises and therefore the local authority has requested a noise survey be carried out such that appropriate plant may be selected in order to avoid an adverse noise impact on the residents of the nearby flat located on the first floor immediately above the premises.

The noise assessment has been carried out with reference to BS4142:2014.

2. Description of Site

Best One News faces onto Mill Road, and to the rear of the premises is a car parking and service area.

It is proposed to install chiller plant at the rear of the premises in order to keep stock cool within the shop.

The operating hours of the shop are 06.00 – 22.00 hrs daily.

There is a residential flat on the first floor immediately above the shop.

3. Noise Levels at Site

In order to establish a suitable target for the noise level of any plant or machinery that may be installed at the rear of the shop an unattended noise survey was carried out over a 48 hour period in order to assess the variations in background noise level throughout the day and night.

The noise survey was carried out between 15.15 hrs on Monday 15th and 15.15 hrs on Wednesday 17th July 2019. The weather remained dry and calm throughout the survey period.

The noise levels were measured using a Rion Type NL31 Logging Sound Level Meter. The meter was calibrated before and after the measurement period. No significant drift was noted in the calibration. The calibration is traceable to National Standards.

The microphones was installed in the facade condition to the rear of the premises at ground floor level. This position was selected to represent a location that was considered to represent the noise levels in the vicinity.

The results of the noise survey are shown in Figure 1 showing the background noise levels (dB L_{A90 15mins}) throughout the 48 hour measurement period corrected to free-field noise levels.

For the purpose of this assessment the noise levels have been assessed during two time periods, 06.00 – 22.00 hrs when the shop is open, and 22.00 – 06.00 hrs when the shop is closed and therefore a lower level of chiller output may be required.

Based on the results of the noise survey, the typical minimum background noise levels during different portions of the day are shown in Table 1 below:

Time hrs	Period	Typical minimum Background Noise Level dB LA90
06.00 – 22.00		34
22.00 – 06.00		26

Table 1 Free Field Background Noise Level

4. Noise Impact Assessment

The noise impact of plant and machinery affecting residential properties is normally assessed with reference to BS4142:2014. This standard compares the 'Rating' noise level of the activity against the background noise level at the noise sensitive property. The greater the difference the greater the magnitude of the impact.

A difference of around + 10 dB or more is likely to be an indication of a significant adverse impact, depending on context.

A difference of around + 5 dB is likely to be an indication of an adverse impact, depending on context.

The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific source having a low impact, depending on the context.

The 'Rating' noise level takes account of the specific noise level of the activity (i.e. measured noise level of activity alone), with penalties applied for acoustic features such as tonality and impulsiveness. Distance and screening between the source and receiver will reduce the specific noise level of the activity, as will the period of use.

For the purpose of this assessment a number of assumptions have been made:

Tonality: It is quite common for air handling and cooling plant to exhibit slight tonality characteristics. It has been assumed that any plant installed will attract a tonality penalty of +3 dB.

Impulsivity: It is considered unlikely that any chiller plant installed would exhibit impulsivity. As such no penalty has been applied for impulsivity.

Intermittency: It is considered that there would not be intermittency associated with any plant installed at the site. As such no penalty has been applied for impulsivity.

On-time correction: It is assumed that any plant installed at the site would operate continuously therefore no 'on-time' correction has been applied.

Based upon these assumptions it is recommended that the noise limit for any chiller plant that may be installed at the rear of Best One News should be at least 3 dB below the assumed background noise levels shown in Table 1 above. The noise limit should be applied at 1m from any window on the nearby residential flats, typically 3m from the proposed installation location.

When selecting suitable plant or machinery a number of factors should be considered:

- A) The noise specification of plant and machinery can be defined in a wide variety of ways, typically as Sound Power, Noise Level at 1m, Noise Level at 10m or alternative methods. Appropriate corrections should be made to the quoted noise levels to take account of distance and installation location.
- B) Different noise levels may be expressed for different operating modes of the plant. This may be appropriate for reducing night time noise levels.
- C) Plant manufacturers often provide noise reduction enclosures or equipment for plant.
- D) Further advice maybe required in order to ensure appropriate selection of plant, or to advise on appropriate noise mitigation.

5. Conclusions

ISVR Consulting was asked to assess the background noise levels at Best One News, Mill Road, Waterloo in order to set appropriate noise limits for any plant or machinery to be installed at the site. The main conclusions of the assessment are shown below:

- It is proposed to install chiller plant at the rear of Best One News, Mill Road, Waterloo.
- The local authority has requested a noise survey to establish the existing background noise levels at the site.
- A 48 hour unattended noise survey was carried out at the site.
- The results of the noise survey have been used to set appropriate noise limits for any plant to be installed at the rear of the site.

Figures

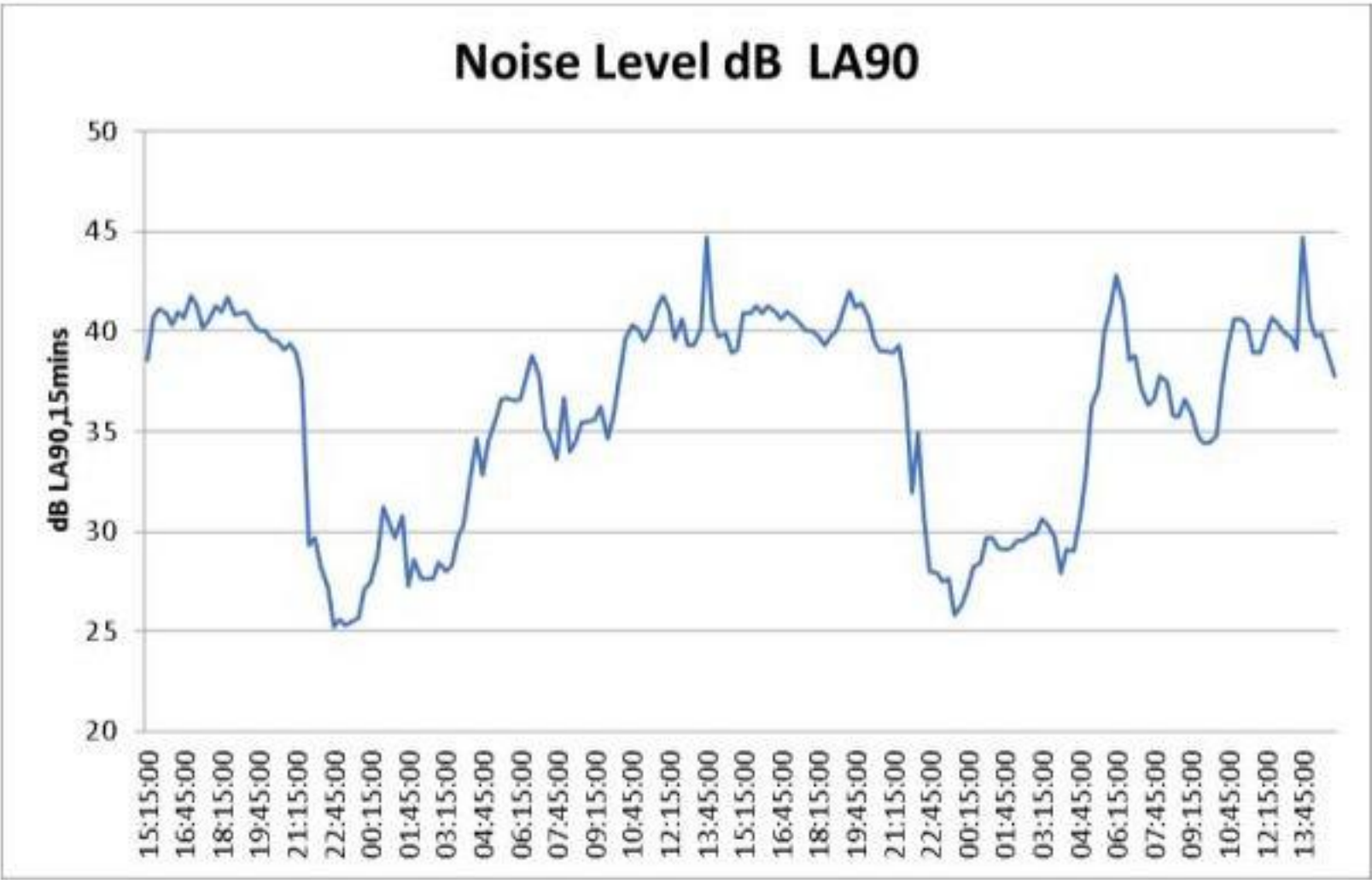


Figure 1: Background Noise Level dB LA90,15 mins