

FINAL REPORT



12811 TENTH LINE

WHITCHURCH-STOUFFVILLE, ONTARIO

NOISE AND VIBRATION IMPACT STUDY

RWDI #2600253

April 28, 2026

SUBMITTED TO

Paul Tobia

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c/o Trinison Management Corp.**

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VERSION HISTORY

Index	Date	Description	Prepared by	Reviewed by
1	January 22, 2026	Draft	Omar Hijazi	Andrew Lambert
2	February 2, 2026	Final Report	Omar Hijazi	Andrew Lambert
3	March 31, 2026	Final Report - New Concept Plan	Omar Hijazi	Andrew Lambert
4	Apr 28, 2026	Final Report - New Concept Plan	Andrew Lambert	Junchao Ma



EXECUTIVE SUMMARY

RWDI AIR Inc. was retained by Northcape Investments Inc. to prepare a Noise and Vibration Impact Study (NVIS) for the proposed residential development located at 12811 Tenth Line in Whitchurch-Stouffville, Ontario. The proposed development includes development blocks that can accommodate future plans for a subdivision which includes rear-lane townhomes, back-to-back townhomes as well as, a park, and stormwater management and environmental blocks. This assessment was completed to support the Zoning By-Law Amendment (ZBA) and Draft Plan of Subdivision submission as required by the town of Whitchurch-Stouffville.

We note that the concept plans assessed in this report are conceptual demonstration plans prepared to demonstrate the appropriateness of the development blocks. Future Site Plan Control applications will be required for each development block, at which point, updated noise studies, or an addendum to this report, will be required.

The following noise and vibration control measures are recommended for the proposed development:

1. Installation of central air conditioning so that suites' windows can remain closed.
2. The inclusion of noise warning clauses related to transportation sound levels for some building façades.

The potential noise impacts from stationary sources of sound were evaluated. Based on the setback distances from the stationary sources expected at the nearby transportation-related facilities, the land use compatibility of the proposed development with respect to the stationary sources associated with nearby facilities is considered acceptable from the noise assessment perspective.

At this stage of the design, the mechanical and electrical equipment has not yet been finalized. As a result, it is not possible to quantitatively assess the noise levels generated by the development or its impact on the surrounding environment. However, the effect of the proposed development on itself and its surroundings is expected to be feasible to meet the applicable criteria. We recommend that the design is evaluated prior to building permit to ensure that the acoustical design is adequately implemented in order to meet the applicable criteria.

Based on the results of the analysis, including implementation of the recommendations presented in this report, the proposed development is feasible with respect to noise and vibration.



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1 INTRODUCTION

RWDI AIR Inc. ("RWDI") was retained by Northcape Investments Inc. (Client) to prepare a Noise and Vibration Impact Study (NVIS) for the proposed residential development located at 12811 Tenth Line in Whitchurch-Stouffville, Ontario. The proposed development includes development blocks that can accommodate future plans for a subdivision which includes rear-lane townhomes, back-to-back townhomes as well as, a park, and stormwater management and environmental blocks. The townhome heights were assumed to be three storeys (9 m). This assumption does not affect the worst-case receivers, which remain the buildings closest to Tenth Line. The context site plan is shown in Figure 1.

This site falls within a Major Transit Station Area as detailed in the Lincolnville (Now Old Elm) GO Station Land Use study report as an area considered for residential to medium and high-density mixed use development (WSP, 2022).

The site is exposed to noise from road traffic from Tenth Line to the west, York Durham Line to the east, and rail traffic from the Metrolinx Uxbridge Subdivision which carries the Stouffville GO rail service.

The nearby rail line is located more than 100 m from the proposed development, and any associated vibration is not expected to affect the site. Therefore, no vibration mitigation measures are required.

This assessment was completed to support the Zoning By-Law Amendment (ZBA) and Draft Plan of Subdivision submission as required by the town of Whitchurch-Stouffville. This assessment was based on conceptual demonstration plan drawings received by RWDI on April 9, 2026, which are included in **Appendix A**.

2 APPLICABLE CRITERIA

Applicable criteria for transportation noise sources (road and rail) are adopted from the Ontario Ministry of the Environment, Conservation and Parks (MECP) NPC-300 Environmental Noise Guideline (MOE, 2013), with a summary of the applicable criteria included with **Appendix B**.

3 THE EFFECTS OF THE ENVIRONMENT ON THE PROPOSED DEVELOPMENT

3.1 Transportation Source Assessment

3.1.1 Road Traffic Volume Data

The Annual Average Daily Traffic (AADT) for Tenth Line and York Durham Line was derived from 2023 Turning Movement Counts (TMCs). The TMC data utilized for this calculation was collected at the intersection of Tenth Line and Bethesda Side Road, and York Durham Line and Bethesda Side Road.

The AADT was predicted from the average of the AM and PM peak hour traffic volumes, assuming the PM peak hour accounts for 10% of the AADT and the AM peak hour accounts for 9% of the AADT. The AADT was increased by 2% per year to predict the AADT for the year 2035.

Per the Ontario Road Noise Analysis Method for Environment and Transportation (ORNAMENT) publication (MOE, 1989) for arterial roads (MOE, 1989), an 85%/15% daytime/nighttime split was applied to both Tenth Line and York Durham Line. The road gradient was determined to be negligible from the change in elevation over a measured distance using Google Earth.

A summary of the traffic data used is included in **Table 1** with more information included in **Appendix C**.

Table 1: Road Traffic Volumes

Roadway	Segment	2035 Future Traffic (AADT)	% Day/Night	Speed Limit (km/hr)	% Trucks
Tenth line	West of site	5743	85% /15%	70	2.5
York Durham	East of site	6956	85% /15%	60	5.5

3.1.2 Rail Traffic Volume Data

Future GO transit rail traffic on the Metrolinx Uxbridge Subdivision, located approximately 170 m to the west of the site, was obtained from Metrolinx.

The ultimate rail traffic data used for the analysis is summarized in **Table 2**, with details of the data used included in **Appendix C**.

Table 2: Rail Traffic Volumes and Configuration

Train Type	Daytime	Nighttime	Type of Locomotive	No of Locomotives	No of Cars	Speed (km/h)
Stouffville GO Train	66	38	Diesel	1	4	56

3.1.3 Representative Receptors

The selection of receptors affected by transportation noise sources was based on the drawings reviewed for this assessment. Using the “building evaluation” feature of Cadna/A, each façade of the residential building blocks was assessed. The current concept plan does not indicate heights for the townhouses so a height of 3 storeys was assumed. The worst-case noise impacts are expected at the first rows of building facing the roads, and these are not sensitive to the assumed height of the buildings.

Outdoor Living Areas (OLAs) would include outdoor areas intended and designed for the quiet enjoyment of the outdoor environment and which are readily accessible from the building. OLAs may include any common outdoor amenity spaces associated with a multi-unit residential development (e.g. courtyards, roof-top terraces), and/or private backyards and terraces with a minimum depth of 4 m provided they are the only outdoor living area for the occupant.

While the development is still in the early stages, the concept plan provided by the client does not include finalized OLA locations. Based on the building layout used in this assessment (shown in **Figure 1**), if the OLAs are positioned away from Tenth Line and situated where the buildings provide shielding, minimal noise impacts are reduced and the OLAs would be anticipated to meet applicable criteria. Additional OLA assessments should be completed at the Site Plan Control application stage and the OLA locations are confirmed in later phases of the project. Any elevated OLA over 4m in depth associated with the mid-rise residential buildings would need to be assessed.

3.1.4 Transportation Source Assessment - Analysis and Results

Sound levels due to road traffic were predicted using emission algorithms from the ORNAMENT publication (MOE, 1989). Propagation was calculated using the ISO9613-2 environmental noise propagation algorithm, as implemented in the Cadna/A software package. Sound levels due to rail traffic were predicted using the FTA methods (FTA, 2018), as implemented in the Cadna/A software package.

To assess the effect of transportation noise on suites, the maximum sound level on each façade on the worst-case buildings was determined with the results summarized in Table 3.

The worst-case façade sound level on each modeled building is illustrated in **Figure 2a, and 2b** for road and rail sound levels, respectively.

Table 3: Predicted Ground Transportation Source Sound Levels – Plane of Window

Building	Façade	Road		Rail		Notes
		Day L _{EQ} , 16hr	Night L _{EQ} , 8hr	Day L _{EQ} , 16hr	Night L _{EQ} , 8hr	
Buildings With Façade Directly Facing Tenth Line	North	58	53	50	50	2
	East	51	46	45	45	1
	South	58	54	46	47	2
	West	62	57	51	51	2

Note(s):

1. The noise at the plane of window meets the NPC-300 criteria; no mitigation is required.
2. Installation of air-conditioning to allow for windows and doors to remain closed, warning clause "Type C or D". Refer to Appendix D for guidance regarding air-conditioning as a noise mitigation measure.

3.2 Stationary Source Assessment

Stationary sources could be grouped into two categories: Those that have a permit with the Ontario Ministry of the Environment, Conservation and Parks (MECP) through an Environmental Compliance Approval (ECA) or Environmental Activity and Sector Registry (EASR); and those that are exempt from ECA or EASR permit requirements.



In the case where a stationary source has an Environmental Compliance Approval (ECA) or Environmental Activity and Sector Registry (EASR) permit with the MECP, and would be put in a position where it is no longer in compliance with the applicable sound level criteria due to the encroachment of the proposed new development, source specific mitigation and/or formal classification of the proposed development lands as a “Class 4 Area” (refer to C.4.4.2 “Class 4 Area” in NPC-300) would be required. In this case, coordination and agreements between the stationary source owner, proposed new development owner, the land-use planning authority and potentially the MECP would be needed.

In the case where a stationary source is exempt from ECA or EASR permit requirements with the MECP, the noise provisions of the applicable Municipal Code / Noise By-Law and guidance from NPC-300 would be applicable. In this case, mitigation of sound levels due to stationary sources would be from a due diligence perspective to meet the sound level criteria in the local noise by-law, and to avoid nuisance complaints from future occupants of the proposed new development.

3.2.1 Land-Use Compatibility Review (D-6 Guideline Assessment)

The MECP Guideline D-6 (MOE, 1995) was used as a tool to classify the identified industries and assess their potential influence on the proposed development. The classifications and setback guidelines are summarized in **Appendix B**. RWDI conducted a screening level land-use compatibility assessment based on the guidance of the D-6 Guideline.

RWDI staff conducted a site visit on December 3, 2025, to survey the surrounding area for potential stationary noise sources. An aerial review of the development lands and adjacent properties was also completed. The proposed development is primarily surrounded by agricultural, transportation, and residential uses, with no major industrial facilities identified within 500 m of the site. During the site visit, no clearly distinguishable sources of noise were audible at the proposed development location. The ambient sound environment was dominated by natural sounds, as well as occasional road traffic noise along Tenth Line.

Two facilities with environmental permits are noted: the Lincolnville GO Station (now Old Elm GO) at 12902 Tenth Line, which holds an EASR permit registered in 2022, and the GO Maintenance Facility located on part of Lot 6 at the former North Stouffville GO Station, which holds an environmental permit for a 100-kW emergency generator registered in 2008. Stationary sources at the Lincolnville GO Station comply with receptor limits closer to the station and are expected to be below the sound limits at the development property. Based on the information provided by Metrolinx highlighting that the rail traffic on the Uxbridge Subdivision is planned to be exclusively electric, the maintenance facility was assumed to exclusively store and service electric locomotives. The setback of the maintenance facility from the property line and lower idle sound levels of electric trains means that there is a low chance of this facility being audible at this development property, as confirmed by the site visit. Both these facilities have low chances of audible noise from the stationary sources at this development due to the setback of the facilities and stationary sources from the property line.

This assessment indicates that this development is compatible with surrounding land uses and a detailed assessment of surrounding stationary noise impacts is not necessary.

3.3 Recommendations

Based on the noise assessment results, the following recommendations were determined for the project.

3.3.1 Transportation Sources

The following recommendations are provided to address transportation sources.

3.3.1.1 Ventilation Recommendations

Due to the road traffic noise, the sound levels at the plane of the façade, the provision for installing central air conditioning is recommended for select buildings in the proposed development to allow for windows and doors to remain closed as a noise mitigation measure. Refer to **Figure 3** for guidance on which units would require this provision. Further, prospective purchasers or tenants should be informed by a warning clause "Type C".

3.3.2 Warning Clauses

The following warning clauses are recommended for the proposed development:

1. NPC-300 Type C to address transportation sound levels at the plane of window, for low to medium density residential blocks; or
2. NPC-300 Type D to address transportation sound levels at the plane of window, for high density blocks.

The warning clauses are applicable to the blocks presented in yellow in **Figure 3**.

Warning clauses are recommended to be included in all development agreements, offers of purchase and agreements of purchase and sale or lease. The wording of the recommended warning clauses is included with **Appendix E**.

4 THE EFFECTS OF THE PROPOSED DEVELOPMENT ON ITS SURROUNDINGS AND ON ITSELF

On-site stationary sources for the dwellings are expected to mainly consist of HVAC related equipment. Consideration should be given to control airborne and structure-borne noise generated within the proposed development.

Provided that best practices for the acoustical design of the building and guidelines from NPC-216 (MOE, 1993) are followed, noise from the development mechanical units is expected to meet the applicable sound level criteria.

The potential noise effect of the proposed development should be reviewed during detailed design to ensure the applicable sound level criteria will be achieved.



5 CONCLUSIONS

RWDI was retained by Northcape Investments Inc. to prepare an NVIS for the proposed residential development located at 12811 Tenth Line in Whitchurch-Stouffville, Ontario.

The following noise and vibration control measures are recommended for the proposed development:

1. Installation of central air conditioning so that suites' windows can remain closed.
2. The inclusion of noise warning clauses related to transportation sound levels for some building façades.

The potential noise impacts from stationary sources of sound were evaluated. Based on the setback distances from the stationary sources expected at the nearby transportation-related facilities, the land use compatibility of the proposed development with respect to the stationary sources associated with nearby facilities is considered acceptable from the noise assessment perspective.

At this stage of the design, the mechanical and electrical equipment has not yet been finalized. As a result, it is not possible to quantitatively assess the noise levels generated by the development or its impact on the surrounding environment. However, the effect on both the building itself and its surroundings is expected to be feasible to meet the applicable criteria. The building design should be evaluated prior to building permit to ensure that the acoustical design is adequately implemented to meet the applicable criteria.

Based on the results of the analysis, the NPC-300 limits can be met at the proposed development with the implementation of the recommendations included with this assessment, and hence the development is feasible.



6 REFERENCES

1. Ontario Ministry of the Environment (MOE), August 2013, Publication NPC-300, Environmental Noise Guideline Stationary and Transportation Sources – Approval and Planning (MOE, 2013).
2. Ontario Ministry of the Environment (MOE), 1989, ORNAMENT Ontario Road Noise Analysis Method for Environment and Transportation, Technical Publication (MOE, 1989)
3. International Organization for Standardization (ISO), 1994b, International Standard ISO 9613-1:1994, Acoustics – Attenuation of Sound during propagation outdoors. Part 1: Calculation of the absorption of sound by the atmosphere. (ISO, 1994)
4. International Organization for Standardization (ISO), 1996, International Standard ISO 9613-2:1996, Acoustics – Attenuation of sound during propagation outdoors – Part 2: General method of calculation (ISO, 1996)



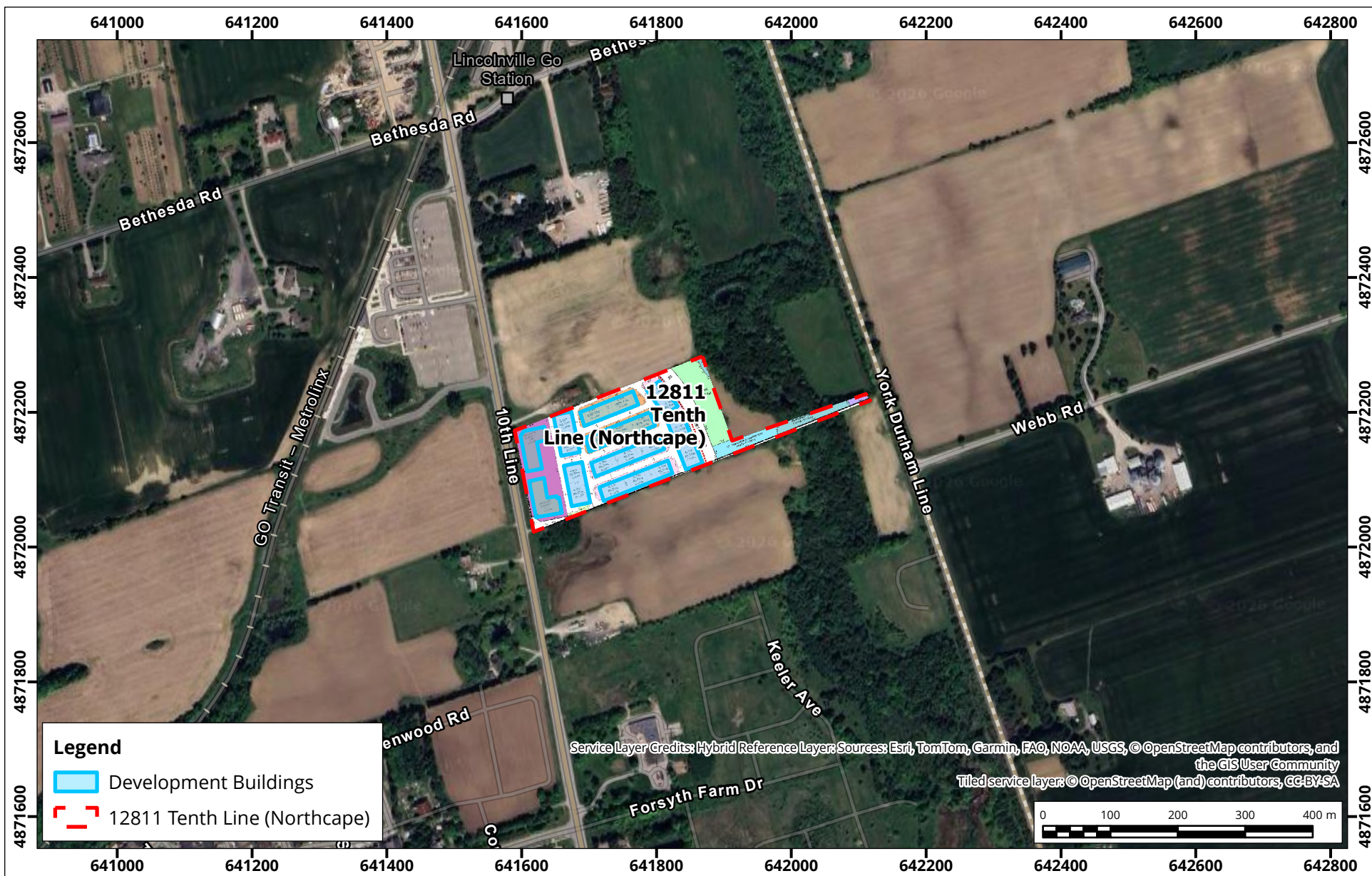
7 STATEMENT OF LIMITATIONS

This report entitled 12811 Tenth Line was prepared by Rowan Williams Davies & Irwin Inc. ("RWDI") for Northcape Investments Inc. ("Client"). The findings and conclusions presented in this report have been prepared for the Client and are specific to the project described herein ("Project"). The conclusions and recommendations contained in this report are based on the information available to RWDI when this report was prepared. Because the contents of this report may not reflect the final design of the Project or subsequent changes made after the date of this report, RWDI recommends that it be retained by Client during the final stages of the project to verify that the results and recommendations provided in this report have been correctly interpreted in the final design of the Project.

The conclusions and recommendations contained in this report have also been made for the specific purpose(s) set out herein. Should the Client or any other third party utilize the report and/or implement the conclusions and recommendations contained therein for any other purpose or project without the involvement of RWDI, the Client or such third party assumes any and all risk of any and all consequences arising from such use and RWDI accepts no responsibility for any liability, loss, or damage of any kind suffered by Client or any other third party arising therefrom.

Finally, it is imperative that the Client and/or any party relying on the conclusions and recommendations in this report carefully review the stated assumptions contained herein and to understand the different factors which may impact the conclusions and recommendations provided.

FIGURES



Site Context Plan

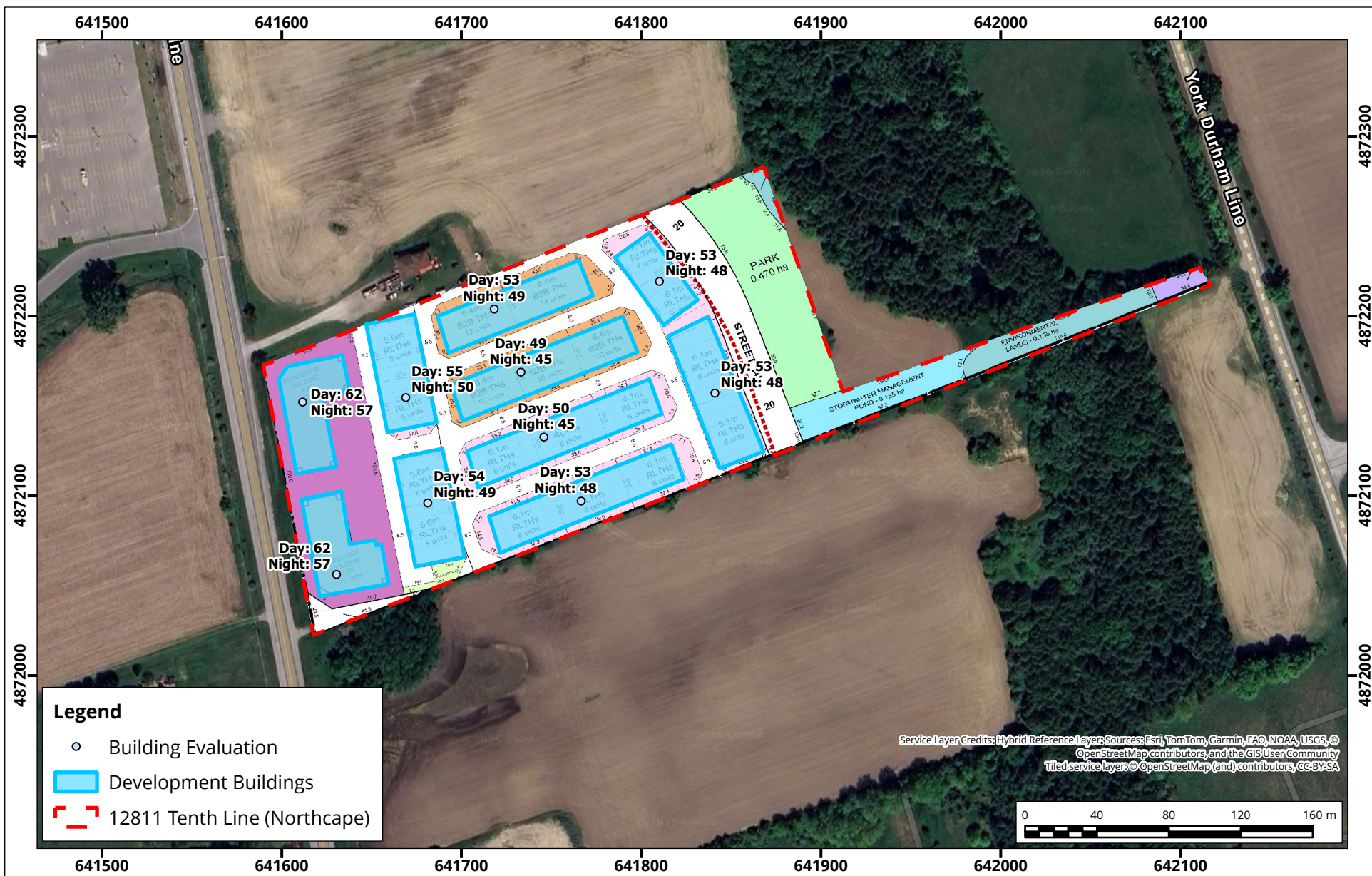
Map Projection: NAD 1983 UTM Zone 17N
 12811 Tenth Line - Whitchurch-Stouffville, Ontario



Drawn by: OTH	Figure: 1
Approx. Scale: 1:8,000	
Date Revised: Mar 31, 2026	

Project #: 2600253





Building Façade Highest Sound Level (dBA) Due to Road Traffic

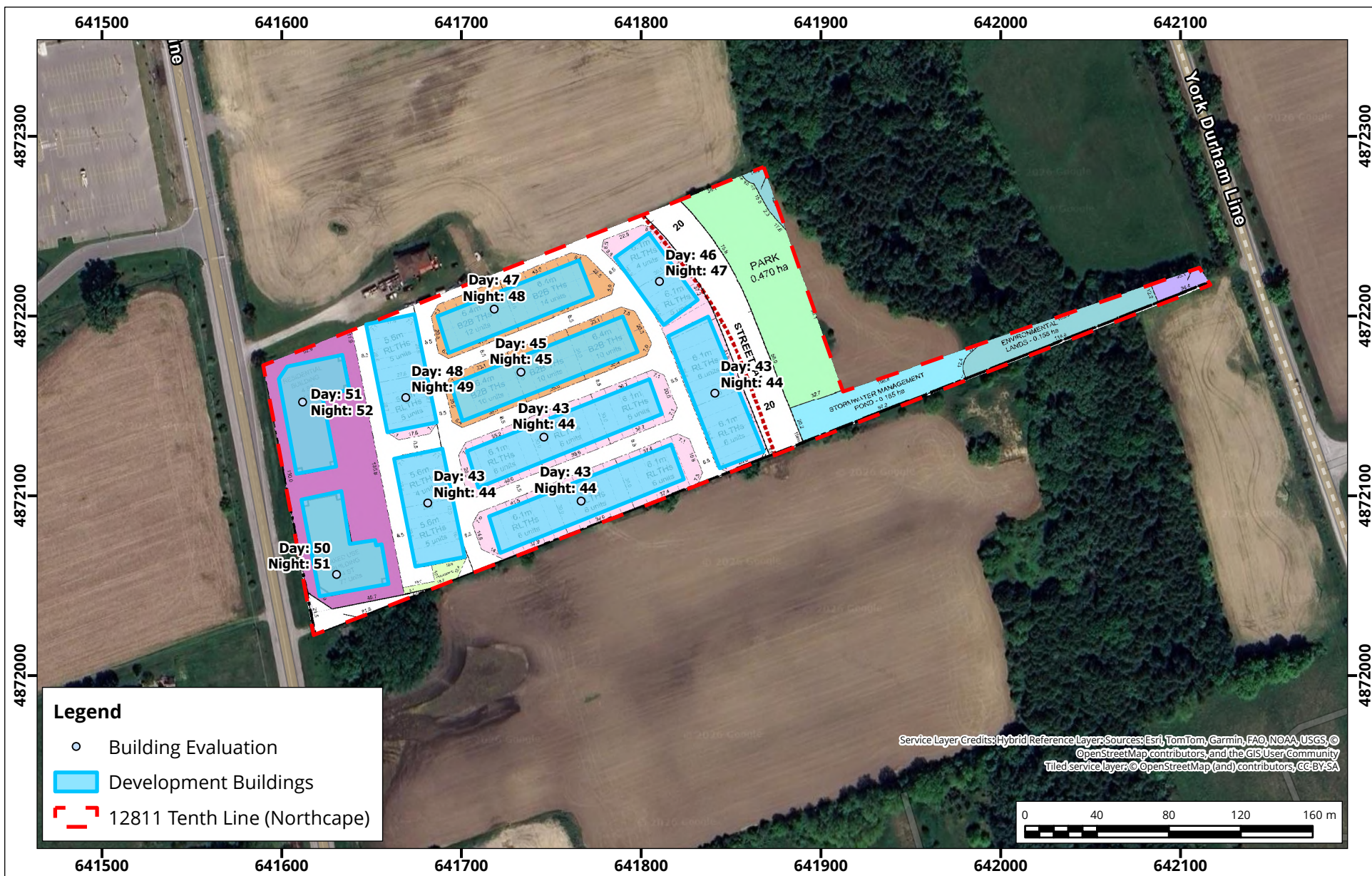
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 12811 Tenth Line - Whitchurch-Stouffville, Ontario



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Approx. Scale: 1:3,000	
Date Revised: Mar 31, 2026	

Project #: 2600253





Building Façade Highest Sound Level (dBA) Due to Rail Traffic

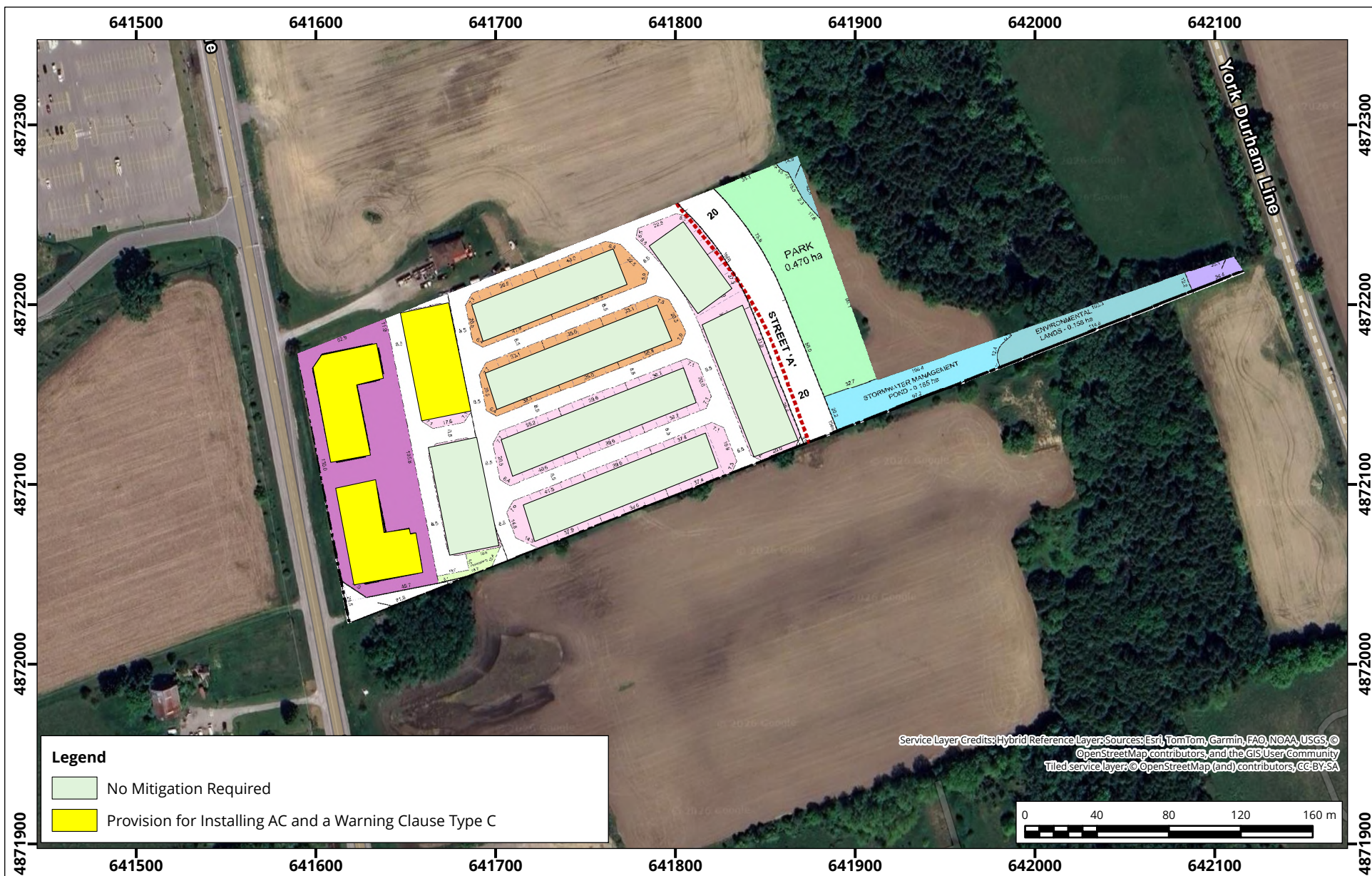
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12811 Tenth Line - Whitchurch-Stouffville, Ontario



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Date Revised: Mar 31, 2026	

Project #: 2600253





Transportation Source Building Mitigation Recommendations

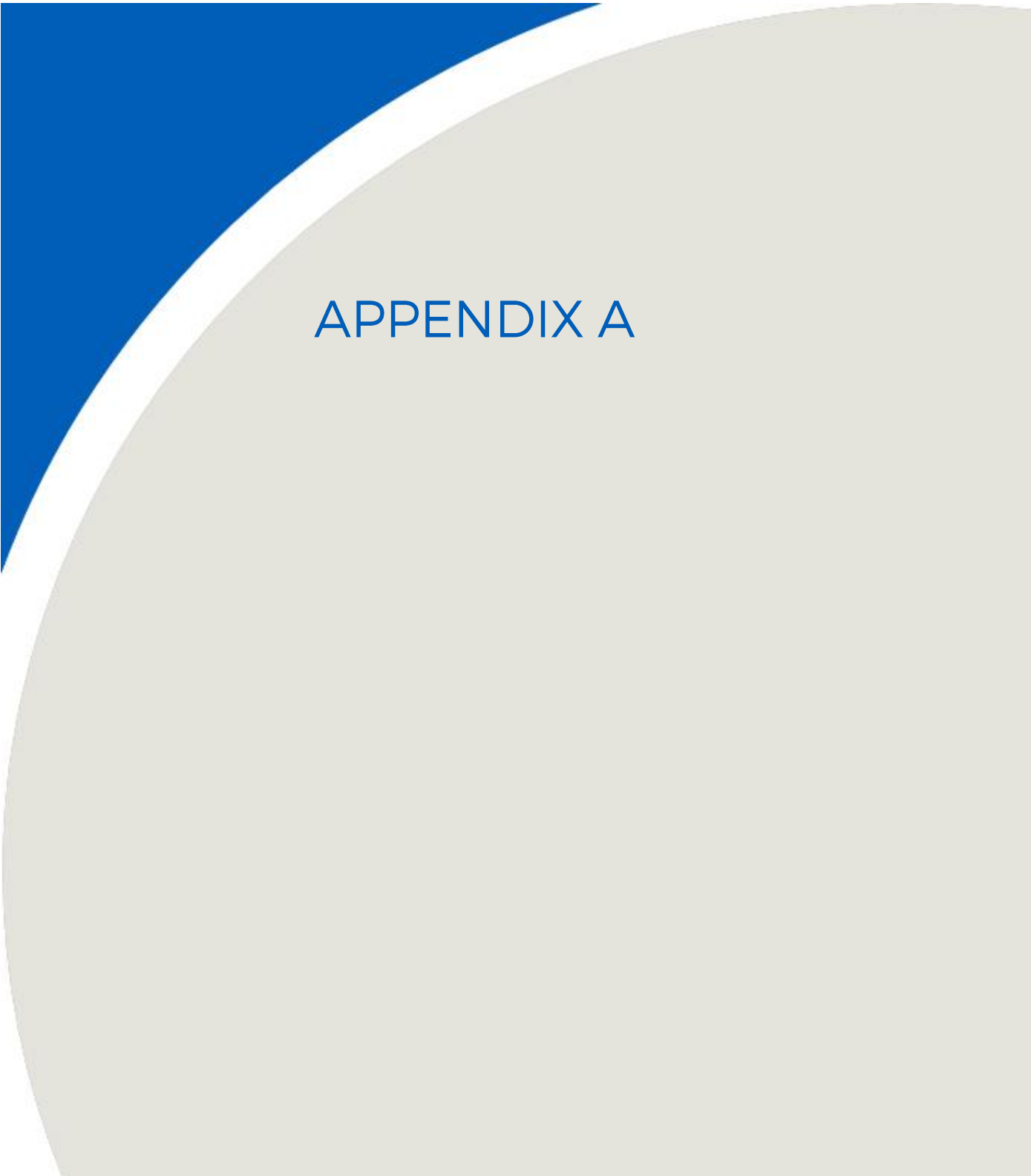
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 12811 Tenth Line - Whitchurch-Stouffville, Ontario



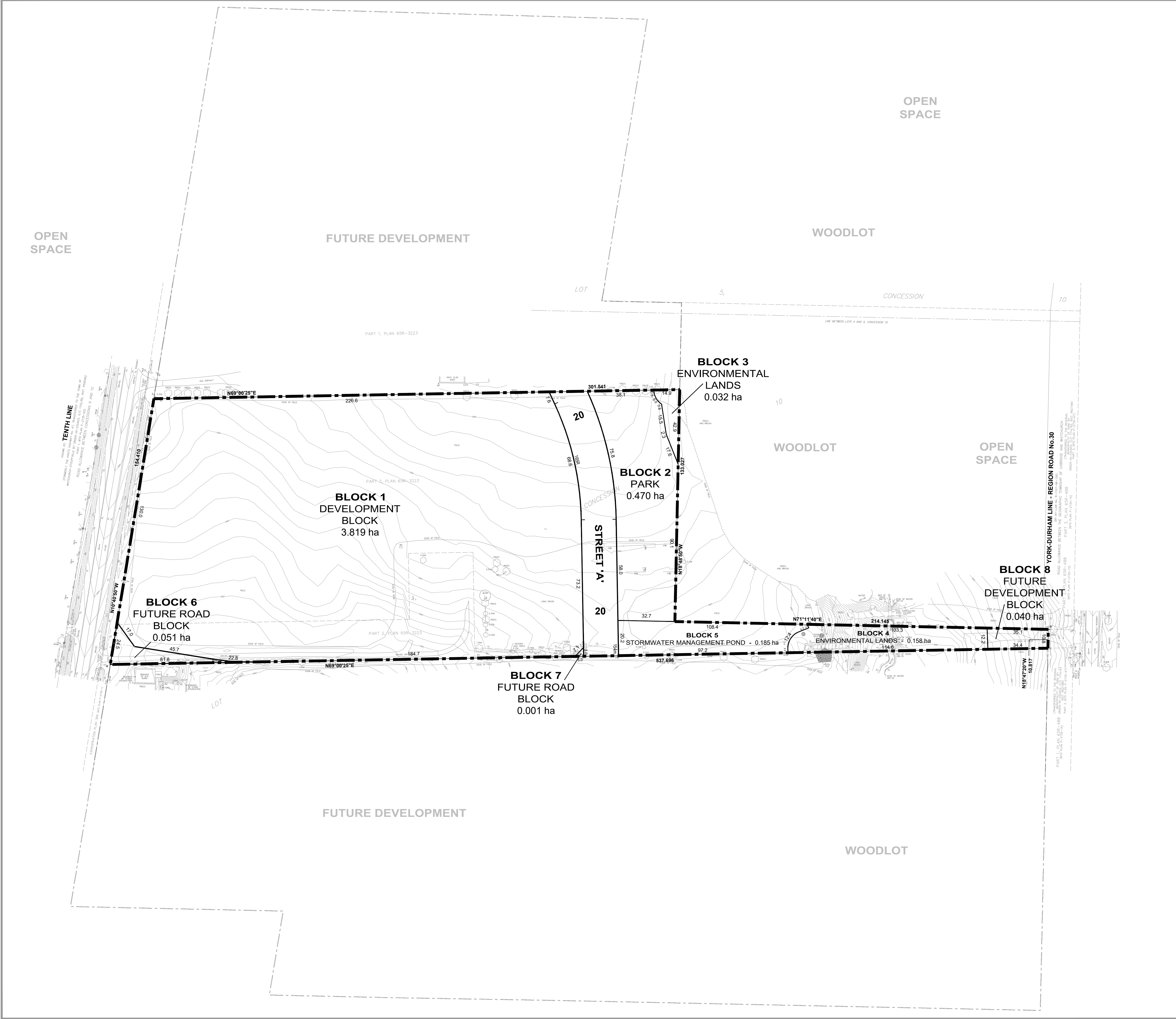
Project #: 2600253

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Date Revised: Mar 31, 2026	



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APPENDIX A



Key Plan

Subject Property

LAND USE - AREA TABLE		22103 - 136dp		January 26, 2026
Development Block	Block	1	75%	3.819 ha±
Park	Block	2	9%	0.470
Environmental Lands	Blocks	3-4	4%	0.190
Stormwater Management Pond	Block	5	4%	0.185
Future Road Blocks	Block	6-7	1%	0.052
Future Development Block	Block	8	1%	0.040
Roads			6%	0.310
Total			100%	5.066 ha±

ROADS		
20m Public R.O.W.	154 m	0.310
Total	154 m	0.310 ha

Additional information required under Section 51(17) of the Planning Act

A, B, E, F, G, J, L - As Shown on Plan
C. This represents the Applicant's entire holding of undeveloped land in the vicinity.
D. Development Block, Park, Environmental Lands, Stormwater Management Pond, Future Road Blocks, Future Development Block, Roads
H. Piped water to be provided.
I. Clay loam soil.
K. Sanitary & storm sewers to be provided.

Surveyor's Certificate

I certify that: the boundaries of the lands to be subdivided and their relationship to the adjacent lands are correctly shown.

STEPHEN KOSMACHUL, O.L.S.
HOLDING JONES VANDERVEEN INC.

Day Month Year

Owner's Authorization

I/we, Northcape Investments Inc.
being the registered owner(s) of the subject lands hereby authorize BOUSFIELDS INC. to prepare and submit a draft plan of subdivision for approval.

Day Month Year

Legend

Subject Property

Notes

All dimensions are in metres.
All area measurements are computer generated.
All elevations refer to Geodetic Datum.
Geo-reference based on Data from:
Holding Jones Vanderveen Inc.

DRAFT PLAN OF PROPOSED SUBDIVISION

PART OF LOT 4, CONCESSION 10
(GEOGRAPHIC TOWNSHIP OF WHITCHURCH)
TOWN OF WHITCHURCH-STOUFFVILLE
THE REGIONAL MUNICIPALITY OF YORK

BOUSFIELDS INC.

3 Church Street, Suite 200, Toronto, Ontario M5E 1M2
P (416) 947-9744 | F (416) 947-0781 | E bousfields@bousfields.ca

1 : 1000

Scale

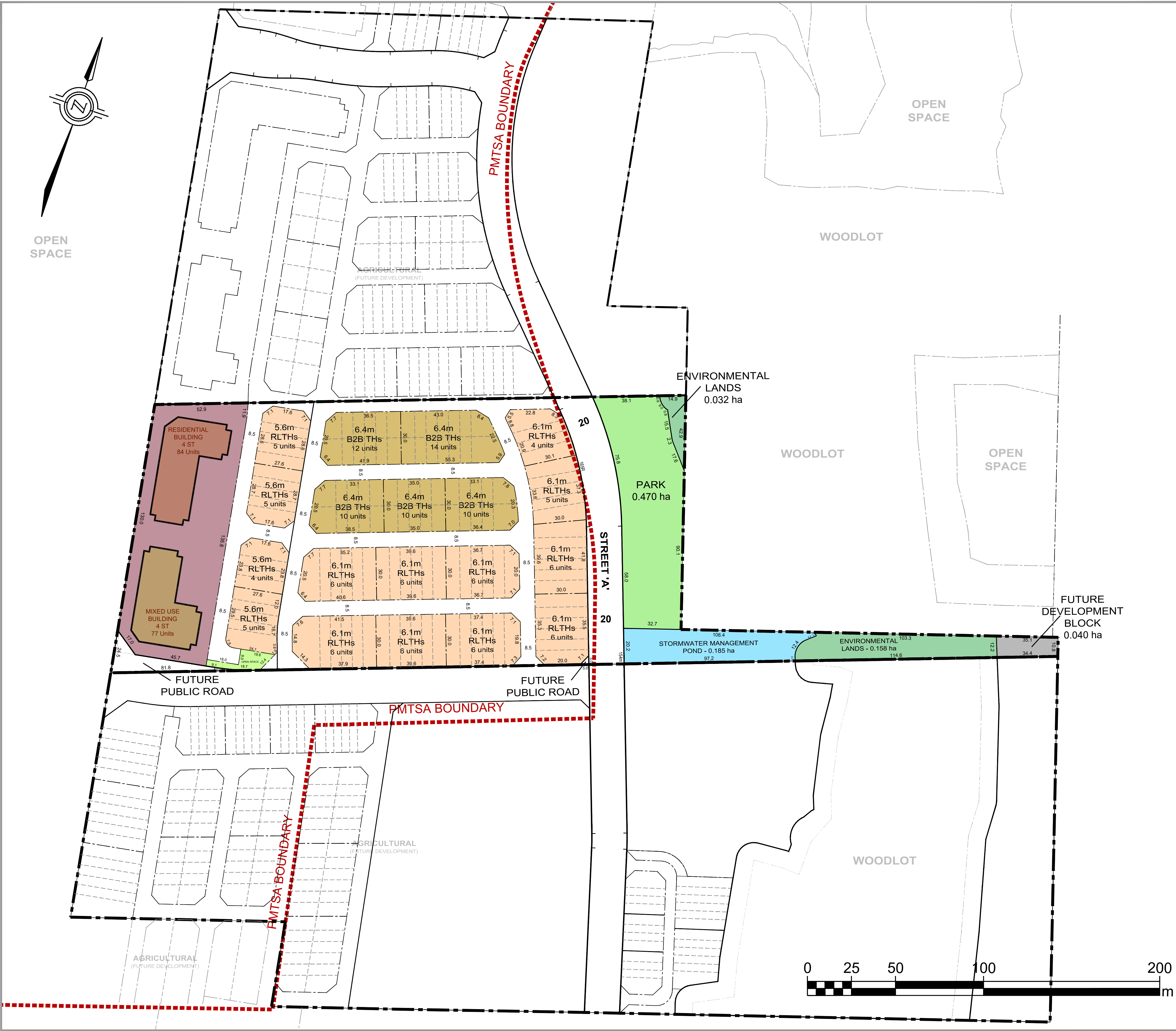
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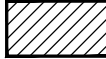
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22103 - 136dp

Date

Drawing Number

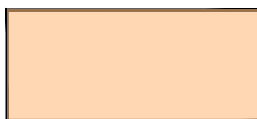


Key Plan  Subject Property

NORTHCAPE STOUFFVILLE - Conceptual Demonstration Plan

ESTIMATED UNIT COUNT	22103 - 148cp	April 9, 2026
5.6m Rear Lane Towns	6%	19
6.1m Rear Lane Towns	19%	57
6.4m Back-to-Back Towns	19%	56
Mixed Use Residential	55%	161
Total	100%	293 units

 Back-to-Back Townhouses

 Rear Lane Townhouses

 Mixed Use Residential

 Environmental Lands

 Park

 Open Space

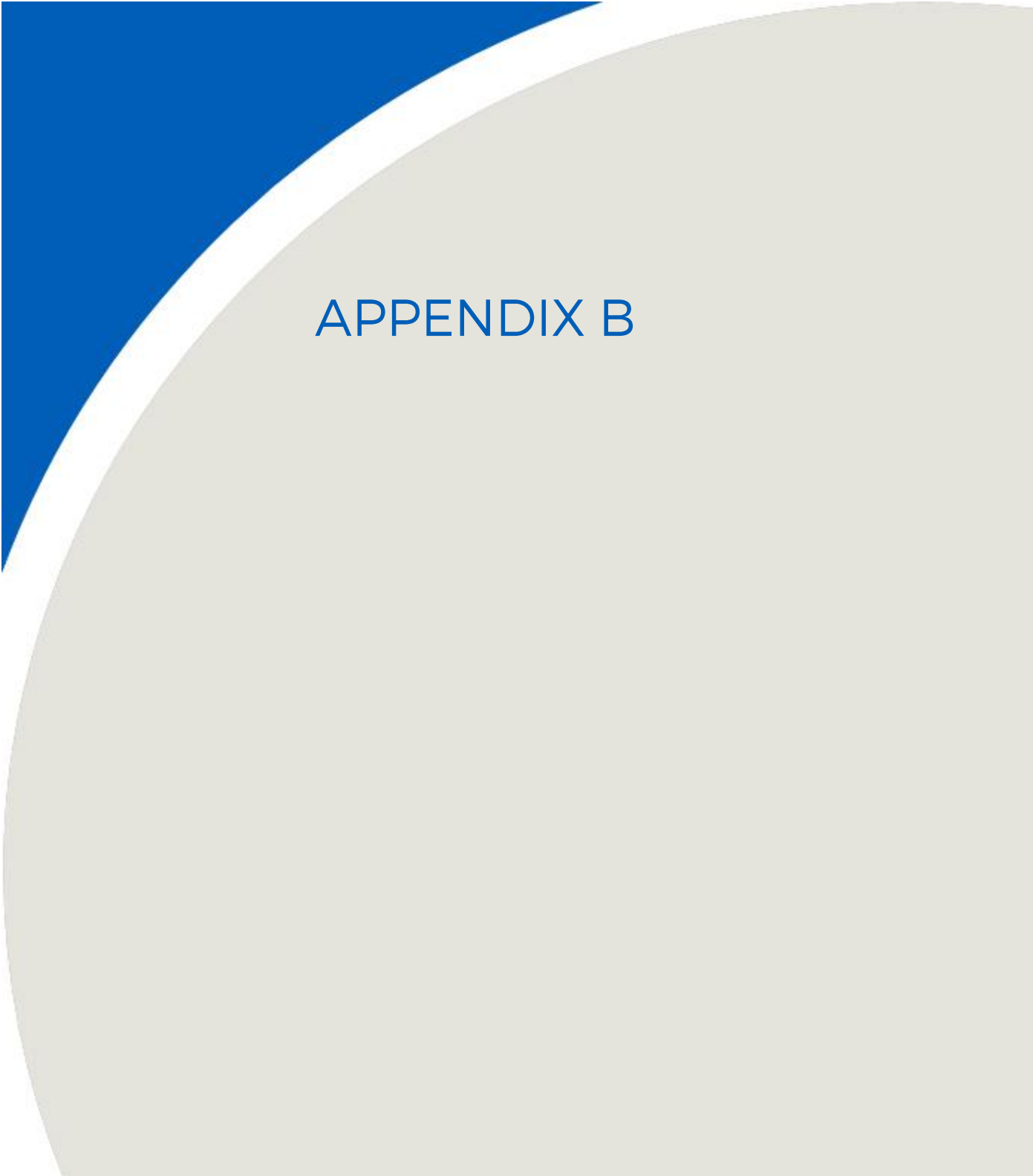
 Stormwater Management Pond

 Future Development Block

 PMTSA Boundary
(3.89 ha within PMTSA Boundary)

 **BOUSFIELDS INC.**

3 Church Street, Suite 200, Toronto, Ontario M5E 1M2
P (416) 947-9744 | F (416) 947-0781 | E bousfields@bousfields.ca

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APPENDIX B

CRITERIA

Transportation Sources

Guidance from the Ontario Ministry of the Environment, Conservation and Parks (MECP) NPC-300 Environmental Noise Guideline was used to assess environmental noise generated by transportation-related sources. There are three aspects to consider, which include the following:

- i. Transportation source sound levels in indoor living areas (living rooms and sleeping quarters), which determines building façade elements (windows, exterior walls, doors) sound insulation design recommendations.
- ii. Transportation source sound levels at the plane of the window, which determines air-conditioning and ventilation system recommendations and associated warning clauses which inform the future occupants that windows and doors must be closed in order to meet the indoor sound level criteria.
- iii. Transportation source sound levels in Outdoor Living Areas (OLAs), which determines OLA noise mitigation and related warning clause recommendations.

Road and Rail

Indoor Sound Level Criteria

For assessing sound originating from transportation sources, NPC-300 defines sound level criteria as summarized in **Table 1** for indoor areas of sensitive uses. The specified values are maximum sound levels and apply to the indicated indoor spaces with the windows and doors closed.

Table 1: Indoor Sound Level Criteria for Road and Rail Sources

Type of Space	Source	Sound Level Criteria (Indoors)	
		Daytime Leq,16-hr 07:00h – 23:00h	Nighttime Leq,8-hr 23:00h – 07:00h
Living Quarters Examples: Living, dining and den areas of residences, hospitals, nursing homes, schools and daycare centres	Road	45 dBA	
	Rail	40 dBA	
Sleeping Quarters	Road	45 dBA	40 dBA
	Rail	40 dBA	35 dBA

NPC-300 also provides guidelines for acceptable indoor sound levels that are extended to land uses and developments which are not normally considered noise sensitive. The guideline sound level criteria presented in **Table 2** are provided to inform good-practice design objectives.

Table 2: Supplementary Indoor Sound Level Criteria for Road and Rail Sources

Type of Space	Source	Sound Level Criteria (Indoors)	
		Daytime $L_{eq,16-hr}$ 07:00h – 23:00h	Nighttime $L_{eq,8-hr}$ 23:00h – 07:00h
General offices, reception areas, retail stores, etc.	Road	50 dBA	-
	Rail	45 dBA	-
Theatres, places of worship, libraries, individual or semi-private offices, conference rooms, reading rooms, etc.	Road	45 dBA	-
	Rail	40 dBA	-
Sleeping quarters of residences, hospitals, nursing/retirement homes, etc.	Road	-	40 dBA
	Rail	-	35 dBA
Sleeping quarters of hotels/motels	Road	-	45 dBA
	Rail	-	40 dBA

Outdoor Living Areas (OLAs)

Outdoor Living Areas (OLAs) would include outdoor areas intended and designed for the quiet enjoyment of the outdoor environment and which are readily accessible from the building.

OLAs may include any common outdoor amenity spaces associated with a multi-unit residential development (e.g. courtyards, roof-top terraces), and/or private backyards and terraces with a minimum depth of 4m provided they are the only outdoor living area for the occupant. The sound level criteria for outdoor living areas is summarized in **Table 3**.

Table 3: Sound Level Criteria – Outdoor Living Area

Assessment Location	Sound Level Criteria (Outdoors)	
	Daytime $L_{eq,16-hr}$ 07:00h – 23:00h	Nighttime $L_{eq,8-hr}$ 23:00h – 07:00h
Outdoor Living Area (OLA) (Combined Road and Rail)	55 dBA	-

Outdoor and Plane of Window Sound Levels

In addition to the sound level criteria, noise control measures and requirements for ventilation and warning clauses requirements are recommended for residential land-uses based on predicted transportation source sound levels incident in the plane of window at bedrooms and living/dining rooms, and/or at outdoor living areas. These recommendations are summarized in **Table 4** below.

Table 4: Ventilation, Building Component, and Warning Clauses Recommendations for Road/Rail Sources

Assessment Location	Transportation Sound Level (Outdoors)		Recommendations
	Daytime $L_{eq,16-hr}$ 07:00h – 23:00h	Nighttime $L_{eq,8-hr}$ 23:00h – 07:00h	
Plane of Window (Road)	> 65 dBA	> 60 dBA	Installation of air conditioning to allow windows to remained closed. The sound insulation performance of building components must be specified and designed to meet the indoor sound level criteria. Warning clause “Type D” is recommended.
	> 55 dBA	> 50 dBA	Applicable for low and medium density development: Forced-air ventilation system to allow for the future installation of air-conditioning. Warning clause “Type C” is recommended. Applicable for high density development: Air conditioning to allow windows to remained closed. Warning clause “Type D” is recommended.
Plane of Window (Rail ^{1,2})	> 60 dBA	> 55 dBA	The acoustical performance of building façade components should be specified such that the indoor sound level limits are predicted to be achieved. Warning clause “Type D” is recommended.
	> 60 dBA ($L_{eq, 24hr}$) and < 100m from tracks		Exterior walls consisting of a brick veneer or masonry equivalent for the first row of dwellings. Warning clause “Type D” is recommended.
Outdoor Living Area (Combined Road and Rail ³)	≤ 60 dBA > 55 dBA	-	If sound levels are predicted to exceed 55 dBA, but are less than 60 dBA, noise controls may be applied to reduce the sound level to 55 dBA. If noise control measures are not provided, a warning clause “Type A” is recommended.
	> 60 dBA	-	Noise controls (barriers) should be implemented to meet the 55 dBA criterion. If mitigation is not feasible to meet the 55 dBA criterion for technical, economic or administrative reasons, an exceedance of 5 dB may be acceptable (to a maximum sound level of 60 dBA). In this case a warning clause “Type B” would be recommended.

Note(s):

1. Whistle noise is included (if applicable) in the determination of the sound level at the plane of window.
2. Some railway companies (e.g. CN, CP) may require that the exterior walls include a brick veneer or masonry equivalent for the façade facing the railway line, regardless of the sound level.
3. Whistle noise is not included in the determination of the sound level at the OLA.

Rail Layover Sites

NPC-300 provides a sound level limit for rail layover sites to be the higher of the background sound level or 55 dBA $L_{eq,1-hr}$, for any one-hour period.

Rail Vibration Criteria

An assessment of rail vibration is generally recommended for developments within 75m of a rail corridor or rail yard, and adjacent to or within a setback of 15m of a transit (subway or light-rail) rail line.

The generally accepted vibration criterion for sensitive land-uses is the threshold of perception for human exposure to vibration, being a vibration velocity level of 0.14 mm/s RMS in any one-third octave band centre frequency in the range of 4 Hz to 200 Hz.

This vibration criterion is based on a one-second exponential time-averaged maximum hold root-mean-square (RMS) vibration velocity level and is consistent with the Railway Associations of Canada (RAC, 2013) guideline, the U.S. Federal Transit Authority (FTA, 2018) criterion for residential land-uses, the Toronto Transit Commission (TTC) guidelines for the assessment of potential vibration impact of future expansion (MOEE/TTC, 1993).

Aircraft

Land-use compatibility in the vicinity of airports is addressed in Ministry of the Environment, Conservation, and Parks (MECP) Guideline NPC-300 (MOE, 2013). The guideline provides recommendations for ventilation, and noise control for different Noise Exposure Forecast (NEF) values, which would be based on NEF contour maps available from the airport authority. The NEF values can be expressed as $L_{Aeq,24hr}$ sound levels by using the expression $NEF = L_{Aeq,24hr} - 32$ dBA.

Table 5: Indoor Sound Level Criteria for Aircraft Sources

Assessment Location	Indoor Sound Level Criteria NEF ($L_{eq, 24hr}$) ¹
Living/dining/den areas of residences, hospitals, schools, nursing/retirement homes, daycare centres, etc.	NEF- 5 (37 dBA)
Sleeping quarters	NEF-0 (32 dBA)

NPC-300 also provides guidelines for acceptable indoor sound levels that are extended to land uses and developments which are not normally considered noise sensitive. The guideline sound level criteria presented in **Table 6** are provided to inform good-practice design objectives.

Table 6: Supplementary Indoor Sound Level Criteria for Aircraft Sources

Assessment Location	Indoor Sound Level Criteria ¹
General offices, reception areas, retail stores, etc.	NEF-15 (47 dBA)
Individual or semi-private offices, conference rooms, etc.	NEF-10 (42 dBA)
Sleeping quarters of hotels/motels, theatres, libraries, places of worship, etc.	NEF-5 (37 dBA)

Table 7: NPC-300 Sound Level Criteria for Aircraft (Outdoors)

Assessment Location	Outdoor Sound Level Criteria ¹
Outdoor areas, including OLA	NEF-30 (62 dBA)

Table 8: Ventilation, Building Component, and Warning Clauses Recommendations for Aircraft Sources

Assessment Location	Aircraft Sound Level	NPC-300 Requirements
	NEF ($L_{EQ,24-hr}$)	
Outdoors	$\geq$ NEF 30	Air conditioning to allow windows to remained closed. The sound insulation performance of building components must be specified and designed to meet the indoor sound level criteria. Warning clauses "Type D" and "Type B" are recommended.
	$<$ NEF 30 $\geq$ NEF 25	The sound insulation performance of building components must be specified and designed to meet the indoor sound level criteria. Applicable for low and medium density development: Forced-air ventilation system to allow for the future installation of air-conditioning. Warning clause "Type C" is recommended. Applicable for high density development: Air conditioning to allow windows to remained closed. Warning clause "Type D" is recommended.
	$<$ NEF 25	Further assessment not required

Stationary Sources

NPC-300 Sound Level Criteria – Stationary Sources

Guidance from the MECP NPC-300 Environmental Noise Guideline is used to assess environmental noise generated by stationary sources, for example industrial and commercial facilities.

Noise from stationary sources is treated differently from transportation sources and requires sound levels be assessed for the predictable worst-case one-hour average sound level (L_{eq}) for each period of the day. For assessing sound originating from stationary sources, NPC-300 defines sound level criteria for two types of Points of Reception (PORs): outdoor and plane of window.

The assessment criteria for all PORs is the higher of either the exclusion limit per NPC-300 or the minimum background sound level that occurs or is likely to occur at a POR. The applicable exclusion limit is determined based on the level of urbanization or "Class" of the area. The NPC-300 exclusion limits for continuously operating stationary sources are summarized in **Table 9**.

Table 9: NPC-300 Exclusion Limits – Continuous and Quasi-Steady Impulsive Stationary Sources (LAeq-1hr)

Time Period	Class 1 Area		Class 2 Area		Class 3 Area		Class 4 Area	
	Outdoor	Plane of Window	Outdoor	Plane of Window	Outdoor	Plane of Window	Outdoor	Plane of Window
Daytime 0700-1900h	50 dBA	50 dBA	50 dBA	50 dBA	45 dBA	45 dBA	55 dBA	60 dBA
Evening 1900-2300h	50 dBA	50 dBA	45 dBA	50 dBA	40 dBA	40 dBA	55 dBA	60 dBA
Nighttime 2300-0700h	--	45 dBA	--	45 dBA	--	40 dBA	--	55 dBA

Note(s):

1. The applicable sound level criterion is the background sound level or the exclusion limit, whichever is higher.
2. Class 1, 2 and 3 sound level criteria apply to a window that is assumed to be open.
3. Class 4 area criteria apply to a window that is assumed closed. Class 4 area requires formal designation by the land-use planning authority.
4. Sound level criteria for emergency backup equipment (e.g. generators) operating in non-emergency situations such as testing or maintenance are 5 dB greater than the applicable sound level criteria for stationary sources.

For impulsive sound, other than quasi-steady impulsive sound, from a stationary source, the sound level criteria at a POR is expressed in terms of the Logarithmic Mean Impulse Sound Level (L_{LM}), and is summarized in **Table 10**.

Table 10: NPC-300 Exclusion Limits – Impulsive Stationary Sources (L_{LM})

Time Period	Number of Impulses in Period of One-Hour	Class 1 and 2 Areas		Class 3 Areas		Class 4 Areas	
		Outdoor	Plane of Window	Outdoor	Plane of Window	Outdoor	Plane of Window
Daytime (0700-2300h)	9 or more	50 dBAI	50 dBAI	45 dBAI	45 dBAI	55 dBAI	60 dBAI
Nighttime (2300-0700h)		-	45 dBAI	-	40 dBAI	-	55 dBAI
Daytime (0700-2300h)	7 to 8	55 dBAI	55 dBAI	50 dBAI	50 dBAI	60 dBAI	65 dBAI
Nighttime (2300-0700h)		-	50 dBAI	-	45 dBAI	-	60 dBAI
Daytime (0700-2300h)	5 to 6	60 dBAI	60 dBAI	55 dBAI	55 dBAI	65 dBAI	70 dBAI
Nighttime (2300-0700h)		-	55 dBAI	-	50 dBAI	-	65 dBAI
Daytime (0700-2300h)	4	65 dBAI	65 dBAI	60 dBAI	60 dBAI	70 dBAI	75 dBAI
Nighttime (2300-0700h)		-	60 dBAI	-	55 dBAI	-	70 dBAI
Daytime (0700-2300h)	3	70 dBAI	70 dBAI	65 dBAI	65 dBAI	75 dBAI	80 dBAI
Nighttime (2300-0700h)		-	65 dBAI	-	60 dBAI	-	75 dBAI
Daytime (0700-2300h)	2	75 dBAI	75 dBAI	70 dBAI	70 dBAI	80 dBAI	85 dBAI
Nighttime (2300-0700h)		-	70 dBAI	-	65 dBAI	-	80 dBAI
Daytime (0700-2300h)	1	80 dBAI	80 dBAI	75 dBAI	75 dBAI	85 dBAI	90 dBAI
Nighttime (2300-0700h)		-	75 dBAI	-	70 dBAI	-	85 dBAI

Note(s):

1. The applicable sound level criterion is the background sound level or the exclusion limit, whichever is higher.

D-Series Guidelines

The MECP D-series guidelines (MOE, 1995) provide direction for land use planning to maximize 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, odour and dust.

For each class of industry, the guideline provides an estimate of potential influence area and states that this influence area shall be used in the absence of the recommended technical studies. Guideline D-6 also recommends a minimum separation distance between each class of industry and sensitive land uses (see **Table 11**). Section 4.10 of D-6 identifies exceptional circumstances with respect to redevelopment, infill and mixed-use areas. In these cases, the guideline suggests that separation distances at, or less than, the recommended minimum separation distance may be acceptable if a justifying impact assessment is provided.

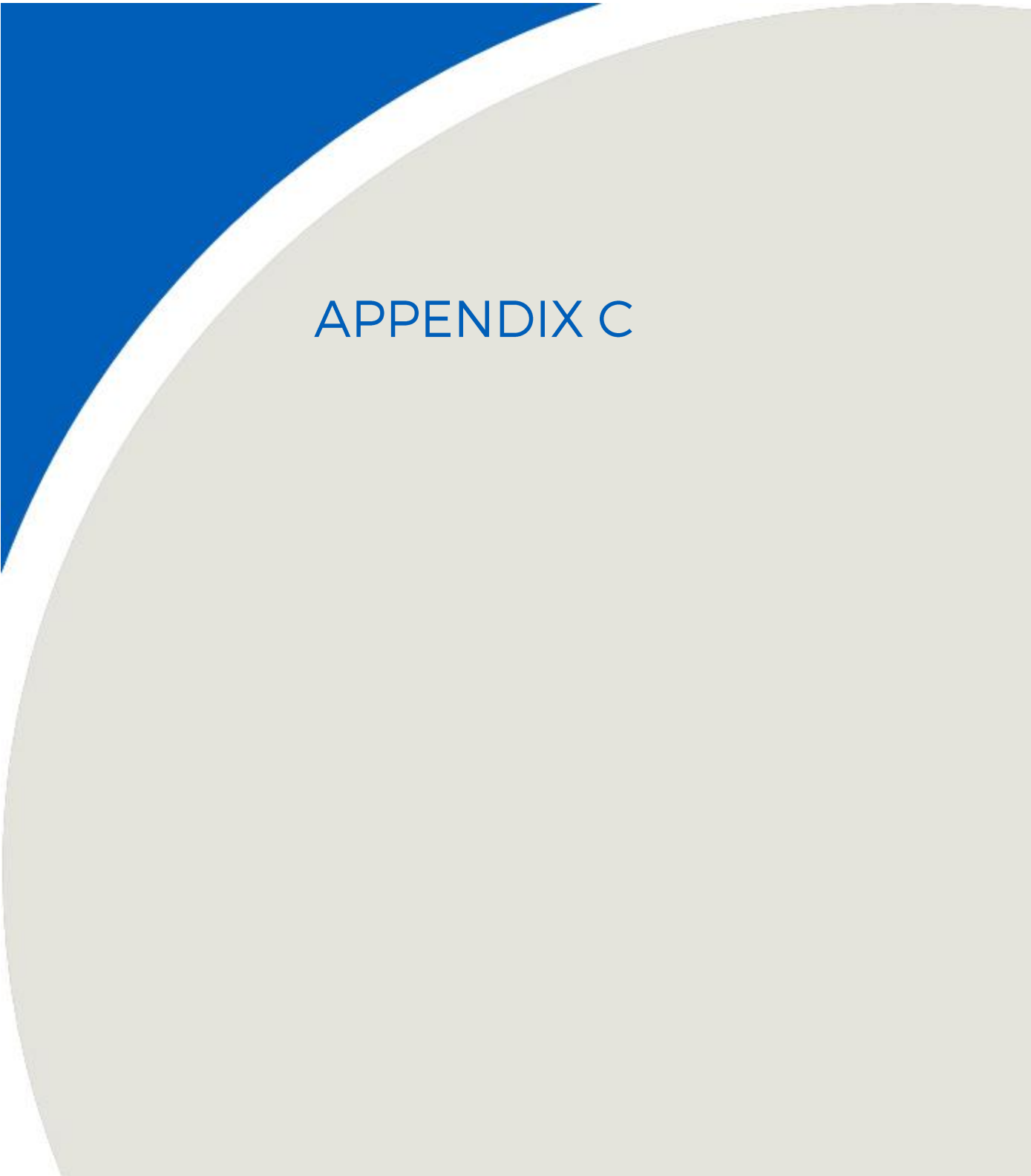
Table 11: Summary of Guideline D-6

Industry Class	Definition	Potential Influence Area	Recommended Minimum Separation Distance (property line to property line)
Class I	Small scale, self-contained, daytime only, infrequent heavy vehicle movements, no outside storage.	70 m	20 m
Class II	Medium scale, outdoor storage of wastes or materials, shift operations and frequent heavy equipment movement during the daytime.	300 m	70 m
Class III	Large scale, outdoor storage of raw and finished products, large production volume, continuous movement of products and employees during daily shift operations.	1000 m	300 m

Guideline D-6 provides criteria for classifying industrial land uses, based on their outputs, scale of operations, processes, schedule and intensity of operations. **Table 12** provides the classification criteria and examples.

Table 12: Guideline D-6 Industrial Categorization Criteria

Criteria	Class I	Class II	Class III
Outputs	• Sound not audible off property • Infrequent dust and/ or odour emissions and not intense • No ground-borne vibration	• Sound occasionally audible off property • Frequent dust and/ or odour emissions and occasionally intense • Possible ground-borne vibration	• Sound frequently audible off property • Persistent and intense dust and/ or odour emissions • Frequent ground-borne vibration
Scale	• No outside storage • Small scale plant or scale is irrelevant in relation to all other criteria	• Outside storage permitted • Medium level of production	• Outside storage of raw and finished products • Large production levels
Process	• Self-contained plant or building which produces / stores a packaged product • Low probability of fugitive emissions	• Open process • Periodic outputs of minor annoyance • Low probability of fugitive emissions	• Open process • Frequent outputs of major annoyances • High probability of fugitive emissions
Operation / Intensity	• Daytime operations only • Infrequent movement of products and/or heavy trucks	• Shift operations permitted • Frequent movements of products and/or heavy trucks with majority of movements during daytime hours	• Continuous movement of products and employees • Daily shift operations permitted
Examples	• Electronics Manufacturing • Furniture refinishing • Beverage bottling • Auto parts • Packaging services • Dairy distribution • Laundry and linen supply	• Magazine printing • Paint spray booths • Metal command • Electrical production • Dairy product manufacturing • Feed packing plant	• Paint and varnish manufacturing • Organic chemicals manufacturing • Breweries • Solvent recovery plant • Soap manufacturing • Metal manufacturing

A large decorative graphic on the left side of the page, featuring a blue triangle at the top left and a large, light gray curved shape that sweeps across the page.

APPENDIX C

Morning Peak Diagram		Specified Period From: 7:00:00 To: 9:00:00	One Hour Peak From: 8:00:00 To: 9:00:00
Municipality: Whitchurch-Stouffville Site #: 2324300001 Intersection: Tenth Line & Bethesda Side Rd TFR File #: 1 Count date: 1-Nov-23		Weather conditions: Person counted: Person prepared: Person checked:	
** Non-Signalized Intersection **		Major Road: Tenth Line runs N/S	

North Leg Total: 401 North Entering: 228 North Peds: 0 Peds Cross:	<table style="width: 100%; border-collapse: collapse;"> <tr><td>Heavys</td><td>0</td><td>2</td><td>1</td><td>3</td></tr> <tr><td>Trucks</td><td>0</td><td>3</td><td>0</td><td>3</td></tr> <tr><td>Cars</td><td>41</td><td>172</td><td>9</td><td>222</td></tr> <tr><td>Totals</td><td>41</td><td>177</td><td>10</td><td></td></tr> </table>	Heavys	0	2	1	3	Trucks	0	3	0	3	Cars	41	172	9	222	Totals	41	177	10		<table style="width: 100%; border-collapse: collapse;"> <tr><td>Heavys</td><td>4</td></tr> <tr><td>Trucks</td><td>4</td></tr> <tr><td>Cars</td><td>165</td></tr> <tr><td>Totals</td><td>173</td></tr> </table>	Heavys	4	Trucks	4	Cars	165	Totals	173	East Leg Total: 91 East Entering: 47 East Peds: 0 Peds Cross:
Heavys	0	2	1	3																											
Trucks	0	3	0	3																											
Cars	41	172	9	222																											
Totals	41	177	10																												
Heavys	4																														
Trucks	4																														
Cars	165																														
Totals	173																														

Heavys	Trucks	Cars	Totals
1	2	76	79

Tenth Line

Bethesda Side Rd

Cars	Trucks	Heavys	Totals
12	2	2	16
22	2	1	25
6	0	0	6
40	4	3	

Heavys	Trucks	Cars	Totals
0	1	17	18
0	3	28	31
2	1	9	12
2	5	54	

Tenth Line

Bethesda Side Rd

Cars	Trucks	Heavys	Totals
40	3	1	44

Peds Cross: West Peds: 0 West Entering: 61 West Leg Total: 140	<table style="width: 100%; border-collapse: collapse;"> <tr><td>Cars</td><td>187</td></tr> <tr><td>Trucks</td><td>4</td></tr> <tr><td>Heavys</td><td>4</td></tr> <tr><td>Totals</td><td>195</td></tr> </table>	Cars	187	Trucks	4	Heavys	4	Totals	195	<table style="width: 100%; border-collapse: collapse;"> <tr><td>Cars</td><td>13</td><td>136</td><td>3</td><td>152</td></tr> <tr><td>Trucks</td><td>0</td><td>1</td><td>0</td><td>1</td></tr> <tr><td>Heavys</td><td>0</td><td>2</td><td>0</td><td>2</td></tr> <tr><td>Totals</td><td>13</td><td>139</td><td>3</td><td></td></tr> </table>	Cars	13	136	3	152	Trucks	0	1	0	1	Heavys	0	2	0	2	Totals	13	139	3		Peds Cross: South Peds: 0 South Entering: 155 South Leg Total: 350
Cars	187																														
Trucks	4																														
Heavys	4																														
Totals	195																														
Cars	13	136	3	152																											
Trucks	0	1	0	1																											
Heavys	0	2	0	2																											
Totals	13	139	3																												

Comments

Afternoon Peak Diagram		Specified Period From: 16:00:00 To: 18:00:00	One Hour Peak From: 16:45:00 To: 17:45:00
Municipality: Whitchurch-Stouffville Site #: 2324300001 Intersection: Tenth Line & Bethesda Side Rd TFR File #: 1 Count date: 1-Nov-23		Weather conditions: Person counted: Person prepared: Person checked:	
** Non-Signalized Intersection **		Major Road: Tenth Line runs N/S	

North Leg Total: 460 North Entering: 233 North Peds: 1 Peds Cross:	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="border-right: 1px solid black; padding: 2px;">Heavys</td> <td style="padding: 2px;">0</td> <td style="padding: 2px;">3</td> <td style="padding: 2px;">1</td> <td style="padding: 2px;">4</td> </tr> <tr> <td style="border-right: 1px solid black; padding: 2px;">Trucks</td> <td style="padding: 2px;">0</td> <td style="padding: 2px;">0</td> <td style="padding: 2px;">0</td> <td style="padding: 2px;">0</td> </tr> <tr> <td style="border-right: 1px solid black; padding: 2px;">Cars</td> <td style="padding: 2px;">28</td> <td style="padding: 2px;">185</td> <td style="padding: 2px;">16</td> <td style="padding: 2px;">229</td> </tr> <tr> <td style="border-right: 1px solid black; padding: 2px;">Totals</td> <td style="padding: 2px;">28</td> <td style="padding: 2px;">188</td> <td style="padding: 2px;">17</td> <td style="padding: 2px;"></td> </tr> </table>	Heavys	0	3	1	4	Trucks	0	0	0	0	Cars	28	185	16	229	Totals	28	188	17		<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="border-right: 1px solid black; padding: 2px;">Heavys</td> <td style="padding: 2px;">2</td> </tr> <tr> <td style="border-right: 1px solid black; padding: 2px;">Trucks</td> <td style="padding: 2px;">1</td> </tr> <tr> <td style="border-right: 1px solid black; padding: 2px;">Cars</td> <td style="padding: 2px;">224</td> </tr> <tr> <td style="border-right: 1px solid black; padding: 2px;">Totals</td> <td style="padding: 2px;">227</td> </tr> </table>	Heavys	2	Trucks	1	Cars	224	Totals	227	East Leg Total: 107 East Entering: 45 East Peds: 0 Peds Cross:
Heavys	0	3	1	4																											
Trucks	0	0	0	0																											
Cars	28	185	16	229																											
Totals	28	188	17																												
Heavys	2																														
Trucks	1																														
Cars	224																														
Totals	227																														

Heavys	Trucks	Cars	Totals
1	0	59	60

Tenth Line

Cars	Trucks	Heavys	Totals
23	0	0	23
16	0	1	17
5	0	0	5
44	0	1	

Bethesda Side Rd

N
S
W
E

Bethesda Side Rd

Heavys	Trucks	Cars	Totals
0	0	47	47
1	1	36	38
0	0	27	27
1	1	110	

Tenth Line

Cars	Trucks	Heavys	Totals
59	1	2	62

Peds Cross: West Peds: 1 West Entering: 112 West Leg Total: 172	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="border-right: 1px solid black; padding: 2px;">Cars</td> <td style="padding: 2px;">217</td> </tr> <tr> <td style="border-right: 1px solid black; padding: 2px;">Trucks</td> <td style="padding: 2px;">0</td> </tr> <tr> <td style="border-right: 1px solid black; padding: 2px;">Heavys</td> <td style="padding: 2px;">3</td> </tr> <tr> <td style="border-right: 1px solid black; padding: 2px;">Totals</td> <td style="padding: 2px;">220</td> </tr> </table>	Cars	217	Trucks	0	Heavys	3	Totals	220	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="border-right: 1px solid black; padding: 2px;">Cars</td> <td style="padding: 2px;">15</td> <td style="padding: 2px;">154</td> <td style="padding: 2px;">7</td> <td style="padding: 2px;">176</td> </tr> <tr> <td style="border-right: 1px solid black; padding: 2px;">Trucks</td> <td style="padding: 2px;">0</td> <td style="padding: 2px;">1</td> <td style="padding: 2px;">0</td> <td style="padding: 2px;">1</td> </tr> <tr> <td style="border-right: 1px solid black; padding: 2px;">Heavys</td> <td style="padding: 2px;">0</td> <td style="padding: 2px;">2</td> <td style="padding: 2px;">0</td> <td style="padding: 2px;">2</td> </tr> <tr> <td style="border-right: 1px solid black; padding: 2px;">Totals</td> <td style="padding: 2px;">15</td> <td style="padding: 2px;">157</td> <td style="padding: 2px;">7</td> <td style="padding: 2px;"></td> </tr> </table>	Cars	15	154	7	176	Trucks	0	1	0	1	Heavys	0	2	0	2	Totals	15	157	7		Peds Cross: South Peds: 0 South Entering: 179 South Leg Total: 399
Cars	217																														
Trucks	0																														
Heavys	3																														
Totals	220																														
Cars	15	154	7	176																											
Trucks	0	1	0	1																											
Heavys	0	2	0	2																											
Totals	15	157	7																												

Comments

Total Count Diagram

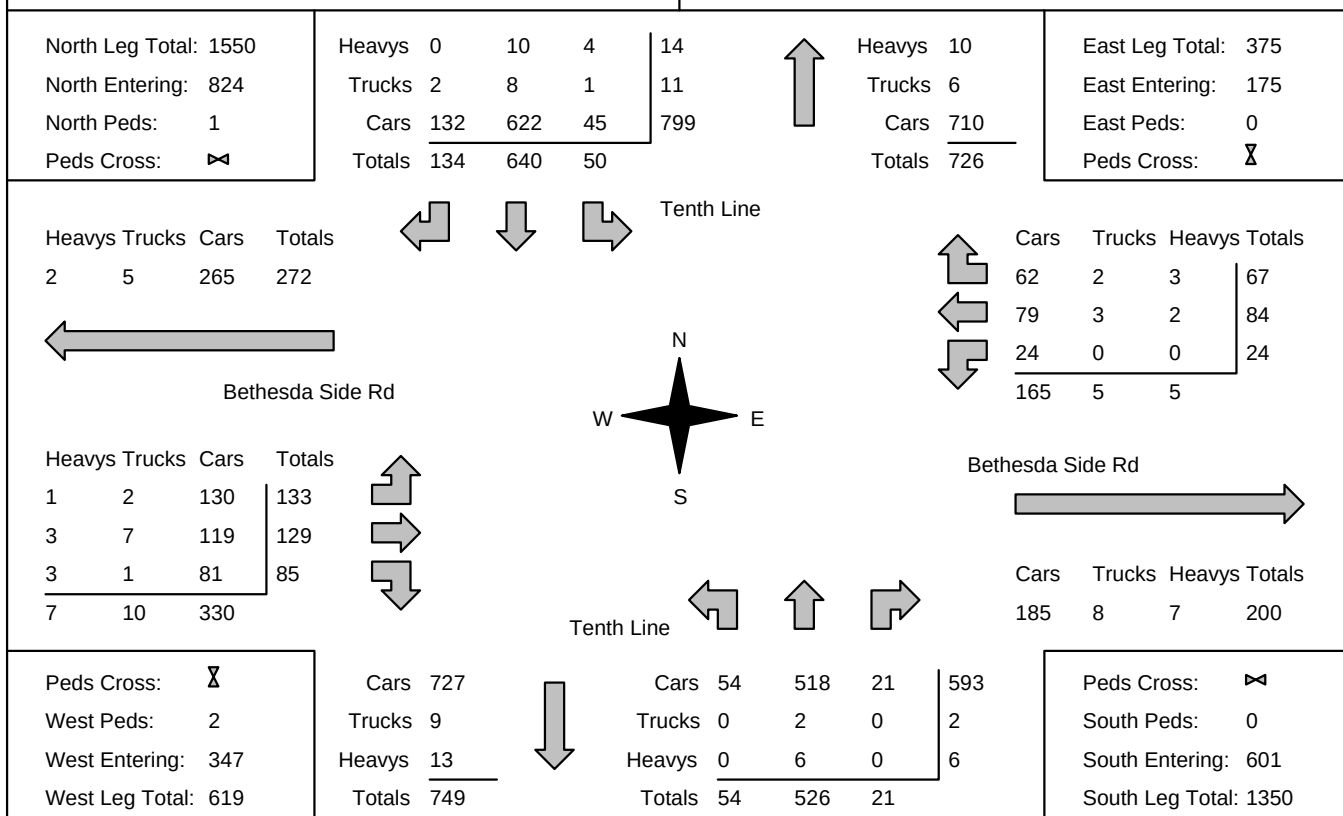
Municipality: Whitchurch-Stouffville
Site #: 2324300001
Intersection: Tenth Line & Bethesda Side Rd
TFR File #: 1
Count date: 1-Nov-23

Weather conditions:

Person counted:
Person prepared:
Person checked:

**** Non-Signalized Intersection ****

Major Road: Tenth Line runs N/S



Comments

Morning Peak Diagram		Specified Period From: 7:00:00 To: 9:00:00	One Hour Peak From: 8:00:00 To: 9:00:00
Municipality: Whitchurch-Stouffville Site #: 2324300002 Intersection: York Durham Line & Bethesda Side TFR File #: 1 Count date: 1-Nov-23		Weather conditions: Person counted: Person prepared: Person checked:	
** Non-Signalized Intersection **		Major Road: York Durham Line runs N/S	

North Leg Total: 471 North Entering: 314 North Peds: 0 Peds Cross:	<table style="width: 100%; border-collapse: collapse;"> <tr><td>Heavys</td><td>0</td><td>13</td><td>13</td></tr> <tr><td>Trucks</td><td>0</td><td>4</td><td>4</td></tr> <tr><td>Cars</td><td>2</td><td>295</td><td>297</td></tr> <tr><td>Totals</td><td>2</td><td>312</td><td></td></tr> </table>	Heavys	0	13	13	Trucks	0	4	4	Cars	2	295	297	Totals	2	312			<table style="width: 100%; border-collapse: collapse;"> <tr><td>Heavys</td><td>10</td></tr> <tr><td>Trucks</td><td>5</td></tr> <tr><td>Cars</td><td>142</td></tr> <tr><td>Totals</td><td>157</td></tr> </table>	Heavys	10	Trucks	5	Cars	142	Totals	157
Heavys	0	13	13																								
Trucks	0	4	4																								
Cars	2	295	297																								
Totals	2	312																									
Heavys	10																										
Trucks	5																										
Cars	142																										
Totals	157																										

York Durham Line

<table style="width: 100%; border-collapse: collapse;"> <tr><td>Heavys</td><td>Trucks</td><td>Cars</td><td>Totals</td></tr> <tr><td>1</td><td>4</td><td>39</td><td>44</td></tr> </table>	Heavys	Trucks	Cars	Totals	1	4	39	44			
Heavys	Trucks	Cars	Totals								
1	4	39	44								

Bethesda Side Rd

<table style="width: 100%; border-collapse: collapse;"> <tr><td>Heavys</td><td>Trucks</td><td>Cars</td><td>Totals</td></tr> <tr><td>0</td><td>0</td><td>2</td><td>2</td></tr> <tr><td>0</td><td>3</td><td>31</td><td>34</td></tr> <tr><td>0</td><td>3</td><td>33</td><td></td></tr> </table>	Heavys	Trucks	Cars	Totals	0	0	2	2	0	3	31	34	0	3	33				
Heavys	Trucks	Cars	Totals																
0	0	2	2																
0	3	31	34																
0	3	33																	

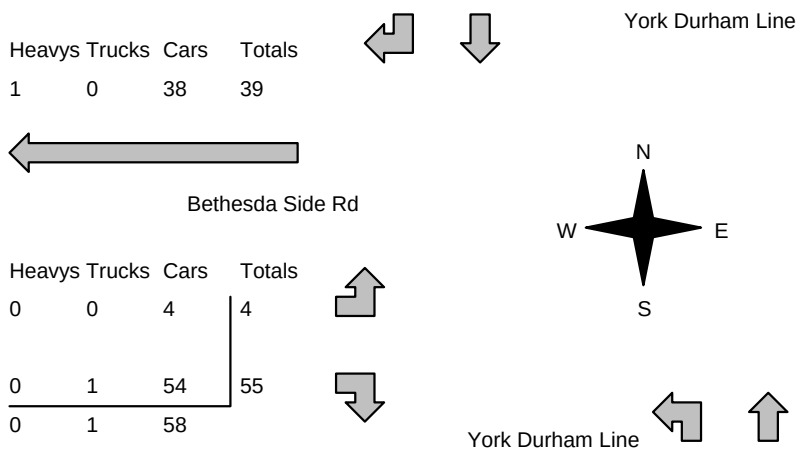
York Durham Line

Peds Cross: West Peds: 0 West Entering: 36 West Leg Total: 80	<table style="width: 100%; border-collapse: collapse;"> <tr><td>Cars</td><td>326</td></tr> <tr><td>Trucks</td><td>7</td></tr> <tr><td>Heavys</td><td>13</td></tr> <tr><td>Totals</td><td>346</td></tr> </table>	Cars	326	Trucks	7	Heavys	13	Totals	346		<table style="width: 100%; border-collapse: collapse;"> <tr><td>Cars</td><td>37</td><td>140</td></tr> <tr><td>Trucks</td><td>4</td><td>5</td></tr> <tr><td>Heavys</td><td>1</td><td>10</td></tr> <tr><td>Totals</td><td>42</td><td>155</td></tr> </table>	Cars	37	140	Trucks	4	5	Heavys	1	10	Totals	42	155	Peds Cross: South Peds: 0 South Entering: 197 South Leg Total: 543
Cars	326																							
Trucks	7																							
Heavys	13																							
Totals	346																							
Cars	37	140																						
Trucks	4	5																						
Heavys	1	10																						
Totals	42	155																						

Comments

Afternoon Peak Diagram		Specified Period From: 16:00:00 To: 18:00:00	One Hour Peak From: 16:45:00 To: 17:45:00
Municipality: Whitchurch-Stouffville Site #: 2324300002 Intersection: York Durham Line & Bethesda Side TFR File #: 1 Count date: 1-Nov-23		Weather conditions: Person counted: Person prepared: Person checked:	
** Non-Signalized Intersection **		Major Road: York Durham Line runs N/S	

North Leg Total: 487 North Entering: 237 North Peds: 0 Peds Cross:	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%;">Heavys</td> <td style="width: 10%;">0</td> <td style="width: 10%;">4</td> <td style="width: 10%; border-left: 1px solid black;"></td> <td style="width: 10%; text-align: right;">4</td> </tr> <tr> <td>Trucks</td> <td>0</td> <td>6</td> <td style="border-left: 1px solid black;"></td> <td style="text-align: right;">6</td> </tr> <tr> <td>Cars</td> <td>1</td> <td>226</td> <td style="border-left: 1px solid black;"></td> <td style="text-align: right;">227</td> </tr> <tr> <td>Totals</td> <td>1</td> <td>236</td> <td style="border-left: 1px solid black;"></td> <td></td> </tr> </table>	Heavys	0	4		4	Trucks	0	6		6	Cars	1	226		227	Totals	1	236				<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%;">Heavys</td> <td style="width: 10%;">7</td> <td style="width: 10%;"></td> <td style="width: 10%; border-left: 1px solid black;"></td> <td style="width: 10%; text-align: right;">7</td> </tr> <tr> <td>Trucks</td> <td>3</td> <td></td> <td style="border-left: 1px solid black;"></td> <td style="text-align: right;">3</td> </tr> <tr> <td>Cars</td> <td>240</td> <td></td> <td style="border-left: 1px solid black;"></td> <td style="text-align: right;">240</td> </tr> <tr> <td>Totals</td> <td>250</td> <td></td> <td style="border-left: 1px solid black;"></td> <td></td> </tr> </table>	Heavys	7			7	Trucks	3			3	Cars	240			240	Totals	250			
Heavys	0	4		4																																							
Trucks	0	6		6																																							
Cars	1	226		227																																							
Totals	1	236																																									
Heavys	7			7																																							
Trucks	3			3																																							
Cars	240			240																																							
Totals	250																																										



York Durham Line

Bethesda Side Rd

York Durham Line

<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%;">Heavys</td> <td style="width: 10%;">Trucks</td> <td style="width: 10%;">Cars</td> <td style="width: 10%; border-left: 1px solid black;"></td> <td style="width: 10%; text-align: right;">Totals</td> </tr> <tr> <td>1</td> <td>0</td> <td>38</td> <td style="border-left: 1px solid black;"></td> <td style="text-align: right;">39</td> </tr> </table>	Heavys	Trucks	Cars		Totals	1	0	38		39	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%;">Heavys</td> <td style="width: 10%;">Trucks</td> <td style="width: 10%;">Cars</td> <td style="width: 10%; border-left: 1px solid black;"></td> <td style="width: 10%; text-align: right;">Totals</td> </tr> <tr> <td>0</td> <td>0</td> <td>4</td> <td style="border-left: 1px solid black;"></td> <td style="text-align: right;">4</td> </tr> <tr> <td>0</td> <td>1</td> <td>54</td> <td style="border-left: 1px solid black;"></td> <td style="text-align: right;">55</td> </tr> <tr> <td>0</td> <td>1</td> <td>58</td> <td style="border-left: 1px solid black;"></td> <td></td> </tr> </table>	Heavys	Trucks	Cars		Totals	0	0	4		4	0	1	54		55	0	1	58				<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%;">Cars</td> <td style="width: 10%;">280</td> <td style="width: 10%;"></td> <td style="width: 10%; border-left: 1px solid black;"></td> <td style="width: 10%; text-align: right;">273</td> </tr> <tr> <td>Trucks</td> <td>7</td> <td></td> <td style="border-left: 1px solid black;"></td> <td style="text-align: right;">3</td> </tr> <tr> <td>Heavys</td> <td>4</td> <td></td> <td style="border-left: 1px solid black;"></td> <td style="text-align: right;">8</td> </tr> <tr> <td>Totals</td> <td>291</td> <td></td> <td style="border-left: 1px solid black;"></td> <td></td> </tr> </table>	Cars	280			273	Trucks	7			3	Heavys	4			8	Totals	291			
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Heavys	4			8																																																	
Totals	291																																																				

Peds Cross:
 West Peds: 0
 West Entering: 59
 West Leg Total: 98

Peds Cross:
 South Peds: 0
 South Entering: 284
 South Leg Total: 575

Comments

Total Count Diagram

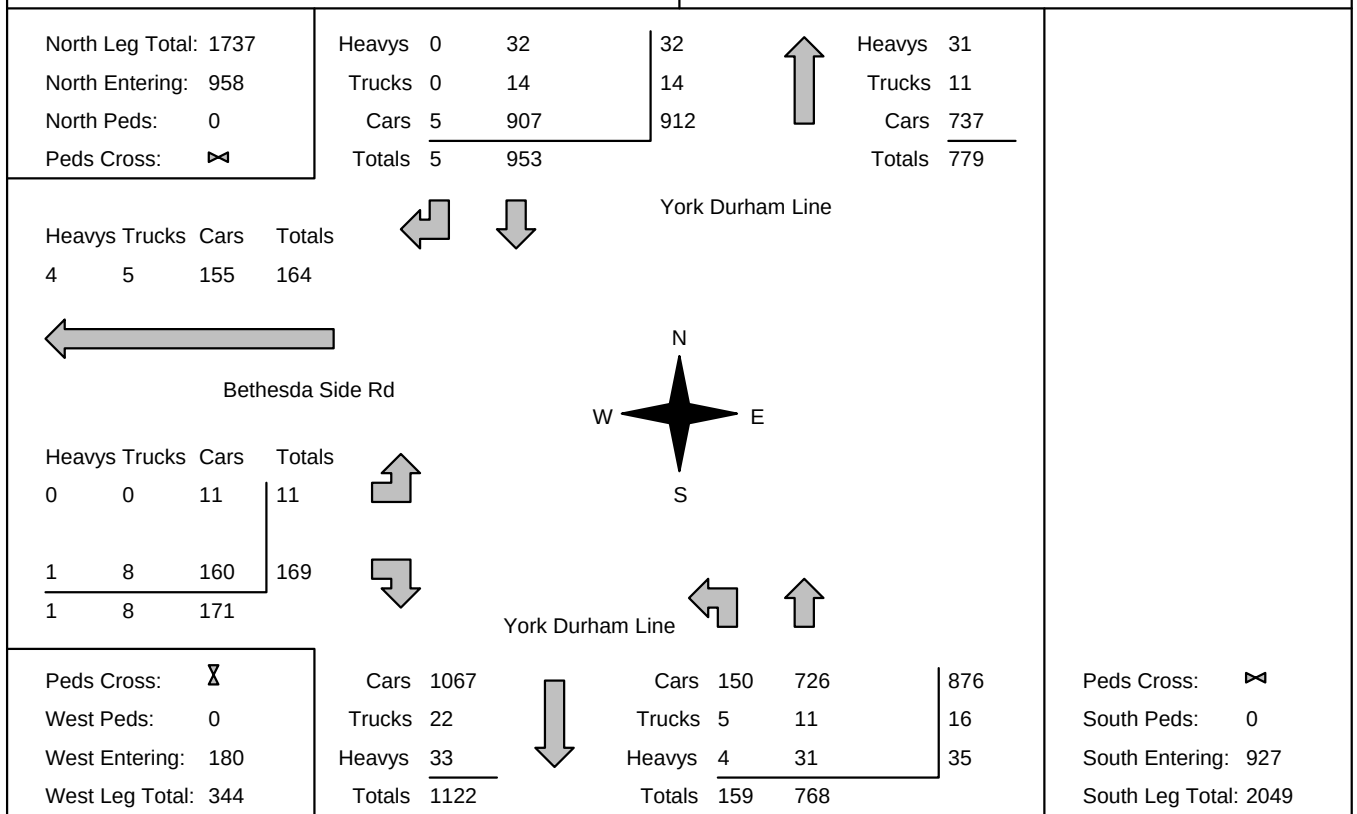
Municipality: Whitchurch-Stouffville
Site #: 2324300002
Intersection: York Durham Line & Bethesda Side
TFR File #: 1
Count date: 1-Nov-23

Weather conditions:

Person counted:
Person prepared:
Person checked:

**** Non-Signalized Intersection ****

Major Road: York Durham Line runs N/S



Comments

RE: GO Rail Volume Request (Old Elm Go Sation Stouville Line) and Lincolnville Layover and Maintenance Facility - RWDI Project Number 2600251

From Rail Data Requests <RailDataRequests@metrolinx.com>
Date Fri 11/7/2025 2:07 PM
To Amy O'Neill <Amy.ONeill@rwdi.com>
Cc Omar Hijazi <Omar.Hijazi@rwdi.com>

Good afternoon,

Further to your request dated November 5, 2025, the subject lands (12973 Tenth Line, Stouffville) are located within 300 metres of the Metrolinx Uxbridge Subdivision (which carries Stouffville GO rail service).

It's anticipated that GO rail service on this Subdivision will be comprised of electric trains only. The GO rail fleet combination on this Subdivision will consist of up to 1 locomotive and 4 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 104 trains. The planned detailed trip breakdown is listed below:

	1 Electric Locomotive		1 Electric Locomotive
Day (0700-2300)	66	Night (2300-0700)	38

The current track design speed near the subject lands is 35 mph (56 km/h).

There are *anti-whistling by-laws* in affect near the subject lands at Tenth Line and Bethesda Side Road at railway crossing.

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.

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.

Best Regards,

Jenna Auger (She/Her)
Project Analyst, Adjacent Construction Review (ACR)
Development & Real Estate Management
T: (416)-881-0579
20 Bay Street | Toronto | Ontario | M5J 2W3



From: Amy O'Neill <Amy.ONeill@rwdi.com>
Sent: November 5, 2025 12:45 PM
To: Rail Data Requests <RailDataRequests@metrolinx.com>
Cc: Omar Hijazi <Omar.Hijazi@rwdi.com>
Subject: GO Rail Volume Request (Old Elm Go Sation Stouville Line) and Lincolnville Layover and Maintenance Facility - RWDI Project Number 2600251

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Good Day,

We are doing a noise and vibration study at Tenth Line and Bethesda Side Road in Whitchurch-Stouffville, ON.

We are most interested in the area around Old Elm Go Sation and Lincolnville Layover and Maintenance Facility. We are looking for the following rail data:

- Growth rate per annum for a 10-year period
- Day and night train volumes
- Average number of cars per train
- Number of Locomotives per train
- Maximum permissible speed
- Type of track (continuously welded, or jointed)
- Rail maintenance facility activity and volumes of trains going into the facility
- Any idling of a locomotive in the vicinity, and approximate idling duration.

The area of interest is indicated in the image below.



Please let me know the estimated turnaround time.

Thanks.

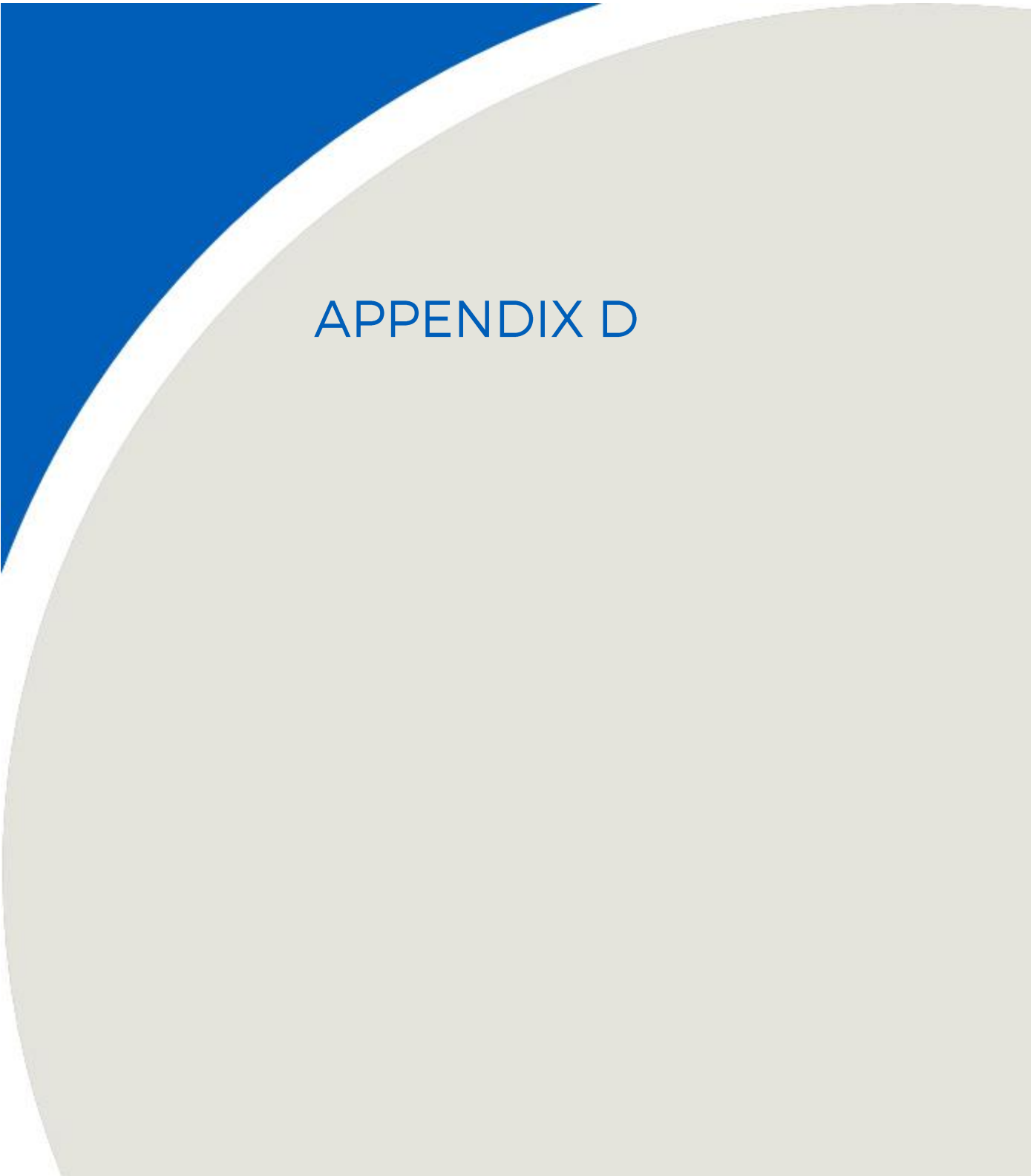
Amy



Amy O'Neill (she/her) | Operations Coordinator
Noise/Acoustics/Vibration
RWDI
Climate & Performance Engineering
600 Southgate Drive, Guelph, ON N1G 4P6 Canada
T: +1.519.823.1311 | D: +226-314-1280 | E: amy.oneill@rwdi.com | rwdi.com

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APPENDIX D

NOISE MITIGATION GUIDANCE

Acoustic/Noise Barrier

Generally, noise controls to attenuate transportation sound levels at Outdoor Living Areas (OLAs) would consist of the implementation of acoustic/noise barriers with materials that would meet the guidance included in NPC-300, for example:

- A wall, berm, wall/berm combination or similar structure, used as a noise control measure, and high enough to break the line-of-sight between the source and the receptor.
- The minimum surface density (face weight) is 20 kg/m²
 - Many materials could satisfy the surface density requirement, e.g. wood, glass, concrete, Plexiglas, Acrylite.
 - The required thickness can be determined by dividing the 20 kg/m² face weight by the material density (kg/m³). Typically, this would imply:
 - 50 mm (2") thickness of wood
 - 13 mm (0.5") thickness of lighter plastic (like Plexiglas or PVC)
 - 6 mm (0.25") thickness of heavier material (like aluminum, glass, concrete)
- The barrier should be structurally sound, appropriately designed to withstand wind and snow load, and constructed without cracks or surface gaps. Joints between panels may need to be overlapped to ensure surfaces are free of gaps, particularly for wood construction.
- Any gaps under the barrier that are necessary for drainage purposes should be minimized and localized, so that the acoustical performance of the barrier is maintained.
- If a sound absorptive face is to be included in the barrier design, the minimum noise reduction coefficient is recommended to be NRC 0.7.

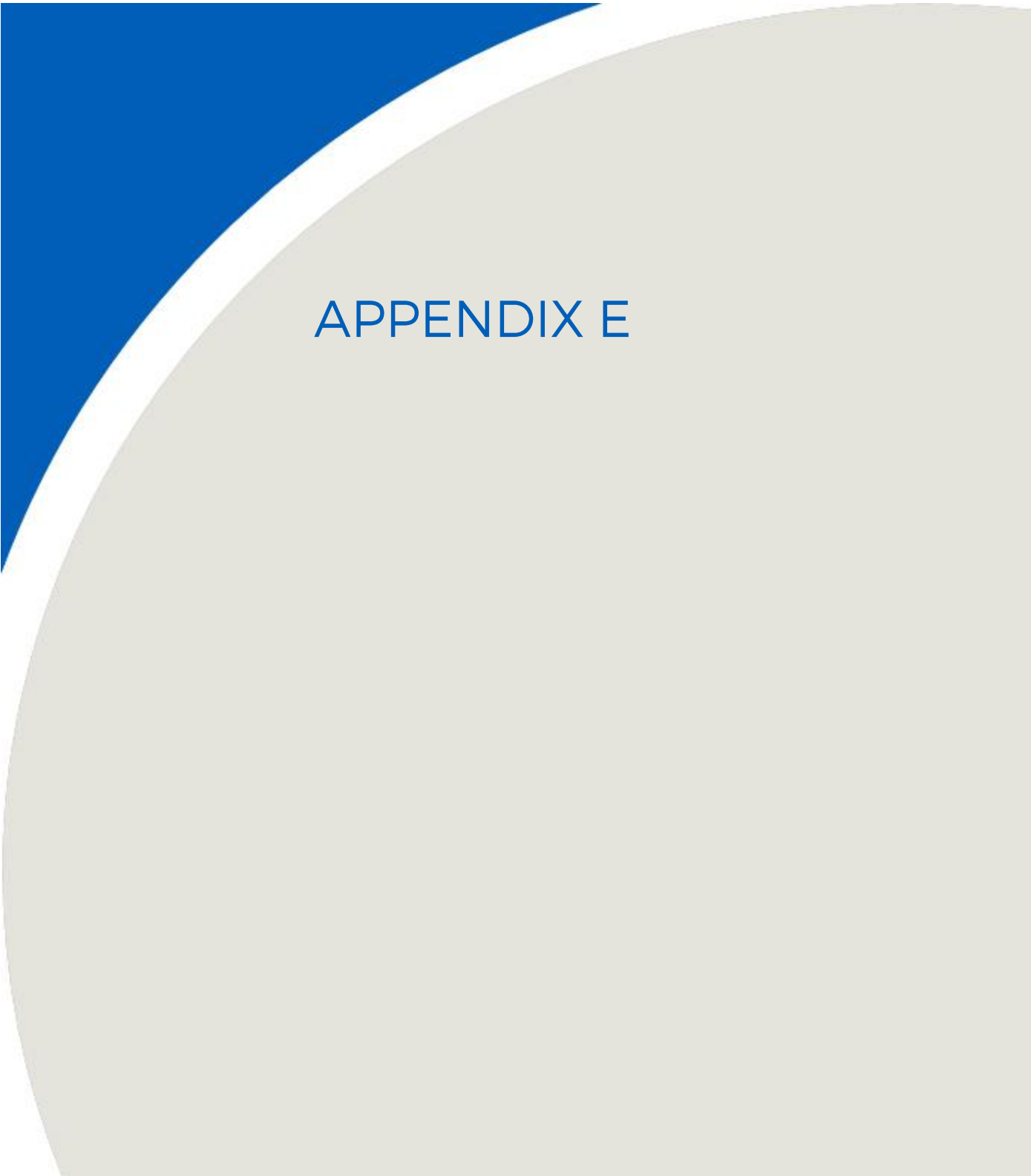
Building Ventilation and Air Conditioning

The use of air conditioning itself is not a noise control measure; however, it allows for windows and doors to remain closed, thereby reducing the indoor sound levels.

NPC-300 provides the following guidance with respect to implementation of building ventilation and air conditioning:

- a. the noise produced by the proposed ventilation system in the space served does not exceed 40 dBA. In practice, this condition usually implies that window air conditioning units are not acceptable;
- b. the ventilation system complies with all national, provincial and municipal standards and codes;
- c. the ventilation system is designed by a heating and ventilation professional; and
- d. the ventilation system enables the windows and exterior doors to remain closed.

Air conditioning systems also need to comply with Publication NPC-216, and/or any local municipal noise by-law that has provisions relating to air conditioning equipment.

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APPENDIX E

WARNING CLAUSES

Warning clauses are recommended to be included on all development agreements, offers of purchase and agreements of purchase and sale or lease. Warning clauses may be used individually or in combination.

The following warning clauses are recommended based on the applicable guidelines; however, wording may be modified/customized during consultation with the planning authority to best suit the proposed development:

Transportation Sources

NPC-300 Type B: Recommended to address surface transportation sound levels in OLAs if the sound level is in the range of >55 dBA but $\leq$ 60 dBA, and noise controls have been provided.

"Purchasers/tenants are advised that despite the inclusion of noise control features in the development and within the building units, sound levels due to increasing road traffic (rail traffic) (air 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."

NPC-300 Type C: Applicable for low and medium density developments only, recommended to address transportation sound levels at the plane of window.

"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."

NPC-300 Type D: Recommended to address transportation sound levels at the plane of window.

"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."