



NOISE IMPACT ASSESSMENT

LAND AT IRK STREET, MANCHESTER

FSC MCR Ltd

2061899-RSKA-RP-001-(03)





General notes

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31 August 2023

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Where field investigations have been carried out, these have been restricted to a level of detail required to achieve the stated objectives of the work.

This work has been undertaken in accordance with the quality management system of RSK Acoustics Ltd.



Executive Summary

RSK Acoustics Ltd (RSKA) has been appointed by FSC MCR Ltd to carry out a noise impact assessment in support of an application for temporary planning permission at land at Irk Street, Manchester ('the site'). The site will operate under the name of 'Fairfield Social Club'.

This report details the noise impact assessment carried out for the scheme, which has involved baseline noise survey work carried out by RSKA, the setting of project criteria with respect to local authority acoustic requirements (both of which items have been agreed with Manchester City Council Environmental Health through our noise survey and assessment methodology consultation).

This report presents the survey results, proposed project criteria, noise assessment modelling and assumptions, resulting in the predicted noise emissions from the site. Noise contour plots showing predicted noise emission and noise levels at nearby noise-sensitive receptors are provided in Appendix E for reference.

With respect to the project criteria as well as context of the existing noise environment at the site, the proposed operation of the site and associated noise emissions are considered unlikely to give rise to any adverse impact at nearby noise sensitive premises.



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1 Introduction

1.1 Development Description

The site extends to approximately 0.18 hectares ('ha') and is located within the administrative boundary of Manchester City Council ('MCC') (Grid reference – E 384504 / N 399256). The site currently comprises a former MOT testing and vehicle servicing business and associated hard standing. All buildings within the curtilage of the site are vacant.

The site is contained within a wider site (known as 'MeadowSide'), for which planning permission was originally granted for residential-led development in August 2017 (LPA reference: 116366/FO/2017) and varied in December 2019 (LPA reference: 124120/JO/2019). The site is identified as 'Plot 4' and has consent for residential development, with commercial and residential amenity uses.

The development usage is as follows:

"Full planning permission for the temporary change of use of the site and existing buildings to an arts and cultural venue/event space (Sui Generis), with associated food and drink space (Flexible Use Class E / Sui Generis)"

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

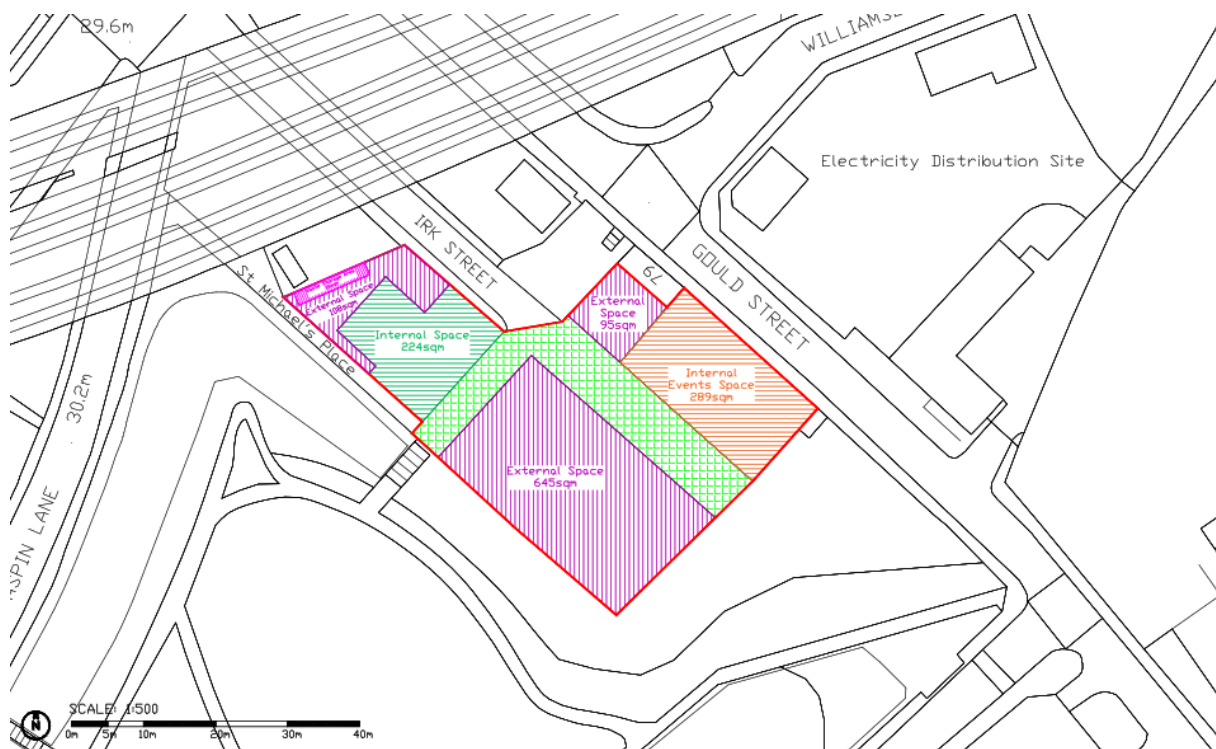


Figure 1.1 Site Location

The assessment basis detailed throughout this report references the document 'FSC Operation and Events Strategy' for the application site.



The scheme includes The Club building, the main internal space within the development; The Shed – a casual food and drink venue with small external space, and The Garden – an outdoor area adjacent to The Club and the Shed.

1.2 Site and Surroundings

Receptors have been identified around the application site, as detailed in Table 1.1 and shown in Figure 1.2.

Receptors A-F are considered noise-sensitive and taken forwards for assessment (as discussed in Section 3). Receptors X, Y and Z are identified for reference, and are not taken forwards 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



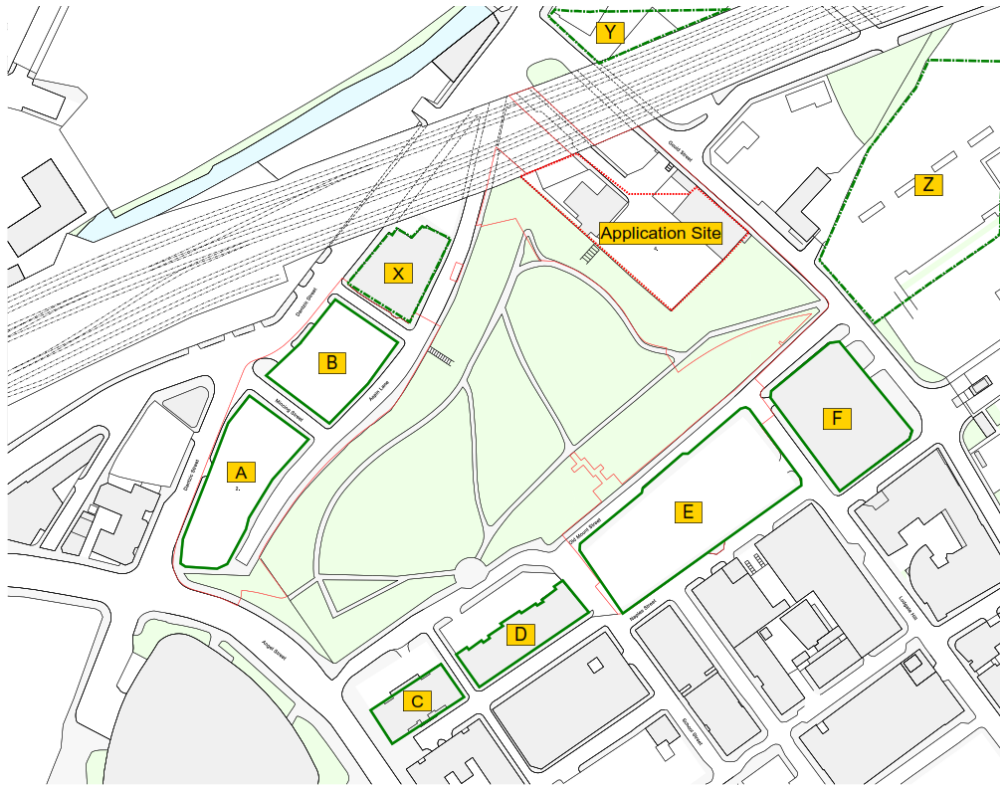


Figure 1.2 Site Location and Receptor ID

1.3 Operational Scenarios

The assessment has considered four operational scenarios. In previous iterations of the scheme there had been provisional allowance for regular live music events. However, through initial analysis of such scenarios, the scope of the scheme has been amended through an iterative process with the project team and operator such that live music does not form part of this application.

The four operating scenarios taken to represent the proposed use of the site are as follows:

- Scenario 1 – 50 patrons within the site, with 25% of patrons speaking at normal voice level, with background music on within the building. Worst case time period 23:00 – 00:00.
- Scenario 2 – 250 patrons within the main building, with 25% of patrons speaking at normal voice level, background music on within the building, and the maximum capacity of 150 patrons in the external area, with 25% of those speaking at normal voice level. Worst case time period 21:00 – 22:00.
- Scenario 3 – As per scenario 2, however with 20% external patrons at normal voice level and 5% at raised voice level. This is commensurate with the Operation and Events Strategy for the scheme, and is successfully implemented at the 50 Red Bank scheme, a sister-venue to the site and in similar operation.
- Scenario 4 – 250 patrons within The Club building, with 25% speaking at normal voice level, with a comedy event on (one performer, with microphone and amplified voice based on a raised voice sound spectrum shape). Capacity 150 patrons in the external area, with 25% of those speaking at normal voice level. Worst case time period 21:00 – 22:00.



Regular deliveries and waste collections are to take place on weekdays between the hours of 10:00 and 16:00, with a maximum of six per week. All vehicles would be Large Goods Vehicles (LGVs). On this basis, any given hour between 10:00 and 16:00 would be expected to have two vehicle movements as a worst-case scenario.

1.4 Scope and Report Objectives

The noise impact assessment will focus on the following areas:

- Background music and patron noise breakout from The Club building
- Patron noise breakout from outdoor areas
- Plant, delivery vehicle and waste handling noise regarding servicing of the application site.

It is noted that no new externally located plant is proposed for the application site. A number of ventilation fans are proposed to be included within the building façade – at this stage specific plant selections are not known, however at the appropriate stage of the design the plant will be assessed to ensure compliance with the criteria set out herein.

This report aims to:

- Set out the acoustic criteria for the project
- Detail baseline noise survey work to inform the assessment
- Detail the assessment work carried out to date and resultant control of noise impacts
- Demonstrate the predicted noise levels for each scenario with respect to the project criteria



2 Standards and Guidance

2.1 Regulatory Framework, Standards and Guidance

Regulatory framework, standards and guidance applicable to the project are set out in Table 2.1.

Document	Summary
Planning policy	
National Planning Policy Framework (NPPF) 2021	The NPPF sets out the Government's planning policies for England and how these are expected to be applied. The NPPF includes statements relating to noise and the requirement to take it into account during the planning process.
Noise Policy Statement for England (NPSE) 2010	The NPSE sets out the long-term vision of Government noise policy: to promote good health and a good quality of life through the effective management of noise within the context of Government policy on sustainable development.
Standards and guidance	
BS 4142:2014+A1:2019 <i>'Methods for rating and assessing industrial and commercial sound'</i>	BS 4142 provides a method for rating industrial and commercial sound and a method for assessing resulting impacts upon people. The method is applicable to fixed plant installations, sound from industrial and manufacturing process and other associated activities. The rating method takes into account specific source characteristics, such as tonality, impulsivity and intermittency. The impact assessment procedure described in BS 4142 is based on the comparison of the rating sound level with the background sound level prevailing at the assessment locations.
BS 7445-1:2003 <i>'Description and measurement of environmental noise'</i>	BS 7445 defines the basic quantities to be used for the description of noise in community environments and describes basic procedures for the determination of these quantities.
BS EN IEC 60942:2018 <i>'Electroacoustics – Sound calibrators'</i>	BS EN IEC 60942 specifies the performance requirements for sound calibrators.
BS EN 61672-1:2013 <i>'Electroacoustics – Sound level meters'</i>	BS EN 61672-1 provides electroacoustic performance specifications for sound measuring instruments.
ISO 9613-2:1996 <i>'Acoustics – Attenuation of sound during propagation outdoors'</i>	Part two of ISO 9613 specifies an engineering method for calculating the attenuation of sound during propagation outdoors to enable the prediction of environmental noise at a distance from a variety of sources.

Table 2.1 Planning Policies, Standards and Guidance



2.2 Local Authority Requirements

Manchester City Council (MCC) have set criteria for noise-generating development. Section 3.7.1.2 of the *MCC Planning and Noise Technical Guidance* document states the following:

"A planning application for a new entertainment venue that is structurally detached from other building uses should demonstrate that music noise from the proposal will not be 'audible' in nearby residential properties, assuming that the residential properties in question have their windows open. The criterion here is:

'Entertainment noise ($L_{Aeq,5min}$) should be controlled to 5dB below the typical background noise level (L_{A90}) in each octave band at the nearest noise sensitive location'."

Delivery noise is most applicable to 'Industrial/Commercial developments' as per Section 3.7.1.5 of the MCC guidance. This states the following:

"The development should be designed so as to achieve a rating level of 5dB (L_{Aeq}) below the typical background (L_{A90}) level at the nearest noise sensitive location.'

Where this criterion cannot be achieved, the various noise control measures considered as part of the assessment should be fully explained (i.e. relocation of noise sources, use of quieter equipment, enclosures, screening, restriction of the hours of operation) and the achievable noise level should be identified. This information will allow a judgement to be made concerning the application and its likely impact on the surrounding area.

In addition to the above, maximum noise levels should also be adequately controlled. Where particular uses generate high noise levels of a short duration (e.g. loud bangs) on a regular basis, these should aim to be controlled so as not to exceed 60 dB (L_{Amax}) at the façade of noise sensitive premises nearby in accordance with the recommendations of the WHO (section 3.6).

Deliveries and collections are usually controlled by restricting operational hours but depending on the extent of these activities, a Noise Management Plan (NMP) may be requested, which would include an assessment of noise. This would usually involve assessing the noise upon arrival, loading/unloading period and then departure."

The above criteria have been agreed with the Environmental Health Department at Manchester City Council through review of the survey and assessment methodology (document reference: 2061899-RSKA-MS-001-(02) – *Fairfield Social Club – Noise survey and assessment method statement*).



3 Baseline Noise Survey

A noise survey has been carried out in the vicinity of the site to quantify the baseline noise environment at nearby noise-sensitive receptors.

The noise survey strategy has been agreed with the Environmental Health Department at Manchester City Council through review of the survey and assessment methodology document.

3.1 Noise Survey Methodology

3.1.1 Noise Survey Locations and Observations

Noise measurements have been carried out at two unattended measurement locations, as shown in Figure 3.1. The shaded area to the centre of the figure denotes the St Michael's Flags and Angel Meadow Park.

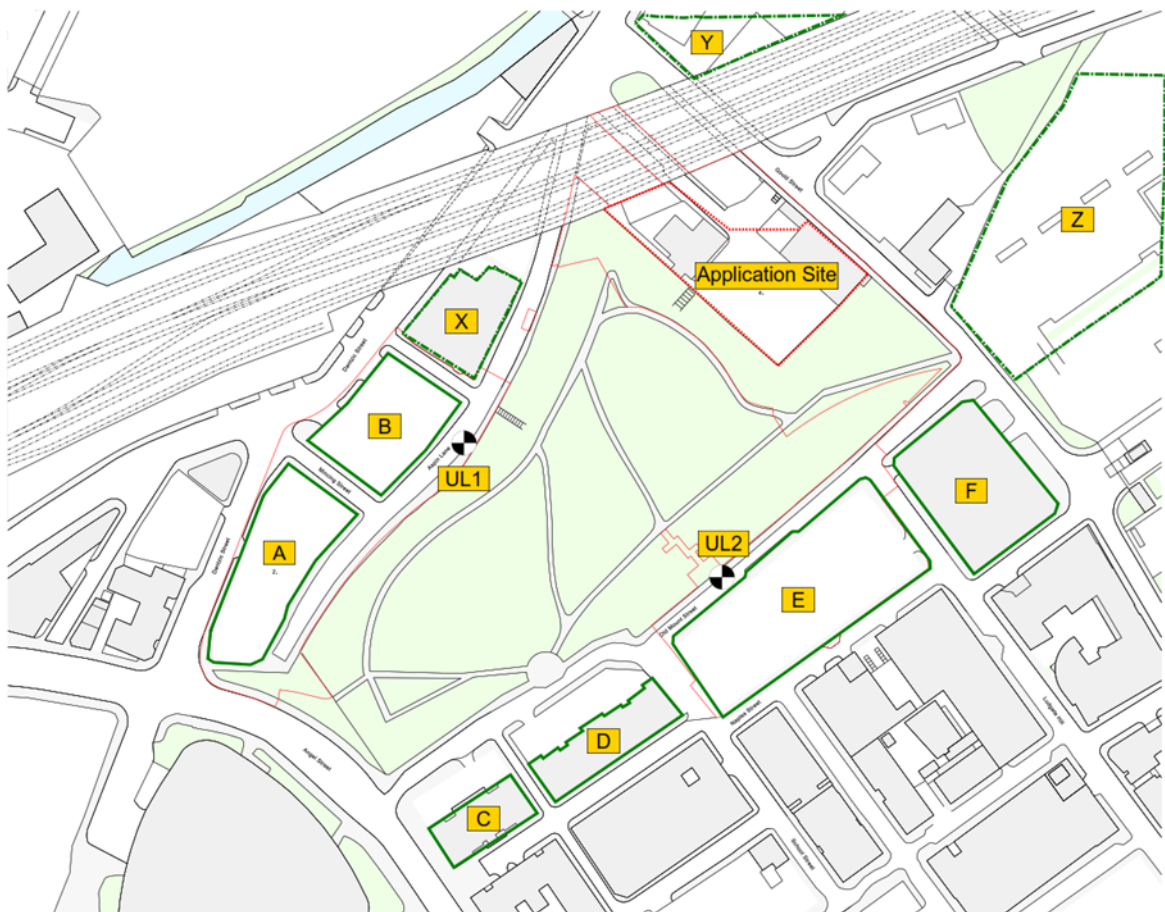


Figure 3.1 Noise Survey Locations

At both locations, the microphone was positioned on a lamp post, at 3.0m above the adjacent road level, and at least 3.5m from any other acoustically reflective surfaces. As such, both measurement positions are considered to be free-field.

At both measurement locations, noise was dominated by road traffic on the local road network, particularly Angel Street/Ring Road to the west. Noise from trains and trams passing on the viaduct running to the north of the site were audible at both measurement locations, however the road noise was overall the most dominant noise source.



Some noise from people using the St Michael's Flags and Angel Meadow Park was audible at both noise survey locations.

Traffic on the roads immediately adjacent to each measurement locations was noted to be very infrequent, with roads quite for the majority of the time.

Photographs of each noise measurement location are presented in Appendix A.

3.1.2 Noise Survey Duration

Noise measurements were carried out from 15:00 on 29 June 2023 to 10:00 on 10 July 2023. Parts of the survey period have been excluded based on measurement and assessment of weather conditions, as detailed in Section 3.1.3.

3.1.3 Weather Conditions

Weather conditions were monitored via a weather station positioned in the centre of the external area of the site within the application site boundary. This is considered representative of the weather conditions at both noise measurement locations.

Measurement conditions are presented graphically within Figure 3.2, including wind speed and precipitation.

Any areas where noise data has been excluded due to either wind speed or precipitation are highlighted in red within Figure 3.2. Periods have been excluded in such a way that includes the hour after any period of rainfall, to account for the period while roads are drying out. This is considered a reasonable worst case in terms of the time between the end of rainfall, and once roads are dry.

All subsequent calculations and processed data are from the dataset with time periods of sub-optimal conditions *excluded*.



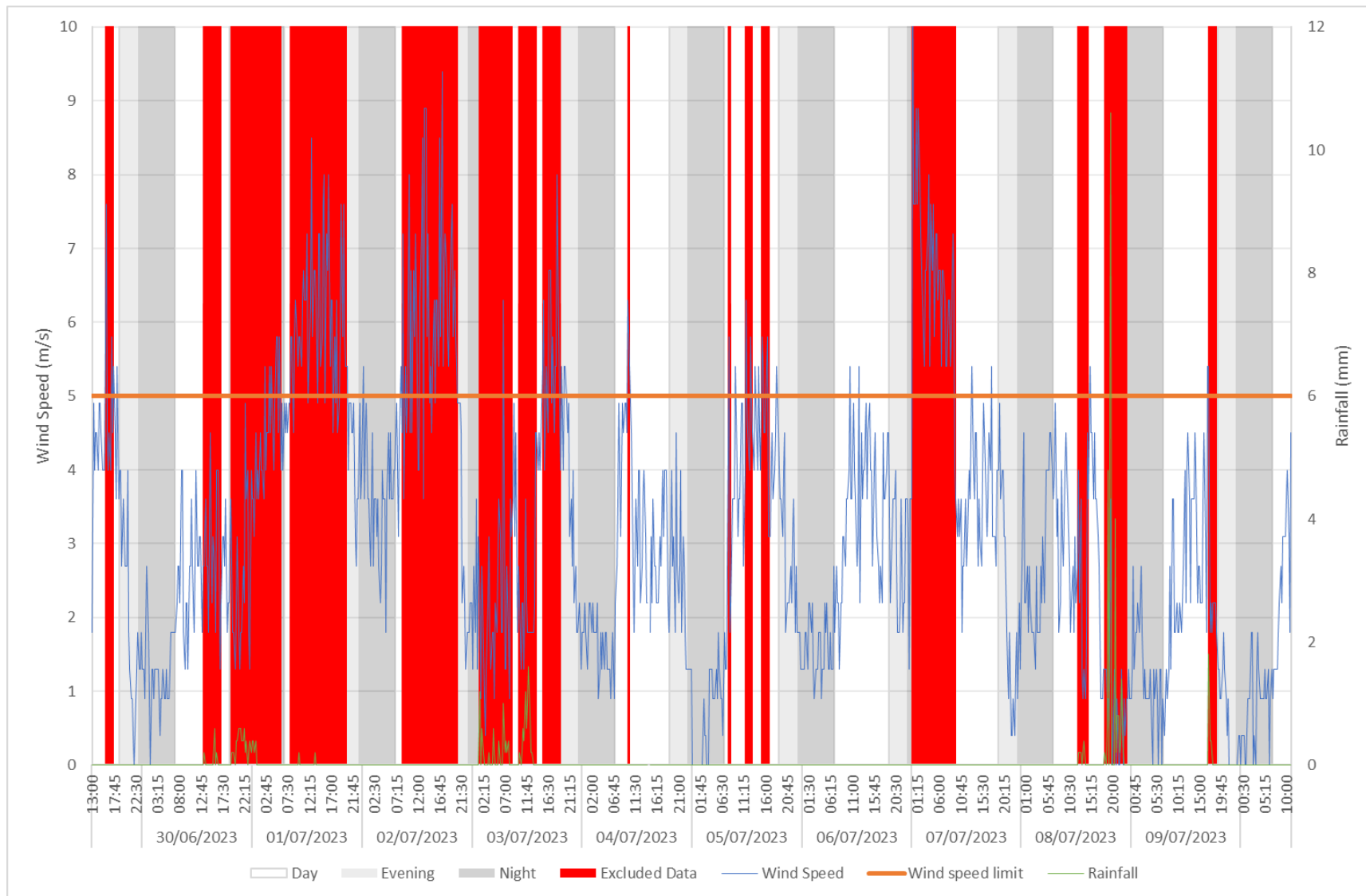


Figure 3.2 Noise Survey Weather Data



3.1.4 Noise Survey Equipment

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	04/11/2021
Sound level meter	Rion NL-52	00464742	12/01/2023
Acoustic calibrator	Rion NC-75	34371437	21/10/2022

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.

3.2 Noise Survey Results

The noise survey results pertinent to assessment are presented in the following section. Time histories for both noise measurement locations UL1 and UL2 are presented in Appendix B.

Background noise levels have been derived for the time periods relevant for operational noise assessment, as per the scenarios outlined in Section 1.3, and are presented in Table 3.2 and Table 3.3. Derivations of these noise levels are presented in Appendix C for evening periods, and Appendix D for night time periods.

Time Period, T	Applicable Scenarios	Representative Background Noise Level, $L_{A90,T}$ (dB) Octave band centre frequency (Hz)							dB(A)
		63	125	250	500	1k	2k	4k	
21:00 – 22:00	2,3,4	48	50	42	41	40	35	26	44
23:00 – 23:00	1	46	50	40	38	38	32	23	42

Table 3.2 Representative Background Noise Levels – UL1

Time Period, T	Applicable Scenarios	Representative Background Noise Level, $L_{A90,T}$ (dB) Octave band centre frequency (Hz)							dB(A)
		63	125	250	500	1k	2k	4k	
21:00 – 22:00	2,3,4	50	50 ^[1]	43	41	40	34	25	44
23:00 – 23:00	1	49	49 ^[1]	42	40	39	33	23	43

Notes

^[1] Values at 125 Hz have been affected by plant/machinery near the measurement position. As such, values in this case have been interpolated to allow for representative levels at parts of the receptor less susceptible to plant noise, thus providing a worst-case scenario (i.e. lower) background noise level for assessment purposes.

Table 3.3 Representative Background Noise Levels – UL2

Based on review of the time history data, a background noise level during the weekday hours of 10:00 – 16:00 of $L_{A90,1hour}$ 52 dB has been derived for both locations UL1 and UL2.



4 Project Criteria

Based on the standards and guidance, including MCC requirements, set out in Section 2 and the baseline survey information detailed within Section 3, the following criteria have been proposed for the project.

4.1 Entertainment Noise

Criteria have been set for each of the scenarios detailed in Section 1.3, with Scenarios 2, 3 and 4 worst case time period being 21:00 – 22:00, presented in Table 4.1, and Scenario 1 (during 23:00 – 00:00 hours) presented in Table 4.2.

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
A, B	UL1	43	45	37	36	35	30	21
C, D, E, F	UL2	45	45	38	36	35	29	20
Notes ^[1] Free-field noise limits								

Table 4.1 Entertainment Noise Criteria – Evening 21:00 – 22:00 (Scenarios 2,3,4)

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
A, B	UL1	43	45	37	36	35	30	21
C, D, E, F	UL2	45	45	38	36	35	29	20
Notes ^[1] Free-field noise limits								

Table 4.2 Entertainment Noise Criteria – Night 23:00 – 00:00 (Scenario 1)

4.2 Plant, Delivery/Waste Collection Vehicle Movements

Noise from plant, deliveries/waste collection vehicle movements on the site are not to exceed a limiting noise level of L_{Atr} 47 dB.

It is noted that vehicle movements and timings have been included within the *Operation and Events Strategy* document for the scheme, which inherently implements best practice with regard to limiting the impact of noise associated with such operations.



5 Assessment Basis

5.1 Noise Model Parameters

A 3D noise model has been prepared to predict the level of noise likely to arise from typical operations at the application site. This has been developed based on existing area masterplans and survey data obtained by RSKA.

A number of proprietary and well proven software packages are available that can be programmed to conform to recognised prediction standards and methodologies; unless otherwise indicated all noise predictions have been carried out using SoundPLAN 8.2, incorporating the prediction method contained within International Standard: ISO 9613-2: 1996(E): 'Acoustics - Attenuation of sound during propagation outdoors - Part 2: General method of calculation'. The noise prediction method described in this part of the standard is suitable for a wide range of engineering applications where the noise level outdoors is of interest. The noise source(s) may be moving or stationary and the method considers the following major mechanisms of noise attenuation:

- Geometrical divergence (also known as distance loss or geometric damping)
- Atmospheric absorption
- Ground effect; Reflection from surfaces
- Screening by obstacles

The method predicts noise levels under meteorological conditions favourable to noise propagation from the sound source to the receiver, such as downwind propagation, or equivalently, propagation under a moderate ground-based temperature inversion.

An overview of the modelling assumptions and parameters are presented in Table 5.1.

Item	Setting
Algorithm	International Standard ISO 9613-2:1996
Ground absorption	Acoustically absorptive (soft) ground assumed throughout adjacent park area, all other areas acoustically reflective (hard) ground assumed.
Meteorological conditions	10 degrees Celsius; 70% humidity; and Wind from source to receiver
Receptor height	Ground floor receptor height at 1.5m above ground level, first floor receptor height taken as 4.5m, and upper floors as per number of building floor levels
Site layout	As per planning submission drawings
Source modelling	See Section 5.2
Terrain	Derived from Environment Agency LIDAR Composite Digital Surface Model – 1m

Table 5.1 *Modelling Parameters*



5.2 Noise Emissions

The following noise emission levels as per Table 5.2 and Table 5.3 have been adopted within the model. Noise from loudspeakers was measured at the 50 Red Bank development (by RSK Acoustics as part of the assessment for that site) on 29 November 2019 and are understood to be representative of the levels and type of background music typically to be played during the operational scenarios (with noise levels at 50 Red Bank considered acceptable).

Element	Height above ground/floor level)	SWL dB(A)	Source
Normal voice	1.0m	68 (per person)	ISO 9921:2003
Raised voice	1.0m	74 (per person)	ISO 9921:2003
Background music loudspeakers	1.5m	78 (per loudspeaker)	Site measurement
LGV moving at <30km/h	2.0m	61 (per unit, 2 used) 5 minutes out of any 1 hour on-time	Library data
LGV reversing signal	2.0m	61 (per unit, 2 used) 1 minute out of any 1 hour on-time	Library data
LGV loading general cargo	2.0m	80 (per unit, 2 used) 15 minutes out of any 1 hour on-time	Library data

Table 5.2 Summary of Noise Sources

Element	Source SWL (dB) At Octave-band Centre-frequency (Hz)						
	63	125	250	500	1k	2k	4k
Normal voice	19	39	57	66	63	57	51
Raised voice	47	58	69	74	71	63	46
Music	60	69	72	74	71	64	63
LGV moving at <30km/h	69	63	59	57	57	53	49
LGV reversing signal (noise, not beep)	54	54	54	54	54	54	54
LGV loading general cargo	73	73	73	73	73	73	73

Table 5.3 Noise Sources – Sound Power Spectra

The assessment has been based on the whole external occupancy being grouped in The Garden area, this represents a worst-case scenario with noise sources being closest to the nearest noise sensitive premises. In addition to this, the nature of The Shed, i.e. being a casual food and drink space, is such that the external noise levels in that area would be expected to be relatively subdued, with minimal noise egress expected.

For the comedy event scenario, amplified music has been modelled as 8 loudspeakers operating at a level 5dB above the typical background music level, to the spectrum shape of a raised voice level as per Table 5.3.



5.3 Building Envelope

For the purpose of assessment, The Club building external walls are of a profile metal panel construction. The transmission loss utilised for this construction is presented in Table 5.2.

Material	Material Transmission Loss (dB) at Octave-band centre-frequency (Hz)						
	63	125	250	500	1k	2k	4k
Profile metal building cladding	-9	-12	-15	-15	-16	-20	-23

Table 5.4 Material Properties



6 Assessment Results

A summary of the assessment results are provided in the following Sections, noise contours are presented in Appendix E for reference.

6.1 Scenario 1

Scenario 1 includes 50 patrons within The Club, with 25% of patrons speaking at normal voice level, with background music on within the building. Worst case time period 23:00 – 00:00.

Predicted noise levels, as shown in Appendix E, for the worst-case receptor location are presented in Table 6.2, along with the respective criteria for the scenario.

Parameter	Octave-band centre-frequency (Hz)							dB(A)
	63	125	250	500	1k	2k	4k	
Predicted Noise Level, $L_{Aeq,T}$ (dB) Worst case: Receptor F	0	13	23	31	30	20	14	34 ^[1]
Criterion (as per Section 4.1) Relative Survey Location: UL2	44	44	37	35	34	28	18	38 ^[1]
Notes ^[1] Overall dBA figure provided for context only, with regards to presented predicted levels in terms of dBA within Appendix E to demonstrate noise levels. Predictions for assessment have been made in octave bands, as per the summary herein, however dBA figures provide a more concise view within the noise contour plots.								

Table 6.1 Scenario 1 Predicted Noise Levels

The predicted noise levels for Scenario 1 are significantly below the respective criteria. As such, adverse impact due to noise emission from the site during this scenario is considered very unlikely.

6.2 Scenario 2

Scenario 2 includes 250 patrons within The Club building, with 25% of patrons speaking at normal voice level, background music on within the building, and the maximum capacity of 150 patrons in the external area, with 25% of those speaking at normal voice level. Worst case time period 21:00 – 22:00.

Predicted noise levels, as shown in Appendix E, for the worst-case receptor location are presented in Table 6.2, along with the respective criteria for the scenario.



Parameter	Octave-band centre-frequency (Hz)							dB(A)
	63	125	250	500	1k	2k	4k	
Predicted Noise Level, $L_{Aeq,T}$ (dB) Worst case: Receptor F	0	12	23	35	36	29	0	39 ^[1]
Criterion (as per Section 4.1) Relative Survey Location: UL2	45	45	38	36	35	29	45	39 ^[1]
Notes ^[1] Overall dBA figure provided for context only, with regards to presented predicted levels in terms of dBA within Appendix E to demonstrate noise levels. Predictions for assessment have been made in octave bands, as per the summary herein, however dBA figures provide a more concise view within the noise contour plots.								

Table 6.2 Scenario 2 Predicted Noise Levels

The predicted noise levels for Scenario 2 meet the respective criteria. As such, adverse impact due to noise emission from the site during this scenario is considered unlikely.

6.3 Scenario 3

Scenario 3 is largely as per scenario 2, however with 20% external patrons at normal voice level and 5% at raised voice level. This is commensurate with the Operation and Events Strategy for the scheme, with a similar strategy successfully implemented at the 50 Red Bank scheme.

Predicted noise levels, as shown in Appendix E, for the worst-case receptor location are presented in Table 6.2, along with the respective criteria for the scenario.

Parameter	Octave-band centre-frequency (Hz)							dB(A)
	63	125	250	500	1k	2k	4k	
Predicted Noise Level, $L_{Aeq,T}$ (dB) Worst case: Receptor F	0	12	25	37	38	31	21	41 ^[1]
Criterion (as per Section 4.1) Relative Survey Location: UL2	45	45	38	36	35	29	20	39 ^[1]
Notes ^[1] Overall dBA figure provided for context only, with regards to presented predicted levels in terms of dBA within Appendix E to demonstrate noise levels. Predictions for assessment have been made in octave bands, as per the summary herein, however dBA figures provide a more concise view within the noise contour plots.								

Table 6.3 Scenario 3 Predicted Noise Levels

Predicted noise levels for Scenario 3 are slightly over the criteria. Although the 1kHz octave band is 3 dB over the respective criterion at that frequency, it is noted that the overall dBA predicted level is within 2 dB of the criterion.

From analysis of the prediction results, as visible within the noise contour plot for the scenario presented in Figure E.3 of Appendix E, the predicted noise at receptors is primarily dominated by noise from patrons in external areas, and only a relatively small number of receptors are affected. As patron noise is a more anonymous noise source than music, i.e. a 'hubbub' type sound, the broadband noise levels are considered more appropriate for assessment of potential adverse impact. As well as this, hubbub noise from patrons is in-keeping with the current noise context of the local area, as confirmed by the subjective observations made during the noise survey summarised in Section 3.1.1 of this report.



As such, although a very marginal exceedance of the criteria is predicted, with the site context as described above, Scenario 3 is considered unlikely to present a risk of adverse impact to nearby noise-sensitive premises.

6.4 Scenario 4

Scenario 4 – 250 patrons within The Club building, with 25% speaking at normal voice level, with a comedy event on (one performer, with microphone and amplified voice based on a raised voice sound spectrum shape). Capacity 150 patrons in the external area, with 25% of those speaking at normal voice level. Worst case time period 21:00 – 22:00.

Predicted noise levels, as shown in Appendix E, for the worst-case receptor location are presented in Table 6.2, along with the respective criteria for the scenario.

Parameter	Octave-band centre-frequency (Hz)							dB(A)
	63	125	250	500	1k	2k	4k	
Predicted Noise Level, $L_{Aeq,T}$ (dB) Worst case: Receptor F	0	12	23	35	36	29	21	39 ^[1]
Criterion (as per Section 4.1) Relative Survey Location: UL2	45	45	38	36	35	29	20	39 ^[1]
Notes ^[1] Overall dBA figure provided for context only, with regards to presented predicted levels in terms of dBA within Appendix E to demonstrate noise levels. Predictions for assessment have been made in octave bands, as per the summary herein, however dBA figures provide a more concise view within the noise contour plots.								

Table 6.4 Scenario 4 Predicted Noise Levels

The predicted noise levels for Scenario 3 meet the respective criteria – although a very marginal 1dB exceedance is predicted at the 1 kHz octave band, the overall dBA prediction matches that of the criteria. Similarly to Scenario 3, the dominant site noise source for Scenario 4 is patrons, which is better assessed in terms of broadband dBA levels. As such, adverse impact due to noise emission from the site during this scenario is considered unlikely.

6.5 Plant, Deliveries and Waste Collections

Regular deliveries and waste collections are to take place on weekdays between the hours of 10:00 and 16:00, with a maximum of six per week. All vehicles would be Large Goods Vehicles (LGV). On this basis, any given hour between 10:00 and 16:00 has been assessed with two vehicle movements as a worst-case scenario.

Predicted noise levels result in a highest predicted noise level at receptors, from deliveries/waste collection, of $L_{Aeq,1hour}$ **30 dB**. As this is significantly below the project criteria ($L_{A,Tr}$ **47 dB**) and associated background noise levels, no BS 4142 feature corrections have been applied.

A small number of ventilation fans are proposed for the site. At this stage, specific plant selections and locations have not been determined, however any plant installed will be assessed at the relevant stage of the design to ensure compliance with the project criteria. It is noted that based on the likely type of plant, and separation distances to receptors, the criteria are likely to be readily achievable based on the small-scale ventilation fans that are likely to be installed.

On the above basis, noise from plant, deliveries and waste collections is very unlikely to present any risk of significant adverse impact.



7 Conclusions

RSK Acoustics has carried out a noise impact assessment in support of an application for temporary planning permission at land at Irk Street, Manchester ('the site'). The site will operate under the name of 'Fairfield Social Club'.

A number of operational scenarios have been assessed through design development with the project team as detailed in Section 1 of this report. This has followed an iterative process which has shaped the resultant proposed utilisation of the site in such a way that any risk of adverse impact due to noise emissions is minimised.

To inform the assessment, baseline noise survey work has been carried out at the site by RSK Acoustics, and project criteria have been determined in accordance with the Manchester City Council (MCC) noise requirements and agreed with the Environmental Health department at MCC through our noise survey and assessment methodology consultation.

Predicted noise levels during each of the proposed scenarios are presented herein, and with respect to the project criteria as well as context of the existing noise environment at the site, the proposed operation of the site is considered unlikely to give rise to any adverse noise impact effect at nearby noise sensitive premises.



Glossary

Term	Definition
Ambient sound	The total sound at a given place, usually a composite of sounds from many sources near and far.
Background sound, $L_{A90,T}$	A-weighted sound pressure level that is exceeded by the residual sound at the assessment location for 90% of a given time interval.
dB	Decibel. Scale for expressing sound pressure level. It is defined as 20 times the logarithm of the ratio between the root mean square pressure of the sound field and a reference pressure i.e. 2×10^{-5} Pascal.
dB(A)	A-weighted decibel. This provides a measure of the overall level of sound across the audible spectrum with a frequency weighting to compensate for the varying sensitivity of the human ear to sound at different frequencies.
Frequency	The repetition rate of a sound wave. The subjective equivalent in music is pitch. The unit of frequency is the Hertz (Hz), which is identical to cycles per second. A thousand hertz is often denoted as kHz, e.g. 2 kHz = 2000 Hz. Human hearing ranges approximately from 20 Hz to 20kHz.
$L_{Aeq,T}$	This is defined as the notional steady sound level over a stated period of time (T), would contain the same amount of acoustical energy as the A-weighted fluctuating sound measured over that period.
Rating level	Specific sound level of a source plus any adjustment for the characteristic features of the sound.
R_w	Weighted sound reduction index. A single-number index which characterises the frequency dependent airborne sound insulation performance of building elements determined under laboratory conditions.
Sound absorption	Process whereby sound energy is converted in to heat. Sound absorption properties is expressed as the sound absorption coefficient α or the sound absorption class (A-E).
Sound insulation	The reduction or attenuation of airborne sound by a solid element between source and receiver.



Appendix A – Noise Survey Photographs



Figure A.1 Location UL1



Figure A.2 Location UL2



Appendix B – Noise Survey Data – Time Histories

Time histories showing the noise survey data for locations UL1 and UL2 are presented in Figure B.1 and Figure B.2 respectively. Time periods where weather data has been deemed unsuitable, as per Section 3.1.3, have been excluded from the figures, and such data has been excluded from all further calculations and assessment.



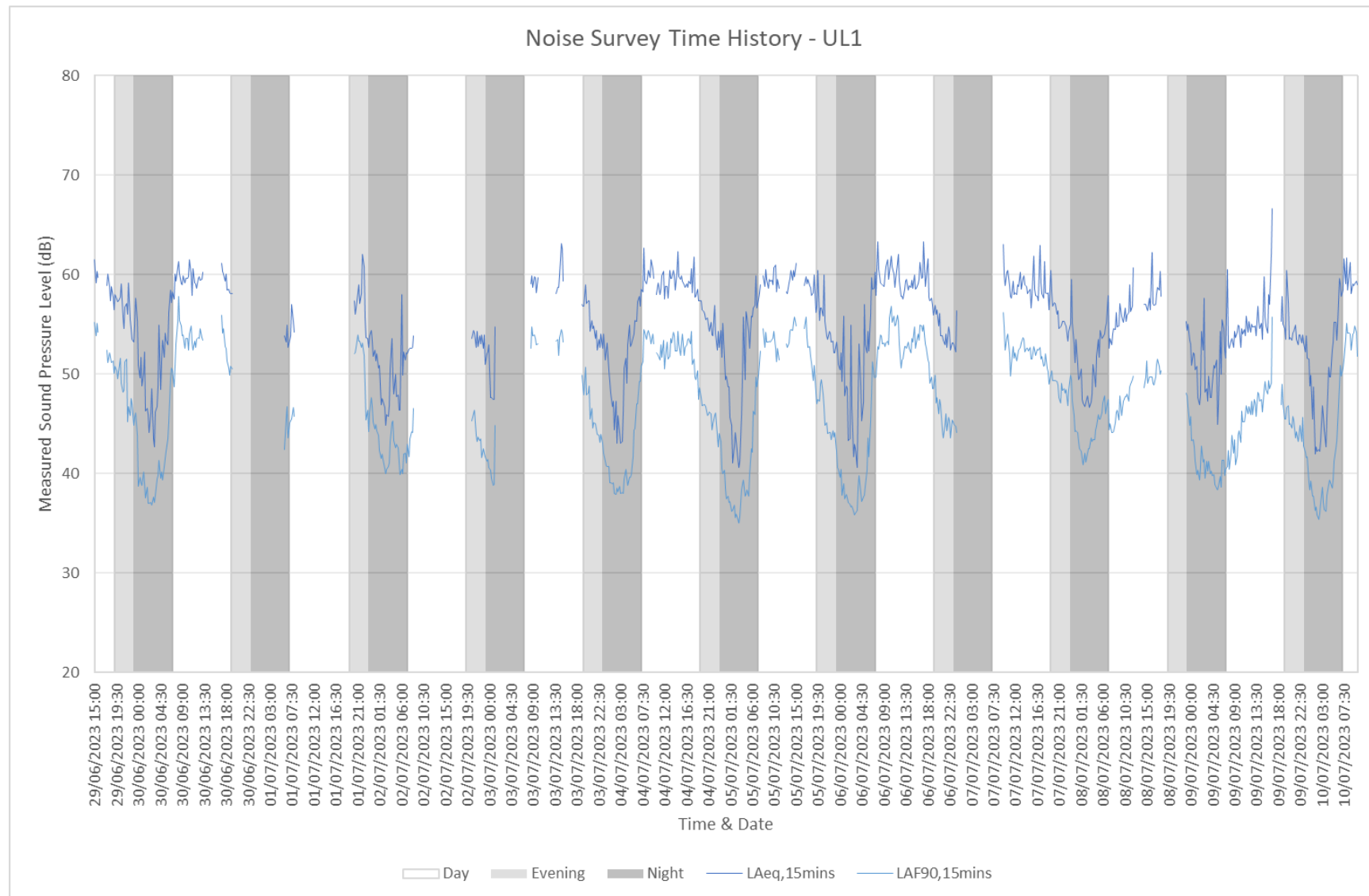


Figure B.1 Noise Survey Data – Time History – Location UL1



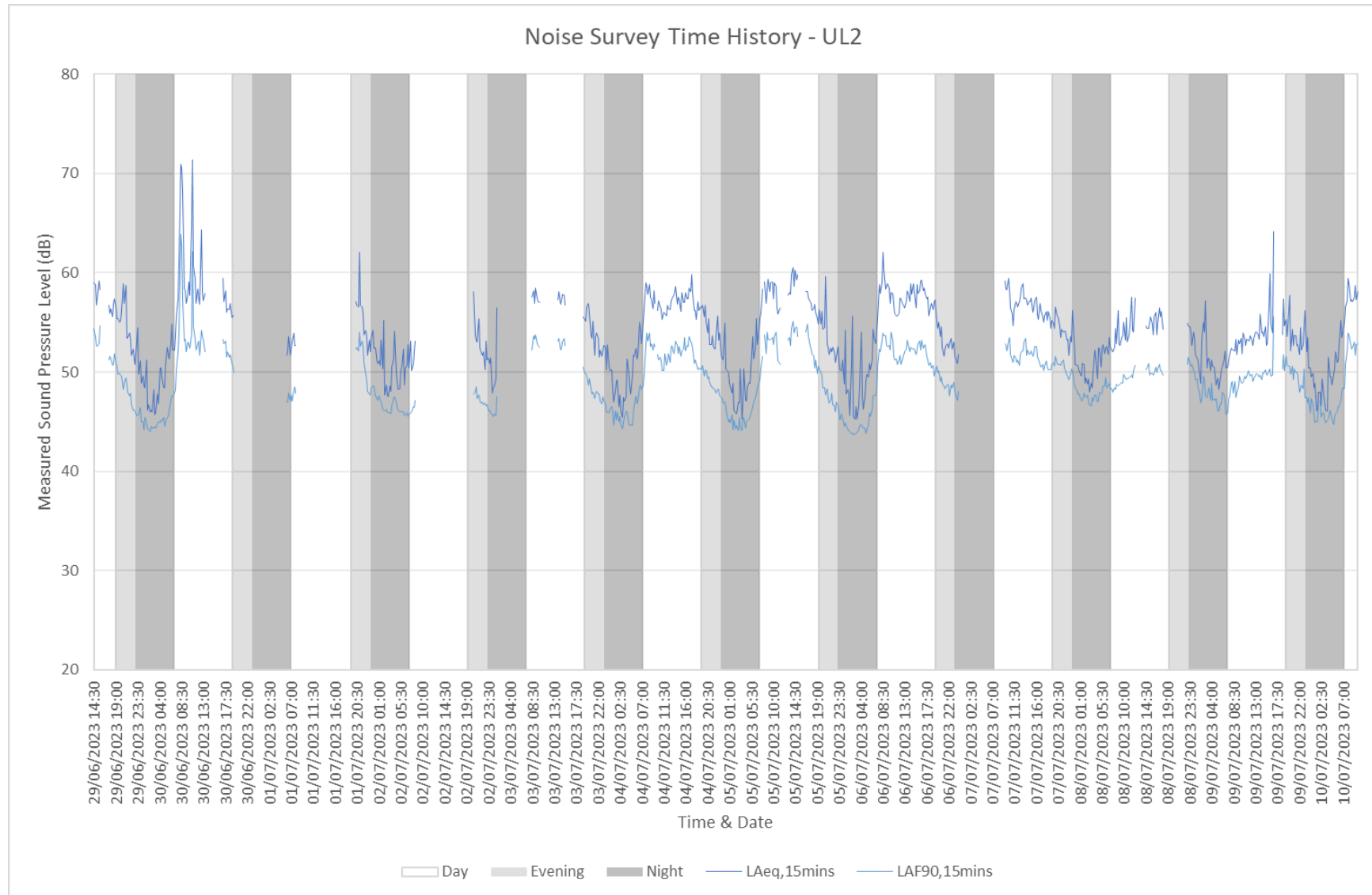


Figure B.2 Noise Survey Data – Time History – Location UL2



Appendix C – Noise Survey Data – Evening Operation

The worst-case operational period for outdoor area usage, and thereby scenarios 2, 3 and 4 is 21:00 – 22:00 during the evening. As such, representative noise levels for this period have been derived through analysis of the noise survey data.

Each period 21:00 – 22:00 is presented in Figure C.1 and Figure C.2 for locations UL1 and UL2 accordingly, with the derived typical period used for assessment shown as the dot-dashed line.

Values at 125 Hz for UL2 have been affected by plant/machinery near the measurement position, As such, values in this case have been interpolated to allow for representative levels at parts of the receptor less susceptible to plant noise, thus providing a worst-case scenario (i.e. lower) background noise level for assessment purposes.



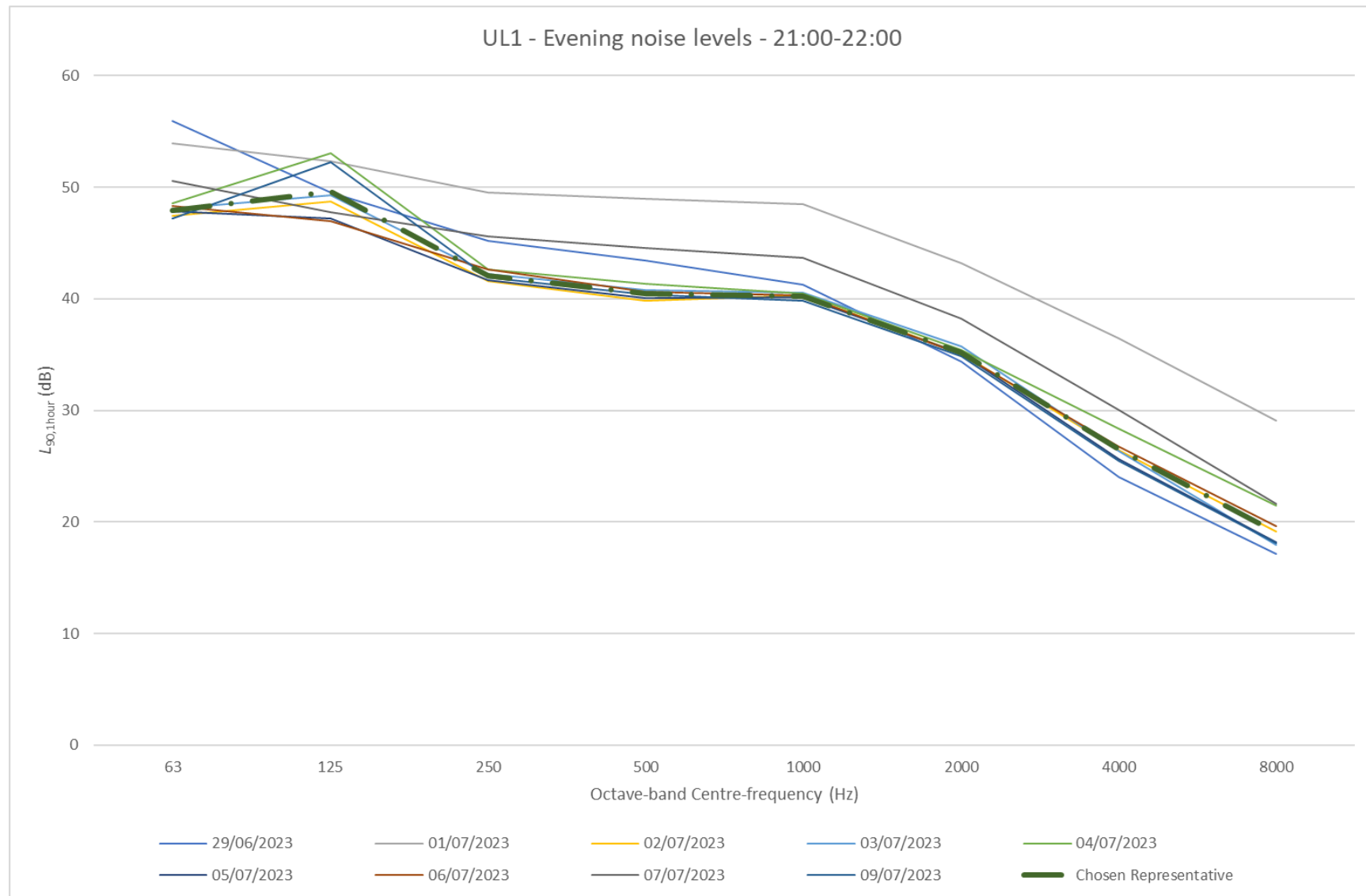


Figure C.1 Evening Noise Levels – 21:00-22:00 – Location UL1



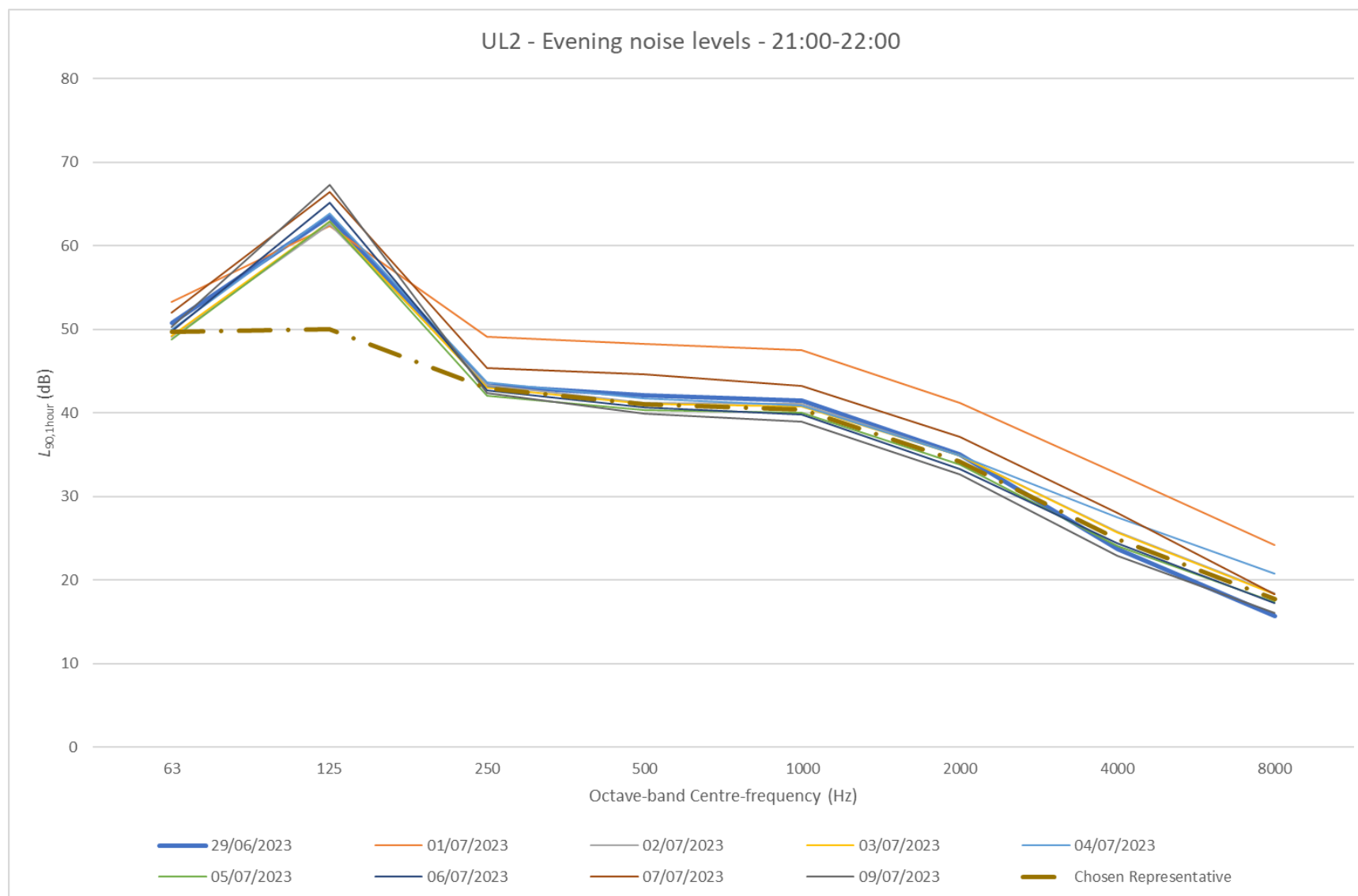


Figure C.2 Evening Noise Levels – 21:00-22:00 – Location UL2



Appendix D – Noise Survey Data – Night Operation

The worst-case operational period for scenario 1 is the period 23:00 – 00:00 during the night. As such, representative noise levels for this period have been derived through analysis of the noise survey data.

Each period 23:00 – 00:00 is presented in Figure D.1 and Figure D.2 for locations UL1 and UL2 accordingly, with the derived typical period used for assessment shown as the dashed line.

Values at 125 Hz for UL2 have been affected by plant/machinery near the measurement position, As such, values in this case have been interpolated to allow for representative levels at parts of the receptor less susceptible to plant noise, thus providing a worst-case scenario (i.e. lower) background noise level for assessment purposes.



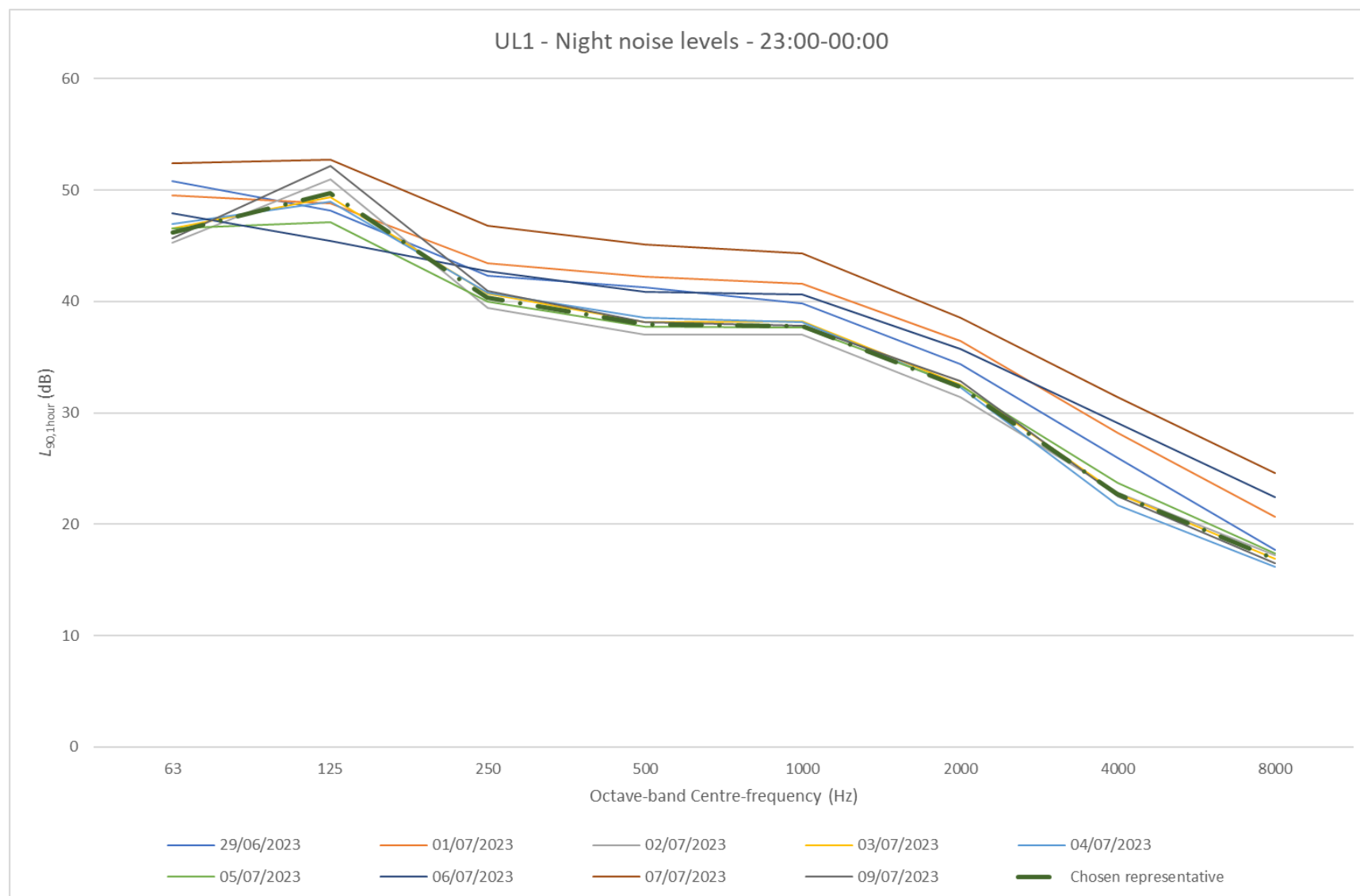


Figure D.2 Night Time Noise Levels – 23:00-00:00 – Location UL1



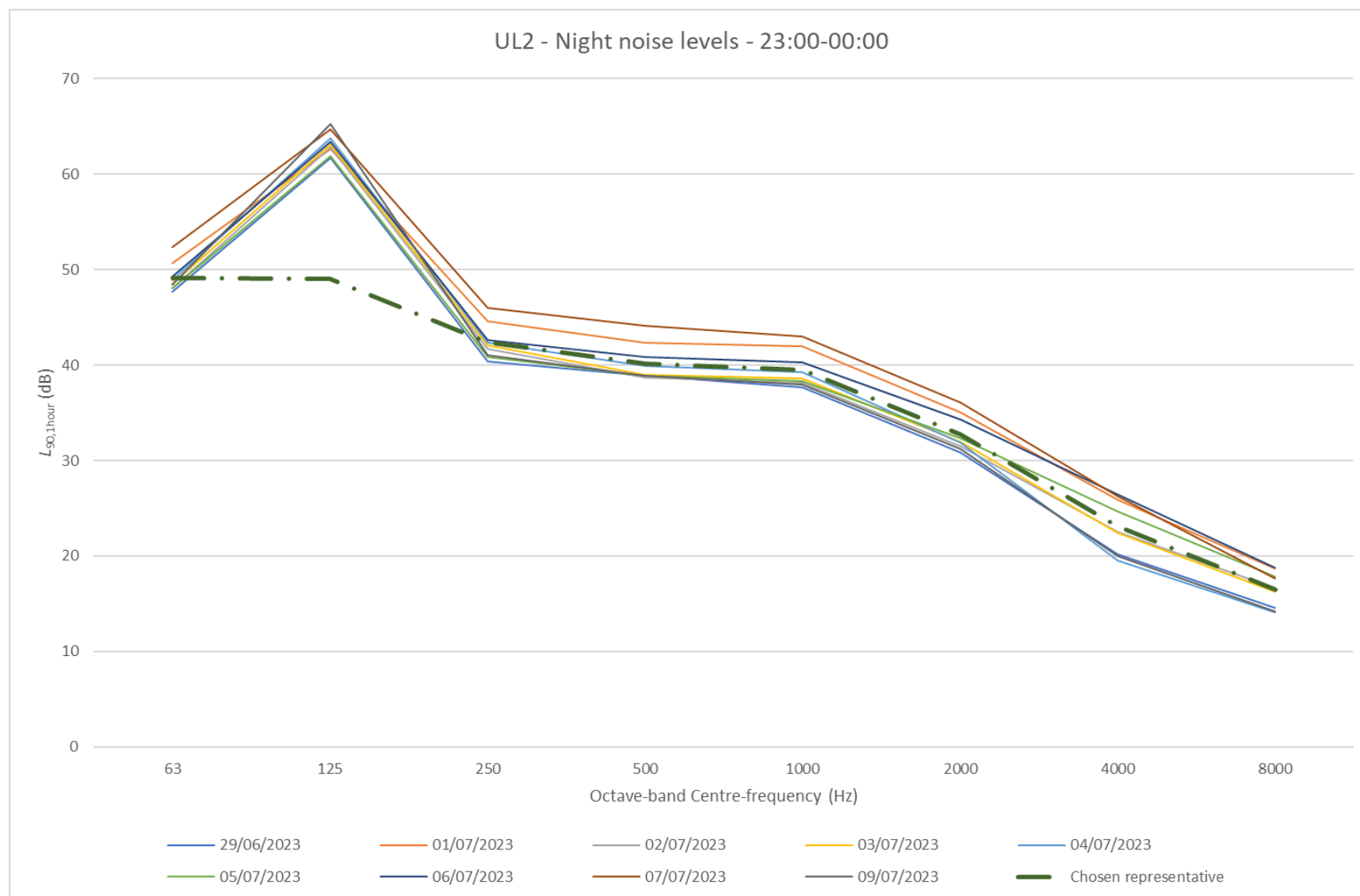


Figure D.2 Night Time Noise Levels – 23:00-00:00 – Location UL2



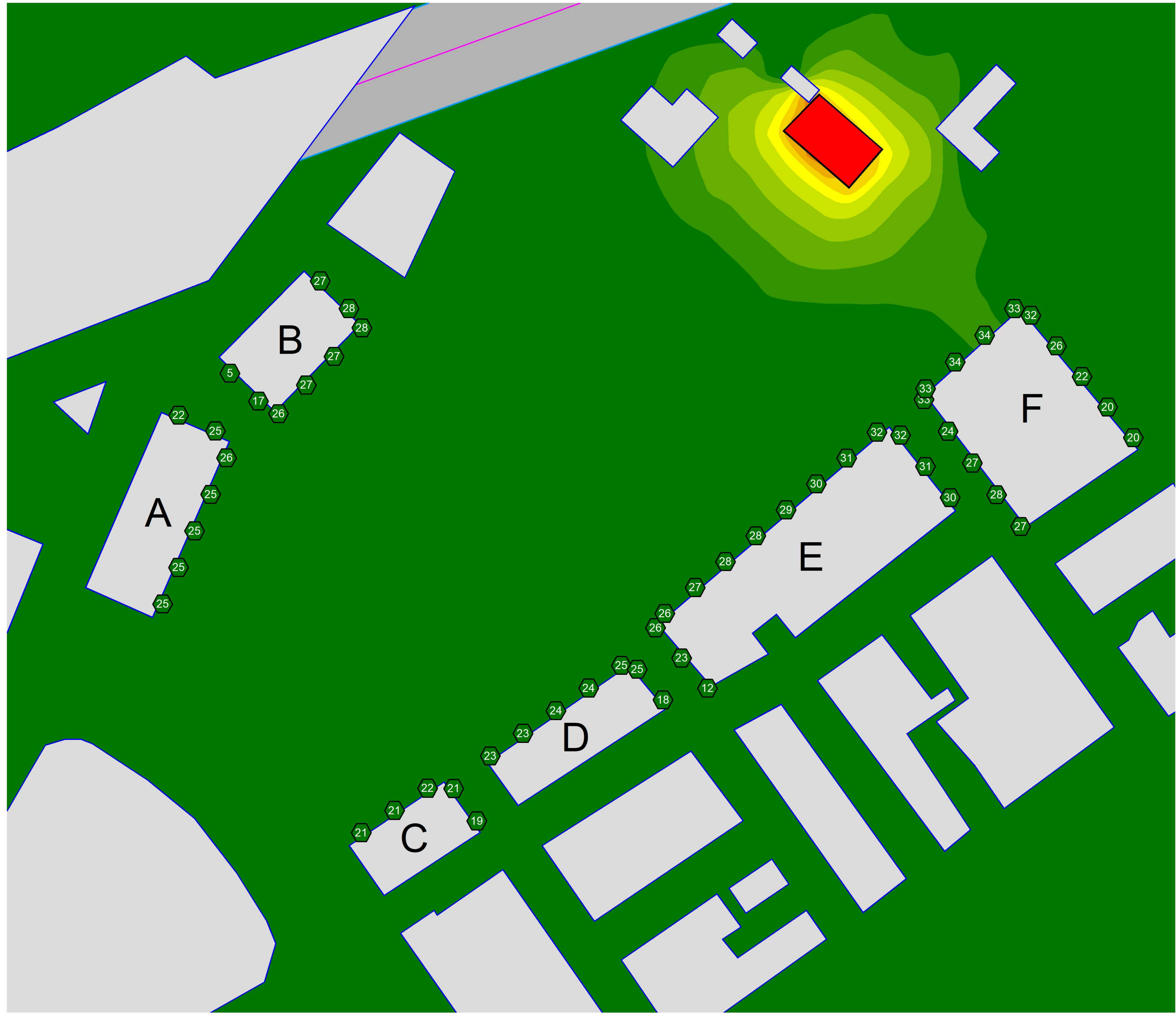


Appendix E – Predicted Noise Level Contour Plots

Figure E.1 to Figure E.4 show the predicted noise levels for each scenario 1-4 respectively as noise contours at 4.5m above ground level, with the values at facades showing the highest level on each façade section.

Noise levels presented are free-field levels, which allows for direct comparison with the free-field noise criteria detailed herein.





LEGEND:

Predicted noise level
dB(A)

	<= 36
	36 - 39
	39 - 42
	42 - 45
	45 - 48
	48 - 51
	51 - 54
	54 - 57
	57 - 60
	60 - 63
	63 - 66
	66 - 69
	69 - 72
	> 72

Notes:

Grid noise map at first floor level

Facade points shown are highest value on elevation



Client

FSC MCR Ltd

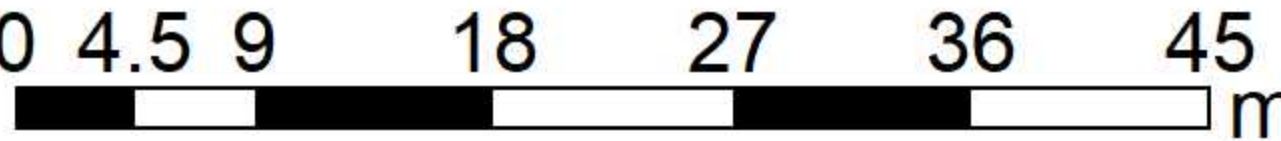
Project name

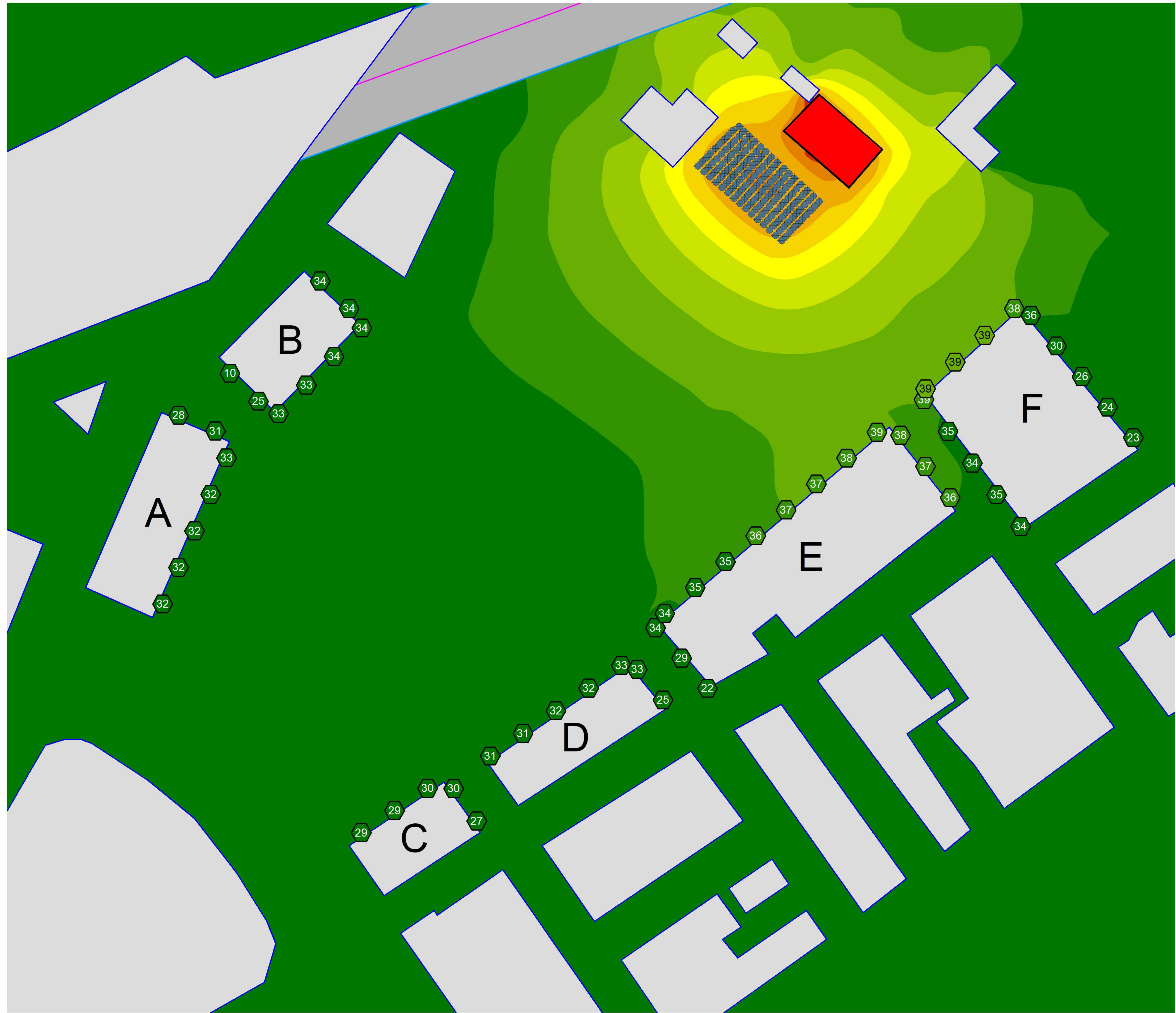
Fairfield Social Club

Drawing title

2061899-RSKA-RP-001-(01)
Figure E.1 - Scenario 1

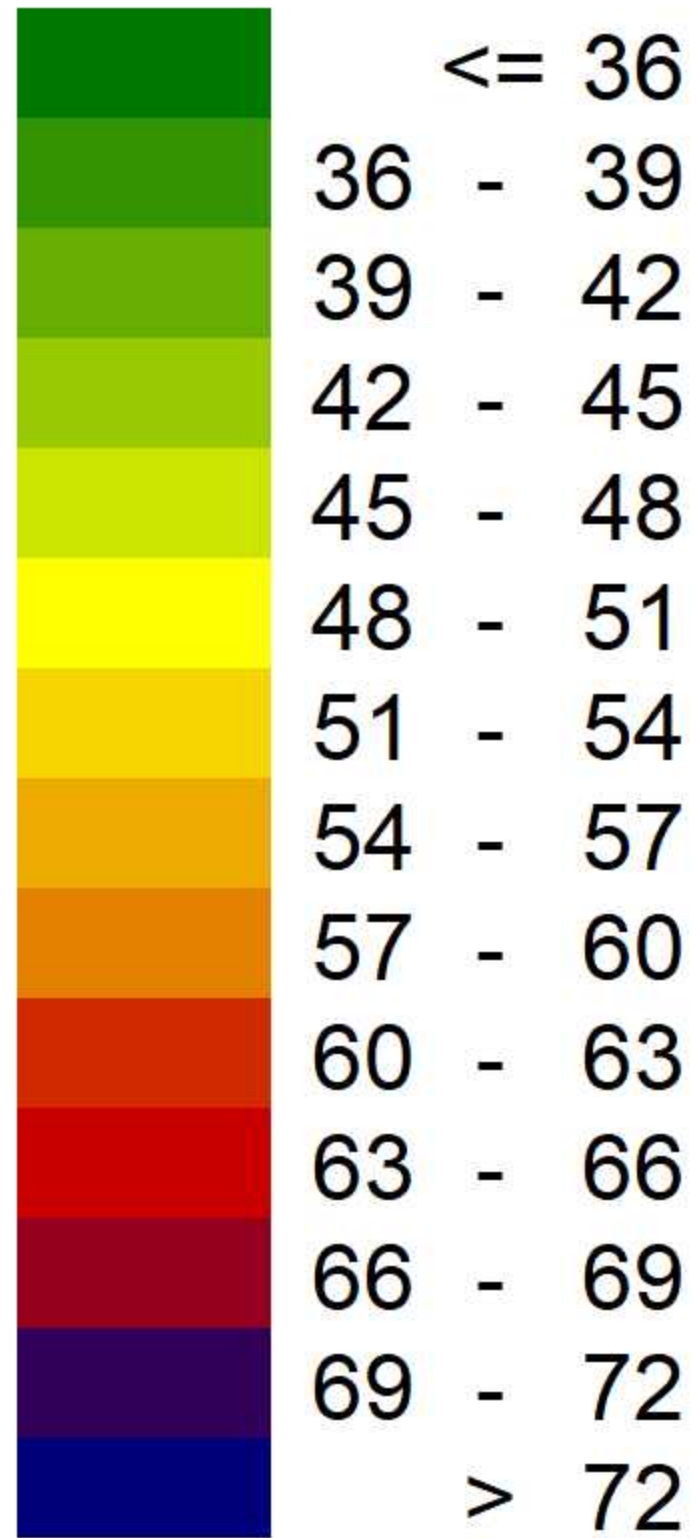
Scale





LEGEND:

Predicted noise level
dB(A)



Notes:

Grid noise map at first floor level

Facade points shown are highest
value on elevation



Client

FSC MCR Ltd

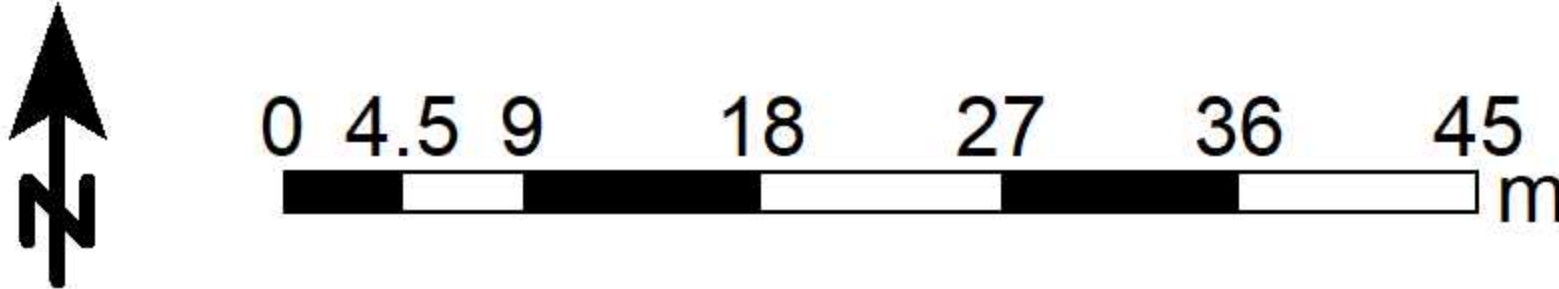
Project name

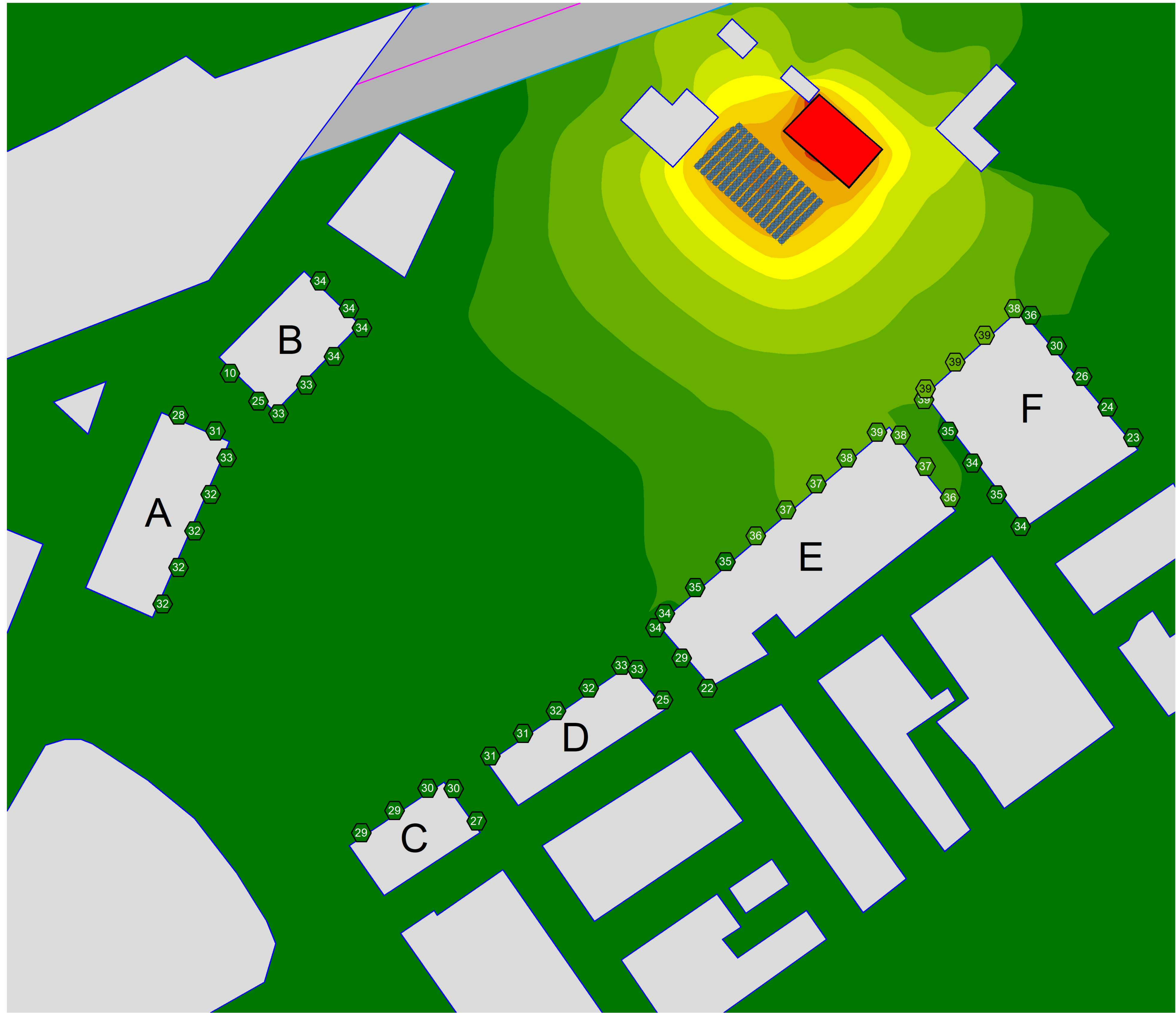
Fairfield Social Club

Drawing title

2061899-RSKA-RP-001-(01)
Figure E.2 - Scenario 2

Scale





LEGEND:

Predicted noise level
dB(A)

	<= 36
	36 - 39
	39 - 42
	42 - 45
	45 - 48
	48 - 51
	51 - 54
	54 - 57
	57 - 60
	60 - 63
	63 - 66
	66 - 69
	69 - 72
	> 72

Notes:

Grid noise map at first floor level

Facade points shown are highest value on elevation



Client

FSC MCR Ltd

Project name

Fairfield Social Club

Drawing title

2061899-RSKA-RP-001-(01)
Figure E.4 - Scenario 4

Scale

