

J004165/5897/01/TD

29th November 2022

Adal Bashir
189 Burnage Lane
Manchester
M19 1FE

189 Burnage Lane, Manchester, Kitchen Extract Assessment

Dear Adal,

This letter should be read as an addendum to PDA Ltd report J003691/5442/1/ECE, dated 31st January 2022.

The above site (ground floor level) has recently been converted from a retail unit into a Hot Food Takeaway called Chicken Triple. The opening hours for the development will be between 8.00am and 23.00pm. Noise egress from the newly installed kitchen extract system is to achieve the following criteria as set out in Planning Condition 10 for the development as follows.

Planning Condition 10

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 (LAeq) below the typical background (LA90) 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.

The nearest noise sensitive receiver to the installed extract has been identified as the residential window to the first floor level below the kitchen extract termination. A photo of the residential window is provided below for reference.

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Figure 1: Photo, Kitchen Extract & Nearest Residential Window

PDA Ltd originally assessed the existing background noise climate at site as part of our initial assessment for the development as detailed in PDA report ref. J003691/5442/ECE/01 dated 31st January 2022. It was noted during the noise survey conducted in January 2022 that the existing background noise climate was significantly affected by noise egress from plant to the neighbouring commercial property. However the noise measurement position utilised as part of our initial noise assessment for the development was conducted to the ground floor level. It is noted that this noise measurement position is more acoustically shielded from the neighbouring existing plant noise sources, than noise to the residential window at the first floor. Therefore the background noise levels as reported in PDA Ltd report ref. J003691/5442/ECE/01 may be considered conservative. For this reason a further background noise level survey has been conducted by PDA Ltd to establish the existing background noise level at the first floor level.

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Background Noise Survey

The background noise survey was conducted 22/11/2022, 16:55 – 23/11/2022, 13:20. The measurement position was located to the rear of 189 Burnage Lane as illustrated below.



Figure 1: Noise Survey Measurement Position

All measurements were conducted at a height of 4m. A range of statistical noise indicators were measured, including L_{Aeq} and L_{A90} . Measurements were setup to log every 15-minutes.

Throughout the survey measurements were undertaken with precision grade Class 1 sound level meter (as per BS EN 61672-1: 2002) for which current calibration certificates are held. The meter was set to A-Weighted and fast response. The meter was calibrated directly before any measurement took place and immediately afterwards and no significant drift was observed.

The typical weather conditions throughout the background noise survey are provided below.

Temperature: 12°C

Wind Speed: 0m/s

Wind Direction: Still conditions no specific wind direction observed

Precipitation: No precipitation

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While at site the existing noise climate was noted to be a mixture of traffic sources and noise from the adjacent plant installations to the neighbouring property. During the day-time aircraft noise was also audible at times. It should be noted that the kitchen extract was not operational throughout the background noise survey.

A summary of the background noise survey results is presented below. The full survey data is available in the Appendix.

Table 1. Background Noise Survey Results

Time Period	L _{Aeq,T} (dB)	Range of L _{A90,15mins} (dB)	Typical** L _{A90,15mins} (dB)
Evening (1900-2300)*	48	41-47	44

*Notes: *Evening period considered representative of the quietest times in which the kitchen extract will operate*

***Typical background noise level has been evaluated as the modal L_{A90} noise level*

With reference to Table 1 the background noise level at the nearest residential window has been evaluated as 44 dBA. Therefore in accordance with Planning Condition 10, noise egress from kitchen extract should not exceed 39 dBA (5 dB below the background noise level).

Noise from the Kitchen Extract

While attending site on the 23rd November 2022 (post completion of the background noise), measurements were conducted of the noise emitted from the kitchen extract at source. Noise measurements of the kitchen extract were conducted at distance of 0.6m from the extraction ductwork termination by mounting the microphone of the sound level meter on an extension pole. The residential/background noise climate was assessed at this height prior to the kitchen extract system being operated. The extraction fan was then turned on and set at the required duty point (Fan speed dial set at 40%). In total 3no measurements were conducted while the kitchen extract was operational. The full noise measurement data for these measurements is provided in the Appendix. The energy average of all 3no measurements conducted with the kitchen extract switched on is L_{Aeq,T} 55 dBA. Correcting the sound level of the fan operating for the residual sound (48 dBA) would result in a sound level from the fan in isolation of L_{Aeq,T} 53 dBA@0.6m.

It is noted that the measurements were undertaken at 0.6m from kitchen extract, however it is the nearest residential window is 4m from the fan outlet.

We have therefore correct the measured level for the noise level at the residential window using the following standard calculation methodology:

$$L_{p1} = L_{p2} + 20 \cdot \log(R_2/R_1)$$

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Where:

L_{p1} = Noise level at residential receiver window

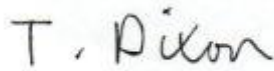
L_{p2} = Measured Noise level in close proximity to the source

R_1 = Distance between source and receiver (4m)

R_2 = Distance between source and measurement (0.6m)

Based upon this assessment method we would estimate the noise level at the receiver is L_{Aeq} 37dB. Noise egress from the kitchen extract system has therefore been evaluated to below the noise limiting criteria (39 dBA) as stipulated by Planning Condition 10. Therefore further mitigation to noise egress from the kitchen extract is not required.

Yours Sincerely



Tom Dixon BEng MIOA
Acoustic Consultant

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Appendix: Full Noise Survey & Kitchen Extract Measurement Results

Background Noise Survey Results

Date	Time	L _{Aeq} dBA	L _{A90} dBA	L _{Amax} dBA
22/11/2022	16:55:26	59.4	45.8	81.8
22/11/2022	17:00:00	48.3	45.6	74.1
22/11/2022	17:15:00	49.2	46.6	61.7
22/11/2022	17:30:00	50.9	47.0	68.6
22/11/2022	17:45:00	48.2	44.1	61.6
22/11/2022	18:00:00	48.2	44.6	62.5
22/11/2022	18:15:00	47.6	43.8	60.9
22/11/2022	18:30:00	49.4	44.8	62.8
22/11/2022	18:45:00	46.9	43.6	69.3
22/11/2022	19:00:00	46.8	41.8	57.9
22/11/2022	19:15:00	51.7	46.1	72.6
22/11/2022	19:30:00	46.6	43.2	69.7
22/11/2022	19:45:00	47.2	43.0	56.7
22/11/2022	20:00:00	46.1	41.6	64.2
22/11/2022	20:15:00	46.1	42.7	55.4
22/11/2022	20:30:00	47.4	44.0	58.7
22/11/2022	20:45:00	45.6	41.2	57.7
22/11/2022	21:00:00	43.7	41.0	50.9
22/11/2022	21:15:00	46.5	40.5	60.4
22/11/2022	21:30:00	46.0	44.0	54.2
22/11/2022	21:45:00	47.6	45.6	61.9
22/11/2022	22:00:00	47.5	45.7	58.1
22/11/2022	22:15:00	46.9	45.4	55.5
22/11/2022	22:30:00	45.6	41.6	62.9
22/11/2022	22:45:00	45.4	42.2	57.5
22/11/2022	23:00:00	45.7	41.8	62.0
22/11/2022	23:15:00	45.2	40.6	51.3
22/11/2022	23:30:00	44.2	39.2	50.5
22/11/2022	23:45:00	44.3	38.7	59.0
23/11/2022	00:00:00	44.2	38.6	58.8

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Date	Time	L _{Aeq} dBA	L _{A90} dBA	L _{Amax} dBA
23/11/2022	00:15:00	43.4	37.3	50.9
23/11/2022	00:30:00	43.1	36.9	49.1
23/11/2022	00:45:00	42.5	35.6	61.0
23/11/2022	01:00:00	42.9	35.7	49.7
23/11/2022	01:15:00	43.2	36.6	51.3
23/11/2022	01:30:00	43.5	35.0	52.6
23/11/2022	01:45:00	38.0	34.1	51.0
23/11/2022	02:00:00	37.0	34.6	47.0
23/11/2022	02:15:00	43.8	36.2	48.6
23/11/2022	02:30:00	44.9	43.7	58.8
23/11/2022	02:45:00	44.6	43.8	49.9
23/11/2022	03:00:00	44.5	43.7	51.5
23/11/2022	03:15:00	43.1	36.2	48.8
23/11/2022	03:30:00	43.2	36.0	51.9
23/11/2022	03:45:00	42.7	36.5	53.3
23/11/2022	04:00:00	43.8	37.9	48.3
23/11/2022	04:15:00	43.7	39.4	48.6
23/11/2022	04:30:00	43.7	40.3	49.3
23/11/2022	04:45:00	43.7	39.2	48.5
23/11/2022	05:00:00	45.2	40.7	53.9
23/11/2022	05:15:00	45.0	42.5	50.4
23/11/2022	05:30:00	44.7	41.6	49.2
23/11/2022	05:45:00	46.6	42.6	56.3
23/11/2022	06:00:00	47.8	42.9	59.0
23/11/2022	06:15:00	55.9	50.8	66.7
23/11/2022	06:30:00	56.8	54.6	65.2
23/11/2022	06:45:00	59.7	57.7	72.3
23/11/2022	07:00:00	58.0	56.7	66.2
23/11/2022	07:15:00	58.2	56.4	65.9
23/11/2022	07:30:00	60.0	57.6	68.0
23/11/2022	07:45:00	59.9	58.5	68.6
23/11/2022	08:00:00	59.9	57.2	67.2
23/11/2022	08:15:00	58.9	57.0	83.0
23/11/2022	08:30:00	54.6	51.5	64.9

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Date	Time	L _{Aeq} dBA	L _{A90} dBA	L _{Amax} dBA
23/11/2022	08:45:00	51.4	49.3	63.8
23/11/2022	09:00:00	52.0	48.9	67.1
23/11/2022	09:15:00	51.7	48.3	66.4
23/11/2022	09:30:00	50.8	47.8	67.2
23/11/2022	09:45:00	51.7	48.4	62.1
23/11/2022	10:00:00	49.0	46.2	58.0
23/11/2022	10:15:00	48.1	45.8	60.9
23/11/2022	10:30:00	48.7	45.8	57.5
23/11/2022	10:45:00	50.1	46.0	63.0
23/11/2022	11:00:00	48.9	45.1	60.2
23/11/2022	11:15:00	47.4	43.8	59.7
23/11/2022	11:30:00	48.7	46.2	61.2
23/11/2022	11:45:00	47.3	44.7	56.9
23/11/2022	12:00:00	48.2	46.0	59.6
23/11/2022	12:15:00	48.5	46.3	71.3
23/11/2022	12:30:00	48.3	46.3	71.2
23/11/2022	12:45:00	48.7	46.4	60.3
23/11/2022	13:00:00	50.0	46.1	65.6
23/11/2022	13:15:00	56.5	47.2	84.4

Kitchen Extract Noise Measurements

Measurement Description	L _{Aeq} dBA	L _{A90} dBA	L _{Amax} dBA
Residual/Background, Fan off	51.5	48.1	60.0
0.6m from Extract, Fan at duty point	55.4	54.6	57.3
0.6m from Extract, Fan at duty point	55.7	55.1	57.2
0.6m from Extract, Fan at duty point	55.2	54.4	56.8

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