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Acoustic Survey and Odour Assessment for Proposed café at 1-3 Back Turner Street, Manchester, M4 1FR.

Prepared for:

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September 2025

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1. Introduction

1.1. Martin Environmental Solutions has been commissioned to undertake an acoustic survey and odour assessment to support a planning application for a proposed café at 1-3 Back Turner Street, Manchester M4 1FR.

Site Location and Context

1.2. The development site is situated on the corner of Back Turner Street, Soap Street and High Street and consists of a small single storey retail unit. The upper floors to the building consist of offices, while to the north the ground floor houses a number of bars and restaurants with extraction/ventilation into Soap Street. The upper floor consists of a number of residential apartments. To the west are more late-night food establishments with a bar/restaurant to the south with more office accommodation above.

1.3. An aerial Photograph is enclosed in Figure 1, together with a proposed layout drawing in Figure 2.

1.4. The report has been produced to clarify the potential impact on the proposed development and to identify mitigation measures if required to ensure the development is appropriate in terms of noise impact.

2. Policy and Guidance

Noise

2.1. The impact of noise can be a material consideration in the determination of planning applications. The planning system has the task of guiding development to the most appropriate locations. It is recognised that on occasions it will be difficult to reconcile some land uses, such as housing, hospitals, or schools, with other activities that generate high levels of noise. However, the planning system is tasked to ensure that, wherever practicable, noise-sensitive developments are separated from major sources of noise (such as road, rail and air transport and certain types of industrial development).

2.2. The Government's publication of the National Planning Policy Framework (NPPF), updated in December 2024, states that planning policies and decisions should prevent new and existing development from contributing to or being put at unacceptable risk from, of being adversely affected by unacceptable levels of noise pollution.

2.3. The Government have also issued the Noise Policy Statement for England (NPSE). The NPSE clarifies the Government's underlying principles and aims in relation to noise and sets a vision to promote good health and a good quality of life through the effective management of noise while having regard to the Government's sustainable development strategy. The NPSE aims to mitigate and minimise adverse impacts on health and quality of life through the effective management and control of noise.

2.4. The NPSE introduces the following terms, although no sound levels are given to represent these, many authorities have identified the sound level criteria in line with the World Health Organisation, BS8233:2014 and BS4142: 2014 levels. The terms introduced by the NPSE are:

NOEL – No Observed Effect Level (<30dB(A)inside <50dB(A) outside, 10dB below background)
LOAEL – Lowest Observed Adverse Effect Level (30-35dB(A) inside 50-55dB(A) outside, background to +5dB)
SOAEL – Significant Observed Adverse Effect Level (>35dB(A) inside, >55dB(A) outside, >+10dB above background)

2.5. The sound levels within the brackets of the previous paragraph are those determined as appropriate levels to indicate the relevant effect levels represented by the NPSE.

2.6. Other commonly used examples of standards utilised by Local Planning authorities for the consideration of noise impacts include comparison of the likely noise levels to be experienced at a development, with levels that have been recommended by the World Health Organisation (WHO) as Guidelines for the prevention of Community Noise Annoyance and within BS8233: 2014.

2.7. The WHO recommended noise levels for outdoor amenity areas (gardens) that should not be exceeded are 55dB(A) $L_{Aeq,16hr}$ in order to avoid 'Serious Community Annoyance or 50dB(A) $L_{Aeq,16hr}$ to avoid 'Moderate Community Annoyance' during the day. For indoor levels WHO set 35dB(A) $L_{Aeq,16hr}$ during the day to prevent Moderate Annoyance and 30 dB(A) $L_{Aeq,8hr}$ at night to prevent sleep disturbance.

2.8. The WHO guidance also recommends that maximum sound levels at night should not regularly exceed 45dB(A) within bedrooms to prevent sleep disturbance. Regularly is considered to be more than 10 times during any 8-hour night-time period.

2.9. BS 8233:2014 'Guidance on sound insulation and noise reduction for buildings' also specifies desirable noise levels to be achieved inside dwellings.

2.10. BS 8233:2014 'Sound insulation and noise reduction for buildings – Code of Practice' also specifies desirable noise levels to be achieved inside dwellings. BS 8233 presents two levels, the first between the hours of 07:00 – 23:00 and the second between 23:00 -07:00.

2.11. The daytime period suggests internal noise levels of 35dB $L_{Aeq,16hr}$, for resting in living rooms and bedrooms while for night-time a level of 30dB LAeq,8hr is recommended. Criteria for external areas mirrors that within the WHO guidance.

2.12. Another commonly used standard is British Standard 4142:2014 'Method for rating industrial and commercial sound' compares the sound predicted by the source in question against the background, L_{A90} sound levels.

2.13. The "residual" L_{Aeq} measurement is then subtracted from the "ambient" L_{Aeq} measurement (with the sound source) to calculate the sound level created by the "problem" sound alone -termed the "specific" sound level.

2.14. If the "problem" sound is tonal, such as whine or hum, or if it is impulsive such as bangs or clatters or if it is irregular enough to attract attention a correction is added to the "specific level" to produce the "rating level". The "background" L_{A90} measurement is then compared against the "rating level".

2.15. If the "rating level" exceeds the "background" by around 10dB(A) or more this "indicates a significant adverse impact". A difference of around 5dB(A) 'indicates an adverse impact. The lower the commercial noise level is, the lower the likely impact.

2.16. In addition, the 'ProPG Planning & Noise, Professional Practice Guidance on Planning & Noise, New Residential Development' provides a 4-staged approach to undertaking a risk assessment in relation to anticipated sound levels at new residential development and the provision of mitigation measures. The guidance is principally aimed at sites exposed predominantly to noise from transportation sources.

2.17. The first stage consists of an initial noise risk assessment, based on indicative day and night-time *noise* levels. Simply put, the higher the ambient noise in an area the greater the impact. The levels given are shown below although it should be noted that these are in excess of both the WHO and BS 8233: 2014 guidance.

Noise Risk Category*	Potential Effect if Unmitigated	Pre-Planning Application Guidance
0 – Negligible $L_{Aeq,16hr}$ **<50dB** $L_{Aeq,8hr}$ **<40dB**	May be noticeable but no adverse effect on health and quality of life	In this category the development is likely to be acceptable from a noise perspective, nevertheless a good acoustic design process is encouraged to improve the existing environment and/or safeguard against possible future deterioration and to protect any designated tranquil areas. A noise assessment may be requested to demonstrate no adverse impact from noise. Application need not normally be delayed on noise grounds.
1 – Low $L_{Aeq,16hr}$ **50-63dB** $L_{Aeq,8hr}$ **40-55dB**	Adverse effect on health and quality of life	In this category the development may be refused unless a good acoustic design process is followed and is demonstrated via a Level 1 Acoustic Design Statement which confirms how the adverse impacts of noise on the new development will be mitigated and minimised and that a significant adverse impact will not arise in the finished development. Planning conditions and other measures to control noise may be required.
2 – Medium $L_{Aeq,16hr}$ **63-69dB** $L_{Aeq,8hr}$ **55-60dB** L_{AFmax} **>80dB****	Significant adverse effect on health and quality of life	In this category the development is likely to be refused unless good acoustic design process is followed and is demonstrated via a Level 2 Acoustic Design Statement which confirms how the adverse impacts of noise on the new development will be mitigated and minimised, and clearly demonstrates that a significant adverse noise impact will not arise in the finished development. Planning conditions and other measures to control noise will normally be required.
3 – High $L_{Aeq,16hr}$ **>69dB** $L_{Aeq,8hr}$ **>60dB** L_{AFmax} **>80dB****	Unacceptable adverse effect of health and quality of life	In this category the development is very likely to be refused on noise grounds, even if a good acoustic design process is followed and is demonstrated via a Level 2 Acoustic Design Statement. Applicants are advised to seek expert advice on possible mitigation measures. Advice on the circumstances when the refusal of a new housing on noise grounds should normally be anticipated is included in the ProPG.

2.18. Stage 2, consists of a full assessment of the prevailing ambient noise and requires 4 elements to be considered:

I. Element 1 – Good Acoustic Design
II. Element 2 – Internal Noise Level Guidelines
III. Element 3 – External Amenity Area Noise Assessment
IV. Element 4 – Assessment of Other Relevant Issues

2.19. A good acoustic design is implicit in meeting the requirements of the NPPF and can help to resolve many potential acoustic issues.

2.20. Details of the criteria considered suitable are provided above for both internal and external sound levels. Element 4 includes such issues as local and national policy, likely occupants, wider planning objectives.

Odour

2.21. The Government sets out its policy in relation to planning in the National Planning Policy Framework (NPPF). The NPPF states that planning policies and decisions should "preventing new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability"; and "In preparing plans to meet development needs, the aim should be to minimise pollution and other adverse effects on the local and natural environment".

2.22. While Odour is not specifically mentioned in is implied by the above and the Planning Practice Guidance (PPG) note issued by the government on Air Quality states "odour and dust can also be a planning concern, for example, because of the effects on local amenity" it continues to state, "mitigation options where necessary, will depend on the proposed development and should be proportionate to the likely impact".

2.23. Before an odour can be present an adverse effect, there must be exposure to the odour and therefore a source, a pathway, and a receptor without these three links no exposure can occur. In the case of this application the source is the take-away. The pathway is the air, and the receptor are the occupants of the nearby existing dwellings.

2.24. In assessing the impact of odour on or from a development the scale of the exposure and therefore impact is determined by the parameters collectively known as the FIDO factors (Frequency, Intensity, Duration and Offensiveness) In addition the sensitivity of the receptor (location) will determine the magnitude of the exposure. Factors that influence the magnitude of a commercial odour problem include the size/volume of the cooking facility, the type of food being prepared, and the type of cooking appliances being used.

2.25. Furthermore, updated guidance on assessing the impact of extraction systems from commercial kitchens has been published by EMAQ *'Control of Odour and Noise from Commercial Kitchen Extraction Systems' 2018*.

2.26. This document details a methodology which should be followed to assess the potential impact from commercial kitchen extraction systems on nearby land uses and how to identify suitable control and mitigation measures as required.

3. The Assessment

The development

3.1 The proposed development consists of a change of use to the corner retail unit into a café with external extraction.

3.2 The proposed operating hours for the site are 07:00-23:00, although it is envisaged that food will only be served between 12:00-17:00.

3.3 The proposed extraction system will terminate to the rear of the building on Soap Street at a height of 2.1m above ground level.

3.4 Figure 2 below provides an overview of the proposed development.

Noise

Existing Situation.

3.5 A review of the development site and surrounding area identified no safe and secure location to leave the sound level meter for an extended period of time. It was therefore decided to use a shortened attended monitoring period to identify the potentially lowest background sound levels for the area during operation times.

3.6 As such a visit was made to the site on the 31st August 2025, a Sunday evening to obtain representative, worse-case, background sound levels. The area being very quiet during the visit with few people and fewer cars in the area.

3.7 A Cirrus Optimus Green sound level meter was utilised for the monitoring. The meter was placed at a height of ~1.3m along Soap Street, away from reflections and close to the extraction discharge point.

3.8 The meter was field calibrated at the start and end of the monitoring period with no significant variation and full laboratory calibration certificates are available on request.

3.9 The weather during the monitoring was warm, dry with no wind.

3.10 Background sound levels were dominated by extraction and ventilation plant at neighbouring venues along Soap Street. Current background L_{A90} levels ranged from 61.5-62.1dB $L_{a90,15min}$. While $L_{Aeq,15min}$ levels ranged from 62.6-64.4dB.

Potential Impact

3.11 Research into the planning history of the adjacent buildings lining Soap Stret has identified conditions requiring closed windows and mechanical ventilation. Thus, the minimum spec of 29R_w has been identified for the office block and assumed that something similar is provided for the residential apartments, the level easily achievable by any standard double-glazing unit.

3.12 The proposed extraction system consists of an AW400 EC Sileo Axial Fan, fitted to a cooking range and exiting the building to the rear into Soap Street. The system will terminate at the boundary wall at a height of ~2.1m above the ground level.

3.13 This is comparable with the other extraction systems along Soap Street and permission cannot be obtained for a higher discharge point.

3.14 Manufacturers sound emission data for the fan has been obtained and is shown in Appendix B. this has identified a sound power level of 62dB(A).

3.15 The nearest window is located 5.4m away on the opposite side of the street. A façade sound level of 39.4dB(A) is therefore expected. Based on a standard double-glazed unit of 4/12/4 offering a 29dB R_w+C_{Tr} level of attenuation the internal sound level of 5.1dB(A) will be experienced internally. Significantly below the recommended internal night-time level of 30dB(A)

3.16 In terms of a BS4142:2014 assessment the fan will be operating continuously throughout the cooking operations of the site, it is similar in nature to the prevailing background sound and does not include any tonal, or impulsive sounds. No corrections are therefore required to the sound level.

	Day	
Measured Ambient sound level		Extraction not present
Residual Sound level	L_{Aeq} = 63.2dB	Average measured sound vell during operational hours
Background Sound Level	L_{A90} = 61.9dB	Average measured sound vell during operational hours
Reference period	60 minutes	Normal ref period,

Specific sound Level	L_{Aeq} = 39.2dB	Calculated at nearest window facade
Acoustic feature	-	No correction applied
Rating level	39.2dB	
Background sound level	L_{A90} = 61.9dB	
Excess of Rating level over background level	(39.2-61.9) dB = **-22.7dB** indicates no significant adverse impact	
Uncertainty		Residual & Background sound levs taken from perceived quietest period; therefore, background may be louder at other times of the day due to increased traffic movements.

3.17 The assessment; indicates the extraction fan will not result in any adverse impact on the neighbouring properties.

Odour

Assessment of new extraction system

3.18 An assessment has been undertaken in accordance with the EMAQ *'Control of Odour and Noise from Commercial Kitchen Extraction Systems' 2018 guidance document.*

3.19 The new extraction system is to terminate at the boundary wall, with sensitive receptor locations within 20m of the termination point, namely the first-floor apartments opposite. The size of the kitchen is considered to be small.

3.20 The assessment is shown in Appendix C and includes the following considerations;

3.21 The extraction system will terminate at a low level, in line with the guidance a score of 20 is applied.

3.22 The nearest residential receptor is located within 20m of the extraction point; however, the glazing is sealed with alternative ventilation provided as such a lower score of 5 has been applied.

3.23 The business has identified as 'small', and therefore score 1 has been applied.

3.24 The odour characteristics from the venue are considered to be medium, with no fried food, oven and grilled food only, in line with the guidance document, a score of 4 has therefore been applied.

3.25 This results in a score of 30 or high and as such a high level of odour control is required.

3.26 In order to mitigate against this potential impact and to ensure no adverse impact will be experienced by the identified receptors, in line with the guidance, the following measures are recommended as part of the extraction system.

- Prefilters (baffle filters) attached to the extraction hood, reducing grease loading by 65-80%
- Fine filters following this to remove any residual grease.
- An activated carbon unit to remove any odour.

3.27 The system will need to be maintained and cleaned in line with the manufacturer's instructions and a separate cleaning schedule will be produced and maintained once the chosen unit has been installed.

3.28 The installation of the above mitigation measures will ensure high level of grease and odour removal from the extraction system, preventing any adverse impact on the identified receptors.

4 Conclusion

Noise

4.1 Details of the proposed extraction fan have been obtained along with the manufacturers sound emission data. This has been used to calculate the impact at the nearest receptor location on the opposite side of the Street.

4.2 On-site monitoring has identified existing background sound levels for the area and these have been compared to the calculated extraction fan sound emissions. The proposed extraction fan resulting in sound levels significantly lower than the prevailing background sound level.

4.3 The proposed extraction system will ensure that the internal and external sound levels are acceptable and will result in a No Observe Effect on the neighbouring residents in line with the Noise Policy Statement for England.

4.4 As such the development will meet the objectives of the National Planning Policy Framework in ensuring that no significant adverse impact is experienced by the neighbouring residents. The development is therefore considered to be acceptable in terms of noise.

Odour

4.5 A consideration of the proposed development has been undertaken and a risk assessment produced in accordance with the EMAQ *'Control of Odour and Noise from Commercial Kitchen Extraction Systems' 2018* guidance document.

4.6 This has identified a potentially high risk of adverse impact from odour and as such control measures in the form of baffle filters, and an activated carbon filter have been recommended.

4.7 The inclusion of the above control measures will treat and remove odour and grease from the extracted air resulting in no adverse impact on the nearby receptor locations.

4.8 As such the development will meet the objectives of the National Planning Policy Framework in ensuring that no significant adverse impact is experienced by the

neighbouring properties. The development is therefore considered to be acceptable in terms of odour.

Figure 1 – Aerial Photograph

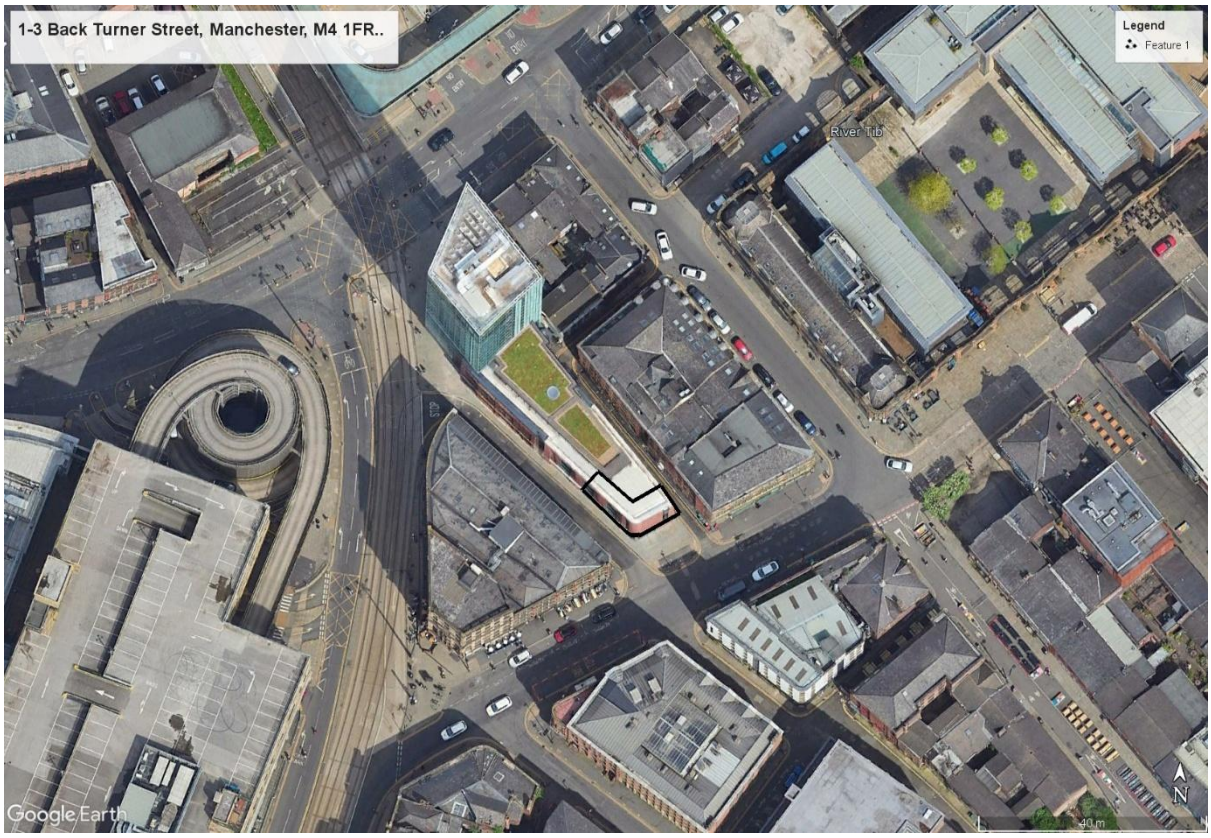
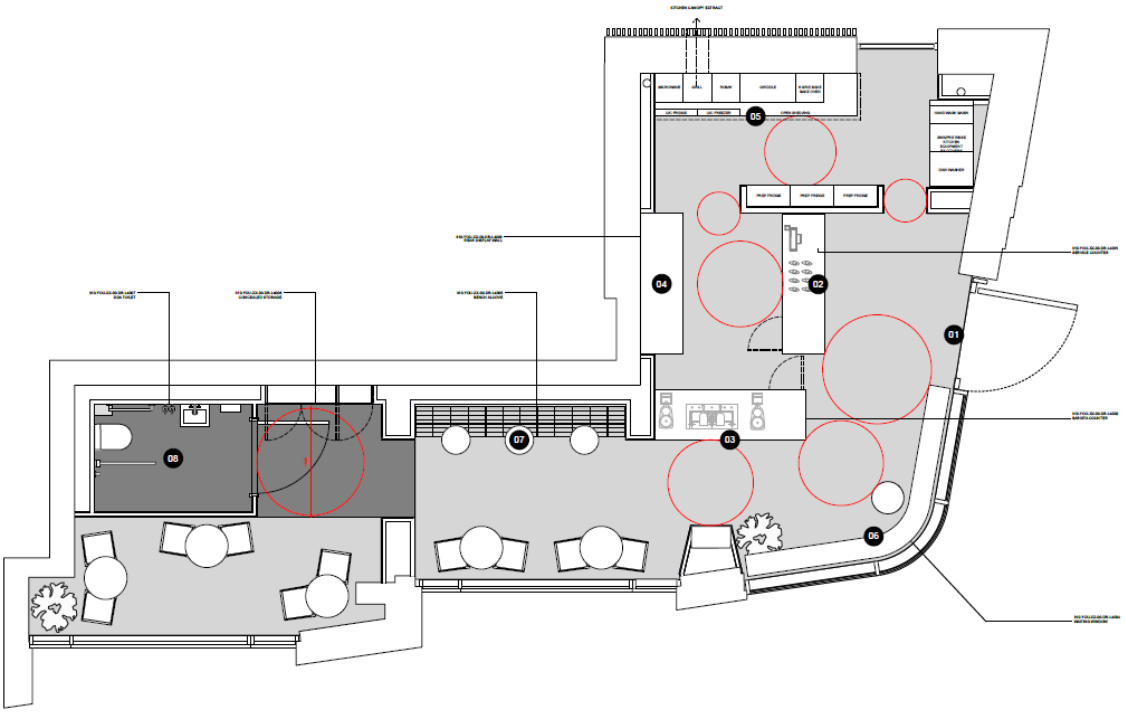
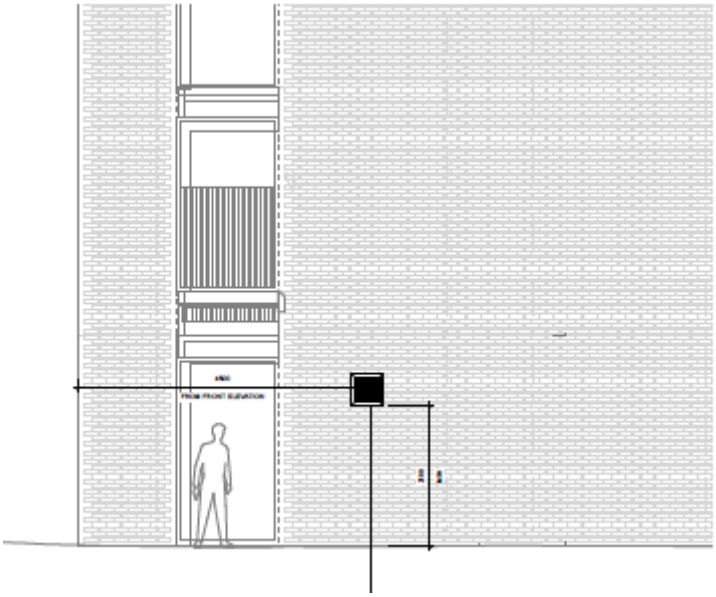


Figure 2 – Proposed Layout Plan





Appendix A – Full Monitoring Results

Time	L_{Aeq} (dB)	L_{A90} (dB)
31/08/2025 21:00	64.4	61.6
31/08/2025 21:15	63.3	61.9
31/08/2025 21:30	62.8	61.8
31/08/2025 21:45	63.0	61.8
31/08/2025 22:00	63.9	62.1
31/08/2025 22:15	62.8	61.8
31/08/2025 22:30	62.9	61.7
31/08/2025 22:45	62.6	61.7
31/08/2025 23:00	63.0	61.6
31/08/2025 23:15	62.2	61.5
31/08/2025 23:30	62.3	61.5

Appendix B – Extraction Fan Details & Potential Impact

systemair **AW 400 EC sileo Axial fan**



Sound power level		63	125	250	500	1k	2k	4k	8k	Total
Inlet	dB(A)	42	46	51	55	58	56	52	41	62

Façade Sound Level

	63	125	250	500	1000	2000	4000		Lw
AW 400 EC Sileo Axial Fan	42	46	51	55	58	56	52		62
a-weighting	-26.2	-16.1	-8.6	-3.2	0	1.2	1		
Distance Att 6m	-22.6	-22.6	-22.6	-22.6	-22.6	-22.6	-22.6		
Internal	-6.8	7.3	19.8	29.2	35.4	34.6	30.4		39.2

Internal Sound Level

	63	125	250	500	1000	2000	4000		Lw
AW 400 EC Sileo Axial Fan	42	46	51	55	58	56	52		62
Glazing	1.9	-24	-21	-30	-40	-44	-38		
a-weighting	-26.2	-16.1	-8.6	-3.2	0	1.2	1		
Distance Att 6m	-22.6	-22.6	-22.6	-22.6	-22.6	-22.6	-22.6		
Internal	-4.9	-16.7	-1.2	-0.8	-4.6	-9.4	-7.6		5.5

Appendix C - EMAQ Odour Risk Assessment

Impact Risk	Odour Control Requirement	Significance Score*
Low to Medium	Low level odour control	Less than 20
High	High level odour control	20 to 35
Very high	Very high level odour control	more than 35

Criteria	Score	Score	Details
Dispersion	Very poor	20	Discharging above the eaves
Proximity to Receptors	Medium	5	Closest sensitive receptor 20m from kitchen discharge, however windows are sealed units with mechanical ventilation to the properties, therefore a lower sore of 5 has been applied
Size of Kitchen	Medium	1	Small café
Cooking type	Medium	4	No freed food, oven cooked, grilled food.
Total	High	**30**	

Appendix D – Report Author Details

This report has been produced by Neil Martin, BSc (Hons), PGDip, CEnvH MCIEH, MIOA.

Neil is the principal acoustic consultant at Martin Environmental Solutions Ltd, a consultancy company specialising in Environmental Health disciplines including environmental noise assessment and control. He holds a Bachler's degree in Environmental Health and Diploma in Acoustics. He is a Chartered Member of the Chartered Institute of Environmental Health and a Full member of the Institute of Acoustics.

Neil has over 20year's experience working within a Local Authority Environmental Health setting, principally in the Environmental Protection and Public Health areas and has been working as an acoustic consultant since 2011.

Since its formation, Martin Environmental Solutions has advised and assisted many groups including residents, developers and local authorities about the problems of noise and vibration in the environment and the possible solutions. Neil also acts as an expert witness in the area of acoustics.