

ACOUSTIC DESIGN TECHNOLOGY  
Noise and Vibration Consultants

ADT 3840

30 October 2025

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**WOOD AND WOOLFSTEIN DENTAL PRACTICE**  
**POST COMPLETION TESTING**  
**ACOUSTIC CONSULTANCY REPORT ADT 3840/PCT**

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## **1.0 SUMMARY**

Planning permission has been granted for an extension to the Wood and Woolfstein Dental Practice, 452 Barlow Moor Road, Manchester. The development includes the installation of a single new air conditioning unit at the rear of the building, as shown on the planning application drawings.

Condition 5 requires noise from the new plant to be controlled to a BS 4142 rating level 5 dB below the otherwise prevailing background sound level at the nearest noise sensitive location.

Acoustic Design Technology Limited have previously undertaken an environmental noise survey to determine the existing ambient noise levels in the vicinity of the nearby noise sensitive properties as reported in the previously issued ADT 3840/ENIA. That report was submitted towards discharge of part a) of condition 5.

Measurements of the noise from the installed and operating plant have been measured at source to verify compliance and thereby discharge part b) of condition 5. The resultant noise levels at the surrounding noise sensitive properties resulting from the single condenser are within the levels predicted in the previously issued report, and the rating level is 12 dB below the otherwise prevailing background sound level. The requirements of planning condition 5 have therefore been fulfilled.

## **2.0 BASIS OF ASSESSMENT**

### **2.1 Site Location**

The site is the Wood & Woolfstein dental practice located at 452 Barlow Road, Manchester. The surrounding area is primarily residential, although there is a mixture of businesses on Barlow Moor Road, including restaurants, solicitors' offices, a tuition centre, and beauty/nail salons. The neighbouring building to the north is 'The Beagle Pizza' while the building to the south is 'Pennine Kennedy Solicitors'.

The rear garden of the property is grassed and surrounded by a 2 metre high timber fence.

Chorlton Square, located opposite the site, is an old shopping centre with empty buildings and is not considered noise-sensitive.

Barlow Road is a frequently used route, contributing to the local noise climate, with traffic from both local vehicles and passing traffic.

### **2.2 Development Details**

Planning permission 141521/FO/2024 has been granted for 'Erection of a ground floor rear extension to facilitate a new surgery and decontamination room, and other associated works'. The development includes a single new air conditioning unit, as shown on the planning application drawings.

The applicant will operate the plant during their opening hours. These are from 09:00 – 20:00 Monday-Thursdays and 08:00 – 20:00 on Fridays and Saturdays, with the surgery closed on Sundays.

### **2.3 Assessment Criteria**

Condition 5 of planning permission 141521/FO/2024 reads as follows:-

- a) Externally mounted ancillary plant, equipment and servicing shall be selected and/or acoustically treated in accordance with a scheme designed so as to achieve a rating level of 5dB ( $L_{Aeq}$ ) below the typical background ( $L_{A90}$ ) level at the nearest noise sensitive location. Prior to commencement of the use hereby approved the scheme shall be submitted to and approved in writing by the City Council as local planning authority in order to secure a reduction in the level of noise emanating from the site. The scheme shall be implemented in full before the use commences or as otherwise agreed in writing by the City Council as local planning authority.*
- b) Prior to the operation of the scheme a verification report shall be submitted to and approved in writing by the City Council as local planning authority to validate that the work undertaken throughout the development conforms to the recommendations and requirements in the approved acoustic report. The report shall also undertake post completion testing to confirm that the noise criteria have been met. Any instances of non-conformity with the recommendations in the verification report shall be detailed along with any measures required to be undertaken prior to operation of the scheme to ensure compliance with the agreed noise criteria.*

### **2.4 Nearest Noise Sensitive Properties**

The noise sensitive properties in the surrounding area have been grouped into two noise sensitive areas (NSAs), as described below and as indicated on the attached site plan 3840/SP1.

| NSA | Location                               | Direction         | Approximate distance from proposed building (metres) |
|-----|----------------------------------------|-------------------|------------------------------------------------------|
| 1   | Houses on Keppel Road and Warwick Road | east / south-east | 21                                                   |
| 2   | Houses on Selborne Road                | north-east        | 19                                                   |

The above NSA represent the closest noise sensitive properties, with others located further from the site and in some cases screened by the intervening buildings. A satisfactory noise impact at the defined NSA should therefore ensure a satisfactory noise impact at other noise sensitive areas.

## **2.5 Strategy for Noise Impact Assessment**

Based on the information in Sections 2.1 to 2.4 above, the strategy for the noise impact assessment has been broken down into the following stages:

- i. undertake an environmental noise survey to measure the noise emissions from the installed and operating plant, as described in Section 3.0 below
- ii. determine the BS 4142 rating levels at the surrounding noise sensitive properties for comparison with the levels predicted in the previously issued report, and to verify compliance with planning condition 5, as described in Section 4.0 below

## **3.0 ENVIRONMENTAL NOISE SURVEY**

### **3.1 Purpose**

The purpose of the survey was to measure noise from the installed and operating plant.

### **3.2 Scope of Survey**

An attended environmental noise survey was undertaken on Thursday 23 October 2025.

### **3.3 Instrumentation**

The instrumentation used, and the field calibration values before and after the survey are detailed in Appendix A of this report.

### **3.4 Procedure**

It is not practical to verify compliance directly at the noise sensitive locations (i.e. the upper floor windows of nearby dwellings) for access reasons, and in any case, the noise levels at those locations would be blanketed by background noise.

A single measurement position close to the plant was therefore selected, at 1 metre from the new plant and around 1.5 metres above the ground. The results of those measurements can then be used to calculate the resultant noise levels at the identified noise sensitive properties.

The noise levels were logged over a 15 minute period, using the 01dB Blue Solo sound level meter set to store the octave band and 'A' weighted 100ms short-term  $L_{eq}$  for subsequent post processing. This was a typical period of operation, considered to be representative of a typical hour of operation.

### **3.5 Results**

The measured octave band and A weighted  $L_{eq,15 \text{ mins}}$  are as follows:-

|                | Predicted $L_{eq,T}$ (dB) at<br>octave band centre frequency (Hz) |     |     |     |    |    |    |    | $L_{Aeq,T}$ dB |
|----------------|-------------------------------------------------------------------|-----|-----|-----|----|----|----|----|----------------|
|                | 63                                                                | 125 | 250 | 500 | 1k | 2k | 4k | 8k |                |
| SPL at 1 metre | 57                                                                | 50  | 51  | 47  | 45 | 43 | 40 | 37 | 51             |

Please refer to Appendix B for explanation of the noise units and the A-weighting term used in this report.

### 3.6 Weather Conditions

For the duration of the survey, the temperature was between 9 and 11 degrees Celsius with wind speeds not exceeding 5 m/s. Ground conditions were damp and there was some cloud cover.

### 3.7 Description of Existing Acoustic Environment

The noise levels at the measurement position were controlled by the plant, which operated intermittently. When the plant was off, the noise levels were controlled by traffic from the surrounding roads.

## 4.0 NOISE IMPACT ASSESSMENT

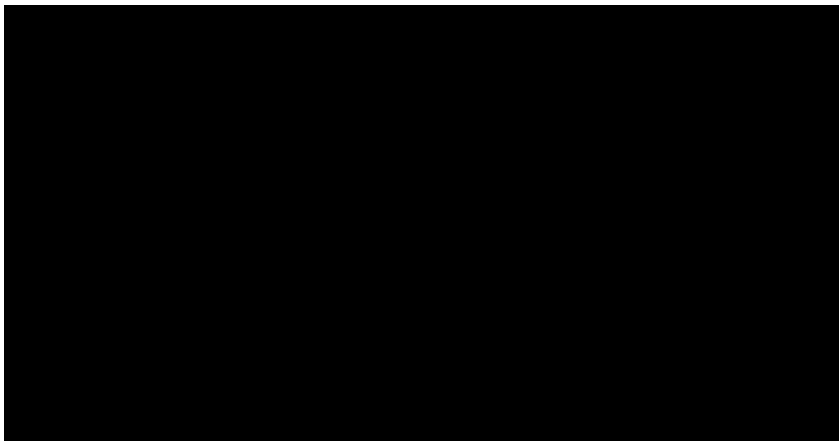
As noted in Section 3.5 above, the sound pressure level at 1 metre from the plant was 51 dB  $L_{Aeq, 1hour}$ .

The identified noise sensitive areas are between 19 and 21 metres from the plant, and a point source distance correction can therefore be applied, i.e.  $20 * \log(1/19)$ , which equates to a 26 dB reduction. Reflections from the building are already taken into account in the measurements.

Applying the distance correction to the measured level, the specific sound level at the noise sensitive areas is 25 dB  $L_{Aeq, 1 \text{ hour}}$ , which is slightly below the levels predicted in the previously issued report ADT 3840/ENIA submitted towards discharge of planning condition 5a). This verifies the accuracy of the original assessment.

The installed and operating plant operated intermittently, but was not tonal. It is debatable whether either characteristic would be noticeable at the assessment location anyway, where the background sound level as described in the previous report is 40 dB  $L_{A90}$ , although if one were to apply a 3 dB penalty for intermittency then the rating level would be 28 dB  $L_{Ar, 1 \text{ hour}}$ .

This is 12 dB below the otherwise prevailing background sound level, and on that basis the requirements of planning condition 5 have been fulfilled.



**FOR ACOUSTIC DESIGN TECHNOLOGY**

**APPENDIX A**

**Instrumentation**

| Manufacturer | Type and / or Model                   | Serial Number | Last Laboratory Calibration | Calibrator Output (dB) | Free Field Correction (dB) | Initial Reading (dB) | Final Reading (dB) |
|--------------|---------------------------------------|---------------|-----------------------------|------------------------|----------------------------|----------------------|--------------------|
| 01dB         | (Blue) Solo Class 1 Sound Level Meter | 60320         | March 2025                  |                        | -0.10                      | 113.8                | 113.8              |
| 01dB         | PRE 21 S Pre-Amplifier                | 16866         |                             |                        |                            |                      |                    |
| 01dB         | MCE 212 ½ inch Microphone             | 90549         |                             |                        |                            |                      |                    |
| Norsonic     | Nor1251 Calibrator                    | 33453         | March 2025                  | 113.88                 |                            |                      |                    |

## **APPENDIX B**

### **Acoustic Terminology**

The annoyance produced by noise is dependent upon many complex interrelated factors such as 'loudness', its frequency (or pitch) and any variations in its level. In order to have some objective measure of the annoyance, scales have been derived to allow for these subjective factors.

**A-weighting**     The human ear is more susceptible to mid-frequency noise than the high and low frequencies. To take account of this when measuring noise, the A-weighting scale is used so that the measured noise corresponds roughly to the overall level of noise that is discerned by the average person. It is also possible to calculate the A-weighted noise level by applying certain corrections to an un-weighted spectrum.

When the noise being measured has variable amplitude, such as traffic noise, it is necessary to qualify the basic dB unit. This may be done using a statistical index  $L_n$  dB, where  $n$  is any value between 0 and 100, and is the percentage of the sample time for which the stated level is exceeded. In defining the use of the index, both the value of  $n$  and the length of the sample period must be stated.

$L_{10}$               $L_{10}$ , being the level exceeded for 10% of the time, has been shown to be a good indicator for traffic noise intrusion, and is used in assessing the effect of traffic noise on residential or commercial premises.

$L_{90}$               $L_{90}$  is the level exceeded for 90% of the time, and is used as a measure of background noise level, as it excludes the effects of occasional transient levels, such as individual passing cars or aircraft.

In addition to the statistical noise indices defined above, the following noise units are also used to define variable amplitude noise sources:

$L_{eq,T}$               $L_{eq,T}$  is defined as the notional steady sound pressure level which, over a stated period of time, would contain the same amount of acoustical energy as the actual fluctuating sound measured over the same period. In other words, it is a measure of the "average" noise level

$L_{max}$               $L_{max}$  is the maximum time-weighted sound pressure level recorded over the stated time period

**APPENDIX C**  
**Definitions from BS 4142:2014+A1:2019**

reference time interval,  $T_r$

specified interval over which the specific sound level is determined (1 h during the day, and 15 min during the night)

specific sound level,  $L_{Aeq,T_r}$

equivalent continuous A-weighted sound pressure level produced by the specific source at the assessment position produced over a given reference time interval,  $T_r$

rating level,  $L_{At,T_r}$

specific sound level plus any adjustment for the characteristic features of the sound

background noise level,  $L_{A90,T}$

see Appendix B