Land Use Compatibility Study

720 Granite Court

1334281 Ontario Limited

5 September 2024

→ The Power of Commitment

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Executive Summary

GHD Limited (GHD) was retained by 1334281 Ontario Limited (Applicant) to prepare a Land Use Compatibility Study (Study) for the proposed residential development (Development) located at 720 Granite Court, Pickering, Ontario (Site). The initial study was completed April 27, 2023, in support of a 12-storey tall residential development. This updated Study has been prepared to address the peer review conducted by EXP Services Inc., present new results due to changes in the concept plan, and provide the latest data to support the planning approvals for the Development.

The current iteration of the proposed Development consists of a 10-storey-tall residential building with two outdoor amenity spaces located at grade.

The purpose of this Study is to assess the following:

1. Land use compatibility with nearby industrial uses
2. Noise impacts at the Development due to future road traffic
3. Stationary noise impacts from sources near the Development
4. Ground-borne vibration impacts at the Development due to rail traffic

Based on the assessment summarized herein, ambient noise levels at the Development from road and rail traffic are high and require noise mitigation to achieve acceptable noise levels in accordance with NPC-300, which is common for residential developments near 400-series highways and rail corridors. Upgraded building envelope construction is required, and the Development will be served by central air conditioning systems such that windows can remain closed. Acoustic barriers are necessary to mitigate the noise experienced at the outdoor amenity spaces at grade and warning clauses are recommended to advise the occupants of the potential audibility of the nearby transportation noise sources.

Predicted stationary noise emissions from nearby commercial / industrial facilities are within the applicable sound level limits of NPC-300, and do not require mitigation.

There have been no air quality, odour, or dust complaints from existing residents nearby to the existing commercial/industrial developments surrounding the Site and the industries surrounding the Development utilize short stack heights; therefore, air quality issues are not expected at the new Site. Additionally, GHD conducted a site visit on May 1, 2024, which confirmed that the odour impacts are insignificant at the Site.

Ground-borne vibration impacts from the GO Rail and VIA Rail were evaluated based on vibration measurements at the worst-case façade location of the Development, at grade. Based on these measurements, vibration levels are within the recommended vibration limit of 0.14 mm/s RMS and thus, vibration mitigation is not warranted for rail traffic.

This study is subject to, and must be read in conjunction with, the limitations set out in section 1.2 and the assumptions and qualifications contained throughout the Study.

Contents

Contents

Figure index

Table index

Table index

Appendices

1. Introduction

1.1 Purpose of this Study

GHD Limited (GHD) was retained by 1334281 Ontario Limited to prepare a Land Use Compatibility Study (Study) for the proposed Development of the proposed residential building located at 720 Granite Court, Pickering, Ontario (Site). The initial study was completed April 27, 2023, in support of a 12-storey tall residential development. This updated Study has been prepared to address the peer review conducted by EXP Services Inc., present new results due to changes in the concept plan, and provide the latest data to support the planning approvals for the Development. Full responses to the peer review comments are presented in Appendix H.

1.2 Scope and Limitations

This report: has been prepared by GHD for 1334281 Ontario Limited and may only be used and relied on by 1334281 Ontario Limited, the City of Pickering, and the Region of Durham for the purpose agreed between GHD and 1334281 Ontario Limited as set out in section 1.1 of this report.

GHD otherwise disclaims responsibility to any person other than 1334281 Ontario Limited arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report. GHD disclaims liability arising from any of the assumptions being incorrect.

2. Site and Development Description

The Site is located on the west side of Whites Road and the north side of Granite Court, immediately east of the Metrolinx Kingston Subdivision rail line. A key plan is included as Figure 2.1, which identifies the location of the Site in relation to the nearby relevant points of interest to this Study.

The proposed Development consists of one 10-storey-tall residential building. The Development includes two outdoor amenity spaces located at grade. Current drawings of the Development are included in Appendix A.

GHD reviewed the parent zoning by-law and all applicable amendments for the area surrounding the Site as the new draft by-law is still under review. Nonetheless, GHD notes that the draft zoning map remains largely the same compared to the current enforceable zoning. The current map does not have a zoning designation indicated for the Site, however, the official plan notes the Site as “Mixed-Use Areas - Local Node (LN).” The lands immediately surrounding the Site include properties that are zoned as General Commercial (C1-1, Exception Zone 29), Commercial Automotive Service (C2, Exception Zone 49), Residential First Density (R1), Single Attached Residential (SA-A, Exception Zone 12), Residential-Multiple (M15, Exception Zone 9), Utility (UT), and Employment (M1-1, Exception Zone 71). The applicable zoning maps from the City of Pickering are included in Appendix A.

The area surrounding the Site includes significant terrain changes. Notably, the Metrolinx Kingston Subdivision rail tracks are located in a valley, which obstructs line-of-sight between the lowest floors of the Development (including the outdoor amenity space) and the tracks. There are also existing buildings nearby that partially obstruct the line-of-sight

to some significant roadways at lower floors of the Development. The meteorology at the Site is likely consistent with the nearest available weather station in Oshawa and, as such, data from Oshawa Climate Station #71697 was used to construct an applicable wind rose which is provided in Appendix B. The wind rose identifies an average wind speed of 3.75 m/s with the dominant wind direction blowing from the northwest.

To support the findings of the initial version of this study, dated April 27, 2024, GHD conducted site visits on September 22, 2022. The meteorological conditions during this site visit included moderate wind speeds (18 km/h) and a cool temperature of 13.3 degrees Celsius.

To support the findings in this revised study, GHD conducted an additional site visit on May 1, 2024. The meteorological conditions during the site visit measurements included low wind speeds (<2 mph blowing from the north) and cool temperatures at 8.8 degrees Celsius.

3. Land Use Compatibility Assessment

Land use compatibility assessments in Ontario are typically performed in two stages. In the case of proposed industrial uses in proximity to sensitive uses, the first step is to determine if there are any potential adverse effects. The Ministry of the Environment, Conservation and Parks (MECP) Guideline D-6 is meant to identify potential air and noise compatibility issues caused by industrial land uses on sensitive land uses. The guidelines have been considered in this assessment and is described further below. Where the potential for compatibility issues is identified a more detailed assessment may be performed.

3.1 Provincial Policy Statement

The Provincial Policy Statement ("PPS") is a consolidated statement of the government's policies on land use planning. It "provides policy direction on matters of provincial interest related to land use planning and Facility. As a key part of Ontario's policy-led planning system, the Provincial Policy Statement sets the policy foundation for regulating the Facility and use of land. It also supports the provincial goal to enhance the quality of life for all Ontarians."

The PPS, 2020 is an important part of More Homes, More Choice: Ontario's Housing Supply Action plan and became effective on May 1, 2020. Policy direction concerning land use compatibility is provided in Section 1.2.6 of the PPS, 2020:

> 1.2.6 Land Use Compatibility
>
> 1.2.6.1 Major facilities and sensitive land uses shall be planned and developed to avoid, or if avoidance is not possible, minimize and mitigate any potential adverse effects from odour, noise and other contaminants, minimize risk to public health and safety, and to ensure the long-term operational and economic viability of major facilities in accordance with provincial guidelines, standards and procedures.
>
> 1.2.6.2 Where avoidance is not possible in accordance with policy 1.2.6.1, planning authorities shall protect the long-term viability of existing or planned industrial, manufacturing, or other uses that are vulnerable to encroachment by ensuring that the planning and Facility of proposed adjacent sensitive land uses are only permitted if the following are demonstrated in accordance with provincial guidelines, standards and procedures:
>
> a) there is an identified need for the proposed use;
>
> b) alternative locations for the proposed use have been evaluated and there are no reasonable alternative locations;
>
> c) adverse effects to the proposed sensitive land use are minimized and mitigated; and
>
> d) potential impacts to industrial, manufacturing or other uses are minimized and mitigated."

The goals of the PPS are implemented through Municipal and Provincial policies, as discussed below. Provided the Municipal and Provincial policies, guidelines, standards and procedures are met, the requirements of the PPS will be met.

3.2 Guideline D-6

The MECP Guideline D-6 "Compatibility Between Industrial Facilities and Sensitive Land Uses" (Guideline D-6) provides recommended minimum separation distances (RMSD) and potential areas of influence (AOI) based on the class of an industrial facility. Industry classifications are determined based on the industry size and operation type. The guideline provides direction for land use planning to help ensure compatibility of industrial uses with adjacent land uses. The goal of Guideline D-6 is to minimize encroachment of sensitive land uses on industrial facilities and vice versa, in order to address potential incompatibility due to adverse effects such as noise, vibration, odour, dust, and air quality.

Guideline D-6 separates industry into three broad categories, depending on the nature of their operations and the types of potential impacts:

1. **Class I industries** are small-scale, self-contained plants or buildings, which produce and store products internally, and have low probability of fugitive emissions. They have daytime operations only, with infrequent movements of products and/or heavy trucks. Some examples include furniture repair and refinishing, electronics manufacturing, auto parts supply, distribution of dairy products, and beverages bottling.
2. **Class II industries** perform medium-scale processing, with occasional outputs of point source or fugitive emissions. Activities may include some outdoor storage of wastes and materials, frequent movement of products and/or heavy trucks during the daytime, and shift work. Some examples include paint spray booths, feed packing plant, dairy product manufacturing, and dry-cleaning services.
3. **Class III industries** conduct large-scale manufacturing and are characterized by persistent and/or intense dust and/or odour, frequent outputs of major annoyances, and have a high probability of fugitive emissions. Activities may include continuous operations and movements of products, outside storage of raw and finished goods, and high levels of production. Some examples include manufacturing of paint and varnish, manufacturing of resins and coatings, solvent recovery plants, organic chemicals manufacturing, breweries, and metal manufacturing.

The following table summarizes the recommended minimum setback distances and areas of potential influence which represents the distance within which adverse effects could potentially occur:

Table 3.1 Guideline D-6 Industry Separation Distances

Industry Classification	RMSD (metres)	AOI (metres)
– Class I	– 20	– 70
– Class II	– 70	– 300
– Class III	– 300	– 1,000

Guideline D-6 recommends that industrial or sensitive facilities should maintain the Recommended Minimum Separation Distances summarized above. However, section 4.10 of Guideline D-6 states that facilities within the separation distances can be considered in cases of re-zoning, infilling, and transitions to mixed use, provided that the appropriate studies are conducted and to ensure that the relevant air quality and noise guidelines are met.

3.3 Classification of Facilities

Analysis of nearby industries found that eight had areas of influence that overlap the Development when using Guideline D-6. Classifications of the facilities per the D-series guidelines are summarized in Table 3.2:

Table 3.2 Summary of Key Industries nearby to the Development

Facility Name	Address	MECP Air Permit / Registration	Description of Operations	D-6 Class	RMSD (m)	AOI (m)	Distance from Site (m)	Further Assessments Warranted
RS Superior Bindery Services	1800 Ironstone Manor	None	Commercial print finishing and binding shop: – No outside storage – Medium scale operations – Low probability of fugitive emissions	II	70	300	60	Yes (noise)
The Somcan Group	1800 Ironstone Manor	None	Inventory storage and shipment service: – No outside storage – Medium scale operations – Low probability of fugitive emissions	II	70	300	60	Yes (noise)
Crate 61 Organics	1800 Ironstone Manor	None	Soap and other cosmetic products manufacturer and distributor: – No outside storage – Medium scale operations – Low probability of fugitive emissions, no large exhaust stacks	II	70	300	60	Yes (odour, air quality, noise)
Labelink Products Inc.	1800 Ironstone Manor	None	Commercial printing facility with sheet-fed printing presses and heat-set printing presses: – No outside storage – Medium scale operations – Low probability of fugitive emissions, no large exhaust stacks	II	70	300	60	Yes (odour, air quality, noise)
Lenbrook Industries Ltd.	633 Granite Court	None	Wholesale distributor of commercial two-way communications devices, electronics manufacturing: – No outside storage – Potential for frequent truck movements, primarily during daytime hours – Sound occasionally audible off-property	II	70	300	100	Yes (noise)

Facility Name	Address	MECP Air Permit / Registration	Description of Operations	D-6 Class	RMSD (m)	AOI (m)	Distance from Site (m)	Further Assessments Warranted
Waterbridge	680 Granite Court	None	Chocolate confectionery product warehouse: – Potential for frequent truck movements, primarily during daytime hours – No outside storage – Low probability of fugitive emissions	I	20	70	50	Yes (noise)
Multi-Tenant Commercial Building	1795 Ironstone Manor	None	Décor studio, education centre and electronics manufacturer: – No outside storage – Low probability of fugitive emissions	I	20	70	210	No
Multi-Tenant Commercial Building	1815 Ironstone Manor	R-004-3110719193 (EASR, 2018)	Software company, fire protections service, dentist, and geotechnical engineering firm: – No outside storage – Low probability of fugitive emissions	I	20	70	260	No
Multi-Tenant Commercial Building	1845 Sandstone Manor	None	Two multi-tenant commercial buildings including offices and some small manufacturing uses with no large outdoor equipment: – Self-contained – No outside storage – Low probability of fugitive emissions	I	20	70	165	No
Commercial Plaza	750 Oklahoma Drive	None	Multi-tenant commercial plaza including restaurants and retail stores with no large outdoor equipment: – No outside storage – Daytime operations only – Low probability of fugitive emissions	I	20	70	95	No
SmartStop Self Storage	600 Granite Court	None	Self storage facility: – No outside storage – Low probability of fugitive emissions – Daytime operations only	I	20	70	270	No
Peg Perego Canada	585 Granite Court	None	Toy and game manufacturer: – No outside storage – Potential for frequent truck movements, primarily during daytime hours – Daytime operations only	II	70	300	285	No (observed to be insignificant)

Facility Name	Address	MECP Air Permit / Registration	Description of Operations	D-6 Class	RMSD (m)	AOI (m)	Distance from Site (m)	Further Assessments Warranted
Vacant Building (Formerly Rogers)	1851 Sandstone Manor	None	– N/A	--	--	--	210	--
Ellis Packaging	1830 Sandstone Manor	3029-8ZDQTH (ECA, 2012)	Facility for the printing and assembly of carboard packaging: – Medium scale operations – No outside storage – Low probability of fugitive emissions	II	70	300	295	No (observed to be insignificant)
Nanz Pharma Inc.	575 Granite Court	None	Pharmaceutical company: – Medium scale operations – No outside storage – Low probability of fugitive emissions – Frequent movement of products or heavy trucks, primarily during daytime hours	II	70	300	390	No
Yorkville Sound	550 Granite Court	None	Electronic speaker manufacturer: – Medium scale operations – No outside storage – Low probability of fugitive emissions – Frequent movement of products or heavy trucks, primarily during daytime hours	II	70	300	510	No

The Environmental Compliance Approval (ECA) and Environmental Activity Sector Registration (EASR) documents referenced above are included in Appendix C. Figure 3.1 attached shows the locations of the facilities listed above in relation to the Site. The following facilities are located within either the RMSD or the respective potential AOI per Guideline D-6, and therefore further evaluation or justification could be provided to determine if there are any potential compatibility concerns:

- Labelink Products Inc.
- Crate 61 Organics
- The Somcan Group
- RS Superior Bindery Services
- Peg Perego Canada
- Lenbrook Industries Limited
- Ellis Packaging
- Waterbridge

3.4 Review of Complaints History

Based on GHD telephone communications with the Pickering MECP duty officer, GHD understands that there have been no complaints from existing residents due to emissions from any of the industries identified in Table 3.2 with exception of Ellis Packaging Limited, which has received noise complaints in the past.

However, during GHD's site visit on September 22, 2022, and the site visit on May 1, 2024, there was no audible noise from Ellis Packaging Limited at the Site or along Granite Court. The specific equipment/activity causing the previous complaints is not known; however, it is suspected to be related to either trucking activity at the docks on the west side of the building or dust collection systems at the south side of the building, as the rooftop mechanical units appear to be relatively minor. As such, Ellis Packaging Limited is not anticipated to be a significant source of noise impacts at the Development.

3.5 Guideline D-6 Assessment Conclusions

Figure 3.1 shows the property lines of the Site and the associated setbacks per the D-series guidelines. As seen in the figure, the Development lies within the respective RMSDs/AOIs of some of the nearby facilities. As such, further assessments are included in the following sections to address any potential for impacts to the proposed Development.

It is expected that any potential future employment uses would be designed to be compatible with the sensitive uses existing at that time, including any required mitigation measures. Potential future uses at the employment lands are explored in the following section.

3.5.1 Potential Future Industrial Developments

The lands located directly adjacent on the west side of the Site are currently zoned as M1-1 which has the features of an employment zone. The City of Pickering Zoning By-law 789/78 as amended by By-law 893/78 allows for the following potential future uses on these lands:

Table 3.3 M1-1 - Permitted Uses (Amended by City of Pickering Zoning By-Law Feb 2024)

Exception Zone 71 Employment Uses	Expected D-6 Classification
Business Office	Class I
Food Preparation Plant	Class II
Light Manufacturing Plant	Class II
Public Use	Class I
Scientific or Medical Laboratory	Class II
Warehouse	Class II

Although uses for many of these lands are already established, there is potential for new developments, such as in the vacant building on 1851 Sandstone Manor located just north of the end of Sandstone Manor. Some of the uses permitted by the Employment Prestige zoning listed above would be best described as Class II industries. These uses generally have some or minimal outdoor storage of wastes or materials, with periodic outputs of minor annoyance, with possible shift operations and movement of products/heavy trucks during daytime hours.

Many uses are also best described as Class I industries per Guideline D-6, including commercial and vehicle rental establishments. These uses are relatively small in scale and self-contained. They generally operate during daytime hours only and have infrequent movement of products without outdoor storage.

Additionally, GHD reviewed the current development applications on the City of Pickering’s website to further assess the potential for future developments in the area. GHD found that there were no developments planned within the Class II AOI. Also, all other developments outside the Class III RMSD and within the Class III AOI were Class II or lower (603-643, 645 and 699 Kingston Road, and 755 Oklahoma Drive).

Any proposed industrial uses of these lands should be evaluated to ensure on-going land use compatibility. For example, depending on the site and the proposed activity, the minimum and recommended minimum setbacks will change. Therefore, each additional development phase shall be evaluated on an individual basis and designed with appropriate controls.

4. Air, Dust, and Odour Assessment

4.1 Industrial Impacts

Based on GHD's review of the existing employment uses nearby to the Development, the following table summarizes the potential sources of air, dust, and odour emissions:

Table 4.1 Summary of Potential Air, Dust, and Odour Emissions

Facility Name	Air Emissions	Dust	Odour
Labelink Products Inc., and Crate 61 Organics	The risk of air compliance issues is minor as all stacks on the building are low which usually results in maximum off-property concentrations occurring at ground level at the property line and the facilities are required to adhere to air quality regulations at the property line. Furthermore, the Development remains at an approximately equidistant setback when compared to the existing residential uses and would experience similar air quality impacts. Therefore, there is not likely to be air quality impacts at the Development from Labelink Products Inc. and Crate 61 Organics.	Insignificant based on operations and lack of complaints.	There is no history of complaints; therefore, odour emissions are expected to be insignificant. This is further supported by GHD's site visit on May 1, 2024. GHD noted that odour was not perceptible during optimal conditions for odour propagation (low wind speeds, located downwind from the odour sources). Therefore, odour impacts are not anticipated to be a concern at the Development. Additionally, worst-case odour impacts generally occur during low wind scenarios. A wind rose is provided in Appendix B which represents Oshawa Climate Station WMO #71697 which is the nearest station to the Development with wind data. The wind rose indicates that the Development has the potential to be downwind from Labelink Products Inc. approximately 6% of the time, based on five years of historical meteorological data. Furthermore, calm winds occur 5.32% of the time. Therefore, the likelihood of potential odour impacts is less than 0.32% of the time. The MOECC technical bulletin titled "Methodology for Modelling Assessments of Contaminants With 10-Minute Average Standards and Guidelines for Odour Under O. Reg. 419/05", states that if the frequency of an odour is less than 0.5% of the time then the impact is deemed acceptable.

As summarized above, dust and odour are not considered to be a concern, based on the operations of the facilities, lack of history of complaints. The low risk of odour issues is further supported by site visit observations that were made by GHD on May 1, 2024.

4.2 Transportation Impacts

4.2.1 Transportation Related Air Pollution Overview

The City of Toronto published a report titled "Reducing Health Risks from Traffic Related Air Pollution (TRAP) in Toronto", dated October 16, 2017. The report describes potential air pollution issues which are relevant to developments nearby to highways and major roads as follows:

"Exposures to traffic-related air pollution (TRAP) are highest near highways and busy roads. The health literature indicates that health risk from TRAP is higher within 500 metres of highways with an average daily traffic volume of 100,000 vehicles or more, and within 100 metres of arterial roads with an average daily traffic volume of 15,000 vehicles or more." The report recommends that City Staff "develop guidance to assist appropriate City agencies, corporations, and divisions in establishing traffic-related air pollution mitigation measures at City owned sites located within 500 metres of roads with annual average traffic volumes of 100,000 vehicles or more per day, and within 100 metres of roads with annual average traffic volumes of 15,000 vehicles or more per day; and develop best practices guidelines for new and existing buildings, in consultation with industry professionals, and raise awareness of these practices among school board staff, childcare centre operators, long-term care facility operators, and residents, as well as builders, developers, designers, architects, engineers and other professionals."

TRAP policies are not in place at Pickering or Durham, however, GHD has included this analysis as a best practice for the Development. GHD recommends that the guidance be followed to help mitigate the potential health impacts associated with TRAP.

4.2.2 TRAP Screening Results

The Site is located inside the recommended TRAP zone of exposure of 500 m of Highway 401, and within the 100 m TRAP zone of exposure of Bayly Street and Whites Road, which have annual average daily traffic (AADT) exceeding 15,000 vehicles. Thus, potential exists for TRAP exposure from Highway 401 and the surrounding major arterial roadways.

In order to mitigate the potential for TRAP related issues at the development, GHD recommends the following mitigation measures:

- Add a Warning Clause related to TRAP for the Site.
- Face all air intakes away from Highway 401, which is the primary source of TRAP emissions.
- Install carbon and dust filters on all air intakes, HVAC units, make-up air units, and heat recovery units at the Site.
- Ensure that all HVAC units, heat/energy recovery units, and make-up air units are designed such that positive pressurization is maintained under typical weather conditions of all occupied areas following the current ASHRAE recommendations.
- The scheduling of fresh air intake of HVAC units to avoid peak traffic hours
- Located outdoor amenity spaces as far away from roads as possible and with physical barriers in-between where possible.

4.3 Summary of Air Quality, Odour, and Dust Conclusions

GHD concludes that the facilities surrounding the Site serve as insignificant sources of dust, air quality, and odour emissions and that the site visit observations, short stack heights, and lack of complaints from existing residences supports this conclusion. Therefore, further assessment of these impacts is not deemed necessary due to the scale of the surrounding facilities. Additionally, TRAP assessment identifies three significant roads of concern near the Site

consisting of Highway 401, Bayly Street, and Whites Road. To reduce the risk of health impacts for residents, GHD recommends the mitigation detailed in section 4.2.

5. Noise and Vibration Assessment

5.1 Sound and Vibration Criteria

5.1.1 Noise By-Law

The City of Pickering By-Law No.6834/08 (Noise By-Law), dated February 27, 2008, has been reviewed in the context of this Study. The Noise By-Law includes specific requirements and prohibitions of noise emissions based on source type during certain time periods, including:

– Operation of solid waste bulk lift or refuse compacting equipment is prohibited from 10:00 pm to 6:00 am the next day (Noise By-Law Schedule 2)
– Operation of construction equipment is prohibited from 7:00 pm to 7:00 am, and all day on Sundays and statutory holidays (Nosie By-Law Schedule 2)

The Noise By-Law does not include any objective sound level criteria for the assessment of noise emissions from commercial/industrial operations; therefore, sound level criteria contained in the Ontario Ministry of the Environment, Conservation and Parks (MECP) guideline NPC-300 "Environmental Noise Guideline, Stationary and Transportation Sources – Approval and Planning" (August 2013) are appropriate to be used as the basis for assessment of potential noise impacts.

5.1.2 Transportation Noise Criteria

Under NPC-300, road and rail traffic noise impacts are evaluated separately for exterior receptors and interior receptors based on the average day (07:00 to 23:00) and night (23:00 to 07:00) noise impacts. The sound levels are expressed in terms of A-weighted equivalent sound levels (Leq).

NPC-300 defines two categories of receivers for transportation noise:

– Plane of Window (POW): Point corresponding with the centre of a window of a sensitive space.
– Outdoor Living Area (OLA): Outdoor location intended and designed for quiet enjoyment of the outdoor environment that is readily accessible from the building (e.g., backyards, front yards, gardens, terraces, patios). Private balconies and terraces are only considered OLAs if they are greater than 4 metres in depth and if they are the only outdoor living area for the occupant(s).

NPC-300 specifies sound level limits for POW and OLA receivers as summarized in Table 5.1 below.

Table 5.1 Road and Rail Traffic – Outdoor Sound Level Limits

Receiver Category	Sound Level Limit (dBA)	
	Day (16-hour Leq)	Night (8-hour Leq)
Plane-of-Window (POW)	55	50
Outdoor Living Area (OLA)	55	N/A

For POWs, combined road and rail traffic sound levels exceeding the corresponding criteria above would require additional controls for MECP compliance. Depending on the magnitude of the exceedances, additional controls may include ventilation requirements, requirements for building envelope elements, and/or noise warning clauses. For sound levels greater than 55 dBA and less than or equal to 65 dBA during the day or greater than 50 dBA and less than or equal to 60 dBA during the night, the building should be designed with a provision for the installation of central

air conditioning in the future, at the occupant's discretion with the inclusion of warning clause Type C. If the sound levels are greater than 65 dBA during the day or greater than 60 dBA at night, installation of central air conditioning should be implemented with the inclusion of warning clause Type D.

For OLAs, road traffic sound levels exceeding the daytime limit indicated above would require design of noise barriers to achieve the target, and/or warning clauses. NPC-300 states that sound levels up to 5 dBA above the OLA sound level limit (i.e., up to 60 dBA) are acceptable with the use of an appropriate noise warning clause.

If POW sound levels from future road traffic exceed 65 dBA during the day or 60 dBA at night, or if sound levels from future rail traffic exceed 60 dBA during the day or 55 dBA at night, building envelope components must be designed to achieve the indoor sound level limits of NPC-300. The indoor sound level limits for road and rail traffic are summarized in Table 5.2 below.

Table 5.2 Road and Rail Traffic – Indoor Sound Level Limits

Receiver Category	Road Sound Level Limits (dBA)		Rail Sound Level Limits (dBA)	
	Day (16-hour Leq)	Night (8-hour Leq)	Day (16-hour Leq)	Night (8-hour Leq)
Indoor living areas (excluding sleeping quarters)	45	45	40	40
Sleeping quarters	45	40	40	35

5.1.3 Stationary Noise Limits

5.1.3.1 MECP Standard Limits

NPC-300 defines stationary noise sources as sound from all sources that are normally operated within the property lines of a facility. The noise impact from stationary sources is evaluated based on operations during a predictable worst-case hour. Stationary noise assessment criteria are generally determined based on the MECP's minimum exclusionary sound level limits, as presented in NPC-300, in comparison to the background sound levels experienced in the area.

The Site is in what would generally be considered a Class 1 acoustic environment as defined by NPC-300, as the acoustic environment is dominated by human activities (i.e., road traffic).

Table 5.3 below summarizes the MECP's minimum exclusionary sound level limits for Class 1 areas, which are expressed in terms of 1-hour equivalent sound levels (1-hour Leq):

Table 5.3 MECP Minimum Exclusionary Sound Level Limits for Steady Sound – Class 1 Area

Point of Reception Type	Sound Level Limits (dBA)	
	Day (7am – 11pm)	Night (11pm – 7am)
Plane of window	50	45
Outdoor space	50	--

5.1.3.2 Background Sound Levels

GHD conducted a background sound level assessment to evaluate the existing background noise due to road traffic on Highway 401, Bayly Street, Whites Road, Granite Court, and Oklahoma Drive. Background noise was modelled in CadnaA, which was set to predict noise emission rates in accordance with the United States of America's (US) Department of Transportation's Traffic Noise Model (TNM). These noise emissions were validated with STAMSON, the MECP's computerized model of the Ontario Road Noise Analysis Method for Environment and Transportation (ORNAMENT). The applicable noise criteria at a point of reception are based on the higher of the background sound level and the MECP's minimum sound level limits, as noted in Section 5.1.3.1.

The computer model input parameters include, among other data, the number of road segments, number of house rows, the positional relationship of the receptor to a noise source or barrier in terms of distance, elevation and angle, the basic site topography, the ground surface type, traffic volumes, traffic composition, and speed limit.

Hourly traffic counts from 2019 for Highway 401 were obtained from the Ontario Ministry of Transportation and hourly traffic counts from 2017 for Granite Court and Oklahoma Drive were obtained from the City of Pickering. These counts were used to determine the minimum hourly count during the day, and nighttime periods. Additionally, the AADT counts from the Durham Region Website were used for Whites Road and Bayly Street which were adjusted to represent the minimum hour based on the calculated distribution percentages from Granite Court.

Table 5.4 Background Road Traffic Parameters

Road Segment	AADT	Year of AADT	Minimum Hourly Daytime Vehicles	Minimum Hourly Nighttime Vehicles	Commercial Vehicle Rates (medium trucks / heavy trucks)
Highway 401	278,300	2019	3,780	2,062	5% / 8%
Whites Road (North of Bayly)	16,185	2023	324	16	4% / 6%
Whites Road (South of Bayly)	3,035	2023	61	3	4% / 6%
Bayly Street	11,335	2023	227	11	4% / 6%
Granite Court	8,208	2017	43	3	1.5% / 8.8%
Oklahoma Drive	5,316	2017	43	0	2.5% / 5.2%

The above road traffic data was used to calculate background sound levels at the façades and outdoor points of reception of the Development using the detailed model methodology described in Section 5.2.1 of this Study. Predicted noise levels exceed the minimum Class 1 exclusionary limits at the worst-case facades and outdoor points of reception of the development. Figure 5.1 shows the lowest predicted road traffic sound levels at each of the outer façades and outdoor points of reception of the Development based on the road traffic data summarized above. The lowest sound levels generally occur at the ground floor level (1.5 metres above grade) and increase with height due to increased line of sight exposure to the roadways.

Where the predicted background sound level due to road traffic exceeds the corresponding minimum exclusionary sound level limit of NPC-300 (see Table 5.3), the background sound level is instead used as the criteria for assessment of stationary noise impacts. The applicable site-specific sound level limits for the Development are summarized as follows:

Table 5.5 Applicable MECP Sound Level Limits for Steady Sound

POR ID	POR Description	Sound Level Limits (dBA)	
		Day (7am – 7pm)	Night (11pm – 7am)
POR-01	Edge of Outdoor Amenity Space (1.5 m Above Grade [A.G.])	53	--
--	Worst-case West Façade of Development (6 m A.G.)	51	47
--	Worst-case North Façade of Development (6 m A.G.)	55	52

5.1.4 Rail Vibration Criteria

5.1.4.1 Vibration Criteria for Nearby Rail Lines

The MECP does not stipulate criteria for ground-borne vibration produced by rail traffic. However, the Federation of Canadian Municipalities (FCM) & The Railway Association of Canada (RAC) document entitled "Guidelines for New

Development in Proximity to Railway Operations, May 2013" (GNDPRO) is commonly used as a guideline for assessment of rail vibration.

According to the GNDPRO, any proposed development that is within 75 m of a railway right-of-way (ROW) must be assessed to evaluate the perceptibility of ground-borne vibration from the railway. GNDPRO specifies that ground-borne vibration measurements should be conducted using a measurement system capable of measuring frequencies between 4 Hz and 200 Hz (± 3 dB), with an averaging time constant of 1 second. The proposed development would be considered impacted by vibrations exceeding 0.14 mm/s (RMS). This recommended vibration limit applies directly to the measured outdoor ground borne vibration levels. If measured vibration levels exceed these limits, then vibration control measures must be investigated and considered to ensure that these vibration levels are not exceeded.

5.2 Transportation Noise Impact Assessment

5.2.1 Methodology

The roadways near the Site were modelled as sources of sound using the road element in CadnaA set to predict noise emission rates in accordance with the United States of America's (US) Department of Transportation's Traffic Noise Model (TNM).

Rail traffic noise levels are modelled as line sources of sound using the rail source element in CadnaA using the US Federal Transit Administration and Federal Railway Administration's prediction algorithm (FTA/FRA Model). The rail noise sources were set to use noise emission rates calculated using STAMSON.

The 3D CadnaA model accounts for the complex geometry at the Site and the surrounding area. The area surrounding the Site is essentially flat. Road traffic noise levels were predicted at all façades of the Project using the Building Noise Map feature of CadnaA.

To demonstrate that the model is generally consistent with the STAMSON model that is the standard in Ontario, a sample STAMSON calculation is included in Appendix C representing the east façade of the proposed Development. The prediction results are within ± 1 dBA of the CadnaA noise predictions, indicating that the CadnaA model is consistent with STAMSON.

5.2.2 Traffic Input Parameters

5.2.2.1 Road Traffic Data

Future road traffic model parameters used in this Study is summarized as follows:

Table 5.6 Future (2034) Road Traffic Input Parameters

Road Segment	Future AADT	Speed Limit (km/h)	Day / Night Split	Commercial Vehicle Rates (medium trucks / heavy trucks)
Highway 401	364,626	100	73% / 27%	5% / 8%
Whites Road	38,680	60	90% / 10%	4% / 6%
Bayly Street	25,000	60	90% / 10%	4% / 6%
Granite Court	12,489	40	93% / 7%	1.5% / 8.8%
Oklahoma Drive	8,089	40	92% / 8%	2.5% / 5.2%

Road traffic volumes for Highway 401 were obtained from data published by the Ontario Ministry of Transportation (MTO) in the form of Annual Average Daily Traffic (AADT) volumes for the year 2021. GHD applied a calculated annual growth rate of 2.1% based on the trends exhibited by the most recent five years prior to the 2021 data (excluding 2020). This calculated growth rate was applied to the volumes to estimate the future 2034 AADT. The day /

night split was calculated based on hourly counts received from the MTO, and commercial vehicle rates were assumed based on guidance from the MTO.

Road traffic volumes for Granite Court and Oklahoma Drive were obtained from the City of Pickering in the form of hourly traffic counts for the year 2017. GHD averaged the data and applied an assumed growth rate of 2.5% to estimate the future 2034 AADT. A day / night split of 92% / 8% for Oklahoma Drive and 93% / 7% for Granite Court were calculated based on the hourly data. Commercial vehicle rates were determined based on the breakdown provided in the counts.

Road Traffic Volumes for Whites Road and Bayly Street were obtained from the Region of Durham. Whites Road was obtained from the Durham open data website in the form of 2017 AADT (this data was unavailable when requested from both Durham Region, and the City of Pickering, thus, open data was used). The 2017 AADT was chosen as it was the highest volume available and was assumed to span the entire length of the road for conservatism. The data was then projected to the year 2034 using an assumed growth rate of 2.5%. Bayly Street data was obtained directly from the Region in the form of Ultimate AADT. A day / night split of 90% / 10% was assumed for both roadways. Commercial vehicle rates were determined based on the data provided by the Region for Bayly Street and assumed to be the same for Whites Road.

Figure 2.1 shows the location of the roadways noted above in relation to the Site. All road traffic data referenced in this Study is included in Appendix D.

5.2.2.2 Rail Traffic Data

Future rail traffic model parameters used in this Study is summarized as follows:

Table 5.7 Future (2034) Rail Traffic Input Parameters

Rail Source	Future Daytime Trains	Future Nighttime Trains	Locomotive Type	Max. Locomotives per Train	Max. Cars per Train	Max. Speed (km/h)
CN Rail - Kingston Subdivision Freight	16	5	Diesel	4	140	105
CN Rail - Kingston Subdivision Way-Freight	0	5	Diesel	4	25	105
VIA Rail	45	1	Diesel	1	5	150
GO Rail – Kingston Subdivision – Single Locomotive	123	26	Diesel	1	12	150
GO Rail – Kingston Subdivision – Double Locomotive	77	10	Diesel	2	12	150

Rail traffic data for CN freight and VIA Rail passenger traffic operating on the Metrolinx – Kingston Subdivision was obtained from Canadian National (CN) railway. Future rail volumes for these rail traffic sources were estimated using an assumed annual growth rate of 2.5%.

Future 2034 forecast rail traffic data for GO Rail traffic operating on the Kingston Subdivision was obtained from Metrolinx. As per Metrolinx's recommendations, despite the future electrification of GO Rail trains, all locomotives were modelled as diesel locomotives.

Figure 2.1 shows the location of the rail line noted above in relation to the Site. All rail traffic data referenced in this Study is included in Appendix D.

5.2.3 Road and Rail Traffic Prediction Results

5.2.3.1 Plane of Window Receivers

Predicted future cumulative road and rail traffic noise impacts at the worst-case POW receivers of the Project are summarized as follows:

Table 5.8 Future Road and Rail Noise Levels – Plane of Window

Façade	Future Noise Levels (dBA)						Limit Exceeded?
	Road		Rail		Total		
	Day	Night	Day	Night	Day	Night	
North	72	70	72	68	75	72	Yes
East	71	67	65	62	72	68	Yes
South	67	61	67	64	70	65	Yes
West	70	69	74	70	75	72	Yes

As seen above, future road traffic noise levels at the façades generally range from 70 dBA to 75 dBA during the day and 65 dBA to 72 dBA at night. Based on these results, recommended window sound transmission class (STC) ratings are specified in Section 5.2.4.1 to achieve the indoor sound level criteria of NPC-300. Figure 5.2 shows the predicted road noise levels at the façades of the Project.

5.2.3.2 Outdoor Living Areas

Predicted future road and rail traffic noise impacts at the worst-case OLA receivers of the Development are summarized as follows:

Table 5.9 Future Road Noise Levels – Outdoor Living Area

Receiver ID	Receiver Description	Future Daytime Noise Level (dBA)	Daytime Noise Level Limit (dBA)	Limit Exceeded?
OLA-01	Shared outdoor amenity space at grade north of the building (1.5 m AG)	65	55	Yes
OLA-02	Shared outdoor amenity space at grade west of the building (1.5 m AG)	61	55	Yes

As seen above, the noise levels experienced at OLAs are above the MECP limits by 6 dBA to 10 dBA. Therefore, noise barriers and/or warning clauses are required in accordance with NPC-300, as described further in Section 5.2.4.3.

5.2.4 Transportation Noise Mitigation

5.2.4.1 Building Envelope Construction

Predicted future traffic noise levels are sufficiently high that the building envelope must be designed with sufficient sound insulation performance to achieve the sound level criteria of NPC-300 for indoor living spaces. Sound insulation performance for windows and walls are commonly specified in terms of Sound Transmission Class (STC) ratings. Higher STC ratings generally correspond to higher sound insulation performance.

STC rating requirements are dependent on the exterior noise levels, source type/spectrum, angles of incidence, sizes of façade components relative to the room size, and sound absorption characteristics of the subject indoor living

space. Using these variables, STC rating requirements can be calculated using the method described in the National Research Council Canada's "Controlling Sound Transmission into Buildings" (BPN 56) publication.

Given the preliminary nature of the design of the Development, detailed floor plans and building elevations are not yet available. Therefore, minimum STC rating requirements have been calculated based on assumed window-to-floor area ratios (i.e., total window area for a room divided by its floor area) of up to **100%** for bedrooms and **80%** for other sensitive living areas (e.g., kitchens, living rooms). Bedrooms were assumed to have "intermediate" absorption characteristics, and other sensitive indoor living areas were assumed to have "hard" sound absorption characteristics. Note that if the actual window-to-floor area ratios are determined to exceed these values during detailed design, then window STC rating requirements would require an updated assessment to ensure acceptable indoor noise levels.

Based on the above assumptions, the minimum STC rating requirements at the worst-case façades are **STC-43** for windows and **STC-54** for exterior walls. Other façades that have less direct exposure to noise from Whites Road and the GO Rail Line have lower STC rating requirements, as shown in Figure F.1 of Appendix F. Essentially, north and west facing facades require STC-43 windows and east and south facing facades require STC37 windows. GHD notes that STC ratings for the worst-case walls are typical for developments located near arterial roads (Whites Road), Highway 401 and the Lakeshore East GO Rail Line.

Additionally, exterior wall assemblies must be **brick veneer or equivalent** high-mass construction (e.g., concrete) from the foundation to the rafters due to the Development's proximity to the GO Rail Line (Kingston Subdivision) and high associated noise levels.

Examples of window assemblies capable of achieving the necessary performance are included in Table 5.10 below:

Table 5.10 Example Window Assemblies and STC Ratings

STC Requirement	Window Assembly Short Form	Applicable Façades	Window Assembly Description
STC-37	8L-13AS-6	East and South	One 8 mm thick laminated glass pane and one 6 mm monolithic glass pane separated by an air gap of 13 mm or more
STC-43	10L-25AS-6	North and West	One 10 mm thick laminated glass pane and one 6 mm monolithic glass pane separated by an air gap of 25 mm or more

STC ratings for windows are dependent on a variety of factors (e.g., frame design, seals, etc.), and can vary significantly between manufacturers. Therefore, the final STC rating requirements for the windows should be included in the specifications, and window suppliers should be required to submit laboratory test data with their shop drawings to demonstrate that the STC requirements will be achieved.

STC rating requirements may be reduced if actual window-to-floor area ratios are lower than those assumed herein (see above). Conversely, if actual window-to-floor area ratios are higher than those assumed herein, the corresponding STC rating requirements would increase.

5.2.4.2 Ventilation

The indoor spaces of the Project must be served by central air conditioning systems. This will allow the windows and doors to remain closed during the hot summer months, such that the supplementary indoor sound level criteria of NPC-300 can be achieved. Warning clause Type D should also be used for all residential dwellings (wording included in Section 7.4). Both requirements are typical for buildings located near major transportation corridors.

5.2.4.3 Acoustic Barriers

Predicted future traffic noise levels at OLA-01 and OLA-02 are sufficiently high that acoustic barriers and warning clause must be used. The following is required to be implemented for these OLAs:

– A 3 m high, 84 m long, acoustic barrier west of OLA-01, along the property line
– A 3 m high, 55 m long, L-shaped acoustic barrier east of OLA-01

– A 3 m high, 5 m long, acoustic barrier east of OLA-01, perpendicular to the building
– A 1.8 m high, 12 m long, L-shaped acoustic barrier surrounding OLA-02

For greater clarity, the barrier locations are shown in Figure 5.3. With the barriers recommended above, predicted noise levels in the OLAs are as follows:

Table 5.11 Future Mitigated Road Noise Levels – Outdoor Living Area

Receiver ID	Receiver Description	Future Daytime Noise Level (dBA)
OLA-01	Shared outdoor amenity space at grade north of the building (1.5 m AG)	60
OLA-02	Shared outdoor amenity space at grade west of the building (1.5 m AG)	60

With the inclusion of the noise barrier the sound levels reach 60 dBA. NPC-300 states that sound levels up to 5 dBA above the OLA sound level limit (i.e., up to 60 dBA) are acceptable with the use of an appropriate noise warning clause (Warning Clause Type B). An acoustic barrier may vary in construction, provided it meets the following requirements:

– A minimum surface density of 20 kg/m^2 or meet compliance with requirement and certification CAN/CSA-Z107.9-00 (R2004) – Standard for Certification of Noise Barriers (Reaffirmed 2004).
– Be structurally sound and appropriately designed to withstand wind and snow loading as applicable.
– Constructed without any cracks or surface gaps at grade. If gaps are necessary for drainage purposes, they should be minimized to mitigate the impact on the acoustical performance of the barrier.

5.3 Stationary Noise Impact Assessment

The Project is considered a stationary noise source and has been evaluated as such to ensure noise emissions from the Project are acceptable at all nearby sensitive points of reception.

5.3.1 Methodology

Detailed assessment of stationary noise emissions from the Project has been carried out using CadnaA version 2023 MR2 (CadnaA). CadnaA is the industry standard for noise modelling of industrial and commercial facilities and is based on ISO standard 9613 2 "Acoustics – Attenuation of Sound during Propagation Outdoors". CadnaA modelling assumptions used in this Study include:

– Reflection Order: A maximum reflection order of 2 was used to evaluate indirect noise impact from reflecting surfaces.
– Ground Absorption: The model was set up with conservative ground absorption coefficients of 0.25 for asphalt surfaces, 0.5 for gravel, and 1.0 for absorptive areas of grass.
– Receptor Elevation: POR receptor heights were modelled appropriately based on an assumed storey height of 3 m.
– Tonality: A 5 dBA tonal penalty was applied to tonal sources, if applicable.
– Building Surfaces: The buildings are modelled as reflective surfaces.

The ground surface has distinct changes in elevation; therefore, topography data was used which was obtained from Ontario's Lake Erie Lidar Data.

5.3.2 Stationary Noise Sources

GHD evaluated noise emissions from these sources using sound level data for equipment that is comparable in size/capacity. Source locations are identified in Figure E.1, and source sound levels are summarized in Table E.1 found in Appendix E. Noise sources from the gas station and commercial plaza located across Whites Road were not

included as they were deemed insignificant based on Guideline D-6 screening. This was further supported by observations on GHD's site visit conducted on September 22, 2022, and May 1, 2024. A summary of the significant noise sources is included below:

5.3.2.1 Tractor Trailers

1800 Ironstone Manor, Waterbridge, and Lenbrook Industries Ltd. appear to receive trucks frequently during the daytime. GHD assumed 2 trucks during the day and 1 truck at night entering and leaving the site during the worst-case hour for both facilities.

Additionally, a truck idling source has been included for each facility to help accurately model the operations that could occur. These sources are conservatively assumed to operate continuously.

5.3.2.2 HVAC Equipment

Most of the buildings surrounding the Site utilize roof-mounted heating, ventilation, and air conditioning (HVAC) equipment. GHD modelled these sources using representative sound data for similar HVAC units. These units are conservatively modelled to operate continuously during the day and evening, and on a 50% duty cycle at night (30 minutes per hour).

5.3.3 Results

Based on the stationary source information described in Section 5.3.2 of this Study, predicted noise levels at the nearby points of reception (PORs) are summarized as follows:

Table 5.12 Stationary Noise Prediction Results Summary

POR ID	POR Description	Predicted Noise Level (dBA)		Sound Level Limit (dBA)		Limits Met?
		Day	Night	Day	Night	
POR-01	Edge of Outdoor Amenity Space (1.5 m Above Grade [A.G.])	47	--	53	--	Yes
--	Worst-case West Façade of Development (6 m A.G.)	48	47	51	47	Yes
--	Worst-case North Façade of Development (6 m A.G.)	47	46	55	52	Yes

As seen above, predicted stationary noise emissions from nearby stationary sources are within the applicable Class 1 sound level limits of NPC-300 at all nearby PORs. As such, stationary noise levels at the Development are considered acceptable, and do not require noise mitigation to achieve compliance with the Noise By-Law or NPC-300.

POR locations are identified in Figure 5.4, and a noise contour plot is included in Figure 5.5. Additionally, the 3-D model is displayed in Figure 5.6 showing a comparison between the predicted noise levels at the worst-case façades and the minimum road traffic levels during the nighttime for clarity.

5.4 Noise Impacts from the Development

5.4.1 Outdoor Noise Impacts

Base building cooling and ventilation systems for the Development have the potential to result in noise impacts on noise sensitive spaces within the Development itself and at existing residential uses surrounding the Site. The specific equipment selections are not available at the time of writing; therefore, it is anticipated that noise emissions from rooftop equipment will be evaluated as part of the detailed design of the Development. GHD recommends that the Developer carry the necessary contingencies for the following noise controls, which may be necessary to achieve

compliance with the sound level limits of NPC-300 and the City of Pickering Noise By-law at all worst-case points of reception both on-site and off-site:

– Acoustic louvers and/or barriers to surround large rooftop mechanical equipment (e.g., cooling towers, chillers, make up air units). Cost contingencies should account for structural requirements due to snow and wind loads associated with the barriers.
– Acoustic enclosures for any standby emergency generator sets (Level 2 minimum) or, if located indoors, mufflers for the combustion exhaust and silencers for the air ventilation openings.
– Variable speed fans and/or silencers for parking exhausts.

Performance specifications of the above controls is dependent on equipment locations and sound power levels, which may vary. Therefore, the full scope and details of the required noise mitigation should be evaluated during detailed design.

5.4.2 Indoor Noise Impacts

Mechanical equipment and other building services also have the potential to cause annoyance due to noise and vibration transmission to residences. The American Society of Heating, Refrigerating, and Air conditioning Engineers (ASHRAE) guidelines specify acceptable noise levels from such equipment. Specification of noise controls (e.g., silencers, floating concrete slabs, acoustic ceilings, vibration isolators) to achieve these criteria is typically completed as part of the detailed building design, once equipment selections are made and floor layouts are more developed.

The Ontario Building Code stipulates minimum STC and apparent sound transmission class (ASTC) rating requirements for demising partitions separating residential suites from other spaces inside the building. For demising partitions separating suites from elevator shafts or garbage chutes, constructions meeting a minimum STC-55 rating must be used. For demising partitions separating suites from any other space in the building, constructions meeting a minimum STC-50 rating must be used. Suite demising partitions must also achieve a minimum rating of ASTC-47.

5.5 Rail Vibration Impact Assessment

5.5.1 Vibration Measurements

GHD conducted ground-borne vibration monitoring at the Site from September 22, 2022, to September 24, 2022 in order to quantify potential vibration impacts from the adjacent GO Rail Line. GHD monitored the on-site vibrations at the location where the northwest corner façade of the development is to be located on the existing soil surface (see Figure 5.7). This location was selected as it is the closest sensitive location to the rail line and thus represents the worst-case location for vibration impacts.

Vibration measurements were conducted at the site using a Syscom MR3003C vibration monitor. The device was calibrated in July 2022 and is compliant with DIN 45669-1. The device uses a geophone to measure velocity in cartesian coordinates (denoted as x, y, and z). The device was set to conform with the GNDPRO vibration measurement parameters.

5.5.2 Vibration Impact Results

In total, GHD measured vibration from 20 railcar pass-by during the site visit on September 22, 2022. The vibration measurement system was set up for long-term monitoring and left at the site during the day. Table 5.13 below summarizes the results of the vibration measurements:

Table 5.13 Vibration Measurement Results

Source Description	Maximum Vibration Velocity of Pass-By (mm/s, RMS)	Vibration Limit (mm/s, RMS)	Limit Met?
GO Trains	0.004 to 0.021	0.14	Yes

Source Description	Maximum Vibration Velocity of Pass-By (mm/s, RMS)	Vibration Limit (mm/s, RMS)	Limit Met?
VIA Rail Trains	0.02 to 0.09	0.14	Yes

These measurements were taken at grade at a conservative point closer to the rail tracks than the Development (see Figure 5.7). All the vibration measurements were within the GNDPRO vibration limit of 0.14 mm/s, with maximum pass-by values ranging from 0.01 mm/s to 0.09 mm/s. GHD notes that despite the absence of freight data, the vibration measurements provide an accurate indication that rail vibration is not a concern given the low levels experienced for the train movements captured.

6. Recommendations

6.1 Building Envelope Construction

For the worst-case façades of the Development with direct line-of-sight exposure to noise from the GO Rail line and Whites Road, windows must achieve ratings of at least **STC-43**, and exterior walls must be rated **STC-54** or higher (**brick or equivalent** density construction). STC rating requirements are shown graphically for each building façade on Figure E.1. STC ratings recommended in this Study are preliminary and subject to change depending on actual window-to-floor area ratios and should be updated at the detailed design stage.

6.2 Ventilation

Central air conditioning is required to be installed prior to occupancy for all residential dwellings. This will allow windows and doors to remain closed to help ensure that the indoor sound level limits of NPC-300 are met.

It is recommended that all air intakes face away from Highway 401, Whites Road, and Bayly Street whenever possible, and that fresh air intake be scheduled for HVAC units to avoid peak traffic hours. Carbon and dust filters are required to be installed on all air intakes, HVAC units, make-up air units, and heat recovery units at the Site. Additionally, all HVAC units, heat recovery units, and make-up air units are to be designed such that positive pressurization is maintained under typical weather conditions of all occupied areas following the current ASHRAE recommendations. All these recommendations are to ensure adverse TRAP related affects are reduced at the Site.

6.3 Acoustic Barriers

Acoustic barriers are required to mitigate excessive noise at OLA-01 from future road and rail traffic as described in Section 5.4.2 and shown in Figure 5.3.

6.4 Warning Clauses

The following warning clauses are recommended to be included in agreements of Offers of Purchase and Sale, lease/rental agreements, and condominium declarations for the residential units, for all residential dwellings of the Development:

Warning Clause 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 and rail 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."

Warning Clause 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."

Air Quality Warning Clause: "Purchasers/tenants are advised that due to the proximity of adjacent transportation corridors, dust and odours from may at times be perceptible."

7. Conclusions

It is in GHD's opinion that the Development adheres to the PPS and that all conclusions and recommendations presented in this study support proper land use planning procedure.

No compliance issues are anticipated for air quality, dust, and odour provided the recommendations are followed. GHD recommends that the Development incorporates the TRAP related mitigation mentioned in this study. The recommended air mitigation at the development consists of orienting all air intakes to face the southwest direction, an air quality warning clause, locating outdoor amenity spaces as far from the roadways as possible and with physical barriers in-between where possible, the scheduling of fresh air intake of HVAC units to avoid peak traffic hours, and the installation of carbon and dust filters and positive pressurization maintained on all HVAC units, heat recovery units, and make-up air units.

The Study concludes that the Development is feasible and will not be restricted by the surrounding noise and vibration impact exposures, provided that the Development adheres to the noise mitigation recommended in this Study. The recommended mitigation at the Development consists of warning clauses, building envelope construction requirements, construction of an acoustic barrier, and installation of central air conditioning.

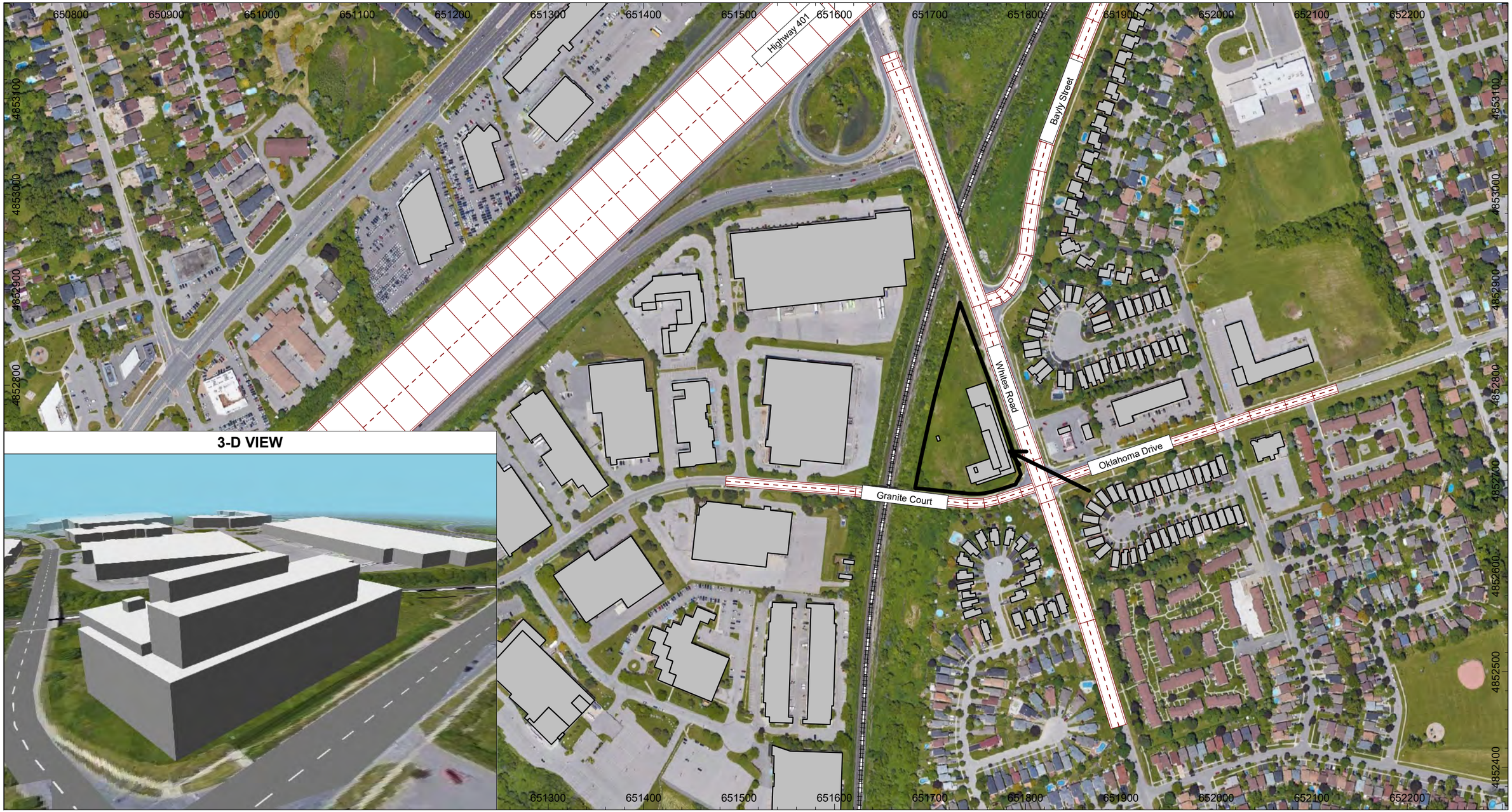
8. References

City of Pickering, By-Law No.6834/08, Noise By-Law

Ontario Ministry of Environment, Conservation and Parks (MECP, 2013), Publication NPC-300: *Environmental Noise Guideline: Stationary and Transportation Sources – Approval and Planning*

National Research Council Canada (NRC, 1985), Building Practice Note 56: Controlling Sound Transmission Into Buildings

Railway Association of Canada/Federation of Canadian Municipalities (RAC/FCM), 2013, *Guidelines for New Development in Proximity to Railway Operations*



3-D VIEW

Source: Google Satellite

N

GHD

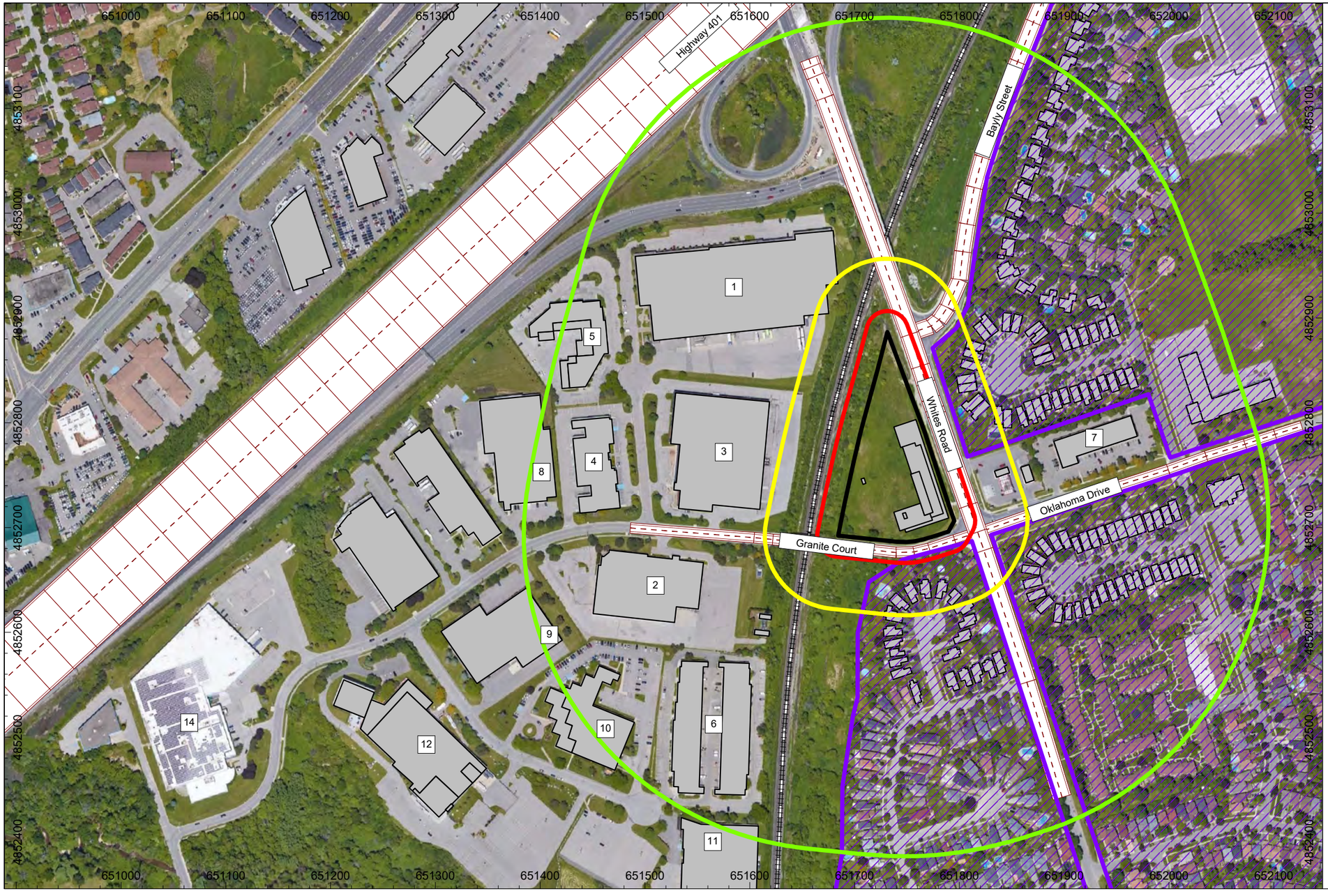
LAND USE COMPATIBILITY STUDY
1334281 ONTARIO LTD.
720 GRANITE COURT

KEY PLAN

12594433
05.09.2024

FIGURE 2.1

CadnaA File: \\ghdnet\ghd\CA\Waterloo\Projects\662\12594433\Tech\Noise\04_Modelling\01_CadnaA\02_Noise_Models\12594433_720GraniteCourt_V2024.05.cna



Guideline D-6 Setbacks

- 20 m setback - Class I RMSD
- 70 m setback - Class I AOI / Class II RMSD
- 300 m setback - Class II AOI / Class III RMSD
- Sensitive Land Uses

Industry Labels

1 - Labelink Products Inc., RS Superior Bindery Serv
The Somcan Group, Crate 61 Organics
2 - Lenbrook Industries Ltd.
3 - Waterbridge and Chocolate Factory
4 - 1795 Ironstone Manor Multi-Tenant Commercial Building
5 - 1815 Ironstone Manor Multi-Tenant Commercial Building
6 - 1845 Sandstone Manor Two Multi-Tenant Commercial Buildings
7 - 750 Oklahoma Drive Commercial Plaza
8 - SmartStop Self Storage
9 - Peg Perego Canada
10 - Vacant Building
11 - Ellis Packaging
12 - Nanz Pharma Inc.
13 - Yorkville Sound

Source: Google Satellite

N

Notes:
RMSD = Recommended Minimum Separation Distance
AOI = Potential Area of Influence

LAND USE COMPATIBILITY STUDY
1334281 ONTARIO LTD.
720 GRANITE COURT

GUIDELINE D-6 SETBACKS

12594433
05.09.2024

FIGURE 3.1

CadnaA File: \\ghdnet\ghd\CA\Waterloo\Projects\662\12594433\Tech\Noise\04_Modelling\01_CadnaA\02_Noise_Models\12594433_720GraniteCourt_V2024.05.cna

Source: Google Satellite

N

Legend

> 45 dBA

> 50 dBA

GHD

LAND USE COMPATIBILITY STUDY
1334281 ONTARIO LTD.
720 GRANITE COURT

MINIMUM ROAD TRAFFIC NOISE LEVELS - PLANE OF WINDOW

12594433
05.09.2024

FIGURE 5.1

CadnaA File: \\ghdnet\ghd\CA\Waterloo\Projects\662\12594433\Tech\Noise\04_Modelling\01_CadnaA\02_Noise_Models\12594433_720GraniteCourt_V2024.05.cna

DAY NIGHT

Source: Google Satellite

N

Notes:
Daytime sound level values in terms of 16-hour Leq (7:00 am to 11:00 pm)
Nighttime sound level values in terms of 16-hour Leq (11:00 pm to 7:00 am)

GHD

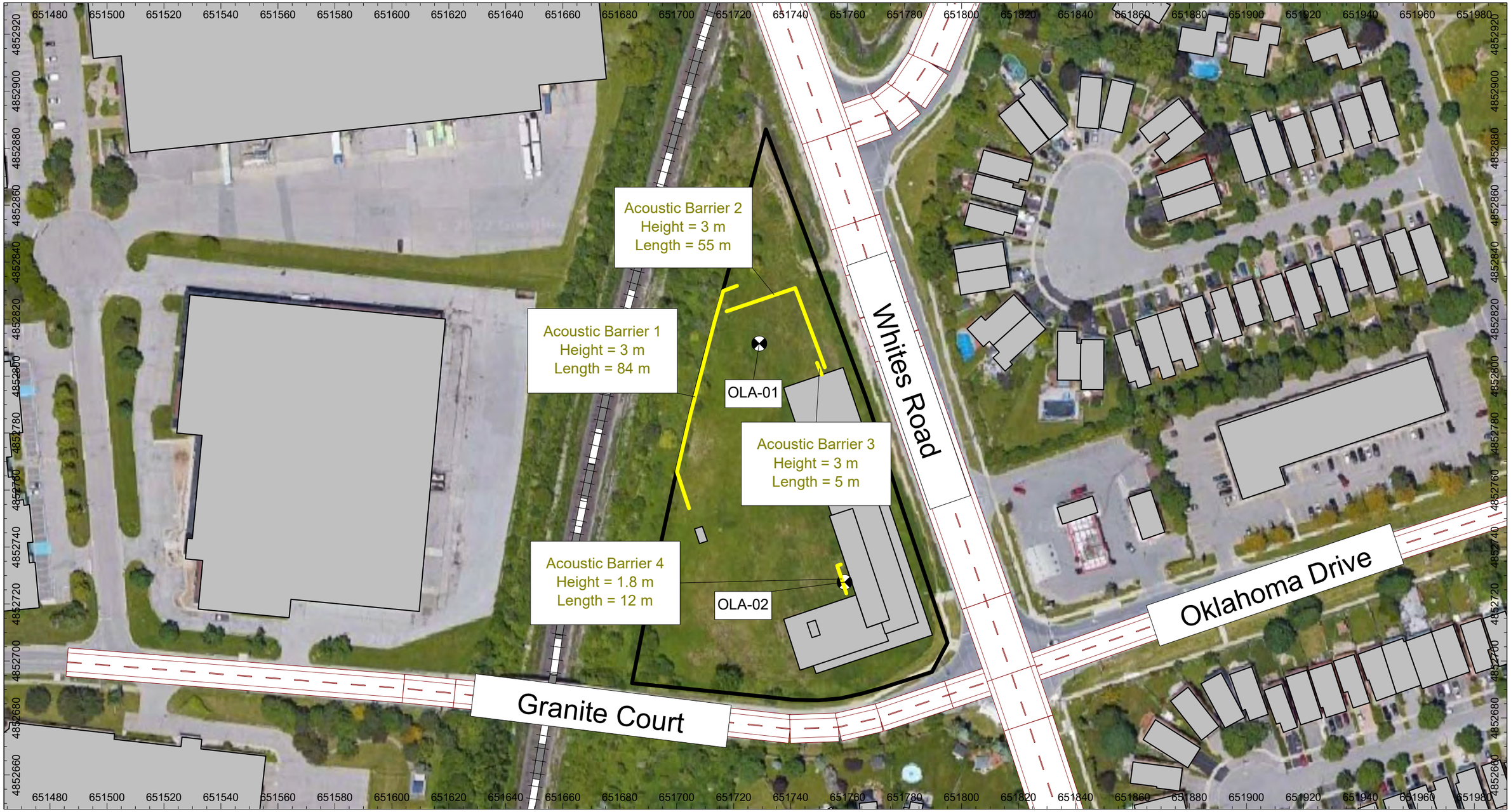
LAND USE COMPATIBILITY STUDY
1334281 ONTARIO LTD.
720 GRANITE COURT

ROAD AND RAIL TRAFFIC NOISE LEVELS - PLANE OF WINDOW

12594433
05.09.2024

FIGURE 5.2

CadnaA File: \\ghdnet\ghd\CA\Waterloo\Projects\662\12594433\Tech\Noise\04_Modelling\01_CadnaA\02_Noise_Models\12594433_720GraniteCourt_V2024.05.cna



Source: Google Satellite

N

GHD

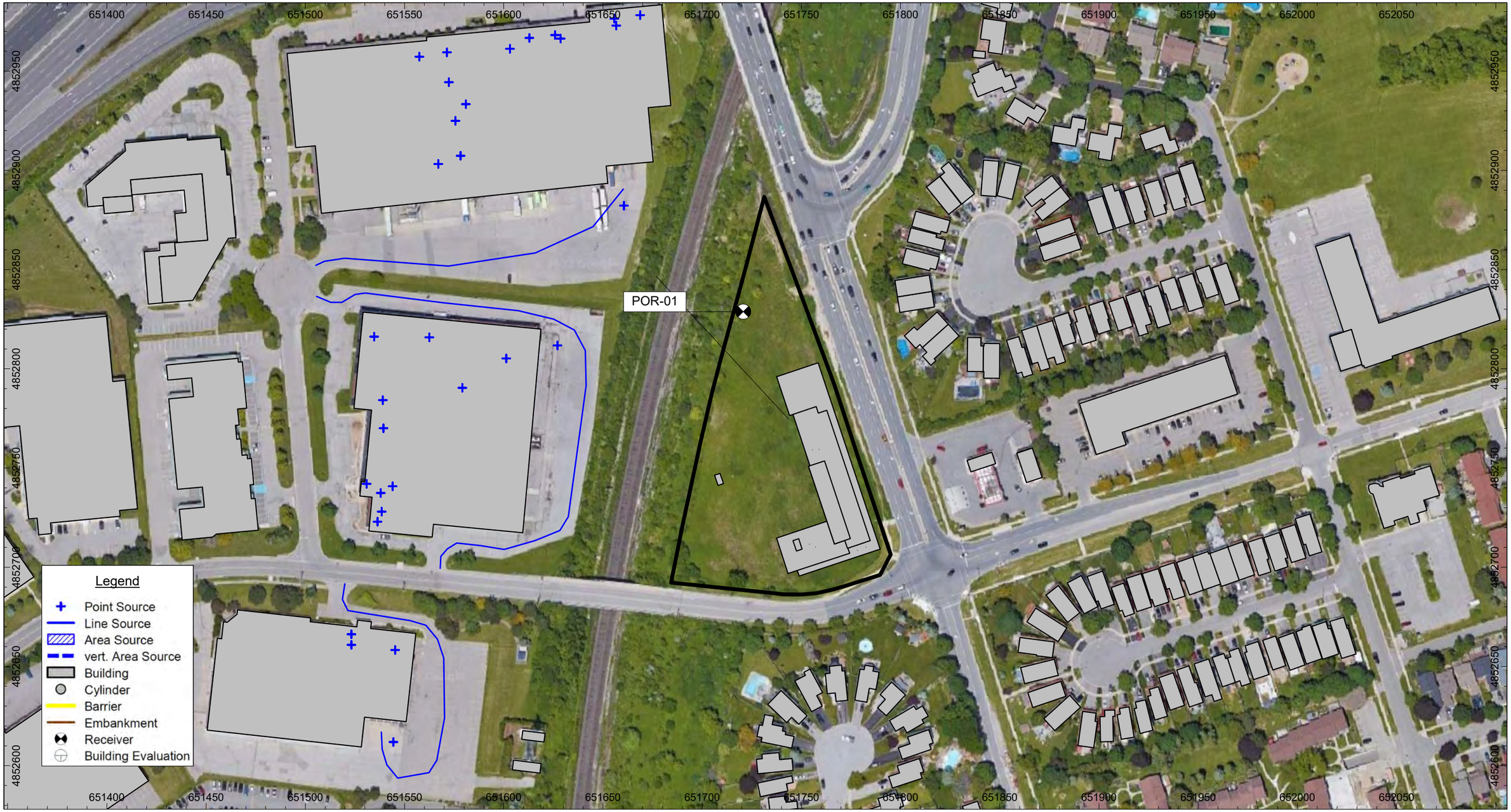
LAND USE COMPATIBILITY STUDY
1334281 ONTARIO LTD.
720 GRANITE COURT

12594433
05.09.2024

OUTDOOR LIVING AREA RECEIVER LOCATIONS AND ACOUSTIC BARRIER LOCATIONS

FIGURE 5.3

CadnaA File: \\ghdnet\ghd\CA\Waterloo\Projects\662\12594433\Tech\Noise\04_Modelling\01_CadnaA\02_Noise_Models\12594433_720GraniteCourt_V2024.05.cna



Source: Google Satellite

N

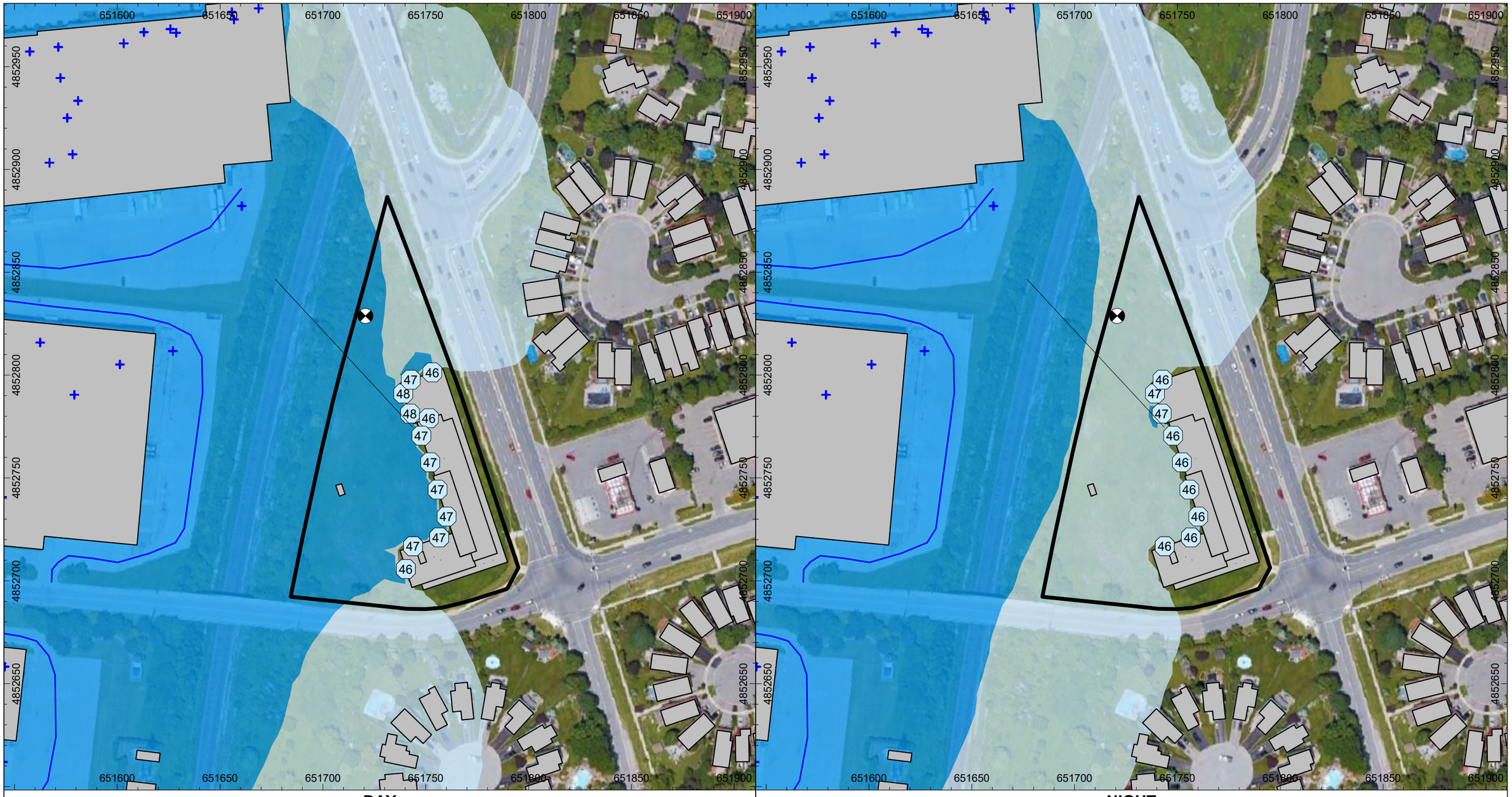
LAND USE COMPATIBILITY STUDY
1334281 ONTARIO LTD.
720 GRANITE COURT

12594433
05.09.2024

POINT OF RECEPTION LOCATION PLAN

FIGURE 5.4

CadnaA File: \\ghdnet\ghd\CA\Waterloo\Projects\662\12594433\Tech\Noise\04_Modelling\01_CadnaA\02_Noise_Models\12594433_720GraniteCourt_V2024.05.cna



Source: Google Satellite

N

Legend

> 45 dBA

> 50 dBA

GHD

LAND USE COMPATIBILITY STUDY
1334281 ONTARIO LTD.
720 GRANITE COURT

UNMITIGATED STATIONARY NOISE LEVELS FROM NEARBY INDUSTRIES (15 m A.G.)

12594433
05.09.2024

FIGURE 5.5

CadnaA File: \\ghdnet\ghd\CA\Waterloo\Projects\662\12594433\Tech\Noise\04_Modelling\01_CadnaA\02_Noise_Models\12594433_720GraniteCourt_V2024.05.cna

STATIONARY NOISE

BACKGROUND ROAD TRAFFIC

Source: Google Satellite

N

Legend

> 45 dBA
> 50 dBA

LAND USE COMPATIBILITY STUDY
1334281 ONTARIO LTD.
720 GRANITE COURT

12594433
05.09.2024

3D VIEW FROM NW: STATIONARY NOISE VS. BACKGROUND ROAD TRAFFIC (NIGHT)

FIGURE 5.6

CadnaA File: \\ghdnet\ghd\CA\Waterloo\Projects\662\12594433\Tech\Noise\04_Modelling\01_CadnaA\02_Noise_Models\12594433_720GraniteCourt_V2024.05.cna

Source: Google Satellite

N

LAND USE COMPATIBILITY STUDY
1334281 ONTARIO LTD.
720 GRANITE COURT

12594433
05.09.2024

VIBRATION MONITOR LOCATION PLAN

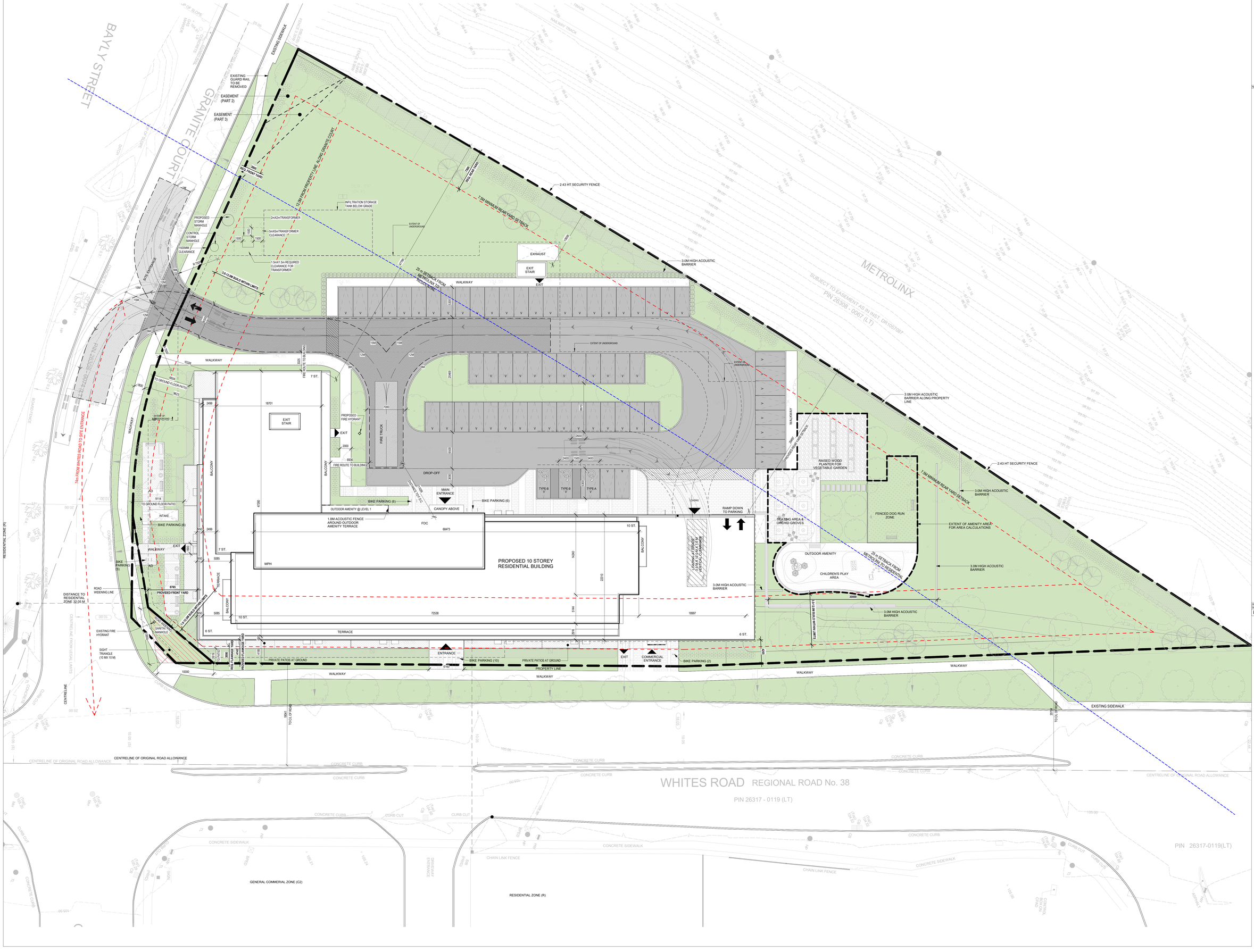
FIGURE 5.7

CadnaA File: \\ghdnet\ghd\CA\Waterloo\Projects\662\12594433\Tech\Noise\04_Modelling\01_CadnaA\02_Noise_Models\12594433_720GraniteCourt_V2024.05.cna

Appendices

Appendix A

Zoning Map and Site Plan



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No.	Date	Revision

TRUE NORTH

PROJECT NORTH

No.	DATE	ISSUED
002	28/AUG/2024	OPA AND ZBA RESUBMISSION
001	17/MAY/2023	OPA AND ZBA SUBMISSION

ONTARIO ASSOCIATION OF ARCHITECTS
ROD L ROVISOTHAM
LICENCE
5084

FILE #: **OPA 23-004/P, A 10/23**

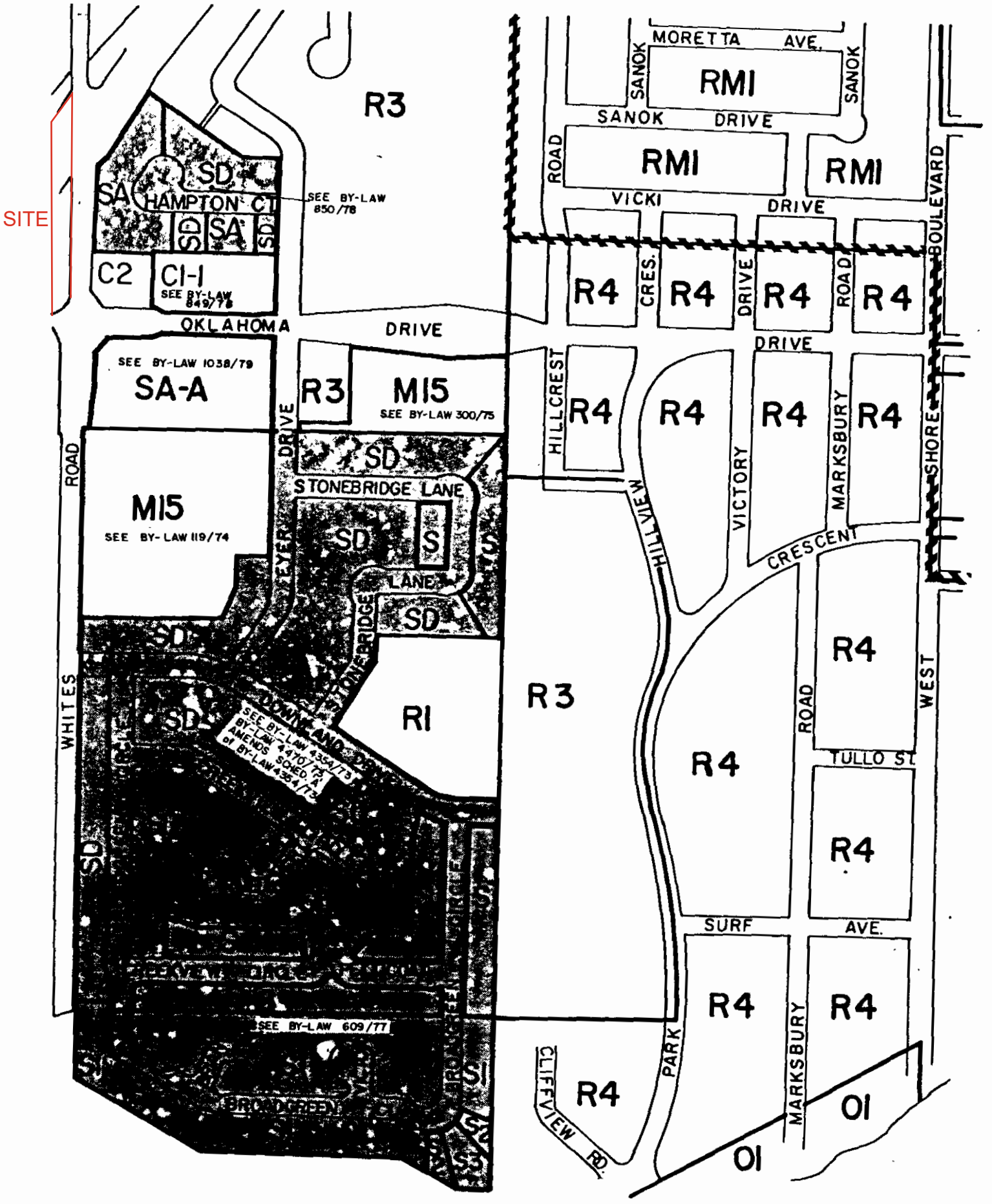
CLIENT
1334281 Ontario Limited

ADDRESS
720 Granite Court
Pickering, ON L1W 4A3

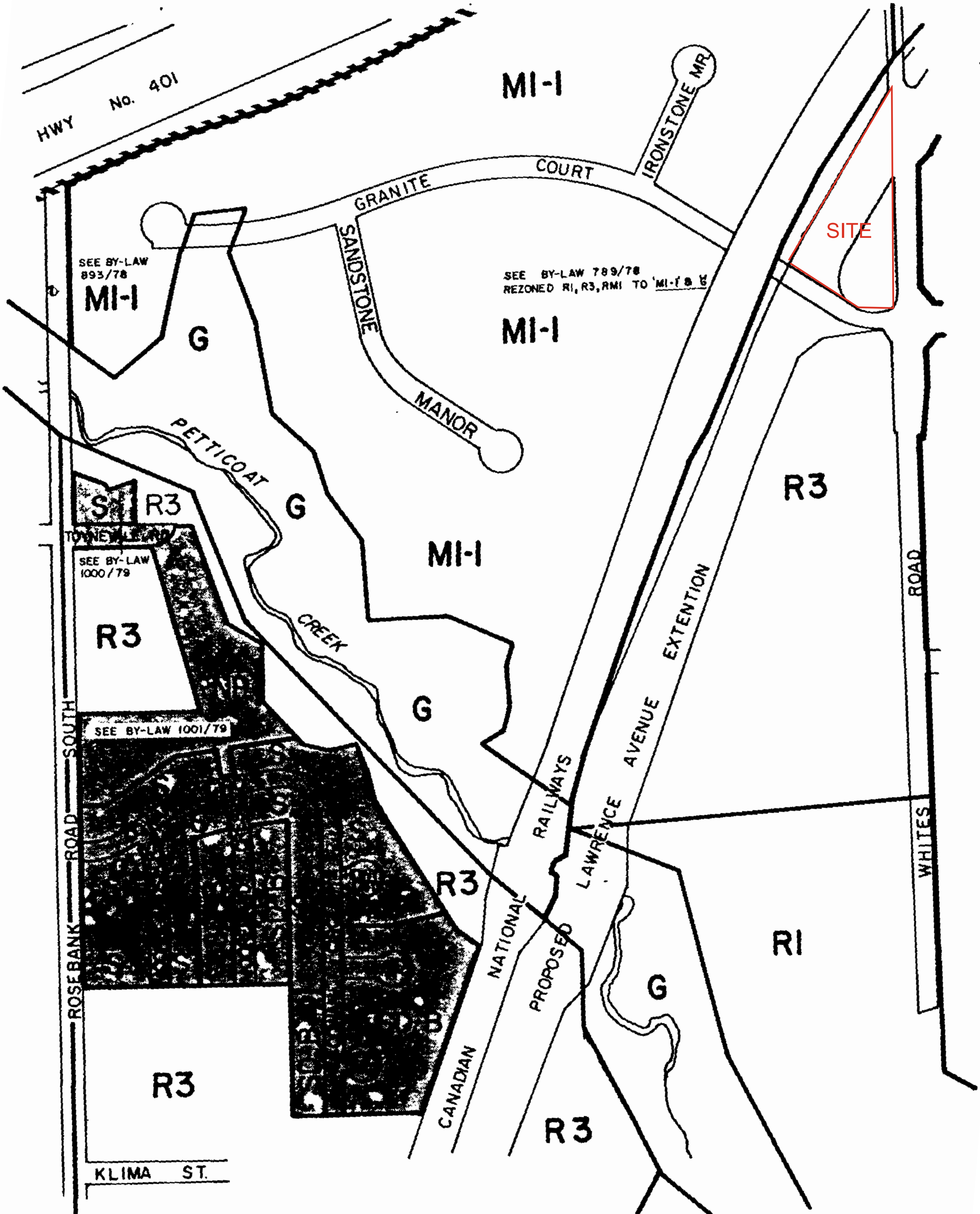
DRAWING
Site Plan

PROJECT NUMBER	DATE
22035	28/AUG/2024
SCALE	PLOTTED DATE
1 : 200	2024-08-28 3:31:44 PM

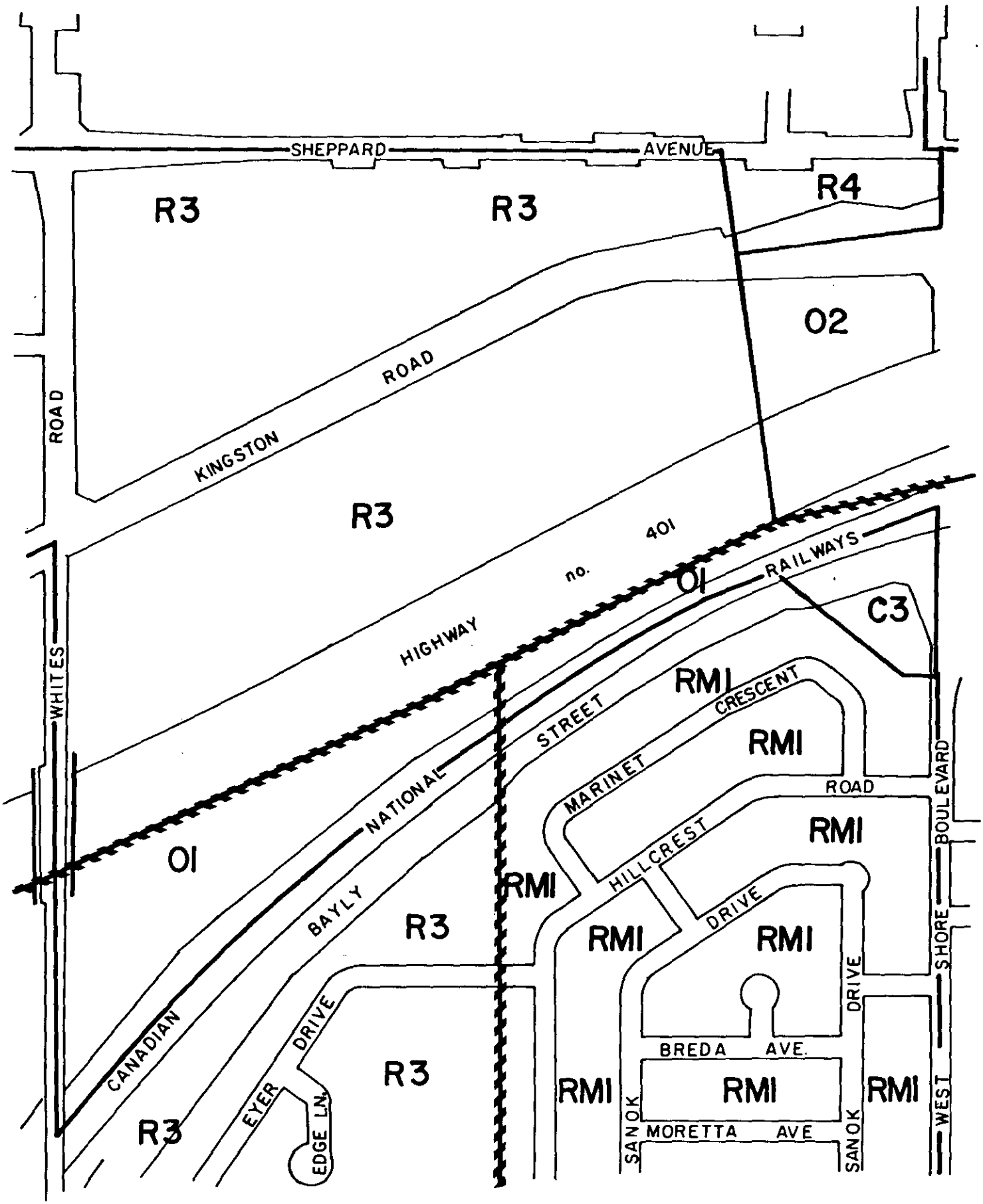
A-040

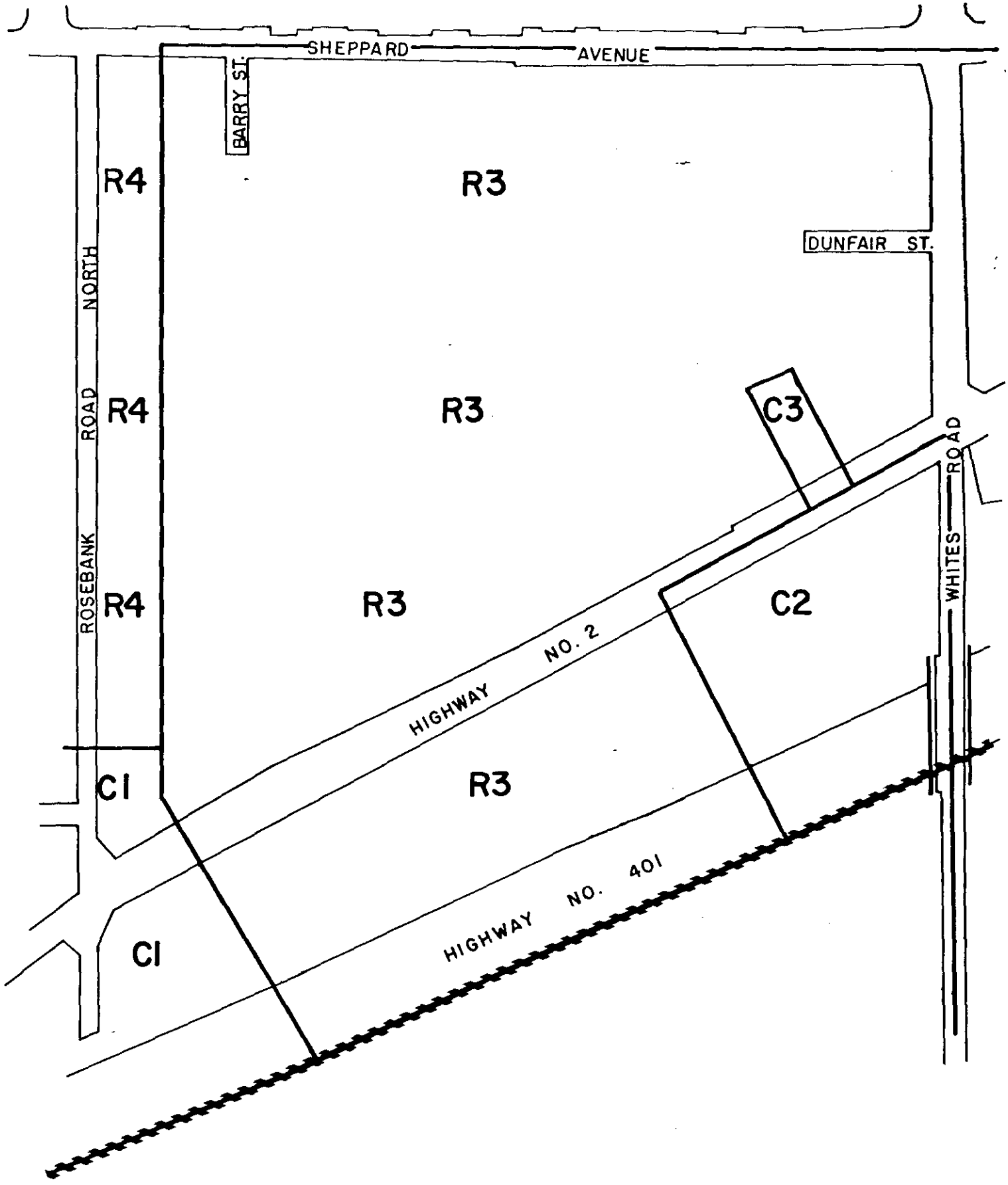

SITE
R3
SD
SA
HAMPTON CT
SEE BY-LAW 850/78
C2
C1-1
SEE BY-LAW 849/78
OKLAHOMA DRIVE
SEE BY-LAW 1038/79
SA-A
R3
M15
SEE BY-LAW 300/75
M15
SEE BY-LAW 119/74
STONEBRIDGE LANE
S
LANE
WHITES ROAD
DOWNLAND
SEE BY-LAW 4354/73
BY-LAW 4470/75 AMENDS SCHED. A of BY-LAW 4354/73
R1
R3
SEE BY-LAW 609/77
BROADGREEN
MORETTA AVE.
SANOK DRIVE
RMI
SANOK ROAD
VICKI DRIVE
R4
CRES.
DRIVE
ROAD
BOULEVARD
HILLCREST
HILLVIEW
VICTORY
MARKSBURY
SHORE
CRESCENT
WEST
TULLO ST
SURF AVE.
PARK
CLIFFVIEW RD.
O1

S-15



HWY No. 401
MI-1
IRONSTONE MR.
GRANITE COURT
SANDSTONE MANOR
SEE BY-LAW 893/78
MI-1
G
SEE BY-LAW 789/78
REZONED R1, R3, RM1 TO 'MI-1' & 'G'
SITE
MI-1
PETTICOAT CREEK
G
R3
SEE BY-LAW 1000/79
R3
MI-1
G
SEE BY-LAW 1001/79
R3
ROSEBANK SOUTH ROAD
CANADIAN NATIONAL RAILWAYS
PROPOSED LAWRENCE AVENUE EXTENTION
WHITES ROAD
R3
R1
G
R3
R3
KLIMA ST.


SHEPPARD AVENUE
R3
R3
R4
O2
KINGSTON ROAD
ROAD
R3
401
no.
HIGHWAY
O1
RAILWAYS
C3
WHITES
RMI
CRESCENT
STREET
RMI
MARINET
ROAD
RMI
HILLCREST
BOULEVARD
NATIONAL
O1
RMI
DRIVE
BAYLY
R3
RMI
RMI
SHORE
DRIVE
CANADIAN
EYER DRIVE
R3
BREDA AVE.
RMI
RMI
RMI
SANOK
MORETTA AVE
SANOK
WEST
R3
EDGE LN.

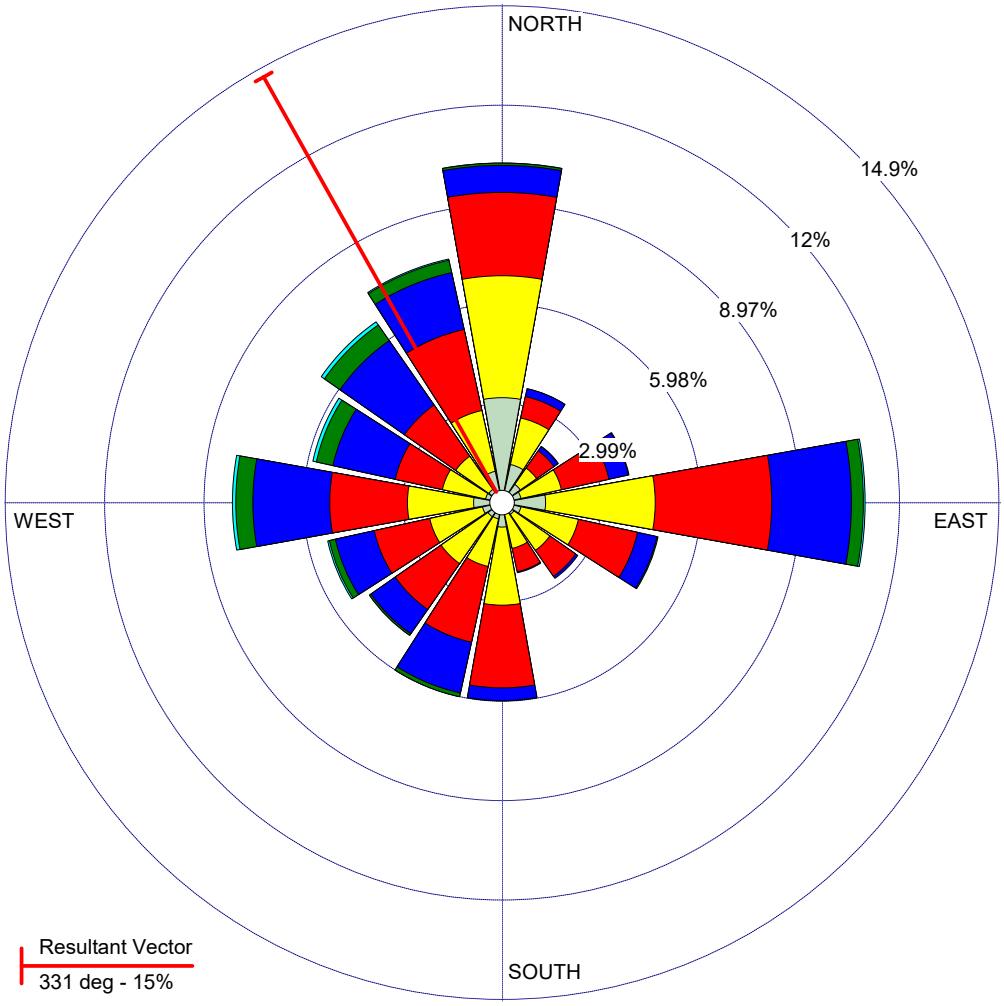

SHEPPARD AVENUE
BARRY ST.
DUNFAIR ST.
ROSEBANK ROAD NORTH
WHITES ROAD
HIGHWAY NO. 2
HIGHWAY NO. 401
R4
R3
C3
C2
C1

Appendix B

Wind Rose

WIND ROSE PLOT:

DISPLAY:
Wind Speed
Direction (blowing from)



COMMENTS:	DATA PERIOD: **Start Date: 1/1/2016 - 00:00** **End Date: 12/31/2020 - 23:00**	COMPANY NAME:	
		MODELER: **GHD**	
	CALM WINDS: **5.32%**	TOTAL COUNT: **42000 hrs.**	
	AVG. WIND SPEED: **3.75 m/s**	DATE: **5/09/2022**	PROJECT NO.: **12594433**

Appendix C

Sample STAMSON Calculation

STAMSON 5.0 COMPREHENSIVE REPORT Date: 25-08-2024 17:10:51
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: grango.te Time Period: Day/Night 16/8 hours
Description: WORST CASE WEST FACADE (FLOOR 10)

Rail data, segment # 1: GO Line (day/night)

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
1. Passenger	123.0/26.0	150.0	1.0	12.0	Diesel	Yes
2. Freight	16.0/5.0	105.0	4.0	140.0	Diesel	Yes
3. Passenger 2	77.0/10.0	150.0	2.0	12.0	Diesel	Yes
4. Via	45.0/1.0	150.0	2.0	5.0	Diesel	Yes
5. Way Freight	0.0/5.0	105.0	4.0	25.0	Diesel	Yes

Data for Segment # 1: GO Line (day/night)

Angle1 Angle2	: -62.00 deg	38.00 deg
Wood depth	: 0	(No woods.)
No of house rows	: 0 / 0	
Surface	: 1	(Absorptive ground surface)
Receiver source distance	: 85.40 / 85.40	m
Receiver height	: 30.00 / 30.00	m
Topography	: 3	(Elevated; no barrier)
No Whistle		
Elevation	: 7.00 m	
Reference angle	: 0.00	

Train # 1: Passenger, Segment # 1: GO Line (day)

LOCOMOTIVE (0.00 + 67.93 + 0.00) = 67.93 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-62	38	0.00	78.04	-7.55	-2.55	0.00	0.00	0.00	67.93

WHEEL (0.00 + 60.96 + 0.00) = 60.96 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-62	38	0.00	71.06	-7.55	-2.55	0.00	0.00	0.00	60.96

Segment Leq : 68.73 dBA

Train # 2: Freight, Segment # 1: GO Line (day)

LOCOMOTIVE (0.00 + 66.45 + 0.00) = 66.45 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-62	38	0.00	76.56	-7.55	-2.55	0.00	0.00	0.00	66.45

WHEEL (0.00 + 60.11 + 0.00) = 60.11 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-62	38	0.00	70.22	-7.55	-2.55	0.00	0.00	0.00	60.11

Segment Leq : 67.36 dBA

Train # 3: Passenger 2, Segment # 1: GO Line (day)

LOCOMOTIVE (0.00 + 68.01 + 0.00) = 68.01 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-62	38	0.00	78.11	-7.55	-2.55	0.00	0.00	0.00	68.01

WHEEL (0.00 + 59.25 + 0.00) = 59.25 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-62	38	0.00	69.35	-7.55	-2.55	0.00	0.00	0.00	59.25

Segment Leq : 68.55 dBA

Train # 4: Via, Segment # 1: GO Line (day)

LOCOMOTIVE (0.00 + 65.15 + 0.00) = 65.15 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-62	38	0.00	75.26	-7.55	-2.55	0.00	0.00	0.00	65.15

WHEEL (0.00 + 53.90 + 0.00) = 53.90 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-62	38	0.00	64.01	-7.55	-2.55	0.00	0.00	0.00	53.90

Segment Leq : 65.46 dBA

Train # 5: Way Freight, Segment # 1: GO Line (day)

LOCOMOTIVE (0.00 + -10.11 + 0.00) = 0.00 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-62	38	0.00	0.00	-7.55	-2.55	0.00	0.00	0.00	-10.11

WHEEL (0.00 + -10.11 + 0.00) = 0.00 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-62	38	0.00	0.00	-7.55	-2.55	0.00	0.00	0.00	-10.11

Segment Leq : 0.00 dBA

Total Leq All Segments: 73.73 dBA

Train # 1: Passenger, Segment # 1: GO Line (night)

LOCOMOTIVE (0.00 + 64.19 + 0.00) = 64.19 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-62	38	0.00	74.30	-7.55	-2.55	0.00	0.00	0.00	64.19

WHEEL (0.00 + 57.22 + 0.00) = 57.22 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-62	38	0.00	67.33	-7.55	-2.55	0.00	0.00	0.00	57.22

Segment Leq : 64.99 dBA

Train # 2: Freight, Segment # 1: GO Line (night)

LOCOMOTIVE (0.00 + 64.41 + 0.00) = 64.41 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-62	38	0.00	74.52	-7.55	-2.55	0.00	0.00	0.00	64.41

WHEEL (0.00 + 58.07 + 0.00) = 58.07 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-62	38	0.00	68.18	-7.55	-2.55	0.00	0.00	0.00	58.07

Segment Leq : 65.32 dBA

Train # 3: Passenger 2, Segment # 1: GO Line (night)

LOCOMOTIVE (0.00 + 62.15 + 0.00) = 62.15 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-62	38	0.00	72.26	-7.55	-2.55	0.00	0.00	0.00	62.15

WHEEL (0.00 + 53.39 + 0.00) = 53.39 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-62	38	0.00	63.50	-7.55	-2.55	0.00	0.00	0.00	53.39

Segment Leq : 62.69 dBA

Train # 4: Via, Segment # 1: GO Line (night)

LOCOMOTIVE (0.00 + 51.63 + 0.00) = 51.63 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-62	38	0.00	61.73	-7.55	-2.55	0.00	0.00	0.00	51.63

WHEEL (0.00 + 40.38 + 0.00) = 40.38 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-62	38	0.00	50.49	-7.55	-2.55	0.00	0.00	0.00	40.38

Segment Leq : 51.94 dBA

Train # 5: Way Freight, Segment # 1: GO Line (night)

LOCOMOTIVE (0.00 + 60.10 + 0.00) = 60.10 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-62	38	0.00	70.21	-7.55	-2.55	0.00	0.00	0.00	60.10

WHEEL (0.00 + 51.11 + 0.00) = 51.11 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-62	38	0.00	61.22	-7.55	-2.55	0.00	0.00	0.00	51.11

Segment Leq : 60.62 dBA

Total Leq All Segments: 69.88 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 73.73
(NIGHT): 69.88

STAMSON 5.0 SUMMARY REPORT Date: 05-09-2024 03:30:22
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: granroad.te Time Period: Day/Night 16/8 hours
Description: EAST FACADE WORST CASE POW

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

Car traffic volume : 31330/3481 veh/TimePeriod
Medium truck volume : 1392/155 veh/TimePeriod
Heavy truck volume : 2089/232 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Whites (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 : 22.50 / 22.50 m
Receiver height : 18.00 / 18.00 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: 401 (day/night)

Car traffic volume : 231574/85651 veh/TimePeriod
Medium truck volume : 13309/4922 veh/TimePeriod
Heavy truck volume : 21294/7876 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: 401 (day/night)

Angle1 Angle2 : -20.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 452.04 / 452.04 m
Receiver height : 18.00 / 18.00 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 3: Bayly (day/night)

Car traffic volume : 20250/2250 veh/TimePeriod
Medium truck volume : 900/100 veh/TimePeriod
Heavy truck volume : 1350/150 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: Bayly (day/night)

```
Angle1   Angle2           : -21.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  95.03 / 95.03  m
Receiver height           :  18.00 / 18.00  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Road data, segment # 4: Oklahoma (day/night)
-------------------------------------------
Car traffic volume  :  6943/523   veh/TimePeriod
Medium truck volume :   188/14    veh/TimePeriod
Heavy truck volume  :   391/29    veh/TimePeriod
Posted speed limit  :    40 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

Data for Segment # 4: Oklahoma (day/night)
-------------------------------------------
Angle1   Angle2           : -65.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 112.46 / 112.46 m
Receiver height           :  18.00 / 18.00  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Result summary (day)
--------------------
                    !  source  !   Road   !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+----------+----------+----------
 1.Whites           !     1.57 !    71.62 !    71.62
 2.401              !     1.68 !    61.36 !    61.36
 3.Bayly            !     1.57 !    53.55 !    53.55
 4.Oklahoma         !     1.51 !    48.89 !    48.89
--------------------+----------+----------+----------
                      Total                   72.09 dBA

Result summary (night)
----------------------
                    !  source  !   Road   !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+----------+----------+----------
 1.Whites           !     1.56 !    65.09 !    65.09
 2.401              !     1.68 !    60.05 !    60.05
 3.Bayly            !     1.57 !    47.02 !    47.02
 4.Oklahoma         !     1.50 !    40.61 !    40.61
--------------------+----------+----------+----------
                      Total                   66.34 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 72.09
                           (NIGHT): 66.34
```

Appendix D

Road and Rail Traffic Data

Andrew DeFaria

From: Rail Data Requests <RailDataRequests@metrolinx.com>
Sent: Thursday, September 15, 2022 1:52 PM
To: Andrew DeFaria
Subject: RE: Traffic Data Request - Pickering GO

Hi Andrew,
Further to your request dated September 15, 2022, the subject lands (720 Granite Ct, Toronto) are located within 300 metres of the Metrolinx Kingston Subdivision (which carries Lakeshore East GO rail service).

It's anticipated that GO rail service on this Subdivision will be comprised of diesel and electric trains. The GO rail fleet combination on this Subdivision will consist of up to 2 locomotives and 12 passenger cars. The typical GO rail weekday train volume forecast near the subject lands, including both revenue and equipment trips is in the order of 236 trains. The planned detailed trip breakdown is listed below:

	1 Diesel Locomotive	2 Diesel Locomotives	1 Electric Locomotive	2 Electric Locomotives		1 Diesel Locomotive	2 Diesel Locomotives	1 Electric Locomotive	2 Electric Locomotives
Day (0700-2300)	35	35	88	42	Night (2300-0700)	8	2	18	8

The current track design speed near the subject lands is 100 mph (161 km/h).

There are no *anti-whistling by-laws* in affect near the subject lands.
With respect to future electrified rail service, Metrolinx is committed to finding the most sustainable solution for electrifying the GO rail network and we are currently working towards the next phase.
Options have been studied as part of the Transit Project Assessment Process (TPAP) for the GO Expansion program, currently in the procurement phase. The successful proponent team will be responsible for selecting and delivering the right trains and infrastructure to unlock the benefits of GO Expansion. The contract is in a multi-year procurement process and teams have submitted their bids to Infrastructure Ontario and Metrolinx for evaluation and contract award. GO Expansion construction will get underway in late 2022 or 2023.
However, we can advise that train noise is dominated by the powertrain at lower speeds and by the wheel- track interaction at higher speeds. Hence, the noise level and spectrum of electric trains is expected to be very similar at higher speeds, if not identical, to those of equivalent diesel trains.
Given the above considerations, it would be prudent at this time, for the purposes of acoustical analyses for development in proximity to Metrolinx corridors, to assume that the acoustical characteristics of electrified and diesel trains are equivalent. In light of the aforementioned information, acoustical models should employ diesel train parameters as the basis for analyses. We anticipate that additional information regarding specific operational parameters for electrified trains will become available in the future once the proponent team is selected.
Operational information is subject to change and may be influenced by, among other factors, service planning priorities, operational considerations, funding availability and passenger demand.

It should be noted that this information only pertains to Metrolinx rail service. It would be prudent to contact other rail operators in the area directly for rail traffic information pertaining to non-Metrolinx rail service.

I trust this information is useful. Should you have any questions or concerns, please do not hesitate to contact me.

Regards,
Tara

Tara Kamal Ahmadi
Junior Analyst
Third Party Projects Review, Capital Projects Group
Metrolinx | 20 Bay Street | Suite 600 | Toronto | Ontario | M5J 2W3

METROLINX

From: Andrew DeFaria <Andrew.DeFaria@ghd.com>
Sent: September 15, 2022 11:00 AM
To: Rail Data Requests <RailDataRequests@metrolinx.com>; Brandon Gaffoor <Brandon.Gaffoor@metrolinx.com>
Subject: Traffic Data Request - Pickering GO

Hi Brandon,

GHD is working on a noise study for a proposed development located near the intersection of Whites Road South and Oklahoma Drive, Pickering. As part of this study, we need to evaluate rail noise impacts from the GO trains operating on the adjacent GO Transit - Kingston Subdivision Rail Line. Could you please provide the rail traffic data for this section of the rail line?

For ease of reference, please use the following link which indicates the approximate location of the site: https://www.google.com/maps/place/720+Granite+Ct,+Pickering,+ON+L1W+3W7/data=!4m2!3m1!1s0x89d4d9526f2c1c4d:0x898cc768b2d71c46?sa=X&ved=2ahUKEwjk-LWP_Jb6AhWDpIkEHSeoDiUQ8gF6BAgPEAE

Thanks so much,

Andrew DeFaria
Acoustical Engineer in Training

GHD
Proudly employee-owned | ghd.com
455 Phillip Street Unit #100 Waterloo Ontario N2L 3X2 Canada
D +1 519 340 4242 **E** andrew.defaria@ghd.com

System Engineering
Engineering Services

1 Administration Road
Concord, ON, L4K 1B9
T: 905.669.3264
F: 905.760.3406

Train Count Data

TRANSMITTAL

To: *Destinataire :*	GHD 455 Phillip Street Unit #100 Waterloo ON N2L 3X2	*Project :*	KNG - 314.95 – Granite Court, Pickering ON
Att'n:	Andrew DeFaria	*Routing:*	Andrew.DeFaria@ghd.com
From: *Expéditeur :*	Umair Naveed	*Date:*	2022/10/06
Cc:	Adjacent Development CN via e-mail		

☐ Urgent ☐ For Your Use ☐ For Review ☒ For Your Information ☐ Confidential

Re: Train Traffic Data – CN Kingston Subdivision near Granite Court in Pickering ON

Please find attached the requested Train Traffic Data; this data does not reflect GO Metrolinx Traffic. The application fee in the amount of $500.00 +HST will be invoiced.

Should you have any questions, please do not hesitate to contact the undersigned at permits.gld@cn.ca.

Sincerely,

Umair Naveed

Umair Naveed
Officer Public Works
Permits.gld@cn.ca

Date: 2022/10/06 Project Number KNG - 314.95 – Granite Court, Pickering ON

Dear Andrew:

Re: Train Traffic Data – CN Kingston Subdivision near Granite Court in Pickering ON

The following is provided in response to Andrew's 2022/09/15 request for information regarding rail traffic in the vicinity of Granite Court in Pickering at approximately Mile 314.95 on CN's Kingston Subdivision.

Typical daily traffic volumes are recorded below. However, traffic volumes may fluctuate due to overall economic conditions, varying traffic demands, weather conditions, track maintenance programs, statutory holidays and traffic detours that when required may be heavy although temporary. For the purpose of noise and vibration reports, train volumes must be escalated by 2.5% per annum for a 10-year period.

Typical daily traffic volumes at this site location are as follows:

***Maximum train speed is given in Miles per Hour**

	0700-2300			
Type of Train	Volumes	Max.Consist	Max. Speed	Max. Power
Freight	12	140	65	4
Way Freight	0	25	65	4
Passenger	34	10	95	2

	2300-0700			
Type of Train	Volumes	Max.Consist	Max. Speed	Max. Power
Freight	4	140	65	4
Way Freight	4	25	65	4
Passenger	1	10	95	2

The volumes recorded reflect westbound and eastbound freight and passenger operations on CN's Kingston Subdivision.

Except where anti-whistling bylaws are in effect, engine-warning whistles and bells are normally sounded at all at-grade crossings. There is one at-grade crossing in the immediate vicinity of the study area at Mile 315.95 Rodd Avenue. Anti-whistling bylaws are in effect at this crossing. Please note that engine warning whistles may be sounded in cases of emergency, as a safety and or warning precaution at station locations and pedestrian crossings and occasionally for operating requirements.

With respect to equipment restrictions, the gross weight of the heaviest permissible car is 286,000 lbs.

The double mainline track is considered to be continuously welded rail throughout the study area. There are no switches in the immediate vicinity of the study area.

The Canadian National Railway continues to be strongly opposed to locating developments near railway facilities and rights-of-way due to potential safety and environmental conflicts. Development adjacent to the Railway Right-of-Way is not appropriate without sound impact mitigation measures to reduce the incompatibility. For

confirmation of the applicable rail noise, vibration and safety standards, Adjacent Development, Canadian National Railway Properties at Proximity@cn.ca should be contacted directly.

I trust the above information will satisfy your current request.

Sincerely,

Umair Naveed

Umair Naveed
Officer Public Works
Permits.gld@cn.ca

Ontario Traffic, Inc.
17705 Leslie St., Unit 6
Newmarket, Ontario L3Y 3E3
Tel: (905) 898-7711 Fax: (905) 898-3664

Site Code: 22
Station ID: D41
Granite Court from Whites Rd (RR 38) to Ironstone Manor
Date Start: 28-Nov-17
Date End: 30-Nov-17
Date Start: 28-Nov-17

EB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
11/28/17	1	65	2	0	1	0	0	1	0	0	0	0	0	70
01:00	0	19	1	0	0	0	0	1	0	0	0	0	0	21
02:00	0	14	0	0	0	1	0	0	0	0	0	0	0	15
03:00	0	8	1	0	0	0	0	0	0	0	0	0	0	9
04:00	0	5	2	0	0	0	0	0	0	0	0	0	0	7
05:00	0	21	2	0	1	1	0	1	0	0	0	0	0	26
06:00	0	66	13	**2**	1	1	0	0	0	0	2	0	1	86
07:00	1	136	14	2	3	2	0	7	0	0	12	**1**	2	180
08:00	**4**	161	31	1	**4**	**9**	1	**12**	**5**	1	**13**	1	3	**246**
09:00	1	136	27	0	3	3	1	7	1	**3**	5	0	**4**	191
10:00	0	164	**32**	0	2	1	0	5	5	2	6	0	1	218
11:00	0	**182**	31	1	4	3	**2**	2	1	0	4	0	1	231
12 PM	1	254	**46**	1	**5**	**6**	0	9	**3**	1	8	**2**	2	338
13:00	2	192	30	0	3	3	0	9	2	2	8	0	1	252
14:00	**3**	186	20	0	2	5	0	5	3	**3**	5	1	3	236
15:00	2	265	39	0	5	1	0	9	2	0	10	0	1	334
16:00	2	**403**	36	1	5	0	0	10	0	0	**26**	0	4	**487**
17:00	0	353	36	**2**	3	1	**1**	**18**	1	3	15	0	**7**	440
18:00	1	233	23	2	1	1	0	1	1	0	6	1	1	271
19:00	0	159	15	2	1	0	1	3	1	0	3	0	0	185
20:00	1	105	7	0	1	1	0	3	0	0	2	0	0	120
21:00	2	64	1	0	0	0	0	1	0	0	0	0	1	69
22:00	0	43	5	0	1	0	0	0	0	0	0	0	0	49
23:00	1	56	5	0	0	0	0	0	0	0	0	0	0	62
Day Total	22	3290	419	14	46	39	6	104	25	15	125	6	32	4143
Percent	0.5%	79.4%	10.1%	0.3%	1.1%	0.9%	0.1%	2.5%	0.6%	0.4%	3.0%	0.1%	0.8%	
AM Peak	08:00	11:00	10:00	06:00	08:00	08:00	11:00	08:00	08:00	09:00	08:00	07:00	09:00	08:00
Vol.	4	182	32	2	4	9	2	12	5	3	13	1	4	246
PM Peak	14:00	16:00	12:00	17:00	12:00	12:00	17:00	17:00	12:00	14:00	16:00	12:00	17:00	16:00
Vol.	3	403	46	2	5	6	1	18	3	3	26	2	7	487

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11/29/17	0	48	3	0	0	0	0	0	0	0	0	0	0	51
01:00	0	25	0	0	2	0	0	0	0	0	0	0	0	27
02:00	0	7	0	0	0	0	0	0	0	0	0	0	0	7
03:00	0	12	3	0	0	0	0	0	0	0	0	0	0	15
04:00	0	8	4	0	0	0	0	0	0	0	0	0	0	12
05:00	0	25	5	0	2	1	0	0	0	0	0	0	0	33
06:00	**2**	66	11	**2**	0	2	0	1	0	0	2	0	0	86
07:00	2	150	21	2	1	0	0	**15**	0	0	**9**	0	2	202
08:00	1	178	31	1	**4**	3	0	11	0	0	7	**2**	**3**	241
09:00	1	143	23	0	4	4	0	7	1	0	2	1	1	187
10:00	0	135	32	0	1	3	0	7	**3**	**2**	5	0	1	189
11:00	2	**189**	**41**	1	3	**5**	0	9	2	1	8	0	1	**262**
12 PM	0	258	37	0	**4**	**5**	0	8	**5**	**3**	12	**1**	5	338
13:00	0	175	32	0	4	3	0	8	2	1	4	1	2	232
14:00	1	171	26	0	2	3	0	6	3	1	7	0	2	222
15:00	1	264	**45**	0	4	1	0	13	3	0	8	0	4	343
16:00	**2**	**407**	35	**3**	3	2	0	**23**	2	1	**16**	0	3	**497**
17:00	0	317	36	0	2	0	**1**	16	3	1	8	0	**15**	399
18:00	0	228	18	2	4	1	0	6	1	0	5	0	0	265
19:00	0	183	10	1	0	0	0	3	0	0	3	0	0	200
20:00	0	110	9	0	1	0	0	3	0	0	2	0	0	125
21:00	0	70	3	0	0	0	0	1	0	0	0	0	0	74
22:00	0	54	3	0	1	0	0	0	0	0	0	0	0	58
23:00	1	47	4	0	0	0	0	1	1	0	0	0	0	54
Day Total	13	3270	432	12	42	33	1	138	26	10	98	5	39	4119
Percent	0.3%	79.4%	10.5%	0.3%	1.0%	0.8%	0.0%	3.4%	0.6%	0.2%	2.4%	0.1%	0.9%	
AM Peak	06:00	11:00	11:00	06:00	08:00	11:00		07:00	10:00	10:00	07:00	08:00	08:00	11:00
Vol.	2	189	41	2	4	5		15	3	2	9	2	3	262
PM Peak	16:00	16:00	15:00	16:00	12:00	12:00	17:00	16:00	12:00	12:00	16:00	12:00	17:00	16:00
Vol.	2	407	45	3	4	5	1	23	5	3	16	1	15	497

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11/30/17	0	43	1	0	0	0	0	0	0	0	0	0	0	44
01:00	0	30	0	0	0	0	0	0	0	0	0	0	0	30
02:00	0	8	0	0	0	0	0	0	0	0	0	0	0	8
03:00	0	14	4	0	1	0	0	0	0	0	0	0	0	19
04:00	0	5	3	0	0	1	0	0	0	0	0	0	0	9
05:00	0	19	2	0	1	0	0	0	0	0	0	0	0	22
06:00	0	73	11	**2**	0	2	0	4	0	0	3	0	1	96
07:00	**3**	131	17	2	3	2	0	9	0	1	**10**	0	**6**	184
08:00	1	167	**39**	1	**5**	5	0	**10**	0	2	9	**2**	0	**241**
09:00	0	148	20	0	3	**7**	0	6	1	**3**	5	0	0	193
10:00	0	167	31	0	3	2	0	9	2	1	4	0	0	219
11:00	2	**170**	37	0	5	3	0	7	**3**	0	6	1	0	234
12 PM	2	245	39	0	**7**	1	0	11	3	3	12	0	4	327
13:00	1	199	32	0	4	**5**	**1**	3	1	**4**	10	0	2	262
14:00	0	179	33	0	5	4	0	7	**5**	2	9	0	3	247
15:00	**3**	249	37	0	7	2	0	9	0	0	11	0	2	320
16:00	1	**379**	**42**	**2**	4	2	0	**19**	2	0	**23**	0	5	**479**
17:00	2	356	36	0	2	0	0	18	2	0	14	0	**8**	438
18:00	1	263	17	1	5	0	0	4	0	0	2	0	0	293
19:00	0	172	14	0	3	0	0	1	0	0	3	**1**	0	194
20:00	1	96	12	0	0	1	0	2	0	0	0	0	0	112
21:00	0	67	12	0	1	0	0	0	0	0	1	0	0	81
22:00	0	60	3	0	1	0	0	0	0	0	0	0	0	64
23:00	1	56	6	0	0	1	0	0	0	0	0	0	0	64
Day Total	18	3296	448	8	60	38	1	119	19	16	122	4	31	4180
Percent	0.4%	78.9%	10.7%	0.2%	1.4%	0.9%	0.0%	2.8%	0.5%	0.4%	2.9%	0.1%	0.7%	
AM Peak	07:00	11:00	08:00	06:00	08:00	09:00		08:00	11:00	09:00	07:00	08:00	07:00	08:00
Vol.	3	170	39	2	5	7		10	3	3	10	2	6	241
PM Peak	15:00	16:00	16:00	16:00	12:00	13:00	13:00	16:00	14:00	13:00	16:00	19:00	17:00	16:00
Vol.	3	379	42	2	7	5	1	19	5	4	23	1	8	479
Grand Total	53	9856	1299	34	148	110	8	361	70	41	345	15	102	12442
Percent	0.4%	79.2%	10.4%	0.3%	1.2%	0.9%	0.1%	2.9%	0.6%	0.3%	2.8%	0.1%	0.8%	

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11/28/17	0	12	5	0	0	0	0	0	0	0	0	0	0	17
01:00	0	9	2	0	1	0	0	0	0	0	0	0	0	12
02:00	0	6	0	0	0	1	0	0	0	0	0	0	0	7
03:00	0	7	1	0	0	0	0	0	0	0	0	0	0	8
04:00	0	7	2	0	0	0	0	0	0	0	0	0	0	9
05:00	0	36	10	1	0	1	0	0	0	0	0	0	0	48
06:00	0	143	24	**2**	1	5	0	0	0	0	2	0	0	177
07:00	1	293	53	2	2	**6**	0	**13**	2	**2**	10	1	2	387
08:00	**2**	**367**	**60**	2	4	5	0	12	**4**	1	**17**	**4**	**6**	**484**
09:00	0	226	34	0	0	4	0	3	4	2	4	0	2	279
10:00	0	158	29	0	4	0	**1**	3	4	1	7	2	0	209
11:00	0	152	37	0	**6**	5	1	1	2	0	4	0	0	208
12 PM	3	171	41	0	**6**	**8**	**1**	3	4	1	11	0	2	251
13:00	**4**	182	**43**	0	5	5	0	6	3	**2**	10	0	4	264
14:00	3	**219**	36	1	5	1	0	6	1	0	11	**2**	3	**288**
15:00	0	194	37	**2**	5	0	0	**9**	4	0	11	0	2	264
16:00	2	179	37	1	2	1	0	9	**6**	0	**16**	1	**7**	261
17:00	2	142	26	1	0	3	1	7	1	0	15	0	4	202
18:00	0	169	22	2	1	0	0	2	0	1	14	0	1	212
19:00	0	123	22	2	2	1	0	2	1	0	6	0	0	159
20:00	0	97	27	0	0	0	0	0	0	0	1	0	0	125
21:00	1	96	8	0	2	0	0	0	1	0	1	0	0	109
22:00	0	48	6	0	0	0	0	0	0	0	0	0	0	54
23:00	1	31	9	0	0	0	0	0	0	0	0	0	0	41
Day Total	19	3067	571	16	46	46	4	76	37	10	140	10	33	4075
Percent	0.5%	75.3%	14.0%	0.4%	1.1%	1.1%	0.1%	1.9%	0.9%	0.2%	3.4%	0.2%	0.8%	
AM Peak	08:00	08:00	08:00	06:00	11:00	07:00	10:00	07:00	08:00	07:00	08:00	08:00	08:00	08:00
Vol.	2	367	60	2	6	6	1	13	4	2	17	4	6	484
PM Peak	13:00	14:00	13:00	15:00	12:00	12:00	12:00	15:00	16:00	13:00	16:00	14:00	16:00	14:00
Vol.	4	219	43	2	6	8	1	9	6	2	16	2	7	288

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11/29/17	0	16	6	0	1	0	0	0	0	0	0	0	0	23
01:00	0	11	2	0	1	0	0	0	0	0	0	0	0	14
02:00	0	6	1	0	0	0	0	0	0	0	0	0	0	7
03:00	0	3	2	0	0	0	0	0	0	0	0	0	0	5
04:00	0	10	3	0	0	0	0	0	0	0	0	0	0	13
05:00	0	44	10	0	1	0	0	1	0	0	0	0	0	56
06:00	1	140	32	**2**	0	3	0	1	0	0	2	0	0	181
07:00	0	307	**51**	1	2	1	0	**11**	2	**2**	8	**2**	4	391
08:00	0	**348**	50	1	2	3	0	8	4	1	**16**	1	**9**	**443**
09:00	1	224	36	2	5	**8**	0	8	3	2	11	1	2	303
10:00	**3**	162	36	0	3	5	0	1	2	1	8	0	1	222
11:00	1	133	30	0	**7**	5	0	4	**5**	2	8	1	3	199
12 PM	0	163	42	1	**6**	4	0	4	4	**3**	13	1	5	246
13:00	**3**	**210**	**46**	1	2	**6**	0	4	2	1	10	**2**	6	**293**
14:00	0	210	44	1	6	2	0	2	4	2	11	1	1	284
15:00	0	209	36	1	4	1	0	3	**6**	0	**18**	0	6	284
16:00	1	154	29	1	5	1	**1**	1	3	0	18	1	**8**	223
17:00	1	149	26	1	1	1	0	**6**	4	0	13	1	6	209
18:00	0	139	22	**2**	1	0	0	3	1	0	6	0	1	175
19:00	1	134	14	1	1	0	0	0	1	0	8	0	0	160
20:00	0	112	14	0	1	0	0	2	1	0	4	0	1	135
21:00	0	80	16	0	0	0	0	0	0	0	1	0	0	97
22:00	0	77	7	0	2	0	0	0	0	0	1	0	0	87
23:00	0	34	7	0	0	0	0	0	0	0	0	1	2	44
Day Total	12	3075	562	15	51	40	1	59	42	14	156	12	55	4094
Percent	0.3%	75.1%	13.7%	0.4%	1.2%	1.0%	0.0%	1.4%	1.0%	0.3%	3.8%	0.3%	1.3%	
AM Peak	10:00	08:00	07:00	06:00	11:00	09:00		07:00	11:00	07:00	08:00	07:00	08:00	08:00
Vol.	3	348	51	2	7	8		11	5	2	16	2	9	443
PM Peak	13:00	13:00	13:00	18:00	12:00	13:00	16:00	17:00	15:00	12:00	15:00	13:00	16:00	13:00
Vol.	3	210	46	2	6	6	1	6	6	3	18	2	8	293

Ontario Traffic, Inc.
17705 Leslie St., Unit 6
Newmarket, Ontario L3Y 3E3
Tel: (905) 898-7711 Fax: (905) 898-3664

Site Code: 22
Station ID: D41
Granite Court from Whites Rd (RR 38) to Ironstone Manor
Date Start: 28-Nov-17
Date End: 30-Nov-17
Date Start: 28-Nov-17

WB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
11/30/17	0	9	3	0	0	0	0	0	0	0	1	0	0	13
01:00	0	10	4	0	0	0	0	0	0	0	0	0	0	14
02:00	0	6	0	0	0	0	0	0	0	0	0	0	0	6
03:00	0	10	4	0	0	0	0	0	0	0	0	0	0	14
04:00	0	12	1	0	0	1	0	0	0	0	1	0	0	15
05:00	0	39	15	1	0	0	0	0	0	0	0	0	0	55
06:00	0	144	34	**2**	0	2	0	0	1	0	1	1	0	185
07:00	0	311	42	2	1	4	**1**	7	3	**2**	9	0	**10**	392
08:00	0	**329**	**65**	1	3	4	1	4	**5**	1	**22**	**2**	4	**441**
09:00	**3**	207	48	0	5	**5**	0	**10**	2	1	7	1	5	294
10:00	1	142	38	0	5	4	0	3	4	2	3	0	2	204
11:00	1	148	42	0	**8**	3	0	5	5	2	12	0	4	230
12 PM	0	177	39	0	7	2	0	6	3	0	14	**3**	4	255
13:00	**3**	199	**50**	1	6	**6**	0	7	3	0	6	0	3	284
14:00	1	**217**	36	1	**8**	1	**1**	5	**5**	0	12	0	1	288
15:00	2	213	31	**2**	6	1	0	9	5	0	**19**	2	2	**292**
16:00	0	128	32	2	2	2	0	**12**	5	0	19	0	**6**	208
17:00	0	146	25	2	1	1	0	4	5	0	16	1	3	204
18:00	0	155	24	2	3	0	0	5	1	0	9	0	0	199
19:00	0	140	20	2	2	1	0	4	0	0	6	0	1	176
20:00	0	104	17	0	2	0	1	1	0	0	1	0	1	127
21:00	0	86	11	0	1	0	0	0	0	0	1	0	0	99
22:00	0	67	5	0	1	0	0	0	0	0	0	0	0	73
23:00	1	35	3	0	0	1	0	0	0	**1**	0	0	0	41
Day Total	12	3034	589	18	61	38	4	82	47	9	159	10	46	4109
Percent	0.3%	73.8%	14.3%	0.4%	1.5%	0.9%	0.1%	2.0%	1.1%	0.2%	3.9%	0.2%	1.1%	
AM Peak	09:00	08:00	08:00	06:00	11:00	09:00	07:00	09:00	08:00	07:00	08:00	08:00	07:00	08:00
Vol.	3	329	65	2	8	5	1	10	5	2	22	2	10	441
PM Peak	13:00	14:00	13:00	15:00	14:00	13:00	14:00	16:00	14:00	23:00	15:00	12:00	16:00	15:00
Vol.	3	217	50	2	8	6	1	12	5	1	19	3	6	292
Grand Total	43	9176	1722	49	158	124	9	217	126	33	455	32	134	12278
Percent	0.4%	74.7%	14.0%	0.4%	1.3%	1.0%	0.1%	1.8%	1.0%	0.3%	3.7%	0.3%	1.1%	

Ontario Traffic, Inc.
17705 Leslie St., Unit 6
Newmarket, Ontario L3Y 3E3
Tel: (905) 898-7711 Fax: (905) 898-3664

Site Code: 22
Station ID: D41
Granite Court from Whites Rd (RR 38) to Ironstone Manor
Date Start: 28-Nov-17
Date End: 30-Nov-17
Date Start: 28-Nov-17

EB, WB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
11/28/17	1	77	7	0	1	0	0	1	0	0	0	0	0	87
01:00	0	28	3	0	1	0	0	1	0	0	0	0	0	33
02:00	0	20	0	0	0	2	0	0	0	0	0	0	0	22
03:00	0	15	2	0	0	0	0	0	0	0	0	0	0	17
04:00	0	12	4	0	0	0	0	0	0	0	0	0	0	16
05:00	0	57	12	1	1	2	0	1	0	0	0	0	0	74
06:00	0	209	37	**4**	2	6	0	0	0	0	4	0	1	263
07:00	2	429	67	4	5	8	0	20	2	2	22	2	4	567
08:00	**6**	**528**	**91**	3	8	**14**	1	**24**	**9**	2	**30**	**5**	**9**	**730**
09:00	1	362	61	0	3	7	1	10	5	**5**	9	0	6	470
10:00	0	322	61	0	6	1	1	8	9	3	13	2	1	427
11:00	0	334	68	1	**10**	8	**3**	3	3	0	8	0	1	439
12 PM	4	425	**87**	1	**11**	**14**	1	12	**7**	2	19	2	4	589
13:00	**6**	374	73	0	8	8	0	15	5	**4**	18	0	5	516
14:00	6	405	56	1	7	6	0	11	4	3	16	**3**	6	524
15:00	2	459	76	2	10	1	0	18	6	0	21	0	3	598
16:00	4	**582**	73	2	7	1	0	19	6	0	**42**	1	**11**	**748**
17:00	2	495	62	3	3	4	**2**	**25**	2	3	30	0	11	642
18:00	1	402	45	**4**	2	1	0	3	1	1	20	1	2	483
19:00	0	282	37	4	3	1	1	5	2	0	9	0	0	344
20:00	1	202	34	0	1	1	0	3	0	0	3	0	0	245
21:00	3	160	9	0	2	0	0	1	1	0	1	0	1	178
22:00	0	91	11	0	1	0	0	0	0	0	0	0	0	103
23:00	2	87	14	0	0	0	0	0	0	0	0	0	0	103
Day Total	41	6357	990	30	92	85	10	180	62	25	265	16	65	8218
Percent	0.5%	77.4%	12.0%	0.4%	1.1%	1.0%	0.1%	2.2%	0.8%	0.3%	3.2%	0.2%	0.8%	
AM Peak	08:00	08:00	08:00	06:00	11:00	08:00	11:00	08:00	08:00	09:00	08:00	08:00	08:00	08:00
Vol.	6	528	91	4	10	14	3	24	9	5	30	5	9	730
PM Peak	13:00	16:00	12:00	18:00	12:00	12:00	17:00	17:00	12:00	13:00	16:00	14:00	16:00	16:00
Vol.	6	582	87	4	11	14	2	25	7	4	42	3	11	748

Ontario Traffic, Inc.
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Newmarket, Ontario L3Y 3E3
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Site Code: 22
Station ID: D41
Granite Court from Whites Rd (RR 38) to Ironstone Manor
Date Start: 28-Nov-17
Date End: 30-Nov-17
Date Start: 28-Nov-17

EB, WB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
11/29/17	0	64	9	0	1	0	0	0	0	0	0	0	0	74
01:00	0	36	2	0	3	0	0	0	0	0	0	0	0	41
02:00	0	13	1	0	0	0	0	0	0	0	0	0	0	14
03:00	0	15	5	0	0	0	0	0	0	0	0	0	0	20
04:00	0	18	7	0	0	0	0	0	0	0	0	0	0	25
05:00	0	69	15	0	3	1	0	1	0	0	0	0	0	89
06:00	**3**	206	43	**4**	0	5	0	2	0	0	4	0	0	267
07:00	2	457	72	3	3	1	0	**26**	2	2	17	2	6	593
08:00	1	**526**	**81**	2	6	6	0	19	4	1	**23**	**3**	**12**	**684**
09:00	2	367	59	2	9	**12**	0	15	4	2	13	2	3	490
10:00	3	297	68	0	4	8	0	8	5	**3**	13	0	2	411
11:00	3	322	71	1	**10**	10	0	13	**7**	3	16	1	4	461
12 PM	0	421	79	1	**10**	**9**	0	12	**9**	**6**	25	2	10	584
13:00	**3**	385	78	1	6	9	0	12	4	2	14	**3**	8	525
14:00	1	381	70	1	8	5	0	8	7	3	18	1	3	506
15:00	1	473	**81**	1	8	2	0	16	9	0	26	0	10	627
16:00	3	**561**	64	**4**	8	3	**1**	**24**	5	1	**34**	1	11	**720**
17:00	1	466	62	1	3	1	1	22	7	1	21	1	**21**	608
18:00	0	367	40	4	5	1	0	9	2	0	11	0	1	440
19:00	1	317	24	2	1	0	0	3	1	0	11	0	0	360
20:00	0	222	23	0	2	0	0	5	1	0	6	0	1	260
21:00	0	150	19	0	0	0	0	1	0	0	1	0	0	171
22:00	0	131	10	0	3	0	0	0	0	0	1	0	0	145
23:00	1	81	11	0	0	0	0	1	1	0	0	1	2	98
Day Total	25	6345	994	27	93	73	2	197	68	24	254	17	94	8213
Percent	0.3%	77.3%	12.1%	0.3%	1.1%	0.9%	0.0%	2.4%	0.8%	0.3%	3.1%	0.2%	1.1%	
AM Peak	06:00	08:00	08:00	06:00	11:00	09:00		07:00	11:00	10:00	08:00	08:00	08:00	08:00
Vol.	3	526	81	4	10	12		26	7	3	23	3	12	684
PM Peak	13:00	16:00	15:00	16:00	12:00	12:00	16:00	16:00	12:00	12:00	16:00	13:00	17:00	16:00
Vol.	3	561	81	4	10	9	1	24	9	6	34	3	21	720

Ontario Traffic, Inc.
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Newmarket, Ontario L3Y 3E3
Tel: (905) 898-7711 Fax: (905) 898-3664

Site Code: 22
Station ID: D41
Granite Court from Whites Rd (RR 38) to Ironstone Manor
Date Start: 28-Nov-17
Date End: 30-Nov-17
Date Start: 28-Nov-17

EB, WB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
11/30/17	0	52	4	0	0	0	0	0	0	0	1	0	0	57
01:00	0	40	4	0	0	0	0	0	0	0	0	0	0	44
02:00	0	14	0	0	0	0	0	0	0	0	0	0	0	14
03:00	0	24	8	0	1	0	0	0	0	0	0	0	0	33
04:00	0	17	4	0	0	2	0	0	0	0	1	0	0	24
05:00	0	58	17	1	1	0	0	0	0	0	0	0	0	77
06:00	0	217	45	**4**	0	4	0	4	1	0	4	1	1	281
07:00	**3**	442	59	4	4	6	**1**	**16**	3	3	19	0	**16**	576
08:00	1	**496**	**104**	2	8	9	1	14	5	3	**31**	**4**	4	**682**
09:00	3	355	68	0	8	**12**	0	16	3	**4**	12	1	5	487
10:00	1	309	69	0	8	6	0	12	6	3	7	0	2	423
11:00	3	318	79	0	**13**	6	0	12	**8**	2	18	1	4	464
12 PM	2	422	78	0	**14**	3	0	17	6	3	26	**3**	8	582
13:00	4	398	**82**	1	10	**11**	**1**	10	4	**4**	16	0	5	546
14:00	1	396	69	1	13	5	1	12	**10**	2	21	0	4	535
15:00	**5**	462	68	2	13	3	0	18	5	0	30	2	4	612
16:00	1	**507**	74	**4**	6	4	0	**31**	7	0	**42**	0	**11**	**687**
17:00	2	502	61	2	3	1	0	22	7	0	30	1	11	642
18:00	1	418	41	3	8	0	0	9	1	0	11	0	0	492
19:00	0	312	34	2	5	1	0	5	0	0	9	1	1	370
20:00	1	200	29	0	2	1	1	3	0	0	1	0	1	239
21:00	0	153	23	0	2	0	0	0	0	0	2	0	0	180
22:00	0	127	8	0	2	0	0	0	0	0	0	0	0	137
23:00	2	91	9	0	0	2	0	0	0	1	0	0	0	105
Day Total	30	6330	1037	26	121	76	5	201	66	25	281	14	77	8289
Percent	0.4%	76.4%	12.5%	0.3%	1.5%	0.9%	0.1%	2.4%	0.8%	0.3%	3.4%	0.2%	0.9%	
AM Peak	07:00	08:00	08:00	06:00	11:00	09:00	07:00	07:00	11:00	09:00	08:00	08:00	07:00	08:00
Vol.	3	496	104	4	13	12	1	16	8	4	31	4	16	682
PM Peak	15:00	16:00	13:00	16:00	12:00	13:00	13:00	16:00	14:00	13:00	16:00	12:00	16:00	16:00
Vol.	5	507	82	4	14	11	1	31	10	4	42	3	11	687
Grand Total	96	19032	3021	83	306	234	17	578	196	74	800	47	236	24720
Percent	0.4%	77.0%	12.2%	0.3%	1.2%	0.9%	0.1%	2.3%	0.8%	0.3%	3.2%	0.2%	1.0%	

Ontario Traffic, Inc.
17705 Leslie St., Unit 6
Newmarket, Ontario L3Y 3E3
Tel: (905) 898-7711 Fax: (905) 898-3664

Site Code: 25
Station ID: D117
Oklahoma Dr from Eyer Dr to Hillcrest Rd

Date Start: 28-Nov-17
Date End: 30-Nov-17
Date Start: 28-Nov-17

EB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
11/28/17	0	17	1	0	0	0	0	0	0	0	0	0	0	18
01:00	0	7	0	0	0	0	0	0	0	0	0	0	0	7
02:00	0	3	0	0	0	0	0	0	0	0	0	0	0	3
03:00	0	1	1	0	0	0	0	0	0	0	0	0	0	2
04:00	0	2	0	0	0	0	0	0	0	0	0	0	0	2
05:00	0	11	1	1	0	0	0	0	0	0	0	0	0	13
06:00	0	19	4	5	1	0	0	0	0	0	0	0	**1**	30
07:00	0	**129**	**25**	**7**	2	**1**	**2**	**5**	0	0	**9**	0	0	**180**
08:00	0	84	16	4	2	0	0	5	1	**1**	6	0	1	120
09:00	0	50	24	2	2	0	0	1	1	0	1	0	0	81
10:00	0	84	17	2	0	0	0	2	1	0	3	0	0	109
11:00	**1**	92	20	2	**4**	1	0	3	**2**	0	3	0	0	128
12 PM	0	83	23	2	0	0	0	4	0	0	1	0	0	113
13:00	0	116	20	1	0	0	0	1	0	0	9	0	2	149
14:00	0	134	26	1	**2**	**2**	0	3	1	0	4	0	0	173
15:00	**1**	194	31	1	1	0	0	**6**	0	0	9	0	**5**	248
16:00	0	**220**	**51**	4	0	0	0	6	0	0	6	0	2	**289**
17:00	0	220	30	4	1	1	0	1	0	**1**	**10**	0	2	270
18:00	1	164	29	**5**	1	1	0	0	**2**	0	3	0	1	207
19:00	0	108	20	4	0	0	0	1	0	0	4	0	0	137
20:00	0	82	14	2	0	0	0	0	1	0	4	**1**	0	104
21:00	0	77	13	1	0	0	0	0	1	0	1	0	0	93
22:00	0	67	9	1	0	0	0	1	0	0	1	0	0	79
23:00	0	30	3	0	0	0	0	0	0	0	0	0	0	33
Day Total	3	1994	378	49	16	6	2	39	10	2	74	1	14	2588
Percent	0.1%	77.0%	14.6%	1.9%	0.6%	0.2%	0.1%	1.5%	0.4%	0.1%	2.9%	0.0%	0.5%	
AM Peak	11:00	07:00	07:00	07:00	11:00	07:00	07:00	07:00	11:00	08:00	07:00		06:00	07:00
Vol.	1	129	25	7	4	1	2	5	2	1	9		1	180
PM Peak	15:00	16:00	16:00	18:00	14:00	14:00		15:00	18:00	17:00	17:00	20:00	15:00	16:00
Vol.	1	220	51	5	2	2		6	2	1	10	1	5	289

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Site Code: 25
Station ID: D117
Oklahoma Dr from Eyer Dr to Hillcrest Rd

Date Start: 28-Nov-17
Date End: 30-Nov-17
Date Start: 28-Nov-17

EB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
11/29/17	0	15	2	0	0	0	0	0	0	0	0	0	0	17
01:00	0	6	3	0	0	0	0	0	0	0	0	0	0	9
02:00	0	5	0	0	0	0	0	0	0	0	0	0	0	5
03:00	0	5	1	0	0	0	0	0	0	0	0	0	0	6
04:00	0	4	0	0	0	0	0	0	0	0	0	0	0	4
05:00	0	13	1	1	0	0	0	0	0	0	0	0	0	15
06:00	0	21	9	6	0	0	0	0	0	0	3	0	0	39
07:00	**1**	**142**	**23**	**7**	**5**	**2**	0	2	**2**	0	**12**	0	**1**	**197**
08:00	0	64	22	3	3	0	0	2	2	**1**	5	0	1	103
09:00	0	58	13	2	2	0	**1**	0	0	0	1	0	1	78
10:00	0	82	14	1	0	0	0	2	1	0	0	0	0	100
11:00	0	84	12	2	1	0	0	**3**	0	0	3	0	0	105
12 PM	0	91	17	2	0	0	0	0	0	0	3	0	0	113
13:00	0	87	20	3	0	0	0	3	0	0	2	0	0	115
14:00	0	127	24	2	**3**	0	0	2	1	0	6	0	1	166
15:00	0	147	41	2	2	0	0	1	0	0	4	0	1	198
16:00	0	**221**	32	4	0	0	0	2	**3**	0	**9**	0	0	271
17:00	0	219	**45**	4	0	0	**1**	**6**	3	0	9	0	**2**	**289**
18:00	0	133	22	**6**	0	0	0	1	0	0	3	0	0	165
19:00	0	115	18	3	0	**1**	0	2	2	0	3	0	0	144
20:00	0	98	12	2	0	0	0	0	0	0	2	0	0	114
21:00	0	81	14	1	0	0	0	0	0	0	0	0	0	96
22:00	0	58	7	1	0	0	0	0	0	0	2	0	0	68
23:00	0	30	6	0	0	0	0	0	0	0	1	0	0	37
Day Total	1	1906	358	52	16	3	2	26	14	1	68	0	7	2454
Percent	0.0%	77.7%	14.6%	2.1%	0.7%	0.1%	0.1%	1.1%	0.6%	0.0%	2.8%	0.0%	0.3%	
AM Peak	07:00	07:00	07:00	07:00	07:00	07:00	09:00	11:00	07:00	08:00	07:00		07:00	07:00
Vol.	1	142	23	7	5	2	1	3	2	1	12		1	197
PM Peak		16:00	17:00	18:00	14:00	19:00	17:00	17:00	16:00		16:00		17:00	17:00
Vol.		221	45	6	3	1	1	6	3		9		2	289

Ontario Traffic, Inc.
17705 Leslie St., Unit 6
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Site Code: 25
Station ID: D117
Oklahoma Dr from Eyer Dr to Hillcrest Rd

Date Start: 28-Nov-17
Date End: 30-Nov-17
Date Start: 28-Nov-17

EB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
11/30/17	0	9	3	0	0	0	0	0	0	0	0	0	0	12
01:00	0	6	0	0	0	0	0	0	0	0	0	0	0	6
02:00	0	3	2	0	0	0	0	0	0	0	0	0	0	5
03:00	0	0	1	0	0	0	0	0	0	0	0	0	0	1
04:00	0	5	0	0	0	0	0	0	0	0	0	0	0	5
05:00	0	8	3	1	0	0	0	0	0	0	0	0	0	12
06:00	0	25	12	7	0	0	0	0	0	0	0	0	0	44
07:00	0	**126**	**28**	**8**	1	0	0	2	**2**	0	7	0	**3**	**177**
08:00	0	70	14	3	**5**	0	**1**	**4**	2	0	**10**	0	3	112
09:00	0	60	14	4	1	0	0	0	1	0	3	0	1	84
10:00	0	71	10	2	1	0	0	2	0	0	2	0	0	88
11:00	0	85	23	2	1	0	0	1	0	0	3	0	0	115
12 PM	0	89	17	2	0	0	0	1	1	0	3	0	1	114
13:00	0	89	20	2	**6**	**1**	0	2	0	0	3	0	0	123
14:00	0	140	23	2	0	1	0	0	1	0	2	0	0	169
15:00	0	141	30	0	2	0	0	1	1	0	6	0	**3**	184
16:00	0	221	**44**	5	0	0	0	3	**2**	0	8	0	2	**285**
17:00	0	**224**	31	4	0	0	0	**5**	0	0	**11**	0	0	275
18:00	**1**	152	21	**6**	0	0	0	1	0	0	5	0	1	187
19:00	0	120	21	4	0	1	0	1	2	**1**	3	0	1	154
20:00	0	78	20	2	0	0	0	0	1	0	2	0	0	103
21:00	0	57	11	1	0	0	0	0	0	0	0	0	0	69
22:00	0	51	6	1	0	0	0	0	0	0	2	0	0	60
23:00	0	34	4	0	0	0	0	0	0	0	0	0	0	38
Day Total	1	1864	358	56	17	3	1	23	13	1	70	0	15	2422
Percent	0.0%	77.0%	14.8%	2.3%	0.7%	0.1%	0.0%	0.9%	0.5%	0.0%	2.9%	0.0%	0.6%	
AM Peak		07:00	07:00	07:00	08:00		08:00	08:00	07:00		08:00		07:00	07:00
Vol.		126	28	8	5		1	4	2		10		3	177
PM Peak	18:00	17:00	16:00	18:00	13:00	13:00		17:00	16:00	19:00	17:00		15:00	16:00
Vol.	1	224	44	6	6	1		5	2	1	11		3	285
Grand Total	5	5764	1094	157	49	12	5	88	37	4	212	1	36	7464
Percent	0.1%	77.2%	14.7%	2.1%	0.7%	0.2%	0.1%	1.2%	0.5%	0.1%	2.8%	0.0%	0.5%	

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Site Code: 25
Station ID: D117
Oklahoma Dr from Eyer Dr to Hillcrest Rd

Date Start: 28-Nov-17
Date End: 30-Nov-17
Date Start: 28-Nov-17

WB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
11/28/17	0	12	0	0	0	0	0	0	0	0	0	0	0	12
01:00	0	6	1	0	0	0	0	0	0	0	0	0	0	7
02:00	0	3	0	0	0	0	0	0	0	0	0	0	0	3
03:00	0	3	1	0	0	0	0	0	0	0	0	0	0	4
04:00	0	14	3	0	0	0	0	0	0	0	0	0	0	17
05:00	0	74	8	0	0	0	0	0	0	0	0	0	0	82
06:00	0	119	16	4	0	0	0	0	0	0	0	0	0	139
07:00	0	198	21	**6**	**3**	0	**1**	5	1	0	**7**	0	0	242
08:00	**4**	**257**	**37**	3	2	0	0	**8**	**2**	0	4	0	**3**	**320**
09:00	1	140	14	2	0	0	0	0	0	0	0	0	0	157
10:00	0	114	22	2	1	**1**	0	1	0	0	4	0	0	145
11:00	1	107	17	2	0	0	0	1	0	0	1	0	0	129
12 PM	0	124	19	1	1	0	0	3	1	0	5	0	0	154
13:00	0	110	11	1	0	**1**	0	2	0	0	4	0	1	130
14:00	0	**170**	**25**	2	**6**	0	0	5	0	0	5	**1**	1	**215**
15:00	**3**	161	19	1	4	0	0	6	**2**	0	6	0	**5**	207
16:00	2	155	19	4	0	1	**1**	4	0	0	5	0	1	192
17:00	0	151	18	**5**	1	0	0	**9**	1	0	**10**	0	2	197
18:00	0	130	12	3	1	0	0	5	0	0	2	1	0	154
19:00	0	103	15	4	0	0	0	0	0	0	2	0	1	125
20:00	0	88	9	1	0	0	0	1	0	0	0	0	0	99
21:00	0	82	7	1	0	0	0	0	0	0	1	0	1	92
22:00	0	54	5	1	0	0	0	1	0	0	1	0	0	62
23:00	0	23	2	1	0	0	0	0	0	0	0	0	0	26
Day Total	11	2398	301	44	19	3	2	51	7	0	57	2	15	2910
Percent	0.4%	82.4%	10.3%	1.5%	0.7%	0.1%	0.1%	1.8%	0.2%	0.0%	2.0%	0.1%	0.5%	
AM Peak	08:00	08:00	08:00	07:00	07:00	10:00	07:00	08:00	08:00		07:00		08:00	08:00
Vol.	4	257	37	6	3	1	1	8	2		7		3	320
PM Peak	15:00	14:00	14:00	17:00	14:00	13:00	16:00	17:00	15:00		17:00	14:00	15:00	14:00
Vol.	3	170	25	5	6	1	1	9	2		10	1	5	215

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Oklahoma Dr from Eyer Dr to Hillcrest Rd

Date Start: 28-Nov-17
Date End: 30-Nov-17
Date Start: 28-Nov-17

WB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
11/29/17	0	15	3	1	0	0	0	0	0	0	0	0	0	19
01:00	0	3	1	0	0	0	0	0	0	0	0	0	0	4
02:00	0	4	0	0	0	0	0	0	0	0	0	0	0	4
03:00	0	7	1	0	0	0	0	0	0	0	0	0	0	8
04:00	0	17	2	0	0	0	0	0	0	0	0	0	0	19
05:00	0	66	8	0	0	0	0	0	0	0	1	0	0	75
06:00	0	121	20	4	1	0	0	1	0	0	1	0	0	148
07:00	0	209	27	**5**	3	0	0	**7**	0	0	7	**1**	2	261
08:00	**1**	**269**	**36**	3	**4**	**1**	0	7	**2**	0	**11**	0	**4**	**338**
09:00	0	122	19	2	2	0	0	1	1	0	2	0	0	149
10:00	0	107	17	2	1	0	0	2	0	0	1	0	1	131
11:00	0	134	11	2	0	0	0	0	0	0	2	0	0	149
12 PM	0	115	23	2	2	0	0	1	0	0	1	0	0	144
13:00	0	120	14	2	0	0	0	4	0	0	2	0	0	142
14:00	0	**164**	22	2	**5**	0	0	4	0	0	3	0	**3**	**203**
15:00	**2**	111	**27**	2	2	**1**	0	**5**	**1**	0	4	**1**	1	157
16:00	0	132	15	**5**	0	0	0	3	0	0	4	0	2	161
17:00	0	127	16	5	0	0	0	1	0	0	**8**	0	0	157
18:00	0	107	22	3	0	0	0	3	0	0	4	0	0	139
19:00	0	110	8	4	0	0	0	1	0	0	1	0	1	125
20:00	0	90	7	1	0	0	0	0	0	0	1	0	0	99
21:00	0	77	4	1	0	0	0	0	0	0	2	0	1	85
22:00	0	49	5	1	0	0	0	0	0	0	0	0	0	55
23:00	0	15	1	1	0	0	0	0	0	0	0	0	0	17
Day Total	3	2291	309	48	20	2	0	40	4	0	55	2	15	2789
Percent	0.1%	82.1%	11.1%	1.7%	0.7%	0.1%	0.0%	1.4%	0.1%	0.0%	2.0%	0.1%	0.5%	
AM Peak	08:00	08:00	08:00	07:00	08:00	08:00		07:00	08:00		08:00	07:00	08:00	08:00
Vol.	1	269	36	5	4	1		7	2		11	1	4	338
PM Peak	15:00	14:00	15:00	16:00	14:00	15:00		15:00	15:00		17:00	15:00	14:00	14:00
Vol.	2	164	27	5	5	1		5	1		8	1	3	203

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Site Code: 25
Station ID: D117
Oklahoma Dr from Eyer Dr to Hillcrest Rd

Date Start: 28-Nov-17
Date End: 30-Nov-17
Date Start: 28-Nov-17

WB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
11/30/17	0	17	2	0	0	0	0	0	0	0	0	0	0	19
01:00	0	5	0	0	0	0	0	0	0	0	0	0	0	5
02:00	0	4	0	0	0	0	0	0	0	0	0	0	0	4
03:00	0	6	1	0	0	0	0	0	0	0	0	0	0	7
04:00	0	12	4	0	0	0	0	0	0	0	0	0	0	16
05:00	0	77	9	0	0	0	0	0	0	0	0	0	0	86
06:00	0	120	17	4	0	0	0	0	0	0	1	0	0	142
07:00	**1**	219	25	**6**	**4**	0	0	5	0	0	6	0	3	269
08:00	0	**244**	**34**	3	3	0	0	**6**	**2**	0	**8**	0	**4**	**304**
09:00	0	139	17	2	0	0	0	1	0	0	1	0	0	160
10:00	1	133	8	2	0	0	0	0	1	0	2	0	0	147
11:00	0	131	23	2	0	0	0	1	0	0	3	0	0	160
12 PM	0	120	14	1	0	0	**1**	2	0	0	5	0	0	143
13:00	**2**	131	**20**	1	**4**	0	0	4	0	0	2	**2**	0	166
14:00	1	**169**	15	**6**	3	0	0	2	0	0	2	0	1	**199**
15:00	0	132	20	3	0	**1**	0	1	0	0	3	0	**2**	162
16:00	0	129	20	5	0	1	1	**5**	0	0	4	0	1	166
17:00	0	115	20	4	0	0	1	1	0	0	**9**	0	2	152
18:00	0	137	14	2	0	0	1	1	0	0	2	0	0	157
19:00	0	118	10	4	0	0	0	2	0	0	1	0	0	135
20:00	0	83	1	1	0	0	0	0	0	0	1	0	0	86
21:00	0	54	2	1	0	0	0	0	0	0	0	0	0	57
22:00	0	43	4	1	0	0	0	0	0	0	0	0	0	48
23:00	0	18	1	0	0	0	0	0	0	0	0	0	0	19
Day Total	5	2356	281	48	14	2	4	31	3	0	50	2	13	2809
Percent	0.2%	83.9%	10.0%	1.7%	0.5%	0.1%	0.1%	1.1%	0.1%	0.0%	1.8%	0.1%	0.5%	
AM Peak	07:00	08:00	08:00	07:00	07:00			08:00	08:00		08:00		08:00	08:00
Vol.	1	244	34	6	4			6	2		8		4	304
PM Peak	13:00	14:00	13:00	14:00	13:00	15:00	12:00	16:00			17:00	13:00	15:00	14:00
Vol.	2	169	20	6	4	1	1	5			9	2	2	199
Grand Total	19	7045	891	140	53	7	6	122	14	0	162	6	43	8508
Percent	0.2%	82.8%	10.5%	1.6%	0.6%	0.1%	0.1%	1.4%	0.2%	0.0%	1.9%	0.1%	0.5%	

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Oklahoma Dr from Eyer Dr to Hillcrest Rd

Date Start: 28-Nov-17
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EB, WB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
11/28/17	0	29	1	0	0	0	0	0	0	0	0	0	0	30
01:00	0	13	1	0	0	0	0	0	0	0	0	0	0	14
02:00	0	6	0	0	0	0	0	0	0	0	0	0	0	6
03:00	0	4	2	0	0	0	0	0	0	0	0	0	0	6
04:00	0	16	3	0	0	0	0	0	0	0	0	0	0	19
05:00	0	85	9	1	0	0	0	0	0	0	0	0	0	95
06:00	0	138	20	9	1	0	0	0	0	0	0	0	1	169
07:00	0	327	46	**13**	**5**	**1**	**3**	10	1	0	**16**	0	0	422
08:00	**4**	**341**	**53**	7	4	0	0	**13**	**3**	**1**	10	0	**4**	**440**
09:00	1	190	38	4	2	0	0	1	1	0	1	0	0	238
10:00	0	198	39	4	1	1	0	3	1	0	7	0	0	254
11:00	2	199	37	4	4	1	0	4	2	0	4	0	0	257
12 PM	0	207	42	3	1	0	0	7	1	0	6	0	0	267
13:00	0	226	31	2	0	1	0	3	0	0	13	0	3	279
14:00	0	304	51	3	**8**	**2**	0	8	1	0	9	**1**	1	388
15:00	**4**	355	50	2	5	0	0	**12**	**2**	0	15	0	**10**	455
16:00	2	**375**	**70**	8	0	1	**1**	10	0	0	11	0	3	**481**
17:00	0	371	48	**9**	2	1	0	10	1	**1**	**20**	0	4	467
18:00	1	294	41	8	2	1	0	5	2	0	5	1	1	361
19:00	0	211	35	8	0	0	0	1	0	0	6	0	1	262
20:00	0	170	23	3	0	0	0	1	1	0	4	1	0	203
21:00	0	159	20	2	0	0	0	0	1	0	2	0	1	185
22:00	0	121	14	2	0	0	0	2	0	0	2	0	0	141
23:00	0	53	5	1	0	0	0	0	0	0	0	0	0	59
Day Total	14	4392	679	93	35	9	4	90	17	2	131	3	29	5498
Percent	0.3%	79.9%	12.3%	1.7%	0.6%	0.2%	0.1%	1.6%	0.3%	0.0%	2.4%	0.1%	0.5%	
AM Peak	08:00	08:00	08:00	07:00	07:00	07:00	07:00	08:00	08:00	08:00	07:00		08:00	08:00
Vol.	4	341	53	13	5	1	3	13	3	1	16		4	440
PM Peak	15:00	16:00	16:00	17:00	14:00	14:00	16:00	15:00	15:00	17:00	17:00	14:00	15:00	16:00
Vol.	4	375	70	9	8	2	1	12	2	1	20	1	10	481

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EB, WB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
11/29/17	0	30	5	1	0	0	0	0	0	0	0	0	0	36
01:00	0	9	4	0	0	0	0	0	0	0	0	0	0	13
02:00	0	9	0	0	0	0	0	0	0	0	0	0	0	9
03:00	0	12	2	0	0	0	0	0	0	0	0	0	0	14
04:00	0	21	2	0	0	0	0	0	0	0	0	0	0	23
05:00	0	79	9	1	0	0	0	0	0	0	1	0	0	90
06:00	0	142	29	10	1	0	0	1	0	0	4	0	0	187
07:00	**1**	**351**	50	**12**	**8**	**2**	0	**9**	2	0	**19**	**1**	3	**458**
08:00	1	333	**58**	6	7	1	0	9	**4**	**1**	16	0	**5**	441
09:00	0	180	32	4	4	0	**1**	1	1	0	3	0	1	227
10:00	0	189	31	3	1	0	0	4	1	0	1	0	1	231
11:00	0	218	23	4	1	0	0	3	0	0	5	0	0	254
12 PM	0	206	40	4	2	0	0	1	0	0	4	0	0	257
13:00	0	207	34	5	0	0	0	**7**	0	0	4	0	0	257
14:00	0	291	46	4	**8**	0	0	6	1	0	9	0	**4**	369
15:00	**2**	258	**68**	4	4	**1**	0	6	1	0	8	**1**	2	355
16:00	0	**353**	47	**9**	0	0	0	5	**3**	0	13	0	2	432
17:00	0	346	61	9	0	0	**1**	7	3	0	**17**	0	2	**446**
18:00	0	240	44	9	0	0	0	4	0	0	7	0	0	304
19:00	0	225	26	7	0	1	0	3	2	0	4	0	1	269
20:00	0	188	19	3	0	0	0	0	0	0	3	0	0	213
21:00	0	158	18	2	0	0	0	0	0	0	2	0	1	181
22:00	0	107	12	2	0	0	0	0	0	0	2	0	0	123
23:00	0	45	7	1	0	0	0	0	0	0	1	0	0	54
Day Total	4	4197	667	100	36	5	2	66	18	1	123	2	22	5243
Percent	0.1%	80.0%	12.7%	1.9%	0.7%	0.1%	0.0%	1.3%	0.3%	0.0%	2.3%	0.0%	0.4%	
AM Peak	07:00	07:00	08:00	07:00	07:00	07:00	09:00	07:00	08:00	08:00	07:00	07:00	08:00	07:00
Vol.	1	351	58	12	8	2	1	9	4	1	19	1	5	458
PM Peak	15:00	16:00	15:00	16:00	14:00	15:00	17:00	13:00	16:00		17:00	15:00	14:00	17:00
Vol.	2	353	68	9	8	1	1	7	3		17	1	4	446

Ontario Traffic, Inc.
17705 Leslie St., Unit 6
Newmarket, Ontario L3Y 3E3
Tel: (905) 898-7711 Fax: (905) 898-3664

Site Code: 25
Station ID: D117
Oklahoma Dr from Eyer Dr to Hillcrest Rd

Date Start: 28-Nov-17
Date End: 30-Nov-17
Date Start: 28-Nov-17

EB, WB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
11/30/17	0	26	5	0	0	0	0	0	0	0	0	0	0	31
01:00	0	11	0	0	0	0	0	0	0	0	0	0	0	11
02:00	0	7	2	0	0	0	0	0	0	0	0	0	0	9
03:00	0	6	2	0	0	0	0	0	0	0	0	0	0	8
04:00	0	17	4	0	0	0	0	0	0	0	0	0	0	21
05:00	0	85	12	1	0	0	0	0	0	0	0	0	0	98
06:00	0	145	29	11	0	0	0	0	0	0	1	0	0	186
07:00	**1**	**345**	**53**	**14**	5	0	0	7	2	0	13	0	6	**446**
08:00	0	314	48	6	**8**	0	**1**	**10**	**4**	0	**18**	0	**7**	416
09:00	0	199	31	6	1	0	0	1	1	0	4	0	1	244
10:00	1	204	18	4	1	0	0	2	1	0	4	0	0	235
11:00	0	216	46	4	1	0	0	2	0	0	6	0	0	275
12 PM	0	209	31	3	0	0	**1**	3	1	0	8	0	1	257
13:00	**2**	220	40	3	**10**	**1**	0	6	0	0	5	**2**	0	289
14:00	1	309	38	8	3	1	0	2	1	0	4	0	1	368
15:00	0	273	50	3	2	1	0	2	1	0	9	0	**5**	346
16:00	0	**350**	**64**	**10**	0	1	1	**8**	**2**	0	12	0	3	**451**
17:00	0	339	51	8	0	0	1	6	0	0	**20**	0	2	427
18:00	1	289	35	8	0	0	1	2	0	0	7	0	1	344
19:00	0	238	31	8	0	1	0	3	2	**1**	4	0	1	289
20:00	0	161	21	3	0	0	0	0	1	0	3	0	0	189
21:00	0	111	13	2	0	0	0	0	0	0	0	0	0	126
22:00	0	94	10	2	0	0	0	0	0	0	2	0	0	108
23:00	0	52	5	0	0	0	0	0	0	0	0	0	0	57
Day Total	6	4220	639	104	31	5	5	54	16	1	120	2	28	5231
Percent	0.1%	80.7%	12.2%	2.0%	0.6%	0.1%	0.1%	1.0%	0.3%	0.0%	2.3%	0.0%	0.5%	
AM Peak	07:00	07:00	07:00	07:00	08:00		08:00	08:00	08:00		08:00		08:00	07:00
Vol.	1	345	53	14	8		1	10	4		18		7	446
PM Peak	13:00	16:00	16:00	16:00	13:00	13:00	12:00	16:00	16:00	19:00	17:00	13:00	15:00	16:00
Vol.	2	350	64	10	10	1	1	8	2	1	20	2	5	451
Grand Total	24	12809	1985	297	102	19	11	210	51	4	374	7	79	15972
Percent	0.2%	80.2%	12.4%	1.9%	0.6%	0.1%	0.1%	1.3%	0.3%	0.0%	2.3%	0.0%	0.5%	

Year	Highway	Location Description	Dist (KM)	Pattern Type	AADT	SADT	SWADT	WADT	Truck AADT	Total Collisions	Total CR	Trucks Collisions	Truck CR
1988	401	BROCK RD IC-399 REG RD 1 PICKERING	1.7	C	108,500	120,400	120,400	97,600	13,000	49	0.7	17	0.3
1989	401			C	110,000	122,100	123,200	99,000	13,200	44	0.6	14	0.2
1990	401			C	118,800	131,900	131,900	106,900	14,300	51	0.7	7	0.1
1991	401			C	113,000	124,300	125,400	102,800	13,600	61	0.9	11	0.2
1992	401			C	114,500	123,700	127,100	105,300	13,700	37	0.5	13	0.2
1993	401			C	116,500	127,000	128,900	107,200	14,000	76	1.0	17	0.2
1994	401			C	124,700	136,500	139,000	112,900	15,000	62	0.8	14	0.2
1995	401			C	128,100	139,800	143,500	117,200	15,400	66	0.8	12	0.2
1996	401			C	131,500	149,000	149,600	118,700	15,800	71	0.9	13	0.2
1997	401			C	134,800	152,300	153,700	121,300	16,200	67	0.8	10	0.1
1998	401			C	138,200	156,200	156,200	124,400	16,600	50	0.6	10	0.1
1999	401			C	148,000	165,800	167,200	133,200	17,800	80	0.9	24	0.3
2000	401			C	151,600	171,300	171,300	136,400	18,200	60	0.6	14	0.1
2001	401			C	156,500	176,300	176,600	141,000	18,800	64	0.7	10	0.1
2002	401			C	161,400	180,800	182,100	145,200	19,400	59	0.6	9	0.1
2003	401			SC	172,000	181,600	200,700	152,200	20,600	75	0.7	17	0.2
2004	401			SC	180,000	192,000	210,800	158,600	21,600	61	0.5	12	0.1
2005	401			SC	189,000	200,100	220,700	166,300	22,700	84	0.7	17	0.1
2006	401			SC	187,100	198,000	218,700	165,000	22,500	50	0.4	12	0.1
2007	401			SC	190,700	201,600	220,500	167,700	22,900	92	0.8	9	0.1
2008	401			SC	194,300	203,800	192,200	170,900	23,300	85	0.7	8	0.1
2009	401			SC	202,300	214,400	236,700	178,000	24,300	74	0.6	12	0.1
2010	401			SC	201,500	213,100	235,900	177,700	24,200	77	0.6	10	0.1
2011	401			SC	212,300	271,700	248,100	169,000	25,500	109	0.8	15	0.1
2012	401			SC	217,700	230,600	216,800	192,100	26,100	115	0.8	14	0.1
2013	401			SC	223,000	235,900	214,900	196,700	26,800	148	1.1	18	0.1
2014	401			SC	213,000	225,300	219,900	187,900	25,600	127	1.0	21	0.2
2015	401			SC	220,000	232,700	227,200	194,000	26,400	119	0.9	15	0.1
2016	401			SC	223,000	235,900	230,300	196,700	26,800	109	0.8	16	0.1
2017	401			SC	237,100	252,100	252,300	210,400	28,500	104	0.7	14	0.1
2018	401			SC	242,000	258,500	257,100	212,900	29,000	108	0.7	14	0.1
2019	401			SC	246,900	262,100	260,500	218,200	29,600	126	0.8	23	0.1
2021	401			SC	256,700	271,600	270,600	228,300	30,800	48	0.3	5	0.0
1988	401	LIVERPOOL RD IC-397 REG RD 29 PICKERING	2.6	C	122,000	135,400	135,400	109,800	18,300	85	0.7	22	0.2
1989	401			C	125,100	138,900	140,100	112,600	18,800	101	0.9	22	0.2
1990	401			C	128,300	142,400	142,400	115,500	19,200	85	0.7	23	0.2
1991	401			C	131,400	144,500	145,900	119,600	14,500	91	0.7	25	0.2
1992	401			C	134,600	145,400	149,400	123,800	16,200	77	0.6	18	0.1
1993	401			C	137,700	150,100	152,400	126,700	16,500	85	0.7	10	0.1
1994	401			C	140,900	154,300	157,100	127,500	16,900	121	0.9	30	0.2
1995	401			C	144,000	157,200	161,400	131,700	17,300	97	0.7	30	0.2

Year	Highway	Location Description	Dist (KM)	Pattern Type	AADT	SADT	SWADT	WADT	Truck AADT	Total Collisions	Total CR	Trucks Collisions	Truck CR
1996	401			C	147,200	166,800	167,400	132,900	17,700	155	1.1	43	0.3
1997	401			C	150,300	169,800	171,300	135,300	18,000	81	0.6	21	0.1
1998	401			C	153,500	173,500	173,500	138,200	18,400	64	0.4	14	0.1
1999	401			C	165,300	185,100	186,800	148,800	19,800	81	0.5	11	0.1
2000	401			C	171,100	193,300	193,300	154,000	20,500	63	0.4	11	0.1
2001	401			C	172,500	194,300	194,700	155,400	20,700	52	0.3	12	0.1
2002	401			C	174,400	195,300	196,800	156,900	20,900	66	0.4	8	0.0
2003	401			C	178,800	199,700	201,000	161,400	21,500	83	0.5	12	0.1
2004	401			C	183,200	206,300	206,700	165,000	22,000	74	0.4	17	0.1
2005	401			C	187,700	209,000	210,700	168,600	22,500	101	0.6	22	0.1
2006	401			C	193,000	214,400	216,100	173,600	23,200	69	0.4	2	0.0
2007	401			C	197,400	219,400	222,400	177,400	23,700	101	0.5	17	0.1
2008	401			C	201,900	222,800	219,800	181,100	24,200	93	0.5	4	0.0
2009	401			C	206,300	226,900	229,000	185,700	24,800	91	0.5	12	0.1
2010	401			C	210,800	232,300	234,400	189,800	25,300	83	0.4	6	0.0
2011	401			C	215,200	237,200	239,300	193,700	25,800	101	0.5	10	0.0
2012	401			C	219,700	242,100	237,000	197,800	26,400	96	0.5	8	0.0
2013	401			C	222,000	244,700	241,600	199,800	26,600	98	0.5	10	0.0
2014	401			C	224,000	246,400	239,700	201,600	26,900	111	0.5	14	0.1
2015	401			C	228,000	250,800	244,000	205,200	27,400	97	0.4	9	0.0
2016	401			C	230,000	253,000	246,100	207,000	27,600	72	0.3	11	0.1
2017	401			C	238,800	261,200	260,600	216,700	28,700	91	0.4	19	0.1
2018	401			C	243,100	266,500	264,900	219,400	29,200	68	0.3	5	0.0
2019	401			C	247,300	270,300	268,700	223,800	29,700	77	0.3	6	0.0
2021	401			C	255,900	278,300	276,900	232,000	30,700	74	0.3	9	0.0
1988	401	WHITES RD IC-394 REG RD 38 PICKERING	3.7	C	140,700	156,200	156,200	126,600	15,500	141	0.7	28	0.1
1989	401			C	143,300	159,100	160,500	129,000	15,800	170	0.9	45	0.2
1990	401			C	145,800	161,800	161,800	131,200	16,000	121	0.6	27	0.1
1991	401			C	148,400	163,200	164,700	135,000	14,800	129	0.6	28	0.1
1992	401			C	151,000	163,100	167,600	138,900	15,100	137	0.7	26	0.1
1993	401			C	153,500	167,300	169,900	141,200	15,400	115	0.6	21	0.1
1994	401			C	156,100	170,900	174,100	141,300	15,600	96	0.5	24	0.1
1995	401			C	158,600	173,100	177,700	145,100	15,900	153	0.7	42	0.2
1996	401			C	161,200	182,700	183,400	145,500	16,100	244	1.1	45	0.2
1997	401			C	163,800	185,100	186,700	147,400	16,400	77	0.3	8	0.0
1998	401			C	166,300	187,900	187,900	149,700	16,600	73	0.3	12	0.1
1999	401			C	183,900	206,000	207,800	165,500	18,400	65	0.3	7	0.0
2000	401			C	191,000	215,800	215,800	171,900	19,100	98	0.4	12	0.0
2001	401			C	196,000	220,700	221,200	176,500	19,600	115	0.4	10	0.0
2002	401			C	198,000	221,700	223,400	178,200	19,800	153	0.6	14	0.1
2003	401			C	204,900	228,900	230,400	184,900	20,500	166	0.6	17	0.1

SEVEN DAY HOURLY REPORT

Station 1: 401DE0510DWC

HIGHWAY: 401 STREAM: COLLECTORS DIRECTION: WEST BOUND

LHRS / OFFSET: 47610 / 2.5 LOCATION: (43.817, -79.114) DESCRIPTION: WHITES

Station 2: 401DE0510DWE

HIGHWAY: 401 STREAM: EXPRESS DIRECTION: WEST BOUND

LHRS / OFFSET: 47610 / 2.5 LOCATION: (43.817, -79.114) DESCRIPTION: WHITES

CONFIDENCE LEVEL: 95%

	MON		TUE		WED		THU		FRI		SAT		SUN	
	17-Feb-20		18-Feb-20		19-Feb-20		20-Feb-20		21-Feb-20		22-Feb-20		23-Feb-20	
	VDS1	VDS2	VDS1	VDS2	VDS1	VDS2	VDS1	VDS2	VDS1	VDS2	VDS1	VDS2	VDS1	VDS2
HOUR-ENDING	NITS	NITS	NITS	NITS	NITS	NITS	NITS	NITS	NITS	NITS	NITS	NITS	NITS	NITS
01:00	876	1037	N/A	733	N/A	564	N/A	461	N/A	N/A	778	880	899	919
02:00	N/A	611	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	620	N/A	692
03:00	N/A	N/A	N/A	N/A	N/A	447	N/A	N/A	N/A	N/A	N/A	515	N/A	N/A
04:00	N/A	N/A	N/A	N/A	N/A	541	N/A	N/A	N/A	N/A	N/A	493	N/A	N/A
05:00	N/A	N/A	870	1289	1147	1337	1250	1201	1089	1151	N/A	613	N/A	N/A
06:00	N/A	992	3005	3010	4023	4161	4278	3670	3631	3788	904	1207	N/A	736
07:00	1084	1119	3470	2564	5262	3427	5418	4357	4887	4236	1490	1609	963	1069
08:00	1020	1081	4527	3503	6344	4750	5851	4559	5054	4589	1706	1950	990	1078
09:00	1143	1233	4510	3249	5492	4127	5524	4298	5053	4017	2623	2636	1529	1599
10:00	1511	1720	4132	2750	4171	3543	4238	3490	4110	3427	3319	3297	2549	2580
11:00	1930	2375	3474	2251	3110	2954	3411	3250	3279	3371	3541	3476	3124	3073
12:00	2532	3133	2900	2640	3124	3051	3192	2967	3214	3235	3742	3721	3523	3277
13:00	2816	3511	2658	2545	2993	2950	3152	2911	3282	3381	3971	3705	3752	3537
14:00	3160	3856	2778	2565	2849	2766	2983	2814	3210	2518	3857	3598	3805	3704
15:00	3137	3952	2884	2673	3107	2745	3333	2889	3576	3278	4052	3578	3850	3773
16:00	3265	3748	3178	2580	3355	2759	3440	2634	3770	2931	3848	3589	3633	3765
17:00	3038	3484	3336	2539	3371	2820	3525	2682	3631	2959	3695	3556	3461	3713
18:00	3065	3649	3274	2630	3548	2881	3288	2686	3620	2825	3806	3442	3530	3509
19:00	2987	3610	2781	2356	2702	2329	3050	2806	3324	2952	3602	3294	3307	3784
20:00	2918	3617	2383	2071	2405	2403	2501	2260	3043	2745	2799	2621	2710	3299
21:00	2160	3299	2085	1625	1887	1894	1971	1996	2180	2251	2073	2058	2017	2750
22:00	1767	2797	1631	1393	1742	1597	1755	1649	1975	2023	1755	1855	1581	2193
23:00	1281	1823	1352	1129	1689	916	1769	1151	1616	1653	1594	1639	1286	1581
23:59	N/A	1120	828	770	973	590	1054	N/A	1144	1227	1286	1272	N/A	962
24 Hr Total	39,690	51,767	56,056	46,865	63,294	55,552	64,983	54,731	64,688	58,557	54,441	55,224	46,509	51,593
A.M. Total	10,096	13,301	26,888	21,989	32,673	28,902	33,162	28,253	30,317	27,814	18,103	21,017	13,577	15,023
P.M. Total	29,594	38,466	29,168	24,876	30,621	26,650	31,821	26,478	34,371	30,743	36,338	34,207	32,932	36,570
Noon-Noon			56,482	60,455	61,841	53,778	63,783	54,903	62,138	54,292	52,474	51,760	49,915	49,230
Highest Hour Starting	15:00	14:00	07:00	07:00	07:00	07:00	07:00	07:00	07:00	07:00	14:00	11:00	14:00	18:00
Highest Hour Volume	3,265	3,952	4,527	3,503	6,344	4,750	5,851	4,559	5,054	4,589	4,052	3,721	3,850	3,784

VDS 1 ADT = 55,666 VDS 2 ADT = 53,470 VDS1 AWD = 61,061 VDS2 AWD = 55,857

ADT (Average Daily Traffic)-The average daily volume of the days being displayed LHRS (Linear Highway Reference

AWD (Average Weekday Traffic) - The average weekday traffic based on data taken from Monday @noon to Friday @noon.

Sep 22, 2022 12:08:27

SEVEN DAY HOURLY REPORT

Station 1: 401DE0550DEE

HIGHWAY: 401 STREAM: EXPRESS DIRECTION: EAST BOUND

LHRS / OFFSET: 47612 / 0.5 LOCATION: (43.814, -79.118) DESCRIPTION: WHITES ROAD

Station 2: 401DE0530DEC

HIGHWAY: 401 STREAM: COLLECTORS DIRECTION: EAST BOUND

LHRS / OFFSET: 47612 / 0.5 LOCATION: (43.814, -79.118) DESCRIPTION: WHITES ROAD

CONFIDENCE LEVEL: 95%

	MON		TUE		WED		THU		FRI		SAT		SUN	
	04-Nov-19		05-Nov-19		06-Nov-19		07-Nov-19		08-Nov-19		09-Nov-19		10-Nov-19	
	VDS1	VDS2	VDS1	VDS2	VDS1	VDS2	VDS1	VDS2	VDS1	VDS2	VDS1	VDS2	VDS1	VDS2
HOUR-ENDING	NITS	NITS	NITS	NITS	NITS	NITS	NITS	NITS	NITS	NITS	NITS	NITS	NITS	NITS
01:00	791	N/A	1075	N/A	1373	N/A	1179	543	1610	N/A	2419	N/A	1744	854
02:00	N/A	N/A	676	N/A	N/A	N/A	710	N/A	1033	N/A	1562	N/A	1234	617
03:00	N/A	N/A	584	N/A	N/A	N/A	N/A	N/A	900	N/A	1254	N/A	850	N/A
04:00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	779	N/A	944	N/A	N/A	N/A
05:00	N/A	N/A	695	N/A	N/A	N/A	620	N/A	N/A	N/A	765	N/A	N/A	N/A
06:00	1328	708	1425	719	1556	630	1148	730	1735	N/A	1077	N/A	N/A	N/A
07:00	2463	1393	2674	1472	2713	1430	2416	1428	2795	1107	1841	N/A	874	N/A
08:00	3377	1808	3498	1911	3432	1874	3066	1755	3574	1877	2657	539	1391	636
09:00	3022	1754	3097	1840	3092	1853	3015	1757	3372	1944	3170	1098	1897	948
10:00	2626	1512	2737	1611	2825	1616	2574	1554	3183	1709	3499	1664	2531	1350
11:00	2920	1515	2989	1731	2822	1626	2892	1529	N/A	N/A	3814	2078	3344	1758
12:00	3265	1738	3043	1745	3177	1689	3153	1668	3864	1942	3752	2159	3701	1929
13:00	3341	1811	3394	1917	3430	1855	3478	1826	4085	2066	4230	2279	4158	2130
14:00	3932	2034	3775	2077	3947	2136	3791	2067	4340	2295	4311	2440	4502	2297
15:00	4807	2530	4822	2619	4859	2680	4837	2688	5050	2778	4508	2516	4660	2477
16:00	5689	3049	5783	3165	5884	3188	5745	3049	5441	2874	4580	2387	4719	2325
17:00	5355	2820	5561	2538	5933	2910	5436	2627	5261	2598	4685	2402	4501	2064
18:00	5545	2763	5593	2542	5427	2705	4382	2544	5178	2548	4450	2123	4076	2018
19:00	4991	2485	4827	2481	4776	2500	4361	2238	4719	2418	3984	2010	3755	1776
20:00	4203	2068	4208	2169	4261	2143	4244	2074	4413	2281	3769	1786	3979	1714
21:00	3435	1768	3531	1777	3909	1991	3931	1923	4051	1924	3266	1491	3215	1417
22:00	2362	1451	3046	1538	3021	1476	3118	1421	3452	1397	2783	1274	2588	1143
23:00	2002	1146	2799	896	2431	1226	3111	950	3568	597	2907	1241	2107	1017
23:59	1755	839	2358	603	1905	1068	2569	N/A	2813	N/A	2582	1116	1444	751
24 Hr Total	67,209	35,192	72,190	35,351	70,773	36,596	69,776	34,371	75,216	32,355	72,809	30,603	61,270	29,221
A.M. Total	19,792	10,428	22,493	11,029	20,990	10,718	20,773	10,964	22,845	8,579	26,754	7,538	17,566	8,092
P.M. Total	47,417	24,764	49,697	24,322	49,783	25,878	49,003	23,407	52,371	23,776	46,055	23,065	43,704	21,129
Noon-Noon			69,910	35,793	70,687	35,040	70,556	36,842	71,848	31,986	79,125	31,314	63,621	31,157
Highest Hour Starting	15:00	15:00	15:00	15:00	16:00	15:00	15:00	15:00	15:00	15:00	16:00	14:00	15:00	14:00
Highest Hour Volume	5,689	3,049	5,783	3,165	5,933	3,188	5,745	3,049	5,441	2,874	4,685	2,516	4,719	2,477

VDS 1 ADT = 69,892 VDS 2 ADT = 33,384 VDS1 AWD = 70,750 VDS2 AWD = 34,915

ADT (Average Daily Traffic)-The average daily volume of the days being displayed LHRS (Linear Highway Reference

AWD (Average Weekday Traffic) - The average weekday traffic based on data taken from Monday @noon to Friday @noon.

Sep 22, 2022 12:00:19

Planning and Economic
Development Department

Planning Division

605 ROSSLAND RD. E.
4TH FLOOR
P.O. BOX 623
WHITBY, ON L1N 6A3
CANADA
905-668-7711
1-800-372-1102
Fax: 905-666-6208
E-Mail: planning@durham.ca

www.durham.ca

Brian Bridgeman, MCIP, RPP
Commissioner of Planning and
Economic Development

The Regional Municipality of Durham

ROAD SEGMENT TRAFFIC FORECASTS FOR NOISE ANALYSES

This information is to be used as the basis for assessing the potential impacts of noise, generated by traffic on Provincial Highways and arterial roads, on proposed land uses that are sensitive (e.g., residential subdivisions). Arterial roads include existing and future Type A, B and C, as designated in the Durham Regional Official Plan.

Noise assessment reports recommend specific measures to be integrated into the design of sensitive developments to reduce road noise impacts to acceptable levels.

Provided For:

Name / Name of Firm: Andrew DeFaria, GHD

Address: 5 Greenbush Place, Whitby

Telephone: (905) 621-8041 Fax:

Location of Proposal:

720 Granite Court (west side of Whites Road, south of Bayly Street)

Municipality: Pickering Lot(s): Concession:

Durham Region File No. (if available):

Name of Property Owner (if available):

Date Request Received: September 14, 2022 Received By: Chris Leitch

Date Forecast Sent: September 29, 2022

Name of Road Segment	Forecasted AADT*	No. of Lanes	% of Trucks	Heavy : Medium Truck Ratio		Speed (km/h)
Bayly St. (east of Whites Rd.)	25,000	4	10	60	40	60
	0	0	0	0	0	0
	0	0	0	0	0	0
	0	0	0	0	0	0

* Average Annual Daily Traffic. Forecast based on ultimate development according to the Durham Regional Official Plan.

Andrew DeFaria

From: Chris Leitch <Chris.Leitch@Durham.ca>
Sent: Thursday, 29 September 2022 12:47 PM
To: Andrew DeFaria
Subject: RE: New Response Completed for Noise Analysis Data Request
Attachments: Sep29_22_PI.pdf

Hi Andrew,

Just to follow-up on your request, please find attached traffic forecast numbers for Bayly Street, east of Whites Road, for the noise study you are working on.

Regards,
Chris

Chris Leitch, MUP, MCIP, RPP | Principal Planner
Transportation Planning
Planning and Economic Development Department
The Regional Municipality of Durham
Chris.Leitch@durham.ca | 905-668-7711 extension 2567 | durham.ca

My pronouns are he/him

From: Victor Copetti <Victor.Copetti@durham.ca>
Sent: September 20, 2022 4:08 PM
To: Andrew DeFaria <Andrew.DeFaria@ghd.com>
Cc: Chris Leitch <Chris.Leitch@Durham.ca>
Subject: FW: New Response Completed for Noise Analysis Data Request

Hello Andrew,

Regarding the email below, unfortunately the Region is unable to provide data for Whites Rd, Granite Ct, or Oklahoma Dr. These are all collector roads (including the section of Whites Rd south of Bayly St), and you should obtain this data from City of Pickering staff (Nadeem Zahoor).

Furthermore, some modeling will be required for this section of Bayly St, as the projected AADT in our database is too high. Regional staff will reach out to you in the near future with updated numbers.

Just wanted to give you an update! Let me know if you have any questions!

Victor Copetti, MCIP, RPP | Planner (Transportation)
Planning and Economic Development Department
The Regional Municipality of Durham
victor.copetti@ durham.ca | 905-668-7711 extension 2559 | durham.ca

My pronouns are he/him

From: noreply@www.durham.ca <noreply@www.durham.ca>
Sent: September 14, 2022 11:54 AM
To: noiserequests <noiserequests@durham.ca>; Victor Copetti <Victor.Copetti@durham.ca>
Subject: New Response Completed for Noise Analysis Data Request

Hello,

Please note the following response to Noise Analysis Data Request has been submitted at Wednesday September 14th 2022 11:49 AM with reference number 2022-09-14-492.

- **1. Requestor's Name**
  Andrew DeFaria
- **2. Name of Firm Submitting Request**
  GHD
- **3. Date of Submission**
  9/14/2022
- **4. Address**
  5 Greenbush Place
- **City/Town**
  Whitby
- **Province**
  Ontario
- **Postal Code**
  L1R 1T5
- **5. Telephone Number**
  9056218041
- **6. Email Address**
  andrew.defaria@ghd.com
- **7. Location of Proposal**
  720 Granite Court

- **City/Town**
  Pickering

- **Province**
  Ontario

- **Postal Code**
  L1W 3W7

- **8. Municipality**
  Pickering

- **9. List the Road Segments or Intersections that Data is Requested for (Example: Rossland Rd. E., west of Garden St.)**
  Oklahoma Dr., east of Whites Road
  Granite Court., west of Whites Road
  Whites Rd. South., north of Granite Court
  Bayly St., east of Whites Road

- **10. Information Requested**
  Ultimate/Forecasted Traffic Volume, Percentage of Trucks, Heavy to Medium Truck Ratio, Posted Speed, Number of Lanes

Andrew DeFaria

From: Emery, Nathan <nemery@pickering.ca>
Sent: Monday, 3 October 2022 4:18 PM
To: Andrew DeFaria
Subject: RE: Traffic Data Request - 720 Granite Road Noise Impact Study
Attachments: 22_Granite Court from Whites Rd (RR 38) to Ironstone Manor_class_60 min.pdf; 25 _Oklahoma Dr from Eyer Dr to Hillcrest Rd_class_60 min.pdf

Good afternoon Andrew, please see attached regarding traffic counts on Granite Court and Oklahoma Drive from 2017. Sorry for the delay in getting this to you.

There is a posted speed on both of these roads of 40 km/h

For Whites Road, you will need to contact the Region of Durham at 905.666.8116 or by email at trafficdispatch@durham.ca

Please let me know if you require anything further.

Thanks.

Nathan Emery
Coordinator, Traffic Operations | Engineering Services
905.420.4660 ext. 2054 | 1.866.683.2760
nemery@pickering.ca

City of PICKERING Your City. Right Now. pickering.ca pingstreet

---

From: Andrew DeFaria <Andrew.DeFaria@ghd.com>
Sent: Tuesday, September 27, 2022 2:50 PM
To: Emery, Nathan <nemery@pickering.ca>
Subject: RE: Traffic Data Request - 720 Granite Road Noise Impact Study

Hi Nathan,

Just following up on this request. Will it be possible to get it this week?

Best regards,

Andrew DeFaria
Acoustical Engineer in Training

GHD
Proudly employee-owned | ghd.com
455 Phillip Street Unit #100 Waterloo Ontario N2L 3X2 Canada
D +1 519 340 4242 **E** andrew.defaria@ghd.com

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Connect

Please consider the environment before printing this email

From: Zahoor, Nadeem <nzahoor@pickering.ca>
Sent: Friday, September 23, 2022 8:38 AM
To: Andrew DeFaria <Andrew.DeFaria@ghd.com>
Cc: Nathan Emery (InTouch) <nemery@pickering.ca>
Subject: RE: Traffic Data Request - 720 Granite Road Noise Impact Study

Hi Andrew,

Usually Nathan Emery have this kind of information. He will provide you the requested information. I have copied him in my email.

Thanks Nad

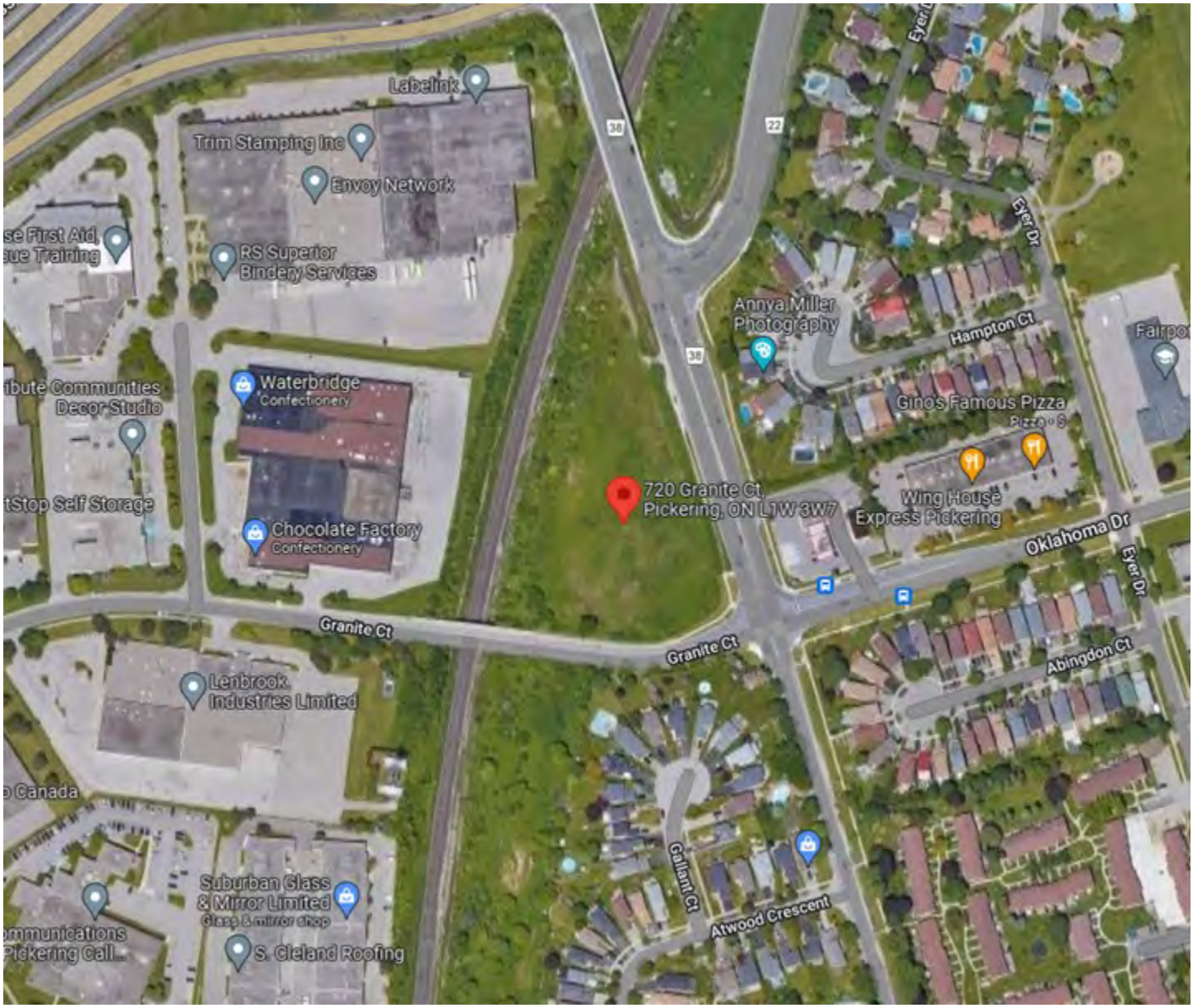
From: Andrew DeFaria <Andrew.DeFaria@ghd.com>
Sent: Thursday, September 22, 2022 4:39 PM
To: Zahoor, Nadeem <nzahoor@pickering.ca>
Subject: Traffic Data Request - 720 Granite Road Noise Impact Study

Hi Nadeem,

GHD is working on a noise impact study for a future development located at 720 Granite Road, Pickering Ontario and we were hoping to get some road data for Whites Rd, Granite Ct, and Oklahoma Dr.

Would it be possible to get AADT data for these roads near the site including Percentage of Trucks, Heavy to Medium Truck Ratio, and Posted Speed?

The approximate location is shown here:
https://www.google.com/maps/place/720+Granite+Ct,+Pickering,+ON+L1W+3W7/@43.8124493,-79.1133432,202m/data=!3m1!1e3!4m5!3m4!1s0x89d4d9526f2c1c4d:0x898cc768b2d71c46!8m2!3d43.81225!4d-79.11337



Best regards,

Andrew DeFaria
Acoustical Engineer in Training

GHD
Proudly employee-owned | ghd.com
455 Phillip Street Unit #100 Waterloo Ontario N2L 3X2 Canada
D +1 519 340 4242 **E** andrew.defaria@ghd.com

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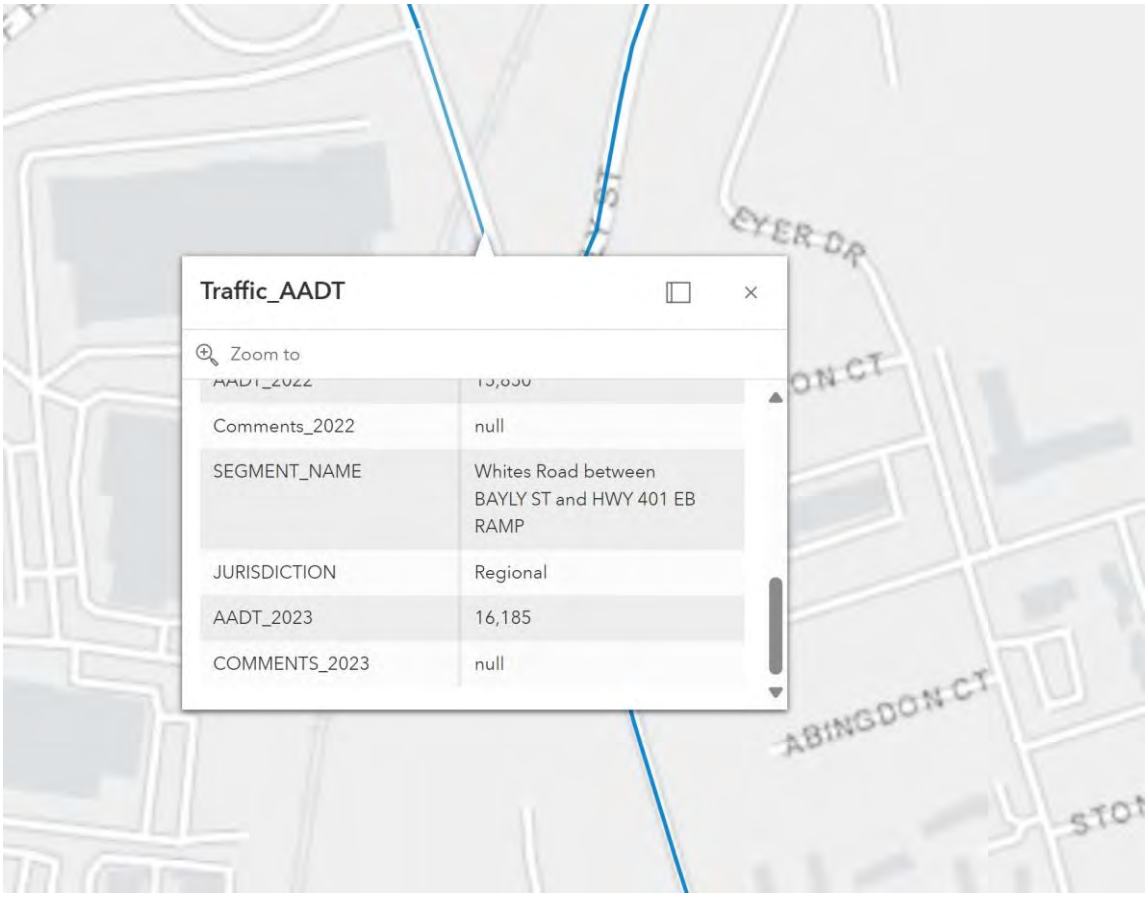
Traffic_AADT
Zoom to
AADT_2022
15,850
Comments_2022
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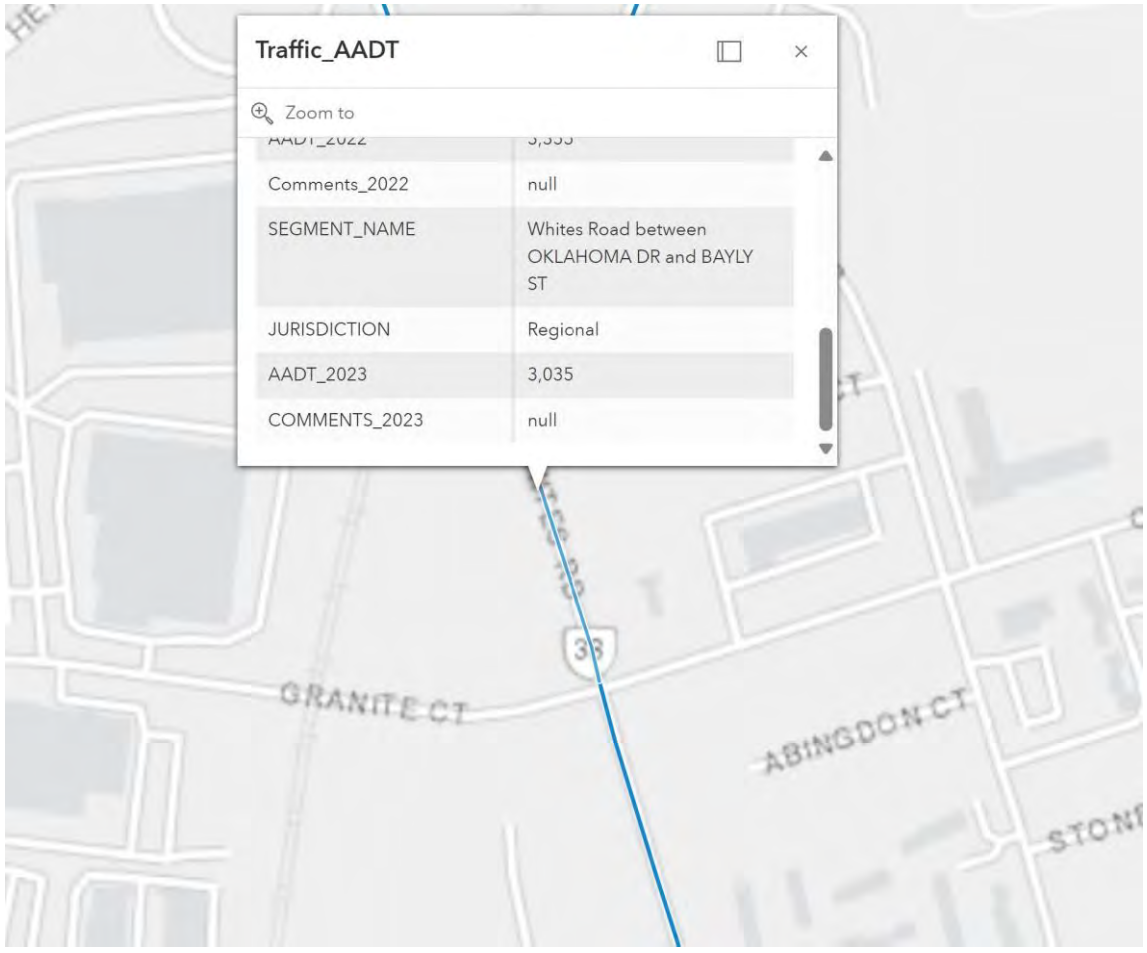
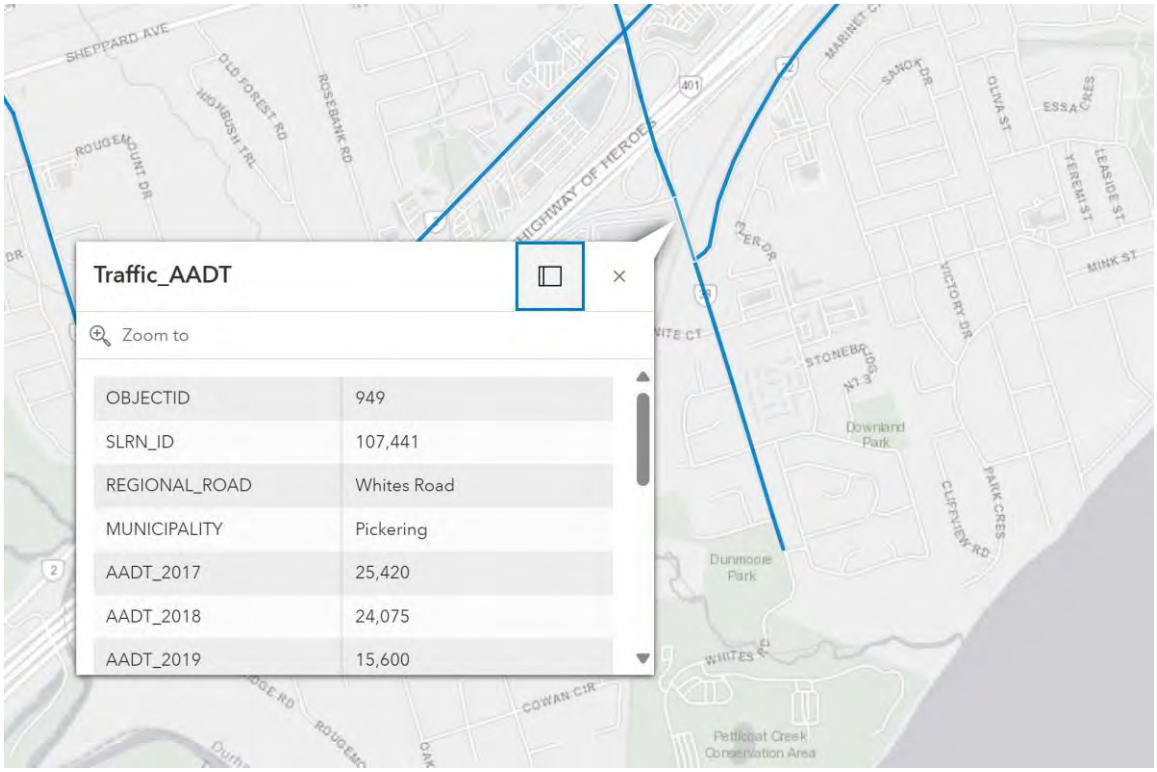
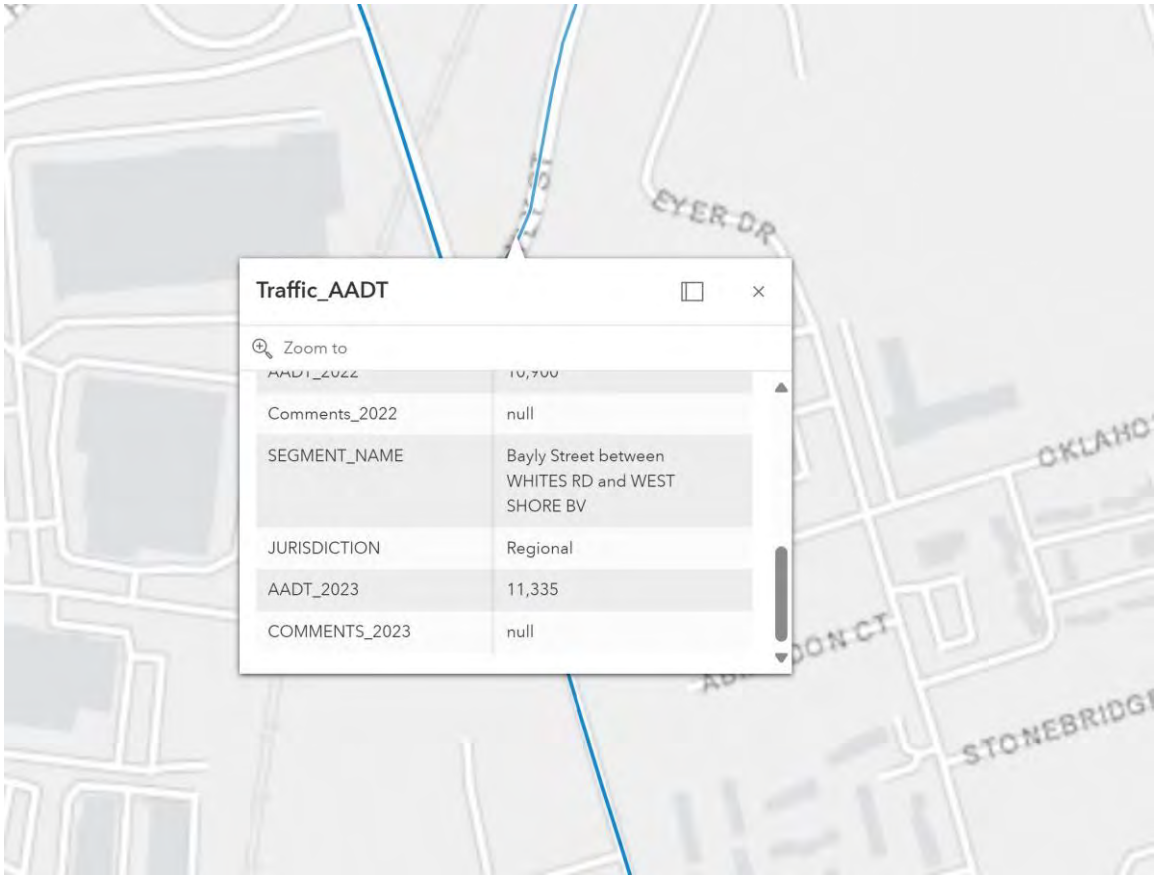
SEGMENT_NAME
Whites Road between BAYLY ST and HWY 401 EB RAMP
JURISDICTION
Regional
AADT_2023
16,185
COMMENTS_2023
null
EYER DR
ABINGDON CT

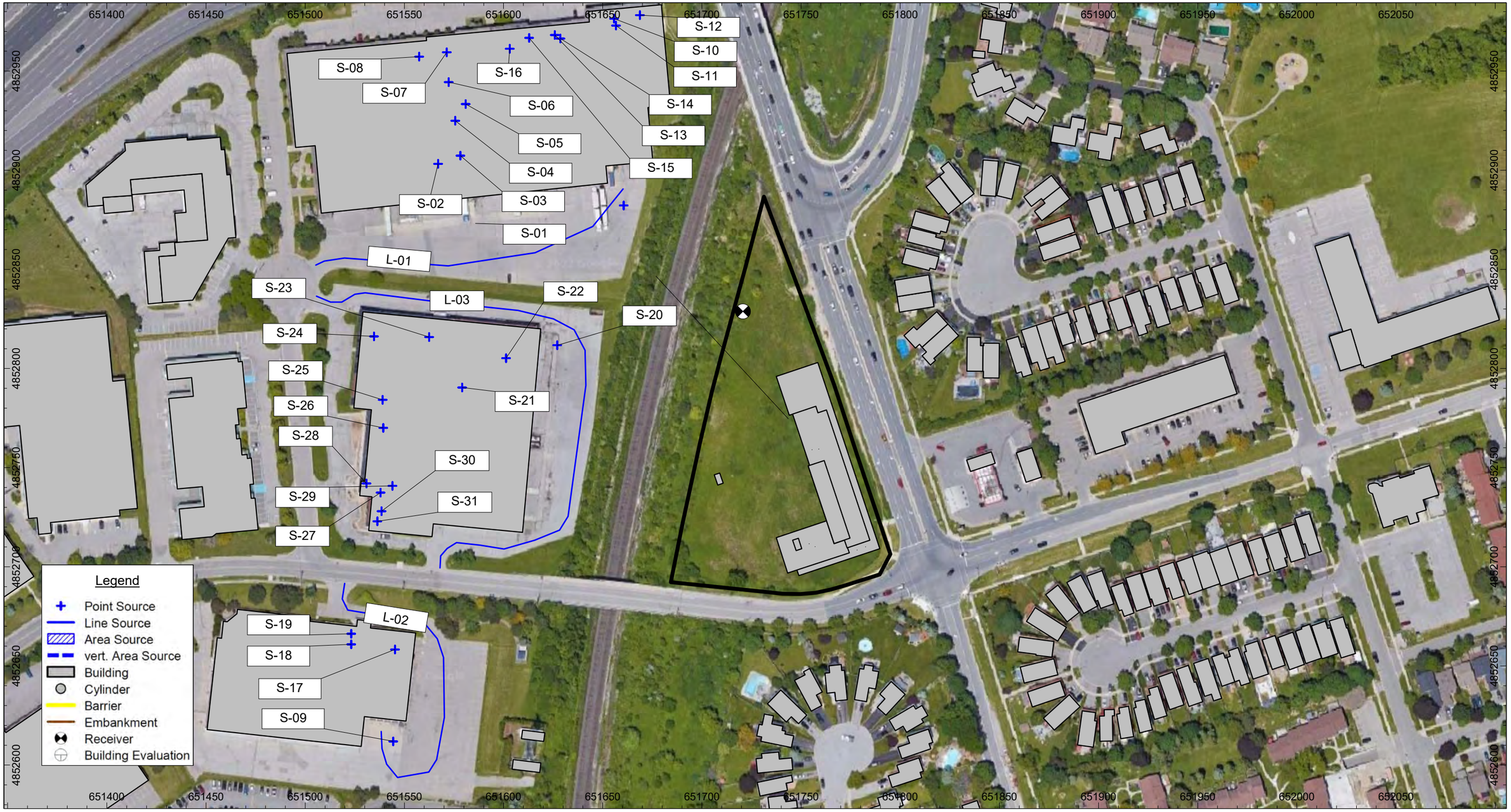

Traffic_AADT
Zoom to
AADT_2022
3,355
Comments_2022
null
SEGMENT_NAME
Whites Road between OKLAHOMA DR and BAYLY ST
JURISDICTION
Regional
AADT_2023
3,035
COMMENTS_2023
null
GRANITE CT
ABINGDON CT


Traffic_AADT
Zoom to
OBJECTID 949
SLRN_ID 107,441
REGIONAL_ROAD Whites Road
MUNICIPALITY Pickering
AADT_2017 25,420
AADT_2018 24,075
AADT_2019 15,600
SHEPPARD AVE
HIGHWAY OF HEROES
401
Downland Park
Dunmoore Park
Petticoat Creek Conservation Area


Traffic_AADT
Zoom to
Comments_2022 null
SEGMENT_NAME Bayly Street between WHITES RD and WEST SHORE BV
JURISDICTION Regional
AADT_2023 11,335
COMMENTS_2023 null
EYER DR

Appendix E

Industry Noise Source Locations and Data



Source: Google Satellite

N

GHD

LAND USE COMPATIBILITY STUDY
1334281 ONTARIO LTD.
720 GRANITE COURT

INDUSTRY NOISE SOURCE LOCATIONS

12594433
05.09.2024

FIGURE E.1

CadnaA File: \\ghdnet\ghd\CA\Waterloo\Projects\662\12594433\Tech\Noise\04_Modelling\01_CadnaA\02_Noise_Models\12594433_720GraniteCourt_V2024.05.cna

Table E.1

Noise Source Sound Level Summary
1334281 Ontario Inc.
720 Granite Court , Pickering, Ontario

Cadna A ID	Noise Source Description		1/1 Octave Band Data									Unadjusted Total Sound Power Level	Tonal Penalty Assessment		Height Absolute	Operating Time Day/Eve/Night	Vehicle Volumes Day/Eve/Night	Speed	Reference/Comments
			32	63	125	250	500	1000	2000	4000	8000	(dBA)		(dBA)	(m)	(min)	(veh/hr)	(km/hr)	
L-01	Truck Route	PWL (dB)	27.6	113.6	108.6	101.6	103.6	100.6	99.6	96.6	87.6	115.6							Referenced from US Federal Highway Administration (FHWA)
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								Traffic Noise Model (TNM) Technical Manual, December 2019
		PWL (dBA)	-11.8	87.4	92.5	93.0	100.4	100.6	100.8	97.6	86.5	**106.5**	No	0	102.5	—	4/4/2	15	Heavy Trucks: Cruise Throttle - TNM Technical Manual, Figure 6, p. 26
L-02	Truck Route	PWL (dB)	27.6	113.6	108.6	101.6	103.6	100.6	99.6	96.6	87.6	115.6							Referenced from US Federal Highway Administration (FHWA)
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								Traffic Noise Model (TNM) Technical Manual, December 2019
		PWL (dBA)	-11.8	87.4	92.5	93.0	100.4	100.6	100.8	97.6	86.5	**106.5**	No	0	101.3	—	4/4/2	15	Heavy Trucks: Cruise Throttle - TNM Technical Manual, Figure 6, p. 26
L-02	Truck Route	PWL (dB)	27.6	113.6	108.6	101.6	103.6	100.6	99.6	96.6	87.6	115.6							Referenced from US Federal Highway Administration (FHWA)
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								Traffic Noise Model (TNM) Technical Manual, December 2019
		PWL (dBA)	-11.8	87.4	92.5	93.0	100.4	100.6	100.8	97.6	86.5	**106.5**	No	0	101.3	—	2/2/1	15	Heavy Trucks: Cruise Throttle - TNM Technical Manual, Figure 6, p. 26
S-01	Truck Idling	PWL (dB)	84.0	87.0	91.0	90.0	87.0	83.0	80.0	73.0	66.0	95.8							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	44.6	60.8	74.9	81.4	83.8	83.0	81.2	74.0	64.9	**88.9**	No	0	104.3	60/60/60	—	—	GHD Reference Spectra
S-02	Roof Mounted HVAC	PWL (dB)	71.0	74.0	75.0	75.0	74.0	72.0	68.0	64.0	58.0	81.8							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	31.6	47.8	58.9	66.4	70.8	72.0	69.2	65.0	56.9	**76.5**	No	0	113.6	60/60/30	—	—	GHD Reference Spectra
S-03	Roof Mounted HVAC	PWL (dB)	—	97.6	90.4	85.7	84.8	83.9	77.5	71.3	65.8	98.9							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	—	71.4	74.3	77.1	81.6	83.9	78.7	72.3	64.7	**87.6**	No	0	113.6	60/60/30	—	—	GHD Reference Spectra
S-04	Roof Mounted HVAC	PWL (dB)	—	97.6	90.4	85.7	84.8	83.9	77.5	71.3	65.8	98.9							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	—	71.4	74.3	77.1	81.6	83.9	78.7	72.3	64.7	**87.6**	No	0	113.6	60/60/30	—	—	GHD Reference Spectra
S-05	Roof Mounted HVAC	PWL (dB)	—	97.6	90.4	85.7	84.8	83.9	77.5	71.3	65.8	98.9							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	—	71.4	74.3	77.1	81.6	83.9	78.7	72.3	64.7	**87.6**	No	0	113.6	60/60/30	—	—	GHD Reference Spectra
S-06	Roof Mounted HVAC	PWL (dB)	—	97.6	90.4	85.7	84.8	83.9	77.5	71.3	65.8	98.9							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	—	71.4	74.3	77.1	81.6	83.9	78.7	72.3	64.7	**87.6**	No	0	113.6	60/60/30	—	—	GHD Reference Spectra
S-07	Roof Mounted HVAC	PWL (dB)	—	97.6	90.4	85.7	84.8	83.9	77.5	71.3	65.8	98.9							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	—	71.4	74.3	77.1	81.6	83.9	78.7	72.3	64.7	**87.6**	No	0	113.6	60/60/30	—	—	GHD Reference Spectra
S-08	Roof Mounted HVAC	PWL (dB)	—	97.6	90.4	85.7	84.8	83.9	77.5	71.3	65.8	98.9							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	—	71.4	74.3	77.1	81.6	83.9	78.7	72.3	64.7	**87.6**	No	0	113.6	60/60/30	—	—	GHD Reference Spectra
S-09	Truck Idling	PWL (dB)	84.0	87.0	91.0	90.0	87.0	83.0	80.0	73.0	66.0	95.8							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	44.6	60.8	74.9	81.4	83.8	83.0	81.2	74.0	64.9	**88.9**	No	0	100.0	60/60/60	—	—	GHD Reference Spectra
S-10	Roof Mounted HVAC	PWL (dB)	71.0	74.0	75.0	75.0	74.0	72.0	68.0	64.0	58.0	81.8							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	31.6	47.8	58.9	66.4	70.8	72.0	69.2	65.0	56.9	**76.5**	No	0	113.6	60/60/30	—	—	GHD Reference Spectra
S-11	Roof Mounted HVAC	PWL (dB)	71.0	74.0	75.0	75.0	74.0	72.0	68.0	64.0	58.0	81.8							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	31.6	47.8	58.9	66.4	70.8	72.0	69.2	65.0	56.9	**76.5**	No	0	113.6	60/60/30	—	—	GHD Reference Spectra
S-12	Roof Mounted HVAC	PWL (dB)	71.0	74.0	75.0	75.0	74.0	72.0	68.0	64.0	58.0	81.8							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	31.6	47.8	58.9	66.4	70.8	72.0	69.2	65.0	56.9	**76.5**	No	0	113.6	60/60/30	—	—	GHD Reference Spectra
S-13	Roof Mounted HVAC	PWL (dB)	71.0	74.0	75.0	75.0	74.0	72.0	68.0	64.0	58.0	81.8							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	31.6	47.8	58.9	66.4	70.8	72.0	69.2	65.0	56.9	**76.5**	No	0	113.6	60/60/30	—	—	GHD Reference Spectra
S-14	Roof Mounted HVAC	PWL (dB)	71.0	74.0	75.0	75.0	74.0	72.0	68.0	64.0	58.0	81.8							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	31.6	47.8	58.9	66.4	70.8	72.0	69.2	65.0	56.9	**76.5**	No	0	113.6	60/60/30	—	—	GHD Reference Spectra
S-15	Roof Mounted HVAC	PWL (dB)	71.0	74.0	75.0	75.0	74.0	72.0	68.0	64.0	58.0	81.8							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	31.6	47.8	58.9	66.4	70.8	72.0	69.2	65.0	56.9	**76.5**	No	0	113.6	60/60/30	—	—	GHD Reference Spectra
S-16	Roof Mounted HVAC	PWL (dB)	71.0	74.0	75.0	75.0	74.0	72.0	68.0	64.0	58.0	81.8							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	31.6	47.8	58.9	66.4	70.8	72.0	69.2	65.0	56.9	**76.5**	No	0	113.6	60/60/30	—	—	GHD Reference Spectra
S-17	Roof Mounted HVAC	PWL (dB)	71.0	74.0	75.0	75.0	74.0	72.0	68.0	64.0	58.0	81.8							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	31.6	47.8	58.9	66.4	70.8	72.0	69.2	65.0	56.9	**76.5**	No	0	107.5	60/60/30	—	—	GHD Reference Spectra

Table E.1

Noise Source Sound Level Summary
1334281 Ontario Inc.
720 Granite Court , Pickering, Ontario

Cadna A ID	Noise Source Description		1/1 Octave Band Data									Unadjusted Total Sound Power Level	Tonal Penalty Assessment		Height Absolute	Operating Time Day/Eve/Night	Vehicle Volumes Day/Eve/Night	Speed	Reference/Comments
			32	63	125	250	500	1000	2000	4000	8000	(dBA)		(dBA)	(m)	(min)	(veh/hr)	(km/hr)	
S-18	Roof Mounted HVAC	PWL (dB)	—	97.6	90.4	85.7	84.8	83.9	77.5	71.3	65.8	98.9							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	—	71.4	74.3	77.1	81.6	83.9	78.7	72.3	64.7	**87.6**	No	0	108.0	60/60/30	—	—	GHD Reference Spectra
S-19	Roof Mounted HVAC	PWL (dB)	71.0	74.0	75.0	75.0	74.0	72.0	68.0	64.0	58.0	81.8							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	31.6	47.8	58.9	66.4	70.8	72.0	69.2	65.0	56.9	**76.5**	No	0	107.5	60/60/30	—	—	GHD Reference Spectra
S-20	Truck Idling	PWL (dB)	84.0	87.0	91.0	90.0	87.0	83.0	80.0	73.0	66.0	95.8							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	44.6	60.8	74.9	81.4	83.8	83.0	81.2	74.0	64.9	**88.9**	No	0	100.0	60/60/60	—	—	GHD Reference Spectra
S-21	Roof Mounted HVAC	PWL (dB)	—	97.6	90.4	85.7	84.8	83.9	77.5	71.3	65.8	98.9							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	—	71.4	74.3	77.1	81.6	83.9	78.7	72.3	64.7	**87.6**	No	0	108.0	60/60/30	—	—	GHD Reference Spectra
S-22	Roof Mounted HVAC	PWL (dB)	—	97.6	90.4	85.7	84.8	83.9	77.5	71.3	65.8	98.9							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	—	71.4	74.3	77.1	81.6	83.9	78.7	72.3	64.7	**87.6**	No	0	108.0	60/60/30	—	—	GHD Reference Spectra
S-23	Roof Mounted HVAC	PWL (dB)	—	97.6	90.4	85.7	84.8	83.9	77.5	71.3	65.8	98.9							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	—	71.4	74.3	77.1	81.6	83.9	78.7	72.3	64.7	**87.6**	No	0	108.0	60/60/30	—	—	GHD Reference Spectra
S-24	Roof Mounted HVAC	PWL (dB)	71.0	74.0	75.0	75.0	74.0	72.0	68.0	64.0	58.0	81.8							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	31.6	47.8	58.9	66.4	70.8	72.0	69.2	65.0	56.9	**76.5**	No	0	107.5	60/60/30	—	—	GHD Reference Spectra
S-25	Roof Mounted HVAC	PWL (dB)	71.0	74.0	75.0	75.0	74.0	72.0	68.0	64.0	58.0	81.8							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	31.6	47.8	58.9	66.4	70.8	72.0	69.2	65.0	56.9	**76.5**	No	0	107.5	60/60/30	—	—	GHD Reference Spectra
S-26	Roof Mounted HVAC	PWL (dB)	71.0	74.0	75.0	75.0	74.0	72.0	68.0	64.0	58.0	81.8							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	31.6	47.8	58.9	66.4	70.8	72.0	69.2	65.0	56.9	**76.5**	No	0	107.5	60/60/30	—	—	GHD Reference Spectra
S-27	Roof Mounted HVAC	PWL (dB)	—	97.6	90.4	85.7	84.8	83.9	77.5	71.3	65.8	98.9							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	—	71.4	74.3	77.1	81.6	83.9	78.7	72.3	64.7	**87.6**	No	0	108.0	60/60/30	—	—	GHD Reference Spectra
S-28	Roof Mounted HVAC	PWL (dB)	71.0	74.0	75.0	75.0	74.0	72.0	68.0	64.0	58.0	81.8							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	31.6	47.8	58.9	66.4	70.8	72.0	69.2	65.0	56.9	**76.5**	No	0	107.5	60/60/30	—	—	GHD Reference Spectra
S-29	Roof Mounted HVAC	PWL (dB)	71.0	74.0	75.0	75.0	74.0	72.0	68.0	64.0	58.0	81.8							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	31.6	47.8	58.9	66.4	70.8	72.0	69.2	65.0	56.9	**76.5**	No	0	107.5	60/60/30	—	—	GHD Reference Spectra
S-30	Roof Mounted HVAC	PWL (dB)	71.0	74.0	75.0	75.0	74.0	72.0	68.0	64.0	58.0	81.8							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	31.6	47.8	58.9	66.4	70.8	72.0	69.2	65.0	56.9	**76.5**	No	0	107.5	60/60/30	—	—	GHD Reference Spectra
S-31	Roof Mounted HVAC	PWL (dB)	71.0	74.0	75.0	75.0	74.0	72.0	68.0	64.0	58.0	81.8							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	31.6	47.8	58.9	66.4	70.8	72.0	69.2	65.0	56.9	**76.5**	No	0	107.5	60/60/30	—	—	GHD Reference Spectra

Appendix F

Minimum Façade Sound Transmission Class Requirements

Source: Google Satellite

N

Notes:
Minimum STC rating requirements shown above are based on window-to-floor area ratios described in this report. If the final design includes any window-to-floor area ratios greater than those described in this report, then the STC rating requirements should be re-evaluated to help ensure that the indoor sound level criteria of the MECP are met.

GHD

LAND USE COMPATIBILITY STUDY
1334281 ONTARIO LTD.
720 GRANITE COURT

MINIMUM FACADE SOUND TRANSMISSION CLASS REQUIREMENTS

12594433
05.09.2024

FIGURE F.1

CadnaA File: \\ghdnet\ghd\CA\Waterloo\Projects\662\12594433\Tech\Noise\04_Modelling\01_CadnaA\02_Noise_Models\12594433_720GraniteCourt_V2024.05.cna

Appendix G

Existing Nearby ECAs/EASRs

Ministry of the Environment, Conservation and Parks
Operations Division

Confirmation of Registration

Registration Number: R-004-3110719193
Version Number: 001
Date Registration Filed: Nov 29, 2018 15:28:39 PM

Dear Sir/Madam,

ENVIRONMENTAL 360 SOLUTIONS INC.

1815 Ironside Manor North Unit 8
Pickering ON L1W 3W9

You have registered, in accordance with Section 20.21(1)(a) of the *Environmental Protection Act* , the use, operation, establishment, alteration, engagement or extension or replacement of a waste management system serving the Province of Ontario. The Waste Management System storage yard related to this registration is located at:

1815 IRONSTONE Manor PICKERING ON L1W 3W9

Please note that the Waste Management System is subject to the applicable provisions of O.Reg 245/11 and O. Reg. 351/12.

The activity related information provided during the registration process is included as part of the confirmation of registration as schedule 'A'.

Dated on Nov 29, 2018

Director
Environmental Approvals Access and Service Integration Branch
Ministry of the Environment, Conservation and Parks
135 St. Clair Avenue West, 1st Floor
Toronto ON M4V 1P5

Any questions related to this registration and the Environmental Activity and the Sector Registry should be directed to:

Ministry of the Environment, Conservation and Parks

Customer Service Representative

Environmental Approvals Access and Service Integration Branch

Phone:(416) 314-8001

Toll free: 1-800-461-6290

Schedule 'A'

Part 3 . Activity Information

3.1 This form is to be used to register the use, operation, establishment, alteration, enlargement or extension of a waste management system that is a waste transportation system. Please confirm that you will be engaging in one or more of these activities.	☑ Yes	☐ No

3.2 For the waste management system that is the subject of this registration, please confirm that ALL of the following statements apply:

(a) The waste management system involves only the collection, handling, transportation and transfer of waste by waste transportation vehicle (truck).	☑ Yes	☐ No
(b) The waste transportation system does not include any on-truck processing of waste.	☑ Yes	☐ No

3.3 Does the waste management system involve the management of any of the following waste types (as they are defined within the meaning of Regulation 347 of the Environmental Protection Act, or in the case of biomedical waste or treated biomedical waste, the Ministry of the Environment.s Guideline C-4: The Management of Biomedical Waste in Ontario)?

(a) Hazardous waste*	☐ Yes	☑ No
(b) Liquid industrial waste	☐ Yes	☑ No
(c) Biomedical waste or treated biomedical waste	☐ Yes	☑ No
(d) Asbestos waste	☐ Yes	☑ No

* Please note that hazardous waste should also be interpreted to include waste that was characteristic waste but that has been treated so that it is no longer characteristic waste, if the waste may not be disposed of by land disposal under subsection 79 (1) of Regulation 347 of the Revised Regulations of Ontario, 1990 made under the Act.

3.4 Please select in the table below all of the categories of waste that will be transported by the system. Note that the responses given in question 3.3 should be true for any of the waste categories selected.

(a) Blue Box Materials	☑
(b) Domestic Sources	☑
(c) Dewatered Catch Basin Clean-Out Material	☐
(d) Waste from Food Processing/Preparation Operations	☑
(e) Leaf/Yard Waste	☑
(f) Tires	☑
(g) Commercial Waste	☑
(h) Wood Waste	☑
(i) Waste Wash Water	☐
(j) Non-hazardous Solid Industrial Waste	☑
(k) Contaminated Soil	☐
(l) Processed Organics	☐
(m) Hauled Sewage	☐

(n) Non-hazardous Spill Cleanup Material ☐

(o) Describe any other waste types managed by the system, if applicable:

3.5 Will waste be stored at any truck storage yard or other location as part of the operation of the waste management system? ☐ Yes ☑ No

3.6 (a) How many waste transportation vehicles (trucks) are included in the waste management system? 1

(b) Does the waste management system involve transportation of waste into or out of the Province of Ontario? ☐ Yes ☑ No

(c) Please indicate the jurisdictions from which the waste transportation vehicle(s) normally enter/exit Ontario.
Please check all that apply:

Quebec	☐ Enter from	☐ Exit to
Manitoba	☐ Enter from	☐ Exit to
New York	☐ Enter from	☐ Exit to
Michigan	☐ Enter from	☐ Exit to
Minnesota	☐ Enter from	☐ Exit to

(d) Please indicate all jurisdictions in which waste is transferred to a storage or disposal site outside of Ontario.

Please check all that apply:

☐ Alberta	☐ British Columbia	☐ Manitoba	☐ New Brunswick	☐ Newfoundland
☐ Nova Scotia	☐ Northwest Territories	☐ Nunavut	☐ PEI	☐ Quebec
☐ Saskatchewan	☐ Yukon	☐ Alaska	☐ Alabama	☐ Arkansas
☐ Arizona	☐ California	☐ Colorado	☐ Connecticut	☐ Delaware
☐ Florida	☐ Georgia	☐ Iowa	☐ Idaho	☐ Illinois
☐ Indiana	☐ Kansas	☐ Kentucky	☐ Louisiana	☐ Massachusetts
☐ Maryland	☐ Maine	☐ Michigan	☐ Minnesota	☐ Missouri
☐ Mississippi	☐ Montana	☐ North Carolina	☐ North Dakota	☐ Nebraska
☐ Nevada	☐ New Hampshire	☐ New Jersey	☐ New Mexico	☐ New York
☐ Ohio	☐ Oklahoma	☐ Oregon	☐ Pennsylvania	☐ Rhode Island
☐ South Carolina	☐ South Dakota	☐ Tennessee	☐ Texas	☐ Utah
☐ Virginia	☐ Vermont	☐ Washington	☐ Wisconsin	☐ West Virginia
☐ Wyoming	☐ Hawaii			

Ontario

Ministry of the Environment
Ministère de l'Environnement

AMENDED ENVIRONMENTAL COMPLIANCE APPROVAL
NUMBER 3029-8ZDQTH
Issue Date: December 13, 2012

Ellis Packaging Limited
1830 Sandstone Manor
Pickering, Ontario
L1W 3Y1

Site Location: 1830 Sandstone Manor
Pickering City, Regional Municipality of Durham
L1W 3Y1

You have applied under section 20.2 of Part II.1 of the Environmental Protection Act, R.S.O. 1990, c. E. 19 (Environmental Protection Act) for approval of:

Description Section

A printing facility, consisting of the following processes and support units:

- printing labels; and
- assembling card board boxes

including the *Equipment* and any other ancillary and support processes and activities, **operating at a *Facility Production Limit* of up to 49,000 kilograms per year of ink for lithographic printing presses and 1815 kilograms per year of ink for flexographic press** , exhausting to the atmosphere as described in the *ESDM Report.*

For the purpose of this environmental compliance approval, the following definitions apply:

1. " *Acoustic Assessment Report"* means the report, prepared in accordance with *Publication NPC-233* and Appendix A of the *Basic Comprehensive User Guide,* by Chris Kellar and Dalila Giusti, Jade Acoustics Inc., and dated October 22, 2012, submitted in support of the application, that documents all sources of noise emissions and *Noise Control Measures* present at the *Facility* and includes all up-dated *Acoustic Assessment Reports* as required by the Documentation Requirements conditions of this *Approval* to demonstrate continued compliance with the *Performance Limits* following the implementation of any *Modification.*
2. "*Acoustic Assessment Summary Table"* means a table prepared in accordance with the *Basic Comprehensive User Guide* summarising the results of the *Acoustic Assessment Report,* up-dated as required by the Documentation Requirements conditions of this *Approval.*

3. *"Acoustic Audit"* means an investigative procedure consisting of measurements and/or acoustic

modelling of all sources of noise emissions due to the operation of the *Facility*, assessed to determine compliance with the Performance Limits for the *Facility* regarding noise emissions, completed in accordance with the procedures set in *Publication NPC-103* and reported in accordance with *Publication NPC-233.*

4. *"Acoustic Audit Report"* means a report presenting the results of an *Acoustic Audit*, prepared in accordance with *Publication NPC-233.*

5. *"Acoustical Consultant*" means a person currently active in the field of environmental acoustics and noise/vibration control, who is familiar with *Ministry* noise guidelines and procedures and has a combination of formal university education, training and experience necessary to assess noise emissions from a *Facility.*

6. "*Air Standards Manager"* means the Manager, Human Toxicology and Air Standards Section, Standards Development Branch, or any other person who represents and carries out the duties of the Manager, Human Toxicology and Air Standards Section, Standards Development Branch, as those duties relate to the conditions of this *Approval.*

7. "*Approval"* means this entire Environmental Compliance Approval and any *Schedules* to it.

8. "*Basic Comprehensive User Guide"* means the *Ministry* document titled "Basic Comprehensive Certificates of Approval (Air) User Guide" dated March 2011, as amended.

9. *"Company"* means Ellis Packaging Limited that is responsible for the construction or operation of the *Facility* and includes any successors and assigns.

10. "*Compound of Concern"* means a contaminant that, based on generally available information, may be discharged to the air in a quantity from the *Facility* that:

(a) is non-negligible in accordance with section 26(1)4 of *O. Reg. 419/05* in comparison to the relevant *Ministry Point of Impingement Limit;* or

(b) if a *Ministry Point of Impingement Limit* is not available for the compound, may cause an adverse effect at a *Point of Impingement* based on generally available toxicological information.

11. "*Description Section"* means the section on page one of this *Approval* describing the *Company's* operations and the *Equipment* located at the *Facility* and specifying the *Facility Production Limit* for the *Facility.*

12. "*Director"* means a person appointed by the Minister pursuant to section 5 of the *EPA.*

13. "*District Manager"* means the District Manager of the appropriate local district office of the *Ministry,* where the *Facility* is geographically located.

14. "*Emission Summary Table"* means the most updated table contained in the *ESDM Report,* which is prepared in accordance with section 26 of *O. Reg. 419/05* and the *Procedure Document* listing the appropriate *Point of Impingement* concentration for each *Compound of Concern* from the *Facility* and providing comparison to the corresponding *Ministry Point of Impingement Limit* or *Maximum Concentration Level Assessment,* or *Jurisdictional Screening Level.*

15. "*Environmental Assessment Act"* means the Environmental Assessment Act, R.S.O. 1990, c.E.18, as amended.

16. "*EPA"* means the Environmental Protection Act, R.S.O. 1990, c.E.19, as amended.

17. "*Equipment"* means equipment or processes described in the *ESDM Report,* the *Acoustic Assessment Report,*this *Approval* and in the *Schedules* referred to herein and any other equipment or processes.

18. *"Equipment with Specific Operational Limits"* means any *Equipment* related to the thermal oxidation of waste or waste derived fuels, fume incinerators or any other *Equipment* that is specifically referenced in any published *Ministry* document that outlines specific operational guidance that must be considered by the *Director* in issuing an *Approval*

19. "*ESDM Report"* means the most current Emission Summary and Dispersion Modelling Report that describes the *Facility.* The *ESDM Report* is based on the *Original ESDM Report,* is prepared after the issuance of this *Approval* in accordance with section 26 of *O. Reg. 419/05* and the *Procedure Document* by the *Company* or its consultant.

20. "*Facility"* means the entire operation located on the property where the *Equipment* is located.

21. "*Facility Production Limit"* means the production limit placed by the *Director* on the main product(s) or raw materials used by the *Facility.*

22. "*Independent Acoustical Consultant"* means an *Acoustical Consultant* not representing the *Company*, and not involved in the noise impact assessment or the design/implementation of *Noise Control Measures* for the *Facility/Equipment*. The *Independent Acoustical Consultant* shall not be retained by the consultant involved in the noise/vibration impact assessment or the design/implementation of noise/vibration control measures for the *Facility/Equipment.*

23. "*Jurisdictional Screening Level"* means a screening level for a *Compound of Concern* that is listed in the *Ministry* publication titled "Jurisdictional Screening Level (JSL) List, A Screening Tool for Ontario Regulation 419: Air Pollution - Local Air Quality", dated February 2008, as amended.

24. "*Log"* means the up-to-date log that is used to track all *Modifications* to the *Facility* since the date of this *Approval* as required by the Documentation Requirements conditions of this *Approval.*

25. "*Maximum Concentration Level Assessment"* means the Maximum Concentration Level Assessment for the purposes of an *Approval,* described in the *Basic Comprehensive User Guide,* prepared by a *Toxicologist* using currently available toxicological information, that demonstrates that the concentration at any *Point of Impingement* for a *Compound of Concern* that does not have a *Ministry Point of Impingement Limit* is not likely to cause an adverse effect as defined by the *EPA.*

26. "*Ministry"* means the ministry of the government of Ontario responsible for the *EPA* and its regulations and includes all officials, employees or other persons acting on its behalf.

27. "*Ministry Point of Impingement Limit"* means the applicable Standard set out in Schedule 2 or 3 of *O.Reg. 419/05* or a limit set out in the *Ministry* publication titled "Summary of Standards and Guidelines to support Ontario Regulation 419: Air Pollution - Local Air Quality (including Schedule 6 of O. Reg. 419 on Upper Risk Thresholds)", dated April 2012, as amended.

28. "*Modification"* means any construction, alteration, extension or replacement of any plant, structure, equipment, apparatus, mechanism or thing, or alteration of a process or rate of production at the *Facility* that may discharge or alter the rate or manner of discharge of a *Compound of Concern* to the air or discharge or alter noise or vibration emissions from the *Facility.*

29. "*Noise Abatement Action Plan"* means the noise abatement program developed by the *Company*, submitted to the *Director* and *District Manager* and approved by the *Director*, designed to achieve compliance with the sound level limits set in *Ministry Publication NPC-205*, as applicable. It also means the *Ellis Updated Noise Abatement Action Plan,* dated October 22, 2012 and signed by Chris Kellar and Dalila Giusti, Jade Acoustics Inc.,described in *Schedule* "B".

30. "*Noise Control Measures*" means measures to reduce the noise emissions from the *Facility* and/or *Equipment* including, but not limited to, silencers, acoustic louvers, enclosures, absorptive treatment, plenums and barriers, described in the *Company's* application, this *Approval* and in the supporting

documentation referred to herein, to the extent approved by this *Approval*

31. "*O. Reg. 419/05"* means the Ontario Regulation 419/05, Air Pollution – Local Air Quality, as amended.

32. "*Original ESDM Report"* means the Emission Summary and Dispersion Modelling Report which was prepared in accordance with section 26 of *O. Reg. 419/05* and the *Procedure Document* by Etcos Inc. and dated June 25, 2010 submitted in support of the application, and includes any changes to the report made up to the date of issuance of this *Approval.*

33. "*Performance Limits"* means the performance limits specified in Condition 3.2 of this *Approval* titled Performance Limits.

34. "*Point of Impingement"* has the same meaning as in section 2 of *O. Reg. 419/05.*

35. "*Point of Reception"* means Point of Reception as defined by *Publication NPC-205* and/or *Publication NPC-232,* as applicable.

36. "*Procedure Document"* means *Ministry* guidance document titled "Procedure for Preparing an Emission Summary and Dispersion Modelling Report" dated March 2009, as amended.

37. "*Processes with Significant Environmental Aspects"* means the *Equipment* which, during regular operation, would discharge a contaminant or contaminants into the air at an amount which is not considered as negligible in accordance with section 26(1)4 of *O. Reg. 419/05* and the *Procedure Document.*

38. *"Publication NPC-103"* means *the MinistryPublication NPC-103*, Procedures , August 1978;

39. "*Publication NPC-205"* means the *Ministry* Publication NPC-205, “Sound Level Limits for Stationary Sources in Class 1 & 2 Areas (Urban)”, October, 1995, as amended.

40. "*Publication NPC-207"* means the *Ministry* draft technical publication “Impulse Vibration in Residential Buildings”, November 1983, supplementing the Model Municipal Noise Control By-Law, Final Report, published by the *Ministry,* August 1978, as amended.

41. "*Publication NPC-232"* means the *Ministry* Publication NPC-232, "Sound Level Limits for Stationary Sources in Class 3 Areas (Rural)", October, 1995, as amended.

42. "*Publication NPC-233"* means the *Ministry* Publication NPC-233, "Information to be Submitted for Approval of Stationary Sources of Sound", October, 1995, as amended.

43. "*Schedules"* means the following schedules attached to this *Approval* and forming part of this *Approval* namely:

Schedule A - Supporting Documentation;
Schedule B - Noise Abatement Action Plan

44. "*Toxicologist"* means a qualified professional currently active in the field of risk assessment and toxicology that has a combination of formal university education, training and experience necessary to assess contaminants.

45. "*Written Summary Form"* means the electronic questionnaire form, available on the *Ministry* website, and supporting documentation, that documents the activities undertaken at the *Facility* in the previous calendar year that must be submitted annually to the *Ministry* as required by the section of this *Approval* titled Reporting Requirements.

You are hereby notified that this environmental compliance approval is issued to you subject to the terms and conditions outlined below:

TERMS AND CONDITIONS

GENERAL

1.1 Except as otherwise provided by this *Approval,* the *Facility* shall be designed, developed, built, operated and maintained in accordance with the terms and conditions of this *Approval* and in accordance with the following *Schedules* attached hereto:

Schedule A - Supporting Documentation

Schedule B - Noise Abatement Action Plan

2. LIMITED OPERATIONAL FLEXIBILITY

2.1 Pursuant to section 20.6(1) of the *EPA* and subject to Conditions 2.2 and 2.3 of this *Approval,* future construction, alterations, extensions or replacements are approved in this *Approval* if the future construction, alterations, extensions or replacements are *Modifications* to the *Facility* that:

(a) are within the scope of the operations of the *Facility* as described in the *Description Section* of this *Approval;*

(b) do not result in an increase of the *Facility Production Limit* above the level specified in the *Description Section* of this *Approval;* and

(c) result in compliance with the *Performance Limits.*

2.2 Condition 2.1 does not apply to:

(a) the addition of any new *Equipment with Specific Operational Limits* or to the *Modification* of any existing *Equipment with Specific Operational Limits* at the *Facility;* or

(b) *Modifications* to the *Facility* that would be subject to the *Environmental Assessment Act.*

2.3 Condition 2.1 of this *Approval* shall expire on February 1, 2020*,* unless this *Approval* is revoked prior to the expiry date. The *Company* may apply for renewal of Condition 2.1 of this *Approval* by including an *ESDM Report* and an *Acoustic Assessment Report* that describes the *Facility* as of the date of the renewal application.

3. REQUEST FOR *MAXIMUM CONCENTRATION LEVEL ASSESSMENT* AND *PERFORMANCE LIMITS*

3.1 **REQUEST FOR *MAXIMUM CONCENTRATION LEVEL ASSESSMENT***

3.1.1 If the *Company* proposes to make a *Modification* to the *Facility,* the *Company* shall determine if the proposed *Modification* will result in:

(a) a discharge of a *Compound of Concern* that was not previously discharged; or

(b) an increase in the concentration at a *Point of Impingement* of a *Compound of Concern.*

3.1.2 If a proposed *Modification* mentioned in Condition 3.1.1 will result in the discharge of a *Compound of Concern* that was not previously discharged, the *Company* shall submit a *Maximum Concentration Level Assessment* to the *Director* for review by the *Air Standards Manager* in the following circumstances:

(a) The *Compound of Concern* does not have a *Ministry Point of Impingement Limit* or a *Jurisdictional Screening Level.*

(b) The *Compound of Concern* does not have a *Ministry Point of Impingement Limit* and the concentration at a *Point of Impingement* will exceed the *Jurisdictional Screening Level.*

(c) Prior to the proposed *Modification,* a contaminant was discharged in a negligible amount and the proposed *Modification* will result in the discharge of the contaminant being considered a *Compound of Concern* and the *Compound of Concern* does not have a *Ministry Point of Impingement Limit* or a *Jurisdictional Screening Level.*

(d) Prior to the proposed *Modification,* a contaminant was discharged in a negligible amount and the proposed *Modification* will result in the discharge of the contaminant being considered a *Compound of Concern.* Additionally, the *Compound of Concern* does not have a *Ministry Point of Impingement Limit* and the concentration at a *Point of Impingement* will exceed the *Jurisdictional Screening Level.*

3.1.3 If a proposed *Modification* mentioned in Condition 3.1.1 will result in an increase in the concentration at a *Point of Impingement* of a *Compound of Concern,* the *Company* shall submit a *Maximum Concentration Level Assessment* to the *Director* for review by the *Air Standards Manager* in the following circumstances:

(a) The *Compound of Concern* does not have a *Ministry Point of Impingement Limit* or a *Jurisdictional Screening Level* and the concentration at a *Point of Impingement* will exceed the *Acceptable Maximum Ground Level Concentration.*

(b) The *Compound of Concern* does not have a *Ministry Point of Impingement Limit* or a *Jurisdictional Screening Level* and the concentration at a *Point of Impingement* will exceed the most recently accepted *Maximum Concentration Level Assessment* submitted under Condition 3.1.2 or this Condition.

(c) The *Compound of Concern* does not have a *Ministry Point of Impingement Limit* and the concentration at a *Point of Impingement* will exceed the *Jurisdictional Screening Level* and the *Acceptable Maximum Ground Level Concentration.*

(d) The *Compound of Concern* does not have a *Ministry Point of Impingement Limit* and the concentration at a *Point of Impingement* will exceed the *Jurisdictional Screening Level* and the most recently accepted *Maximum Concentration Level Assessment* submitted under Condition 3.1.2 or this Condition.

(e) The *Compound of Concern* does not have a *Ministry Point of Impingement Limit, Acceptable Maximum Ground Level Concentration* or a *Maximum Concentration Level Assessment* and the concentration at a *Point of Impingement* will exceed the *Jurisdictional Screening Level.*

3.1.4 Subject to the Operational Flexibility set out in Condition 2 of this *Approval,* the *Company* may make the *Modification* if the submission of a *Maximum Concentration Level Assessment* under Condition 3.1.2 or 3.1.3 is not required.

3.1.5 A *Company* that is required to submit an assessment under Condition 3.1.2 or 3.1.3 shall submit the assessment at least thirty (30) days before the proposed *Modification* occurs.

3.1.6 The *Ministry* shall provide to the *Company* written confirmation of the receipt of the assessment under Condition 3.1.2 or 3.1.3.

3.1.7 If an assessment is submitted under Condition 3.1.2 or 3.1.3, the *Company* shall not modify the *Facility* unless the *Ministry* accepts the assessment.

3.1.8 If the *Ministry* notifies the *Company* that it does not accept the assessment submitted under Condition 3.1.2 or 3.1.3, the *Company* shall:

(a) revise and resubmit the assessment; or

(b) notify the *Ministry* that the *Company* will not be modifying the *Facility.*

3.1.9 The re-submission under Condition 3.1.8 (a) is considered by the *Ministry* as a new submission.

3.2. ***PERFORMANCE LIMITS***

3.2.1 Subject to Condition 3.2.2, the *Company* shall, at all times, ensure that all *Equipment* that is a source of a *Compound of Concern* is operated to comply with the following *Performance Limits:*

(a) for a *Compound of Concern* that has a *Ministry Point of Impingement Limit,* the maximum concentration of that *Compound of Concern* at any *Point of Impingement* shall not exceed the corresponding *Ministry Point of Impingement Limit;*

(b) for a *Compound of Concern* that has an *Acceptable Maximum Ground Level Concentration* and no *Maximum Concentration Level Assessment,* the maximum concentration of that *Compound of Concern* at any *Point of Impingement* shall not exceed the corresponding *Acceptable Maximum Ground Level Concentration;* and

(c) for a *Compound of Concern* that has a *Maximum Concentration Level Assessment,* the maximum concentration of that *Compound of Concern* at any *Point of Impingement* shall not exceed the most recently accepted corresponding *Maximum Concentration Level Assessment.*

3.2.2 If the *Company* has modified the *Facility* and was not required to submit a *Maximum Concentration Level Assessment* with respect to a *Compound of Concern* under Condition 3.1.2 or 3.1.3, the *Company* shall, at all times, ensure that all *Equipment* that is a source of the *Compound of Concern* is operated such that the maximum concentration of the *Compound of Concern* shall not exceed the concentration listed for the *Compound of Concern* in the most recent version of the *ESDM Report.*

3.2.3 Following completion of the *Noise Abatement Action Plan* described in *Schedule* "B", the *Company* shall, at all times, ensure that the noise emissions from the *Facility* comply with the limits set out in *Ministry Publication NPC-205.*

3.2.4 The *Company* shall, at all times, ensure that the vibration emissions from the *Facility* comply with the limits set out in *Ministry Publication NPC-207.*

3.2.5 The *Company* shall, at all times, operate any *Equipment with Specific Operational Limits* approved by this *Approval* in accordance with the *Original ESDM Report.*

4. **DOCUMENTATION REQUIREMENTS**

4.1 The *Company* shall, at all times, maintain documentation that describes the current operations of the *Facility,* including but not limited to:

(a) an *ESDM Report* that demonstrates compliance with the *Performance Limits* for the *Facility;*

(b) an *Acoustic Assessment Report* that demonstrates compliance with the *Performance Limits* for the *Facility;*

(c) an up-to-date *Log* that describes each *Modification* to the *Facility;* and

(d) a record of the changes to the *ESDM Report* and the *Acoustic Assessment Report* that documents how each *Modification* is in compliance with the *Performance Limits.*

4.2 The *Company* shall, during regular business hours, make the current *Emission Summary Table* and *Acoustic Assessment Summary Table* available for inspection at the *Facility* by any interested member of the public.

4.3 Subject to Condition 4.5, the *Company* shall prepare and complete no later than June 15 of each

year documentation that describes the activities undertaken at the *Facility* in the previous calendar year, including but not limited to:

(a) a list of all *Compounds of Concern* for which a *Maximum Concentration Level Assessment* was submitted to the *Director* for review by the *Air Standards Manager* pursuant to Condition 3.1.2 or 3.1.3 of this *Approval;*

(b) if the *Company* has modified the *Facility* and was not required to submit a *Maximum Concentration Level Assessment* with respect to a *Compound of Concern* under Condition 3.1.2 or 3.1.3, a list and concentration level of all such *Compounds of Concern;*

(c) a review of any changes to *Ministry Point of Impingement Limits* that affect any *Compounds of Concern* emitted from the *Facility;* and

(d) a table of the changes in the emission rate of any *Compound of Concern* and the resultant increase or decrease in the *Point of Impingement* concentration reported in the *ESDM Report.*

4.4 Subject to Condition 4.5, the *Company* shall, at all times, maintain the documentation described in Condition 4.3.

4.5 Conditions 4.3 and 4.4 do not apply if Condition 2.1 has expired.

4.6 The *Company* shall, within three (3) months after the expiry of Condition 2.1 of this *Approval,* update the *ESDM Report* and the *Acoustic Assessment Report* such that they describe the *Facility* as it was at the time that Condition 2.1 of this *Approval* expired.

5. REPORTING REQUIREMENTS

5.1 Subject to Condition 5.2, the *Company* shall provide the *Ministry* and the *Director* no later than June 15 of each year, a *Written Summary Form* that shall include the following:

(a) a declaration of whether the *Facility* was in compliance with section 9 of the *EPA, O.Reg. 419/05* and the conditions of this *Approval;*

(b) a summary of each *Modification* that took place in the previous calendar year that resulted in a change in the previously calculated concentration at the *Point of Impingement* for any *Compound of Concern* or resulted in a change in the sound levels reported in the *Acoustic Assessment Summary Table* at any *Point of Reception.*

5.2 Condition 5.1 does not apply if Condition 2.1 has expired.

6. OPERATION AND MAINTENANCE

6.1 The *Company* shall prepare and implement, not later than three (3) months from the date of this *Approval,* operating procedures and maintenance programs for all *Processes with Significant Environmental Aspects,* which shall specify as a minimum:

(a) frequency of inspections and scheduled preventative maintenance;

(b) procedures to prevent upset conditions;

(c) procedures to minimize all fugitive emissions;

(d) procedures to prevent and/or minimize odorous emissions;

(e) procedures to prevent and/or minimize noise emissions; and

(f) procedures for record keeping activities relating to the operation and maintenance programs.

6.2 The *Company* shall ensure that all *Processes with Significant Environmental Aspects* are operated and maintained at all times in accordance with this *Approval,* the operating procedures and maintenance programs.

7. COMPLAINTS RECORDING PROCEDURE

7.1 If at any time, the *Company* receives any environmental complaints from the public regarding the operation of the *Equipment* approved by this *Approval,* the *Company* shall respond to these complaints according to the following procedure:

(a) the *Company* shall record and number each complaint, either electronically or in a log book, and shall include the following information: the time and date of the complaint and incident to which the complaint relates, the nature of the complaint, wind direction at the time and date of the incident to which the complaint relates and, if known, the address of the complainant;

(b) the *Company,* upon notification of a complaint, shall initiate appropriate steps to determine all possible causes of the complaint, and shall proceed to take the necessary actions to appropriately deal with the cause of the subject matter of the complaint; and

(c) the *Company* shall complete and retain on-site a report written within one (1) week of the complaint date, listing the actions taken to appropriately deal with the cause of the subject matter of the complaint and any recommendations for remedial measures, and managerial or operational changes to reasonably avoid the recurrence of similar incidents**.**

8. RECORD KEEPING REQUIREMENTS

8.1 Any information requested by any employee in or agent of the *Ministry* concerning the *Facility* and its operation under this *Approval,* including, but not limited to, any records required to be kept by this *Approval,* shall be provided to the employee in or agent of the *Ministry,* upon request**,** in a timely manner.

8.2 The *Company* shall retain, for a minimum of five (5) years from the date of their creation, except as noted below, all reports, records and information described in this *Approval* and shall include but not be limited to:

(a) If the *Company* has updated the *ESDM Report* in order to comply with Condition 4.1(a) of this *Approval,* a copy of each new version of the *ESDM Report;*

(b) If the *Company* has updated the *Acoustic Assessment Report,* in order to comply with Condition 4.1(b) of this *Approval,* a copy of each new version of the *Acoustic Assessment Report;*

(c) supporting information used in the emission rate calculations performed in the *ESDM Reports* and *Acoustic Assessment Reports* to document compliance with the *Performance Limits*(superseded information must be retained for a period of three (3) years after *Modification);*

(d) the *Log* that describes each *Modification* to the *Facility;*

(e) all documentation prepared in accordance with Condition 4.3 of this *Approval;*

(f) copies of any *Written Summary Forms* provided to the *Ministry* under Condition 5.1 of this *Approval;*

(g) the operating procedures and maintenance programs, including records on the maintenance, repair and inspection of the *Equipment* related to all *Processes with Significant Environmental Aspects;* and

(h) the complaints recording procedure, including records related to all environmental complaints made by the public as required by Condition 7.1 of this *Approval.*

9. REVOCATION OF PREVIOUS APPROVALS

9.1 This *Approval* replaces and revokes all Certificates of Approval (Air) issued under section 9 *EPA* and Environmental Compliance Approvals issued under Part II.1 *EPA* to the *Facility* in regards to the activities mentioned in subsection 9(1) of the *EPA* and dated prior to the date of this *Approval.*

10. NOISE ABATEMENT ACTION PLAN

10.1 The *Company* shall implement the *Noise Abatement Action Plan* described in *Schedule* "B".

10.2 The *Company* shall ensure that the *Noise Abatement Action Plan* shall achieve compliance of the noise emissions from the *Facility* with the limits set out in *Ministry Publication NPC-205* .

10.3 The *Company* shall, not later than the date(s) specified in the *Noise Abatement Action Plan* detailed in *Schedule* "B", ensure that all reports on the progress of the *Noise Abatement Action Plan* are submitted to the *District Manager* and the *Director.*

11. ACOUSTIC AUDIT

11.1 The *Company* shall carry out *Acoustic Audit* measurements on the actual noise emissions due to the operation of the *Facility,* following the completion of the *Noise Abatement Action Plan.* The *Company:*

(a) shall carry out *Acoustic Audit* measurements in accordance with the procedures in *Publication NPC-103;*

(b) shall submit an *Acoustic Audit Report* on the results of the *Acoustic Audit,* prepared by an *Independent Acoustical Consultant* , in accordance with the requirements of *Publication NPC-233* , to the *District Manager* and the *Director,* not later than three (3) months after the completion of the *Noise Abatement Action Plan* detailed in Schedule "B" .

SCHEDULE "A"

Supporting Documentation

(a) The updated Acoustic Assessment Report and the updated Noise Abatement Action Plan dated October 22, 2012 and signed by Chris Kellar and Dalila Giusti, Jade Acoustics Inc.

(b) The letter (e-mail) dated September 10, 2012 and provided by Don Smart, Plant Manager, Ellis Packaging Ltd.

(c) Revised Noise Abatement Action Plan dated September 7, 2012.

(d) Acoustic Audit Report and the Noise Abatement Action Plan dated April 19, 2012 and signed by Chris Kellar and Dalila Giusti, Jade Acoustics Inc.

(e) Acoustic Audit Reports dated July 7 and August 12, 2011, prepared and signed by Bhuwan Prasad, Genivar.

(f) The letters (e-mails) dated September 4-6, provided by Bhuwan Prasad, Genivar. Acoustic Audit Report.

(g) Application dated June 25, 2010, signed by Blain Welchel and submitted by the C *ompany* for a Certificate of Approval (Air & Noise).

(h) Emission Summary and Dispersion Modelling Report, dated June 25, 2010, prepared by Etcos Inc.

SCHEDULE "B"

Noise Abatement Action Plan

The *Noise Abatement Action Plan* shall consist of the *Noise Control Measures* identified as Phase 1 and Phase 2, as outlined in the Ellis Updated Noise Abatement Action Plan dated October 22, 2012 and signed by Chris Kellar and Dalila Giusti, Jade Acoustics Inc. The *Noise Abatement Action Plan* shall be implemented according to the following schedule:

· Complete Phase 1 *Noise Control Measures* not later than three (3) months after the date of this *Approval.*
· Submit, not later than four (4) months after the date of this *Approval,* an *Acoustic Audit Report,* prepared by an *Acoustical Consultant,* on the results of an *Acoustic Audit* conducted to demonstrate conditions following completion of the Phase 1 *Noise Control Measures.*
· Complete Phase 2 *Noise Control Measures* not later than six (6) months after the date of this *Approval,* representing completion of the *Noise Abatement Action Plan,*

The reasons for the imposition of these terms and conditions are as follows:

GENERAL

1. Condition No. 1 is included to require the *Approval* holder to build, operate and maintain the *Facility* in accordance with the Supporting Documentation in Schedule A considered by the *Director* in issuing this *Approval.*

LIMITED OPERATIONAL FLEXIBILITY, REQUEST FOR *MAXIMUM CONCENTRATION LEVEL ASSESSMENT* AND *PERFORMANCE LIMITS*

2. Conditions No. 2 and 3 are included to limit and define the *Modifications* permitted by this *Approval,* and to set out the circumstances in which the *Company* shall submit a *Maximum Concentration Level Assessment* prior to making *Modifications.* The holder of the *Approval* is approved for operational flexibility for the *Facility* that is consistent with the description of the operations included with the application up to the *Facility Production Limit.* In return for the operational flexibility, the *Approval* places performance based limits that cannot be exceeded under the terms of this *Approval. Approval* holders will still have to obtain other relevant approvals required to operate the *Facility,* including requirements under other environmental legislation such as the *Environmental Assessment Act.*

DOCUMENTATION REQUIREMENTS

3. Condition No. 4 is included to require the *Company* to maintain ongoing documentation that demonstrates compliance with the *Performance Limits* of this *Approval* and allows the *Ministry* to monitor on-going compliance with these *Performance Limits.* The *Company* is required to have an up to date *ESDM Report* and *Acoustic Assessment Report* that describe the *Facility* at all times and make the *Emission Summary Table* and *Acoustic Assessment Summary Table* from these reports, along with a list of contaminants registered by the *Company* on the *Technical Standards Registry* available to the public on an ongoing basis in order to maintain public communication with regard to the emissions from the *Facility.*

REPORTING REQUIREMENTS

4. Condition No. 5 is included to require the *Company* to provide a yearly *Written Summary Form* to the *Ministry,* to assist the *Ministry* with the review of the site's compliance with the *EPA,* the regulations and this *Approval.*

OPERATION AND MAINTENANCE

5. Condition No. 6 is included to require the *Company* to properly operate and maintain the *Processes with Significant Environmental Aspects* to minimize the impact to the environment from these processes.

COMPLAINTS RECORDING PROCEDURE

6. Condition No. 7 is included to require the *Company* to respond to any environmental complaints regarding the operation of the *Equipment,* according to a procedure that includes methods for preventing recurrence of similar incidents and a requirement to prepare and retain a written report.

RECORD KEEPING REQUIREMENTS

7. Condition No. 8 is included to require the *Company* to retain all documentation related to this *Approval* and provide access to employees in or agents of the *Ministry,* upon request, so that the *Ministry* can determine if a more detailed review of compliance with the *Performance Limits* is necessary.

REVOCATION OF PREVIOUS APPROVALS

8. Condition No. 9 is included to identify that this *Approval* replaces all Section 9 Certificate(s) of Approval and Part II.1 Approvals in regards to the activities mentioned in subsection 9(1) of the *EPA* and dated prior to the date of this *Approval.*

NOISE ABATEMENT ACTION PLAN

9. Condition No. 10 is included to require the *Company* to implement a *Noise Abatement Action Plan* designed to ensure that the noise emissions from the *Facility* will be in compliance with applicable limits set in the *Ministry* 's noise guidelines.

ACOUSTIC AUDIT

10. Condition No. 11 is included to require the *Company* to gather accurate information and submit an *Acoustic Audit Report* in accordance with procedures set in the *Ministry's* noise guidelines, so that the environmental impact and subsequent compliance with the *EPA* , the regulation and this *Certificate* can be verified.

Upon issuance of the environmental compliance approval, I hereby revoke Approval No(s). 6804-8A2QKT issued on December 20, 2010

In accordance with Section 139 of the Environmental Protection Act, you may by written Notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require a hearing by the Tribunal. Section 142 of the Environmental Protection Act provides that the Notice requiring the hearing shall state:

1. The portions of the environmental compliance approval or each term or condition in the environmental compliance approval in respect of which the hearing is required, and;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

Pursuant to subsection 139(3) of the Environmental Protection Act, a hearing may not be required with respect to any terms and conditions in this environmental compliance approval, if the terms and conditions are substantially the same as those contained in an approval that is amended or revoked by this environmental compliance approval.

The Notice should also include:

3. The name of the appellant;
4. The address of the appellant;
5. The environmental compliance approval number;
6. The date of the environmental compliance approval;
7. The name of the Director, and;
8. The municipality or municipalities within which the project is to be engaged in.

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

The Secretary*
Environmental Review Tribunal
655 Bay Street, Suite 1500
Toronto, Ontario
M5G 1E5

AND

The Director appointed for the purposes of Part II.1 of the Environmental Protection Act
Ministry of the Environment
2 St. Clair Avenue West, Floor 12A
Toronto, Ontario
M4V 1L5

*** Further information on the Environmental Review Tribunal 's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 212-6349, Fax: (416) 314-4506 or www.ert.gov.on.ca**

The above noted activity is approved under s.20.3 of Part II.1 of the Environmental Protection Act.

DATED AT TORONTO this 13th day of December, 2012

Ian Greason, P.Eng.
Director
appointed for the purposes of Part II.1 of the *Environmental Protection Act*

DZ/
c: District Manager, MOE York-Durham
Chris Kellar, Jade Acoustics Inc.

Appendix H

Comment Response Matrix

Peer Review of Land Use Compatibility Study – March 26, 2024			
2	Peer Review Comments – Air Quality Assessment		
2.1	Site and Development Description EXP agrees that the study adequately describes the zone names but recommends that the verbiage be expanded to include specific zones, e.g. residential single, prestige employment, low density) and that the map provided in Figure A.1 be updated with a legend for clarity. EXP could not confirm the discrepancy of C1 on zoning map in Figure A.1 which is noted as LN on the web-based maps provided by the city. No description or assessment of Site meteorology was provided. It is common practice to include a summary wind speed and direction for consideration in the evaluation of potential impact of industrial facilities upwind of the proposed development. EXP recommends meteorological data and assessment be included in the additional detailed studies recommended.	**GHD**	The text in Section 2 of the Study has been updated to indicate the more specific zoning designations for surrounding lands as requested. The updated Study only includes the current enforceable zoning, and the applicable drawings are included in Appendix A. Figure A.1 has been replaced with zoning maps taken directly from the City of Pickering's website to reflect the current enforceable zoning (including all amendments). GHD included Site meteorology in Section 2 based off the nearest weather station data, and, additionally, included the observed meteorology during the site visits.
2.2	Land Use Compatibility Assessment		
2.2.1	Section 3.1 – 3.3 A search of the Ministry of Environment, Conservation and Parks (MECP) Access Environment on-line approvals database identified an Environmental Compliance Approval (ECA) at 575 Granite (no. 3790-A5UU6U, ECA-Air, 2016), 580 Granite Court (no. 7738-8ZFRVQ, ECA0Air, 2012) and 1851 Sandstone Manor (no. 7756-6H6QKL, ECA-Air, 2005). EXP Recommends that operations at 575 and 580 Granite Court be reviewed and included in the assessment. EXP notes the ECA for 1851 is for a standby diesel generator and is not likely an issues. The approval number provided in Table 3.2 for Ellis Packaging, 550 Granite Court shown as 6804-8A2QK which has been revoked and or replaced. The current ECA is 3029-8ZDQTH. EXP recommends the table be updated.	**GHD**	GHD has updated the ECA/EASR appendix to include all relevant ECAs/EASRs. GHD is of the opinion that detailed assessment of Ellis Packaging is not required due to the site observations during both site visits conducted by GHD. Noise was observed to be quiet in the direction of the Development and, as such, is not a significant source of noise impacts to the Development.

	EXP Agrees with the recommendation "The following facilities are located within the respective potential AOI per Guideline D-6, and that *"further evaluation or justification could be provided to determine if there are any potential compatibility concerns:* • *Trim Stamping Inc.* • *Web Offset Publications Limited* • *Peg Perego Canada* • *Lenbrook Industries Limited* • *Ellis Packaging* • *Waterbridge"* Specifically, and as noted elsewhere in the report, a detailed assessment should be conducted for Web Offset Publication Limited and Ellis Packaging. EXP recommends such assessments be conducted. For clarity the map should be updated to specify the location of Ellis Packaging. It is further noted that since the site visit was conducted in 2002 and change in occupancy or presence of new developments such as 145 Sandstone may have occurred, that confirmation through satellite and or web base review would provide more confidence in findings.		Web Offset Publications is no longer in business and is no longer included in the assessment. The thermal oxidizer that was previously on site has also been removed. Other tenants have since taken occupancy of the building and are included in the assessment. The potential for air quality impacts is negligible as none of the facilities have tall stacks. As such, the height of the Development will not be a factor as the facilities are required to comply with air quality limits at their property line. The map has been updated to include Ellis Packaging The initial site visit was conducted in 2022. GHD has conducted an additional site visit on May 1, 2024 and confirmed the vacancy of 1851 Sandstone Manor. All D-6 screening has been reviewed and updated since the last study revision.
2.2.2	<u>Section 3.4 Review of Complaint History</u> Section 3.4 Review of Complaints related to dust or odour which is reassuring; however, no odour survey was conducted at the proposed development or at facilities identified with a potential for odour; and no comments or odour observations during site visit were provided. While an odour survey is not a specific requirement for MECP Guideline it is commonly conducted in air quality land use compatibility assessments and specifically included in the Terms of Reference of other municipalities (i.e. City of Toronto). EXP recommends an odour survey be conducted or rationale provided if one is not needed; or recommendations on feasible mitigation measures with respect to odour be provided.	**GHD**	GHD has since conducted an additional site visit on May 1, 2024, which included an odour survey of the indicated facilities with potential for odorous impacts. The updated Study concludes, based on the odour survey, that odour is not a compatibility concern for the Development.
2.2.3	<u>Section 3.5 Guidelines D-6 Assessment Conclusions</u> The expected D-6 classifications within the adjacent zone noted in Section 3.5.1 Potential Future Industrial Developments provided are reasonable. It is also recognized that future	**GHD**	GHD conducted an updated review of Access Environment which removed some outdated ECAs/EASRs.

	industrial developments would require an ECA that considers the receptors at the proposed development. However, a review should be included with respect to any pending applications with the MECP for amendments or new activities within 1 km of the proposed development. EXP recommends a search of the Access Environment on-line database to confirm the status of pending applications and impact if any be provided. No assessment is provided regarding compatibility with current development proposals with the City of Pickering. EXP recommends that a review of Current Development Proposals within 1 km of the proposed development be included for completeness.		GHD has included a review of the current development applications from the City of Pickering's website. 603-643, 645 and 699 Kingston Road, 755 Oklahoma Drive were reviewed to further evaluate potential for future developments in the area. GHD found that there were no developments planned within the Class II AOI. Also, all other developments outside the Class III RMSD and within the Class III AOI were Class II or lower (603-643, 645 and 699 Kingston Road, and 755 Oklahoma Drive).
2.2.4	4.1 Industrial Impacts In Section 4.1 the assessment concluded that further air quality assessment could be completed to confirm assumptions based on the lack of complaints. Given that the proposed development will include elevated receptors which could not be captured in a history of complaints nor in the ECA assessment of operations, EXP recommends that further air quality assessment be conducted for Web Offset Publications Limited and Trim Stamping Inc.	**GHD**	Web Offset Publications is no longer in business, and the thermal oxidizer for the facility has been removed. None of the remaining facilities have tall stacks and, as they are required to comply with concentration limits at their property lines, air quality impacts to the Development are not anticipated. Further detailed air quality assessment in not warranted.
2.2.5	4.2 Transportation Impacts Section 4.21 and 4.22 recognize the risk of transportation related air pollution (TRAP) and EXP agrees that there is risk to exposure to TRAP. While it is stated that TRAP policies are not in place at Pickering or Durham, it is considered a potential adverse effect that should be addressed at the proposed development. The proposed mitigation measures do not include measures for outdoor spaces. For example, selecting outdoor amenities away from roadways, placing outdoor amenities in locations with physical barriers from a TRAP source, and scheduling fresh air intake of HVAC units to avoid peak traffic volumes during rush hours. EXP recommends additional measures or details on the measures be provided. In addition, it is not clear why the recommendation to install carbon and/or dust filters is not carbon and dust filters and should be revised as such unless a rationale otherwise can be provided.	**GHD**	The updated Study includes discussion of TRAP mitigation. The outdoor amenity spaces are set back as far as possible from Whites Road, which is the closest significant source of TRAP emissions, and acoustic barriers are included between the outdoor amenities and the TRAP sources. The updated Study also recommends scheduling fresh air intake of HVAC units to avoid rush hours.

2.2.6	4.3 Summary of Air Quality, Odour, and Dust Conclusions GHD's conclusion that the facilities surrounding the Site serve as insignificant sources of dust, and odour emissions based on the lack of complaints is not valid for elevated receptors in the proposed development. EXP agrees with GHD's recommendations that further air quality assessment be completed to confirm this. GHD suggests that the mitigation measures with respect to TRAP detailed in section 4.2 are sufficient. EXP also recommends that additional measures be considered.	**GHD**	Please refer to GHD's response to 2.2.4. Additionally, the site visit GHD conducted on May 1, 2024, found that the odour emissions generated from the potentially odorous facilities were imperceptible at setback distances comparable to the nearest sensitive location of the Development. This provides further justification that these facilities are not a concern for odour impacts at the Development.
3	Recommendations Air Quality, Odour, and Dust EXP is in general agreement with the approach and conclusion that the proposed Development is feasible provided that the above recommendations are addressed and that the findings of the recommended additional assessment does not identify any air quality issues or land use conflicts. EXP recommends that the study be updated as noted in the above sections.	**GHD**	GHD has updated the study to include greater detail and supporting evidence to substantiate the Development's compliance and that no further assessment is necessary.
4	Peer Review Comments – Noise and Vibration Assessment		
4.1	Sound and Vibration Criteria Specific sound level limits for ventilation for road and rail traffic noise respectively are missing in Section 5.1.2. EXP however agrees with the recommendation for central air conditioning. The paper written by VenDeldene al which is quoted in Section 5.1.3.2 for typical hourly traffic distribution should be provided in the list of reference in Section 8. In addition, the percentages for minimum hourly daytime vehicles of AADT for Whites Road and Bayly Street based on the traffic distribution in the paper by VenDelden et al are significantly higher than the percentages for other roads and Highway 401 in Table 5.4. It is possible that the hourly traffic distribution in the paper by VanDelden et al is not representative for the project area. The height of POR for west façade and north façade for calculating the background sound level is 15 m above grade in Table 5.5. There are condo suites from the ground floor to the	**GHD**	The text in Section 5.1.2 of the updated Study clarifies the thresholds for which central air conditioning is mandatory. GHD reviewed the calculations of minimum hourly road traffic and corrected issues with some of the values for local / Regional roads in the updated Study. The traffic distribution in the paper by VanDelden et al provides a reasonable estimate of the road volumes on busier local roads during the quietest day and night hours. Nevertheless, GHD applied the distribution percentages from Granite Court to Whites Road and Bayly Street to estimate the minimum hour counts. A 3D comparison figure has been included in the updated Study to show the predicted stationary and background sound levels throughout the worst-case façades during nighttime for clarity.

	top floor. As stated in Section 5.1.3.2, the lowest background sound levels generally occur at the ground floor level. Explanation should be provided how the worst case scenario at 15 m above grade is determined.		
4.2	Transportation Noise Impact Assessment It is stated in Section 5.2.2.1 that traffic volume data for Whites Road were obtained from the Durham open data website in the form of 2017 AADT. The traffic data including the corresponding segment of Whites Road should be provided in Appendix C, The Region's preference for Arterial Roads is that they use AADT data from the Planning Department. This data can be obtained by emailing noiserequests@durham.ca. In addition, EXP has found discrepancy between the traffic data in the Durham open data website and the calculated future AADT for Whites Road in Table 5.7. VIA Rail data in Table 5.8 were obtained from a train schedule. However, not all routes that pass the project site have been included. In addition, the volume of passenger train provided in the CN Rail train data in Appendix C was excluded in Table 5.8. Passenger trains in CN Rail train data instead of number of trains in VIA train schedule should be used for noise calculation with 2.5% annual growth. There are errors for GO Rail data in Table 5.8. The table of future night-time trains with 1 locomotive should be 26. The number of future daytime trains with 2 locomotives should be 77. A breakdown of road traffic sound level and rail traffic should level should be provided in Table 5.9 in order to determine the noise control measures. The Amenity Terrace on level 9, as shown in architectural drawings dated May 17, 2023, should be included as a noise receptor if it is considered a designated outdoor living area. The facades that require STC-43 glazing or STC-37 glazing should be described in the main text of the report under Section 5.24.1 or stated in Table 5.11.	**GHD**	GHD had contacted both Durham Region and the City of Pickering, and neither were able to provide data for Whites Road. Correspondence is included in Appendix C for reference. The typo in the Whites Road future AADT has been corrected in the updated Study. GHD updated the analysis such that passenger trains (VIA Rail) in the CN rail data were used as requested. The typos in Table 5.8 have also been corrected. Table 5.9 has been updated to indicate road and rail traffic levels separately and cumulatively. The current design referenced in the updated Study does not include an outdoor amenity space on Level 9. The minimum STC ratings for each facade are now indicated in Section 5.2.4.1 and in Table 5.10.

	The recommended acoustic barrier shown in Figure 5.3 should be updated with the latest site plan. The outdoor amenity area at grade in the architectural drawing dated May 17, 2023 is not in rectangular shape as shown in drawings in Appendix A.		
4.3	Noise Impact from the Development The roof plan is the architectural drawings dated May 17, 2023 indicates that an emergency generator will be housed in the mechanical penthouse. If the emergency generator is installed indoor, an enclosure is not needed. Instead, a muffler for the generator combustion exhaust and silencers f cooling air openings should be recommended in Section 5.4.1.	**GHD**	The on-site noise control general guidance in the updated Study has been revised accordingly.
4.4	Rail Vibration Impact Assessment The location of vibration measurement for train pass-by should be provided in terms of perpendicular distance from the railway tracks or railway right-of-way in Section 5.5.1. In addition, verifying whether the measurement location represents the closest point of underground parking structure from the railway track can be determined whether it is the worst-case location. The vibration measurements do not include any freight trains. Freight trains typically produce the highest vibration level among passenger trains and GO trains. However, if the vibration measurement location represents the worst-case location, freight train may not be a concern given the measured vibration levels are low for GO train and VIA trains.	**GHD**	Rail vibration monitoring in the context of this study is required to determine the perceptibility of vibration at the nearest sensitive point on a structure. Placing the vibration monitoring equipment at the limits of the underground parking will not accurately reflect the worst-case location for perceptibility in the sensitive spaces, and thus, the original location was maintained in the updated study. GHD is of the opinion that, despite the absence of freight data, the vibration measurements provide an accurate indication that rail vibration is not a concern given the low levels experienced for the train movements captured.
4.5	Noise and Vibration Conclusions and Recommendations EXP agrees with the methodology and findings in the noise and vibration assessment in general. However, EXP recommends using the correct road traffic and train volume data. In addition, EXP recommends the noise control recommendations for road and train traffic noise to be updated with the calculation results.	**GHD**	GHD has updated all results and recommendations based on the correct road and rail data.
5	General Limitations The information presented in this report is based on information provided by others and visual observations as identified herein. Achieving the objectives stated in this report has	**GHD**	Noted

	required us to arrive at conclusions based upon the best information presently known to us. No investigative method can completely eliminate the possibility of obtaining partially imprecise of incomplete information; it can only reduce the possibility to an acceptable level. Professional judgment was exercise in gathering and analyzing the information obtained in the formulation of the conclusions we reach, but we commit ourselves to care and competence in reaching those conclusions. Any changes to operations such as the introduction of new processes and/or alterations to air-handling equipment may render the conclusions of the report inaccurate or invalid. In the event of such changes, EXP should be contacted to re-evaluate the conditions with the assessed area and make appropriate revision to the original conclusion of this report.