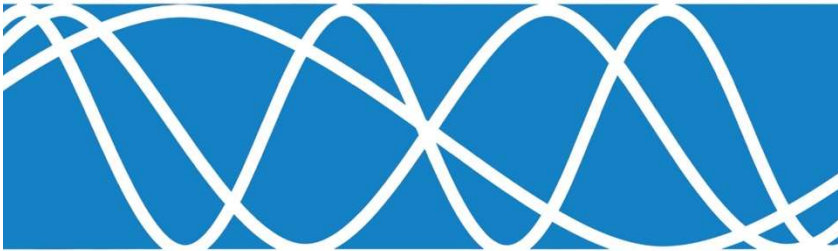


Noise Feasibility Study

**Proposed Mixed-Use
Development
The Gateway Centre
Highway 124 & Poplar
Sideroad
Collingwood, Ontario**

July 7, 2025
HGC Project #: 02400511



Prepared for:

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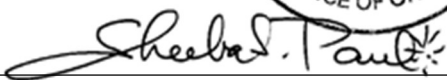
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Noise Feasibility Study,
The Gateway Centre,
Highway 124 & Poplar Sideroad,
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Ver.	Date	Version Description	Prepared By
1.0	September 11, 2024	Noise Feasibility Study prepared as part of the planning and approvals process.	Y. Lo
2.0	July 7, 2025	Revised Noise Feasibility Study based on updated plans and to address peer review comments.	A. Rogers/ S. Paul

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1 INTRODUCTION AND SUMMARY

HGC Engineering was retained by Charis Developments Ltd. to conduct a noise feasibility study for a mixed-use development to be located at the northeast corner of Hurontario Street and Poplar Sideroad, in Collingwood, Ontario. The site is proposed to include eight buildings, including retail, residential and office uses. This study is required for the OPA and ZBLA approvals process.

This study has been revised to reflect an updated site plan prepared by Richard Ziegler Architect Inc. dated June 17, 2025 and to address peer review comments from R. Bouwmeester & Associates dated November 7, 2022. Responses to the peer review comments are included in Appendix D.

The primary sources of transportation noise are road traffic on Hurontario Street (Highway 124) and Poplar Sideroad. Traffic data obtained from County of Simcoe personnel was used to predict future sound levels at the residential and office facades. The predicted sound levels were compared to the guidelines of the Ministry of the Environment, Conservation and Parks (MECP) and the Municipality.

The predictions indicate that future traffic sound levels will exceed MECP guidelines at the proposed residential and office buildings. Central air conditioning and upgraded building constructions will be required for the proposed mixed-use/residential building adjacent to Hurontario Street. An alternative means of ventilation to open windows will be required for the proposed office/retail building and will likely include air conditioning in any event. Warning clauses are required to inform future tenants of the sound level excesses and the proximity to proposed commercial/retail uses.

There are proposed retail uses to the south of the proposed office/residential buildings, including a grocery store with two loading bays and retail buildings (including restaurant uses) each with one loading area. Two of the retail buildings include drive-throughs. The sound emissions from the rooftop



mechanical equipment, trucking activities, cars idling at the drive-throughs and the speakerboards have been evaluated. An existing small engine repair facility is located to the west. Detailed information regarding the type or model of the proposed rooftop mechanical units were not known at the time of the study, but reasonable estimates of the size and tonnage have been used based on experience with similar projects, and the associated manufacturer's sound data was used to determine the sound levels associated with the proposed buildings on existing/proposed dwelling units.

A 3D computer model of the area was created, using acoustic modelling software, in order to predict the sound levels at the locations of the proposed buildings and the existing/future dwelling units. The results indicate that the proposed development is feasible at this site with noise mitigation measures incorporated into the design of the site and the commercial buildings. Daytime and nighttime stationary sound levels are in excess of the MECP guideline limits at the facades of the existing and proposed residential uses. There are options to mitigate stationary noise at the proposed residential building and/or at the commercial/retail/grocery store. These options include noise barriers for rooftop mechanical equipment, limiting delivery times or trucking routes, and/or design of the proposed mixed-use/residential building such that portions of the east facades include no windows to sensitive spaces.



2 SITE DESCRIPTION AND SOURCES OF SOUND

A key plan showing the location of the proposed mixed-use development is attached as Figure 1. The development is named The Gateway Centre and is located on the northeast corner of Hurontario Street and Poplar Sideroad, in the Town of Collingwood, Ontario. A site plan dated June 17, 2025, prepared by Richard Ziegler Architect Inc. is included as Figure 2. The development will consist of eight buildings, including retail, residential and office uses.

A site visit was conducted by HGC Engineering personnel in June 2024 to make observations of the acoustic environment and to identify the significant noise sources in the vicinity. The primary sources of transportation noise are road traffic on Hurontario Street (Highway 124) and Poplar Sideroad. The site is currently occupied by one dwelling unit which will be demolished to make way for the proposed development. The surrounding lands consist predominantly of existing/future residential uses, a church to the north and existing commercial/retail buildings (including Walkers Small Motors, a small engine repair facility) to the west.

Since the previous noise study report was completed, there is a new gas station, Tim Horton's and carwash to the southwest. It is noted that due to the significant separation distance to the proposed mixed-use/residential building (greater than 150 m), significant background traffic sound levels from Hurontario Street, and the presence of an existing residence neighbouring these uses in the direction of the site, noise from these new facilities are not expected to significantly impact the proposed development and are not considered further in this study.

A noise warning clause is recommended in Section 5 to inform future occupants of the nearby commercial facilities in the area and that sounds may be audible at times.

3 TRAFFIC NOISE ASSESSMENT

3.1 Road Traffic Noise Criteria

Guidelines for acceptable levels of road traffic noise impacting residential developments are given in the MECP publication NPC-300, “Environmental Noise Guideline Stationary and Transportation Sources – Approval and Planning”, release date October 21, 2013 and are listed in Table 1 below. The values in Table 1 are energy equivalent (average) sound levels [L_{EQ}] in units of A-weighted decibels [dBA].

Table 1: MECP Traffic Noise Criteria [dBA]

Space	Daytime L_{EQ} (16 hour)	Nighttime L_{EQ} (8 hour)
Outdoor Living Areas	55 dBA	--
Inside Living/Dining Rooms	45 dBA	45 dBA
Inside Bedrooms	45 dBA	40 dBA
Inside individual or semi-private offices	45 dBA	--

Daytime refers to the period between 07:00 and 23:00, while nighttime refers to the period between 23:00 and 07:00. The term “Outdoor Living Area” (OLA) is used in reference to an outdoor patio, a backyard, a terrace or other areas where passive recreation is expected to occur. Balconies and terraces that are less than 4 m in depth are not considered to be outdoor living areas under MECP guidelines, and accordingly the noise criteria are not applicable there. Large private terraces require consideration only if they are the only OLA for the occupant; in general. Common outdoor amenity terraces associated with high-rise buildings are the only OLA that require consideration.

The guidelines in the MECP publication allow the daytime sound levels in an Outdoor Living Area to be exceeded by up to 5 dBA, without mitigation, if warning clauses are placed in the purchase and rental agreements to the property. Where OLA sound levels exceed 60 dBA, physical mitigation is required to reduce the OLA sound level to below 60 dBA and as close to 55 dBA as technically, economically, and administratively practical.

Central air conditioning should be implemented if the daytime sound level in the plane of an office, bedroom or living/dining room window is greater than 65 dBA or nighttime sound levels outside bedroom or living/dining room windows exceed 60 dBA. If the daytime sound level in the plane of an office, bedroom or living/dining room window is greater than 55 dBA and less than or equal to 65 dBA, the dwelling should be designed with a provision for the installation of central air conditioning in the future, at the occupant's discretion.

Building components such as walls, windows and doors must be designed to achieve indoor sound level criteria when the plane of window nighttime sound level is greater than 60 dBA or the daytime sound level is greater than 65 dBA due to road traffic noise.

Warning clauses are required to notify future residents of possible excesses when nighttime sound levels exceed 50 dBA at the plane of the bedroom/living/dining room window and daytime sound levels exceed 55 dBA in the outdoor living area and at the plane of the bedroom/living/dining room window due to road traffic.

3.2 Road Traffic Data

Road traffic data for Hurontario Street and Poplar Sideroad was obtained from the County of Simcoe in the form of a Turning Movement Count (TMC). The traffic data was projected to the year 2035 using a conservative estimate of 2.5% growth per year. A commercial vehicle percentage of 1.2% medium trucks and 19.1% heavy trucks was calculated for Hurontario Street. A commercial vehicle percentage of 1.1% medium trucks and 21.0% heavy trucks was calculated for Poplar Sideroad. A posted speed limit of 60 km/h and 50 km/h and was used for Poplar Sideroad and Hurontario Street, respectively. A day/night split of 90%/10% was used for both roads.

Table 2 below summarizes the road traffic data used in the analysis. Road traffic information is included in Appendix A.

Table 2: 2035 Projected Road Traffic Data

Roadway	AADT	Day / Night Split [%]	Trucks Percentage (%)		Speed Limit [km/h]
			Medium	Heavy	
Hurontario Street (Highway 124)	14,548	90 / 10	1.2	19.1	50
Poplar Sideroad	18,541	90 / 10	1.1	21.0	60

3.3 Traffic Noise Predictions

To assess the levels of road traffic noise which will impact the proposed residential and office buildings in the future, predictions were made using STAMSON version 5.04, a computer algorithm developed by the MECP. STAMSON outputs are included in Appendix B.

Predictions of the traffic sound levels were made at the top-storey building façades. Prediction locations are indicated in Figure 2. The results of the predicted sound levels at each of the proposed buildings are summarized in Table 3.

Table 3: Predicted Future Traffic Sound Levels Without Mitigation [dBA]

Prediction Location	Building	Description	Daytime L _{EQ} (16 hour)	Nighttime L _{EQ} (8 hour)
[A]	3 (Proposed Mixed-Use/Residential Building)	West Façade	70	63
[B]		North Façade	66	60
[C]		East Façade	61	54
[D]		South Façade	68	62
[E]		Rooftop Amenity Area	69*	--
[F]	4 (Proposed Office/Retail Building)	West Façade	65	--

Note: *Assuming a standard minimum 1.07 m high solid parapet around the area.

3.4 Traffic Noise Recommendations

The predictions indicate that the traffic sound levels are expected to exceed MECP limits during daytime hours and nighttime hours at the proposed mixed-use/residential and office buildings. The following discussion and recommendations are provided.

3.4.1 Outdoor Living Areas

The proposed residential units within Building 3 may have balconies and patios that are less than 4 m in depth. These areas are not considered to be outdoor amenity areas under MECP guidelines and noise mitigation measures are not required.

The future sound levels in the proposed rooftop amenity area (prediction location [E]) will be 69 dBA, 14 dBA in excess of the MECP's limit of 55 dBA, assuming a 1.07 m high solid parapet or wall. A 2.7 m high acoustic barrier will reduce sound levels to 60 dBA. Consideration should be given in detail design to integrate smaller structures or landscaping features to create quieter pockets or zones. Alternatively, the outdoor amenity area could be reduced in size or relocated to an area that experiences greater shielding from the proposed or adjacent buildings such as the east side of the building.

The acoustic barrier should be of a solid construction with a surface density of no less than 20 kg/m². It may be constructed from a variety of materials such as wood, brick, pre-cast concrete, tempered glass or other concrete/wood composite systems provided that it is free of gaps or cracks. The heights and extents of the barriers should be chosen to reduce the sound levels in the OLA's to below 60 dBA and as close to 55 dBA as is technically, administratively and economically feasible, subject to the approval of the municipality respecting any applicable height by-laws.



3.4.2 Indoor Living Areas and Ventilation Requirements

Central Air Conditioning

The predicted daytime sound levels outside most of the façades of the proposed mixed-use/residential building (Prediction Location [A], [B], [D]) will be greater than 65 dBA. To address these excesses, the MECP guidelines recommend that these dwelling units be equipped with central air conditioning systems, so that the windows can remain closed.

Provision for the Future Installation of Air Conditioning by the Occupant

At the west façade of the proposed office building (Prediction Location [F]), the predicted daytime sound levels are between 56 dBA and 65 dBA during the daytime. To address these excesses, the MECP guidelines recommend that these units be equipped with forced air ventilation systems, with ducts large enough to allow the future installment of air conditioning at the occupant's discretion. The inclusion of central air conditioning will meet and exceed these requirements.

These buildings are indicated in Figure 3. Window or through-the-wall air conditioning units are not recommended because of the noise they produce and because the units penetrate through the exterior wall which degrades the overall sound insulating properties of the envelope. Acceptable units are those housed in their own closet with an access door for maintenance. The location, installation and sound ratings of the outdoor air conditioning devices should minimize noise impacts and comply with criteria of MECP publication NPC-300, as applicable.

3.4.3 Building Façade Constructions

Future road traffic sound levels at the west, north and south façades of the proposed mixed-use/residential building (Prediction Location [A], [B], [D]) will exceed daytime levels of 65 dBA or nighttime levels of 60 dBA. MECP guidelines recommend that the windows and walls be designed so that the indoor sound levels comply with MECP noise criteria.



For windows at the west façade of the proposed mixed-use/residential building (prediction location [A]), based on the possibility of sound entering the buildings through windows and walls, any well sealed thermopane unit having a Sound Transmission Class (STC) rating of 30, that is two 3 mm panes, and a 13 mm inter-pane gap will provide sufficient noise insulation as long as the window to floor area ratio is less than 25% for living/dining rooms and 40% for bedrooms.

For windows at the north façade of the proposed mixed-use/residential building (prediction location [B]), based on the possibility of sound entering the buildings through windows and walls. Any well sealed thermopane unit having a Sound Transmission Class (STC) rating of 30, that is two 3 mm panes, and a 13 mm inter-pane gap will provide sufficient noise insulation as long as the window to floor area ratio is less than 80% for living/dining rooms and 63% for bedrooms.

For windows at the south façade of the proposed mixed-use/residential building (prediction location [D]), based on the possibility of sound entering the buildings through windows and walls. Any well sealed thermopane unit having a Sound Transmission Class (STC) rating of 30, that is two 3 mm panes, and a 13 mm inter-pane gap will provide sufficient noise insulation as long as the window to floor area ratio is less than 40% for living/dining rooms and 50% for bedrooms.

The remaining buildings in the proposed development will have predicted sound levels less than 60 dBA during the nighttime and less than 65 dBA during daytime. Thus, any exterior wall and double glazed window construction meeting the minimum requirements of the OBC will provide adequate sound insulation.

Further Analysis

When detailed floor plans and building elevations are available for the proposed mixed-use/residential building, an acoustical consultant should review the drawings to refine the glazing constructions based on actual window to floor area ratios.



4 IMPACT OF THE DEVELOPMENT ON ITSELF

Section 5.8.1.1 of the Ontario Building Code (OBC), released on January 1, 2020, specifies the minimum required sound insulation characteristics for demising partitions, in terms of Sound Transmission Class (STC) or Apparent Sound Transmission Class (ASTC) values. In order to maintain adequate acoustical privacy between separate suites in a multi-tenant building, inter-suite walls must meet or exceed STC-50 or ASTC-47. Suite separation from a refuse chute or elevator shaft must meet or exceed STC-55. In addition, it is recommended that the floor/ceiling constructions separating suites from any amenity or commercial spaces also meet or exceed STC-55. Tables 1 and 2 in Section SB-3 of the Supplementary Guideline to the OBC provide a comprehensive list of constructions that will meet the above requirements.

Tarion's Builder Bulletin B19R requires the internal design of condominium projects to integrate suitable acoustic features to insulate the suites from noise from each other and amenities in accordance with the OBC, and limit the potential intrusions of mechanical and electrical services of the building on its residents. If B19R certification is needed, an acoustical consultant is required to review the mechanical and electrical drawings and details of demising constructions and mechanical/electrical equipment, when available, to help ensure that the noise impact of the development on itself is maintained within acceptable levels.

5 WARNING CLAUSES

The MECP guidelines recommend that warning clauses be included in the property and tenancy agreements and offers of purchase and sale for all units, buildings and lands with anticipated road traffic sound levels excesses. Examples are provided below. The clauses are numbered as per NPC-300.

Suggested wording for future dwellings with sound level excesses.



Type A:

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, Conservation and Parks.

Suggested wording for future dwellings with mitigation.

Type B:

Purchasers/tenants are advised that despite the inclusion of noise control features in the development and within the building units, sound levels due to increasing road traffic may on occasions 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.

Suggested wording for future dwellings requiring the provision for adding air conditioning is given below.

Type C:

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.

Suitable wording for future dwellings requiring central air conditioning systems is given below.

Type D:

This dwelling unit has been supplied with a central air conditioning system which 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, Conservation and Parks. (Note: the location and installation of the outdoor air conditioning device should be done so as to minimize the noise impacts and comply with criteria of MECP publication NPC-300.)

Suitable wording to inform future residents of the nearby commercial facilities and that sounds from these facilities may at times be audible.

Type E:

Purchasers/tenants are advised that due to the proximity of the nearby retail and/or commercial facilities, noise from the facilities may at times be audible.

These sample clauses are provided by the MECP as examples and can be modified by the Municipality as required.

6 STATIONARY SOURCE ASSESSMENT

There are proposed retail uses in the development including restaurants with drive-throughs, a grocery store and other retail uses each with their own loading areas. Office uses are also proposed. The significant noise sources associated with the proposed commercial/retail uses that have potential impact on existing and proposed sensitive uses include the rooftop mechanical equipment, idling vehicles in the drive-through queue, speakerboards, and trucking activities at loading areas or loading docks. There is also an existing small engine repair facility to the west of Hurontario Street with potential noise from the service bay.

6.1 Criteria Governing Stationary Noise Sources

An industrial or commercial facility is classified in MECP guidelines as a stationary source of sound (as opposed to sources such as traffic or construction, for example) for noise assessment purposes. The proposed development is located in an semi-urban acoustical environment classified as Class 2 according to MECP guidelines, which can be characterized by the background sound level being dominated by traffic and human activity during the daytime hours.

The façade of a residence, or any associated usable outdoor area, is considered a sensitive point of reception. NPC-300 stipulates that the exclusionary minimum sound level limit for a stationary noise source in a semi-urban Class 2

area is 50 dBA during daytime (07:00 to 19:00) and evening (19:00 to 23:00) hours, and 45 dBA during nighttime hours (23:00 to 07:00). If the background sound levels due to road traffic exceed the exclusionary minimum limits, then the background sound level becomes the criterion. The background sound level is defined as the sound level that is present when the stationary source under consideration is not operating, and may include traffic noise and natural sounds. For the facades with exposure to Hurontario Street and Poplar Sideroad, it is likely to be impacted by elevated traffic noise.

Commercial activities such as the occasional movement of customer vehicles, occasional deliveries, and garbage collection are not of themselves considered to be significant noise sources in the MECP guidelines. Accordingly, these sources have not been considered in this study. Noise from safety equipment (e.g. back-up beepers) are also exempt from consideration.

The MECP guidelines stipulate that the sound level impact during a “predicable worst case hour” be considered. This is defined to be an hour when a typically busy “planned and predictable mode of operation” occurs at the subject facility or facilities, coincident with a period of minimal background sound. Compliance with MECP criteria generally results in acceptable levels of sound at residential receptors although there may still be residual audibility during periods of low background sound.

6.2 Minimum Hour Background Sound Levels at the Hotel Receptors

Typical ambient sound levels can be determined through prediction of road traffic volumes in areas where traffic sound is dominant. Where it can be demonstrated that the hourly ambient sound levels are greater than the exclusionary minimum limits listed above, the criterion becomes the lowest predicted one-hour LEQ sound level during each respective period. Due to the proximity of Poplar Sideroad to the south and Hurontario Street to the west, traffic volumes are significant on much of the site resulting in elevated criteria.

Since hourly data was not available for Poplar Sideroad and Hurontario Street, a generic 24 hour traffic pattern was applied to the roadways based on the existing AADT volumes provided by the MTO and the Region. This generic pattern for weekday urban traffic was developed by the US Department of Transportation, Federal Highways Administration contained in the report titled "Summary of National and Regional Travel Trends 1970 – 1995", dated May 1996. The resulting minimum hourly volumes based on the pattern are summarized in Table 4. Truck percentages were calculated. The evening traffic volume was used to represent the daytime minimum.

Table 4: Minimum Hourly Volumes Used in Analysis for Regional Roads

Receptor	Daytime (10:00-11:00)	Evening (22:00-23:00)	Nighttime (3:00-4:00)
Percentage of AADT	5.1%	2.6%	0.6%
Hurontario Street	500	255	39
Poplar Sideroad	637	325	50

To assess the levels of background road traffic noise which will impact the proposed building, noise predictions were made using a numerical computer modelling package (*Cadna-A version 2025 build: 209.5501*). The sound level predictions were conducted at the top-storey façades and the recommended criteria during the daytime and nighttime at each receptor are shown in Tables 5 and 6.

Table 5: Predicted Minimum Hourly Sound Levels and Noise Level Criteria at the Existing Sensitive Receptors [dBA]

Receptor	Description	Daytime/Evening (07:00-23:00)	Nighttime (23:00-07:00)
R1	Existing Single-Storey Dwelling Unit	65	45
R2	Existing 2-Storey Dwelling Unit	53	45
R3	Existing 2-Storey Dwelling Unit	50	45
R4	Existing 2-Storey Dwelling Unit	50	45
R5	Existing 2-Storey Dwelling Unit	54	45
R6	Future Dwelling Unit	68	45

Table 6: Predicted Minimum Hourly Sound Levels and Noise Level Criteria at the Proposed Mixed-Use/Residential Building Façades [dBA]

Building	Description	Daytime/Evening (07:00-23:00)	Nighttime (23:00-07:00)
3 (Proposed Mixed-Use Building)	East Façade	50	45
	North Façade	55	45
	West Façade	62	45
	South Façade	56	45

Compliance with MECP criteria generally results in acceptable levels of sound at sensitive receptors although there may be residual audibility during periods of low background sound.

6.3 Stationary Noise Source Analysis

MECP guidelines stipulates that an assessment consider the potential noise impact during a “predictable worst case hour” of operation. The drive-through restaurants (Buildings 1 and 7 in Figure 2) were assumed to have a maximum volume of about 15 vehicles idling in the queuing lane in the drive-throughs. An order would be placed at the speakerboard at a rate of one every 30 seconds. HGC Engineering has observed and measured sound associated with numerous similar drive-through facilities and found that the speakerboard is typically



active for 10 seconds per order. The sound of idling vehicles was based on standard published sound emission levels (U.S. Department of Transportation, FHWA reference text).

It is unclear whether sound from the drive-through speakerboard would best be classified as tonal, but as a conservative approach, a tonal penalty has been included in our analysis to account for the distinctive sound character and potentially increased audibility of the amplified voice through the speakerboard. The source levels associated with the equipment and activities are listed in Table 7 below in terms of sound power level.

As of the issue date of this report, the small engine repair facility to the west of Hurontario Street operates during the daytime hours only (08:00 – 17:30).

Table 7: Source Sound Power Levels [dB re 10-12 W]

Source	ID	Octave Band Centre Frequency [Hz]							
		63	125	250	500	1k	2k	4k	8k
Make-up Air Unit	MUA	81	78	84	80	79	77	72	67
Exhaust Fan	EF	90	86	80	76	73	72	73	61
Drive-thru Speakerboard*	SP	80	75	72	86	83	81	68	53
Low Speed or Idling Car (Each)	CAR	92	90	86	76	72	71	68	58
Carrier 48LC06	5T	88	83	76	74	71	67	64	60
Carrier 48LC12	10T	89	86	83	81	79	74	70	65
CES MPU-050	50T	104	99	95	94	89	86	83	82
RAUCC Condensing Unit	CON	97	92	92	94	91	89	87	85
Tractor Trailer Engine Idle	IDL	96	91	88	88	91	90	81	70
Tractor Trailer Acceleration	ACC	108	90	92	90	94	91	84	77
Garbage Compactor	GARB	101	95	88	81	77	75	74	67
Reefer	RF	71	64	55	54	52	50	44	36
Repair/Service Bay (i.e. air tools)	BAY	80	79	82	84	87	85	85	88

Notes: The above drive-thru speakerboard sound power specification equates to a sound pressure level of 83 dBA at 1.5 meters from the speaker, while the speaker is active.

* Includes a 5 dB tonal penalty

The above sound levels were used as input to a predictive computer model. The software used for this purpose (*Cadna-A version 2025 build: 209.5501*) is a computer implementation of ISO Standard 9613-2.2 "Acoustics - Attenuation of



Sound During Propagation Outdoors.” The ISO method accounts for reduction in sound level with distance due to geometrical spreading, air absorption, ground attenuation and acoustical shielding by intervening structures such as barriers.

The following information and assumptions were used in the analysis.

- The height of the retail building with offices above (Building 4) is 11.0 m. The height of the grocery store (Building 5) is 7.16 m. The height of the remaining proposed retail/commercial buildings are indicated as 7.0 m.
- The grocery store has two loading bays and the remaining proposed retail buildings each have one loading bay.
- The small engine repair facility has one repair door.
- The proposed noise sources and noise sensitive receptors are indicated in Figure 4. The green crosses represent noise sources such as rooftop HVAC equipment or a car idling or truck engine idling or reefer unit idling. The rooftop equipment are assumed to be Carrier models at 1.5 m in height. The exhaust fans were assumed to be 0.6 m in height. The height of the reefer is 2.5 m. Sound data was obtained from HGC project files and manufacturer’s information.
- A global ground absorption of 0.25.
- One order of reflection.

We have considered typical worst-case (busiest hour) scenarios for each time period to be as follows:

Assumed daytime worst-case hour scenario:

- All rooftop equipment operating continuously at full capacity;
- Garbage compactors operate for 20 minutes in an hour;
- The drive-throughs each have fifteen cars in the queue;
- Cars order from the speakerboards at a rate of one every 30 seconds (10 seconds per order) for 20 minutes out of an hour;
- Two trucks arrive and depart the loading docks for the proposed grocery store;
- One truck arrives and departs the loading dock for the proposed retail buildings;
- At the grocery store loading areas, trucks are assumed to idle engines for 10 minutes an hour with refrigeration units. Each refrigeration unit (“reefer”) on the trucks is assumed to operate continuously for 60 minutes in an hour;
- For the uses other than the grocery store, trucks idle engines in each of the delivery spaces for 10 minutes in an hour;
- One repair bay in use for 15 minutes.

Assumed nighttime worst-case hour scenario:

- All rooftop equipment operating on a 50% duty cycle;
- Garbage compactors do not operate;

- The drive-throughs each have seven cars in the queue;
- Cars order from speakerboards at a rate of one every 30 seconds (10 seconds per order) for 10 minutes out of an hour;
- There is no tractor trailer activity for the proposed retail buildings or the grocery store, that is, no deliveries to occur during the nighttime hours;
- Repair bay not in use.

6.4 Assessment of Proposed Stationary Noise Sources at Existing Sensitive Uses

The sound levels due to the rooftop mechanical equipment, drive-through speakerboards and trucking activities at the proposed retail buildings are summarized in the following tables. Resultant sound levels at the nearby sensitive receptors are shown graphically in Figures 5a and 5b. Cadna output for a location on the west façade of R4 is provided in Appendix C.

Table 8: Predicted Sound Levels from Existing Stationary Noise Sources on the Proposed Building [dBA]

Receptor	Description	Criteria (Day/Night)	Day	Night	Criteria Met (Y/N)
R1	Existing Single-Storey Dwelling Unit	65/45	48	42	Y
R2	Existing 2-Storey Dwelling Unit	53/45	49	40	Y
R3	Existing 2-Storey Dwelling Unit	50/45	47	43	Y
R4	Existing 2-Storey Dwelling Unit	50/45	50	47	N
R5	Existing 2-Storey Dwelling Unit	54/45	49	45	Y
R6	Future Dwelling Unit	68/45	51	44	Y

The results of the calculations indicate that the predicted daytime and nighttime sound levels due to the operation of the rooftop mechanical equipment and trucking activities from the proposed development are expected to exceed the MECP limits at the façades of the nearby residential receptor (R4) during a worst case operational scenario. At the most impacted receptors, the sound levels have the potential to exceed the criteria by up to 2 dBA during the night. Physical mitigation is required. Recommendations are provided in the following section.

6.5 Assessment of Existing/Proposed Stationary Noise Sources at the Proposed Mixed-Use/Residential Building

The sound levels from the repair bay at the existing small engine repair facility to the west and the proposed retail buildings to the south and the impact at the proposed mixed-use/residential building are summarized in the following table. Resultant sound levels at the proposed mixed-use/residential sensitive receptors are shown graphically in Figures 6a and 6b.

Table 9: Predicted Sound Levels from Stationary Sources of Noise on the Proposed Residential Building [dBA]

Building	Location	Criteria (Day/Night)	Day	Night	Criteria Met (Y/N)
3	East Façade	50/45	52	46	N
	North Façade	55/45	51	<35	Y
	West Façade	62/45	57	<35	Y
	South Façade	56/45	55	46	N

The results of the calculations indicate that the predicted daytime sound levels due to the proposed commercial/retail uses to the south are expected to exceed the MECP limits at the east and south façades of the proposed mixed-use building (Building 3) during a worst case operational scenario. Physical mitigation is required. Recommendations are provided in the following section.

6.6 Recommendations

Feasible means exist to reduce stationary sound levels from the activities of the future commercial/retail portion of the development at the nearest proposed and existing residential (sensitive) receptors to meet MECP criteria. The noise excesses occur outside the plane of the windows with exposure to the proposed commercial development. The following are the recommendations.

Mitigation Option 1:

- Depending on the make and model of the rooftop condenser units and the 50-Ton HVAC unit associated with the proposed grocery store, a 1.8 m high noise barrier around the condenser units (0.3 m above the top of the condenser unit),

as well as a 2.4 m high noise barrier around the 50-Ton HVAC unit (0.9 m above the top of the HVAC unit) may be required. The locations of the acoustic barriers are provided in Figure 7.

- b) When detailed roof plans including make, model and sound data for the rooftop units on the proposed commercial/retail buildings are available, an acoustic consultant should refine acoustic mitigation measures and verify acceptable sound levels at nearby residential receptors both onsite and offsite. If excesses are confirmed, acoustic screens or quieter units may be required for the roofs of the proposed commercial/retail buildings.
- c) Deliveries should be limited to daytime hours only.
- d) Delivery trucks should enter and exit the site from the Poplar Sideroad access only.
- e) When the grading information is available for the proposed site, the height of the acoustic barriers should be verified.

Mitigation Option 2:

- a) Depending on the make and model of the rooftop condenser units and the 50-Ton HVAC unit associated with the proposed grocery store, a 1.8 m high noise barrier around the condenser units (0.3 m above the top of the condenser unit), as well as a 2.4 m high noise barrier around the 50-Ton HVAC unit (0.9 m above the top of the HVAC unit) may be required. The locations of the acoustic barriers are provided in Figure 8.
- b) When detailed roof plans including make, model and sound data for the rooftop units on the proposed commercial/retail buildings are available, an acoustic consultant should refine acoustic mitigation measures and verify acceptable sound levels at nearby residential receptors. If excesses are confirmed, acoustic screens or quieter units may be recommended for the roofs of the proposed commercial/retail buildings.
- c) The proposed mixed-use/residential building (Building 3) should be designed such that there are no windows to noise sensitive spaces for the south portion of the east façade (applies to all floors). This location is shown in Figure 8. Windows into non-noise sensitive spaces such as washrooms, closets, hallways, stairwells, and laundry rooms would be acceptable in these locations.
- d) Deliveries should be limited to daytime hours only.
- e) When the grading information is available for the proposed site, the height of the acoustic barriers should be verified.

- f) When detailed floor plans and building elevations are available for the proposed mixed-use/residential building, an acoustical consultant shall review the drawings to ensure there are no windows to noise sensitive spaces for the south portion of the east façade.

Mitigation Option 3:

- a) Depending on the make and model of the rooftop condenser units and the 50-Ton HVAC unit associated with the proposed grocery store, a 3.3 m high noise barrier around the condenser units (1.8 m above the top of the condenser unit), as well as a 3.3 m high noise barrier around the 50-Ton HVAC unit (1.8 m above the top of the HVAC unit) may be required. The locations of the acoustic barriers are provided in Figure 9.
- b) When detailed roof plans including make, model and sound data for the rooftop units on the proposed commercial/retail buildings are available, an acoustic consultant should refine acoustic mitigation measures and verify acceptable sound levels at nearby residential receptors. If excesses are confirmed, acoustic screens or quieter units may be recommended for the roofs of the proposed commercial/retail buildings.
- c) Deliveries to the grocery store can take place during both the day and night. Deliveries to other facilities within the development are required to be limited to daytime hours only.
- d) Delivery trucks should enter and exit the site from the Poplar Sideroad access only.
- e) When the grading information is available for the proposed site, the height of the acoustic barriers should be verified.
- f) When detailed floor plans and building elevations are available for the proposed mixed-use/residential building, an acoustical consultant shall review the drawings to ensure there are no windows to noise sensitive spaces for the south portion of the east façade for the top two floors.



7 SUMMARY OF RECOMMENDATIONS

The following list and table summarizes the recommendations made in this report. The reader is referred to the previous sections of the report where these recommendations are discussed in more detail.

For transportation noise sources

1. The proposed mixed-use/residential building adjacent to Hurontario Street should be equipped with central air conditioning systems that will allow the windows to remain closed. Provision for the future installation of air conditioning at the occupant's discretion is required for the proposed office/retail building, though central air conditioning is expected in any case. The location, installation and sound ratings of the outdoor air conditioning devices should comply with NPC-300, as applicable.
2. When detailed floor plans and building elevations are available for the proposed mixed-use/residential building adjacent to Hurontario Street, an acoustical consultant should review the drawings to refine the glazing constructions based on actual window to floor area ratios.
3. Warning clauses are required in the property and tenancy agreements in order to inform future tenants of the sound level excesses and the proximity to proposed commercial/retail uses.

For stationary noise sources

4. Mitigation recommendations are provided in Section 6.6, to mitigate stationary noise from the proposed retail/commercial uses. The recommendations include:

Mitigation Option 1

- a) Depending on the make and model of the rooftop condenser units and the 50-Ton HVAC unit associated with the proposed grocery store, a 1.8 m high noise barrier around the condenser units and a 2.4 m high noise barrier around the 50-Ton HVAC unit may be required.
- b) When detailed roof plans including make, model and sound data for the rooftop units on the proposed commercial/retail buildings are available, an acoustic consultant should refine acoustic mitigation measures and verify acceptable sound levels at nearby residential receptors both onsite and offsite. If excesses are confirmed, acoustic screens or quieter units may be required for the roofs of the proposed commercial/retail buildings.
- c) Deliveries should be limited to daytime hours only.

- d) Delivery trucks should enter and exit the site from the Poplar Sideroad access only.
- e) When the grading information is available for the proposed site, the height of the acoustic barriers should be verified.

Mitigation Option 2

- a) Depending on the make and model of the rooftop condenser units and the 50-Ton HVAC unit associated with the proposed grocery store, a 1.8 m high noise barrier around the condenser units and a 2.4 m high noise barrier around the 50-Ton HVAC unit may be required.
- b) When detailed roof plans including make, model and sound data for the rooftop units on the proposed commercial/retail buildings are available, an acoustic consultant should refine acoustic mitigation measures and verify acceptable sound levels at nearby residential receptors. If excesses are confirmed, acoustic screens or quieter units may be recommended for the roofs of the proposed commercial/retail buildings.
- c) The proposed mixed-use/residential building (Building 3) should be designed such that there are no windows to noise sensitive spaces for the south portion of the east façade (applies to all floors).
- d) Deliveries should be limited to daytime hours only.
- e) When the grading information is available for the proposed site, the height of the acoustic barriers should be verified.
- f) When detailed floor plans and building elevations are available for the proposed mixed-use/residential building, an acoustical consultant shall review the drawings to ensure there are no windows to noise sensitive spaces for the south portion of the east façade.

Mitigation Option 3

- a) Depending on the make and model of the rooftop condenser units and the 50-Ton HVAC unit associated with the proposed grocery store, a 3.3 m high noise barrier around the condenser units and a 3.3 m high noise barrier around the 50-Ton HVAC unit may be required.
- b) When detailed roof plans including make, model and sound data for the rooftop units on the proposed commercial/retail buildings are available, an acoustic consultant should refine acoustic mitigation measures and verify acceptable sound levels at nearby residential receptors. If excesses are confirmed, acoustic



screens or quieter units may be recommended for the roofs of the proposed commercial/retail buildings.

- c) Deliveries to the grocery store can take place during both the day and night. Deliveries to other facilities within the development are required to be limited to daytime hours only.
- d) Delivery trucks should enter and exit the site from the Poplar Sideroad access only.
- e) When the grading information is available for the proposed site, the height of the acoustic barriers should be verified.
- When detailed floor plans and building elevations are available for the proposed mixed-use/residential building, an acoustical consultant shall review the drawings to ensure there are no windows to noise sensitive spaces for the south portion of the east façade for the top two floors.

Table 10: Summary of Noise Control Requirements and Noise Warning Clauses

Building	Location	Acoustic Barrier	Ventilation Requirements*	Type of Warning Clause	Upgraded Glazing Construction**
3 (Proposed Mixed-Use/Residential Building)	West façade	--	Central A/C	A, B, D, E	LRDR: STC-30 BR: STC-30
	North façade	--			LRDR: STC-30 BR: STC-30
	East façade	--			OBC
	South façade	--			LRDR: STC-30 BR: STC-30
	Rooftop Amenity Area	✓	--	--	--
4 (Proposed Office/Retail Building)	--	--	Forced Air	A, C, E	OBC

Note:

* The location, installation and sound rating of the air conditioning condensers must be compliant with MECP Guideline NPC-300 as applicable.

-- no specific requirement

✓ Acoustic barrier required. See Section 3.4.1

OBC – Ontario Building Code

LRDR – Living/Dining Room

BR – Bedroom

** When detailed floor plans and building elevations are available for the proposed mixed use/residential building, an acoustical consultant should review the drawings to refine the glazing constructions based on actual window to floor area ratios.



7.1 Implementation

To ensure that the noise control recommendations outlined above are fully implemented, it is recommended that:

- 1) Prior to the issuance of building permits for this development, a Professional Engineer qualified to perform acoustical engineering services in the Province of Ontario should review the architectural drawings of the mixed-use/residential building to refine the glazing STC construction. The roof plans of each commercial/office/retail/grocery store building should be reviewed to certify that the MECP sound levels will be met at all noise sensitive receptors.
- 2) Prior to the issuance of occupancy permits for this development, a Professional Engineer qualified to provide acoustical engineering services in the Province of Ontario should certify that the suggested noise control measures have been properly incorporated, installed and constructed.



8 CONCLUSIONS

The results of this study indicate that the proposed mixed-use development named The Gateway Centre in Collingwood, Ontario is feasible on this site from a noise impact perspective. Acoustic modelling has been undertaken to assess the noise impact of surrounding transportation and stationary sources on the proposed development. Preliminary recommendations for ventilation requirements and appropriate building envelope sound insulation values are provided. Feasible means existing to reduce stationary sound levels from existing/proposed commercial uses at the existing/proposed sensitive uses to levels acceptable to the MECP. Specifically, this study indicates that nighttime deliveries at the development may not be feasible, mitigation should be included for the rooftop mechanical equipment, and either trucks should enter and exit the site from Poplar Sideroad or windows to noise sensitive rooms should not be included for the south portion of the east façade for the mixed-use/residential building. Nighttime deliveries to the grocery store could be acceptable if higher noise barriers are included. In any case, warning clauses are recommended to advise residents of road traffic noise and the proximity to existing and proposed retail/commercial uses.





Figure 1: Key Plan



NOISE



VIBRATION



ACOUSTICS

PARKING - COMMERCIAL

Parking aisle minimum width of 6.0 metres
 Parking space minimum dimensions of 2.8 m x 6.0 m
 Accessible parking space minimum dimensions 4.5 m x 6.0 m
 Dual accessible parking spaces at 3.4 m x 6.0 m with 1.5 m shared aisle

Building	Rate	Gross Area	Gross Floor Area*	Required	Provided
Phase 1					
01 Restaurant	8/100	m²	225.50	m²	157.85
02 Commercial	3/100	m²	929.00	m²	836.10
Grocery Store	3/100	m²	3,251.90	m²	2,276.30
06 Commercial	3/100	m²	1,799.90	m²	1,619.90
07 Restaurant	8/100	m²	376.20	m²	263.30
08 Commercial	3/100	m²	948.80	m²	762.12
08 Restaurant	8/100	m²	491.50	m²	344.05
Total Phase 1 Commercial			6,827.60	m²	5,494.42
Total Phase 1 Restaurant			1,083.20	m²	82
Total Phase 1			7,920.80	m²	5,576.42
Phase 2					
03 Commercial	3/100	m²	654.54	m²	589.10
04 Commercial	3/100	m²	1,799.40	m²	1,619.46
Total Phase 2			2,453.94	m²	2,208.56
Total Phase 1 & 2			10,374.74	m²	7,784.98

*Gross Floor Area as defined by the Town of Collingwood ZBL and is based on Gross Area - 10% for general commercial uses and -30% for grocery store and restaurant uses.

DELIVERY SPACES - LOADING SPACES

1 Delivery Space for GFA between 480 and 1,500
 1 Loading Space for GFA between 2,501 and 7,000
 Delivery Spaces at 3.5 m (v) x 7.5 m (l) x 3.0 v
 Loading Spaces at 3.5 m (v) x 20.0 m (l) x 4.1 m (v)

Building	Use	Gross Area	Gross Floor Area	Type Required	Type Provided
Phase 1					
Building 01	Restaurant	225.5	m²	N/A	1 Delivery Space
Building 02	Commercial	929	m²	1 Delivery Space	1 Loading Space
Grocery Store	Commercial	3,251.9	m²	22 Delivery Spaces	1 Loading Space
Building 06	Commercial	1,799.9	m²	1 Delivery Space	1 Del & 1 Log Space
Building 07	Restaurant	376.2	m²	N/A	1 Del Space
Building 08	Commercial & Rest.	1,338.3	m²	1 Delivery Space	1 Delivery Space
Phase 2					
Building 03	Mixed-Use	654.54	m²	1 Delivery Space	1 Delivery Space
Building 04	Commercial	1,799.4	m²	1 Delivery Space	1 Delivery Space

*Gross Floor Area as defined by the Town of Collingwood Zoning By-law and is based on Gross Area - 10% for general commercial uses and -30% for grocery store and restaurant uses.

QUELING AISLES

Parking space minimum dimensions of 2.8 m x 6.0 m

Building	Use	# of Spaces Required	# of Spaces Provided	Comments
Building 01	Restaurant	10	12	Add'l Spaces Beyond Pick-up Window
Building 07	Restaurant	10	13	Add'l Spaces Beyond Pick-up Window

THE GATEWAY CENTRE - ZONE PROVISIONS

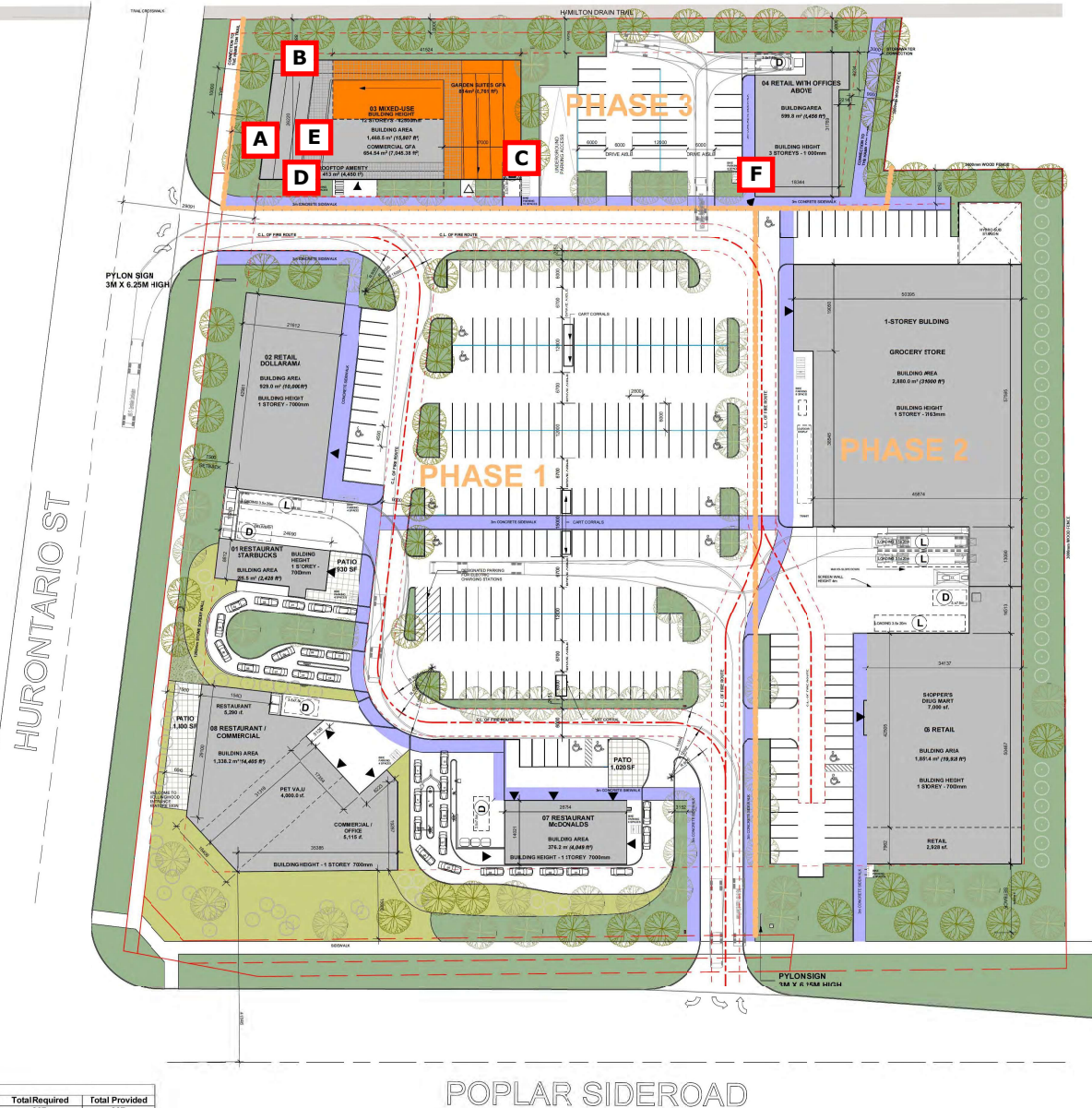
Provision	C4 Zone Requirement	Proposed
Minimum Lot Area	1,000.0 m²	37,004.1 m²
Minimum Lot Frontage (Huron Street)	30.0 m	193.98 m
Minimum Front Yard (Huron Street)	6.0 m	7.5 m
Minimum Exterior Side Yard (Poplar Sideroad)	9.0 m	15.0 m
Minimum Corner Side Yard (Poplar Sideroad)	15.0 m	15.0 m
Minimum Interior Side Lot Line (East Lot Line)	9.0 m	9.0 m
Minimum Rear Yard (North Lot Line)	7.5 m	7.5 m
Maximum Height	15.0 m	42.5 m
Maximum Lot Coverage	40%	27%
Minimum Landscape Open Space	10%	23%
Minimum Huron Street CL Setback	15.0 m	29.99 m
Minimum Poplar Sideroad CL Setback	18.0 m	41.95 m
Minimum Parking Setback	6.0 metres	> 6.0 metres
Entrance Width	7.5 m to 15.0 m	9.0 m
Maximum Number of Dwelling Units	N/A	165 units

PARKING - RESIDENTIAL

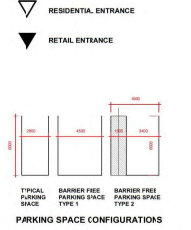
Parking aisle minimum width of 6.0 metres
 Parking space minimum dimensions of 2.8 m x 6.0 m
 Accessible parking space minimum dimensions 4.5 m x 6.0 m
 Dual accessible parking spaces at 3.4 m x 6.0 m with 1.5 m shared aisle

Residential Building	Rate	# of Units	Resident Parking Required	Visitor Parking Required	Total Required	Total Provided
Building 03	Unit + 0.25/unit for Visitors	165	165	42	207	297

2% of Required Parking Spaces to be Accessible = 5 spaces



ISSUED FOR DISCUSSION
 2025-06-17 10:40:14 AM



NO.	REVISION	DATE
01	ISSUED FOR CLIENT APPROVAL	2025-06-17
02	ISSUED FOR CLIENT APPROVAL	2025-06-17
03	ISSUED FOR CLIENT APPROVAL	2025-06-17
04	ISSUED FOR CLIENT APPROVAL	2025-06-17

THE GATEWAY CENTRE
 CHARIS DEVELOPMENTS
 HIGHWAY 124 & POPLAR SIDE ROAD
 COLLINGWOOD, ONTARIO

LEASING SITE PLAN -
 OPTION C4B

SCALE	PROJECT NUMBER
As Shown	202022
DRAWN BY	80
CHECKED BY	88
DATE	10/11/2024

A101-A

Figure 2 - Proposed Site Plan Showing Prediction Locations

Central Air Conditioning

Force air ventilation system with ductwork sized for future installation of air conditioning by the occupant.

08 Restaurant	8/100	m²	491.50	m²	344.05	m²	165	
Total Phase 1 Commercial			6,827.60	m²	5,494.42	m²	165	
Total Phase 1 Restaurant			1,083.20	m²	765.20	m²	62	
Total Phase 1			7,920.80	m²	6,259.62	m²	227	246
Phase 2								
03 Commercial	3/100	m²	654.54	m²	588.10	m²		
04 Commercial	3/100	m²	1,790.40	m²	1,513.46	m²		
Total Phase 2			2,445.94	m²	2,201.56	m²	67	34
Total Phase 1 & 2			10,374.74	m²	8,468.18	m²	294	279

*Gross Floor Area as defined by the Town of Collingwood ZBL and is based on Gross Area - 10% for general commercial uses and -30% for grocery store and restaurant uses.

DELIVERY SPACES - LOADING SPACES

- 1 Delivery Space for GFA between 400 and 1,500
- 1 Loading Space for GFA between 2,501 and 7,000
- Delivery Spaces at 3.5 m (v) x 7.5 m (h) x 3.0 m (v)
- Loading Spaces at 3.5 m (v) x 20.0 m (h) x 4.1 m (v)

Building	Use	Gross Area	Gross Floor Area	Type Required	Type Provided
Phase 1					
Building 01	Restaurant	225.5	117	N/A	1 Delivery Space
Building 02	Commercial	939	838.1	1 Delivery Space	1 Loading Space
Grocery Store	Commercial	3251.9	2275.3	1 Delivery Space	1 Loading Space
Building 06	Commercial	1798.9	1513.46	1 Delivery Space	1 Del & 1 Log Space
Building 07	Restaurant	379.2	263.3	N/A	1 Del Space
Building 08	Commercial & Rest.	1338.3	1125.17	1 Delivery Space	1 Delivery Space
Phase 2					
Building 03	Mixed-Use	654.54	588.1	1 Delivery Space	1 Delivery Space
Building 04	Commercial	1799.4	1513.46	1 Delivery Space	1 Delivery Space

*Gross Floor Area as defined by the Town of Collingwood Zoning By-law and is based on Gross Area - 10% for general commercial uses and -30% for grocery store and restaurant uses.

QUELING AISLES

Parking space minimum dimensions of 28 m x 6.0 m

Building	Use	# of Spaces Required	# of Spaces Provided	Comments
Building 01	Restaurant	10	12	Add'l Spaces Beyond Pick-up Window
Building 07	Restaurant	10	13	Add'l Spaces Beyond Pick-up Window

THE GATEWAY CENTRE - ZONE PROVISIONS

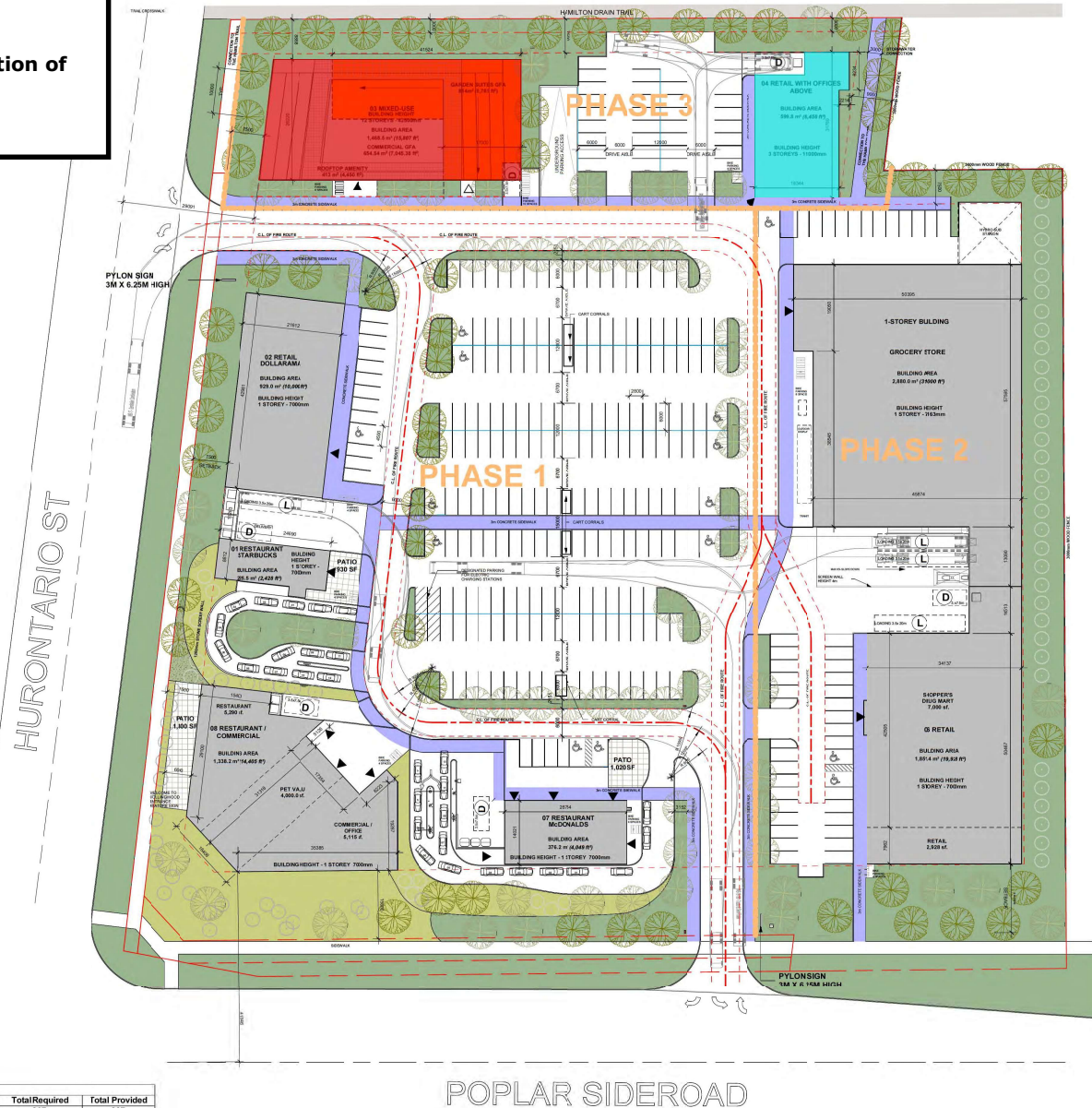
Provision	C4 Zone Requirement	Proposed
Minimum Lot Area	1,000.0 m²	37,004.1 m²
Minimum Lot Frontage (Huron Street)	30.0 m	193.98 m
Minimum Front Yard (Huron Street)	6.0 m	7.5 m
Minimum Exterior Side Yard (Poplar Sideroad)	9.0 m	15.0 m
Minimum Corner Side Yard (Poplar Sideroad)	15.0 m	15.0 m
Minimum Interior Side Lot Line (East Lot Line)	9.0 m	9.0 m
Minimum Rear Yard (North Lot Line)	9.0 m	7.5 m
Maximum Height	15.0 m	42.5 m
Maximum Lot Coverage	40%	27%
Minimum Landscape Open Space	10%	23%
Minimum Huron Street CL Setback	15.0 m	29.99 m
Minimum Poplar Sideroad CL Setback	18.0 m	41.95 m
Minimum Parking Space Setback	6.0 metres	> 6.0 metres
Entrance Width	7.5 m to 15.0 m	9.0 m
Maximum Number of Dwelling Units	N/A	165 units

PARKING - RESIDENTIAL

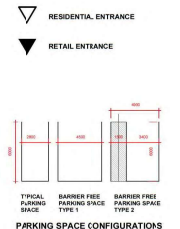
- Parking aisle minimum width of 6.0 metres
- Parking space minimum dimensions of 28 m x 6.0 m
- Accessible parking space minimum dimensions 4.5 m x 6.0 m
- Dual accessible parking spaces at 3.4 m x 6.0 m with 1.5 m shared aisle

Residential Building	Rate	# of Units	Resident Parking Required	Visitor Parking Required	Total Required	Total Provided
Building 03	Tunit + 0.25/unit for Visitors	165	165	42	207	297

2% of Required Parking Spaces to be Accessible = 5 spaces



ISSUED FOR DISCUSSION
2025-06-17 10:40:14 AM



NO.	REVISION	DATE
01	ISSUED FOR CLIENT APPROVAL	2025-05-29
02	ISSUED FOR CLIENT APPROVAL	2025-05-29
03	ISSUED FOR CLIENT APPROVAL	2025-05-29
04	ISSUED FOR CLIENT APPROVAL	2025-05-29



THE GATEWAY CENTRE

CHARIS DEVELOPMENTS
HIGHWAY 124 & POPLAR SIDE ROAD
COLLINGWOOD, ONTARIO

LEASING SITE PLAN -
OPTION C4B

SCALE	PROJECT NUMBER
As Shown	
DATE	2025-06-17 10:40:14 AM
DRAWN	80
CHECKED	80
DATE	10/11/2024

A101-A

Figure 3 - Proposed Site Plan Showing Ventilation Requirements

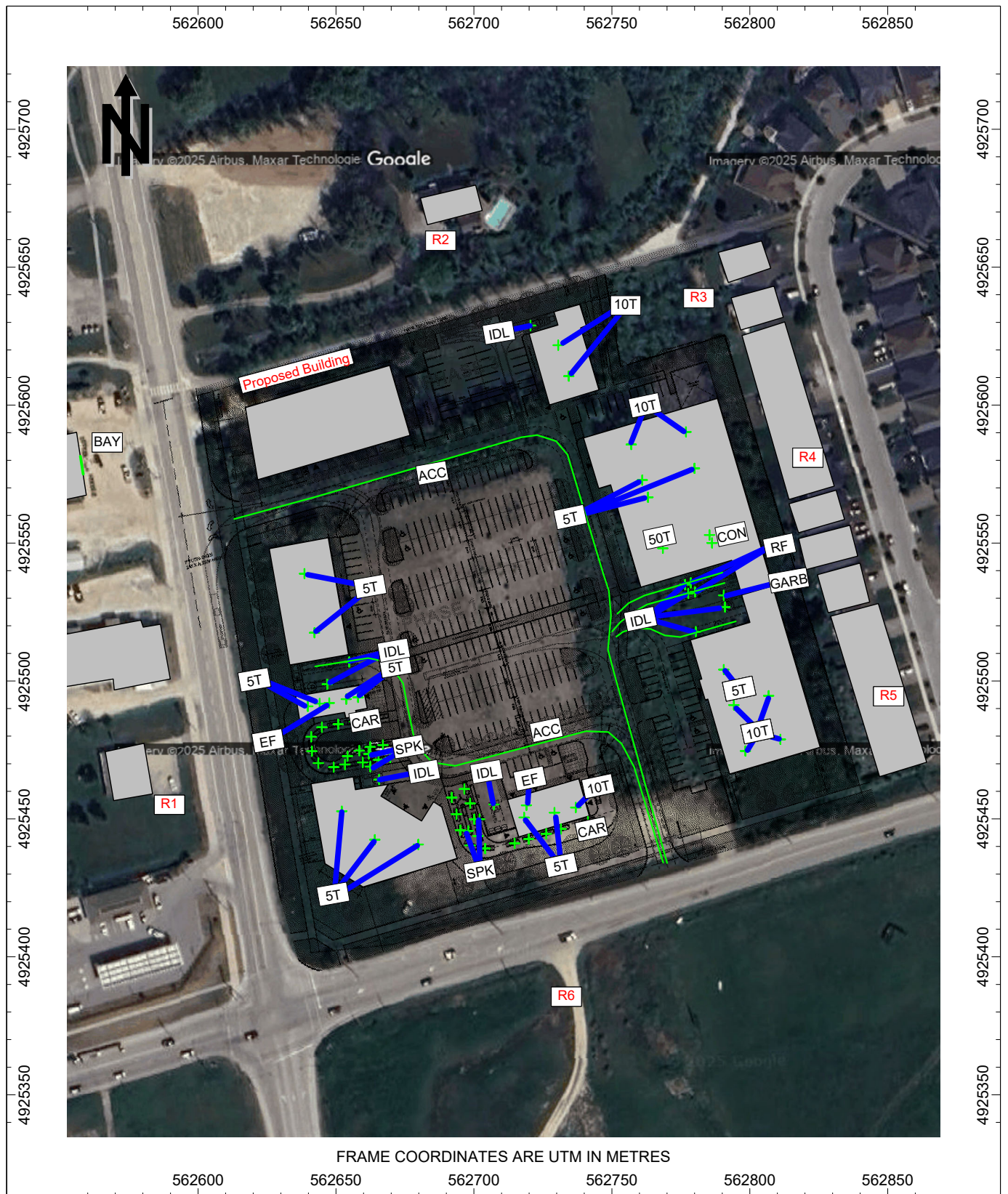


Figure 4 - Noise Source Locations

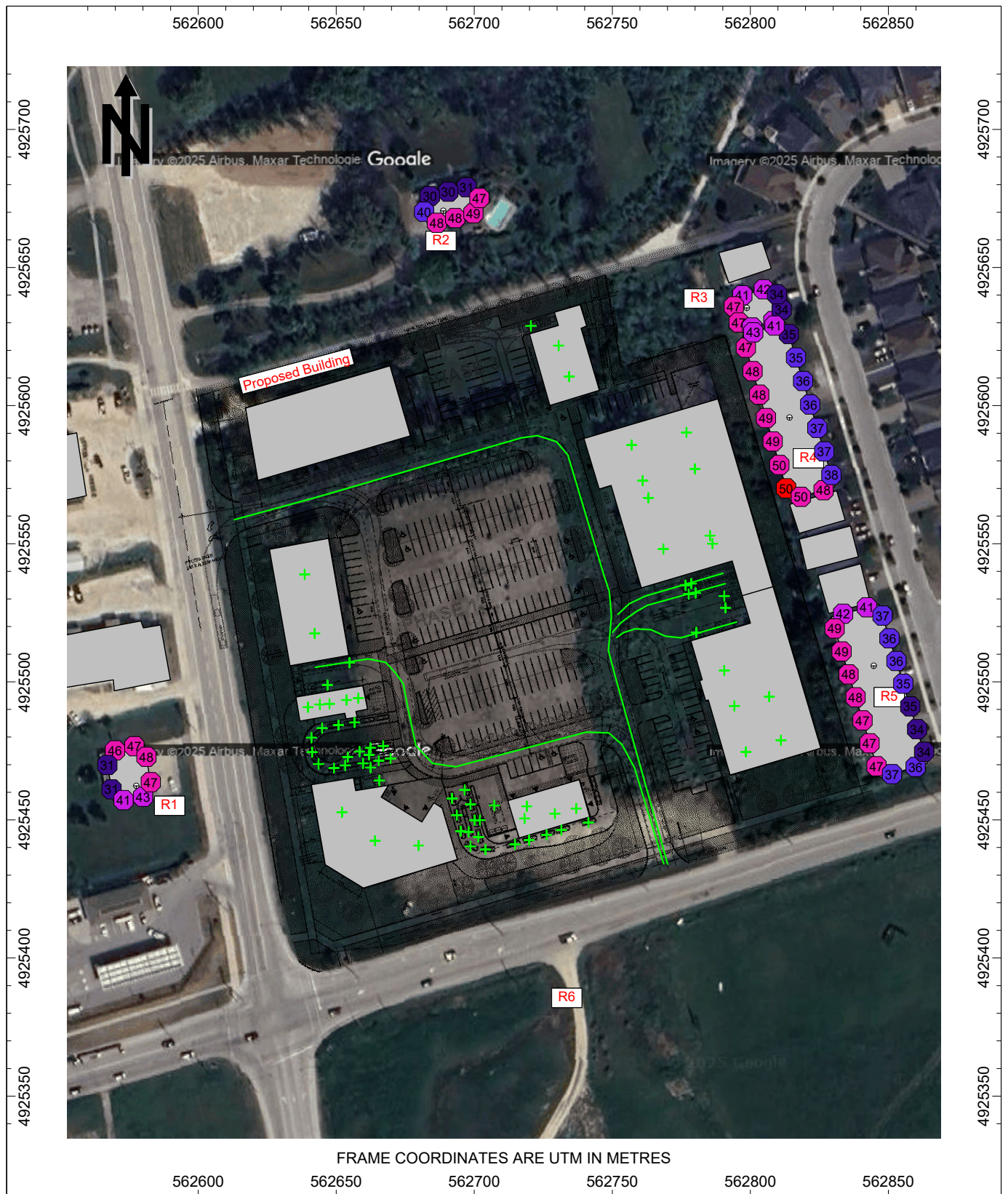


Figure 5a - Maximum Predicted Daytime Sound Levels from Proposed Stationary Noise Sources On Existing Sensitive Uses (Without Mitigation)

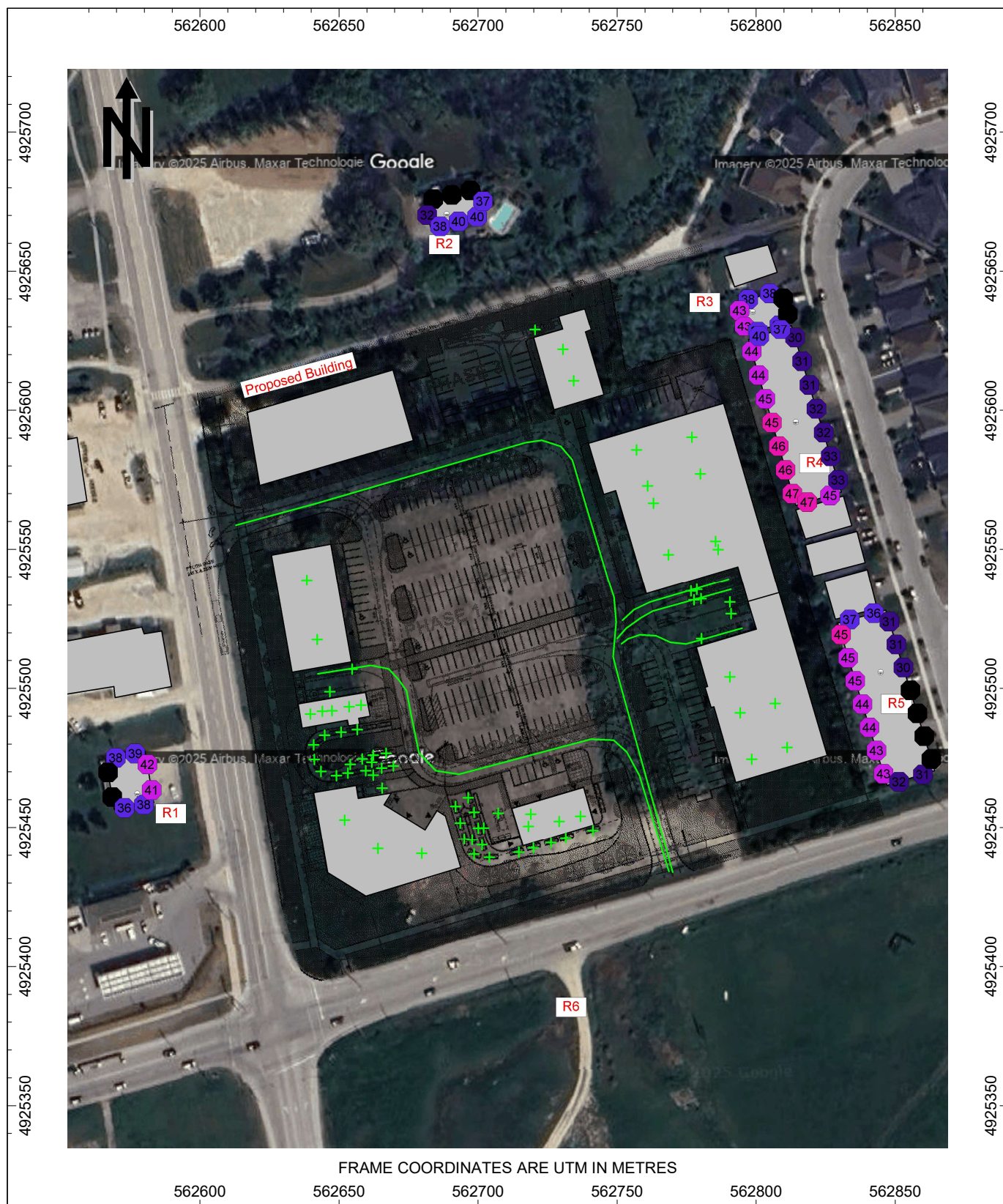


Figure 5b - Maximum Predicted Nighttime Sound Levels from Proposed Stationary Noise Sources On Existing Sensitive Uses (Without Mitigation)



NOISE



VIBRATION



ACOUSTICS

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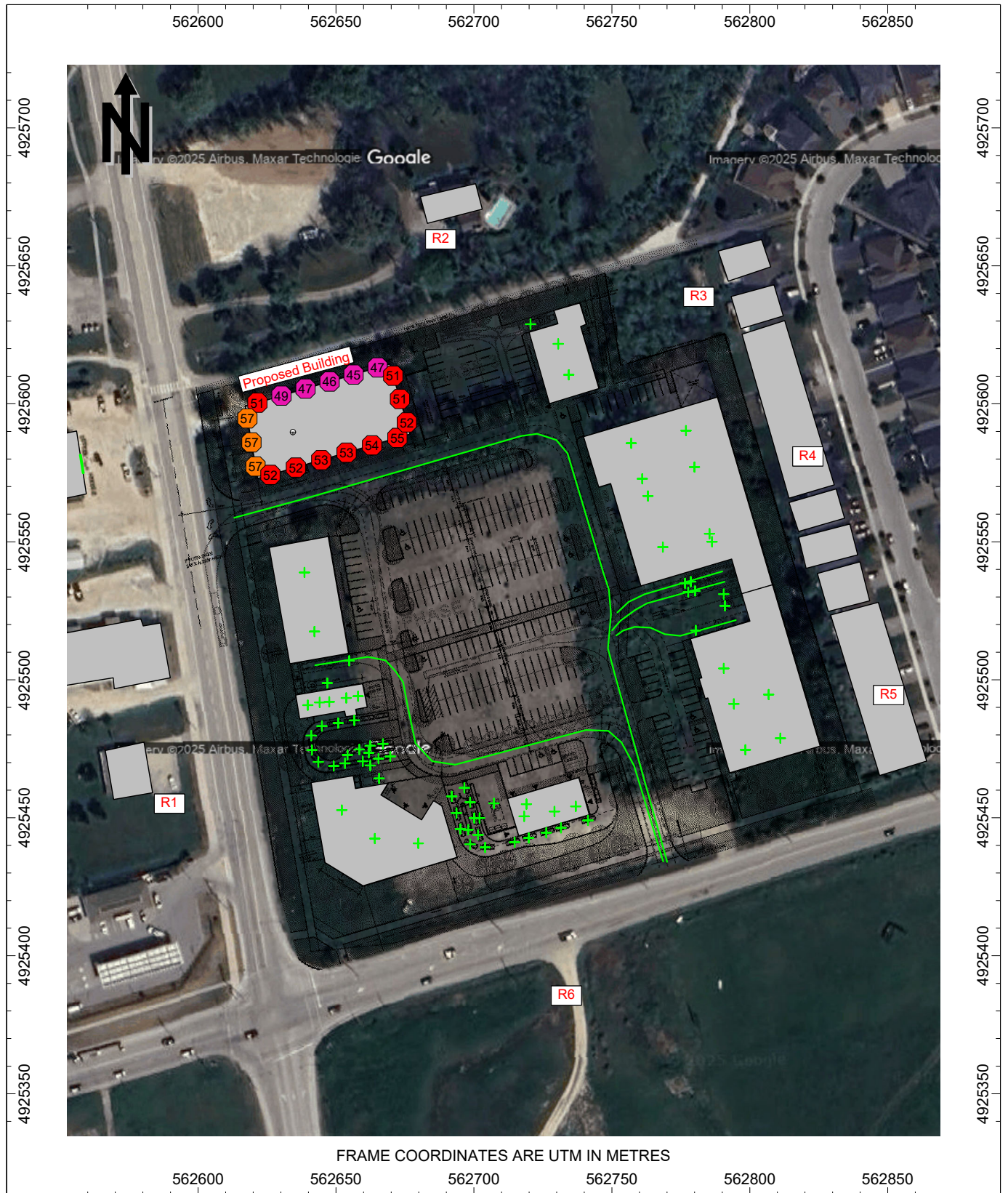


Figure 6a - Maximum Predicted Daytime Sound Levels from Existing/Proposed Stationary Noise Sources On the Proposed Residential Building (Without Mitigation)

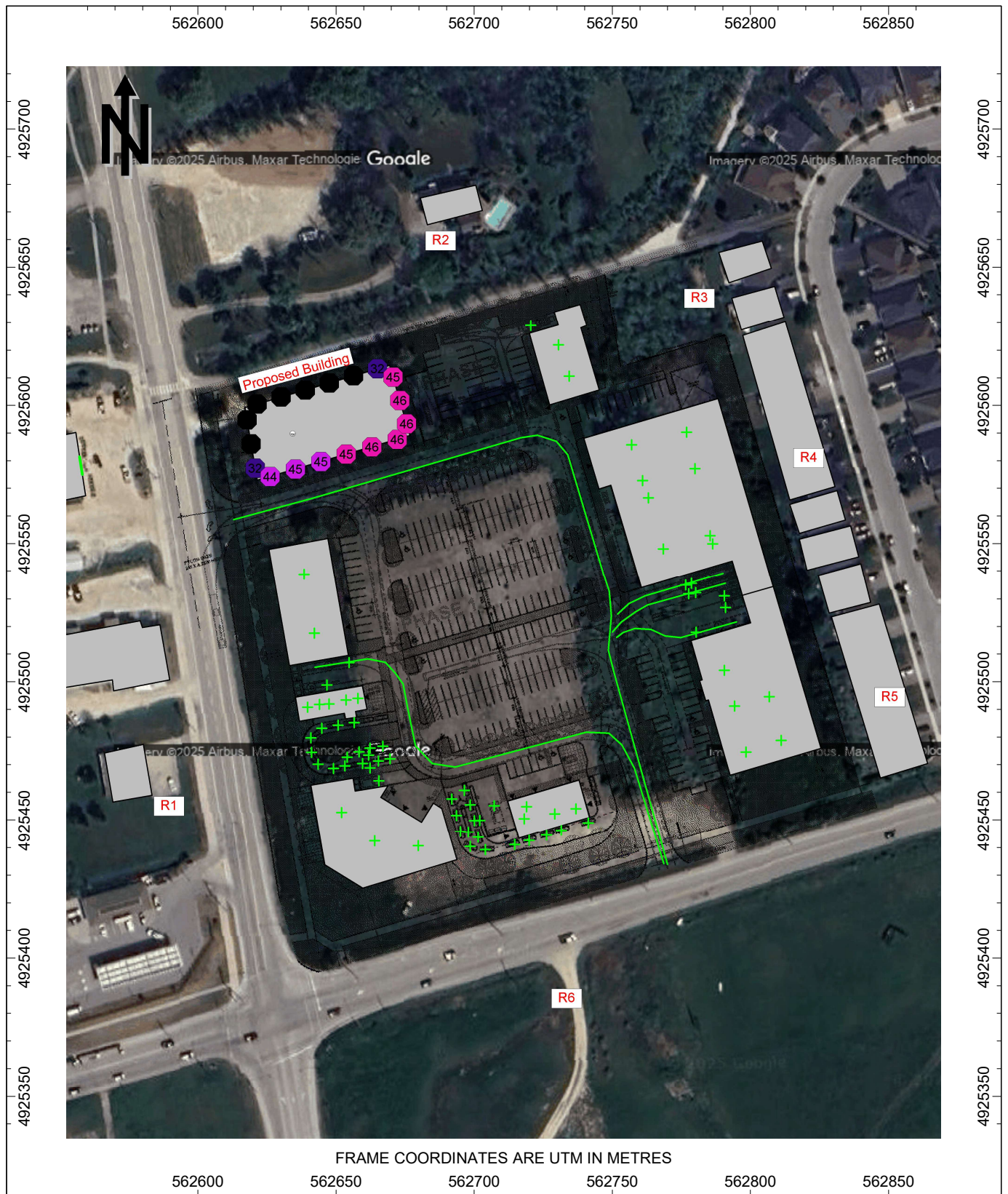


Figure 6b - Maximum Predicted Daytime Sound Levels from Existing/Proposed Stationary Noise Sources On the Proposed Residential Building (Without Mitigation)

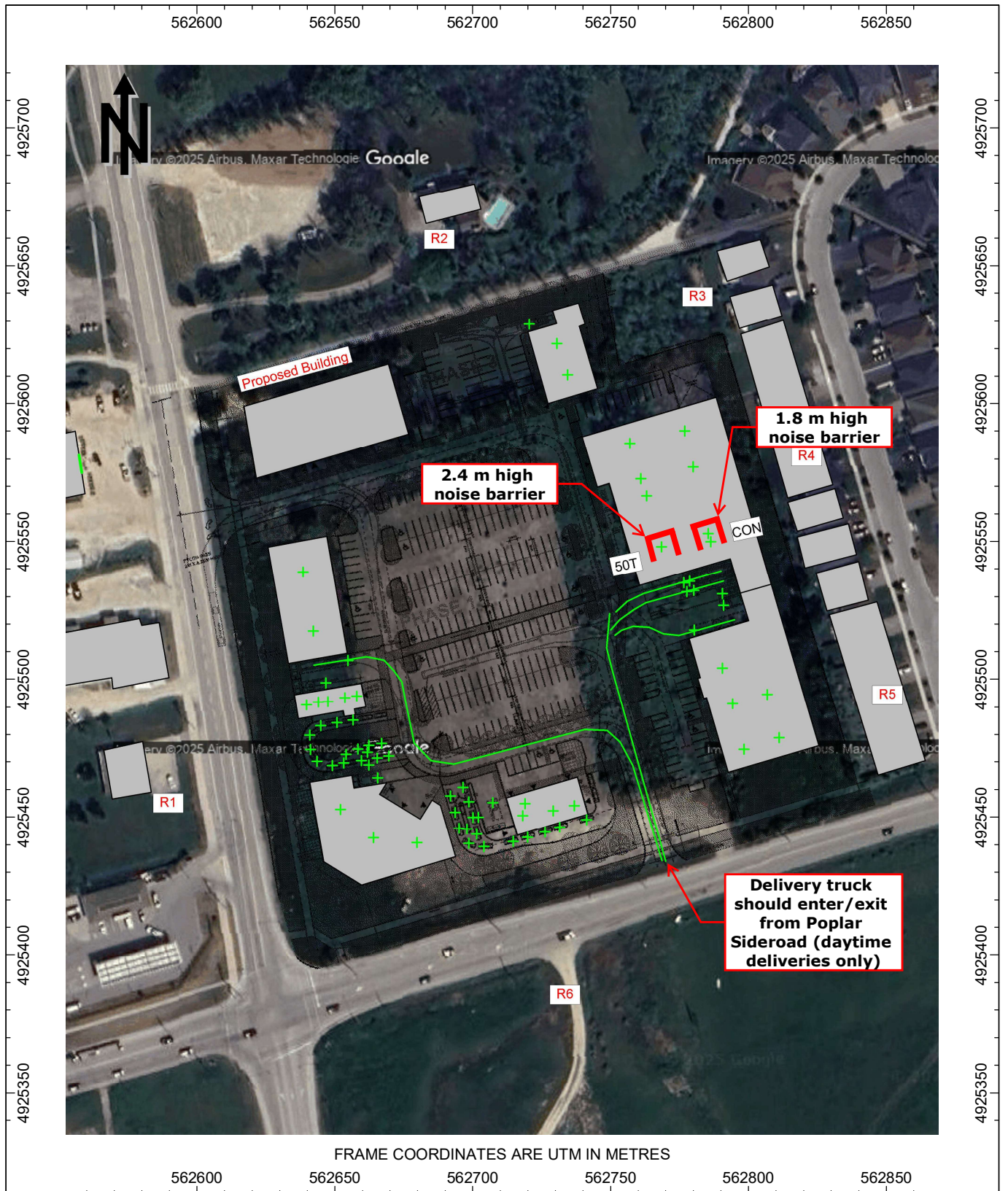


Figure 7 - Option 1 Noise Mitigation Measures

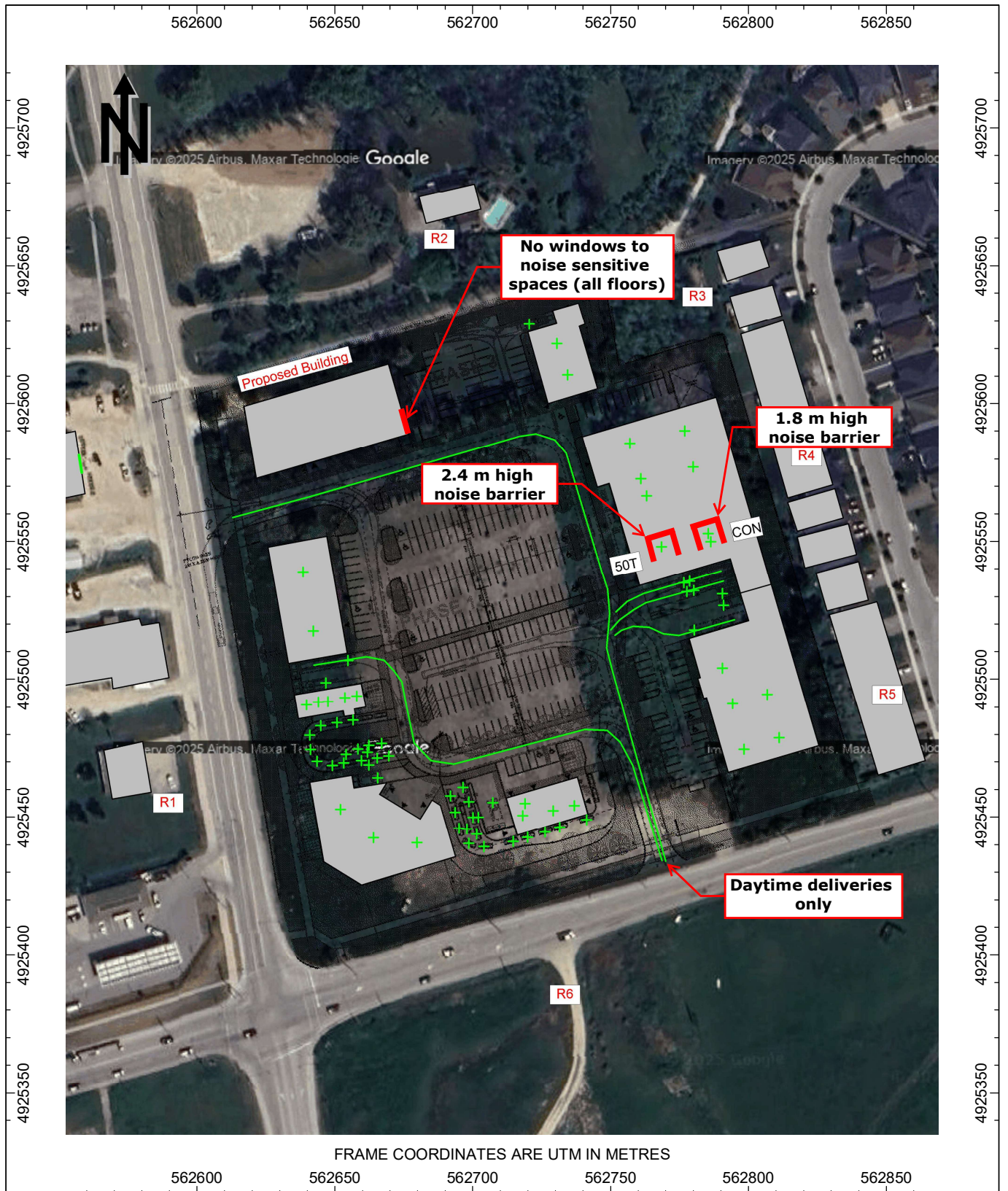


Figure 8 - Option 2 Noise Mitigation Measures

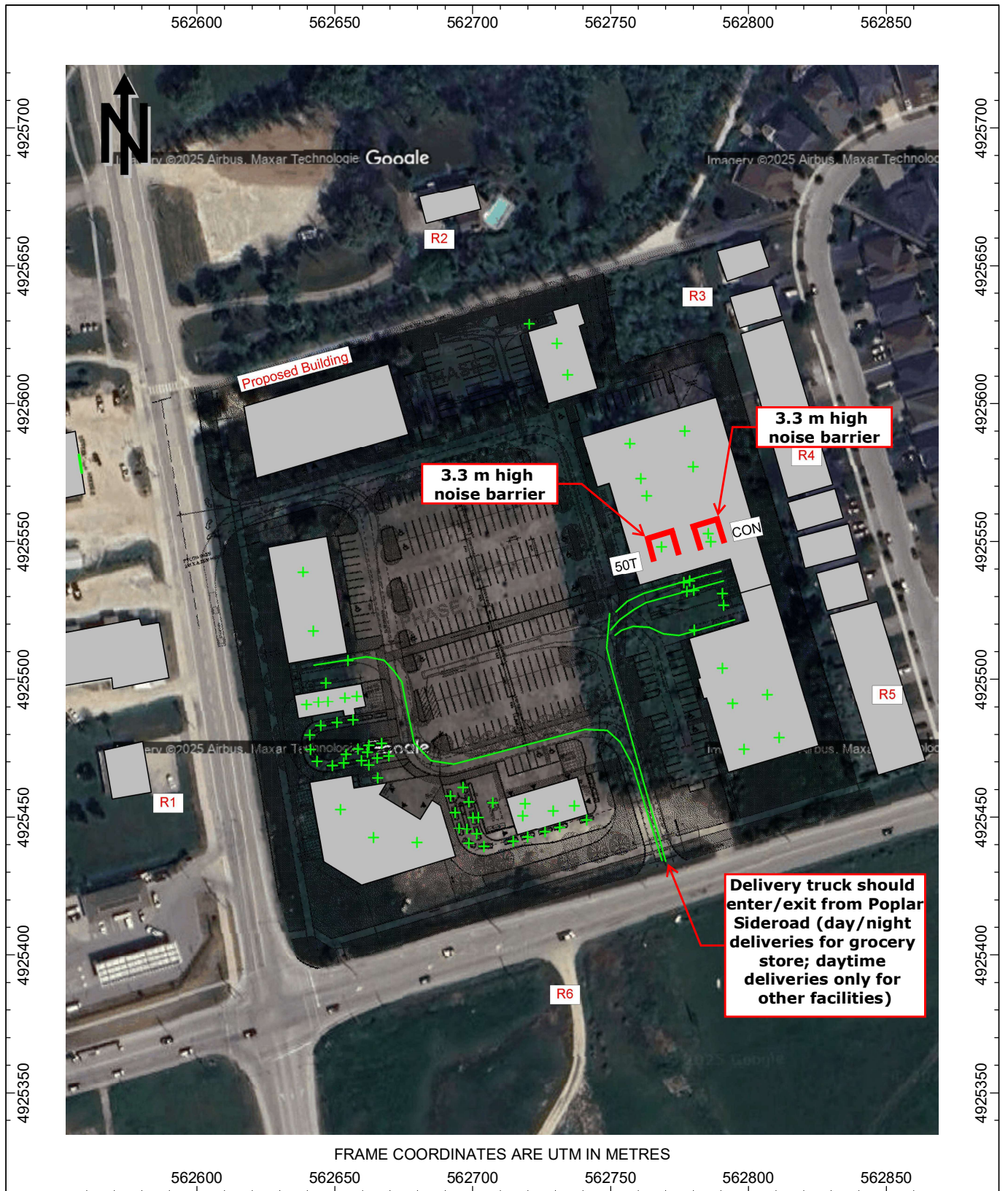


Figure 9 - Option 3 Noise Mitigation Measures

Appendix A

Road Traffic Data



NOISE

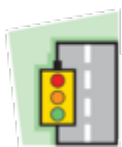


VIBRATION



ACOUSTICS

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Ontario Traffic Inc.

TRAFFIC MONITORING SERVICES & PRODUCTS

Peak Hour Diagram

Specified Period

From: 15:00:00
To: 18:00:00

One Hour Peak

From: 16:30:00
To: 17:30:00

Intersection: CR 124 (Huronario St) & CR 32 (Poplar Sideroad)
Site ID: 1908700031
Count Date: Jul 09, 2019

Weather conditions:

** Signalized Intersection **

Major Road: CR 32 (Poplar Sideroad) runs E/W

MT - 12/980=1.2%
HT - 187/980=19.1%

North Approach

	Out	In	Total
	480	292	772
MT	8	4	12
HT	105	82	187
	6	3	9
Totals	599	381	980

CR 124 (Huronario St)

	0	3	3	0
HT	6	61	38	0
MT	0	4	4	0
	37	250	193	0
Totals	43	318	238	0

East Approach

	Out	In	Total
	507	460	967
MT	2	12	14
HT	126	137	263
	2	3	5
Totals	637	612	1249

MT - 14/1249=1.1%
HT - 263/1249=21.0%

CR 32 (Poplar Sideroad)

	HT	MT		Totals
	0	0	0	0
HT	0	8	1	29
MT	0	84	8	245
	0	31	2	127
Totals	0	38	337	160

Peds: 1



Peds: 1

Peds: 0

Peds: 0

CR 32 (Poplar Sideroad)

Totals		MT	HT	
0	0	0	0	0
166	138	1	27	0
378	304	0	73	1
93	65	1	26	1

West Approach

	Out	In	Total
	401	438	839
MT	11	0	11
HT	123	106	229
	0	1	1
Totals	535	545	1080

Totals				
	97	125	22	0
MT	0	2	0	0
HT	27	47	15	0
	0	3	0	0

CR 124 (Huronario St)

South Approach

	Out	In	Total
	244	442	686
MT	2	7	9
HT	89	118	207
	3	4	7
Totals	338	571	909

- Cars

MT - Medium Trucks

HT - Heavy Trucks

- Bicycles

Comments

Appendix B

Sample STAMSON Output



NOISE



VIBRATION



ACOUSTICS

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STAMSON 5.0 NORMAL REPORT Date: 04-07-2025 13:04:52
 MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: a_rl.te Time Period: Day/Night 16/8 hours
 Description: **West Facade of Building 3 (Proposed Mixed-Use/Residential Building), Prediction Location [A].**

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

```
-----
Car traffic volume : 10435/1159 veh/TimePeriod *
Medium truck volume : 157/17 veh/TimePeriod *
Heavy truck volume : 2501/278 veh/TimePeriod *
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)
```

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

```
24 hr Traffic Volume (AADT or SADT): 9800
Percentage of Annual Growth : 2.50
Number of Years of Growth : 16.00
Medium Truck % of Total Volume : 1.20
Heavy Truck % of Total Volume : 19.10
Day (16 hrs) % of Total Volume : 90.00
```

Data for Segment # 1: Hurontario (day/night)

```
-----
Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 30.00 / 30.00 m
Receiver height : 40.00 / 40.00 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00
```

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

```
-----
Car traffic volume : 12999/1444 veh/TimePeriod *
Medium truck volume : 184/20 veh/TimePeriod *
Heavy truck volume : 3504/389 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)
```

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

```
24 hr Traffic Volume (AADT or SADT): 12490
Percentage of Annual Growth : 2.50
Number of Years of Growth : 16.00
Medium Truck % of Total Volume : 1.10
Heavy Truck % of Total Volume : 21.00
Day (16 hrs) % of Total Volume : 90.00
```

Data for Segment # 2: Poplar (day/night)

```
-----
Angle1 Angle2 : -90.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 190.00 / 190.00 m
Receiver height : 40.00 / 40.00 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00
```

Results segment # 1: Hurontario (day)

Source height = 2.09 m

ROAD (0.00 + 69.34 + 0.00) = 69.34 dBA



Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	72.35	0.00	-3.01	0.00	0.00	0.00	0.00	69.34

Segment Leq : 69.34 dBA

Results segment # 2: Poplar (day)

Source height = 2.14 m

ROAD (0.00 + 60.97 + 0.00) = 60.97 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.00	75.00	0.00	-11.03	-3.01	0.00	0.00	0.00	60.97

Segment Leq : 60.97 dBA

Total Leq All Segments: 69.93 dBA

Results segment # 1: Hurontario (night)

Source height = 2.09 m

ROAD (0.00 + 62.80 + 0.00) = 62.80 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	65.81	0.00	-3.01	0.00	0.00	0.00	0.00	62.80

Segment Leq : 62.80 dBA

Results segment # 2: Poplar (night)

Source height = 2.14 m

ROAD (0.00 + 54.43 + 0.00) = 54.43 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.00	68.47	0.00	-11.03	-3.01	0.00	0.00	0.00	54.43

Segment Leq : 54.43 dBA

Total Leq All Segments: 63.39 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 69.93
(NIGHT): 63.39



Appendix C

Cadna/A Output Tables



NOISE



VIBRATION



ACOUSTICS

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R4	562811	4925577	4.5																
Src Name	X	Y	Z	LxD	LxN	Adiv	K0	Dc	Agnd	Abar	Aatm	Afol	Ahous	CmetD	CmetN	RefID	RefIN	LrD	LrN
Drive through car	562732	4925448	1.5	77	74	54.7	0	0.0	-1.7	21.7	0.3	0.0	0.0	0.0	0.0	0.0	0.0	2	--
Drive through car	562720	4925442	1.5	77	74	55.2	0	0.0	-1.7	21.5	0.3	0.0	0.0	0.0	0.0	0.0	0.0	1	--
Drive through car	562704	4925440	1.5	77	74	55.8	0	0.0	-1.6	17.2	0.2	0.0	0.0	0.0	0.0	2.6	2.6	8	5
Drive through car	562699	4925441	1.5	77	74	55.9	0	0.0	-1.6	16.3	0.2	0.0	0.0	0.0	0.0	4.2	4.2	10	7
Drive through car	562694	4925450	1.5	77	74	55.7	0	0.0	-1.5	11.6	0.2	0.0	0.0	0.0	0.0	1.8	1.8	13	10
Speakerboard	562662	4925473	1.0	83	80	56.2	0	0.0	-1.0	16.0	0.7	0.0	0.0	0.0	0.0	2.9	2.9	14	11
Speakerboard	562662	4925470	1.0	83	80	56.3	0	0.0	-1.1	15.9	0.7	0.0	0.0	0.0	0.0	0.0	0.0	11	8
Drive through car	562658	4925474	1.5	77	74	56.3	0	0.0	-1.5	12.0	0.2	0.0	0.0	0.0	0.0	0.9	0.9	11	8
Drive through car	562660	4925472	1.5	77	74	56.3	0	0.0	-1.6	12.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	10	7
Drive through car	562654	4925473	1.5	77	74	56.5	0	0.0	-1.6	11.9	0.2	0.0	0.0	0.0	0.0	0.7	0.7	10	7
Drive through car	562649	4925470	1.5	77	74	56.8	0	0.0	-1.7	11.8	0.2	0.0	0.0	0.0	0.0	1.3	1.3	11	8
Drive through car	562651	4925486	1.5	77	74	56.3	0	0.0	-1.7	20.5	0.3	0.0	0.0	0.0	0.0	2.6	2.6	4	1
Drive through car	562645	4925482	1.5	77	74	56.6	0	0.0	-1.7	18.9	0.3	0.0	0.0	0.0	0.0	2.0	2.0	5	2
5 Ton HVAC	562791	4925504	8.5	77	74	48.5	0	0.0	-1.6	6.2	0.3	0.0	0.0	0.0	0.0	0.0	0.0	23	20
5 Ton HVAC	562642	4925519	8.5	77	74	56.1	0	0.0	-1.9	8.7	0.5	0.0	0.0	0.0	0.0	0.0	0.0	13	10
5 Ton HVAC	562680	4925441	8.5	77	74	56.5	0	0.0	-1.9	8.2	0.5	0.0	0.0	0.0	0.0	0.0	0.0	13	10
5 Ton HVAC	562664	4925442	8.5	77	74	57.0	0	0.0	-1.9	8.2	0.5	0.0	0.0	0.0	0.0	0.0	0.0	13	10
5 Ton HVAC	562652	4925454	8.5	77	74	57.1	0	0.0	-1.9	8.4	0.5	0.0	0.0	0.0	0.0	0.0	0.0	13	10
5 Ton HVAC	562639	4925538	8.5	77	74	55.9	0	0.0	-1.9	8.7	0.5	0.0	0.0	0.0	0.0	0.0	0.0	14	11
Kitchen EF	562648	4925491	7.6	82	79	56.3	0	0.0	-1.9	8.5	0.4	0.0	0.0	0.0	0.0	1.4	1.4	20	17
drive through car	562741	4925449	1.5	77	74	54.2	0	0.0	-1.5	10.8	0.2	0.0	0.0	0.0	0.0	0.0	0.0	13	10
Speakerboard	562698	4925447	1.0	83	80	55.8	0	0.0	-1.0	22.2	0.7	0.0	0.0	0.0	0.0	6.6	6.6	12	9
Speakerboard	562702	4925449	1.0	83	80	55.5	0	0.0	-0.9	22.3	0.7	0.0	0.0	0.0	0.0	6.2	6.2	12	9
10 Ton HVAC	562734	4925610	12.5	83	80	49.5	0	0.0	-1.9	5.6	0.4	0.0	0.0	0.0	0.0	0.0	0.0	30	27
10 Ton HVAC	562731	4925623	12.5	83	80	50.4	0	0.0	-1.9	5.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	29	26
Drive through car	562665	4925472	1.0	77	74	56.1	0	0.0	-1.6	12.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	10	7
Drive through car	562670	4925472	1.0	77	74	55.9	0	0.0	-1.6	12.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	10	7
5 Ton HVAC	562718	4925450	8.5	77	74	54.9	0	0.0	-1.9	8.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	15	12
Kitchen EF	562719	4925456	8.5	82	79	54.7	0	0.0	-1.9	7.7	0.4	0.0	0.0	0.0	0.0	0.0	0.0	21	18
Idling Truck	562655	4925506	2.0	86	--	55.7	0	0.0	-1.8	16.7	0.7	0.0	0.0	0.0	0.0	2.2	2.2	17	--
5 Ton HVAC	562658	4925496	8.5	77	74	55.8	0	0.0	-1.9	8.6	0.5	0.0	0.0	0.0	0.0	1.4	1.4	15	12
5 Ton HVAC	562654	4925495	8.5	77	74	56.0	0	0.0	-1.9	8.6	0.5	0.0	0.0	0.0	0.0	1.4	1.4	15	12
5 Ton HVAC	562644	4925491	8.5	77	74	56.4	0	0.0	-1.9	8.6	0.5	0.0	0.0	0.0	0.0	1.4	1.4	14	11
5 Ton HVAC	562640	4925490	8.5	77	74	56.6	0	0.0	-1.9	8.6	0.5	0.0	0.0	0.0	0.0	1.4	1.4	14	11
5 Ton HVAC	562729	4925454	8.5	77	74	54.4	0	0.0	-1.9	7.8	0.4	0.0	0.0	0.0	0.0	0.0	0.0	16	13
5 Ton HVAC	562700	4925449	1.5	77	74	55.5	0	0.0	-1.4	12.8	0.3	0.0	0.0	0.0	0.0	1.3	1.3	11	8
10 Ton HVAC	562737	4925456	8.5	83	80	54.1	0	0.0	-1.9	7.9	0.4	0.0	0.0	0.0	0.0	0.0	0.0	23	20
10 Ton HVAC	562757	4925585	8.7	83	80	45.8	0	0.0	-1.8	7.8	0.2	0.0	0.0	0.0	0.0	0.0	0.0	31	28
10 Ton HVAC	562777	4925592	8.7	83	80	42.4	0	0.0	-1.5	5.6	0.2	0.0	0.0	0.0	0.0	0.0	0.0	37	33
5 Ton HVAC	562695	4925448	1.5	77	74	55.8	0	0.0	-1.3	12.7	0.3	0.0	0.0	0.0	0.0	2.0	2.0	11	8
5 Ton HVAC	562761	4925574	8.7	77	74	45.1	0	0.0	-1.7	7.9	0.2	0.0	0.0	0.0	0.0	0.0	0.0	25	22
5 Ton HVAC	562780	4925577	8.7	77	74	41.0	0	0.0	-1.5	6.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	31	28
5 Ton HVAC	562763	4925568	8.7	77	74	44.8	0	0.0	-1.7	7.9	0.2	0.0	0.0	0.0	0.0	0.0	0.0	26	23
50Ton	562768	4925550	8.7	96	93	45.2	0	0.0	-1.8	7.9	0.2	0.0	0.0	0.0	0.0	0.0	0.0	44	41
Idling Truck	562647	4925498	2.0	86	--	56.2	0	0.0	-1.8	16.4	0.8	0.0	0.0	0.0	0.0	3.9	3.9	18	--
Idling Truck	562666	4925465	2.0	86	--	56.3	0	0.0	-1.8	16.2	0.8	0.0	0.0	0.0	0.0	0.0	0.0	15	--
Idling Truck	562707	4925456	2.0	86	--	55.1	0	0.0	-1.8	16.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	16	--
Idling Truck	562791	4925528	2.0	86	--	45.6	0	0.0	-1.3	22.4	0.3	0.0	0.0	0.0	0.0	2.0	2.0	21	--
Idling Truck	562720	4925630	2.0	86	--	51.4	0	0.0	-1.9	24.2	0.6	0.0	0.0	0.0	0.0	3.8	3.8	16	--
garbage compactor	562791	4925530	2.0	81	--	44.9	0	0.0	-1.4	15.9	0.1	0.0	0.0	0.0	0.0	0.0	0.0	22	--
Idling Truck	562777	4925536	2.0	87	--	45.6	0	0.0	-1.6	23.8	0.3	0.0	0.0	0.0	0.0	3.0	3.0	22	--
Idling Truck	562778	4925534	2.0	86	--	45.9	0	0.0	-1.5	22.6	0.3	0.0	0.0	0.0	0.0	2.7	2.7	21	--
Reefer Truck	562779	4925536	2.5	92	--	45.3	0	0.0	-1.0	19.5	0.1	0.0	0.0	0.0	0.0	2.5	2.5	31	--
Reefer Truck	562780	4925534	2.5	98	--	45.6	0	0.0	-1.8	17.2	0.1	0.0	0.0	0.0	0.0	1.0	1.0	38	--
Idling Truck	562780	4925520	2.0	86	--	47.4	0	0.0	-1.4	19.4	0.3	0.0	0.0	0.0	0.0	2.4	2.4	23	--
10 Ton HVAC	562798	4925474	8.5	83	80	51.2	0	0.0	-1.7	5.6	0.4	0.0	0.0	0.0	0.0	0.0	0.0	28	25
10 Ton HVAC	562811	4925480	8.5	83	80	50.8	0	0.0	-1.4	3.6	0.4	0.0	0.0	0.0	0.0	0.0	0.0	30	27
10 Ton HVAC	562794	4925490	8.5	83	80	49.8	0	0.0	-1.7	5.9	0.3	0.0	0.0	0.0	0.0	0.0	0.0	29	26
10 Ton HVAC	562807	4925496	8.5	83	80	49.3	0	0.0	-1.4	3.6	0.4	0.0	0.0	0.0	0.0	0.0	0.0	31	28
Condenser	562786	4925552	8.7	91	88	42.2	0	0.0	-1.6	6.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	44	41
Condenser	562785	4925553	8.7	91	88	41.9	0	0.0	-1.6	6.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	44	41
Trailer Truck Movement	562703	4925480	2.0	80	--	54.0	0	0.0	-2.1	16.0	0.4	0.0	0.0	0.0	0.0	1.2	1.2	13	--
Trailer Truck Movement	562768	4925509	2.0	74	--	47.8	0	0.0	-2.0	18.4	0.2	0.0	0.0	0.0	0.0	1.4	1.4	11	--
Trailer Truck Movement	562726	4925546	2.0	91	--	52.2	0	0.0	-1.8	18.3	0.5	0.0	0.0	0.0	0.0	1.2	1.2	23	--
Trailer Truck Movement	562767	4925534	2.0	78	--	46.3	0	0.0	-1.5	23.2	0.4	0.0	0.0	0.0	0.0	2.6	2.6	12	--
Trailer Truck Movement	562764	4925524	2.0	78	--	46.9	0	0.0	-1.5	21.6	0.3	0.0	0.0	0.0	0.0	2.0	2.0	13	--



Appendix D

Response to Comments



NOISE



VIBRATION



ACOUSTICS

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Peer review comments were received from R. Bouwmeester & Associates concerning our noise study report titled "*Noise Feasibility Study, Proposed Commercial Development, The Gateway Centre, Collingwood, ON*" dated January 14, 2021. Our responses are provided below in italics which include the comments.

R. Bouwmeester & Associates Comments

1. Verify (or correct) the date of the report – it is listed as January 14, 2021.

The updated report has the correct date.

2. Based on other noise reports in the area, and given that "*Areas to the south are mostly agricultural*" as noted in Section 2, an acoustical environment classified as Class 2 (Urban) is more appropriate for this area. Please revise the modelling accordingly.

The acoustical environment classification has been changed to Class 2 in the revised report.

3. Please add a 5 dB penalty for tonality for the vacuums.

Vacuums are no longer provided in the revised development site plan.

4. Figure 2 and the zoning map in Appendix 'A' have been 'cut off'. Please correct.

The figures in the revised report have been scaled to letter size.

5. Please provide sample Cadna-A inputs/outputs to support the results shown in Table III and Figures 5a and 5b.

Sample Cadna-A inputs/outputs are provided in Appendix C of the revised report.

6. Although the assumptions listed in Section 4.1 appear to be reasonable, we agree that they need to be verified before building permit issuance as indicated in Section 5.

Noted. As indicated in the report, the analysis should be revised once detailed building plans and mechanical equipment information is known.

7. We agree with the conditions listed in the three numbered paragraphs in Section 5.

Noted.

