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PRELIMINARY ENVIRONMENTAL NOISE REPORT

PROPOSED RESIDENTIAL DEVELOPMENT
EMIL KOLB PARKWAY AND HARVEST MOON DRIVE
TOWN OF CALEDON
REGIONAL MUNICIPALITY OF PEEL

JADE ACOUSTICS

PREPARED FOR
Harvest One Centre Inc.

September 1, 2021
File: 14-046-01

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SUMMARY

The proposed residential development is located at the northwest corner of Emil Kolb Parkway and Harvest Moon Drive in the Town of Caledon and is subject to road traffic noise from Emil Kolb Parkway/Coleraine Drive and Harvest Moon Drive/King Street. It is not affected by rail, aircraft, commercial or industrial noise sources.

The environmental noise guidelines of the Town of Caledon, the Region of Peel, and the Ontario Ministry of the Environment, Conservation and Parks (MOE) set out sound level limits for both indoor and outdoor spaces. Sound levels due to nearby roads were determined and compared to the MOE and the Region of Peel/Town of Caledon guidelines to determine the appropriate mitigation measures.

Using the road traffic data obtained from the Region of Peel and the Town of Caledon, the sound levels for various locations in the development were determined. Sound levels due to the adjacent roads were determined using ORNAMENT, the noise prediction model of the MOE.

It was found that, with appropriate mitigative measures, all residential blocks (unit) in the development will meet the noise guidelines. Where minor excesses exist or mitigation is required, future occupants will be advised through the use of warning clauses.

Blocks (units) in the adjacent to of Emil Kolb Parkway and Harvest Moon Drive require either central air conditioning or forced air heating systems sized to accommodate central air conditioning at a later date if noise becomes a concern. Table 3 and Figure 2 show the central air conditioning requirements.

It is predicted that standard exterior wall, exterior door and window construction will be acoustically satisfactory for all proposed blocks (units). Prior to issuance of building permits, the acoustical requirements should be reviewed to ensure compliance with the applicable guidelines.

1.0 INTRODUCTION

Jade Acoustics Inc. was retained by Harvest One Centre Inc. to investigate the potential impact of noise on the proposed residential development to the satisfaction of the Town of Caledon and the Region of Peel.

The proposed development is identified as:

13656 Emil Kolb Parkway
Town of Caledon
Regional Municipality of Peel

The site is bounded by existing residential to the west, existing and future residential to the north, Emil Kolb Parkway to the east and Harvest Moon Drive to the south. See Figure 2 for details.

This analysis was based on the following:

- Site visit conducted by Jade Acoustics Inc. staff on August 6, 2021;
- Site plan prepared by Soscia Professional Engineers Inc., received on June 23, 2021;
- Road traffic information provided by Region of Peel and Town of Caledon; and
- Architectural plan prepared by Soscia Professional Engineers Inc. received on June 10, 2021.

Surrounding land uses include residential, commercial and open spaces.

A Key Plan is attached as Figure 1.

The proposed residential development is comprised of stacked townhouse dwellings and new internal roads.

Figure 2 shows the proposed residential development and the noise abatement measures required to meet the guidelines.

2.0 NOISE SOURCES

2.1 Transportation Sources

The noise source of potential impact on the proposed development is the road traffic on Emil Kolb Parkway and King Street.

The ultimate road traffic information for Emil Kolb Parkway and King Street was provided by the Region of Peel on July 5, 2021, and has been used for the noise analysis.

The Town of Caledon (Development Standards Manual, Version 5, 2019) requires that when assessing the road traffic noise impact on planned sensitive land uses, a traffic speed of 10 km/h over the posted speed must be used. As discussed with the Town of Caledon, this approach is to be used for all roads in the Town of Caledon.

The posted speed limits, as noted in Table 1 of this report, were increased by 10 km/h and used in the calculations to satisfy the Town's requirement.

The site is not affected by rail or aircraft traffic.

Road traffic information is summarized in Table 1. Correspondence regarding the road traffic information is included in Appendix A.

2.2 Stationary Sources

An existing commercial establishment is present 500 m to the east of the proposed site along King Street. Due to the separation distance, this is considered to be acoustically insignificant.

3.0 ENVIRONMENTAL NOISE CRITERIA

In addition to the Town of Caledon "Development Standards Manual, Version 5" dated 2019 and the "General Guidelines for the Preparation of Acoustical Reports in the Region of Peel" document dated November, 2012, the most recent environmental noise guidelines (NPC-300) of the Ontario Ministry of the Environment (MOE) were used for this report.

The MOE document "Environmental Noise Guideline Stationary and Transportation Sources – Approval and Planning, Publication NPC-300", dated August, 2013, released October 21, 2013 (updated final version # 22) has been used in this assessment.

A brief summary of the NPC-300 guidelines is given in Appendix B. The guidelines are also summarized below.

3.1 Transportation Sources

3.1.1. Indoors

If the nighttime (11:00 p.m. to 7:00 a.m.) sound levels in terms of Leq at the exterior face of a bedroom or living/dining room window is 60 dBA or greater and/or if the daytime (7:00 a.m. to 11:00 p.m.) sound levels at the exterior face of a bedroom or living/dining room window is greater than 65 dBA, means must be provided so that windows can be kept closed for noise control purposes and central air conditioning is required. A warning clause advising the occupant of the potential interference with some activities is also required and must be included in all offers of purchase and sale, lease agreements and included in the development agreements.

For nighttime sound levels greater than 50 dBA to less than 60 dBA on the exterior face of a bedroom or living/dining room window or daytime sound levels greater than 55 dBA to less than or equal to 65 dBA on the exterior face of a bedroom or living/dining room window, there need only be the provision for adding central air conditioning by the occupant at a later date. This typically involves a ducted heating system sized to accommodate the addition of central air conditioning by the occupant at a later date. A warning clause advising the occupant of the potential interference with some activities is also required and must be included in all offers of purchase and sale, lease agreements and included in the development agreements.

In all cases, the air cooled condenser units must not exceed an AHRI rating of 7.6 bels. The air cooled condenser units must be sited in accordance with the zoning by-laws with respect to setbacks as well as location.

As required by the MOE, the Region of Peel and the Town of Caledon, indoor noise criteria for road traffic noise is 40 dBA (Leq8hour) for the bedrooms during nighttime hours, 45 dBA (Leq8hour) for the living/dining rooms during nighttime hours and 45 dBA (Leq16hour) for living/dining rooms and bedrooms during daytime hours.

These criteria are used to determine the architectural requirements.

3.1.2 Outdoors

Based on the MOE guidelines, for outdoor amenity areas (Outdoor Living Area – OLA) a design goal of 55 dBA daytime (7:00 a.m. to 11:00 p.m.) sound level is used with an excess not greater than 5 dBA considered acceptable in some cases. Where the unmitigated sound level during the day exceeds 55 dBA (LeqDay) but is less than 60 dBA (LeqDay), a warning clause is required and mitigation should be considered. When the unmitigated sound level exceeds 60 dBA, sound barriers and warning clauses are generally required to achieve as close to 55 dBA as is technically, economically and administratively feasible.

Based on the "General Guidelines for the Preparation of Acoustic Reports in the Region of Peel", the sound level in outdoor living areas after applying attenuation measures should be the lowest aesthetically, technically and administratively practical level. The sound level objective is 55 dBA (LeqDay). If the sound level objective is exceeded, the report needs to provide a table of comparative sound barrier heights and show the height required to attenuate noise to the MOE standards.

The Town of Caledon does not accept sound levels in outdoor living areas in excess of 55 dBA (LeqDay), unless design features exceed standard detail. In addition, the Town requires that, when assessing the road traffic impact on planned sensitive land uses, a traffic speed of 10 km/h over the posted speed be used. Traffic volumes must be based on future traffic projections (minimum 20 years) or the ultimate road traffic volumes (ultimate capacity) as determined by the road authority.

The definition of outdoor amenity area as defined by the MOE is given below.

"Outdoor Living Area (OLA)

> (applies to impact assessments of transportation sources) means that part of a noise sensitive land use that is:
>
> - intended and designed for the quiet enjoyment of the outdoor environment; and
> - readily accessible from the building.

The OLA includes:

- backyards, front yards, gardens, terraces or patios;
- balconies and elevated terraces (e.g. rooftops), with a minimum depth of 4 metres, that are not enclosed, provided they are the only outdoor living area (OLA) for the occupant; or
- common outdoor living areas (OLAs) associated with high-rise multi-unit buildings."

For both indoor and outdoor conditions, where the acoustic criteria are exceeded, warning clauses must be placed in offers of purchase and sale or lease agreements and in the subdivision agreement.

The Region of Peel has indicated that for developments in the Town of Caledon, they require that the warning clauses use the word "will" instead of "may" in situations where the Municipality accepts a noise attenuation solution where the resultant noise level exceeds the Municipality's and the Ministry of Environment's criteria by more than 5 dBA.

A specific interpretation, as indicated by the Region of Peel, is that if the outdoor sound level at the plane of a bedroom window is 56 dBA or greater during the nighttime period, regardless of whether the provision for adding central air conditioning or mandatory central air conditioning is a requirement for the dwelling, the warning clause must use the word "will" instead of "may".

4.0 NOISE IMPACT ASSESSMENT

4.1 Transportation Sources

For road traffic noise the sound level in terms of Leq, the energy equivalent continuous sound level for both day (LeqDay, 16 hours) and night (LeqNight, 8 hours) was determined using the MOE Traffic Noise Prediction Model ORNAMENT.

Table 2 provides a summary of predicted sound levels outdoors due to road traffic at specific locations without any mitigative measures. Appendix C includes sample calculations. Shielding provided by the buildings has also been accounted for in the analysis. .

The highest sound levels were predicted for the residential blocks immediately adjacent to Emil Kolb Parkway and Harvest Moon Drive.

Block 1 which has exposure to Emil Kolb Parkway and Harvest Moon Drive is predicted to have an unmitigated sound levels of up to 69 dBA (daytime) and up to 64 dBA (nighttime) calculated at the east wall.

Block 2 which has exposure to Harvest Moon Drive is predicted to have unmitigated sound level up to 67 dBA (daytime) and up to 61 dBA (nighttime) calculated at the south wall.

None of the Blocks have outdoor amenity spaces as defined by the MOE; therefore, no outdoor amenity spaces were analyzed.

Should any of the at grade areas surrounding the buildings be considered as outdoor amenity spaces, these spaces will need to be reviewed as soon as detail design information in available.

Table 2 provides a summary of the predicted sound levels outdoors due to road traffic at specific locations without any mitigative measures. Appendix C gives sample calculations.

Where the sound level limits are exceeded, mitigative measures and warning clauses are required.

5.0 NOISE ABATEMENT REQUIREMENTS

The noise mitigation requirements for both the indoor and outdoor locations are detailed below. Table 3 and Figure 2 provide a summary of the acoustical mitigative requirements for the residential blocks (units) in this development.

5.1 Indoors

The indoor noise exposure criteria for road traffic can be achieved in all cases by using appropriate architectural elements for external wall, window and exterior door construction. The indoor criteria for road traffic noise of 40 dBA (Leq8hour) for the bedrooms during nighttime hours, 45 dBA (Leq8hour) for the living/dining rooms during nighttime hours and 45 dBA (Leq16hour) for the living/dining rooms and bedrooms during daytime hours. The characteristic spectrum for the noise sources has been accounted for in the determination of the architectural components.

In determining the architectural requirements, the architectural plans provided by Soscia Professional Engineers Inc. received on June 10, 2021, were used.

Sample architectural component selection calculations are shown in Appendix D.

For the worst case location, exterior walls having an STC 39 rating and windows and exterior doors having an STC 28 rating would be needed.

These STC ratings comply with the minimum structural and safety requirements provided by standard construction practices; therefore, standard window, exterior door and exterior wall construction is acoustically acceptable for all proposed residential units and it is expected that the MOE indoor sound level limits will be achieved.

Since final house plans are not yet available, the final architectural choices cannot be made. Once final house plans are available, the noise control requirements should be re-evaluated.

An STC 54 rating for the roof, normally met by most residential roof construction with ventilated attic space, would be acoustically acceptable.

Where the sound level is greater than or equal to 60 dBA (LeqNight) or greater than 65 dBA (LeqDay) on the outside face of a bedroom or living/dining room window, the indoor noise criteria would not be met with open windows and provisions must be made to permit the windows to remain closed.

In this case, the MOE guidelines require central air conditioning and a warning clause. Based on the predicted sound levels there are dwellings that require central air conditioning in order to achieve the MOE guidelines. This includes Blocks 1 and 2 (all units). See Table 3, Notes to Table 3 and Figure 2 for details.

Where the nighttime sound level (Leq8hour) is greater than 50 dBA to less than 60 dBA and the daytime sound level (Leq16hour) is greater than 55 dBA to less than or equal to 65 dBA, the provision for adding central air conditioning by the occupants must be made. Based on the predicted sound levels, Block 3 (all units) require the provision for adding central air conditioning by the occupant and a warning clause. See Table 3, Notes to Table 3 and Figure 2 for details.

The outdoor air conditioning condensing units must meet the applicable sound limits and be sited in accordance with the Town's zoning by-laws.

Warning clauses will also be required to be placed in offers of purchase and sale or lease agreements and in the subdivision agreement for all relevant residential blocks (units) to make future occupants aware of the potential noise situation.

5.2 Outdoors

The outdoor amenity area is required to be exposed to sound levels of no more than 55 dBA during the day. A 5 dB increase is considered acceptable in certain situations. Typically, if the sound level (LeqDay) is above 60 dBA, some form of mitigation and a warning clause is required.

As noted in Section 3.1.2, balconies and/or terraces which do not meet specified criteria are excluded as noise sensitive areas that require mitigation. It is expected that the balconies and/or terraces associated with the proposed blocks (units) with exposure to road sources will be less than 4.0 m deep. Therefore, sound barriers would not be required.

Should the final building design be such that any of the at-grade outdoor areas be considered at outdoor amenity spaces, the mitigation measures required will need to be re-visited. This can be completed when final design drawings are available.

5.3 Stationary Sources

As discussed in Section 2.2, noise sources associated with the existing commercial development are not expected to be acoustically significant at the subject site and was not further assessed in this report.

6.0 CONCLUSIONS

With the incorporation of the items discussed (see Table 3, Notes to Table 3 and Figure 2), the sound levels will be within the appropriate environmental noise criteria. In accordance with the Town's and MOE's implementation guidelines, where mitigation is required, future occupants will be advised through the use of warning clauses.

Prior to issuance of building permits, the acoustical requirements should be reviewed by an acoustical consultant to ensure compliance with the applicable guidelines.

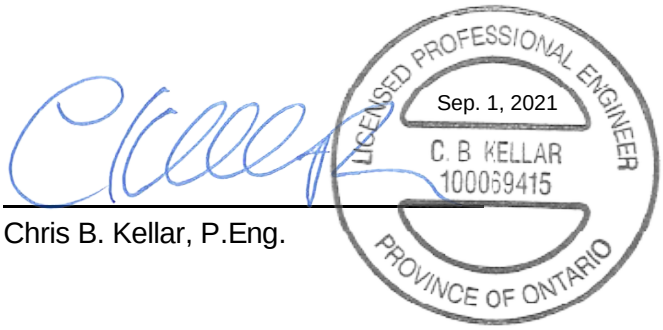
Prior to issuance of occupancy permits, an acoustical consultant should confirm that the acoustical requirements are in compliance with the environmental noise report.

Respectfully submitted,

JADE ACOUSTICS INC.

Per: 

Makarand P. Kaushik, E.I.T.

Per: 

Chris B. Kellar, P.Eng.

MK/AK/CK/jg
J:\Reports\14-046-01 Sep 1-21 Emil Kolb Pkwy. & Harvest Moon Drive (PENR).doc

7.0 REFERENCES

1. "Model Municipal Noise Control By-Law", Final Report, Ontario Ministry of the Environment, August, 1978.

2. "ORNAMENT – Ontario Road Noise Analysis Method for Environment and Transportation", Ontario Ministry of the Environment, October, 1989.

3. "Building Practice Note No. 56: Controlling Sound Transmission into Buildings", J. D. Quirt, Division of Building Research, National Research Council of Canada, September, 1985.

4. "Environmental Noise Guideline Stationary and Transportation Sources – Approval and Planning", Ontario Ministry of the Environment, Publication NPC-300, August, 2013 (updated final version # 22).

5. "General Guidelines for the Preparation of Acoustical Reports in the Region of Peel", November, 2012.

6. "Development Standards Manal", Town of Caledon, Version 5, 2019.

TABLE 1

PROPOSED RESIDENTIAL DEVELOPMENT

EMIL KOLB PARKWAY AND HARVEST MOON DRIVE

TOWN OF CALEDON

REGIONAL MUNICIPALITY OF PEEL

SUMMARY OF ROAD TRAFFIC DATA

ROAD	EMIL KOLB PARKWAY	KING STREET
AADT*	32, 400 (Ultimate)	16, 200 (Ultimate)
No. of Lanes	4	2
Posted Speed (km/h)**	60**	60**
Trucks (%)	See A Below	See A Below
Medium/Heavy Split (%)	See A Below	See A Below
Gradient (%)	1	1
Day/Night Split (%)	90/10	91/9
R.O.W. (m)	45	30

* AADT: Annual Average Daily Traffic.

** Additional 10 km/h used for calculations.

Note: A: See day/night truck percentages in Appendix A.

TABLE 2

PROPOSED RESIDENTIAL DEVELOPMENT

EMIL KOLB PARKWAY AND HARVEST MOON DRIVE

TOWN OF CALEDON

REGIONAL MUNICIPALITY OF PEEL

PREDICTED UNMITIGATED SOUND LEVELS
OUTDOORS DUE TO ROAD TRAFFIC

Blocks (Units)*	Location	Source	Distance (m)	Leq (dBA)			
				Day		Night	
				Separate	Combined	Separate	Combined
Block 1	Front Wall	Emil Kolb Parkway	28.6	69	--	64	--
Block 1	Side Wall	Emil Kolb Parkway King Street	28.6 32.6	69 59	70	64 52	64
Block 2	Front Wall	King Street Emil Kolb Parkway	21.0 51.0	65 63	67	58 57	61
Block 3 (West Unit)	Front wall	King Street	47.2	56	--	49	--

* See Figure 2.

TABLE 3

PROPOSED RESIDENTIAL DEVELOPMENT

EMIL KOLB PARKWAY AND HARVEST MOON DRIVE

TOWN OF CALEDON

REGIONAL MUNICIPALITY OF PEEL

SUMMARY OF MINIMUM NOISE ABATEMENT MEASURES

Blocks (Units)	Air Conditioning[1]	Exterior Wall[2]*	Window[3]*	Acoustic Barrier[4]	Warning Clause[5]
Block 1 (all units)	Mandatory	Standard	Standard	No	A, C
Block 2 (all units)	Mandatory	Standard	Standard	No	A, C
Block 3 (all units)	Provision for Adding	Standard	Standard	No	B, D

* Based on preliminary calculations. See Section 5.1 for details.

See Notes to Table 3 on following page.

NOTES TO TABLE 3

1. Means must be provided to allow windows to remain closed for noise control purposes. For air cooled condenser units, the AHRI sound rating must not exceed 7.6 bels. The air cooled condenser units should be placed in a noise insensitive location which complies with municipal by-laws.

   Provision for adding central air conditioning would involve a ducted heating system sized to accommodate the addition of central air conditioning by the occupant at a later date. The air cooled condenser unit AHRI sound rating must not exceed 7.6 bels and should be placed in a noise insensitive location which complies with municipal by-laws.

2. Exterior Wall: Based on standard assumptions. See Section 5.1 for details.

3. Window: Based on standard assumptions. See Section 5.1 for details.

4. Acoustic barriers must be of a solid construction with no gaps and have a minimum surface density of 20 kg/m^2. See Section 5.2 for details.

5. Suggested Warning Clauses to be placed in the subdivision agreement and to be included in offers of purchase and sale or lease on designated blocks:

   A. "Purchasers/tenants are advised that despite the inclusion of noise control features in this development area and within the building units, noise due to increasing road traffic will continue to be of concern, occasionally interfering with the activities of the occupants as the sound levels may exceed the noise criteria of the Ontario Ministry of the Environment, Conservation and Parks."

   B. "Purchasers/tenants are advised that despite the inclusion of noise control features in this development area and within the building units, noise due to increasing road traffic may continue to be of concern, occasionally interfering with the activities of the occupants as the sound levels will exceed the noise criteria of the Ontario Ministry of the Environment, Conservation and Parks."

   C. "Purchasers/tenants are advised that the dwelling unit was fitted with a central air conditioning system in order to permit the closing of windows for noise control. (Note: locate air cooled condenser unit in a noise insensitive area and ensure that unit has a maximum AHRI rating of 7.6 bels for 3.5 tons or less)."

   D. "Purchasers/tenants are advised that the dwelling unit was fitted with a forced air heating system and the ducting, etc. sized to accommodate a central air conditioning unit. Air conditioning may be installed at the owner's option and cost."

6. A conventionally ventilated attic roof construction is satisfactory in all cases.

N.T.S.

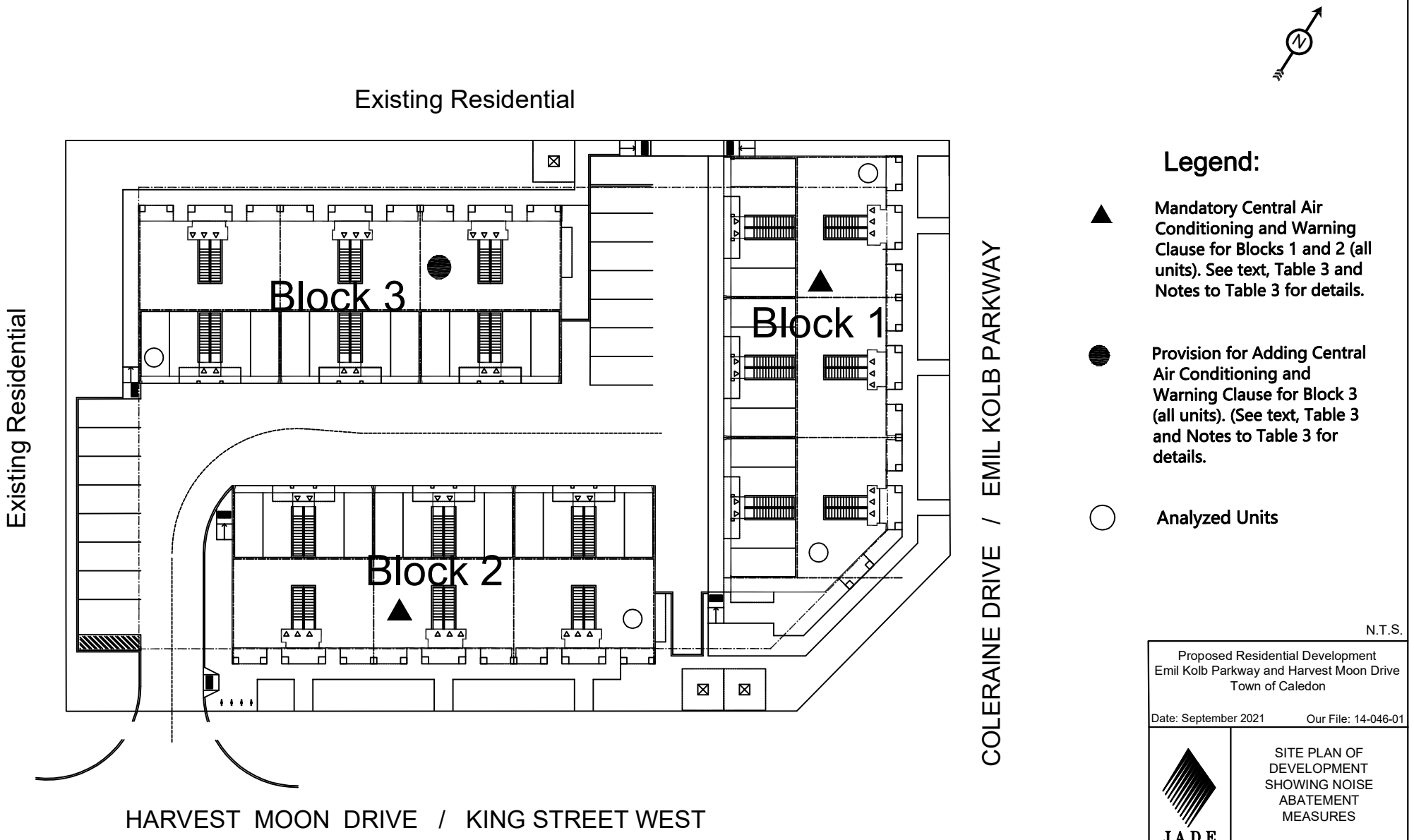
Proposed Residential Development
Emil Kolb Parkway and Harvest Moon Drive
Town of Caledon

Date: September 2021 **File: 14-046-01**

KEY PLAN

FIGURE 1

JADE ACOUSTICS


Existing Residential
Existing Residential
Block 3
Block 1
Block 2
COLERAINE DRIVE / EMIL KOLB PARKWAY
HARVEST MOON DRIVE / KING STREET WEST
Legend:
Mandatory Central Air Conditioning and Warning Clause for Blocks 1 and 2 (all units). See text, Table 3 and Notes to Table 3 for details.
Provision for Adding Central Air Conditioning and Warning Clause for Block 3 (all units). (See text, Table 3 and Notes to Table 3 for details.
Analyzed Units
N.T.S.
Proposed Residential Development
Emil Kolb Parkway and Harvest Moon Drive
Town of Caledon
Date: September 2021
Our File: 14-046-01
JADE ACOUSTICS
SITE PLAN OF DEVELOPMENT SHOWING NOISE ABATEMENT MEASURES
FIGURE 2

APPENDIX A

CORRESPONDENCE REGARDING ROAD TRAFFIC DATA

Date: July 5, 2021
From: Makarand P Kaushik, Jade Acoustics Inc.
Re: Traffic Data Request – King Street (0.3 KM East of Coleraine Drive)

Makarand,
As per your request, we are providing the following 2019 traffic data:

	Existing	Ultimate
24 Hour Traffic Volume	9,089	16,200
# of Lanes	2	2
Day/Night Split	91/9	91/9
Day Trucks (% of Total Volume)	4.32% Medium 0.66% Heavy	4.32% Medium 0.66% Heavy
Night Trucks (% of Total Volume)	5.91% Medium 0.45% Heavy	5.91% Medium 0.45% Heavy
Right-of-Way Width	30 meters	
Posted Speed Limit	60 km/h	

Please note:

1. The current volume is not the Annual Average Daily Traffic, but the averaged raw volumes over three data collection days. If you need the Annual Average Traffic Volume, please visit the Peel Open Data website below: http://opendata.peelregion.ca/data-categories/transportation/traffic-count-stations.aspx
2. The ultimate volume is the planned volume during a level of service 'D' where a 2 second vehicle headway and a volume to capacity ratio of 0.9 is assumed. Traffic signals and hourly variations in traffic are also incorporated into the ultimate volume.

If you require further assistance, please contact me at (905) 791-7800 ext. 4810.

Regards,

Tiggy Chen
Transportation Analyst, Transportation System Planning
Transportation Division, Public Works Services, Region of Peel
10 Peel Centre Drive, Suite B, 4th Floor
Brampton, ON L6T 4B9
W: (905) 791-7800 x4810 C: (647) 918-2827
E: tiggy.chen@peelregion.ca

Date: July 5, 2021
From: Makarand P Kaushik, Jade Acoustics Inc.
Re: Traffic Data Request – Emil Kolb Parkway (0.2 KM North of Chickadee Lane)

Makarand,
As per your request, we are providing the following 2019 traffic data:

	Existing	Ultimate
24 Hour Traffic Volume	11,683	32,400
# of Lanes	4	4
Day/Night Split	90/10	90/10
Day Trucks (% of Total Volume)	2.93% Medium 6.78% Heavy	2.93% Medium 6.78% Heavy
Night Trucks (% of Total Volume)	2.90% Medium 8.75% Heavy	2.90% Medium 8.75% Heavy
Right-of-Way Width	45 meters	
Posted Speed Limit	60 km/h	

Please note:

1. The current volume is not the Annual Average Daily Traffic, but the averaged raw volumes over three data collection days. If you need the Annual Average Traffic Volume, please visit the Peel Open Data website below: http://opendata.peelregion.ca/data-categories/transportation/traffic-count-stations.aspx
2. The ultimate volume is the planned volume during a level of service 'D' where a 2 second vehicle headway and a volume to capacity ratio of 0.9 is assumed. Traffic signals and hourly variations in traffic are also incorporated into the ultimate volume.

If you require further assistance, please contact me at (905) 791-7800 ext. 4810.

Regards,

Tiggy Chen
Transportation Analyst, Transportation System Planning
Transportation Division, Public Works Services, Region of Peel
10 Peel Centre Drive, Suite B, 4th Floor
Brampton, ON L6T 4B9
W: (905) 791-7800 x4810 C: (647) 918-2827
E: tiggy.chen@peelregion.ca

Makarand Kaushik

From: Chen, Tiggy <tiggy.chen@peelregion.ca>
Sent: July 5, 2021 11:38 AM
To: Makarand Kaushik
Cc: Aaron Keey
Subject: RE: Road Traffic information - HarvestOne Centre (Jade FIle: 14-046-01)
Attachments: EKPNorthOfKing - 20210705.pdf; KingEastOfColeraine - 20210705.pdf; ColeraineSouthOfKing - 20210705.pdf

Hi Makarand,

As requested, I have attached our 2019 traffic data for Emil Kolb Parkway north of King Street, King Street east of Coleraine Drive, and Coleraine Drive south of King Street. Let me know if there is anything else I can help you with.

Regards,

Tiggy Chen
Transportation Analyst
Transportation System Planning
Region of Peel
10 Peel Center Drive, Suite B, 4th Floor
Brampton, Ontario L6T 4B9
(905) 791-7800 x4810 | (647) 918-2827
tiggy.chen@peelregion.ca

Region of Peel
working with you

From: Chen, Tiggy
Sent: June 30, 2021 9:26 AM
To: 'Makarand Kaushik' <makarand@jadeacoustics.com>
Cc: Aaron Keey <aaron@jadeacoustics.com>
Subject: RE: Road Traffic information - HarvestOne Centre (Jade FIle: 14-046-01)

Hi Makarand,

Our team is currently busy with a high-priority project, so it may take a while for us to complete your request. We will let you know as soon as it is complete.

We can provide most of the information you requested; however, if you are looking for hourly traffic counts, these will need to be purchased from our traffic team. More information on that is available at Traffic data - Region of Peel (peelregion.ca).

Regards,

Tiggy Chen
Transportation Analyst
Transportation System Planning
Region of Peel
10 Peel Center Drive, Suite B, 4th Floor
Brampton, Ontario L6T 4B9
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tiggy.chen@peelregion.ca

Region of Peel
working with you

From: Makarand Kaushik <makarand@jadeacoustics.com>
Sent: June 29, 2021 4:24 PM
To: Chen, Tiggy <tiggy.chen@peelregion.ca>
Cc: Aaron Keey <aaron@jadeacoustics.com>
Subject: Road Traffic information - HarvestOne Centre (Jade FIle: 14-046-01)

Hello,

Jade Acoustics Inc. is completing a noise study in the Town of Caledon. The roadways of interest are Coleraine Drive, Emil Kolb Parkway and King Street West (in the area of these intersections) . As part of our review work, we kindly request the below noted information for King Street east of Coleraine Drive, Emil Kolb Parkway North of King street and Coleraine Drive south of King street.

1. ultimate AADT (Average Annual Daily Traffic volume);
2. projected growth if available;
3. number of lanes;
4. percentage of trucks;
5. ratio of medium trucks to heavy trucks;
6. day/night traffic split;
7. posted speed limit;
8. gradient of the road;
9. right-of-way width (R.O.W.)
10. Existing 24 Hour by hour traffic counts (if available)
11. any other pertinent information.

Attached is a Google Earth image with the Subject Site and the roadways of interest marked.

Any information you could provide would be greatly appreciated. Please forward this email to the appropriate contact if not received by the correct individual.

Should you have any questions, please call.

Regards,

Makarand P Kaushik, B,E., M.Tech, EIT.
Jade Acoustics Inc.
411 Confederation Parkway, Unit 19
Concord, Ontario
L4K0A8
T: 905-660-2444
F: 905-660-4110
Email: makarand@jadeacoustics.com
Website: www.jadeacoustics.com

APPENDIX B

ENVIRONMENTAL NOISE CRITERIA

ONTARIO MINISTRY OF THE ENVIRONMENT, CONSERVATION AND PARKS (MOE)

Reference: "Environmental Noise Guidelines Stationary and Transportation Sources – Approval and Planning", Publication NPC-300, August, 2013, released October 21, 2013 (updated final version # 22).

SOUND LEVEL CRITERIA FOR ROAD AND RAIL NOISE

TABLE C-1

Sound Level Limit for Outdoor Living Areas

Road and Rail

Time Period	L_{eq} (16) (dBA)
16 hr, 07:00 - 23:00	55

TABLE C-2

Indoor Sound Level Limits
Road and Rail

Type of Space	Time Period	L_{eq} (dBA)	
		Road	Rail
Living/dining, den areas of residences, hospitals, nursing homes, schools, daycare centres, etc.	07:00 – 23:00	45	40
Living/dining, den areas of residences, hospitals, nursing homes, etc. (except schools or daycare centres)	23:00 – 07:00	45	40
Sleeping quarters	07:00 – 23:00	45	40
	23:00 – 07:00	40	35

SOUND LEVEL CRITERIA FOR AIRCRAFT NOISE

TABLE C-3

Outdoor Aircraft Noise Limit

Time Period	NEF/NEP
24-hour	30

TABLE C-4

Indoor Aircraft Noise Limit
(Applicable over 24-hour period)

Type of Space	Indoor NEF/NEP*
Living/dining/den areas of residences, hospitals, nursing/retirement homes, schools, daycare centres, etc.	5
Sleeping Quarters	0

* The indoor NEF/NEP values in Table C-4 are used to determine acoustical insulation requirements based on the NEF/NEP contour maps.

SOUND LEVEL CRITERIA FOR STATIONARY SOURCES

TABLE C-5

Exclusion Limit Values of One-Hour Equivalent Sound Level (L_{eq}, dBA)
Outdoor Points of Reception

Time of Day	Class 1 Area	Class 2 Area	Class 3 Area	Class 4 Area
07:00 – 19:00	50	50	45	55
19:00 – 23:00	50	45	40	55

TABLE C-6

Exclusion Limit Values of One-Hour Equivalent Sound Level (L_{eq}, dBA)
Plane of Window of Noise Sensitive Spaces

Time of Day	Class 1 Area	Class 2 Area	Class 3 Area	Class 4 Area
07:00 – 19:00	50	50	45	60
19:00 – 23:00	50	50	40	60
23:00 – 07:00	45	45	40	55

TABLE C-7

Exclusion Limit Values for Impulsive Sound Level (L_{LM}, dBAI)
Outdoor Points of Reception

Time of Day	Actual Number of Impulses in Period of One-Hour	Class 1 Area	Class 2 Area	Class 3 Area	Class 4 Area
07:00 – 23:00	9 or more	50	50	45	55
	7 to 8	55	55	50	60
	5 to 6	60	60	55	65
	4	65	65	60	70
	3	70	70	65	75
	2	75	75	70	80
	1	80	80	75	85

TABLE C-8

Exclusion Limit Values of Impulsive Sound Level (L_{LM}, dBAI)
Plane of Window - Noise Sensitive Spaces (Day/Night)

Actual Number of Impulses in Period of One-Hour	Class 1 Area (07:00-23:00)/ (23:00-07:00)	Class 2 Area (07:00-23:00)/ (23:00-07:00)	Class 3 Area (07:00-19:00)/ (19:00-07:00)	Class 4 Area (07:00-23:00)/ (23:00-07:00)
9 or more	50/45	50/45	45/40	60/55
7 to 8	55/50	55/50	50/45	65/60
5 to 6	60/55	60/55	55/50	70/65
4	65/60	65/60	60/55	75/70
3	70/65	70/65	65/60	80/75
2	75/70	75/70	70/65	85/80
1	80/75	80/75	75/70	90/85

SUPPLEMENTARY SOUND LEVEL LIMITS

Indoor limits for transportation sources applicable to noise sensitive land uses are specified in Table C-2 and Table C-4. Table C-9 and Table C-10 are expanded versions of Table C-2 and Table C-4, and present guidelines for acceptable indoor sound levels that are extended to land uses and developments which are not normally considered noise sensitive. The specified values are maximum sound levels and apply to the indicated indoor spaces with the windows and doors closed. The sound level limits in Table C-9 and Table C-10 are presented as information, for good-practice design objectives.

TABLE C-9

Supplementary Indoor Sound Level Limits
Road and Rail

Type of Space	Time Period	L_{eq} (Time Period) (dBA)	
		Road	Rail
General offices, reception areas, retail stores, etc.	16 hours between 07:00 – 23:00	50	45
Living/dining areas of residences, hospitals, schools, nursing/retirement homes, daycare centres, theatres, places of worship, libraries, individual or semi-private offices, conference rooms, reading rooms, etc.	16 hours between 07:00 – 23:00	45	40
Sleeping quarters of hotels/motels.	8 hours between 23:00 – 07:00	45	40
Sleeping quarters of residences, hospitals, nursing/retirement homes, etc.	8 hours between 23:00 – 07:00	40	35

TABLE C-10

Supplementary Indoor Aircraft Noise Limit
(Applicable over 24-hour period)

Type of Space	Indoor NEF/NEP*
General offices, reception areas, retail stores, etc.	15
Individual or semi-private offices, conference rooms, etc.	10
Living/dining areas of residences, sleeping quarters of hotels/motels, theatres, libraries, schools, daycare centres, places of worship, etc.	5
Sleeping quarters of residences, hospitals, nursing/retirement homes, etc.	0

* The indoor NEF/NEP values in Table C-10 are not obtained from NEF/NEP contour maps. The values are representative of the indoor sound levels and are used as assessment criteria for the evaluation of acoustical insulation requirements.

APPENDIX C

SAMPLE CALCULATION OF SOUND LEVEL

APPENDIX C-1
SAMPLE CALCULATION OF SOUND LEVEL

FILE: 14-046-01
NAME: Harvest One
REFERENCE DRAWINGS: Site Plan
LOCATION: Block 1 (south unit), 7.5 m above grade, Side wall

Noise Source:	Emil Kolb Parkway	King Street
Segment Angle:	-90 to 90	-90 to 0
Time Period:	16 hr. (day)	16 hr. (day)
Distance (m):	28.60	32.60

CALCULATION OF PREDICTED SOUND LEVELS*

Reference Leq (dBA)*:	74.8	68.31
Height and/or Distance Correction (dBA):	-4.13	-5.06
Finite Element Correction (dBA):	-1.13	-4.18
Allowance for Future Growth (dBA):	incl.	incl.
LeqDay (dBA):	69.54	59.07
Combined LeqDay (dBA):	69.91	

* Leq determined using the computerized model of the Ministry of the Environment Noise Assessment Guidelines, STAMSON Version 5.04 (ORNAMENT). See attached printouts.

```
STAMSON 5.0        NORMAL REPORT        Date: 19-08-2021 12:48:44
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT


Filename: bk1swd.te            Time Period: Day/Night 16/8 hours
Description: blk 1 south unit - Facade - Emil Kolb and King

Road data, segment # 1: Emil Kolb (day/night)
----------------------------------------------
Car traffic volume  : 26329/2925  veh/TimePeriod  *
Medium truck volume :   854/95    veh/TimePeriod  *
Heavy truck volume  :  1977/220   veh/TimePeriod  *
Posted speed limit  :    70 km/h
Road gradient       :     1 %
Road pavement       :     1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

    24 hr Traffic Volume (AADT or SADT):  32400
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   2.93
    Heavy Truck  % of Total Volume     :   6.78
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 1: Emil Kolb (day/night)
-------------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  28.56 / 28.56  m
Receiver height           :   7.50 / 7.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Road data, segment # 2: King Street (day/night)
-----------------------------------------------
Car traffic volume  : 14008/1385  veh/TimePeriod  *
Medium truck volume :   637/63    veh/TimePeriod  *
Heavy truck volume  :    97/10    veh/TimePeriod  *
Posted speed limit  :    70 km/h
Road gradient       :     1 %
Road pavement       :     1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

    24 hr Traffic Volume (AADT or SADT):  16200
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   4.32
    Heavy Truck  % of Total Volume     :   0.66
    Day (16 hrs) % of Total Volume     :  91.00

Data for Segment # 2: King Street (day/night)
-------------------------------------------
Angle1   Angle2           : -90.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  32.66 / 32.66  m
Receiver height           :   7.50 / 7.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

Results segment # 1: Emil Kolb (day)

Source height = 1.61 m

ROAD (0.00 + 69.54 + 0.00) = 69.54 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.48	74.80	0.00	-4.13	-1.13	0.00	0.00	0.00	69.54

Segment Leq : 69.54 dBA

Results segment # 2: King Street (day)

Source height = 0.90 m

ROAD (0.00 + 59.07 + 0.00) = 59.07 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.50	68.31	0.00	-5.06	-4.18	0.00	0.00	0.00	59.07

Segment Leq : 59.07 dBA

Total Leq All Segments: 69.91 dBA

APPENDIX C-2
SAMPLE CALCULATION OF PREDICTED SOUND LEVELS

FILE: 14-046-01
NAME: Harvest One
REFERENCE DRAWINGS: Site Plan
LOCATION: Block 1 (south unit), 7.5 m above grade, Side wall

Noise Source:	Emil Kolb Parkway	King Street
Segment Angle:	-90 to 90	-90 to 0
Time Period:	8 hr. (Night)	8 hr. (Night)
Distance (m):	28.60	32.60

CALCULATION OF PREDICTED SOUND LEVELS*

Reference Leq (dBA)*:	69.04	61.55
Height and/or Distance Correction (dBA):	-4.12	-5.07
Finite Element Correction (dBA):	-1.12	-4.19
Allowance for Future Growth (dBA):	incl.	incl.
LeqDay (dBA):	63.79	52.3
Combined LeqDay (dBA):	64.09	

* Leq determined using the computerized model of the Ministry of the Environment Noise Assessment Guidelines, STAMSON Version 5.04 (ORNAMENT). See attached printouts.

STAMSON 5.0 NORMAL REPORT Date: 19-08-2021 12:50:18
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: bk1swn.te Time Period: Day/Night 16/8 hours
Description: blk 1 south unit - Facade - Emil Kolb and King

Road data, segment # 1: Emil Kolb (day/night)

Car traffic volume : 25763/2863 veh/TimePeriod *
Medium truck volume : 846/94 veh/TimePeriod *
Heavy truck volume : 2552/284 veh/TimePeriod *
Posted speed limit : 70 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 32400
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.90
Heavy Truck % of Total Volume : 8.75
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Emil Kolb (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 28.56 / 28.56 m
Receiver height : 7.50 / 7.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: King Street (day/night)

Car traffic volume : 13804/1365 veh/TimePeriod *
Medium truck volume : 871/86 veh/TimePeriod *
Heavy truck volume : 66/7 veh/TimePeriod *
Posted speed limit : 70 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 16200
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 5.91
Heavy Truck % of Total Volume : 0.45
Day (16 hrs) % of Total Volume : 91.00

Data for Segment # 2: King Street (day/night)

Angle1 Angle2 : -90.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 32.66 / 32.66 m
Receiver height : 7.50 / 7.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

```
Results segment # 1: Emil Kolb (night)
-------------------------------------

Source height = 1.72 m

ROAD (0.00 + 63.79 + 0.00) = 63.79 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.47  69.04   0.00  -4.12  -1.12   0.00   0.00   0.00  63.79
-------------------------------------------------------------------------------

Segment Leq : 63.79 dBA

Results segment # 2: King Street (night)
----------------------------------------

Source height = 0.83 m

ROAD (0.00 + 52.30 + 0.00) = 52.30 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90      0   0.50  61.55   0.00  -5.07  -4.19   0.00   0.00   0.00  52.30
-------------------------------------------------------------------------------

Segment Leq : 52.30 dBA


Total Leq All Segments: 64.09 dBA
```

APPENDIX D

SAMPLE CALCULATION OF ARCHITECTURAL COMPONENT SELECTION

APPENDIX D-1
SAMPLE CALCULATION OF ARCHITECTURAL COMPONENT SELECTION*

FILE: 14-046-01
NAME: Harvest One
REFERENCE DRAWINGS: Architectural Plans
LOCATION: Block 1, Unit 3A-4, Third Storey Master Bedroom (Daytime)

ROAD

Wall area as a percentage of floor area:	Front:	16.3%
	Side:	74.5%
Window area as a percentage of floor area:	Front:	38.2%
	Side:	- -

Number of components:	3			
Outdoor Leq:	Front:	70 (+3 for reflections)	=	73 dBA
	Side:	67 (+3 for reflections)	=	70 dBA
Indoor Leq:	45 dBA			
Noise Reduction (dBA):	Front:	28		
	Side:	25		
Noise Spectrum:	Road/Distant Aircraft		Angle Correction:	0
Absorption:	Medium			

APPROPRIATE ELEMENTS

		STC Rating
Wall	Front	STC 39**
	Side	STC 39**
Window	Front	STC 28**

* Based upon "Controlling Sound Transmission into Buildings", Building Practice Note 56 by National Research Council of Canada, September, 1985.

** Standard construction.