

**Environmental Noise Assessment  
1345 Lakeshore Road East  
Mississauga, ON**

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Novus Reference No. 17-0355

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## 1.0 Introduction

Novus Environmental Inc. (Novus) was retained by VANDYK Group of Companies to conduct an Environmental Noise Assessment for the proposed development located at 1345 Lakeshore Road East in Mississauga, Ontario. This assessment is in support of the Zoning By-law Amendment (ZBA) application for the proposed development.

### 1.1 Focus of Report

In keeping with Region of Peel and City of Mississauga requirements, this report examines the potential for:

- Impacts of the environment on the proposed development;
- Impacts of the proposed development on the environment; and
- Impacts of the proposed development on itself.

### 1.2 Nature of the Subject Lands

The proposed development is located at the northwest corner of Lakeshore Road East and Dixie Road, directly to the south of St James Avenue. The proposed development property is currently occupied by a vacant two-storey commercial building.

The development includes two residential buildings, with a central raised courtyard amenity space between the buildings. Building A, on the east portion of the site is 8-storeys while Building B, on the west portion of the site is 12 storeys. Each building has a 6-storey podium. There are also 2 stories of commercial space at the southwest corner of Buildings A, fronting on Lakeshore Road East.

The site plan and architectural drawings of the proposed development are provided in **Appendix A**.

### 1.3 Nature of the Surroundings

Immediately surrounding the site are a low-rise commercial property and low-rise residences to the east, low-rise residences to the north, a 10-storey residential building and low-rise motel to the west, and park space to the south.

Beyond the immediate surroundings are low and mid-rise residential properties to the west, low-rise residential and the Lakeview Golf Course to the North, and low and mid-rise residential properties to the east. To the southeast is Lakeshore Park and Marie Curtis Park, with the Lakeview Wastewater Treatment Plant to the southwest, and low-rise industrial properties to the west.

The GO Lakeshore West Line and CN Oakville Subdivision rail line is located approximately 190 m to the north of the proposed development

A context plan can be found in **Figure 1**.

## **PART 1: IMPACTS OF THE ENVIRONMENT ON THE DEVELOPMENT**

In assessing potential impacts of the environment on the proposed development, the focus of this report is to assess the potential for:

- 1) Transportation noise impacts from surrounding roadways;
- 2) Transportation noise impacts from the CN Oakville Subdivision (GO and VIA); and
- 3) Stationary noise impacts from the surrounding industries on the development.

### **2.0 Transportation Noise Impacts**

#### **2.1 Transportation Noise Sources**

Transportation noise sources of interest with the potential to produce road and railway noise at the proposed development include:

- Dixie Road;
- Lakeshore Road East; and
- CN Oakville Subdivision (GO and VIA);

Sound exposure levels at the proposed development have been predicted, and this information has been used to identify façade, ventilation, and warning clause requirements.

#### **2.2 Surface Transportation Noise Criteria**

##### **2.2.1 Ministry of the Environment Publication NPC-300**

###### ***Noise Sensitive Developments***

Ministry of the Environment and Climate Change (MOECC) Publication NPC-300 provides sound level criteria for noise sensitive developments. The applicable portions of NPC-300 are Part C – Land Use Planning and the associated definitions outlined in Part A – Background. **Tables 1 to 5** below summarizes the applicable surface transportation (road and rail) criteria limits.

###### ***Location Specific Criteria***

**Table 1** summarizes criteria in terms of energy equivalent sound exposure ( $L_{eq}$  Day and  $L_{eq}$  Night) levels for specific noise-sensitive locations. Both outdoor and indoor locations are identified, with the focus of outdoor areas being amenity spaces. Indoor criteria vary with sensitivity of the space. As a result, sleep areas have more stringent criteria than Living / Dining room space.

**Table 1: MOECC Publication NPC-300 Sound Level Criteria for Road and Rail Noise**

Type of Space	Time Period	Equivalent Sound Exposure Level - L <sub>eq</sub> (dBA)		Assessment Location
		Road	Rail <sup>[1]</sup>	
Outdoor Living Area (OLA)	Daytime (0700-2300h)	55	55	Outdoors <sup>[2]</sup>
Living / Dining Room <sup>[3]</sup>	Daytime (0700-2300h)	45	40	Indoors <sup>[4]</sup>
	Night-time (2300-0700h)	45	40	Indoors <sup>[4]</sup>
Sleeping Quarters	Daytime (0700-2300h)	45	40	Indoors <sup>[4]</sup>
	Night-time (2300-0700h)	40	35	Indoors <sup>[4]</sup>

- Notes:** [1] Whistle noise is excluded for OLA noise assessments, and included for Living / Dining Room and Sleeping Quarter assessments  
 [2] Road and Rail noise impacts are to be combined for assessment of OLA impacts.  
 [3] Residence area Dens, Hospitals, Nursing Homes, Schools, Daycares are also included. During the night-time period, Schools and Daycares are excluded.  
 [4] An assessment of indoor noise levels is required only if the criteria in **Table 4** are exceeded.

### *Outdoor Amenity Areas*

**Table 2** summarizes the noise mitigation requirements for outdoor amenity areas (“Outdoor Living Areas” or “OLAs”).

For the assessment of outdoor sound levels, the surface transportation noise impact is determined by combining road and rail traffic sound levels. Whistle noise due to railway trains is not included in the determination of levels.

**Table 2: MOECC Publication NPC-300 Outdoor Living Area Mitigation Requirements**

Time Period	Equivalent Sound Level in Outdoor Living Area (dBA)	Ventilation Requirements
Daytime (0700-2300h)	≤ 55	• None
	55 to 60 incl.	• Noise barrier <b>OR</b> • Warning Clause A
	> 60	• Noise barrier to reduce noise to 55 dBA <b>OR</b> • Noise barrier to reduce noise to 60 dBA and Warning Clause B

### *Ventilation and Warning Clauses*

**Table 3** summarizes requirements for ventilation where windows potentially would have to remain closed as a means of noise control. Despite implementation of ventilation measures where required, if

sound exposure levels exceed the guideline limits in **Tables 1**, warning clauses advising future occupants of the potential excesses are required. Warning clauses also apply to OLAs.

**Table 3: MOECC Publication NPC-300 Ventilation & Warning Clause Requirements**

Assessment Location	Time Period	Energy Equivalent Sound Exposure Level - $L_{eq}$ (dBA)		Ventilation and Warning Clause Requirements <sup>[2]</sup>
		Road	Rail <sup>[1]</sup>	
Outdoor Living Area     Plane of Window	Daytime (0700-2300h)	56 to 60 incl.		Type A Warning Clause
		≤ 55		None
	Daytime (0700-2300h)	56 to 65 incl.		Forced Air Heating with provision to add air conditioning + Type C Warning Clause
		> 65		Central Air Conditioning + Type D Warning Clause
	Night-time (2300-0700h)	51 to 60 incl.		Forced Air Heating with provision to add air conditioning + Type C Warning Clause
		> 60		Central Air Conditioning + Type D Warning Clause

**Notes:** [1] Rail whistle noise is excluded.

[2] Road and Rail noise is combined for determining Ventilation and Warning Clause requirements.

### ***Building Shell Requirements***

**Table 4** provides sound level thresholds which if exceeded, require the building shell and components (i.e., wall, windows) to be designed and selected accordingly to ensure that the **Table 1** indoor sound criteria are met.

**Table 4: MOECC Publication NPC-300 Building Component Requirements**

Assessment Location	Time Period	Energy Equivalent Sound Exposure Level - $L_{eq}$ (dBA)		Component Requirements
		Road	Rail <sup>[1]</sup>	
Plane of Window	Daytime (0700-2300h)	> 65	> 60	Designed/ Selected to Meet Indoor Requirements <sup>[2]</sup>
	Night-time (2300-0700h)	> 60	> 55	

**Notes:** [1] Including whistle noise.

[2] Building component requirements are assessed separately for Road and Railway noise. The resultant sound isolation parameter is required to be combined to determine an overall acoustic parameter.

In addition to the building component criteria outlined in **Table 4**, NPC-300 also includes a façade construction requirement for rail noise only, outlined in **Table 5**. The façade construction requirements are necessary only if the proposed development is located in the first row of dwellings.



**Table 5: MOECC Publication NPC-300 Rail Noise Façade Requirements**

Assessment Location	Distance to Railway	$L_{eq}$ (24hr) <sup>[1] {2}</sup> (dBA)	Noise Control Requirement
Plane of Bedroom Window	Less than 100 m	$\leq 60$	No additional requirement
		$> 60$	Brick Veneer or Acoustic Equivalent Required
	Greater than 100 m	$\leq 60$	No additional requirement
		$> 60$	No additional requirement

**Notes:** [1] Assessed for proposed developments located within the first row of dwellings.  
 [2] Including whistle noise.

### 2.2.2 Region of Peel

The Region of Peel guidelines include the General Guidelines for the Preparation of Acoustical Reports in the Region of Peel, dated November 2012 (ROP Guidelines). In general, the Region of Peel guidelines are consistent with the MOECC NPC-300 guidelines. Therefore, the guidelines have not been re-iterated again.

## 2.3 Traffic Data and Future Projections

### 2.3.1 Roadway Traffic Data

Road traffic volumes on arterial roads based on ultimate lane configuration was taken from the ROP Guidelines for Dixie Road, which is currently a 2-lane arterial road with bike lanes. Commercial traffic breakdown (medium trucks / heavy trucks) was obtained from traffic counts provided by BA Group, the transportation consultants for the project.

The ultimate traffic data for Lakeshore Road East, including AADT; day/night split; and commercial breakdown, were obtained directly from the City of Mississauga.

Copies of all traffic data used, and calculations can be found in **Appendix B**. The following table summarizes the road traffic volumes used in the analysis.

**Table 6: Summary of Ultimate Road Traffic Data Used in the Transportation Noise Analysis**

Roadway Link	Ultimate Traffic (AADT)	Day/ Night Volume Split		Commercial Traffic Breakdown		Vehicle Speed (km/h)
		Daytime	Night-time	% Med Trucks	% Hvy Trucks	
Lakeshore Road East	38,160	34,344	3,816	1.7	1.4	50
Dixie Road	16,200	14,580 <sup>[1]</sup>	1,620 <sup>[1]</sup>	4.0	0.7	50

**Notes:** [1] The Day / Night split was assumed to be 90 / 10, based on typical splits for the area.

### 2.3.2 Railway Traffic Data

Railway traffic data for the GO Lakeshore West Line was unavailable from Metrolinx at the time of the assessment. Metrolinx data from 2016 was used in the analysis. The data represents volumes along the same rail line, in close proximity to the proposed development.

Rail traffic data for the Canadian National Railway (“CN”) Oakville Subdivision was obtained from CN. A growth rate of 2.5% per annum was applied to the rail data (required by CN).

Copies of the rail traffic data is provided in **Appendix B**. The rail traffic data used in the assessment is summarized in the table below:

**Table 7: Summary of 2028 Rail Traffic Data Used in the Transportation Noise Analysis**

Rail Subdivision	Train Type	No. of Engines	No. of Cars	No of Trains		Maximum Speed (km/h)
				Daytime (7am to 11pm)	Night-time (11pm to 7am)	
GO Lakeshore West Line	Diesel GO Train Commuter	1	12	104	12	121
GO Lakeshore West Line	DMU UP Express	3	n/a	0	6	121
GO Lakeshore West Line	Electric GO Train Commuter	1	12	130	58	121
CN Oakville Subdivision	VIA Train Commuter	2	10	18	18	153

There is an at-grade rail crossing to the northwest of the proposed development at Haig Boulevard. Based on observations during the site visit, train whistles are not sounded at the crossing.

## 2.4 Projected Sound Levels

Future road traffic sound levels at the proposed development were predicted using Cadna/A, a commercially available noise propagation modelling software. Roadways were modelled as line sources of sound, with sound emission rates calculated using ORNAMENT algorithms, the road traffic noise model of the MOECC. These predictions are equivalent to those made using the MOECC’s ORNAMENT, RT/Custom or STAMSON v5.04 road traffic noise models.

Future rail operation sound levels at the proposed development were predicted using the FTA/FRA modelling algorithms included in the Cadna/A. FTA reference sound levels were used for diesel-electric locomotives, electric locomotive, diesel multiple units (DMU), and rail cars.

Sound levels were predicted along the facades of the proposed development using the “building evaluation” feature of Cadna/A. This feature allows for noise levels to be predicted across the entire façade of a structure. Facades considered to be non-noise sensitive (e.g. mechanical penthouses, retail, and commercial space) were excluded from the analysis.

Predicted worst-case façade sound levels are presented in **Table 9**. The transportation façade sound levels of the proposed development, showing the ranges of predicted daytime and night-time sound levels are shown in **Figure 2** and **Figure 3**, respectively, for overall impacts.

**Table 8: Summary of Transportation Façade Sound Levels**

Building Section	Façade <sup>[1]</sup>	Roadway		Railway		Combined	
		Sound Levels		Sound Levels		Road and Road	
		L <sub>eq</sub> Day (dBA)	L <sub>eq</sub> Night (dBA)	L <sub>eq</sub> Day (dBA)	L <sub>eq</sub> Night (dBA)	L <sub>eq</sub> Day (dBA)	L <sub>eq</sub> Night (dBA)
Building B Levels 1-2 Townhouses	North	59	52	56	54	61	56
	East 1	63	56	55	53	64	58
Building B Levels 1-4	North	59	52	60	58	62	59
	East 1	63	56	54	53	63	58
	South 1	58	52	48	46	59	53
	East 2	63	57	48	46	63	57
	South 2	68	61	46	44	68	61
	West	64	58	54	52	64	58
Building B Levels 5-6	North	51	45	61	59	61	59
	East	63	57	56	54	63	57
	South	67	61	46	44	67	61
	West	63	56	60	58	63	58
Building B Levels 7-12	North	53	47	62	60	62	60
	East	54	47	57	55	58	56
	South	58	51	47	45	58	52
	West	57	51	61	59	61	59
Building A Levels 2-4	North 1	59	53	55	53	60	56
	East	65	59	56	54	66	60
	South	68	61	46	44	68	61
	West 1	63	56	46	44	63	56
	North 2	44	37	47	45	49	46
West 2	46	39	50	48	51	49	
Building A Levels 5-6	North	59	53	60	58	63	59
	East	65	59	57	55	66	60
	South	65	58	46	45	65	59
	West	55	48	57	56	58	56
Building A Levels 7-8	North	57	51	60	58	63	59
	East	64	58	57	55	66	60
	South	58	52	46	45	65	59
	West	50	44	57	56	58	56

Notes: [1] Façade locations are shown in **Figure 2** and **Figure 3**.

## 2.5 Façade Recommendations

An assessment of indoor noise levels is required providing the façade sound levels due to rail traffic exceed 60 dBA during the daytime and 55 dBA during the night-time. Similarly, if façade sound levels

due to road traffic exceed 65 dBA during the daytime and 60 dBA during the night-time, an assessment of indoor noise is required, as indicated in **Table 4**.

Based on the roadway and railway noise levels shown in **Table 9**, façade sound levels were predicted to exceed the above criteria at multiple locations throughout the development. Therefore, an assessment of glazing requirements is necessary for meeting the indoor sound level requirements outlined in **Table 1**.

Indoor sound levels and required facade Sound Transmission Classes (STCs) were estimated using the procedures outlined in National Research Council Building Practice Note BPN-56.

Calculated window STC ratings are the combined acoustical parameter determined from the individual roadway, locomotive, and wheel noise impacts. The worst-case daytime and night-time period impacts were considered, with the highest STC requirement calculated for each façade location.

As detailed floor plans were not available at the time of the analysis, the suite living/dining rooms were assumed to have a façade-to-floor area ratio of 50%, and a glazing-to-façade area ratio of 70%. Similarly, the suite sleeping quarters were assumed to have a façade-to-floor area ratio of 100%, and a glazing-to-façade area ratio of 50%. A spandrel panel wall rating of STC 45 was assumed for all locations in the development.

The townhouse living/dining rooms along the north side of Building B were assumed to have a façade-to-floor area ratio of 50%, and a glazing-to-façade area ratio of 35%. Similarly, the townhouse sleeping quarters were assumed to have a façade-to-floor area ratio of 60%, and a glazing-to-façade area ratio of 25%. A spandrel panel wall rating of STC 45 was assumed for all locations in the development.

Based on the assumptions above, upgraded glazing is required on all bedroom windows along the north façade of Level 7 to Level 12 on Building B. Windows meeting STC-30 are required. The combined glazing and frame assembly must be designed to ensure the overall sound isolation performance for the entire window unit meets the sound isolation requirements. It is recommended window manufacturers test data be reviewed to confirm acoustical performance is met.

Preliminary acoustical requirements show that for the remainder of the development windows conforming to the minimum structural requirements of the Ontario Building Code (OBC) are predicted to be adequate on all façades for living room and bedroom spaces. Any configuration meeting the minimum structural and safety requirements of the Ontario Building Code, which generally produces a minimum STC for glazed elements of STC 29, is expected to be sufficient.

It should be noted that corner units are likely to require an increase of 3 STC points as the space has noise contributions from two exposed sides.

Façade Calculations are provided in **Appendix C**.

Final acoustical requirements should be reviewed as part of the final design at the Site Plan Approval stage, prior to the issuance of building permit drawings.

## 2.6 Outdoor Living Areas

### 2.6.1 Amenity Spaces

The assessed outdoor living areas (OLA) of the proposed development include an outdoor amenity space atop the level 1 podium, at level 2. **Figure 4** shows the location of the OLA

Based on a review of the current proposed development floor plans, the private balconies and terraces do not meet the MOECC minimum depth requirements of 4 m, and are not considered to be OLAs / open space for the purposes of the guidelines.

The predicted noise impacts from the adjacent roadways and rail line summarized in the following table:

**Table 9: Summary of Transportation Noise Impacts - OLAs**

Location	Transportation Impacts	Applicable Guideline Limit	Meets Criteria?
	$L_{eq}$ Day (dBA)	$L_{eq}$ Day (dBA) <sup>[1]</sup>	(Yes/No)
Level 2 Outdoor Amenity	51	60	Yes

Notes: [1] Sound levels up to 60 dBA are allowed with the use of a Type A Warning Clause.

Sound levels are predicted to be below 60 dBA at the level 2 outdoor amenity space, therefore, noise control measures are not required.

## 2.7 Ventilation and Warning Clause Requirements

### 2.7.1 Residential Units

Based on the predicted roadway and railway sound levels warning clauses are required to be included in agreements of purchase and sale or lease and rental agreements for the residential units.

Forced air heating with provisions for future installation of central air conditioning, and a **Type C** warning clause, is required for all affected units with façade sound levels from road and rail traffic that are between 56 and 65 dBA during the daytime, or between 51 and 60 dBA during night-time hours. This affects:

- Building B
  - Level 1 to Level 4 North, East 1, South 1, East 2, and West façades
  - Level 5 to Level 6 North, East, and West façades
  - Level 7 to Level 12 North, East, South, and West façades
- Building A
  - Level 2 to Level 4 North 1 and West 1 façades
  - Level 5 to Level 8 North, South, and West façades

Central air conditioning, and a **Type D** warning clause, is required for all affected units with façade sound levels from road and rail traffic that exceed 65 dBA during the daytime, or exceed 60 dBA during night-time hours. This affects:

- Building B
  - Level 1 to Level 4 South 2 façade
  - Level 5 to Level 6 South façade
- Building A
  - Level 2 to Level 4 East and South façades
  - Level 5 to Level 8 East façade

In addition, Warning Clauses are also required for new developments located within 300 m of the CN and Metrolinx railways rights-of-way. Both CN and Metrolinx Warning Clauses are required for all residential suites. The required warning clauses for this development are outlined in **Appendix D**.

### 2.7.2 Outdoor Amenity Area

As the outdoor amenity area at Level 2 is below 55 dBA, a warning clause is not required.

## 3.0 Stationary Source Noise Impacts

A review has been conducted for the potential impacts on the proposed development from “stationary” industrial and commercial noise sources.

Novus completed a site visit on February 28, 2018 to the development lands and surrounding area. The purpose of the site visit was to identify local industries and commercial properties and to understand the potential for noise impacts on the proposed development.

The site was found to be primarily surrounded by commercial and residential lands, with industrial further to the southwest, and the Lakeview Wastewater Treatment Plant located approximately 500 m to the south.

The commercial and industrial properties were found to be inaudible for stationary noise throughout the proposed development lands. The surrounding acoustic environment was dominated by roadway noise and “urban hum”.

### 3.1 Review of MOECC Approvals

Upon review, nearby commercial and industrial facilities are operating under approved Certificate of Approval (CofA) / Environmental Compliance Approvals (ECA) from the MOECC.

**Table 11** summarizes the approved permits for facilities located in close proximity of the proposed development. The locations of the facilities are shown in **Figure 5**.

**Table 10: Summary of Commercial and Industrial Facilities with Permits**

Facility	Address	Certificate of Approval/ Environmental Compliance Approval No.
Lakeview Wastewater Treatment Plant	1300 Lakeshore Road East	3895-8TUQCF
Long Branch Foundry	1062 Rangeview Road	8268-626PQ7
ILSCO of Canada Company	1050 Lakeshore Road East	3357-9HXK73
Ingersoll-Rand Canada Inc.	1076 Lakeshore Road East	2718-6ZSNUV
Plaster Form Inc.	1180 Lakeshore Road East	6327-A3ARJN
Centre for Training and Development	1352 Lakeshore Road East	5132-6BGGDH
Grohe Canada Inc.	1230 Lakeshore Road East	5435-9SKR4S
Lakeview Generating Station	800 Hydro Road	5500-5QEKU9
Kinectrics Inc,	800 Hydro Road	2662-4QAR8N

The Centre for Training and Development building (CofA 5132-6BGGDH, 2005) at 1352 Lakeshore Road East was recently purchased by the City of Mississauga in 2017. The building is located approximately 80 m to the south of the proposed development. The future use for the building appears to be a mix of commercial, including; community spaces; gardens; learning spaces; galleries; and studios. During the site visit the existing stationary noise associated with the property was found to be inaudible throughout the proposed development lands, due to the high ambient road traffic. Based on the type of activity for the current 1352 Lakeshore Road East property, existing and future operations are not anticipated to cause stationary noise impacts on the proposed development. Therefore, a detailed assessment has not been completed.

Located to the west of the proposed development are multiple sensitive receptors (refer **Figure 5**) including;

- 1025 & 1035 Fergus Avenue – mid-rise apartment building
- 1303 Lakeshore Road East – Green Acres Motel (with operable windows)
- 1285 Lakeshore Road East – mid-rise apartment building
- 1257 Lakeshore Road East – high-rise apartment building

The remaining facilities listed in **Table 11** are required to meet the applicable MOECC NPC noise guidelines as a component of their CofA/ECA permits at any existing noise sensitive receptors. As these facilities are required to be in compliance with the closer sensitive receptors listed above (excluding 1352 Lakeshore Road East), the guideline limits are also expected to be met at the proposed development. Furthermore, due to the high ambient roadway traffic, impacts are not anticipated. A detailed assessment has not been completed.

### 3.2 Stationary Impact Summary

The potential for stationary noise impacts from the surrounding commercial and industrial facilities was reviewed based on observations by Novus personnel and a review of approved MOECC CofA/ECA permitting.

Stationary noise from the surrounding commercial and industrial facilities were considered to be inaudible at the proposed development. In addition, noise guideline limits are expected to be met at the proposed development through the approved MOECC CofA/ECAs. This is based on the requirement for the industries to the southwest to meet the MOECC noise guideline limits at the existing noise sensitive receptors. Therefore, stationary noise impacts from the surrounding commercial and industrial are not expected at the proposed development, and have not been assessed.

## **PART 2: IMPACTS OF THE DEVELOPMENT ON ITSELF**

### **4.0 Outdoor Noise Impacts From Ventilation Sources**

The building ventilation and potential emergency systems associated with the development have not been designed at this time. Such equipment has the potential to result in noise impacts on residential spaces within the development itself.

#### **4.1 Applicable Guideline Limits**

On- and off-site noise impacts from all mechanical equipment, including but not limited to any required chillers, cooling towers, exhaust fans, and make up air handling units, should comply with the guideline limits contained in MOECC Publication NPC-300.

#### **4.2 Building Equipment**

The proposed development will require mechanical ventilation and emergency power systems. Based on our experience, the type and size of the units which will likely be required, and their probable location (tower rooftops well removed from on-site and off-site noise sensitive receptors), adverse noise impacts are not anticipated.

Regardless, potential impacts should be assessed as part of the final building design. The criteria can be met at all surrounding and on-site receptors by the appropriate selection of mechanical equipment, by locating equipment with sufficient setback from noise sensitive locations, and by incorporating control measures (e.g., silencers) into the design.

If required, appropriate environmental approvals should be sought through the Ministry of the Environment and Climate Change at the site plan approval stage, once building mechanical systems are fully designed. The equipment should be designed to meet the requirements of the applicable Environmental Activity and Sector Registry (EASR), and be registered with the MOECC or be evaluated to determine if the associated equipment is exempt from the applicable regulations.

### **5.0 Interior Noise Sources**

Building rooms or spaces next to mechanical equipment areas may be adversely affected by sound transmitted through ducts, opening, or noise induced by the vibrations of adjoining walls. The isolation of sound from mechanical equipment can be readily achieved by good design.



All supply, return and miscellaneous fans should be provided with adequate vibration isolation to ensure that vibration is not transferred to the building structure and become a source of noise. Duct silencers can be used to ensure that high fan noise levels are not carried by the duct work to residential and other noise sensitive rooms throughout the building. Fans should be connected to ducting with flexible connectors. Duct work should be hung on vibration isolating hangers.

All chillers, compressor and similar items of equipment should be provided with adequate vibration isolation and mounted on concrete inertia bases. The chiller room may need a floating floor or other alternate acoustically equivalent "room to room" construction to ensure that the high sound levels associated with a chiller are not transmitted to the residential units.

All piping runs within the building are potential sources of noise. For example, plumbing can be a source of noise particularly if the source is not in the same suite as the listener. Pipes that pass through walls, floors and ceiling should be treated to reduce potential noise and vibration impacts. For example, pipes should be hung on vibration isolating hangers, and risers should not be rigidly connected to the floors or other supporting members at anchor locations.

Pumps should be provided with adequate vibration isolation and mounted on concrete inertia bases where required. Transformers and other vibration noise producing electrical components should be provided with adequate vibration isolation.

The following Table indicates accepted guidelines to limit interior sound levels from continuous building services (i.e., pumps, air handling units, etc.). These guidelines are in the form of Noise Criteria (NC) curves, which indicate the maximum desirable sound level at the receptor in different frequency bands depending on the use of the space.

**Table 11: Typical Indoor Noise Control Design Criteria**

Type of Space	Range of Sound Levels (dBA)	Range of NC Criteria
Residence	25-35	20-30
Apartments	30-40	30-35
Private / Executive Office	30-40	25-35
General/Open Office	40-50	35-45
Conference Room	30-40	25-35
Restaurants / Lounges	35-50	35-45

## 5.1 Interior Walls and Floors

Walls and floors separating mechanical rooms, fan rooms, electrical rooms, elevators shafts and rooms, garbage chutes, retail spaces etc. from residential spaces in the building should have adequate sound transmission loss. The Building Code requires a minimum Sound Transmission Class (STC) of 55 for such floors and walls.

Interior walls between adjacent residential units should have a sufficient sound transmission loss. A minimum STC of 50 to 55 is recommended between adjacent units, STC-50 being specified by the Ontario Building Code. Adequate sound isolation can only be achieved if pertinent details to design

and construction are followed. For example, closure of all cracks by caulking or equivalent, and the sealing of all wall penetrations, including electrical outlets. Electrical outlets serving different suites should not be within the same stud space or masonry cavity.

Attention should also be paid to the effect of party rooms and other recreational and utility areas located adjacent to, or in close proximity to, residential units and office spaces. Noise and vibration impacts due to these areas should be investigated, and noise and/or vibration control measures included as necessary.

An important aspect not addressed by the Building Code is impact sound. The floor/ceiling systems can be designed to minimize the transmission of impact sounds. The use of carpet or resilient underlayments to meet Impact Insulation Class (IIC) ratings of IIC 55-60 would be appropriate for stacking residential suites.

## **PART 3: IMPACTS OF THE DEVELOPMENT ON THE SURROUNDING AREA**

### **6.0 Impacts of the Development on Surrounding Properties**

In terms of the noise environment of the area, it is expected that the project will have a negligible effect on the neighbouring properties.

#### **6.1 Road Traffic Noise**

The traffic related to the proposed development will be small relative to the existing traffic volumes within the area, and is not of concern with respect to noise impact.

#### **6.2 Ventilation System Noise**

Other possible sources of noise associated with the proposed development which may affect the surrounding neighbourhood are emergency generators and mechanical roof-top equipment. This equipment must meet the MOECC Publication NPC-300 requirements at the closest off-site noise sensitive receptors.

Off-site impacts are not anticipated given the high ambient sound levels in the area, the large separation distances to off-site noise sensitive receptors, and the fact that the systems will be designed to ensure that the applicable noise guidelines are met at on-site receptors.

Regardless, potential impacts will be assessed as part of the final building design to ensure compliance. The criteria can be met at all surrounding and on-site receptors though the use of routine mitigation measures, including the appropriate selection of mechanical equipment, by locating equipment with sufficient setback from noise sensitive locations, and by incorporating control measures (e.g., silencers) into the design.

If required, appropriate environmental approvals should be sought through the Ministry of the Environment and Climate Change at the site plan approval stage, once building mechanical systems are fully designed. The equipment should be designed to meet the requirements of the applicable Environmental Activity and Sector Registry (EASR), and be registered with the MOECC or be evaluated to determine if the associated equipment is exempt from the applicable regulations.

## 7.0 Conclusions and Recommendations

The potential for noise impacts on and from the proposed development have been assessed. Impacts of the environment on the proposed development, the proposed development on itself, and the proposed development on the surrounding area have been considered. Based on the results of our studies, the following conclusions have been reached:

### 7.1 Transportation Noise

- An assessment of transportation noise impacts has been completed.
- As outlined in **Section 2.5**, minor upgrades to the façade construction are required on bedroom windows along the north façade of Level 7 to Level 12 on Building B. Ontario Building Code (OBC) building components are anticipated to be sufficient for the remainder of the development.
- A number of units within the development will require mandatory central air conditioning and/or forced air heating, as outlined in **Section 2.7**.
- As required by MOECC Publication NPC-300, CN, and Metrolinx, a number of transportation the warning clauses must be included in agreements registered on Title and included in all agreements of purchase and sale or lease and all rental agreements. Warning Clauses are summarized in **Appendix D**.

### 7.2 Industrial “Stationary” Noise

- A review was completed of the surrounding area, and observations were made regarding stationary noise.
- No significant stationary noise sources were found to be audible near the proposed development by Novus personnel.
- The surrounding area is dominated by roadway noise, railway noise, and “urban hum”.
- The CofA/ECAs of surrounding commercial industrial facilities were reviewed. Noise guideline limits are expected to be met at the proposed development through the approved MOECC CofA/ECAs. This is based on the requirement for the industries to the southwest to meet the MOECC noise guideline limits at the existing noise sensitive receptors.

- Based on the above, stationary noise impacts are not anticipated at the proposed development. Therefore, a stationary noise assessment was not considered necessary and has not been completed.

### 7.3 Overall Assessment

- Impacts of the environment on the proposed development can be adequately controlled through the feasible mitigation measures, façade designs, and warning clauses detailed in **Part 1** this report.
- Impacts of the proposed development on itself are anticipated to be negligible, and can be adequately controlled by following the design guidance outlined in **Part 2** of this report.
- Impacts of the proposed development on the surrounding area are anticipated to be negligible, and can be adequately controlled by following the design guidance outlined in **Part 3** of this report.
- Given the early stage of design and the conservative analysis that has been completed, it is recommended that the acoustical requirements above should be refined by an Acoustical Consultant as the design progresses.

## 8.0 References

Ontario Ministry of the Environment and Climate Change, 1989, Ontario Road Noise Analysis Method for Environment and Transportation (ORNAMENT).

Ontario Ministry of the Environment (MOECC), 1996, STAMSON v5.04: Road, Rail and Rapid Transit Noise Prediction Model.

Ontario Ministry of the Environment and Climate Change (MOECC, 2013), Publication NPC-300: Environmental Noise Guideline: Stationary and Transportation Sources – Approval and Planning

Region of Peel (ROP, 2012): General Guidelines for the Preparation of Acoustical Reports in the Region of Peel

Canadian National Railways (CN), 2008, Principal Main Line Requirements

GO Transit / Metrolinx, 2010, Principal Main Line Requirements For New Development

U.S. Department of Transportation - Federal Transit Administration (FTA), 2006. *Transit Noise and Vibration Impact Assessment*, FTA-VA-90-1003-06

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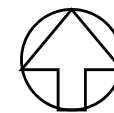
# Figures

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Figure No. 1  
Context Plan

1345 Lakeshore Road East  
Mississauga, Ontario



True  
North

Scale: 1: 10,000  
Date: 18/04/26  
File No.: 15-0355  
Drawn By: LFA





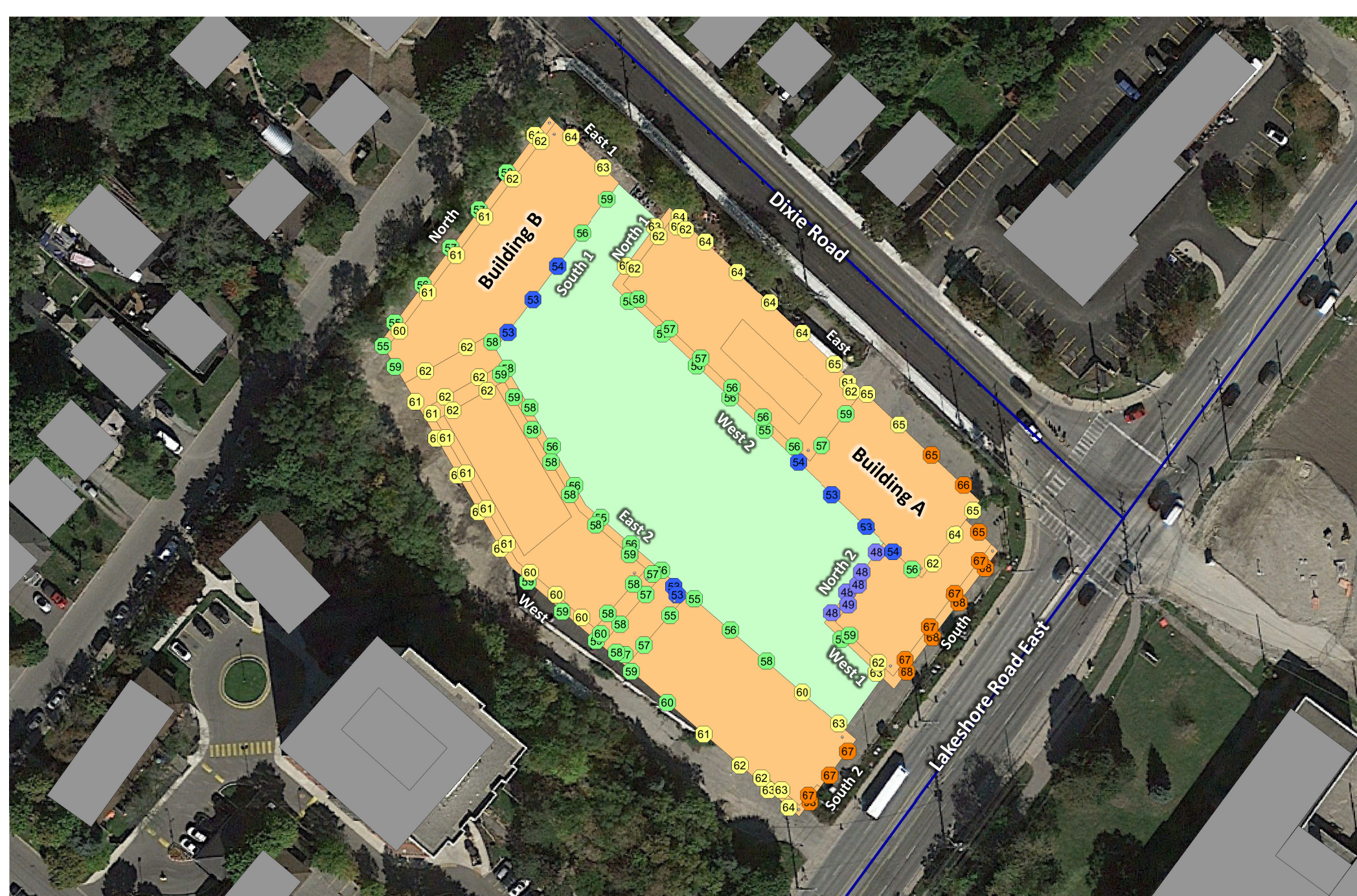


Figure No. 2

**Façade Sound Levels – Daytime Transportation Impacts**

1345 Lakeshore Road East  
Mississauga, Ontario



True North

Scale: 1: 1,000

Date: 18/04/17

File No.: 15-0355

Drawn By: LFA



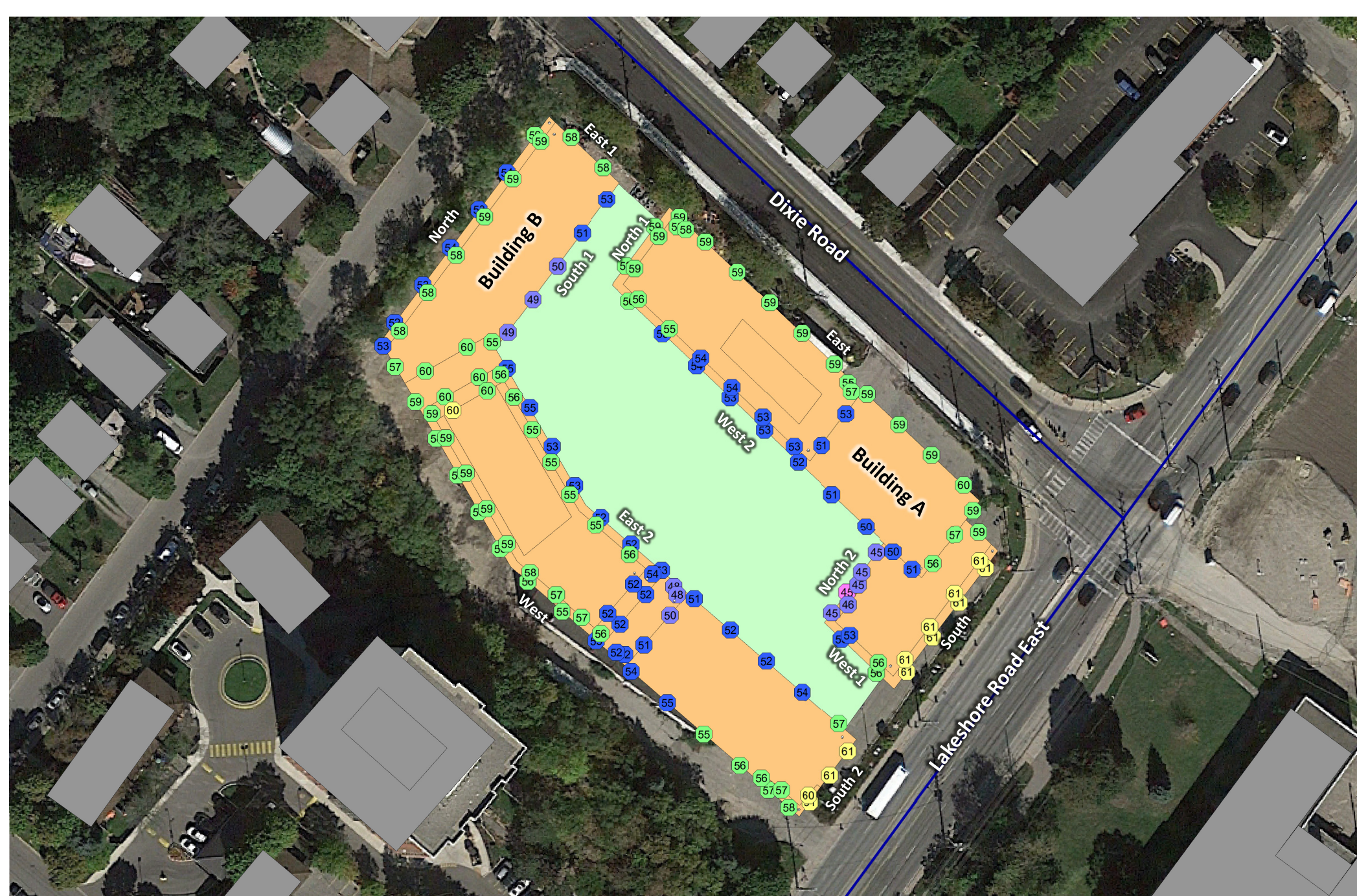
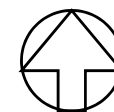


Figure No. 3

**Façade Sound Levels – Night-time Transportation Impacts**

1345 Lakeshore Road East  
Mississauga, Ontario



True  
North

Scale: 1: 1,000

Date: 18/04/17

File No.: 15-0355

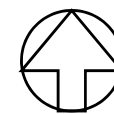
Drawn By: LFA





Figure No. 4  
**Outdoor Living Areas – Transportation Impacts**

1345 Lakeshore Road East  
Mississauga, Ontario



True  
North

Scale: 1: 1,000  
Date: 18/04/17  
File No.: 15-0355  
Drawn By: LFA

**novus**  
ENVIRONMENTAL

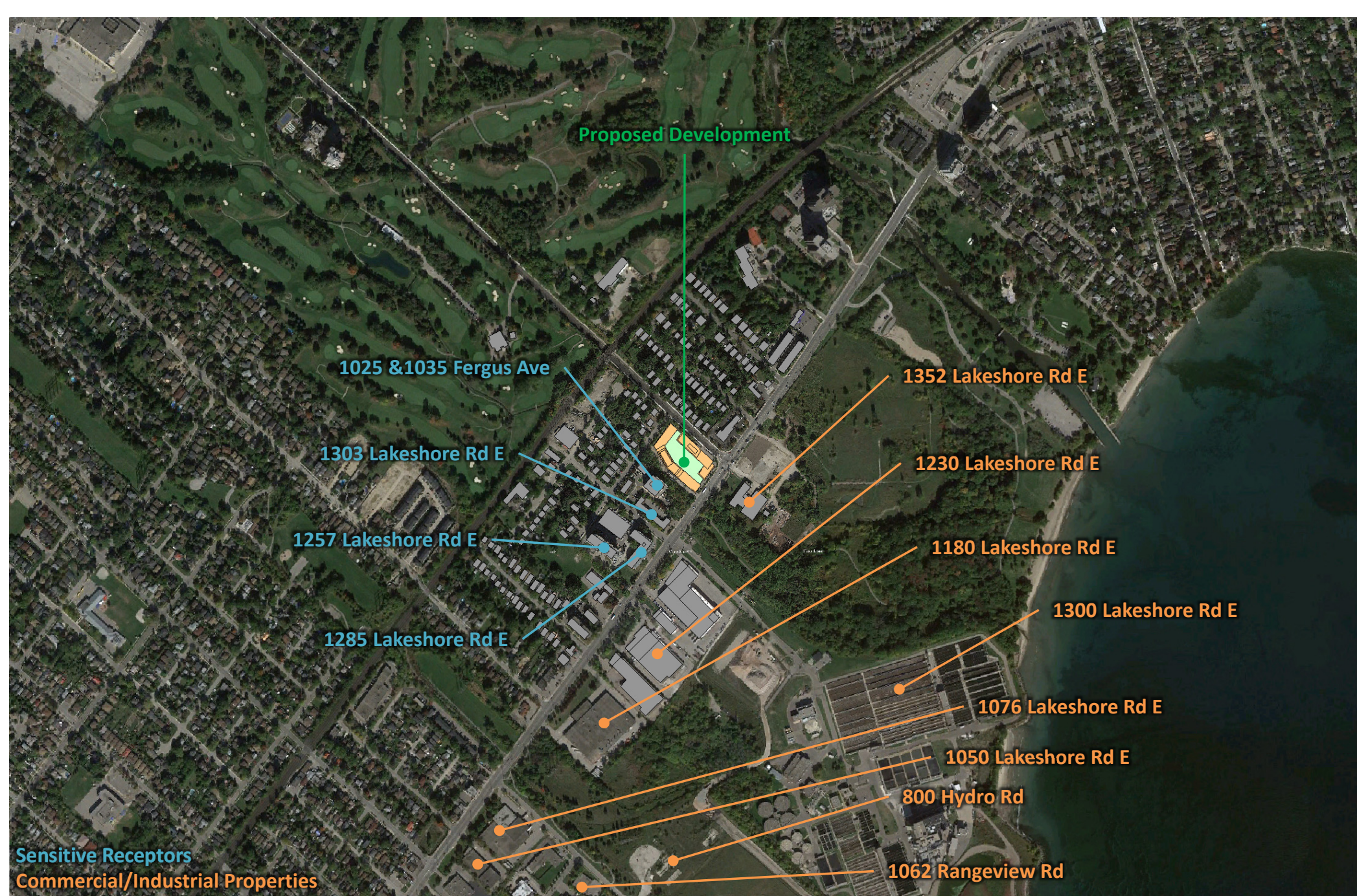
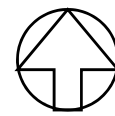


Figure No. 5

**Commercial and Industrial Properties with MOECC Permits**

1345 Lakeshore Road East  
Mississauga, Ontario



True North

Scale: 1: 10,000

Date: 18/04/26

File No.: 15-0355

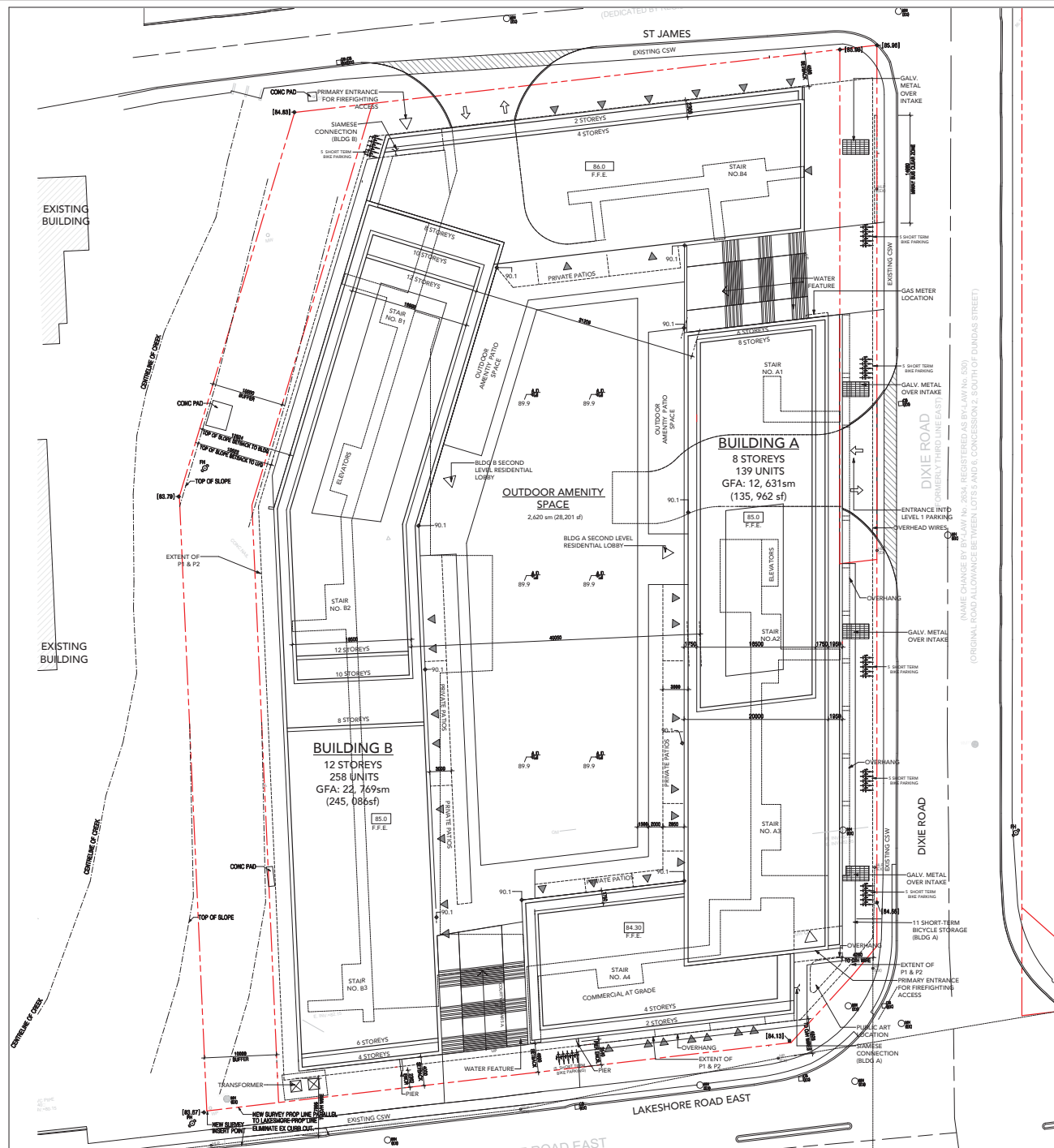
Drawn By: LFA



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# Appendix A

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**SITE STATISTICS**

ZONING DESIGNATION: PROPOSED REZONING FROM "C4-13" TO "G2" & "C4 EXCEPTION"

LOT AREA: 1.262 hectares

FOOTPRINT: 71.4 m

GFA	1 B	2 B	3 B	AREA (sqm)	AREA (sf)
BLDG A RES.	56	79	4	12,323 sqm	(132,962 sf)
BLDG A COMM.				308 sqm	(3,314 sf)
BLDG B RES.	106	144	8	22,769 sqm	(245,088 sf)
TOTAL	162	223	12	35,401 sqm	(381,068 sf)

**BUILDING INFORMATION:**

COVERAGE: 73%

PAVING (HARDSCAPING): PAVING AREA/LOT AREA

LANDSCAPING (SOFTSCAPING): LANDSCAPE AREA/LOT AREA

FSI (FLOOD SPACE INDEX): 2.8

NO. OF STOREYS: 12

HEIGHT: 44.4 m

**AMENITY SPACE:** REQUIRED PROPOSED

INDOOR AMENITY: 2,223sqm 1,976sqm

OUTDOOR AMENITY: 618sqm 781sqm

**PARKING SPACE RATES:**

RES. PER 1 BEDROOM UNIT	COMM. PARKING RATES BASED ON ZONING BY LAW 0/25-2007	COMM. PARKING RATES BASED ON ZONING BY LAW 0/25-2007
1.40 / 2 BEDROOM UNIT	4.3/10sqm	4.3/10sqm
1.25 / 3 BEDROOM UNIT		
0.2/ UNIT FOR VISITOR PARKING		

**PARKING SPACES:** REQUIRED PROPOSED

STALL DIMENSION	DRIVE AISLE WIDTH	REQUIRED	PROPOSED
2.6m x 5.2m	7.0m	2,6m x 5.2m	7.0m
RESIDENTIAL		535	535
COMMERCIAL		13	13
TOTAL SPACES		427	427

**ACCESSIBLE PARKING:** REQUIRED PROPOSED

RES. % OF TOTAL VISITORS	COMM. % OF TOTAL	REQUIRED	PROPOSED
3	4	3	4
1	1	1	1

**NOTE:**

1. RATES BASED ON PART 3 OF BY-LAW 0/25-2007 TABLE 3.1.3.1

2. TYPE A = 3.6m x 5.2m, TYPE B = 2.6m x 5.2m, WITH 1.5m ACCESS AISLE

**BICYCLE PARKING SPACES:** REQUIRED PROPOSED

SHORT TERM (0.5/UNIT)	LONG TERM (0.7/UNIT)
33	35
278	278

**NOTE:**

1. ALL SHORT TERM BICYCLE PARKING WILL BE LOCATED AT GRADE

**LOADING BAYS BASED ON ZONING BY LAW 0/25-2007**

RES. LOADING IS 3.3M X 9.0M	COMM. LOADING IS 3.3M X 9.0M	REQUIRED	PROPOSED
1	3	1	3
1	0	1	0

**PLAN SURVEY OF LOTS 2, 23 & 24 AND PARTS OF LOTS 1, 3, & 22**

REGISTERED PLAN H-23  
CITY OF MISSISSAUGA  
REGIONAL MUNICIPALITY OF PEELE

PREPARED BY:  
LAND SURVEY GROUP  
777 THE QUEENSWAY, UNIT 1  
TORONTO, ONTARIO  
T: 416-252-2511 F: 416-252-1501

**SITE SYMBOL AND SIGN LEGEND:**

- PRINCIPLE ENTRANCE (FOR FIRE FIGHTING OR ACCESS ROUTE)
- ENTRANCE TO RETAIL OR GRADE RELATED RESIDENTIAL UNIT
- ACCESSIBLE CURB CUT
- CATCH BASIN
- AREA DRAIN
- MANHOLE
- FIRE HYDRANT
- SIAMESE CONNECTIONS
- ACCESSIBLE PARKING SIGNAGE
- BARRIER FREE PARKING SPACE
- FIRE ROUTE SIGNAGE
- LIGHT STANDARD (EXTERIOR POLE FIXTURE)
- WALL MOUNTED EXTERIOR LIGHT FIXTURE
- PEDESTRIAN CROSSWALK
- SLOT DRAIN

**Kohn**

Kohn Partnership Architects Inc.  
110 Spadina Avenue, Suite 301, Toronto, ON M5V 2S9  
Tel: 416-733-4700 www.kohnpartnership.com

**ACCESSIBLE PARKING SPACE SIGN**

PROPOSED SIGN FOR PARKING SPACES DESIGNATED UNDER A MUNICIPAL BY-LAW FOR THE USE OF DISABLED PERSONS

**FIRE ROUTE SIGN**

TORONTO MUNICIPAL CODE FIRE ROUTE SIGNAGE TO BE USED FOR ALL CHURCHES AND BUILDINGS

**KEY MAP**

**PROJECT**  
Dixie and Lakeshore

**VANDYK GROUP OF COMPANIES**  
1375 LAKESHORE ROAD EAST  
MISSISSAUGA, ONTARIO

**SITE PLAN AND SITE STATISTICS**

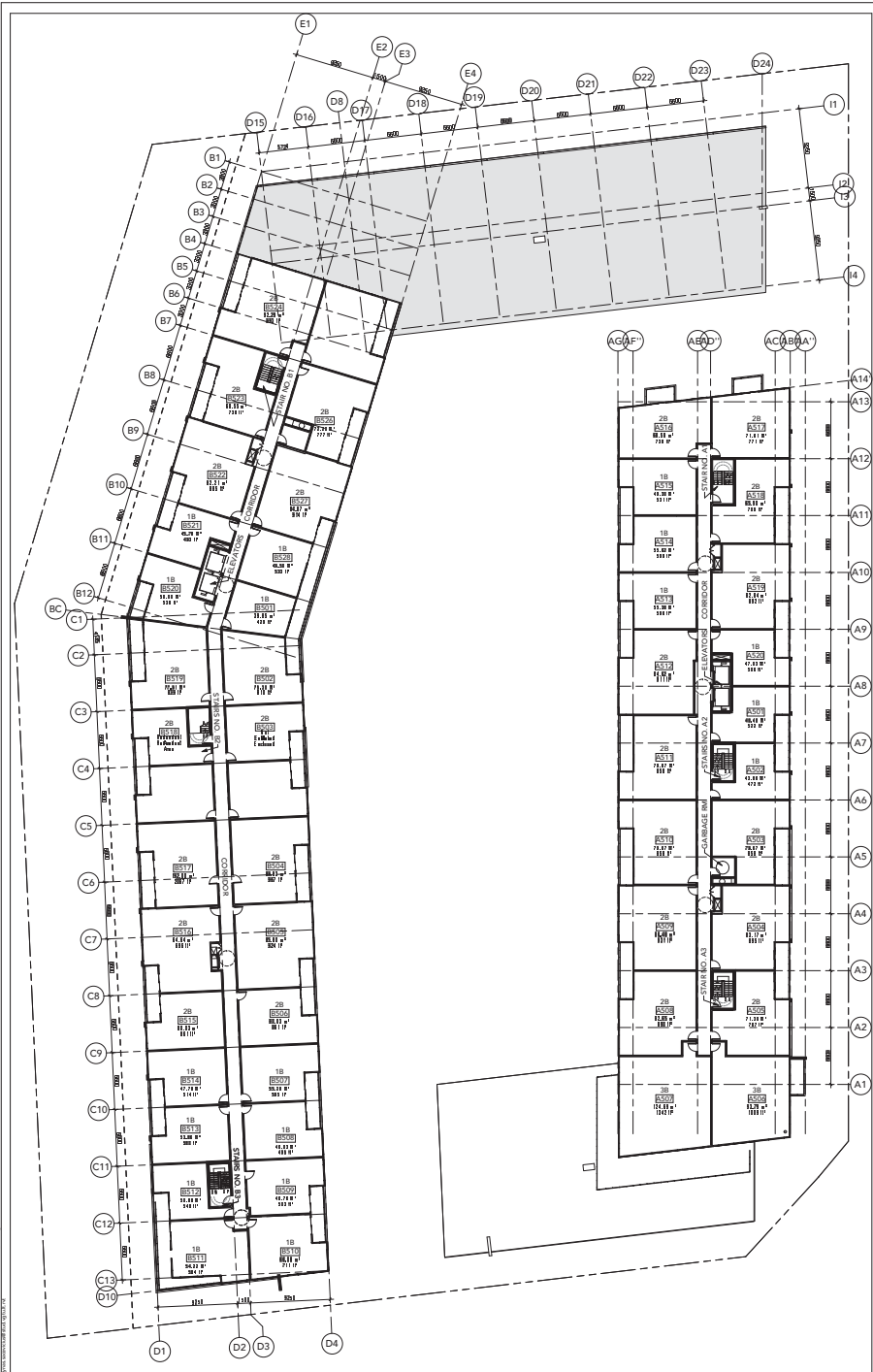
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Project No: 17124  
As Indicated

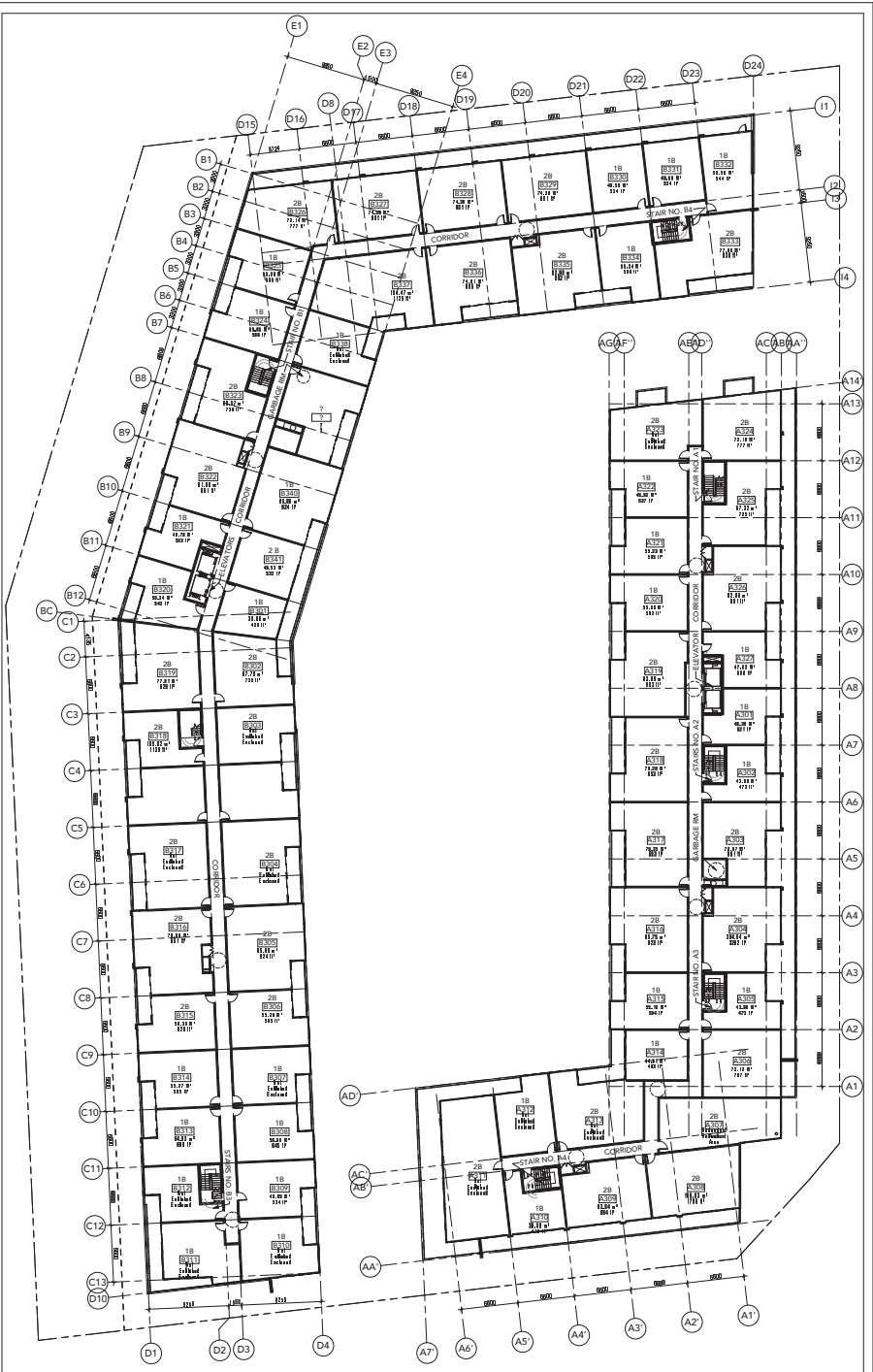
**A1 00**

SITE PLAN  
SCALE: 1:200





FLOOR PLAN - LEVEL 5 AND 6  
SCALE: 1:200



FLOOR PLAN - LEVEL 3 AND 4  
SCALE: 1:200

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ISSUE DATES AND DISTRIBUTION LOG

No.	Date	Issue



Dixie and Lakeshore  
VANDYK GROUP OF COMPANIES  
1375 LAKESHORE ROAD EAST  
MISSISSAUGA ONTARIO

FLOOR PLANS - LEVEL 3-4 & 5-6 TYPICAL  
Drawn By: \_\_\_\_\_  
Author: \_\_\_\_\_  
Checked By: \_\_\_\_\_  
Project No. 17 124  
Date Revised: \_\_\_\_\_  
Date 2018.04.16 6:24:00 PM  
Scale 1:200







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## **Appendix B**

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# ORNAMENT - Sound Power Emissions & Source Heights

Ontario Road Noise Analysis Method for Environment and Transportation

Road Segment ID	Roadway Name	Link Description	Speed (kph)	Period (h)	Ultimate AADT	Traffic Volumes	Auto %	Med %	Hvy %	Auto	Med	Heavy	Road Gradient (%)	Cadna/A Ground Absorption G	PWL (dBA)	Source Height, s (m)	Reference Leq (dBA)
lakeshore_ave	Lakeshore Road East	Daytime Impacts	50	16	38160	34344	97.0%	1.7%	1.4%	33314	567	464	0	0.00	83.6	1.1	68.6
		Nighttime Impacts	50	8		3816	97.0%	1.7%	1.4%	3702	63	52	0	0.00	77.1	1.1	62.0
dixie_avg	Dixie Road	Daytime Impacts	50	16	16200	14580	95.3%	4.0%	0.7%	13896	586	98	0	0.00	79.7	0.9	64.6
		Nighttime Impacts	50	8		1620	95.3%	4.0%	0.7%	1544	65	11	0	0.00	73.2	0.9	58.1

Date: April 12, 2018

# NOISE REPORT FOR PROPOSED DEVELOPMENT

## REQUESTED BY:

Name: Lucas Arnold

Company: Novus



## PREPARED BY:

Name: Jacqueline Hunter

Tel#: 905-615-3200 x3016

## Location:

Lakeshore Road East (1345 Lakeshore Road East)

Lakeshore Road East, between East Avenue and Etobicoke Creek)

## Look Up ID#:

## ON SITE TRAFFIC DATA

Specific	Street Names			
	Lakeshore Road E			
<b>AADT:</b>	38,160			
<b># of Lanes:</b>	4 lanes			
<b>% Trucks:</b>	3%			
<b>Medium/Heavy Trucks Ratio:</b>	55/45			
<b>Day/Night Traffic Split:</b>	90/10			
<b>Posted Speed Limit:</b>	50 km/h			
<b>Gradient of Road:</b>	<2%			
<b>Ultimate R O W:</b>	44.5m			

## Comments:

Ultimate Traffic Only



**Peak Hour: 07:45 AM - 08:45 AM Weather: Overcast (-3.4 °C)**

Start Time	N Approach DIXIE RD						E Approach LAKESHORE RD E						S Approach DIXIE RD						W Approach LAKESHORE RD E						Int. Total (15 min)
	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	
07:45:00	31	0	41	0	4	72	52	132	0	0	0	184	0	0	0	0	1	0	1	237	94	0	1	332	588
08:00:00	54	0	36	0	2	90	48	112	0	0	1	160	0	0	0	0	0	0	0	176	116	0	0	292	542
08:15:00	48	0	25	0	3	73	45	149	0	0	0	194	0	0	0	0	0	0	0	186	93	0	0	279	546
08:30:00	48	0	31	0	1	79	38	112	0	0	0	150	0	0	0	0	1	0	0	158	93	0	0	251	480
<b>Grand Total</b>	181	0	133	0	10	314	183	505	0	0	1	688	0	0	0	0	2	0	1	757	396	0	1	1154	2156
<b>Approach%</b>	57.6%	0%	42.4%	0%	-	-	26.6%	73.4%	0%	0%	-	-	0%	0%	0%	0%	-	-	0.1%	65.6%	34.3%	0%	-	-	-
<b>Totals %</b>	8.4%	0%	6.2%	0%	14.6%	14.6%	8.5%	23.4%	0%	0%	31.9%	31.9%	0%	0%	0%	0%	0%	0%	0%	35.1%	18.4%	0%	53.5%	53.5%	-
<b>PHF</b>	0.84	0	0.81	0	0.87	0.87	0.88	0.85	0	0	0.89	0.89	0	0	0	0	0	0	0.25	0.8	0.85	0	0.87	0.87	-
<b>Heavy</b>	22	0	0	0	22	22	6	35	0	0	41	41	0	0	0	0	0	0	0	34	13	0	47	47	-
<b>Heavy %</b>	12.2%	0%	0%	0%	7%	7%	3.3%	6.9%	0%	0%	6%	6%	0%	0%	0%	0%	0%	0%	0%	4.5%	3.3%	0%	4.1%	4.1%	-
<b>Lights</b>	159	0	133	0	292	292	177	470	0	0	647	647	0	0	0	0	0	0	1	723	383	0	1107	1107	-
<b>Lights %</b>	87.8%	0%	100%	0%	93%	93%	96.7%	93.1%	0%	0%	94%	94%	0%	0%	0%	0%	0%	0%	100%	95.5%	96.7%	0%	95.9%	95.9%	-
<b>Single-Unit Trucks</b>	18	0	0	0	18	18	1	20	0	0	21	21	0	0	0	0	0	0	0	19	9	0	28	28	-
<b>Single-Unit Trucks %</b>	9.9%	0%	0%	0%	5.7%	5.7%	0.5%	4%	0%	0%	3.1%	3.1%	0%	0%	0%	0%	0%	0%	0%	2.5%	2.3%	0%	2.4%	2.4%	-
<b>Buses</b>	3	0	0	0	3	3	4	14	0	0	18	18	0	0	0	0	0	0	0	13	3	0	16	16	-
<b>Buses %</b>	1.7%	0%	0%	0%	1%	1%	2.2%	2.8%	0%	0%	2.6%	2.6%	0%	0%	0%	0%	0%	0%	0%	1.7%	0.8%	0%	1.4%	1.4%	-
<b>Articulated Trucks</b>	1	0	0	0	1	1	1	1	0	0	2	2	0	0	0	0	0	0	0	2	1	0	3	3	-
<b>Articulated Trucks %</b>	0.6%	0%	0%	0%	0.3%	0.3%	0.5%	0.2%	0%	0%	0.3%	0.3%	0%	0%	0%	0%	0%	0%	0%	0.3%	0.3%	0%	0.3%	0.3%	-
<b>Pedestrians</b>	-	-	-	-	10	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	1	-	-
<b>Pedestrians%</b>	-	-	-	-	71.4%	-	-	-	-	-	0%	-	-	-	-	-	7.1%	-	-	-	-	-	7.1%	-	-
<b>Bicycles on Crosswalk</b>	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	0	-	-
<b>Bicycles on Crosswalk%</b>	-	-	-	-	0%	-	-	-	-	-	7.1%	-	-	-	-	-	7.1%	-	-	-	-	-	0%	-	-
<b>Bicycles on Road</b>	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	1	0	0	0	-	-
<b>Bicycles on Road%</b>	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-



**Peak Hour: 04:45 PM - 05:45 PM Weather: Snow (-0.4 °C)**

Start Time	N Approach DIXIE RD						E Approach LAKESHORE RD E						S Approach DIXIE RD						W Approach LAKESHORE RD E						Int. Total (15 min)
	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	
16:45:00	79	0	48	0	1	127	57	254	0	0	0	311	1	0	0	0	0	1	1	131	62	0	0	194	633
17:00:00	71	0	40	0	2	111	59	272	0	0	0	331	0	0	0	0	0	0	0	118	55	0	1	173	615
17:15:00	59	0	59	0	2	118	45	266	0	0	1	311	0	0	0	0	3	0	0	118	50	0	1	168	597
17:30:00	65	0	45	0	4	110	58	272	0	0	0	330	0	0	0	0	1	0	0	107	50	0	1	157	597
<b>Grand Total</b>	274	0	192	0	9	466	219	1064	0	0	1	1283	1	0	0	0	4	1	1	474	217	0	3	692	<b>2442</b>
<b>Approach%</b>	58.8%	0%	41.2%	0%	-	-	17.1%	82.9%	0%	0%	-	-	100%	0%	0%	0%	-	-	0.1%	68.5%	31.4%	0%	-	-	-
<b>Totals %</b>	11.2%	0%	7.9%	0%	19.1%	19.1%	9%	43.6%	0%	0%	52.5%	52.5%	0%	0%	0%	0%	0%	0%	0%	19.4%	8.9%	0%	28.3%	28.3%	-
<b>PHF</b>	0.87	0	0.81	0	0.92	0.92	0.93	0.98	0	0	0.97	0.97	0.25	0	0	0	0.25	0.25	0.25	0.9	0.88	0	0.89	0.89	-
<b>Heavy</b>	2	0	1	0	3	3	2	13	0	0	15	15	0	0	0	0	0	0	0	17	1	0	18	18	-
<b>Heavy %</b>	0.7%	0%	0.5%	0%	0.6%	0.6%	0.9%	1.2%	0%	0%	1.2%	1.2%	0%	0%	0%	0%	0%	0%	0%	3.6%	0.5%	0%	2.6%	2.6%	-
<b>Lights</b>	272	0	191	0	463	463	217	1051	0	0	1268	1268	1	0	0	0	1	1	1	457	216	0	674	674	-
<b>Lights %</b>	99.3%	0%	99.5%	0%	99.4%	99.4%	99.1%	98.8%	0%	0%	98.8%	98.8%	100%	0%	0%	0%	100%	100%	100%	96.4%	99.5%	0%	97.4%	97.4%	-
<b>Single-Unit Trucks</b>	2	0	0	0	2	2	0	4	0	0	4	4	0	0	0	0	0	0	0	6	0	0	6	6	-
<b>Single-Unit Trucks %</b>	0.7%	0%	0%	0%	0.4%	0.4%	0%	0.4%	0%	0%	0.3%	0.3%	0%	0%	0%	0%	0%	0%	0%	1.3%	0%	0%	0.9%	0.9%	-
<b>Buses</b>	0	0	1	0	1	1	0	9	0	0	9	9	0	0	0	0	0	0	0	11	0	0	11	11	-
<b>Buses %</b>	0%	0%	0.5%	0%	0.2%	0.2%	0%	0.8%	0%	0%	0.7%	0.7%	0%	0%	0%	0%	0%	0%	0%	2.3%	0%	0%	1.6%	1.6%	-
<b>Articulated Trucks</b>	0	0	0	0	0	0	2	0	0	0	2	2	0	0	0	0	0	0	0	0	1	0	1	1	-
<b>Articulated Trucks %</b>	0%	0%	0%	0%	0%	0%	0.9%	0%	0%	0%	0.2%	0.2%	0%	0%	0%	0%	0%	0%	0%	0%	0.5%	0%	0.1%	0.1%	-
<b>Pedestrians</b>	-	-	-	-	8	-	-	-	-	-	1	-	-	-	-	-	2	-	-	-	-	-	3	-	-
<b>Pedestrians%</b>	-	-	-	-	47.1%	-	-	-	-	-	5.9%	-	-	-	-	-	11.8%	-	-	-	-	-	17.6%	-	-
<b>Bicycles on Crosswalk</b>	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	2	-	-	-	-	-	0	-	-
<b>Bicycles on Crosswalk%</b>	-	-	-	-	5.9%	-	-	-	-	-	0%	-	-	-	-	-	11.8%	-	-	-	-	-	0%	-	-
<b>Bicycles on Road</b>	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	-
<b>Bicycles on Road%</b>	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-



**Peak Hour: 07:45 AM - 08:45 AM Weather: Overcast (-3.4 °C)**

Start Time	N Approach DIXIE RD					S Approach DIXIE RD					W Approach ST JAMES AVE					Int. Total (15 min)
	Right	Thru	U-Turn	Peds	Approach Total	Thru	Left	U-Turn	Peds	Approach Total	Right	Left	U-Turn	Peds	Approach Total	
07:45:00	4	69	0	0	73	141	0	0	0	141	4	13	0	0	17	231
08:00:00	5	87	0	0	92	166	2	0	0	168	0	12	0	0	12	272
08:15:00	2	78	0	0	80	137	0	0	0	137	0	15	0	0	15	232
08:30:00	6	79	0	0	85	128	2	1	0	131	1	10	0	0	11	227
<b>Grand Total</b>	17	313	0	0	330	572	4	1	0	577	5	50	0	0	55	<b>962</b>
<b>Approach%</b>	5.2%	94.8%	0%	-	-	99.1%	0.7%	0.2%	-	-	9.1%	90.9%	0%	-	-	-
<b>Totals %</b>	1.8%	32.5%	0%	34.3%	59.5%	0.4%	0.1%	60%	0.5%	5.2%	0%	5.7%	-	-	-	-
<b>PHF</b>	0.71	0.9	0	0.9	0.86	0.5	0.25	0.86	0.31	0.83	0	0.81	-	-	-	-
<b>Heavy</b>	0	24	0	24	15	3	0	18	0	1	0	1	-	-	-	-
<b>Heavy %</b>	0%	7.7%	0%	7.3%	2.6%	75%	0%	3.1%	0%	2%	0%	1.8%	-	-	-	-
<b>Lights</b>	17	289	0	306	557	1	1	559	5	49	0	54	-	-	-	-
<b>Lights %</b>	100%	92.3%	0%	92.7%	97.4%	25%	100%	96.9%	100%	98%	0%	98.2%	-	-	-	-
<b>Single-Unit Trucks</b>	0	19	0	19	7	0	0	7	0	0	0	0	-	-	-	-
<b>Single-Unit Trucks %</b>	0%	6.1%	0%	5.8%	1.2%	0%	0%	1.2%	0%	0%	0%	0%	-	-	-	-
<b>Buses</b>	0	4	0	4	3	3	0	6	0	1	0	1	-	-	-	-
<b>Buses %</b>	0%	1.3%	0%	1.2%	0.5%	75%	0%	1%	0%	2%	0%	1.8%	-	-	-	-
<b>Articulated Trucks</b>	0	1	0	1	5	0	0	5	0	0	0	0	-	-	-	-
<b>Articulated Trucks %</b>	0%	0.3%	0%	0.3%	0.9%	0%	0%	0.9%	0%	0%	0%	0%	-	-	-	-
<b>Pedestrians</b>	-	-	-	0	-	-	-	0	-	-	-	0	-	-	-	-
<b>Pedestrians%</b>	-	-	-	0%	-	-	-	0%	-	-	-	0%	-	-	-	-





**Peak Hour: 04:30 PM - 05:30 PM Weather: Snow (-0.4 °C)**

Start Time	N Approach DIXIE RD					S Approach DIXIE RD					W Approach ST JAMES AVE					Int. Total (15 min)
	Right	Thru	U-Turn	Peds	Approach Total	Thru	Left	U-Turn	Peds	Approach Total	Right	Left	U-Turn	Peds	Approach Total	
16:30:00	10	105	0	0	115	110	0	0	0	110	0	8	0	0	8	233
16:45:00	9	120	0	0	129	122	1	0	0	123	2	4	0	0	6	258
17:00:00	14	111	0	0	125	113	0	0	0	113	1	5	0	0	6	244
17:15:00	11	119	0	0	130	94	0	0	0	94	1	10	0	0	11	235
<b>Grand Total</b>	<b>44</b>	<b>455</b>	<b>0</b>	<b>0</b>	<b>499</b>	<b>439</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>440</b>	<b>4</b>	<b>27</b>	<b>0</b>	<b>0</b>	<b>31</b>	<b>970</b>
<b>Approach%</b>	8.8%	91.2%	0%	-	-	99.8%	0.2%	0%	-	-	12.9%	87.1%	0%	-	-	-
<b>Totals %</b>	4.5%	46.9%	0%	51.4%	51.4%	45.3%	0.1%	0%	45.4%	45.4%	0.4%	2.8%	0%	3.2%	3.2%	-
<b>PHF</b>	0.79	0.95	0	0.96	0.96	0.9	0.25	0	0.89	0.89	0.5	0.68	0	0.7	0.7	-
<b>Heavy</b>	0	3	0	3	3	7	0	0	7	7	0	0	0	0	0	-
<b>Heavy %</b>	0%	0.7%	0%	0.6%	0.6%	1.6%	0%	0%	1.6%	1.6%	0%	0%	0%	0%	0%	-
<b>Lights</b>	44	452	0	496	496	432	1	0	433	433	4	27	0	31	31	-
<b>Lights %</b>	100%	99.3%	0%	99.4%	99.4%	98.4%	100%	0%	98.4%	98.4%	100%	100%	0%	100%	100%	-
<b>Single-Unit Trucks</b>	0	2	0	2	2	3	0	0	3	3	0	0	0	0	0	-
<b>Single-Unit Trucks %</b>	0%	0.4%	0%	0.4%	0.4%	0.7%	0%	0%	0.7%	0.7%	0%	0%	0%	0%	0%	-
<b>Buses</b>	0	1	0	1	1	1	0	0	1	1	0	0	0	0	0	-
<b>Buses %</b>	0%	0.2%	0%	0.2%	0.2%	0.2%	0%	0%	0.2%	0.2%	0%	0%	0%	0%	0%	-
<b>Articulated Trucks</b>	0	0	0	0	0	3	0	0	3	3	0	0	0	0	0	-
<b>Articulated Trucks %</b>	0%	0%	0%	0%	0%	0.7%	0%	0%	0.7%	0.7%	0%	0%	0%	0%	0%	-
<b>Pedestrians</b>	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
<b>Pedestrians%</b>	-	-	-	0%	-	-	-	-	0%	-	-	-	-	0%	-	-

**From:** [Adam Snow](#)  
**To:** [Lucas Arnold](#)  
**Subject:** RE: Rail Traffic Data Request - GO Lakeshore West Line @ Royal York Road  
**Date:** Thursday, March 24, 2016 3:20:50 PM  
**Attachments:** [image002.jpg](#)  
[image003.jpg](#)

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Hello Lucas – Further to your request of January 15, 2016, I apologize for the delay in my response. The information to be considered for your study is presented below.

It is anticipated that GO Service on the nearby Lakeshore West Line (CN Oakville Subdivision) will be compromised by a mix of diesel and electric trains (with power supplied by overhead catenaries) within a 10 year time horizon. The preliminary midterm (2025) weekday commuter train volume forecast at this location is in the order of 304 trains (Diesel: 104 Day, 12 Night; Electric: 130 Day, 58 Night). Trains will be comprised of a single locomotive and up to 12 passenger cars.

In addition it is anticipated that six (6) UP Express trains will pass this location as equipment moves during the nighttime period.

The maximum design speed on this line, adjacent to the subject site, is 121 kph (75 mph).

I note that this information is subject to change and may be influenced by service planning priorities, operational considerations, funding availability and passenger demand.

Given the close proximity of Mimico GO Station, the analysis should consider the noise implications of train accelerations and decelerations. Train bells and whistles will be used as per normal procedures at the station and in the event of emergencies on the line.

The site is also located within proximity to the Willowbrook Rail Maintenance Facility. While I anticipate that the 'On The GO' condominium project, currently under construction to the southwest of the subject site, would provide some shielding against related noise, it is important to consider the following activities within the context of your analysis:

- \*Fueling operations
- \*Rail car and locomotive maintenance/repairs
- \*Locomotive load testing
- \*Idling of locomotives during warm-up as well as, on occasion, extending for periods beyond locomotive warm-up
- \*General movement of trains around the yard as required

With respect to electrified service, it should be noted that Metrolinx has not made a final decision regarding the electric train technology or technologies to be deployed. Similarly, we are only beginning to understand potential noise and vibration implications associated with electrification. We can, however, provide the following interim information which may be helpful:

1. At lower speeds, train noise is dominated by the powertrain. At higher speeds, train noise is dominated by the wheel-track interaction. Hence, at higher speeds, the noise level and spectrum of electric trains is expected to be very similar, if not identical, to those of equivalent diesel trains.
2. Along with electrification, Metrolinx will intensify service levels along all of its corridors to deliver the promised Regional Express Rail (RER) service. Everything else being equal, this will likely result in an overall increase in train noise emissions.



# Train Count Data

**System Engineering  
Engineering Services**

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

## TRANSMITTAL

*To:* Novus Environmental      *Project:* OAK-10.19 – Lakeshore Rd E, Mississauga, ON  
*Destinataire:* 150 Research Lane, Suite  
105, Guelph, ON  
N1G 4T2

*Att'n:* Lucas Arnold      *Routing:* lucasa@novusenv.com  
*From:* Michael Vallins      *Date:* 01/31/2018  
*Expéditeur:*

*Cc:* Adjacent Development  
CN via e-mail

Urgent    For Your Use    For Review    For Your Information    Confidential

**Re: Train Traffic Data – CN Oakville Subdivision near Lakeshore Rd E in Mississauga, 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 905-669-3264.

Sincerely,  
CN Design & Construction

Michael Vallins P.Eng  
Manager of Public Works  
public\_works\_gld@cn.ca

**Date:** 2018/01/31

**Project Number:** OAK-10.19 – Lakeshore Rd E, Mississauga, ON

Dear Lucas Arnold:

**Re: Train Traffic Data – CN Oakville Subdivision near Lakeshore Rd E in Mississauga, ON**

The following is provided in response to Lucas Arnolds 2018/01/29 request for information regarding rail traffic in the vicinity of Lakeshore Rd E in Mississauga, ON at approximately Mile 10.19 on CN's Oakville 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	0	140	60	4
Way Freight	0	25	60	4
Passenger	7	10	95	2

	2300-0700			
Type of Train	Volumes	Max.Consist	Max. Speed	Max. Power
Freight	0	140	60	4
Way Freight	0	25	60	4
Passenger	7	10	95	2

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

Except where anti-whistling bylaws are in effect, engine-warning whistles and bells are normally sounded at all at-grade crossings. There are no at-grade crossing in the immediate vicinity of the study area at Mile 10.19. Anti-whistling bylaws are not 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.

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](mailto:Proximity@cn.ca) should be contacted directly.

I trust the above information will satisfy your current request.

Sincerely,



Michael Vallins P.Eng  
Manager of Public Works  
[public\\_works\\_gld@cn.ca](mailto:public_works_gld@cn.ca)

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for 2-sided printing purposes

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# Appendix C

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**BPN 56 Calculation Procedure - Required Glazing STC Rating**  
**Wheel**

Receptor ID	Time Period	Location	Source	Sound Levels								Source Inputs																						Glazing - Component 1				Glazing - Component 2				Required Glazing STC		
				Facade Sound Level (dBA)	Free-field Correction (dB)	Indoor Limit (dB(A))	Required Reduction (dB)	Glazing % of Wall Area	Exposed Wall Height (m)	Exposed Wall Corrugation	Room Depth (m)	Room / Façade Inputs				Source Inputs																		Room Correction	Frequency Correction	Sound Energy Correction	% Total Transmitted Energy	Component Category		Room Correction	Frequency Correction		% Total Transmitted Energy	Sound Energy Correction
												Total Floor Area	Non-Glazing Area	Glazing Area (m <sup>2</sup> )	Non-Glazing % of Floor Area	Glazing % of Floor Area	Room Absorption	Incident Sound Angle (deg)	Angle Correction Factor	Spectrum type:	Assumed STC	Component Category	Room Correction	Frequency Correction	Sound Energy Correction	% Total Transmitted Energy																		
B_L1-L2 North TH	Daytime (07:00-23:00)	Living / Dining Areas	Wheel	54	3	37	20	35%	17.2	9.2	32	17	Intermediate	0-90	0	B. avg aircraft, railway wheel noise	45	D. sealed thick window, or exterior wall, or roof/ceiling	-4	2	27	5	C. sealed thin window, or operable thick window	-7	1	95	0	14																
	Night-time (23:00-07:00)	Living / Dining Areas	Wheel	52	3	37	18	35%	17.2	9.2	32	17	Intermediate	0-90	0	B. avg aircraft, railway wheel noise	45	D. sealed thick window, or exterior wall, or roof/ceiling	-4	2	26	5	C. sealed thin window, or operable thick window	-7	1	95	0	12																
	Daytime (07:00-23:00)	Sleeping Quarters	Wheel	54	3	37	20	25%	18.0	10.0	33	17	Intermediate	0-90	0	B. avg aircraft, railway wheel noise	45	D. sealed thick window, or exterior wall, or roof/ceiling	-3	2	29	5	C. sealed thin window, or operable thick window	-7	1	95	0	14																

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## **Appendix D**

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## Warning Clauses

The following warning clause must be included in agreements registered on Title and included in all agreements of purchase and sale or lease and all rental agreements for the development:

### Transportation Noise Sources

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

**MOECC 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 and Climate Change."

**Metrolinx:** "Metrolinx, carrying on business as GO Transit, and its assigns and successors in interest are the owners of lands within 300 metres from the land which is the subject hereof. In addition to the current use of the lands owned by Metrolinx, there may be alterations to or expansions of the rail and other facilities on such lands in the future including the possibility that GO Transit or any railway entering into an agreement with GO Transit to use the Metrolinx lands or Metrolinx and their respective assigns or successors as aforesaid may expand their operations, which expansion may affect the living environment of the residents in the vicinity, notwithstanding the inclusion of any noise and vibration attenuating measures in the design of the development and individual dwellings. Metrolinx will not be responsible for any complaints or claims arising from use of such facilities and/or operations on, over or under its lands."

**CN:** Purchasers are advised that Canadian National Railway Company or its assigns or successors in interest has or have a right-of-way within 300 metres from the land the subject thereof. There may be alterations to or expansions of the rail facilities on such right-of-way in the future, including the possibility that the railway or its assigns or successors as aforesaid may expand its operations, which expansion may affect the living environment of the residents in the vicinity, notwithstanding the inclusion of any noise and vibration attenuating measures in the design of the development and individual dwelling(s). CNR will not be responsible for any complaints or claims arising from use of such facilities and/or operations on, over or under the aforesaid right-of-way.