

Ref: 8072245

17th September 2025

Dear Sirs,

Re: Unit 33, Fort Shopping Park, Cheetham Hill Rd, Cheetham Hill, Manchester M8 8EP

Further to Springfield's mechanical service design, we are happy to present our environmental noise report in regards with the proposed kitchen extraction system.

With the design schemes from Springfield Group (Appendix 1), it is proposed to install a ventilation system to serve an unit at Unit 33Fort Shopping Park, Cheetham Hill Rd, Cheetham Hill, Manchester M8 8EP. We are happy to present our environmental noise report in regards with the proposed development.

On the 14th September 2025, we visited the Site to inspect the location for the ventilation system. Noise measurements were taken to establish the background sound levels. The operation times for the Site are from 11.00hrs to 23.00hrs.

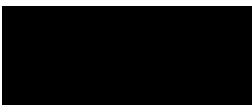
The typical background noise levels have been measured at NSR to be 50.0dBA $L_{A90\ t}$.

Noise calculations of the proposed mechanical plants have been undertaken using all measurements to deduce the impact to the NSR to form the basis of the assessment. Noise criteria at the nearest sensitive receptors have been assessed based on British Standard BS 4142:2014+A1:2019.

In accordance with BS 4142:2014+A1:2019 guidance, the assessment level as compared to the background noise levels – daytime has been determined to be more than -10dB below the background noise levels and as such no further noise attenuation measure would be required.

We have attached our noise level results and supporting information for your reference. We trust the noise assessment meets with your approval.

Yours faithfully



H.Lo MEng, PhD, CEng, Prof Mem ICME, TechMem IOA

1.0 INTRODUCTION

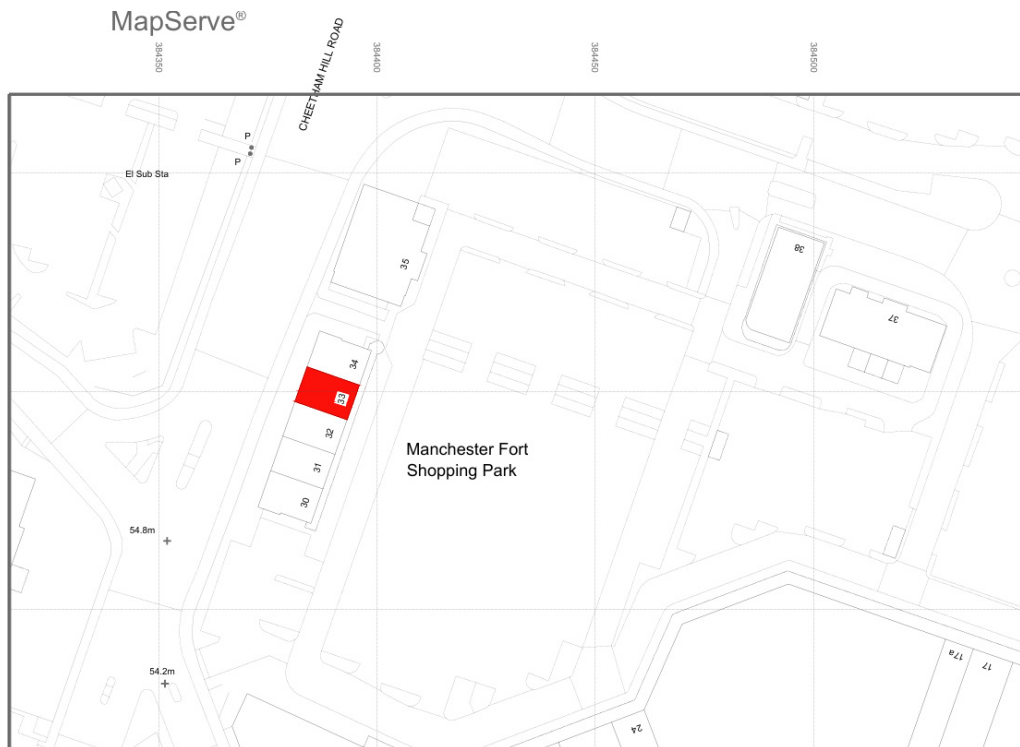
Xcellence Consultancy Group has been appointed by Springfield Ventilation Ltd to undertake an environmental noise assessment to assess the noise emissions from the proposed mechanical services associated with the kitchen ventilation upon nearby noise sensitive receptors. An environmental noise survey has been conducted to determine the prevailing background sound levels in the surrounding area. Using the results of the acoustic measurements and the BS4142 guidelines, the impact of the proposed ventilation system has been determined. This report describes the noise survey, its results and the outcomes of the subsequent assessment. Noise mitigation measures have been proposed where necessary.

1.1 SITE DESCRIPTION

The Site is located in Manchester City Council at Unit 33, Fort Shopping Park, Cheetham Hill Rd, Cheetham Hill, Manchester M8 8EP with a possible nearest noise sensitive residential receptors located approx. 300m north-west of the site. The site is an existing ground level unit that lies within a shopping park setting at Manchester Fort (Figure 1). The neighbouring businesses are Greggs, Ladbroke's and Chit 'n' Chaat (Indian Street Food Restaurant) .

The sound climate at the Site is generally dominated by road traffic noise at the back from Cheetham Hill Road and car park traffic at the front.

The sound climate at the NSR is generally dominated by the heavy road traffic due to the A6010 (Queens Road) running along the side of the NSR.



a) Block Plan



b) Frontage

Figure 1 The Site

2.0 PROPOSAL

Planning application has been approved by Manchester City Council associated with the creation of a new restaurant. The proposals include the installation of extraction system to roof (covered under planning application reference 142508/FO/2025).

The proposed development is understood to be a restaurant, kitchen and dining area. The proposals include the installation of kitchen extraction and air supply ventilation system. From Springfield's design specification (Appendix 1), due to the nature of the building with a designated plant room area, with all the equipment to be mounted at high level internally for maintenance and access.

In addition, the ductwork near the exhaust fan is proposed to have the installation of appropriate silencers for extra attenuation (Figure 2). For odour control, the exhaust system with an electrostatic precipitator unit along with activated carbon filters. As for the air supply system, this will also be mounted internally and will be ducted at roof top level.

It is understood that the proposed development is open between 11am to 11pm everyday and the proposed mechanical plants would not be operating during the night time period from 11pm.

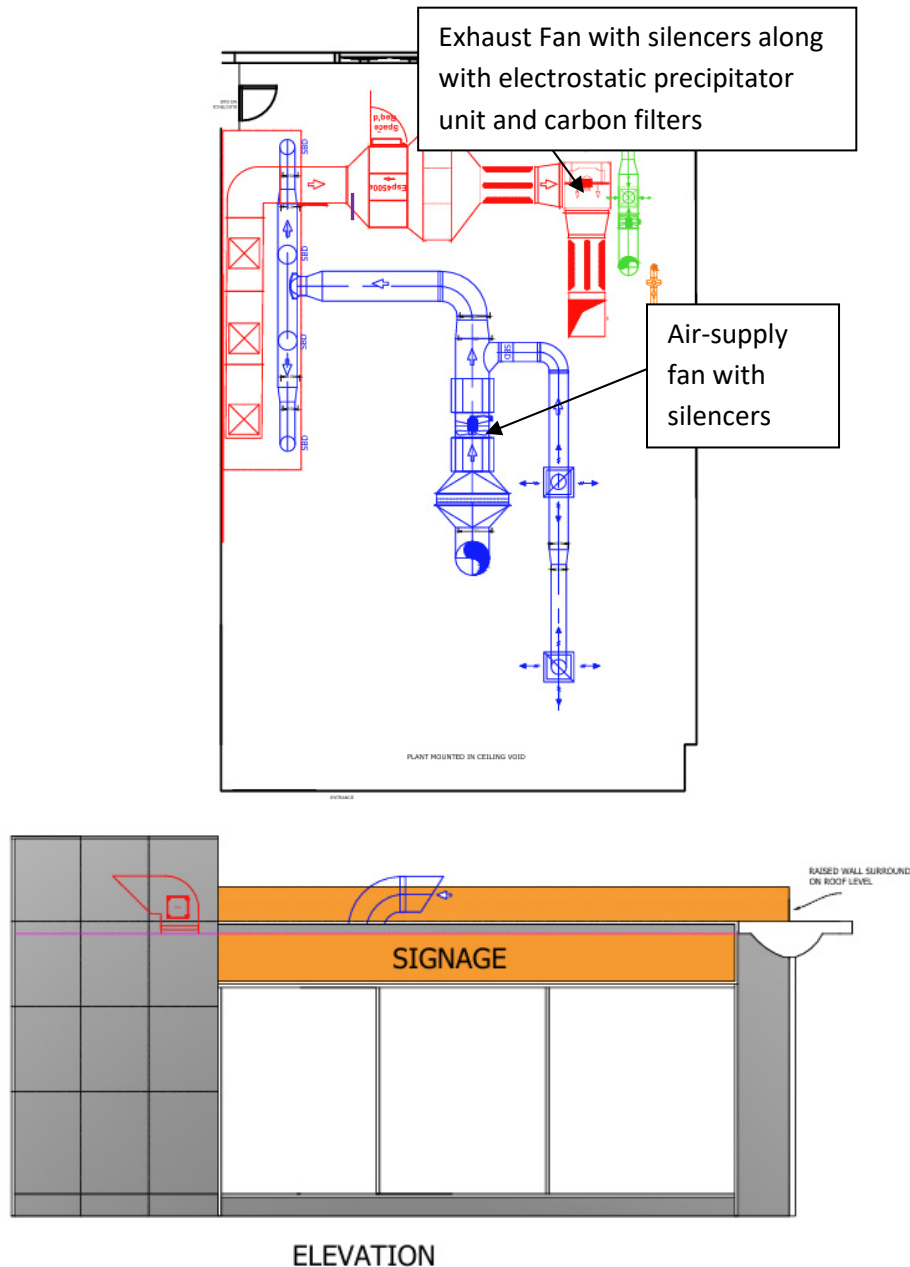


Figure 2. Proposed ventilation system –sectional view (Courtesy of Springfield Group)

3.0 GUIDANCE AND CRITERIA

BS 7445-2:1991 'Description and Measurement of Environmental Noise'

BS 7445-2:1991 '*Description and Measurement of Environmental Noise - Part 2: Guide to the acquisition of data pertinent to land use*' defines parameters, procedures and instrumentation required for noise measurement and analysis. Accordingly, together with associated guidance within the documents below, this Standard has been used to ensure the survey and data are fit for purpose.

BS 4142:2014+A1:2019 'Method for Rating and Assessing Industrial & Commercial Sound'

BS 4142 is the generally adopted method for assessing plant noise emissions affecting residential areas and is specifically referenced as the assessment methodology and is also specified by the majority of local authorities for such instances commercial & industrial sound affecting residential properties.

Comparing the rating level with the background sound level, BS 4142 states:

- "Typically, the greater this difference, the greater the magnitude of impact.
- A difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context.
- A difference of around +5 dB is likely to be an indication of an adverse impact, depending on the context.
- The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, depending on the context."

4.0 NOISE MEASUREMENT EQUIPMENT

In accordance with BS 7445-2, the instrumentation used for the noise measurements was a Svantek SV971A precision grade Class 1 real time analysing sound level meter, serial number 121091 with a Svantek ½" 7152 prepolarized condenser microphone (last calibrated 24th June 2024), serial number 83677. The instrument was field calibrated before and after measurements were taken, using the Svantek SV33B acoustic calibrator, serial number 116638 (last calibrated 17th July 2025). No signs of drift in calibration level were recorded.

4.1 WEATHER CONDITIONS

The noise measurements were undertaken in satisfactory weather with no significant wind or precipitation. The temperature recorded on the day was around 19 degrees Celsius with 39% humidity.

4.2 NOISE MEASUREMENTS PROCEDURE

The purpose of this assessment is to determine the impact of noise from the operation of the proposed ventilation system at the worst affected dwellings close to the Site. We have conducted this assessment in accordance with the BS 4142:2014+A1:2019 guidance.

The survey took place on the 14th September 2025. The survey commenced at 9:14hrs and concluded at 12:54hrs. The recorded noise levels are assumed to accurately represent the prevailing noise levels during the hour in which the measurements were conducted. Recordings were taken on a tripod 1.3m above fixed ground and at least 3m from any reflecting facades in a free field environment. The microphone was placed in a fixed position mounted on to the tripod centrally with the sound level meter set to measure consecutive “A” weighted 15-minute time samples. During the consecutive 15-minute periods, ambient and background noise levels (L_{Aeq} and L_{A90} respectively) were measured throughout the noise survey. Please see Figure 3 for the measurement location.

This assessment has been undertaken in accordance with methodology outlined within BS4142:2014 “Methods for rating and assessing industrial and commercial sound” as typically required for planning purposes.

4.2.1 Measurement Location

Measurement Location:

- ML1: Sound level meter was placed at approx. 3m to the front façade of the Site at ground level (Figure 3)
- ML2: Sound level meter was placed at approx. 5m to the front façade of the NSR at ground level (Figure 3)



Figure 3. Birds eye view of the Site with the measurement locations (ML1, ML2) and NSR front façade

5.0 NOISE MEASUREMENT RESULTS

With the results collected (Table 1), the use of L_{A90} context is considered appropriate for representing daytime values. L_{A90} represents the A-weighted sound pressure level exceeded during 90% of the measurement period and is commonly used for assessing environmental noise impacts during the daytime period to determine the background sound levels at the Site. L_{Amax} and L_{Aeq} sound pressure levels were measured over the sampling periods at the aforementioned measurement location.

After analysis of the data no significant abnormal noise source(s) were identifiable. It is considered that the measured noise levels are reasonable given the location of the measurement position.

Measurement Locations	Time	$L_{Aeq, 15min}$, dB	$L_{Amax, 15min}$ dB	$L_{A90, 15min}$ dB
ML1	9:14	52.1	67.9	46.3
ML1	9:29	52.3	66.0	47.8
ML1	9:44	56.7	88.5	48.5
ML1	9:59	59.0	91.7	48.6
ML1	10:14	54.7	66.6	52.0
ML2	10:24	58.4	73.6	50.0
ML2	10:39	58.0	66.6	50.0
ML2	10:54	57.9	70.9	51.1
ML2	11:09	61.0	78.9	52.3
ML2	11:24	58.8	70.2	53.4
ML2	11:39	57.6	76.5	52.5
ML2	11:54	58.5	71.5	53.9
ML2	12:09	58.2	79.3	53.6
ML2	12:24	58.2	67.5	53.4
ML2	12:39	57.1	65.3	52.1

Table 1. Summary of measured Sound pressure levels

6.0 NOISE IMPACT ASSESSMENT

Spot check noise survey around the Site and the NSR were undertaken to measure the existing noise climate. With the use of BS4142:2014 methodology, representative background sound levels were determined in establishing the noise rating limits of the proposed mechanical plants at the nearest sensitive receptor. The lowest L_{A90} of 50.0dBA (see Table 1).

In accordance to the BS4142 guidelines, “the lower the rating level is relative to the measured background sound level is an indication of the specific sound source having a low impact”. There is no quantitative definition of statutory noise nuisance. It is generally accepted however, that if the plant noise level is at least 5dB below the minimum background L_{A90} at 1m from the nearest noise sensitive window, then the risk of a statutory noise nuisance is avoided.

As discussed previously, the site lies within a primarily shopping park setting with the nearest noise sensitive residential receptors located approx. 300m north-west of the site. The proposed operation

and layout of The Site has been planned in order to contain all the required operations and activities within the site, thus limiting the impacts from noise on any nearby receptors.

The manufacturer's data sheet for the proposed fan is provided within Appendix 1 of this report. The operational noise of the exhaust from the proposed ventilation system has been calculated to be 0.0dBA at NSR (refer to Appendix 2). With the use of carbon filters and silencers within the ducting, the attenuated fan noise is assumed and considered to be steady aerodynamic noise in nature, therefore no acoustic correction is deemed necessary.

As per the semantics of BS4142, at 0.0dBA this would be far below any typical quiet residential background noise level setting. By adopting this as a design criterion and the guidance contained in BS 4142:2014, the proposed ventilation system is deemed compliance.

As shown in Table 2, the predicted difference between the Total Rating Level and background daytime noise level is -50.0dB (see Appendix 2 for full details) . In accordance with the BS4142 guidelines, as the Total Rating Level far below than the background noise level, therefore no additional noise attenuation measure would be required.

	Total Rating Level, dBA $L_{Aeq, T}$	Background Noise Level Day (07:00-24:00), dBA L_{A90}	Assessment Level, dB
NSR	0.0	50.0	-50.0

Table 2. Daytime BS4142 assessment level at NSR

Note 1. For the purpose of the noise impact assessment the lowest L_{A90} value (see Table 1) has been used.

7.0 CONCLUSIONS & RECOMMENDATIONS

Xcellence Consultancy Group has been appointed by Springfield to conduct a background external noise assessment impact of the proposed ventilation system upon nearby noise receivers. The calculations within this report are based upon actual measurements and/or calculated data. Uncertainties in these assessments do exist in terms of potential seasonal and future variance of background levels over time but these are not thought to be significant here. The opinions and interpretations presented in this report represent our best technical interpretation of the data made available to us.

An environmental noise survey has been undertaken to determine prevailing background sound levels in the surrounding area which have been used as the basis of the assessment.

During the survey and after analysis of the data, no abnormal noise data was removed. It is considered that the whole of the measured noise levels are reasonable given the location of the measurement position. A robust, worst case assessment of the noise levels associated to the proposed mechanical plant has been undertaken. In accordance with BS 4142:2014+A1:2019 guidance the predicted noise impact due to the operation of the proposed mechanical plants "is an indication of the specific sound source having a low impact". No additional measures are necessary to reduce further noise breakout.

Appendix 1 Proposed Extract Ventilation Specification (Provided by Springfield Group)

Fan mounted internally along with the 900mm long splitter silencer

Extraction Fan

FlaktWoods Limited
Fan Selector - Technical Datasheet

FläktGroup

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Silencer

		600mm x 600mm x 900mm baffled splitter attenuator with radius baffles.					
		Decibel reduction inline 16 Dba					
63Hz	125Hz	250Hz	500Hz	1000Hz	2000Hz	4000Hz	8000Hz
5	9	12	21	22	24	19	24

Air-Supply

JM Aerofoil 56JM/16/4/5/28:



JM Aerofoil

56JM/16/4/5/28
GDK BRIDGWATER
7 - 14 weeks - (Fan Only)

PRODUCT

Model Code	56JM/16/4/5/28
Fan Diameter	560 mm
Fan Speed	1420 rpm [Max 1428, Min 270]
Impeller	5 Blades, 28° Angle
Installation	Type D - Form B
Fan Casing	Long Case - Horizontal

PERFORMANCE

Requested Duty	2.54 m³/s @ 140 Pa (Static)
Outlet Dynamic Pressure	66 Pa
Velocity	10.52 m/s
Absorbed Power	0.780 kW
Peak Power	0.815 kW [Used to size motor]
Efficiency (Total / Static)	70.4 % / 48.4 %

MOTOR

Motor Rating	0.830 kW [CT9 Frame - 4 Pole]
Full Load Current	2.3 A
Starting Current	8.6 A
Electrical Supply	380 - 415 Volts 50 Hz 3 Phase
Motor Winding	Standard
Motor Type	Pad - Class F Insulation

EFFICIENCY GRADES

ErP (FMEG) Rating	N 57 (Not ErP Complaint) ✗
ErP (FMEG)	Target N 58
FMEG Blade Angle [Range]	24° [8° To 28°]
Measurement Category	D
VSD	No
Fan + Motor Efficiency	51.3% (2.32 m³/s @ 194 Pa)
Motor Input Power (ErP)	0.880 kW

ENVIRONMENT

Air Density	1.2 kg/m³ / 20 °C / 0 m / 40% RH
Smoke Venting	No Smoke Venting
Operating Environment	Normal

RUNNING COSTS

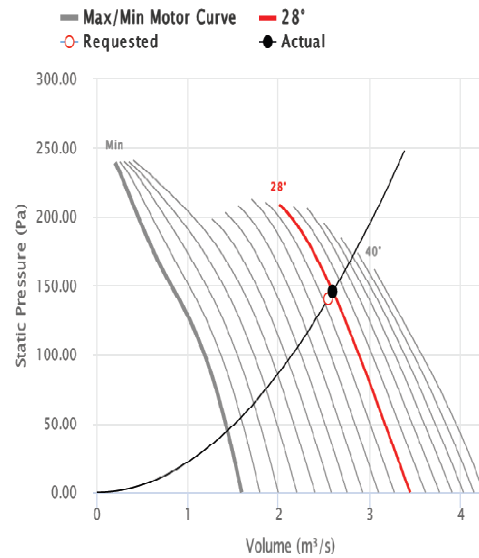
Power from mains	1.09 KWh
Energy Consumption	2,186.65 (2,000.00 h/Year)
Running Cost / Year	£546.66
CO2 per Year	768.74 kgCO2e

MECHANICAL

Casing	560mm Steel Casing
Impeller	Aluminium LM6 Hub, Aluminium LM6 Blades
Operating Temperatures	-20 °C to 50 °C
Maximum Running Speed	1428 rpm
Minimum Running Speed	270 rpm

COMMENTS

FAN PERFORMANCE CURVE



ACOUSTICS

	Sound Spectrum (Hz)								Overall		Distance (3 m)
	63	125	250	500	1k	2k	4k	8k	Lw*	LwA*	LpA @ 3 m **
Inlet	78	81	76	76	73	70	66	61	85	79	57
Outlet	79	82	76	76	73	70	67	63	85	78	58
Breakout	69	61	50	51	48	43	48	39	70	54	34

Sound Data At Requested Duty,

* Lw dB re 10⁻¹² W

* Lw dB re 10⁻¹² W

FAN & ACCESSORIES

Item Description	Part Number	Qty	Lead-Time
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Appendix 2 - Noise calculation sheets for kitchen extraction in relation to the NSR

Exhaust

		Octave band frequency							
		63	125	250	500	1k	2k	4k	8k
Flakt ePowerBox 80/630/3/4	SWL	85	74	78	79	79	77	72	65
SWL to SPL @ 300m (Assume spherical radiation)		60	60	60	60	60	60	60	60
SPL@300m		25	14	18	19	19	17	12	5
'A' - Weighting		-26	-16	-8.5	-3	0	1	1	1
Resultant SPL _A @ 300m		-1	-2	9.5	16	19	18	13	6
Resultant SPL _A @ 300m		=22.6dBA							
Silemcer		5	9	12	21	22	24	19	24
Resultant SPL _A @ 300m		-6	-11	-2.5	-5	-3	-6	-6	-18
Resultant SPL _A @ 300m with silencer		=0.0dBA							

Air Supply

		Octave band frequency							
		63	125	250	500	1k	2k	4k	8k
JM Aerfoil 56JM/16/4/5/28	SWL	78	81	76	76	73	70	66	61
SWL to SPL @ 300m (Assume spherical radiation)		60	60	60	60	60	60	60	60
SPL@300m		18	21	16	16	13	10	6	1
'A' - Weighting		-26	-16	-8.5	-3	0	1	1	1
		-8	5	7.5	13	13	11	7	2
Resultant SPL _A @ 300m		=18.3dBA							
Use of 1D Splitter silencer baffle, attenuation		5	9	12	21	22	24	19	24
		-13	-4	-4.5	-8	-9	-13	-12	-22
Resultant SPL _A @ 300m with silencer		=0.0dBA							

In order to calculate the overall noises from the proposed mechanical services, the summation of 0.0dBA (exhaust), 0.0dBA (Air supply fan) is needed and this results in a Total Rating of 0.0dBA.