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Environmental Associates

Noise Assessment

Preston Street, Whitehaven

October 2023

Aldi Stores Ltd

Noise Assessment

Preston Street, Whitehaven

Client: Aldi Stores Ltd

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Report Version	Prepared By	Reviewed By
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1 INTRODUCTION

1.1 Background

1.1.1 NJD Environmental Associates LTD was instructed by Aldi Stores Ltd to undertake a noise assessment to accompany a planning application for a new food-store development on land off Preston Street, Whitehaven. The site location is provided below in Drawing 1, with the site layout shown in Drawing 2.

Drawing 1: Site location

Drawing 2: Proposed layout

1.1.2 A report has been prepared to accompany the planning application; with noise measurements taken in the vicinity of the nearest existing receptors, calculations performed using noise modelling software, and the results interpreted with reference to the relevant standards.

2 PLANNING POLICY AND GUIDANCE

2.1 National Planning Policy Framework (NPPF)

2.1.1 The revised NPPF published in July 2021 provides the following with regards to noise, set out at paragraph 185:

"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."

2.1.2 It is clear that the NPPF seeks to limit the exposure of new development to unacceptable levels of noise, although the policy does not seek to prescribe what constitutes an unacceptable level of noise. Noise Policy Statement for England (NPSE)

2.1.3 The Department for Environment, Food and Rural Affairs (DEFRA) published the NPSE in March 2010.

2.1.4 The explanatory note of NPSE defines the terms used in the NPPF:

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

'Significant adverse' and 'adverse;

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

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.

LOAEL – Lowest Observed Adverse Effect Level

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

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

SOAEL – Significant Observed Adverse Effect Level

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

2.1.5 The NPSE does not define the SOAEL numerically, stating at paragraph 2.22:

"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 specific SOAEL values in the NPSE provides the necessary policy flexibility until further evidence and suitable guidance is available."

2.1.6 There is no local or national guidance on how the three terms should be defined numerically, it is for the assessor to collate and interpret appropriate guidance on noise, such as may be found in British Standards, and correlate the guidance with the concepts of NOEL, LOAEL and SOAEL.

2.2 Planning Practice Guidance: Noise (PPGN)

2.2.1 In March 2014, the Government released the PPG on noise. This document sets out a number of principles and reinforces the guidance set out in the NPPF and NPSE.

2.2.2 Paragraph 001 of PPGN notes that:

"Noise needs to be considered when new development may create additional noise and when new developments would be sensitive to the prevailing acoustic environment."

2.2.3 It goes on to note in paragraph 003 that:

"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."*

2.2.4 The PPGN broadly repeats the NPSE definitions of the NOEL, LOAEL AND SOAEL and it provides a summary table to explain how the terms relate to each other and to typical human response to sound. The table is replicated below in Table

1.

Table 1: PPGN Noise Exposure Hierarchy			
Perception	**Examples of Outcome**	**Increasing Effect Level**	**Action**
Not Noticeable	No Effect	No Observed Effect	No specific measures required
Noticeable and not intrusive	Noise can be heard but does not cause any change in behaviour or attitude. Can slightly affect the acoustic character of the area but not such that there is a perceived change in the quality of life.	No Observed Adverse Effect	No specific measures required
Lowest Observed Adverse Effect Level			
Noticeable and intrusive	Noise can be heard and small changes in behaviour and/or attitude, e.g. turning up volume of televisions; speaking more loudly; where there is no alternative ventilation, having to close windows for some of the time because of the noise. Potential for some reported sleep disturbance. Affects the acoustic character of the areas such that there is a perceived change in the quality of life.	Observed Adverse Effect	Mitigate and reduce to a minimum
Significant Observed Adverse Effect Level			
Noticeable and disruptive	The noise causes a material change in behaviour and/or attitude, e.g. avoiding certain activities during periods of intrusion; where there is no alterative ventilation, having to keep windows closed most of the time because of the noise. Potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to sleep. Quality of life diminished due to change in acoustic character of the area.	Significant Observed Adverse Effect	Avoid
Noticeable and very disruptive	Extensive and regular changes in behaviour and/or inability to mitigate effect of noise leading to psychological stress or physiological effects, e.g. regular sleep deprivation/awakening; loss of appetite, significant, medically definable harm, e.g. auditory or non-auditory	Unacceptable Adverse Effect	Prevent

2.2.5 The PPGN provides advice on how to mitigate the effects of noise, noting that there are options to reduce noise at source, to optimise site layouts and to use planning conditions.

3 ASSESSMENT METHODOLOGY

3.1 BS8233:2014 and WHO 1999 Guidance Levels

3.1.1 BS8233:2014 *'Guidance on sound insulation and noise reduction for buildings'* provides guidance for the control of noise in and around buildings. It applies to the design of new buildings, or refurbished buildings undergoing a change of use.

3.1.2 BS8233 refers to the World Health Organisation research and recommendations when defining acceptable and upper guidance noise levels within gardens during the day, and within habitable rooms in dwellings during the day and night-time periods as follows:

Table 2: Summary of BS8233 and WHO guidance noise levels

Activity	Location	0700 to 2300h	2300 to 0700h
Resting	Living room	35dB LAeq,16h	-
Relaxing	Gardens	55dB LAeq,16h	-
Dining	Dining room	40dB LAeq,16h	-
Sleeping (daytime resting)	Bedroom	35dB LAeq,16h	30dB LAeq,8h 45dB LAmax

3.2 IEMA Guidelines for Environmental Noise Impact Assessment (2014)

3.2.1 Noise associated with the car park has been assessed with reference to the IEMA guidelines for environmental noise impact assessment.

3.2.2 The IEMA guidelines were introduced in 2014 and are intended to be applied to development of any scale, and include important principles for effective integration into the environmental impact assessment (EIA) process and other assessments.

3.2.3 The IEMA Guidelines for Environmental Noise Assessment address the key principles of noise impact assessment and are applicable to all development proposals where noise effects may occur. The guidelines set out key principles for noise impact assessment relevant to all types of projects, regardless of size.

3.2.4 The guidance provides advice with regards to the collection of baseline noise data, prediction of noise levels and how noise should be assessed. The guidance recognizes that the effect associated with a noise impact will be dependent on a number of factors including, but not limited to, the sensitivity of the receptor, frequency and duration of the noise source and time of day.

3.2.5 The Guidelines accept that a simple change in noise levels using a single noise indicator may fail to adequately reveal the actual noise impact of the proposal.

3.2.6 Absolute levels such as those set out in WHO Guidelines are also considered and the Guidelines suggest that a change in noise levels in an area where the existing levels are above WHO Guidelines should be considered as having more of an adverse effect than a change in noise levels in an area where existing levels are well below.

3.2.7 The Guidelines stop short of providing specific assessment criteria which developments should achieve, but instead suggests that the methodology adopted should be selected on a site-by-site basis regarding relevant national and local standards. The Guidelines contain effect descriptors for changes in noise levels and for noise effect levels. These are summarised below:

Table 3: IEMA Impact from the Change in Sound Levels

Long-term Impact Classification	Short-term impact classification	Sound Level Change Plat
Negligible	Negligible	> 0 dB and < 1 dB
	Minor	> 1 dB and < 3 dB
Minor	Moderate	> 3 dB and < 5 dB
Moderate	Major	> 5 dB and < 10 dB

3.3 BS4142:2014+A1:2019 Industrial and Commercial Sound Guidance

3.3.1 Where industrial or commercial noise is present or proposed and likely to impact a residential receptor, the guidance contained within BS 4142:2014+A1:2019 '*Methods for rating and assessing industrial and commercial sound*' should be followed. The guidance enables the effects of such noise on people nearby to be assessed and the associated risks to be minimised.

3.3.2 The guidance provides a methodology for determining an initial estimate of significance through subtracting the measured background noise level from the rating level (the specific sound level of the source corrected for any distinctive acoustic characteristics).

3.3.3 Typically, the greater the difference, the greater the magnitude of the impact.

- A difference of around +10dB or more is likely to be an indication of a significant adverse impact, depending on the context.
- A difference of around +5dB is likely to be an indication of an adverse impact, depending on the context.
- The lower the rating level is relative to the measured background sound level, the

less likely it is that the specific sound source will have an adverse impact or significant adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, depending on the context.

3.3.4 The context, as defined within BS4142, relates to the following factors:

- The absolute level of sound.
- Character and level of the residual sound compared to the character and level of the specific sound.
- Acoustic design measures.

3.4 German Standard RLS 90, (Guideline for Noise Protection on Streets).

3.4.1 Due to the provision of car parking areas associated with the development, the calculation procedures for car park noise contained within German Standard RLS 90 have been adopted, as used by default in CadnaA environmental noise modelling software.

3.4.2 The standard is an effective calculation model that is able to determine the noise rating level of road traffic and is the most relevant calculation method used in Germany.

3.4.3 The calculation considers average hourly traffic flow, separated into vehicles types, the average speed for each group, the dimensions, geometry and type of the road and of any natural and artificial obstacles.

3.4.4 In the absence of an equivalent British standard, it is considered an appropriate standard to adopt for the purpose of this study.

3.5 Pre-application Correspondence from Environmental Health.

3.5.1 Via email and phone correspondence (on 27th July 2023) with Cumberland Council's Environmental Health department, the assessment methodology was discussed and the following was agreed:

- A baseline noise survey will be undertaken over a number of days to include weekday and weekend monitoring.
- An assessment in accordance with BS4142: 2014+A1:2019 will be produced to assess the impacts of HGV deliveries, HGV unloading events and new building service plant, on the closest existing sensitive receptors.
- Additionally, an assessment in accordance with IEAM Guidelines will be

produced to assess the impact of the car park on the closest existing sensitive receptors.

4 NOISE SURVEY

4.1 Introduction

4.1.1 Between the 25th and 30th August 2023, noise measurements were taken in the vicinity of the development site in order to determine representative background noise levels at the nearest existing noise sensitive receptor locations.

4.1.2 Measurements were taken using Acoem Fusion sound level meters. The Class 1 instruments logged 1/3 octave levels throughout the measurements, in addition to audio recordings to aid subsequent analysis. The instruments were calibrated before and after the measurements to a reference level of 94dB, with no notable drift observed.

4.1.3 The sound level meters (SN: 11483 and SN: 11484) and field calibrator (SN: 34675377) all hold valid calibration certificates traceable to national standards, compliant with the requirements of BS7445. All calibration certificates can be made available upon request.

4.2 Monitoring Locations

4.2.1 Measurements were taken at the locations shown in Drawing 3 below, following the guidance contained within BS7445.

Drawing 3: Noise monitoring locations

4.2.2 The monitoring locations were as follows:

- **ML1:** Located towards the south-east of the site, in an area of trees and vegetation considered to be the closest accessible location to the noise sensitive receptors to the east, representative of the existing residual noise environment, where equipment could be securely deployed.

  The measurement took place during the following dates and times:
  - 1225h on the 25th August, to 1350h on the 27th August 2023.

- **ML2:** Located towards the west of the site, in an area of trees and vegetation considered to be the closest accessible location to the noise sensitive receptors, representative of the existing background noise environment, where equipment could be securely deployed.

  The measurement took place during the following dates and times:
  - 1305h on the 25th August, to 1310h on the 30th August 2023.

4.2.3 The microphones and pre-amps were mounted approximately 1.5m above ground level in free field conditions, equipped with manufacturer supplied

windshield and nose cone.

4.2.4 The acoustic environment was found to be primarily influenced by local road traffic noise associated with Preston Road to the west and Coach Road to the south.

4.2.5 Weather conditions throughout the survey were favourable; with windspeeds typically between 2 to 5ms^{-1}. There was a small period of rain recorded during the measurements which has been excluded from the data.

Uncertainties

4.2.6 Background noise measurements have been undertaken with high precision Class 1 instruments calibrated before and after the survey by an appropriately qualified and experienced technician.

4.2.7 The noise monitoring data has been recorded during the school summer holidays, where existing background and ambient noise levels should generally be slightly lower.

4.2.8 The noise models presented in this assessment calculate noise propagation to the methodologies contained within ISO 9613-2 Acoustic – Attenuation of sound during propagation outdoors. This gives a higher level of accuracy for the level of attenuation provided by intervening topography and barriers than the method provided by BS5228.

4.2.9 Whilst an element of uncertainty will inherently exist in any noise assessment due to the large number of potential variables, all reasonable steps have been taken to reduce this, as outlined above.

4.2.10 As such, the level of uncertainty should not be significant and the results and conclusions should be considered robust.

4.3 Existing Noise Levels

4.3.1 The noise levels from the identified monitoring locations are summarised in Table 4 below.

Table 4: Summary of measured noise levels (dBA)				
Date	Daytime (0700 – 2300h)		Night-time (2300 – 0700h)	
	LAeq	LA90	LAeq	LA90
ML1				
Friday 25th August	47	41	42	34
Saturday 26th August	46	41	40	32
Sunday 27th August	47	40	41	33
ML2				
Friday 25th August	48	42	43	33
Saturday 26th August	47	41	42	32
Sunday 27th August	48	42	43	33
Monday 28th August	47	39	43	32
Tuesday 29th August	48	43	42	23
Wednesday 30th August	50	45	46	38

4.3.2 Full details of the measurements are presented in Appendix 1.

5 DESCRIPTION OF PROCESS

5.1.1 The proposed development has the potential to generate noise that may be perceptible at existing and proposed receptor locations. The identified sources of noise are as follows:

- Car park
- External plant
- Deliveries

5.1.2 The hours of operation for the processes are proposed as follows:

- Store:
  - Monday to Sunday – 0800 to 2200h
- Deliveries:
  - 4 no. goods deliveries by Class 1 HGV (with refrigeration box trailer) per day from the Aldi distribution depot.
  - Mon to Sun – 24hrs.

6 CADNAA NOISE MODELS

6.1 Input Data

6.1.1 Noise models have been developed using CadnaA software based on OS topographic data (10m resolution) of the site and surrounding land, with buildings positioned to reflect the proposed conditions.

6.1.2 The nearest Existing Sensitive Receptors (ESRs) have been identified on Figures 1,

2 and 3.

6.1.3 For the purpose of these calculations, the ground absorption has been set to G=0.25 (which represents predominantly acoustically hard ground around the development site), with buildings and roads set to G=0 (acoustically hard and reflective), with two orders of reflection considered.

6.1.4 During the daytime scenarios, the propagation of noise has been evaluated across a 1.5m high grid. During night-time, the propagation of noise has been evaluated across a 4m high grid.

6.2 Intrinsic Mitigation

6.2.1 An acoustic fence with a height of 2.5m is proposed to be located around the south and west of the plant area and an acoustic fence with a height of 2.5m is to be located around the southern edge of the car-park. The location of the fencing is shown in Figure 1.

6.3 Transportation Sources

6.3.1 Traffic data has been provided by the project team's transport consultants. Andrew Moseley Associates confirmed during the daytime peak hour on a Saturday, the resultant number of vehicles arriving would be 131 and the number of vehicles leaving would be 137, totalling 268 trips.

6.3.2 From architects plans the number of car-parking spaces totals 96 spaces.

6.3.3 The car park has been modelled in accordance with Section 3.4 above, in the absence of other relevant standards.

6.3.4 Based on the data provided, it is therefore calculated that each space will be used 2.8 no. times during a 1-hour period in the daytime peak period, equating to each space being used 100% of the time during any daytime hour.

6.3.5 The car-park has only been assessed during the daytime period as opening hours for the store are proposed to be 0800 - 2200h.

6.4 External Plant

6.4.1 Table 5 provides details relating to noise from external plant that has been evaluated as part of the modelling exercises presented in the Figures. Noise levels have been provided by the client via manufacturers data sheets.

Table 5: External Plant Noise Levels (dBA)

Source	Number of Units	Sound Pressure Level LAeq,T (dBA)	Estimated On-time (% of reference period)	Sound Power Level Corrected for Distance and On-time (LwA)
CLADE Gas Cooler G32-145-Cu	1	31.8 @ 10m	100%	63
CLADE Reach-in Pack	1	32 @ 10m	100%	63
Panasonic Chiller Condensing Unit OCU-CR400VF8	1	33 @ 10m	100%	64
Panasonic Freezing Condensing Unit OCU-CR400VF8A	1	36.1 @ 10m	100%	67
Vaillant Heat Pump	3	46 @ 1m	100%	57

6.4.2 The noise data from the proposed external plant has been programmed into CadnaA as a series of point sources. The heights have been estimated based manufacturers details.

6.4.3 The above manufacturer levels are based on those measured in an anechoic chamber (i.e. without any reflections). The CadnaA noise model therefore corrects these levels by accounting for reflections from the building(s) and ground.

6.5 Deliveries

6.5.1 Source data for deliveries has been derived from a study conducted by Paul Horsley Acoustics Ltd dated March 2020. The purpose of the study was to provide

representative noise levels for different noise generating processes associated with proposed Aldi schemes.

6.5.2 The study outlines that the following levels are considered typical of a standard Aldi delivery, separated into the distinct different phases of the process.

Table 6: Delivery Noise Levels (dBA)			
Activity	**Typical Event Duration**	**Mean Distance**	**LAeq dB**
HGV arrives and reverses to unloading dock	1 minutes	2 metres	71 dB
Unloading of produce by pallet truck, all internally within the delivery trailer to the loading dock	25 minutes	2 metres	58 dB
General off-loading activities	10 minutes	2 metres	56 dB
HGV departs loading dock	1 minutes	2 metres	70 dB

6.5.3 The study outlines that directivity associated with the process evaluated is considered to be dependent on reflections from 2 no. solid surfaces (i.e., Q=4). On this basis, the levels are therefore converted to sound power levels for use in the modelling exercise as follows:

Table 7: Delivery Sound Power Levels Corrected for Distance, On-time and Directivity (dBA)		
Activity	**Daytime (60 min ref. period)**	**Night-time (15 min ref. period)**
HGV arrives and reverses to unloading dock	64	70
Unloading of produce by pallet truck, all internally within the delivery trailer to the loading dock	65	69
General off-loading activities	59	65
HGV departs loading dock	63	69

6.5.4 As the total delivery period is found to be 37 minutes, the full process can be evaluated during the daytime 1-hour reference period.

6.5.5 As the specific noise is expected to exceed the 15-minute night-time reference period, the assessment of impact is based on the arrival of the HGV (1 minute) and then the subsequent 14 minutes of unloading of produce, which represents the worst case.

6.6 Noise Model Factors and Limitations

6.6.1 The noise models presented in this assessment calculate noise propagation to the methodologies contained within ISO 9613-2 'Acoustic – Attenuation of sound during propagation outdoors'. This gives a higher level of accuracy for the level of attenuation provided by intervening topography and barriers than the method provided by BS5228.

6.6.2 All noise level predictions are based on simplified models of sound generation and propagation; however, some local conditions such as gusts of wind or bursts of turbulence in the air are too complex to be factored into the algorithms.

6.6.3 The noise models may therefore be subject to some minor uncertainties; however, it is noted that all predictions assume theoretical down-wind propagation from all sources to all receptors, and as such the models are more likely to over-predict noise levels compared to real-life conditions.

6.6.4 It is noted that certain architectural intricacies are beyond the capability of the noise modelling software parameters. However, the models are deemed to closely replicate the dimensions of all significant structural elements wherever possible.

6.6.5 The primary factor that governs the validity of the models is the quality of the input data. As such, all practicable means have been explored to ensure that the data used in the models is as accurate as possible.

7 CAR PARK NOISE ASSESSMENT

7.1 Noise Model Results

The results from the Car Park noise assessment from Figure 1 are shown in Table 8 below.

Table 8: Car Park Noise Model Results (dB LAeq,T)

ESR Location	Daytime (0700 2300)
ESR1	47
ESR2	40
ESR3	22
ESR4	38

7.1.1 The predicted levels from this scenario have been compared to the lowest measured baseline noise levels at ML2, which is considered representative of the closest affected receptor.

7.1.2 The data from Table 8 indicates that the baseline noise levels can be expected to be 47 dB LAeq,T during the daytime (0700-2300h).

7.1.3 Assuming the highest predicted noise level for operational noise, i.e., at ESR1, for the purpose of a robust assessment, the IEMA process has been conducted as follows:

Table 9: Summary of IEMA Assessment	
Daytime	
Description	**ESR1**
Measured Baseline (dB LAeq)	47
Operational Noise (i.e., Noise from car park) (dB LAeq)	47
With Development (i.e., Baseline and operational noise log addition) (dB LAeq)	50
Predicted Resultant Increase over Baseline Noise Level (dB LAeq)	+3
IEMA Significance of Impact (short term)	Minor
IEMA Significance of Impact (long term)	Negligible

7.1.4 With reference to the IEMA criteria, the results from Table 9 suggest that the significance of the impact during the daytime is likely to be **Minor** in the short term and **Negligible** in the long term.

7.1.5 However, as noted in the guidance, a basic comparison of 'baseline' and 'with development' noise levels are not sufficient to adequately define the overall significance of any particular development.

7.1.6 It is therefore important to consider other pertinent factors, including:

- **Spectral Characteristics**: Noise from car park is likely to be similar to the baseline environment given the location of the development next to a busy road network. Furthermore, part of the site is currently used as an existing carpark.
- **Frequency of Occurrence**: The frequency of occurrence will depend ultimately on customer demand. The scenario modelled assumes all car parking areas being occupied during the daytime, and all car parking areas. However; this is only likely to occur during the busiest periods of peak demand, During other periods, usage of the facilities is likely to be significantly lower, and this will be reflected by proportionately lower noise levels.

7.1.7 Taking into consideration the factors set out above, the impact from the car park is likely to be **Negligible** in both the short and long term, during the proposed

operational hours.

8 BS4142 ASSESSMENT

8.1 Background Noise Level

8.1.1 The data from ML2 has been analysed to determined representative background noise levels during the daytime and night-time periods. The 15-minute periods (as logged and presented in Appendix 1) have been assessed to determine the modal average level during the respective periods.

8.1.2 Review of the data indicates that these values are representative of the background values that are typical in the vicinity of the receptor locations. The results are shown in Table 10.

8.1.3 It should be noted that the lowest modal average level was recorded over a bank holiday, and is at least 9dB lower than all other monitored night-time levels. As such the assessment is considered worst-case.

Table 10: Summary of background noise levels (dBA) at ML2

Location:	Daytime Modal (2300 – 0700h)	Night-time Modal (2300 – 0700h)
ML2	43	24

8.2 Specific Noise Level

8.2.1 The results from Figures 2 and 3 (summarised in Table 11) show the calculated specific noise levels at the different receptor locations during the respective day and night-time periods for the scenarios assessed.

8.2.2 To ensure a robust assessment, the highest figures from the most exposed receptor location have been used in the BS4142 assessment.

Table 11: Summary of calculated specific noise levels (dBA)

Location	Daytime LAeq,1h	Night-time LAeq,15m
ESR1	9	17
ESR2	9	18
ESR3	17	23
ESR4	21	23

8.3 Assessment of Impact

Table 12: BS4142 Assessment - Daytime		
Stage	**Noise level (dB)**	**Commentary**
	Day	
Specific sound level	21	Based on the highest calculated levels from Figure 2
Acoustic feature correction	+3	A precautionary penalty for impulsivity has been applied. No other penalties are deemed to be applicable.
Rating level	24	Specific noise level corrected for acoustic features
Background sound level	43	LA90 from ML2; reference Table 10
Excess of rating over background sound level	-19	Rating level minus background level
Initial assessment of impact	N	Negligible (**N**); Low (**L**); Minor Adverse (**M/A**); Adverse (**A**); Significant Adverse (**S/A**)
Assessment of Context	The initial assessment indicates that noise associated with the proposed operations during the daytime period is likely to result in a negligible impact, depending on the context. The context is assessed below: The specific noise level at the worst effected ESR location is predicted to be up to 21dB LAeq,T at the façade of ESR4 during the daytime period. Assuming 15dB of attenuation for a partially open window (WHO 1999), internal noise levels would be below the BS8233 internal guidance levels for living rooms and bedrooms. The specific noise (21dB LAeq,T) is also predicted to be below the prevailing residual noise during this period, indicating that it should not contribute a perceptible amount to the ambient noise experienced following development. With reference to the NPSE and PPGN; noise from the proposed development is unlikely to be clearly perceptible and should not cause any changes in behaviour or attitude to the receptor. As such, the commercial noise should not result in a perceived change in the quality of life for the receptor and the impact will reside at or below the 'LOAEL (Lowest Observed Adverse Effect Level).	
Conclusion	On balance, the commercial noise impact is considered to be **Negligible.**	

Table 13: BS4142 Assessment – Night-time		
Stage	**Noise level (dB)**	**Commentary**
	Night	
Specific sound level	23	Based on the highest calculated levels from Figure 3
Acoustic feature correction	+3	A precautionary penalty for impulsivity has been applied. No other penalties are deemed to be applicable.
Rating level	26	Specific noise level corrected for acoustic features
Background sound level	24	LA90 from ML1; reference Table 10
Excess of rating over background sound level	+2	Rating level minus background level
Initial assessment of impact	M/A	Negligible (**N**); Low (**L**); Minor Adverse (**M/A**); Adverse (**A**); Significant Adverse (**S/A**)
Assessment of Context	The initial assessment indicates that noise associated with the proposed operations during the night-time period is likely to result in a minor adverse impact, depending on the context. The context is assessed below: The specific noise level at the worst effected ESR location is predicted to be up to 23dB LAeq,T at the façade of ESR2 during the night-time period. Assuming 15dB of attenuation for a partially open window (WHO 1999), internal noise levels would be significantly below the BS8233 internal guidance levels for bedrooms. The specific noise (23dB LAeq,T) is also predicted to be significantly below the prevailing residual noise during this period, indicating that it should not contribute a noticeable amount to the ambient noise experienced following development. With reference to the NPSE and PPGN; noise from the proposed development is unlikely to be clearly perceptible and should not cause any changes in behaviour or attitude to the receptor. As such, the commercial noise should not result in a perceived change in the quality of life for the receptor and the impact will reside at or below the 'LOAEL (Lowest Observed Adverse Effect Level).	
Conclusion	On balance, the commercial noise impact is considered to be **Low.**	

9 CONCLUSIONS

9.1.1 NJD Environmental Associates has undertaken a noise assessment to accompany a planning application for a proposed food store on land off Preston Street, Whitehaven.

9.2 Car Park Noise

9.2.1 An assessment of noise associated with the use of the car park has been conducted with reference to IEMA guidelines.

9.2.2 The assessment found that noise from a worst-case scenario is likely to result in an overall **Negligible** impact in both the short term and long term, when taking context into account.

9.3 BS4142 Assessment

9.3.1 The BS4142 assessment found that during the day and night-time periods, noise from the proposed development should not give rise to an adverse impact at the closest ESRs. This is on the basis of intrinsic mitigation measures being implemented at the site, as outlined within the report.

9.3.2 It is therefore concluded that noise should not be a prohibitive factor in the determination of this planning application.

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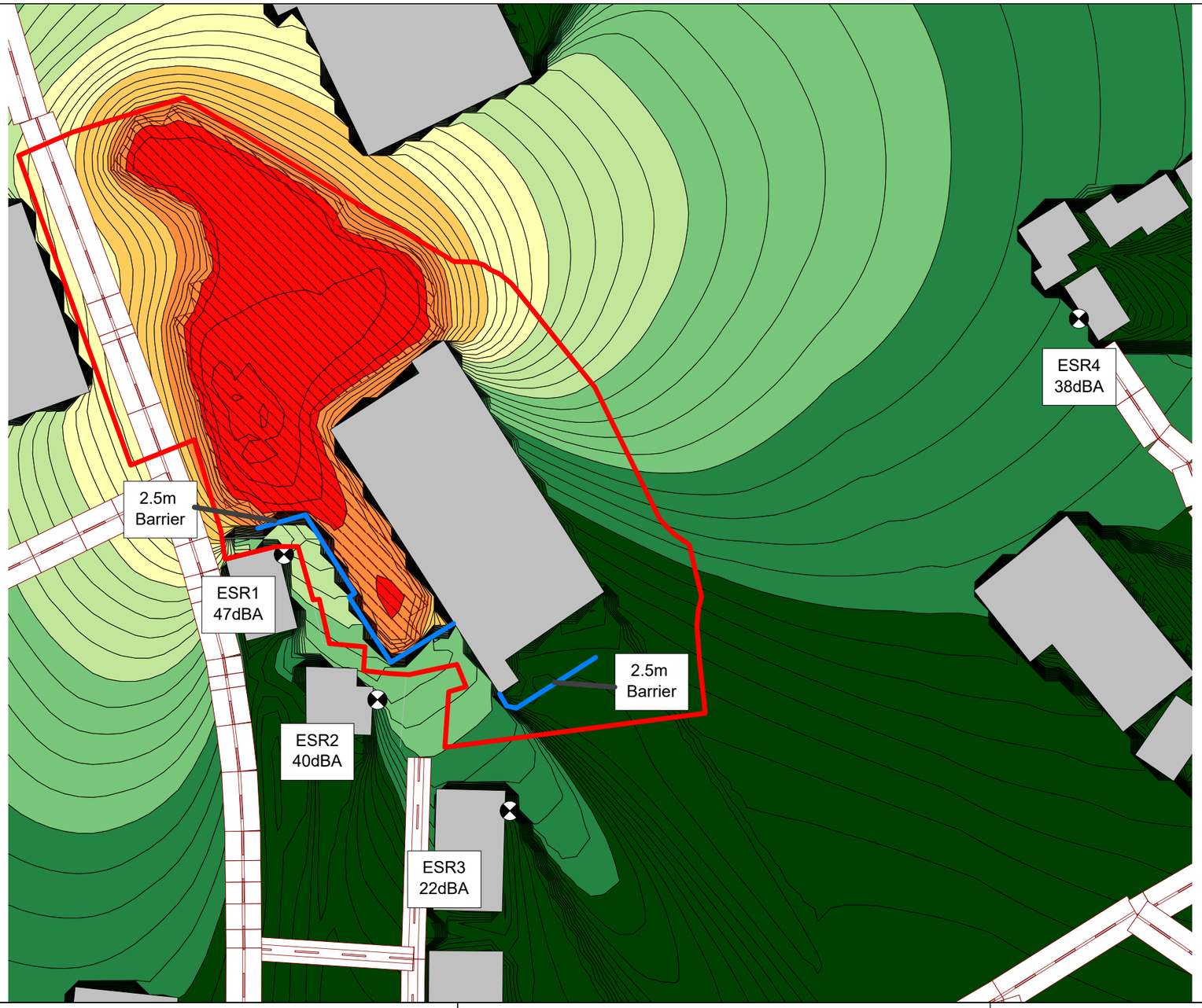
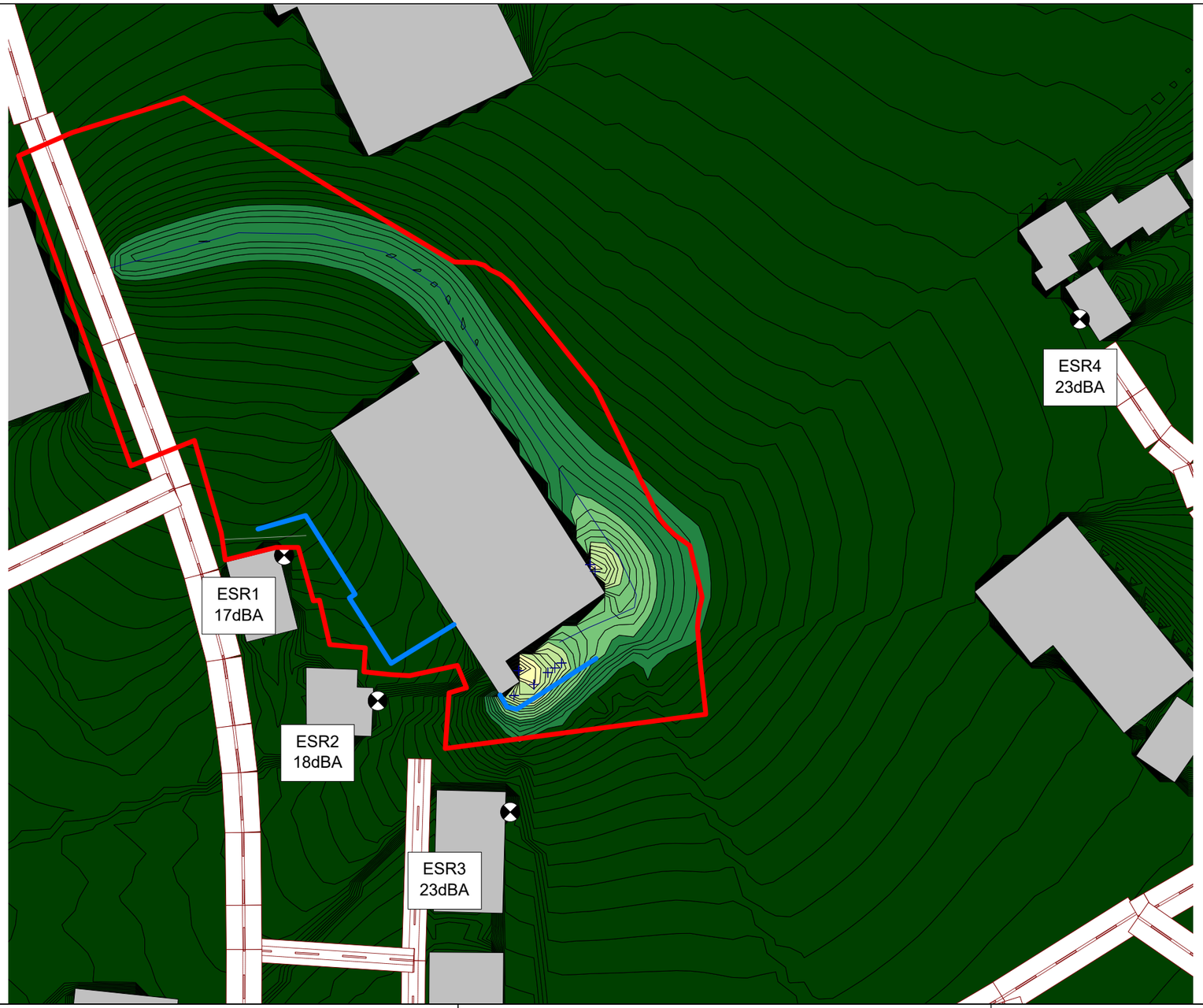
www.njdenvironmental.co.uk

Company Registration No 10956987



njd Environmental Associates	Client: Aldi Stores Ltd	Figure 1: Proposed Car Park Noise (1.5m receptor height)	0 <= ... < 35 35 <= ... < 40 40 <= ... < 45 45 <= ... < 50 50 <= ... < 55 55 <= ... < 60 60 <= ... < 65 65 <= ... < 70 70 <= ... < 75 75 <= ... < 80 80 <= ...
	Job Title: NJD23-140 Aldi, Whitehaven	Drawn By: S Griffith	Date: October 2023

njd Environmental Associates	Client: Aldi Stores Ltd	Figure 2: BS4142 Specific Noise - Daytime (1.5m receptor height)	0 <= ... < 35 35 <= ... < 40 40 <= ... < 45 45 <= ... < 50 50 <= ... < 55 55 <= ... < 60 60 <= ... < 65 65 <= ... < 70 70 <= ... < 75 75 <= ... < 80 80 <= ...
	Job Title: NJD23-0140 Aldi Whitehaven	Drawn By: S Griffith	Date: October 2023



Environmental Associates

Client:
Aldi Stores Ltd

Figure 3:
BS4142 Specific Noise - Night-time
(4.0m receptor height)

0 <= ... < 35
35 <= ... < 40
40 <= ... < 45
45 <= ... < 50
50 <= ... < 55
55 <= ... < 60
60 <= ... < 65
65 <= ... < 70
70 <= ... < 75
75 <= ... < 80
80 <= ...

Job Title:
NJD23-0140
Aldi Whitehaven

Drawn By:
S Griffith

Date:
October 2023

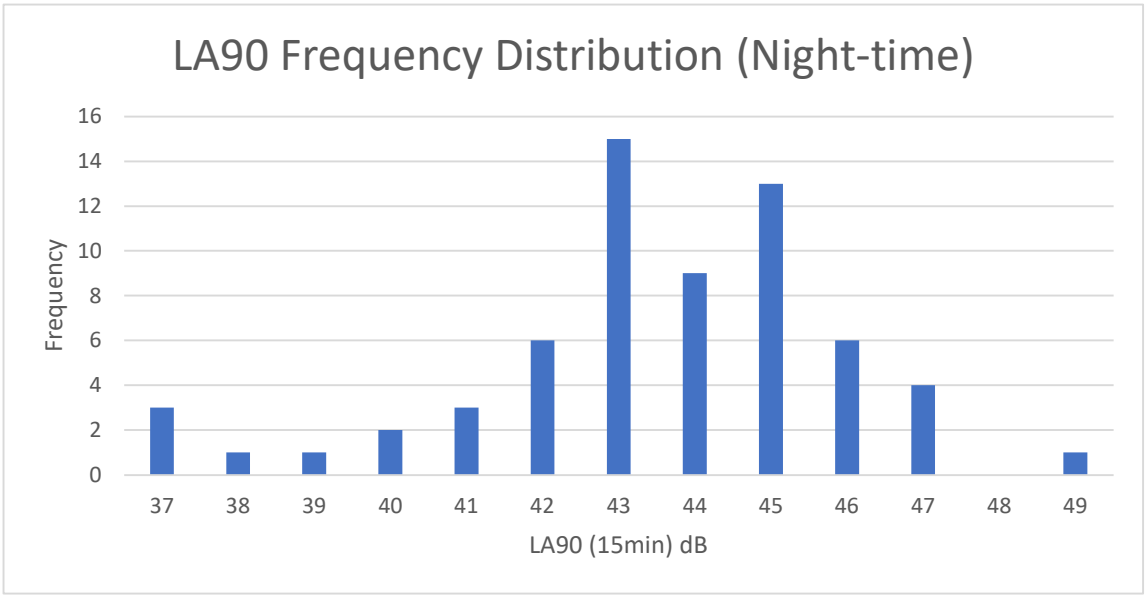
Appendix 1: Noise Measurements

File	20230825_122635_000000_1.CMG										
Location	ML1										
Data type	Leq										
Weighting	A										
Unit	dB										
Start	25/08/2023 00:00:00										
End	28/08/2023 00:00:00										
Period	Daytime (LAeq)										
Time slots	LAeq,16h	07:00	23:00	K = 0 dBA	Mon	Tue	Wed	Thu	Fri	Sat	Sun
	LAeq	Leq	Lmin	Lmax	L90	L10					
Day	dB	dB	dB	dB	dB	dB					
Fri 25/08/2023	46.7	46.7	30.7	64.1	41.0	49.1					
Sat 26/08/2023	46.0	46.0	33.5	71.0	40.6	48.0					
Sun 27/08/2023	46.7	46.7	34.1	60.6	40.1	49.2					
Period	Night-time (LAeq)										
Time slots	LAeq,8h	23:00	07:00	K = 0 dBA	Mon	Tue	Wed	Thu	Fri	Sat	Sun
	LAeq	Leq	Lmin	Lmax	L90	L10					
Day	dB	dB	dB	dB	dB	dB					
Fri 25/08/2023	41.7	41.7	31.4	60.7	34.1	45.3					
Sat 26/08/2023	40.0	40.0	26.8	63.7	32.2	43.1					
Sun 27/08/2023	41.0	41.0	29.5	56.3	32.9	44.5					

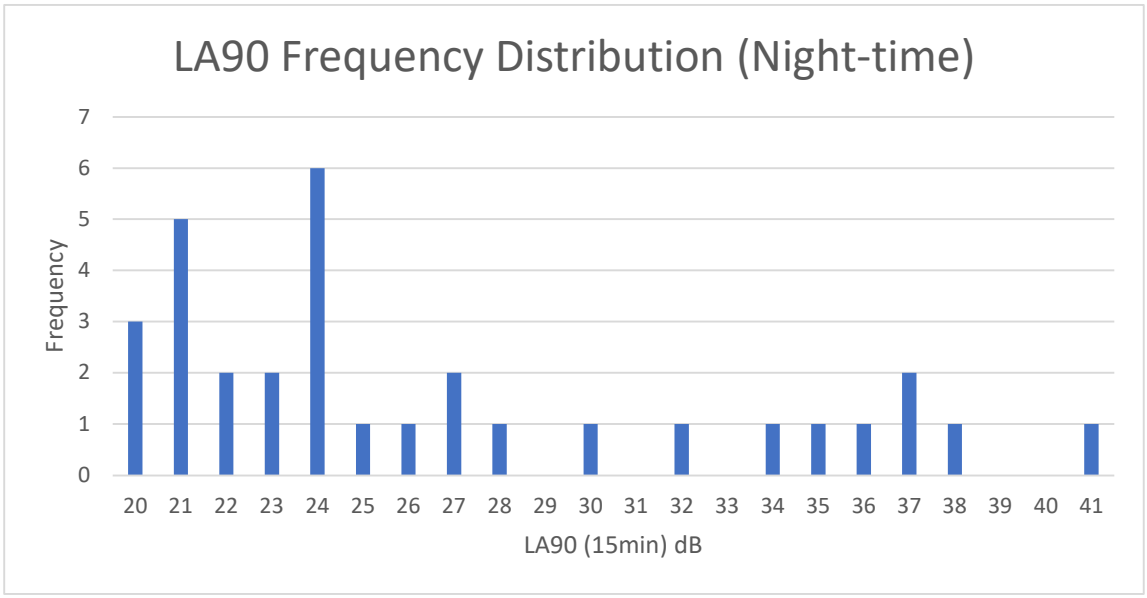
File	20230825_130641_000000_1.CMG										
Location	ML2										
Data type	Leq										
Weighting	A										
Unit	dB										
Start	25/08/2023 00:00:00										
End	31/08/2023 00:00:00										
Period	Daytime (LAeq)										
Time slots	LAeq,16h	07:00	23:00	K = 0 dBA	Mon	Tue	Wed	Thu	Fri	Sat	Sun
	LAeq	Leq	Lmin	Lmax	L90	L10					
Day	dB	dB	dB	dB	dB	dB					
Fri 25/08/2023	47.8	47.8	31.1	71.5	42.0	49.3					
Sat 26/08/2023	47.5	47.5	32.4	72.8	41.3	49.2					
Sun 27/08/2023	48.3	48.3	33.3	73.5	41.5	50.5					
Mon 28/08/2023	47.0	47.0	22.5	69.9	39.0	49.3					
Tue 29/08/2023	52.3	52.3	34.3	79.4	42.7	50.9					
Wed 30/08/2023	49.6	49.6	39.5	65.0	45.2	52.0					
Period	Night-time (LAeq)										
Time slots	LAeq,8h	23:00	07:00	K = 0 dBA	Mon	Tue	Wed	Thu	Fri	Sat	Sun
	LAeq	Leq	Lmin	Lmax	L90	L10					
Day	dB	dB	dB	dB	dB	dB					
Fri 25/08/2023	43.2	43.2	30.9	60.1	33.3	46.9					
Sat 26/08/2023	42.0	42.0	26.5	68.1	31.8	44.6					
Sun 27/08/2023	43.0	43.0	29.3	64.0	32.9	46.5					
Mon 28/08/2023	42.6	42.6	19.7	60.5	32.3	46.4					
Tue 29/08/2023	42.4	42.4	19.5	69.9	22.5	45.3					
Wed 30/08/2023	45.7	45.7	33.4	69.7	37.5	49.0					

ML2	Date/Time	P1 (A, Lin) LA90	
	29/08/2023 07:00	41.1	41
	29/08/2023 07:15	41.3	41
	29/08/2023 07:30	42	42
	29/08/2023 07:45	42.2	42
	29/08/2023 08:00	41.6	42
	29/08/2023 08:15	40.4	40
	29/08/2023 08:30	41.9	42
	29/08/2023 08:45	42.3	42
	29/08/2023 09:00	43.4	43
	29/08/2023 09:15	44.4	44
	29/08/2023 09:30	43.3	43
	29/08/2023 09:45	45.1	45
	29/08/2023 10:00	44.5	45
	29/08/2023 10:15	47.4	47
	29/08/2023 10:30	45.8	46
	29/08/2023 10:45	44.8	45
	29/08/2023 11:00	43.6	44
	29/08/2023 11:15	43.2	43
	29/08/2023 11:30	43.9	44
	29/08/2023 11:45	43.2	43
	29/08/2023 12:00	43.8	44
	29/08/2023 12:15	43.6	44
	29/08/2023 12:30	42.8	43
	29/08/2023 12:45	42.6	43
	29/08/2023 13:00	42.8	43
	29/08/2023 13:15	43.2	43
	29/08/2023 13:30	43.2	43
	29/08/2023 13:45	42	42
	29/08/2023 14:00	42.9	43
	29/08/2023 14:15	42.7	43
	29/08/2023 14:30	43.2	43
	29/08/2023 14:45	43.4	43
	29/08/2023 15:00	44.2	44
	29/08/2023 15:15	43.8	44
	29/08/2023 15:30	44.5	45
	29/08/2023 15:45	46.9	47
	29/08/2023 16:00	47.1	47
	29/08/2023 16:15	45.6	46
	29/08/2023 16:30	45	45
	29/08/2023 16:45	44.5	45
	29/08/2023 17:00	45.8	46
	29/08/2023 17:15	44.3	44
	29/08/2023 17:30	45.2	45
	29/08/2023 17:45	45.5	46
	29/08/2023 18:00	45	45
	29/08/2023 18:15	45.5	46
	29/08/2023 18:30	44.7	45

	29/08/2023 18:45	44.8	45
	29/08/2023 19:00	47.4	47
	29/08/2023 19:15	45.2	45
	29/08/2023 19:30	48.7	49
	29/08/2023 19:45	46.2	46
	29/08/2023 20:00	43.2	43
	29/08/2023 20:15	40.9	41
	29/08/2023 20:30	44.5	45
	29/08/2023 20:45	45.2	45
	29/08/2023 21:00	42.9	43
	29/08/2023 21:15	43.5	44
	29/08/2023 21:30	39.7	40
	29/08/2023 21:45	37.4	37
	29/08/2023 22:00	37.2	37
	29/08/2023 22:15	37.5	38
	29/08/2023 22:30	37.3	37
	29/08/2023 22:45	38.5	39
Period Count	**64**		
Log Averages		**44**	
Modal Average		**43**	



ML2	Date/Time	P1 (A, Lin) LA90	
	28/08/2023 23:00	23.6	24
	28/08/2023 23:15	23.9	24
	28/08/2023 23:30	21.2	21
	28/08/2023 23:45	20.8	21
	29/08/2023 00:00	20.4	20
	29/08/2023 00:15	20.3	20
	29/08/2023 00:30	21.1	21
	29/08/2023 00:45	21.7	22
	29/08/2023 01:00	20.4	20
	29/08/2023 01:15	21.2	21
	29/08/2023 01:30	21.3	21
	29/08/2023 01:45	23.5	24
	29/08/2023 02:00	24.3	24
	29/08/2023 02:15	25	25
	29/08/2023 02:30	23.3	23
	29/08/2023 02:45	23.9	24
	29/08/2023 03:00	22.2	22
	29/08/2023 03:15	22.9	23
	29/08/2023 03:30	23.5	24
	29/08/2023 03:45	26.8	27
	29/08/2023 04:00	27.2	27
	29/08/2023 04:15	26.4	26
	29/08/2023 04:30	28	28
	29/08/2023 04:45	30	30
	29/08/2023 05:00	32.4	32
	29/08/2023 05:15	34.2	34
	29/08/2023 05:30	36	36
	29/08/2023 05:45	34.8	35
	29/08/2023 06:00	36.9	37
	29/08/2023 06:15	37.9	38
	29/08/2023 06:30	37.3	37
	29/08/2023 06:45	40.7	41
Period Count	**32**		
Log Averages		**32**	
Modal Average		**24**	


LA90 Frequency Distribution (Night-time)
Frequency
0
1
2
3
4
5
6
7
20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41
LA90 (15min) dB