NOISE IMPACT STUDY

Proposed Residential Development

"500 Salem Road"

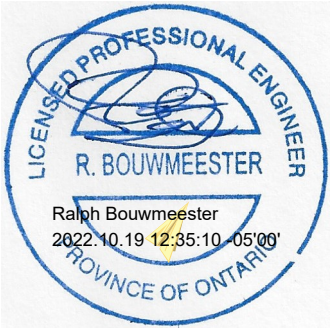
City of Barrie

Prepared for:

LSR Salem Inc.

Prepared by:

Ralph Bouwmeester, P. Eng.



October 14, 2022

R. BOUWMEESTER & ASSOCIATES
165 Browning Trail
Barrie, Ontario, Canada L4N 5E7
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RBA File: A22013

EXECUTIVE SUMMARY

R. BOUWMEESTER & ASSOCIATES has been retained to assess potential noise impacts on residential uses within a proposed development on the north side of Salem Road about 320m east of County Road 27.

The goals and objectives of this study are four-fold, namely:

1. To identify noise sources and noise-sensitive land uses.
2. To recommend mitigation measures, if and where required.
3. To identify those areas, if any, requiring more detailed studies.
4. To satisfy the development approval requirements of the City of Barrie.

The noise concern relates to future traffic on Salem Road and to a lesser extent County Road 27.

Salem Road traffic data were provided by the City of Barrie; data for County Road 27 were obtained from the County of Simcoe web site. Roadway noise from cars and medium and heavy trucks has been accounted for in this analysis. The traffic volumes have been extrapolated to Year 2032 thereby providing the 10-year minimum projection window required by the MECP.

The predicted equivalent outdoor sound levels at the subject site resulting from road traffic exceed the limits established by the MECP in certain areas. Mitigation measures are required in order to bring day and night-time sound levels down to acceptable levels.

Certain units require forced air heating systems with duct work sized to accommodate the future installation of central air conditioning at the owners' option and expense. Construction meeting the minimum non-acoustical requirements of the Ontario Building Code will provide adequate sound insulation for these units. All units require warning clauses registered on title; wording is provided.

No units require central air conditioning, building component design or noise fences.

The noise control requirements are summarized in Section 7 and on Figure 3.

In summary, the subject development as proposed can be developed in a manner that satisfies the requirements of MECP noise guideline NPC-300.

TABLE OF CONTENTS

1. INTRODUCTION

R. BOUWMEESTER & ASSOCIATES has been retained to assess potential noise impacts on residential uses within a proposed development on the north side of Salem Road about 320m east of County Road 27. See Figure 1 for site location.

Our analysis is based on the configuration of the development as shown on a Draft Plan prepared by Innovative Planning Solutions dated September 9, 2022. See Appendix 'D'.

2. GOALS AND OBJECTIVES

The goals and objectives of this study are four-fold, namely:

1. To identify noise sources and noise-sensitive land uses.
2. To recommend mitigation measures, if and where required.
3. To identify those areas, if any, requiring more detailed studies.
4. To satisfy the development approval requirements of the City of Barrie.

3. NOISE SOURCES

The noise source of concern is future traffic on Salem Road and to a lesser extent County Road 27. Traffic data were obtained from the City of Barrie and the County of Simcoe. See Appendix 'A'.

In addition, we have reviewed the potential noise impacts from operations at the Unilock distribution facility to the south across Salem Road. See Section 5.2 and Appendix 'B'.

4. GUIDELINES AND CRITERIA

Reference is made to Ministry of the Environment (MECP) publication, Environmental Noise Guideline – Stationary and Transportation Sources – Approval and Planning (Publication NPC-300, Aug 2013 ver. #22) which recommends various sound level limits for indoor and outdoor settings, under different time scenarios, and under differing uses.

4.1 Sound Level Limits

The following NPC-300 sound level limits apply to road traffic:

TABLE 1 - Sound Level Limits (Leq)

Location	Time Period		Limit (dBA)
Outdoor			
Outdoor Living Area	Day	0700-2300 hrs	55
Indoor			
Living/Dining Room	All	0700-0700 hrs	45
Bedroom (day)	Day	0700-2300 hrs	45
Bedroom (night)	Night	2300-0700 hrs	40

As compared to earlier MECP noise guidelines, NPC-300 has set indoor sound level limits in bedrooms for the day-time period in addition to night-time.

4.2 Noise Control Measures

NPC-300 states that *"Noise control measures are not required if the sound level estimated in the OLA is 55 dBA or less during the daytime and 50 dBA or less in the plane of bedroom windows during either daytime or nighttime".*

4.2.1 Outdoor Living Areas

The above-noted outdoor limit of 55 dBA applies to a protected Outdoor Living Area (OLA) of at least 56 m^2 (600 sq. ft.) in the case of single family detached homes, 46 m^2 (500 sq. ft.) in the case of semi-detached units, and 37 m^2 (400 sq. ft.) in the case of row or townhouse units.

The MECP guidelines indicate that *"Noise control measures are not required if the sound level estimated in the OLA is 55 dBA or less during the daytime".*

The guidelines state that if the sound level is greater than 55 dBA and less than or equal to 60 dBA, *"noise control measures may be applied to reduce the sound level to 55 dBA. If measures are not provided, prospective purchasers or tenants should be informed of potential noise problems by a warning clause Type A".*

The guidelines further state that if the sound level in the Outdoor Living Area is greater than 60 dBA, *"noise control measures should be implemented to reduce the level to 55 dBA. Only in cases where the required noise control measures are not feasible for technical, economic or administrative reasons would an excess above the limit (55 dBA) be acceptable with a warning clause Type B. In the above situations, any excess above the limit will not be acceptable if it exceeds 5 dBA."* Acoustic barriers typically provide the mitigation needed, and warning clauses are required to be registered on title against the affected units.

4.2.2 Plane of Window - Ventilation Requirements

Ventilation requirements to reduce indoor sound levels, by allowing windows to remain closed if so desired by the occupants, include the following:

- For outdoor day-time sound levels in the plane of living/dining/bedroom windows greater than 55 dBA and less than or equal to 65 dBA, dwelling units must be equipped with forced air heating systems with ducting sized for the future installation of central air conditioning. Window, wall, and door components meeting normal Ontario Building Code requirements are typically adequate under these conditions, although a warning clause (Type C) must be registered on title against the affected dwelling units.

- For outdoor day-time sound levels in the plane of living/dining/bedroom windows greater than 65 dBA, dwelling units must be equipped with central air conditioning. A warning clause (Type D) must be registered on title against the affected units.

Ventilation requirements under night-time conditions are similar to the above except that 50 and 60 dBA are used in place of 55 dBA and 65 dBA, respectively.

The location and installation of outdoor air conditioning devices should comply with the sound level limits of Publication NPC-216 and guidelines contained in Environmental Noise Guidelines for Installation of Residential Air Conditioning Devices, or should comply with other criteria specified by the municipality.

4.2.3 Indoor Living Areas - Building Component Requirements

If day-time sound levels outside living/dining/bedroom windows exceed 65 dBA (or night-time levels exceed 60 dBA) building components including windows, walls and doors must be designed so that the indoor sound levels meet the sound level limits quoted in Table 1.

The above sound level limits and mitigation requirements can be summarized as follows:

TABLE 2 - Sound Level Limits and Standard Mitigation Requirements

	Outdoor Sound Level Limits (dBA)		
	Plane of Window		
	Day	Night	OLA
Do nothing	≤55	≤50	≤55
Noise barrier or Warning Clause A			56 - 60
Mandatory noise barrier *			>60
Provision for future A/C **	56 - 65	51 - 60	
Mandatory A/C **	>65	>60	
Special building component design	>65	>60	

Notes:
* Warning Clause B required if net resultant sound level is 56-60 dBA (to max. allowable 60 dBA).
** Warning clause required (A, B and C for future central air, A, B and D for mandatory central air).

5. ANALYSIS PROCEDURES

5.1 Surroundings and Site Characteristics

The subject site is located on the north side of Salem Road about 320m east of County Road 27 in southwest Barrie. See Figure 1. Vacant ‘future development’ lands are located to the north and east, and existing rural estate residential properties are located to the west fronting County Road 27. Unilock is located to the south across Salem Road.

The subject property has about 341m of frontage along Salem Road and is about 102m deep. The proposed residential portion occupies the easterly 74m of the property; the remainder consists of environmental, open space and other lands owned by the applicant. Thirty-four residential townhouse units are proposed in six Blocks. Private outdoor living space is proposed in each rear yard. See Draft Plan and Concept Plan in Appendix ‘D’.

5.2 Noise Sources

The noise source of concern is future traffic on Salem Road and to a lesser extent County Road 27. In addition, we have reviewed the potential noise impacts from operations at Unilock. Noise from operations at Unilock is not expected to be significant and is not discussed further (see Appendix 'B' for stationary noise summary).

Roadway noise from cars and medium and heavy trucks has been accounted for in this analysis. The noise source heights used are in accordance with MECP criteria.

This analysis assumes that both Salem Road and County Road 27 are of infinite length.

5.3 Traffic Data

The City of Barrie provided current (Year 2018) traffic counts, truck percentages, and projected annual growth rates to Year 2041 for Salem Road. Traffic data for County Road 27 were derived from 2021 AADT data posted on the County's web site. An annual growth rate of 2% was assumed to Year 2032. Our analysis is based on Year 2032 traffic volumes which provide the 10-year minimum projection required by the MECP.

We have assumed that truck traffic is split 50/50 between medium and heavy trucks unless noted otherwise.

Salem Road and County Road 27 are two-lane arterial roads with 60 kph and 80 kph posted speed limits, respectively.

The MECP-recommended percentage splits for day and night-time traffic volumes were used in this study (i.e. 90/10 for arterial roads).

The MECP requires increased truck noise on uphill grades to be accounted for when the grade is at least 2% and where the climb exceeds 6 m. Both roads in this vicinity exceed this criterion, therefore, the appropriate adjustments were made.

See Appendix 'A' for further road traffic details.

5.4 Study Periods

The study periods, as per MECP guidelines, are the 16-hour day-time period between 7:00 AM and 11:00 PM, and the 8-hour night-time period from 11:00 PM and 7:00 AM.

5.5 Sound Level Prediction Model

Noise level calculations were carried out in accordance with MECP guidelines (Environmental Noise Assessment in Land Use Planning, Training Manual, Ontario Ministry of the Environment, 1987) and through the use of their road noise model ORNAMENT. See References.

5.6 Correction Factors

The corrections required by the MECP to be applied to the noise levels have been taken into account where applicable. These include corrections such as:

a) Road segment lengths
b) Road grades
b) Ground surface type
c) Source - receiver distance
d) Height of elevated source/receiver, and
e) Day/night split in traffic volumes.

6. CALCULATED EQUIVALENT SOUND LEVELS

Indoor sound levels are typically estimated by calculating outdoor levels along the face of a wall exposed to the noise source (i.e. in the plane of windows). Under NPC-300, day and night-time receiver heights are set at bedroom windows which are typically 4.5 m above grade in a typical single or semi-detached house or townhouse.

In this case we understand the proposed towns are 3 storeys in height. Since sound levels increase with building height (due to a reduction in ground attenuation) we have assumed 7.5 m receiver heights for 3rd storey bedroom window receptors. See Table 3 below.

TABLE 3 – Building and Receptor Heights

Housing Type (see Concept Plan)	No. Storeys	Receptor Height (m)
Townhouses	3 storeys	7.5

Shielding by vegetation and buildings was not accounted for in the determination of ventilation and building component requirements; actual sound levels may be less than predicted. The predicted sound levels are worst-case and do not rely on intervening buildings for sound level reductions; therefore, this analysis is independent of phasing.

Building shielding was accounted for in the determination of OLA sound levels. OLA sound levels are typically calculated for receivers 3.0 m from the midpoint of the rear wall of a dwelling at a height of 1.5 m above finished grade. Decks and balconies are exempt from the MECP outdoor noise limits unless they are the only outdoor living area available, and they are at least 4.0 m deep, outside the building façade, and unenclosed.

Our analysis includes a sampling of noise levels that can be expected in OLAs and along the building faces based on the lotting configuration shown on the Draft Plan. These noise level predictions were used to flag those areas requiring a more detailed analysis.

Building envelopes were assumed based on typical setbacks of 3.0 m front, 5.0 m rear, 1.2 m interior side, and 2.0 m exterior side (per table on Concept Plan in Appendix ‘D’).

An overall summary of the predicted outdoor day-time and night-time sound levels for each of the receptor locations is presented in Table 4. See Figure 2 for receptor locations.

TABLE 4 - Predicted Outdoor Sound Levels (dBA)

Receptor	Location	Source / Receiver Dist. (m) (Salem / CR 27)	Outdoor Equivalent Sound Levels (Leq) Due to Road Traffic (dBA) Day	Night	OLA unmitigated
R1	3rd floor	20.0 / 340.0	62	55	-
R2	OLA	25.0 / 338.0	-	-	58
R3	3rd floor	35.5 / 342.0	56	49	-
R4	3rd floor	39.9 / 342.0	55	49	-
R5	3rd floor	20.0 / -	61	55	-
R6	OLA	26.0 / -	-	-	58
R7	3rd floor	31.3 / -	58	52	-
R8	3rd floor	35.8 / -	57	51	-
R9	3rd floor	40.3 / -	57	50	-
R10	3rd floor	44.8 / -	56	49	-
R11	3rd floor	49.3 / -	55	49	-

The results shown in Table 4 confirm that mitigation measures are required in order to ensure that day-time and night-time sound levels meet the MECP criteria.

The following summarizes typical acoustic requirements and describes how they apply to this proposed development. See Section 7 and Figure 3 for detailed requirements.

Warning clauses must be registered on title and included in Agreements of Purchase and Sale or Lease where sound level limits are exceeded. Based on the predicted noise levels at the building faces, warning clauses are required for certain dwelling units (see Figure 3) - suggested wording is given in Appendix 'F'.

Central air conditioning is required where the sound level due to road traffic in the plane of a living/dining/bedroom window exceeds 65 dBA day-time or 60 dBA night-time. Air cooled condenser units should be located in a noise insensitive location. Central air conditioning is not meant to be a sound mitigating measure, although it does provide the dwelling occupants the option of closing windows if so desired. This requirement does not apply to any units.

Special building component design, to ensure that indoor sound levels due to road traffic meet the limits specified in Section 4, is required for residential dwelling units where the sound level in the plane of a living/dining/bedroom window exceeds 65 dBA day-time or 60 dBA night-time. This requirement does not apply to any units.

Forced air heating systems, with duct work sized to accommodate the future installation of central air conditioning, are required where the sound level due to road traffic in the

plane of a living/dining/bedroom window exceeds 55 dBA day-time or 50 dBA night-time. Future air cooled condenser units should be located in a noise insensitive location. Construction meeting the minimum non-acoustical requirements of the Ontario Building Code will provide adequate sound insulation. This requirement applies to certain dwelling units. See Figure 3.

Acoustic barriers, to protect outdoor living areas, are required where the day-time outdoor sound level in the OLA exceeds 60 dBA. The MECP's sound level objective for outdoor living areas is 55 dBA, however, sound level excesses of up to 5 dBA are permitted with an appropriate warning clause. Residual noise levels (in excess of 55 dBA) resulting from reduced fence heights must be covered through the use of an appropriately worded warning clause to be included in the Subdivision Agreement and in all Offers of Purchase and Sale or Lease for the affected units, and the clause is to be registered on title against those units.

Based on the configuration of the proposed Draft Plan, acoustic barriers are not required for any lots or blocks.

7. RECOMMENDATIONS

1. All dwelling units require warning clauses registered on title and included in all Agreements of Purchase and Sale or Lease. See Figure 3 for affected dwellings, and see Appendix 'F' for wording.

2. Block 1, Units 1-3, and Block 6, Units 2-6 require forced air heating systems with duct work sized to accommodate the future installation of central air conditioning at the owners' option and expense. (Unit numbers are read left to right when looking from the street.) See Figure 3 for affected dwellings.

8. CONCLUSIONS

With the incorporation of the recommendations shown on Figure 3, Noise Control Plan, and as summarized in Section 7, the MECP noise guidelines can be met in all dwelling units and outdoor living areas.

In summary, the subject development as proposed can be developed in a manner that satisfies the requirements of MECP noise guideline NPC-300.

Respectfully submitted,

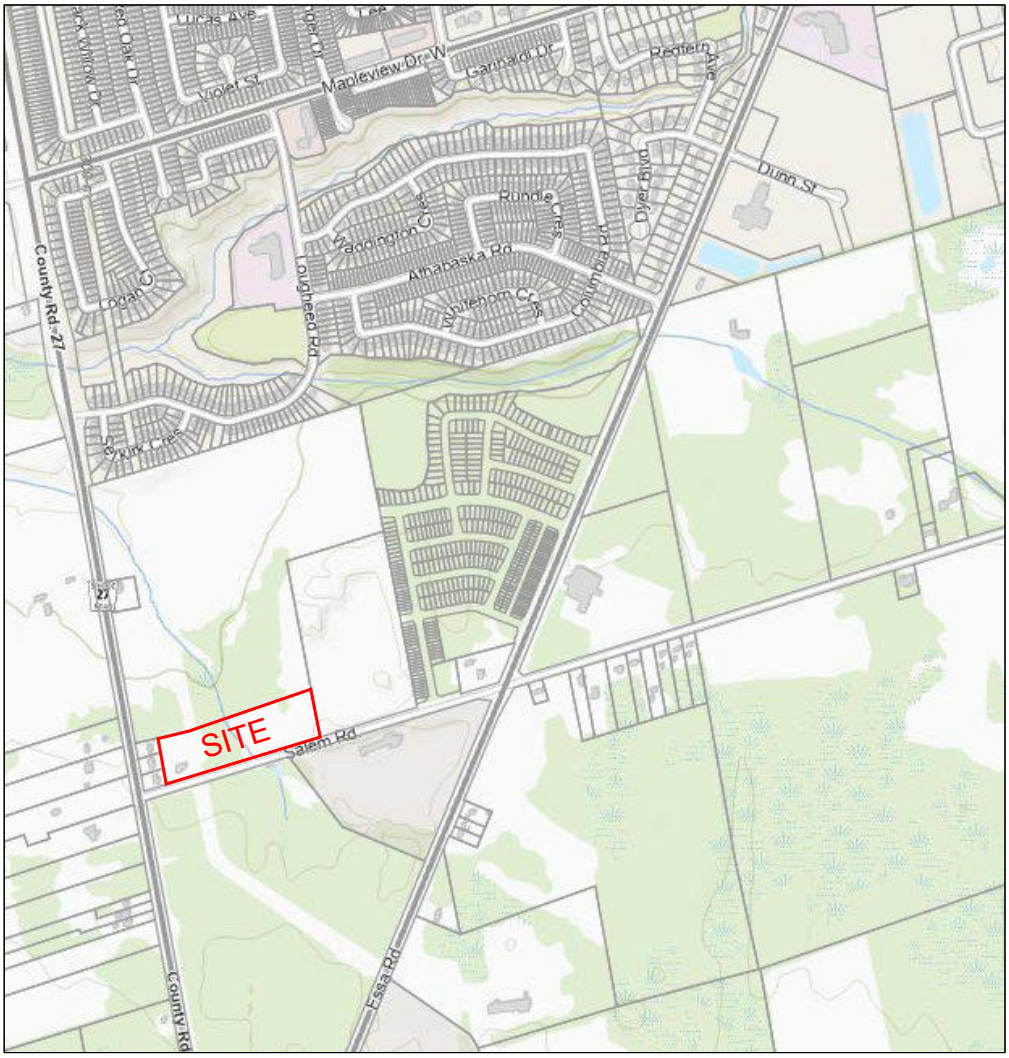
R. BOUWMEESTER & ASSOCIATES

Ralph Bouwmeester, P. Eng.
Principal

REFERENCES

1. Environmental Noise Guideline – Stationary and Transportation Sources – Approval and Planning (MECP Publication NPC-300, Aug 2013 ver. #22)
2. Environmental Noise Assessment in Land Use Planning (MECP Training Manual, 1987)
3. Road and Rail Noise: Effects on Housing (CMHC, Rev. 1981)
4. ORNAMENT (Ontario Road Noise Analysis Method for Environment and Transportation) (MECP, October 1989)
5. Traffic data (City of Barrie, April 2022)
6. Zoning By-law 2009-141 as amended (City of Barrie)

FIGURES



Location Plan

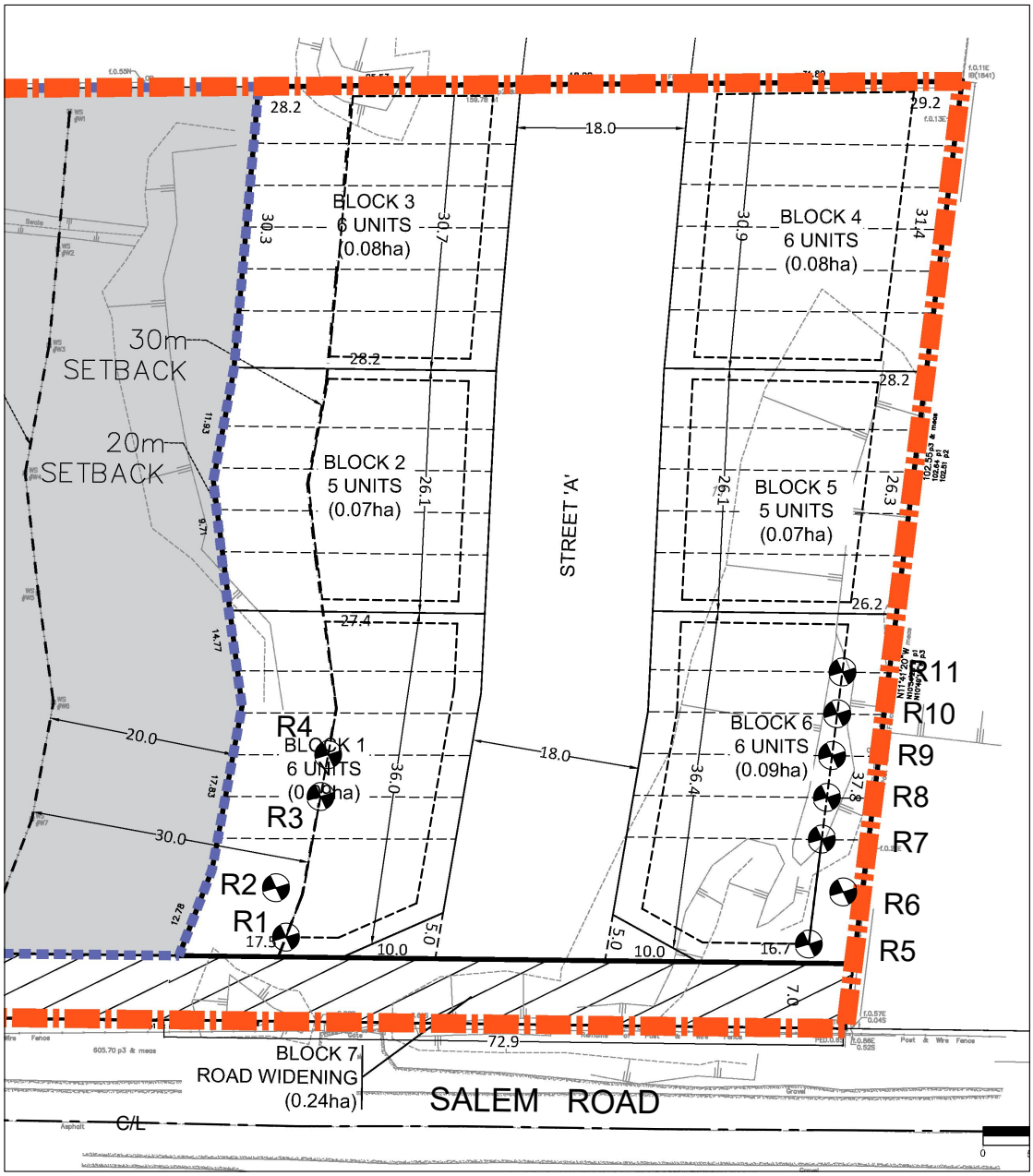
Scale: NTS

FIG. 1

October 14, 2022

R. Bouwmeester & Associates

Base map source: Simcoe County



LEGEND

Building envelope and Receptor Location

Receptor Plan

Scale: 1 : 750

FIG. 2

October 14, 2022

R. Bouwmeester & Associates

Air photo source: Simcoe County

LEGEND

◯ Dwellings requiring forced air heating + Warning Clauses A, B and C (see App. F)

NOTE: All units require Warning Clause E (see App. F)

Air photo source: Simcoe County

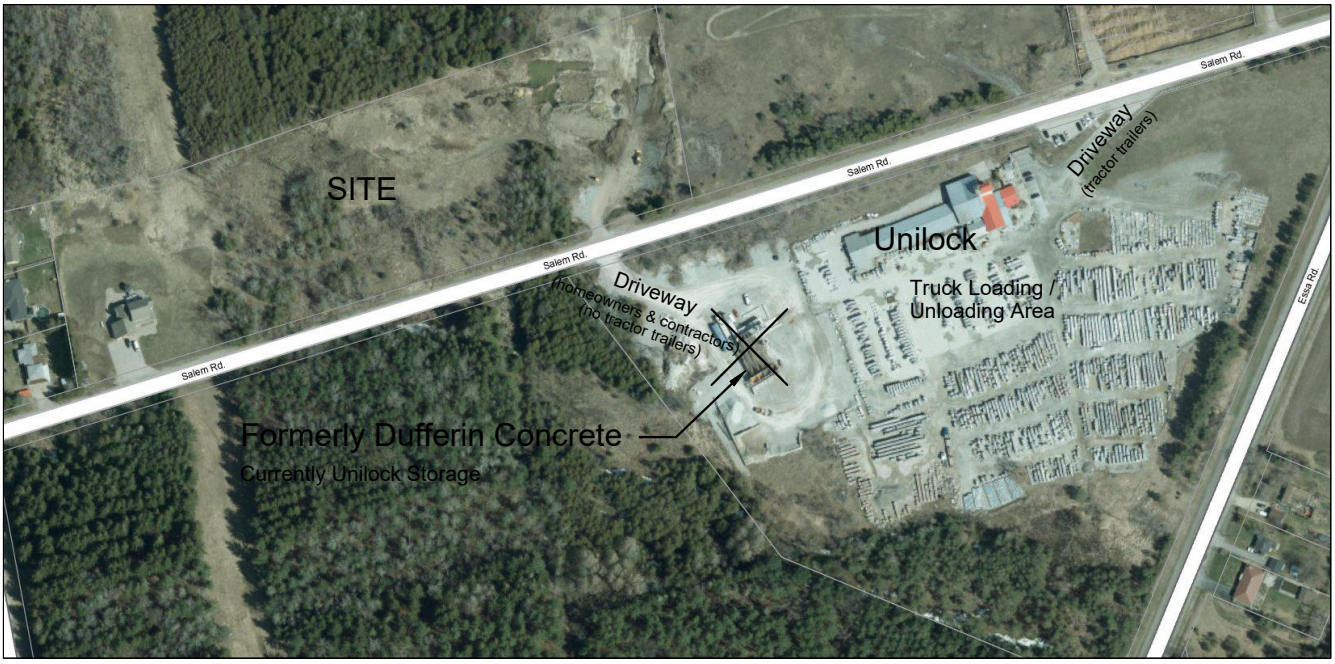
Noise Control Plan

Scale: 1 : 750

FIG. 3

October 14, 2022

R. Bouwmeester & Associates



Industrial Proximity Plan

Scale: 1 : 4000

FIG. 4

October 14, 2022

R. Bouwmeester & Associates

Air photo source: Simcoe County

APPENDICES

A. Road Traffic Data (source: City of Barrie and County of Simcoe)
B. Stationary Noise Impact Review
C. Sample Sound Level Calculations
D. Draft Plan and Concept Plan (source: Innovative Planning Solutions)
E. Proposed Zoning Provisions (source: Innovative Planning Solutions)
F. Suggested Warning Clauses (source: MECP)
G. Land Use Plan - Schedule 8C (source: City of Barrie, Salem Secondary Plan)

APPENDIX 'A'

ROAD TRAFFIC DATA

City of Barrie

- Salem Road:
  - Current (2018) AADT is 2,000 vehicles per day.
  - Annual growth rate 8% compounded yearly to Year 2031 plus 2% 2041.
  - Commercial vehicles: 2.5% medium and 2.5% heavy.
  - Posted Speed Limit: Current 80 kph / Future 60 kph.

County of Simcoe

- County Road 27:
  - Current (2021) AADT is 11,000 vehicles per day.
  - Annual growth rate 2% compounded yearly (assumed).
  - Commercial vehicles: 5.0% medium and 5.0% heavy (assumed).
  - Posted Speed Limit: 80 kph.

Ministry of the Environment, Conservation and Parks

The MECP recommended splits for day/night traffic are:

- arterial roads 90/10

SUMMARY OF DATA USED IN THIS STUDY

For the purpose of this noise assessment, the following Year 2032 data apply:

	Salem Rd	**CR 27**
Traffic volume (AADT)	5,548	13,675
Day/night split (%)	90 / 10	90 / 10
Percent trucks M / H	2.5 / 2.5	5.0 / 5.0
Posted Speed	60 kph	80 kph
Number of lanes	2	2
ROW width (m)	20	26
Road Grade (%)	5.3	4.0
Pavement Type	normal asphalt	normal asphalt

Ralph Bouwmeester

Subject: RE: Traffic Data Request - Salem Road east of CR 27
From: Justin MacDonald <Justin.MacDonald@barrie.ca>
Date: 04/22/2022, 10:24 AM
To: Ralph Bouwmeester <rbouwmeester@rogers.com>

Good morning Ralph,

Please see below

Justin MacDonald, C.E.T., PTP
Project Delivery – Transportation Planning, Development Services
The City of Barrie
Mobile 705-734-8020

From: Ralph Bouwmeester <rbouwmeester@rogers.com>
Sent: Friday, April 22, 2022 10:13 AM
To: Justin MacDonald <Justin.MacDonald@barrie.ca>
Subject: Re: Traffic Data Request - Salem Road east of CR 27

Hi Justin -

No worries, thank you.

A couple of questions...

- what year does the current ADT apply to? Current ADT was from 2018.

- will the speed limit reduce within the next 10 years? Yes, I would assume the limit will reduce as development occurs over the next 10 years.

- by 5 lanes do you mean 4 through lanes plus centre left turn lane? Correct.

- what is the timing of the widening? Some road works as planned within the next 10 years, see the screen capture below from our capital works. I do not know the exact scale of the roadway expansion, as this a development lead project. But to be conservative I would assume current 2 lane configuration to 2031 and 5 lane post 2031.

Project #	Asset Class	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	Grand Total
	Infrastructure											
EN1289	Road Resurfacing Program	$5,800,000	$6,825,000	$7,875,000	$8,400,000	$8,400,000	$8,400,000	$8,400,000	$8,400,000	$8,400,000	$8,400,000	$79,300,000
001061	Road Safety Program - Vision Zero & Traffic Calming Policy Development	$150,000	$200,000	$100,000	$0	$0	$0	$0	$0	$0	$0	$450,000
EN1183	Ross, Collier, Bayfield Intersection Realignment	$0	$0	$0	$0	$0	$0	$260,000	$3,187,500	$3,244,000	$551,000	$7,242,500
EN1276	Salem Road New Transmission Watermain and Road Expansion - County Road 27 to Dunn (Developer)	$226,000	$0	$0	$0	$0	$0	$0	$0	$250,000	$1,666,828	$2,142,828
EN1340	Salem Road New Transmission Watermain and Road Expansion – Essa Rd to Veterans Dr (Developer)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$2,520,000	$2,520,000
	Salem Road Reservoir and Pumping											

Thank you.

Regards -
Ralph

Ralph Bouwmeester, P. Eng.
rbouwmeester@rogers.com

R. BOUWMEESTER & ASSOCIATES
Land Development Engineering
Barrie, ON Canada
tel/fax 705-726-3392

On 4/22/2022 8:24 AM, Justin MacDonald wrote:

> Good morning Ralph –
>
> Thanks for your patience regarding my reply, please see below the requested information.
>
> Current ADT: 2,000 vpd
> Growth Rate: 8% per annum to a horizon year of 2031; 2% per annum between 2031 to 2041
> Current Speed Limit: 80km/h
> Future Speed Limit: 60km/h
> Percentage Trucks: 5% medium and heavy
> Current Cross Section: Rural 2 lanes
> Future Cross Section: Urban 5 Lanes
>
> Justin MacDonald, C.E.T., PTP
> Project Delivery – Transportation Planning, Development Services
> The City of Barrie
> Mobile 705-734-8020
>

APPENDIX 'B'

STATIONARY NOISE IMPACT REVIEW

Although traffic noise is the main focus of this noise assessment, we have reviewed the potential noise impacts of the existing Unilock operation south of Salem Road (see Figure 4).

We have visited the site and we have spoken with staff. A summary of the operations follows.

Unilock operates this site as a distribution centre only; there is no manufacturing or processing. Product is delivered and stored outdoors for later shipping to customers either by Unilock trucks or by customer pick-up. A tractor trailer access is located at the east end of the facility, about 240 m from the subject site; an access for homeowners and contractors is located directly across from the proposed townhouse blocks.

A load transfer area is located south of the main building (see Figure 4). Five lift trucks are used to shunt materials to and from storage areas around the yard. Operating hours are 7:00 AM to 5:00 PM during peak periods and 7:00 AM to 4:00 PM at other times of year, all Monday to Friday. During peak periods approximately 100 loads are shipped per day, 10 of those by tractor trailer and the rest by smaller vehicles (e.g. cars and pickups) with trailers. One tractor trailer and 9 cars/pickups per hour is a reasonable average during peak periods.

Sound level measurements near the Unilock site were made for a previous project in 2016 using a Larson-Davis 824A Type 1 sound level meter equipped with a Larson Davis microphone (Model 2541), microphone preamplifier (Model PRM902) and windscreen. Calibration, before and after taking the readings, was carried out using a CAL200 acoustic calibrator.

In 2016, typical forklift activity resulted in an average sound level of about 42 dBA at a similar, if not lesser, separation distance than the subject site. During recent site visits, sound from Unilock operations was not audible from the subject site.

Based on reference sound level data on file from measurements taken on other projects, we have estimated the hourly equivalent sound level of a single tractor trailer leaving the Unilock site to be about 33 dBA. This is based on a reference sound level of 76 dBA at 15 m, reduced by 22 dBA for an average distance of about 200 m to the truck entrance, and reduced a further 21 dBA for a duty cycle of 30 seconds (i.e. the estimated time to travel the 80 m driveway at 10 kph).

It is noted that according to NPC-300, off-site traffic, including car and truck traffic attributed to a stationary source, is not considered a stationary source. Once traffic enters a public road it becomes part of the road traffic. Accordingly, the above accounts for truck traffic only within the Unilock site. Trucks on Salem Road and CR 27 are accounted for in the traffic noise analysis.

The NPC-300 exclusionary sound level limit for stationary noise in a Class 2 area during the day-time (7:00 AM to 7:00 PM) is 50 dBA. (Unilock does not operate outside these hours.)

Based on our sound level measurements and estimates, noise levels from operations at Unilock meet the MECP day-time noise limits for stationary noise.

It is worth noting that the Unilock industrial site is slated for eventual re-development for residential purposes as per the OMB-approved Salem Secondary Plan, OPA 38. (See Appendix 'G' attached - Land Use Plan, Schedule 8C.) The Unilock operation is expected to cease and be replaced by residential development within the next few years.

Based on our review of the existing industrial operations at Unilock, it is our opinion that the MECP noise guidelines are met at the subject site. No further acoustic review is required.

APPENDIX 'C'

SAMPLE SOUND LEVEL CALCULATIONS

```
STAMSON 5.0        NORMAL REPORT        Date: 03-06-2022 17:23:45
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r1walldn.te          Time Period: Day/Night 16/8 hours
Description: R1 day/night at wall


Road data, segment # 1: Salem Road (day/night)
----------------------------------------------
Car traffic volume  :  4743/527   veh/TimePeriod  *
Medium truck volume :   125/14    veh/TimePeriod  *
Heavy truck volume  :   125/14    veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     5 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):   5439
    Percentage of Annual Growth        :   2.00
    Number of Years of Growth          :   1.00
    Medium Truck % of Total Volume     :   2.50
    Heavy Truck  % of Total Volume     :   2.50
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 1: Salem Road (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  :  20.00 / 20.00  m
Receiver height           :   7.50 / 7.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Road data, segment # 2: CR 27 (day/night)
-----------------------------------------
Car traffic volume  : 11078/1231  veh/TimePeriod  *
Medium truck volume :   615/68    veh/TimePeriod  *
Heavy truck volume  :   615/68    veh/TimePeriod  *
Posted speed limit  :    80 km/h
Road gradient       :     4 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  11000
    Percentage of Annual Growth        :   2.00
```

```
    Number of Years of Growth          :  11.00
    Medium Truck % of Total Volume     :   5.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 2: CR 27 (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  : 340.00 / 340.00 m
Receiver height           :   7.50 / 7.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Results segment # 1: Salem Road (day)
-------------------------------------

Source height = 1.26 m

ROAD (0.00 + 61.21 + 0.00) = 61.21 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.49  64.22   0.00  -1.86  -1.15   0.00   0.00   0.00  61.21
-------------------------------------------------------------------------------

Segment Leq : 61.21 dBA

Results segment # 2: CR 27 (day)
--------------------------------

Source height = 1.50 m

ROAD (0.00 + 51.03 + 0.00) = 51.03 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.48  72.23   0.00 -20.06  -1.14   0.00   0.00   0.00  51.03
-------------------------------------------------------------------------------

Segment Leq : 51.03 dBA

Total Leq All Segments: 61.61 dBA

Results segment # 1: Salem Road (night)
---------------------------------------

Source height = 1.26 m

ROAD (0.00 + 54.70 + 0.00) = 54.70 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.49  57.71   0.00  -1.86  -1.15   0.00   0.00   0.00  54.70
-------------------------------------------------------------------------------
```

Segment Leq : 54.70 dBA

Results segment # 2: CR 27 (night)

Source height = 1.49 m

ROAD (0.00 + 44.48 + 0.00) = 44.48 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.48	65.68	0.00	-20.06	-1.14	0.00	0.00	0.00	44.48

Segment Leq : 44.48 dBA

Total Leq All Segments: 55.09 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 61.61
(NIGHT): 55.09

STAMSON 5.0 NORMAL REPORT Date: 03-06-2022 18:18:17
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r2ola.te Time Period: 16 hours
Description: R2 OLA

Road data, segment # 1: Salem Road

Car traffic volume : 4743 veh/TimePeriod *
Medium truck volume : 125 veh/TimePeriod *
Heavy truck volume : 125 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 5 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Salem Road

Angle1 Angle2 : -90.00 deg -12.00 deg
Wood depth : 0 (No woods.)
No of house rows : 1
House density : 95 %
Surface : 1 (Absorptive ground surface)
Receiver source distance : 25.00 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: CR 27

Car traffic volume : 11078 veh/TimePeriod *
Medium truck volume : 615 veh/TimePeriod *
Heavy truck volume : 615 veh/TimePeriod *
Posted speed limit : 80 km/h
Road gradient : 4 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: CR 27

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 338.00 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 3: Salem Road

Car traffic volume : 4743 veh/TimePeriod *
Medium truck volume : 125 veh/TimePeriod *
Heavy truck volume : 125 veh/TimePeriod *
Posted speed limit : 60 km/h

```
Road gradient       :     5 %
Road pavement       :     1 (Typical asphalt or concrete)

Data for Segment # 3: Salem Road
--------------------------------
Angle1   Angle2           : -12.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  25.00 m
Receiver height           :   1.50 m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Results segment # 1: Salem Road
------------------------------
Source height = 1.26 m

ROAD (0.00 + 45.08 + 0.00) = 45.08 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90    -12   0.66  64.22   0.00  -3.68  -5.36   0.00 -10.10   0.00  45.08
-------------------------------------------------------------------------------

Segment Leq : 45.08 dBA

Results segment # 2: CR 27
--------------------------
Source height = 1.50 m

ROAD (0.00 + 48.32 + 0.00) = 48.32 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.66  72.23   0.00 -22.46  -1.46   0.00   0.00   0.00  48.32
-------------------------------------------------------------------------------

Segment Leq : 48.32 dBA

Results segment # 3: Salem Road
------------------------------
Source height = 1.26 m

ROAD (0.00 + 56.81 + 0.00) = 56.81 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -12     90   0.66  64.22   0.00  -3.68  -3.73   0.00   0.00   0.00  56.81
-------------------------------------------------------------------------------

Segment Leq : 56.81 dBA

Total Leq All Segments: 57.63 dBA

TOTAL Leq FROM ALL SOURCES:       57.63
```

STAMSON 5.0 NORMAL REPORT Date: 03-06-2022 18:14:31
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r4wall.te Time Period: Day/Night 16/8 hours
Description: R4 day/night at wall

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

Car traffic volume	: 4743/527	veh/TimePeriod *
Medium truck volume	: 125/14	veh/TimePeriod *
Heavy truck volume	: 125/14	veh/TimePeriod *
Posted speed limit	: 60 km/h	
Road gradient	: 5 %	
Road pavement	: 1 (Typical asphalt or concrete)	

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

24 hr Traffic Volume (AADT or SADT)	: 5439
Percentage of Annual Growth	: 2.00
Number of Years of Growth	: 1.00
Medium Truck % of Total Volume	: 2.50
Heavy Truck % of Total Volume	: 2.50
Day (16 hrs) % of Total Volume	: 90.00

Data for Segment # 1: Salem Road (day/night)

Angle1 Angle2	: -90.00 deg	12.00 deg
Wood depth	: 0	(No woods.)
No of house rows	: 1 / 1	
House density	: 95 %	
Surface	: 1	(Absorptive ground surface)
Receiver source distance	: 39.90 / 39.90	m
Receiver height	: 7.50 / 7.50	m
Topography	: 1	(Flat/gentle slope; no barrier)
Reference angle	: 0.00	

Road data, segment # 2: CR 27 (day/night)

Car traffic volume	: 11078/1231	veh/TimePeriod *
Medium truck volume	: 615/68	veh/TimePeriod *
Heavy truck volume	: 615/68	veh/TimePeriod *
Posted speed limit	: 80 km/h	
Road gradient	: 4 %	
Road pavement	: 1 (Typical asphalt or concrete)	

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

24 hr Traffic Volume (AADT or SADT)	: 11000
Percentage of Annual Growth	: 2.00
Number of Years of Growth	: 11.00
Medium Truck % of Total Volume	: 5.00
Heavy Truck % of Total Volume	: 5.00
Day (16 hrs) % of Total Volume	: 90.00

```
Data for Segment # 2: CR 27 (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  : 342.00 / 342.00 m
Receiver height           :   7.50 / 7.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Road data, segment # 3: Salem Road (day/night)
----------------------------------------------
Car traffic volume  :  4743/527   veh/TimePeriod  *
Medium truck volume :   125/14    veh/TimePeriod  *
Heavy truck volume  :   125/14    veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     5 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):   5439
    Percentage of Annual Growth        :   2.00
    Number of Years of Growth          :   1.00
    Medium Truck % of Total Volume     :   2.50
    Heavy Truck  % of Total Volume     :   2.50
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 3: Salem Road (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  :  39.90 / 39.90  m
Receiver height           :   7.50 / 7.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Results segment # 1: Salem Road (day)
-------------------------------------

Source height = 1.26 m

ROAD (0.00 + 44.56 + 0.00) = 44.56 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     12   0.49  64.22   0.00  -6.32  -3.47   0.00  -9.87   0.00  44.56
-------------------------------------------------------------------------------

Segment Leq : 44.56 dBA
```

Results segment # 2: CR 27 (day)

Source height = 1.50 m

ROAD (0.00 + 50.99 + 0.00) = 50.99 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.48	72.23	0.00	-20.10	-1.14	0.00	0.00	0.00	50.99

Segment Leq : 50.99 dBA

Results segment # 3: Salem Road (day)

Source height = 1.26 m

ROAD (0.00 + 52.91 + 0.00) = 52.91 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
12	90	0.49	64.22	0.00	-6.32	-4.99	0.00	0.00	0.00	52.91

Segment Leq : 52.91 dBA

Total Leq All Segments: 55.44 dBA

Results segment # 1: Salem Road (night)

Source height = 1.26 m

ROAD (0.00 + 38.06 + 0.00) = 38.06 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	12	0.49	57.71	0.00	-6.32	-3.47	0.00	-9.87	0.00	38.06

Segment Leq : 38.06 dBA

Results segment # 2: CR 27 (night)

Source height = 1.49 m

ROAD (0.00 + 44.44 + 0.00) = 44.44 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.48	65.68	0.00	-20.10	-1.14	0.00	0.00	0.00	44.44

Segment Leq : 44.44 dBA

Results segment # 3: Salem Road (night)

Source height = 1.26 m

ROAD (0.00 + 46.41 + 0.00) = 46.41 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
12	90	0.49	57.71	0.00	-6.32	-4.99	0.00	0.00	0.00	46.41

Segment Leq : 46.41 dBA

Total Leq All Segments: 48.92 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 55.44
(NIGHT): 48.92

```
STAMSON 5.0        NORMAL REPORT        Date: 03-06-2022 17:36:49
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r5wall.te            Time Period: Day/Night 16/8 hours
Description: R5 day/night at wall


Road data, segment # 1: Salem Road (day/night)
----------------------------------------------
Car traffic volume  :  4743/527   veh/TimePeriod  *
Medium truck volume :   125/14    veh/TimePeriod  *
Heavy truck volume  :   125/14    veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     5 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):   5439
    Percentage of Annual Growth        :   2.00
    Number of Years of Growth          :   1.00
    Medium Truck % of Total Volume     :   2.50
    Heavy Truck  % of Total Volume     :   2.50
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 1: Salem Road (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  :  20.00 / 20.00  m
Receiver height           :   7.50 / 7.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Results segment # 1: Salem Road (day)
-------------------------------------

Source height = 1.26 m

ROAD (0.00 + 61.21 + 0.00) = 61.21 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.49  64.22   0.00  -1.86  -1.15   0.00   0.00   0.00  61.21
-------------------------------------------------------------------------------

Segment Leq : 61.21 dBA

Total Leq All Segments: 61.21 dBA

Results segment # 1: Salem Road (night)
---------------------------------------
```

Source height = 1.26 m

ROAD (0.00 + 54.70 + 0.00) = 54.70 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.49	57.71	0.00	-1.86	-1.15	0.00	0.00	0.00	54.70

Segment Leq : 54.70 dBA

Total Leq All Segments: 54.70 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 61.21
(NIGHT): 54.70

```
STAMSON 5.0        NORMAL REPORT        Date: 03-06-2022 18:18:58
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r6ola.te             Time Period: 16 hours
Description: R6 OLA


Road data, segment # 1: Salem Road
----------------------------------
Car traffic volume  :  4743 veh/TimePeriod  *
Medium truck volume :   125 veh/TimePeriod  *
Heavy truck volume  :   125 veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     5 %
Road pavement       :     1 (Typical asphalt or concrete)

Data for Segment # 1: Salem Road
--------------------------------
Angle1   Angle2           : -90.00 deg   33.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  26.00 m
Receiver height           :   1.50 m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Road data, segment # 2: Salem Road
----------------------------------
Car traffic volume  :  4743 veh/TimePeriod  *
Medium truck volume :   125 veh/TimePeriod  *
Heavy truck volume  :   125 veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     5 %
Road pavement       :     1 (Typical asphalt or concrete)

Data for Segment # 2: Salem Road
--------------------------------
Angle1   Angle2           :  33.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      1
House density             :     95 %
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  26.00 m
Receiver height           :   1.50 m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Results segment # 1: Salem Road
-------------------------------

Source height = 1.26 m

ROAD (0.00 + 57.53 + 0.00) = 57.53 dBA
```

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	33	0.66	64.22	0.00	-3.97	-2.72	0.00	0.00	0.00	57.53

Segment Leq : 57.53 dBA

Results segment # 2: Salem Road

Source height = 1.26 m

ROAD (0.00 + 42.73 + 0.00) = 42.73 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
33	90	0.66	64.22	0.00	-3.97	-7.43	0.00	-10.10	0.00	42.73

Segment Leq : 42.73 dBA

Total Leq All Segments: 57.67 dBA

TOTAL Leq FROM ALL SOURCES: 57.67

STAMSON 5.0 NORMAL REPORT Date: 14-10-2022 12:59:05
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r11wall.te Time Period: Day/Night 16/8 hours
Description: R11 day/night at wall

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

Car traffic volume	: 4743/527	veh/TimePeriod *
Medium truck volume	: 125/14	veh/TimePeriod *
Heavy truck volume	: 125/14	veh/TimePeriod *
Posted speed limit	: 60 km/h	
Road gradient	: 5 %	
Road pavement	: 1 (Typical asphalt or concrete)	

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

24 hr Traffic Volume (AADT or SADT)	: 5439
Percentage of Annual Growth	: 2.00
Number of Years of Growth	: 1.00
Medium Truck % of Total Volume	: 2.50
Heavy Truck % of Total Volume	: 2.50
Day (16 hrs) % of Total Volume	: 90.00

Data for Segment # 1: Salem Road (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	: 49.30 / 49.30	m
Receiver height	: 7.50 / 7.50	m
Topography	: 1	(Flat/gentle slope; no barrier)
Reference angle	: 0.00	

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

Car traffic volume	: 4743/527	veh/TimePeriod *
Medium truck volume	: 125/14	veh/TimePeriod *
Heavy truck volume	: 125/14	veh/TimePeriod *
Posted speed limit	: 60 km/h	
Road gradient	: 5 %	
Road pavement	: 1 (Typical asphalt or concrete)	

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

24 hr Traffic Volume (AADT or SADT)	: 5439
Percentage of Annual Growth	: 2.00
Number of Years of Growth	: 1.00
Medium Truck % of Total Volume	: 2.50
Heavy Truck % of Total Volume	: 2.50
Day (16 hrs) % of Total Volume	: 90.00

```
Data for Segment # 2: Salem Road (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  :  49.30 / 49.30  m
Receiver height           :   7.50 / 7.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Results segment # 1: Salem Road (day)
-------------------------------------

Source height = 1.26 m

ROAD (0.00 + 52.79 + 0.00) = 52.79 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90      7   0.49  64.22   0.00  -7.69  -3.74   0.00   0.00   0.00  52.79
-------------------------------------------------------------------------------

Segment Leq : 52.79 dBA

Results segment # 2: Salem Road (day)
-------------------------------------

Source height = 1.26 m

ROAD (0.00 + 51.91 + 0.00) = 51.91 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     7     90   0.49  64.22   0.00  -7.69  -4.63   0.00   0.00   0.00  51.91
-------------------------------------------------------------------------------

Segment Leq : 51.91 dBA

Total Leq All Segments: 55.38 dBA

Results segment # 1: Salem Road (night)
---------------------------------------

Source height = 1.26 m

ROAD (0.00 + 46.28 + 0.00) = 46.28 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90      7   0.49  57.71   0.00  -7.69  -3.74   0.00   0.00   0.00  46.28
-------------------------------------------------------------------------------

Segment Leq : 46.28 dBA

Results segment # 2: Salem Road (night)
---------------------------------------
```

Source height = 1.26 m

ROAD (0.00 + 45.40 + 0.00) = 45.40 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
7	90	0.49	57.71	0.00	-7.69	-4.63	0.00	0.00	0.00	45.40

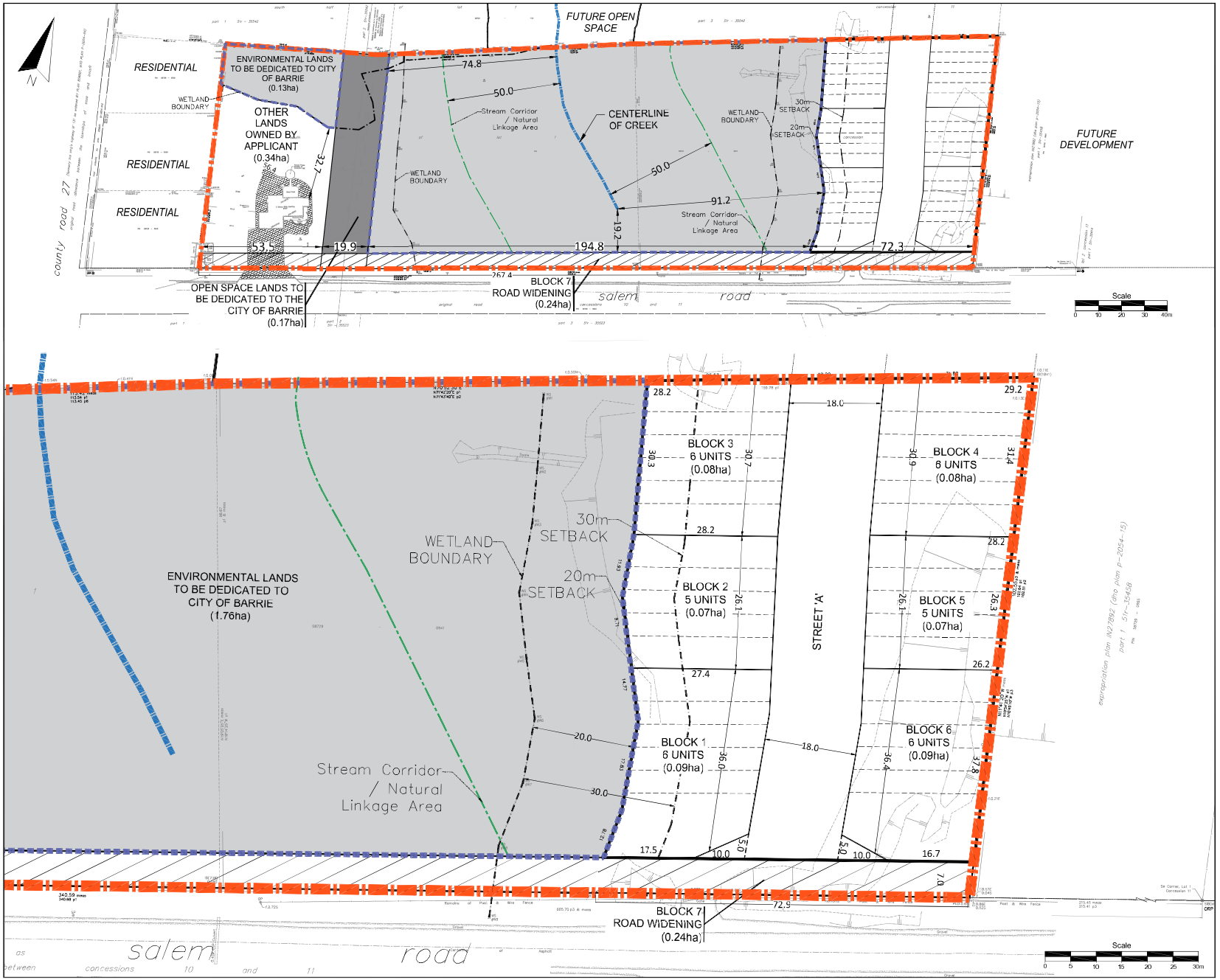
Segment Leq : 45.40 dBA

Total Leq All Segments: 48.87 dBA

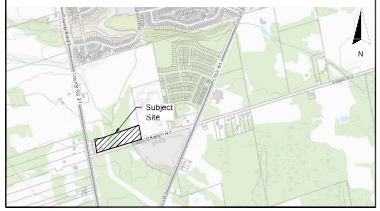
TOTAL Leq FROM ALL SOURCES (DAY): 55.38
(NIGHT): 48.87

APPENDIX 'D'

Draft Plan of Subdivision – September 9, 2022
Conceptual Site Plan – July 18, 2022



KEY MAP



DRAFT PLAN OF SUBDIVISION

PART OF SOUTH HALF OF LOT 1, CONCESSION 11,
GEOGRAPHIC TOWNSHIP OF INNISFIL,
TOWN OF INNISFIL,
COUNTY OF SIMCOE

LEGEND

- SUBJECT LANDS
  - AREA: 3.32ha
  - FRONTAGE: 340.5m (incl. develop. limit)
- DEVELOPMENT LIMIT (AREA:0.68ha excluding road widening)
- WETLAND BOUNDARY
- WETLAND SETBACK
- STREAM CORRIDOR / NATURAL LINKAGE AREA
- ENVIRONMENTAL LANDS TO BE DEDICATED TO THE CITY OF BARRIE
- OPEN SPACE LANDS TO BE DEDICATED TO THE CITY OF BARRIE

OWNER'S CERTIFICATE

I HEREBY AUTHORIZE INNOVATIVE PLANNING SOLUTIONS TO PREPARE THIS DRAFT PLAN OF SUBDIVISION AND SUBMIT THIS DRAFT PLAN OF SUBDIVISION FOR APPROVAL.

DATE OWNER'S NAME:

SURVEYOR'S CERTIFICATE

I CERTIFY THAT THE BOUNDARIES OF THE LAND TO BE SUBDIVIDED AND THEIR RELATIONSHIP TO ADJACENT LANDS ARE ACCURATELY AND CORRECTLY SHOWN.

DATE NEIL A. LEGROW, O.L.S.

ADDITIONAL INFORMATION REQUIRED UNDER SECTION 51(17) OF THE PLANNING ACT

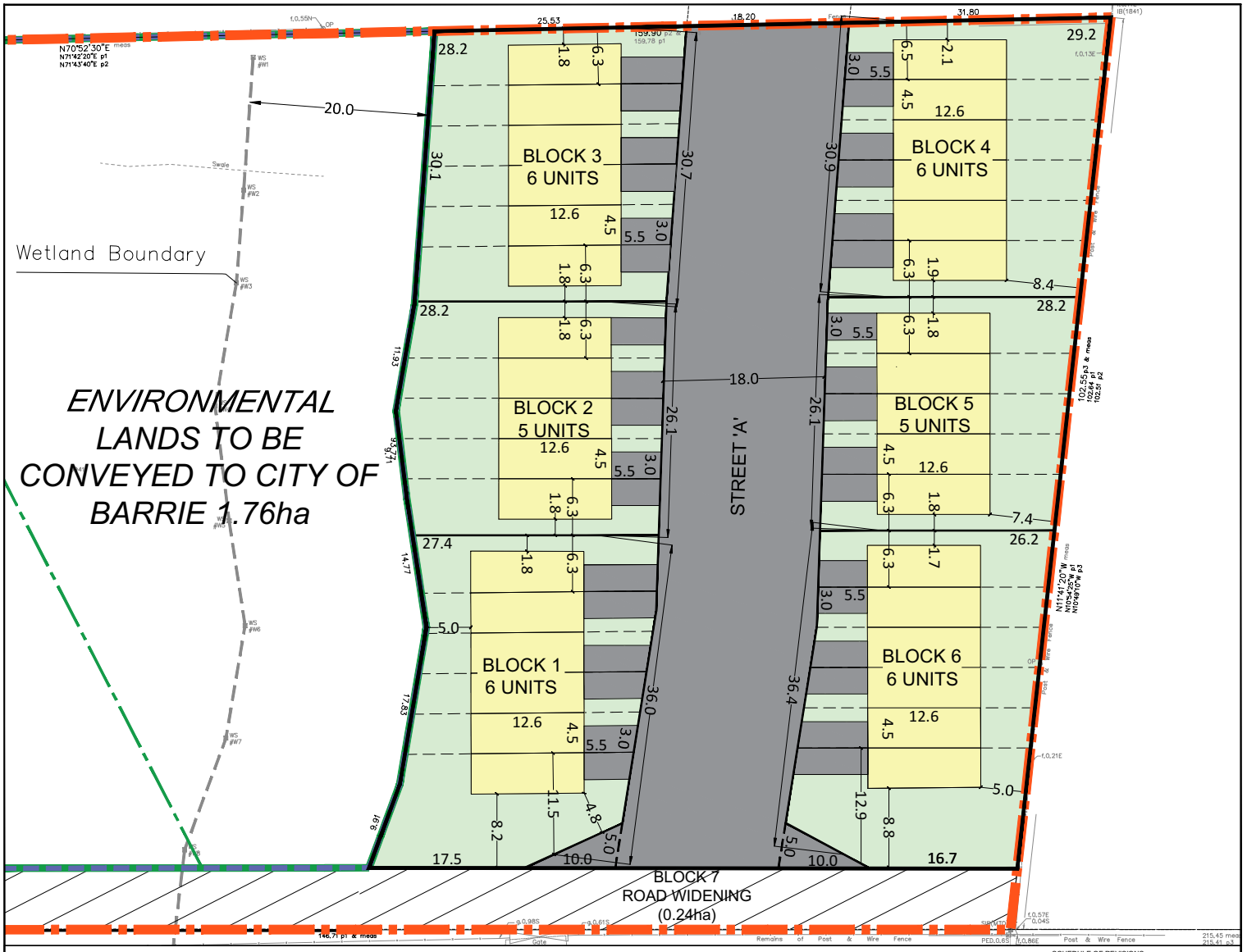
a) SHOWN ON PLAN
b) SHOWN ON PLAN
c) SEE KEY PLAN
d) RESIDENTIAL
e) SHOWN ON PLAN
f) SHOWN ON PLAN
g) SHOWN ON PLAN
h) MUNICIPAL WATER
i) SAND, SILT, CLAY
j) SHOWN ON PLAN
k) MUNICIPAL WATER & SEWAGE
l) NONE

LAND USE STATISTICS

LAND USE	LOT / BLK No.	UNITS	AREA (ha)
Residential - Townhouse	1 - 6	34	0.48
Street 'A'			0.20
TOTAL	**7**	**34**	**0.68ha**

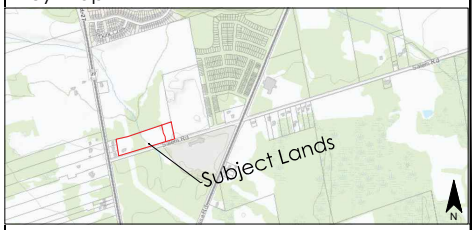
INNOVATIVE PLANNING SOLUTIONS
PLANNERS • PROJECT MANAGERS • LAND DEVELOPERS
647 WELHAM ROAD, UNIT 9, BARRIE, ON, L4N 0B7
tel: 705 • 812 • 3281 fax: 705 • 812 • 3430 e: info@ipsconsultinginc.com www.ipsconsultinginc.com

Date:	Sept. 9, 2022	Drawn By:	A.S.
File:	20-992	Checked:	T.K.



CONCEPTUAL SITE PLAN - 34 STREET TOWNHOUSE UNITS
500 SALEM ROAD, BARRIE, ON

Key Map



LEGAL DESCRIP. PART OF SOUTH HALF OF LOT 1, CONCESSION 11, GEOGRAPHIC TOWNSHIP OF INNISFIL, TOWN OF INNISFIL, COUNTY OF SIMCOE

LEGEND

- Subject Lands (3.32ha)
- Developable Area (0.68ha)
- 3-Storey Street Townhouse Units (G.F.A.: 150.9m² / 1,624.2ft² per unit)
- 7.0m Road Widening

NEIGHBOURHOOD RESIDENTIAL (R5) ZONE (SALEM AND HEWITT'S COMMUNITIES PROVISIONS)

Provisions	Required	Provided
Lot Frontage (min.)	4.5m	4.5m
Front Yard Setback (min.)	3.0m (5.5m Driveway Length)	5.5m
Exterior Side Yard Setback (min.)	2.0m	4.8m
Interior Side Yard Setback (min.) one side	0.0m	0.0m
Interior Side Yard Setback (min.) Opposite Side	0.0m	0.0m
Rear Yard (min.)	5.0m	5.0m
End Unit Interior Side Yard Setback (min.)	1.2m	1.7m
Landscaped Open Space (min.% of lot area)	--	35%
Lot Coverage (max. % of lot area)	70%	49%
Dwelling Unit Floor Area (min.)	--	56.8m²
Gross Floor Area (max.% of lot area)	--	148.1%
Maximum Height Number of Storeys	3 Storeys	3 Storeys
Maximum number of contiguous units in a row	8 Units	6 Units
Parking	1.5 Spaces per Dwelling Unit	2 Spaces per Dwelling Unit (1 Driveway Space & 1 Garage Space)

Note: This drawing is for discussion purposes only.
The information shown is approximate and subject to change.

0 5 10 15 20m

Date:	July 18, 2022	Drawn By:	JV
File:	20-992	Checked By:	TK

SCHEDULE OF REVISIONS

No.	Date	Description	By

INNOVATIVE PLANNING SOLUTIONS
PLANNERS • PROJECT MANAGERS • LAND DEVELOPERS
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APPENDIX 'E'

Proposed Zoning Provisions

NEIGHBOURHOOD RESIDENTIAL (R5) ZONE (SALEM AND HEWITT'S COMMUNITIES PROVISIONS)		
Provisions	**Required**	**Provided**
Lot Frontage (min.)	4.5m	4.5m
Front Yard Setback (min.)	3.0m (5.5m Driveway Length)	5.5m
Exterior Side Yard Setback (min.)	2.0m	4.8m
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Gross Floor Area (max.% of lot area)	--	148.1%
Maximum Height Number of Storeys	3 Storeys	3 Storeys
Maximum number of contiguous units in a row	8 Units	6 Units
Parking	1.5 Spaces per Dwelling Unit	2 Spaces per Dwelling Unit (1 Driveway Space & 1 Garage Space)

APPENDIX "F"

SUGGESTED WARNING CLAUSES

The following warning clauses must be registered on title and included in Agreements of Purchase and Sale or Lease where applicable:

TYPE A:
"Purchasers/tenants are advised that sound levels due to increasing road traffic may occasionally interfere with some activities of the dwelling occupants as the sound levels exceed the sound level limits of the Municipality and the Ministry of the Environment."

TYPE B:
"Purchasers/tenants are advised that despite the inclusion of noise control features in the development and within the building units, sound levels due to increasing road traffic may on occasions interfere with some activities of the dwelling occupants as the sound levels exceed the sound level limits of the Municipality and the Ministry of the Environment."

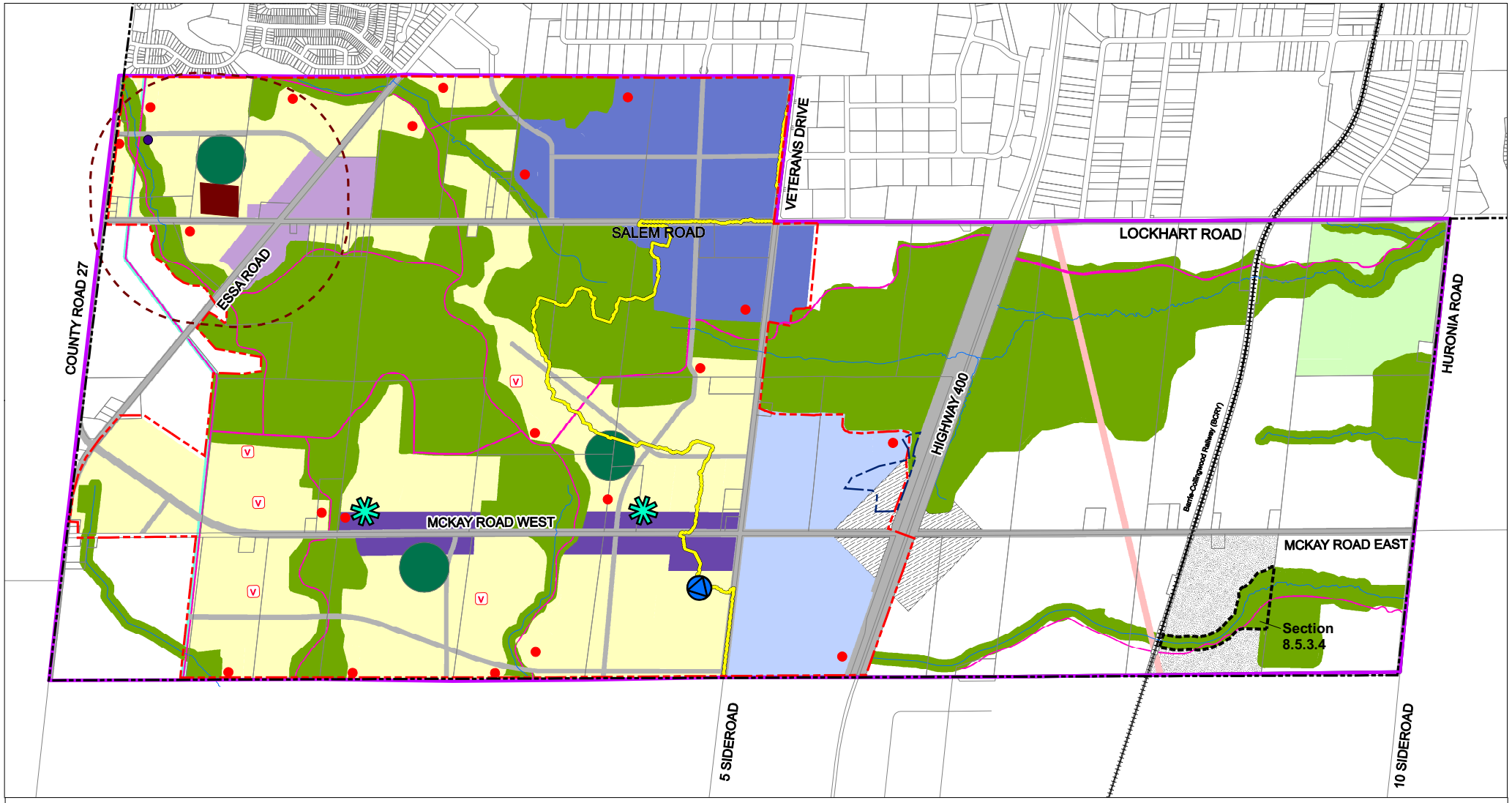
TYPE C:
"This dwelling unit has been designed with the provision for adding central air conditioning at the occupant's discretion. Installation of central air conditioning by the occupant in low and medium density developments will allow windows and exterior doors to remain closed, thereby ensuring that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

TYPE D:
"This dwelling unit has been supplied with a central air conditioning system which will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the sound level limits of the Municipality and the Ministry of the Environment."

TYPE E:
"Purchasers/tenants are advised that due to the proximity of the adjacent industry ("Unilock"), noise from the industry may at times be audible."

APPENDIX ‘G’

Land Use Plan - Schedule 8C



Schedule 8C

Land Use Plan

City of Barrie
Salem Secondary Plan

May 2016