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P22-158-M02v3

Project	P22-158 - St George's Hill Lawn Tennis Club, Weybridge - New Padel Courts
Date	20 May 2024
To	Miles Hill - St George's Hill Lawn Tennis Club Ltd
From	Samuel Oates BSc MSc MIOA - Senior Consultant - Hepworth Acoustics Ltd
Subject	**Additional Acoustic Design Measures for New Padel Courts**

This memorandum sets out present considerations with respect to planning and noise for the proposed new Padel courts and our recommendations for a mutually beneficial way forward.

A noise assessment report (ref: P22-158-R03v2, dated July 2022) was prepared by Hepworth Acoustics Ltd (HAL) to accompany a planning application for three new Padel courts at the St George's Hill Lawn Tennis Club (SGHLTC) premises in Weybridge.

We understand that Peter Rogers of Sustainable Acoustics Ltd (SAL) was subsequently commissioned by Elmbridge Borough Council (EBC) to review the HAL noise assessment report, along with at least two reports prepared on behalf of local residents objecting to the scheme, one prepared by JSP Consultants and one by Clarke Saunders. The SAL review is presented in a memorandum ref: 23-0165-0 M01 DC PR, dated 19 October 2023.

The SAL review generally agrees with the findings of the HAL report and concludes in favour of the proposals based on the recommended noise mitigation.

We understand that a planning condition requiring post-completion testing was suggested, but all parties now agree that it was too vague to be implemented in practice.

HAL generally considers the findings of the SAL review to be fair and reasonable. However, the SAL review also suggests introducing an additional acoustic design mitigation measure in the form of an acoustic canopy formed of a build-up with a laboratory airborne sound insulation performance of 30 dB R_w. The suggestions were later refined and communicated to SGHLTC's planning consultant in a phone conversation with an EBC planning representative as follows:

- The roof needs an acoustic performance of 30 dB R_w.
- The roof needs greater acoustic absorption. Class C was suggested.
- There can't be a gap between the top of the walls and the canopy.

The feasibility and efficacy of the suggested additional noise mitigation measure is the focus of this memorandum.

Suitability of Suggested Acoustic Canopy

We have been informed that the design team have investigated the feasibility of incorporating the suggested acoustic canopy into the proposals and have raised the following non-acoustic issues:

- The canopy would result in a significant reduction in cross-ventilation through the Padel court enclosure, due to the suggestion to close the gap between the top of the enclosure walls and the canopy. Mechanical ventilation means may be required, affecting the energy sustainability of the project.
- The more substantial canopy material needed to achieve the required 30 dB R_w sound insulation performance, and closing gaps between the top of the canopy and the enclosure walls would result in reduced natural light ingress.
- The canopy as suggested would result in significant changes to the aesthetics and 'feel' of the enclosure where it would be completely sealed overhead with a more substantial solid canopy structure.

The points above give a brief summary of why the design team do not consider the suggested canopy is a feasible mitigation measure, in keeping with the design and practical use of the proposed Padel courts.

Notwithstanding the above non-acoustic considerations, the potential for any practical additional acoustic screening provided by an upgraded canopy is hindered by the three sided enclosure design. The three sided enclosure was a compromise to help minimise noise transfer to the most effected dwellings, whilst maintaining the outdoor look and feel that the design team intended for the Padel courts as part of the club grounds.

Without the proposed three sided acoustic enclosure, the greatest noise impact would be at the dwellings located to the south, east and north of the Padel courts. With the mitigation from the three sided enclosure in place, the noise levels at these dwellings would be significantly reduced and the greatest noise exposure would therefore be from the lower noise levels at the dwellings to the north-west. This is due to the enclosure being open along the western side, i.e. there is no western elevation to the enclosure. As a result, the lower noise levels at the dwellings to the north-west would not be further mitigated by the introduction of an acoustic canopy, as the noise will travel from the western side of the enclosure. This is best illustrated by comparing Figure 4 and Figure 6 from the HAL report.

Under normal circumstances an acoustic canopy would typically help reduce noise transfer to nearby dwellings, but not in this case, due to the three sided enclosure design. This is a subtle but important consideration and would have been easily overlooked when suggesting the acoustic canopy.

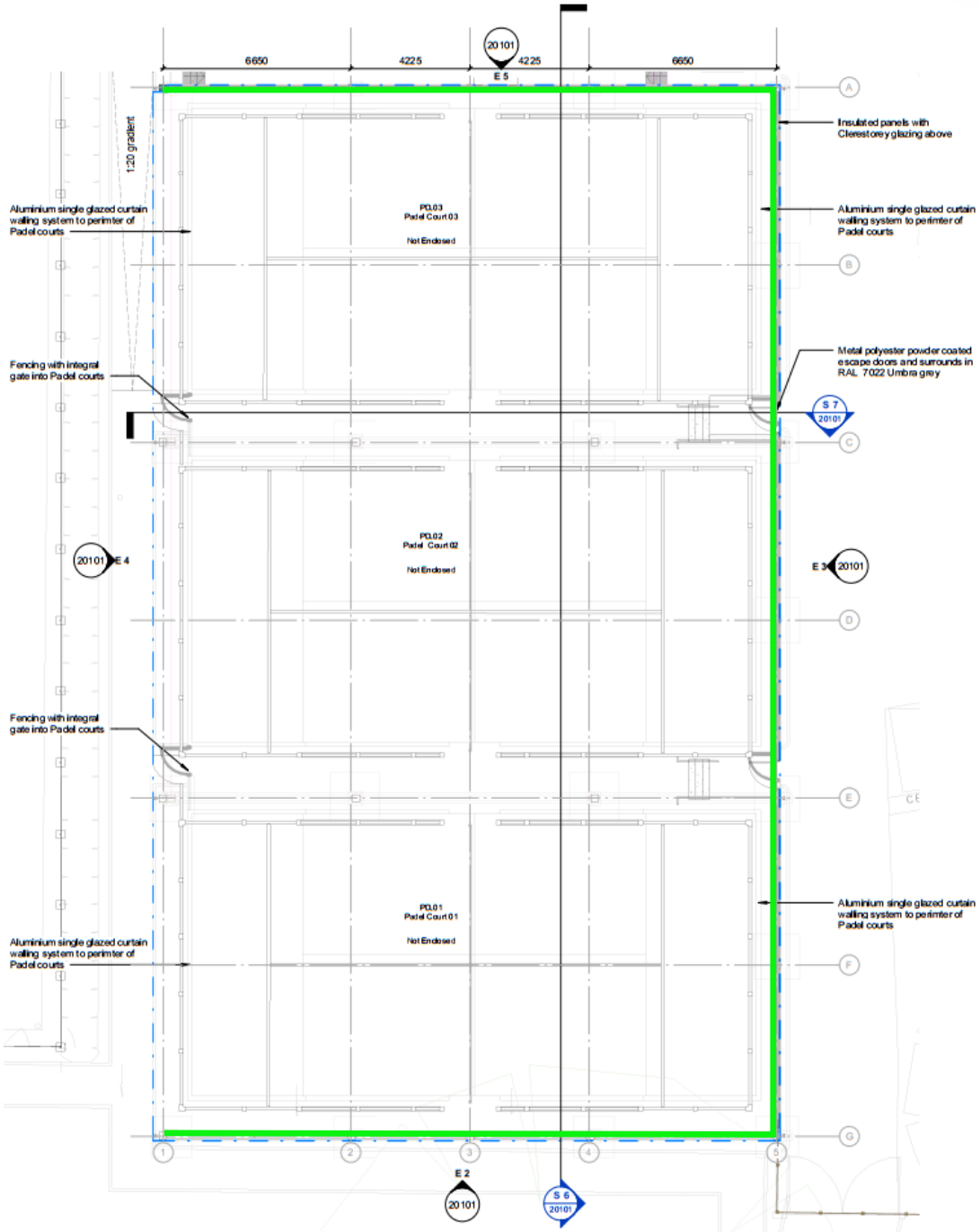
Based on the non-acoustic practical considerations and the fact that from an acoustic point of view an acoustic canopy would not act as an effective noise mitigation measure to further reduce noise levels where highest, we understand that SGHLTC does not propose to make any design changes to the existing canopy proposals.

Alternative Recommendation for Additional Mitigation

Whilst an acoustic canopy is not considered a practical option as outlined above, we understand that SGHLTC want to minimise noise as much as feasible, whilst maintaining the design and functionality of the Padel court proposals. To this end, we recommend that, as far as is feasible, proprietary absorptive acoustic panels are incorporated into the design of the inner faces of the three sided enclosure, as indicated in **Figure 1**.

The exact coverage and surface area of the absorbative acoustic panelling will need to be determined by the design team based on other non-acoustic considerations, such as light ingress through the glazed areas and aesthetics etc. However, we recommend maximising the surface area of the absorbative acoustic panels as much as possible and distributing it evenly. To maximise the effect with a smaller surface area, we recommend using Class A absorbative acoustic panelling. There are a variety of options for Class A absorbative acoustic treatments from different companies, many of which are also decorative and can be made to be in-keeping with the design.

This will reduce the overall reverberant sound level and the placement in the lateral dimensions is likely to be more effective as the absorption will help reduce specular reflections to the north-west and west.



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Key:

Class A acoustic absorbers

N

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Title: Figure 1: Three Sided Padel Enclosure

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