

Technical Note

The Northern, West Didsbury, Manchester



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To Victoria Coleman (NJL Consultants)	From Duncan Martin		

Additional Information to Padel Court Noise Impact Assessment

1.0 PURPOSE AND SCOPE

Further to a submitted Noise Impact Assessment (16764-NIA-02 RevC) relating to proposed Padel Court use at The Northern Tennis Club and a subsequent planning committee hearing, it is understood further context has been requested, to assist in a decision being made.

Based on the comments made in the hearing, the following topics have been considered:

- Visual representation of noise propagation in 3D noise model
- Discussion of the criterion used and how it compares with other standards
- Comparison of predicted noise levels and existing levels

This note summarises the reviews undertaken to consider the above topics and the subsequent findings.



2.0 VISUAL REPRESENTATION OF NOISE PROPAGATION

In order to visually represent the noise propagation, the created 3D noise map has been interrogated to show noise propagation from the proposed Padel Courts using areas of equal loudness.

It should be noted that the Padel Courts have been modelled with uniform noise emissions in all directions.

This is considered particularly worst case as in reality, each end of the courts (including the end facing the receptors) will benefit from solid glass and canopy screening. As measurements were taken on a side with the open entrance area, the propagation model assumes that these worst-case noise levels are apparent in every direction.

The map is constructed as per the detailed descriptions summarised in report 16764-NIA-02 RevC and shows the predicted breakout of ambient noise levels during sustained use of the Padel Courts.

Figure 2.1 shows the propagation of noise at a grid height of 1.5 m, which is indicative of noise propagation to gardens and ground floor windows, and where the effects of a proposed screen are most pronounced.

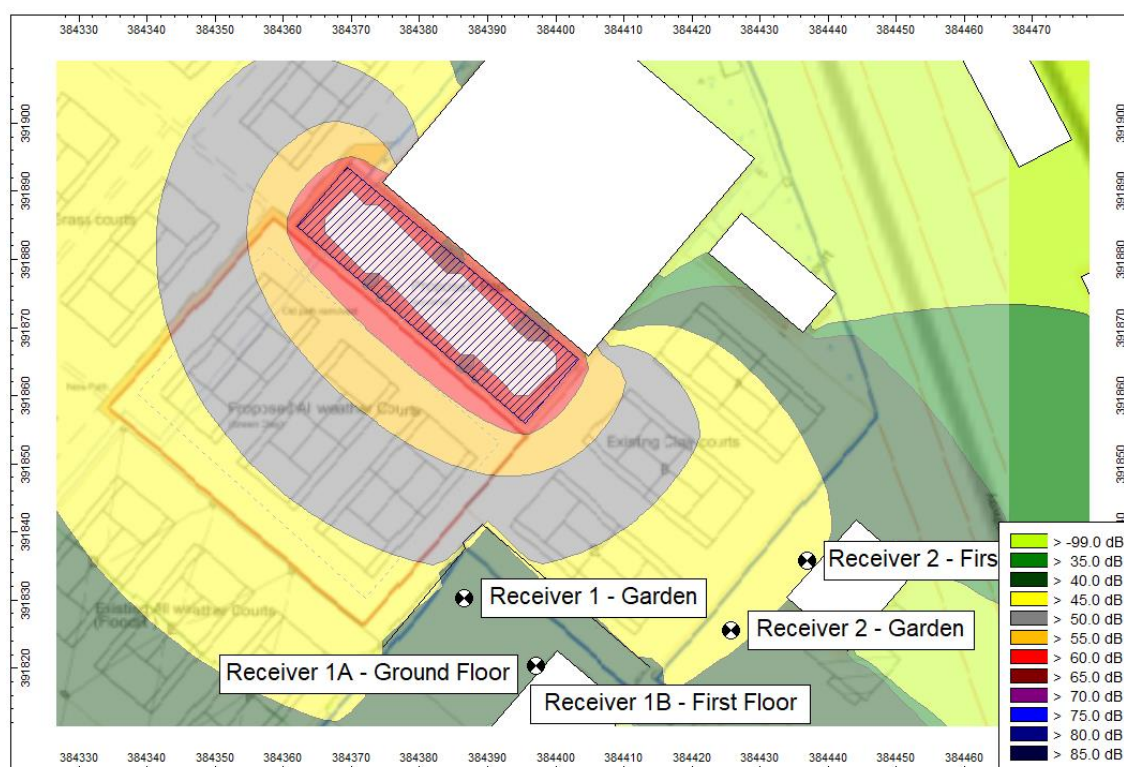


Figure 2.1: Noise contour of Padel Court propagation at 1.5 m height

Figure 2.2 shows the propagation of noise at a grid height of 4 m, which is indicative of noise propagation to first floor windows, and where the effects of screening are minimised.

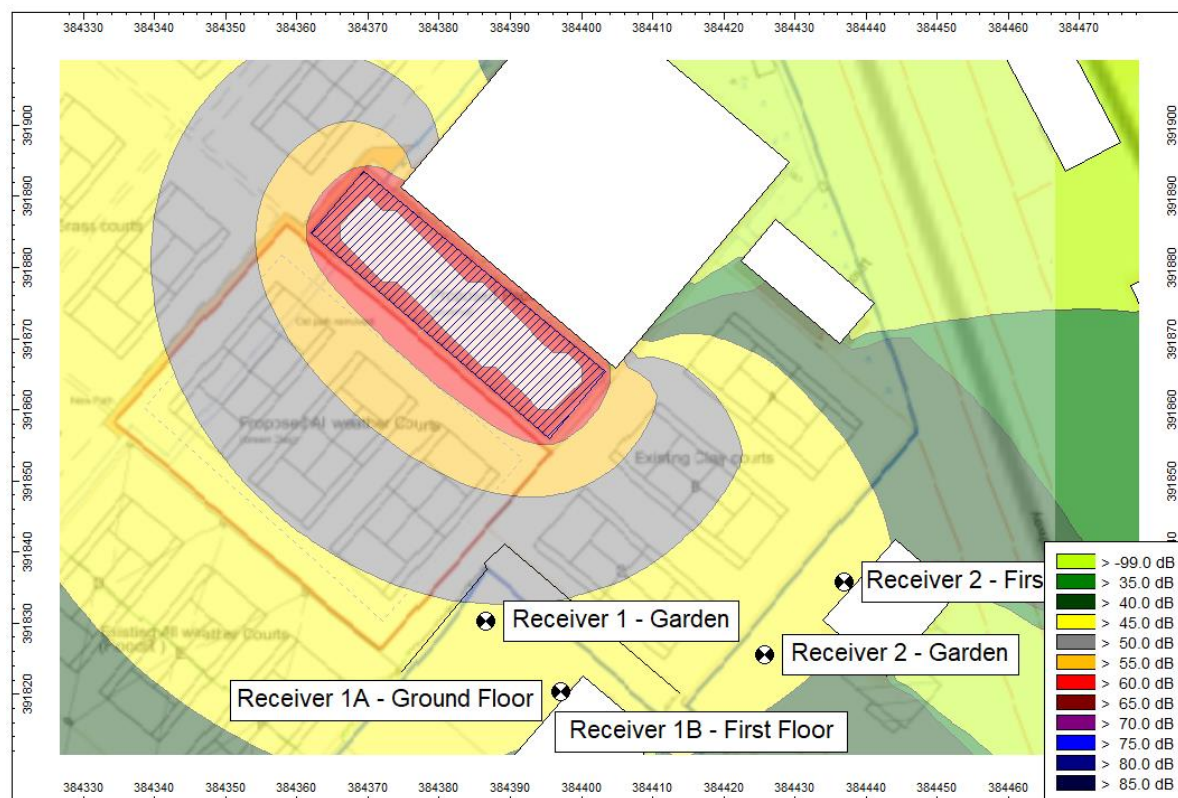


Figure 2.2: Noise contour of Padel Court propagation at 4 m height

In reality, less noise would be expected to emanate from the short ends of the courts. The presence of solid elements in these areas also provides further options to apply screening cladding or screening, should further reductions in noise emissions be required once the courts are installed.

It is noted that commissioning measurements are required once the Padel Courts are installed, to further ensure the noise emissions are in line with the predictions.

3.0 DISCUSSION OF CRITERION

3.1 Adopted Criterion

As shown in report 16764-NIA-02 RevC, the assessment of Padel Court noise was undertaken according to the criteria defined in Sport England document 'Artificial Grass Pitches (AGP) Acoustics – Planning Implications'.

This document gives recommended methodologies for calculating the noise level due to AGP use at different receivers.

Although the Padel Courts do not use artificial grass, the guidance of this document is considered the most relevant applicable to a proposed noise source of sports activity. The sports mentioned in the document are Football, Rugby and Hockey, sports which all include ball impacts, particularly Hockey.

The guidance of the document with regards to setting a noise limit for noise emissions is as follows:

"The determining noise criteria for AGPs proximity to residential properties, to avoid moderate annoyance in the daytime and evenings, as set by the World Health Organisation's 'Guidelines for Community Noise': 50 dB LAeq(1hour) upper noise limit external to residential properties and within external living areas."

Accordingly, the criterion for breakout of ambient noise levels was set as $L_{Aeq(1hour)}$ 50 dB.

3.2 Alternative Relevant Standards

The guidance on noise levels in external areas stated by other recognises are considered in the following sections.

3.2.1 British Standard 8233: 2014

The guidance of British Standard 8233: 2014 'Guidance on sound insulation and noise reduction for buildings' [BS 8233], with regards to external amenity spaces, is as follows:

"For traditional external areas that are used for amenity space, such as gardens and patios, it is desirable that the external noise level does not exceed 50 dB $L_{Aeq,T}$, with an upper guideline value of 55 dB $L_{Aeq,T}$ which would be acceptable in noisier environments. However, it is also recognized that these guideline values are not achievable in all circumstances where development might be desirable. In higher

noise areas, such as city centres or urban areas adjoining the strategic transport network, a compromise between elevated noise levels and other factors, such as the convenience of living in these locations or making efficient use of land resources to ensure development needs can be met, might be warranted. In such a situation, development should be designed to achieve the lowest practicable levels in these external amenity spaces, but should not be prohibited.”

3.2.2 World Health Organisation Guidelines on Community Noise

The World Health Organisation (WHO) document on ‘*Guidelines for Community Noise*’ 1999 states the external noise level guidelines as summarised in Table 3.1.

Environment	Critical Health Effects	Ambient Noise Level $L_{Aeq,T}$
Outdoor Living Area	Serious annoyance during daytime	55 dB(A)
	Moderate annoyance during daytime	50 dB(A)

Table 3.1: Summary of WHO recommendations

3.2.3 ProPG: Planning and Noise

ProPG: Planning & Noise for New Residential Development [ProPG] is used to ensure good acoustic design is followed when planning new residential developments. Although this site does not include new residential development, the recommended targets are considered relevant to determining whether noise levels in gardens are expected to be appropriate.

The guidance of ProPG on acceptable levels in external amenity areas is summarised as follows:

“The acoustic environment of external amenity areas that are an intrinsic part of the overall design should always be assessed and noise levels should ideally not be above the range 50 – 55 dB $L_{Aeq,16hr}$.”

3.3 Comparison of Available Standards

As shown Sections 3.1 and 3.2, the criteria adopted for the assessment are equal to the more stringent recommendations of all available standards and good practice documents. Where ranges are defined, the criteria are representative of the lowest extent of the range.

4.0 COMPARISON OF PREDICTED LEVELS WITH EXISTING

4.1 Existing Noise Levels

In order to provide context on how the predicted noise levels due to Padel Court use compare with existing levels of noise, a previously undertaken noise survey has been used.

An environmental noise survey was undertaken on the existing site, prior to the commencement of any works. The survey was taken close to the existing residential boundary close to existing clay tennis courts.

The survey was undertaken between 14:00 on 27 May 2021 and 09:30 on 1 June 2021 in the location indicated on Figure 4.1.



Figure 4.1: Site plan showing previous noise monitoring position

The survey period covered a number of days including weekdays and weekends. The ambient noise levels over the survey period were analysed in terms of overall proposed daytime operating hours and specific evening proposed operating hours.

Table 4.1 shows the summary of the analysis of the noise survey levels as described above.

Period	Average Ambient Noise Level $L_{Aeq,T}$
Daytime Operating Hours [07:00 to 22:00]	53 dB(A)
Evening Operating Hours [19:00 to 22:00]	53 dB(A)

Table 4.1: Analysis of existing ambient noise levels

It should be noted that peak operating times of the tennis club are weekday evenings (after working hours) and Saturday mornings. This is thought to be the reason that noise levels do not reduce during evening hours.

4.2 Analysis of Predicted Ambient Noise Levels

Ambient noise levels at receivers due to the proposed Padel Courts were calculated as discussed in report 16764-NIA-02 RevC. The results of the calculations undertaken are summarised in Table 4.2.

Receiver	Recommended Criterion	Existing Ambient Noise Level	Noise Level at Receiver [due to Padel Courts]
Garden Receptors			
Garden – 29 & 31 Elm Road	L _{Aeq,1hour} 50 dB(A)	L _{Aeq} 53 dB(A)	L _{Aeq} 44 dB(A)
Garden – 33 Elm Road			L _{Aeq} 45 dB(A)
Façade Receptors			
Ground Floor - 29 & 31 Elm Road	L _{Aeq,1hour} 50 dB(A)	L _{Aeq} 53 dB(A)	L _{Aeq} 43 dB(A)
First Floor - 29 & 31 Elm Road			L _{Aeq} 47 dB(A)
First Floor - 33 Elm Road			L _{Aeq} 46 dB(A)

Table 4.2: Summary of calculated ambient noise levels

As shown in Table 4.2, the noise levels at all receptors due to Padel Court use comply with the established criterion. Comparing the levels in Tables 4.1 and 4.2 also demonstrate that the predicted noise levels due to Padel Court use are also lower than the average ambient noise levels with the site as existing.

5.0 SUMMARY

Additional analysis has been undertaken in order to provide additional context of predicted noise levels due to Padel Court use at The Northern, West Didsbury, Manchester.

Noise contour plans have been produced demonstrating the predicted propagation of noise from Padel Courts.

Additional analysis has demonstrated that the adopted criteria are particularly robust, and that predicted noise levels are expected to be lower than the noise levels currently experienced at the residential site boundary.