

NOISE IMPACT ASSESSMENT

Proposed Special Educational Needs School

Over Town Lane, Rochdale

Issue Date: 12 December 2024

QUALITY ASSURANCE & REPORT INFORMATION

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Project: Proposed Special Educational Needs School

Client: Mr and Mrs Antony Whiteside

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EXECUTIVE SUMMARY

This Assessment has shown that, with regards to operation of the MUGA, compliance with the adopted external noise criteria can be achieved.

This Assessment has shown that, with regards to vehicles parking in the car park, compliance with the adopted external noise criteria can be achieved.

This Assessment has set electrical plant noise emission limits for the proposed kitchen extract system, which cannot be exceeded at any dwelling.

In summary, the predicted level of noise from the Development is sufficiently low enough at the closest residential dwellings to accord with the 'No Observed Adverse Effect Level' as detailed in the PPG and as such noise should not be deemed to be a determining factor in the granting of planning permission for this Site.

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1 INTRODUCTION

1.1 Appointment

1.1.1 Professional Consult Limited was instructed by Mr & Mrs Antony Whiteside to prepare a Noise Impact Assessment ('the Assessment') in support of a proposed Special Educational Needs (SEN) School ('the Development') at Rainshore House, Over Town Lane, Rochdale OL12 7TQ, to be referred to hereafter as 'the Site'.

1.1.2 The Site will also comprise of an outdoor Multi-use Games Area (MUGA) and car parking area.

1.2 Purpose of Assessment

1.2.1 Rochdale Borough Council refused planning permission (Planning Application Ref. 24/00568/FUL) on 7th November 2024 for:

'Change of use of dwelling house (Use Class C3) into Special Education Needs School (Use Class F1 (a)); demolition of outbuilding; erection of new single storey classroom building together with alterations to existing access and car park and the installation of multi-use games area and fencing.'

1.2.2 Reason No.2 of the refusal states:

'Insufficient information has been provided to demonstrate that the proposed development will not harm the living conditions of neighbouring occupiers from increased noise. Accordingly, the proposal is contrary to Policy DM1 and G9 of the Rochdale Core Strategy, Policy JP-P1 of Places for Everyone and the National Planning Policy Framework.'

1.2.3 Accordingly, this Assessment has been completed with due regard to the National Planning Policy Framework and its associated National Planning Policy Guidance in addition to appropriate British Standards and guidance documents relevant to the assessment of noise impacts.

1.2.4 All acronyms used within this report are defined in the Glossary presented in Appendix 2.

1.3 The Development

1.3.1 The Development will comprise of the *'Change of use of dwelling house (Use Class C3) into Special Education Needs School (Use Class F1 (a)); demolition of outbuilding; erection of new single storey classroom building together with alterations to existing access and car park and the installation of multi-use games area and fencing'*.

1.3.2 The Development will operate Monday – Friday between 07:30 – 19:30.

1.4 The Site, Locality & Soundscape

1.4.1 The Site is currently occupied by a residential dwelling known as Rainshore House with associated grounds.

1.4.2 The closest residential receptors lie to the north (Mill House Farm, 71m), to the west (Birches Farm, 166m), to the south (Baitings Row, 115m) and to the east (Doctor Dam Cottage, 182m).

1.4.3 The soundscape at the residential dwellings to the north, east and south comprises of intermittent noise from vehicles using Over Town Lane and aircraft over-flights. At the receptor to the east, there is significant noise associated with over-flow water from the adjacent Greenbooth Reservoir.

1.5 Limitations

1.5.1 The limitations of this report are presented in Appendix 1.

1.6 Confidentiality

- 1.6.1 Professional Consult has prepared this report solely for the use of the Client. Should any third party wish to use or rely upon the contents of the report, written approval must be sought from Professional Consult; a charge may be levied against such approval.

2 POLICY & GUIDANCE

2.1 National Planning Policy Framework & National Planning Practice Guidance

- 2.1.1 The Government updated the National Planning Policy Framework (NPPF) on 20th December 2023 and its associated National Planning Practice Guidance (NPPG) on 20th November 2023. Together, the NPPF and NPPG set out what the Government expects of local authorities. The overall aim is to ensure the planning system allows land to be used for new homes and jobs, while protecting valuable natural and historic environments.
- 2.1.2 The NPPG adds further context to the NPPF and it is intended that the two documents should be read together.
- 2.1.3 Noise needs to be considered when new developments may create additional noise and when new developments would be sensitive to the prevailing acoustic environment. When preparing local or neighbourhood plans, or taking decisions about new development, there may also be opportunities to consider improvements to the acoustic environment.
- 2.1.4 Local planning authorities' plan-making and decision making 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.
- 2.1.5 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.
- 2.1.6 The Observed Effect Levels are as follows:
- Significant observed adverse effect level: This is the level of noise exposure above which significant adverse effects on health and quality of life occur;
 - Lowest observed adverse effect level: this is the level of noise exposure above which adverse effects on health and quality of life can be detected; and
 - No observed effect level: this is the level of noise exposure below which no effect at all on health or quality of life can be detected.
- 2.1.7 Table 1 summarises the noise exposure hierarchy, based on the likely average response.

Table 1. Noise Exposure Hierarchy

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

2.1.8 The subjective nature of noise means that there is not a simple relationship between noise levels and the impact on those affected. This will depend on how various factors combine in any particular situation.

2.1.9 These factors include:

- The source and absolute level of the noise together with the time of day it occurs. Some types and level of noise will cause a greater adverse effect at night than if they occurred during the day - this is because people tend to be more sensitive to noise at night as they are trying to sleep. The adverse effect can also be greater simply because there is less background noise at night;
- For non-continuous sources of noise, the number of noise events, and the frequency and pattern of occurrence of the noise;
- the spectral content of the noise and the general character of the noise. The local topology and topography should also be taken into account along with the existing and, where appropriate, the planned character of the area.

2.1.10 More specific factors to consider when relevant:

- where applicable, the cumulative impacts of more than one source should be taken into account along with the extent to which the source of noise is intermittent and of limited duration;
- Consideration should also be given to whether adverse internal effects can be completely removed by closing windows and, in the case of new residential development, if the proposed mitigation relies on windows being kept closed most of the time. In both cases a suitable alternative means of ventilation is likely to be necessary. Further information on ventilation can be found in the Building Regulations; and
- If external amenity spaces are an intrinsic part of the overall design, the acoustic environment of those spaces should be considered so that they can be enjoyed as intended.

2.2 Institute of Environmental Management & Assessment 'Guideline for Environmental Noise Impact Assessment', October 2014

2.2.1 The guidelines address the key principles of noise impact assessment and are applicable to all development proposals where noise effects are likely to occur. The guidelines provide specific support on how noise impact assessment fits within the Environmental Impact Assessment (EIA) process. They cover:

- How to scope a Noise Assessment;
- Issues to be considered when defining the baseline noise environment;
- Prediction of changes in noise levels as a result of implementing development proposals; and
- Definition and evaluation of the significance of the effect of changes in noise levels (for use only where the assessment is undertaken within an EIA).

2.2.2 Although the guidance states that it is only applicable for use in an Environmental Impact Assessment (EIA), in the absence of any other relevant guidance for assessing changes in ambient noise levels, it is the most appropriate document for establishing significance of effect.

2.2.3 Table 2 categorises the change in noise level for a noise sensitive receptor such as a residential dwelling.

Table 2. Effect Descriptors for Residential Dwellings

Effect	Change in Ambient Noise Level (dB)
Very substantial	≥10.0
Substantial	5.0 – 9.9
Moderate	3.0 – 4.9
None / not significant	≤2.9

2.2.4 For the purposes of this Assessment, any change in ambient noise level which exceeds 2.9dB (referred to throughout this Assessment as the 'permitted change' in ambient noise level) will be mitigated.

2.3 BS4142:2014+A1:2019 'Methods for rating and assessing industrial and commercial sound'

2.3.1 This standard describes methods for rating and assessing sound of an industrial or commercial nature which includes:

- Sound from industrial and manufacturing processes;
- Sound from fixed installations which comprise mechanical and electrical plant and equipment;
- Sound from the loading and unloading of goods and materials at industrial and / or commercial premises; and,
- Sound from mobile plant and vehicles that is an intrinsic part of the overall sound emanating from processes or premises, such as that from forklift trucks, or that from train or ship movements on or around an industrial or commercial Site.

2.3.2 The procedure detailed in the standard compares the measured or predicted noise level 'the specific noise level' from any of the above detailed noise sources with the background sound level at a residential dwelling. The measured background sound level at a receptor should be reliable and should not necessarily ascertain a lowest measured background sound level, but rather to quantify what is 'typical.'

2.3.3 The specific noise level also acknowledges the following reference time intervals depending upon whether the noise source operates during daytime or night-time periods:

- Daytime (07:00 - 23:00): 1 hour; and
- Night-time (23:00 - 07:00): 15 minutes.

2.3.4 There are a number of 'penalties' which can be attributed to the specific sound level, either subjectively or objectively, depending upon the 'acoustic features' of the sound level under investigation as follows. These penalties vary in their weighting depending upon the severity of the acoustic feature, as follows (with regards to the subject method):

Tonality

- +2dB: where the tonality is just perceptible;
- +4dB: where the tonality is clearly perceptible; and
- +6dB: where the tonality is highly perceptible.

Impulsivity

- +3dB: where the impulsivity is just perceptible;
- +6dB: where the impulsivity is clearly perceptible; and
- +9dB: where the impulsivity is highly perceptible.

Intermittency

- +3dB: where the intermittency is readily distinctive against the acoustic environment.

- 2.3.5 Where the assessment is carried out using the objective method, the tonality penalty is either 0dB or 6dB and the impulsivity penalty can range from 0dB up to 9dB in increments of 1dB, depending on the level of impulsivity identified.
- 2.3.6 In addition to the above acoustic features, there is a penalty for 'other sound characteristics' of +3dB where a sound exhibits characteristics that are neither tonal nor impulsive, though is readily distinctive against the acoustic environment.
- 2.3.7 BS4142 goes on to state that the rating level is equal to the specific sound level if there are no such features present or expected to be present.
- 2.3.8 Assessment of the rating level relative to the background noise level can yield the following commentary:
- Typically, the greater this difference (between the rating level and the background sound level), the greater the magnitude of 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; and
 - 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. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact.
- 2.3.9 Whilst the amended 2019 Standard does make various references to it not being intended to assess noise impacts at indoor locations, section 1.1 does state 'The methods described in this British Standard use outdoor sound levels to assess the likely effects of sound on people who might be inside or outside a dwelling or premises used for residential purposes upon which sound is incident'. Example 6 in the Standard states 'In addition to the rating/background sound level comparison shown in Table A.6, the primary concern is the potential for disturbance of residents who could be sleeping with open bedroom windows. Other guidance, such as BS 8233, might also be applicable in this instance'.
- 2.3.10 With the above in mind, and for a clear need to ensure that any potential commercial or industrial noise impacts at the building façade do not give rise to internal noise level which causes sleep disturbance in bedrooms, this Assessment will ensure that the predicted rating level (specific sound level including any character corrections) does not exceed 30dB in bedrooms.

2.4 Artificial Grass Pitch Acoustics – Design Guidance Note

- 2.4.1 The Design Guidance Note Artificial Grass Pitch (AGP) Acoustics, released in August 2015, provides details of acoustic implications associated with such facilities and follows on from an acoustic research programme involving detailed analysis of relevant noise guidance documents and site testing in a range of locations. It proposes appropriate noise criteria and assessment methods and outlines practical measures that can be applied to reduce noise in particular sensitive areas. There is no previous guidance or assessment methodology specifically relating to noise from AGPs and this guidance considers the issues from first principles.
- 2.4.2 With no specific noise criteria for an AGP, the following documents are considered the most relevant and the most commonly applied for the assessment of AGP noise:
- World Health Organisation 'Guidelines for Community Noise'; and,
 - IOA / IEMA Working Party Consultation Draft 2002.

- 2.4.3 The World Health Organisations (WHO) Document provides guidance for outdoor living areas stating that to avoid ‘moderate annoyance’ during the daytime and evening the noise level should not exceed 50dB $L_{Aeq,16hr}$. However, for an AGP, a 16-hour assessment period may not truly reflect the noise impact as it takes into account time of use and non-use. It is suggested that an appropriate assessment time period is for one 1-hour as this is typically the time period for a community sports session on an AGP.
- 2.4.4 In some circumstances, an alternative assessment methodology may be appropriate such as where there are changes to an existing natural turf or AGP pitch. The IOA /IEMA Working Party Consultation Draft 2002 categorises the significance of a change in noise level. A ‘slight’ impact is considered for an increase of less than 3dB which is generally accepted as being the minimum perceptible change to a human ear. The noise levels are to be measured using the L_{Aeq} parameter over the same time period, T (taken as being 1-hour).
- 2.4.5 Table 3 summarises the noise level criteria relative to the development scenario.

Table 3. AGP Noise Level Criteria

Noise Criteria by Scenario	
Proposed Noise-Sensitive Development Close to Existing AGP	Proposed AGP Close to Existing Noise-Sensitive Development
50dB $L_{Aeq,1hr}$	Test 1: Existing $L_{Aeq,1hr}$ + AGP $L_{Aeq,1hr} \leq 3dB$ and; Test 2: AGP Noise $\leq 50dB L_{Aeq,1hr}$

- 2.4.6 The Design Guidance Note goes on to state that a typical free-field noise level of 58dB $L_{Aeq,1hr}$ at a distance of 10m from the side-line halfway marking (equivalent to 50m from the centre of the pitch) has been determined as being representative of the noise level from an AGP.

2.5 Local Authority Guidance and Criteria – Rochdale Borough Council’s Environmental Health Department

- 2.5.1 Consultation was provided to Rochdale Borough Council on 9th December 2024 which stated:

‘We have been appointed by a client to undertake a Noise Impact Assessment in support of proposed Special Educational Needs (SEN) School at Rainshore House, Over Town Lane in Norden, Rochdale, OL12 7TQ.

It is understood that proposals include for the change of use from dwelling to SEN School which includes for a car park and multi-use game area (MUGA). The previous planning application for the SEN was refused and a Noise Impact Assessment has been requested by Rochdale Borough Council, with the following being stated on the refusal notice:

‘Insufficient information has been provided to demonstrate that the proposed development will not harm the living conditions of neighbouring occupiers from increased noise. Accordingly, the proposal is contrary to Policy DM1 and G9 of the Rochdale Core Strategy, Policy JP-P1 of Places for Everyone and the National Planning Policy Framework.’

Professional Consult will undertake background and ambient noise surveys for the closest residential dwellings over a full weekday period in a location considered to be representative of the noise climate at the closest residential dwellings to the Site.

All noise measurements will be carried out using sound level meters compliant with Type-1 specification, as set out in BS EN 61672-1:2013: ‘Electroacoustics: Sound Level Meters. Specifications’.

Assessment

Professional Consult will complete the following assessments:

- **Noise Impact from the Proposed School:** *An assessment of noise from school pupils using the outdoor space associated with the primary school, upon the closest existing and proposed residential dwellings will be completed against the change in ambient noise criteria levels presented in IEMA 'Guidelines for Environmental Noise Impact Assessment';*
- **Car Parking Noise / Mechanical & Electrical Plant:** *An assessment for the Car Park and any proposed noise producing fixed plant items will be undertaken in line with the guidance presented in BS4142:2014+A1:2019 for the closest existing dwellings to the Site; and*
- **MUGA Noise:** *An assessment of noise from the MUGA will be assessed against the noise criteria presented in Artificial Grass Pitches Acoustics - Planning Implications Guide. The guide suggests that noise from the pitches shall not increase the existing ambient sound climate at the closest existing residential dwellings by more than 3dB.*

Where exceedances of any criteria are identified, Professional Consult will recommend appropriate and reasonable mitigation measures to ensure that adopted noise level criteria is not exceeded at the closest residential dwellings.

2.5.2 A response was received on 10th December 2024 acknowledging receipt of the consultation.

3 NOISE SURVEYS

3.1 Background Sound Survey

3.1.1 Professional Consult has completed noise measurements as follows:

- **Noise Measurement Position 1:** Located close to the southern boundary of the Site in free field conditions. Background noise measurements were completed between 10:00 on 9th December – 10:00 on 10th December 2024. The sound climate at the noise measurement position was considered to be representative of the sound climate at the closest residential dwellings to the north, west and south.
- **Noise Measurement Position 2:** Located 65m to the east of Doctor Dam Cottage in free field conditions and in the absence of noise from the water over-flow associated with Greenbooth Reservoir. Background noise measurements were completed between 10:45 on 10th December – 10:45 on 11th December 2024. The sound climate at the noise measurement position was considered to be representative of the sound climate at the residential dwelling known as Doctor Dam Cottage.

3.1.2 Table 4 details the measured background sound levels for the period 07:30 – 19:30 when the Development can operate. The measured noise levels are for the minimum and maximum noise levels and the mode average.

Table 4. Summary of Measured Background Sound Levels

Noise Measurement Position	Period	Measured Sound Pressure Level (dB)	
		L _{Aeq,15mins}	L _{A90,15mins}
NMP1	Daytime (07:30 – 19:30)	45 – 58 (49)	40 – 46 (43)
NMP2	Daytime (07:30 – 19:30)	44 – 56 (46)	38 – 43 (40)

3.2 Noise Survey Equipment

3.2.1 The following equipment was used for the noise surveys.

Table 5. Noise Measurement Equipment

Measurement Position	Equipment Description	Manufacturer & Type No	Serial No.	Calibration Due Date
NMP1 & NMP2	Sound Level Meter	01dB Fusion	12038	14 March 2025
	Pre-amplifier	01dB PRE22	2113007	
	Microphone	GRAS 40CE	330801	
	Calibrator	01dB CAL-31	87280	27 June 2025

3.2.2 The sound level meters were field calibrated prior to and following the noise surveys and there was no drift beyond the allowable limit of 1dB.

3.2.3 Table 6 indicates a summary of the measured weather conditions.

Table 6. Range of Measured Wind Speeds

Period	Range of Measured Wind Speeds (m/s)	Rainfall Recorded?
All periods	0 – 1.9	No

4 NOISE IMPACT ASSESSMENT

4.1 Assessment Information

4.1.1 The following noise sensitive residential dwellings have been identified and accounted for in this Assessment.

Table 7. Identified Receptors

Receptor	Identifier	Type	Noise Model Receiver Location
Baitings Row (South)	R1	Residential	Daytime: In main garden area, 1.5m above local ground level
Birches Farm (West)	R2	Residential	Daytime: In main garden area, 1.5m above local ground level
Mill House Farm (North)	R3	Residential	Daytime: In main garden area, 1.5m above local ground level
Doctor Dam Cottage (East)	R4	Residential	Daytime: In main garden area, 1.5m above local ground level

4.1.2 With regards to the assessment of noise impacts upon the existing residential dwellings from use of the MUGA this will be completed in-line with the methodology and noise criteria presented in AGP 'Planning Implications Guide' which will assess the change in ambient noise level at the receptors.

4.1.3 With regards to passenger vehicle noise in the proposed car park, Professional Consult has a library database for passenger vehicle movements and these are detailed in Table 8.

Table 8. Passenger Vehicle Noise Level Data

Vehicle Noise Source	Measured Sound Event Level, SEL (dBA)	Measurement Distance (m)	Calculated $L_{Aeq,1hr}$ (dB)	Calculated Sound Power Level for 1hr Period (dB)	Combined Sound Power Level (dB)
Car pass-by	67	10	31.4	49.4	65.2
Door slam	64	10	28.4	56.4	
Ignition, drive off	72	10	36.4	64.4	

4.2 MUGA Noise

4.2.1 With regards to use of the MUGA, a pressure level of 58dB at 10m, as detailed in the AGP 'Planning Implications Guide' has been used to inform the assessment.

4.2.2 Tables 9 details the noise modelling assumptions made.

Table 9. Calculation of Sound Power Level

Noise Source	Measured Sound Pressure Level, $L_{Aeq,T}$ (dB)	Distance to Boundary Halfway Line (m)	Type of Noise Source Used in Model	Notes
MUGA	58	10	Area	An area source has been calibrated to produce a sound pressure level of 58dB at 10m from the boundary at the halfway line. The height of the are source is 1.5m above ground level

4.2.3 For the purposes of this assessment, Professional Consult has used noise modelling software CadnaA to determine the impact of noise at the surrounding Receptors. A noise model has therefore been constructed in order to calculate façade noise levels and external noise levels in amenity areas.

4.2.4 The following inputs have been included in the model:

- Proposed Scheme Layout;
- Site elevations have been taken as existing using 1m contours;
- The assumption detailed in Table 9 has been included in the noise model;
- A reflection order of 2 has been used in all calculations;
- A ground absorption of 0 has been used for the MUGA and a ground absorption of 0.9 has been used for the surrounding area; and
- Noise levels generated using ISO 9613-1 and ISO 9613-2 “Acoustics – Attenuation of sound during propagation outdoors” as incorporated into CadnaA software.

4.2.5 Figures 1 & 2 in Appendix 4 details the grid noise maps for the daytime period. Analysis of the grid noise map indicates the following calculated sound pressure levels at the receptors.

Table 10. Calculated Sound Pressure Level at Receptor

Receptor	Period	Calculated Sound Pressure Level, $L_{Aeq,15mins}$ (dB)
R1	Daytime (07:30 – 19:30)	36.1
R2	Daytime (07:30 – 19:30)	29.2
R3	Daytime (07:30 – 19:30)	36.9
R4	Daytime (07:30 – 19:30)	19.0

4.2.6 Selection of an appropriate time-averaging period is important, and this should not be excessively long as it will have the effect of under-predicting noise levels at a Receptor. As such and given the short-term nature of noise generated by the sports activities, no time correction has been applied.

4.2.7 The predicted level of noise at the existing receptors will be combined with the lowest measured (to ensure a worst-case assessment) 15-minute noise level measured at NMP1 (Receptors R1 – R3) and NMP2 (Receptor R4) between the period 07:30 – 19:30. Changes in ambient noise level above +2.9dB will be mitigated accordingly.

Table 11. Calculation of Change in Ambient Noise Level

Receptor	Calculated Sound Pressure Level, $L_{Aeq,15mins}$ (dB)	Measured Lowest Ambient Sound Level, $L_{Aeq,15mins}$ (dB)	Combined Noise Level, $L_{Aeq,15mins}$ (dB)	Change +/- (dB)
R1	36.1	45	45.5	+0.5
R2	29.2	45	45.1	+0.1
R3	36.9	45	45.6	+0.6
R4	19	44	44.0	0

4.2.8 Table 13 indicates that the ambient noise level at the existing receptors will increase by a maximum of +0.6dB which is below the +2.9dB criteria and so there is no requirement to consider noise mitigation.

4.3 Car Parking Noise

4.3.1 For the purposes of this Assessment, Professional Consult has used noise modelling software CadnaA to determine the impact of noise at the closest residential dwellings. A noise model has therefore been constructed in order to calculate façade noise levels and external noise levels in amenity areas.

4.3.2 The following inputs have been included in the model:

- Proposed Scheme Layout;
- Site elevations have been taken as existing using 1m contours;
- Existing buildings or features that provide shielding from the road have been included in the model;
- All car parking spaces shown on the masterplan have had the passenger vehicle sound power level attributed;
- A reflection order of 2 has been used in all calculations; and
- Noise levels generated using ISO 9613-1 and ISO 9613-2 “Acoustics – Attenuation of sound during propagation outdoors” as incorporated into CadnaA software.

4.3.3 Table 12 calculates the specific noise level at the identified residential receptors.

Table 12. Calculated Specific Noise Levels at Receptors

Receptor	Period	Predicted Specific Noise Level ($L_{Aeq,1hr}$) (dB)
R1	Daytime (07:30 – 19:30)	21.4
R2	Daytime (07:30 – 19:30)	17.6
R3	Daytime (07:30 – 19:30)	21.5

R4	Daytime (07:30 – 19:30)	0
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4.3.4 The following has been considered in determining if any acoustic features exist in the predicted noise level at the closest residential receptors:

- **Tonality** - In determining if any tones exist in the measured noise levels, the methodology set out in BS4142:2014 has been followed using the objective method – either a 0dB penalty is allocated where no tones are present or 6dB penalty is allocated where tonality is present;
- **Impulsivity** – in determining if any impulsiveness is evident in the measured noise levels, the methodology set out in BS4142:2014 has been followed using the objective method which can result in a penalty from 0dB to 9dB being allocated depending upon the extent of impulsiveness;
- **Intermittency** – whether or not the measured operations turn on or off during the (1hr) assessment period; and
- **Other sound characteristics** – where no penalties are allocated for the above features, but there will be an audible noise at the closest receptor.

4.3.5 Table 13 allocates appropriate character corrections.

Table 13. Applicable Character Corrections

Measured Noise Source	Tonality	Impulsivity	Intermittency	Other Sound Characteristics	Comments
Passenger Vehicles	0	3	3	0	Noise from intermittent passenger vehicles (car door slams) may just be intermittently audible.
Highest Correction for Assessment Period	0	3	3	0	
Overall Correction to be added to Specific Noise	+6dB				

4.3.6 this with the measured background sound level.

4.3.7 Table 14 calculates the rated level of noise at the proposed façade and compares this with the lowest measured (to ensure a worst-case assessment) 15-minute background noise level measured at NMP1 (Receptors R1 – R3) and NMP2 (Receptor R4) between the period 07:30 – 19:30.

Table 14. Calculation of Rated Noise Level & BS4142 Assessment

Receptor	Period	Predicted Noise Level (dB)	Character Correction (dB)	Rating Level (dB)	Lowest Measured Background Sound Level, $L_{A90,15mins}$ (dB)	Difference +/- (dB)
R1	Daytime (07:30 – 19:30)	21.4	6	27.4	40	-12.6
R2	Daytime (07:30 – 19:30)	17.6	6	23.6	40	-16.4
R3	Daytime (07:30 – 19:30)	21.5	6	27.5	40	-12.5
R4	Daytime (07:30 – 19:30)	0	6	6	38	-32

4.3.8 Table 14 indicates that the rated level of noise does not exceed the background sound level at the receptors and so there is no requirement to consider noise mitigation measures.

4.4 Proposed Kitchen Extract

4.4.1 Precise details for the proposed kitchen extract system are currently unknown and so it is necessary to set plant noise emission limits, for the closest existing residential dwelling to the substation, as shown in Table 15.

Table 15. Mechanical & Electrical Plant Noise Emission Limits

Period	Measured Lowest Background Sound Level, $L_{A90,T}$ (dB)	Noise Criteria	Calculated Plant Noise Emission Limit for Closest Residential Dwellings, $L_{A,r}$ (dB)
Daytime (07:30 – 19:30)	38	$L_{A,r} = L_{A90,T}$	38

4.4.2 The above plant noise emission limits are rated noise levels which means they may need to contain acoustic character corrections for features such as tonality, impulsivity and intermittency and so the actual (specific) level of noise at the closest proposed or existing residential dwellings may need to be lower than these values.

5 MITIGATION

- 5.1.1 The previous section has indicated that there are no exceedances of the noise criteria levels, with use of the MUGA or car parking area and so there is no requirement to consider noise mitigation options.

6 CONCLUSION

6.1.1 Professional Consult Limited was instructed by Mr & Mrs Antony Whiteside to prepare a Noise Impact Assessment in support of a proposed Special Educational Needs School at Rainshore House, Over Town Lane in Rochdale OL12 7TQ.

6.1.2 Rochdale Borough Council refused planning permission (Planning Application Ref. 24/00568/FUL) on 7th November 2024 for:

‘Change of use of dwelling house (Use Class C3) into Special Education Needs School (Use Class F1 (a)); demolition of outbuilding; erection of new single storey classroom building together with alterations to existing access and car park and the installation of multi-use games area and fencing.’

6.1.3 Reason No.2 of the refusal states:

‘Insufficient information has been provided to demonstrate that the proposed development will not harm the living conditions of neighbouring occupiers from increased noise. Accordingly, the proposal is contrary to Policy DM1 and G9 of the Rochdale Core Strategy, Policy JP-P1 of Places for Everyone and the National Planning Policy Framework.’

6.1.4 The Development will comprise of the *‘Change of use of dwelling house (Use Class C3) into Special Education Needs School (Use Class F1 (a)); demolition of outbuilding; erection of new single storey classroom building together with alterations to existing access and car park and the installation of multi-use games area and fencing’*.

6.1.5 The Development will operate Monday – Friday between 07:30 – 19:30.

6.1.6 The Site is currently occupied by a residential dwelling known as Rainshore House with associated grounds.

6.1.7 The closest residential receptors lie to the north (Mill House Farm, 71m), to the west (Birches Farm, 166m), to the south (Baitings Row, 115m) and to the east (Doctor Dam Cottage, 182m).

6.1.8 The soundscape at the residential dwellings to the north, east and south comprises of intermittent noise from vehicles using Over Town Lane and aircraft over-flights. At the receptor to the east, there is significant noise associated with over-flow water from the adjacent Greenbooth Reservoir.

6.1.9 This Assessment has shown that, with regards to operation of the MUGA, compliance with the adopted external noise criteria can be achieved.

6.1.10 This Assessment has shown that, with regards to vehicles parking in the car park, compliance with the adopted external noise criteria can be achieved.

6.1.11 This Assessment has set electrical plant noise emission limits for the proposed kitchen extract system, which cannot be exceeded at any dwelling.

6.1.12 In summary, the predicted level of noise from the Development is sufficiently low enough at the closest residential dwellings to accord with the ‘No Observed Adverse Effect Level’ as detailed in the PPG and as such noise should not be deemed to be a determining factor in the granting of planning permission for this Site.

APPENDIX 1: LIMITATIONS

This report and its findings should be considered in relation to the terms of reference and objectives agreed between Professional Consult Limited and the Client.

The executive summary, conclusions and recommendations sections of the report provide an overview and guidance only and should not be specifically relied upon without considering the context of the report in full.

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APPENDIX 2: GLOSSARY OF ACOUSTIC TERMINOLOGY

Noise is defined as unwanted sound. Human ears are able to respond to sound in the frequency range 20 Hz (deep bass) to 20,000 Hz (high treble) and over the audible range of 0 dB (the threshold of perception) to 140 dB (the threshold of pain). The ear does not respond equally to different frequencies of the same magnitude, but is more responsive to mid-frequencies than to lower or higher frequencies. To quantify noise in a manner that approximates the response of the human ear, a weighting mechanism is used. This reduces the importance of lower and higher frequencies, in a similar manner to the human ear.

Furthermore, the perception of noise may be determined by a number of other factors, which may not necessarily be acoustic. In general, the impact of noise depends upon its level, the margin by which it exceeds the background level, its character and its variation over a given period of time. In some cases, the time of day and other acoustic features such as tonality or impulsiveness may be important, as may the disposition of the affected individual. Any assessment of noise should give due consideration to all of these factors when assessing the significance of a noise source.

The most widely used weighting mechanism that best corresponds to the response of the human ear is the ‘A’-weighting scale. This is widely used for environmental noise measurement, and the levels are denoted as dB(A) or L_{Aeq} , L_{A90} etc., according to the parameter being measured.

The decibel scale is logarithmic rather than linear, and hence a 3 dB increase in sound level represents a doubling of the sound energy present. Judgement of sound is subjective, but as a general guide a 10 dB(A) increase can be taken to represent a doubling of loudness, whilst an increase in the order of 3 dB(A) is generally regarded as the minimum difference needed to perceive a change under normal listening conditions.

An indication of the range of sound levels commonly found in the environment is given in the following table.

Table 1: Typical Sound Pressure Levels

Sound Pressure Level (dB)	Location/Example
0	Threshold of hearing
20 - 30	Quiet bedroom at night
30 - 40	Living room during the day
40 - 50	Typical office
50 - 60	Inside a car
60 - 70	Typical high street
70 - 90	Inside factory
100 - 110	Burglar alarm at 1m away
110 - 130	Jet aircraft on take off
140	Threshold of pain

Table 2: Terminology

Descriptor	Explanation
dB (decibel)	The scale on which sound pressure level is expressed. It is defined as 20 times the logarithm of the ratio between the root-mean-square pressure of the sound field and a reference pressure (2x10 ⁻⁵ Pa).
dB(A)	A-weighted decibel. This is a measure of the overall level of sound across the audible spectrum with a frequency weighting (i.e. 'A' weighting) to compensate for the varying sensitivity of the human ear to sound at different frequencies.
L _{Aeq, T}	L _{Aeq} is defined as the notional steady sound level which, over a stated period of time (T), would contain the same amount of acoustical energy as the A - weighted fluctuating sound measured over that period.
L _{Amax}	L _{Amax} is the maximum A - weighted sound pressure level recorded over the period stated. L _{Amax} is sometimes used in assessing environmental noise where occasional loud noises occur, which may have little effect on the overall Leq noise level but will still affect the noise environment. Unless described otherwise, it is measured using the 'fast' sound level meter response.
L ₁₀ & L ₉₀	If a non-steady noise is to be described it is necessary to know both its level and the degree of fluctuation. The Ln indices are used for this purpose, and the term refers to the level exceeded for n% of the time. Hence L ₁₀ is the level exceeded for 10% of the time and as such can be regarded as the 'average maximum level'. Similarly, L ₉₀ is the 'average minimum level' and is often used to describe the background noise. It is common practice to use the L ₁₀ index to describe traffic noise.
Free-field Level	2A sound field determined at a point away from reflective surfaces other than the ground with no significant contributions due to sound from other reflective surfaces. Generally as measured outside and away from buildings.
Fast	A time weighting used in the root mean square section of a sound level meter with a 125millisecond time constant.
Slow	A time weighting used in the root mean square section of a sound level meter with a 1000millisecond time constant.

Figure 1 **Proposed Masterplan**

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Rev.	Date	Description
 0-00 112 Finchley Business Centre 40 Bowling Green Lane, London EC1R 0BN info@0-00.co.uk		
Client		
Mr & Mrs Whitelake		
Project Name		
Rainshore House		
Drawing		
Proposed Site Plan		
Job No.	Dwg No.	Revision
003	P-003	00
Status	Scale	Issue Date
Planning	1:2000.00	24-05-24

APPENDIX 4: FIGURES

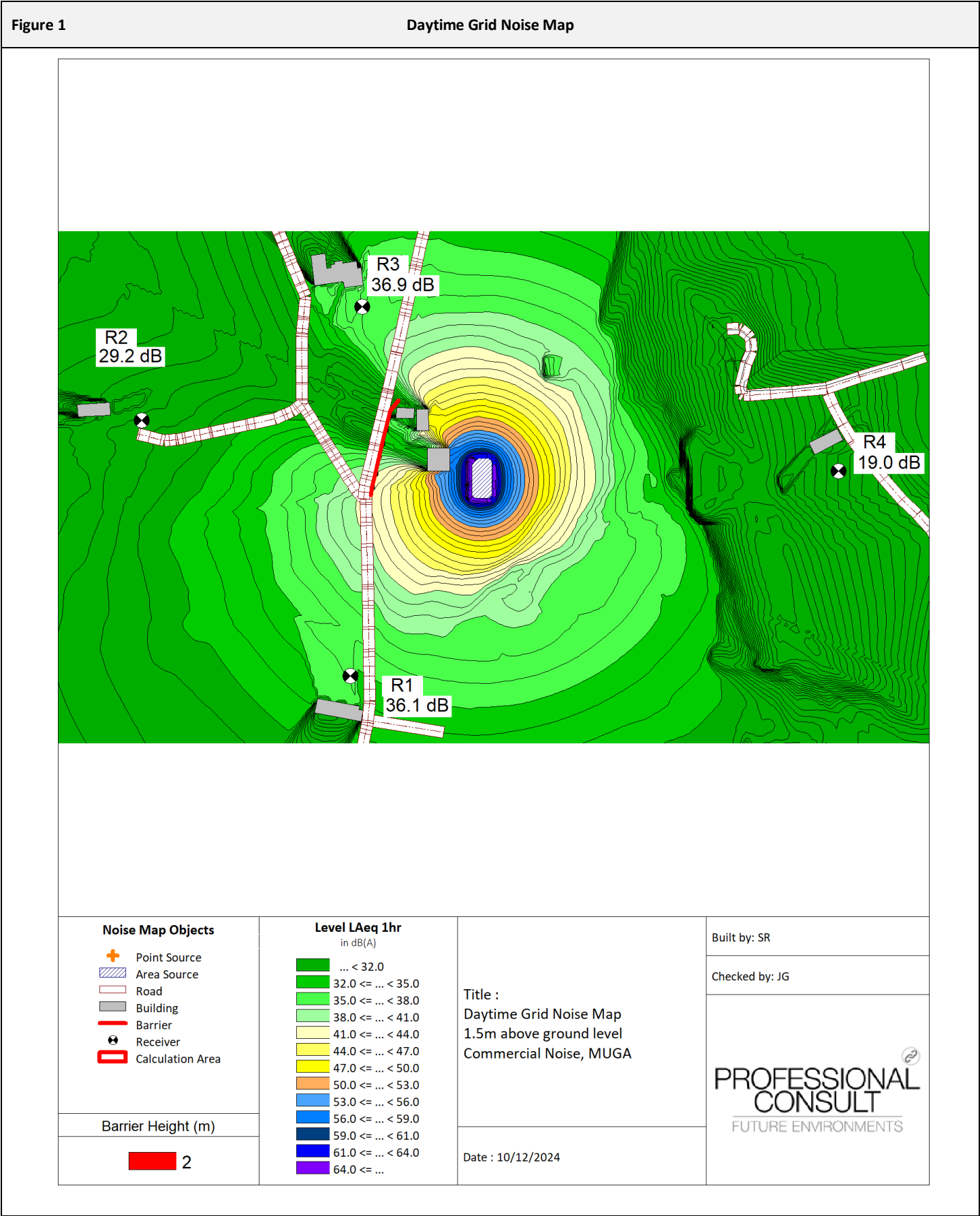
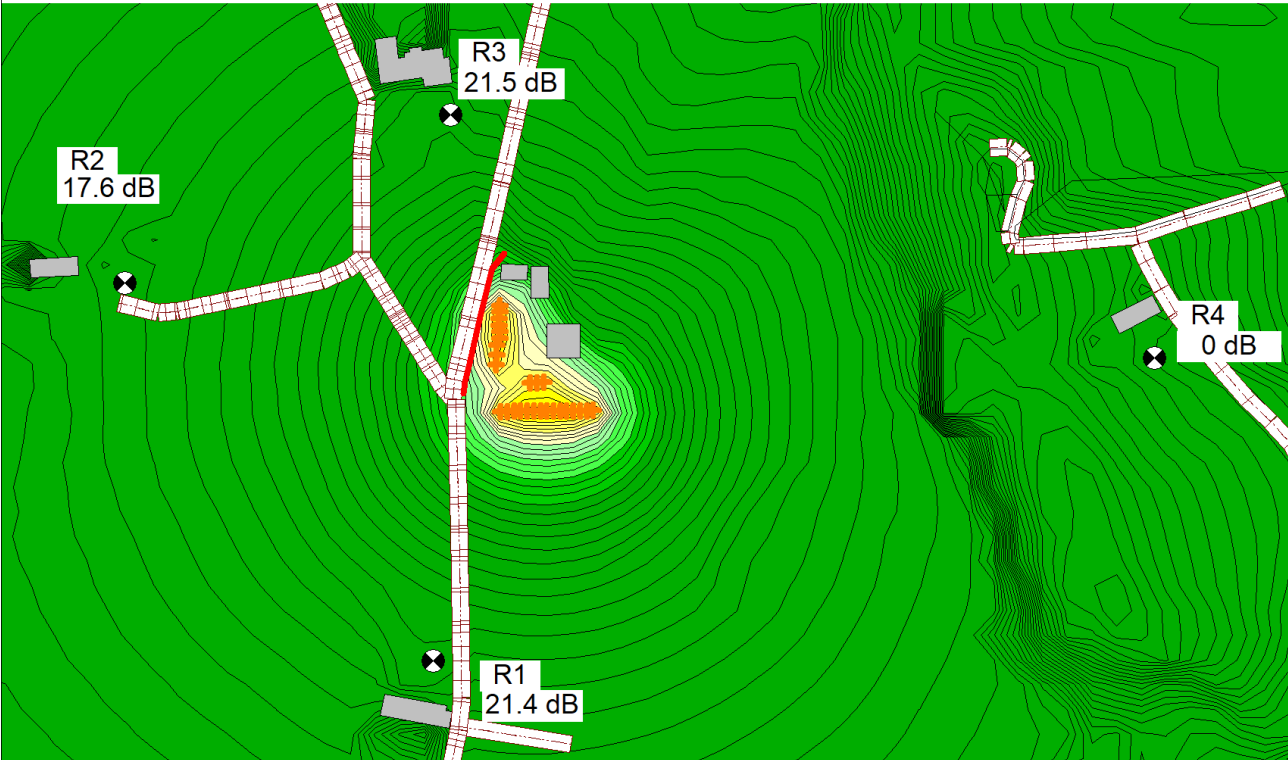


Figure 2 Night-time Grid Noise Map



Noise Map Objects - Point Source - Area Source - Road - Building - Barrier - Receiver - Calculation Area	Level LAeq 1hr in dB(A) ... < 32.0 32.0 <= ... < 35.0 35.0 <= ... < 38.0 38.0 <= ... < 41.0 41.0 <= ... < 44.0 44.0 <= ... < 47.0 47.0 <= ... < 50.0 50.0 <= ... < 53.0 53.0 <= ... < 56.0 56.0 <= ... < 59.0 59.0 <= ... < 61.0 61.0 <= ... < 64.0 64.0 <= ...	Title : Daytime Grid Noise Map 1.5m above ground level Commercial Noise, Parking	Built by: SR
			Checked by: JG
			PROFESSIONAL CONSULT FUTURE ENVIRONMENTS
Barrier Height (m)		Date : 10/12/2024	
2			

APPENDIX 5: MEASURED BACKGROUND NOISE LEVELS – NMP1

Period start	Measured Sound Pressure Level (dB)	
	LAeq,t	LA90,t
09/12/2024 10:30	45	40
09/12/2024 10:45	46.9	40.2
09/12/2024 11:00	46.8	40.2
09/12/2024 11:15	45.1	40.5
09/12/2024 11:30	47.3	40.4
09/12/2024 11:45	48.2	40.5
09/12/2024 12:00	47	39.9
09/12/2024 12:15	47.6	41.8
09/12/2024 12:30	48.5	41.9
09/12/2024 12:45	47.7	41
09/12/2024 13:00	51.7	42.3
09/12/2024 13:15	53.9	44.2
09/12/2024 13:30	48.2	41.7
09/12/2024 13:45	48	41
09/12/2024 14:00	46.8	41.8
09/12/2024 14:15	48.5	42.3
09/12/2024 14:30	48.2	42.5
09/12/2024 14:45	48.3	42
09/12/2024 15:00	48.1	40.7
09/12/2024 15:15	49.3	41.4
09/12/2024 15:30	50.5	42.8
09/12/2024 15:45	49.3	42.9
09/12/2024 16:00	49.2	43
09/12/2024 16:15	49.8	43.3
09/12/2024 16:30	48.5	43.4
09/12/2024 16:45	48.3	42.6
09/12/2024 17:00	48.3	42.3
09/12/2024 17:15	46.7	42
09/12/2024 17:30	57.1	42.9
09/12/2024 17:45	49.5	43.2
09/12/2024 18:00	48.7	43.6
09/12/2024 18:15	47.5	42.2
09/12/2024 18:30	48.5	42.2
09/12/2024 18:45	48.7	43.6
09/12/2024 19:00	47.9	42.5
09/12/2024 19:15	49.3	43
09/12/2024 19:30	51.8	42.8
09/12/2024 19:45	49.9	42.9
09/12/2024 20:00	49.9	43.8
09/12/2024 20:15	48.7	42
09/12/2024 20:30	48.4	40.5
09/12/2024 20:45	47.7	40.6
09/12/2024 21:00	50.3	40.4
09/12/2024 21:15	47.9	40.3
09/12/2024 21:30	51.2	43
09/12/2024 21:45	52.5	44
09/12/2024 22:00	53	42.6
09/12/2024 22:15	52.4	43.2
09/12/2024 22:30	52.7	43.7
09/12/2024 22:45	51	40.2
09/12/2024 23:00	48.8	40.2
09/12/2024 23:15	47.5	40.3
09/12/2024 23:30	45.7	39.8
09/12/2024 23:45	52.4	41.4
10/12/2024 00:00	48.7	39.5
10/12/2024 00:15	50.7	41

Reference: 23.294.1.R1
Date: 12 December 2024
Project: Proposed Special Educational Needs School

10/12/2024 00:30	55.1	45.2
10/12/2024 00:45	53	42.2
10/12/2024 01:00	52.4	43
10/12/2024 01:15	46.9	41.8
10/12/2024 01:30	42.1	38.3
10/12/2024 01:45	47.1	37.2
10/12/2024 02:00	46.5	37.3
10/12/2024 02:15	50.8	38.9
10/12/2024 02:30	49	39
10/12/2024 02:45	45.5	35.9
10/12/2024 03:00	43.7	35.9
10/12/2024 03:15	44.2	36.4
10/12/2024 03:30	47.2	37.6
10/12/2024 03:45	50.7	41.2
10/12/2024 04:00	51.2	40.3
10/12/2024 04:15	49.7	40.1
10/12/2024 04:30	44.1	35.9
10/12/2024 04:45	46.9	37.9
10/12/2024 05:00	44.1	36.9
10/12/2024 05:15	49.4	37.5
10/12/2024 05:30	48.6	40.8
10/12/2024 05:45	45.5	38.8
10/12/2024 06:00	42	37.6
10/12/2024 06:15	46.6	40.6
10/12/2024 06:30	44.6	40.5
10/12/2024 06:45	46.2	40.4
10/12/2024 07:00	54.4	40.7
10/12/2024 07:15	47.1	41.6
10/12/2024 07:30	46.6	41.3
10/12/2024 07:45	47.3	41.7
10/12/2024 08:00	50.4	44.3
10/12/2024 08:15	48.5	43.5
10/12/2024 08:30	50.1	42.6
10/12/2024 08:45	50.9	42.6
10/12/2024 09:00	49.8	43.9
10/12/2024 09:15	46.2	42.3
10/12/2024 09:30	48.7	43.9
10/12/2024 09:45	52.1	42.5
10/12/2024 10:00	52.4	44.3
10/12/2024 10:15	50.2	44.4
10/12/2024 10:30	58.2	42.3
10/12/2024 10:45	49.3	42.8
10/12/2024 11:00	48.7	43.1
10/12/2024 11:15	51.3	42.6
10/12/2024 11:30	48.7	42.4
10/12/2024 11:45	48.7	42.2
10/12/2024 12:00	50.6	43.9
10/12/2024 12:15	49	42.9
10/12/2024 12:30	49.1	42.9
10/12/2024 12:45	54.1	45.6

APPENDIX 6: MEASURED BACKGROUND NOISE LEVELS – NMP2

Period start	Time	Measured Sound Pressure Level, dB	
		L _{Aeq,t}	L _{A90,t}
10/12/2024	13:00	49.3	39.9
10/12/2024	13:15	51.5	41.8
10/12/2024	13:30	45.8	39.3
10/12/2024	13:45	45.6	38.6
10/12/2024	14:00	44.4	39.4
10/12/2024	14:15	46.1	39.9
10/12/2024	14:30	45.8	40.1
10/12/2024	14:45	45.9	39.6
10/12/2024	15:00	45.7	38.3
10/12/2024	15:15	46.9	39
10/12/2024	15:30	48.1	40.4
10/12/2024	15:45	46.9	40.5
10/12/2024	16:00	46.8	40.6
10/12/2024	16:15	47.4	40.9
10/12/2024	16:30	46.1	41
10/12/2024	16:45	45.9	40.2
10/12/2024	17:00	45.9	39.9
10/12/2024	17:15	44.3	39.6
10/12/2024	17:30	54.7	40.5
10/12/2024	17:45	47.1	40.8
10/12/2024	18:00	46.3	41.2
10/12/2024	18:15	45.1	39.8
10/12/2024	18:30	46.1	39.8
10/12/2024	18:45	46.3	41.2
10/12/2024	19:00	45.5	40.1
10/12/2024	19:15	46.9	40.6
10/12/2024	19:30	49.4	40.4
10/12/2024	19:45	47.5	40.5
10/12/2024	20:00	47.5	41.4
10/12/2024	20:15	46.3	39.6
10/12/2024	20:30	46	38.1
10/12/2024	20:45	45.3	38.2
10/12/2024	21:00	47.9	38
10/12/2024	21:15	45.5	37.9
10/12/2024	21:30	48.8	40.6
10/12/2024	21:45	50.1	41.6
10/12/2024	22:00	50.6	40.2
10/12/2024	22:15	50	40.8
10/12/2024	22:30	50.3	41.3
10/12/2024	22:45	48.6	37.8
10/12/2024	23:00	46.4	37.8
10/12/2024	23:15	45.1	37.9
10/12/2024	23:30	43.3	37.4

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10/12/2024	23:45	50	39
11/12/2024	00:00	46.3	37.1
11/12/2024	00:15	48.3	38.6
11/12/2024	00:30	52.7	42.8
11/12/2024	00:45	50.6	39.8
11/12/2024	01:00	50	40.6
11/12/2024	01:15	44.5	39.4
11/12/2024	01:30	39.7	35.9
11/12/2024	01:45	44.7	34.8
11/12/2024	02:00	44.1	34.9
11/12/2024	02:15	48.4	36.5
11/12/2024	02:30	46.6	36.6
11/12/2024	02:45	43.1	33.5
11/12/2024	03:00	41.3	33.5
11/12/2024	03:15	41.8	34
11/12/2024	03:30	44.8	35.2
11/12/2024	03:45	48.3	38.8
11/12/2024	04:00	48.8	37.9
11/12/2024	04:15	47.3	37.7
11/12/2024	04:30	41.7	33.5
11/12/2024	04:45	44.5	35.5
11/12/2024	05:00	41.7	34.5
11/12/2024	05:15	47	35.1
11/12/2024	05:30	46.2	38.4
11/12/2024	05:45	43.1	36.4
11/12/2024	06:00	39.6	35.2
11/12/2024	06:15	44.2	38.2
11/12/2024	06:30	42.2	38.1
11/12/2024	06:45	43.8	38
11/12/2024	07:00	52	38.3
11/12/2024	07:15	44.7	39.2
11/12/2024	07:30	44.2	38.9
11/12/2024	07:45	44.9	39.3
11/12/2024	08:00	48	41.9
11/12/2024	08:15	46.1	41.1
11/12/2024	08:30	47.7	40.2
11/12/2024	08:45	48.5	40.2
11/12/2024	09:00	47.4	41.5
11/12/2024	09:15	43.8	39.9
11/12/2024	09:30	46.3	41.5
11/12/2024	09:45	49.7	40.1
11/12/2024	10:00	50	41.9
11/12/2024	10:15	47.8	42
11/12/2024	10:30	55.8	39.9
11/12/2024	10:45	46.9	40.4
11/12/2024	11:00	46.3	40.7

11/12/2024	11:15	48.9	40.2
11/12/2024	11:30	46.3	40
11/12/2024	11:45	46.3	39.8
11/12/2024	12:00	48.2	41.5
11/12/2024	12:15	46.6	40.5
11/12/2024	12:30	46.7	40.5
11/12/2024	12:45	51.7	43.2

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