
Acoustic Design Note 0132022_AC03

To: Edge Lane Design Team

From: Complete Sustainability Solutions Ltd

Date: 28/10/2022

Subject: Discharge of Condition 17, Part B – Validation Monitoring Summary (Additional Monitoring)

Overview

This note provides a summary of the results of noise monitoring undertaken within Plots 90, 99, 107 and 20 of the Edge Lane residential development in Manchester. The measurement data is intended to support an application to discharge part (b) of Planning Condition 17 attached to the Planning Permission for the development (application reference 126674/FO/2020). Information pursuant to the discharge of part (a) of Condition 17 has been submitted previously (Acoustic Design Note 0132022_AC01). In addition, the results of an initial validation monitoring exercise in Plot 93 has been submitted (Acoustic Design Note 0132022_AC02).

Condition 17 is copied below for ease of reference:

“(a) Notwithstanding the noise assessment stamped stamped [sic] as received by the City Council, as Local Planning Authority, on the 5 June 2020, a scheme for acoustically insulating the proposed residential accommodation against noise from the local traffic network shall be submitted for approval in writing by the City Council, as Local Planning Authority. The approved noise insulation scheme shall be completed before the first occupation of the development.

Noise survey data must include measurements taken during a rush-hour period and night-time to determine the appropriate sound insulation measures necessary. The following noise criteria will be required to be achieved:

Bedrooms (night time - 23.00 - 07.00) 30 dB Aeq (individual noise events shall not exceed 45 dB Amax,F by more than 15 times)

Living Rooms (daytime - 07.00 - 23.00) 35 dB LAeq

Gardens and terraces (daytime) 55 dB LAeq (where practically possible)”

(b) Prior to the first occupation of of [sic] the development, a verification report for the development will be required to validate that the work undertaken conforms to the recommendations and requirements approved as part of part (a) of this planning condition. The verification report shall include post completion testing to confirm the noise criteria has been met. In instances of non conformity, these shall be detailed along with mitigation measures required to ensure compliance with the noise criteria. Any mitigation measures shall be implemented in accordance with a timescale to be agreed with the City Council, as Local Planning Authority, and thereafter retained and maintained in situ.”

Validation Survey Summary

Complete Sustainability Solutions has previously submitted a report (Acoustic Design Note 0132022_AC02) which presented the results of validation noise monitoring within, and in the garden of, Plot 93, which is considered to be representative of the most noise affected Plots on the site. Noise levels measured during that survey showed compliance with the noise level limits outlined in Condition 17.

Notwithstanding the results of the survey at Plot 93, the Local Planning Authority has requested that further validation monitoring is undertaken at additional Plots to confirm that internal noise level limits are achieved consistently across the development.

After discussions with the dealing Environmental Health Officer it was agreed that additional monitoring within the worst affected bedrooms within Plots 90, 99, 107 and 20 would, providing compliance is demonstrated, be sufficient to discharge part (b) of Condition 17. The location of the Plots subject to validation testing is identified in Figure 1 overleaf.

Figure 1 – Validation Measurement Locations



Noise monitoring was therefore undertaken in the agreed plots between 16:00 on Tuesday 25th October, and 07:00 on Wednesday 26th October 2022. The measurement period was selected to avoid measuring noise from construction operations across the site (i.e. between 07:00 – 16:00). Noise monitoring within Plots 90, 99, 107 and 20 was undertaken within the first floor bedroom overlooking Edge Lane (i.e. the worst affected habitable space). During the survey, windows were closed and mechanical extract ventilation systems were running at their design duty. All spaces were unfinished (i.e. painted plaster walls and exposed flooring board) with the exception of Plot 20 which was fully furnished as a show home.

Measurement Equipment

Noise monitoring was undertaken using the Class 1 specification noise measurement equipment detailed in Table 1. Equipment was calibrated using a portable calibrator immediately before and after the measurements with no significant drift in calibration observed. The sound level meters, pre-amplifiers and microphones were calibrated to traceable standards at an accredited laboratory within the 24 months prior to the measurements. The portable calibrators were calibrated within the 12 months preceding the date of the survey.

Table 1 – Measurement Equipment Details

Position	Equipment	Make & Model	Serial Number	Calibration due Date
Plot 20	Sound Level Meter	SVAN 971	80342	27/05/2024
	Microphone	ACO 7052E	71683	
	Preamp	SV18	71576	
Plot 90	Sound Level Meter	SVAN 971	80344	25/05/2024
	Microphone	ACO 7052E	69566	
	Preamp	SV18	71577	
Plot 99	Sound Level Meter	SVAN 971	60745	23/08/2023
	Microphone	ACO 7052E	64535	
	Preamp	SV18	66815	
Plot 107	Sound Level Meter	Svantek 971A	113221	14/02/2024
	Microphone	Aco Pacific 7152	80629	
	Preamp	Svantek SV18A	113722	
1 & 2	Calibrator	01dB-Stell Cal 21	34675335	14/02/2023

Meteorological Conditions

The weather throughout the survey remained conducive to environmental noise measurement, it being dry with negligible winds (< 5ms⁻¹).

Survey Results

Table 2 – Summary of Measured Sound Pressure Levels in First Floor Bedroom of Plot 107

Description	Start Time	Period (T)	Measured Sound Pressure Level (dB)	
			L _{Aeq,T}	L _{AFmax}
Daytime	16:00 25/10/2022	7-hrs ¹	33	-
Night-Time	23:00 25/10/2022	8-hours	26	45 ²
¹ includes periods between 16:00 and 23:00 on 25/10/22 (to avoid noise from construction activities)				
² 10 th highest discrete event (discrete events separated by at least 5-mins)				

Table 2 – Summary of Measured Sound Pressure Levels in First Floor Bedroom of Plot 99

Description	Start Time	Period (T)	Measured Sound Pressure Level (dB)	
			L _{Aeq,T}	L _{AFmax}
Daytime	16:00 25/10/2022	7-hrs ¹	33	-
Night-Time	23:00 25/10/2022	8-hours	27	45 ²
¹ includes periods between 16:00 and 23:00 on 25/10/22 (to avoid noise from construction activities)				
² 10 th highest discrete event (discrete events separated by at least 5-mins)				

Table 2 – Summary of Measured Sound Pressure Levels in First Floor Bedroom of Plot 90

Description	Start Time	Period (T)	Measured Sound Pressure Level (dB)	
			L _{Aeq,T}	L _{AFmax}
Daytime	16:00 25/10/2022	7-hrs ¹	32	-
Night-Time	23:00 25/10/2022	8-hours	26	44 ²
¹ includes periods between 16:00 and 23:00 on 25/10/22 (to avoid noise from construction activities)				
² 10 th highest discrete event (discrete events separated by at least 5-mins)				

Table 2 – Summary of Measured Sound Pressure Levels in First Floor Bedroom of Plot 20

Description	Start Time	Period (T)	Measured Sound Pressure Level (dB)	
			L _{Aeq,T}	L _{AFmax}
Daytime	16:00 25/10/2022	7-hrs ¹	24	-
Night-Time	23:00 25/10/2022	8-hours	18	35 ²
¹ includes periods between 16:00 and 23:00 on 25/10/22 (to avoid noise from construction activities)				
² 10 th highest discrete event (discrete events separated by at least 5-mins)				

Discussion

The noise levels measured in the bedroom of Plots 107, 99, 90 and 20 during daytime and night-time periods were all below the limits outlined in Condition 17. The limits were also found to be achieved in Plot 93 during the September survey, as detailed in CSS report reference 0132022_AC02.

It should be noted that no correction has been added to the measured noise levels in any Plot to account for the unfavourable reverberant conditions in the unfinished spaces of Plots 107, 99, 90 and 93. The effects of reverberant noise build-up in the unfinished space is clearly apparent by comparison with the data measured in Plot 20 which was fully furnished as a show home. It is anticipated that noise levels in all the plots would be similar to those in Plot 20 once furnished. However, for the purposes of this assessment, compliance has been demonstrated in the worst-case (i.e. unfurnished) state in Plots 107, 99, 93 and 90.

Based on the results of the validation monitoring undertaken in Plots 107, 99, 93, 90 it is considered that compliance with the noise level limits has been validated in the worst affected Plots, and that Condition 17b may be discharged without delay.