Technical Note

Title:	Fairfield Social Club - Planning Conditions 6 and 9 Discharge		
Client:	FSC MCR Ltd		
Reference:	2061899-RSKA-TN-001-(02)		
Date:	15 April 2024		
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1 Introduction

1.1 Appointment and Report Aims

RSK Acoustics Ltd (RSKA) has been appointed to provide acoustic consultancy services in relation to the planning permission for Land at Irk Street, Manchester. The noise impact assessment report (reference 2061899-RSKA-RP-001-(03)) was submitted as part of the planning application for the site (application reference 138066/FO/2023), which was granted approval subject to conditions on 22 January 2024.

This technical note has been complied to detail the site measurements and analysis carried out in order to discharge planning conditions 6 and 9 which relate to acoustics (reproduced herein for reference).

The site measurements show that the noise emissions with respect to planning conditions 6 and 9, namely plant noise emissions and operational entertainment noise, are likely to comply with the project criteria. Measurements in relation to Planning Condition 9 were inconclusive, due to the background noise limitation, however based on further site observations, the music noise that was played was inaudible at the site, even when testing to a higher level than that forming the assessment basis.

1.2 Site and Surroundings

The site location plan, with redline boundary, is presented in Figure 1.1.

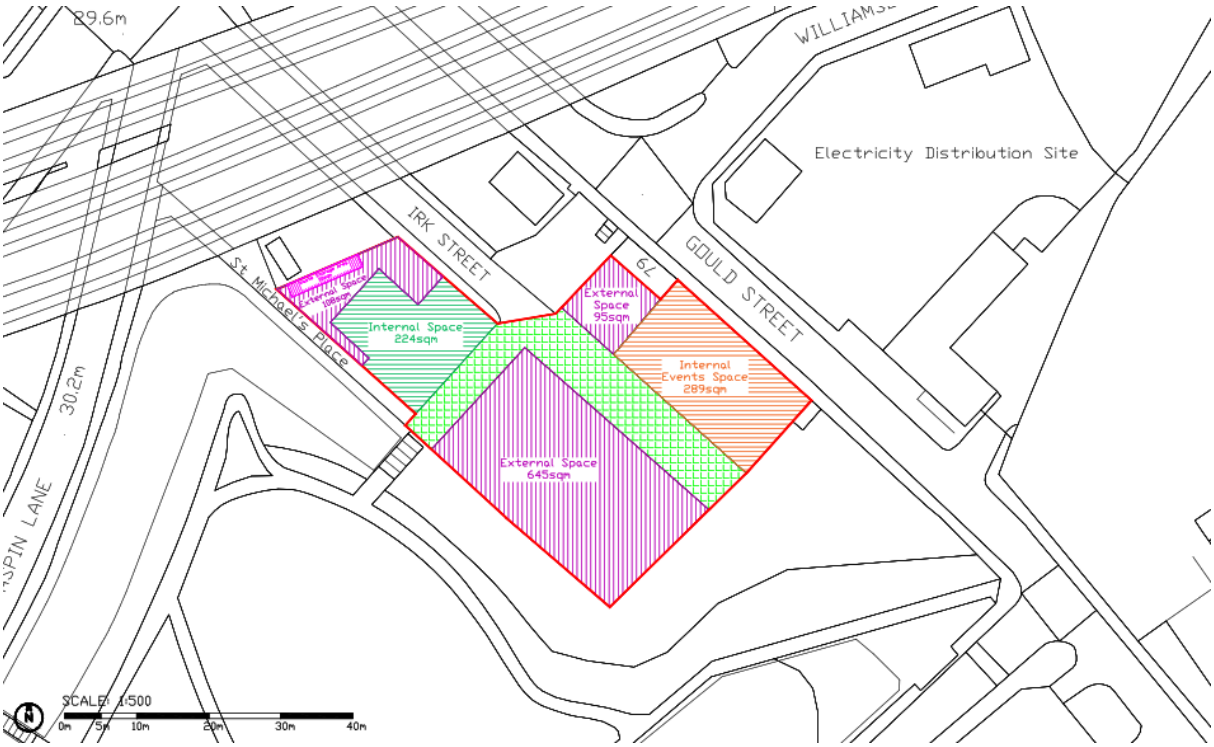

Figure 1.1 Site Location

Receptors have been identified around the application site, as detailed in Table 1.1 and shown in Figure 1..

Receptors A-F are considered noise-sensitive and taken forward for assessment (as discussed in Section 3). Receptors X, Y and Z are identified for reference and are not taken forward for assessment. Commentary on these is provided in Table 1.1.

Ref.	Receptor Address	Comments
A	Meadowside	Residential receptors
B	Meadowside	Residential receptors
C	Meadow Side	Residential receptors
D	Meadow Side	Residential receptors
E	Old Mount Street	Residential receptors
F	30 Ludgate Hill	Residential receptors
X	King of Kings School	School – proposed noisy hours of application site are outside of typical school operational hours
Y	Victoria Riverside Danzic Street	Planning approved – although not in use until after the proposed meanwhile use for the application site
Z	Development not yet consented	Development not yet consented

Table 1.1 Receptor ID

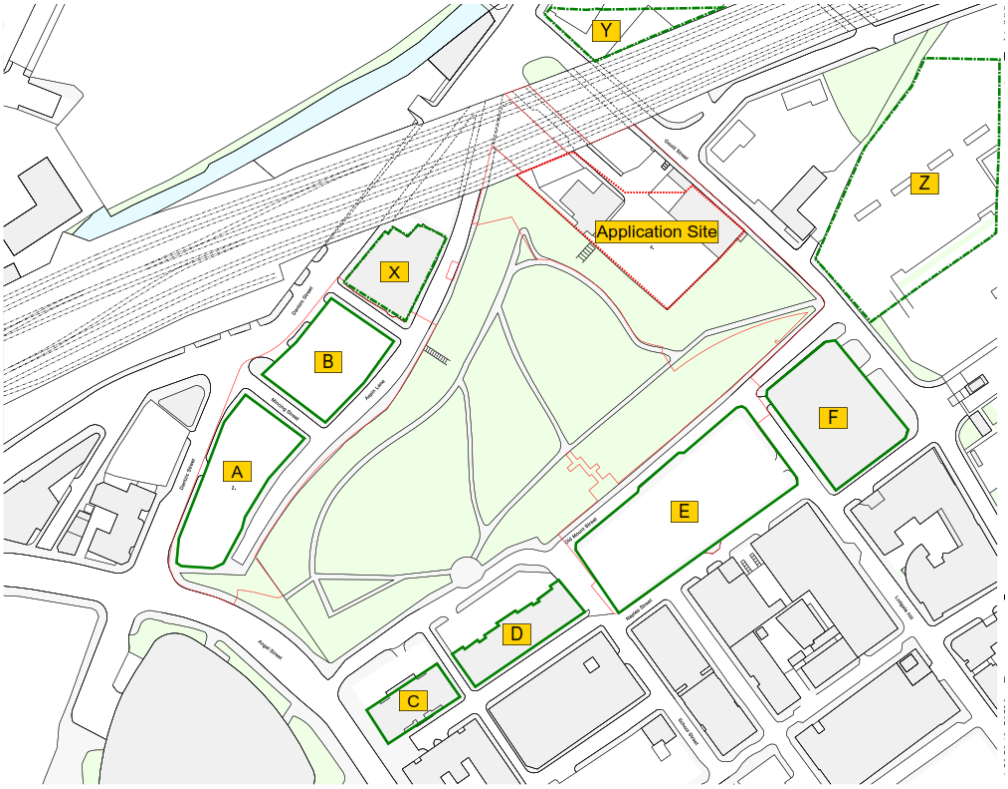

Figure 1.2 Site Location and Receptor ID

1.3 Site Operations

Full details of the operational scenarios are included within the RSKA noise impact assessment, however for the purposes of this report (whereby only operational noise is considered, prior to full opening of the venue), the following sound power levels for loudspeakers (as derived through measurement of similar operations at the GRUB sister venue to the Fairfield Social Club) were used for assessment. Eight loudspeakers were allowed for within the assessment, situated within 'The Club' building, to provide a robust assessment scenario.

Element	Source SWL (dB) At Octave-band Centre-frequency (Hz)						
	63	125	250	500	1k	2k	4k
Music (loudspeaker – per source)	60	69	72	74	71	64	63

Table 1.2 Noise Sources – Sound Power Spectra

This corresponds to a predicted internal noise level (reverberant sound pressure level) within 'The Club' building of $L_{Aeq,T}$ 71 dBA.

2 Assessment Criteria

2.1 Planning Condition Requirements

The following acoustics-related planning conditions apply to the site. These are commensurate with the project criteria as detailed at the design stage, through correspondence and consultation with Manchester City Council.

2.1.1 Planning Condition 6 – Plant Noise

Planning Condition 6, relating to plant noise, states the following:

> "*Prior to commencement of the use of any plant and associated equipment associated with the development to ensure that it achieves a background noise level of 5dB below the existing background (La90) at the nearest noise sensitive location shall be submitted to and approved in writing by the City Council as local planning authority in order to secure a reduction in the level of noise emanating from the equipment. The approved scheme shall be completed before the premises is occupied and a verification report submitted for approval by the City Council as local planning authority and any non compliance suitably mitigated in accordance with an agreed scheme prior to occupation. The approved scheme shall remain operational thereafter.*
>
> *Reason - To secure a reduction in noise in order to protect existing residents from noise nuisance, pursuant to policies SP1, H1 and DM1 of the Core Strategy*."

2.1.2 Planning Condition 9 – Music Noise

Planning Condition 9, relating to plant noise, states the following:

> "*The development shall be implemented on the basis of the predicted noise levels and mitigation as set out in the Noise Impact Assessment Land at Irk Street, Manchester 2061899-RSKA-RP-001-(03) by RSK Acoustics.*
>
> *The approved scheme shall be completed before the development is first used occupied and a verification report submitted for approval by the City Council as local planning authority and any non compliance suitably mitigated in accordance with an agreed scheme prior to commencement of use. The approved scheme shall remain operational thereafter.*
>
> *Reason - To secure a reduction in noise in order to protect existing residents from noise nuisance, pursuant to policies SP1, H1 and DM1 of the Core Strategy.*"

2.2 Music Noise Criteria

As music noise was tested only (as opposed to music noise plus the effects of patrons in external areas, as the site has not opened yet), the applicable scenario from the noise impact assessment is scenario 1. The criteria for this scenario are reproduced below for reference.

Receptors	Applicable Survey Location	Entertainment Noise Level Criterion [1], $L_{Aeq,5mins}$ (dB) Octave band centre frequency (Hz)							
		63	125	250	500	1k	2k	4k	dBA[2]
A, B	UL1	41	45	35	33	33	27	18	37
C, D, E, F	UL2	44	44	37	35	34	28	18	38

Notes

[1] Free-field noise limits
[2] dBA provided for reference and context only, these do not form part of the criteria

Table 2.1 Entertainment Noise Criteria – Scenario 1 as per noise impact assessment report

2.3 Plant Noise Criteria

Based on the operational hours of the proposed plant, the respective noise criteria for extract fans at the facades of nearby noise sensitive premises are as follows:

- Receptors A and B – L_{ArTr} 37 dB
- Receptors C, D, E and F – L_{ArTr} 38 dB

3 Methodology

3.1 General Survey Methodology

Measurements were carried out using sound level meters meeting the Class 1 requirements of BS EN 61672-1:2013 '*Electroacoustics – Sound level meters*' and calibrators meeting the Class 1 requirements of BS EN IEC 60942:2018 '*Electroacoustics – Sound calibrators*'.

The noise survey was carried out using the equipment detailed in Table 3.1.

Equipment	Type	Serial number	Calibration date
Sound level meter	Rion NL-52	00754130	09/11/2023
Sound level meter	Rion NL-52	00464742	12/01/2023
Acoustic calibrator	Rion NC-75	34371437	31/10/2023
Acoustic calibrator	Rion NC-75	34991931	22/08/2023

Table 3.1 Noise Measurement Equipment

The sound level meters were calibrated on site using the acoustic calibrator at the start and end of the survey period, with no significant drift in calibration observed. Calibration certificates can be provided upon request.

The measurements were carried out Tuesday 05 March 2024 between 11:00 and 13:00. During the survey, weather conditions were deemed suitable for monitoring, including dry ground conditions, low wind speeds, and clear skies.

An example measurement setup (location E) is presented in Figure 3.1.

Figure 3.1 Example Measurement Setup

3.2 Music Noise Measurement Methodology

A series of noise measurements have been carried out in and around the site to quantify music noise levels.

As the project criteria for the project are sufficiently low that any noise would be expected to be inaudible at receptors, the music noise level was increased for the test to $L_{Aeq,T}$ 79 dB (above the internal sound pressure level of $L_{Aeq,T}$ 71 dB used for the tests) in an attempt to gain more headroom for the measurements, with the potential for scaling to the criteria if required.

Measurements were carried out over a three-minute period (with the same piece of music incorporating significant 'bass' elements), both inside and outside 'The Club' room.

To account for the worst-case assessment locations, measurements were carried out at receptors B, E and F as per Figure 1.. In all receptor locations, the sound level meter was positioned 1.0m from the façade and 1.2m above ground level.

The system measured was the in-situ loudspeaker system as it is to be used during full operation of the site, which will include microphone, speakers, amplifier settings as would be used for background music and amplified voice

In addition to music noise, further measurements were carried out using the pink noise spectrum. The loudspeakers were driven as high as possible to attempt to ensure as much signal-to-noise ratio as possible.

3.3 Plant Noise Measurement Methodology

Noise measurements were carried at 1.0m from the face of one of the extract fans. This is considered representative of both fans, as they are the same make, model, and only have one duty. It is noted that one of the fans is located at high level, and therefore was inaccessible for measurements.

A 1-minute noise measurement was carried out, during which steady-state conditions were achieved. The sound of the fans had no attention-catching characteristics, tonality, rattles, hums etc. as such no rating penalties (in line with BS 4142) have been applied.

4 Results

4.1 Music Noise Measurement Results

4.1.1 Observations

During all measurements of music noise, there was no audible music sound from the Fairfield Social Club at any of the receptor locations. It is noted that the music noise was driven to a higher level than that assessed in order to attempt to achieve a greater signal-to-noise ratio. Even with pink noise, which was driven to a higher level, such noise was not audible at receptors.

The noise environment in all locations was dominated by transportation noise, including free-flowing road traffic on local roads, as well as rail movements on the Metrolink and National Rail lines to the north of the site as shown in the site location plan Figure 1. There was also influence from construction works in the area, arising from a number of construction sites local to the application site.

Further measurements and subjective observations were made of pink noise driven to a higher noise level than the music noise, and it was noted that these were also inaudible at the nearby noise receptors. Results of these measurements can be provided upon request, however these are not deemed strictly relevant with respect to the project criteria and planning condition requirements.

4.1.2 Music Noise Measurement Results

Music noise measurement results have been summarised in Table 4.1 to Table 4.3. However, it is noted that these are of limited relevance due to the measurements being dominated by ambient sound in the area.

Source measurements are a total sound pressure level within the centre of 'The Club' area, including direct and reverberant components of the sound.

Measurement	Duration, (T) mins	Measured noise level $L_{Aeq,T}$ (dB) Octave band centre frequency (Hz)							
		63	125	250	500	1k	2k	4k	dBA[1]
Source (for reference)	3	77	77	66	69	68	68	64	74
Receptor – music on	3	55	59	56	47	45	42	35	52
Receptor – ambient (music off)	1	55	52	45	46	43	40	33	48
Criteria	-	41	45	35	33	33	27	18	37

Measurement	Duration, (T) mins	Measured noise level $L_{Aeq,T}$ (dB) Octave band centre frequency (Hz)							
		63	125	250	500	1k	2k	4k	dBA[1]
Notes [1] dBA provided for reference and context only, these do not form part of the criteria									

Table 4.1 Measurement results – Location B

Measurement	Duration, (T) mins	Measured noise level $L_{Aeq,T}$ (dB) Octave band centre frequency (Hz)							
		63	125	250	500	1k	2k	4k	dBA[1]
Source (for reference)	3	76	77	66	70	69	68	64	74
Receptor – music on	3	52	56	53	44	42	39	32	49
Receptor – ambient (music off)	1	55	61	57	46	44	43	35	52
Criteria	-	44	44	37	35	34	28	18	38
Notes [1] dBA provided for reference and context only, these do not form part of the criteria									

Table 4.2 Measurement results – Location E

Measurement	Duration, (T) mins	Measured noise level $L_{Aeq,T}$ (dB) Octave band centre frequency (Hz)							
		63	125	250	500	1k	2k	4k	dBA[1]
Source (for reference)	3	77	77	66	69	68	68	64	74
Receptor – music on	3	54	54	52	44	42	38	30	48
Receptor – ambient (music off)	1	52	49	42	43	40	37	30	45
Criteria	-	41	45	35	33	33	27	18	37
Notes [1] dBA provided for reference and context only, these do not form part of the criteria									

Table 4.3 Measurement results – Location F

In all locations it was noted that the music on compared to music off measurements were largely similar throughout the period, with some higher without music than with. This reflects the variability of the other ambient noise sources in the area (other than music) and also reinforces the site observations that the music noise was inaudible at receptors.

It is noted that these levels were measured with a source noise level of $L_{Aeq,T}$ 79 dB rather than $L_{Aeq,T}$ 71 dB as assessed, in order to attempt to introduce a better signal-to noise ratio. On this basis, the measured noise levels would be expected to be lower still than those set out in Table 4.1 to Table 4.3, even with the background noise limitation.

On the above basis, it is expected that noise criteria would be likely to be met at receptor locations. While the above measurements do not specifically prove adherence to the project criteria in line with Planning Condition 9, the criteria are inherently difficult to measure due to the requirement of being below background noise levels. The measurements do suggest that there is no contribution in ambient noise level, which is a good indication that actual music noise levels are likely to be far lower than those set out in Table 4.1 to Table 4.3.

4.2 Plant Noise Measurement Results

Results of the plant noise measurements are presented in Table 4.4.

Assessment Parameter		Value
Criterion	Receptors A and B	$L_{Ar,Tr}$ 37 dB
	Receptors C, D, E and F	$L_{Ar,Tr}$ 38 dB
Worst-case required sound pressure level at 1 m from source to meet crtieria		$L_{Ar,Tr}$ 65 dB
Measured plant noise level		$L_{Aeq,1min}$ 57 dB
Rated plant noise level		$L_{Ar,Tr}$ 57 dB
Criteria achieved		✓

Table 4.4 Plant Noise Measurement Results

Based on the above measurements, the plant noise criteria for the extract fans, thereby all fixed plant on site, have been demonstrated to be in line with the requirements of Planning Condition 6.

5 Conclusions

RSKA has carried out a series of noise measurements with respect to entertainment (music) noise, and plant noise emissions from the proposed site at Land at Irk Street, more commonly known as Fairfield Social Club.

Due to some inherent limitations in the measurement of receptor noise levels with respect to Planning Condition 9 and entertainment noise, it is not possible to fully demonstrate that the project criteria are achieved, however based on the measurements carried out as well as subjective observations made on site, it is considered likely that the Planning Condition 9 criteria would be met by the site operations, as per the assessment in the noise impact assessment report referenced herein. Plant noise emissions have been demonstrated to be in line with the project criteria and Planning Condition 6 requirements.

On the above basis, it is recommended that suitable evidence has been provided for the discharge of Planning Conditions 6 and 9 with respect to the application site.

Glossary

Terms	Definitions
$L_{Aeq,T}$	"Equivalent continuous A weighted sound pressure level" – the level of a notional steady sound which has the same acoustic energy as the fluctuating sound over a specified time period. It is often used for measuring all sources of noise in the environment, which can be referred to as the ambient noise.
$L_{Ar,Tr}$	Rating noise level – the specific noise level of an item of plant including any acoustic feature corrections for tonality, impulsivity, or intermittency.
$L_{A90,T}$	Noise level exceeded for 90% of the measurement period – provides a measurement of the quieter 'lull' periods in between noise events. It is often referred to as the background noise level.

Table 5.1 Glossary of Acoustics Terminology

RSK acoustics