

# **NOISE IMPACT STUDY**

Proposed Residential Subdivision

**“967 & 973 Big Bay Point Road”**

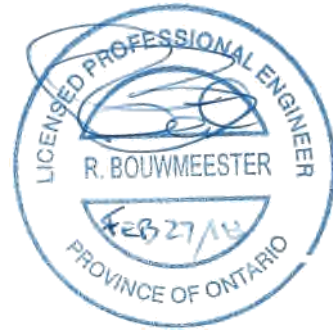
City of Barrie

**Prepared for:**

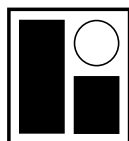
**Miele Developments Inc.**

**Prepared by:**

**Ralph Bouwmeester, P. Eng.**



**February 27, 2018**



**R. BOUWMEESTER & ASSOCIATES**  
165 Browning Trail  
Barrie, Ontario, Canada L4N 5E7  
tel: (705) 726-3392 fax: (705) 726-3392

RBA File: A17044

## **EXECUTIVE SUMMARY**

R. BOUWMEESTER & ASSOCIATES has been retained to assess potential noise impacts on residential uses within a proposed residential subdivision on the south side of Big Bay Point Road east of the former City boundary.

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 source potentially impacting this project is future traffic on Big Bay Point Road.

Traffic data were provided by the City of Barrie. Roadway noise from cars and medium and heavy trucks has been accounted for in this analysis. The traffic volumes have been projected to Year 2028 thereby providing the 10-year minimum projection window required by the MOECC.

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

The noise control requirements are summarized in Section 7, in Table 4, and on Figure 3.

Certain dwellings 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. The affected lots also require warning clauses registered on title; wording is provided. See Section 7, Table 4, and Figure 3 for details.

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

## **TABLE OF CONTENTS**

| <b>EXECUTIVE SUMMARY</b> |                                           | <b><u>Page</u></b> |
|--------------------------|-------------------------------------------|--------------------|
| <b>1.</b>                | <b>INTRODUCTION</b>                       | <b>1</b>           |
| <b>2.</b>                | <b>GOALS AND OBJECTIVES</b>               | <b>1</b>           |
| <b>3.</b>                | <b>NOISE SOURCES</b>                      | <b>1</b>           |
| <b>4.</b>                | <b>GUIDELINES AND CRITERIA</b>            | <b>1</b>           |
|                          | 4.1 Sound Level Limits                    | 1                  |
|                          | 4.2 Noise Control Measures                | 2                  |
| <b>5.</b>                | <b>ANALYSIS PROCEDURES</b>                | <b>3</b>           |
|                          | 5.1 Surroundings and Site Characteristics | 3                  |
|                          | 5.2 Noise Sources                         | 3                  |
|                          | 5.3 Traffic Data                          | 4                  |
|                          | 5.4 Study Periods                         | 4                  |
|                          | 5.5 Sound Level Prediction Model          | 4                  |
|                          | 5.6 Correction Factors                    | 4                  |
| <b>6.</b>                | <b>CALCULATED EQUIVALENT SOUND LEVELS</b> | <b>5</b>           |
| <b>7.</b>                | <b>RECOMMENDATIONS</b>                    | <b>6</b>           |
| <b>8.</b>                | <b>CONCLUSIONS</b>                        | <b>7</b>           |

## **REFERENCES**

### **TABLES**

|                                                                   |   |
|-------------------------------------------------------------------|---|
| Table 1 - Sound Level Limits                                      | 1 |
| Table 2 - Sound Level Limits and Standard Mitigation Requirements | 3 |
| Table 3 - Predicted Outdoor Sound Levels                          | 5 |
| Table 4 - Summary of Noise Controls                               | 8 |

### **FIGURES**

|                               |
|-------------------------------|
| Figure 1 - Location Plan      |
| Figure 2 - Receptor Plan      |
| Figure 3 - Noise Control Plan |

### **APPENDICES**

|                                       |
|---------------------------------------|
| A. Road Traffic Data                  |
| B. Sample Sound Level Calculations    |
| C. Draft Plan (source: MHBC Planning) |

## 1. INTRODUCTION

R. BOUWMEESTER & ASSOCIATES has been retained to assess potential noise impacts on residential uses within a proposed residential subdivision on the south side of Big Bay Point Road east of the former City boundary. See Figure 1.

Our analysis is based on the configuration of the development as shown on a Draft Plan of Subdivision prepared by MHBC Planning dated December 12, 2017. See App. 'C'.

## 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 potentially impacting this project is future traffic on Big Bay Point Road. Traffic data were provided by the City of Barrie. See Appendix 'A'.

## 4. GUIDELINES AND CRITERIA

Reference is made to Ministry of the Environment (MOECC) 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) |
|---------------------|-------------|---------------|-------------|
| <u>Outdoor</u>      |             |               |             |
| Outdoor Living Area | Day         | 0700-2300 hrs | 55          |
| <u>Indoor</u>       |             |               |             |
| 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 MOECC 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<sup>2</sup> (600 sq. ft.) in the case of single family detached homes, 46 m<sup>2</sup> (500 sq. ft.) in the case of semi-detached units, and 37 m<sup>2</sup> (400 sq. ft.) in the case of row or townhouse units.

The MOECC 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 warning clauses (Types B and 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. Warning clauses (Types B and D) must be registered on title against these 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**

|                                   | <u>Outdoor Sound Level Limits (dBA)</u> |         |         |
|-----------------------------------|-----------------------------------------|---------|---------|
|                                   | <u>Plane of Window</u>                  |         | OLA     |
|                                   | Day                                     | Night   |         |
| 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 clauses required (B and C for future A/C, B and D for mandatory A/C).

## 5. ANALYSIS PROCEDURES

### 5.1 Surroundings and Site Characteristics

The subject site, 2.04 ha in size, is located on the south side of Big Bay Point Road, approximately 37 m east of the former City boundary, in southeast Barrie. See Figure 1. A future residential subdivision (961 Big Bay Point Road) abuts the site directly to the west, large existing residential lots lie north of Big Bay Point Road, and vacant lands (future residential) are located to the east and south.

The proposed development calls for 43 single-detached residential lots, along with Blocks for road widening, daylighting triangles and 0.3 m reserves.

Private outdoor living space is proposed in the rear yards of the lots.

### 5.2 Noise Sources

The noise source of concern is future traffic on Big Bay Point Road. The proposed local streets are considered acoustically insignificant.

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 MOECC criteria.

This analysis assumes that Big Bay Point Road is of infinite length.

### **5.3    Traffic Data**

The City of Barrie provided Year 2016 traffic counts, truck percentages, and projected annual growth rates to Year 2031 for Big Bay Point Road. Our analysis is based on Year 2028 traffic volumes which provide the 10-year minimum projection window required by the MOECC.

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

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

The posted speed limit on Big Bay Point Road adjacent to the subject site is currently 80 kph, reducing to 50 kph just west of the site. We have assumed that the current limit will be reduced to 50 kph as the area develops.

The road grade along Big Bay Point Road is about 1.5%.

See Appendix 'A' for further road traffic details.

### **5.4    Study Periods**

The study periods, as per MOECC 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 MOECC 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 MOECC to be applied to the noise levels have been taken into account where applicable. These include corrections such as:

- a) Road segment lengths
- 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.

Shielding by vegetation and buildings was not accounted for in the determination of ventilation and building component requirements; however, 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 MOECC 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 (as per the draft zoning standards for this site).

An overall summary of the predicted outdoor day-time and night-time sound levels for each of the receptor locations is presented in Table 3. See Figure 2 for receptor locations and Appendix 'B' for sample calculations.

**TABLE 3 - Predicted Outdoor Sound Levels (dBA)**

| Receptor | Source        | Source /<br>Receiver<br>Dist. (m)<br>(Wall / OLA) | Outdoor Equivalent Sound Levels (Leq)<br>Due to Road Traffic (dBA) (unmitigated) |       |     |
|----------|---------------|---------------------------------------------------|----------------------------------------------------------------------------------|-------|-----|
|          |               |                                                   | Day                                                                              | Night | OLA |
| Lot 01   | Big Bay Pt Rd | 36.3 / 61.3                                       | 61                                                                               | 54    | 43  |
| Lot 03   | Big Bay Pt Rd | 36.3 / 61.3                                       | 61                                                                               | 54    | 43  |
| Lot 05   | Big Bay Pt Rd | 36.3 / 61.3                                       | 61                                                                               | 54    | 47  |

The results shown in Table 3 confirm that mitigation measures are required in order to ensure that day-time and night-time sound levels meet the MOECC 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 Table 4 and Figure 3) - suggested wording is given in the Notes to Table 4.

**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 units (see Table 4 and 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 MOECC'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 Site Plan 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.

## 7. **RECOMMENDATIONS**

1. Lots 01 to 05 require forced air heating systems sized for the future installation of central air conditioning at the dwelling owners' option and expense.
2. Lots 01 to 05 require warning clauses registered on title and included in all Development Agreements and Agreements of Purchase and Sale or Lease. See Figure 3 and Table 4 for the specific lots to which this applies, and see Notes to Table 4 for wording.

**8. CONCLUSIONS**

With the incorporation of the recommended noise controls summarized in Section 7 and as contained in Table 4 and shown on Figure 3, the MOECC 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 MOECC noise guideline NPC-300.

Respectfully submitted,

**R. BOUWMEESTER & ASSOCIATES**



Ralph Bouwmeester, P. Eng.  
Principal

**TABLE 4 - Summary of Noise Controls**

| <b>Lot / Block</b> | <b>Central Air Conditioning</b> | <b>Exterior Windows, Walls and Doors</b> | <b>Acoustic Barrier</b> | <b>Warning Clauses<sup>1</sup></b> |
|--------------------|---------------------------------|------------------------------------------|-------------------------|------------------------------------|
| 01 – 05            | Provision for Adding            | OBC                                      | No                      | A + B + C                          |
| 06 – 43            | No acoustic requirements        |                                          |                         |                                    |
| 44 – 49            | Not Residential                 |                                          |                         |                                    |

Notes:

1. See Notes to Table 4 on following page for wording.

#### **NOTES TO TABLE 4**

1. The location and installation of outdoor air conditioning devices should comply with sound level limits of Publication NPC-216 (*Residential Air Conditioning Devices – Publication NPC-216. 1993. Ontario Ministry of Environment and Energy*) and guidelines contained in Environmental Noise Guidelines for Installation of Residential Air Conditioning Devices (*Environmental Noise Guidelines for Installation of Residential Air Conditioning Devices. September 1994. Ontario Ministry of Environment and Energy. ISBN 0-7778-1616-4. PIBS 2721e01*) or should comply with other criteria specified by the municipality.
2. ‘OBC’ indicates that construction meeting the minimum non-acoustical requirements of the Ontario Building Code will provide adequate sound insulation. ‘Special’ indicates that exterior building components such as windows, walls and doors have to be determined by an acoustic consultant when house plans are available and prior to building permit issuance.
3. Acoustic barriers shall be of solid construction with no cracks, holes or gaps, and having a surface density of no less than 20 kg/sm. Any gaps under the noise barrier that are necessary for drainage purposes must be minimized and localized, and must not deteriorate the acoustical performance. A barrier may consist of a berm, a fence, or both.
4. The following warning clauses must be registered on title and included in the Subdivision Agreement and in all Agreements of Purchase and Sale or Lease for those lots and blocks as specified in Table 4:

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.”*

5. Conventional ventilated attic roof construction meeting OBC requirements is satisfactory.
6. All exterior doors must be fully weather-stripped.



## **REFERENCES**

1. Environmental Noise Guideline – Stationary and Transportation Sources – Approval and Planning (MOE Publication NPC-300, Aug 2013 ver. #22)
2. Environmental Noise Assessment in Land Use Planning (MOE 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) (MOE, October 1989)
5. Traffic data (City of Barrie, May 2016)
6. Zoning By-law 2009-141 as amended (City of Barrie) (including draft amendment related to Salem and Hewitt's Secondary Plans)

## **FIGURES**

Figure 1 - Location Plan

Figure 2 - Receptor Plan

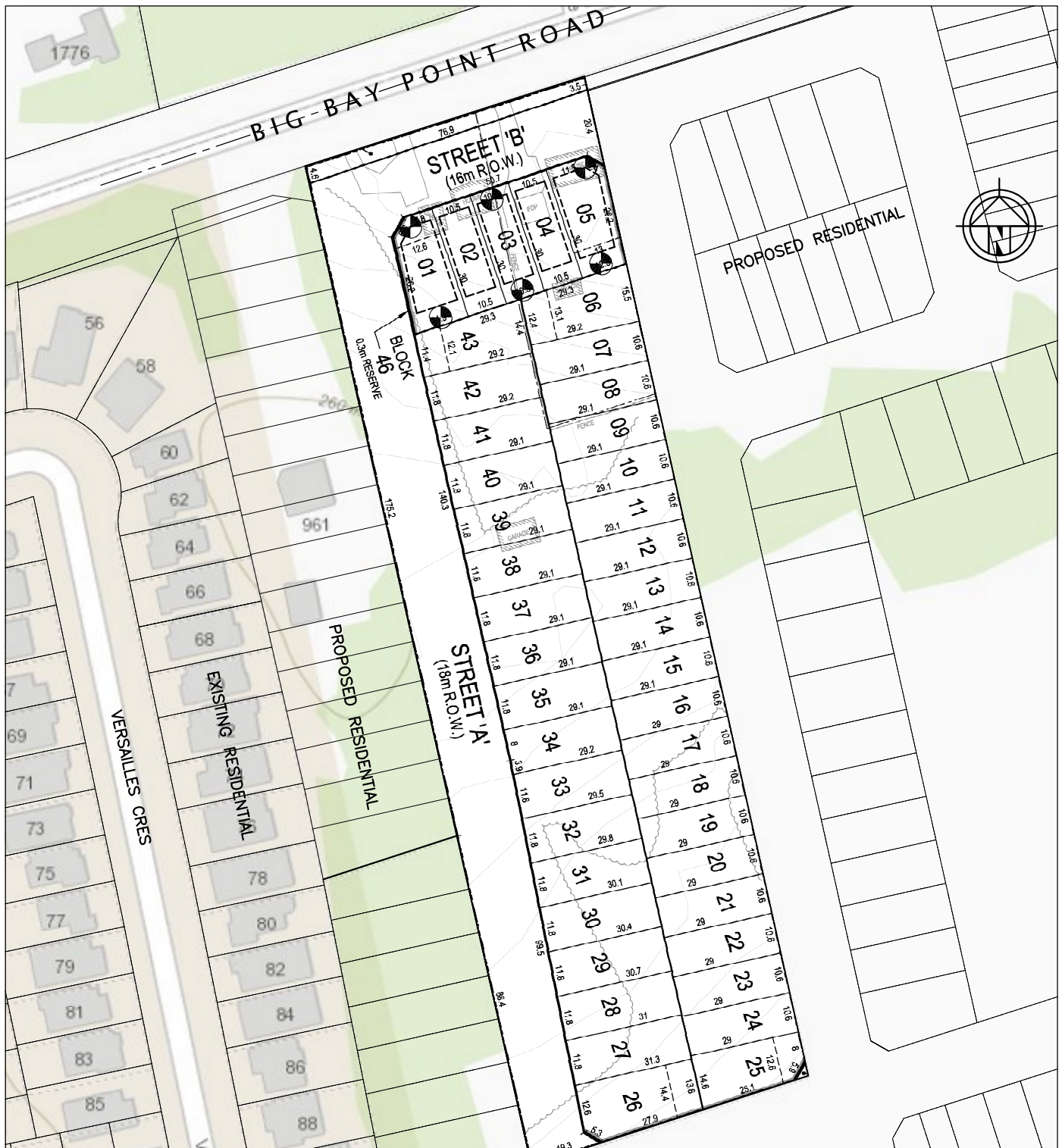
Figure 3 - Noise Control Plan



**Location Plan**  
Scale: NTS  
**FIG. 1**

February 2018  
R. Bouwmeester & Associates

Base map source: Simcoe County



#### LEGEND



Building envelope and Receptor Location

## Receptor Plan

Scale: 1 : 1500

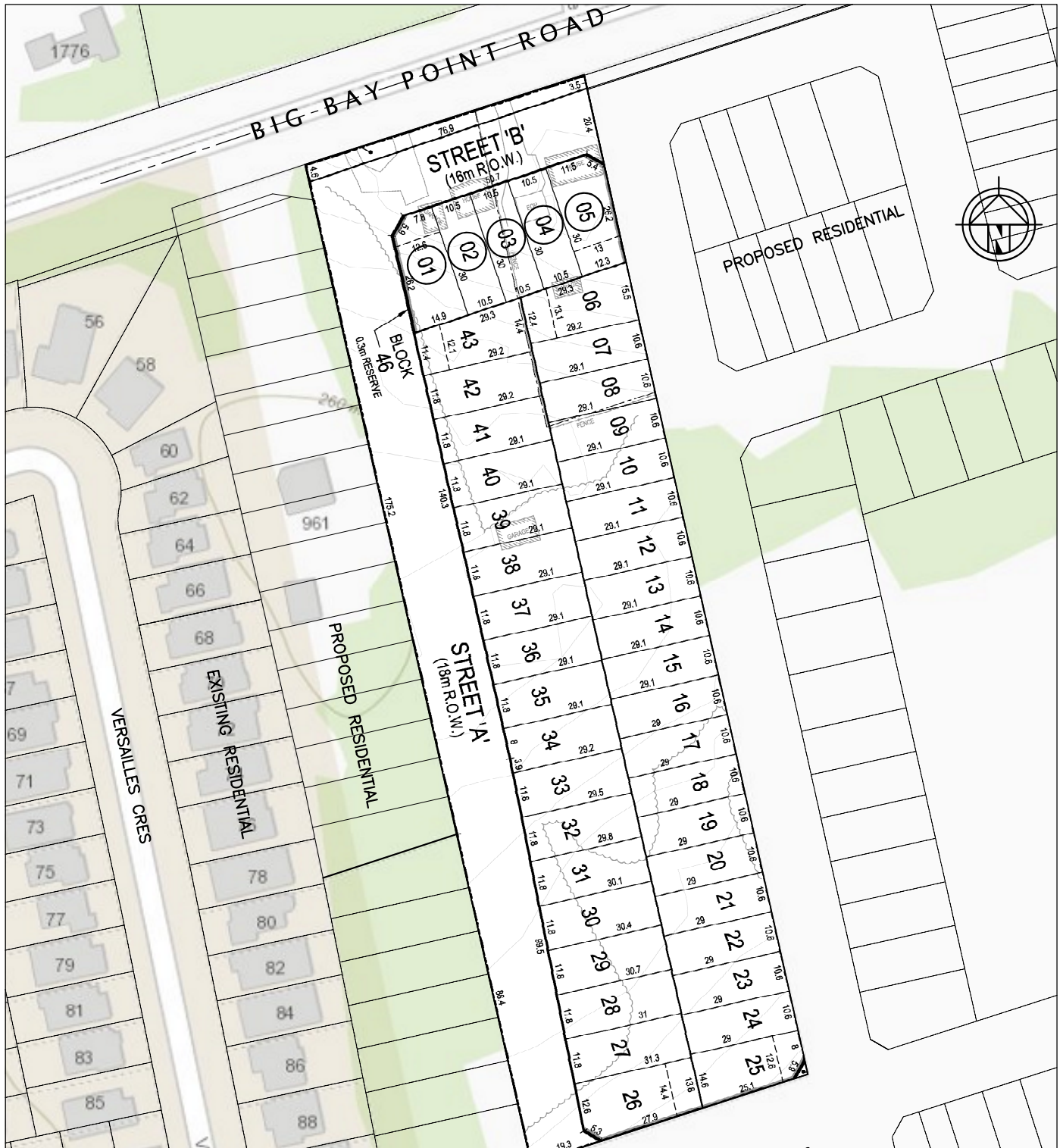
# FIG. 2

February 2018

R. Bouwmeester & Associates

Air photo source: Simcoe County  
Draft Plan source: MHBC Planning





#### LEGEND

- Dwellings requiring forced air heating + Warning Clauses

## Noise Control Plan

Scale: 1 : 1500

# FIG. 3

February 2018

R. Bouwmeester & Associates

Air photo source: Simcoe County  
Draft Plan source: MHBC Planning

## **APPENDICES**

- A. Road Traffic Data
- B. Sample Sound Level Calculations
- C. Draft Plan (source: MHBC Planning)

## **APPENDIX ‘A’**

### **ROAD TRAFFIC DATA**

#### **City of Barrie**

- Big Bay Point Road east of Prince William Way:
  - Year 2016 ADT is 6,500 with 4% commercial and heavy vehicles
  - Growth rate of 5.5% compounded yearly to Year 2026 plus 5% to Year 2031
  - 50 kph in built-up area, 80 kph in rural section

#### **Ministry of the Environment and Climate Change**

The MOECC 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 2028 data apply:

|                         | <b>Big Bay Point Road</b>                         |
|-------------------------|---------------------------------------------------|
| Traffic volume (AADT) * | 12,241                                            |
| Day/night split (%)     | 90 / 10                                           |
| Percent trucks M / H    | 2.0 / 2.0 **                                      |
| Posted Speed            | 50 kph (assumed future) (80 kph currently)        |
| Number of lanes         | 2 (future 4 / 2 lanes with centre left turn lane) |
| ROW width (m)           | 27 (future 34 / 27)                               |
| Road Grade (%)          | 1.5                                               |
| Pavement Type           | normal asphalt                                    |

\* Note: Year 2028 AADT derived as follows:  
 $6500 \times (1.055^{10}) \times (1.05^2) = 12,241$

\*\*Note: assumed split 50/50

## Ralph Bouwmeester

---

**Subject:** RE: 967 Big Bay Point Road - Traffic Data Request  
**From:** Justin MacDonald <Justin.MacDonald@barrie.ca>  
**Date:** 11/24/2017 3:22 PM  
**To:** 'Ralph Bouwmeester' <rbouwmeester@rogers.com>

Good afternoon,

The data provided from February of this year would still be applicable.

Thanks,

**Justin MacDonald, C.E.T.,**  
Senior Transportation Operations Technologist  
Roads, Parks & Fleet



City of Barrie: Barrie Operations Centre, 165 Ferndale Drive North, Barrie ON, L4N 9V9  
Office: 705-739-4220 5178

---

**From:** Ralph Bouwmeester [mailto:rbouwmeester@rogers.com]  
**Sent:** Friday, November 24, 2017 10:45 AM  
**To:** Justin MacDonald <Justin.MacDonald@barrie.ca>  
**Subject:** 967 Big Bay Point Road - Traffic Data Request

Hi Justin -

Earlier this year you provided traffic projections and truck %'s for BBPR. The data from your Feb 9/17 email is re-printed below for your convenience.

"Big Bay Point Road east of Prince William Way – 6,500 vehicles per day; 5.5% per year to 2026; 5% per year to 2031.

4% commercial and heavy vehicles  
50km/h in built up area, turns to 80km/h in rural section."

I understand your current count applies to Year 2016, and that the 4% trucks can be split 50/50 between mediums and heavies.

Kindly confirm that the above is still applicable.

Thank you.

Regards -  
Ralph

Ralph Bouwmeester, P. Eng.  
[rbouwmeester@rogers.com](mailto:rbouwmeester@rogers.com)

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



## APPENDIX ‘B’

## SAMPLE SOUND LEVEL CALCULATIONS

STAMSON 5.0 SUMMARY REPORT Date: 27-02-2018 12:58:34  
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 704401F.TE Time Period: Day/Night 16/8 hours  
Description: Lot 1 day/night at wall

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

```

Car traffic volume      : 10576/1175    veh/TimePeriod    *
Medium truck volume    :    220/24      veh/TimePeriod    *
Heavy truck volume     :    220/24      veh/TimePeriod    *
Posted speed limit     :    50 km/h
Road gradient          :    2 %
Road pavement          :    1 (Typical asphalt or concrete)

```

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

|                                      |         |
|--------------------------------------|---------|
| 24 hr Traffic Volume (AADT or SADT): | 11103   |
| Percentage of Annual Growth          | : 5.00  |
| Number of Years of Growth            | : 2.00  |
| Medium Truck % of Total Volume       | : 2.00  |
| Heavy Truck % of Total Volume        | : 2.00  |
| Day (16 hrs) % of Total Volume       | : 90.00 |

Data for Segment # 1: BBPR (day/night)

```

Angle1      Angle2      : -90.00 deg    90.00 deg
Wood depth   :          0      (No woods.)
No of house rows :          0 / 0
Surface      :          2      (Reflective ground surface)
Receiver source distance : 36.30 / 36.30 m
Receiver height :    4.50 / 4.50 m
Topography   :          1      (Flat/gentle slope; no barrier)
Reference angle :    0.00

```

### Result summary (day)

|        |   |        |   |       |   |           |
|--------|---|--------|---|-------|---|-----------|
|        | ! | source | ! | Road  | ! | Total     |
|        | ! | height | ! | Leq   | ! | Leq       |
|        | ! | (m)    | ! | (dBA) | ! | (dBA)     |
| 1.BBPR | ! | 1.19   | ! | 60.63 | ! | 60.63     |
|        | ! |        | ! |       | ! |           |
|        |   | Total  |   |       |   | 60.63 dBA |

Result summary (night)

|        | ! | source | ! | Road  | ! | Total     |
|--------|---|--------|---|-------|---|-----------|
|        | ! | height | ! | Leq   | ! | Leq       |
|        | ! | (m)    | ! | (dBA) | ! | (dBA)     |
| 1.BBPR | ! | 1.18   | ! | 54.05 | ! | 54.05     |
|        |   | Total  |   |       |   | 54.05 dBA |

TOTAL Leq FROM ALL SOURCES (DAY): 60.63  
(NIGHT): 54.05

Filename: 7044010.TE Time Period: 16 hours  
 Description: Lot 1 OLA

Road data, segment # 1: BBPR

-----  
 Car traffic volume : 10576 veh/TimePeriod \*  
 Medium truck volume : 220 veh/TimePeriod \*  
 Heavy truck volume : 220 veh/TimePeriod \*  
 Posted speed limit : 50 km/h  
 Road gradient : 2 %  
 Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: BBPR

-----  
 Angle1 Angle2 : -90.00 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 : 61.30 m  
 Receiver height : 1.50 m  
 Topography : 1 (Flat/gentle slope; no barrier)  
 Reference angle : 0.00

Result summary

-----  

|        | ! source ! | Road  | ! Total   |
|--------|------------|-------|-----------|
|        | ! height ! | Leq   | ! Leq     |
|        | ! (m) !    | (dBA) | ! (dBA)   |
| 1.BBPR | ! 1.19 !   | 43.48 | ! 43.48   |
| Total  |            |       | 43.48 dBA |

-----

TOTAL Leq FROM ALL SOURCES: 43.48

Filename: 704403F.TE Time Period: Day/Night 16/8 hours  
 Description: Lot 3 day/night at wall

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

-----  
 Car traffic volume : 10576/1175 veh/TimePeriod \*  
 Medium truck volume : 220/24 veh/TimePeriod \*  
 Heavy truck volume : 220/24 veh/TimePeriod \*  
 Posted speed limit : 50 km/h  
 Road gradient : 2 %  
 Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 11103  
 Percentage of Annual Growth : 5.00  
 Number of Years of Growth : 2.00  
 Medium Truck % of Total Volume : 2.00  
 Heavy Truck % of Total Volume : 2.00  
 Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: BBPR (day/night)

-----  
 Angle1 Angle2 : -90.00 deg 90.00 deg  
 Wood depth : 0 (No woods.)  
 No of house rows : 0 / 0  
 Surface : 2 (Reflective ground surface)  
 Receiver source distance : 36.30 / 36.30 m  
 Receiver height : 4.50 / 4.50 m  
 Topography : 1 (Flat/gentle slope; no barrier)  
 Reference angle : 0.00

Result summary (day)

-----  

|        | ! source ! | Road !  | Total     |
|--------|------------|---------|-----------|
|        | ! height ! | Leq !   | Leq       |
|        | ! (m) !    | (dBA) ! | (dBA)     |
| 1.BBPR | ! 1.19 !   | 60.63 ! | 60.63     |
| Total  |            |         | 60.63 dBA |

-----

Result summary (night)

|        | ! | source | ! | Road  | ! | Total     |
|--------|---|--------|---|-------|---|-----------|
|        | ! | height | ! | Leq   | ! | Leq       |
|        | ! | (m)    | ! | (dBA) | ! | (dBA)     |
| 1.BBPR | ! | 1.18   | ! | 54.05 | ! | 54.05     |
|        |   | Total  |   |       |   | 54.05 dBA |

TOTAL Leq FROM ALL SOURCES (DAY): 60.63  
(NIGHT): 54.05

Filename: 7044030.TE Time Period: 16 hours  
 Description: Lot 3 OLA

Road data, segment # 1: BBPR

-----  
 Car traffic volume : 10576 veh/TimePeriod \*  
 Medium truck volume : 220 veh/TimePeriod \*  
 Heavy truck volume : 220 veh/TimePeriod \*  
 Posted speed limit : 50 km/h  
 Road gradient : 2 %  
 Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: BBPR

-----  
 Angle1 Angle2 : -90.00 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 : 61.30 m  
 Receiver height : 1.50 m  
 Topography : 1 (Flat/gentle slope; no barrier)  
 Reference angle : 0.00

Result summary

-----  

|        | ! source ! | Road  | ! Total   |
|--------|------------|-------|-----------|
|        | ! height ! | Leq   | ! Leq     |
|        | ! (m) !    | (dBA) | ! (dBA)   |
| 1.BBPR | ! 1.19 !   | 43.48 | ! 43.48   |
| Total  |            |       | 43.48 dBA |

-----

TOTAL Leq FROM ALL SOURCES: 43.48

Filename: 704405F.TE Time Period: Day/Night 16/8 hours  
 Description: Lot 5 day/night at wall

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

-----  
 Car traffic volume : 10576/1175 veh/TimePeriod \*  
 Medium truck volume : 220/24 veh/TimePeriod \*  
 Heavy truck volume : 220/24 veh/TimePeriod \*  
 Posted speed limit : 50 km/h  
 Road gradient : 2 %  
 Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 11103  
 Percentage of Annual Growth : 5.00  
 Number of Years of Growth : 2.00  
 Medium Truck % of Total Volume : 2.00  
 Heavy Truck % of Total Volume : 2.00  
 Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: BBPR (day/night)

-----  
 Angle1 Angle2 : -90.00 deg 90.00 deg  
 Wood depth : 0 (No woods.)  
 No of house rows : 0 / 0  
 Surface : 2 (Reflective ground surface)  
 Receiver source distance : 36.30 / 36.30 m  
 Receiver height : 4.50 / 4.50 m  
 Topography : 1 (Flat/gentle slope; no barrier)  
 Reference angle : 0.00

Result summary (day)

-----  

|        | ! source ! | Road !  | Total     |
|--------|------------|---------|-----------|
|        | ! height ! | Leq !   | Leq       |
|        | ! (m) !    | (dBA) ! | (dBA)     |
| 1.BBPR | ! 1.19 !   | 60.63 ! | 60.63     |
| Total  |            |         | 60.63 dBA |

 -----

Result summary (night)

|        | ! | source | ! | Road  | ! | Total     |
|--------|---|--------|---|-------|---|-----------|
|        | ! | height | ! | Leq   | ! | Leq       |
|        | ! | (m)    | ! | (dBA) | ! | (dBA)     |
| 1.BBPR | ! | 1.18   | ! | 54.05 | ! | 54.05     |
|        |   | Total  |   |       |   | 54.05 dBA |

TOTAL Leq FROM ALL SOURCES (DAY): 60.63  
(NIGHT): 54.05



Filename: 7044050.TE                      Time Period: 16 hours  
Description: Lot 5 OLA

Road data, segment # 1: BBPR

-----  
Car traffic volume : 10576 veh/TimePeriod \*  
Medium truck volume : 220 veh/TimePeriod \*  
Heavy truck volume : 220 veh/TimePeriod \*  
Posted speed limit : 50 km/h  
Road gradient : 2 %  
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: BBPR

-----  
Angle1    Angle2 : -90.00 deg    45.00 deg  
Wood depth : 0 (No woods.)  
No of house rows : 1  
House density : 95 %  
Surface : 1 (Absorptive ground surface)  
Receiver source distance : 61.30 m  
Receiver height : 1.50 m  
Topography : 1 (Flat/gentle slope; no barrier)  
Reference angle : 0.00

Road data, segment # 2: BBPR

-----  
Car traffic volume : 10073 veh/TimePeriod  
Medium truck volume : 210 veh/TimePeriod  
Heavy truck volume : 210 veh/TimePeriod  
Posted speed limit : 50 km/h  
Road gradient : 2 %  
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: BBPR

-----  
Angle1    Angle2 : 45.00 deg    90.00 deg  
Wood depth : 0 (No woods.)  
No of house rows : 0  
Surface : 1 (Absorptive ground surface)  
Receiver source distance : 61.30 m  
Receiver height : 1.50 m  
Topography : 1 (Flat/gentle slope; no barrier)  
Reference angle : 0.00

# Result summary

-----

|        | ! | source | ! | Road  | ! | Total     |
|--------|---|--------|---|-------|---|-----------|
|        | ! | height | ! | Leq   | ! | Leq       |
|        | ! | (m)    | ! | (dBA) | ! | (dBA)     |
| 1.BBPR | ! | 1.19   | ! | 42.65 | ! | 42.65     |
| 2.BBPR | ! | 1.19   | ! | 45.06 | ! | 45.06     |
|        | ! |        | ! |       | ! |           |
|        |   | Total  |   |       |   | 47.03 dBA |

TOTAL Leq FROM ALL SOURCES: 47.03

## **APPENDIX 'C'**

### **DRAFT PLAN**

(Source: MHBC Planning)

LEGAL DESCRIPTION  
PART OF NORTH HALF OF LOT 19  
CONCESSION 12, TOWNSHIP OF INNISTIL  
CITY OF BARRIE  
COUNTY OF SIMCOE

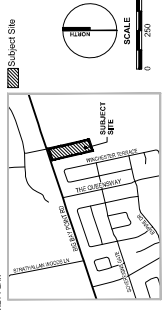
OWNER'S CERTIFICATE  
THESE PLANS AND INFORMATION WERE PREPARED BY THE PLANNING CONSULTANT FOR THE  
TO SUBMIT THIS PLAN FOR APPROVAL.

DATE:

SURVEYOR'S CERTIFICATE  
I HEREBY CERTIFY THAT THE BOUNDARIES OF THE LAND TO BE SUBMITTED ON THIS PLAN  
SHOWING RELATIONSHIP TO THE ADJACENT LANDS ARE ACCURATE AND CORRECTLY  
SHOWING.

DATE:

KEY PLAN  
SUBJECT SITE  
OUTLINE OF SUBDIVISION



LEGEND

- PROJECT BOUNDARY
- PROPOSED RIGHT OF WAY
- PROPOSED BLOCK LINE
- PROPOSED LOT LINE
- EXISTING PROPOSED PANEL FABRIC

REVISION NO. DATE ISSUED / REVISION BY  
ADDITIONAL INFORMATION REQUIRED UNDER SECTION 31(17)  
A. AS SHOWN B. AS SHOWN C. AS SHOWN D. AS SHOWN E. AS SHOWN F. AS SHOWN G. AS SHOWN H. AS SHOWN I. AS SHOWN J. AS SHOWN K. AS SHOWN L. AS SHOWN M. AS SHOWN N. AS SHOWN O. AS SHOWN P. AS SHOWN Q. AS SHOWN R. AS SHOWN S. AS SHOWN T. AS SHOWN U. AS SHOWN V. AS SHOWN W. AS SHOWN X. AS SHOWN Y. AS SHOWN Z. AS SHOWN

PLANNING  
URBAN DESIGN  
& LANDSCAPE  
ARCHITECTURE  
MHC PLANNING

STAMP  
DATE: Dec. 12, 2017  
FILE NO. 0853  
SCALE 1:500  
DRAWN BY M.M.  
CHECKED BY D.A.  
OTHER

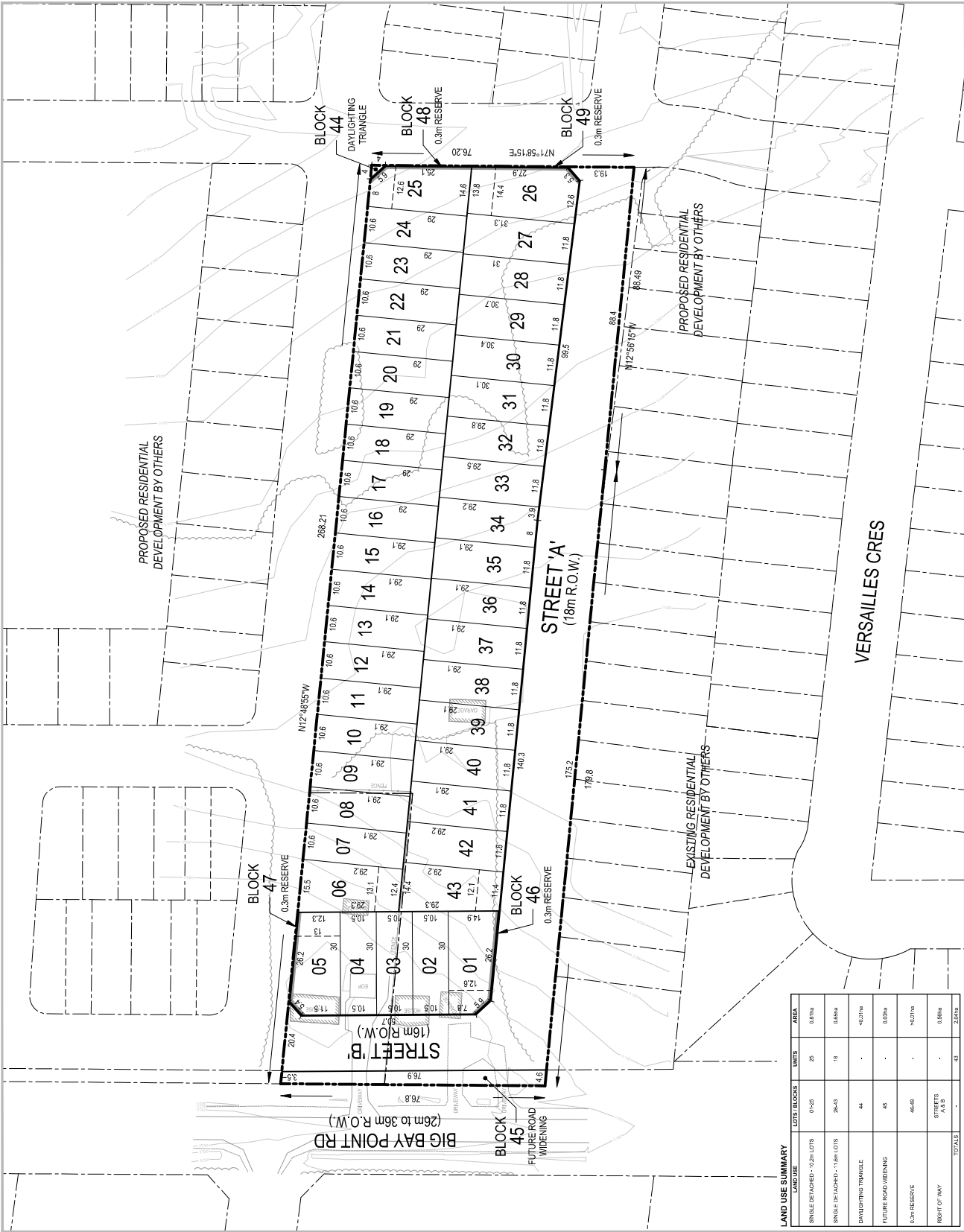


PROJECT  
967 & 973  
BIG BAY POINT ROAD

FILE NAME  
PLAN OF SUBDIVISION

DWG No. 1 of 1

SCALE BAR  
0 10 20 30 40 50 60 70 80 90 100  
METERS  
CONVERTED TO FEET BY 1.0762



| LAND USE SUMMARY             |              |       |        |
|------------------------------|--------------|-------|--------|
| LAND USE                     | LOTS/BLOCKS  | UNITS | AREA   |
| SINGLE DETACHED - 10.2m LOTS | 01-25        | 25    | 0.81ha |
| SINGLE DETACHED - 11.6m LOTS | 26-43        | 18    | 0.68ha |
| DAYLIGHTING TRIANGLE         | 44           | -     | 0.01ha |
| FUTURE ROAD WIDENING         | 45           | -     | 0.03ha |
| 0.3m RESERVE                 | 46-49        | -     | 0.01ha |
| RIGHT OF WAY                 | STREET A & B | -     | 0.06ha |
| TOTALS                       | -            | 43    | 2.60ha |