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**Hampstead Dental Studio
9 Market Place
Falloden Way
London**

Planning Condition 7 Report

15 April 2024

For
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Hampstead Dental Studio
9 Market Place
Falloden Way
London

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SUMMARY

It is proposed to extend an existing dental practice into an adjacent commercial unit at Hampstead Dental Studio, 9 Market Place, Falloden Way in London.

A planning condition sets internal noise limits for adjacent residential areas in relation to noise emissions from the proposed use.

An airborne sound insulation test has therefore been undertaken across the existing separating floor between the proposed demise and a residential apartment above, to determine the existing sound insulation performance between these areas, and subsequently an assessment of noise transmission via the separating floor has been carried out.

Results of the assessment show that the predicted noise levels due to dental practices within adjacent residential properties above the proposed site, do not exceed the planning condition limits during the daytime. The dental studio is not expected to operate during night-time periods. The planning condition requirements are therefore considered to be achieved.

1.0 Introduction

It is proposed to extend an existing dental practice into an adjacent commercial unit at Hampstead Dental Studio, 9 Market Place, Falloden Way in London.

A planning condition sets internal noise limits for adjacent residential areas in relation to noise emissions from the proposed use.

auricl has been commissioned to carry out a noise assessment in relation to the planning condition requirements.

This report presents the methodology and results of an airborne sound insulation test across the existing separating floor to determine the level of noise transmission to adjacent residential areas in relation to the planning condition requirements.

2.0 Description of Site and Proposals

The proposed development site is located at 7 Market Place on Falloden Way in London, in a mixed commercial and residential area, with residential housing forming much of the surrounding area and located above the proposed development site at first floor level. Commercial properties are generally located at ground floor level at Market Place and along Falloden Way.

It is proposed to extend an existing dental practice at 9 Market Place, into an adjacent commercial unit at ground floor level, at 7 Market Place.

Residential apartments are located at first floor level directly above the development site at 7a and 7b Market Place.

Figure 2.1 shows the approximate existing dental practice extent in **blue**, and the approximate proposed development site in **red**.

Figure 2.1 Existing Site Extent and Surroundings



3.0 Planning Condition Requirements

Planning condition 7 for the proposals states the following:

“a) No development shall take place until details of mitigation measures to show how the development will be constructed/adapted so as to provide sufficient air borne and structure borne sound insulation against internally/externally generated noise and vibration has been submitted to and approved in writing by the Local Planning Authority.

This sound insulation shall ensure that the levels of noise generated from the as measured within habitable rooms of the development shall be no higher than 35dB(A) from 7am to 11pm and 30dB(A) in bedrooms from 11pm to 7am.

The report shall include all calculations and baseline data, and be set out so that the Local Planning Authority can fully audit the report and critically analyse the content and recommendations.

b) The mitigation measures as approved under this condition shall be implemented in their entirety prior to the commencement of the use or first occupation of the development and retained as such thereafter.

Reason: To ensure that the proposed development does not prejudice the amenities of occupiers of the residential properties in accordance with Policies DM04 of the Development Management Policies DPD (adopted September 2012), the Sustainable Design and Construction SPD (2016), and Policies D13 and D14 of the London Plan 2021.”

We will therefore base our assessment on the above criteria.

4.0 Noise Impact Assessment – Separating Floor

4.1 Basis of Assessment

On Thursday 14 March 2024, an airborne sound insulation test was undertaken across the separating floor between the ground floor unit at 7 Market Place and the entrance hall of Flat 7b on the first floor directly above the unit.

The airborne sound insulation test was undertaken in accordance with the measurement procedure presented in British Standard EN ISO 140-4: 1998.

A loudspeaker (with amplifier and pink noise generator) was used to create a steady and continuous spectrum over the 1/3 octave band frequency range of 50Hz to 5kHz within the source room.

Sound pressure level measurements were undertaken in both the source and receive rooms. Measurements were made over a minimum duration of 30 seconds, then repeated for a second loudspeaker position.

Measurements of background noise levels were undertaken in the receive room over a minimum duration of 30 seconds.

All sound pressure level measurements were undertaken using the hand-held moving microphone technique, the path of which complies with that of a rotating microphone boom, as specified in British Standard EN ISO 140-4: 1998.

Measurements of the reverberation time within the receive room were undertaken using the interrupted noise source method. 6 No total decays were recorded in the receive room comprising 1No loudspeaker positions and 6 No reverberation measurement positions.

The airborne sound insulation performance of the tested floor construction has been calculated in accordance with British Standard EN ISO 717-1: 1997. The measured airborne sound insulation performance was $D_{nT,w}$ **46 dB**.

4.2 Separating Floor Noise Transmission Predictions

Based on the measured sound reduction of the separating floor, we have undertaken calculations to predict the level of noise transmitted through the separating floor from the proposed dental studio.

Worst-case noise generating activities within the dental practice are assumed to comprise of drilling using a standard dental handpiece and associated suction pump. It is also assumed that background music could be played within the practice at a reasonable level.

Our calculations are based on typical noise levels from library data as follows:

Dental Handpiece (Drill) L_{pA} 75 dB within a typical clinical area

Suction Pump L_{pA} 76 dB within a typical clinical area

Background Music L_{pA} 65 dB within a representative commercial premises

Based on the above, the noise transmission calculations during worst-case drilling activities are presented in Table 4.1.

Table 4.1 Noise Transmission Calculation – Separating Floor

Element	Octave Band Centre Frequency (Hz)							$L_{Aeq, T}$ (dB)
	63	125	250	500	1k	2k	4k	
Total Noise Level of Combined Activities (dB)	69	72	66	72	75	73	71	79
Measured Sound Reduction of Separating Floor Construction (dB)	-33	-31	-31	-43	-49	-51	-57	
Correction for Floor Area and Receive Room Absorption (dB)	+1	+1	0	-1	-2	-2	-2	
Predicted Noise Level Within Adjacent Dwelling (dB)	37	41	35	28	24	20	12	32

It can be seen that the predicted worst-case noise level within the apartments due to dental drilling is less than the daytime internal noise levels specified by the planning condition. Additionally, it is understood that worst case drilling activities are only likely to occur for short periods, and outside of these periods the predominant noise source in the dental practice is likely to be due to any background music only, which can be seen to operate at a significantly lower noise level.

It is understood that the proposed dental studio will not operate during night-time periods (23:00-07:00).

In addition, refurbishment to the proposed unit, including any new finishes or suspended ceilings, would be expected to further improve upon the sound insulation performance of the separating floor.

It is therefore predicted that the requirements of the planning condition shall be achieved by the proposals.

Appendix A – Acoustic Terminology

Parameter	Description
Decibel (dB)	A logarithmic scale representing the sound pressure or power level relative to the threshold of hearing (20×10^{-6} Pascals).
Sound Pressure Level (L_p)	The sound pressure level is the sound pressure fluctuation caused by vibrating objects relative to the threshold of hearing.
A-weighting (L_A or dBA)	The sound level in dB with a filter applied to increase certain frequencies and decrease others to correspond with the average human response to sound.
$L_{Aeq,T}$	<p>The A-weighted equivalent continuous noise level over the time period T (typically T= 16 hours for daytime periods, T = 8 hours for night-time periods).</p> <p>This is the sound level that is equivalent to the average energy of noise recorded over a given period.</p>
L_{A90} (15 min)	The noise level exceeded for 90% of the time (also referred to as the background noise level), measured over a 15 minute period
$D_{nT,w}$	<p>The weighted (w) standardised (nT) sound level difference (D), a single number indicator of the on-site airborne sound insulation performance of a construction, usually measured across the frequency range 100-3150 Hz.</p> <p>The higher the value of $D_{nT,w}$, the greater the sound insulation, and the more onerous the requirement.</p>
C_{tr}	A spectrum adaptation term which may be applied to the $D_{nT,w}$
Reverberation Time	The time taken, in seconds, for a sound to decay by 60 dB. The longer the timer taken, the greater the reverberation. Reverberation generally differs with frequency and hence is normally measured in octaves (125 Hz-4kHz) or third octaves (100 Hz-5 kHz).