



ACOUSTIC DESIGN TECHNOLOGY
Noise and Vibration Consultants

ADT 3940

17 April 2026

Rochdale Borough Council
Number One Riverside
Smith Street
Rochdale
OL16 1XU

BROWNHILL SCHOOL, ROCHDALE
ENVIRONMENTAL NOISE IMPACT ASSESSMENT
ACOUSTIC CONSULTANCY REPORT ADT 3940/ENIA

Revision	Date	Issued By	Checked By	Revision Notes
-	03 December 2025	Jack Williamson	Chris Middleton	First Issue
A	17 April 2026	Chris Middleton	-	Updated to latest layout and including plant noise assessment

TABLE OF CONTENTS

1.0	SUMMARY	3
2.0	BASIS OF ASSESSMENT	4
2.1	Site Location	4
2.2	Proposed Development	4
2.3	Planning Policy	4
2.4	Assessment Criteria	6
2.5	Nearest Noise Sensitive Areas	7
2.6	Strategy for Noise Impact Assessment	8
3.0	ENVIRONMENTAL NOISE SURVEY	8
3.1	Introduction	8
3.2	Instrumentation	9
3.3	Procedure	9
3.4	Results	10
3.5	Weather Conditions	11
3.6	Existing Noise Climate	12
4.0	NOISE IMPACT ASSESSMENT (NEW FIXED PLANT)	12
4.1	Introduction	12
4.2	Specific Sound Level	13
4.2.1	Computer Model	13
4.2.2	Source Sound Levels	13
4.3	Predicted Sound Levels	14
4.4	Background Sound Levels	14
4.5	Rating Levels	14
4.5.1	Tonality	15
4.5.2	Impulsivity	15
4.5.3	Other Sound Characteristics	15
4.5.4	Intermittency	15
4.6	Initial Assessment of Impact	15
4.7	Context	17
4.7.1	The Absolute Level of Sound	17
4.7.2	The Character and Level of the Specific and Residual Sound	17
4.7.3	The Sensitivity of the Receptor	18
4.8	Conclusions	18
4.9	Uncertainty	18
5.0	NOISE FROM OUTDOOR SPORTS / PLAY AREAS	19
6.0	NOISE INTRUSION TO TEACHING ACCOMMODATION	20
6.1	Basis of Assessment	20
6.2	Incident Noise Levels	20
6.3	Indoor Ambient Noise Criteria	20
6.4	External Noise Intrusion	21

1.0 SUMMARY

The proposal is to redevelop the Mayfield Street site to construct a three-storey satellite Special Educational Needs (SEN) Pupil Referral Unit (PRU) for Rochdale Borough Council, incorporating a Multi-Use Games Area (MUGA), grass pitch, informal outdoor spaces, landscaping, and car parking as shown on the application drawings.

An environmental noise survey has been undertaken to determine the currently prevailing noise levels on the site over samples of the day time and night time periods.

Environmental noise from the preliminary fixed plant installations has been assessed using the guidance in BS 4142:2014+A1:2019, and this yields a 'low impact' as defined in the standard by a significant margin, equating to 'no observed effect' as defined in the Planning Practice Guidance.

There is risk of adverse effects relating to noise from outdoor sports and play areas due to the proximity of the proposed pitch locations to the nearest noise sensitive dwellings to the north. The pitches will need to be acoustically screened to the northern and north-western site boundary, and the hours of use limited to term-time week days.

Existing noise affecting the proposed teaching building has been assessed with reference to the requirements of Building Bulletin 93, with the conclusion that the admin block and sports hall can be naturally ventilated, while the SEN classrooms need to be mechanically ventilated. The building envelope itself including the external walls, roof and glazing can be formed using standard materials.

2.0 BASIS OF ASSESSMENT

2.1 Site Location

The site is an unused plot of land located off Mayfield Street in a mixed employment and residential area. The site itself is split across two levels, separated by an incline of approximately 7 metres. The nearest major roads in the area are Belfield Road approximately 61 metres away to the south and Halifax Road approximately 100 metres away to the north west.

The surrounding area includes houses that border the site to the north, located on Millview Lane and Lower Roch Road. Approximately 30 metres to the east of the site is the Richard Whittaker factory with associated external plant. There are also a number of businesses to the south and west including a garage that borders the site to the west and Rochdale Community Fire Station to the north west of the site.

2.2 Proposed Development

The proposal is to redevelop the Mayfield Street site to construct a three-storey satellite Special Educational Needs (SEN) Pupil Referral Unit (PRU) for Rochdale Borough Council, incorporating a Multi-Use Games Area (MUGA), grass pitch, informal outdoor spaces, landscaping, and car parking as shown on the application drawings.

2.3 Planning Policy

The National Planning Policy Framework (NPPF) sets out the general terms of reference for sustainable development, including noise. Section 187 of the December 2024 edition states that:

Planning policies and decisions should contribute to and enhance the natural and local environment by...e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans...

Section 198 of the same document states:

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 life⁷²;*
- 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;*

The Noise Policy Statement for England (NPSE) published in March 2010 establishes the No Observed Effect Level (NOEL), Lowest Observed Adverse Effect Level (LOAEL) and Significant Observed Adverse Effect Level (SOAEL), although these are not linked to objective criteria, as Section 2.22 of the NPSE states:

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.

For this development the key principles to be applied from the NPPF are to protect existing noise sensitive properties from noise generated by the development, and to consider noise intrusion to the noise sensitive teaching accommodation.

The Planning Practice Guidance (Noise) defines the action to be taken for various effect levels, based on perception of noise and typical outcomes. These are provided in the attached table 3940/T1.

The pre-application advice from Rochdale Borough Council highlights the potential noise impact of outdoor activities on the dwellings on Millview Lane and Lower Roch Road.

2.4 Assessment Criteria

The main environmental noise sources associated with a school are fixed plant installations and outdoor sports / play areas, and in this case the noise from outdoor activities has been flagged as a material planning consideration in the pre-app response. The local planning authority have outlined the following suitable assessment criteria:

“For new noise-sensitive development (like schools), external noise should be assessed against:

BS 8233 recommendations for internal noise levels (after façade attenuation).

WHO Guidelines for community noise (as referenced in planning practice).

typically, façade design must ensure that internal ambient noise levels meet BB93 limits.”

Noise intrusion to the new teaching buildings must be considered as part of the assessment of compliance with Building Regulations Requirement E4.

In relation to noise emissions from fixed plant installations the most appropriate assessment method is BS 4142:2014+A1:2019.

The noise from outdoor sports and play areas at schools is excluded from the scope of BS 4142, and there is no widely agreed standard assessment method, although the Sport England document ‘Artificial Grass Pitch (AGP) Acoustics – Planning Implications’ is often referenced. That document recommends a limit of 50 dB $L_{Aeq}(1 \text{ hour})$ at 1 metre from the facades of habitable rooms (i.e. dwellings).

2.5 Nearest Noise Sensitive Areas

The noise sensitive properties in the surrounding area have been grouped into two noise sensitive areas (NSA), as described below and as indicated on the attached site plan 3940/SP1.

NSA	Location	Direction	Approximate distance from site boundary (metres)	Approximate distance from proposed building (metres)
1	Millview Lane	North	Borders Site	35
2	Hamer Lane	South-West	83	120

The above NSA represent the closest noise sensitive properties, with others located further from the site and in some cases screened by the intervening buildings. A satisfactory noise impact at the defined NSA should therefore ensure a satisfactory noise impact at other noise sensitive areas.

2.6 Strategy for Noise Impact Assessment

Based on the information in Sections 2.1 to 2.5 above, the strategy for the noise impact assessment has been broken down into the following stages:

- i. undertake an environmental noise survey to obtain baseline noise data, as described in Section 3.0 below.
- ii. set environmental noise limits for new fixed plant installations in accordance with BS 4142, as described in Section 4.0 below.
- iii. assess the risk associated with noise from outdoor sports and play facilities using the Sport England guidance, as described in Section 5.0 below.
- iv. assess the acoustic suitability of the site for the proposed teaching accommodation and outline the scope of noise control measures required for BB93 compliance, as described in Section 6.0 below.

3.0 ENVIRONMENTAL NOISE SURVEY

3.1 Introduction

An environmental noise survey was undertaken over two periods, the first between 11:00 hours and 15:10 hours on Thursday 6 November 2025 and the second between 23:00 hours on Thursday 6 November 2025 and 02:00 hours on Friday 7 November 2025.

This was to determine the existing noise levels on the site and at the rear of the nearest houses during the daytime and nighttime periods.

3.2 Instrumentation

The instrumentation used, and the field calibration values before and after the survey are detailed in Appendix A of this report.

3.3 Procedure

Five measurement positions were selected as described below and indicated on the attached site plan 3940/SP1:

- i. Approximately 3.5 metres from the eastern site boundary
- ii. Approximately 3.5 metres from the western site boundary
- iii. Approximately 3.5 metres from the northern site boundary
- iv. In the middle of the site, during the nighttime period only
- v. On Millview Lane, in line with the rear of the houses

At all positions, the microphone was mounted on a tripod approximately 1.2 metres above the ground and least 3.5 metres from any other acoustically reflective surface.

During the daytime survey period, the noise levels at positions 1 to 3 were logged over a 15 minute sample of each hour, using the 01dB Fusion sound level meter set to store the octave band and 'A' weighted 100ms short-term L_{eq} for subsequent post processing.

During the nighttime survey period, the noise levels at positions 1, 2 and 4 were logged over a 15 minute sample of each hour using the 01dB Fusion sound level meter. A single 15 minute measurement was taken at position 5, also using the 01dB Fusion sound level meter. In each case, the meter was set to store the octave band and 'A' weighted 100ms short-term L_{eq} for subsequent post processing.

3.4 Results

The logged data has been post processed to determine $L_{Aeq,T}$, $L_{A90,T}$ and L_{Amax} levels for each 15 minute period, and these are listed in the attached table 3940/T1.

Typical worst case octave band and A-weighted $L_{eq,30mins}$ for the teaching day (08:00 to 17:00 hours, week days) are set out in the following table.

Location	$L_{eq,30mins}$ (dB) at octave band centre frequency (Hz)								$L_{Aeq,30mins}$ dB
	63	125	250	500	1k	2k	4k	8k	
Position 1	63	61	54	54	53	51	48	44	58
Position 2	61	55	51	44	45	42	3	32	50
Position 3	59	53	49	44	44	40	37	32	49

The minimum background sound levels for the day time and night time periods are as follows:

Location	Typical L _{A90} by period dB	
	Day time 07:00 – 23:00	Night time 23:00 – 07:00
Position 1	52	52
Position 2	46	39
Position 3	44	-
Position 4	-	38
Position 5	-	36

During the day, it is reasonable to consider the measured L_{A90} representative of the whole hour, particularly in this case where the background sound levels were controlled by continuously operating plant. During the nighttime period the measured 15 minute L_{A90} is representative.

Please refer to Appendix B for an explanation of the various noise descriptors used in this report.

3.5 Weather Conditions

For the duration of the daytime survey, the weather conditions were dry and still with wind speeds measured at less than 1 metre per second and scattered cloud cover. The temperature varied between 14 and 17 degrees Celsius.

During the nighttime period, conditions were dry and still with wind speeds measured at less than 1 metre per second however there was more significant cloud cover. Temperatures were reported between 9 and 11 degrees Celsius. It is unlikely the weather had any effect on the measured levels during either period.

3.6 Existing Noise Climate

Throughout both the daytime and nighttime periods the controlling noise source was the continuously operating plant from the Richard Whittaker works to the east of the site on the other side of Mayfield Street. This included an intermittent exhaust emission noise which occurred between 5 and 10 times per 15 minute measurement period. There were also HGV movements 2 to 3 times per hour. The businesses bordering the site to the west contributed lower levels during the daytime period.

During the nighttime period some items of plant at the Richard Whittaker works ceased to operate continuously from around 00:40 hours on the morning of Friday 7 November 2025. From this point on, the continuously operating plant was no longer audible but the plant that operated intermittently was still operating. There were some contributions from fireworks and road traffic noise during the first hour of measurements.

4.0 NOISE IMPACT ASSESSMENT (NEW FIXED PLANT)

4.1 Introduction

As already mentioned in Section 2.4 above, the objective is to assess noise emissions from the new plant installations following the guidance of BS 4142:2014+A1:2019.

The standard provides a methodology for assessing the likely impact of sound on people who might be inside or outside a dwelling or premises used for residential purposes upon which sound is incident. The assessment involves comparing the *rating* level of the sound source with the typical *background* levels for the period of interest. The standard concludes that if the rating level does not exceed the background levels, the noise impact should be low, depending on the context.

Please refer to Appendix C for an explanation of the technical terms defined in the Standard.

4.2 Specific Sound Level

4.2.1 Computer Model

As the analysis is relatively complex, a computer model of the proposed installation has been constructed using Datakustik Cadna/A 2025 following the ISO 9613-2:2024 calculation method, to predict how the sound will radiate from the proposed plant location to the identified noise sensitive areas.

Within the model all buildings and barriers have been assumed to be acoustically reflective, with ground absorption taken into account as appropriate. The receiver height has been assumed to be 4.5 metres - the approximate height of the most affected windows of the identified noise sensitive areas.

4.2.2 Source Sound Levels

A description of the proposed preliminary (RIBA Stage 3) plant selections and the associated manufacturers' noise data is set out on the attached plant noise schedule ADT 3940/PNS, while the indicative insertion losses are provided on the attached silencer schedule ADT 3940/SSA. The plant locations are shown in more detail on the mechanical services drawings issued by others.

4.3 Predicted Sound Levels

The scheduled plant noise levels and associated insertion losses have been input into the Cadna/A computer model, and the predicted cumulative noise levels with all plant running at the identified noise sensitive areas are as follows:-

Location	Predicted $L_{eq,T}$ (dB) at octave band centre frequency (Hz)								$L_{Aeq,T}$ dB
	63	125	250	500	1k	2k	4k	8k	
NSA1 Millview Lane	35	33	29	24	18	16	11	-3	26
NSA2 Hamer Lane	34	34	32	26	22	19	18	3	29

The $L_{Aeq,T}$ in the above table are the specific sound levels.

4.4 Background Sound Levels

At the time of writing the expectation is that all plant could operate 24 hours a day. The lowest measured background sound levels for the day and night periods are as follows:-

Location	Background sound levels	
	Day (07:00 - 23:00) $L_{A90,1hour}$ dB	Night (23:00 - 07:00) $L_{A90,15mins}$ dB
All noise sensitive areas	44	36

4.5 Rating Levels

To convert a specific sound level into a rating level, corrections have to be applied for impulsivity, intermittency, tonality and other sound characteristics where such features are present. It is important to note that these distinctive features are determined at the assessment location, not at the plant noise source.

4.5.1 Tonality

BS 4142 contains detailed objective methods for determining tonality including narrow band analysis. In this case the manufacturers' noise data is only available in octave bands, so those methods are not usable. For the purposes of this assessment, clear tonality is defined as an $L_{eq,T}$ in one octave band rising 5 dB above the levels in both adjoining octave bands.

Application of that decision rule to the calculated octave band $L_{eq,T}$ in Section 4.3 above means that a tonal correction is not required.

4.5.2 Impulsivity

The noise emissions from plant of the type proposed for this development would not be impulsive in character, so no correction is required.

4.5.3 Other Sound Characteristics

There are no additional sound characteristics which would warrant the addition of an extra correction.

4.5.4 Intermittency

The plant will operate continuously throughout the operating period and as such, no correction is required.

4.6 Initial Assessment of Impact

The initial assessment of impact for the daytime time period (07:00 – 23:00 hours) is set out in the following table:

Initial assessment of impact – day time period		
	NSA1 Millview Lane	NSA2 Hamer Lane
Specific Sound Level <i>L_{Aeq, 1 hour}</i> (dB)	26	29
Character Corrections (dB)	0	0
Predicted Rating Level <i>L_{Ar, 1 hour}</i> (dB)	26	29
Background level <i>L_{A90, 1 hour}</i> (dB)	44	44
Excess of rating level over background sound level (dB)	-18	-15
Initial assessment of impact	Low	Low

The initial assessment of impact for the night time period (23:00 – 07:00 hours) is set out in the following table:

Initial assessment of impact – night time period		
	NSA1 Millview Lane	NSA2 Hamer Lane
Specific Sound Level <i>L_{Aeq, 15mins}</i> (dB)	26	29
Character Corrections (dB)	0	0
Predicted Rating Level <i>L_{Ar, 15mins}</i> (dB)	26	29
Background level <i>L_{A90, 15mins}</i> (dB)	36	36
Excess of rating level over background sound level (dB)	-10	-7
Initial assessment of impact	Low	Low

On that basis the initial assessments of impact are ‘low’ by a significant margin, subject to the consideration of context.

4.7 Context

4.7.1 The Absolute Level of Sound

The predicted rating levels and background levels are relatively low, and it is therefore worth considering the absolute levels of the sound as suggested in BS 4142.

The worst case specific sound level of 29 dB $L_{Aeq,T}$ outside the residential windows would translate to 16 dB $L_{Aeq,T}$ inside with windows open, assuming an overall reduction of 13 dB typically provided by a building facade with windows open as indicated in current best practice guidance documents (e.g. in the ANC/ISO AVO guide associated with Approved Document O).

This is well within the BS 8233:2014 recommended limit of 30 dB $L_{Aeq, 8hour}$ inside a dwelling during the night. While the BS 8233 criterion is defined in relation to anonymous noise (i.e. road traffic), the margin of compliance with that criterion is large (at least 14 dB), and the internal noise level is likely to be inaudible. The absolute levels of sound therefore reinforce the initial 'low' assessment of impact.

4.7.2 The Character and Level of the Specific and Residual Sound

The background noise levels in this area are controlled by a combination of plant and traffic noise. The specific sound resulting from the proposed plant installations will therefore be in keeping with the residual noise climate.

4.7.3 The Sensitivity of the Receptor

The nearest dwellings are not known to be any more sensitive than typical houses nor are they known to have any specialist acoustic treatment. It is therefore not necessary to modify the assessment of impact for the sensitivity of the receptor.

4.8 Conclusions

This assessment has demonstrated that when assessed following the methodology of BS 4142, the initial estimate of impact of the proposed plant installations should be low, depending on the context.

Furthermore, consideration of the context has shown that this need not affect the initial estimate of impact, and the environmental noise impact of the proposed preliminary plant selections would be low.

4.9 Uncertainty

For this assessment it is not possible to provide a quantified uncertainty, although ADT have taken steps to minimise the effects, as follows:-

Potential source of uncertainty			Action taken
Manufacturer's noise data			Manufacturer's uncertainty data used where available, and checked against ADT measurements of in situ plant operating where possible
Measured background sound levels			Measurement locations and survey periods carefully selected to provide representative, typical levels
			Instrumentation laboratory calibrated to the required standards and intervals, and field calibrated during the survey
Calculation method and simplification			Up to date (Cadna/A) environmental noise modelling software used by trained operators
Calculation errors			Source data, calculation settings and results checked by senior staff

5.0 NOISE FROM OUTDOOR SPORTS / PLAY AREAS

As noted in Section 2.4 above, the nearest applicable design guidance relating to environmental noise from outdoor sports and play areas is the Sport England 'Artificial Grass Pitch (AGP) Acoustics – Planning Implications' document, which recommends that the noise from sports pitches is controlled to ≤ 50 dB $L_{Aeq, 1 \text{ hour}}$ at 1 metre from the facade of a noise sensitive habitable room.

The same document also provides a typical source level of 58 dB $L_{Aeq, 1 \text{ hour}}$ at 10 metres from the sideline of an AGP, but the Sport England guidance does not include any octave band sound levels, so measurements at other sports pitches has been used to derive a typical octave band spectrum, as presented in the following table.

	Octave Band Centre Frequency (Hz)								dB(A)
	63	125	250	500	1k	2k	4k	8k	
Typical $L_{Aeq, 1 \text{ hour}}$ at 10 metres	57	52	48	52	54	51	47	46	58

Calculations using Cadna/A environmental noise mapping software predict resultant noise levels of up to 59 dB $L_{Aeq, 1 \text{ hour}}$ at the nearest houses on Millview Lane (NSA1), which is above the Sport England recommended limit of 50 dB $L_{Aeq, 1 \text{ hour}}$.

Acoustic screening to the northern and north-western site boundaries can reduce the noise levels at the ground floor windows of the houses and in their gardens to within the Sport England limit. This would need to be at least 2400mm high, of solid timber construction (minimum R_w 25 dB, such as 25mm timber boards using T&G joints or having secondary battens to cover the gaps), to the extent shown on the attached site plan 3940/SP2.

The impact on the 1st floor windows of the houses cannot realistically be reduced with acoustic screening, as the resulting fence would be so high as to severely compromise the residential outlook. The remaining mitigation is that the sports and play areas would be used for part of the day, on term time week days only.

6.0 NOISE INTRUSION TO TEACHING ACCOMMODATION

6.1 Basis of Assessment

The purpose of the assessment is to establish the noise levels incident on the proposed teaching building, and what noise mitigation measures may be required.

6.2 Incident Noise Levels

Based on the survey data set out in Section 3.0 above and with reference to the DEFRA published noise maps to gauge the influence of distant traffic in isolation from the local industrial noise, the noise levels incident on the proposed building have been predicted using Cadna/A noise mapping software, with the following results:

Elevation	Incident L _{Aeq} , 30 mins dB	Typical Incident L _{A1} , 30 mins dB
South-east (admin block)	53	62
North-east (admin block)	53	62
North-east (classrooms)	51	60
North-west and south-west	50	56

6.3 Indoor Ambient Noise Criteria

A sample of the typical BB93 indoor ambient noise criteria relevant to this development are as follows:-

Room type	BB93 $L_{Aeq, 30 \text{ mins}}$ dB	
	Windows closed	Windows open
SEN classrooms	30	35
Sports hall, art, food tech, dining room and offices	40	45
Circulation areas	45	50

There is also a requirement to control noise from discrete events to ≤ 60 dB $L_{A1, 30 \text{ mins}}$ in teaching rooms.

6.4 External Noise Intrusion

A building facade with windows partially open for ventilation typically provides up to 13 dB reduction of a traffic controlled incident $L_{Aeq,T}$. Applying that noise reduction to the incident noise levels set out in Section 6.2 above yields the following indoor ambient noise levels with windows open:

Elevation	Internal $L_{Aeq, 30 \text{ mins}}$ dB	Typical Incident $L_{A1, 30 \text{ mins}}$ dB
South-east (admin block)	40	49
North-east (admin block)	40	49
North-east (classrooms)	38	47
North-west and south-west	37	43

The implications for the design of the building envelope are as follows:-

- i. the admin block and sports hall can be naturally ventilated
- ii. the classrooms need mechanical ventilation

With windows closed, the building envelope would need to provide up to 23 dB overall noise reduction of the incident $L_{Aeq,T}$, and this should be readily achievable using most modern forms of wall construction, such as cavity masonry or an insulated lightweight cladding system, and standard thermal double glazing. The roof can also be of standard construction, such as single ply membrane on an insulated lightweight build up.

The primary noise mitigation measure is therefore the mechanical ventilation of classrooms as proposed, and the mechanical noise levels will need to be controlled to ≤ 30 dB $L_{Aeq, 30 \text{ mins}}$ inside the SEN classrooms.

FOR ACOUSTIC DESIGN TECHNOLOGY

PLANNING PRACTICE GUIDANCE

Perception	Examples of Outcomes	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 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			
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 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 Adverse Effect	Avoid
Noticeable and 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

Table 3940/T1



<u>Notes</u>	<u>Description</u> Site Plan Showing Noise Monitoring Locations		 ACOUSTIC DESIGN TECHNOLOGY Noise and Vibration Consultants
	<u>Project</u> Brownhill School, Rochdale		
	<u>Survey Date</u> 06 – 07 November 2025	<u>Drawing No.</u> 3940/SP1	



Notes

Acoustic screening line shown in red



Description

Extent of proposed acoustic screening, 2400mm solid fence

Project

Brownhill School, Rochdale

Date

17 April 2026

Drawing No.

3940/SP2



ACOUSTIC DESIGN TECHNOLOGY
Noise and Vibration Consultants

SURVEY RESULTS (A WEIGHTED TIME HISTORY)

Location	Period	L _{Aeq, 15mins} dB	L _{A1} dB	L _{A90} dB
Position 1	11:58 – 12:13	57	67	52
Position 2	12:15 – 12:30	49	54	46
Position 3	12:35 – 12:50	48	55	44
Position 1	13:24 – 13:39	55	60	53
Position 2	13:40 – 13:55	48	55	46
Position 3	13:59 – 14:14	49	56	44
Position 1	14:19 – 14:34	58	67	53
Position 2	14:35 – 14:50	50	57	47
Position 3	14:53 – 15:08	48	52	46
Position 1	23:27 – 23:42	54	58	52
Position 2	23:44 – 23:59	49	59	45
Position 4	00:00 – 00:15	44	50	42
Position 1	00:19 – 00:34	53	56	52
Position 2	00:36 – 00:51	43	53	39
Position 4	00:52 – 01:07	42	49	38
Position 5	01:28 – 01:43	41	51	36

Table 3940/T1

PLANT NOISE SCHEDULE ADT 3940/PNS

FIRST ISSUE

Ref.	Plant Description	Location	Duty m ³ /s : Pa	Data L _w / L _p dB	Octave Band Centre Frequency - Hz							
					63	125	250	500	1k	2k	4k	8k
HRU/0/01	LGH-25RVX3-E Fresh Air Inlet	General Office, Venting East	0.03 : 127	L _w	-	63	52	47	44	35	25	18
	LGH-25RVX3-E Exhaust Air Discharge				-	70	61	51	51	46	39	29
HRU/1/01	LGH-65RVX3-E Fresh Air Inlet	Staff Room, Venting West	0.11 : 116	L _w	-	60	54	49	44	36	27	18
	LGH-65RVX3-E Exhaust Air Discharge				-	70	61	56	52	50	44	34
HRU/1/02	LGH-65RVX3-E Fresh Air Inlet	Finance Office, Venting East	0.13 : 118	L _w	-	65	60	56	53	49	41	32
	LGH-65RVX3-E Exhaust Air Discharge				-	70	65	64	59	59	54	44
HRU/1/03	LGH-250RVXT3-E Fresh Air Inlet	Sports Hall, Intake and Exhaust at Roof Level	0.44 : 119	L _w	68	69	65	59	57	51	41	-
	LGH-250RVXT3-E Exhaust Air Discharge				76	77	75	71	75	73	71	-
HRU/2/01	LGH-35RVX3-E Fresh Air Inlet	Medical Treatment, Venting East	0.07 : 125	L _w	-	60	54	49	44	36	27	18
	LGH-35RVX3-E Exhaust Air Discharge				-	70	61	56	52	50	44	34
HRU/2/02	LGH-100RVX3-E Fresh Air Inlet	Dining Hall, Venting West	0.26 : 120	L _w	-	65	61	58	53	49	42	33
	LGH-100RVX3-E Exhaust Air Discharge				-	72	69	68	65	64	61	52
HRU/2/03	LGH-65RVX3-E Fresh Air Inlet	Food Tech, Venting North	0.11 : 114	L _w	-	65	60	56	53	49	41	32
	LGH-65RVX3-E Exhaust Air Discharge				-	70	65	64	59	59	54	44

BROWNHILL SCHOOL, ROCHDALE**PLANT NOISE SCHEDULE ADT 3940/PNS****FIRST ISSUE**

Ref.	Plant Description	Location	Duty m ³ /s : Pa	Data L _w / L _p dB	Octave Band Centre Frequency - Hz							
					63	125	250	500	1k	2k	4k	8k
HRU/2/04	LGH-160RVXT3-E Fresh Air Inlet	Art/Science, Venting North	0.03 : 127	L _w	64	65	59	54	53	44	35	-
	LGH-160RVXT3-E Exhaust Air Discharge				70	73	68	65	69	65	62	-
HVU/2/01-04	Monodraught HVR Zero APX V2	Second floor classrooms, venting west	-	L _w ⁽¹⁾	45	45	45	44	40	33	25	26
HVU/2/05-08	Monodraught HVR Zero APX V2	Second floor classrooms, venting east	-	L _w ⁽¹⁾	45	45	45	44	40	33	25	26
EF/0/01	S&P TD-250/100 Silent	Plantroom, venting east	-	L _w	52	48	54	57	47	40	35	30
EF/1/01	S&P TD-250/100 Silent	First Floor, Venting east	-	L _w	52	48	54	57	47	40	35	30
EF/2/01	S&P TD-250/100 Silent	Kitchen, Venting south	-	L _w	52	48	54	57	47	40	35	30
EF/2/02	S&P TD-500/160 Silent	Venting East	-	L _w	64	54	65	62	58	53	48	44
EF/2/03 - 04	S&P TD-250/100 Silent	Venting North	-	L _w	52	48	54	57	47	40	35	30
DX-01	Mitsubishi MUZ-HR35VF	External Plant Area	-	L _p @ 1m ⁽²⁾	49	50	55	46	48	39	36	31
ASHP 01-03	Mitsubishi CAHV-R450YA-HPB (3 no.)	External Plant Area	-	L _p @ 1m ⁽³⁾	64	66	67	60	54	51	51	47

Ref.	Plant Description	Location	Duty	Data	Octave Band Centre Frequency - Hz							
			m ³ /s : Pa	L _w / L _p dB	63	125	250	500	1k	2k	4k	8k

Notes:-

- 1) The manufacturer's data sheet provides octave band sound power levels for different operational scenarios. The worst case levels at 'Airflow (l/s) 180' have been used in this case.
- 2) The manufacturer's data sheet provides octave band sound pressure levels. Octave band sound power levels are not provided, however an overall A-weighted sound power level of 51dB(A) is quoted.
- 3) The manufacturer's data sheet provides octave band sound pressure levels. Octave band sound power levels are not provided, however an overall A-weighted sound power level of 76 dB(A) is quoted. All the data is for the standard 'COP Priority Mode'.

ATMOSPHERIC SILENCER SCHEDULE ADT 3940/SSA

FIRST ISSUE

Ref	Description	Length	Width	Height	No.	Minimum Insertion Loss (dB) at Centre Frequency (Hz)							
		(mm)	(mm)	(mm)	Off	63	125	250	500	1k	2k	4k	8k
ATT/2/14	HRU/2/04 Exhaust Air Discharge Silencer	500	250 dia.		1	2	6	6	12	20	25	20	17
various	All other fresh air intake and extract exhaust silencers to HRU	500	250 dia.		1 per supply and extract per unit	1	2	4	10	13	10	10	9

APPENDIX A - INSTRUMENTATION

Manufacturer	Type and / or Model	Serial Number	Last Laboratory Calibration	Calibrator Output (dB)	Free Field Correction (dB)	Initial reading (dB)	Final reading (dB)
01dB	Fusion 1 Class 1 Sound Level Meter (SLM11)	15131	July 2025		-0.30	113.6	113.7
01dB	Fusion MCE3 Microphone	14038	July 2025				
Norsonic	Nor1251 Calibrator (Cal 4)	33453	March 2025	113.88			

APPENDIX B

Acoustic Terminology

The annoyance produced by noise is dependent upon many complex interrelated factors such as 'loudness', its frequency (or pitch) and any variations in its level. In order to have some objective measure of the annoyance, scales have been derived to allow for these subjective factors.

A-weighting The human ear is more susceptible to mid-frequency noise than the high and low frequencies. To take account of this when measuring noise, the A-weighting scale is used so that the measured noise corresponds roughly to the overall level of noise that is discerned by the average person. It is also possible to calculate the A-weighted noise level by applying certain corrections to an un-weighted spectrum.

When the noise being measured has variable amplitude, such as traffic noise, it is necessary to qualify the basic dB unit. This may be done using a statistical index L_n dB, where n is any value between 0 and 100, and is the percentage of the sample time for which the stated level is exceeded. In defining the use of the index, both the value of n and the length of the sample period must be stated.

L_{10} L_{10} , being the level exceeded for 10% of the time, has been shown to be a good indicator for traffic noise intrusion, and is used in assessing the effect of traffic noise on residential or commercial premises.

L_{90} L_{90} is the level exceeded for 90% of the time, and is used as a measure of background noise level, as it excludes the effects of occasional transient levels, such as individual passing cars or aircraft.

In addition to the statistical noise indices defined above, the following noise units are also used to define variable amplitude noise sources:

$L_{eq,T}$ $L_{eq,T}$ is defined as the notional steady sound pressure level which, over a stated period of time, would contain the same amount of acoustical energy as the actual fluctuating sound measured over the same period. In other words, it is a measure of the "average" noise level

L_{max} L_{max} is the maximum time-weighted sound pressure level recorded over the stated time period.