

Noise Impact Assessment for a Proposed Padel Tennis Facility

Rochdale Padel Club, Bridgefold Road, Rochdale, OL11 5BX

Report Reference 22315.NIA-RPT.01

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1 INTRODUCTION

ES Acoustics Ltd have been commissioned by Mr Jordan Ingoe to prepare a noise impact assessment in support of a planning application for the proposed construction of an outdoor padel tennis facility at Rochdale Padel Club, Bridgefold Road, Rochdale, OL11 5BX.

The structure of this report is as follows:

- A review of site context and details of the proposal, including the location of the proposed padel tennis courts and the location of the identified closest noise-sensitive receptors relative to the application site;
- A review of national planning policy, local planning policy and acoustic guidance relevant to the proposal to ensure that robust noise criteria are established;
- Details of the environmental noise survey undertaken on site to determine benchmark noise levels at nearby noise-sensitive receptor locations;
- The noise impact assessment, including:
 - Source sound levels of the padel tennis activities;
 - Details of the noise modelling exercise to establish noise propagation from the application site to the surrounding area;
 - A comparison of the predicted noise levels at the closest receptors against the established criteria;
 - Discussion of results and assessment of impacts; and
 - Proposed mitigation measures that could be adopted to reduce noise emissions.
- Report conclusion and summary

2 SITE CONTEXT AND BACKGROUND INFORMATION

2.1 Site Description

The application site is situated on the grounds of the existing Rochdale Sports Club. The site has historically been used as a sporting facility, predominantly as a cricket club.

Figure 1 shows the application site boundary in the context of the surrounding area:

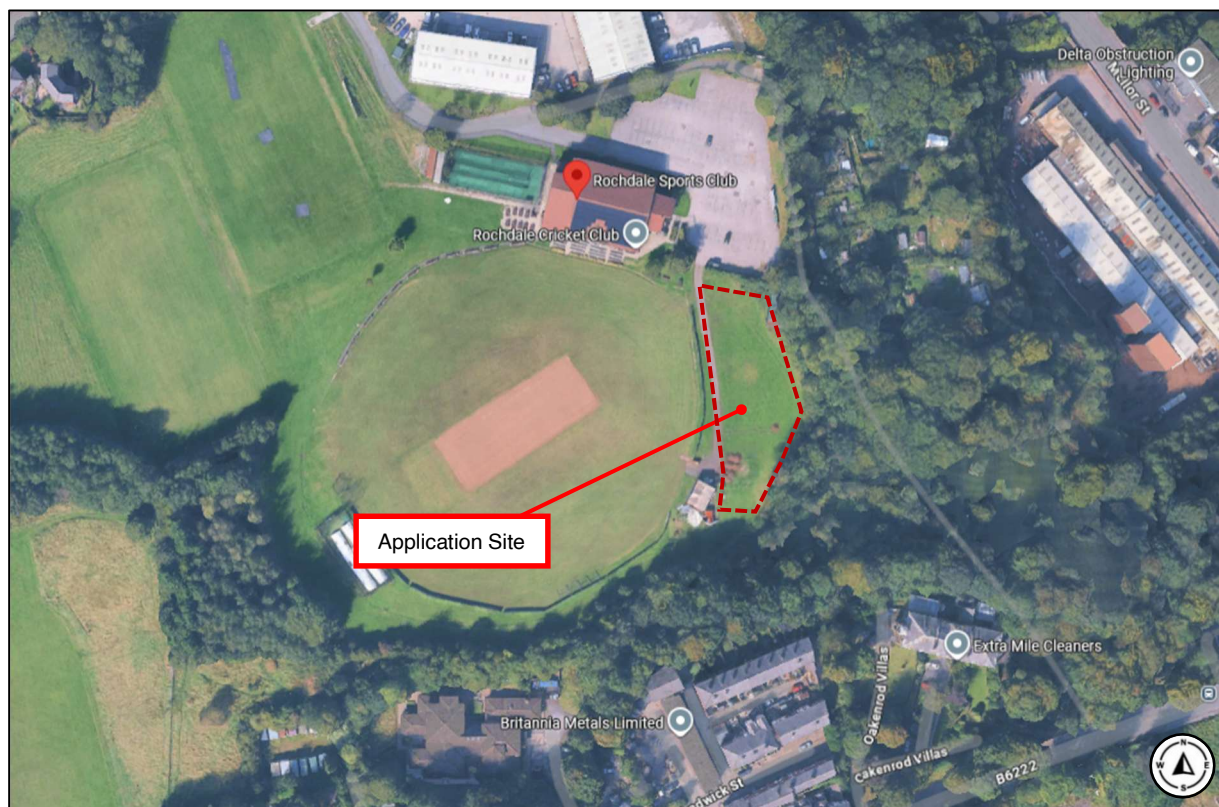


Figure 1 Application site boundary (Image Reference: Google Earth)

Nearby residential receptors are situated to the immediate south of the proposed padel courts. While additional residences are located to the northwest of the wider sports club site, these are at a substantially greater distance and as such would inherently be subject to reduced noise emissions.

2.2 Proposal

The proposal consists of the installation of an outdoor padel tennis facility, comprising 6 no. padel tennis courts, within the previously undeveloped grassland to the east of the existing Rochdale Sports Club.

The proposed courts will be assumed to operate at full capacity throughout their opening hours, in order to consider the worst-case scenario. The hours of operation that will be considered are as follows:

- Monday - Friday: 06.00 - 22.00
- Saturday: 07.00 - 22.00
- Sunday: 08.00 - 21.00

In order to provide further information relating to the use of the site as a padel tennis facility, considering it is a relatively new and emerging sport, additional information is provided below to further contextualise the scheme.

2.2.1 Padel Tennis

Padel tennis is an innovative racquet sport played on an enclosed court approximately a third the size of a tennis court. Padel racquets are solid but perforated and made of ethylene-vinyl acetate, which is covered in plastic or carbon, depending on the build quality. The balls used are similar to tennis balls but with lower pressure. Both the racquet and ball factors result in the ball's velocity being lower than in tennis, and the ball is served underhand.

A typical padel court is enclosed on all sides; the end walls are comprised of 3m high safety glass, which lap around the sides by 4 metres on either side. The remaining 12m sides of the enclosure are a metal cage-type construction. An example court is shown in Figure 2.

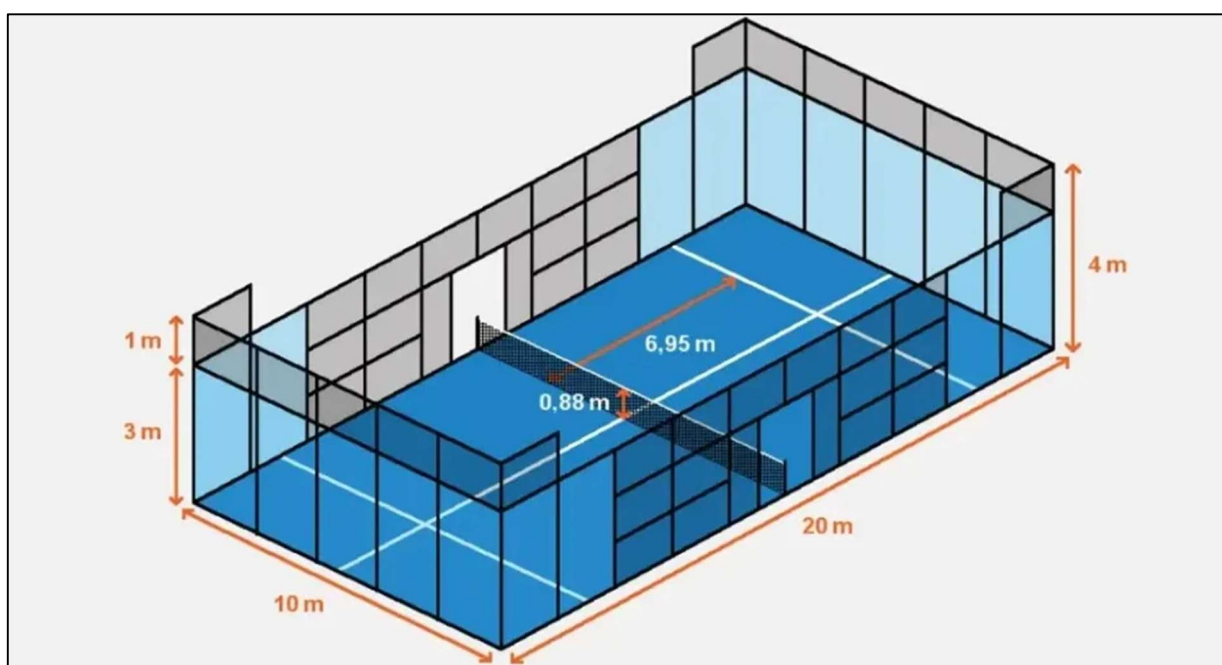


Figure 2 Padel Court (Image Reference: Padel Athletes)

Padel play involves ball contact with the glass and metal sections of the enclosure. However, unlike squash, the ball is not typically hit directly off the glass walls but generally rebounds from them at the end of its trajectory. A crucial point of clarification is that playing off the glass walls is integral to the game of squash, whereas it is not with padel tennis. However, the rules of padel tennis do not exclude a player from striking the ball directly into the glass wall on their side of the court to project the ball over to the other side of the court, although this was observed not to be typical within normal play and would be considered an infrequent event.

Other general observations of the padel tennis sport noted that the character of noise is not dissimilar to tennis. However, the key differences are that padel tennis is a more intense game with the shorter court resulting in more frequent ball contact, in addition to the noise source of the ball deflecting off the

enclosure walls. Maximum levels (L_{Amax}) appear to be marginally lower in padel tennis due to the lower velocity of play. Average noise levels (L_{Aeq}) are marginally louder due to more frequent ball contact, generally more vocal participants, and reflected sound due to the glass walls.

2.2.2 Proposed Site Layout

The proposed site layout is shown below in Figure 3.

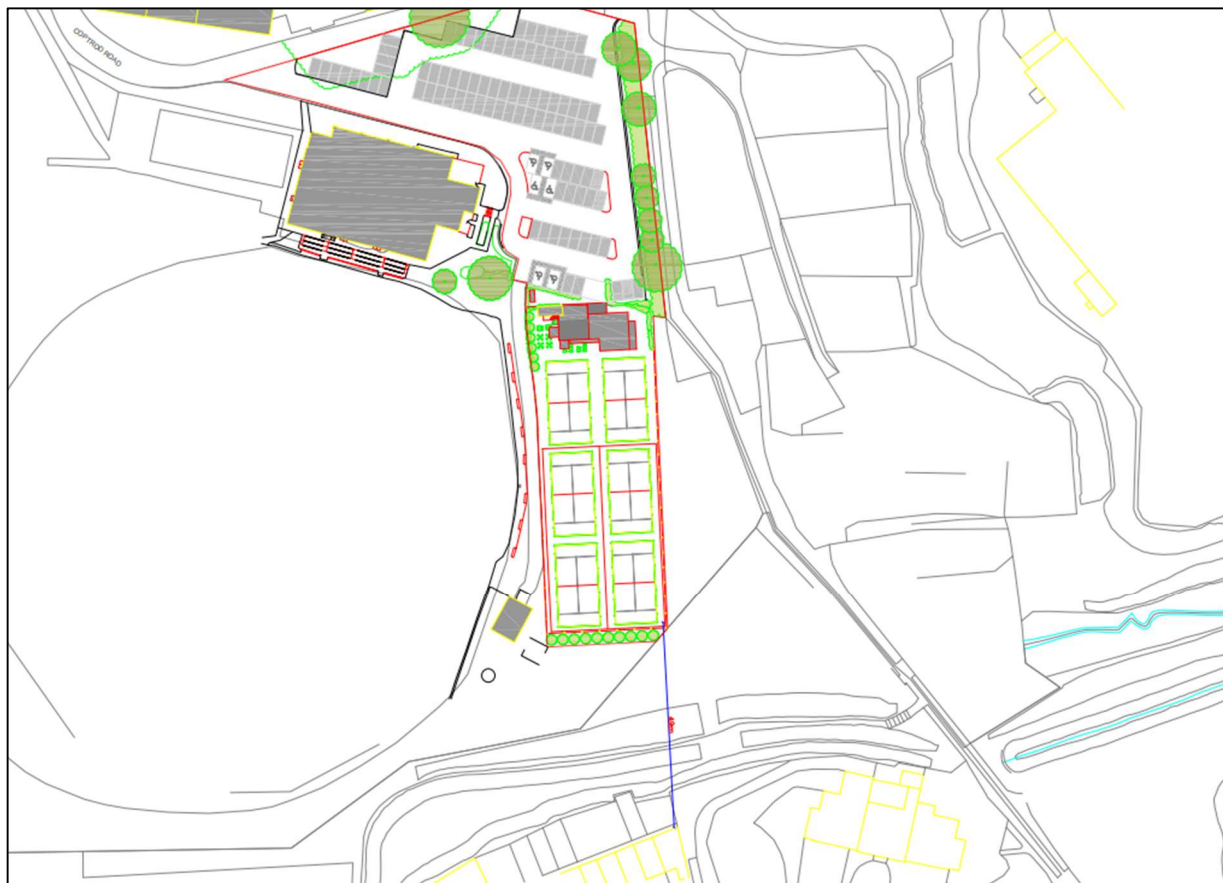


Figure 3 Proposed site layout (Image Reference: The Padel Architects)

As shown above, the 6 no. padel tennis courts are proposed to be installed within the eastern corner of the site, located approximately 50m from the closest residential receptor to the south.

The entire facility is contained within a fenced area, with the perimeter fencing consisting of chain link fencing at a height of 3m, with dense greenery to the immediate south of the Padel courts as shown in Figure 3, in addition to woodland to the east and south of the site as shown in Figure 4.

The 4 no. Padel courts to the south of the site are proposed installed beneath a canopy, with partially open sides. The 2 no. Padel courts to the north of the site will be open-air courts.

2.3 Closest Noise Sensitive Receptors

The closest noise-sensitive receptors relative to the proposed padel tennis facility are shown below:

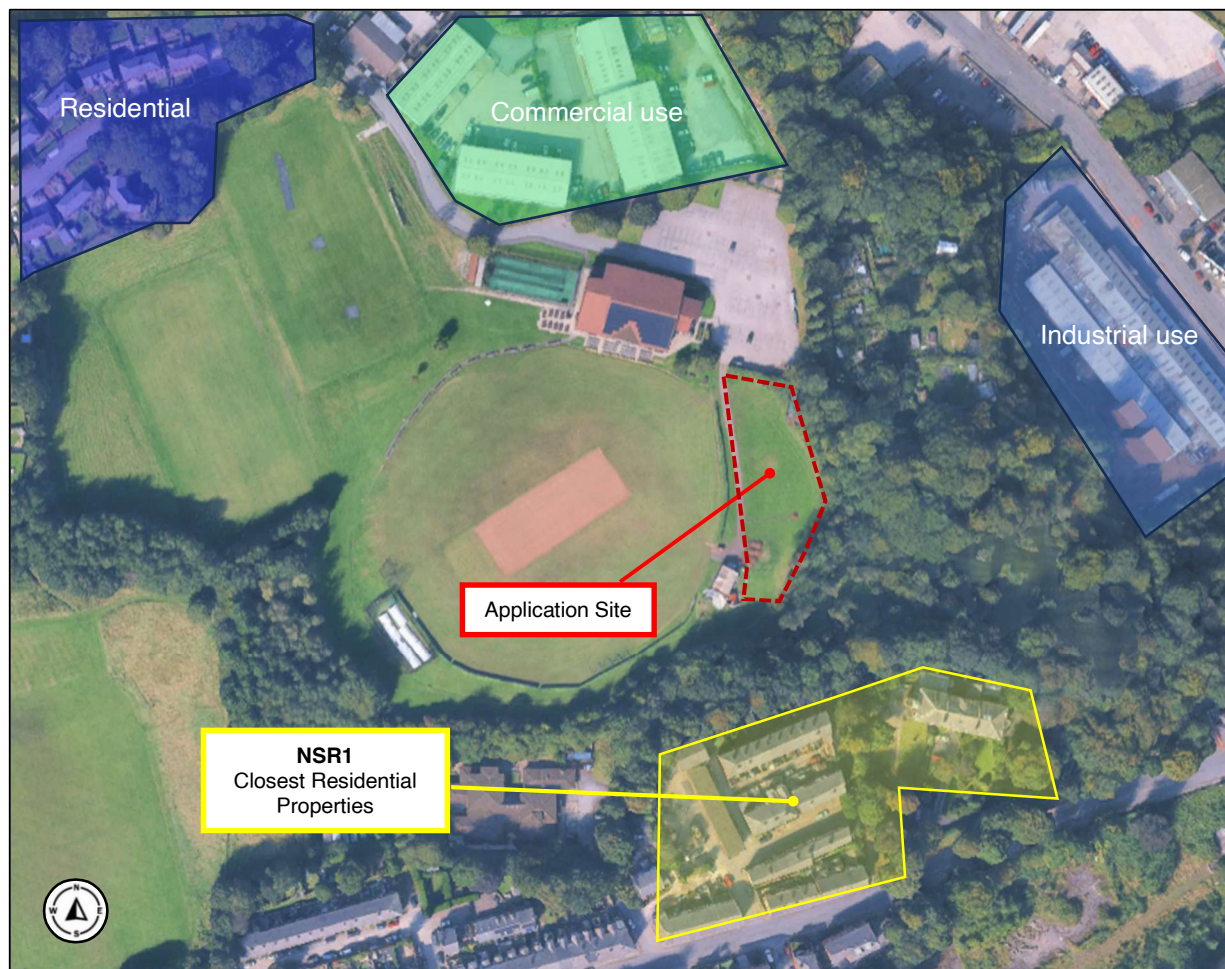


Figure 4 Closest noise-sensitive receptor properties relative to the application site (Image Reference: Google Earth)

3 PLANNING POLICY, GOOD PRACTICE GUIDANCE, & PROPOSED CRITERIA

3.1 National Policy

3.1.1 Government National Planning Policy: NPPF, NPSE, NPPG

The National Planning Policy Framework (NPPF) covers issues relating to noise and planning in England.

Paragraph 187 states that planning policies and decisions should contribute to and enhance the natural and local environment by preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels noise pollution.

Paragraph 198 states that 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:

- 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; and
- 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) aims to provide clarity regarding current policies and practices and applies to environmental, neighbour and neighbourhood noise. The NPSE is supported by three noise policy aims:

- Avoid significant adverse impacts on health and quality of life;
- Mitigate and minimise adverse impacts on health and quality of life; and
- Where possible, contribute to the improvement of health and quality of life.”

In achieving these aims, the document introduces significance criteria as follows:

SOAEL – Significant Observed Adverse Effect Level

This is the level above which significant adverse effects on health and quality of life occur. It is stated that *“significant adverse effects on health and quality of life should be avoided while also taking into account the guiding principles of sustainable development”*.

LOAEL – Lowest Observed Adverse Effect Level

This is the level above which adverse effects on health and quality of life can be detected. It is stated that the second aim above lies somewhere between LOAEL and SOAEL and requires that: *“all reasonable steps should be taken to mitigate and minimise adverse effects on health and quality of life while also taking into account the guiding principles of sustainable development. This does not mean that such adverse effects cannot occur.”*

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. This can be related to the third aim above, which seeks: *“where possible, positively to improve health and quality of life through the pro-active management of noise while also taking into account the guiding principles of sustainable development, recognising that there will be opportunities for such measures to be taken and that they will deliver potential benefits to society. The protection of quiet places and quiet times as well as the enhancement of the acoustic environment will assist with delivering this aim.”*

Finally, the National Planning Practice Guidance (NPPG) on noise provides practical guidance on how the NPPF should be applied as well as and guidance on the factors influencing whether noise may be a concern at the planning stage and how adverse effects can be mitigated. The table below summarises the effect levels presented within the NPSE, as follows:

Response	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 and not intrusive	Noise can be heard, but does not cause any change in behaviour, attitude or other physiological response. Can slightly affect the acoustic character of the area but not such that there is a change in the quality of life.	No Observed Adverse Effect	No specific Measures required
Lowest Observed Adverse Effect Level			
Present and intrusive	Noise can be heard and causes small changes in behaviour, attitude or other physiological responses, e.g. turning up the 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. Affects the acoustic character of the area such that there is a small actual or perceived change in the quality of life.	Observed Adverse Effect	Mitigate & reduce to a minimum
Significant Observed Adverse Effect Level			
Present and disruptive	The noise causes a material change in behaviour, attitude or other physiological response, 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
Present and very disruptive	Extensive and regular changes in behaviour, attitude or other physiological response and/or an inability to mitigate effect of noise leading to psychological stress, e.g. regular sleep deprivation/awakening; loss of appetite, significant, medically definable harm, e.g. auditory and non-auditory	Unacceptable Adverse Effect	Prevent

Table 1 Noise exposure hierarchy

Note that the guidance above recognises that it is not possible to have a single objective noise-based measure that is mandatory and applicable to all sources of noise in all situations, and provides no guidance as to how these criteria should be interpreted. It is clear, however, that there is no requirement

to achieve noise levels where there are no observable adverse impacts, but that reasonable and practicable steps to reduce adverse noise impacts should be taken in the context of sustainable development and ensure a balance between noise sensitivity and the need for noise-generating developments.

3.2 Relevant Noise Guidance

There is no guidance aimed explicitly at the assessment of noise from padel tennis courts.

Reference is therefore made to other good practice guidance, as well as guidance on other outdoor sports facilities whose operation can generate noise with similar subjective characteristics.

3.2.1 World Health Organization 'Guidelines for Community Noise'

The World Health Organisation (WHO) 'Guidelines for Community Noise', published in 1999, gives the following description of community noise:

"Community noise (also called environmental noise, residential noise or domestic noise) is defined as noise emitted from all sources except noise at the industrial workplace. Main sources of community noise include road, rail and air traffic, industries, construction and public work, and the neighbourhood. Typical neighbourhood noise comes from premises and installations related to the catering trade (restaurant, cafeterias, discotheques, etc.); from live or recorded music; sport events including motor sports; playgrounds; car parks; and domestic animals such as barking dogs."

For noise levels internally and externally to dwellings, it states:

"To enable casual conversation indoors during daytime, the sound level of interfering noise should not exceed 35 dB L_{Aeq} . The maximum sound pressure level should be measured with the sound pressure meter set at "fast". Based on a 15 dB sound reduction of a partially open window, the noise level outside a residential property during the daytime about 1 metre from façades of living spaces should not exceed 50 dB L_{Aeq} ."

For outdoor living areas, it states:

"To protect the majority of people from being seriously annoyed during the daytime, the outdoor sound level from steady, continuous noise should not exceed 55 dB L_{Aeq} on balconies, terraces and in outdoor living areas. To protect the majority of people from being moderately annoyed during the daytime, the outdoor sound level should not exceed 50 dB L_{Aeq} . Where it is practical and feasible, the lower outdoor sound level should be considered the maximum desirable sound level for new development."

3.2.2 BS 8233:2014 'Guidance on sound insulation and noise reduction for buildings'

BS 8233:2014 provides guidance on recommended internal ambient noise levels in residential spaces based on World Health Organisation (WHO) research, summarised in Table 2.

Room	Daytime (07:00-23:00)	Night-time (23:00-07:00)
Living Room	≤ 35 dB $L_{Aeq,16\text{ hour}}$	N/A
Dining Room	≤ 40 dB $L_{Aeq,16\text{ hour}}$	N/A
Bedroom	≤ 35 dB $L_{Aeq,16\text{ hour}}$	≤ 30 dB $L_{Aeq,8\text{ hour}}$

Table 2 BS 8233:2014 indoor ambient noise levels for dwellings

Whilst it is accepted that the levels presented above are for steady external noise sources without a specific character, the guidance provides useful context as to what acceptable internal noise levels are in an ideal situation.

3.2.3 Sports England

The Artificial Grass Pitch (AGP) Acoustics – Planning Implications (Sport England 2015) document brings together relevant noise guidelines and UK planning policies for the assessment of noise from Artificial Grass Pitches. The guidance identifies the noise implications of the associated sound sources and recommends mitigation measures to limit adverse impacts upon noise-sensitive receptors.

Although not directly applicable to padel courts, the associated noise sources can be similar to the types of sport played on AGPs, which include shouting from players and the impact of balls against court-side barriers.

The guidance notes that WHO Guidelines are considered the most relevant and the most commonly applied for the assessment of AGP noise, i.e the noise level outside a residential property during the daytime at about 1 metre from facades of living spaces should not exceed 50 dB L_{Aeq} .

The key aspect of consideration here is that BS 8233 and the WHO Guidelines use a 16-hour assessment period, which is considered to be too long for the assessment of shorter sound levels associated with sporting activities. The guidance states: “...a 16-hour assessment period may not truly reflect the noise impact as it takes into account times of use and non-use. It is suggested an appropriate assessment time period is for one hour, $L_{Aeq, 1\text{ hour}}$ as this is typically the time period for a community sports session...”.

This assessment would therefore make use of the $L_{Aeq, 1\text{ hour}}$ descriptor for the assessment of continuous noise from the sporting activities in question.

3.2.4 Maximum Noise Level Guidance

The acoustic descriptor that would best characterise impulsive noise from racquet-on-ball strikes would be the L_{Amax} descriptor.

At the time of writing this report, there is no clearly defined numerical criterion to equate internal noise impact from maximum sound levels during daytime hours.

The most commonly referenced guidance document that mentions L_{Amax} is the World Health Organization Guidelines for Community Noise (1999), which notes that for dwellings indoors, sleep disturbance can occur when L_{Amax} single event levels regularly exceed L_{Amax} 45 dB inside the bedroom (note that 10-15 exceedances are typically considered acceptable when designing an external building fabric to control external noise ingress).

As the padel tennis courts would not be used during night-time hours, the criterion loses relevance to the assessment at hand, i.e. the risk of sleep disturbance is far lower during the hours of 07:00 – 23:00 compared to 23:00 – 07:00.

However, in the interest of providing an assessment of individual L_{Amax} noise events, the internal guideline level of L_{Amax} 45 dB could be adapted to an external level to allow a direct comparison of the noise model results. WHO guidelines note that a partially open window provides up to a 15 dB reduction in sound level from outside to inside. Therefore, the internal level during night-time of L_{Amax} 45 dB would be broadly equivalent to an external level of L_{Amax} 60 dB. This level should be further corrected since the noise would only be occurring during daytime hours (07:00 – 23:00) and not night-time hours (23:00 – 07:00). As noted in Section 3.2.1, WHO guidelines note that the recommended internal L_{Aeq} levels are 35 dB(A) during daytime hours and 30 dB(A) during night-time hours, resulting in a 5 dB difference between daytime and night-time hours. We would therefore suggest that this 5 dB difference is also applied to the L_{Amax} level, resulting in a daytime L_{Amax} criterion of 65 dB(A).

3.3 Proposed Criteria Summary

The proposed criteria that would be adopted for this assessment are summarised in Table 3

Time Period	Absolute Criteria at Façade
Daytime 07:00 – 23:00	≤ 50 dB L_{Aeq} , 1 hour ≤ 65 dB L_{Amax}
Evening 19:00 – 23:00	≤ 45 dB L_{Aeq} , 1 hour ≤ 60 dB L_{Amax}

Table 3 Noise emissions criteria summary

ESA consider the criteria as the “No Observed Adverse Effect Level” in accordance with National Planning Policy guidelines, and will ensure that *significant adverse impacts on health and quality of life* are avoided.

4 BASELINE NOISE SURVEY

While the assessment of the proposed padel tennis courts would be broadly compared with the absolute criteria defined in Section 3, a baseline noise survey has been conducted to provide additional context concerning existing ambient noise levels on site.

4.1 Methodology

An environmental noise survey was undertaken at the location shown in Figure 5, which was considered representative of the closest noise-sensitive receptors.

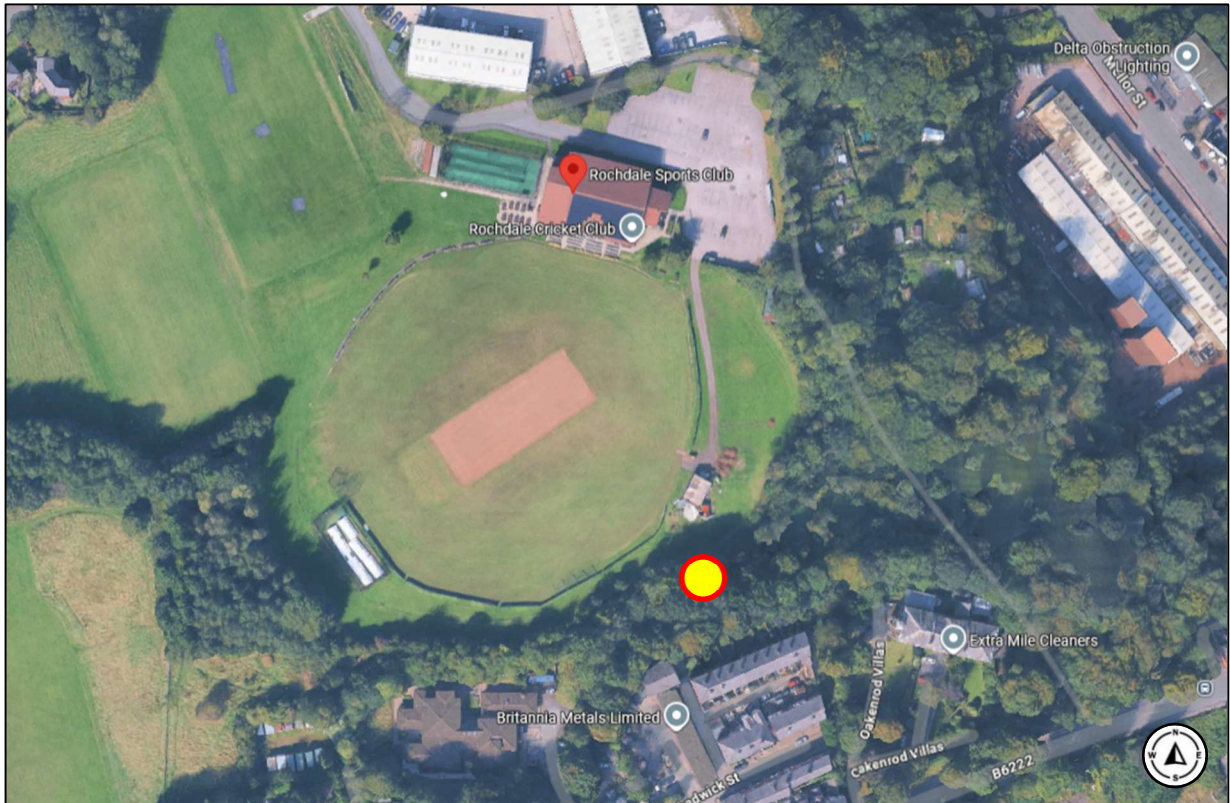


Figure 5 Noise survey measurement position (Image Reference: Google Maps)

The measurement procedure complied with ISO 1996-2:2017 'Acoustics - Description, measurement and assessment of environmental noise - Part 2: Determination of environmental noise levels', with automated monitoring undertaken using 5-minute integration between 16:00 on Friday 28th November and 14:00 on Monday 1st December 2025.

The key acoustic descriptors measured for this assessment are as follows:

- $L_{Aeq,T}$ (the continuous equivalent A-weighted noise level over a given time period, T); and
- $L_{Amax,T}$, the maximum sound level over each measurement period using a 'fast' response.

4.2 Equipment

Table 4 presents the equipment used for the environmental noise survey. The equipment calibration was verified before and after use, and no significant drift/variation was observed.

Equipment	Make and Model	Serial Number
Sound Level Meter with Integrated MEMS microphone	Convergence Instruments NSRT Mk4	CNveJvWQeXc9iBHgx6LxvD
Calibrator	Svante SV36 Class 1 Calibrator	163808

Table 4 Environmental noise survey equipment

4.3 Weather Conditions

Weather conditions during the automated monitoring were observed on both installation and collection visits to be generally dry with light winds below 5m/s and therefore suitable for the measurement of environmental noise.

Periods of heavy rain from Friday 28th November predominantly occurred prior to the survey installation resulting in wet ground, however the absence of sources which would be affected by rainfall such as busy roads in the immediate area reduces the significance of such rainfall.

4.4 Noise Survey Results

A noise time history of the measurement data is presented in Appendix B, with a summary of the measurement results presented in Table 5.

Period	Ambient Sound Level dB $L_{Aeq, T}$ (dB)	Typical Maximum Sound Level L_{Amax} (dB) (Min / Average / Max)
Daytime 07:00-23:00	54	47 / 59 / 78*
Evening 19:00-23:00	47	46 / 55 / 76
Night-time 23:00-07:00	45	41 / 52 / 67
Operational Hours	53	47 / 58 / 78*

Table 5 Measured noise levels

*excluding peaks in excess of 80dB(A)

In the case of $L_{Aeq, T}$ levels, data has been logarithmically averaged during each relevant period to establish the above sound levels, e.g. the daytime 07:00-19:00 level of 54 dB $L_{Aeq, 12 \text{ hour}}$ has been established by logarithmically averaging the measured levels throughout the survey.

In the case of L_{Amax} sound levels, average values have been established via an arithmetic average of the values during each relevant period.

The most significant time periods in this instance are the proposed operational hours of the site as follows:

- Monday - Friday: 06.00 - 22.00
- Saturday: 07.00 - 22.00
- Sunday: 08.00 - 21.00

4.5 ESA Comments on Criteria with Consideration to Existing Noise Profile

The suggested daytime $L_{Aeq, 1 \text{ hour}}$ criterion of ≤ 50 dB(A) would be 4dB below the existing ambient noise level during the proposed daytime hours. The proposed evening $L_{Aeq, 1 \text{ hour}}$ criterion of ≤ 45 dB(A) would be 2dB below the existing evening hours noise levels.

The suggested daytime and evening L_{Amax} criteria would be commensurate to the existing range to which the receptors are already exposed.

This further justifies that the criteria established are suitable, and would ensure that noise emissions from the proposed padel tennis courts are not above the existing benchmark sound levels measured on site.

5 NOISE IMPACT ASSESSMENT

5.1 Source Sound Levels

ES Acoustics have previously measured sound levels from an existing padel tennis facility at a location within the UK. Measurements were undertaken over 2 no. 30-minute matches between four players.

The following noise events were captured during the measurement process:

- Racquet-on-ball contact, which was the most dominant source in terms of both frequency and overall sound level;
- Player's shouting;
- Ball hitting the metal fence along the side of the court; and
- The ball striking the glass at either end of the court.

The sound level meter was positioned on a tripod at a height of 1.5 metres above ground and a distance of 1 metre from the centre line of the court. The resultant measurement data is shown in Table 6.

Description	Measured Sound Level
Ambient sound level of padel tennis activity	65.3 dB LAeq, 30 min at 1m 65.6 dB LAeq, 30 min at 1m
Typical maximum sound levels of padel tennis activity	64 – 80 dB LAmax, 1 sec at 1m

Table 6 Source noise levels of padel tennis activity

The typical maximum sound level range of racquet-on-ball strikes has been derived from a statistical analysis of LAmax, 1 sec values measured during the full 1-hour period of padel activity, as shown in Figure 6.

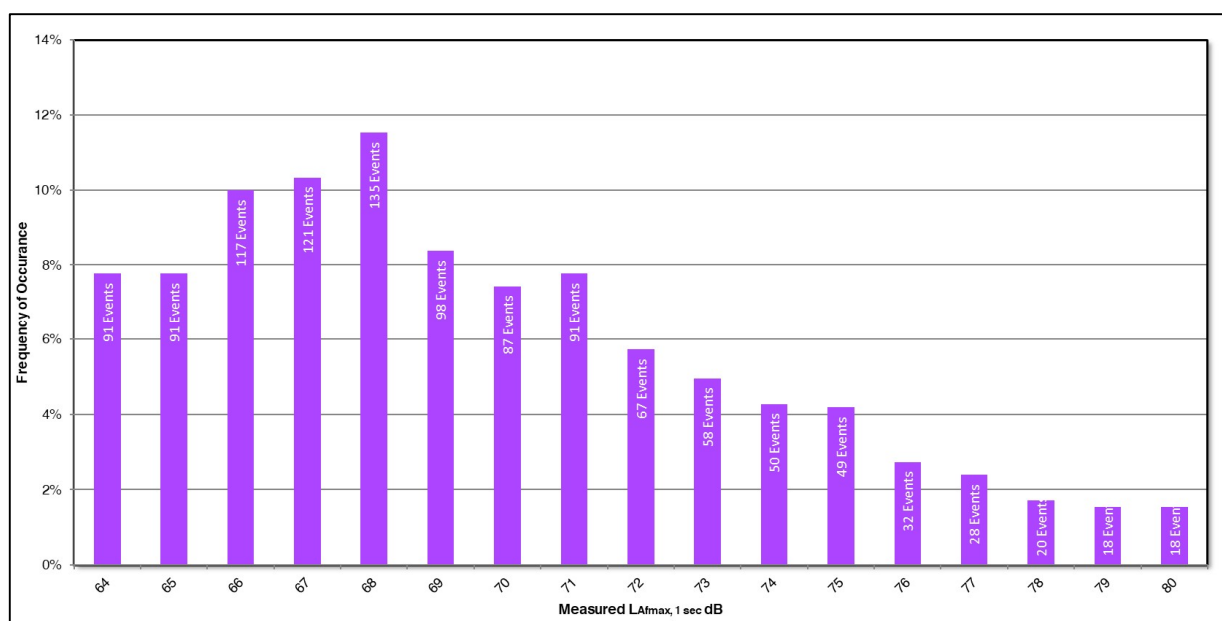


Figure 6 Statistical analysis of L_{max} 1 sec events during padel tennis activity

The statistical analysis above clearly evidences the variation in noise levels throughout a padel tennis match. This is simply the inherent nature of the sport, with the variations being directly attributed to the force with which the ball is struck. Note that some event levels occurred outside of the range reported above, but have been omitted from the analysis due to the frequency of occurrence being less than 1%.

Note that the $L_{Aeq, 30 \text{ min}}$ would be considered comparable to $L_{Aeq, 1 \text{ hour}}$ noise levels, assuming that the courts are in use for the full duration.

Due to the emergence of padel tennis as a popular sporting activity, an Institute of Acoustics branch meeting has recently covered the topic¹. To ensure the veracity of the data above, additional source noise level data is presented from the branch meeting, as follows:

Parameter	Value
Ambient Sound Level (Sides)	60 dB $L_{Aeq, 1 \text{ hr @ 5m}}$ 52 dB $L_{Aeq, 1 \text{ hr @ 17m}}$
Maximum Sound Level (Ends and Sides)	69 – 72 dB $L_{Amax, 1 \text{ sec @ 5m}}$

Table 7 Additional source noise level data of padel tennis activity

5.2 Noise Modelling Exercise

To demonstrate the expected noise propagation from the proposed padel tennis courts to the surrounding area, a noise modelling exercise has been conducted using SoundPLAN 9.1.

SoundPLAN considers various inputs, including the topography of the surroundings, buildings, screening (e.g. boundary walls), and calculates sound propagation and barrier screening effects based on ISO 9613-1:1993 '*Acoustics - Attenuation of sound during propagation outdoors. Part 1: Calculation of the absorption of sound by the atmosphere*', and ISO 9613-2:2024 '*Acoustics - Attenuation of sound during propagation outdoors. Part 2: Engineering method for the prediction of sound pressure levels outdoors*'.

The modelling parameters are detailed below:

- Building Data – Sourced from Google Earth to inform building locations and heights
- Ground Absorption – Set based on ground type:
 - Open playing fields/undeveloped grassland to all cardinal directions – 0.8
 - Proposed padel courts – 0.4
- Reflections – Calculated up to the third order to ensure that reflections from glazed padel screens, local screening (foliage) and buildings are accurately considered within the model.
- Temperature – 10°C, Relative Humidity – 70%

¹ <https://www.ioa.org.uk/civicrm/event/info?id=997&reset=1>

- Canopies over the enclosed 4 no. Padel courts are proposed to be Fordingbridge coated polyester canopies, for which a nominal overall performance of 5dB R_w is considered, with minimal low frequency performance.

For each court, an area source has been input into the noise model to cover the full court area at a height of 1.5 metres above ground, with the source level calibrated to broadly match the ambient ($L_{Aeq, T}$) noise levels generated by the activity. 2 no. additional point sources have input for each court to reflect the players within a game at a height of 2 metres above ground, with the source level calibrated to broadly match the maximum (L_{Amax}) noise levels generated by the activity.

Table 8 presents the resultant sound power levels for the area and point sources within the noise model, with a comparison to the source sound level data presented in Section 5.1

Activity	Sound Power Level Used in SoundPLAN	Resultant Sound Pressure Level Predicted Within SoundPLAN	+ / - Vs Source Data
Padel Tennis	Area source to derive L_{eq} = Sound Power 91.3 dB(A) Point sources to derive L_{max} = Sound Power 103 dB(A)	$L_{Aeq, 1hr}$ at 1m = 67.1 dB(A) $L_{Aeq, 1hr}$ at 5m = 62.1 dB(A) $L_{Aeq, 1hr}$ at 17m = 53.9 dB(A) $L_{Amax, 1 sec}$ at 1m = 78.7 dB(A) $L_{Amax, 1 sec}$ at 5m = 76.2 dB(A)	+1.8 dB +0.1 dB +0.9 dB +0 dB +4.2 dB

Table 8 Sound power level inputs within SoundPLAN

As shown above, the sound power levels used within the model have resulted in broadly equivalent sound levels to those directly measured on site, and in some cases, are marginally higher to ensure a complete worst-case scenario is assessed.

The assessment follows the process defined below:

- Sound levels from the proposed padel tennis activities would be calculated at the façades of the closest noise-sensitive receptors detailed in Section 2.3
- The resultant L_{Aeq} and L_{Amax} levels would be compared against the criteria established in Section 3.3
- The context of the future sound emissions within the area would be considered
- Additional mitigation measures would be presented, if deemed necessary in addition to the canopies proposed.

5.3 Predicted Sound Levels at Nearby Noise-Sensitive Receptors

A summary of the noise model output is shown in Figure 7 for $L_{Aeq, 1 hour}$ and L_{Amax} levels respectively at the closest residential receptors, with full maps presented in Appendix C.

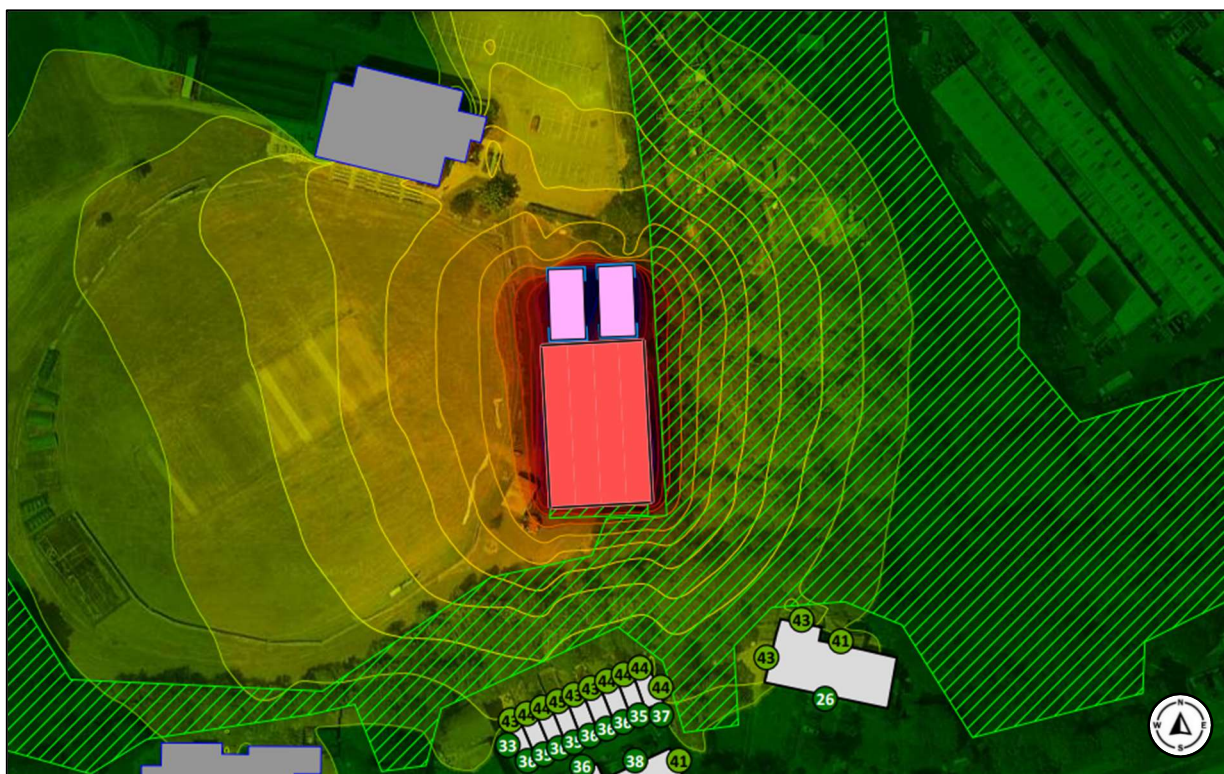


Figure 7 Noise map of all courts fully occupied – average $L_{Aeq, 1 \text{ hour}}$ noise levels

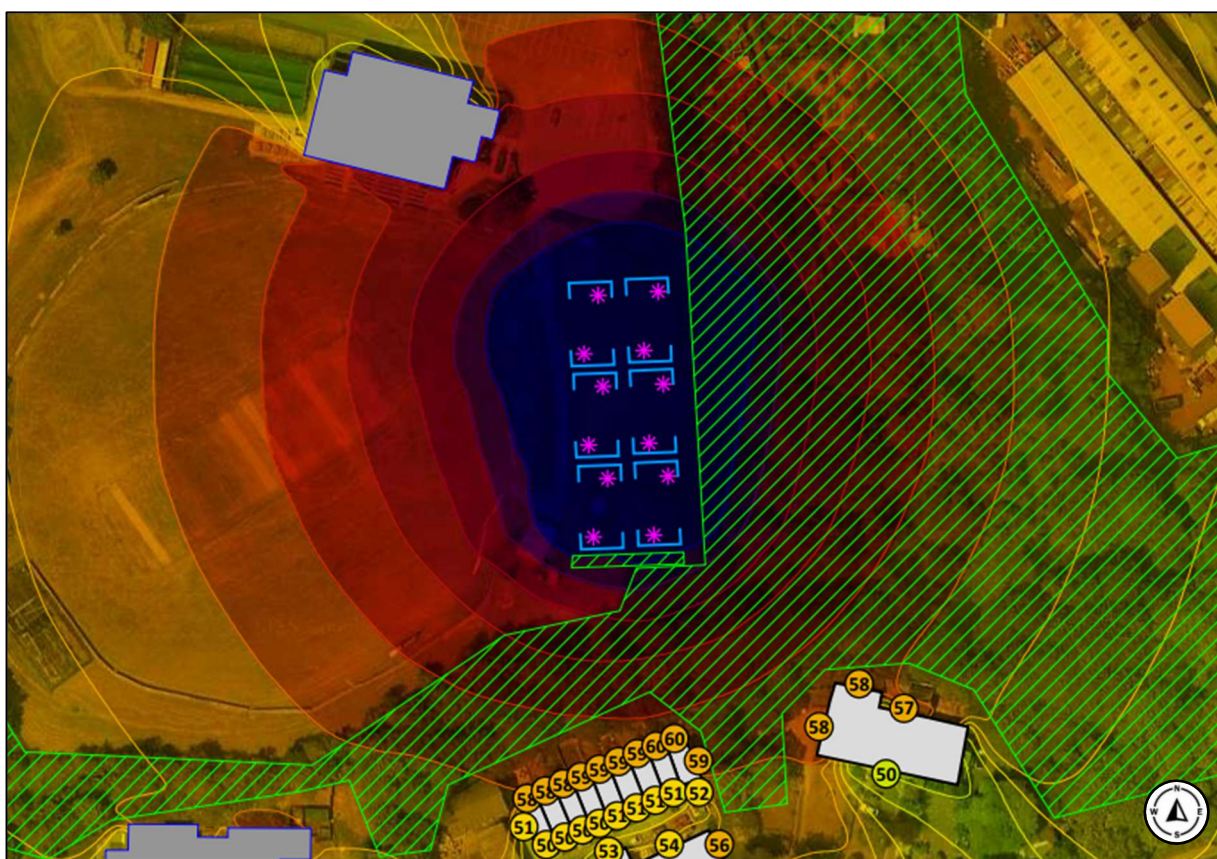


Figure 8 Noise map of all courts fully occupied – simultaneous worst-case L_{Amax} noise event on each court

The worst-case absolute noise levels generated by the proposed padel tennis courts are compared against the established evening (19:00 – 23:00) criteria in Table 9.

NSR	Time Period	Criteria	Worst-Case Noise Level Predicted at Closest Receptor	+ / - vs Criterion
NSR1 Closest Residential Properties	Evening 19:00 – 23:00	≤ 45 dB LAeq, 1 hour	45 dB LAeq, 1 hour	0
		≤ 60 dB LAmax	60 dB LAmax	0

Table 9 Worst-case noise levels from padel tennis courts at the closest receptors vs criteria

As demonstrated above, noise levels associated with the proposed padel tennis courts are below the established criteria during the proposed courts daytime operational period.

In the interest of completeness, the predicted noise levels are compared against the existing baseline noise levels measured on site as part of the environmental noise survey process in Table 10.

NSR	Time Period	Baseline Noise Level	Worst-Case Noise Level Predicted at Closest Receptor	+ / - vs Criterion
NSR1 Closest Residential Properties	Operational Hours Monday - Friday: 06.00 - 22.00	≤ 53 dB LAeq,T	45 dB LAeq, 1 hour	-8
	Saturday: 07.00 - 22.00 Sunday: 08.00 - 21.00	≤ 58-78 dB LAmax	60 dB LAmax	+2

Table 10 Worst-case noise levels from padel tennis courts at the closest receptors vs baseline noise levels

5.4 Discussion of Results

Absolute noise levels associated with the proposed padel tennis courts are aligned with the established criteria during the evening operational hours for the proposed courts, thereby inherently complying with daytime criteria. Compared to existing ambient and maximum noise levels on site, the average levels received fall below the existing ambient noise levels during operating hours, and the maximum noise levels are comparable to the existing level range measured.

It should be noted that the levels predicted offer a worst-case scenario with all courts in full operation at all times. In practice, the occupancy rate for Padel courts is typically much lower, which would inherently reduce noise impacts from the site.

It is concluded that the sound propagating from the proposed padel tennis courts would fall between the No Observed Effect Level or No Observed Adverse Effect Level per the NPSE.

With regard to Paragraph 187 of the NPPF, the assessment of the development shows no indication of causing an adverse impact upon residential amenity.

With regard to Paragraph 198 of the NPPF, it is considered that the development is appropriate for its location. The assessment indicates that noise generated by the proposal is unlikely to cause significant negative effects on health or quality of life, and the proposed padel tennis courts are not expected to result in any adverse noise impacts.

The NPSE noise policy aims to “Avoid significant adverse impacts on health and quality of life” and “Mitigate and minimise adverse impacts on health and quality of life” have been achieved. The

development proposal would also be considered to “contribute to the improvement of health and quality of life” by the nature of the sporting facility.

6 CONCLUSION AND SUMMARY

ES Acoustics Ltd have been commissioned by Mr Jordan Ingoe to prepare a noise impact assessment in support of a planning application for a proposed development comprising the construction of an outdoor padel tennis facility at Rochdale Padel Club, Bridgefold Road, Rochdale, OL11 5BX.

A review of relevant planning policy and good practice guidance has informed a robust noise criteria which would ensure that adverse impacts on health and quality of life are avoided.

A noise model has been produced using SoundPLAN 9.1 of the padel tennis activity to establish noise propagation from the site to the surrounding area and noise sensitive receptors.

The assessment of the predicted noise levels vs the criteria, and the predicted noise levels vs the existing benchmark noise levels on site, demonstrates that noise emissions associated with the proposed padel tennis courts are below the established criteria during the proposed courts operational period.

It is concluded that the sound propagating from the padel tennis courts would fall within the No Observed Effect Level or No Observed Adverse Effect Level per the NPSE.

With regard to Paragraph 187 of the NPPF, the assessment of the development shows no indication of causing an adverse impact upon residential amenity.

With regard to Paragraph 198 of the NPPF, it is considered that the development is appropriate for its location. The assessment indicates that noise generated by the proposal is unlikely to cause significant negative effects on health or quality of life, and the proposed padel tennis courts are not expected to result in any adverse noise impacts.

The NPSE noise policy aims to “Avoid significant adverse impacts on health and quality of life” and “Mitigate and minimise adverse impacts on health and quality of life” have been achieved by making use of the nominal canopies as modelled.

The development proposal would also be considered to “contribute to the improvement of health and quality of life” by the nature of the sporting facility.

GLOSSARY OF ACOUSTIC TERMINOLOGY

Decibel scale - dB

The decibel (dB) is a relative unit of measurement used in acoustics. The dB is a logarithmic ratio between a measured level and a reference level of 0 dB (i.e the threshold of human hearing). Simply put, the decibel compresses the wide range of sounds we hear into more manageable numbers.

Addition of noise from several sources

Sound produced by multiple sound sources are added logarithmically e.g. power ratio of 2 = 3dB, power ratio of 10 = 10dB. Therefore, two equally intense sound sources operating simultaneously produce a sound level which is 3dB higher than a single source e.g. 60dB + 60dB = 63dB.

Subjective impression of noise

Human response to sound is highly individualized and often based on psychological factors such as emotion and expectation. Sensitivity to sound typically depends on the loudness, pitch, duration of the occurrence, and time of occurrence (e.g. a sound source could cause annoyance during the night where it would not during the day). The following table is a guide to explain increases or decreases in sound levels for many scenarios.

Change in sound level	Change in perceived loudness
1 dB	Imperceptible
3 dB	Just barely perceptible
6 dB	Clearly noticeable
10 dB	About twice as loud

'A' Weighted Frequency Filter - dB(A)

The human ear is not equally sensitive in all frequencies. The A-weighting filter was devised to take this into account when undertaking noise measurements and allows a sound level meter to replicate the human ears response to sound.

$L_{Aeq, T}$

Sound can fluctuate widely over a given period. L_{Aeq} is the A-weighted equivalent continuous sound level, with T denoting the time period over which the fluctuating sound levels were averaged e.g. $L_{Aeq, 16h}$ is the equivalent continuous noise level over an 16 hour period.

L_{A90}

A-weighted sound level exceeded for 90% of the measurement period, calculated via statistical analysis. The L_{A90} descriptor is typically used to establish background sound levels for noise impact assessments

L_{A10}

A-weighted sound level exceeded for 10% of the measurement period, calculated via statistical analysis.

L_{AFmax}

A-weighted sound level maximum sound pressure level that has been measured over a given time period

GLOSSARY OF ACOUSTIC TERMINOLOGY

Octave Bands

The audio or frequency spectrum of the human ear is in the range of 20Hz to 20 kHz. The spectrum tells how the energy of the sound signal is distributed in frequency. Octave bands divides the audio spectrum into 10 equal parts. The International Standards Organisation defines the centre frequency of these bands as 31.5Hz, 63 Hz, 125 Hz, 250 Hz, 500 Hz, 1kHz, 2kHz, 4kHz, 8kHz and 16kHz.

Noise Rating (NR) Curves

A method of rating noise using a set of curves relating octave band sound pressure levels. Typically used for building services systems within offices

Airborne sound

Sound radiated from a source into the surrounding air e.g. musical instruments, tv/radio, machinery/equipment. Airborne sound insulation refers to the reduction or attenuation of airborne sound, usually via a solid partition between a source and receiver.

Impact sound

Sound resulting from the impact between colliding objects, e.g. footfall impact upon a floor. Impact sound insulation refers to the resistance of a floor to the transmission of impact sound, typically via the installation of a 'resilient layer'

Flanking sound

The transmission of airborne sound between two adjacent rooms by paths other than via the separating partition between the rooms, e.g. the abutment point of a wall and floor.

Structure-borne noise

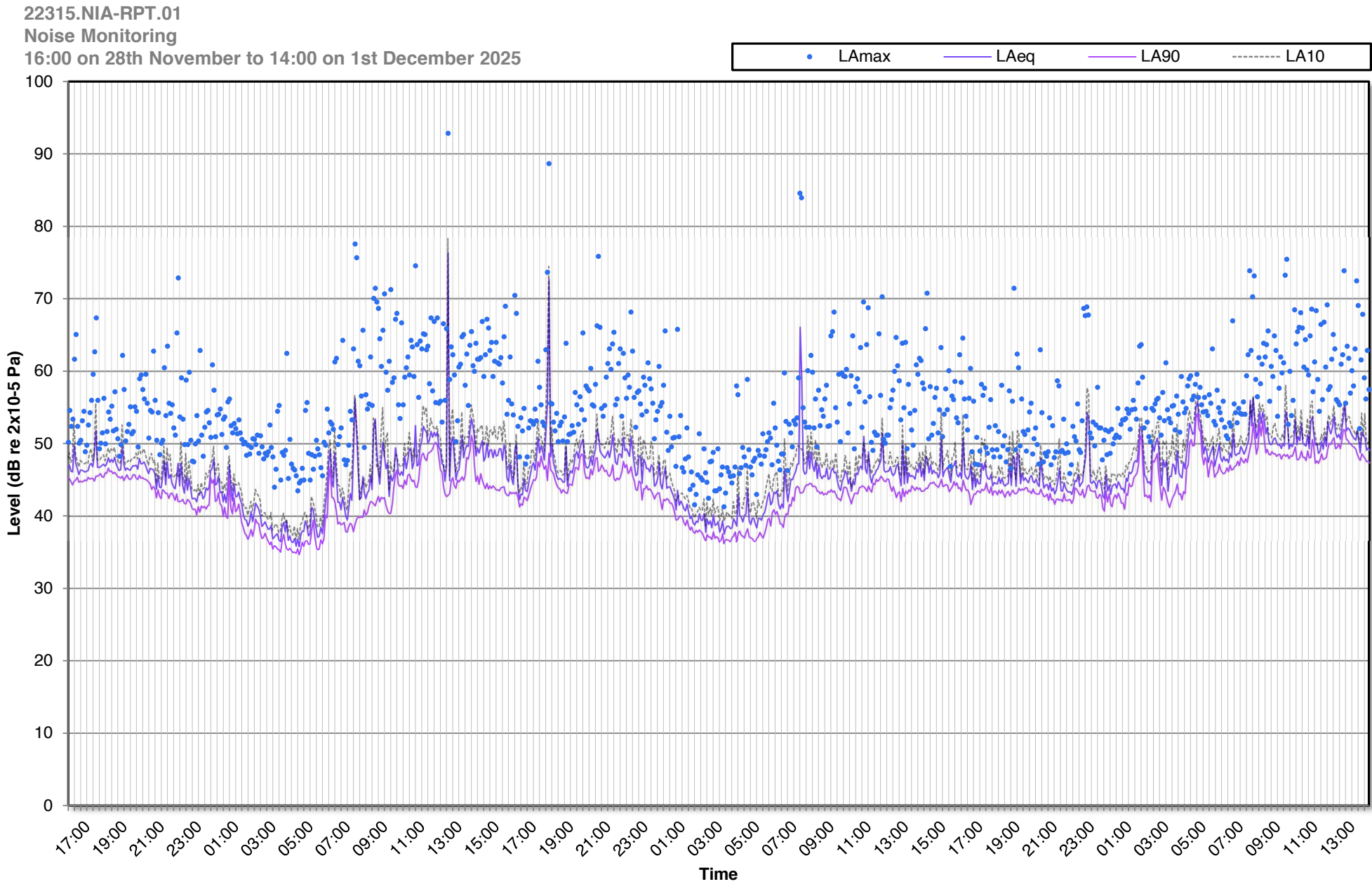
Noise caused by the vibration of elements of a structure. This can result in reradiated noise, whereby the vibrating element transmits airborne sound into a space e.g. vibration caused by mechanical plant installed within a plant room which is not adequately isolated from the structure, or construction/demolition work in an adjacent building.

Reverberant sound

Sound in an enclosed space (usually a room), which results from repeated reflections at the boundaries. Reverberation time is the time taken for a steady sound level in an enclosed space to decay by 60dB, measured from the moment the sound source is switched off. A example of a typically reverberant space would be a classic church. Absorptive materials can be used to reduce reflections and reverberation times.

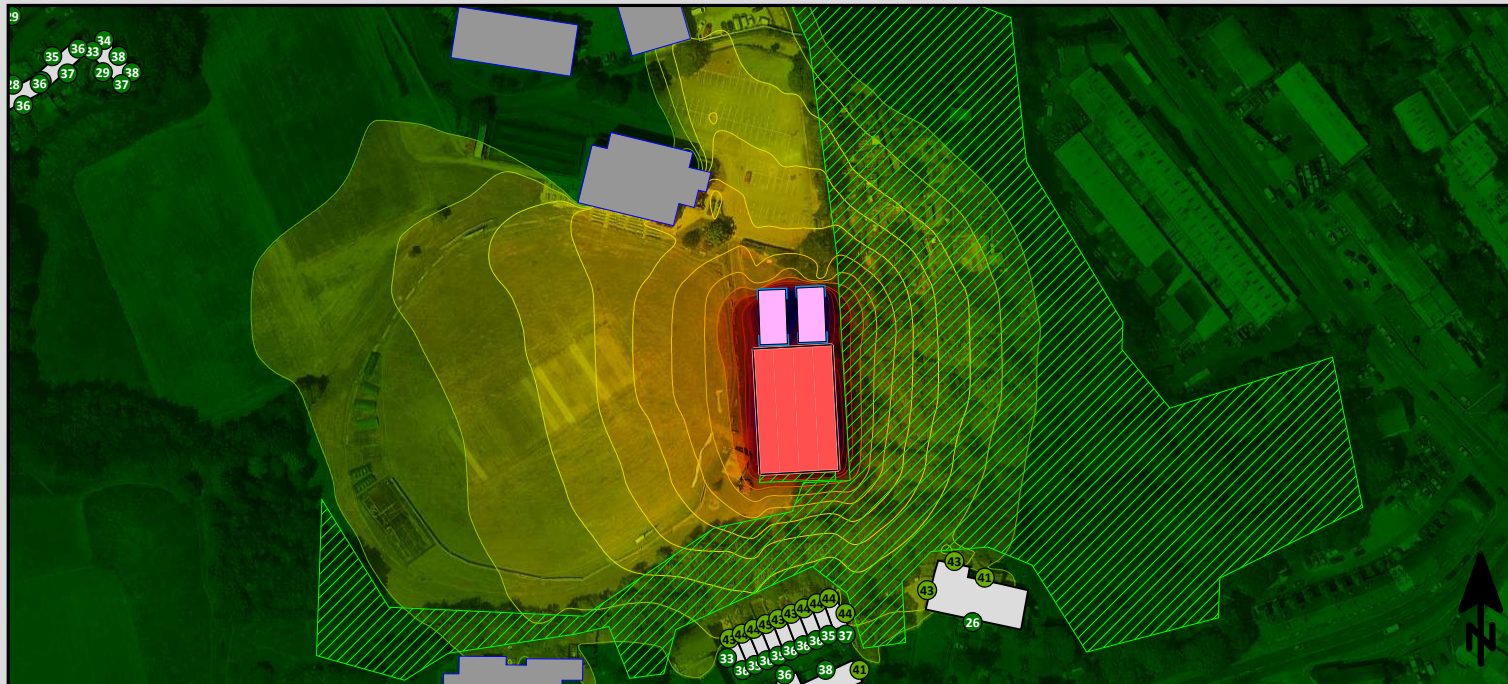
APPENDIX B

ENVIRONMENTAL NOISE TIME HISTORY



APPENDIX C

Noise Propagation Maps



Customer: Rochdale Padel Ltd.

Project: Rochdale Padel Club

Project-No. 22315

Map 1

All Courts Fully Occupied Average Noise Levels over 1 hour

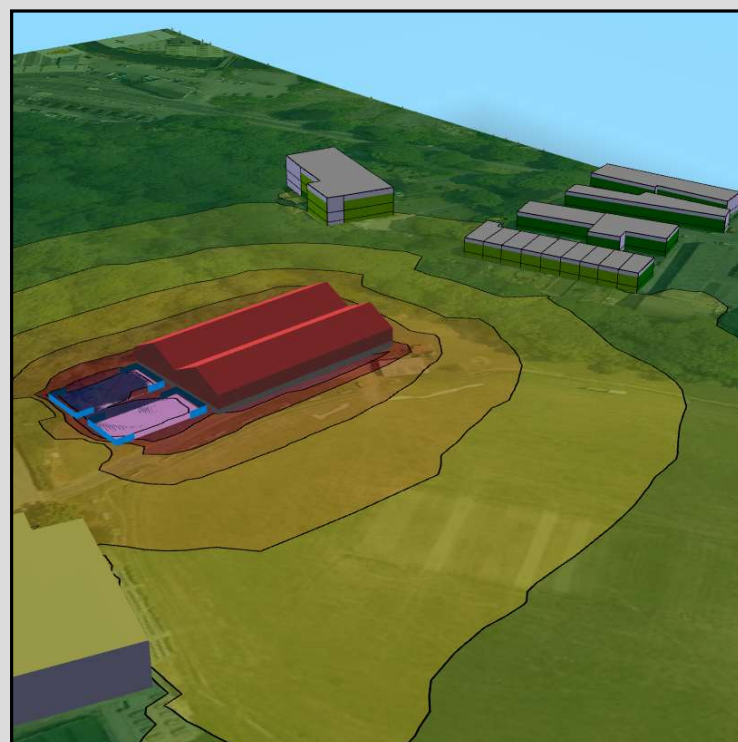
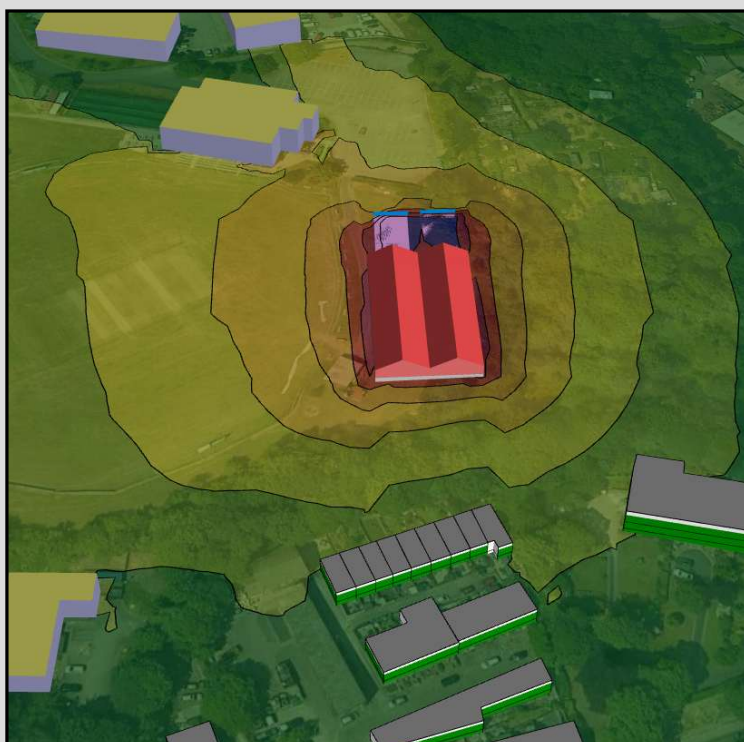
>Grid Map Calculation at 1.5 m above ground

>Facade Map Calculations at 1 m from facade (numerical figures on 2D image show the highest level per facade)

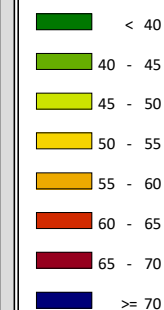
Project Engineer: D. Arkley

Created: 03/12/2025

Processed with SoundPLAN 9.1



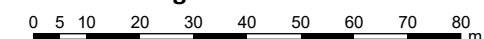
Levels LAeq, 1hr in dB(A)



Legend

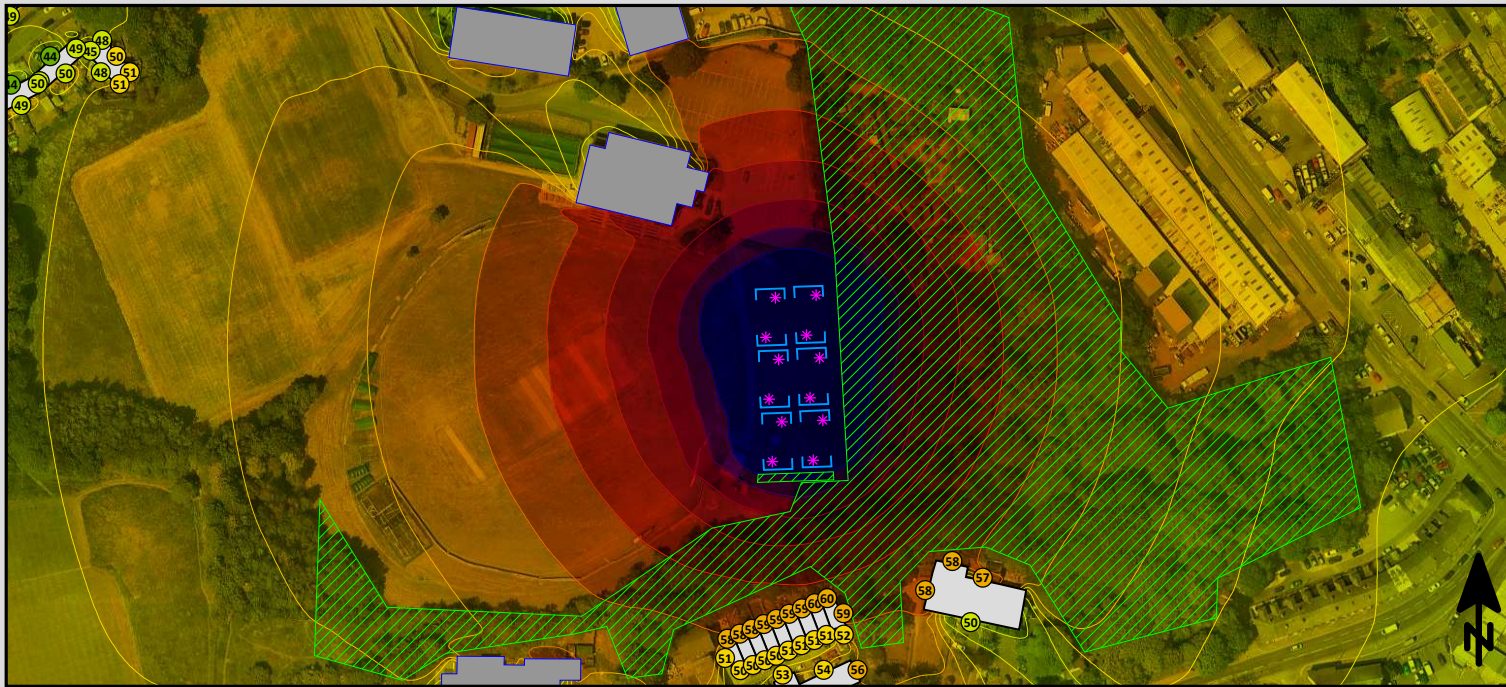
- Building
- Residential Receptor
- Facade Point
- Area Noise Source
- Point source
- Padel Court Glazing
- Industrial building; Room
- Roof as source

Length scale 1:1000



Noise Modelling
& Map Prepared By:

es
acoustics



Customer: Rochdale Padel Ltd.

Project: Rochdale Padel Club

Project-No. 22315

Map 2

All Courts Fully Occupied LAFmax Noise Levels

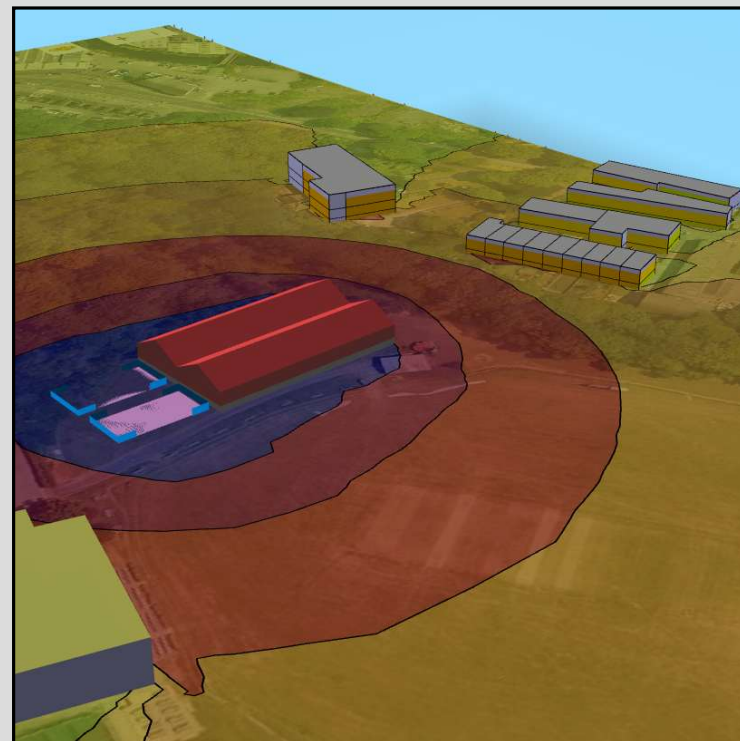
>Grid Map Calculation at 1.5 m above ground

>Facade Map Calculations at 1 m from facade (numerical figures on 2D image show the highest level per facade)

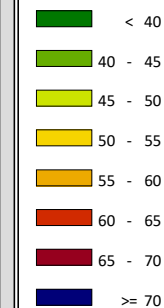
Project Engineer: D. Arkley

Created: 03/12/2025

Processed with SoundPLAN 9.1



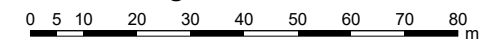
Levels LAeq, 1hr in dB(A)



Legend

- Building
- Residential Receptor
- Facade Point
- Area Noise Source
- * Point source
- Padel Court Glazing
- Industrial building; Room
- Roof as source

Length scale 1:1000



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& Map Prepared By:

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