Our Reference: NIA&ORA/1300/24/365/v1.0/43 Commercial Street, Batley

2nd September 2024

Mr Rashid Moghul
363 Architecture
985 Leeds Road
Bradford
BD3 7ND

Dear Sirs

NOISE IMPACT AND ODOUR RISK ASSESSMENT

PROPOSED CHANGE OF USE FROM CLASS E HAIR SALON) TO CLASS E(b) RESTAURANT WITH INSTALLATION OF REAR EXTERNAL EXTRACTION FLUE

43 COMMERCIAL STREET, BATLEY, WF17 5EP

1.00 INTRODUCTION

1.01 RP Acoustics Limited has been commissioned by 363 Architecture to carry out a noise impact and odour risk assessment for a proposed Change of Use from a Class E Hair Salon to Class E(b) Restaurant with installation of rear external extraction flue at 43 Commercial Street, Batley, WF17 5EP (hereafter referred to as the application site).

1.02 The scope of the noise impact and odour risk assessment is as follows:

- Determine ambient and background noise levels at the application site
- Assess the noise associated with the kitchen extraction system
- Assess the noise impact in accordance with relevant guidelines

- Determine the odour potential associated with the restaurant
- Determine the odour risk assessment
- Provide recommendations for odour control requirements

1.03 This report sets out the methodology and findings of the assessments. It has been prepared on behalf of for the sole purpose described above and no extended duty of care to any third party is implied or offered. Third parties making reference to the report should consult 363 Architecture and RP Acoustics Limited as to the extent to which the findings may be appropriate for their use.

1.04 A glossary of acoustic terms is contained in Appendix 1 for reference.

2.00 APPLICATION SITE SETTING AND PROPOSED DEVELOPMENT

2.01 The application site comprises 43 Commercial Street (a two storey building) in Batley town centre in a mixed commercial and residential use setting. The application site location plan is shown is Appendix 2 for reference. The nearest residential uses are located to the rear of the application site (dwelling flats above Class E use at Nos. 1–25 Commercial Street to the south south east and town houses on Wards Hill Court to the south south west). There are also existing flues and plant units installed on the rear elevation on Commercial Street.

2.02 The ground floor is to be converted into a restaurant, predominantly serving fried chicken. Opening hours are 10 am to 2 am, 7 days a week. No alcohol is to be served. The kitchen extraction flue is to extend up the rear elevation terminating at least 1 metre above the eaves. The proposed floor plans and elevations are reproduced in Appendix 3 for reference.

Continued from page 1

3.00 BASELINE NOISE SURVEY

3.01 A baseline noise survey was undertaken at the application site during the early hours of Friday 30th August 2024.

3.02 For the purpose of the baseline noise survey, the following noise monitoring positions were adopted (see Appendix 4) in a free field environment:

- NMP1 was located outside the townhouses on Wards Hill Court
- NMP2 was located outside the dwelling flats at Nos. 1–25 Commercial Street

3.03 Noise measurements were undertaken using an NTi Audio XL2 Type 1 integrating sound level meters. A 90 mm windshield was fitted for all measurements. The measurement system calibration was verified immediately before and after measurement sessions with no drift in calibration level was noted (calibration certificates reproduced in Appendix 5 for reference).

3.04 Measurements consisted of A–weighted broadband parameters, together with linear third octave band L_{eq} levels, with a logging interval of 1 second. The following table contains a summary of the relevant measurement data rounded to the nearest decibel.

Table 3.1 – Baseline Noise Measurement Data

Position	Time	LAeq (dB)	LA90 (dB)	LA10 (dB)	LA1 (dB)	Comments
NMP1	0115–0215	45	41	47	53	Distant traffic, distant plant
NMP2	0045–0100	54	45	59	62	Distant traffic, local plant (air con)
Night Time Background Noise Level at NMP1 (Wards Hill Court) was 41 dB LA90						

3.05 The background noise levels are considered wholly commensurate with the application site setting of an urbanised location subject to distant road traffic noise and distant plant noise.

3.06 For reference, the background noise level at 0115 to 0215 hours (the latter time being beyond the proposed closing time of the proposed restaurant of 0200 hours) measured at NMP1 was wholly consistent with that measured during a long term noise survey which was undertaken for Planning Permission 2018/Class O/93134/E for the Change of Use from Offices (Use Class B1) to 13 residential dwelling flats (Use Class C3) at Nos. 1–9 Commercial Street, Batley, WF17 5HN (see Appendix 6 for the time history plots).

3.07 For reference, the nearest existing residential use with a clear line of sight to the proposed extraction flue is located at Wards Hill Court, circa 73 metres to the south south west.

4.00 GOVERNMENT POLICY, ACOUSTIC STANDARDS AND GUIDANCE

National Planning Policy Framework

4.01 The National Planning Policy Framework (NPPF), which was revised in July 2021, states in Paragraph 174 that '*Planning policies and decisions should contribute to and enhance the natural and local environment by: … e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or* ***noise pollution*** *or land instability.'*

Continued from page 2

National Planning Policy Framework: Planning Practice Guidance on Noise

4.02 The National Planning Policy Framework Planning Practice Guidance on Noise (NPPF-PPGN) states that the subjective nature of noise means that there is not a simple relationship between noise levels and the impact on those affected. This will depend on how various factors combine in any particular situation. These factors include: The source and the absolute level of noise; the content of the noise; and the general character of the noise. The NPPF-PPGN presents a table of noise exposure hierarchy, which relates the NOAEL, LOAEL and SOAEL to the subjective perception of noise and examples of outcomes (see below).

Table 4.1 – Summary of Noise Exposure Hierarchy

Perception	Examples of Outcomes	Increasing Effect Level	Action
No Observed Adverse Effect Level (NOAEL)			
Not Noticeable	No Effect	No Observed Effect	No specific measures required
Noticeable and not intrusive	Noise can be heard, but does not cause any change in behaviour or attitude. Can slightly affect the acoustic character of the area but not such that there is a perceived change in the quality of life.	No Observed Adverse Effect	No specific measures required
Lowest Observed Adverse Effect Level (LOAEL)			
Noticeable and intrusive	Noise can be heard and causes small changes in behaviour and/or attitude, e.g. turning up volume of television; speaking more loudly; where there is no alternative ventilation, having to close windows for some of the time because of the noise. Potential for some reported sleep disturbance. Affects the acoustic character of the area such that there is a perceived change in the quality of life.	Observed Adverse Effect	Mitigate and reduce to a minimum
Significant Observed Adverse Effect Level (SOAEL)			
Noticeable and disruptive	The noise causes a material change in behaviour and/or attitude, e.g. avoiding certain activities during periods of intrusion; where there is no alternative ventilation, having to keep windows closed most of the time because of the noise. Potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to sleep. Quality of life diminished due to change in acoustic character of the area.	Significant Observed Adverse Effect	Avoid
Noticeable and very disruptive	Extensive and regular changes in behaviour and/or an inability to mitigate effect of noise leading to psychological stress or physiological effects, e.g. regular sleep deprivation/awakening; loss of appetite, significant, medically definable harm, e.g. auditory and non-auditory	Unacceptable Adverse Effect	Prevent

BS 4142:2014 Methods for Rating and Assessing Industrial and Commercial Sound

4.03 The significance of sound of an industrial and/or commercial nature depends upon both the margin by which the rating level of the specific sound source exceeds the background sound level and the context in which the sound occurs. An effective assessment cannot be conducted without an understanding of the reason(s) for the assessment and the context in which the sound occurs/will occur. When making assessments and arriving at decisions, therefore, it is essential to place the sound in context.

4.04 Typically, the greater this difference, the greater the magnitude of the 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.

Continued from page 3

4.05 It is also important to consider the absolute level of sound. For a given difference between the rating level and the background sound level, the magnitude of the overall impact might be greater for an acoustic environment where the residual sound level is high than for an acoustic environment where the residual sound level is low. Where background sound levels and rating levels are low, absolute levels might be as, or more, relevant than the margin by which the rating level exceeds the background. This is especially true at night.

5.00 NOISE ASSOCIATED WITH PROPOSED RESTAURANT

Control of Noise Associated with the Kitchen Extraction System

5.01 The kitchen extraction system is to incorporate a JM Aerofoil 500 mm diameter fan with a maximum speed of 1420 rpm. The fan has a maximum sound power at the outlet of 83 dB L_{WA} whilst the casing break out is 57 dB(A) at 3 metres. The fan, which is broadband in nature and does not warrant an acoustic feature correction, is also to include a 1D cylindrical silencer on the exhaust side (see Appendix 7).

5.02 The noise level from the extract flue discharge at the nearest residential use with a clear line of sight (circa 73 metres to the south south west) is (frequency) dependent upon the outlet sound power level, silencer insertion loss, directivity correction as the exhaust is set above eaves levels (see Appendix 8 for the directivity corrections) and distance correction. The exhaust flue discharge noise level at the nearest residential use with a clear line of sight is calculated in the following table.

Table 5.1 – Calculated Noise Levels from the Extract Flue Discharge

Item	Octave band (Hz)	63	125	250	500	1000	2000	4000	8000	A
A	Outlet SWL(dB)	78	79	76	74	73	69	67	61	83
B	A-Weighting Correction Outlet SWL (dBA)	-26	-16	-9	-3	0	1	1	-1	
C	Distance Attenuation at 73 metres (=20*log(73))	37	37	37	37	37	37	37	37	
D	Directivity Index (receptors level with outlet)	2	3	7	12	16	22	27	31	
E	1D Silencer Attenuation	2	3	6	13	14	10	10	5	
F	Correction SWL to SPL	11	11	11	11	11	11	11	11	
	Resultant SPL dB(A) at receptor (A+B-C-D-E-F)	0	9	6	-2	-5	-10	-17	-24	**11**

5.03 The primary noise source will be the fan casing break out. This is 57 dB(A) at 3 metres at maximum duty. The associated noise level at the nearest residential use is calculated at follows:

57 dB(A) – 20 log (73/3) = 57 dB(A) – 28 dB(A) = 29 dB(A)

5.04 The fan casing break out at the nearest residential use with a line of sight is calculated at 29 dB(A). This is 12 decibels below the night time background noise level of 41 dB $L_{A90\ (0115–0215)}$. In accordance with BS 4142, this represents a negligible impact. Furthermore, good internal ambient noise levels will be achieved with windows open.

5.05 In accordance with the National Planning Policy Framework Planning Practice Guidance on Noise (NPPF-PPGN), the noise of the extraction flue is categorised as being at a No Observed Adverse Effect Level (NOAEL) as '*not noticeable*.'

Continued from page 4

Noise Impact of Patrons

5.06 Commercial Street past the application site is trafficked one-way (from north west to south east down the hill towards Cross Street and Wellington Street).

5.07 The nearest residential use to the application site is the dwelling flats (above the ground floor Use Class E) at Nos. 1–25 Commercial Street, the closest of which is at the junction with Cross Street circa 65 metres away.

5.08 At this location, there is a vibrant night time economy with regular vehicles and pedestrians into the early hours frequenting the existing restaurants (Chum Chee's diner is located at the corner of Commercial Street and Cross Street and is open until 0100 hours on Thursday, Friday and Saturday) and hot food takeaways in the immediate locality, whilst there are a number of public houses further down Commercial Street towards its junction with Wellington Street.

5.09 In accordance with the National Planning Policy Framework Planning Practice Guidance on Noise (NPPF-PPGN), the noise of the patrons is categorised as being at a No Observed Adverse Effect Level (NOAEL) as '*Noise can be heard, but does not cause any change in behaviour or attitude. Can slightly affect the acoustic character of the area but not such that there is a perceived change in the quality of life*.'

6.00 ODOUR RISK ASSESSMENT

6.01 The following 'Risk Assessment for Odour' has been derived from criteria outlined by DEFRA 2005, Guidance on the Control of Odour and Noise from Commercial Kitchen Exhaust Systems Appendix C. The assessment is carried to accurately score the site according to DEFRA standards. Odour control must be designed to prevent odour nuisance in a given situation. The following score methodology is suggested as a means of determining odour control requirements using a simple risk assessment approach.

Table 6.1 – Risk Assessment for Odour for Proposed Restaurant

Criteria	Rating	Score	Details
Dispersion	Very Poor	20	Low level discharge, discharge into courtyard or restriction on stack
	Poor	15	Not low level but below eaves, or discharge at below 10 m/s
	Moderate	10	Discharging 1m above eaves at 10 to 15 m/s
	Good	5	Discharging 1m above ridge at 15 m/s
Proximity of Receptors	Close	10	Closest sensitive receptor less than 20m from kitchen discharge
	Medium	5	Closest sensitive receptor between 20 and 100m from kitchen discharge
	Far	1	Closest sensitive receptor over 100m from kitchen discharge
Size of Kitchen	Large	5	More than 100 covers or large sized take away
	Medium	3	Between 30 and 100 covers or medium sized take away
	Small	1	Less than 30 covers or small sized take away
Cooking Type (Odour / Grease Loading)	Very High	10	Pub (high level of fried food), fried chicken, burgers or fish and chips
	High	7	Vietnamese, Thai or Indian
	Medium	4	Cantonese, Japanese or Chinese
	Low	1	Most Pubs, Italian, French, Pizza or Steakhouse
Overall Score = 26 = High Level of Odour Control			

Impact Risk	Odour Control Level Requirement	Significance Score
Low / 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

6.02 High level odour control requires: a) a canopy to cater for medium loading (0.35 m/s), and b) pre-filters and carbon filters to achieve a 0.2 to 0.4 second residence time. This is in line with the proposed odour control system (see Appendix 7).

Continued from page 5

7.00 CONCLUSION

7.01 A noise impact and odour risk assessment for a proposed restaurant at 43 Commercial Street, Batley, WF17 5EP.

7.02 In accordance with the National Planning Policy Framework Planning Practice Guidance on Noise (NPPF-PPGN), the noise of the extraction flue and patrons entering and exiting the proposed restaurant is categorised as being at a No Observed Adverse Effect Level (NOAEL) as '*Noise can be heard, but does not cause any change in behaviour or attitude. Can slightly affect the acoustic character of the area but not such that there is a perceived change in the quality of life*.'

7.03 A scheme of odour abatement has been specified in accordance with good practice in order to protect residential amenity.

7.04 In conclusion, noise and odour do not pose a constraint to the granting of planning permission.

If we can be of any further assistance, please do not hesitate to contact us.

Yours sincerely

Jonathan Rigg
MEng(Hons), AMIOA, Diploma in Acoustics and Noise Control
For RP Acoustics Ltd

APPENDIX 1
GLOSSARY OF ACOUSTIC TERMS

Sound Pressure Level (L_p)

The basic unit of sound measurement is the sound pressure level. As the pressures to which the human ear responds can range from 20 µPa to 200 Pa, a linear measurement of sound levels would involve many orders of magnitude. Consequently, the pressures are converted to a logarithmic scale and expressed in decibels (dB) as follows:

$L_p = 20 \log_{10}(p/p_0)$ where

L_p = sound pressure level in dB; p = rms sound pressure in Pa; and p_0 = reference sound pressure (20 µPa).

A-weighting Network

A frequency filtering system in a sound level meter, which approximates under defined conditions the frequency response of the human ear. The A-weighted sound pressure level, expressed in dB(A), has been shown to correlate well with subjective response to noise.

Equivalent continuous A-weighted sound pressure level, $L_{Aeq, T}$

The value of the A-weighted sound pressure level in decibels of continuous steady sound that within a specified time interval, T, has the same mean-square sound pressure as a sound that varies with time. $L_{Aeq, 16h}$ (07:00 to 23:00 hours) and $L_{Aeq, 8h}$ (23:00 to 07:00 hours) are used to qualify daytime and night time noise levels.

$L_{A10, T}$

The A-weighted sound pressure level in decibels exceeded for 10% of the measurement period, T. $L_{A10, 18h}$ is the arithmetic mean of the 18 hourly values from 06:00 to 24:00 hours.

$L_{A90, T}$

The A-weighted sound pressure level of the residual noise in decibels exceeded 90% of a given time interval, T. L_{A90} is typically taken as representative of background noise.

$L_{AF\ max}$

The maximum A-weighted noise level recorded during the measurement period. The subscript ‘F’ denotes fast time weighting, slow time weighting ‘S’ is also used.

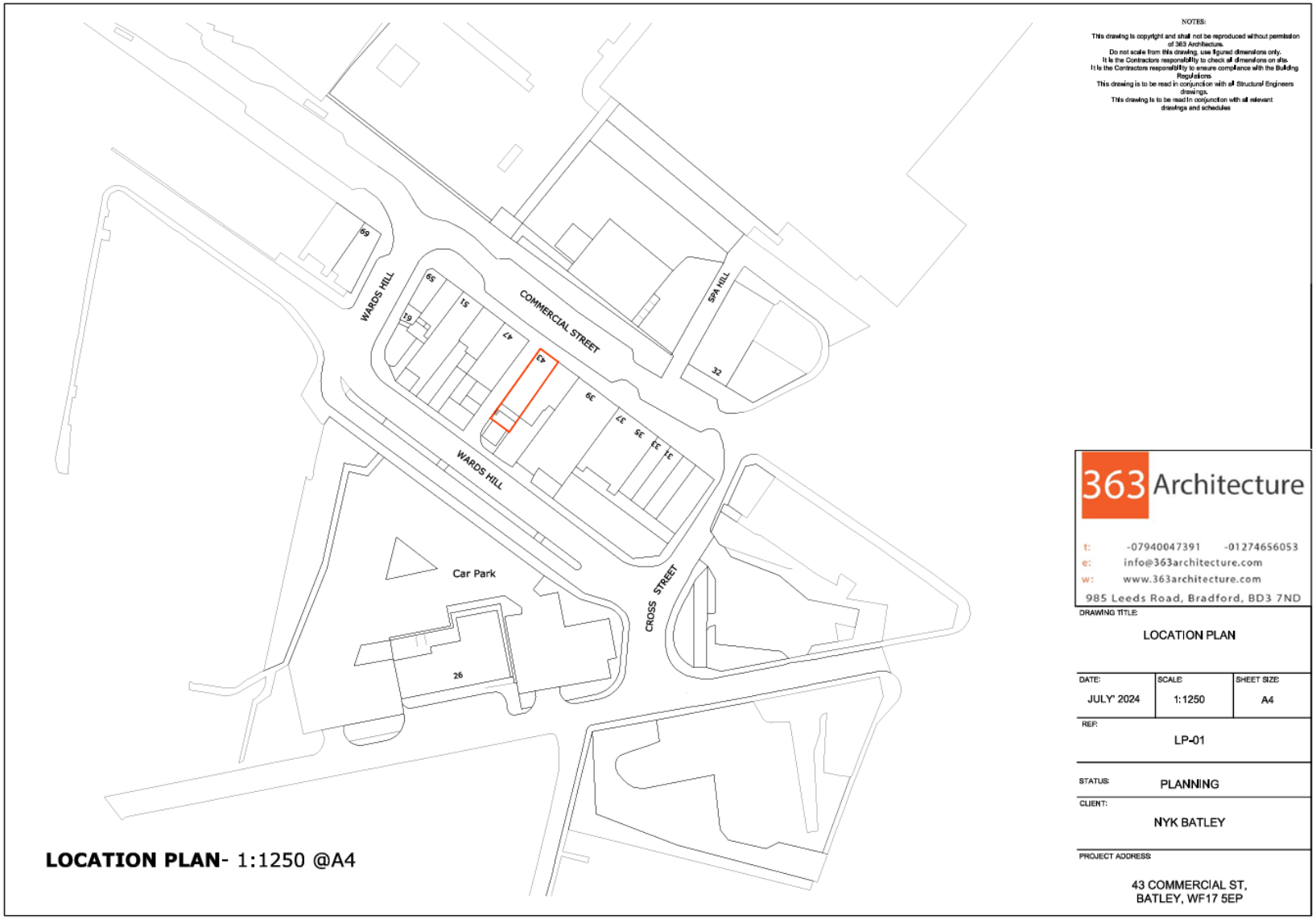
Sound Exposure Level (SEL or L_{AE})

The energy produced by a discrete noise event averaged over one second, no matter how long the event actually took. This allows for comparison between different noise events that occur over different lengths of time.

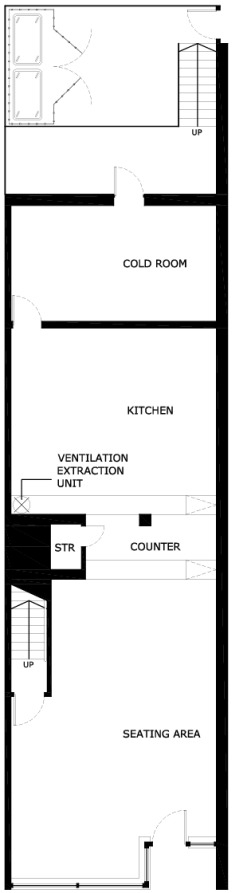
Building Regulations ADE 2003 Standard ($D_{nT,w} + C_{tr}$)

A single-number quantity which characterises the airborne sound insulation between rooms using noise spectrum No. 2 as defined in BS EN ISO 717–1:1997.

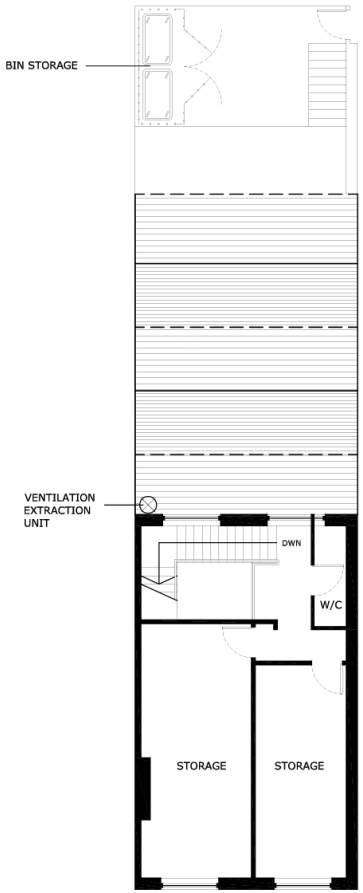
APPENDIX 2
APPLICATION SITE LOCATION PLAN



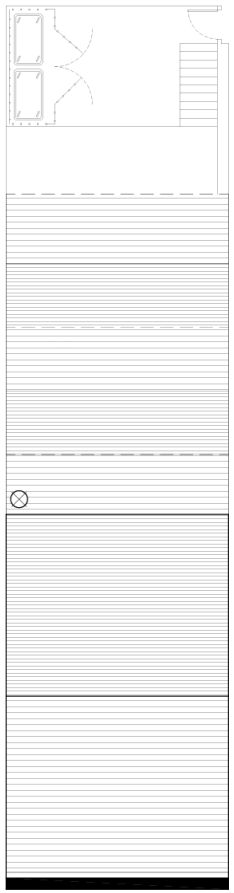
APPENDIX 3
PROPOSED FLOOR PLANS



GROUND FLOOR PLAN
- 1:100 @A3



FIRST FLOOR PLAN
- 1:100 @A3



ROOF PLAN
- 1:100 @A3

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w: www.363architecture.com
985 Leeds Road, Bradford, BD3 7ND

DRAWING TITLE: PROPOSED FLOOR PLANS

DATE:	SCALE:	SHEET SIZE:
JULY' 2024	1:100	A3

REF: PP-01

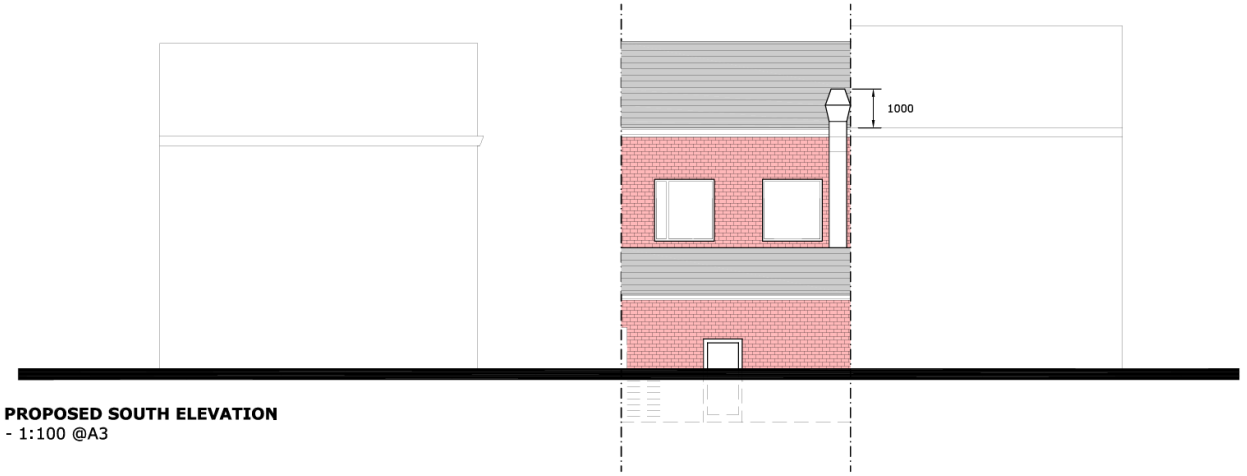
STATUS: PLANNING

CLIENT: NYK BATLEY

PROJECT ADDRESS: 43 COMMERCIAL ST, BATLEY, WF17 5EP

APPENDIX 3
PROPOSED ELEVATIONS

PROPOSED NORTH ELEVATION
- 1:100 @A3



PROPOSED SOUTH ELEVATION
- 1:100 @A3

NOTES:

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DRAWING TITLE
PROPOSED N&S ELEVATION

DATE:	SCALE:	SHEET SIZE:
JULY 2024	1:100	A3

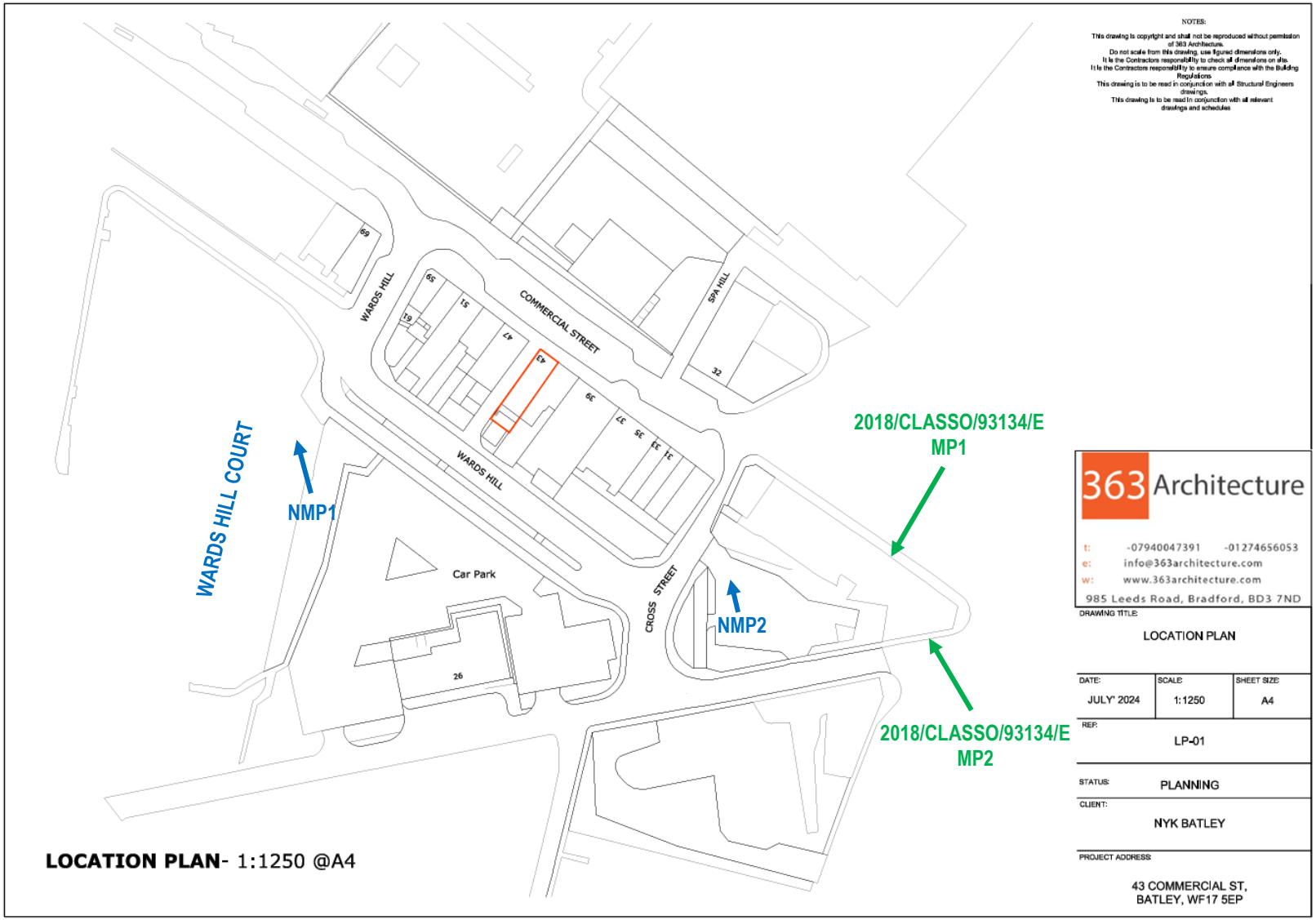
REF: PE-01

STATUS: PLANNING

CLIENT: NYK BATLEY

PROJECT ADDRESS
43 COMMERCIAL ST,
BATLEY, WF17 5EP

APPENDIX 4
NOISE MONITORING POSITIONS



APPENDIX 5
CALIBRATION CERTIFICATE FOR SOUND LEVEL METER (CALIBRATION EVERY 2 YEARS)

Laboratory Location
Campbell Associates Ltd
5b Chelmsford Road Industrial Estate
GREAT DUNMOW, Essex, GB-CM6 1HD
Phone 01371 871030

Certificate of Calibration and Conformance

Certificate number: **U46717**

Test Object:	**Sound Level Meter, BS EN IEC 61672-1:2013 Class 1** **Associated Frequency Analyser to BS EN IEC 61260:1996 Class 1**
Producer:	**NTi Audio**
Type:	**XL2-TA**
Serial number:	**A2A-17283-E0**
Customer:	**RP Acoustics Ltd**
Address:	**1 Dobcroft Close,** **Sheffield. S11 9LL.**
Contact Person:	**Richard Pennell**
Order No:	**RPA/24/CAL/01**

Introduction:
Calibration has been performed as set out in CA Technical Procedures which are based on the procedures for periodic verification of sound level meters as per the **Test Object** listed above. Results and conformance statement are overleaf and detailed results, where appropriate, are provided in the attached Measurement Report.

Tested:	*Producer*	*Type*	*Serial No*	*Certificate No*
Microphone	NTi Audio	MC230A	A23655	46716
Calibrator*	Larson Davis	CAL200	17115	U46700
Preamplifier	NTi Audio	MA220	11174	Included

* The calibrator was complete with any required coupler for the microphone specified.

Additional items that have also been submitted for verification:

Wind shield	N/A
Attenuator	N/A
Extension cable	N/A

These items have been taken into account wherever appropriate.

Instruction Manual: NTi-Audio XL2 Operating Manual v3.11.02 August 2016 Firmware Version: V4.71 The test object is a single channel instrument.

Conditions	*Pressure kPa*	*Temperature °C*	*Humidity %RH*
Reference conditions	101.325	23	50
Measurement conditions	97.15 ±0.02	22.30 ±0.4	43.48 ±0.65

Calibration Dates:

Received date:	23/01/2024	Reviewed date:	09/02/2024
Calibration date:	09/02/2024	Issued date:	09/02/2024

Technicians: (Electronic certificate)

Calibrated by: *Palanivel Marappan B.Eng (Hons), M.Sc*

Reviewed by: *Darren Batten*

APPENDIX 5
CALIBRATION CERTIFICATE FOR SOUND CALIBRATOR (CALIBRATION EVERY YEAR)

Laboratory Location
Campbell Associates Ltd
5b Chelmsford Road Industrial Estate
GREAT DUNMOW, Essex, GB-CM6 1HD
Phone 01371 871030

0789

Certificate of Calibration and Conformance

Certificate number: **U46700**

Test Object: **Sound Calibrator**

Producer: **Larson Davis**
Type: **CAL200**
Serial number: **17115**
Customer: **RP Acoustics Ltd**
Address: **1 Dobcroft Close,**
Sheffield. S11 9LL.
Contact Person: **Richard Pennell**
Order No:

Measurement Results	Level dB	Frequency Hz	Distortion %
Measurement 1	114.11	1000.36	0.37
Measurement 2	114.11	1000.36	0.37
Measurement 3	114.12	1000.37	0.37
Result (Average):	**114.11**	**1000.36**	**0.37**
Expanded Uncertainty:	0.1	1	0.3
Degree of Freedom:	>100	>100	>100
Coverage Factor:	2	2	2

The stated level is relative to 20µPa. The level is traceable to National Standards.
The stated level is valid at measurement conditions

Conditions	*Pressure kPa*	*Temperature °C*	*Humidity %RH*
Reference conditions	101.325	23	50
Measurement conditions	98.28 ±0.01	21.63 ±0.35	45.58 ±1.8

Calibration Statement
The reported expanded uncertainty of measurements is based on a standard uncertainty multiplied by the coverage factor of k=2, providing a level of confidence of approximately 95%. Where the degrees of freedom are insufficient to maintain this confidence level, the coverage factor is increased to maintain this confidence level. The uncertainty has been determined in accordance with UKAS requirements.

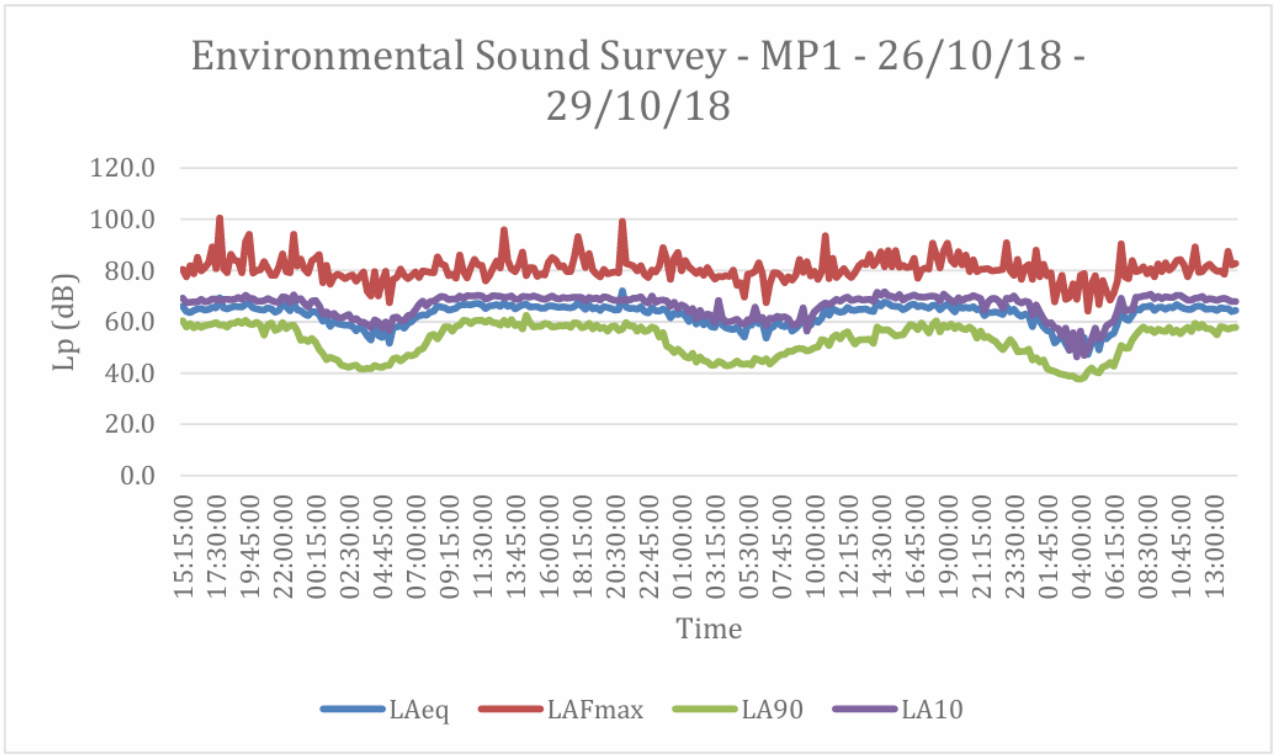
Multi Level Multi Frequency
Refer to page 3 for details of additional levels and frequencies calibrated.

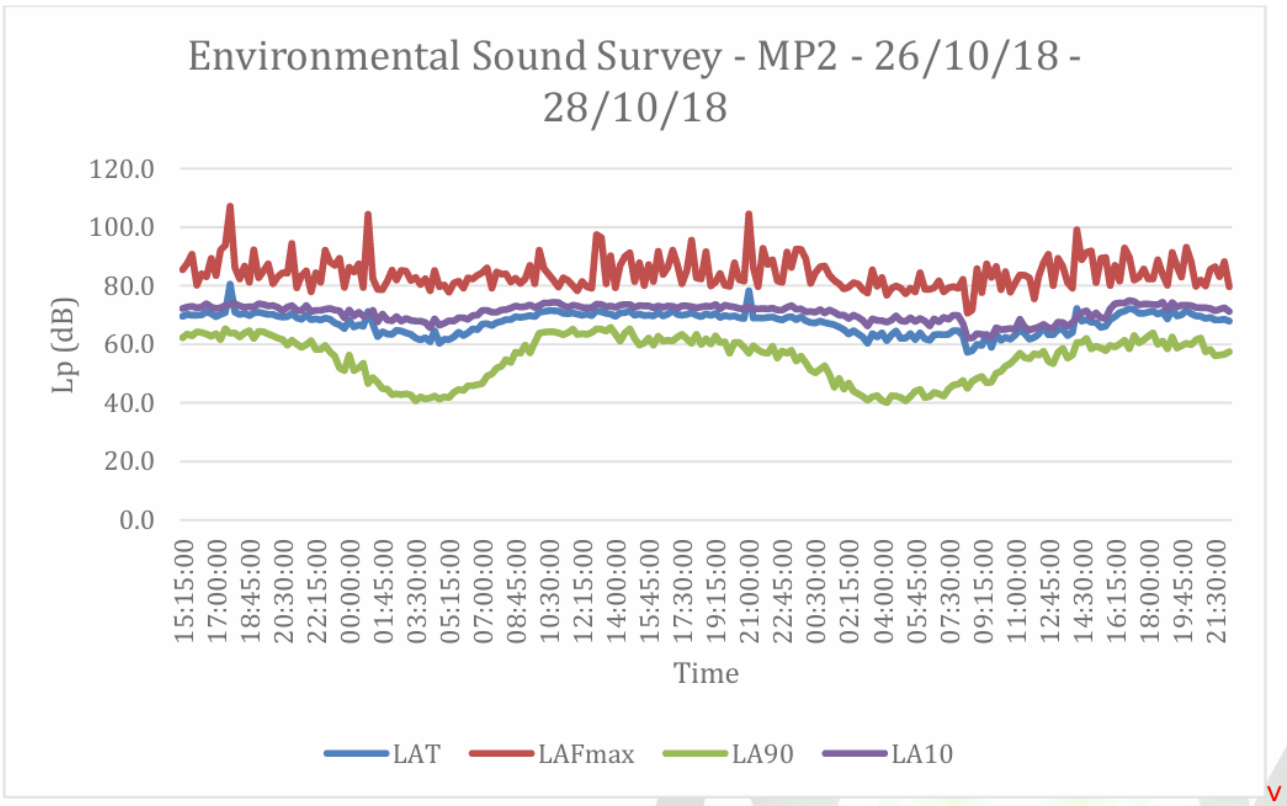
Calibration Dates:

Received date:	23/01/2024	Reviewed date:	09/02/2024
Calibration date:	08/02/2024	Issued date:	09/02/2024

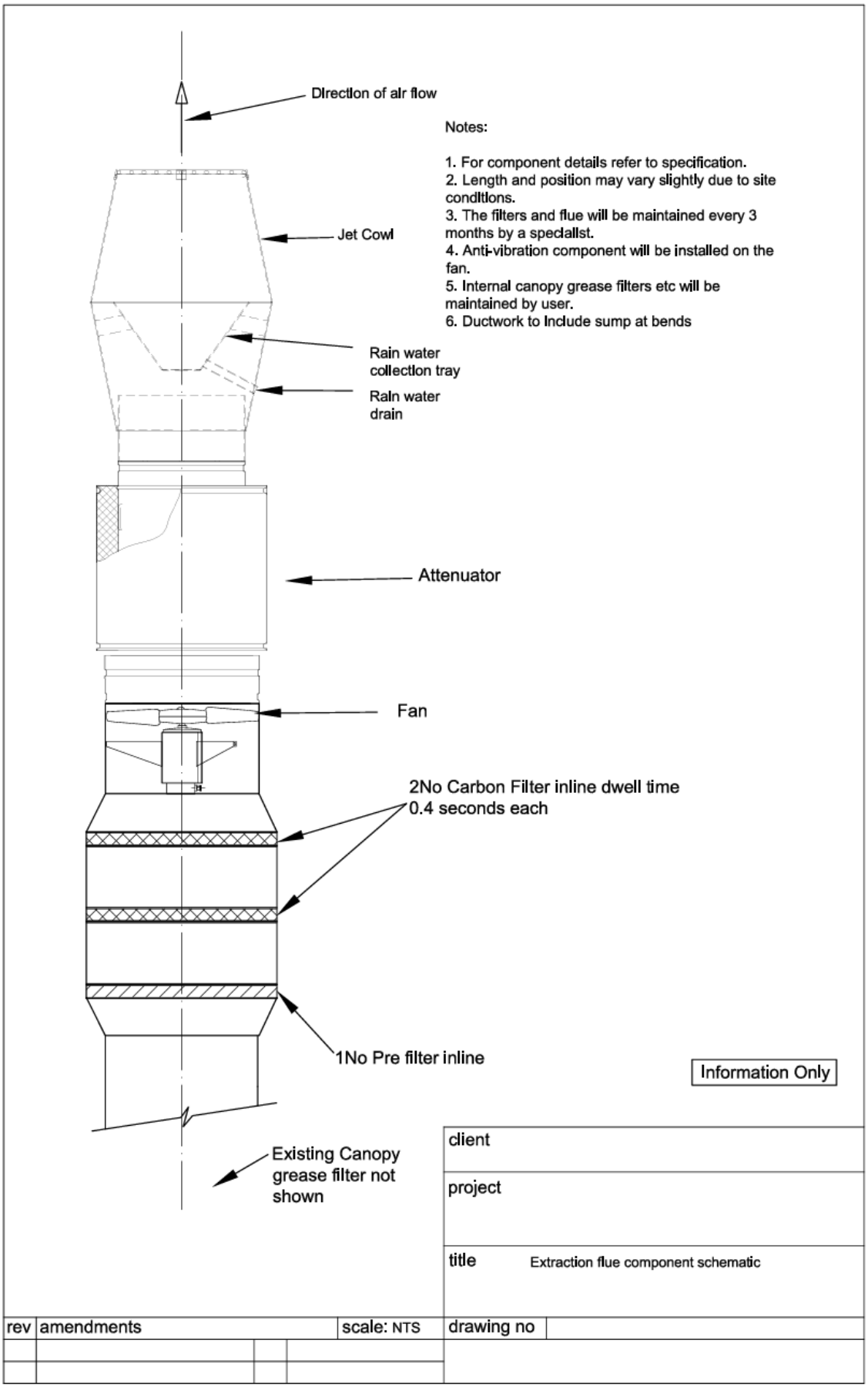
Technicians: (Electronic certificate)
Calibrated by: *Kathryn Brown*
Reviewed by: *Darren Batten*

APPENDIX 6
ENVIRONMENTAL SOUND SURVEY TIME HISTORY PLOTS
PRIOR APPROVAL FROM OFFICE (B1) TO 13 RESIDENTIAL DWELLINGS (C3)
NOS. 1–9 COMMERCIAL STREET, BATLEY, WF17 5HN
2018/CLASS O/93134/E





APPENDIX 7
PROPOSED KITCHEN EXTRACTION SYSTEM



APPENDIX 7
PROPOSED KITCHEN EXTRACTION SYSTEM

Northern Fan Supplies Ltd
Technical Data Sheet
JM Aerofoil

FläktWoods

Quotation Number	:	Project Code	:
Project Name	:	Customer	:
Item Reference:	:	Date:	: Friday, November 8, 2019

Fan Code	50JM/20/4/6/32
Fan Diameter / Size	500 Size / mm
Blades	6
Fan Speed	1420 rpm
Velocity	9.1 m/s
Blade Angle	32°
Installation Type / Form of Running	C / B
Fan Casing	Long
Requested Duty	1.78m³/s @ 173 Pa (static)
Outlet Dynamic Pressure	50 Pa
Duty Shaft Power	0.612 kW
Max Shaft Power	0.626 kW
Total Efficiency	66.1 %
Motor Frame	CT9 [Class F]
Motor Rating	0.680 kW
Full Load Current	4.8 A
Starting Current	11 A
Motor Mounting	Pad
Electrical Supply	220-240 Volts 50 Hz 1 Phase
Start Type	DOL
Motor Winding	Standard
Enclosure	Standard All
ErP [FMEG] Rating	N 40 (ErP Compliant)
ErP [FMEG] Target	N 40
FMEG Blade Angle [Range]	32° [32° - 36°]
Measurement Category	C (Static)
VSD	N
Fan + Motor Efficiency	34.3% (1.58 m³/s @ 206 Pa)
Motor Input Power (ErP)	0.947 kW
SFP value	0.53 W/(l/s) @ Requested Duty
Power from mains	0.95 kW
Energy Consumption	2842 kWh (3000 h/year)
Running Cost / Year	£256
Air Density	1.2 kg/m³ / 20 °C / 0 m / 40% RH
Smoke Venting	Non Smoke Venting
Product Number	EJ511466

Performance data has been derived from tests carried out in a Flakt Woods laboratory, in accordance with ISO 5801 and is specifically applicable for Ducted installations. When an electronic controller is incorporated, enhanced motor noise can occur - particularly when the operating speed is well below maximum. FWL therefore recommend using an auto transformer speed controller for noise sensitive applications. Bifurcateds are Erp exempt when used continuously at >100C. They are not for use in the EEA at lower temperatures.

Acoustic data has been derived from tests carried out in a Flakt Woods laboratory, in accordance with BS 848 Pt 2, 1985 / ISO 5136 under Ducted conditions. The LpA figure provided is the overall Inlet sound pressure level calculated at the specified distance, under spherical, free field conditions. Breakout levels stated are estimated from induct sound power levels and are provided for guidance.

Acoustic figures for adjusted running speeds have been interpolated and are for reference only.

This Offer is made subject to the latest version of our A100-19 Terms and Conditions, a copy of which can be made available on request.

	Sound Spectrum (Hz)								Overall	
	63	125	250	500	1k	2k	4k	8k	Lw*	LpA @ 3 m**
Inlet*	76	78	76	74	72	69	65	60	83	56
Outlet*	78	79	76	74	73	69	67	61	83	57
Breakout*	78	79	76	74	73	69	67	61	83	57

* Lw dB re 10^{-12} W ** dBA re $2x10^{-5}$ Pa
Sound data at requested duty.

Description	Qty
Fan	
EJ511466 - 50JM/20/4/6/32	1
Accessories	
Thermostat	1

Unit E1 Longford Trading Estate
Thomas Street, Lancshire, M32 0JT
Tel: 0161 864-1777 Fax: 0161 864-2777
Website: www.nfan.co.uk
Email: mike@nfan.co.uk

APPENDIX 7
PROPOSED KITCHEN EXTRACTION SYSTEM

CASED AXIAL ACCESSORIES

SILENCER ACOUSTIC PERFORMANCE

TYPE B DYNAMIC ATTENUATION

BORE DIA. MM (D)	LENGTH	OCTAVE-BAND MID FREQUENCIES HZ							
		63	125	250	500	1K	2K	4K	8K
315	1D	1	2	4	9	11	10	9	7
	2D	1	2	5	11	16	12	11	10
355	1D	1	2	4	10	12	10	9	7
	2D	2	3	6	13	17	14	11	11
400	1D	2	3	5	10	13	11	9	8
	2D	3	4	7	14	18	15	11	12
450	1D	2	3	6	12	13	11	10	6
	2D	3	4	8	17	18	15	11	11
500	1D	2	3	6	13	14	10	10	5
	2D	3	4	8	19	18	14	11	10
550	1D	2	4	7	14	14	9	10	7
	2D	3	5	9	19	18	14	12	11
630	1D	2	5	7	15	13	8	9	8
	2D	4	6	9	19	19	14	13	12
710	1D	2	5	7	15	13	9	9	8
	2D	4	6	9	19	17	13	12	11
800	1D	2	5	8	16	12	9	9	8
	2D	4	6	10	19	15	12	11	10
900	1D	2	5	10	17	13	11	10	8
	2D	4	6	12	19	15	12	11	10
1000	1D	4	5	11	16	11	10	8	9
	2D	4	6	13	19	14	12	11	11

TYPE C DYNAMIC ATTENUATION

BORE DIA. MM (D)	LENGTH	OCTAVE-BAND MID FREQUENCIES HZ							
		63	125	250	500	1K	2K	4K	8K
315	1D	2	5	5	9	18	20	18	15
	2D	2	6	6	12	20	25	20	17
355	1D	2	5	6	9	18	22	19	16
	2D	2	6	7	13	25	27	21	17
400	1D	2	6	6	10	19	24	20	17
	2D	3	7	8	14	29	29	23	18
450	1D	2	4	7	13	20	23	22	17
	2D	2	5	9	16	29	29	21	20
500	1D	2	3	8	16	21	22	21	17
	2D	2	4	10	20	29	30	20	26
550	1D	3	5	8	16	20	18	19	15
	2D	4	5	10	20	29	28	21	23
630	1D	3	5	8	15	19	16	14	12
	2D	5	6	10	19	29	25	21	20
710	1D	3	5	8	15	19	15	14	12
	2D	5	6	10	20	26	23	18	17
800	1D	4	5	8	16	19	15	14	13
	2D	5	7	11	22	23	21	16	14
900	1D	4	5	9	17	19	15	14	13
	2D	5	7	12	24	23	21	16	15
1000	1D	5	5	11	18	19	15	14	13
	2D	5	7	13	26	24	20	16	16

All performances are derived from tests to BS848.

The above silencers give the following approximate dBA reductions: -

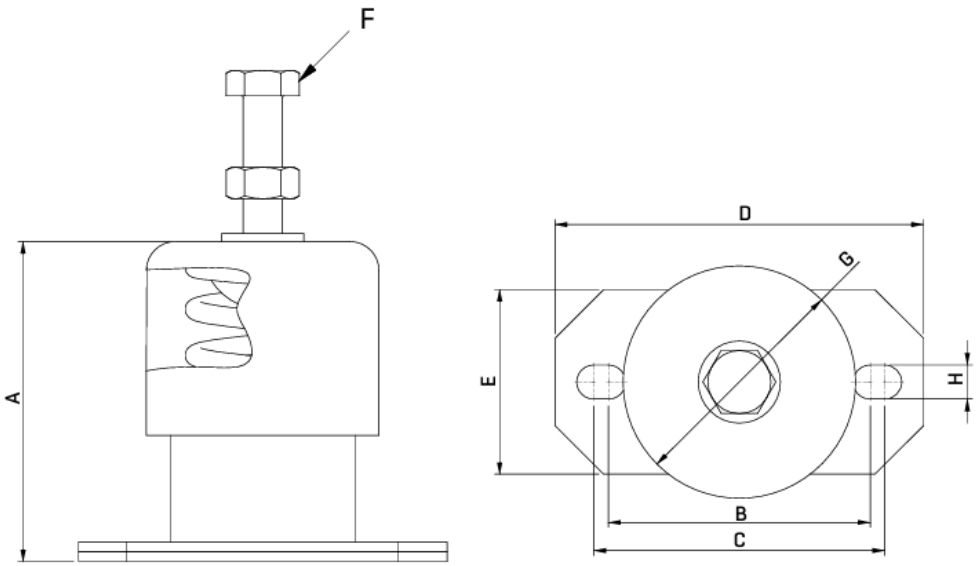
B Type 1 diameter length - 7 to -10 dBA

C Type 1 diameter length - 12 to -15 dBA

For full acoustic details and resistance to airflow for type C please refer to fan selector.

CASED AXIAL ACCESSORIES

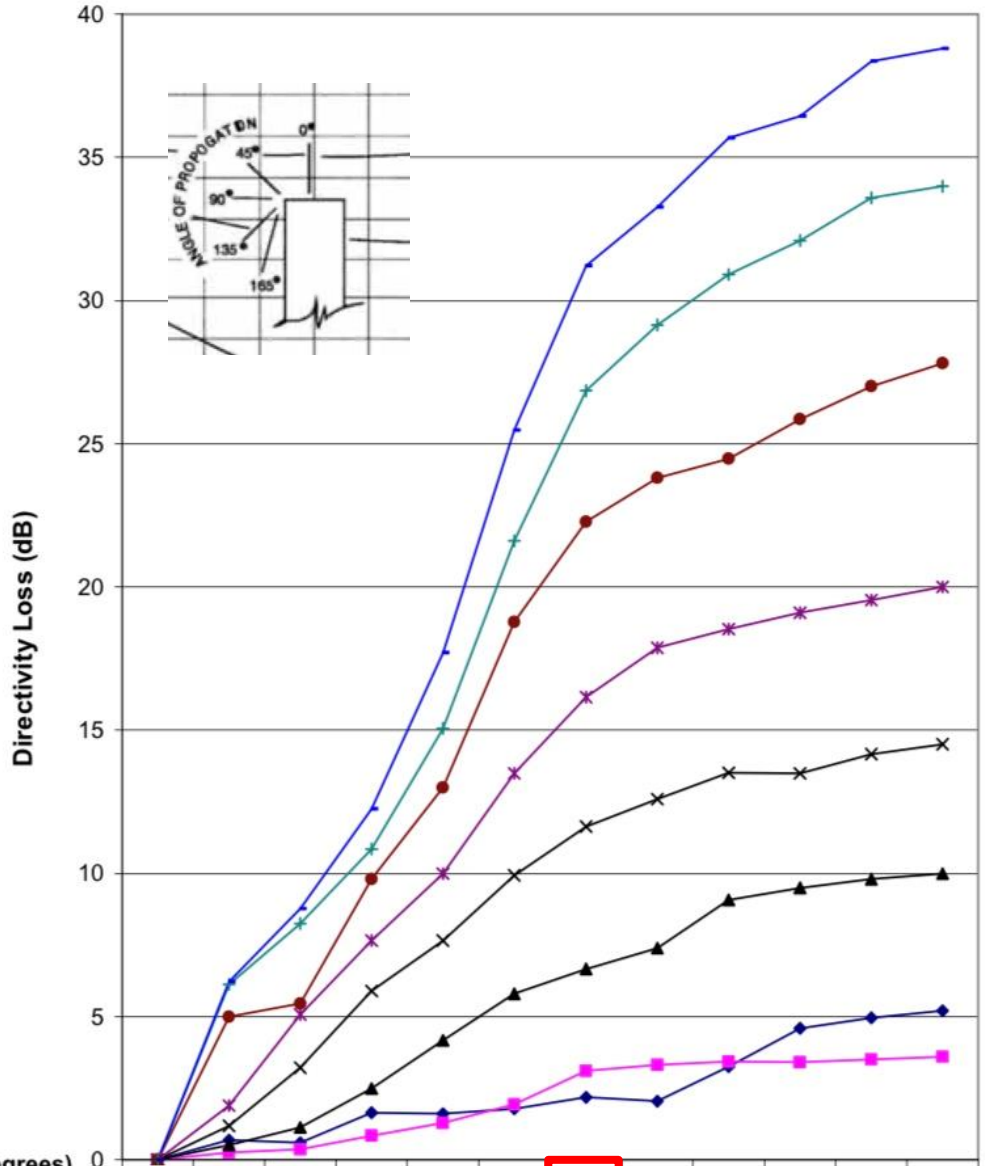
ENCLOSED SPRING ANTI-VIBRATION MOUNTS



Product Code	Type	Load at 20mm deflection (Kg)	A	B	C	D	E	F	G	H
505009	MMS1-L-10 Claret ISL	10	66	54	60	76	38	M8	48	7
505010	MMS1-L-15 Yellow ISL	15	66	54	60	76	38	M8	48	7
505011	**MMS1-L-20 Grey ISL**	**20**	**66**	**54**	**60**	**76**	**38**	**M8**	**48**	**7**
505012	**MMS1-L-40 Green ISL**	**40**	**66**	**54**	**60**	**76**	**38**	**M8**	**48**	**7**
505013	MMS1-L-70 Red ISL	70	66	54	60	76	38	M8	48	7
505014	MMS1-L-100 Blue ISL	100	66	54	60	76	38	M8	48	7

Product Code	Type	Load at 25mm deflection (Kg)	A	B	C	D	E	F	G	H
505015	MMS1-30 Yellow ISL	30	96	85	90	110	70	M10	78	9
505016	**MMS1-60 Green ISL**	**60**	**96**	**85**	**90**	**110**	**70**	**M10**	**78**	**9**
505017	**MMS1-100 Blue ISL**	**100**	**96**	**85**	**90**	**110**	**70**	**M10**	**78**	**9**
505018	MMS1-160 White ISL	160	96	85	90	110	70	M10	78	9
505019	**MMS1-250 Red ISL**	**250**	**96**	**85**	**90**	**110**	**70**	**M10**	**78**	**9**

APPENDIX 8
DIRECTIVITY INDEX FOR FLUE



Angle (Degrees)	0	15	30	45	60	75	90	105	120	135	150	165
63 Hz	0	1	1	2	2	2	2	2	3	5	5	5
125 Hz	0	0	0	1	1	2	3	3	3	3	4	4
250 Hz	0	1	1	2	4	6	7	7	9	10	10	10
500 Hz	0	1	3	6	8	10	12	13	14	14	14	15
1 kHz	0	2	5	8	10	14	16	18	19	19	20	20
2 kHz	0	5	5	10	13	19	22	24	24	26	27	28
4 kHz	0	6	8	11	15	22	27	29	31	32	34	34
8 kHz	0	6	9	12	18	25	31	33	36	36	38	39