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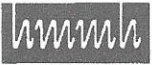
700 District Avenue, Suite 800
Burlington, Massachusetts 01803
781.229.0707
www.hmmh.com

January 31, 2022

Mr. Don Louchheim
Village of Sagaponack
P.O. Box 600
Sagaponack, NY 11962

via email at don11962@gmail.com

Subject: Suggestions for a noise bylaw for pickleball courts
Reference: HMMH Proposal No. 22-0026



Dear Mr. Louchheim,

As we discussed by telephone last week, this letter includes suggestions for provisions in a noise bylaw for pickleball courts in the Village of Sagaponack. The purpose of the bylaw would be to minimize the intrusiveness of noise from residential pickleball courts into neighboring properties.

Some of the acoustics principles incorporated into the recommendations for this bylaw include the attenuation of sound with distance, diffraction of sound over solid objects such as walls and fences, and sound transmission of sound through materials.

Our first recommendation is that any pickleball court be required to be set back at least 60 feet from the owner's property lines, where the adjacent property is noise sensitive, such as a residence or a park. Sixty feet is twice the distance required for other structures, but the same as is required for tennis courts. By doubling the setback distance, the sound levels from pickleball activity will be reduced between approximately 7 and 10 decibels. That reduction would be heard subjectively as up to a halving of the loudness.

Our next recommendations serve to block the direct paths of sound from the court to neighboring sensitive properties nearby. We suggest that the bylaw requires any pickleball court to be depressed or sunken into the ground to a depth of at least four feet. We understand that this is also required of tennis courts. We also recommend that the bylaw require that a six-foot-high wall or fence be constructed around pickleball courts to block the direct sound paths to neighboring properties. This combination of sunken court and wall will serve to reduce sound levels from pickleball activity by 10 decibels or more at neighboring properties, and would be heard as at least a halving of the loudness. Pickleball courts need not be sunken by four feet nor required to build a wall if neighboring properties are 200 feet or more away from the court. That additional distance will provide sufficient additional noise reduction.

The wall around the pickleball court must meet the following minimum criteria. It must be constructed of a sufficiently heavy and dense material to prevent appreciable levels of sound from passing through it. To achieve this, the surface weight should be at least 2 lb. per square foot. The wall/fence material must also be airtight or nearly so, with no clearly visible gaps of more than 1/8 inch. The bottom of the wall/fence should contact the ground. Plywood siding commonly called T1-11 at 19/32 in. thick would be a suitable material for the fence/wall. The wall/fence should be located no more than 10 feet from the edge of the pickleball court. This proximity will ensure that

the wall provides sufficient diffraction of sound over the top of it. If the wall is located far from the court, its noise reduction benefit will be reduced.

Finally, the pickleball court wall need not fully surround the court, if a large building, such as a residence blocks the sound path between the court and the neighboring property. Also, the wall need not block the sound paths to neighboring properties that are 200 feet or more from the court. However, in both cases of a large building blocking sound paths or the 200-ft distance, the length of the wall/fence must overlap with the direct lines between any part of the pickleball court and the edges of the building or the property-line distance of 200 feet by at least 10 feet.



If this last provision to allow for a shorter length wall is not clear to you, please let me know. Or, if you believe it would be too complicated to include in a bylaw, it isn't necessary to include. Perhaps you have other ideas on how other building shielding or additional distance along some sides of the pickleball court could be accommodated in the bylaw.

Please feel free to contact me if you have any questions or comments.

Sincerely,

Harris Miller Miller & Hanson Inc.

Christopher W. Menge, INCE
Senior Vice President

From: don11962@gmail.com
Sent: Monday, January 31, 2022 6:19 PM
To: 'Christopher Menge'
Cc: 'Rhodi Cary Winchell, CMC'
Subject: Pickleball

Chris,

Thanks for your letter summarizing most of the material we discussed. I have a couple of questions.

1. What decibel count would you say a pickleball in play makes? You estimate that some mitigation measures would cut the noise by half. For example you estimated that a 60-foot setback would reduce the sound levels by 7 to 10 decibels,, cutting the total in half. Would that mean that you estimate the sound level of play generated on a pickleball court to be between 14 and 20 decibels? If not, what is the number. How does it compare to normal amateur tennis game?
2. In the next paragraph you estimate that putting a pickleball court 4 feet below grade with a 6 foot solid fence within 10 feet of the court would reduce the perceived noise level by 10 decibels or more, again cutting it half. What does this mean in terms of requiring both a 60-foot setback and a sunken court with a 6-foot solid wall? Together this would appear to be a total reduction of 17 to 20 decibels at the neighboring property line. Or would it actually reduce the half noise reduction by the setback by another half, resulting in a total reduction of three quarters?
3. You also state that a 200-foot setback from a neighboring property would provide "sufficient additional noise reduction." What is your estimation of sufficient total noise reduction in terms of perceived decibel level at a distance of 200 level feet? And what is comparable to that decibel level?. A sewing machine? Conversation between two people at a dinner table? An electric hedge trimmer? A normal vacuum cleaner?

Without these numbers I cannot get a good grip on what the actual impact would be of any of the possible regulation or restrictions mentioned in your letter.

Thanks,
Don Louchheim, Sagaponack Village

Rhodi Cary Winchell, CMC

From: Christopher Menge <cmenge@hmmh.com>
Sent: Tuesday, February 1, 2022 9:35 AM
To: don11962@gmail.com
Cc: Rhodi Cary Winchell, CMC
Subject: RE: Pickleball
Attachments: scg-sound-study.pdf

Hello Don,

You are correct about the total noise reduction of 17 to 20 decibels by combining the additional setback distance with the sunken court and wall/fence. And, you are also right about that combination resulting in the noise from pickleball activity sounding only one-fourth as loud as it would without the additional setback and wall.

With regard to absolute sound levels from pickleball, I did some online research this morning and found the attached noise study report from 2012, which appears to have been done very credibly. The measurements of four players playing pickleball measured at 10 feet outside the court fence ranged from 57 to 65 dBA (A-weighted decibels), depending on the type of paddles used (see Table 5 in the report). I had not realized that there was such a range of noise levels based on the type of paddle used.

Also, in that report and found elsewhere on the Web (<https://usapickleball.org/member-news/put-away-the-noise-complaints-at-the-pickleball-courts/>) is a product called "AcoustiFence," a heavy curtain that can be hung on chain link court fences to provide noise reduction. The acoustical consultant who measured the noise in the attached article measured reductions of 10 to 15 decibels due to the AcoustiFence, but that was only 10 feet outside of the court (see Table 2). Measured at a property line distance, the noise reductions would be less. Acoustifence is not as effective as the sunken court and a wall/fence.

Based on pickleball court dimensions, I can surmise that the noise measurement distance (in the attached report) from the center of pickleball play is 25 feet. Assuming the average noise level of 4 pickleball players is 61 dBA (report Table 5), the level at a 60-ft distance would be approximately 51 dBA. With the recommended sunken court and fence, the level would drop to approximately 40 dBA, which I believe would be suitable in the community and not intrusive. Also, without a fence, the level at a 200-ft distance from the court would also be around 40 dBA.

Also I realized that if someone in Sagaponack who has an approved tennis court (sunken with a 60-ft setback) would like to use it for pickleball (a common practice), that would be fine, as long as they add the fence, or show that the distance is 200 feet or greater from the neighboring property lines.

Also, for your information, at the beginning, the attached noise study report has a good section on A-weighted decibels and a "noise thermometer" of common indoor and outdoor sound levels in dBA.

I'd be happy to discuss this by phone if you'd like. Today, I'll be busy between 11:30am and about 3pm.

Chris

Christopher Menge
Sr. Vice President/Principal Consultant



www.hmmh.com
O 781.852.3153 | M 781.223.8944
cmenge@hmmh.com