

**WRIGHT LANDS
(788-790 RIVER ROAD)**

NOISE CONTROL FEASIBILITY STUDY



Prepared for:

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August 5, 2020

Novatech File: 116037
Ref. No.: R-2020-026

August 5, 2020

City of Ottawa
Planning and Growth Management Department
Development Review (Urban Services - South) Branch
Infrastructure Approvals Division
110 Laurier Avenue West, 4th Floor
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Attention: **Ms. Tracey Scaramozzino, MCIP RPP
Planner II**

**Mr. Golam Sharif, P.Eng.
Project Manager**

Reference: **Wright Lands (788-790 River Road)
Noise Control Feasibility Study
Novatech File No.: 116037**

In support of the Draft Plan of Subdivision application for the above-noted site, you will find enclosed the Noise Control Feasibility Study for the Wright Lands, also known as 788-790 River Road (Subject Site).

The study evaluates the environmental impact of noise to the proposed residential development, the feasibility of mitigation measures, and recommends the appropriate noise attenuation measures.

Should you have any questions, or require additional information, please contact me.

Yours truly,

NOVATECH



Bassam Bahiā, M.Eng., P. Eng.
Project Manager | Land Development

cc: Taylor Marquis/Erin O'Connor, Regional Group

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1.0 INTRODUCTION

The proposed development for the Wright Lands, also known as 788-790 River Road (Subject Site), is located within the western limits of the Riverside South Community (RSC). More specifically, the Subject Site is at the north-west corner of the River Road and Nicholls Island Road intersection, as shown on **Figure 1.1 – Key Plan**. The Subject Site is bound to the north by an existing residence fronting River Road and a vegetated ravine, to the east by existing residences fronting River Road, to the south by future development lands (Alphon Lands), and to the west by the RCMP Long Island Campgrounds operated by the RCMP Employees Association.

The Subject Site has an area 4.83 ha, and the proposed subdivision will comprise of residential housing, public right-of-ways (ROW), a lift station block, an open space block, and a River Road ROW taking block. The development will contain a City of Ottawa municipal road allowance of 18.0 metres wide. The proposed development is shown on **Figure 1.2 – Site Plan**.

Novatech has been retained by Nicolls Island Holdings Inc. (Developer) to assess the environmental impact of noise for the Subject Site, the feasibility of mitigation measures, and recommend the appropriate noise attenuation measures to ensure compliance with the City of Ottawa Environmental Noise Control Guidelines, January 2016 (ENCG) and the Ministry of the Environment Environmental Noise Guideline, August 2013 (Provincial Guideline).

As per the ENCG, this report is considered a Phase 1 Noise Control Feasibility Study. A Phase 2 Noise Control Detailed Study will be included as part of the supporting documentation submitted in support of the Plan of Subdivision Application.

2.0 NOISE CONTROL CRITERIA AND GUIDELINES

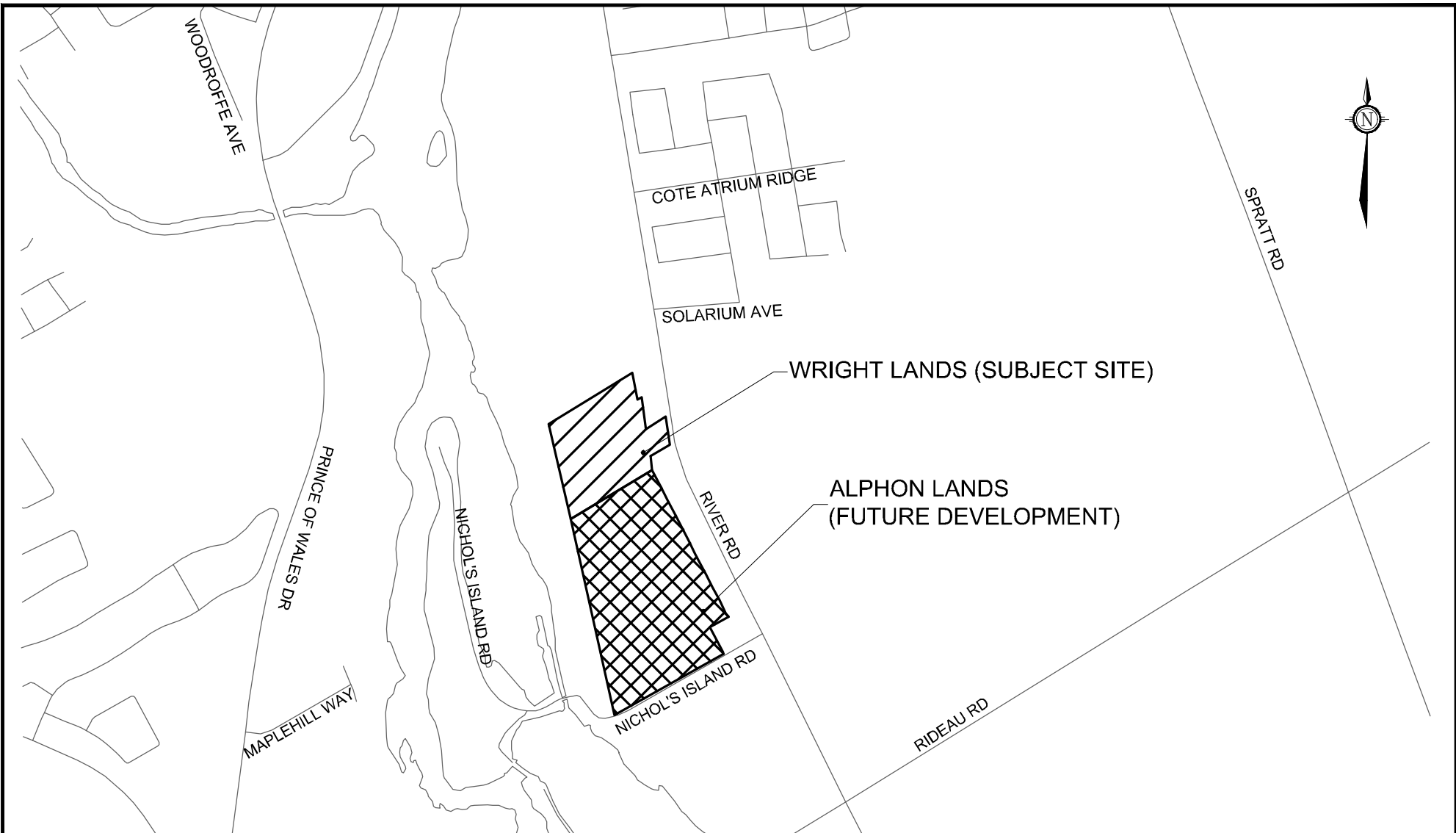
2.1 Sound Level Criteria

The City of Ottawa is concerned with noise from aircraft, roads, transitways and railways as expressed in Section 4.8.7 of the Official Plan (OP). These policies are supported by the ENCG which is a technical document that outlines the specific sound level criteria, commonly referred to as the Logarithmic Energy Equivalent Continuous Sound Level (L_{eq}). The ENCG has been used as a guideline for this study.

When considering surface transportation noise, proposed noise-sensitive developments must be evaluated within 100 m from the right-of-way of an existing or proposed arterial, collector, major collector, light rail transit, or bus transitway; 250 m from the right-of-way of an existing or proposed highway or a Secondary Main railway line; and 500 m from the right-of-way of a freeway, 400 series provincial highway, or Principle Main railway line. For the purposes of this study, River Road is considered a 2-Lane Urban Arterial (2-UAU) and is within 100 m of the Subject Site, thus requiring analysis. Solarium Avenue is classified as a major collector and Nicholls Island Road is classified as a collector; however, both are greater than 100 m from the Subject Site. See markup of the Schedule E, Urban Road Network, highlighting the Subject Site location in **Appendix A**.

For aircraft noise, the City of Ottawa and the Ottawa International Airport Authority have defined the noise contours using the Noise Exposure Forecast (NEF) and Noise Exposure Projection (NEP) methods. The noise contours define the Airport Operating Influence Zone (AOIZ) and Airport Vicinity

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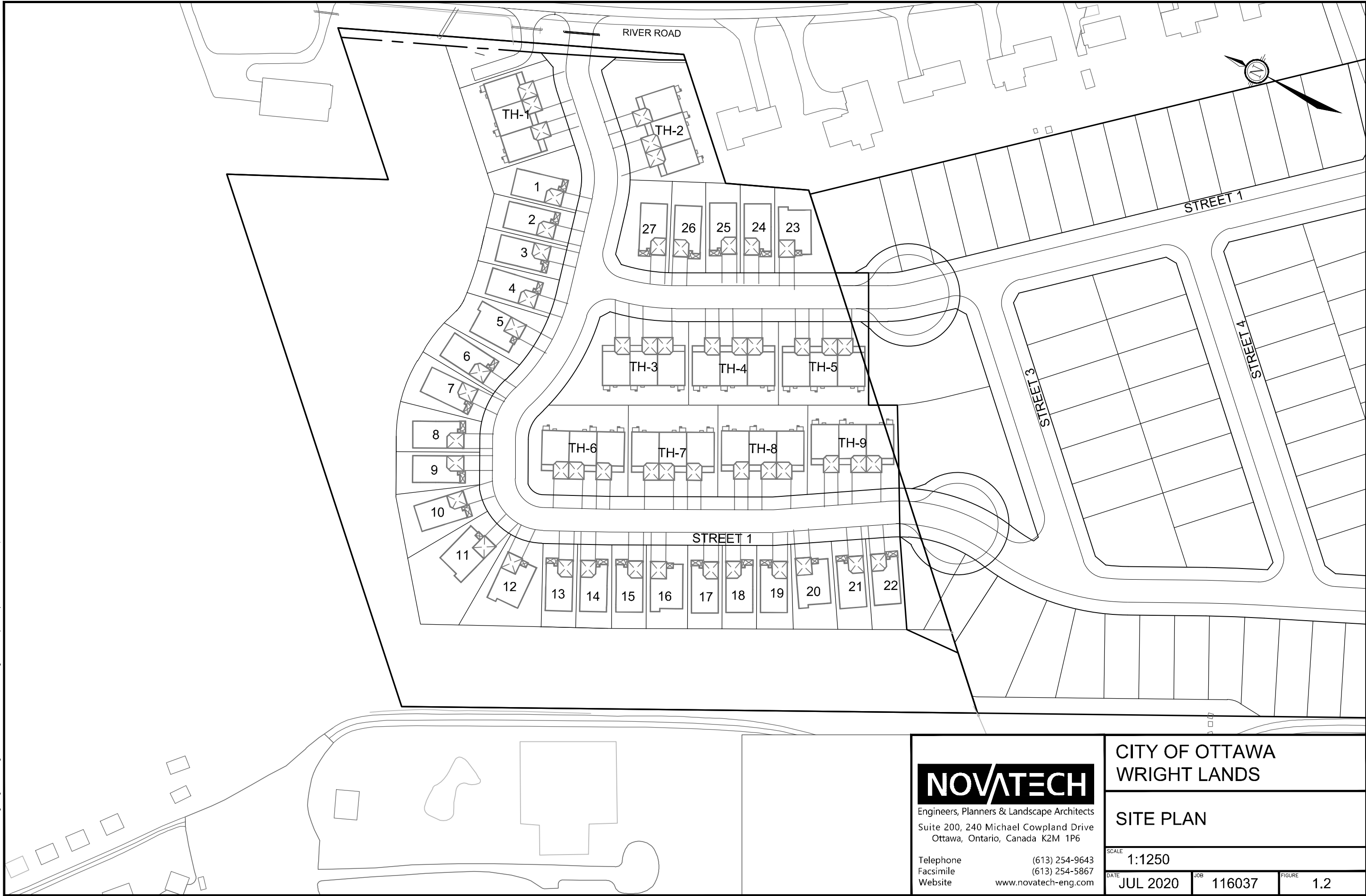
CITY OF OTTAWA
WRIGHT LANDS

KEY PLAN

SCALE
NOT TO SCALE

DATE JUL 2020	JOB 116037	FIGURE 1.1
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CITY OF OTTAWA
WRIGHT LANDS

SITE PLAN

SCALE 1:1250

DATE JUL 2020

JOB 116037

FIGURE 1.2

Development Zone (AVDZ) as illustrated on Schedule K, Environmental Constraints, in the OP. Annex 10 of the OP further details the Noise Exposure Projection (NEP) areas of the Macdonald-Cartier Airport for planning purposes. The Subject Site is located outside the AVDZ, and thus the AOIZ. See markup of the Annex 10, Land Use Constraints Due to Aircraft Noise, highlighting the Subject Site location in **Appendix A**.

For stationary noise, when developments are in proximity to existing noise sensitive receptors or lands designated for future development of noise sensitive receptors, noise sources must be evaluated. The emergency generator which may be required for the sanitary lift station. If required this noise source represents an individual stationary noise source which, when in operation, would emit sound and vibration levels beyond the property boundary, thus also requiring analysis.

Due to the foregoing, this study will still consider two types of noise sources:

- Surface transportation noise from River Road, classified as an arterial road on Schedule E, Urban Road Network, in the OP;
- Stationary noise from the emergency generator required for the sanitary lift station. The Subject Site is referred to as a Class 2 area in the ENCG.

The mandate of acoustical engineering in respect to land-use planning is typically to analyze, and where required, design an acceptable acoustic environment that complies with the ENCG document to the extent that is both reasonable and practical. The areas which must be assessed for acoustic protection include the Outdoor Living Area (OLA); and the Indoor Living Environment (ILE), for both living/dining area and sleeping quarters.

The OLA is defined as part of the outdoor amenity area provided for the quiet enjoyment of the outdoor environment during the day-time period. These amenity areas are typically backyards, gardens, terraces and patios.

The ILE is provided for the quiet enjoyment of the living/dining and sleeping quarters within a dwelling, during both the day-time and night-time periods.

Surface Transportation Noise

The OLA noise target for road surface transportation noise sources is 55 dBA. This criterion may be exceeded by an amount not greater than 5 dBA, subject to justification and the use of a warning clause.

The ILE sets noise target for road surface transportation noise sources at 45 dBA (day-time) and 40 dBA (night-time), respectively. If this criterion is exceeded, the property may be subject to building component analysis to ensure noise criteria are met and warning clauses.

The outdoor and indoor sound level criteria for surface transportation noise are summarized below in **Table 2.1**.

Table 2.1: Outdoor and Indoor Sound Level Criteria for Surface Transportation Noise

Environment	Receiver Location and Description	Time Period	Abbreviation for Report & Modelling	ENCG Equivalent Sound Level Criteria, L_{eq}
Outdoor	Outdoor Living Area	Day-time (07:00 - 23:00 hrs) 16 hour period	OLA-16	55 dBA
Indoor	Living/ dining, den areas of residences, hospitals, nursing homes, schools, daycare centres, etc.	Day-time (07:00 - 23:00 hrs) 16 hour period	ILED-16	45 dBA
	Living/ dining, den areas of residences, hospitals, nursing homes, etc. (except schools or daycare centres)	Night-time (23:00 - 07:00 hrs) 8 hour period	ILED-8 *	45 dBA
	Sleeping quarters	Day-time (07:00 - 23:00 hrs) 16 hour period	ILES-16	45 dBA
	Sleeping quarters	Night-time (23:00 - 07:00 hrs) 8 hour period	ILES-8	40 dBA

Notes:

(1) **ILED-8** has not been analysed or modelled in this study, as the noise levels would be governed by **ILES-8**.

Stationary Noise (Steady and Varying)

The impact of stationary noise on the community is largely dependent on its location in the City. For this reason, the ENCG and Provincial guidelines have established four community class areas which are defined by their ambient sound level. As mentioned above, the Subject Site is classified as a Class 2 area.

The OLA noise target for steady and varying stationary noise sources is 50 dBA (day-time) and 45 dBA (night-time). This criterion may be exceeded by an amount not greater than 5 dBA, subject to justification and the use of a warning clause.

The ILE sets noise target for steady and varying stationary noise sources at 50 dBA (day-time) and 45 dBA (night-time), respectively. If this criterion is exceeded, the property may be subject to building component analysis to ensure noise criteria are met and warning clauses.

The outdoor and indoor sound level criteria for stationary noise are summarized below in **Table 2.2**.

Table 2.2: Outdoor and Indoor Sound Level Criteria for Stationary Noise

Environment	Receiver Location and Description	Time Period	Abbreviation for Report & Modelling	ENCG Equivalent Sound Level Criteria, L_{eq}
Outdoor	Outdoor Living Area	Day-time (07:00 - 19:00 hrs) 12 hour period	OLA-12	50 dBA
		Night-time (19:00 - 23:00 hrs) 4 hour period	OLA-4	45 dBA
Indoor	Living/ dining, den areas of residences, hospitals, nursing homes, schools, daycare centres, etc.	Day-time (07:00 - 23:00 hrs) 16 hour period	ILED-16	50 dBA
	Living/ dining, den areas of residences, hospitals, nursing homes, etc. (except schools or daycare centres)	Night-time (23:00 - 07:00 hrs) 8 hour period	ILED-8 *	45 dBA
	Sleeping quarters	Day-time (07:00 - 23:00 hrs) 16 hour period	ILES-16	50 dBA
	Sleeping quarters	Night-time (23:00 - 07:00 hrs) 8 hour period	ILES-8	45 dBA

Notes:

(1) **ILED-8** has not been analysed or modelled in this study, as the noise levels would be governed by **ILES-8**.

2.2 Noise Attenuation Requirements

When sound levels are predicted to be less than the specified criteria for the day-time and night-time conditions, no attenuation measures are required by the proponent. As the noise criteria is exceeded, a combination of attenuation measures is recommended by the City of Ottawa to modify the development environment. These attenuation measures may include:

- Adjusting the site layout to maximize noise insensitive land uses between the noise source and sensitive receptor;
- Orienting buildings to provide sheltered zones in rear yards;
- Constructing noise barriers and/or berms;
- Building component design for acoustic insulation;
- Installation of a forced air ventilation system with provision for central air conditioning;
- Warning Clauses within Development Agreement(s) and Agreement(s) of Purchase and Sale of prospective home buyers, all of which will be registered on title.

Refer to the ENCG Part 4, Section 3.2 – Phase 2 Noise Control Detailed Study Requirements for further details on the City of Ottawa's requirements.

3.0 NOISE SOURCES

3.1 Surface Transportation – River Road (Noise Source 1)

River Road is classified as an arterial road as per the 2013 Transportation Master Plan (TMP). At this particular section of River Road there are 2-lanes for travel; therefore, for this study it was modelled as a 2-Lane Urban Arterial. The parameters to be used for sound level predictions are outlined in the ENCG (Appendix B, Table B1). The roadway noise parameters are summarized below in **Table 3.1**.

Table 3.1: River Road, 2-Lane Urban Arterial Traffic and Road Parameters

Roadway Parameters	River Road, 2-Lane Urban Arterial
Roadway Classification	Urban Arterial (2-UAU)
Annual Average Daily Traffic (AADT)	15,000
Posted Speed	70 km/hr.
Day / Night Split (%)	92 / 8
Medium Trucks (%)	7
Heavy Trucks (%)	5

3.2 Stationary – Emergency Generator (Noise Source 2)

It is anticipated that the proposed emergency power feed for the sanitary lift station will be a 35 kW diesel generator with self-enclosed noise reduction measures. If required, the emergency generator will be a backup feed and will only be used when the primary hydro feed is unavailable which may occur intermittently, during both day-time and night-time hours; and during maintenance and operation testing procedures. Thus, the frequency of usage will be minimal.

Noise guidelines for emergency generators are only applicable for the maintenance testing and are not applicable for emergency use. The MOE enacted O.Reg 346/12, which allows emergency generators to be registered without an Environmental Compliance Approval, since it is recognized that emergency generators are unlikely to be a nuisance to the public if they complied with this regulation. These requirements include a maximum noise level of 75 dBA at 7 meters, and a maximum number of daytime hours of testing permitted in a year. In practice, maintenance testing is conducted for less than 4 hours per month, during daytime hours.

Although the exact make and model of the emergency generator has yet to be determined, a generator of this size typically yields a performance rating of 70 dBA at 7 meters at full rated load. This will be the parameter used for the sound level predictions for this study.

4.0 NOISE LEVEL MODELLING AND PREDICTIONS

4.1 Surface Transportation - Acoustic Modeling

For surface transportation sources, noise levels are calculated using the STAMSON computer program, version 5.03. This program allows us to input variables of a road or railway such as traffic volume, types of vehicles, speed, barrier locations and topography to determine the environmental noise impact at a point of reception.

To analyze the noise impact on the Subject Site from the aforementioned surface transportation noise source, one point of reception was implemented at the critical OLA and one point of reception was implemented at the critical ILE. Refer to the noise control plan provided for the receiver locations.

The parameters used in STAMSON to assess the noise impacts at the receiver locations can be found below in **Table 4.1**. It should be noted that when practical and when the orientation of the proposed buildings within the Subject Site in relation to the noise source permitted, screening from the proposed buildings was implemented when applicable. To be conservative, a height of 5.25 meters was used since the builder has various bungalow products that may be constructed. To be conservative, no further screening from existing buildings or vegetation surrounding the development was included in this noise assessment.

Noise modeling was undertaken for the following environments:

OLAs

For the purposes of this noise impact assessment, all receivers for the OLA-16 time period are located 3.0 meters from the building façade, 1.5 meters above grade, and aligned with the midpoint of the subject façade as per the ENCG.

ILEs

For the purposes of this noise impact assessment, all receivers for the ILE-16 time period are located at the plane of window, 1.5 meters above grade, and aligned in closest proximity to the noise source as per the ENCG.

All receivers for the ILES-16, and ILES-8 time periods are located at the plane of window, 4.5 meters above grade, and aligned in closest proximity to the noise source as per the ENCG.

Table 4.1: Road Segment/ Receiver Parameters

Receiver	Segment Reference	Road Segment - Receiver Angles		Shielding - Barrier Angles		Shielding - Barrier Parameters				
		RØ1	RØ2	BØ1	BØ2	Receiver source distance (m)	Barrier receiver distance (m)	Source ground elevation (m)	Receiver ground elevation (m)	Barrier ground elevation (m)
Outdoor Living Areas										
R1	S1	-90	-50	-90	-50	32.1	3.0	89.75	89.00	89.00
	S2	-50	90	-50	90	32.1	11.4	89.75	89.00	89.00
R3	S1	-90	-31	-90	-31	41.7	3.0	89.75	88.50	88.50
	S2	-31	90	-31	21	41.7	11.4	89.75	88.50	88.50
R2	S1	-90	7	-90	7	38.0	6.7	89.50	89.00	89.00
	S2	7	90	7	90	38.0	3.0	89.50	89.00	89.00
R4	S1	-90	-12	-71	-12	47.3	16.4	89.50	88.75	88.75
	S2	-12	90	-12	90	47.3	3.0	89.50	88.75	88.75
Indoor Living Environments										
R1	S1	-90	90	n/a	n/a	28.2	n/a	89.75	89.00	n/a
R2	S1	-90	90	n/a	n/a	26.4	n/a	89.50	89.88	n/a

Notes:

- (1) Refer to Figure 116037-NC1 for receiver and noise source locations.
(2) All receiver angles are the same for both unattenuated and attenuated scenarios.
(3) All receiver angles are the same for ILES (i.e., ILED-16, ILES-16, and ILES-8).
(4) Source height = source ground elevation + 1.5m.
(5) Receiver height = receiver ground elevation + 1.5m (for all OLA and ILED-16 time periods); receiver ground elevation + 4.5m (for ILES-16, and ILES-8 time periods).

4.2 Surface Transportation - Noise Level Predictions

The following **Table 4.2** summarizes the predicted sound levels at the receiver locations from the results of the STAMSON environmental noise software calculation. The complete modelling outputs can be found in **Appendix B**.

Table 4.2: OLA Noise Level Summary

Receiver	Unattenuated L _{eq} (15,000 vpd)	On-site Attenuated L _{eq} (15,000 vpd)	Noise Barrier Reference
	OLA-16	OLA-16	
R1	63.76	58.37	Noise Barrier No.1
R2	60.74	55.01	Noise Barrier No.2
R3	-	59.18	Noise Barrier No.1
R4	-	54.22	Noise Barrier No.2

Notes:

- (1) Refer to Figure 116037-NC1 for receiver and noise source locations.

As outlined in **Table 2.1**, the target noise level for the OLA is 55 dBA, with a provision of an additional 5 dBA tolerance subject to justification and the use of a warning clause. For the established OLAs affected by the surface transportation noise within this proposed development, the day-time noise levels fall below the maximum tolerable outdoor living area noise level when implementing the attenuated measures where required. Refer to further discussions in Section 5.1 of this report.

Table 4.3: ILE Noise Level Summary

Receiver	Unattenuated L_{eq} (15,000 vpd)		
	ILED-16	ILES-16	ILES-8
R1	65.31	65.71	58.11
R2	65.78	66.16	58.56

Notes:

(1) Refer to Figure 116037-NC1 for receiver and noise source locations.

The target noise levels for the ILE, also outlined in **Table 2.1**, for both living/dining area and sleeping quarters is 45 dBA and 40 dBA, respectively. To mitigate these sound levels, additional building component analysis is required to ensure noise criteria are met. Refer to further discussions in Section 5.2 of this report.

4.3 Stationary – Noise Level Predictions

The projected noise levels of the proposed emergency power feed are determined by a sound-distance correlation. Using the generators yield of 70 dBA at 7 meters at full rated load, noise levels of interest can be used to determine the distance corresponding to the aforementioned noise level. This can then be used to establish and analysis the critical zones for both the OLAs and ILEs.

The reference distance for the noise level of interest is calculated as follows:

$$R_2 = R_1 \times 10^{\{ |L_1 - L_2| / 20 \}}$$

Where, L_1 = Noise level at reference distance R_1 (70 dBA);

R_1 = Reference distance for noise level L_1 (7.0 m);

L_2 = Noise level at reference distance R_2 (noise level of interest).

Example – Noise Level L_2 = 55 dBA:

$$R_2 = 7.0 \text{ m} \times 10^{\{ |70 \text{ dBA} - 55 \text{ dBA}| / 20 \}} = 39.4 \text{ m}$$

The following **Table 4.4** summarizes the reference distance for the noise levels of interest from the results of the sound-distance calculation.

Table 4.4: Reference Distance/ Noise Level Summary

Noise Levels of Interest (dBa)	Reference Distance (m)
65	12.5
60	22.1
55	39.4
50	70.0
45	124.5

Notes:

(1) Refer to Drawing 116037-NC2 for noise levels of interest in relation to the emergency generator.

(2) The noise levels of interest and the corresponding reference distances are considered to be unattenuated - no screening or noise exposure limitations have been applied.

As outlined in **Table 2.2**, the target noise level for the OLA is 50 dBA and 45 dBA for the day-time and night-time, respectively. This comes with a provision of an additional 5 dBA tolerance subject to justification and the use of a warning clause. For the established OLAs affected by the infrequent stationary noise within this proposed development, attenuated measures have been implemented in order to provide best efforts in reducing the noise levels to meet both the day-time and night-time criteria. Refer to further discussions in Section 5.1 of this report.

The target noise levels for the ILE, also outlined in **Table 2.2**, for both living/dining area and sleeping quarters is 50 dBA and 45 dBA, respectively. To mitigate these sound levels, additional building component analysis is required to ensure noise criteria are met. Refer to further discussions in Section 5.2 of this report.

5.0 NOISE LEVEL ATTENUATION MEASURES

5.1 Outdoor – Proposed Noise Barrier

To meet the required OLA noise levels for both the surface transportation and stationary noise, two noise barriers are being proposed at the Subject Site. As shown in the tables in Section 4.2 of this report, with the proposed noise barriers being implemented the noise levels at the specified OLAs provide adequate noise attenuation. The following outlines the proposed:

- Noise Barrier No.1 – 2.5 m high noise barrier, 41 m in length, within Townhouse Block 2;
- Noise Barrier No.2 – 2.5 m high noise barrier, 35 m in length, within Townhouse Block 1.

Note the City of Ottawa's maximum height for noise barriers for new developments is 2.5 m, unless otherwise approved by the City. Thus, for the purpose of this report a 2.5 m high noise barrier was used. As part of the Phase 2 Noise Control Detailed Study a combined barrier height (i.e. berm and wall) will be reviewed. based on the noise level results noise level attenuation measures are required.

Additional details on the noise barriers will be provided as part of the Phase 2 Noise Control Detailed Study.

5.2 Indoor – Proposed Building Component Assessment

When ILE noise levels exceed the ENCG day-time or night-time criteria, the exterior shell system of the building envelope must be acoustically assessed to ensure the indoor noise criteria is achieved for the surface transportation and stationary noise. Based on the results Section 4.3 of this report, in the proposed development the sound levels at the ILE receiver locations falls above the day-time and night-time allowances. Therefore, additional analysis of the cladding system is warranted. To comply with the ENCG policies, the building envelope will require a minimum Acoustic Insulation Factor (AIF) or Sound Transmission Class (STC) rating to provide the desired indoor noise levels as shown above in **Table 2.1** and **Table 2.2**.

Per common industry practice, complete walls and individual wall elements are rated per the STC value. The STC ratings of common residential walls built in conformance with the Ontario Building Code typically exceed an STC rating of 35; and standard good quality double-glazed non-operable windows can have STC ratings ranging from 25 to 40 depending on the manufacturer, components, glazing or air spaces thickness, and seal materials. Generally, common industry practice provides sufficient mitigation to obtain the target noise levels for the ILE.

Additional details and assessment of the proposed building components will be provided as part of the Phase 2 Noise Control Detailed Study.

5.3 Provision for Central Air Conditioning

To provide indoor isolation and avoid noise intrusion through open windows or doors, the installation of a forced air ventilation system with provisions for central air conditioning may be required.

Additional details on which lots may be required to implement provisions for central air conditioning will be provided as part of the Phase 2 Noise Control Detailed Study.

5.4 Proposed Warning Clauses

If noise levels are expected to exceed the applicable ENCG sound level criteria, the City of Ottawa recommends a warning clause be registered on title and incorporated into the Subdivision Agreement and in the Agreement of Purchase and Sale. The warning clause serves to alert potential buyers and/or renters of the possible noise condition and of any limitations that may exist on his/her property rights.

Additional details on which lots will be required to apply warning clauses will be provided as part of the Phase 2 Noise Control Detailed Study.

6.0 CONCLUSIONS AND RECOMMENDATIONS

This study confirms the predicted outdoor noise levels for the proposed residential development from the surface transportation and stationary noise are in excess of the City of Ottawa's required criteria and are above the maximum tolerance per the ENCG. As such, the following measures are being proposed:

- Construction of a 2.5 m high noise barrier (Noise Barrier No.1) within Townhouse Block 2;
- Construction of a 2.5 m high noise barrier (Noise Barrier No.2) within Townhouse Block 1;

- Additional details on the noise barriers will be provided as part of the Phase 2 Noise Control Detailed Study;
- Additional details and assessment of the proposed building components will be provided as part of the Phase 2 Noise Control Detailed Study;
- Additional details on which lots may be required to implement provisions for central air conditioning will be provided as part of the Phase 2 Noise Control Detailed Study;
- Additional details on which lots will be required to apply warning clauses will be provided as part of the Phase 2 Noise Control Detailed Study.

This study is respectfully submitted in support of the Draft Plan of Subdivision application. Please contact the undersigned should you have questions or require additional information.

NOVATECH

Prepared by:



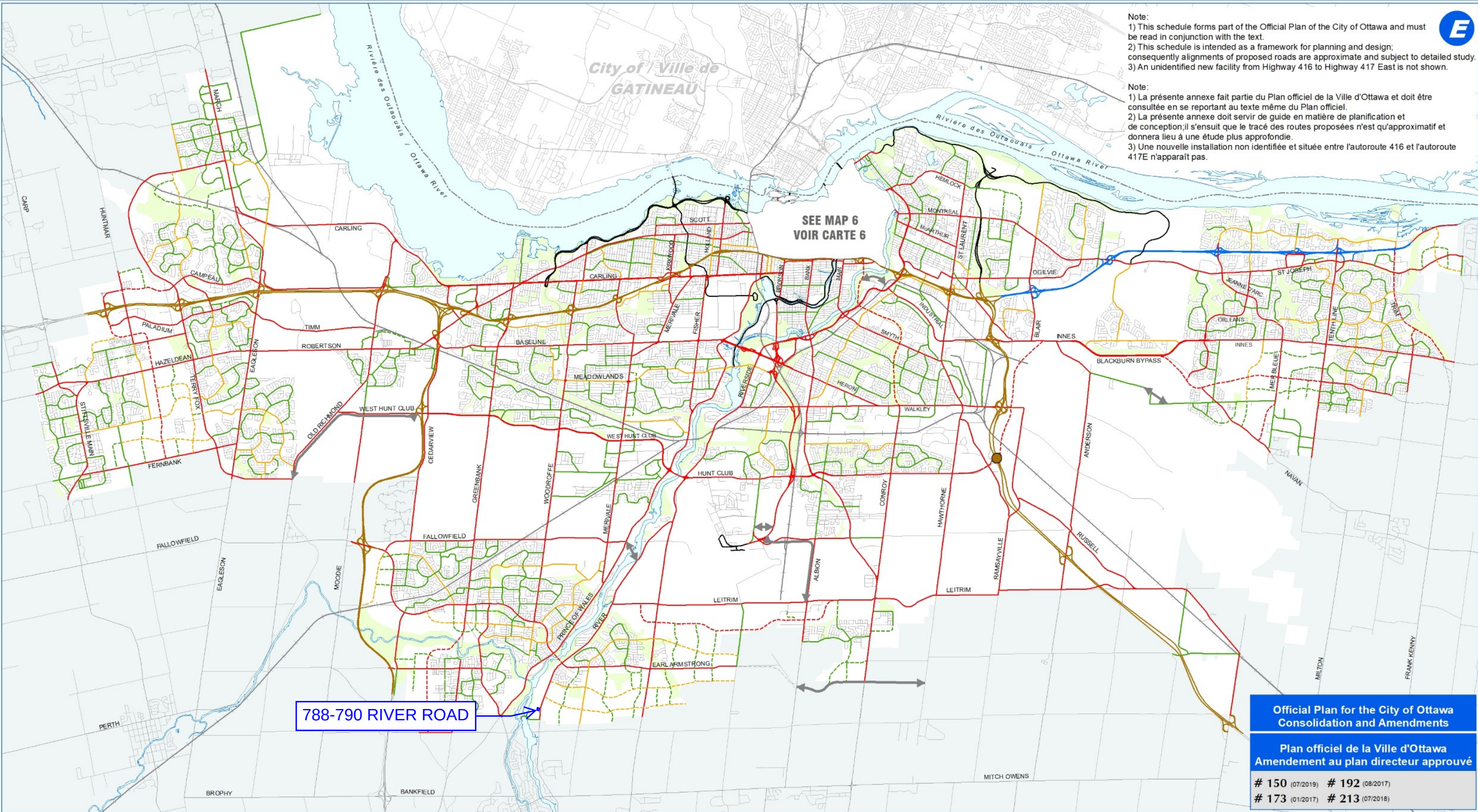
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Appendix A
Official Plan and Environmental Noise Control Guidelines Excerpts



Note:
1) This schedule forms part of the Official Plan of the City of Ottawa and must be read in conjunction with the text.
2) This schedule is intended as a framework for planning and design; consequently alignments of proposed roads are approximate and subject to detailed study.
3) An unidentified new facility from Highway 416 to Highway 417 East is not shown.

Note:
1) La présente annexe fait partie du Plan officiel de la Ville d'Ottawa et doit être consultée en se reportant au texte même du Plan officiel.
2) La présente annexe doit servir de guide en matière de planification et de conception; il s'ensuit que le tracé des routes proposées n'est qu'approximatif et donnera lieu à une étude plus approfondie.
3) Une nouvelle installation non identifiée et située entre l'autoroute 416 et l'autoroute 417E n'apparaît pas.



Official Plan for the City of Ottawa
Consolidation and Amendments

Plan officiel de la Ville d'Ottawa
Amendement au plan directeur approuvé

# 150 (07/2019)	# 192 (08/2017)
# 173 (01/2017)	# 213 (07/2018)

OFFICIAL PLAN - Schedule E
URBAN ROAD NETWORK

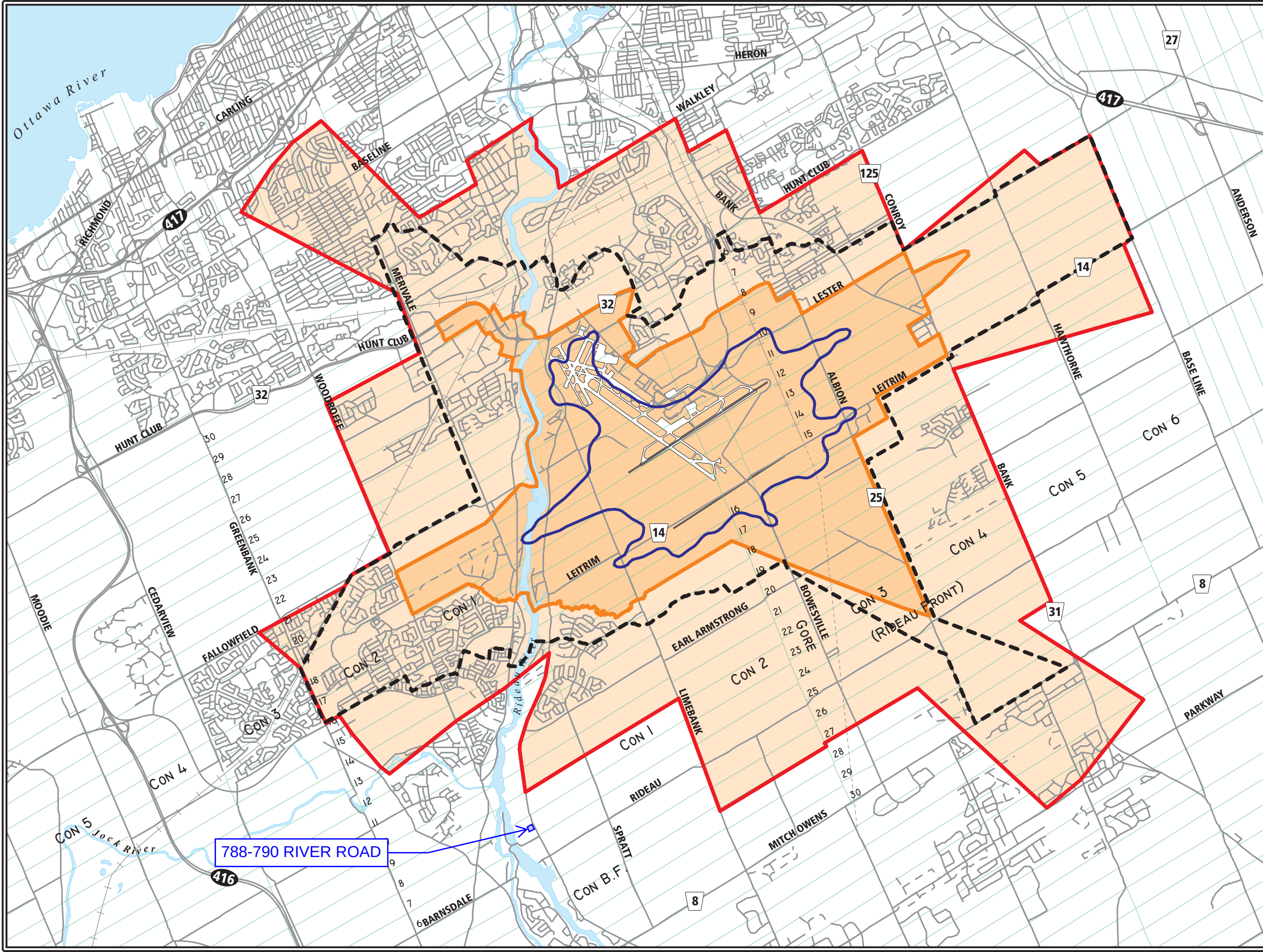
PLAN OFFICIEL - Annexe E
RÉSEAU ROUTIER - URBAIN

- | | | | |
|----------------------|-----------------------------|---|---|
| Provincial Highway | Chemin de propriété fédéral | Arterial - Existing | Artère - Établie |
| Federally Owned Road | Route provinciale | Arterial - Proposed (alignment defined) | Artère - Proposé (alignement déterminée) |
| City Freeway | Autoroute de ville | Arterial - Conceptual (alignment undefined) | Artère - Conceptuelle (alignement à déterminer) |
| | | Major Collector - Existing | Grande collectrice - Établie |
| | | Major Collector - Proposed | Grande collectrice - Proposé |
| | | Collector - Existing | Collectrice - Établie |
| | | Collector - Proposed | Collectrice - Proposé |
| | | New Interchange | Nouvel échangeur |

1 0.5 0 1 2 3 km

Planning, Infrastructure and Economic Development Department,
GIS and Data Management

Services de la planification, de l'infrastructure et du développement économique,
SIG et Gestion des données



OFFICIAL PLAN - ANNEX 10 Land Use Constraints Due to Aircraft Noise

Prepared by: City of Ottawa,
Department of Planning, Transit and the Environment,
September 2011

PLAN OFFICIEL - APPENDICE 10 Contraintes limitant l'utilisation en raison du bruit des avions

Préparé par : Ville d'Ottawa,
Le Service de l'urbanisme, du transport en commun et de l'environnement,
septembre 2011

- Airport Vicinity Development Zone
Zone d'aménagement dans le voisinage de l'aéroport
- 25 Line (Composite of 25 NEF/NEP)
Ligne 25 (ensemble des courbes NEF et NEP 25)
- 35 Line Noise Exposure Protection (NEP 2023)
Ligne 35 : prévisions à long terme de l'ambiance sonore (NEP 2023)
- Airport Zoning Regulations
Règlements de zonage applicables à de l'Aéroport
- Airport Operating Influence Zone
Zone d'influence d'exploitation de l'aéroport

Note:
The boundaries of the Ottawa Airport Operating Influence Zone and the Airport Vicinity Development Zone, are not subject to interpretation and their precise locations should be read from a map at a scale of 1:50,000 available from the City of Ottawa and the Ottawa International Airport Authority.

Scale / Échelle
1km 0 1 2 3 km



Appendix B
STAMSON Noise Modelling Results

STAMSON 5.0 NORMAL REPORT Date: 17-02-2020 16:27:08
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: ola1a.te Time Period: Day/Night 16/8 hours
Description: TH BLK2 OLA R1 - Attenuated

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

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 15000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: River Rd (day/night)

Angle1 Angle2 : -90.00 deg -50.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 32.10 / 32.10 m
Receiver height : 1.50 / 4.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : -50.00 deg
Barrier height : 5.25 m
Barrier receiver distance : 3.00 / 3.00 m
Source elevation : 89.75 m
Receiver elevation : 89.00 m
Barrier elevation : 89.00 m
Reference angle : 0.00

↑

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

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 70 km/h
Road gradient : 0 %

Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 15000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 2: River Rd (day/night)

Angle1 Angle2 : -50.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 32.10 / 32.10 m
Receiver height : 1.50 / 4.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -50.00 deg Angle2 : 90.00 deg
Barrier height : 2.50 m
Barrier receiver distance : 11.40 / 11.40 m
Source elevation : 89.75 m
Receiver elevation : 89.00 m
Barrier elevation : 89.00 m
Reference angle : 0.00

↑

Results segment # 1: River Rd (day)

Source height = 1.50 m

Barrier height for grazing incidence

Source ! Receiver ! Barrier ! Elevation of
Height (m) ! Height (m) ! Height (m) ! Barrier Top (m)
-----+-----+-----+-----
1.50 ! 1.50 ! 1.57 ! 90.57

ROAD (0.00 + 45.15 + 0.00) = 45.15 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-50	0.35	71.32	0.00	-4.44	-8.41	0.00	0.00	-13.31	45.15

Segment Leq : 45.15 dBA

↑

Results segment # 2: River Rd (day)

Source height = 1.50 m

Barrier height for grazing incidence

Source	!	Receiver	!	Barrier	!	Elevation of
Height (m)	!	Height (m)	!	Height (m)	!	Barrier Top (m)
-----+-----+-----+-----						
1.50	!	1.50	!	1.76	!	90.76

ROAD (0.00 + 58.16 + 0.00) = 58.16 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq

-50	90	0.51	71.32	0.00	-4.99	-1.94	0.00	0.00	-6.22	58.16

Segment Leq : 58.16 dBA

Total Leq All Segments: 58.37 dBA

↑

Results segment # 1: River Rd (night)

Source height = 1.50 m

Barrier height for grazing incidence

Source	!	Receiver	!	Barrier	!	Elevation of
Height (m)	!	Height (m)	!	Height (m)	!	Barrier Top (m)
-----+-----+-----+-----						
1.50	!	4.50	!	4.29	!	93.29

ROAD (0.00 + 44.46 + 0.00) = 44.46 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq

-90	-50	0.26	63.72	0.00	-4.15	-7.95	0.00	0.00	-7.16	44.46

Segment Leq : 44.46 dBA

↑

Results segment # 2: River Rd (night)

Source height = 1.50 m

Barrier height for grazing incidence


```

-----
Source      ! Receiver      ! Barrier      ! Elevation of
Height (m) ! Height (m) ! Height (m) ! Barrier Top (m)
-----+-----+-----+-----
          1.50 !          4.50 !          3.70 !          92.70

```

ROAD (0.00 + 56.51 + 0.00) = 56.51 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-50	90	0.42	63.72	0.00	-4.69	-1.82	0.00	0.00	-0.62	56.59*
-50	90	0.57	63.72	0.00	-5.19	-2.02	0.00	0.00	0.00	56.51

* Bright Zone !

Segment Leq : 56.51 dBA

Total Leq All Segments: 56.77 dBA

↑

TOTAL Leq FROM ALL SOURCES (DAY): 58.37
(NIGHT): 56.77

↑

↑

STAMSON 5.0 NORMAL REPORT Date: 17-02-2020 16:28:42
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: ola1a.te Time Period: Day/Night 16/8 hours
Description: TH BLK2 OLA R1 - Unattenuated

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

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 15000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: River Rd (day/night)

Angle1 Angle2 : -90.00 deg -50.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 32.10 / 32.10 m
Receiver height : 1.50 / 4.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : -50.00 deg
Barrier height : 5.25 m
Barrier receiver distance : 3.00 / 3.00 m
Source elevation : 89.75 m
Receiver elevation : 89.00 m
Barrier elevation : 89.00 m
Reference angle : 0.00

↑

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

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 70 km/h
Road gradient : 0 %

Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 15000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 2: River Rd (day/night)

Angle1 Angle2 : -50.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 32.10 / 32.10 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

↑

Results segment # 1: River Rd (day)

Source height = 1.50 m

Barrier height for grazing incidence

Source ! Receiver ! Barrier ! Elevation of
Height (m) ! Height (m) ! Height (m) ! Barrier Top (m)
-----+-----+-----+-----
1.50 ! 1.50 ! 1.57 ! 90.57

ROAD (0.00 + 45.15 + 0.00) = 45.15 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-50	0.35	71.32	0.00	-4.44	-8.41	0.00	0.00	-13.31	45.15

Segment Leq : 45.15 dBA

↑

Results segment # 2: River Rd (day)

Source height = 1.50 m

ROAD (0.00 + 63.70 + 0.00) = 63.70 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-50	90	0.66	71.32	0.00	-5.48	-2.13	0.00	0.00	0.00	63.70

Segment Leq : 63.70 dBA

Total Leq All Segments: 63.76 dBA

↑

Results segment # 1: River Rd (night)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	! Receiver ! Height (m)	! Barrier ! Height (m)	! Elevation of ! Barrier Top (m)
1.50 !	4.50 !	4.29 !	93.29

ROAD (0.00 + 44.46 + 0.00) = 44.46 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-50	0.26	63.72	0.00	-4.15	-7.95	0.00	0.00	-7.16	44.46

Segment Leq : 44.46 dBA

↑

Results segment # 2: River Rd (night)

Source height = 1.50 m

ROAD (0.00 + 56.51 + 0.00) = 56.51 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-50	90	0.57	63.72	0.00	-5.19	-2.02	0.00	0.00	0.00	56.51

Segment Leq : 56.51 dBA

Total Leq All Segments: 56.77 dBA

↑

TOTAL Leq FROM ALL SOURCES (DAY): 63.76
(NIGHT): 56.77



STAMSON 5.0 NORMAL REPORT Date: 17-02-2020 16:45:28
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: ola2a.te Time Period: Day/Night 16/8 hours
Description: TH BLK1 OLA R2 - Attenuated

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

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 15000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: River Rd (day/night)

Angle1 Angle2 : -90.00 deg 7.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 38.00 / 38.00 m
Receiver height : 1.50 / 4.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : 7.00 deg
Barrier height : 2.50 m
Barrier receiver distance : 6.70 / 6.70 m
Source elevation : 89.50 m
Receiver elevation : 89.00 m
Barrier elevation : 89.00 m
Reference angle : 0.00

↑

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

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 70 km/h
Road gradient : 0 %

Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 15000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 2: River Rd (day/night)

Angle1 Angle2 : 7.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 38.00 / 38.00 m
Receiver height : 1.50 / 4.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : 7.00 deg Angle2 : 90.00 deg
Barrier height : 5.25 m
Barrier receiver distance : 3.00 / 3.00 m
Source elevation : 89.50 m
Receiver elevation : 89.00 m
Barrier elevation : 89.00 m
Reference angle : 0.00

↑

Results segment # 1: River Rd (day)

Source height = 1.50 m

Barrier height for grazing incidence

Source ! Receiver ! Barrier ! Elevation of
Height (m) ! Height (m) ! Height (m) ! Barrier Top (m)
-----+-----+-----+-----
1.50 ! 1.50 ! 1.59 ! 90.59

ROAD (0.00 + 54.42 + 0.00) = 54.42 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	7	0.51	71.32	0.00	-6.10	-3.78	0.00	0.00	-7.02	54.42

Segment Leq : 54.42 dBA

↑

Results segment # 2: River Rd (day)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	! Receiver Height (m)	! Barrier Height (m)	! Elevation of Barrier Top (m)
1.50 !	1.50 !	1.54 !	90.54

ROAD (0.00 + 46.05 + 0.00) = 46.05 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
7	90	0.35	71.32	0.00	-5.43	-4.31	0.00	0.00	-15.53	46.05

Segment Leq : 46.05 dBA

Total Leq All Segments: 55.01 dBA

↑

Results segment # 1: River Rd (night)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	! Receiver Height (m)	! Barrier Height (m)	! Elevation of Barrier Top (m)
1.50 !	4.50 !	4.06 !	93.06

ROAD (0.00 + 53.50 + 0.00) = 53.50 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	7	0.42	63.72	0.00	-5.73	-3.62	0.00	0.00	-0.37	53.99*
-90	7	0.57	63.72	0.00	-6.34	-3.88	0.00	0.00	0.00	53.50

* Bright Zone !

Segment Leq : 53.50 dBA

↑

Results segment # 2: River Rd (night)

Source height = 1.50 m

Barrier height for grazing incidence

```
-----
Source      ! Receiver      ! Barrier      ! Elevation of
Height (m) ! Height (m) ! Height (m) ! Barrier Top (m)
-----+-----+-----+-----
          1.50 !          4.50 !          4.30 !          93.30
```

ROAD (0.00 + 46.30 + 0.00) = 46.30 dBA

```
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-----
       7      90    0.26  63.72   0.00  -5.07  -4.09   0.00   0.00  -8.26  46.30
-----
```

Segment Leq : 46.30 dBA

Total Leq All Segments: 54.26 dBA

↑

TOTAL Leq FROM ALL SOURCES (DAY): 55.01
(NIGHT): 54.26

↑

↑

STAMSON 5.0 NORMAL REPORT Date: 17-02-2020 16:46:17
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: ola2a.te Time Period: Day/Night 16/8 hours
Description: TH BLK1 OLA R2 - Unattenuated

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

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 15000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: River Rd (day/night)

Angle1 Angle2 : -90.00 deg 7.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 38.00 / 38.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

↑

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

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 15000
Percentage of Annual Growth : 0.00

Number of Years of Growth : 0.00
 Medium Truck % of Total Volume : 7.00
 Heavy Truck % of Total Volume : 5.00
 Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 2: River Rd (day/night)

 Angle1 Angle2 : 7.00 deg 90.00 deg
 Wood depth : 0 (No woods.)
 No of house rows : 0 / 0
 Surface : 1 (Absorptive ground surface)
 Receiver source distance : 38.00 / 38.00 m
 Receiver height : 1.50 / 4.50 m
 Topography : 2 (Flat/gentle slope; with barrier)
 Barrier angle1 : 7.00 deg Angle2 : 90.00 deg
 Barrier height : 5.25 m
 Barrier receiver distance : 3.00 / 3.00 m
 Source elevation : 89.50 m
 Receiver elevation : 89.00 m
 Barrier elevation : 89.00 m
 Reference angle : 0.00

↑

Results segment # 1: River Rd (day)

Source height = 1.50 m

ROAD (0.00 + 60.59 + 0.00) = 60.59 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	7	0.66	71.32	0.00	-6.70	-4.02	0.00	0.00	0.00	60.59

Segment Leq : 60.59 dBA

↑

Results segment # 2: River Rd (day)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	1.50	1.54	90.54

ROAD (0.00 + 46.05 + 0.00) = 46.05 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
7	90	0.35	71.32	0.00	-5.43	-4.31	0.00	0.00	-15.53	46.05

Segment Leq : 46.05 dBA

Total Leq All Segments: 60.74 dBA

↑

Results segment # 1: River Rd (night)

Source height = 1.50 m

ROAD (0.00 + 53.50 + 0.00) = 53.50 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	7	0.57	63.72	0.00	-6.34	-3.88	0.00	0.00	0.00	53.50

Segment Leq : 53.50 dBA

↑

Results segment # 2: River Rd (night)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	! Receiver ! Height (m)	! Barrier ! Height (m)	! Elevation of ! Barrier Top (m)
1.50 !	4.50 !	4.30 !	93.30

ROAD (0.00 + 46.30 + 0.00) = 46.30 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
7	90	0.26	63.72	0.00	-5.07	-4.09	0.00	0.00	-8.26	46.30

Segment Leq : 46.30 dBA

Total Leq All Segments: 54.26 dBA

↑

TOTAL Leq FROM ALL SOURCES (DAY): 60.74
(NIGHT): 54.26



STAMSON 5.0 NORMAL REPORT Date: 17-02-2020 16:34:49
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: ola1a.te Time Period: Day/Night 16/8 hours
Description: TH BLK2 OLA R3 - Attenuated

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

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 15000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: River Rd (day/night)

Angle1 Angle2 : -90.00 deg -31.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 41.70 / 41.70 m
Receiver height : 1.50 / 4.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : -31.00 deg
Barrier height : 5.25 m
Barrier receiver distance : 3.00 / 3.00 m
Source elevation : 89.75 m
Receiver elevation : 88.50 m
Barrier elevation : 88.50 m
Reference angle : 0.00

↑

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

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 70 km/h
Road gradient : 0 %

Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 15000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 2: River Rd (day/night)

Angle1 Angle2 : -31.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 41.70 / 41.70 m
Receiver height : 1.50 / 4.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -31.00 deg Angle2 : 21.00 deg
Barrier height : 2.50 m
Barrier receiver distance : 11.40 / 11.40 m
Source elevation : 89.75 m
Receiver elevation : 88.50 m
Barrier elevation : 88.50 m
Reference angle : 0.00

↑

Results segment # 1: River Rd (day)

Source height = 1.50 m

Barrier height for grazing incidence

Source ! Receiver ! Barrier ! Elevation of
Height (m) ! Height (m) ! Height (m) ! Barrier Top (m)
-----+-----+-----+-----
1.50 ! 1.50 ! 1.59 ! 90.09

ROAD (0.00 + 44.78 + 0.00) = 44.78 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-31	0.35	71.32	0.00	-5.97	-6.20	0.00	0.00	-14.37	44.78

Segment Leq : 44.78 dBA

↑

Results segment # 2: River Rd (day)

Source height = 1.50 m

Barrier height for grazing incidence

Source	!	Receiver	!	Barrier	!	Elevation of
Height (m)	!	Height (m)	!	Height (m)	!	Barrier Top (m)
1.50	!	1.50	!	1.84	!	90.34

ROAD (0.00 + 52.92 + 57.79) = 59.02 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-31	21	0.51	71.32	0.00	-6.71	-5.48	0.00	0.00	-6.21	52.92
21	90	0.66	71.32	0.00	-7.37	-6.15	0.00	0.00	0.00	57.79

Segment Leq : 59.02 dBA

Total Leq All Segments: 59.18 dBA

↑

Results segment # 1: River Rd (night)

Source height = 1.50 m

Barrier height for grazing incidence

Source	!	Receiver	!	Barrier	!	Elevation of
Height (m)	!	Height (m)	!	Height (m)	!	Barrier Top (m)
1.50	!	4.50	!	4.37	!	92.87

ROAD (0.00 + 44.87 + 0.00) = 44.87 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-31	0.26	63.72	0.00	-5.57	-5.87	0.00	0.00	-7.40	44.87

Segment Leq : 44.87 dBA

↑

Results segment # 2: River Rd (night)

Source height = 1.50 m

Barrier height for grazing incidence

Source	!	Receiver	!	Barrier	!	Elevation of
Height (m)	!	Height (m)	!	Height (m)	!	Barrier Top (m)
1.50	!	4.50	!	4.02	!	92.52

ROAD (0.00 + 51.26 + 50.82) = 54.05 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-31	21	0.42	63.72	0.00	-6.31	-5.46	0.00	0.00	0.00	51.95*
-31	21	0.57	63.72	0.00	-6.97	-5.49	0.00	0.00	0.00	51.26
21	90	0.57	63.72	0.00	-6.97	-5.93	0.00	0.00	0.00	50.82

* Bright Zone !

Segment Leq : 54.05 dBA

Total Leq All Segments: 54.55 dBA

↑

TOTAL Leq FROM ALL SOURCES (DAY): 59.18
(NIGHT): 54.55

↑

↑

STAMSON 5.0 NORMAL REPORT Date: 17-02-2020 16:52:47
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: ola2a.te Time Period: Day/Night 16/8 hours
Description: TH BLK1 OLA R4 - Attenuated

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

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 15000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: River Rd (day/night)

Angle1 Angle2 : -90.00 deg -12.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 47.30 / 47.30 m
Receiver height : 1.50 / 4.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -71.00 deg Angle2 : -12.00 deg
Barrier height : 2.50 m
Barrier receiver distance : 16.40 / 16.40 m
Source elevation : 89.50 m
Receiver elevation : 88.75 m
Barrier elevation : 88.75 m
Reference angle : 0.00

↑

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

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 70 km/h
Road gradient : 0 %

Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 15000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 2: River Rd (day/night)

Angle1 Angle2 : -12.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 47.30 / 47.30 m
Receiver height : 1.50 / 4.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -12.00 deg Angle2 : 90.00 deg
Barrier height : 5.25 m
Barrier receiver distance : 3.00 / 3.00 m
Source elevation : 89.50 m
Receiver elevation : 88.75 m
Barrier elevation : 88.75 m
Reference angle : 0.00

↑

Results segment # 1: River Rd (day)

Source height = 1.50 m

Barrier height for grazing incidence

Source ! Receiver ! Barrier ! Elevation of
Height (m) ! Height (m) ! Height (m) ! Barrier Top (m)
-----+-----+-----+-----
1.50 ! 1.50 ! 1.76 ! 90.51

ROAD (47.88 + 52.26 + 0.00) = 53.61 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-71	0.66	71.32	0.00	-8.28	-15.15	0.00	0.00	0.00	47.88
-71	-12	0.51	71.32	0.00	-7.53	-5.63	0.00	0.00	-5.89	52.26

Segment Leq : 53.61 dBA



Results segment # 2: River Rd (day)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	! Receiver Height (m)	! Barrier Height (m)	! Elevation of Barrier Top (m)			
1.50	!	1.50	!	1.55	!	90.30

ROAD (0.00 + 45.38 + 0.00) = 45.38 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-12	90	0.35	71.32	0.00	-6.71	-3.22	0.00	0.00	-16.01	45.38

Segment Leq : 45.38 dBA

Total Leq All Segments: 54.22 dBA



Results segment # 1: River Rd (night)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	! Receiver Height (m)	! Barrier Height (m)	! Elevation of Barrier Top (m)			
1.50	!	4.50	!	3.72	!	92.47

ROAD (41.41 + 50.17 + 0.00) = 50.72 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-71	0.57	63.72	0.00	-7.83	-14.48	0.00	0.00	0.00	41.41
-71	-12	0.42	63.72	0.00	-7.08	-5.50	0.00	0.00	-1.40	49.74*
-71	-12	0.57	63.72	0.00	-7.83	-5.71	0.00	0.00	0.00	50.17

* Bright Zone !

Segment Leq : 50.72 dBA

↑

Results segment # 2: River Rd (night)

Source height = 1.50 m

Barrier height for grazing incidence

Source	!	Receiver	!	Barrier	!	Elevation of
Height (m)	!	Height (m)	!	Height (m)	!	Barrier Top (m)
-----+-----+-----+-----						
1.50	!	4.50	!	4.36	!	93.11

ROAD (0.00 + 46.15 + 0.00) = 46.15 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq

-12	90	0.26	63.72	0.00	-6.26	-3.05	0.00	0.00	-8.26	46.15

Segment Leq : 46.15 dBA

Total Leq All Segments: 52.02 dBA

↑

TOTAL Leq FROM ALL SOURCES (DAY): 54.22
(NIGHT): 52.02

↑

↑

STAMSON 5.0 NORMAL REPORT Date: 17-02-2020 16:12:24
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: ile1d.te Time Period: Day/Night 16/8 hours
Description: TH BLK2 ILED R1 - Unattenuated

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

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 15000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: River Rd (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 28.20 / 28.20 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

↑
Results segment # 1: River Rd (day)

Source height = 1.50 m

ROAD (0.00 + 65.31 + 0.00) = 65.31 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	71.32	0.00	-4.55	-1.46	0.00	0.00	0.00	65.31

Segment Leq : 65.31 dBA

Total Leq All Segments: 65.31 dBA

↑

Results segment # 1: River Rd (night)

Source height = 1.50 m

ROAD (0.00 + 58.11 + 0.00) = 58.11 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
--------	--------	-------	--------	-------	-------	-------	-------	-------	-------	--------

-90	90	0.57	63.72	0.00	-4.30	-1.30	0.00	0.00	0.00	58.11
-----	----	------	-------	------	-------	-------	------	------	------	-------

Segment Leq : 58.11 dBA

Total Leq All Segments: 58.11 dBA

↑

TOTAL Leq FROM ALL SOURCES (DAY): 65.31

(NIGHT): 58.11

↑

↑

STAMSON 5.0 NORMAL REPORT Date: 17-02-2020 16:10:45
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: ile1s.te Time Period: Day/Night 16/8 hours
Description: TH BLK2 ILES R1 - Unattenuated

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

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 15000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: River Rd (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 28.20 / 28.20 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

↑

Results segment # 1: River Rd (day)

Source height = 1.50 m

ROAD (0.00 + 65.71 + 0.00) = 65.71 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.57	71.32	0.00	-4.30	-1.30	0.00	0.00	0.00	65.71

Segment Leq : 65.71 dBA

Total Leq All Segments: 65.71 dBA

↑

Results segment # 1: River Rd (night)

Source height = 1.50 m

ROAD (0.00 + 58.11 + 0.00) = 58.11 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
--------	--------	-------	--------	-------	-------	-------	-------	-------	-------	--------

-90	90	0.57	63.72	0.00	-4.30	-1.30	0.00	0.00	0.00	58.11
-----	----	------	-------	------	-------	-------	------	------	------	-------

Segment Leq : 58.11 dBA

Total Leq All Segments: 58.11 dBA

↑

TOTAL Leq FROM ALL SOURCES (DAY): 65.71

(NIGHT): 58.11

↑

↑

STAMSON 5.0 NORMAL REPORT Date: 17-02-2020 16:15:16
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: ile2d.te Time Period: Day/Night 16/8 hours
Description: TH BLK1 ILED R2 - Unattenuated

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

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 15000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: River Rd (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 26.40 / 26.40 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

↑
Results segment # 1: River Rd (day)

Source height = 1.50 m

ROAD (0.00 + 65.78 + 0.00) = 65.78 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	71.32	0.00	-4.08	-1.46	0.00	0.00	0.00	65.78

Segment Leq : 65.78 dBA

Total Leq All Segments: 65.78 dBA

↑

Results segment # 1: River Rd (night)

Source height = 1.50 m

ROAD (0.00 + 58.56 + 0.00) = 58.56 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
--------	--------	-------	--------	-------	-------	-------	-------	-------	-------	--------

-90	90	0.57	63.72	0.00	-3.85	-1.30	0.00	0.00	0.00	58.56
-----	----	------	-------	------	-------	-------	------	------	------	-------

Segment Leq : 58.56 dBA

Total Leq All Segments: 58.56 dBA

↑

TOTAL Leq FROM ALL SOURCES (DAY): 65.78

(NIGHT): 58.56

↑

↑

STAMSON 5.0 NORMAL REPORT Date: 17-02-2020 16:16:10
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: ile2s.te Time Period: Day/Night 16/8 hours
Description: TH BLK1 ILES R2 - Unattenuated

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

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 15000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: River Rd (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 26.40 / 26.40 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

↑
Results segment # 1: River Rd (day)

Source height = 1.50 m

ROAD (0.00 + 66.16 + 0.00) = 66.16 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.57	71.32	0.00	-3.85	-1.30	0.00	0.00	0.00	66.16

Segment Leq : 66.16 dBA

Total Leq All Segments: 66.16 dBA

↑

Results segment # 1: River Rd (night)

Source height = 1.50 m

ROAD (0.00 + 58.56 + 0.00) = 58.56 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
--------	--------	-------	--------	-------	-------	-------	-------	-------	-------	--------

-90	90	0.57	63.72	0.00	-3.85	-1.30	0.00	0.00	0.00	58.56
-----	----	------	-------	------	-------	-------	------	------	------	-------

Segment Leq : 58.56 dBA

Total Leq All Segments: 58.56 dBA

↑

TOTAL Leq FROM ALL SOURCES (DAY): 66.16

(NIGHT): 58.56

↑

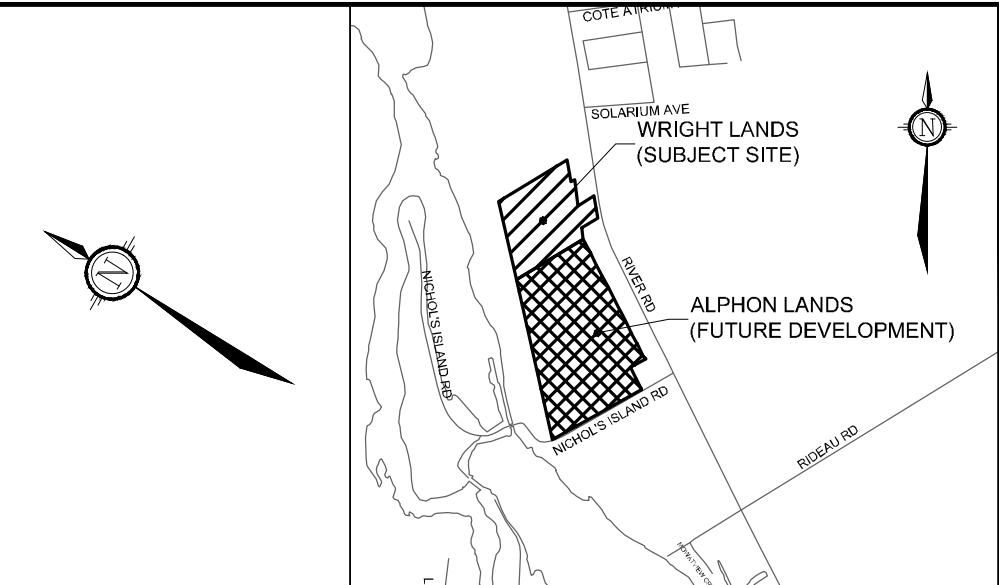
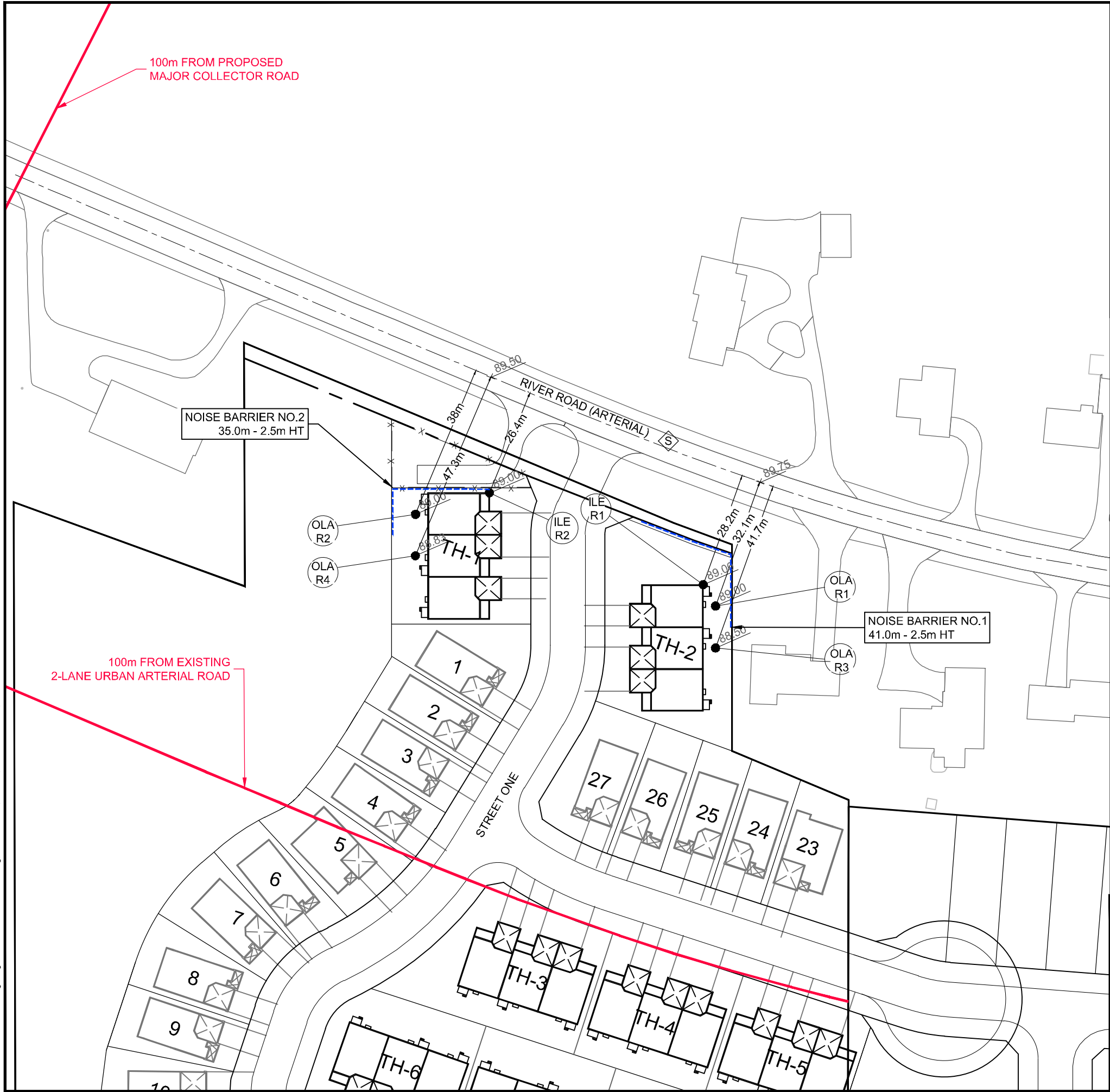
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Enclosures

116037-NC1
116037-NC2
CD

Noise Control Plan (surface transportation noise)
Noise Control Plan (stationary noise)
Report and Drawings

M:\2016\116037\CAD\Design\Figures\Noise\116037-NC.dwg, 116037-NC1, Mar 16, 2020 - 11:23am, mclias



LEGEND

- PROPERTY LINE
- PROPOSED NOISE BARRIER
- CENTRE LINE RIVER ROAD
- RECEIVER-OUTDOOR LIVING AREA (OLA)
- RECEIVER-INDOOR LIVING ENVIRONMENT (ILE)
- NOISE SOURCE

RECEIVER DATA TABLE				
RECEIVER INFORMATION				DISTANCES TO NOISE SOURCE (m)
RECEIVER	HEIGHT (m)	RECEIVER GROUND ELEVATION (m)	ROAD ELEVATION (m)	RIVER ROAD
ILE R1	1.5/4.5	89.00	89.75	28.2
OLA R1	1.5	89.00	89.75	32.1
OLA R3	1.5	88.50	89.75	41.7
ILE R2	1.5/4.5	89.00	89.50	26.4
OLA R2	1.5	89.00	89.50	38.0
OLA R4	1.5	88.75	89.50	47.3



Engineers, Planners & Landscape Architects
Suite 200, 240 Michael Cowpland Drive
Ottawa, Ontario, Canada K2M 1P6

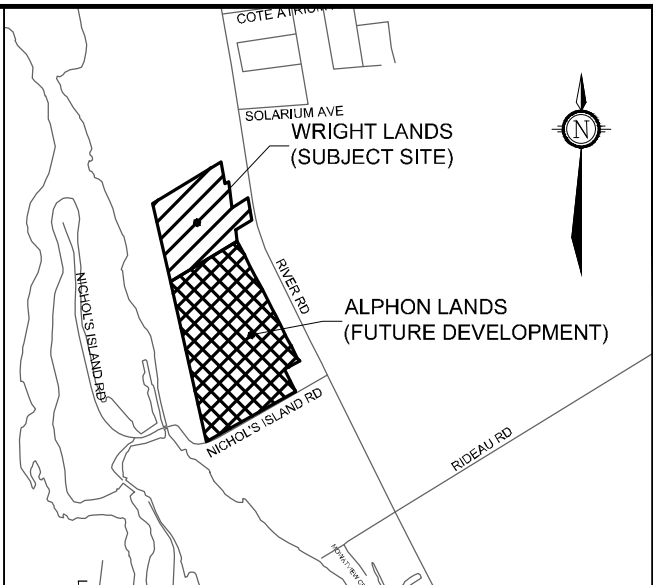
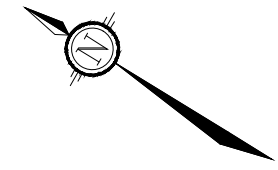
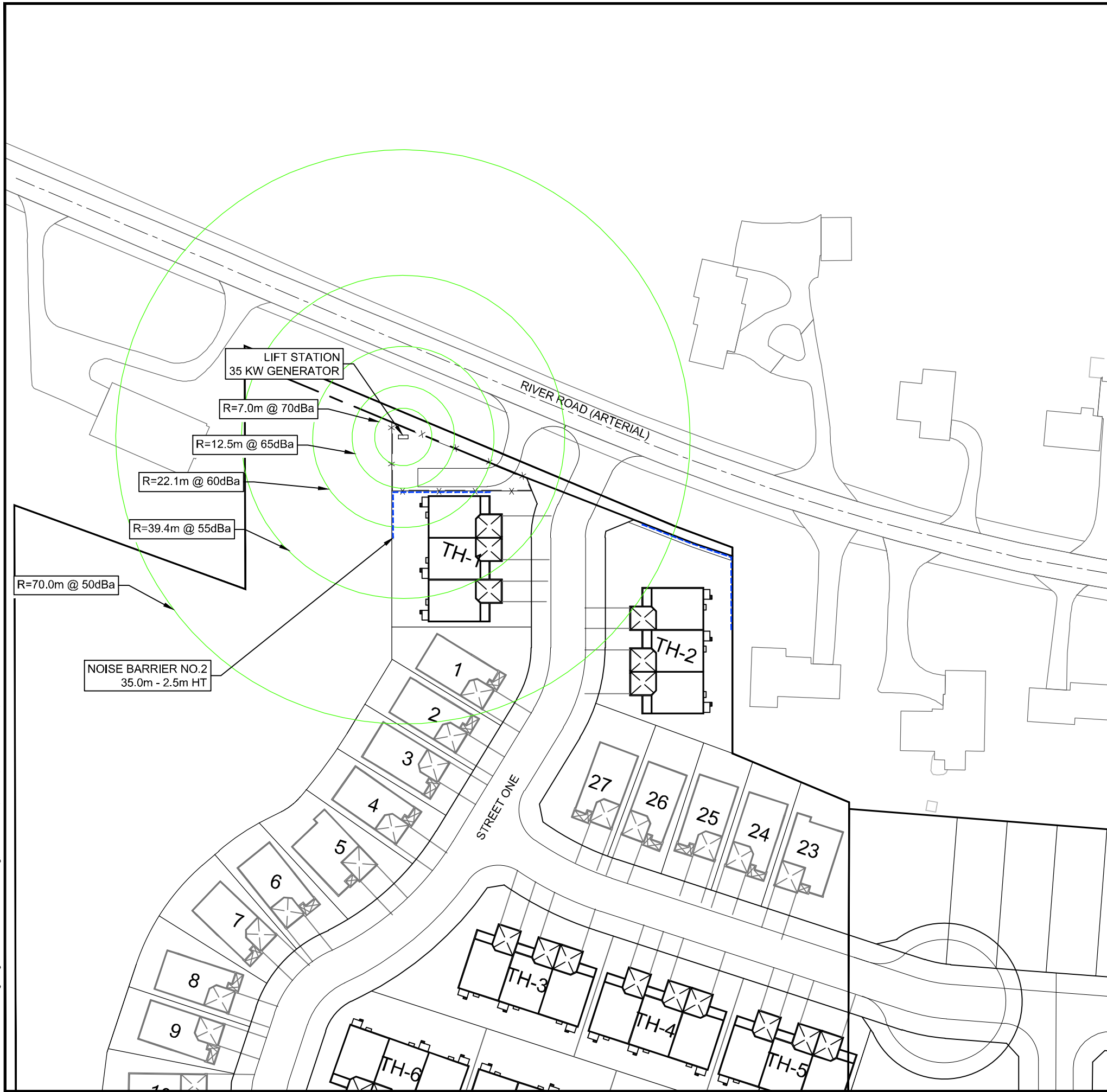
Telephone (613) 254-9643
Facsimile (613) 254-5867
Website www.novatech-eng.com

CITY OF OTTAWA
788-790 RIVER ROAD

NOISE CONTROL PLAN (SURFACE TRANSPORTATION NOISE)

SCALE	1:1000
DATE	JUL 2020
JOB	116037
FIGURE	116037-NC1

M:\2016\116037\CAD\Design\Figures\Noise\116037-NC.dwg, 116037-NC2, Mar 16, 2020 - 11:23am, mclias



LEGEND

- PROPERTY LINE
- CENTRE LINE RIVER ROAD
- PROPOSED NOISE BARRIER
- UNATTENUATED NOISE LEVEL PREDICTIONS (BASED ON DISTANCE ONLY)
- EMERGENCY GENERATOR WITH SOUND ATTENUATED ENCLOSURE PERFORMANCE RATING OF 70 dBA @7m ASSUMED



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CITY OF OTTAWA
788-790 RIVER ROAD

NOISE CONTROL PLAN (STATIONARY NOISE)

SCALE 1:1000

DATE JUL 2020 JOB 116037 FIGURE 116037-NC2