



REPORT REFERENCE:

IMP7860-2

ENVIRONMENTAL NOISE IMPACT ASSESSMENT

PRoPG Planning and Noise

British Standard 8233: 2014

British Standard 4142: 2014 +A1:2019

CLIENT:

Macra Ltd

SITE:

Land Of 5 Westgate Mews

Off Kenilworth Gardens

West End

Southampton

SO30 3RE

SURVEY DATES:

10th – 14th July 2025

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1 EXECUTIVE SUMMARY

1.1 Instruction

Impact Acoustics Ltd has been instructed by Macra Ltd to carry out the relevant noise assessments and calculations at the Land off Westgate Mews, Kenilworth Gardens, West End, Southampton, SO30 3RE. It is proposed that 8 New Residential Dwellings are built on land with an existing building.

1.2 Scope of Report

The measurements will be undertaken in accordance with ISO 1996 – Part 2: 2017 to determine the existing background noise levels and British Standard 8233: 2014 will be used to determine the impact of existing traffic on the internal noise environment within the proposed residential dwellings. This report aims to establish the following:

- Existing background noise levels within the area;
- Assess the potential internal noise levels on the proposed rooms;
- Provide specifications for the ventilation and window glazing with the proposed rooms.
- Review any commercial surround noise and make appropriate assessments if required.

1.3 Summary of Results

A background noise survey was undertaken from 10th – 14th July 2025 at two positions on the site in order to establish the underlying background noise levels. The maximum day time levels were found to be $L_{Aeq, 16 \text{ hour}}$ 48.3 dB and the maximum night time levels were found to be $L_{Aeq, 8 \text{ hours}}$ 41.9 dB at position 1. The maximum day time levels were found to be $L_{Aeq, 16 \text{ hour}}$ 46.2 dB and the maximum night time levels were found to be $L_{Aeq, 8 \text{ hours}}$ 48.5 dB at position 2. The corresponding background noise levels was also found to be $L_{A90 \text{ 1 HOUR}}$ dB for daytime and $L_{A90 \text{ 15 MINUTES}}$ dB for night time at the rear of the site in relation to commercial noise.

Assessment Position	Date Start	Date Finish	Daytime LAeq	Night Time LAeq
Position 1	10/07/2025	14/07/2025	48.3	41.9
Position 2	10/07/2025	14/07/2025	46.2	48.5

Assessment Position	Date Start	Date Finish	Daytime LA90	Night Time LA90
Position 2	10/07/2025	14/07/2025	40	35

It should be noted that the ambient and background noise levels on this site are very low, this is due to its geographical location to the M27 and extensive shielding. The measurements taken on site have been verified and checked and are a true representation of the acoustic environment of this site.

1.4 Potential Façade Noise Levels

1.4.1 Daytime (07:00-23:00)

Time Period	Highest Potential Façade Noise Level	Noise Risk Category 1 – Low
Average Daytime (07:00-23:00)	$L_{Aeq, 16 \text{ HOUR}}$ 50 dB	50 - 63 dB

1.4.2 Night Time (23:00-07:00)

Time Period	Highest Potential Façade Noise Level	Noise Risk Category 1 – Low
Average Night Time (23:00-07:00)	$L_{Aeq, 16 \text{ HOUR}}$ 49 dB	40 - 55 dB
	Maximum (10 Times) – L_{Amax} 69.7 dB	>80 dB (10 Times in 8 Hours)

1.5 Risk Assessment

1.5.1 Daytime (07:00-23:00)

Risk Assessment Category	Risk Assessment
1 – Low	At low noise levels, the site is likely to be acceptable from a noise perspective provided that a good acoustic design process is followed and is demonstrated in an ADS which confirms how the adverse impacts of noise will be mitigated and minimised in the finished development.

1.5.2 Night Time (23:00-07:00)

Risk Assessment Category	Risk Assessment
1 – Low	At low noise levels, the site is likely to be acceptable from a noise perspective provided that a good acoustic design process is followed and is demonstrated in an ADS which confirms how the adverse impacts of noise will be mitigated and minimised in the finished development.

The above table demonstrates this site is located within Noise Risk Category 1 for daytime and night time, which suggests a low level of risk and that no further mitigation levels will be required at Stage 2 if a good acoustic design process is followed.

1.6 Glazing & Ventilation Assessment

The development should be designed with a 4mm glass / 16mm Air Gap / 4mm Glass and an MVHR System 4 ventilation system to all facades to ensure the internal noise levels are acceptable in terms of the assessment to British Standard 8233: 2014.

1.7 WHO Guidelines for Community Noise

The development proposes external living areas and therefore an assessment to the World Health Organisation's 'Guidelines for Community Noise' has been carried out. The guideline has been considered acceptable criteria for this assessment given the sites geographical location. The calculation demonstrates the external living spaces are likely to see noise levels below the lower guideline of 50 dB on the garden areas

1.8 BS 4142: 2014 +A1: 2019 – Assessments

1.8.1 Existing Daytime

Item	Calculation	Clause	Commentary
Rating Level	51 dB	9.1	The acoustic feature correction is added to the specific noise level
Background Noise Level $L_{A90,1 \text{ hour}}$	40 dB	8.1	Modal Background Noise Level
Assessment Level	+11 dB	11	The background level is subtracted from the rating level.
Assessment	+11 dB		
Conclusion	The assessment level is 'Significant Adverse Impact'		

1.8.2 Post Remedial Works Daytime

Item	Calculation	Clause	Commentary
Rating Level	40 dB	9.1	The acoustic feature correction is added to the specific noise level
Background Noise Level $L_{A90,15 \text{ MINUTES}}$	40 dB	8.1	Modal Background Noise Level
Assessment Level	+/- 0 dB	11	The background level is subtracted from the rating level.
Assessment	+/- 0 dB		
Conclusion	The assessment level is 'Low Impact'		

1.9 Assessment Conclusion

It can be seen from the above assessments that with the existing 5.0m wall extended as detailed within this report, an assessment conclusion of Low Impact could be expected. Therefore, no further mitigation measures would be required if this remedial work was undertaken.

1.10 Utilita Bowl Cricket Ground

The following table demonstrates the existing BS 8233: 2014 calculation using the overall $L_{Aeq \text{ } 16 \text{ HOUR}}$ dB daytime noise levels vs the above evaluated $L_{Aeq \text{ } \tau}$ 45.3 dB during the matchday period.

	Overall $L_{Aeq \text{ } 16 \text{ HOUR}}$ dB Daytime Noise Levels	Specific $L_{Aeq \text{ } \tau}$ dB Matchday Period Noise Levels
Recorded Noise Level	$L_{Aeq \text{ } 16 \text{ HOUR}}$ 46.2 dB	$L_{Aeq \text{ } \tau}$ 45.3 dB
Calculated Internal Noise Level	Living Room $L_{Aeq \text{ } 16 \text{ HOUR}}$ 28.8 dB	Living Room $L_{Aeq \text{ } 16 \text{ HOUR}}$ 27.9 dB
BS 8233: 2014 Criteria	$L_{Aeq \text{ } 16 \text{ HOUR}}$ 35 dB	$L_{Aeq \text{ } 16 \text{ HOUR}}$ 35 dB
Criteria Conclusion	Achieved	Achieved

1.11 Conclusions

1.11.1 Ambient Noise BS 8233: 2014

The dominant noise source on the overall site is road noise. Levels have been recorded and assessments made in accordance with the relevant standards. Internal criteria's have been set and calculations made in order to determine the minimum construction details required in order to meet the desired level within the proposed residential dwellings and satisfy the local council's requirements.

1.11.2 Planning Recommendation

National Planning Policy Framework 2024 suggests that planning permission should be granted unless any adverse impacts of doing so would significantly and demonstrably outweigh the benefits, when assessed against the policies in the framework taken as a whole, or specific policies in the framework indicate the application should be restricted.

Based on the calculations and assessments made within this report it is the professional opinion of Impact Acoustics Ltd that the proposed development can demonstrate compliance with the National Planning Policy Framework 2024, NPPF & NPSE and that, with regards to sound, planning permission can be granted provided the existing 5m wall is extended as detailed within this report.

2 INTRODUCTION

Impact Acoustics Ltd has been instructed by Macra Ltd to carry out the relevant noise assessments and calculations at the Land off Westgate Mews, Kenilworth Gardens, West End, Southampton, SO30 3RE. It is proposed that 8 New Residential Dwellings are built on land with an existing building. to carry out the relevant noise assessments and calculations at the Land off Westgate Mews, Kenilworth Gardens, West End, Southampton, SO30 3RE. It is proposed that 8 New Residential Dwellings are built on land with an existing building.

Ambient noise levels were measured between 10th and 14th July 2025. This report by Impact Acoustics Ltd gives the results of these measurements and an assessment in accordance with government planning guidelines and relevant standards together with mitigation measures as required.

2.1 Planning Practice Guidance and Noise

March 2014 saw the publication of the Planning Practice Guidance for Noise (PPG-Noise) and this was subsequently updated in December 2014. The Planning Practice Guidance and Noise sets out details of how potential noise impacts should be evaluated.

'Local planning authorities' plan-making and decision taking should take account of the acoustic environment and in doing so consider:

- *whether or not a significant adverse effect is occurring or likely to occur;*
- *whether or not an adverse effect is occurring or likely to occur; and*
- *whether or not a good standard of amenity can be achieved.*

In line with the Explanatory Note of the Noise Policy Statement for England, this would include identifying whether the overall effect of the noise exposure (including the impact during the construction phase wherever applicable) is, or would be, above or below the significant observed adverse effect level and the lowest observed adverse effect level for the given situation. As noise is a complex technical issue, it may be appropriate to seek experienced specialist assistance when applying this policy.'

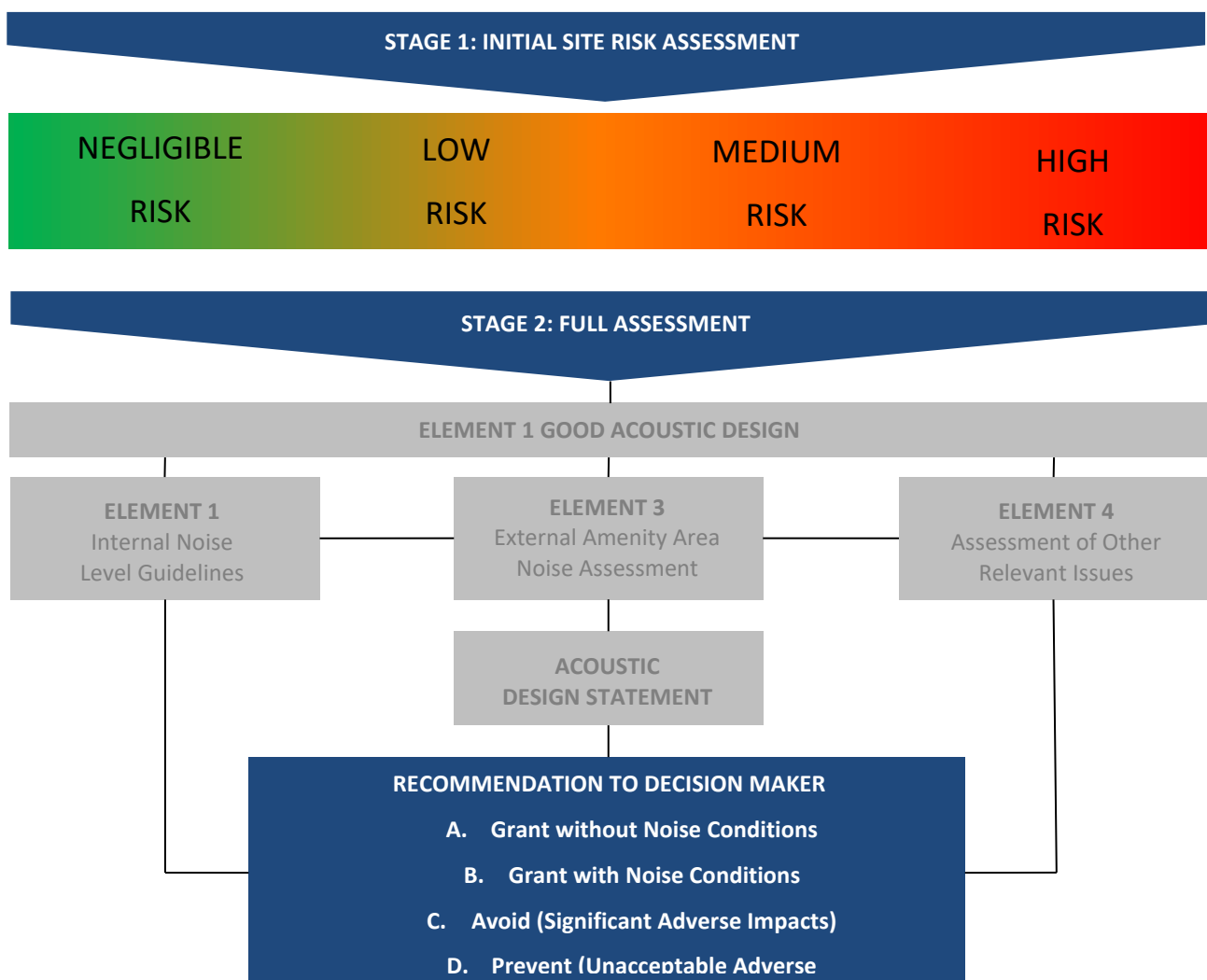
In accordance with Stage 2: Full Assessment, Other Noise Sources, detailed calculations and assessments should be carried out pertaining to these as PPG Noise does not provide advice and guidance when taking these elements into consideration.

2.1.1 Professional Practice Guidance on Planning & Noise.

The Professional Practice Guidance (PRoPG) on Planning and Noise for New Residential Development was published in May 2017 by the Association of Noise Consultants (ANC), Institute of Acoustics (IOA) and Chartered Institute of Environmental Health (CIEH). This document was developed in order to offer professional guidance on recommended strategies to the management of noise for use in the associated planning applications for specific sites. This, furthermore, provides a numerical acoustic standard in accordance with the Government's planning and noise policies.

This document has been developed to ensure the developers adopts a good acoustic design process to ensure protection for future residents from the potential harmful effects from noise. The PRoPG denotes that it *'does not constitute an official government code of practice and neither replaces nor provides an authoritative interpretation of the law or government policy on which users should take their own advice as appropriate'*.

The PRoPG adopts a twin-stage approach, firstly providing an 'Initial Noise Risk Assessment' of the proposed development site before undertaking a detailed approach of a noise impact assessment. The results from the initial noise risk assessment are an indication of the general acoustic environment of the proposed development and demonstrate how detailed the noise impact assessment will need to be in order to mitigate any acoustic issues.



2.2 BS 8233: 2014

With regards to external ambient noise, environmental noise levels are monitored at the site in accordance with British Standard 7445: 2003 'Description and measurement of environmental noise assessments and calculation made in accordance with BS 8233: 2014 Sound Insulation and Noise Reduction for Buildings Code of Practice.

BS 8233: 2014 set the following parameters as target levels that should be designed to within rooms such as Living Rooms and Bedrooms.

Indoor ambient noise levels in spaces when they are unoccupied and privacy is also important		
Objective	Typical situations	Design Range L _{Aeq,t} dB
Typical noise levels for acoustic privacy in shared spaces	Living room	35 – 40
NOTE: See Noise control in building services [28] and BS EN ISO 3382.		

Indoor ambient noise levels for dwellings			
Activity	Location	07:00 – 23:00	23:00 – 07:00
Resting	Living Room	35 dB L _{Aeq} 16 HOUR	--
Dining	Dining Room / Area	40 dB L _{Aeq} 16 HOUR	--
Sleeping (daytime resting)	Bedroom	35 dB L _{Aeq} 16 HOUR	30 dB L _{Aeq} 8 HOUR

Calculations and assessments are therefore to be carried out in order to satisfy the above requirements of BS8233: 2014.

2.3 National Planning Policy Framework 2024 (NPPF) and Noise Policy Statement for England 2010 (NPSE).

References and evaluations are to be made to the National Planning Policy Framework 2024 (NPPF) and the Noise Policy Statement for England 2010 (NPSE). The purpose of this document is to include all aspects of environmental noise within assessments i.e. environmental noise, neighbour noise, and neighbourhood noise. Noise is to be considered alongside other relevant issues relating to the site and should not be considered in isolation, according to the NPSE.

There are several key phrases within the NPSE aims and these are discussed below.

2.3.1 “Significant adverse” and “adverse”

There are two established concepts from toxicology that are currently being applied to noise impacts, for example, by the World Health Organisation. They are:

2.3.2 NOEL – No Observed Effect Level

This is the level below which no effect can be detected. In simple terms, below this level, there is no detectable effect on health and quality of life due to the noise.

2.3.3 LOAEL – Lowest Observed Adverse Effect Level

This is the level above which adverse effects on health and quality of life can be detected.

Extending these concepts for the purpose of this NPSE leads to the concept of a significant observed adverse effect level.

2.3.4 SOAEL – Significant Observed Adverse Effect Level

This is the level above which significant adverse effects on health and quality of life occur.

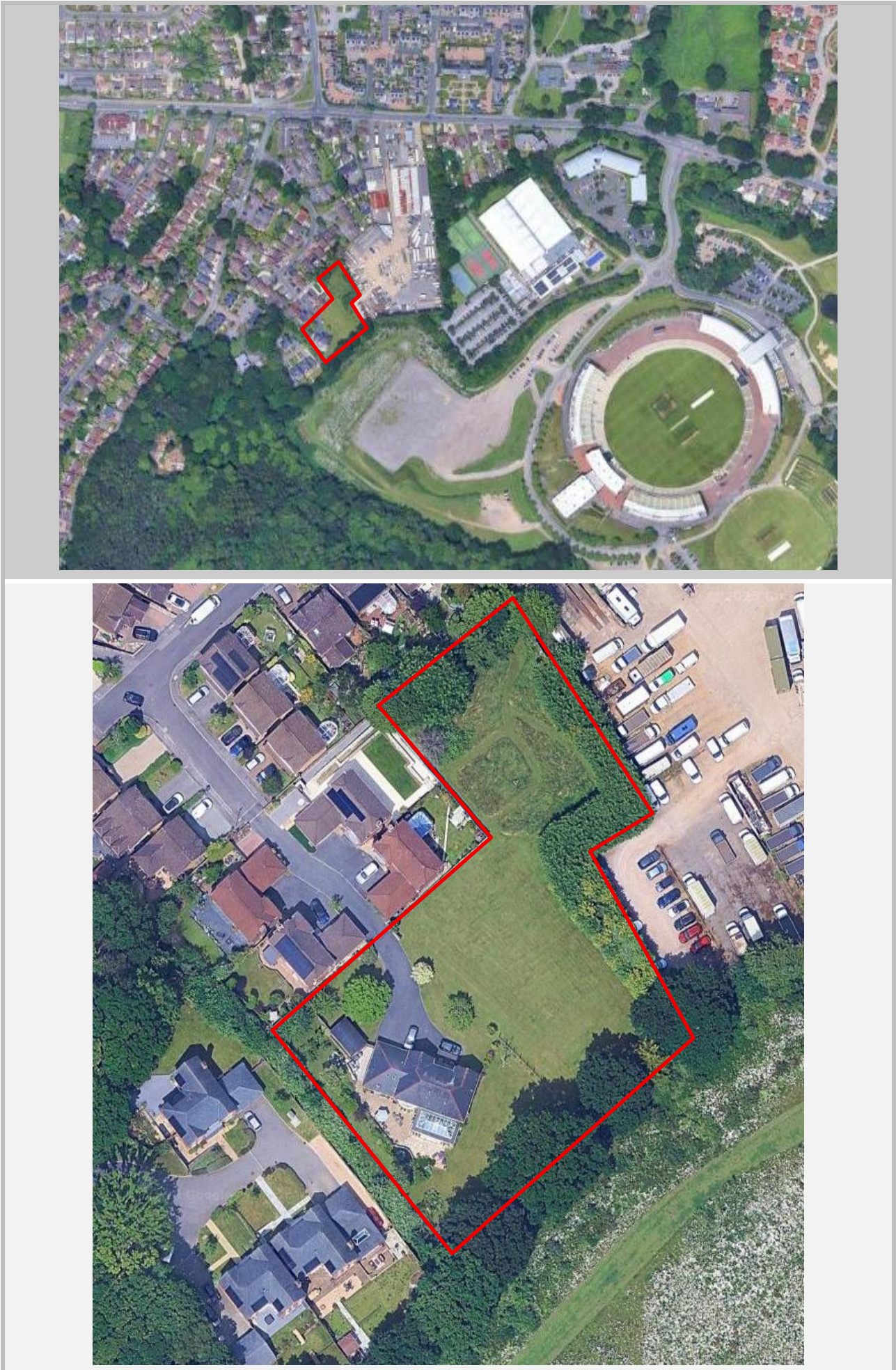
It is not possible to have a single objective noise-based measure that defines SOAEL that is applicable to all sources of noise in all situations. Consequently, the SOAEL is likely to be different for different noise sources, for different receptors and at different times. It is acknowledged that further research is required to increase our understanding of what may constitute a significant adverse impact on health and quality of life from noise. However, not having specific SOAEL values in the NPSE provides the necessary policy flexibility until further evidence and suitable guidance is available.

Outdoor living areas are not being proposed and therefore, no assessment has been made to the World Health Organisation’s ‘Guidelines for Community Noise’, within this technical report.

Finally, assessments and references are to be made to the World Health Organisation Night Time Noise Guidance 2009.

3.1 Development Location

Proposed Site Plan
1:200



4 **PROCEDURE**

External noise levels were recorded over a typical period and analysis date extrapolated between 07:00 hrs 10th – and 07:00 hrs on 14th July 2025 at two positions as detailed on the attached plan sketch layout.

Position 1 was located at the Eastern façade of the site in order to capture the noise levels associated with the nearby roads and commercial units in order to aid in the 3D model. Position 2 was located at the Southern boundary in order to capture the noise levels associated with the background. Sample measurements were recorded over continuous 15 minute samples and from this data the hourly LAeq daytime values have been evaluated. Sound Pressure Levels were recorded on the following setting along with a full octave band frequency analysis measured simultaneously and between 31.5 Hz and 16.0 kHz.

Daytime 07:00 – 23:00		Night Time 23:00 – 07:00	
LAeq 1 HOUR dB	LA10 1 HOUR dB	LAeq 15 MINUTES dB	LA10 15 MINUTES dB
LAMAX 1 HOUR dB	LA50 1 HOUR dB	LAMAX 15 MINUTES dB	LA50 15 MINUTES dB
LAMIN 1 HOUR dB	LA90 1 HOUR dB	LAMIN 15 MINUTES dB	LA90 15 MINUTES dB

Calculations have been made in accordance with BS 8233: 2014 ‘Sound Insulation and Reduction of Buildings - Code of Practice’. Recommendations were made for any additional acoustics measures to conform to these standards.

From the downloaded recorded results, the daytime and night time periods were assessed and used within the above calculations as LAeq 16 HOUR dB levels for daytime and LAeq 8 HOUR dB levels for night time. These are detailed within this report. All data averaged throughout the day has been done so on a logarithmic basis to give accurate LAeq 16 Hour dB daytime and LAeq 8 Hour dB night time noise levels.

Finally, it should be noted that calculations are carried out with façade levels corrected from the recorded noise levels to the calculated façade levels.

5 APPARATUS

The equipment was calibrated using a sound pressure level of 114.0 dB at an octave band centre frequency of 1000Hz with reference to $2 \times 10^{-5} \text{ Nm}^{-2}$ before and after the tests and the equipment set to have no inaccuracy greater than 0.2dB.

All the following equipment was calibrated in accordance with the laboratory accreditation requirements of the United Kingdom Accreditation Service (UKAS) on the following dates. Calibration schedules are implemented in accordance with UKAS directive LAB 23.

5.1 140 NOISE METER s/n 1402941 environmental testing

Description	Make	Type	Serial No.	Calibration Intervals	Cert No.	Last Calibrated	Next Due Calibration
Integrated Sound Level Meter	Norsonic	140	1402941	2 YEARS	48450	30.07.2024	30.07.2026
12.5mm Microphone (with windshield)	GRAS	40AF	179711	2 YEARS	48449	30.07.2024	30.07.2026
Microphone Pre – Amplifier	Norsonic	1209	30479	2 YEARS	48450	30.07.2024	30.07.2026

5.2 140 NOISE METER s/n 1403140 environmental testing

Description	Make	Type	Serial No.	Calibration Intervals	Cert No.	Last Calibrated	Next Due Calibration
Integrated Sound Level Meter	Norsonic	140	1403140	2 YEARS	C00485	03.06.2024	03.06.2026
12.5mm Microphone (with windshield)	Norsonic	1225	579775	2 YEARS	C00485	03.06.2024	03.06.2026
Microphone Pre – Amplifier	Norsonic	1206	12486	2 YEARS	C00485	03.06.2024	03.06.2026

Full calibration certificates are available upon request.

6 RESULTS

6.1 Position 1

6.1.1 10th -11th July 2025

NOISE LEVEL SUMMARY ASSESSMENT				Octave Band Centre Frequency (Hz)								
Date / Time	LAeq	LAmaz	LA90	63	125	250	500	1.0k	2.0k	4.0k	8.0k	16.0k
DAYTIME 07:00 - 23:00 LA90 1 HOUR & Corresponding LAeq 1 HOUR	44.2	79.0	40.0	53.5	47.5	43.2	40.8	39.3	36.0	29.5	31.3	22.7
NIGHT TIME 23:00 - 07:00 A90 15 MIN & Corresponding LAeq 15 MIN	41.1	73.2	36.0	48.9	41.4	39.5	38.4	37.3	29.4	25.0	30.5	15.5

6.1.2 11th -12th July 2025

NOISE LEVEL SUMMARY ASSESSMENT				Octave Band Centre Frequency (Hz)								
Date / Time	LAeq	LAmaz	LA90	63	125	250	500	1.0k	2.0k	4.0k	8.0k	16.0k
DAYTIME 07:00 - 23:00 LA90 1 HOUR & Corresponding LAeq 1 HOUR	48.3	71.4	39.0	57.0	53.9	51.2	44.6	43.1	37.0	30.2	29.5	23.0
NIGHT TIME 23:00 - 07:00 A90 15 MIN & Corresponding LAeq 15 MIN	41.9	66.6	39.0	56.2	43.7	39.9	39.0	38.1	31.2	23.7	24.9	16.1

6.1.3 12th -13th July 2025

NOISE LEVEL SUMMARY ASSESSMENT				Octave Band Centre Frequency (Hz)								
Date / Time	LAeq	LAmaz	LA90	63	125	250	500	1.0k	2.0k	4.0k	8.0k	16.0k
DAYTIME 07:00 - 23:00 LA90 1 HOUR & Corresponding LAeq 1 HOUR	41.3	70.1	36.0	50.4	47.2	41.5	38.1	36.7	30.6	25.9	24.5	23.8
NIGHT TIME 23:00 - 07:00 A90 15 MIN & Corresponding LAeq 15 MIN	38.7	66.3	34.0	44.0	36.8	35.6	36.0	35.5	27.8	22.4	22.9	10.8

6.1.4 13th -14th July 2025

NOISE LEVEL SUMMARY ASSESSMENT				Octave Band Centre Frequency (Hz)								
Date / Time	LAeq	LAmaz	LA90	63	125	250	500	1.0k	2.0k	4.0k	8.0k	16.0k
DAYTIME 07:00 - 23:00 LA90 1 HOUR & Corresponding LAeq 1 HOUR	45.4	88.2	38.0	55.1	45.8	42.2	41.9	42.6	35.0	24.7	24.7	22.0
NIGHT TIME 23:00 - 07:00 A90 15 MIN & Corresponding LAeq 15 MIN	39.3	69.5	35.0	57.4	43.1	38.2	35.2	34.1	29.0	22.4	24.8	11.1

6.2 Position 2

6.2.1 10th -11th July 2025

NOISE LEVEL SUMMARY ASSESSMENT				Octave Band Centre Frequency (Hz)								
Date / Time	LAeq	LAmaz	LA90	63	125	250	500	1.0k	2.0k	4.0k	8.0k	16.0k
DAYTIME 07:00 - 23:00 LA90 1 HOUR & Corresponding LAeq 1 HOUR	41.1	73.6	0.0	52.4	46.7	39.7	36.6	35.8	32.2	29.5	29.8	17.2
NIGHT TIME 23:00 - 07:00 A90 15 MIN & Corresponding LAeq 15 MIN	46.6	81.1	36.0	50.3	41.8	38.6	38.1	37.1	29.9	40.6	43.9	23.6

6.2.2 11th -12th July 2025

NOISE LEVEL SUMMARY ASSESSMENT				Octave Band Centre Frequency (Hz)								
Date / Time	LAeq	LAmaz	LA90	63	125	250	500	1.0k	2.0k	4.0k	8.0k	16.0k
DAYTIME 07:00 - 23:00 LA90 1 HOUR & Corresponding LAeq 1 HOUR	43.6	77.8	39.0	60.9	46.1	41.6	38.5	36.9	30.9	34.4	36.4	21.7
NIGHT TIME 23:00 - 07:00 A90 15 MIN & Corresponding LAeq 15 MIN	48.5	83.6	40.0	58.9	42.5	40.3	39.4	37.8	30.1	43.1	45.8	22.4

6.2.3 12th -13th July 2025

NOISE LEVEL SUMMARY ASSESSMENT				Octave Band Centre Frequency (Hz)								
Date / Time	LAeq	LAmaz	LA90	63	125	250	500	1.0k	2.0k	4.0k	8.0k	16.0k
DAYTIME 07:00 - 23:00 LA90 1 HOUR & Corresponding LAeq 1 HOUR	42.7	78.6	36.0	52.5	48.4	41.5	37.5	35.9	30.9	34.1	36.0	20.5
NIGHT TIME 23:00 - 07:00 A90 15 MIN & Corresponding LAeq 15 MIN	45.4	85.6	35.0	45.3	37.2	36.3	35.9	35.3	28.2	40.1	42.7	23.6

6.2.4 13th -14th July 2025

NOISE LEVEL SUMMARY ASSESSMENT				Octave Band Centre Frequency (Hz)								
Date / Time	LAeq	LAmaz	LA90	63	125	250	500	1.0k	2.0k	4.0k	8.0k	16.0k
DAYTIME 07:00 - 23:00 LA90 1 HOUR & Corresponding LAeq 1 HOUR	46.2	83.8	38.0	54.5	47.3	41.6	39.4	38.1	32.8	35.5	44.0	21.6
NIGHT TIME 23:00 - 07:00 A90 15 MIN & Corresponding LAeq 15 MIN	43.6	88.2	35.0	55.6	40.8	37.8	35.2	33.4	33.7	34.9	41.1	26.5

The following noise levels have been corrected for the highest recorded façade levels and used within the BS 8233: 2014 calculations

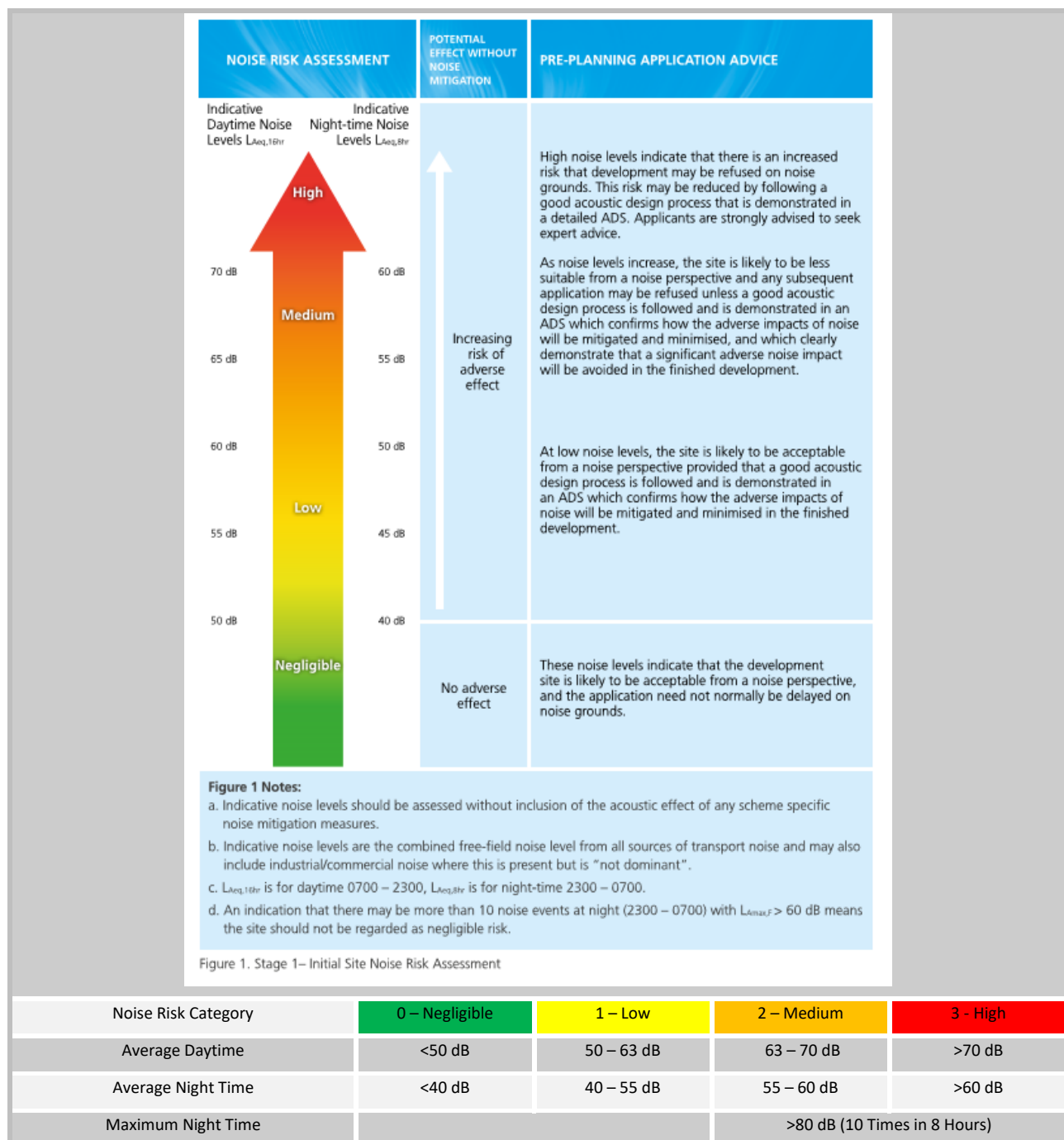
NOISE LEVEL SUMMARY ASSESSMENT				Octave Band Centre Frequency (Hz)								
Date / Time	LAeq	LAmaz	LA90	63	125	250	500	1.0k	2.0k	4.0k	8.0k	16.0k
DAYTIME 07:00 - 23:00 LA90 1 HOUR & Corresponding LAeq 1 HOUR	48.3	71.4	39.0	57.0	53.9	51.2	44.6	43.1	37.0	30.2	29.5	23.0
NIGHT TIME 23:00 - 07:00 A90 15 MIN & Corresponding LAeq 15 MIN	48.5	83.6	40.0	58.9	42.5	40.3	39.4	37.8	30.1	43.1	45.8	22.4

7 PROPG PLANNING & NOISE STAGE 1

7.1 Stage 1: Initial Site Noise Risk Assessment

The Stage 1, Initial Noise Risk Assessment, compares the recorded ambient noise levels obtained from the acoustic survey and correlates these against the risk scale within the Pro PG Document in order to evaluate any potential adverse effects the site is currently exposed to with regards to noise.

The outcome of the Stage 1 assessment will determine the level of detail required within Stage 2 in order to demonstrate suitable mitigations can be introduced to ensure continuing compliance with the relevant standards, local planning policies and Pro PG. The following table demonstrates the Initial Risk Assessment Noise Levels as detailed within PROPG Figure.1:-



Based on the data collected from the aforementioned noise survey, the following PROPG Stage 1 assessments can be made:-

7.2 Potential Façade Noise Levels

7.2.1 Daytime (07:00-23:00)

Time Period	Highest Potential Façade Noise Level	Noise Risk Category 1 – Low
Average Daytime (07:00-23:00)	$L_{Aeq, 16 \text{ HOUR}}$ 50 dB	50 - 63 dB

7.2.2 Night Time (23:00-07:00)

Time Period	Highest Potential Façade Noise Level	Noise Risk Category 1 – Low
Average Night Time (23:00-07:00)	$L_{Aeq, 16 \text{ HOUR}}$ 49 dB	40 - 55 dB
	Maximum (10 Times) – L_{Amax} 69.7 dB	>80 dB (10 Times in 8 Hours)

7.3 Risk Assessment

7.3.1 Daytime (07:00-23:00)

Risk Assessment Category	Risk Assessment
1 – Low	At low noise levels, the site is likely to be acceptable from a noise perspective provided that a good acoustic design process is followed and is demonstrated in an ADS which confirms how the adverse impacts of noise will be mitigated and minimised in the finished development.

7.3.2 Night Time (23:00-07:00)

Risk Assessment Category	Risk Assessment
1 – Low	At low noise levels, the site is likely to be acceptable from a noise perspective provided that a good acoustic design process is followed and is demonstrated in an ADS which confirms how the adverse impacts of noise will be mitigated and minimised in the finished development.

The above table demonstrates this site is located within Noise Risk Category 1 for daytime and night time, which suggests a low level of risk and that no further mitigation levels will be required at Stage 2 if a good acoustic design process is followed.

8 PROPG PLANNING & NOISE STAGE 2 - ELEMENT 1 – GOOD ACOUSTIC DESIGN

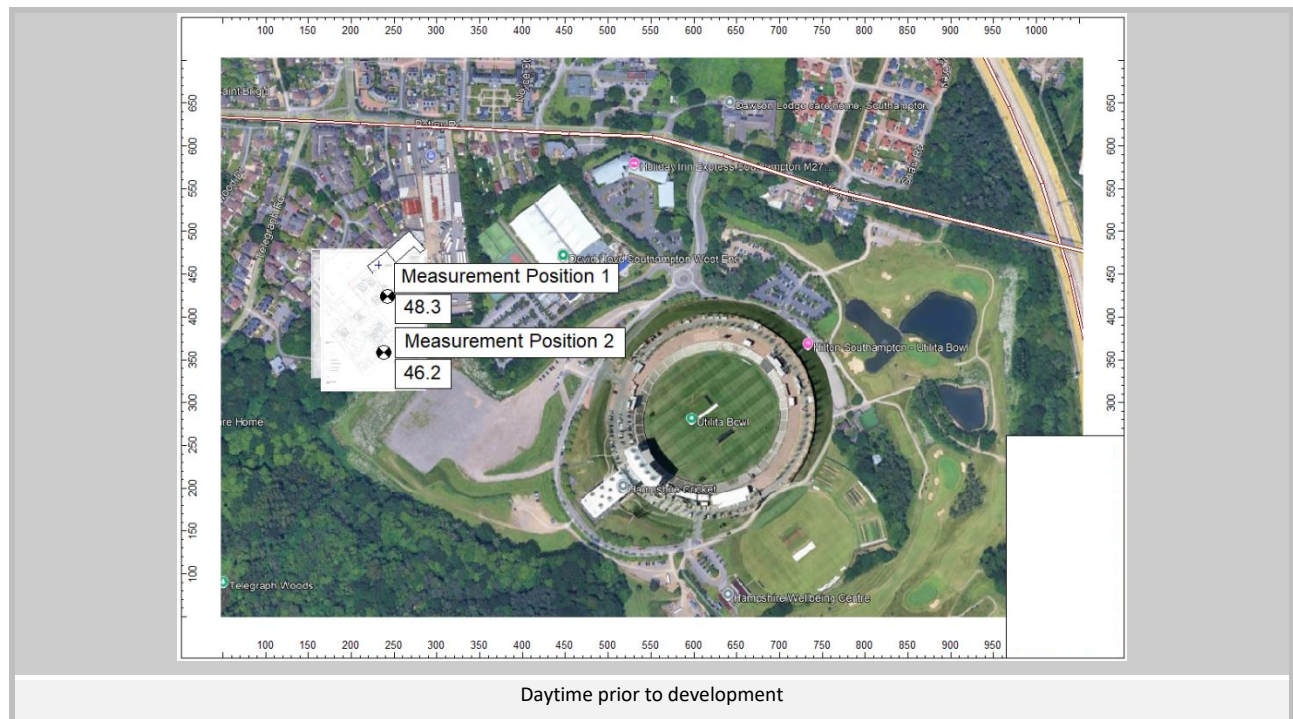
Given the size and orientation of the proposed site, it is recommended that the developer adopt, where practically possible, a good acoustic design which should include careful consideration of the positioning of the proposed properties together with thoughts being taken as to internal layouts to minimise noise sensitive rooms facing onto dominant noise sources within the local areas.

9 ELEMENT 2 – INTERNAL NOISE LEVEL GUIDELINES

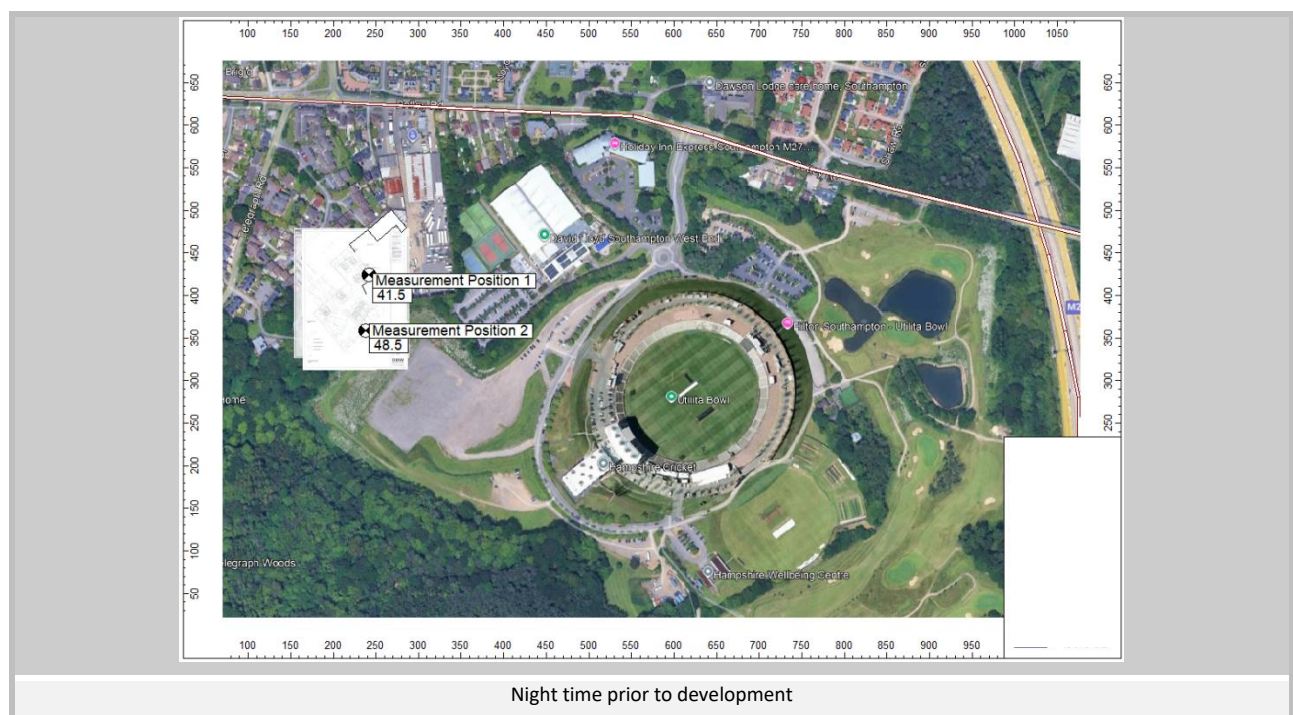
9.1 Discussion of Results

It can be seen from the attached graph and downloaded results that the external noise levels have followed the expected path and remained fairly constant throughout the day. The levels then gradually dropped off as the evening progressed and began to rise when morning traffic levels increased.

9.2 Existing Noise Levels – Daytime (07:00 – 23:00)



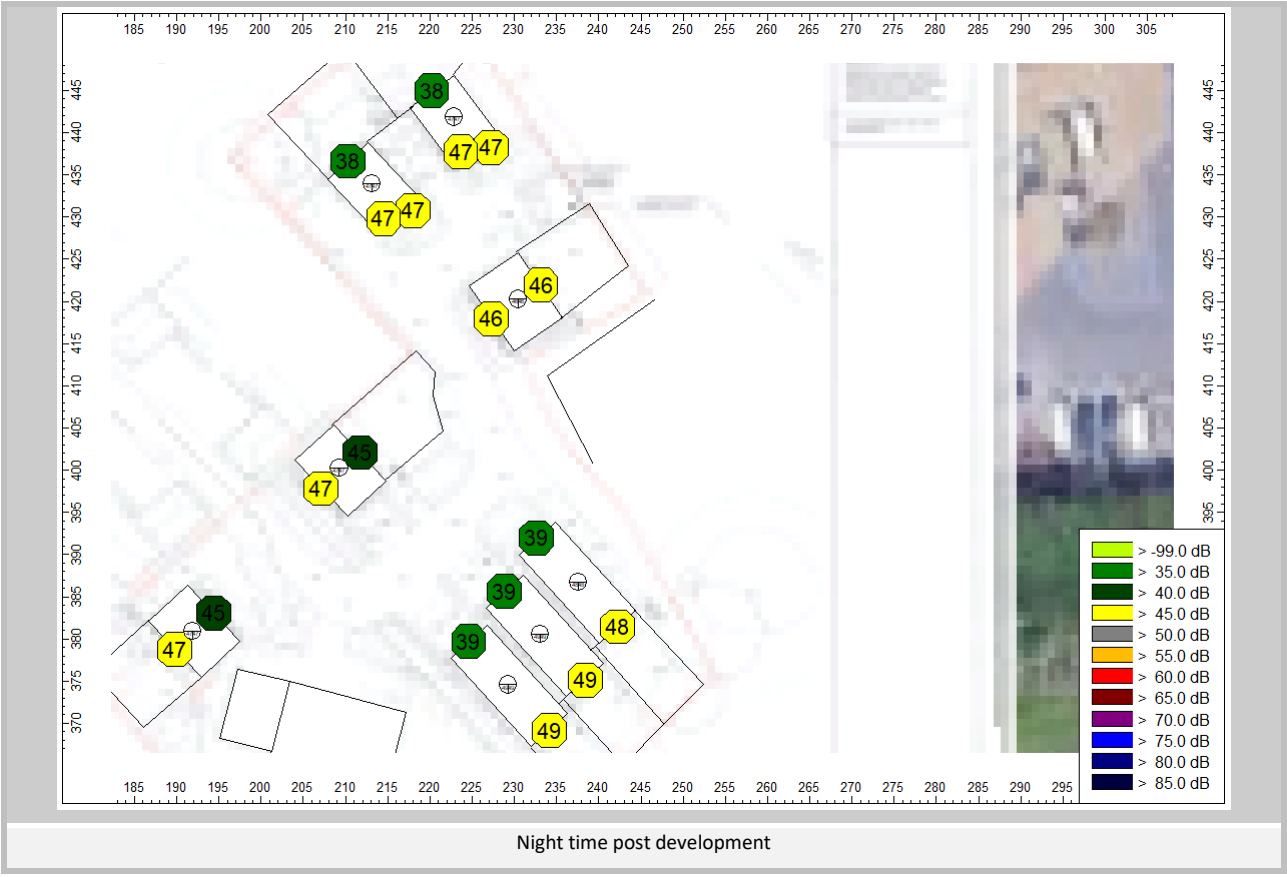
9.3 Existing Noise Levels – Night Time (23:00 – 07:00)



9.4 Proposed Noise levels – Daytime (07:00 – 23:00)



9.5 Proposed Noise levels – Night Time (23:00 – 07:00)



9.6 Recommendations

For the purpose of this assessment, the corresponding façade levels will be used within the BS 8233: 2014 calculations in order to evaluate the worst-case scenario and select the correct window specification.

Therefore, in order to achieve the required noise levels of $L_{Aeq\ 16\ HOUR}$ 35 dB for habitable rooms daytime and $L_{Aeq\ 8\ HOUR}$ 30 dB for Bedroom at night within the proposed, the following additional acoustic measures have been calculated.

It should be noted that the calculations have been made with the proposed windows closed. Additional calculations were made for the top floor due to the influence of sound transmission into the various rooms via the roof / ceiling i.e. an increased impeding façade. Inputted levels into the calculation sheets have been corrected for distance attenuation and free field in accordance with the aforementioned British Standard.

9.7 Calculation Procedure to BS 8233: 2014

The following calculations have been carried out in order to determine the required window and ventilation specification in order to meet the requirements of BS 8233: 2014.

9.8 Typical Ground Floor Living Room – Corrected to 50 dB Daytime and 49 dB Night time

Recorded Site Data (Corrected for Free Field)	Octave Band Centre Frequency (Hz)					
	125	250	500	1000	2000	4000
Daytime Leqff	55.6	52.9	46.3	44.8	38.7	31.9
Night time Leqff	43.0	40.8	39.9	38.3	30.6	43.6
Room Data	Sf	Sr	Swi	Sew	Srr	Volume
Area m²	23	0	8	15	0	98
Specification Summary	Site Specific Specification			Attenuation Required		
Glazing Specification	4mm / (16mm) / 4mm			Rw(C; Ctr)	29(-1,-4) dB	
Ventilation Strategy	MVHR			Dne'w	54 dB	
Wall Specification	Brick & Block Cavity Wall			Rw	54 dB	
Roof Specification	Standard Pitched Roof			Rw	57 dB	
Calculation Results						
Daytime Hours (07:00-23:00)			L _{Aeq 16 HOUR}	28.8	dB(A)	
Night Time Hours (23:00-07:00)			L _{Aeq 8 HOUR}	19.3	dB(A)	
Formula	Leq2=Leqff+10log[A0/S*10^(-Dne/10)+Swi/S*10^(-Rwi/10)+Sew/10*10^(-Rew/10)+Srr/S*10^(-Rrr/10)] +10log(S/A) +3					
Note	The expected precision of this calculation is ±2 dB.					

9.9 Typical First Floor Bedroom – Corrected to 50 dB Daytime and 49 dB Night time

Recorded Site Data (Corrected for Free Field)	Octave Band Centre Frequency (Hz)					
	125	250	500	1000	2000	4000
Daytime Leqff	55.6	52.9	46.3	44.8	38.7	31.9
Night time Leqff	43.0	40.8	39.9	38.3	30.6	43.6
Room Data	Sf	Sr	Swi	Sew	Srr	Volume
Area m ²	15	18	3	12	18	40
Specification Summary	Site Specific Specification			Attenuation Required		
Glazing Specification	4mm / (16mm) / 4mm			Rw(C; Ctr)	29(-1,-4) dB	
Ventilation Strategy	MVHR			Dne'w	54 dB	
Wall Specification	Brick & Block Cavity Wall			Rw	54 dB	
Roof Specification	Standard Pitched Roof			Rw	57 dB	
Calculation Results						
Daytime Hours (07:00-23:00)			L _{Aeq} 16 HOUR	24.7	dB(A)	
Night Time Hours (23:00-07:00)			L _{Aeq} 8 HOUR	15.2	dB(A)	
Formula	$Leq2=Leqff+10\log[A0/S*10^{(-Dne/10)}+Swi/S*10^{(-Rwi/10)}+Sew/10*10^{(-Rw/10)}+Srr/S*10^{(-Rrr/10)}]+10\log(S/A)+3$					
Note	The expected precision of this calculation is ±2 dB.					

9.10 Glazing (R_{wi})

Octave Band Frequency	125	250	500	1000	2000	4000	Rw +Ctr dB
4mm / (16mm) / 4mm	21.0	17.0	25.0	35.0	37.0	31.0	29(-1,-4)

9.11 Walls (R_w)

Octave Band Frequency	125	250	500	1000	2000	4000	Rw dB
Brick and Concrete Block	40.0	44.0	45.0	51.0	56.0	61.0	54.0

9.12 Roof (R_{rr})

Octave Band Frequency	125	250	500	1000	2000	4000	Rw dB
Minimum Value	39.0	48.0	55.0	60.0	59.0	61.0	57.0

The above are minimum construction attenuation values, and should alternative methods be selected; these should be equal to or greater than the above corresponding values. Calculations carried out have indicated the following specifications should be installed for this site.

9.13 Glazing & Ventilation Assessment

The development should be designed with a 4mm glass / 16mm Air Gap / 4mm Glass and an MVHR System 4 ventilation system to all facades to ensure the internal noise levels are acceptable in terms of the assessment to British Standard 8233: 2014.

10 APPROVED DOCUMENT O 2021 – ‘OVERHEATING’

10.1 Approved Document O – Section 3: Ensuring the Overheating Mitigation Strategy is Usable.

Building Regulations 2010 Approved Document O 2021 ‘Overheating’ states the following within Section 3: ‘Ensuring the Overheating Mitigation Strategy is Usable’:-

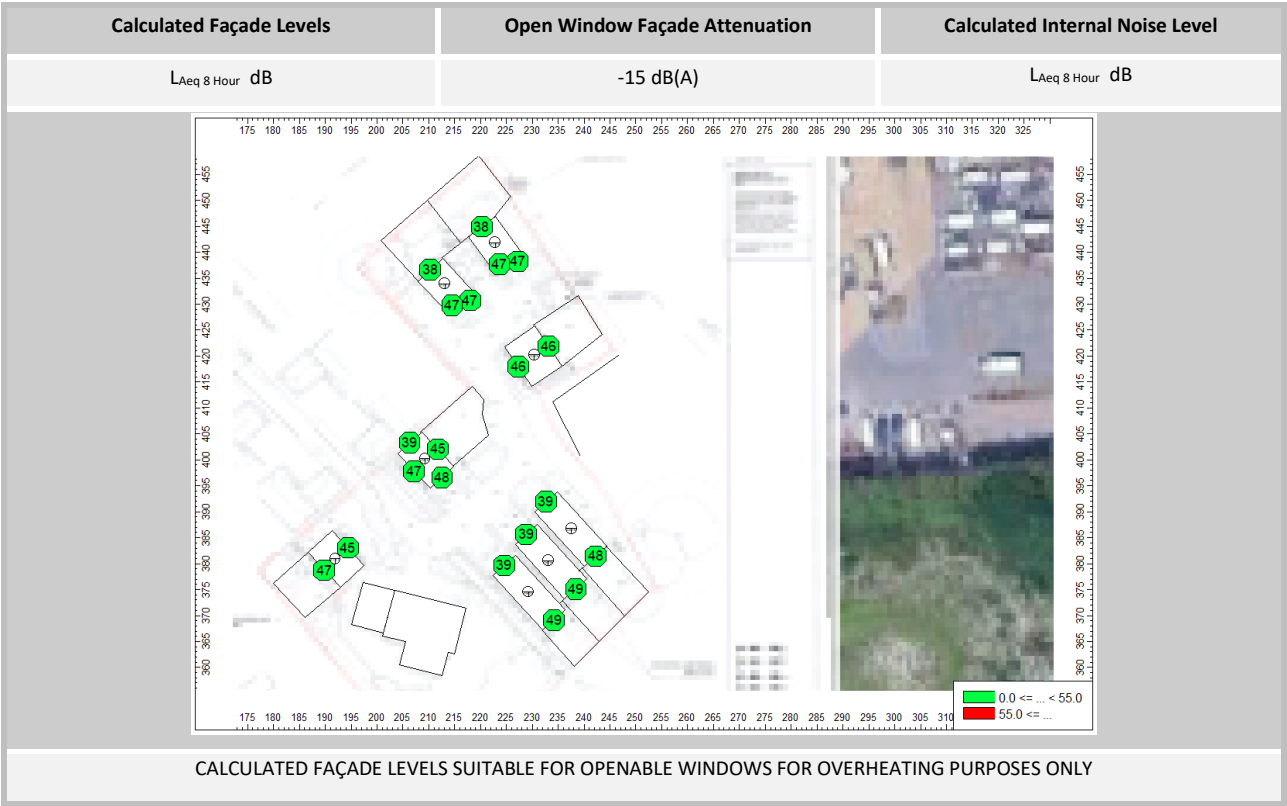
- 3.2 In locations where external noise may be an issue (for example, where the local planning authority considered external noise to be an issue at the planning stage), the overheating mitigation strategy should take account of the likelihood that windows will be closed during sleeping hours (11pm to 7am).
- 3.3 Windows are likely to be closed during sleeping hours if noise within bedrooms exceeds the following limits.
 - a. 40dB L , averaged over 8 hours (between 11pm and 7am)
 - b. 55dB L , more than 10 times a night (between 11pm and 7am).
- 3.4 Where in-situ noise measurements are used as evidence that these limits are not exceeded, measurements should be taken in accordance with the Association of Noise Consultants *Measurement of Sound Levels in Buildings with the overheating mitigation strategy in use*.

NOTE: Guidance on reducing the passage of external noise into buildings can be found in the National Model Design Code: Part 2 – Guidance Notes (MHCLG, 2021) and the Association of Noise Consultants’ Acoustics, Ventilation and Overheating: Residential Design Guide (2020)

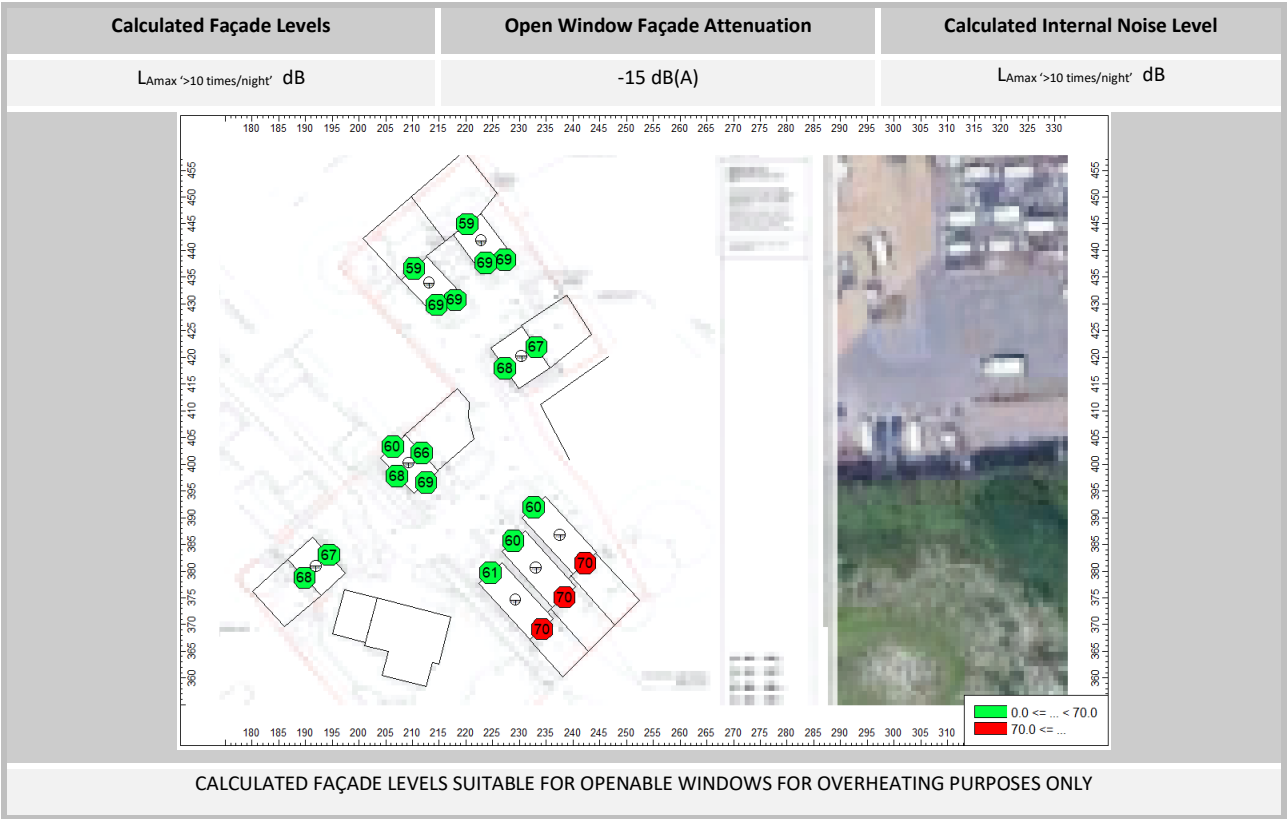
10.2 Assessment of Openable Windows

The following Table demonstrates which facades of the proposed development would be able to utilise openable windows to mitigate overheating and still achieve the above values:-

10.2.1 LAeq 8 Hour dB



10.2.2 LAmax '>10 times/night' dB



10.3 TM59 Overheating 'Assessment of Requirement for Testing'

With regards to potential overheating at the proposed development and any TM59 assessment that may be required for this site, we would like to confirm that having opening windows to dissipate excessive summer heat vs the internal acoustics is always a fine balancing act.

With regards to the internal acoustic criteria of Daytime $L_{Aeq\ 16\text{ HOUR}}$ 35 dB and Night Time $L_{Aeq\ 8\text{ HOUR}}$ 30 dB, this is a planning requirement under BS 8233: 2014 to which this report and calculations have been carried out to and is based on. This assessment has detailed the glazing and ventilation requirements required in order to achieve these criteria based on the assumption that the windows are closed.

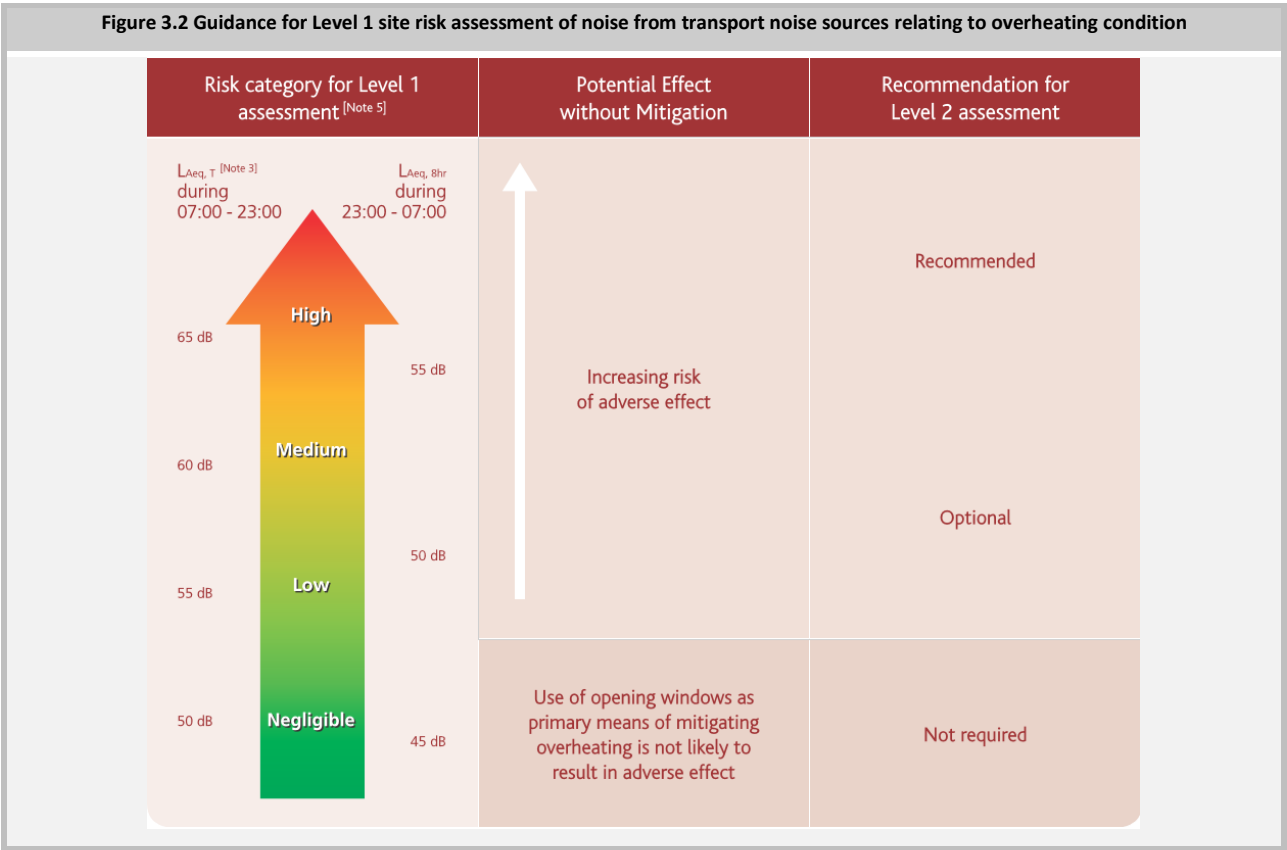
References and assessments are to be made to the Association of Noise Consultants 'Acoustic Ventilation & Overheating – Residential Design Guide' 2020. The calculations carried out within this report have identified an acoustic requirement for System 1 & 2 and therefore guidelines values from Table 4 of BS 8233: 2014 are to be adopted.

This document takes a Level 1 and Level 2 approach to an acoustic overheating assessment and depending on the outcome of Level 1, further determines the need or necessity for a Level 2 assessment.

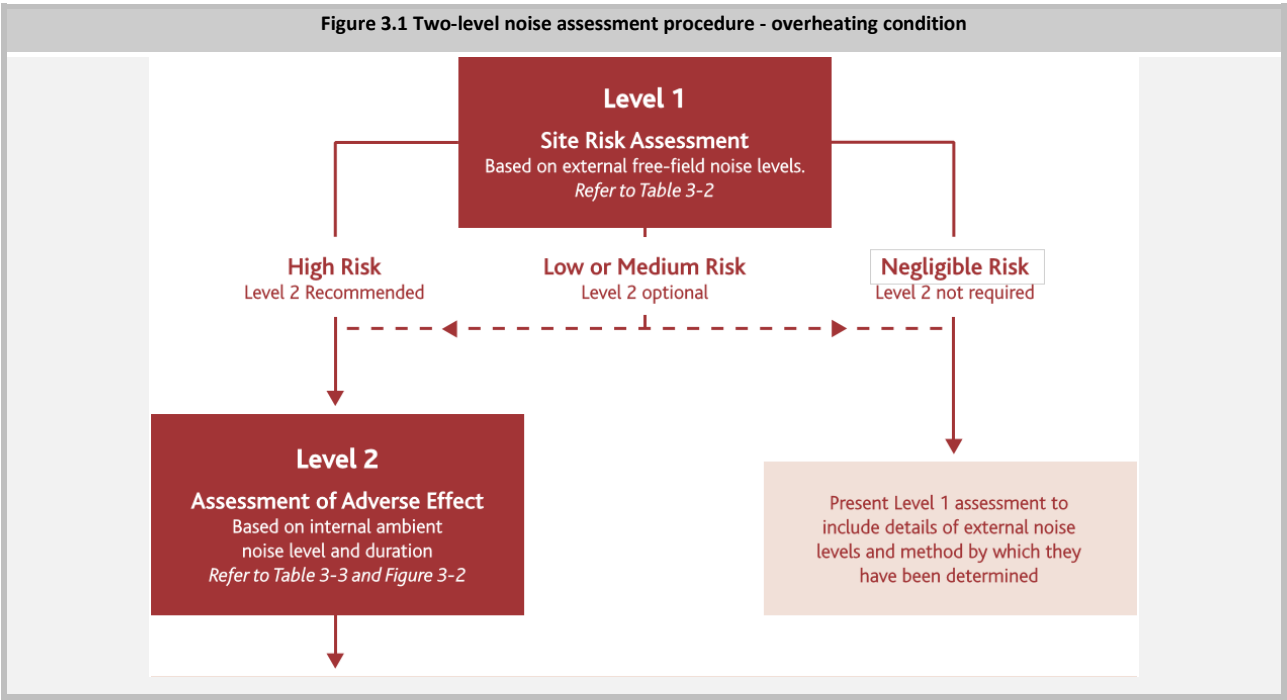
10.3.1 Table 3.1 - Indoor Ambient Noise Levels Resulting from Transport Noise Sources

Table 3.1 'Indoor ambient noise levels resulting from transport noise sources – ADF ventilation condition'		
Ventilation condition	Operational condition of System	Desirable internal ambient noise level from transport noise sources
Part F - Whole dwelling ventilation	Systems 1 & 2: Background ('trickle') ventilators open to provide whole dwelling ventilation in the winter period. Additional ventilation required at other times of the year – windows are assumed to be ajar for assessment ^[Note 2] .	Guideline values from Table 4 of BS 8233:2014.
	System 3: Continuous mechanical extract with background ('trickle') ventilators open ^[Note 2] .	
	System 4: Continuous mechanical supply and extract with heat recovery (MVHR) – no trickle vents required.	
Part F – Purge Ventilation ^[Note 1]	Option 1: Opening external window(s) meeting requirements described in Appendix B of Part F.	No specific acoustic criterion needs to be met in a room using purge ventilation for the purpose of rapidly diluting indoor pollutants.
	Option 2: Manually controlled fan extracting 4 air changes per hour.	

10.3.2 figure 3.2 - Guidance for Level 1 Site Risk Assessment of Noise from Transport Noise Sources Relating to Overheating Condition



10.3.3 Figure 3.1 Two-Level Noise Assessment Procedure



10.3.4 Requirement for Testing Conclusion

Based on the above assessments, it is the concluded that a detailed TM59 assessment is not required for this site.

11 LA_{max} dB NOISE LEVEL ASSESSMENT

11.1 Criteria

11.1.1 Night Noise Guidelines Europe 2009

The Night Noise Guidelines 2009 make direct reference to the World Health Organisations Guidelines for Community Noise 1999 with recommended guideline criteria of L_{Aeq} 30 dB indoors for continuous noise. The document goes on to explain that sleep disturbance correlates best with L_{Amax} and effects have been observed at 45 dB or less. This is particularly true if the background noise level is low. Noise events exceeding 45 dB(A) should therefore be limited.

11.1.2 Professional Practice Guidance on Planning & Noise.

PROPG: Planning and Noise Appendix A 'Dealing with Noise Events' A.17 states that:-

Various studies have linked the L_{Amax} from individual noise events to behavioural awakenings. For example, one study found that the "Probability of sleep stage changes to wake/S1 from railway noise increased significantly from 6.5% at 35 dB(A) to 20.5% at 80 dB(A) $L_{Amax,F}$ whilst another study concluded that "noise disturbance of sleep may be expected to become significant once the outdoor L_{Aeq} exceeds 55 dB provided peak noise levels do not exceed 75 to 80 dB. Higher L_{Aeq} values up to 60 dB may be allowed providing the peak levels do not exceed 85 dB, and the number of such events is less than about 20 per night". Based on these studies it can be concluded that at night (2300 - 0700 hrs) a significant effect on sleep disturbance e.g. behavioural awakening, is likely to occur where the maximum sound level at the façade of a building with partially open windows is above:

85 dB $L_{Amax,F}$ (where the number of events exceeding this value is ≤ 20); or

80 dB $L_{Amax,F}$ (where the number of events exceeding this value is > 20).

Pro PG: Planning and Noise Appendix A 'Dealing with Noise Events' A.18 goes on to explain that the main body of sleep research is consistent with a careful interpretation of the viewpoint set out in the World Health Organisation Guidelines which for the ordinary population is that:

- ✓ *Impacts on sleep can be detected from relatively low level maximum noise events; however the degree of resulting harm may not be significant.*
- ✓ *'Effects' on sleep (such as EEG awakenings and sleep stage changes) occur spontaneously in the general population many times per night regardless of any impacts due to noise.*
- ✓ *The smaller the number of noise events, the louder the maximum noise level that can be tolerated without adverse effects upon sleep; subject to an upper limit.*
- ✓ *At relatively low levels e.g. around 45 dB $L_{Amax,F}$ when sufficient number of such events take place during the night the adverse effects of individual noise events are likely to be limited to sleep disturbance in the form of changes in sleep state or perhaps some EEG awakenings.*
- ✓ *It normally requires noise levels higher than 45 dB $L_{Amax,F}$ before significant adverse effects such as behavioural awakenings, difficulty getting to sleep, premature awakening or difficulty getting back to sleep generally occur and the latest field research on and aircraft noise suggest that it requires internal L_{Amax} noise levels of around 65 dB before noise induced awakenings become distinguishable from spontaneous awakenings).*

11.1.3 World Health Organisations 'Guidelines for Community Noise'.

The WHO Guideline for Community Noise suggests that levels of L_{AFmax} 45 dB should not exceed more than 10 events within any one night time period 23:00 – 07:00. Therefore, calculations and assessments are to be made against these criteria to ascertain if the proposed glazing and ventilation specification will be suitable to achieve that of the assessed 11th highest recorded L_{AFmax} dB level.

L _{AFmax} dB Noise Levels >80 dB						L _{AFmax} dB Noise Levels >85 dB					
L _{AFmax} dB	81.1	83.6	85.6	88.2	73.3	L _{AFmax} dB	81.1	83.6	85.6	88.2	73.3
Time	Fig 1	Fig 2	Fig 3	Fig 4	Fig 5	Time	Fig 1	Fig 2	Fig 3	Fig 4	Fig 5
	2	6	2	2	0		0	0	1	1	0

11.1.4 L_{AFmax} dB Noise Levels – Night Time 23:00 – 07:00 (1 Minute Data)

1 Minute Event No.	Recorded L _{AFmax} dB Noise Levels	Façade Corrected L _{AFmax} dB Noise Levels
1	88.2	88.7
2	80.3	80.8
3	77.5	78.0
4	77.1	77.6
5	74.8	75.3
6	74.5	75.0
7	74.4	74.9
8	71.7	72.2
9	71.1	71.6
10	69.8	70.3
11	69.2	69.7

The following table demonstrate the results and the evaluated 11th highest L_{Amax} dB level. With the proposed glazing and ventilation strategies implemented on this site, the following calculated internal levels have been evaluated accordingly:-

Item		Night Time (23:00-07:00)	Description
1	Recorded External Noise Level	48.5	Recorded Noise Level at the Monitoring Position
2	Calculated Highest Façade Level	49.0	Highest recorded façade level of the proposed development closest to the above associated monitoring position.
3	Façade Correction	+ 0.5	Difference between Recorded and Calculated (Item 1 and 2)
4	Calculated Façade Attenuation	33.8	Calculated façade attenuation taken from the highest recorded LAeq 8 HOUR dB night time noise level, minus the highest calculated internal noise level taken from the BS 8233 calculations.
5	L _{Amax} 45 dB Criteria	45.0	L _{Amax} 45 dB Criteria taken from WHO Guidelines. BS 8233 does not reference L _{Amax} dB noise level criteria.
6	Calculated Façade Level Outside	78.8	Addition of Items 4 and 5 to give a resultant target level for the 11th Recorded L _{Amax}
7	11 th Recorded L _{Amax}	69.7	11th Recorded L _{Amax}
8	L _{Amax} Criteria Achieved	Yes	If Item 7 is less than 6, then the site is likely to be compliant. If not, further calculations are required

The above table demonstrates that the upgraded glazing and ventilation will result in the internal L_{Amax} 45 dB criteria being achieved.

12 ELEMENT 3 – EXTERNAL AMENITY AREA NOISE ASSESSMENT

12.1 Outdoor Living Areas

The World Health Organisation ‘Guidelines for Community Noise gives guidance as to desirable noise levels that should be achieved within outdoor living areas such as gardens, patios and verandas etc.

Table 1: Guideline values for community noise in specific environments, details the desirable target noise levels within various areas.

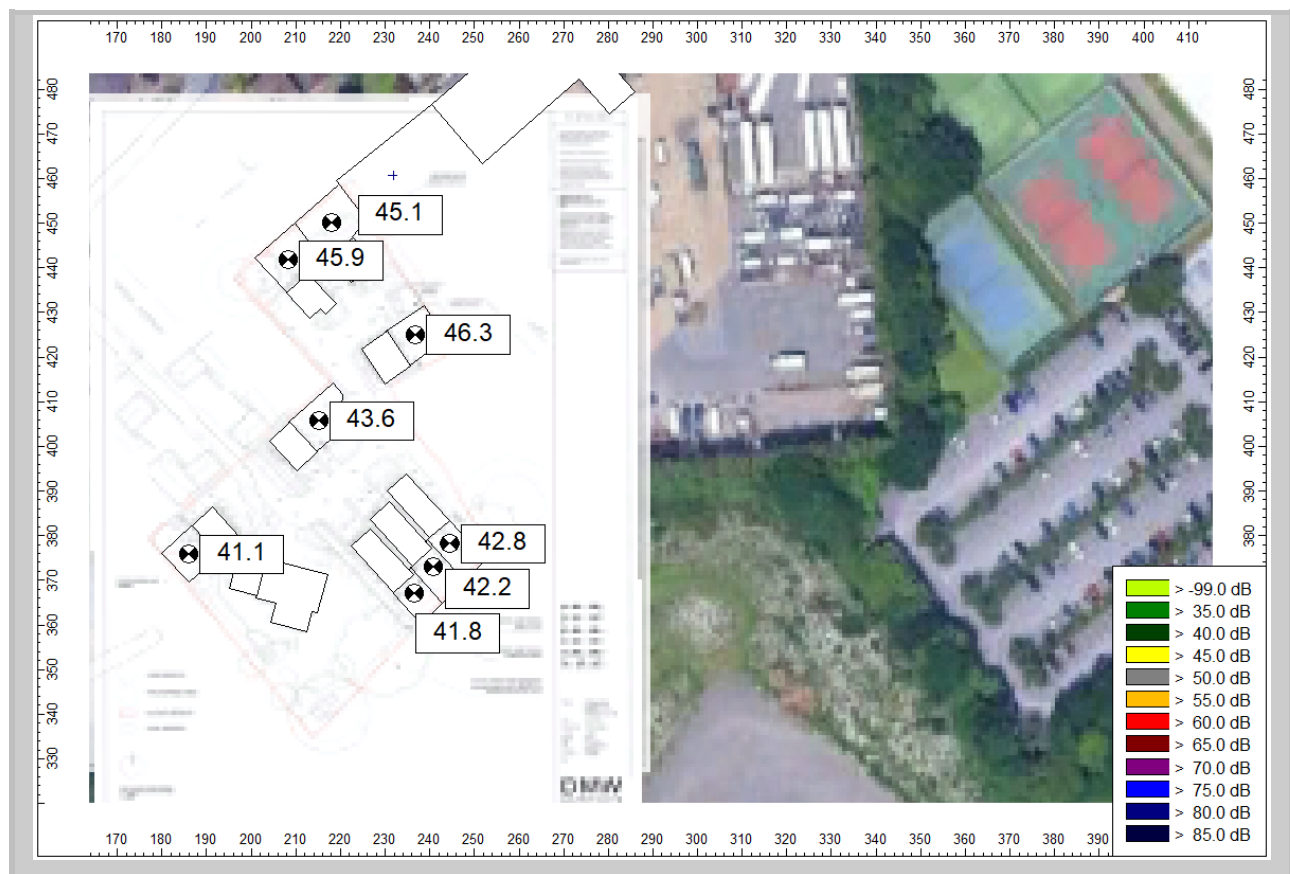
Outdoor Living Area	
Serious Annoyance, daytime and evening	L _{Aeq} 16 HOUR 55 dB
Moderate Annoyance, daytime and evening	L _{Aeq} 16 HOUR 50 dB

In order to evaluate the external noise levels within the proposed development, and to correctly and accurately select the precise required minimum screen heights, the 3D modelling software CADNA A is to be used. Initially, the site plan is to be overlaid onto Google Earth and then imported directly into CADNA A using the geometric co-ordinates.

From this, the monitoring positions and noise sources such as roads are added. The output noise levels from the roads are then increased until the monitored noise levels are achieved at the monitoring position. This model is then saved and used as a working 3D acoustic model of the site. The proposed buildings are then constructed on a 3D bases and receptors placed within the terrace garden areas. The calculation software is then run to evaluate the garden levels within sample plots across the development. The following CADNA A screen shots demonstrate the existing sites working 3D model. The levels at the measurement position correlate with the measured daytime average levels detailed within this report.



The development has external living areas on the development and therefore this criteria / guideline would be appropriately considered within the proposed rear residential garden areas.



BS 8233 recognises that some areas where developments are desirable, these guideline values may not always be achievable. This is correct for areas with higher noise levels such as city centre developments and where urban areas are nearby to major and strategic road and rail networks. In these scenarios, a compromise could be considered between elevated noise levels and other factors. These include:-

- The convenience of living in these locations
- Making efficient use of the land resources to ensure the developments needs can be met.

With this in mind, developments are to be designed to ensure noise levels within the external living spaces are reduced as much as is reasonably practicable and should not be prohibited.

The development proposes external living areas and therefore an assessment to the World Health Organisation's 'Guidelines for Community Noise' has been carried out. The guideline has been considered acceptable criteria for this assessment given the sites geographical location. The calculation demonstrates the external living spaces are likely to see noise levels below the lower guideline of 50 dB on the garden areas. BS8233: 2014 states the following:

'For traditional external areas that are used for amenity space, such as gardens and patios, it is desirable that the external noise level does not exceed 50 dB LAeq,T, with an upper guideline value of 55 dB LAeq,T which would be acceptable in noisier environments. However, it is also recognized that these guideline values are not achievable in all circumstances where development might be desirable. In higher noise areas, such as city centres or urban areas adjoining the strategic transport network, a compromise between elevated noise levels and other factors, such as the convenience of living in these locations or making efficient use of land resources to ensure development needs can be met, might be warranted. In such a situation, development should be designed to achieve the lowest practicable levels in these external amenity spaces, but should not be prohibited'.

PRoPG: Planning and Noise goes on to state the following with regards to external amenity space:-

Paragraph 2.47

PPG- Noise states: "If amenity spaces are an intrinsic part of the overall design, the acoustic environment of these spaces should be considered so that they can be enjoyed as intended".

Paragraph 2.48

It is noted that both documents require a decision to be made regarding whether or not an external amenity area (or amenity space) is intrinsic to the required design for acoustic, or for other reasons. However, the advice in BS 8233: 2014 states that the resulting noise levels outside are never a reason for refusal as long as levels are designed to be as low as practicable. Whereas, to comply with policy guidance any amenity space must have an acoustic environment so that it can be enjoyed as intended.

Element 3 – External Amenity Space

Paragraph 3 (iii)

These guideline values may not be achievable in all circumstance where development might be desirable. In such situations, development should be designed to achieve the lowest practicable noise levels in these external amenity spaces.

The Noise Policy Statement for England (NPSE) also states that:-

Paragraph 2.3

Furthermore, the broad aim of noise management has been to separate noise sources from sensitive noise receptors and to minimise noise. Of course, taken in isolation and to a literal extreme, noise minimisation would mean no noise at all. In reality, although it has not always been stated, the aim has tended to be to minimise noise 'as far as reasonably practical'. The concept can be found in the Environmental Protection Act 1990, where, in some circumstances, there is a defence of 'best practicable means' in summary statutory nuisance proceedings.

Paragraph 2.7

In addition, the application of the NPSE should enable noise to be considered alongside other relevant issues and not to be considered in isolation. In the past, the wider benefits of a practical policy, development or other activity may not

have been given adequate weight when assessing the noise implications.

Paragraph 2.22

It is not possible to have a single objective noise-based measure that defines SOAEL that is applicable to all sources of noise in all situations. Consequently, the SOAEL is likely to be different for different noise sources, for different receptors and at different times. It is acknowledged that further research is required to increase our understanding of what may constitute a significant adverse impact on health and quality of life from noise. However, not having a specific SOAEL value in the NPSE provides the necessary policy flexibility until further evidence and suitable guidance is available.

In summary, the external living spaces have been reduced by the location of the proposed bund with screen on top to as low as is reasonably practicable and therefore in accordance with the guidance set out above, planning permission should not be refused and external noise should not be considered in isolation.

13 NOISE FROM PITTER COMMERCIAL

13.1 Outline

There are two areas to consider with regards to commercial noise. The first being noise generated at the Pitter Commercial Vehicle Centre to the north of the proposed site and second being that of the Utilita Cricket Ground to the east. The cricket ground is discussed in the next section of this report.

13.2 Existing Operating House

Pitter Commercial currently operates Monday to Friday 6am – 9pm. Saturday 6am – 2pm and closed on Sundays and Bank Holidays.

13.3 Activities and Noise Levels

Pitter Commercial Vehicles MOT and Service commercial Vehicles including HGV's. Their two main activities that generate noise on the site are the MOT and Vehicle Maintenance Bays and the vehicle wash bay. Noise levels have been recorded in the centre of the bays during typical activities and a sound pressure level of 78.8 dB(A) ascertained. The vehicle wash is located close to the proposed site but is already subject to an existing 5.0m high brick wall that partially covers a small section of the neighbouring boundary. A typical vehicle wash has been recorded at 81.4 dB(A) @ 1m. Both of these values have been replicated on the following CADNA A 3D Models in order to calculate the resultant noise levels at the proposed residential premises and ascertain any necessary further remedial works.

13.4 Existing Noise Levels

The following demonstrates the existing noise levels at the proposed residential premises. These calculations have been carried out the roller shutter doors open. Further reductions could be achieved if these were to remain closed throughout the day.



13.6 Post Remedial Works

The following demonstrates the post remedial works noise levels at the proposed residential premises.



14 BRITISH STANDARD 4142:2014+A1:2019

14.1 Scope of British Standard 4142: 2014

In the assessment of the existing surrounding commercial premises, consideration has been given to the scope of British Standard 4142:2014+A1:2019, which in section 1, details applicability of this standard to rating assessing sound of an industrial and/or commercial nature. It is considered appropriate that both the background noise levels and the rating noise levels obtained fall within the scope of British Standard 4142:2014+A1:2019 by using outdoor sound levels to assess the effect of sound on local residents.

14.2 Terms and Definitions

Symbol	Term	Definition
AP	Assessment Position	Position externally at the façade property under investigation at which the assessment is undertaken which is usually 1m from the 1 st floor bedroom window.
EP	Equivalent Position	Position at which the background noise levels are measured if there is no access to the assessment position or if source under investigation is audible.
$L_s = L_{Aeq, T}$	Specific Level	The average continuous equivalent sound pressure level of the source at the assessment position.
$L_{Ar, Tr}$	Rating Level	The average continuous equivalent sound pressure level of the source at the assessment position with a correction to account for the characteristic features.
$L_r = L_{Aeq, T}$	Residual Level	The average continuous equivalent sound pressure level at the assessment position without the source operating.
$L_{A90, T}$	Background Level	The sound pressure level that is not exceeded 90% of the time at the assessment position.
$L_a = L_{Aeq, T}$	Ambient Level	The totally encompassing sound at the assessment position including the residual and specific noise.

14.3 Assessment Position

The assessment position 1 was established as the proposed residential accommodation premises to the south of the Pitter Commercial Site.

14.4 Rating Levels (Character Correction)

It is appropriate to add a character correction where there is a new source that cannot be measured in line with BS 4142:2014+A1:2019. There are 3 methods for approaching this.

- Subjective method
- Objective method (for tonality)
- Reference method

14.5 Subjective Method

The subjective method establishes a rating penalty that is added to the specific noise level if any of the following is present at the assessment position. If a tone is expected to be present a character correction of 0 dB to 6 dB is added depending on how perceptible it is at noise sensitive locations.

BS 4142:2014+A1:2019 – Section 9.2 Subjective Method	Perceptibility to noise sensitive facades	Correction
Tonality Ranging from not tonal to prominently tonal	Not tonal	+0
	Just perceptible	+2
	Clearly perceptible	+4
	Highly perceptible	+6

If the source is expected to be impulsive a character correction of 0 dB to 9 dB is added depending on how perceptible it is at noise sensitive locations.

BS 4142:2014+A1:2019 – Section 9.2 Subjective Method	Perceptibility to noise sensitive facades	Correction
Impulsivity Considering both the rapidity and any overall change in sound levels	Not impulsive	+0
	Just perceptible	+3
	Clearly perceptible	+6
	Highly perceptible	+9

When the sound features are neither tonal nor impulsive, a character correction of +3 is added for the readily distinctive quality against the acoustic environment or for the intermittency of the source.

BS 4142:2014+A1:2019 – Section 9.2 Subjective Method	Perceptibility to noise sensitive facades	Correction
Readily Distinctive	Is not present	+0
	Is present	+3
Intermittency	Is not present	+0
	Is present	+3

14.6 Assessment Criterion

The significance of the resulting noise on the residential property depends on the margin by which it exceeds the background noise levels. British Standard 4142:2014+A1:2019 provides the following guidance within section 11.

Difference	Assessment of Impact
+10 dB	Indication of a significant adverse impact
+5 dB	Indication of an adverse impact
+0 dB	Indication of low impact

14.7 Assessments

14.7.1 Existing Daytime

Item	Calculation	Clause	Commentary
Specific Noise Level $L_{Aeq,1 \text{ hour}}$	46 dB	7	Calculated using ISO 9613:1996 ^[3] .
Intermittency	+3 dB	8.1	Intermittency Characteristic
Impulsivity	+3 dB	8.1	Impulsive Characteristic
Rating Level	51 dB	9.1	The acoustic feature correction is added to the specific noise level
Background Noise Level $L_{A90,1 \text{ hour}}$	40 dB	8.1	Modal Background Noise Level
Assessment Level	+11 dB	11	The background level is subtracted from the rating level.
Assessment	+11 dB		
Conclusion	The assessment level is 'Significant Adverse Impact'		

14.7.2 Post Remedial Works Daytime

Item	Calculation	Clause	Commentary
Specific Noise Level $L_{Aeq,15 \text{ MINUTES}}$	35 dB	7	Calculated using ISO 9613:1996 ^[3] .
Intermittency	+3 dB	8.1	Intermittency Characteristic
Impulsivity	+3 dB	8.1	Impulsive Characteristic
Rating Level	40 dB	9.1	The acoustic feature correction is added to the specific noise level
Background Noise Level $L_{A90,15 \text{ MINUTES}}$	40 dB	8.1	Modal Background Noise Level
Assessment Level	+/- 0 dB	11	The background level is subtracted from the rating level.
Assessment	+/- 0 dB		
Conclusion	The assessment level is 'Low Impact'		

14.8 Assessment Conclusion

It can be seen from the above assessments that with the existing 5.0m wall extended as detailed within this report, an assessment conclusion of Low Impact could be expected. Therefore, no further mitigation measures would be required if this remedial work was undertaken.

15 UTILITA BOWL CRICKET GROUND

15.1 Outline

The Utilita Bowl Cricket Ground is located to the west of the proposed development. Our assessment was undertaken between 10th and 14th July 2025. During this period we have captured noise levels at the eastern boundary of the site closest to the Utilita Bowl during cricket event that are considered to be the noisiest as they involve music and pyrotechnics throughout the event when four and sixes are scored. These occurred on Thursday 10th July between the hours of 19:00 – 22:00 and on Sunday 13th July between the hours of 15:00 – 18:00.

15.2 Noise Levels

The following noise levels have been extrapolated from the data recorded from position 2 on the eastern boundary of the site during these matchday periods. We have also included the hour before and after to capture any noise levels associated with arrivals and departures.

15.2.1 10th July 2025

Date / Time	LAeq	LAmax	LA90	Octave Band Centre Frequency (Hz)								
				63	125	250	500	1.0 k	2.0 k	4.0 k	8.0 k	16.0 k
18:00 - 19:00	44.8	71.1	39.9	53.3	48.8	45.3	41.5	39.3	34.1	34.0	32.9	18.5
19:00 - 20:00	41.3	65.4	38.5	50.3	47.7	41.1	37.9	36.0	29.9	29.0	31.9	17.5
20:00 - 21:00	43.0	62.1	39.2	52.4	49.4	42.3	40.7	37.4	32.8	27.8	31.9	18.3
21:00 - 22:00	43.3	57.6	40.4	55.4	49.6	42.7	39.4	38.4	34.8	28.4	27.7	22.9
22:00 - 23:00	48.7	63.1	45.4	61.9	54.8	43.2	42.7	44.4	41.9	35.1	25.6	24.9

The above equates to a logarithmic average of $L_{Aeq\ t}$ 45.0 dB

15.2.2 13th July 2025

Date / Time	LAeq	LAmax	LA90	Octave Band Centre Frequency (Hz)								
				63	125	250	500	1.0 k	2.0 k	4.0 k	8.0 k	16.0 k
14:00 - 15:00	43.6	55.6	41.5	54.1	48.2	41.7	39.9	38.5	33.7	33.6	33.1	17.5
15:00 - 16:00	42.9	57.5	40.3	55.6	46.7	40.5	38.8	38.2	32.9	32.7	31.9	16.8
16:00 - 17:00	44.3	64.4	41.5	56.9	48.4	41.9	40.2	39.6	34.5	32.3	34.9	17.2
17:00 - 18:00	45.9	66.4	42.2	57.1	51.1	45.5	43.0	41.2	36.4	30.7	29.3	15.3
18:00 - 19:00	48.0	80.1	43.8	57.8	49.3	43.5	42.1	41.9	38.1	35.4	44.1	21.0

The above equates to a logarithmic average of $L_{Aeq\ t}$ 45.3 dB

15.3 Calculations

The following table demonstrates the existing BS 8233: 2014 calculation using the overall $L_{Aeq\ 16\ HOUR}$ dB daytime noise levels vs the above evaluated $L_{Aeq\ t}$ 45.3 dB during the matchday period.

	Overall $L_{Aeq\ 16\ HOUR}$ dB Daytime Noise Levels	Specific $L_{Aeq\ t}$ dB Matchday Period Noise Levels
Recorded Noise Level	$L_{Aeq\ 16\ HOUR}$ 46.2 dB	$L_{Aeq\ t}$ 45.3 dB
Calculated Internal Noise Level	Living Room $L_{Aeq\ 16\ HOUR}$ 28.8 dB	Living Room $L_{Aeq\ 16\ HOUR}$ 27.9 dB
BS 8233: 2014 Criteria	$L_{Aeq\ 16\ HOUR}$ 35 dB	$L_{Aeq\ 16\ HOUR}$ 35 dB
Criteria Conclusion	Achieved	Achieved

16 NPPF & NPSE

The National Planning Policy Framework 2024 (NPPF) and assessments to the Noise Policy Statement for England 2010 (NPSE) should be made in conjunction with each other. Paragraphs 198 - 201 of the National Planning Policy Framework 2024 (NPPF) states the following:

Paragraph 198 Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should:

- a) Mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life.
- b) Identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason.

Paragraph 199 Planning policies and decisions should sustain and contribute towards compliance with relevant limit values or national objectives for pollutants. So far as possible these opportunities should be considered at the plan-making stage, to ensure a strategic approach and limit the need for issues to be reconsidered when determining individual applications.

Paragraph 200 Planning policies and decisions should ensure that new development can be integrated effectively with existing businesses and community facilities (such as places of worship, pubs, music venues and sports clubs). Existing businesses and facilities should not have unreasonable restrictions placed on them as a result of development permitted after they were established. Where the operation of an existing business or community facility could have a significant adverse effect on new development (including changes of use) in its vicinity, the applicant (or 'agent of change') should be required to provide suitable mitigation before the development has been completed.

Paragraph 201 The focus of planning policies and decisions should be on whether proposed development is an acceptable use of land, rather than the control of processes or emissions (where these are subject to separate pollution control regimes). Planning decisions should assume that these regimes will operate effectively. Equally, where a planning decision has been made on a particular development, the planning issues should not be revisited through the permitting regimes operated by pollution control authorities.

The Noise Policy Statement for England gives various levels of effect as detailed within this report.

With the glazing / ventilation specifications achieved within this report, the development can be implemented within the guidelines of the aforementioned documents and ensure a conclusion of **NOEL – No Observed Effect Level**. This is the level below which no effect can be detected. In simple terms, below this level, there is no detectable effect on health and quality of life due to the noise.

17 ACOUSTIC DESIGN STATEMENT

Good Acoustic Design	Given the size and orientation of the proposed site, it is recommended that the developer adopted, where practically possible, a good acoustic design which should include careful consideration of the positioning of the proposed properties together with thoughts being taken as to internal layouts to minimise noise sensitive rooms facing onto dominant noise sources within the local areas. Given the size of this development, every effort has already been made to minimise the acoustic impact from the surrounding areas.
Internal Noise Levels	Calculations have been carried out and assessments made to BS 8233: 2014 together with design specifications supplied for the required glazing and ventilation specifications required across the development to ensure compliance.
L _{Amax} dB Noise Levels	Assessments and calculations demonstrate that the L _{Amax} dB Levels are in excess of the recommended criteria set out within PRoPG and therefore further mitigation measures of MVHR on this site has been proposed and adopted in order to mitigate the need to open the windows.
External Living Areas	The development proposes external living areas and therefore an assessment to the World Health Organisation's 'Guidelines for Community Noise' has been carried out. The guideline has been considered acceptable criteria for this assessment given the sites geographical location. The calculation demonstrates the external living spaces are likely to see noise levels below the lower guideline of 50 dB on the garden areas.
Commercial Noise	Commercial noise assessments have indicated compliance with BS 4142: 2014 +A1:2019 and that the complaints regarding noise are unlikely with a conclusion of 'Low Impact' on the proposed development provided the 5.0 wall is extended.
NPPF & NPSE	With the glazing / ventilation specifications achieved within this report, the development can be implemented within the guidelines of the aforementioned documents and ensure a conclusion of NOEL – No Observed Effect Level. This is the level below which no effect can be detected. In simple terms, below this level, there is no detectable effect on health and quality of life due to the noise.
OVERALL OUTCOME	NOEL – No Observed Effect Level

18 RECOMMENDATION TO DECISION MAKER

Levels have been recorded and assessments made in accordance with the relevant standards. Internal criteria's have been set and calculations made in order to determine the minimum construction details required in order to meet the desired level within the proposed residential dwellings and satisfy the local council's requirements.

National Planning Policy Framework 2024 suggests that planning permission should be granted unless any adverse impacts of doing so would significantly and demonstrably outweigh the benefits, when assessed against the policies in the framework taken as a whole, or specific policies in the framework indicate the application should be restricted.

Based on the calculations and assessments made within this report it is the professional opinion of Impact Acoustics Ltd that the proposed development can demonstrate compliance with the National Planning Policy Framework 2024, NPPF & NPSE and that, with regards to sound, planning permission can be granted using the following parameters.

As indicated in Section 2 of PRoPG, following the PRoPG approach will lead to the choice of one of four possible recommendations from the noise practitioner to the decision maker:

- A. Planning consent may be granted without any need for noise conditions;
- B. Planning consent may be granted subject to the inclusion of suitable noise conditions;
- C. Planning consent should be refused on noise grounds in order to avoid significant adverse effects ("avoid"); or
- D. Planning consent should be refused on noise grounds in order to prevent unacceptable adverse effects ("prevent").

RECOMMENDATION TO DECISION MAKER

Grant with Noise Conditions

19 CONCLUSION

19.1 Summary of Results

A background noise survey was undertaken from 10th – 14th July 2025 at two positions on the site in order to establish the underlying background noise levels. The maximum day time levels were found to be $L_{Aeq, 16 \text{ hour}}$ 48.3 dB and the maximum night time levels were found to be $L_{Aeq, 8 \text{ hours}}$ 41.9 dB at position 1. The maximum day time levels were found to be $L_{Aeq, 16 \text{ hour}}$ 46.2 dB and the maximum night time levels were found to be $L_{Aeq, 8 \text{ hours}}$ 48.5 dB at position 2. The corresponding background noise levels was also found to be $L_{A90 \text{ 1 HOUR}}$ dB for daytime and $L_{A90 \text{ 15 MINUTES}}$ dB for night time at the rear of the site in relation to commercial noise.

Assessment Position	Date Start	Date Finish	Daytime L_{Aeq}	Night Time L_{Aeq}
Position 1	10/07/2025	14/07/2025	48.3	41.9
Position 2	10/07/2025	14/07/2025	46.2	48.5

Assessment Position	Date Start	Date Finish	Daytime L_{A90}	Night Time L_{A90}
Position 2	10/07/2025	14/07/2025	40	35

It should be noted that the ambient and background noise levels on this site are very low, this is due to its geographical location to the M27 and extensive shielding. The measurements taken on site have been verified and checked and are a true representation of the acoustic environment of this site.

19.2 Potential Façade Noise Levels

19.2.1 Daytime (07:00-23:00)

Time Period	Highest Potential Façade Noise Level	Noise Risk Category 1 – Low
Average Daytime (07:00-23:00)	$L_{Aeq, 16 \text{ HOUR}}$ 50 dB	50 - 63 dB

19.2.2 Night Time (23:00-07:00)

Time Period	Highest Potential Façade Noise Level	Noise Risk Category 1 – Low
Average Night Time (23:00-07:00)	$L_{Aeq, 16 \text{ HOUR}}$ 49 dB	40 - 55 dB
	Maximum (10 Times) – L_{Amax} 69.7 dB	>80 dB (10 Times in 8 Hours)

19.3 Risk Assessment

19.3.1 Daytime (07:00-23:00)

Risk Assessment Category	Risk Assessment
1 – Low	At low noise levels, the site is likely to be acceptable from a noise perspective provided that a good acoustic design process is followed and is demonstrated in an ADS which confirms how the adverse impacts of noise will be mitigated and minimised in the finished development.

19.3.2 Night Time (23:00-07:00)

Risk Assessment Category	Risk Assessment
1 – Low	At low noise levels, the site is likely to be acceptable from a noise perspective provided that a good acoustic design process is followed and is demonstrated in an ADS which confirms how the adverse impacts of noise will be mitigated and minimised in the finished development.

The above table demonstrates this site is located within Noise Risk Category 1 for daytime and night time, which suggests a low level of risk and that no further mitigation levels will be required at Stage 2 if a good acoustic design process is followed.

19.4 Glazing & Ventilation Assessment

The development should be designed with a 4mm glass / 16mm Air Gap / 4mm Glass and an MVHR System 4 ventilation system to all facades to ensure the internal noise levels are acceptable in terms of the assessment to British Standard 8233: 2014.

19.5 WHO Guidelines for Community Noise

The development proposes external living areas and therefore an assessment to the World Health Organisation's 'Guidelines for Community Noise' has been carried out. The guideline has been considered acceptable criteria for this assessment given the sites geographical location. The calculation demonstrates the external living spaces are likely to see noise levels below the lower guideline of 50 dB on the garden areas.

19.6 BS 4142: 2014 +A1: 2019 – Assessments

19.6.1 Existing Daytime

Item	Calculation	Clause	Commentary
Rating Level	51 dB	9.1	The acoustic feature correction is added to the specific noise level
Background Noise Level $LA_{90,1 \text{ hour}}$	40 dB	8.1	Modal Background Noise Level
Assessment Level	+11 dB	11	The background level is subtracted from the rating level.
Assessment	+11 dB		
Conclusion	The assessment level is 'Significant Adverse Impact'		

19.6.2 Post Remedial Works Daytime

Item	Calculation	Clause	Commentary
Rating Level	40 dB	9.1	The acoustic feature correction is added to the specific noise level
Background Noise Level $L_{A90,15 \text{ MINUTES}}$	40 dB	8.1	Modal Background Noise Level
Assessment Level	+/- 0 dB	11	The background level is subtracted from the rating level.
Assessment	+/- 0 dB		
Conclusion	The assessment level is 'Low Impact'		

19.7 Assessment Conclusion

It can be seen from the above assessments that with the existing 5.0m wall extended as detailed within this report, an assessment conclusion of Low Impact could be expected. Therefore, no further mitigation measures would be required if this remedial work was undertaken.

19.8 Utilita Bowl Cricket Ground

The following table demonstrates the existing BS 8233: 2014 calculation using the overall $L_{Aeq \text{ } 16 \text{ HOUR}}$ dB daytime noise levels vs the above evaluated $L_{Aeq \text{ } \tau}$ 45.3 dB during the matchday period.

	Overall $L_{Aeq \text{ } 16 \text{ HOUR}}$ dB Daytime Noise Levels	Specific $L_{Aeq \text{ } \tau}$ dB Matchday Period Noise Levels
Recorded Noise Level	$L_{Aeq \text{ } 16 \text{ HOUR}}$ 46.2 dB	$L_{Aeq \text{ } \tau}$ 45.3 dB
Calculated Internal Noise Level	Living Room $L_{Aeq \text{ } 16 \text{ HOUR}}$ 28.8 dB	Living Room $L_{Aeq \text{ } 16 \text{ HOUR}}$ 27.9 dB
BS 8233: 2014 Criteria	$L_{Aeq \text{ } 16 \text{ HOUR}}$ 35 dB	$L_{Aeq \text{ } 16 \text{ HOUR}}$ 35 dB
Criteria Conclusion	Achieved	Achieved

19.9 Conclusions

19.9.1 Ambient Noise BS 8233: 2014

The dominant noise source on the overall site is road noise. Levels have been recorded and assessments made in accordance with the relevant standards. Internal criteria's have been set and calculations made in order to determine the minimum construction details required in order to meet the desired level within the proposed residential dwellings and satisfy the local council's requirements.

19.9.2 Planning Recommendation

National Planning Policy Framework 2024 suggests that planning permission should be granted unless any adverse impacts of doing so would significantly and demonstrably outweigh the benefits, when assessed against the policies in the framework taken as a whole, or specific policies in the framework indicate the application should be restricted.

Based on the calculations and assessments made within this report it is the professional opinion of Impact Acoustics Ltd that the proposed development can demonstrate compliance with the National Planning Policy Framework 2024, NPPF & NPSE and that, with regards to sound, planning permission can be granted provided the existing 5m wall is extended as detailed within this report.

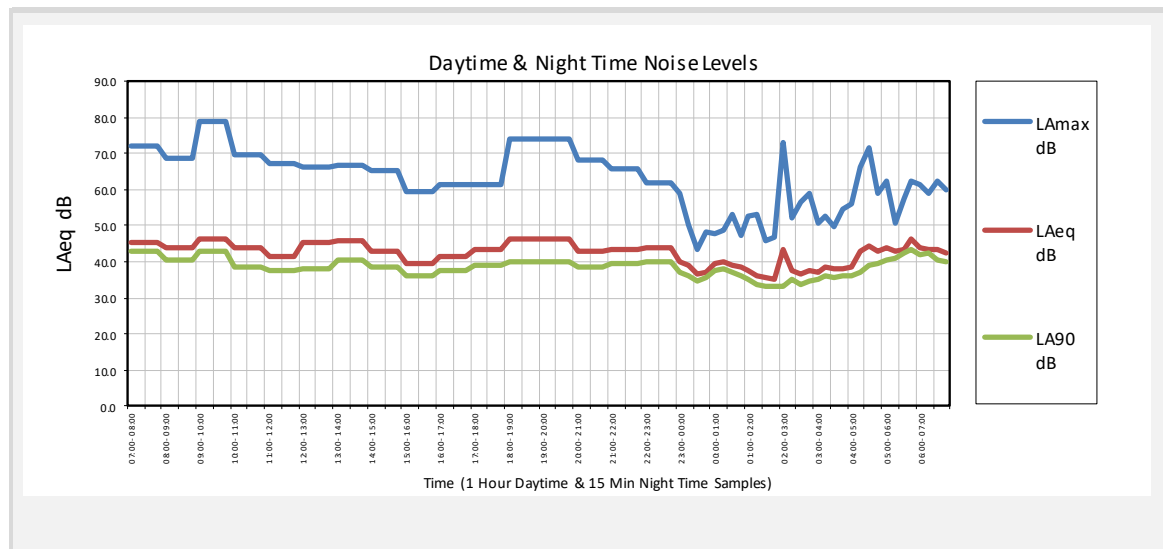
20 APPENDIX A - DOWNLOADED RESULTS

20.1 10th – 11th July - Position 1

NOISE LEVEL SUMMARY ASSESSMENT				Octave Band Centre Frequency (Hz)								
Date / Time	LAeq	LAmaz	LA90	63	125	250	500	1.0k	2.0k	4.0k	8.0k	16.0k
DAYTIME 07:00 - 23:00 LAeq 16 HOUR & Cor r esponding LAmaz 16 HOUR	44.2	79.0	40.0	53.5	47.5	43.2	40.8	39.3	36.0	29.5	31.3	22.7
NIGHT TIME 23:00 - 07:00 LAeq 8 HOUR & Cor r esponding LAmaz 8 HOUR	41.1	73.2	36.0	48.9	41.4	39.5	38.4	37.3	29.4	25.0	30.5	15.5

DAYTIME NOISE LEVELS 07:00 - 23:00 1 HOUR SAMPLES												
Date / Time	LAeq	LAmaz	LA90	63	125	250	500	1.0 k	2.0 k	4.0 k	8.0 k	16.0 k
07:00 - 08:00	45.1	38.4	42.6	51.5	47.1	44.4	42.6	41.3	34.8	30.6	23.5	13.8
08:00 - 09:00	43.6	68.5	40.3	50.5	44.1	41.0	39.5	40.8	33.4	29.2	27.1	22.7
09:00 - 10:00	46.3	79.0	42.9	53.0	49.1	43.6	41.6	41.8	39.7	32.3	28.5	24.7
10:00 - 11:00	43.7	69.6	38.6	53.4	48.8	41.5	38.4	36.7	34.7	28.4	39.5	26.7
11:00 - 12:00	41.3	67.0	37.5	50.2	45.4	41.2	37.1	35.9	31.4	27.3	34.1	25.9
12:00 - 13:00	45.2	66.3	37.9	52.0	47.5	44.3	40.7	40.6	37.4	33.5	29.6	25.1
13:00 - 14:00	45.6	66.7	40.4	53.9	48.6	44.5	40.5	38.6	40.4	30.3	34.4	24.7
14:00 - 15:00	42.9	65.4	38.7	54.2	48.5	43.7	40.2	38.0	33.5	26.2	19.8	22.4
15:00 - 16:00	39.7	59.3	36.3	53.2	44.3	40.0	36.3	34.9	30.6	24.4	19.7	22.1
16:00 - 17:00	41.3	61.3	37.3	52.7	46.5	42.3	37.9	36.2	32.4	27.3	21.5	21.0
17:00 - 18:00	43.2	61.3	38.8	54.1	48.6	44.2	39.8	38.0	34.0	30.6	18.6	24.3
18:00 - 19:00	46.2	73.9	39.8	55.1	50.1	46.1	43.6	41.1	38.3	25.7	18.6	21.3
19:00 - 20:00	42.6	67.9	38.6	52.4	46.4	41.5	39.6	36.8	30.2	32.7	34.5	17.2
20:00 - 21:00	43.3	65.7	39.6	53.8	48.7	42.6	42.3	38.4	32.5	23.2	17.6	13.4
21:00 - 22:00	43.6	61.9	40.0	55.0	46.6	42.5	41.7	38.7	33.8	25.8	31.5	14.7
22:00 - 23:00	46.5	62.3	42.8	56.4	45.0	42.6	43.4	42.4	39.4	28.3	12.9	13.5

NIGHT TIME NOISE LEVELS 23:00 - 07:00 15 MINUTE SAMPLES												
Date / Time	LAeq	LAmaz	LA90	63	125	250	500	1.0 k	2.0 k	4.0 k	8.0 k	16.0 k
23:00 - 23:15	40.1	58.7	37.1	52.7	39.9	40.0	39.8	35.3	25.8	15.2	13.1	12.4
23:15 - 23:30	39.1	50.2	36.2	51.9	43.3	40.7	37.3	34.7	26.0	14.8	11.0	11.0
23:30 - 23:45	36.3	43.3	34.8	49.7	37.7	36.2	33.9	33.0	24.1	13.9	10.9	11.2
23:45 - 00:00	37.3	48.1	35.7	49.3	38.9	36.1	34.9	34.1	24.9	13.7	11.0	11.6
00:00 - 00:15	39.3	47.7	37.4	49.5	40.5	38.4	38.2	35.3	26.2	14.1	11.5	12.1
00:15 - 00:30	39.9	48.5	37.9	48.3	40.8	38.8	38.4	36.3	27.1	14.1	10.8	12.2
00:30 - 00:45	38.9	53.3	37.1	48.0	40.6	37.6	37.1	35.5	26.7	14.5	13.1	12.0
00:45 - 01:00	38.5	47.2	36.2	47.3	37.6	37.0	36.9	34.9	26.9	14.3	10.8	12.4
01:00 - 01:15	37.4	52.4	35.0	47.4	42.1	37.4	35.4	33.4	25.0	14.1	11.0	10.7
01:15 - 01:30	36.2	53.2	33.6	46.5	34.6	33.1	34.2	33.0	25.2	13.8	10.9	11.0
01:30 - 01:45	35.4	45.9	33.2	47.0	36.0	33.9	33.6	31.8	23.8	13.6	10.7	10.5
01:45 - 02:00	35.3	46.6	33.2	46.6	35.8	33.6	33.7	31.2	23.8	13.1	10.8	13.7
02:00 - 02:15	43.5	73.2	33.1	46.3	36.1	35.0	35.0	42.0	34.9	23.3	21.9	14.2
02:15 - 02:30	37.4	52.1	35.3	46.2	36.5	35.7	36.3	33.8	25.2	14.8	13.1	10.8
02:30 - 02:45	36.6	56.3	33.6	46.0	36.3	35.7	36.2	32.1	23.9	14.2	11.9	21.2
02:45 - 03:00	37.4	59.0	34.4	46.6	37.0	35.2	37.0	33.1	24.6	14.6	11.2	22.7
03:00 - 03:15	37.1	50.7	35.1	47.4	40.3	36.8	35.7	33.0	24.7	14.7	11.7	20.0
03:15 - 03:30	38.7	52.4	36.0	46.4	40.4	37.2	38.0	34.6	26.2	14.9	10.7	10.1
03:30 - 03:45	37.8	49.6	35.4	46.9	37.5	36.9	36.6	34.0	25.7	14.2	10.9	10.1
03:45 - 04:00	38.1	54.4	36.0	46.8	39.9	39.6	36.4	34.1	25.1	14.0	10.6	9.9
04:00 - 04:15	38.3	55.9	35.9	46.7	37.2	35.0	35.3	34.4	26.8	20.7	30.5	12.1
04:15 - 04:30	43.0	66.2	37.2	46.7	37.1	35.9	37.1	35.3	28.2	31.9	41.3	22.0
04:30 - 04:45	44.3	71.6	39.1	47.4	38.5	39.4	40.9	37.3	30.4	31.0	41.4	21.5
04:45 - 05:00	43.1	59.1	39.6	47.4	40.8	42.7	40.6	38.2	31.0	30.0	35.6	16.6
05:00 - 05:15	43.7	62.5	40.5	51.5	44.8	41.1	41.9	40.1	32.6	25.6	29.0	12.0
05:15 - 05:30	42.7	50.4	41.0	46.8	39.6	40.3	40.9	39.3	30.2	28.6	23.3	10.6
05:30 - 05:45	43.6	57.5	42.3	47.4	41.5	41.5	41.0	41.0	31.3	23.1	20.9	9.8
05:45 - 06:00	46.2	62.4	43.5	52.4	47.2	44.0	42.8	43.1	36.3	30.9	26.8	11.8
06:00 - 06:15	43.9	61.3	42.0	50.7	42.6	41.7	40.3	40.8	33.2	31.2	23.5	10.4
06:15 - 06:30	43.6	58.7	42.2	51.2	44.2	44.1	40.6	40.2	32.2	23.2	22.4	10.1
06:30 - 06:45	43.1	62.2	40.3	52.1	47.7	43.8	39.8	39.1	31.9	27.6	27.1	13.2
06:45 - 07:00	42.3	59.7	40.0	49.8	46.0	43.1	38.9	38.2	30.4	28.8	27.9	11.3

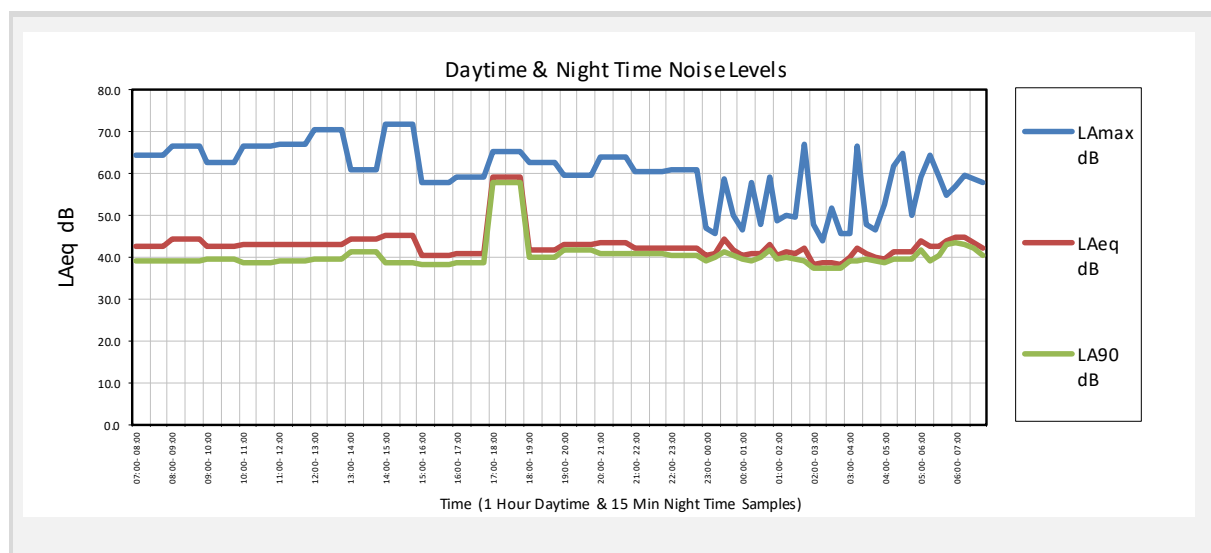


20.2 11th – 12th July - Position 1

NOISE LEVEL SUMMARY ASSESSMENT					Octave Band Centre Frequency (Hz)							
Date / Time	LAeq	LAmaz	LA90	63	125	250	500	1.0k	2.0k	4.0k	8.0k	16.0k
DAYTIME 07:00 - 23:00 LAeq 16 HOUR & Corresponding LAmaz 16 HOUR	48.3	71.4	39.0	57.0	53.9	51.2	44.6	43.1	37.0	30.2	29.5	23.0
NIGHT TIME 23:00 - 07:00 LAeq 8 HOUR & Corresponding LAmaz 8 HOUR	41.9	66.6	39.0	56.2	43.7	39.9	39.0	38.1	31.2	23.7	24.9	16.1

DAYTIME NOISE LEVELS 07:00 - 23:00 1 HOUR SAMPLES												
Date / Time	LAeq	LAmaz	LA90	63	125	250	500	1.0 k	2.0 k	4.0 k	8.0 k	16.0 k
07:00 - 08:00	42.4	64.4	38.9	52.2	46.4	42.8	38.1	37.5	30.7	29.5	34.9	20.1
08:00 - 09:00	44.2	66.5	39.1	56.5	48.4	43.8	40.5	40.1	34.3	29.8	29.8	24.7
09:00 - 10:00	42.5	62.6	39.6	55.5	46.0	40.8	38.4	38.2	34.8	28.8	23.0	25.7
10:00 - 11:00	43.1	66.5	38.8	55.7	46.8	41.8	39.3	38.4	33.9	29.4	32.4	25.7
11:00 - 12:00	42.9	66.9	39.0	55.7	47.9	41.9	40.2	38.4	32.7	25.7	28.2	25.4
12:00 - 13:00	43.1	70.1	39.6	56.8	47.9	42.5	38.7	38.0	32.1	27.6	36.3	25.4
13:00 - 14:00	44.2	60.8	41.3	59.3	52.2	43.9	40.1	38.9	35.9	27.7	22.0	25.1
14:00 - 15:00	45.0	71.4	38.7	56.9	49.6	46.1	42.8	40.1	34.2	25.5	22.6	25.4
15:00 - 16:00	40.1	57.6	38.3	55.8	47.8	40.1	36.1	35.3	29.8	24.2	20.7	24.1
16:00 - 17:00	40.6	58.9	38.6	54.2	47.0	41.6	37.4	36.3	29.6	22.2	18.3	22.5
17:00 - 18:00	58.8	64.9	57.8	58.2	64.9	62.7	55.2	53.5	47.1	39.9	33.8	21.7
18:00 - 19:00	41.5	62.3	39.7	55.3	44.7	39.6	38.7	37.8	31.2	24.5	18.1	15.2
19:00 - 20:00	43.0	59.4	41.4	57.8	44.9	40.9	40.4	39.8	31.6	24.2	19.0	13.1
20:00 - 21:00	43.4	63.9	40.7	59.5	47.3	41.3	40.7	39.7	33.2	24.6	20.3	11.1
21:00 - 22:00	42.0	60.2	40.9	58.4	46.8	41.0	39.6	38.4	30.7	20.4	19.1	11.5
22:00 - 23:00	42.0	60.7	40.4	57.7	45.4	41.2	39.3	38.3	31.6	19.9	12.3	11.0

NIGHT TIME NOISE LEVELS 23:00 - 07:00 15 MINUTE SAMPLES												
Date / Time	LAeq	LAmaz	LA90	63	125	250	500	1.0 k	2.0 k	4.0 k	8.0 k	16.0 k
23:00 - 23:15	40.2	46.8	39.2	56.9	44.2	39.1	37.0	36.7	29.9	19.2	11.9	11.5
23:15 - 23:30	40.6	45.7	39.7	57.5	44.4	40.4	37.1	36.8	30.4	20.4	12.2	11.3
23:30 - 23:45	44.2	58.4	41.2	57.6	48.5	45.3	42.3	39.7	32.7	22.2	12.7	19.5
23:45 - 00:00	41.6	50.0	40.4	56.5	44.1	41.7	39.5	37.5	30.9	19.6	12.0	23.0
00:00 - 00:15	40.1	46.5	39.2	57.2	43.8	39.0	37.0	36.4	30.1	19.4	12.3	25.3
00:15 - 00:30	40.7	57.6	39.1	56.4	43.6	39.6	38.7	36.6	30.1	19.2	12.1	24.9
00:30 - 00:45	40.7	47.7	39.7	57.2	44.3	40.4	38.6	36.4	29.8	19.3	12.0	10.4
00:45 - 01:00	43.0	58.8	41.5	56.4	43.7	41.1	41.2	39.2	32.8	20.5	12.3	10.7
01:00 - 01:15	40.3	48.5	39.3	58.1	43.7	39.2	37.0	36.4	30.5	20.4	12.2	10.0
01:15 - 01:30	41.3	49.7	40.0	57.7	43.4	39.5	38.7	37.7	31.3	21.6	12.6	9.9
01:30 - 01:45	40.8	49.5	39.4	51.3	41.2	38.8	38.9	37.6	29.5	17.7	12.5	10.2
01:45 - 02:00	42.1	66.6	39.1	56.9	43.6	41.4	39.7	37.6	33.5	25.8	23.4	16.0
02:00 - 02:15	38.0	47.6	37.1	56.6	42.5	36.9	34.9	34.0	28.1	18.1	11.7	9.7
02:15 - 02:30	38.4	43.6	37.4	56.4	42.6	37.5	35.7	34.3	27.9	17.8	11.6	9.7
02:30 - 02:45	38.7	51.6	37.2	56.6	42.5	38.9	36.4	34.0	28.0	18.4	12.7	10.0
02:45 - 03:00	38.1	45.7	37.1	56.0	42.3	37.6	34.9	34.1	28.0	17.7	11.5	9.7
03:00 - 03:15	39.8	45.3	38.9	56.5	43.8	39.8	36.7	35.6	29.9	20.1	12.1	10.3
03:15 - 03:30	41.9	66.2	38.9	56.8	43.0	39.6	42.0	36.7	29.9	20.4	12.4	9.8
03:30 - 03:45	40.6	47.7	39.2	56.3	42.7	38.9	38.1	36.8	30.3	19.4	12.1	9.6
03:45 - 04:00	39.9	46.3	38.8	56.5	42.1	37.9	36.5	36.4	30.1	19.2	12.4	9.6
04:00 - 04:15	39.6	52.5	38.4	56.6	42.6	38.0	35.9	35.9	29.8	20.1	25.9	12.0
04:15 - 04:30	41.1	61.8	39.5	58.3	42.6	38.4	36.6	37.2	32.1	27.6	23.4	11.2
04:30 - 04:45	41.3	64.5	39.4	56.7	42.7	37.9	37.2	37.2	31.6	26.1	32.0	13.2
04:45 - 05:00	41.0	49.8	39.5	56.8	42.5	38.6	39.3	37.1	30.6	21.1	16.1	9.6
05:00 - 05:15	43.8	59.2	41.4	57.6	45.9	41.6	41.3	40.2	33.7	23.8	19.6	10.0
05:15 - 05:30	42.5	64.3	39.2	51.3	39.8	37.3	38.6	37.5	30.0	29.5	37.7	16.4
05:30 - 05:45	42.5	58.8	40.4	51.2	41.1	38.4	39.5	39.7	32.2	25.4	22.3	10.0
05:45 - 06:00	44.0	54.7	42.8	50.5	40.7	39.0	41.1	41.5	32.7	27.1	20.4	9.8
06:00 - 06:15	44.7	57.0	43.5	50.9	41.0	39.1	41.8	42.4	33.3	25.0	20.4	10.0
06:15 - 06:30	44.5	59.6	43.1	52.4	45.5	41.6	41.1	41.5	34.3	29.9	22.5	10.4
06:30 - 06:45	43.5	58.4	42.1	54.1	46.4	41.9	39.9	40.7	32.5	25.6	23.9	10.3
06:45 - 07:00	42.1	57.7	40.3	53.9	46.0	41.1	38.1	38.9	32.2	26.9	22.8	10.4

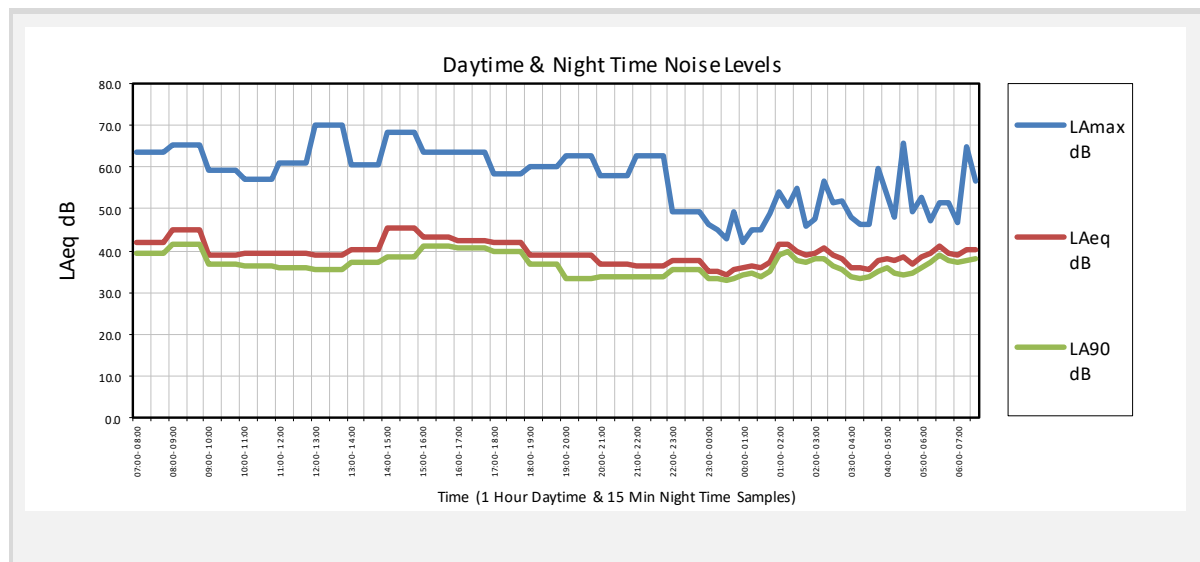


20.3 12th – 13th July - Position 1

NOISE LEVEL SUMMARY ASSESSMENT				Octave Band Centre Frequency (Hz)								
Date / Time	LAeq	LAmaz	LA90	63	125	250	500	1.0k	2.0k	4.0k	8.0k	16.0k
DAYTIME 07:00 - 23:00 LAeq 16 HOUR & Cor r esponding LAmaz 16 HOUR	41.3	70.1	36.0	50.4	47.2	41.5	38.1	36.7	30.6	25.9	24.5	23.8
NIGHT TIME 23:00 - 07:00 LAeq 8 HOUR & Cor r esponding LAmaz 8 HOUR	38.7	66.3	34.0	44.0	36.8	35.6	36.0	35.5	27.8	22.4	22.9	10.8

DAYTIME NOISE LEVELS 07:00 - 23:00 1 HOUR SAMPLES												
Date / Time	LAeq	LAmaz	LA90	63	125	250	500	1.0 k	2.0 k	4.0 k	8.0 k	16.0 k
07:00 - 08:00	41.9	63.5	39.3	56.0	47.1	41.7	38.1	37.3	32.8	28.0	25.2	17.0
08:00 - 09:00	44.9	65.5	41.4	53.9	47.3	43.3	40.7	40.6	37.1	31.4	26.8	24.2
09:00 - 10:00	39.1	59.2	36.9	48.1	44.7	39.3	35.3	34.7	28.1	28.0	23.8	24.4
10:00 - 11:00	39.5	57.0	36.3	50.1	46.6	40.7	36.3	34.1	29.3	25.9	21.8	24.8
11:00 - 12:00	39.6	60.9	36.0	50.8	47.2	41.6	35.4	34.2	29.1	24.7	21.2	27.0
12:00 - 13:00	39.0	70.1	35.6	48.5	45.6	40.1	36.1	33.4	27.9	25.4	22.5	29.2
13:00 - 14:00	40.2	60.4	37.1	52.4	46.0	42.0	37.3	35.3	28.7	23.2	20.0	25.6
14:00 - 15:00	45.2	68.4	38.7	52.2	55.3	46.0	42.1	40.1	33.1	25.3	21.5	25.3
15:00 - 16:00	43.4	63.5	41.0	48.4	46.2	43.9	41.2	39.6	31.4	25.8	22.7	26.2
16:00 - 17:00	42.4	63.4	40.8	48.0	43.3	41.1	39.7	39.1	31.8	24.5	24.2	24.3
17:00 - 18:00	41.8	58.4	40.0	47.8	46.4	42.0	38.9	38.1	29.8	24.1	29.3	21.0
18:00 - 19:00	38.9	60.2	36.8	47.9	44.3	40.5	35.8	34.7	26.3	23.9	18.3	14.6
19:00 - 20:00	38.9	62.7	33.5	46.7	43.4	40.6	36.6	32.7	25.8	26.0	30.1	14.4
20:00 - 21:00	36.7	57.9	33.9	46.8	42.0	37.4	35.3	31.3	25.2	17.9	22.3	10.8
21:00 - 22:00	36.3	62.9	33.8	46.3	39.4	36.1	33.6	31.6	24.5	26.1	23.1	12.2
22:00 - 23:00	37.6	49.2	35.6	45.8	40.4	37.7	35.0	34.4	25.8	14.3	11.0	10.4

NIGHT TIME NOISE LEVELS 23:00 - 07:00 15 MINUTE SAMPLES												
Date / Time	LAeq	LAmaz	LA90	63	125	250	500	1.0 k	2.0 k	4.0 k	8.0 k	16.0 k
23:00 - 23:15	35.1	46.2	33.4	44.4	37.9	34.8	32.5	31.9	23.6	13.7	10.9	10.6
23:15 - 23:30	35.1	44.8	33.4	42.6	33.8	32.9	32.3	32.3	24.3	14.1	11.1	10.4
23:30 - 23:45	34.1	42.8	32.8	43.6	34.7	32.4	31.9	30.9	22.9	13.4	10.9	10.3
23:45 - 00:00	35.5	49.2	33.5	43.9	37.2	34.9	33.7	32.0	23.6	14.3	11.1	10.2
00:00 - 00:15	35.7	42.0	34.3	44.2	37.5	33.5	33.0	32.9	24.8	15.3	11.1	10.1
00:15 - 00:30	36.4	44.9	34.5	44.2	37.1	33.3	34.1	33.6	25.1	14.7	10.9	10.5
00:30 - 00:45	35.8	45.1	33.8	44.1	36.9	32.3	32.9	33.2	24.4	14.3	10.8	10.0
00:45 - 01:00	37.1	49.1	35.2	44.0	37.1	35.2	34.2	34.3	25.8	14.3	10.9	10.1
01:00 - 01:15	41.6	54.1	38.8	44.5	40.2	40.9	39.5	38.2	30.9	17.0	10.9	10.0
01:15 - 01:30	41.5	50.8	39.7	43.7	34.2	37.0	39.4	38.9	29.9	15.3	10.7	10.1
01:30 - 01:45	39.8	54.9	37.6	43.8	35.1	35.5	36.7	37.6	28.9	15.6	10.8	11.3
01:45 - 02:00	38.9	46.0	37.2	44.1	34.2	35.2	36.6	36.1	28.1	15.7	10.6	9.9
02:00 - 02:15	39.6	47.5	38.0	44.0	35.9	36.6	37.7	36.6	28.0	15.6	10.6	10.0
02:15 - 02:30	40.8	56.7	38.2	45.2	36.7	37.7	39.8	37.5	28.5	15.4	10.6	9.9
02:30 - 02:45	38.9	51.3	36.2	43.6	36.1	36.8	38.3	34.9	26.4	15.1	10.6	9.7
02:45 - 03:00	38.0	51.7	35.5	42.8	32.1	34.0	35.9	35.3	26.5	15.1	14.1	10.3
03:00 - 03:15	36.1	48.1	33.9	42.1	33.4	34.0	34.1	32.9	25.2	15.3	12.0	9.9
03:15 - 03:30	35.8	46.1	33.6	41.8	32.1	32.4	33.5	33.0	24.8	14.1	10.5	9.5
03:30 - 03:45	35.4	46.3	33.6	42.9	31.6	33.1	33.7	32.2	24.1	14.2	11.1	9.5
03:45 - 04:00	37.7	59.5	35.2	44.0	33.3	34.7	35.7	34.5	26.7	18.7	20.1	14.3
04:00 - 04:15	38.0	53.3	36.0	44.2	36.7	34.5	36.0	34.9	26.9	15.0	19.7	9.8
04:15 - 04:30	37.6	48.2	34.8	43.9	33.0	32.8	33.8	34.6	28.9	19.0	23.8	12.1
04:30 - 04:45	38.6	65.6	34.0	43.9	31.5	31.8	33.8	35.3	29.2	23.8	30.2	12.8
04:45 - 05:00	36.9	49.3	34.5	43.4	32.4	33.6	33.9	33.7	26.9	21.3	23.4	9.9
05:00 - 05:15	38.6	52.6	35.8	43.3	32.6	33.2	37.0	34.6	27.7	25.9	25.4	10.3
05:15 - 05:30	39.2	47.2	37.3	43.3	33.9	35.2	36.1	36.6	28.4	23.7	20.1	9.7
05:30 - 05:45	40.9	51.4	38.9	44.6	37.6	35.9	37.1	38.2	30.6	28.4	24.7	10.2
05:45 - 06:00	39.6	51.3	37.7	43.7	34.3	35.0	36.5	36.7	28.1	27.4	25.3	10.2
06:00 - 06:15	39.1	46.6	37.4	43.9	37.5	36.5	35.6	36.6	28.3	19.1	16.0	9.5
06:15 - 06:30	40.3	65.0	37.6	44.6	39.6	36.7	35.4	36.4	30.8	32.1	24.9	10.3
06:30 - 06:45	40.2	56.5	38.0	46.2	41.7	37.6	36.2	37.1	29.1	26.2	29.0	11.7
06:45 - 07:00	41.4	66.3	39.2	46.6	43.7	39.7	37.0	37.7	31.2	25.7	33.2	14.8

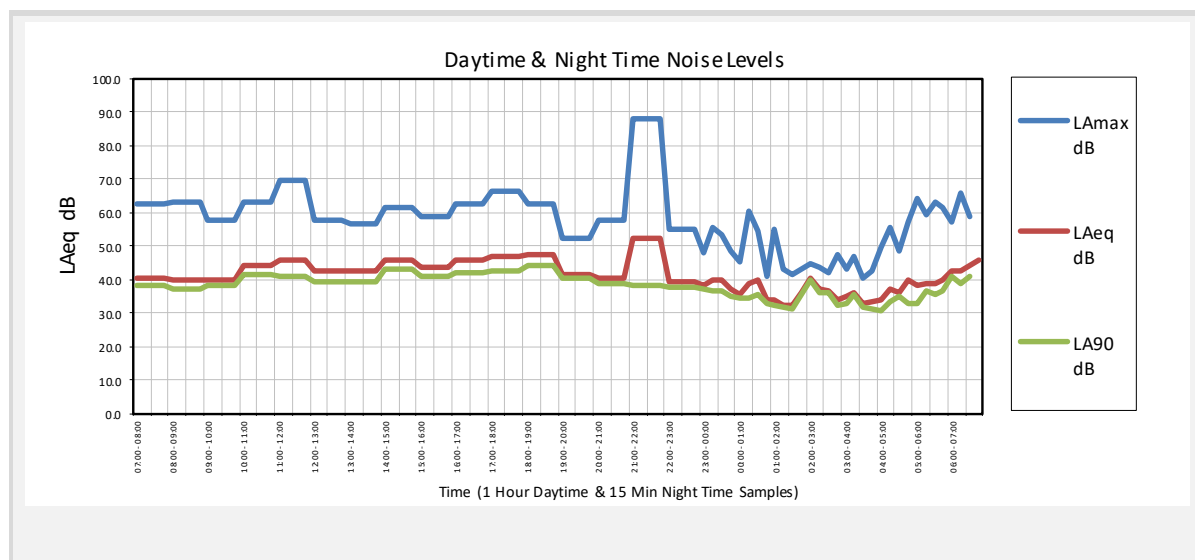


20.4 13th – 14th July - Position 1

NOISE LEVEL SUMMARY ASSESSMENT				Octave Band Centre Frequency (Hz)								
Date / Time	LAeq	LAmaz	LA90	63	125	250	500	1.0k	2.0k	4.0k	8.0k	16.0k
DAYTIME 07:00 - 23:00 LAeq 16 HOUR & Corresponding LAmaz 16 HOUR	45.4	88.2	38.0	55.1	45.8	42.2	41.9	42.6	35.0	24.7	24.7	22.0
NIGHTTIME 23:00 - 07:00 LAeq 8 HOUR & Corresponding LAmaz 8 HOUR	39.3	69.5	35.0	57.4	43.1	38.2	35.2	34.1	29.0	22.4	24.8	11.1

DAYTIME NOISE LEVELS 07:00 - 23:00 1 HOUR SAMPLES												
Date / Time	LAeq	LAmaz	LA90	63	125	250	500	1.0 k	2.0 k	4.0 k	8.0 k	16.0 k
07:00 - 08:00	40.1	62.8	38.0	47.8	44.4	39.9	37.4	36.2	28.9	25.5	24.0	10.3
08:00 - 09:00	39.9	63.2	37.1	49.9	44.0	38.5	36.9	35.0	27.0	26.1	33.0	18.9
09:00 - 10:00	39.8	57.6	38.1	51.0	43.8	38.5	37.3	36.0	28.8	23.1	22.1	23.2
10:00 - 11:00	44.1	63.1	41.6	54.1	46.3	42.9	43.2	39.9	32.4	22.5	20.0	25.9
11:00 - 12:00	45.5	69.4	40.6	55.7	48.6	45.4	44.0	41.5	33.0	22.8	19.5	24.6
12:00 - 13:00	42.5	57.6	39.4	54.2	46.3	41.4	40.6	38.6	31.2	23.0	22.7	24.9
13:00 - 14:00	42.4	56.8	39.4	54.9	44.7	40.5	40.6	38.6	31.6	21.7	19.6	25.5
14:00 - 15:00	45.5	61.3	43.1	55.2	46.1	43.9	44.8	41.3	33.8	22.8	19.5	26.0
15:00 - 16:00	43.6	59.0	40.7	55.6	44.2	40.7	41.7	40.0	33.1	25.5	21.0	23.4
16:00 - 17:00	45.9	62.7	42.2	57.7	46.5	42.8	44.1	42.1	35.8	24.3	20.2	20.3
17:00 - 18:00	47.1	66.2	42.7	57.2	50.1	46.4	45.4	42.8	36.9	22.9	18.6	18.4
18:00 - 19:00	47.2	62.4	44.2	57.9	46.9	44.6	44.7	43.0	39.3	25.2	15.6	12.0
19:00 - 20:00	41.6	52.0	40.1	56.5	43.1	40.0	39.2	38.2	30.1	25.2	16.6	11.0
20:00 - 21:00	40.5	57.8	38.6	54.4	43.0	38.9	37.3	36.8	29.6	23.2	29.0	12.1
21:00 - 22:00	52.5	88.2	38.3	54.9	43.9	39.9	40.0	51.7	42.6	30.5	27.4	13.6
22:00 - 23:00	39.5	54.7	37.7	54.2	42.6	40.0	36.9	35.6	27.9	18.1	14.1	11.4

NIGHT TIME NOISE LEVELS 23:00 - 07:00 15 MINUTE SAMPLES												
Date / Time	LAeq	LAmaz	LA90	63	125	250	500	1.0 k	2.0 k	4.0 k	8.0 k	16.0 k
23:00 - 23:15	38.3	47.9	37.0	54.7	39.3	36.5	35.8	35.0	26.8	17.4	13.8	11.0
23:15 - 23:30	39.7	55.6	36.6	54.7	41.3	40.2	38.2	35.5	26.4	16.3	12.8	10.9
23:30 - 23:45	39.6	53.1	36.7	54.7	44.8	41.8	37.8	34.6	26.9	16.8	12.5	10.4
23:45 - 00:00	37.2	48.6	35.0	54.8	41.6	36.3	34.6	33.3	25.7	15.6	11.4	10.9
00:00 - 00:15	35.7	45.2	34.4	54.3	37.8	34.8	33.1	31.8	24.9	15.9	13.1	11.1
00:15 - 00:30	38.9	60.1	34.5	54.8	37.6	38.1	37.7	34.4	25.9	15.5	11.9	10.9
00:30 - 00:45	39.7	54.4	35.4	54.1	38.1	34.1	34.8	36.3	32.6	25.7	21.9	13.7
00:45 - 01:00	33.7	40.7	32.7	54.5	37.2	33.0	30.8	29.3	22.8	14.9	11.4	9.8
01:00 - 01:15	33.8	54.7	32.4	54.2	37.6	34.0	30.1	29.7	23.0	15.5	12.4	10.1
01:15 - 01:30	32.3	43.3	31.6	54.1	36.1	31.7	28.7	27.5	21.8	15.1	12.1	10.1
01:30 - 01:45	32.1	41.2	30.9	52.6	36.4	31.5	28.4	27.5	21.9	14.8	11.6	10.2
01:45 - 02:00	36.0	43.0	35.4	59.3	39.2	32.7	30.5	29.3	25.5	18.6	12.9	10.3
02:00 - 02:15	40.2	44.5	39.6	63.7	44.1	36.7	33.7	32.8	29.5	22.4	14.2	10.1
02:15 - 02:30	37.0	43.5	36.2	60.3	40.6	32.6	31.5	30.2	25.7	18.9	14.5	11.2
02:30 - 02:45	36.8	42.1	36.1	61.1	39.5	33.7	31.3	30.5	25.5	18.4	13.8	10.2
02:45 - 03:00	33.9	47.3	32.2	55.4	35.5	33.9	30.4	28.6	23.7	18.5	14.9	10.5
03:00 - 03:15	34.8	43.2	33.0	57.2	37.9	32.5	30.1	29.2	24.3	18.0	14.1	10.1
03:15 - 03:30	36.1	46.9	35.2	60.0	37.7	34.0	31.9	30.6	25.2	18.8	15.2	10.4
03:30 - 03:45	32.8	40.6	31.5	53.5	35.5	31.6	29.1	28.5	22.7	16.6	13.5	10.3
03:45 - 04:00	33.2	42.7	31.1	55.1	35.8	30.8	28.7	28.4	22.5	16.1	15.8	10.2
04:00 - 04:15	33.6	49.6	30.8	55.3	36.5	31.5	29.1	28.6	23.3	15.4	14.1	9.7
04:15 - 04:30	36.9	55.5	33.4	56.9	37.5	33.4	30.9	30.5	25.8	23.3	32.5	13.9
04:30 - 04:45	36.1	48.4	35.1	59.4	37.5	34.8	32.2	30.6	26.3	19.4	18.5	9.9
04:45 - 05:00	39.6	57.1	32.9	54.0	36.3	33.3	31.7	33.6	35.4	26.3	23.0	9.9
05:00 - 05:15	38.2	64.3	32.5	50.9	43.6	37.7	35.3	33.8	28.0	23.2	20.9	10.0
05:15 - 05:30	38.6	59.4	36.6	59.2	40.0	36.6	35.7	33.1	26.4	24.3	30.1	12.2
05:30 - 05:45	39.0	63.1	35.6	56.7	39.6	37.1	36.1	35.3	28.5	21.2	20.4	9.9
05:45 - 06:00	39.7	61.5	36.7	55.9	41.1	38.5	36.2	35.8	30.3	23.5	21.2	10.1
06:00 - 06:15	42.5	57.2	40.7	61.4	50.9	40.7	38.1	37.0	33.3	25.9	22.1	10.0
06:15 - 06:30	42.7	65.9	38.7	55.1	48.6	40.8	37.4	36.7	31.4	31.0	37.1	16.8
06:30 - 06:45	44.0	58.7	40.9	59.0	49.6	44.8	39.7	39.2	35.0	27.4	21.2	10.6
06:45 - 07:00	45.9	69.5	41.2	56.9	50.4	47.1	43.0	41.7	35.6	24.9	24.1	10.6

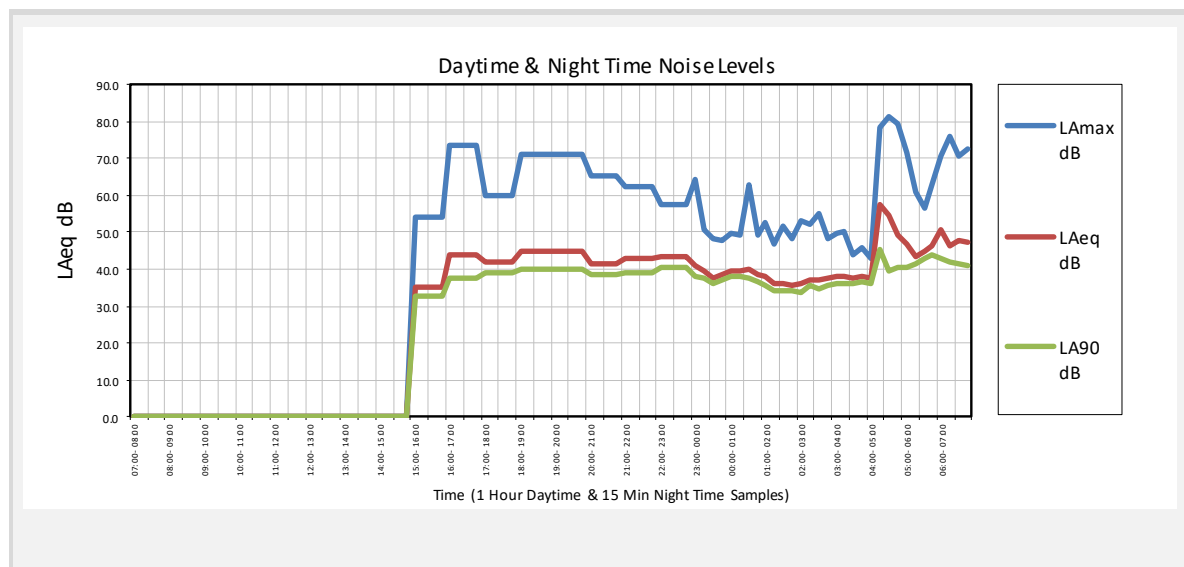


20.5 10th – 11th July - Position 2

NOISE LEVEL SUMMARY ASSESSMENT				Octave Band Centre Frequency (Hz)								
Date / Time	LAeq	LAmx	LA90	63	125	250	500	1.0k	2.0k	4.0k	8.0k	16.0k
DAYTIME 07:00 - 23:00 LAeq 16 HOUR & Corresponding LAmx 16 HOUR	41.1	73.6	0.0	52.4	46.7	39.7	36.6	35.8	32.2	29.5	29.8	17.2
NIGHT TIME 23:00 - 07:00 LAeq 8 HOUR & Corresponding LAmx 8 HOUR	46.6	81.1	36.0	50.3	41.8	38.6	38.1	37.1	29.9	40.6	43.9	23.6

DAYTIME NOISE LEVELS 07:00 - 23:00 1 HOUR SAMPLES												
Date / Time	LAeq	LAmx	LA90	63	125	250	500	1.0 k	2.0 k	4.0 k	8.0 k	16.0 k
07:00 - 08:00	0.0	39.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
08:00 - 09:00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
09:00 - 10:00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10:00 - 11:00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11:00 - 12:00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12:00 - 13:00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13:00 - 14:00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14:00 - 15:00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15:00 - 16:00	35.2	54.1	32.7	47.0	40.8	36.1	31.4	30.2	25.1	22.5	22.0	13.2
16:00 - 17:00	43.9	73.6	37.5	50.8	46.4	42.0	36.9	34.9	31.7	27.4	29.3	17.1
17:00 - 18:00	42.0	60.1	39.2	52.9	48.6	43.9	38.8	36.4	30.5	29.5	28.3	18.2
18:00 - 19:00	44.8	71.1	39.9	53.3	48.8	45.3	41.5	39.3	34.1	34.0	32.9	18.5
19:00 - 20:00	41.3	65.4	38.5	50.3	47.7	41.1	37.9	36.0	29.9	29.0	31.9	17.5
20:00 - 21:00	43.0	62.1	39.2	52.4	49.4	42.3	40.7	37.4	32.8	27.8	31.9	18.3
21:00 - 22:00	43.3	57.6	40.4	55.4	49.6	42.7	39.4	38.4	34.8	28.4	27.7	22.9
22:00 - 23:00	48.7	63.1	45.4	61.9	54.8	43.2	42.7	44.4	41.9	35.1	25.6	24.9

NIGHT TIME NOISE LEVELS 23:00 - 07:00 15 MINUTE SAMPLES												
Date / Time	LAeq	LAmx	LA90	63	125	250	500	1.0 k	2.0 k	4.0 k	8.0 k	16.0 k
23:00 - 23:15	40.8	64.2	37.9	54.0	43.0	40.7	40.3	35.4	27.7	20.6	25.7	25.6
23:15 - 23:30	39.6	50.7	37.5	53.5	44.7	40.9	37.0	34.8	27.4	21.0	25.5	25.3
23:30 - 23:45	37.6	48.1	36.2	52.7	42.3	38.0	34.4	33.3	25.5	19.6	25.7	24.9
23:45 - 00:00	38.4	47.9	37.0	54.2	42.0	36.8	35.4	34.5	26.4	19.0	25.6	25.0
00:00 - 00:15	39.6	49.8	38.1	51.7	42.5	37.6	37.6	35.7	27.7	21.1	26.0	25.4
00:15 - 00:30	39.7	49.1	38.2	49.2	41.2	37.4	38.0	36.1	27.9	19.4	21.7	21.7
00:30 - 00:45	40.0	62.7	37.5	49.2	40.8	36.8	37.4	37.2	28.4	18.6	19.6	20.6
00:45 - 01:00	38.3	49.1	36.5	48.6	39.8	36.6	36.7	34.4	26.7	17.5	22.0	22.4
01:00 - 01:15	38.2	52.8	35.7	49.0	42.2	37.5	35.3	33.6	26.7	24.8	26.7	23.7
01:15 - 01:30	36.0	46.8	34.3	48.5	37.1	32.7	33.8	32.4	25.4	18.3	21.6	20.9
01:30 - 01:45	36.3	51.8	34.0	49.3	37.7	33.8	34.0	32.3	25.3	19.0	22.6	21.9
01:45 - 02:00	35.7	48.0	34.0	48.9	37.6	33.0	33.7	31.8	24.2	17.1	22.1	23.5
02:00 - 02:15	35.8	53.0	33.8	48.2	37.9	34.0	33.9	31.6	24.4	19.6	22.4	22.7
02:15 - 02:30	36.9	52.1	35.4	48.4	38.1	34.5	34.9	33.2	25.8	18.6	22.2	22.5
02:30 - 02:45	36.9	55.2	34.8	48.4	38.5	35.0	35.9	32.1	25.5	19.7	22.6	23.1
02:45 - 03:00	37.5	48.2	35.7	49.1	39.1	35.2	36.0	33.2	26.3	20.9	22.1	21.8
03:00 - 03:15	37.8	49.9	36.2	50.3	41.3	36.3	35.8	33.5	26.2	21.3	22.9	22.2
03:15 - 03:30	38.0	50.3	36.1	48.7	40.0	36.0	36.3	34.0	26.8	20.0	21.7	21.2
03:30 - 03:45	37.4	43.9	35.9	48.7	39.2	35.8	35.2	33.8	26.1	17.9	20.1	20.4
03:45 - 04:00	38.0	46.0	36.5	48.8	41.2	38.7	35.7	34.1	25.7	17.6	19.1	19.9
04:00 - 04:15	37.6	42.7	36.2	48.8	39.1	34.4	35.4	34.2	27.0	18.7	17.7	15.5
04:15 - 04:30	57.6	78.3	45.1	48.8	39.4	35.5	36.7	35.7	37.2	54.0	54.6	31.0
04:30 - 04:45	54.7	81.1	39.7	49.6	40.1	38.2	39.4	37.3	30.7	45.5	54.4	29.3
04:45 - 05:00	49.0	79.4	40.4	49.8	42.5	42.4	40.7	38.5	31.1	39.5	47.9	24.7
05:00 - 05:15	46.8	71.6	40.7	49.3	41.2	38.4	40.2	40.6	35.7	37.5	43.2	19.2
05:15 - 05:30	43.5	60.6	41.6	48.3	40.5	39.2	40.6	39.9	30.7	29.9	35.4	14.4
05:30 - 05:45	44.8	56.3	43.1	49.2	42.7	40.5	41.9	42.2	32.8	29.5	28.3	13.0
05:45 - 06:00	46.0	62.7	43.7	50.3	45.2	41.9	42.0	42.5	33.2	34.1	38.6	15.9
06:00 - 06:15	50.6	70.6	43.0	50.4	42.6	40.6	40.9	41.6	33.1	44.5	48.0	22.5
06:15 - 06:30	46.2	75.7	42.1	50.5	43.3	41.7	40.7	40.7	31.5	37.8	41.4	15.1
06:30 - 06:45	47.8	70.3	41.2	51.8	47.0	43.3	39.4	38.6	30.4	42.1	44.5	22.3
06:45 - 07:00	47.2	72.6	40.7	51.0	45.2	41.4	38.6	38.1	30.0	40.9	44.3	22.9

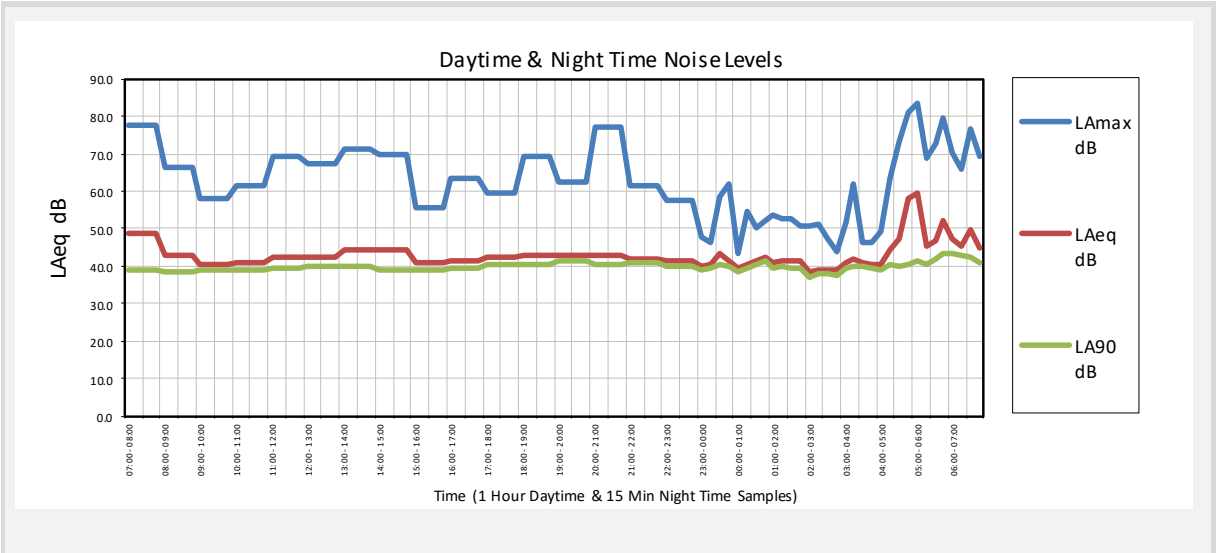


20.6 11th – 12th July - Position 2

NOISE LEVEL SUMMARY ASSESSMENT				Octave Band Centre Frequency (Hz)								
Date / Time	LAeq	LAmx	LA90	63	125	250	500	1.0k	2.0k	4.0k	8.0k	16.0k
DAYTIME 07:00 - 23:00 LAeq 16 HOUR & Corresponding LAmx 16 HOUR	43.6	77.8	39.0	60.9	46.1	41.6	38.5	36.9	30.9	34.4	36.4	21.7
NIGHT TIME 23:00 - 07:00 LAeq 8 HOUR & Corresponding LAmx 8 HOUR	48.5	83.6	40.0	58.9	42.5	40.3	39.4	37.8	30.1	43.1	45.8	22.4

DAYTIME NOISE LEVELS 07:00 - 23:00 1 HOUR SAMPLES				Octave Band Centre Frequency (Hz)								
Date / Time	LAeq	LAmx	LA90	63	125	250	500	1.0 k	2.0 k	4.0 k	8.0 k	16.0 k
07:00 - 08:00	48.8	77.8	38.8	52.9	45.8	41.8	37.6	35.7	32.7	43.4	46.4	23.0
08:00 - 09:00	42.9	66.2	38.3	60.7	48.1	43.6	39.8	37.1	31.9	27.7	32.5	14.0
09:00 - 10:00	40.6	58.1	38.8	59.9	46.5	39.8	37.2	34.8	29.9	27.6	27.7	14.3
10:00 - 11:00	40.8	61.7	38.8	62.9	45.9	40.0	35.9	34.6	29.6	30.0	27.9	16.2
11:00 - 12:00	42.5	69.1	39.4	61.8	47.2	41.9	37.0	35.6	30.2	31.4	36.6	20.8
12:00 - 13:00	42.3	67.1	39.9	62.4	46.4	41.6	36.8	35.9	30.8	33.9	32.4	20.8
13:00 - 14:00	44.4	71.2	39.9	62.0	46.2	41.5	37.5	36.3	33.6	38.4	37.1	22.0
14:00 - 15:00	44.2	69.7	38.9	62.4	47.0	45.6	42.0	38.6	31.9	30.2	30.2	16.6
15:00 - 16:00	40.9	55.6	38.9	61.9	46.1	40.4	35.5	34.5	29.5	31.1	30.6	15.8
16:00 - 17:00	41.5	63.6	39.5	61.3	46.7	41.3	36.6	35.7	30.3	30.8	31.0	19.3
17:00 - 18:00	42.2	59.6	40.6	59.4	46.5	41.5	39.0	37.5	30.5	30.0	30.2	22.2
18:00 - 19:00	42.7	69.2	40.4	61.8	44.4	39.2	38.0	37.2	31.2	33.5	33.8	26.6
19:00 - 20:00	43.0	62.6	41.5	61.0	45.0	40.6	39.3	39.1	30.9	29.9	31.0	19.0
20:00 - 21:00	42.9	76.9	40.5	59.5	45.8	39.8	39.5	38.2	29.6	30.2	35.6	17.3
21:00 - 22:00	41.8	61.7	40.7	57.6	44.2	40.4	39.4	38.3	29.7	19.9	25.7	24.0
22:00 - 23:00	41.6	57.7	40.1	58.7	43.4	40.9	39.5	37.5	29.4	19.0	23.3	26.8

NIGHT TIME NOISE LEVELS 23:00 - 07:00 15 MINUTE SAMPLES				Octave Band Centre Frequency (Hz)								
Date / Time	LAeq	LAmx	LA90	63	125	250	500	1.0 k	2.0 k	4.0 k	8.0 k	16.0 k
23:00 - 23:15	40.0	47.7	39.0	58.3	42.0	39.5	37.7	36.0	27.9	16.7	22.0	25.2
23:15 - 23:30	40.5	46.5	39.5	57.5	42.1	40.3	38.0	36.7	28.8	17.8	22.0	24.8
23:30 - 23:45	43.6	58.7	40.6	59.1	46.9	45.0	41.8	38.9	31.1	18.7	22.1	23.5
23:45 - 00:00	41.6	62.2	39.7	58.8	41.9	42.3	40.1	36.8	29.5	19.8	21.7	22.6
00:00 - 00:15	39.5	43.6	38.7	58.6	41.7	38.4	37.0	35.5	27.8	16.6	18.2	22.1
00:15 - 00:30	40.5	54.6	39.3	58.8	42.2	39.8	38.7	36.4	28.1	16.5	17.7	19.2
00:30 - 00:45	41.4	50.1	40.5	58.6	42.8	40.9	39.8	37.0	29.5	18.3	20.4	21.2
00:45 - 01:00	42.5	52.4	41.3	59.3	42.4	41.2	40.5	38.4	32.3	20.5	20.3	21.0
01:00 - 01:15	40.7	53.8	39.6	60.4	42.7	39.1	37.9	36.3	29.6	19.2	18.9	19.0
01:15 - 01:30	41.5	52.6	40.1	59.7	42.1	40.0	39.6	37.5	30.0	19.4	19.1	19.9
01:30 - 01:45	41.3	52.8	39.5	56.6	40.9	41.0	39.7	37.2	29.2	17.2	18.3	19.2
01:45 - 02:00	41.3	50.6	39.5	59.5	43.0	41.4	39.7	36.8	28.9	19.3	18.8	19.7
02:00 - 02:15	38.3	50.7	37.1	59.2	40.8	36.5	35.6	34.2	26.5	16.7	20.1	21.5
02:15 - 02:30	38.9	51.0	37.8	59.5	41.3	37.2	36.5	34.8	26.7	17.2	20.7	21.6
02:30 - 02:45	39.1	47.2	37.8	59.3	41.4	38.8	36.9	34.6	26.3	16.1	20.4	21.5
02:45 - 03:00	38.9	43.7	37.6	59.5	41.2	37.7	36.4	34.6	26.5	16.2	19.4	21.5
03:00 - 03:15	40.8	51.9	39.4	59.0	41.9	39.5	38.7	36.8	28.8	19.1	20.7	22.1
03:15 - 03:30	41.9	61.8	39.9	59.8	42.2	40.0	41.1	37.2	28.9	20.0	21.9	22.1
03:30 - 03:45	40.9	46.5	39.8	59.8	42.0	39.4	39.1	36.7	28.7	17.6	17.7	20.0
03:45 - 04:00	40.3	46.3	39.3	60.0	41.1	38.7	38.0	36.4	28.4	17.1	18.4	20.6
04:00 - 04:15	40.3	49.2	39.0	59.8	41.6	38.4	37.5	36.5	29.0	18.2	18.8	19.4
04:15 - 04:30	44.5	63.4	40.3	60.7	41.9	38.6	38.3	37.2	30.6	38.7	38.2	15.4
04:30 - 04:45	47.4	73.1	40.0	59.4	41.6	38.8	38.5	37.4	31.0	40.5	45.3	20.7
04:45 - 05:00	58.2	80.9	40.3	59.5	41.5	39.1	39.4	37.6	30.8	53.4	56.2	28.8
05:00 - 05:15	59.6	83.6	41.2	59.5	42.2	40.1	40.7	38.9	32.2	55.0	57.3	29.0
05:15 - 05:30	45.1	68.7	40.3	56.9	40.4	38.6	39.1	38.1	30.2	35.4	42.2	16.7
05:30 - 05:45	46.9	72.8	41.8	56.8	41.5	39.4	40.2	40.2	32.1	38.5	43.7	19.0
05:45 - 06:00	52.1	79.7	43.6	56.8	42.0	41.6	42.0	41.5	32.7	46.4	49.5	21.1
06:00 - 06:15	47.5	70.1	43.2	57.1	41.9	41.0	41.5	41.1	32.9	42.0	41.4	17.7
06:15 - 06:30	45.4	65.8	42.9	57.4	44.5	42.2	41.1	40.7	32.4	37.2	37.3	15.5
06:30 - 06:45	49.6	76.5	42.4	57.5	45.6	42.1	40.0	39.9	31.4	41.8	47.7	20.9
06:45 - 07:00	44.8	69.3	41.1	57.4	44.5	40.5	38.8	38.9	31.2	39.3	36.9	23.8

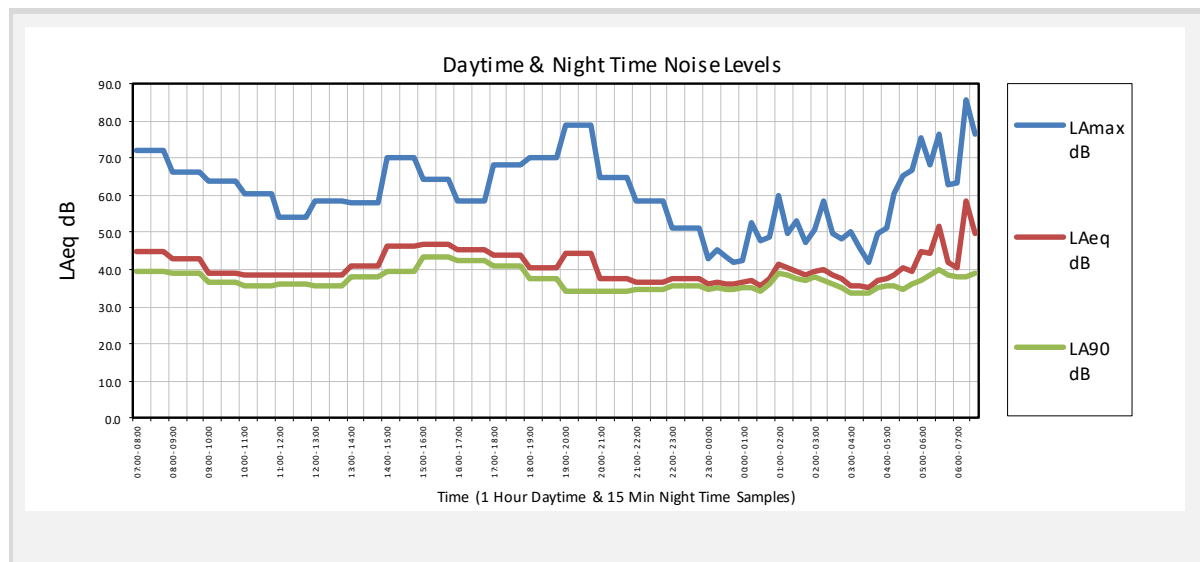


20.7 12th – 13th July - Position 2

NOISE LEVEL SUMMARY ASSESSMENT				Octave Band Centre Frequency (Hz)								
Date / Time	LAeq	LAmaz	LA90	63	125	250	500	1.0k	2.0k	4.0k	8.0k	16.0k
DAYTIME 07:00 - 23:00 LAeq 16 HOUR & Cor r esponding LAmaz 16 HOUR	42.7	78.6	36.0	52.5	48.4	41.5	37.5	35.9	30.9	34.1	36.0	20.5
NIGHT TIME 23:00 - 07:00 LAeq 8 HOUR & Cor r esponding LAmaz 8 HOUR	45.4	85.6	35.0	45.3	37.2	36.3	35.9	35.3	28.2	40.1	42.7	23.6

DAYTIME NOISE LEVELS 07:00 - 23:00 1 HOUR SAMPLES												
Date / Time	LAeq	LAmaz	LA90	63	125	250	500	1.0 k	2.0 k	4.0 k	8.0 k	16.0 k
07:00 - 08:00	44.7	72.1	39.6	58.9	45.0	40.4	37.6	36.6	28.6	38.4	40.3	17.9
08:00 - 09:00	42.9	66.3	38.8	52.8	44.8	39.6	37.3	36.2	30.6	37.1	35.5	24.6
09:00 - 10:00	39.2	63.8	36.4	47.9	44.9	39.4	34.2	33.0	26.8	30.0	32.0	23.1
10:00 - 11:00	38.7	60.5	35.4	47.9	46.5	40.5	35.1	32.4	27.1	26.6	27.5	15.8
11:00 - 12:00	38.6	54.0	36.3	48.7	45.6	40.3	34.1	32.2	27.2	28.3	28.7	16.6
12:00 - 13:00	38.5	58.2	35.8	48.3	44.9	39.9	34.0	32.0	27.3	29.1	28.5	17.2
13:00 - 14:00	41.1	58.1	38.0	50.8	46.1	41.9	36.2	34.2	30.2	32.3	33.0	17.1
14:00 - 15:00	46.2	69.9	39.7	53.2	57.9	46.9	41.4	39.1	34.2	33.7	33.1	17.1
15:00 - 16:00	46.6	64.2	43.2	57.3	48.4	44.8	41.5	40.0	36.7	39.2	38.6	21.3
16:00 - 17:00	45.4	58.3	42.2	55.2	45.7	42.2	40.0	39.5	35.3	38.1	37.5	20.7
17:00 - 18:00	43.7	67.9	40.9	51.6	46.4	42.3	38.9	38.3	32.9	34.9	36.3	19.5
18:00 - 19:00	40.6	70.2	37.4	48.8	44.1	40.0	36.9	34.5	27.4	29.5	35.1	17.2
19:00 - 20:00	44.4	78.6	34.2	47.6	43.9	41.1	36.0	32.7	26.2	35.2	42.9	18.7
20:00 - 21:00	37.3	64.9	34.0	47.5	41.8	37.3	33.9	31.2	23.9	24.3	31.5	13.1
21:00 - 22:00	36.5	58.2	34.5	47.1	40.5	37.0	33.7	32.0	24.6	19.1	25.4	21.0
22:00 - 23:00	37.4	51.1	35.5	46.5	40.8	38.0	34.5	33.4	25.9	17.2	24.2	25.8

NIGHT TIME NOISE LEVELS 23:00 - 07:00 15 MINUTE SAMPLES												
Date / Time	LAeq	LAmaz	LA90	63	125	250	500	1.0 k	2.0 k	4.0 k	8.0 k	16.0 k
23:00 - 23:15	36.2	42.7	34.7	45.8	39.3	35.9	33.8	31.9	24.6	16.9	25.0	26.9
23:15 - 23:30	36.4	45.1	34.9	44.5	36.9	34.6	33.8	32.4	25.5	17.6	25.8	28.0
23:30 - 23:45	36.1	43.4	34.6	45.8	37.8	34.9	33.5	32.1	24.3	16.7	25.4	28.0
23:45 - 00:00	36.1	42.0	34.6	45.4	38.4	35.7	33.1	32.1	24.7	18.2	24.9	27.5
00:00 - 00:15	36.6	42.4	35.2	45.2	37.6	35.2	33.7	33.0	25.5	19.4	24.3	26.7
00:15 - 00:30	36.9	52.7	35.1	44.8	36.9	35.0	33.8	32.9	26.1	23.7	26.8	26.8
00:30 - 00:45	35.8	47.7	34.2	44.3	35.6	33.1	32.3	32.4	25.3	18.5	24.6	26.9
00:45 - 01:00	37.4	48.6	35.9	45.1	37.3	35.6	34.5	34.1	26.3	18.3	24.8	27.3
01:00 - 01:15	41.4	59.9	38.7	45.7	39.5	40.5	39.1	37.5	31.9	20.9	24.1	26.4
01:15 - 01:30	40.5	49.9	38.7	44.9	35.2	38.2	38.5	37.5	29.0	16.9	20.0	21.0
01:30 - 01:45	39.4	53.1	37.3	44.4	35.8	36.7	36.6	36.7	28.3	16.8	21.9	24.0
01:45 - 02:00	38.4	47.0	36.9	44.8	35.6	36.2	36.0	35.3	27.8	17.2	21.4	23.2
02:00 - 02:15	39.5	50.5	37.8	45.3	35.5	36.6	37.5	36.4	28.2	17.2	20.4	21.1
02:15 - 02:30	40.1	58.5	37.0	46.9	35.9	36.9	38.4	36.9	28.8	16.8	19.9	20.4
02:30 - 02:45	38.3	49.5	36.0	44.3	36.4	37.4	37.1	34.2	27.5	17.5	19.5	19.8
02:45 - 03:00	37.4	48.1	35.0	43.7	34.0	35.0	35.3	34.3	26.4	16.5	18.9	19.4
03:00 - 03:15	35.7	50.2	33.7	43.8	33.6	34.7	33.5	32.0	25.0	18.9	20.3	20.7
03:15 - 03:30	35.6	45.9	33.6	43.6	32.8	33.3	33.4	32.2	24.9	16.0	19.7	18.8
03:30 - 03:45	35.0	41.9	33.6	43.8	33.2	34.1	33.0	31.2	24.7	15.9	17.4	17.2
03:45 - 04:00	37.1	49.6	35.3	45.1	33.6	35.1	35.4	33.6	26.3	16.8	17.2	16.5
04:00 - 04:15	37.5	51.3	35.5	45.3	36.6	36.5	36.1	33.5	26.4	18.2	17.1	14.2
04:15 - 04:30	38.6	60.3	35.4	45.1	34.1	35.3	34.8	34.0	28.8	24.2	31.9	15.3
04:30 - 04:45	40.6	65.4	34.7	44.3	33.2	34.1	34.5	33.8	28.0	29.2	38.0	16.2
04:45 - 05:00	39.5	66.8	35.8	43.9	33.4	34.1	35.5	34.3	27.2	29.6	34.1	13.5
05:00 - 05:15	44.8	75.2	36.9	44.7	33.7	34.2	36.6	35.5	28.0	39.5	41.1	15.1
05:15 - 05:30	44.3	68.2	38.6	44.6	35.3	35.8	37.1	37.6	29.2	34.0	42.2	18.7
05:30 - 05:45	51.5	76.3	39.9	46.3	38.4	37.5	38.3	38.6	30.9	46.2	49.2	21.5
05:45 - 06:00	41.8	62.7	38.7	45.2	36.1	36.2	37.0	37.2	29.5	31.0	36.8	14.6
06:00 - 06:15	40.6	63.4	38.0	45.7	38.6	36.7	36.0	36.8	31.1	29.4	31.7	13.5
06:15 - 06:30	58.2	85.6	38.0	46.3	39.9	36.9	35.8	36.4	29.8	54.1	55.6	27.7
06:30 - 06:45	49.9	76.2	38.8	47.4	41.3	37.6	36.4	37.3	33.2	39.8	49.4	24.6
06:45 - 07:00	41.6	63.0	39.3	48.1	43.3	39.6	36.9	37.7	29.0	29.8	34.4	12.6

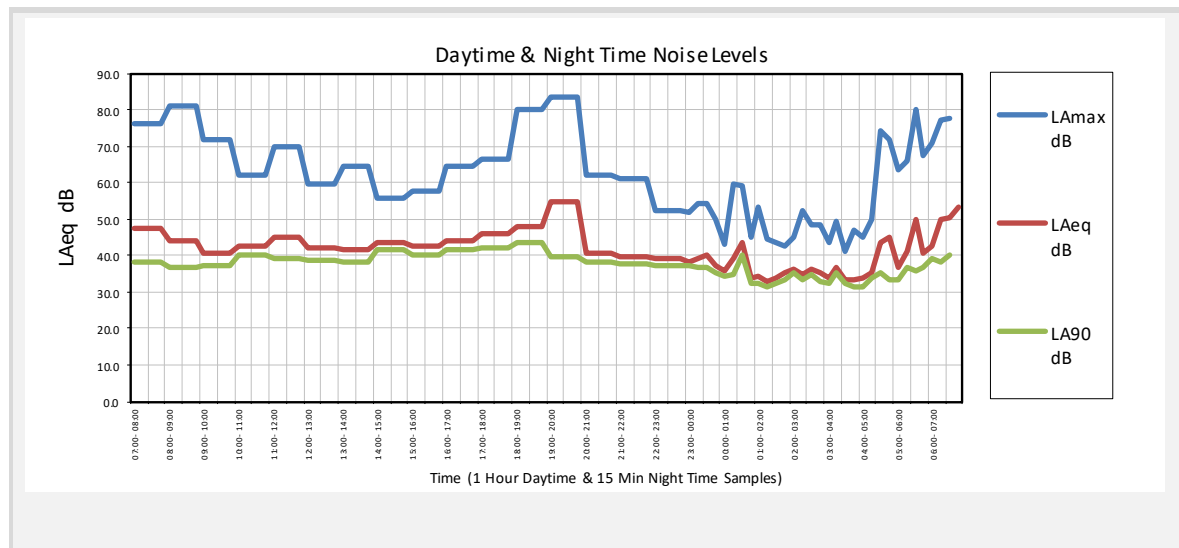


20.8 13th – 14th July - Position 2

NOISE LEVEL SUMMARY ASSESSMENT				Octave Band Centre Frequency (Hz)								
Date / Time	LAeq	LAmaz	LA90	63	125	250	500	1.0k	2.0k	4.0k	8.0k	16.0k
DAYTIME 07:00 - 23:00 LAeq 16 HOUR & Corresponding LAmaz 16 HOUR	46.2	83.8	38.0	54.5	47.3	41.6	39.4	38.1	32.8	35.5	44.0	21.6
NIGHT TIME 23:00 - 07:00 LAeq 8 HOUR & Corresponding LAmaz 8 HOUR	43.6	88.2	35.0	55.6	40.8	37.8	35.2	33.4	33.7	34.9	41.1	26.5

DAYTIME NOISE LEVELS 07:00 - 23:00 1 HOUR SAMPLES												
Date / Time	LAeq	LAmaz	LA90	63	125	250	500	1.0 k	2.0 k	4.0 k	8.0 k	16.0 k
07:00 - 08:00	47.7	76.3	38.3	48.8	44.4	40.4	37.0	36.2	29.8	37.4	47.0	22.9
08:00 - 09:00	44.2	80.9	37.0	49.3	43.6	39.5	36.6	34.5	27.4	35.7	42.1	18.1
09:00 - 10:00	40.9	71.7	37.5	49.6	44.3	39.4	36.0	34.9	28.7	30.1	36.1	17.8
10:00 - 11:00	42.5	62.3	40.3	53.1	48.0	40.9	39.2	37.5	32.1	31.4	31.5	17.5
11:00 - 12:00	45.3	70.1	39.4	54.8	50.2	45.3	43.1	40.5	33.2	31.0	31.3	16.7
12:00 - 13:00	42.2	59.7	38.8	53.0	48.3	41.4	39.3	37.2	31.8	29.8	28.9	16.8
13:00 - 14:00	41.7	64.4	38.3	53.8	47.8	40.2	37.2	36.1	30.6	30.9	34.1	17.4
14:00 - 15:00	43.6	55.6	41.5	54.1	48.2	41.7	39.9	38.5	33.7	33.6	33.1	17.5
15:00 - 16:00	42.9	57.5	40.3	55.6	46.7	40.5	38.8	38.2	32.9	32.7	31.9	16.8
16:00 - 17:00	44.3	64.4	41.5	56.9	48.4	41.9	40.2	39.6	34.5	32.3	34.9	17.2
17:00 - 18:00	45.9	66.4	42.2	57.1	51.1	45.5	43.0	41.2	36.4	30.7	29.3	15.3
18:00 - 19:00	48.0	80.1	43.8	57.8	49.3	43.5	42.1	41.9	38.1	35.4	44.1	21.0
19:00 - 20:00	54.8	83.8	39.9	56.5	43.4	39.6	38.1	37.7	33.2	44.8	54.6	28.9
20:00 - 21:00	40.5	62.2	38.3	54.3	43.5	38.8	36.6	36.3	30.2	27.9	30.3	13.8
21:00 - 22:00	39.5	61.2	37.7	52.4	43.6	39.6	36.6	35.3	28.4	24.4	26.1	23.2
22:00 - 23:00	39.1	52.5	37.4	51.9	42.3	39.6	36.7	34.8	26.8	21.0	26.5	26.7

NIGHT TIME NOISE LEVELS 23:00 - 07:00 15 MINUTE SAMPLES												
Date / Time	LAeq	LAmaz	LA90	63	125	250	500	1.0 k	2.0 k	4.0 k	8.0 k	16.0 k
23:00 - 23:15	38.5	52.1	37.1	52.1	39.6	36.0	35.2	34.6	27.0	24.9	28.4	26.7
23:15 - 23:30	39.4	54.2	36.8	51.2	41.9	39.9	37.7	34.8	26.4	21.7	26.2	26.4
23:30 - 23:45	40.1	54.5	36.7	51.8	45.1	42.4	37.5	34.5	27.4	25.3	28.3	27.2
23:45 - 00:00	37.2	49.9	35.2	51.9	38.1	34.4	34.2	33.3	25.9	22.4	27.4	27.1
00:00 - 00:15	35.8	43.2	34.6	50.0	38.4	34.1	32.5	31.7	24.4	19.6	26.8	27.2
00:15 - 00:30	39.1	59.7	34.6	52.3	37.6	38.3	38.1	34.1	24.9	17.6	27.0	27.1
00:30 - 00:45	43.4	59.2	40.0	51.2	38.6	34.1	35.4	35.0	34.8	37.7	37.6	27.6
00:45 - 01:00	34.0	45.2	32.4	51.7	37.3	32.4	31.2	29.5	21.8	16.5	24.2	25.9
01:00 - 01:15	34.5	53.5	32.2	51.9	36.8	34.2	31.0	29.5	22.2	19.4	26.0	27.1
01:15 - 01:30	32.8	44.5	31.4	51.8	36.4	30.9	28.7	26.8	20.5	19.1	26.0	27.8
01:30 - 01:45	34.1	43.8	32.4	50.4	36.7	31.0	29.4	28.0	23.3	23.7	27.5	27.9
01:45 - 02:00	35.4	42.6	33.5	52.3	35.7	32.4	31.8	29.6	25.1	24.9	27.4	26.9
02:00 - 02:15	36.5	45.2	35.4	52.4	37.0	34.9	33.7	31.5	26.3	23.4	25.6	26.2
02:15 - 02:30	34.8	52.4	33.3	52.9	34.5	32.7	31.5	29.3	24.1	23.4	25.9	26.2
02:30 - 02:45	36.1	48.6	34.9	59.5	37.4	34.1	31.6	30.0	24.0	22.6	26.9	26.8
02:45 - 03:00	35.6	48.4	33.1	55.7	35.8	34.7	31.1	28.7	24.6	25.2	28.3	27.1
03:00 - 03:15	34.0	43.6	32.4	53.4	35.2	33.4	29.8	28.2	23.1	21.2	25.6	27.0
03:15 - 03:30	36.8	49.4	35.3	60.1	38.4	34.8	32.2	30.5	25.1	25.1	27.3	26.6
03:30 - 03:45	33.6	41.0	32.2	54.8	35.2	32.5	29.3	28.0	21.4	19.3	25.9	26.8
03:45 - 04:00	33.5	46.8	31.3	53.3	34.1	31.8	28.8	27.6	21.7	21.7	27.0	26.9
04:00 - 04:15	34.1	44.9	31.5	53.5	35.5	33.0	29.7	28.4	22.3	17.8	27.6	27.1
04:15 - 04:30	35.5	50.0	33.9	57.3	37.8	34.9	31.6	29.6	23.6	19.3	26.9	23.8
04:30 - 04:45	43.6	74.4	35.3	60.5	38.9	35.1	32.6	29.9	23.2	29.7	43.4	23.8
04:45 - 05:00	45.3	71.7	33.3	54.7	37.0	34.2	32.0	30.3	30.2	35.5	44.8	22.3
05:00 - 05:15	36.8	63.7	33.3	48.0	39.8	34.7	32.6	29.8	23.7	25.4	32.7	13.5
05:15 - 05:30	41.4	65.9	37.0	60.2	40.4	37.3	35.1	32.5	26.0	32.5	38.2	15.0
05:30 - 05:45	50.2	80.3	35.9	57.2	39.9	37.2	35.1	32.0	25.7	37.7	50.5	27.9
05:45 - 06:00	40.5	67.5	36.9	56.6	41.5	38.4	35.4	33.8	28.4	31.4	35.1	15.5
06:00 - 06:15	42.9	71.1	39.0	60.6	43.6	39.6	36.9	35.5	29.6	31.8	39.6	18.5
06:15 - 06:30	49.7	77.1	38.4	51.3	44.4	39.7	36.5	35.3	28.5	41.3	49.0	24.3
06:30 - 06:45	50.5	77.5	40.1	57.2	45.9	41.6	37.8	36.8	29.8	41.9	49.7	23.5
06:45 - 07:00	53.2	88.2	40.7	56.9	49.7	47.4	44.5	42.8	47.9	46.5	46.1	33.0





22 APPENDIX C – BS 4142:2019+A1:2019 INFORMATION

In accordance with BS 4142:2014:A1:2019, section 12, the following information is provided.

22.1 Professional Competence

Acoustic Consultant	Mr Brian Scrivener MIOA
Qualifications	Member of the Institute of Acoustics (MIOA)
Date Certified	June 2003
Time Operating as an active Noise Consultant	Permanently Since June 2003
Professional Status	Noise Consultant
Professional Statement	
I have been active within the field of noise consultancy and noise control engineering since I joined the company in April 1997. Working my way through the company and gaining experience in this specialist field, I qualified as a noise consultant in June 2003 when I passed my Diploma in Noise Control & Engineering from Epsom College under the tutor of Dr Latha Vesudevan. Subsequently I was awarded the status of 'Member of the Institute of Acoustics (MIOA)'. Since then, I have taken over the company and continued to work and develop my professional competence within the field of acoustic consultancy, engineering and noise control.	

22.2 Site Status

Site Attended By	Mr Brian Scrivener MIOA
Baseline Measurements Conducted by	Mr Brian Scrivener MIOA
Site Source Measurements Conducted By	Mr Brian Scrivener MIOA

22.3 Measurement Information – Location 1

Details & Justification	Measurement position 1 was located at the rear of the existing premises, representative of the Nearest Noise Sensitive Premises
Height from Ground	1.5m
Reflective Surfaces	None (Free Field)
Distance to NSP	10m
Distance to Source	1m
Topographical Change (m)	None
Ground between Source and Receiver	Soft Landscaping
Windshield Information	Norsonic Outdoor Microphone Protection Kit Model No: 1212
Distance from Source to Receiver	10m
NSP* - Noise Sensitive Premises	

23 APPENDIX D – UNCERTAINTY BUDGET

Sources of Uncertainty	Uncertainty Notes	Commentary	Value (half Width)	Convert to Same Units (dB)	Distribution Divisor			Standard Uncertainty (u) dB
					Normal	Rectangular	Other	
Measurement Position	Choice of position, ,	1m in 20m		0.2		rect($\sqrt{3}$)		0.13
	microphone orientation	Type 1 0 - 30deg	0.4		Normal			0.50
Instrumentation	Calibration	Calibration Drift	0.1		Normal			0.10
	Accuracy and precision (type 1)	Type 1 practical	1.9			rect($\sqrt{3}$)		0.50
Background Noise Level	Timing of Measurement							
Background Noise Level	Modal Analysis Day	Calculated Standard Deviation	3.7				s/ $\sqrt{n}$	0.39
Background Noise Level	Modal Analysis Night	Calculated Standard Deviation	2.2				s/ $\sqrt{n}$	0.16
Combined Uncertainty (root sum of squares)								1.05
Expanded Uncertainty U = Kuc (95% Confidence K =2)								2.1
Final Answer Expressed as Value +/- U dB with a confidence Level of 95%								
REFERENCE: Uncertainty Budget Calculated in line with M3003: The Expression of Uncertainty and Confidence in Measurement Edition 3, November 2012 and A Good Practice Guide on the Sources and Magnitude of Uncertainty Arising in the Practical Measurement of Environmental Noise N J Craven, G Kerry Edition 1a – May 2007.								

#END OF REPORT#