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February 26, 2024

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1600 Boulevard Rene-Levesque West
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Montreal, Quebec
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Attention: Ashkan Matlabi

VIA E-MAIL
proximity@cn.ca

Re: Noise and Vibration Impact Study
Peer Review
Proposed Residential Development
121 Vansitmart Avenue
City of Hamilton
Our File: 17-142

As requested, we have reviewed the *Noise and Vibration Impact Study*, dated October 13, 2023, prepared by Thornton Tomasetti on behalf of Urban Solutions.

Peer review comments were previously provided in November, 2017 regarding the *Environmental Noise and Vibration Impact Study* dated June 2017, prepared by dBA Acoustical Consultants Inc. Peer review comments dated March 16, 2022, were provided regarding the *Environmental Noise and Vibration Impact Study* dated January, 2021, also prepared by dBA Acoustical Consultants. In addition, peer review comments dated February 27, 2023, were provided regarding the *Environmental Noise and Vibration Impact Study* dated November 28, 2022, prepared by Thornton Tomasetti.

We have also reviewed the CadnaA software acoustic model provided by Thornton Tomasetti on December 12, 2023.

The proposed development is comprised of four (4) back-to-back townhouse residential blocks. No outdoor amenity areas are proposed for this development. The site is located north of Vansitmart Avenue between Cope Street and Tragina Avenue North in the City of Hamilton. The CN Guelph Subdivision right-of-way (ROW) is located to the north of the proposed development. The CN Parkdale Yard is located 60 m to the north of the proposed development.

We understand based on information provided by Dentons, legal counsel to CN, that the City of Hamilton approved the Zoning By-law Amendment and Official Plan Amendment on June 27, 2018. Subsequent to this approval the City granted conditional approval for Site Plan Control on June 27, 2019, with two (2) conditions relating to CN Rail, as follows:

1. The owner shall enter into an agreement with the Canadian National Railway stipulating how the Canadian National Railways concerns will be resolved and will pay the Canadian National Railways reasonable costs in preparing and negotiating the agreement; and
2. The owner shall be required to grant the Canadian National Railway an environmental easement for operational noise and vibration emissions, registered against the subject property in favour of the Canadian National Railway, to the satisfaction of the Canadian National Railway.



In the summer of 2023, the developer applied to the City to designate the site from a Class 1 area to Class 4 as defined by NPC-300. This approval is still pending as the City requested specific conditions be met prior to providing the Class 4 designation.

This peer review letter provides comments regarding the noise report to satisfy the City of Hamilton's conditions of approval and designation of the subject site to Class 4.

We have reviewed the report with respect to noise/vibration issues related to rail traffic and CN. Other sources of noise/vibration have not been evaluated as part of this peer review. The CN guidelines, the Federation of Canadian Municipalities (FCM) and Railway Association of Canada (RAC) "Guidelines for New Development in Proximity to Railway Operations" (RAC/FCM guidelines) and the Ministry of the Environment, Conservation and Parks (MOE) guidelines have been used in this review. No original analyses have been conducted.

This peer review consists of a review of the approach, source information, and analysis methods used, as well as the required/recommended noise mitigation measures determined by the acoustical consultant that prepared the noise and vibration impact study.

Subject to the comments set out below, we find that the October 13, 2023 study has appropriately assessed the acoustic environment with respect to rail traffic, CN and the applicable guidelines. Our comments regarding the proposed mitigation measures are provided below.

Noise

1. The study includes the standard CN warning clause. The following Metrolinx/GO Transit standard warning clause is also required for all proposed townhouse blocks/units.

"Purchasers/tenants are advised that Metrolinx/GO Transit or its assigns or successors in interest has or have a right-of-way and facilities within 300 m from the land the subject hereof. There may be alterations to or expansions of the rail facilities on such right-of-way in the future including the possibility that the railway or its assigns or successors as aforesaid may expand its operations, which expansion may affect the living environment of the residents in the vicinity, notwithstanding the inclusion of any noise and vibration attenuation measures in the design of the development and individual dwelling(s). Metrolinx/GO Transit will not be responsible for any complaints or claims arising from use of such facilities and/or operations on, over or under the aforesaid facility and right-of-way."



2. CN may also require a specific warning clause related to the Parkdale Rail Yard.
3. The study recommends that the proposed residential development be designated as a Class 4 development following the MOE NPC-300 guidelines and subject to approval of the relevant Land Use Planning Authority. The City of Hamilton will need to confirm if the site will be designated Class 4. As noted above, the City of Hamilton indicated in their Recommendation Report dated July 11, 2023, that a decision will be made pending receipt of additional information and CN's comments.

As it is not feasible to meet the Class 1 sound level limits, a Class 4 designation, with the appropriate mitigation measures, is required to meet the MOE guidelines.

4. As Class 4 is being recommended for all dwellings, central air conditioning is required for all dwellings. The text, mitigation table and mitigation figure need to be updated to reflect this requirement.
5. The noise mitigation measure proposed in the study includes Enclosed Noise Buffers (ENBs) to address the rail yard but does not provide any details regarding the design or implementation of this mitigation measure. In addition, the typical floor layouts shown on Figure 3 do not include any Enclosed Noise Buffers.

As the proposed residential development is comprised of townhouse blocks, preliminary floor plan and elevation concepts incorporating the ENBs should be provided to ensure that the envisioned townhouse designs are feasible. Additional information is required.

Due to the proximity of the proposed development and the high predicted sound level, the outdoor windows of the ENBs and the windows and doors of the inner portion of the ENBs should be constructed of STC 36 windows and doors. The glass configuration should include glass of different thickness. The outer and inner windows and doors should be constructed of different glass configurations from each other.

The exterior walls of the ENBs and the interior walls of the ENBs should be constructed of brick veneer or masonry equivalent for all façades with exposure to the rail yard.



Vibration

The vibration guidelines included in Section 7.1 are consistent with the CN and FCM/RAC guidelines. However, based on the information included in Table 18 and presented in Appendix E, the applicable guidelines may have not been used correctly.

To evaluate the compliance, the vibration velocity limit of 0.14 mm/s RMS is to be compared with the measured overall vibration velocity within the frequency range between 4 Hz and 200 Hz. The limit is not applicable to each one-third octave band centre frequency within the same frequency range which seems to be the approach used in the study.

Additional information is needed to clarify the vibration compliance investigation.

Conclusion/Recommendations

Based on our review we can conclude the proposed residential development is feasible, with the Class 4 designation and the appropriate mitigation measures, to meet the MOE, CN and RAC/FCM guidelines and requirements.

The noise and vibration impact study should be updated to incorporate these peer review comments and summarize the proposed noise mitigation measures in one (1) table as the study will be used to prepare the CN Agreement.

Architectural plans should be provided which clearly show where and how the Enclosed Noise Buffers will be constructed and which identify the required wall, windows and doors construction requirements.

The report indicates that a crash berm will be built along the north property line. As this berm is not required to meet the sound level limits, CN should be contacted to confirm if the height of the berm, the extent of the berm is appropriate and if any returns are required to satisfy the safety requirements.

Once the study and the architectural drawings have been updated, they should be circulated to CN for review.

Yours truly,

JADE ACOUSTICS INC.



Per:

Davor Sikic, P.Eng.



Per:

Dalila C. Giusti, P.Eng.



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