August 23, 2022

Homestead Land Holdings Limited
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Attention: Jack Mangan
Manager, Acquisitions & Corporate Development

Re: Noise Impact Study of the Proposed Residential Development
210 Clearview Avenue, Ottawa, ON
Pinchin File: 313119

Pinchin Ltd. (Pinchin) was retained by Homestead Land Holdings Limited (Client) to prepare a noise impact study report for its proposed residential development (Development) at 210 Clearview Avenue, Ottawa, ON. This report has been prepared to evaluate the noise impacts from external stationary sources and road traffic on the Development and the Development on nearby noise sensitive receptors. The purpose of the study is to support re-zoning and/or site plan control applications for the proposed Development.

The proposed Development will include the construction of one residential building. The building will include two levels of underground parking, twenty-four levels of residential units, and one level of penthouse for amenity spaces and mechanical equipment.

Figure 1, Appendix B shows the locations of the proposed Development, external stationary sources and nearby roads. Additional drawings showing the site plan, floor and elevation plans are included in Appendix C.

1.0 NOISE CRITERIA

In this study, noise criteria outlined in the City of Ottawa's Environmental Noise Control Guidelines (ENCG) [1] and the Ontario Ministry of Environment, Conservation and Parks (MECP) Publication NPC-300 [2] were adopted. The applicable noise criteria for this proposed redevelopment are described as follows:

1.1 Outdoor Noise Criteria

The daytime noise criterion for outdoor living areas (OLAs) is 55 dBA for road and rail noise sources. Where it is not technically, economically, or administratively feasible to meet the 55 dBA limit, up to 60 dBA is permissible with warning clauses. Where the daytime sound level is greater than 60 dBA, control measures are required to reduce the sound level to 60 dBA or less.

The proposed development has made provisions for a variety of protected indoor amenities such as screening room, party and exercise rooms, etc. that are accessible to all future occupants/owners in the proposed Development. There are also outdoor rooftop terraces on the 4th and 25th floors. In addition, there are balconies and terraces for the respective suites, and it should be noted that typically, balconies in residential condominium buildings are not considered OLAs unless both of the following conditions exist: they are at least 4 m in depth and there is no provision for protected amenities within the development.

1.2 External Building Façade Criteria

Where the sound levels at the exterior of the building facades exceed 55 dBA at living/dining room windows during daytime hours and 50 dBA at bedroom windows during nighttime periods, the unit must be provided with forced air heating with provision for central air conditioning. Where the sound levels exceed by more than 10 dB (i.e. 65 dBA at living/dining room windows and 60 dBA at bedroom windows), central air conditioning must be incorporated into the building design prior to occupancy. Upgraded window glazing construction may be required and warning clauses are applicable as well.

It should be noted that in high and medium density residential developments, other forms of mechanical ventilation may be available. Ventilation methods other than central air conditioning are acceptable for high and medium density residential developments, subject to the following conditions:

- the noise produced by the proposed ventilation system in the space served does not exceed 40 dBA;
- the ventilation system complies with all national, provincial and municipal standards and codes;
- the ventilation system is designed by a heating and ventilation professional; and
- the ventilation system enables the windows and exterior doors to remain closed.

1.3 Noise Criteria for Stationary Sources

The applicable MECP noise criteria at a point of reception (POR) are dictated by MECP Publication NPC-300 [2] for Class 1 Areas. These guidelines state that the one-hour sound exposures (Leq, 1 hour) from stationary noise sources in Class 1 areas shall not exceed:

- the higher of 50 dBA or background noise between 0700h and 1900h;
- the higher of 50 dBA or background noise between 1900h and 2300h; and
- the higher of 45 dBA or background noise between 2300h and 0700h (excluding outdoor PORs).

The sound level limits for the testing of emergency generator are 5 dBA higher the above limits.

2.0 POINT OF RECEPTION DESCRIPTION

To evaluate the noise impact from external stationary sources, eight onsite noise sensitive receptors (ON-North, ON-West, ON-SE, ON-OLA1 to ON-OLA5) were selected from the Development's most affected locations. Receptors ON-North, ON-West and ON-SE represent 3rd floor windows on the north, west and southeast facades, respectively. Receptors ON-OLA1 to ON-OLA3 represent the outdoor living areas on the 4th level roof decks. Receptors ON-OLA4 and ON-OLA5 represent the outdoor living areas on the penthouse (25th) floor level.

To evaluate the noise impact from road traffic on the Development, two onsite noise sensitive receptors (ON-South and ON-South-OLA) were selected from the south side of the building. Receptor ON-South represents the south façade windows on the 3rd floor level. Receptor ON-South-OLA represents the rooftop OLA on the 4th level roof deck.

The following table lists the selected receptor details:

Point of Reception ID	Point of Reception Location	Point of Reception Height, m
ON_OLA1	Rooftop OLA - 11.7 m	11.7
ON_OLA2	Rooftop OLA - 11.7 m	11.7
ON_OLA3	Rooftop OLA - 11.7 m	11.7
ON_OLA4	Rooftop OLA - 75.3 m	75.3
ON_OLA5	Rooftop OLA - 75.3 m	75.3
ON_North	North Facade Windows - 10 m	10.0
ON_SE	Southeast Corner Windows - 10 m	10.0
ON_West	West Facade Windows - 10 m	10.0
ON-South	South Façade, 3rd Floor Windows	8.7
ON-South-OLA	Outdoor Living Area, Roof Deck on 4th Floor	11.7

Locations of the selected receptors are shown in Figure 2, Appendix B.

It was confirmed by the Client that outdoor at-grade amenity space is not required by the zoning bylaw. Therefore, no at-grade OLAs were selected from the Development.

3.0 NOISE IMPACT ASSESSMENT

3.1 Noise Impact from External Stationary Sources on the Development

A review of aerial photos of the area shows that there are four facilities/buildings that are located within 100 m of the proposed Development.

To the west of the Development is an institutional operation (Centre Jules-Léger). To the east and north of the Development are three residential towers (185, 195, and 200 Clearview Avenue). It should be noted that all three residential towers are owned and operated by the Client.

To collect the equipment sound information, a site visit was conducted on Friday July 22, 2022. At the Client's buildings (185, 195, and 200 Clearview Avenue), significant sources were identified and acoustic measurements were conducted to quantify the radiated sound. An acoustic model was developed to predict the noise impact on the Development.

The Client tried to request the permission for access to the institutional building. However, permission was not granted by the property manager. As such, Pinchin estimated the rooftop equipment sound information based on the review of aerial photos and observations during the site visit.

Further to the south of the Development are more residential buildings, a government building (Graham Spry Building) and a transformer distribution station. However, since all these buildings are located beyond the 100 m setback, they were not included in this assessment.

Based on the information collected during the site visit, the significant noise sources associated with the external buildings are provided in Table 3, Appendix A, and include the following:

Centre Jules-Léger:

- One (1) air handling unit (source CJL_AHU1);
- One (1) HVAC unit (source CJL_HVAC1); and
- Ten (10) make-up air units (sources CJL_MUA1 to CJL_MUA10).

185/195/200 Clearview Avenue:

- Two (2) cooling towers (CT195_IN, CT195_North, CT195_South, CT195_West, CT200_East, CT200_North, CT200_South, and CT200_West);

- Two (2) emergency generators (sources GEN195_EX, GEN195_IN, GEN200_EX, and GEN200_Vent);
- One (1) fan/motor casing (source F_195_12M); and
- Thirteen (13) exhaust fans (sources F_195_01 to F_195_13).

Equipment sound data were based on measurements conducted during the site visit and Pinchin's past measurements on similar sized equipment. Table 3, Appendix A, lists the equipment sound power levels.

In modelling the noise impact from the external stationary sources, all equipment was assumed operating 60 minutes during daytime, evening and nighttime hours. The only exception includes the testing of the two emergency generators at 195 and 200 Clearview Avenue. The emergency generators are tested for 60 minutes during daytime hours.

The predicted noise impacts from stationary sources and emergence generator testing are summarized in Tables 4 and 5, Appendix A, respectively. Noise impact contour maps are presented in Figures 4 and 5, Appendix B.

3.2 Noise Impact from Transportation Sources on the Development

A review of aerial photos showed that there are four collector roads (Lanark Avenue to the south, Sir John A. Macdonald Parkway to the north, Island Park Drive to the east and Scott Road to the south) and a bus transitway to the south. However, all these roads and bus transitway, except Lanark Avenue, are located at distances beyond 100 m setback for arterial/collector roads and BRT, as specified by the ENCG. The aerial photo review also showed that there are no CN/CP railway lines and 400-series highways within 500 m of the Development.

The proposed Development is located approximately 9 km to the northwest of the Ottawa International Airport. Annex 10 of the City's Official Plan shows that the Airport Vicinity Development Zone (AVDZ) extends up to the intersection of Baseline Road and Woodroffe Avenue to the northwest of the Airport. The distance from the proposed Development to the nearest AVDZ is approximately 3.2 km. Therefore, the aircraft noise impact was deemed insignificant and the aircraft warning clause is not required. A copy of the aircraft noise impact contour map is included in Figure 3, Appendix B.

The AADT volume for Lanark Avenue was taken from Table 1, Appendix B of the ENCG. Details of traffic data and vehicle breakdowns are provided in Table D1, Appendix D.

The sound levels at the proposed development due to road traffic were calculated using the MECP program STAMSON, Version 5.04 [3]. STAMSON uses the traffic volumes for the road and basic topographical information for the site in its calculations. Details of calculation results are provided in Appendices A and D.

3.3 Noise Control Measures

The traffic noise impacts and control measures are provided in Tables 1 and 2, Appendix A. Table 1, Appendix A provides the STAMSON calculation results at most affected building facade and outdoor living area. Table 2, Appendix A, summarizes the predicted sound levels at selected units and outdoor living areas, as well as the applicable noise control requirements. An approximately 1.2 m high rooftop barrier with a combination of parapet and glass panel would be constructed on all sides of the roof deck areas. The barrier was included in the STAMSON calculations.

The predicted traffic noise impacts range from 57 dBA to 65 dBA at the selected onsite receptors. The predicted levels indicate that the units should be designed with a provision for the installation of central air conditioning in the future, at the occupant's discretion. Warning clause Types A and C are required to be included in agreements of offers of purchase and sale, lease/rental agreements and condominium declarations. Details of the warning clause is included in Appendix E.

It was confirmed by the Client that all units will be equipped with central air conditioning and HRV systems. The construction will exceed the City's and MECP ventilation requirements.

Since the predicted traffic noise impacts do not exceed 65 dBA and 60 dBA during daytime and nighttime hours, respectively, no special construction requirements on building components (i.e. windows, doors and walls) are warranted. Constructions meeting the Ontario Building Code (OBC) would be sufficient to provide the required sound attenuation.

The architectural drawings show that all walls will be constructed using masonry walls (for floors 1 to 3) and EIFS (Exterior Insulation and Finish System) panels. The masonry walls and EIFP systems are anticipated to provide the STC rating well exceeding the minimum OBC requirements for exterior walls.

The external stationary source noise impacts are provided in Tables 4 to 6, Appendix A. As shown in Table 4, Appendix A, the predicted stationary source noise impacts exceed the MECP exclusionary sound level limits at selected onsite receptors (ON-OLA1 and ON-SE). Calculations showed that noise abatement is required on the west façade opening of the cooling tower building (CT200_West).

One (1) acoustic silencer or its acoustical equivalent (e.g. acoustic louvre) will be installed on the west façade opening of the cooling tower building (CT200_West). The acoustic silencer or its acoustical equivalent should be capable of providing the following minimum values of insertion-Loss in 1/1 octave frequency bands:

Centre Frequency (Hertz)	63	125	250	500	1000	2000	4000	8000
Insertion Loss (decibel)	5	8	10	12	15	15	10	8

The predicted sound levels following the implementation of the above noise control are presented in Table 5, Appendix A, and Figure 5, Appendix B.

The Client proposes to complete the installation of the silencer or its acoustical equivalent within six (6) months after the issuance of an above grade building permit under the Building Code Act, 1992, as amended, for the proposed Development.

3.4 Noise Impact from the Development on Nearby Sensitive Receptors

At the time this report was prepared, detailed mechanical equipment information associated with the Development was not available. As such, the noise impact from the Development on nearby sensitive receptors could not be evaluated. It is therefore suggested that, once the information is available, equipment sound information should be reviewed. If significant noise impact is anticipated, this noise impact study report should be updated accordingly.

4.0 CONCLUSIONS

A detailed noise impact assessment of the proposed Development was completed by modelling the noise impacts from road traffic and external stationary sources on the Development. The assessment shows that the traffic noise impact on the Development meets the NPC-300 noise criteria, with the included control measure (rooftop parapet/glass panels) and proposed installation of central air conditioning systems. In addition, the following warning clause Types A and C are required.

Warning Clause Type A – From MECP NPC-300

“Purchasers/tenants are advised that sound levels due to increasing road traffic may occasionally interfere with some activities of the dwelling occupants as the sound levels exceed the sound level limits of the Municipality and the Ministry of the Environment.”

Warning Clause Type C – From MECP NPC-300

“This dwelling unit has been designed with the provision for adding central air conditioning at the occupant’s discretion. Installation of central air conditioning by the occupant in low and medium density developments will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the sound level limits of the Municipality and the Ministry of the Environment.”

The predicted noise impacts from external stationary sources exceed the NPC-300 noise criteria. However, calculations show that, with the implementation of the recommended noise mitigation measure in Section 3.4, predicted worst-case external stationary source noise levels are shown to be at or below the applicable MECP NPC-300 Class 1 guideline limits at all onsite receptor locations.

5.0 TERMS AND LIMITATIONS

This work was performed subject to the Terms and Limitations presented or referenced in the proposal for this project.

Information provided by Pinchin is intended for Client use only. Pinchin will not provide results or information to any party unless disclosure by Pinchin is required by law. Any use by a third party of reports or documents authored by Pinchin or any reliance by a third party on or decisions made by a third party based on the findings described in said documents, is the sole responsibility of such third parties. Pinchin accepts no responsibility for damages suffered by any third party as a result of decisions made or actions conducted. No other warranties are implied or expressed.

6.0 CLOSURE

Should you have any questions or concerns regarding the contents of this study, please contact the undersigned.

Sincerely,

Pinchin Ltd.

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7.0 REFERENCES

1. City of Ottawa, Environmental Noise Control Guidelines: Introduction and Glossary, January 2016.
2. Ministry of the Environment Publication NPC-300, "Environmental Noise Guideline Stationary and Transportation Sources – Approval and Planning", August 2013.
3. Ministry of the Environment's STAMSON/STEAM Computer Programme, (Version 5.04),