



Acoustic Assessment to support
discharge of Condition for the Change
of use from hot food takeaway and
retail unit at ground floor and a
commercial unit at first floor; a two-
bedroom apartment at second and
third floors and external ventilation
duct at rear at
85 The Rock,
Bury,
BL9 0NB.

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July 2025



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1. Introduction

- 1.1. Martin Environmental Solutions has been commissioned to undertake an acoustic assessment to support a discharge of planning condition 3, imposed on planning application 70606 for the change of use from former shop and premises (Class E) to 1 no. hot food takeaways (Sui Generis) and a retail unit (Class E) at ground floor; a commercial unit (Class E) at first floor; a two bedroom apartment at second and third floors (Class C3) and external ventilation duct at rear of 85 The Rock, Bury, BL9 0NB.

Site Location and Context

- 1.2. The development site is situated to the north of The Rock, a pedestrian street in the centre of Bury. The building comprises a brick built four storey terrace property. Commercial units are located to the ground floor of the surrounding properties including a number of restaurants and food outlets. Upper floors of the properties vary from commercial and residential.
- 1.3. To the rear of the property is an access road with a number of extraction systems, air conditioning system located at the adjacent properties. an NHS building is located on the far side of the access road.
- 1.4. An aerial Photograph is enclosed in Figure 1, together with a proposed layout drawing in Figure 2.
- 1.5. The report has been produced to clarify the potential impact on the proposed extraction system and to identify mitigation measures if required to ensure the development is appropriate in terms of noise impact.
- 1.6. The condition states;
“No development shall commence unless and until a scheme for treating, diluting and dispersing fumes and odours has been submitted to and approved in writing by the Local Planning Authority. The scheme submitted shall include a written statement from a suitably qualified person who is a member of the Heating and Ventilation Contractors Association (HVCA) or an



equivalent professional body, stating that the fume treatment to be installed complies with or exceeds the 'Minimum Requirements For Odour Control' provided by the Guidance on the Control of Odour and Noise from Commercial Kitchen Exhaust Systems :DEFRA 2005 (or if applicable such superseding guidance as shall prevail at the time of commencement of the development). The scheme to be submitted shall also include the relevant manufacturer and installer instructions for any associated equipment with details of maintenance requirements. The installation shall be so designed such that the maximum noise emitted does not exceed NR25 (Noise Rating) in the bedrooms of the nearest residential property, with the windows of that residential property being open in the normal manner for ventilation purposes. The scheme as approved shall be implemented, available for use and maintained in accordance with the approved scheme and in accordance with the approved manufacturers and installers instructions whilst it shall serve the development.

Reason. The application contains insufficient detail in order to demonstrate that the required scheme to protect the residential amenities of nearby residential property from impact upon from fume”.

NOTE: the report only considers the nose impact from the extraction fan.



2. Policy and Guidance

- 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 $L_{Aeq,8hr}$ 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.



2.21. The condition to which this report relates makes reference to NR curves, specifically NR25. NR curves are used to rate a source of sound into a single figure considering the frequency content of that sound. For each NR curve a set of octave bands are identified. The sound source can be compared to these octave bands to establish the lowest noise rating where the source noise does not exceed the level of the NR curve in any octave band.

2.22. For this situation the Council have required a level of NR25, this equates to the following sound levels within the nearest residential property.

NR	63	125	250	500	1000	2000	4000	8000
25	55.2	43.7	35.2	29.2	25.0	21.9	19.5	17.7



3. The Assessment

The development

- 3.1 The proposed development consists of a change of use to the current building, into hot food takeaway, retail, commercial and residential use. This report only considers the impact from the extraction system which is to be erected at the rear of the site to serve the ground floor hot-food takeaway element of the development.
- 3.2 The nearest identified residential properties will be those created to the upper floor of the development. The rooms to the rear of the site and closest to the extraction fan being a kitchen and bathroom on the second floor. These are considered to be non-habitable rooms. Given their use they will also be fitted with extraction to remove moisture from cooking and bathing and as such windows could also remain closed to these rooms will still achieving the required background ventilation for the rest of the property. On the third floor there will be no windows overlooking the rear of the development. The nearest window being 2m from the flue termination point and 1.45m from the fan.
- 3.3 A review of the planning history for the area has identified the only other residential properties to be located on the upper floors of 77-79 The Rock. A review of the plans has confirmed the nearest window to the extraction system is 15.2m away.
- 3.4 Figure 2 below provides an overview of the proposed development.

Potential Impact on neighbouring residential dwellings.

- 3.5 The proposed extraction system is to terminate 1m above the eaves of the building and following a review it is recommended that an Elta SLC500/2A-3AC extraction fan be fitted as part of the system along with a CP03-C*P-0500 silencer.
- 3.6 It is advised that the windows to the rear elevation of the development, which are in need of being replaced, are replaced with standard 6/12/6 double-glazing units, providing a sound reduction, $R_w(C;C_{tr})$, of 35(-2;-5) when closed. Alternative ventilation systems in the form extraction fans in the bathroom and kitchen, required under building regulations, will ensure adequate ventilation in these areas.
- 3.7 Care must be taken to ensure that windows are well fitted and gaps between the window frame and the brick work are minimised. Where gaps do occur, these should



be filled with a suitable acoustic material, not expandable foam. The window frame should be sealed across the full depth of the frame and not just around the edges. This will ensure that sound does not 'leak' around the edge of the frame.

- 3.8 It is worth noting that the above provision does not prohibit the short opening of windows for purge ventilation of the property. The recommended trickle ventilation is design to achieve the required background ventilation for the property.
- 3.9 Assuming the above glazing specification are utilised and keeping the windows closed to these two non-habitable rooms, kitchen and bathroom) the internal sound level to be experienced by the occupants will be 19.6dB(A), below the night-time average recommended sound level of 30dB(A). The levels will also be below the NR25 curve values, thereby complying with the required criterion, see Appendix A.
- 3.10 As mentioned, the nearest habitable room is at the adjacent property located 15.2m away to the nearest window. The façade sound level at this point will be 27.8dB(A), with a 15dB reduction for an open window internal sound level will be below the recommended night-time 30dB(A).
- 3.11 The internal sound levels, assuming no reduction for an open window, will also be below the NR25 curve. A reduction for the open window will also reduce the internal sound level further.



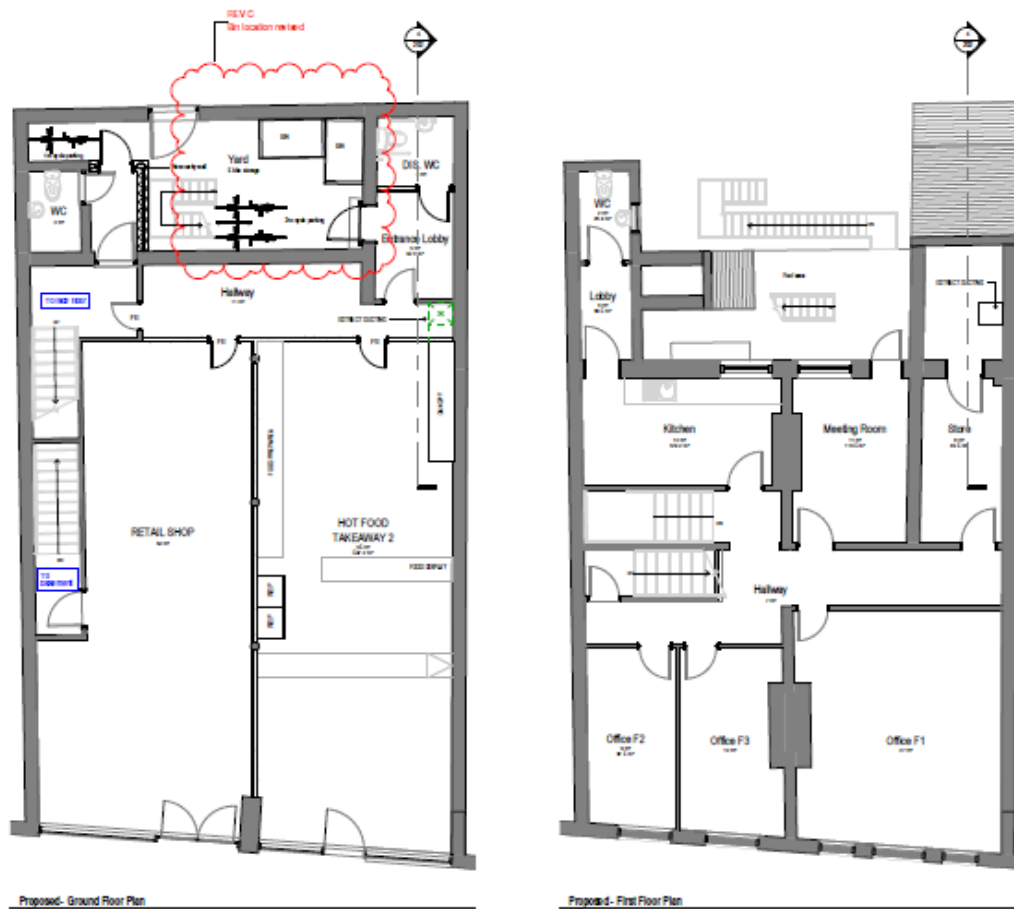
4 Conclusion

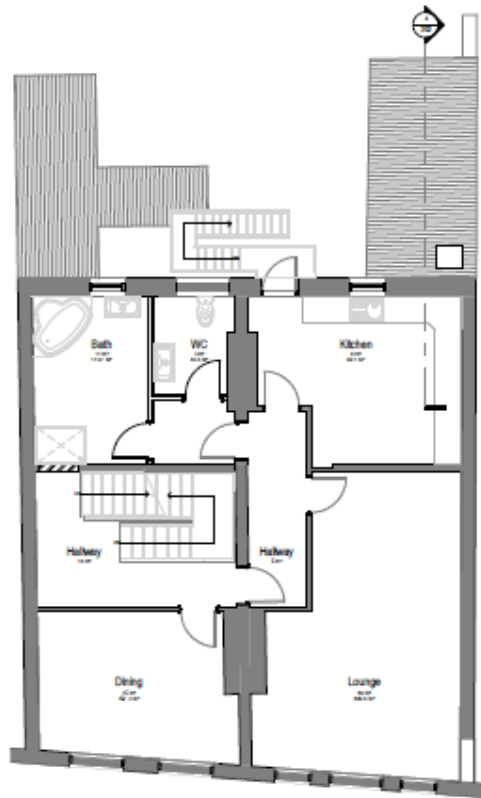
- 4.1 A consideration of the proposed extraction system and the impact on the nearest residential properties has been undertaken. this has identified the need to replace the originally specified extraction fan with an Elta SLC500/2A-3AC extraction fan while retaining the CP03-C*P-0500 silencer.
- 4.2 In addition, in order to comply with the planning condition requirements of ensuring the sound levels from the extraction are below the NR25 curve criterion the windows to the first-floor non-habitable kitchen and bathroom windows will need to be closed and fitted with standard double-glazing units.
- 4.3 The inclusion of the above mitigation measures to will ensure that the sound levels to be experienced are acceptable and will result in a No Observe Effect on the future 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 future residents. The development is therefore considered to be acceptable in terms of noise.
- 4.5 The system will also comply with the requirements of condition 3 by ensuring internal sound levels are below the NR25 criterion.

Figure 1 – Aerial Photograph

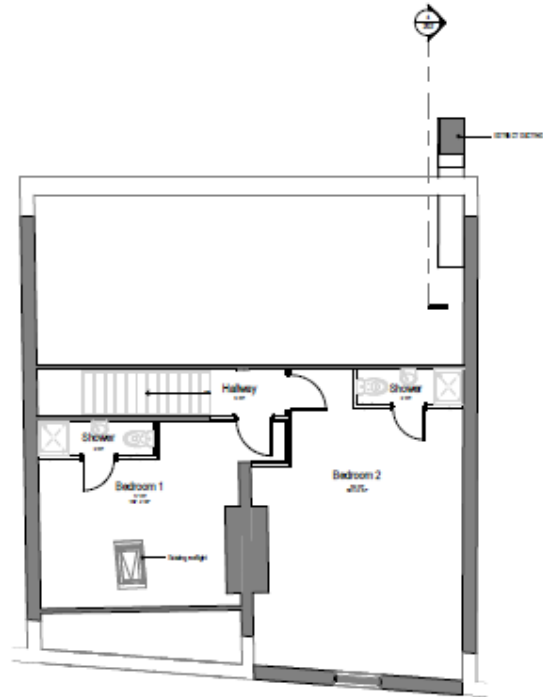


Figure 2 – Proposed Layout Plan





Proposed - Second Floor Plan



Proposed - Third Floor Plan

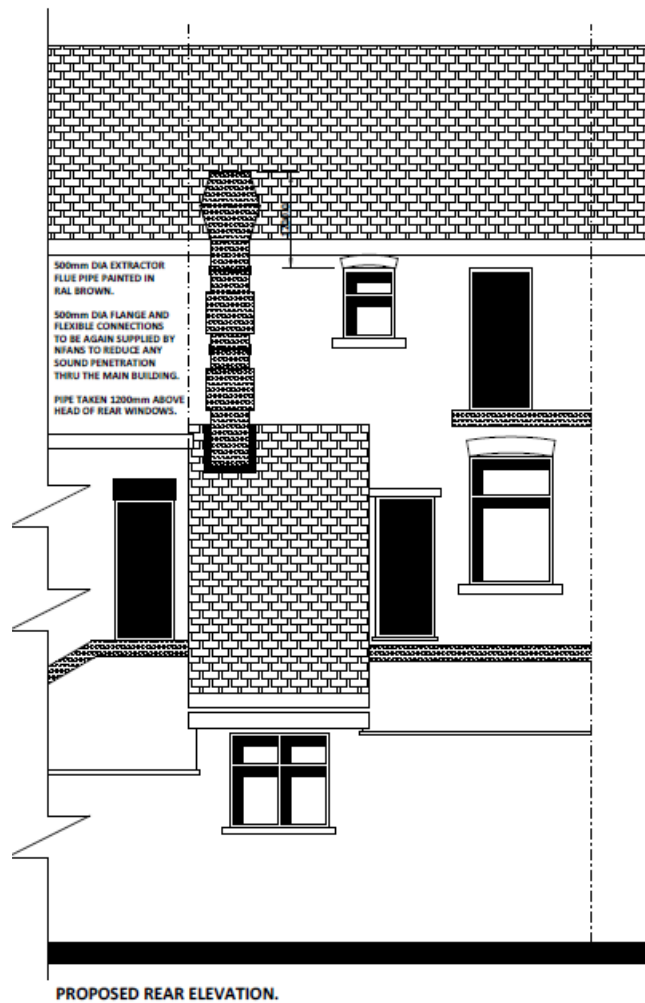
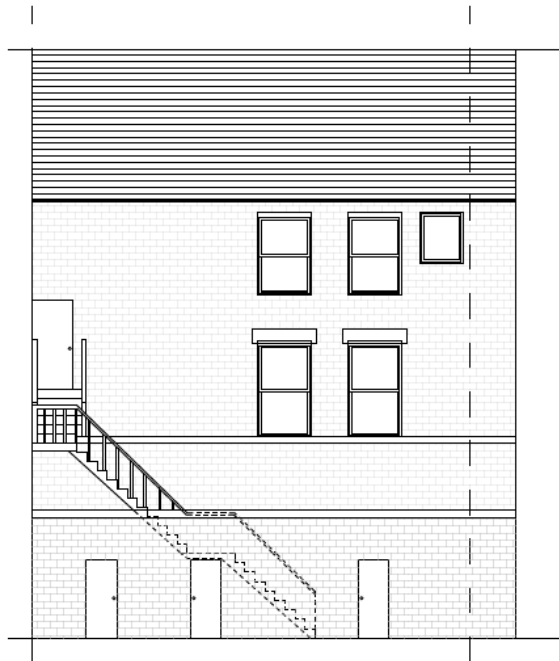
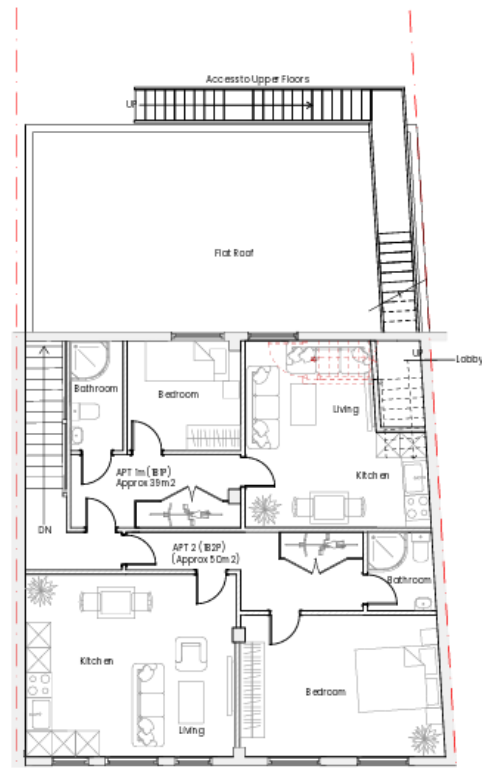


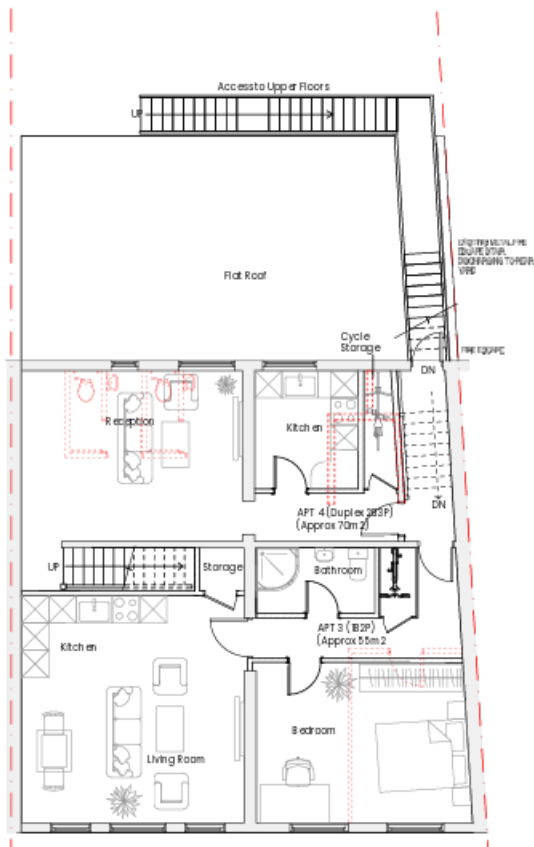
Figure 3 – Plans for Adjacent Property 77-79 The Rock



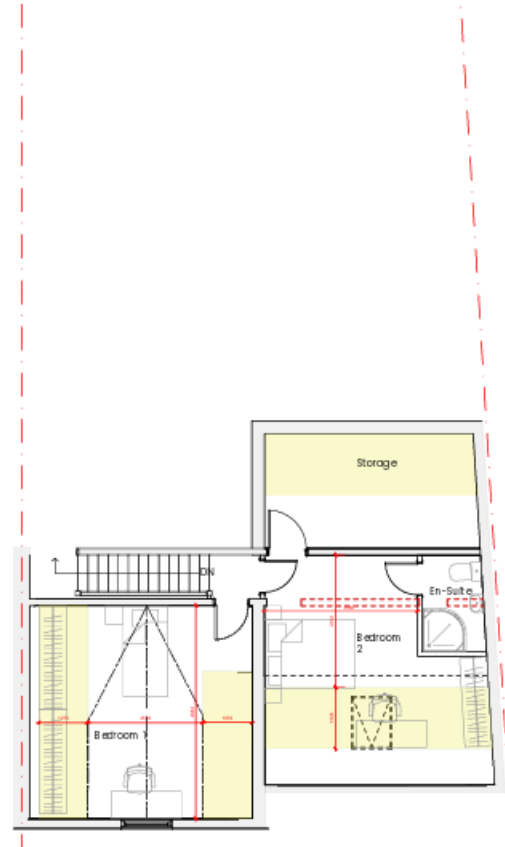
Proposed GA Rear Elevation
Scale 1:100 @ A3



Proposed First Floor Plan
Scale 1:100 @ A3



Proposed Second Floor Plan
Scale 1:100 @ A3



Proposed Loft Floor Plan
Scale 1:100 @ A3

Appendix A – Calculations

Extraction System Acoustic Data

CP03 C Series



CP03 - CA - 0500 Silencer

Available in two standard lengths C Series silencers have excellent attenuation properties, achieved with sound absorbing infill retained in the attenuator casing by a perforated liner. The central pod (code P) is an option to increase the insertion loss, however it will add resistance.

- Fits directly onto 500mm diameter fans
- Standard lengths 500mm (1D) & 1000mm (2D)
- Use up to 70°C (standard construction)
- Systems up to 1000 Pascals
- Special lengths on request



Insertion Loss (dB) - Centre Band Frequency

Product Code	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz
CP03 - C* - 0500 - 1D	2	3	6	14	14	12	10	5
CP03 - C* - 0500 - 2D	3	7	8	19	20	17	14	11
CP03 - C*P - 0500 - 1D	2	7	9	17	24	24	20	16
CP03 - C*P - 0500 - 2D	4	10	16	26	29	29	29	20

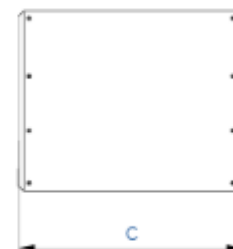
Replace * in code with A or B for connection pattern. Insertion loss data is derived from continual testing to BS4718 and other standards in independent UKAS certified laboratories, which includes where appropriate, re-generated or self noise testing in both forward and reverse flow conditions. If you request system analysis from our technicians all predictions will be assessed using the relevant certified insertion loss data together with relevant dynamic corrections.

Dimensional Data

Product Code	A (mm)	B (mm)	C (mm)	Weight (kg)
CP03 - CA - 0500 - 1D	500	653	500	18
CP03 - CA - 0500 - 2D	500	653	1000	32
CP03 - CAP - 0500 - 1D	500	653	500	22
CP03 - CAP - 0500 - 2D	500	653	1000	37

Pattern A
12 x M10 - 560 PCD

Pattern B
12 x M8 - 541 PCD





REVOLUTION SLC

Sound Data



Three Phase 380V to 415V / 50Hz

Product Code	Speed r/min		Sound Power Level dBW @ Octave Band Hz								Total dB
			63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	
SLC315/4-3AC	1485	Inlet	58	68	59	56	55	53	48	43	69
		Outlet	61	67	61	57	55	52	48	42	69
SLC355/4-3AC	1485	Inlet	59	66	59	58	60	59	54	48	69
		Outlet	61	66	61	58	58	57	53	46	69
SLC400/4-3AC	1425	Inlet	75	73	73	70	67	66	62	56	80
		Outlet	76	71	73	68	65	66	62	58	79
SLC450/2A-3AC	2895	Inlet	91	87	85	91	88	87	84	81	97
		Outlet	91	86	83	89	86	87	84	81	96
SLC450/4-3AC	1455	Inlet	79	81	73	75	71	68	65	63	84
		Outlet	80	81	73	71	70	68	65	64	84
SLC500/2A-3AC	2920	Inlet	83	83	78	90	84	83	81	78	93
		Outlet	86	84	79	85	84	83	81	78	92
SLC500/2B-3AC	2920	Inlet	87	85	80	89	86	84	83	78	94
		Outlet	89	87	81	86	87	85	84	79	95
SLC500/4A-3AC	1435	Inlet	68	69	66	67	68	68	66	60	76
		Outlet	70	69	66	66	67	69	66	61	76
SLC500/4B-3AC	1450	Inlet	73	68	71	71	70	69	67	61	79
		Outlet	73	68	71	70	71	69	67	63	79



Sound level at first floor window of development site

	63	125	250	500	1000	2000	4000	8000	Lw	Lp@3m	Lp@2m
SLC500/2A-3AC fan	86	84	79	85	84	83	81	78	92		
Directivity	1 1 2 3 4 7 12										
silencer - CP03-C*P-0500-2D.	4	10	16	26	29	29	29	20			
a-weighting	-26.2	-16.1	-8.6	-3.2	0	1.2	1	-1.1			
resulting sound level	55.8	56.9	53.4	53.8	52	51.2	46	44.9	62.3		45.3

Closed 6/12/6 wind	24.0	25.0	22.0	35.0	41.0	38.0	39.0	36.0	45.4
internal level	14.8	14.9	14.4	1.8	-6.0	-3.8	-10.0	-8.1	19.6

Internal Sound Level Comparison to NR25

	63	125	250	500	1000	2000	4000	8000
internal level	41.0	31.0	23.0	5.0	-6.0	-5.0	-11.0	-7.0
NR25	55.2	43.7	35.2	29.2	25	21.9	19.5	17.7
Diff	-14.2	-12.7	-12.2	-24.2	-31.0	-26.9	-30.5	-24.7



Sound level at neighbouring property

	63	125	250	500	1000	2000	4000	8000	Lw
SLC500/2A-3AC fan	86	84	79	85	84	83	81	78	92
Directivity		1	1	2	3	4	7	12	
silencer - CP03-C*P-0500-2D.	4	10	16	26	29	29	29	20	
resulting sound level	82	73	62	57	52	50	45	46	82.6
Over 15.2m dis tatt.	47.4	38.4	27.4	22.4	17.4	15.4	10.4	11.4	47.9
NR25	55.2	43.7	35.2	29.2	25	21.9	19.5	17.7	
Diff ignoring window attenuation	-7.8	-5.3	-7.8	-6.8	-7.6	-6.5	-9.1	-6.3	



Appendix B – 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 Bachelor'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 20 years' 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.