YCA engineering Limited

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# ENVIRONMENTAL NOISE ASSESSMENT

PROPOSED RESIDENTIAL DEVELOPMENT
WHITEVALE EAST- TACCGATE
(PARCEL 24)
EAST OF PETER MATTHEWS DRIVE,
SOUTH OF WHITEVALE ROAD
CITY OF PICKERING

PREPARED FOR:

TACCGATE DEVELOPMENTS INC.

December 2024
Y2449

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## 1.0 INTRODUCTION

PURPOSE

A residential development has been proposed by TACCGATE Developments Inc. in the City of Pickering. This report is an analysis of future sound levels within the proposed residential developments and describes the types and locations of noise mitigation measures which will be required based on the latest Grading Plan November 2024.

SITE DESCRIPTIONS AND LOCATIONS

The proposed residential development consists of townhouses units, detached dwellings, a storm water management pond and local internal roads located approximately 120m south of Whitevale Road/Alexander Knox Road and east of Peter Matthews Drive in the City of Pickering.

The surrounding land uses are proposed and existing residential developments with a creek to the east and open spaces to the west.

KEY PLAN

The location of the proposed development is further indicated by the Key Plan below.

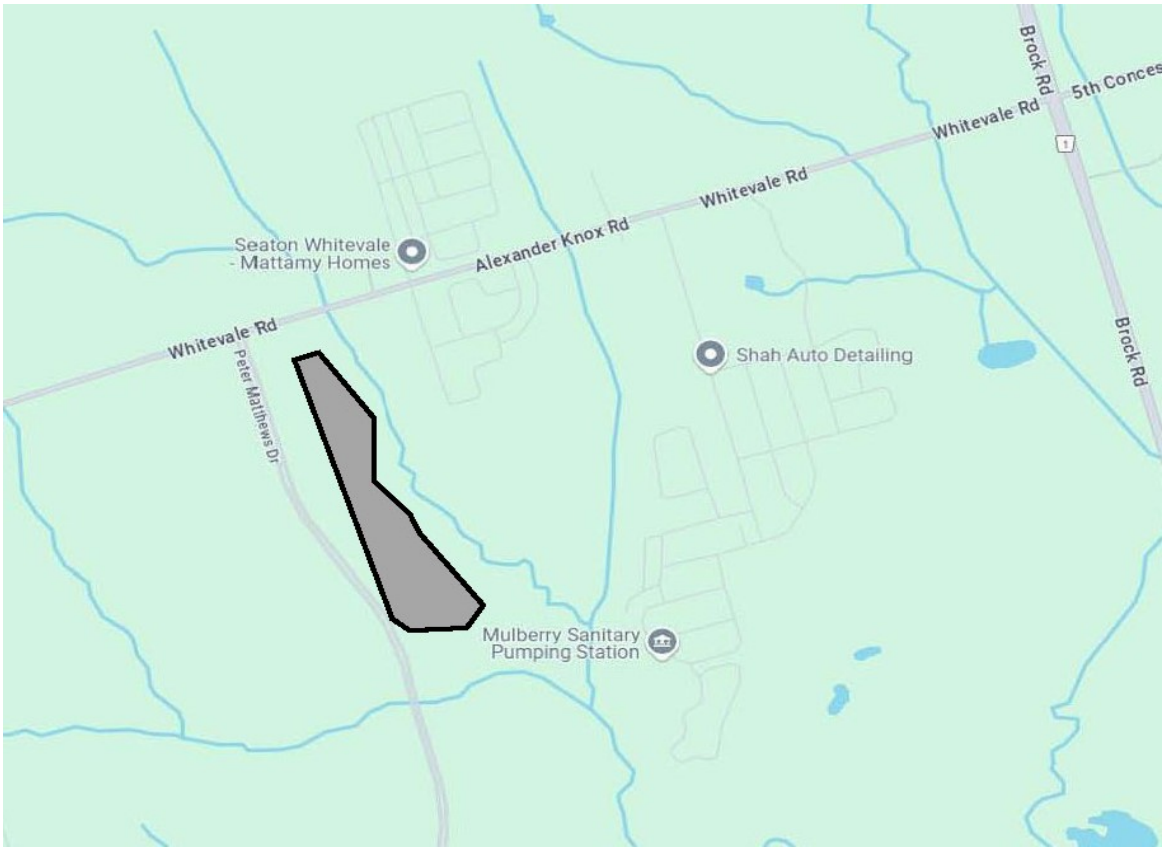



**FIGURE 1**

## 2.0 SOUND LEVEL CRITERIA

The sound level descriptor ($L_{eq}$ in dBA) is for 16 hours (daytime) and 8 hours (night-time) based on MECP Guideline NPC-300.

Outdoor Activity Areas (7 a.m. – 11 p.m.) – 16 Hr. Leq. = 55 dBA Roads

If daytime outdoor sound levels at the backyards (outdoor activity areas) of residential areas exceed 60 dBA, physical noise attenuation measures such as acoustical fences, increased building setbacks or reorientation of dwellings and lots must be employed to reduce the sound levels. In some cases, outdoor sound levels may be allowed to exceed the above criteria by a maximum of 5 dBA. If such excesses occur, purchasers must be informed of the existence of potentially annoying sound levels by means of warning clauses registered on title.

Living/Dining Area and Bedroom (7 a.m.–11 p.m.) = 45 dBA Roads
Living/Dining Area (11 p.m.–7 a.m.) = 45 dBA Roads
Bedrooms (11 p.m. – 7 a.m.) = 40 dBA Roads

Appropriate building components such as walls, doors and windows are chosen with reference to the following. If daytime sound levels at the external dwelling walls are 65 dBA or less (roadways), and 60 dBA or less (railways), then the indoor sound level criteria described above will be achieved using standard (Ontario Building Code) construction methods and building components. If night-time sound levels are 60 dBA or less (roadways) and 55 dBA or less (railways), standard construction methods and building components can be utilized. If the external sound levels exceed the above criteria, then components having extra sound insulation properties may be required.

Ventilation requirements are determined with reference to the following. If night-time sound levels at the bedroom window of a dwelling unit are in the range of 50 to 60 dBA, the ventilation system must be designed to allow the optional installation of central air conditioning at the owner's discretion. If night-time sound levels are greater than 60 dBA, central air conditioning must be installed. If daytime sound levels at the living room/dining room windows are in the range of 55 to 65 dBA, the ventilation system must be designed to allow optional installation of central air conditioning. For daytime sound levels greater than 65 dBA, central air conditioning must be installed.

STATIONARY SOURCES

As per the M.E.C.P. guidelines (Publication NPC-300), this development is considered to be a Class 2 area.

The noise produced by a stationary source at the plane of window for noise sensitive spaces is the energy equivalent sound level ($L_{EQ}$), 50 dBA during daytime and evening time (0700-2300) or 45 dBA during night-time (2300-0700). For outdoor receptors, the energy equivalent sound level ($L_{EQ}$) is 50 dBA during daytime (0700-1900) or 45 dBA during night-time (1900-0700).

## 3.0 NOISE SOURCES

ROAD TRAFFIC

The proposed developments will be located east of Peter Matthews Drive and approximately 120m south of Whitevale Road in the City of Pickering. Taunton Road is more than 1km from the proposed development to the south.

Therefore, noise generated by Peter Matthews Drive and Whitevale Road have the potential to affect future residents. All other roads within and near this site are local roadways. Due to distance separation and low traffic volumes, all other local roads are considered acoustically insignificant.

Traffic volume information for Peter Matthews Drive and Whitevale Road were obtained from the Region of Municipality of Durham dated November 2024. The traffic data is summarized in Tables 1 and 2 below:

**TABLE 1: PETER MATTHEWS DRIVE TRAFFIC DATA**

| | |
|---|---|
| Projected Annual Average Daily Traffic * | 22,000 |
| Percent Trucks | 8% |
| Heavy and Medium trucks ratio | 30:70 |
| Speed (km/hr) | 60 |
| Number of Lanes | 4 |

**TABLE 2: WHITEVALE ROAD TRAFFIC DATA**

| | |
|---|---|
| Projected Annual Average Daily Traffic * | 25,000 |
| Percent Trucks | 8% |
| Heavy and Medium trucks ratio | 30:70 |
| Speed (km/hr) | 60 |
| Number of Lanes | 4 |

* The projected traffic data provided by the Region of Durham.

RAIL TRAFFIC

The Canadian Pacific Railway is located more than 1km from the proposed residential development. Due to distance separation, the noise impact from the railway is considered acoustically insignificant.

AIRCRAFT TRAFFIC

Due to the proximity of the future Pickering Airport, the proposed residential development has been verified and the proposed site is outside the NEF 25 Noise Contour Line. The noise contour line map for the future Pickering Airport is included in Appendix 1.

## 4.0 NOISE ASSESSMENT

Figure 2 is based on the latest Grading Plan November 2024 showing various noise analysis locations adjacent to noise sources and noise mitigation measures within the proposed residential developments. Sound levels were calculated using the Ministry of Environment's Stamson 5.04 computer-based noise prediction model. The noise criteria and warning clauses are listed in Appendix 3. Table 3 lists the unattenuated sound levels at various locations.

**TABLE 3: UNATTENUATED SOUND LEVELS**

| LOCATIONS | | DISTANCE TO CENTRELINE OF ROAD (m) | DAYTIME (16 Hr. Leq (dBA)) | | NIGHT-TIME (8 Hr. Leq (dBA)) |
|---|---|---|---|---|---|
| | | | REAR YARD | DWELLING WALL | SECOND STOREY |
| Lot 1 | Rear Wall | 100.0[1]<br>123.0[2] | - | 52.49<br>55.06 (57.13) | 47.29<br>49.51 (51.55) |
| | Rear Yard | 102.0[1]<br>120.0[2] | 53.36<br>54.34 (57.07) | - | - |
| Lot 3 | Rear Wall | 125.0[1]<br>123.0[2] | - | 51.38<br>55.06 (56.61) | 42.85<br>49.51 (51.06) |
| | Rear Yard | 127.0[1]<br>120.0[2] | 50.69<br>54.34 (55.90) | - | - |
| Lot 5 | Front Wall | 122.0[1]<br>190.0[2] | - | 54.56<br>49.07 (55.64) | 49.01<br>43.69 (50.13) |
| | Rear Yard | 137.0[1]<br>192.0[2] | 50.24<br>48.27 (52.38) | - | - |
| Lot 26 | Front Wall<br>Rear Yard | 100.0[1]<br>115.0[1] | -<br><55 | 55.92<br>- | 50.30<br>- |
| Lot 50 | Rear Wall<br>Rear Yard | 33.0[1]<br>35.0[1] | -<br>58.57 | 60.50<br>- | 54.45<br>- |
| Lot 51 | Side Wall<br>Rear Yard | 23.0[1]<br>24.0[1] | -<br>64.78 | 65.99<br>- | 59.79<br>- |
| Lot 52 | Side Wall<br>Rear Yard | 18.0[1]<br>20.0[1] | -<br>66.09 | 67.67<br>- | 61.38<br>- |
| Lot 72 | Rear Wall<br>Rear Yard | 22.0[1]<br>19.0[1] | -<br>66.94 | 66.29<br>- | 60.08<br>- |
| Lot 76 | Rear Wall<br>Rear Yard | 35.0[1]<br>32.0[1] | -<br>63.18 | 63.11<br>- | 57.08<br>- |
| Block 77 | Side Wall<br>Rear Yard | 85.0[1]<br>87.0[1] | -<br><55 | 55.63<br>- | 49.95<br>- |
| Block 78 | Side Wall<br>Rear Yard | 75.0<br>77.0[1] | -<br>56.71 | 57.89<br>- | 52.16<br>- |
| Block 81 | Side Wall<br>Rear Yard | 65.0[1]<br>67.0[1] | -<br>57.23 | 58.87<br>- | 53.08<br>- |

[1] Peter Matthews Drive
[2] Whitevale Road

## 5.0 RECOMMENDED NOISE MITIGATION MEASURES

## 5.1 OUTDOOR MEASURES

Based on the sound level results in Table 3, the daytime rear yard sound levels at the following locations are expected to be above 60 dBA due to Peter Mathews Drive traffic noise in the absence of mitigative measures. Therefore, noise mitigation measures are required.

- Lots 51, 52, 72 to 76

Based on the sound level results in Table 3, the daytime sound levels at some of the rear yards are expected to be between 55dBA and 60dBA in the absence of mitigative measures.

Therefore, noise mitigation measures are not required for these locations, however, a Warning Clause A is recommended for the locations indicated below:

- Lots 1 to 5, 45 to 50 Blocks 78, 81 (West Unit)

NOISE BARRIERS

In accordance with M.E.C.P. policy, mitigative measures are required for Lots 51, 52, 72 to 76 to reduce the sound levels to below 60 dBA and as close to 55 dBA as technically, economically and administratively feasible.

The noise barrier analysis is based on the latest grading plan prepared by SMD Consultants Inc. dated November 2024.

The following Table 4 lists the sound barrier heights required for sound levels of 58 dBA or less:

**TABLE 4: ATTENUATED OUTDOOR SOUND LEVELS**

| LOTS | SOURCE ELEVATION (m) | RECEIVER ELEVATION (m) | BOTTOM OF FENCE ELEVATION (m) | ACOUSTIC BARRIER HEIGHTS (m) | SOUND LEVELS (dBA) |
|---|---|---|---|---|---|
| Lot 51 | 165.80 | 165.80 | 166.30 | 2.10* | 56 |
| Lot 52 | 169.30 | 169.50 | 169.60 | 2.50* | 57 |
| Lot 72 | 170.40 | 170.00 | 169.80 | 2.80* | 58 |
| Lot 73 | 171.60 | 169.70 | 169.60 | 2.80* | 58 |
| Lot 74 | 172.50 | 170.15 | 169.95 | 2.50* | 58 |
| Lot 75 | 172.80 | 170.45 | 170.25 | 2.50* | 58 |
| Lot 76 | 173.60 | 171.00 | 170.80 | 2.50* | 58 |

* Total acoustic barrier height at side/rear property as shown on Figure 2 (acoustic fence and berm combination) as shown on the attached Figure 2.

For Lot 51, a 2.1m high noise fence is required along the side property line and returned to the rear property and side wall of the house as shown on the attached Figure 2 to achieve a sound level of 57dBA at the rear yard.

For Lot 52, a 2.5m high noise barrier (fence and berm combination) is required along the side property line and returned to the side wall of the house to achieve a sound level of 57dBA at the rear yards.

For Lots 72 and 73, a 2.8m high noise barrier (fence and berm combination) is required along the rear property to achieve a sound level of 58dBA at the rear yards.

For Lots 74 to 76, a 2.5m high noise barrier (fence and berm combination) is required along the rear property as shown on the attached Figure 2 to achieve a sound level of 58dBA at the rear yards.

The recommended barriers should be constructed of a material, which provides a minimum surface density of 20 kg per square meter. If desired, the height of the required fencing can be reduced by locating it on an earthen berm, provided that the total fence height remains as described above. In accordance with M.O.E. policy, minimized and localized gaps (25mm maximum) at fence bottoms may be used to accommodate surface drainage, if necessary.

## 5.2 VENTILATION REQUIREMENTS

Ventilation requirements were determined using the sound levels at the building facades listed in Table 3.

MANDATORY AIR CONDITIONERS/VENTILATION

Based on the information in Table 3, the following residential dwelling units are expected to be above 65dBA during the daytime and/or above 60dBA during the nighttime. Therefore, mandatory air conditioning/ ventilation system is required for the following locations closest to Peter Matthews Drive:

- Lots 51, 52, 72 to 76

The following warning clause Type D must be incorporated into the Development Agreements, which will be registered on title and should be included in all offers of purchase, sale and lease of dwelling units at the above locations:

Warning Clause Type D:

*"This dwelling unit was fitted with a central air conditioner/ventilation system to allow the windows and exterior doors to remain closed, thereby achieving indoor sound levels within the limits recommended by the Ministry of Environment. (Note: The location and installation of the outdoor air conditioning device should be done so as to comply with noise criteria of MOE thus minimize the noise impacts both on and in the immediate vicinity of the subject property )."*

PROVISION FOR AIR CONDITIONERS/VENTILATION

The following units must be constructed with a forced air heating system with ducting sized to accommodate a central air conditioning unit, in order to allow the homeowner the option of installing central air conditioning should he or she wish to do so in the future as per Table 3 sound level results.

- Lots 1 to 26, 45 to 50, 53 to 56, 69 to 71
- Blocks 77, 78, 81 (West Unit)

The following warning clause Type C must be incorporated into the Development Agreements, which will be registered on title and should be included in all offers of purchase, sale and lease of the above dwelling units:

> Warning Clause Type C:
>
> *"This dwelling unit was fitted with ducting sized to accommodate a central air conditioning unit/ventilation system. The installation of central air conditioning by the homeowner will allow windows and exterior doors to be kept closed, thereby achieving indoor sound levels within the limits recommended by the Ministry of Environment. (Note: The location and installation of the outdoor air conditioning device should be done so as to comply with noise criteria of MOE and thus minimize the noise impacts both on and in the immediate vicinity of the subject property )."*

## 5.3 BUILDING COMPONENTS

Building components within the proposed development were analyzed using the STC (Sound Transmission Class) method recommended by the M.E.C.P. Detailed floor plans of the proposed dwelling units are required in order to best determine the required building components. Although this information is not yet available for the proposed development, the result is based on the assumption that a living, dining or recreation room is located at the side of the house closest to the roadway and contains three components (two exterior walls and a set of windows). The windows are assumed to be 30% of the floor area and the same side exterior walls are assumed to be 70% of the floor area.

DAYTIME SOUND LEVELS

For the worst-case location during daytime, Lot 52 daytime dwelling wall sound level of 68dBA was calculated at the first storey living/dining room. To ensure acceptable daytime indoor sound levels of 45dBA, the overall building components must provide an STC rating of 31 for windows and STC 38 for exterior wall construction.

NIGHT-TIME SOUND LEVELS

For the worst-case location during night-time, Lot 52 night-time dwelling wall sound level of 61dBA was calculated at the second storey bedroom. To ensure acceptable night-time indoor sound levels of 40dBA, the overall building components must provide an STC rating of 28 for windows and STC 35 for exterior wall construction.

BUILDING COMPONENT REQUIREMENTS

The minimum standard window and exterior wall construction of the Ontario Building Code meets STC 30 and STC 38, respectively.

Therefore, slightly upgraded window constructions are required for Lots 51, 52, 72 to 76 along Peter Matthews Drive.

Standard building components for all other residential houses are acceptable to meet the indoor sound levels.

WINDOWS

The following are some window configurations meeting an STC rating of 31, assuming the ratio of window area to room floor area is 30%:

- double glazing 3mm x 3mm thickness with 13mm air space (casement or fixed)or
- double glazing 4mm x 4mm thickness with 13mm air space (slider) or
- any other window type yielding a similar or greater STC rating

EXTERIOR WALLS

The following exterior wall construction EW1 meets more than the STC 38 rating, assuming a ratio of wall area to room floor area of 70%:

EW1 12.7mm gypsum board, vapour barrier and 38 x 89mm studs with 50mm (or thicker) mineral wool or fiberglass batts in interstud cavities, plus sheathing, 25mm air space and Vinyl/Metal Siding/ Stucco.

Sample window and exterior wall configurations have been provided in Appendix 4.

## 5.4 WARNING CLAUSES

The following warning clause Type A must be incorporated into the Development Agreements, which will be registered on title and included in all offers of purchase and sale or lease of the dwelling units listed below.

- Lots 1 to 26, 45 to 56, 69 to 76
- Blocks 77, 78, 81 (West Unit)

Warning Clause Type A

*“Purchasers are advised that sound levels due to increasing road traffic may occasionally interfere with some activities of the dwelling occupants as the sound level will exceed the Ministry of Environment’s noise criteria."*

## 6.0 SUMMARY OF NOISE MITIGATION MEASURES

The summary of noise abatement measures are listed in the following Table 5 identifying sound barriers, mandatory central air conditioners, provision for central air conditioners, building components and warning clauses.

**TABLE 5: SUMMARY OF NOISE MITIGATION MEASURES**

| LOCATIONS | VENTILATION REQUIREMENTS | BUILDING COMPONENTS | SOUND BARRIERS | WARNING CLAUSES |
|---|---|---|---|---|
| Lots 1 to 26, 45 to 50, 53 to 56, 69, 70, 71<br><br>Blocks 77, 78, 81 (West Units) | Provision for air conditioning | Windows: OBC*<br>Walls: OBC | No | Type A, C |
| Lot 51 | Mandatory air conditioning | Windows: STC 31<br>Walls: STC 38 | 2.1m** | Type A, B, D |
| Lot 52 | Mandatory air conditioning | Windows: STC 31<br>Walls: STC 38 | 2.5m** | Type A, B, D |
| Lots 72, 73 | Mandatory air conditioning | Windows: STC 31<br>Walls: STC 38 | 2.8m** | Type A, B, D |
| Lots 74 to 76 | Mandatory air conditioning | Windows: STC 31<br>Walls: STC 38 | 2.5m** | Type A, B, D |
| All other residential blocks/lots | No Requirements | | | |

* OBC: Ontario Building Code Standard

** Noise barrier heights (fence and berm combination) at the side/rear property as shown on the attached Figure 2.

## 7.0 RECOMMENDATIONS AND CONCLUSION

RECOMMENDATIONS

1. Mandatory air conditioning is required for Lots 51, 52, 72 to 76.

2. Provision for adding air conditioning in the future is required for Lots 1 to 26, 45 to 56, 69 to 71, Blocks 77, 78, 81 (West Unit).

3. For Lot 51, a 2.1m high noise fence is required along the side property line and returned to the rear property and side wall of the house as shown on the attached Figure 2 to achieve a sound level of 57dBA at the rear yard.

   For Lot 52, a 2.5m high noise barrier (fence and berm combination) is required along the side property line and returned to the side wall of the house to achieve a sound level of 57dBA at the rear yards.

   For Lots 72 and 73, a 2.8m high noise barrier (fence and berm combination) is required along the rear property to achieve a sound level of 58dBA at the rear yards.

   For Lots 74 to 76, a 2.5m high noise barrier (fence and berm combination) is required along the rear property as shown on the attached Figure 2 to achieve a sound level of 58dBA at the rear yards.

4. The noise barriers are recommended to be reviewed once the final grading plans are available.

5. Upgraded window and exterior wall constructions are required for Lots 51, 52, 72 to 76. For all remaining dwelling units within the proposed residential developments, standard Ontario Building Construction will be acoustically acceptable for the exterior wall and window constructions.

5. All applicable warning clauses shall be listed in the City of Pickering's Development Agreements and also be inserted in the Agreements of Purchase and Sale or Lease and registered on title.

6. Once construction is complete, the City's building inspector or a Professional Engineer qualified to perform acoustical engineering services in Ontario shall certify that the noise barriers have been properly installed and constructed.

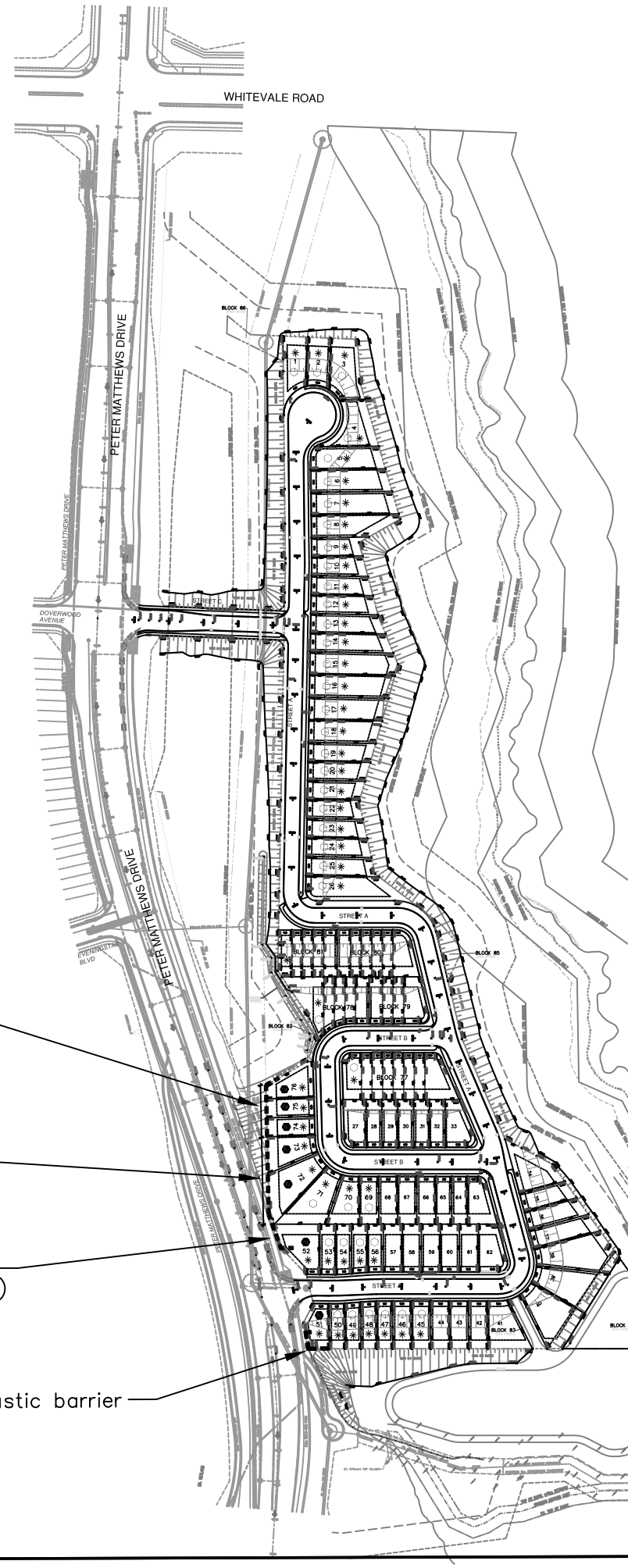
CONCLUSION

This report has determined that sound levels acceptable to the Ministry of Environment, Conservation and Park, City of Pickering and the Region of Durham are expected to be achieved using the abatement measures in this report and as shown on the attached Figure 2.

Respectfully submitted,

***YCA ENGINEERING Limited***


Hava Jouharchi, P.Eng.
Senior Project Engineer

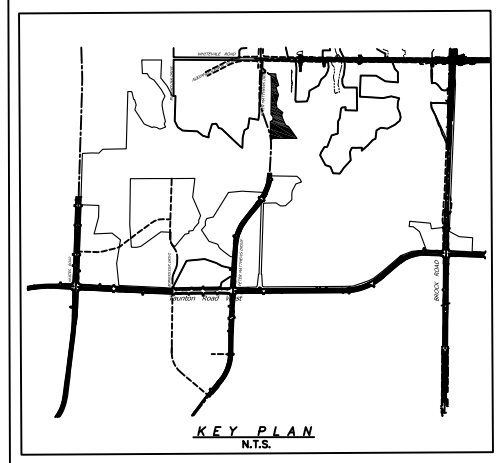



2.5m high acoustic barrier
(fence and berm combination)

2.8m high acoustic barrier
(fence and berm combination)

2.5m high acoustic barrier
(fence and berm combination)

2.1m high acoustic barrier




LEGEND:

- MANDATORY CENTRAL AIR CONDITIONING AND WARNING CLAUSE D
- OPTIONAL CENTRAL AIR CONDITIONING AND WARNING CLAUSE C
- WARNING CLAUSE A
- PROPOSED ACOUSTIC FENCE AND WARNING CLAUSE B

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# PLAN OF SUBDIVISION NOISE MITIGATION MEASURES

## TACCGATE WHITEVALE EAST (PARCEL 24)

Part of Lots 23 and 24
Concession 4

City of Pickering

FIGURE 2

Scale: NTS

DATE: December 2024

# APPENDIX 1

# TRAFFIC DATA

Planning and Economic
Development Department

Planning Division

605 ROSSLAND RD. E.
4TH FLOOR
P.O. BOX 623
WHITBY, ON L1N 6A3
CANADA
905-668-7711
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**Brian Bridgeman, MCIP, RPP, PLE**
Commissioner of Planning and
Economic Development

**The Regional Municipality of Durham**

# ROAD SEGMENT TRAFFIC FORECASTS FOR NOISE ANALYSES

This information is to be used as the basis for assessing the potential impacts of noise, generated by traffic on Provincial Highways and arterial roads, on proposed land uses that are sensitive (e.g., residential subdivisions). Arterial roads include existing and future Type A, B and C, as designated in the Durham Regional Official Plan.

Noise assessment reports recommend specific measures to be integrated into the design of sensitive developments to reduce road noise impacts to acceptable levels.

## Provided For:

Name / Name of Firm: Hava Jouharchi, YCA Engineering Ltd

Address: 9580 Yonge Street, Suite 9557, Richmond Hill, ON L4C 1V6

Telephone: Fax:

## Location of Proposal:

East of Peter MatthewsDrive/South of Whitevale Road, Pickering

Municipality: Lot(s): Concession:

Durham Region File No. (if available):

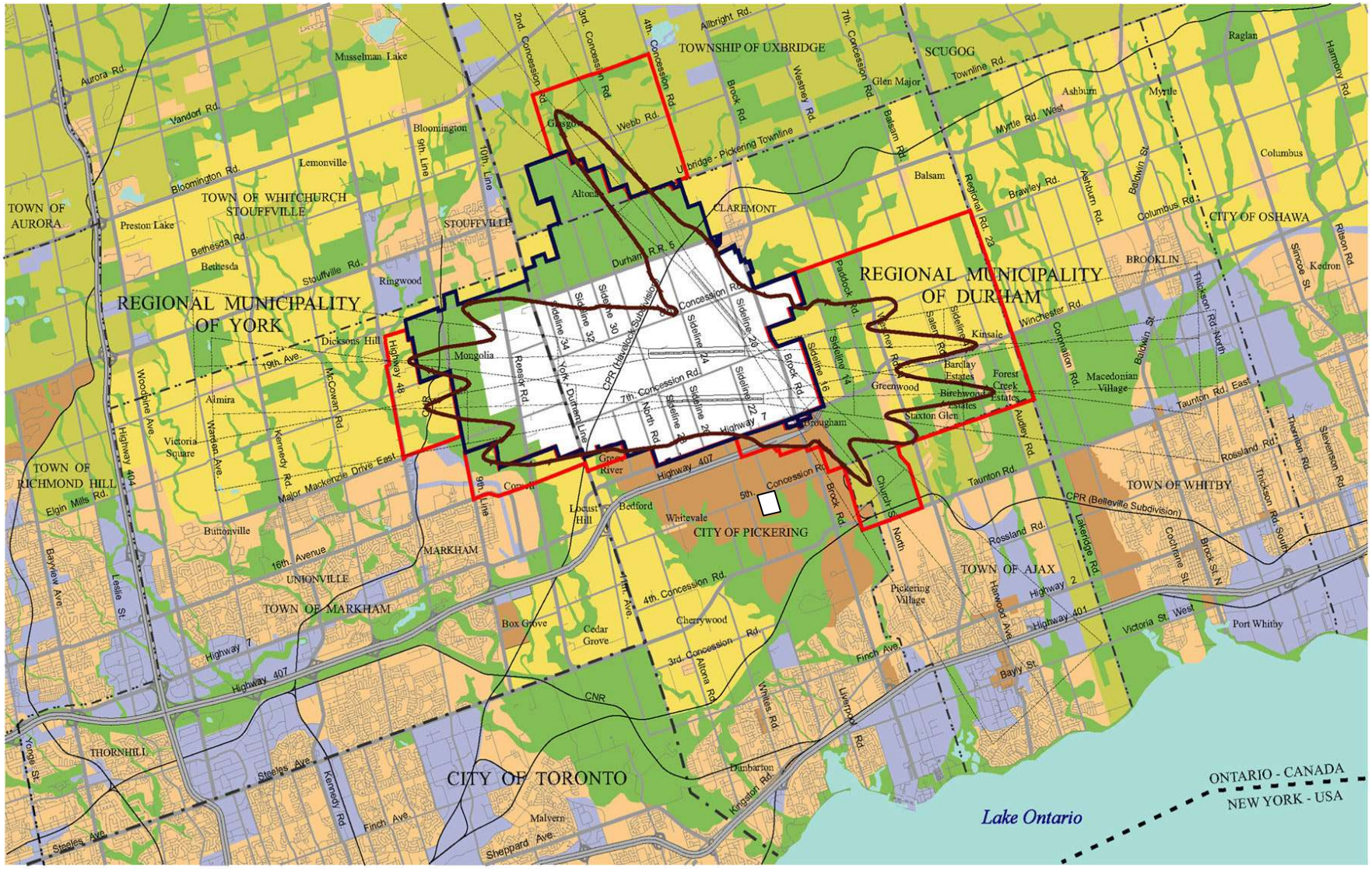
Name of Property Owner (if available):

**Date Request Received:** Received By:

**Date Forecast Sent:**

| Name of Road Segment | Forecasted AADT* | No. of Lanes | % of Trucks | Heavy : Medium Truck Ratio | | Speed (km/h) |
|---|---|---|---|---|---|---|
| Peter Matthews Dr (Whitvale to Nathaniel Hastings) | 22,000 | 4 | 8 | 30 | 70 | 60 |
| Alexander Knox (Peter Matthews to Brock) | 25,000 | 4 | 8 | 30 | 70 | 60 |
| | | | | | | |
| | | | | | | |

* Average Annual Daily Traffic. Forecast based on ultimate development according to the Durham Regional Official Plan.




## LAND USE IN THE VICINITY OF AIRPORT

- Pickering Airport Lands Boundary
- International Boundary
- Regional Boundary
- Municipal Boundary
- 25 NEF Noise Contour
- Interim Airport Protection Area
- Freeways
- Primary/Secondary/Local Roads
- Rail Line
- Residential Area
- Rural Area
- Agricultural Area
- Mixed Use Area
- Employment Area
- Environmental and Open Space Area

*Note: Map has been created using data from the following sources:*
- *Ministry of Municipal Affairs and Housing*
- *Public Works Government Services Canada*
- *Printed with the permission of Her Majesty the QueenÕs Printer*
- *Subject to revision as new data become available*
- *Revision: October, 2004*

# APPENDIX 2

# STAMSON 5.04
# SOUND LEVEL CALCULATIONS

```
STAMSON 5.0         SUMMARY REPORT         Date: 07-12-2024 06:36:09
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT
Filename: 1rw.te                Time Period: Day/Night 16/8 hours
Description: Lot 1, Rear Wall

Road data, segment # 1: Peter Matthe (day/night)
-----------------------------------------------
Car traffic volume  : 18216/2024  veh/TimePeriod  *
Medium truck volume :  1109/123   veh/TimePeriod  *
Heavy truck volume  :   475/53    veh/TimePeriod  *
Posted speed limit  :    60 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):  22000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   5.60
    Heavy Truck  % of Total Volume     :   2.40
    Day (16 hrs) % of Total Volume     :  90.00
Data for Segment # 1: Peter Matthe (day/night)
-----------------------------------------------
Angle1   Angle2           :   0.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 100.00 / 100.00 m
Receiver height           :   4.50 / 7.50   m
Topography                :      1       (Flat/gentle slope; no barrier)

Road data, segment # 2: Whitevale Rd (day/night)
-----------------------------------------------
Car traffic volume  : 20700/2300  veh/TimePeriod  *
Medium truck volume :  1260/140   veh/TimePeriod  *
Heavy truck volume  :   540/60    veh/TimePeriod  *
Posted speed limit  :    60 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):  25000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   5.60
    Heavy Truck  % of Total Volume     :   2.40
    Day (16 hrs) % of Total Volume     :  90.00
Data for Segment # 2: Whitevale Rd (day/night)
-----------------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 123.00 / 123.00 m
Receiver height           :   4.50 / 7.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Result summary (day)
--------------------
                    !  source  !   Road   !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+---------+---------+---------
 1.Peter Matthe     !     1.24 !    52.91 !    52.91
 2.Whitevale Rd     !     1.24 !    55.06 !    55.06
--------------------+---------+---------+---------
                      Total                 57.13 dBA

Result summary (night)
----------------------
                    !  source  !   Road   !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+---------+---------+---------
 1.Peter Matthe     !     1.25 !    47.29 !    47.29
 2.Whitevale Rd     !     1.24 !    49.51 !    49.51
--------------------+---------+---------+---------
                      Total                 51.55 dBA


TOTAL Leq FROM ALL SOURCES (DAY): 57.13
                           (NIGHT): 51.55
```

```
STAMSON 5.0        SUMMARY REPORT        Date: 06-12-2024 09:02:32
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT
Filename: 1ry.te              Time Period: Day/Night 16/8 hours
Description: Lot 1, Rear Yard

Road data, segment # 1: Peter Matthe (day/night)
-----------------------------------------------
Car traffic volume  : 18216/2024  veh/TimePeriod  *
Medium truck volume :  1109/123   veh/TimePeriod  *
Heavy truck volume  :   475/53    veh/TimePeriod  *
Posted speed limit  :    60 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):  22000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   5.60
    Heavy Truck  % of Total Volume     :   2.40
    Day (16 hrs) % of Total Volume     :  90.00
Data for Segment # 1: Peter Matthe (day/night)
-----------------------------------------------
Angle1   Angle2           : -35.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 102.00 / 102.00 m
Receiver height           :   1.50 / 7.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Road data, segment # 2: Whitevale Rd (day/night)
-----------------------------------------------
Car traffic volume  : 47196/5244  veh/TimePeriod  *
Medium truck volume :  2873/319   veh/TimePeriod  *
Heavy truck volume  :  1231/137   veh/TimePeriod  *
Posted speed limit  :    60 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):  25000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   5.60
    Heavy Truck  % of Total Volume     :   2.40
    Day (16 hrs) % of Total Volume     :  90.00
Data for Segment # 2: Whitevale Rd (day/night)
-----------------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 120.00 / 123.00 m
Receiver height           :   1.50 / 7.50   m
Topography                :      1       (Flat/gentle slope; no barrier)

Result summary (day)
--------------------
                    !  source  !   Road   !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+---------+---------+---------
 1.Peter Matthe     !     1.24 !    53.77 !    53.77
 2.Whitevale Rd     !     1.24 !    54.34 !    54.34
--------------------+---------+---------+---------
                      Total                 57.07 dBA
```

```
STAMSON 5.0        SUMMARY REPORT        Date: 06-12-2024 09:36:24
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT
Filename: 3rw.te               Time Period: Day/Night 16/8 hours
Description: Lot 3, Rear Wall

Road data, segment # 1: Peter Matthe (day/night)
-----------------------------------------------
Car traffic volume  : 18216/2024  veh/TimePeriod  *
Medium truck volume :  1109/123   veh/TimePeriod  *
Heavy truck volume  :   475/53    veh/TimePeriod  *
Posted speed limit  :    60 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):  22000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   5.60
    Heavy Truck  % of Total Volume     :   2.40
    Day (16 hrs) % of Total Volume     :  90.00
Data for Segment # 1: Peter Matthe (day/night)
-----------------------------------------------
Angle1   Angle2           :   0.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 125.00 / 125.00 m
Receiver height           :   4.50 / 7.50   m
Topography                :      1       (Flat/gentle slope; no barrier)

Road data, segment # 2: Whitevale Rd (day/night)
-----------------------------------------------
Car traffic volume  : 20700/2300  veh/TimePeriod  *
Medium truck volume :  1260/140   veh/TimePeriod  *
Heavy truck volume  :   540/60    veh/TimePeriod  *
Posted speed limit  :    60 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):  25000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   5.60
    Heavy Truck  % of Total Volume     :   2.40
    Day (16 hrs) % of Total Volume     :  90.00
Data for Segment # 2: Whitevale Rd (day/night)
-----------------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 123.00 / 123.00 m
Receiver height           :   4.50 / 7.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Result summary (day)
--------------------
                    !  source  !   Road   !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+---------+---------+---------
 1.Peter Matthe     !     1.24 !    51.38 !    51.38
 2.Whitevale Rd     !     1.24 !    55.06 !    55.06
--------------------+---------+---------+---------
                      Total                  56.61 dBA

Result summary (night)
----------------------
                    !  source  !   Road   !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+---------+---------+---------
 1.Peter Matthe     !     1.25 !    45.85 !    45.85
 2.Whitevale Rd     !     1.24 !    49.51 !    49.51
--------------------+---------+---------+---------
                      Total                  51.06 dBA


TOTAL Leq FROM ALL SOURCES (DAY): 56.61
                           (NIGHT): 51.06
```

```
STAMSON 5.0        SUMMARY REPORT        Date: 06-12-2024 09:02:14
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT
Filename: 3ry.te               Time Period: Day/Night 16/8 hours
Description: Lot 3, Rear Yard

Road data, segment # 1: Peter Matthe (day/night)
-----------------------------------------------
Car traffic volume  : 18216/2024  veh/TimePeriod  *
Medium truck volume :  1109/123   veh/TimePeriod  *
Heavy truck volume  :   475/53    veh/TimePeriod  *
Posted speed limit  :    60 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):  22000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   5.60
    Heavy Truck  % of Total Volume     :   2.40
    Day (16 hrs) % of Total Volume     :  90.00
Data for Segment # 1: Peter Matthe (day/night)
-----------------------------------------------
Angle1   Angle2           :  -5.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 127.00 / 127.00 m
Receiver height           :   1.50 / 7.50   m
Topography                :      1       (Flat/gentle slope; no barrier)

Road data, segment # 2: Whitevale Rd (day/night)
-----------------------------------------------
Car traffic volume  : 20700/2300  veh/TimePeriod  *
Medium truck volume :  1260/140   veh/TimePeriod  *
Heavy truck volume  :   540/60    veh/TimePeriod  *
Posted speed limit  :    60 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):  25000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   5.60
    Heavy Truck  % of Total Volume     :   2.40
    Day (16 hrs) % of Total Volume     :  90.00
Data for Segment # 2: Whitevale Rd (day/night)
-----------------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 120.00 / 123.00 m
Receiver height           :   1.50 / 7.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Result summary (day)
--------------------
                    !  source  !   Road   !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+---------+---------+---------
 1.Peter Matthe     !     1.24 !    50.69 !    50.69
 2.Whitevale Rd     !     1.24 !    54.34 !    54.34
--------------------+---------+---------+---------
                      Total                  55.90 dBA
```

```
STAMSON 5.0        SUMMARY REPORT        Date: 06-12-2024 09:37:48
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT
Filename: 5fw.te               Time Period: Day/Night 16/8 hours
Description: Lot 5, Front Wall

Road data, segment # 1: Peter Matthe (day/night)
-----------------------------------------------
Car traffic volume  : 18216/2024  veh/TimePeriod  *
Medium truck volume :  1109/123   veh/TimePeriod  *
Heavy truck volume  :   475/53    veh/TimePeriod  *
Posted speed limit  :    60 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):  22000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   5.60
    Heavy Truck  % of Total Volume     :   2.40
    Day (16 hrs) % of Total Volume     :  90.00
Data for Segment # 1: Peter Matthe (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  : 122.00 / 122.00 m
Receiver height           :   4.50 / 7.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Road data, segment # 2: Whitevale Rd (day/night)
-----------------------------------------------
Car traffic volume  : 20700/2300  veh/TimePeriod  *
Medium truck volume :  1260/140   veh/TimePeriod  *
Heavy truck volume  :   540/60    veh/TimePeriod  *
Posted speed limit  :    60 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):  25000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   5.60
    Heavy Truck  % of Total Volume     :   2.40
    Day (16 hrs) % of Total Volume     :  90.00
Data for Segment # 2: Whitevale Rd (day/night)
-----------------------------------------------
Angle1   Angle2           : -90.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 190.00 / 190.00 m
Receiver height           :   4.50 / 7.50   m
Topography                :      1       (Flat/gentle slope; no barrier)

Result summary (day)
--------------------
                   !  source  !   Road   !  Total
                   !  height  !   Leq    !   Leq
                   !   (m)    !  (dBA)   !  (dBA)
--------------------+---------+---------+---------
 1.Peter Matthe    !     1.24 !    54.56 !    54.56
 2.Whitevale Rd    !     1.24 !    49.07 !    49.07
--------------------+---------+---------+---------
                     Total                  55.64 dBA

Result summary (night)
----------------------
                   !  source  !   Road   !  Total
                   !  height  !   Leq    !   Leq
                   !   (m)    !  (dBA)   !  (dBA)
--------------------+---------+---------+---------
 1.Peter Matthe    !     1.25 !    49.01 !    49.01
 2.Whitevale Rd    !     1.24 !    43.69 !    43.69
--------------------+---------+---------+---------
                     Total                  50.13 dBA


TOTAL Leq FROM ALL SOURCES (DAY): 55.64
                           (NIGHT): 50.13
```

```
STAMSON 5.0        SUMMARY REPORT        Date: 06-12-2024 09:01:56
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT
Filename: 5ry.te              Time Period: Day/Night 16/8 hours
Description: Lot 5, Rear Yard

Road data, segment # 1: Peter Matthe (day/night)
-----------------------------------------------
Car traffic volume  : 18216/2024  veh/TimePeriod  *
Medium truck volume :  1109/123   veh/TimePeriod  *
Heavy truck volume  :   475/53    veh/TimePeriod  *
Posted speed limit  :    60 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):  22000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   5.60
    Heavy Truck  % of Total Volume     :   2.40
    Day (16 hrs) % of Total Volume     :  90.00
Data for Segment # 1: Peter Matthe (day/night)
-----------------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      1 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 137.00 / 122.00 m
Receiver height           :   1.50 / 7.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Road data, segment # 2: Whitevale Rd (day/night)
-----------------------------------------------
Car traffic volume  : 20700/2300  veh/TimePeriod  *
Medium truck volume :  1260/140   veh/TimePeriod  *
Heavy truck volume  :   540/60    veh/TimePeriod  *
Posted speed limit  :    60 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):  25000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   5.60
    Heavy Truck  % of Total Volume     :   2.40
    Day (16 hrs) % of Total Volume     :  90.00
Data for Segment # 2: Whitevale Rd (day/night)
-----------------------------------------------
Angle1   Angle2           :  -5.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 192.00 / 192.00 m
Receiver height           :   1.50 / 7.50   m
Topography                :      1       (Flat/gentle slope; no barrier)

Result summary (day)
--------------------
                    !  source  !   Road   !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+---------+---------+---------
 1.Peter Matthe     !     1.24 !    50.24 !    50.24
 2.Whitevale Rd     !     1.24 !    48.27 !    48.27
--------------------+---------+---------+---------
                      Total                 52.38 dBA
```

```
STAMSON 5.0        SUMMARY REPORT        Date: 06-12-2024 09:38:18
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT
Filename: 26fw.te              Time Period: Day/Night 16/8 hours
Description: Lot 26, Front Wall

Road data, segment # 1: Peter Matthe (day/night)
-----------------------------------------------
Car traffic volume  : 18216/2024  veh/TimePeriod  *
Medium truck volume :  1109/123   veh/TimePeriod  *
Heavy truck volume  :   475/53    veh/TimePeriod  *
Posted speed limit  :    60 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):  22000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   5.60
    Heavy Truck  % of Total Volume     :   2.40
    Day (16 hrs) % of Total Volume     :  90.00
Data for Segment # 1: Peter Matthe (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  : 100.00 / 100.00 m
Receiver height           :   4.50 / 7.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Result summary (day)
--------------------
                    !  source  !   Road   !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+---------+---------+---------
 1.Peter Matthe     !     1.24 !    55.92 !    55.92
--------------------+---------+---------+---------
                      Total                 55.92 dBA

Result summary (night)
----------------------
                    !  source  !   Road   !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+---------+---------+---------
 1.Peter Matthe     !     1.25 !    50.30 !    50.30
--------------------+---------+---------+---------
                      Total                 50.30 dBA


TOTAL Leq FROM ALL SOURCES (DAY): 55.92
                           (NIGHT): 50.30
```

```
STAMSON 5.0        SUMMARY REPORT        Date: 06-12-2024 10:04:35
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT
Filename: 50ry.te              Time Period: Day/Night 16/8 hours
Description: Lot 50, Rear Yard

Road data, segment # 1: Peter Matthe (day/night)
-----------------------------------------------
Car traffic volume  : 18216/2024  veh/TimePeriod  *
Medium truck volume :  1109/123   veh/TimePeriod  *
Heavy truck volume  :   475/53    veh/TimePeriod  *
Posted speed limit  :    60 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):  22000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   5.60
    Heavy Truck  % of Total Volume     :   2.40
    Day (16 hrs) % of Total Volume     :  90.00
Data for Segment # 1: Peter Matthe (day/night)
-----------------------------------------------
Angle1   Angle2           : -80.00 deg   -20.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  35.00 / 35.00  m
Receiver height           :   1.50 / 7.50   m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -80.00 deg   Angle2 : -20.00 deg
Barrier height            :   0.00 m
Barrier receiver distance :   5.00 / 5.00   m
Source elevation          : 165.80 m
Receiver elevation        : 165.20 m
Barrier elevation         : 165.00 m
Road data, segment # 2: Peter Matthe (day/night)
-----------------------------------------------
Car traffic volume  : 18216/2024  veh/TimePeriod  *
Medium truck volume :  1109/123   veh/TimePeriod  *
Heavy truck volume  :   475/53    veh/TimePeriod  *
Posted speed limit  :    60 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):  22000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   5.60
    Heavy Truck  % of Total Volume     :   2.40
    Day (16 hrs) % of Total Volume     :  90.00
Data for Segment # 2: Peter Matthe (day/night)
-----------------------------------------------
Angle1   Angle2           : -20.00 deg   5.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  35.00 / 35.00  m
Receiver height           :   1.50 / 7.50   m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -20.00 deg   Angle2 : 5.00 deg
Barrier height            :   2.10 m
Barrier receiver distance :   5.00 / 5.00   m
Source elevation          : 165.80 m
Receiver elevation        : 165.20 m
Barrier elevation         : 165.00 m
Result summary (day)
--------------------
                    !  source  !   Road   !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+---------+---------+---------
 1.Peter Matthe     !     1.24 !    57.88 !    57.88 *
 2.Peter Matthe     !     1.24 !    50.24 !    50.24
--------------------+---------+---------+---------
                      Total                 58.57 dBA
```

```
STAMSON 5.0        SUMMARY REPORT        Date: 06-12-2024 10:39:25
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT
Filename: 51sw.te              Time Period: Day/Night 16/8 hours
Description: Lot 51, Side Wall

Road data, segment # 1: Peter Matthe (day/night)
-----------------------------------------------
Car traffic volume  : 18216/2024  veh/TimePeriod  *
Medium truck volume :  1109/123   veh/TimePeriod  *
Heavy truck volume  :   475/53    veh/TimePeriod  *
Posted speed limit  :    60 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):  22000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   5.60
    Heavy Truck  % of Total Volume     :   2.40
    Day (16 hrs) % of Total Volume     :  90.00
Data for Segment # 1: Peter Matthe (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  :  23.00 / 23.00  m
Receiver height           :   4.50 / 7.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Result summary (day)
--------------------
                    !  source  !   Road   !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+---------+---------+---------
 1.Peter Matthe     !     1.24 !    65.99 !    65.99
--------------------+---------+---------+---------
                      Total                  65.99 dBA

Result summary (night)
----------------------
                    !  source  !   Road   !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+---------+---------+---------
 1.Peter Matthe     !     1.25 !    59.79 !    59.79
--------------------+---------+---------+---------
                      Total                  59.79 dBA


TOTAL Leq FROM ALL SOURCES (DAY): 65.99
                           (NIGHT): 59.79
```

```
STAMSON 5.0        SUMMARY REPORT        Date: 06-12-2024 10:08:10
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT
Filename: 51ry.te              Time Period: Day/Night 16/8 hours
Description: Lot 51, Rear Yard

Road data, segment # 1: Peter Matthe (day/night)
-----------------------------------------------
Car traffic volume  : 18216/2024  veh/TimePeriod  *
Medium truck volume :  1109/123   veh/TimePeriod  *
Heavy truck volume  :   475/53    veh/TimePeriod  *
Posted speed limit  :    60 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):  22000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   5.60
    Heavy Truck  % of Total Volume     :   2.40
    Day (16 hrs) % of Total Volume     :  90.00
Data for Segment # 1: Peter Matthe (day/night)
-----------------------------------------------
Angle1   Angle2           : -80.00 deg   55.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  24.00 / 24.00  m
Receiver height           :   1.50 / 7.50   m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -80.00 deg   Angle2 : 55.00 deg
Barrier height            :   0.00 m
Barrier receiver distance :   5.00 / 5.00   m
Source elevation          : 165.80 m
Receiver elevation        : 165.80 m
Barrier elevation         : 166.30 m
Result summary (day)
--------------------
                    !  source  !   Road   !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+----------+----------+----------
 1.Peter Matthe     !     1.24 !    64.78 !    64.78 *
--------------------+----------+----------+----------
                      Total                   64.78 dBA
  * Bright Zone  !

Barrier table for segment # 1: Peter Matthe (day)
-------------------------------------------------
Barrier ! Elev of !  Road   ! Tot Leq !
Height  ! Barr Top!  dBA    !   dBA   !
--------+---------+---------+---------+
   1.80 !  168.10 !   57.30 !   57.30 !
   1.90 !  168.20 !   56.82 !   56.82 !
   2.00 !  168.30 !   56.34 !   56.34 !
   2.10 !  168.40 !   55.86 !   55.86 !
   2.20 !  168.50 !   55.40 !   55.40 !
   2.30 !  168.60 !   54.94 !   54.94 !
   2.40 !  168.70 !   54.50 !   54.50 !
   2.50 !  168.80 !   54.07 !   54.07 !
```

```
STAMSON 5.0         SUMMARY REPORT         Date: 06-12-2024 10:39:43
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT
Filename: 52sw.te               Time Period: Day/Night 16/8 hours
Description: Lot 52, Side Wall

Road data, segment # 1: Peter Matthe (day/night)
-----------------------------------------------
Car traffic volume  : 18216/2024  veh/TimePeriod  *
Medium truck volume :  1109/123   veh/TimePeriod  *
Heavy truck volume  :   475/53    veh/TimePeriod  *
Posted speed limit  :    60 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):  22000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   5.60
    Heavy Truck  % of Total Volume     :   2.40
    Day (16 hrs) % of Total Volume     :  90.00
Data for Segment # 1: Peter Matthe (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  :  18.00 / 18.00  m
Receiver height           :   4.50 / 7.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Result summary (day)
--------------------
                    !  source  !   Road   !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+---------+---------+---------
 1.Peter Matthe     !     1.24 !    67.67 !    67.67
--------------------+---------+---------+---------
                      Total                 67.67 dBA

Result summary (night)
----------------------
                    !  source  !   Road   !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+---------+---------+---------
 1.Peter Matthe     !     1.25 !    61.38 !    61.38
--------------------+---------+---------+---------
                      Total                 61.38 dBA


TOTAL Leq FROM ALL SOURCES (DAY): 67.67
                           (NIGHT): 61.38
```

STAMSON 5.0 SUMMARY REPORT Date: 06-12-2024 10:07:39
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT
Filename: 52ry.te Time Period: Day/Night 16/8 hours
Description: Lot 52, Rear Yard

Road data, segment # 1: Peter Matthe (day/night)
---
Car traffic volume : 18216/2024 veh/TimePeriod *
Medium truck volume : 1109/123 veh/TimePeriod *
Heavy truck volume : 475/53 veh/TimePeriod *
Posted speed limit : 60 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): 22000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 5.60
Heavy Truck % of Total Volume : 2.40
Day (16 hrs) % of Total Volume : 90.00
Data for Segment # 1: Peter Matthe (day/night)
---
Angle1 Angle2 : -55.00 deg 80.00 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 : 1.50 / 7.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -55.00 deg Angle2 : 80.00 deg
Barrier height : 0.00 m
Barrier receiver distance : 5.00 / 5.00 m
Source elevation : 169.30 m
Receiver elevation : 169.50 m
Barrier elevation : 169.60 m
Result summary (day)
---

| | source height (m) | Road Leq (dBA) | Total Leq (dBA) |
|---|---|---|---|
| 1.Peter Matthe | 1.24 | 66.09 | 66.09 * |
| Total | | | 66.09 dBA |

* Bright Zone !

Barrier table for segment # 1: Peter Matthe (day)
---

| Barrier Height | Elev of Barr Top | Road dBA | Tot Leq dBA |
|---|---|---|---|
| 1.80 | 171.40 | 60.07 | 60.07 |
| 1.90 | 171.50 | 59.63 | 59.63 |
| 2.00 | 171.60 | 59.16 | 59.16 |
| 2.10 | 171.70 | 58.67 | 58.67 |
| 2.20 | 171.80 | 58.16 | 58.16 |
| 2.30 | 171.90 | 57.66 | 57.66 |
| 2.40 | 172.00 | 57.17 | 57.17 |
| **2.50** | **172.10** | **56.68** | **56.68** |
| 2.60 | 172.20 | 56.20 | 56.20 |
| 2.70 | 172.30 | 55.74 | 55.74 |
| 2.80 | 172.40 | 55.29 | 55.29 |

```
STAMSON 5.0        SUMMARY REPORT        Date: 06-12-2024 10:36:54
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT
Filename: 72rw.te              Time Period: Day/Night 16/8 hours
Description: Lot 72, Rear Wall

Road data, segment # 1: Peter Matthe (day/night)
-----------------------------------------------
Car traffic volume  : 18216/2024  veh/TimePeriod  *
Medium truck volume :  1109/123   veh/TimePeriod  *
Heavy truck volume  :   475/53    veh/TimePeriod  *
Posted speed limit  :    60 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):  22000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   5.60
    Heavy Truck  % of Total Volume     :   2.40
    Day (16 hrs) % of Total Volume     :  90.00
Data for Segment # 1: Peter Matthe (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  :  22.00 / 22.00  m
Receiver height           :   4.50 / 7.50   m
Topography                :      1       (Flat/gentle slope; no barrier)

Result summary (day)
--------------------
                    !  source  !   Road   !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+---------+---------+---------
 1.Peter Matthe     !     1.24 !    66.29 !    66.29
--------------------+---------+---------+---------
                      Total                  66.29 dBA

Result summary (night)
----------------------
                    !  source  !   Road   !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+---------+---------+---------
 1.Peter Matthe     !     1.25 !    60.08 !    60.08
--------------------+---------+---------+---------
                      Total                  60.08 dBA


TOTAL Leq FROM ALL SOURCES (DAY): 66.29
                           (NIGHT): 60.08
```

```
STAMSON 5.0        SUMMARY REPORT        Date: 06-12-2024 10:27:01
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT
Filename: 72ry.te              Time Period: Day/Night 16/8 hours
Description: Lot 72, Rear Yard

Road data, segment # 1: Peter Matthe (day/night)
-----------------------------------------------
Car traffic volume  : 18216/2024  veh/TimePeriod  *
Medium truck volume :  1109/123   veh/TimePeriod  *
Heavy truck volume  :   475/53    veh/TimePeriod  *
Posted speed limit  :    60 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):  22000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   5.60
    Heavy Truck  % of Total Volume     :   2.40
    Day (16 hrs) % of Total Volume     :  90.00
Data for Segment # 1: Peter Matthe (day/night)
-----------------------------------------------
Angle1   Angle2           : -80.00 deg   80.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  19.00 / 19.00  m
Receiver height           :   1.50 / 7.50   m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -80.00 deg   Angle2 : 80.00 deg
Barrier height            :   0.00 m
Barrier receiver distance :   4.50 / 4.50   m
Source elevation          : 170.40 m
Receiver elevation        : 170.00 m
Barrier elevation         : 169.80 m
Result summary (day)
--------------------
                    !  source  !   Road   !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+----------+----------+----------
 1.Peter Matthe     !     1.24 !    66.94 !    66.94 *
--------------------+----------+----------+----------
                      Total                   66.94 dBA
  * Bright Zone  !

Barrier table for segment # 1: Peter Matthe (day)
-------------------------------------------------
Barrier ! Elev of !  Road   ! Tot Leq !
Height  ! Barr Top!  dBA    !   dBA   !
--------+---------+---------+---------+
   1.80 !  171.60 !   62.16 !   62.16 !
   1.90 !  171.70 !   62.06 !   62.06 !
   2.00 !  171.80 !   61.85 !   61.85 !
   2.10 !  171.90 !   61.56 !   61.56 !
   2.20 !  172.00 !   61.20 !   61.20 !
   2.30 !  172.10 !   60.78 !   60.78 !
   2.40 !  172.20 !   60.34 !   60.34 !
   2.50 !  172.30 !   59.87 !   59.87 !
   2.60 !  172.40 !   59.38 !   59.38 !
   2.70 !  172.50 !   58.90 !   58.90 !
   2.80 !  172.60 !   58.42 !   58.42 !
   2.90 !  172.70 !   57.94 !   57.94 !
   3.00 !  172.80 !   57.48 !   57.48 !
   3.10 !  172.90 !   57.03 !   57.03 !
   3.20 !  173.00 !   56.59 !   56.59 !
```

STAMSON 5.0 SUMMARY REPORT Date: 06-12-2024 10:28:52
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT
Filename: 73ry.te Time Period: Day/Night 16/8 hours
Description: Lot 73, Rear Yard

Road data, segment # 1: Peter Matthe (day/night)
---
Car traffic volume : 18216/2024 veh/TimePeriod *
Medium truck volume : 1109/123 veh/TimePeriod *
Heavy truck volume : 475/53 veh/TimePeriod *
Posted speed limit : 60 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): 22000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 5.60
Heavy Truck % of Total Volume : 2.40
Day (16 hrs) % of Total Volume : 90.00
Data for Segment # 1: Peter Matthe (day/night)
---
Angle1 Angle2 : -80.00 deg 80.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 25.00 / 25.00 m
Receiver height : 1.50 / 7.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -80.00 deg Angle2 : 80.00 deg
Barrier height : 0.00 m
Barrier receiver distance : 4.50 / 4.50 m
Source elevation : 171.60 m
Receiver elevation : 169.70 m
Barrier elevation : 169.60 m
Result summary (day)
---

| | source height (m) | Road Leq (dBA) | Total Leq (dBA) |
|---|---|---|---|
| 1.Peter Matthe | 1.24 | 64.96 | 64.96 * |
| Total | | | 64.96 dBA |

* Bright Zone !

Barrier table for segment # 1: Peter Matthe (day)
---

| Barrier Height | Elev of Barr Top | Road dBA | Tot Leq dBA |
|---|---|---|---|
| 1.80 | 171.40 | 64.96 | 64.96 |
| 1.90 | 171.50 | 60.35 | 60.35 |
| 2.00 | 171.60 | 60.32 | 60.32 |
| 2.10 | 171.70 | 60.19 | 60.19 |
| 2.20 | 171.80 | 59.98 | 59.98 |
| 2.30 | 171.90 | 59.69 | 59.69 |
| 2.40 | 172.00 | 59.34 | 59.34 |
| 2.50 | 172.10 | 58.95 | 58.95 |
| 2.60 | 172.20 | 58.52 | 58.52 |
| 2.70 | 172.30 | 58.08 | 58.08 |
| **2.80** | **172.40** | **57.63** | **57.63** |
| 2.90 | 172.50 | 57.18 | 57.18 |
| 3.00 | 172.60 | 56.73 | 56.73 |
| 3.10 | 172.70 | 56.28 | 56.28 |
| 3.20 | 172.80 | 55.85 | 55.85 |

```
STAMSON 5.0        SUMMARY REPORT        Date: 06-12-2024 10:37:13
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT
Filename: 76rw.te              Time Period: Day/Night 16/8 hours
Description: Lot 76, Rear Wall

Road data, segment # 1: Peter Matthe (day/night)
-----------------------------------------------
Car traffic volume  : 18216/2024  veh/TimePeriod  *
Medium truck volume :  1109/123   veh/TimePeriod  *
Heavy truck volume  :   475/53    veh/TimePeriod  *
Posted speed limit  :    60 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):  22000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   5.60
    Heavy Truck  % of Total Volume     :   2.40
    Day (16 hrs) % of Total Volume     :  90.00
Data for Segment # 1: Peter Matthe (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  :  35.00 / 35.00  m
Receiver height           :   4.50 / 7.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Result summary (day)
--------------------
                    !  source  !   Road   !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+---------+---------+---------
 1.Peter Matthe     !     1.24 !    63.11 !    63.11
--------------------+---------+---------+---------
                      Total                  63.11 dBA

Result summary (night)
----------------------
                    !  source  !   Road   !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+---------+---------+---------
 1.Peter Matthe     !     1.25 !    57.08 !    57.08
--------------------+---------+---------+---------
                      Total                  57.08 dBA


TOTAL Leq FROM ALL SOURCES (DAY): 63.11
                           (NIGHT): 57.08
```

```
STAMSON 5.0        SUMMARY REPORT        Date: 06-12-2024 10:29:37
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT
Filename: 76ry.te              Time Period: Day/Night 16/8 hours
Description: Lot 76, Rear Yard

Road data, segment # 1: Peter Matthe (day/night)
-----------------------------------------------
Car traffic volume  : 18216/2024  veh/TimePeriod  *
Medium truck volume :  1109/123   veh/TimePeriod  *
Heavy truck volume  :   475/53    veh/TimePeriod  *
Posted speed limit  :    60 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):  22000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   5.60
    Heavy Truck  % of Total Volume     :   2.40
    Day (16 hrs) % of Total Volume     :  90.00
Data for Segment # 1: Peter Matthe (day/night)
-----------------------------------------------
Angle1   Angle2           : -80.00 deg   80.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  32.00 / 32.00  m
Receiver height           :   1.50 / 7.50   m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -80.00 deg   Angle2 : 80.00 deg
Barrier height            :   0.00 m
Barrier receiver distance :   5.00 / 5.00   m
Source elevation          : 173.60 m
Receiver elevation        : 171.00 m
Barrier elevation         : 170.80 m
Result summary (day)
--------------------
                    !  source  !   Road   !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+----------+----------+----------
 1.Peter Matthe     !     1.24 !    63.18 !    63.18 *
--------------------+----------+----------+----------
                      Total                   63.18 dBA
  * Bright Zone  !

Barrier table for segment # 1: Peter Matthe (day)
-------------------------------------------------
Barrier ! Elev of !  Road   ! Tot Leq !
Height  ! Barr Top!  dBA    !   dBA   !
--------+---------+---------+---------+
   1.80 !  172.60 !   63.18 !   63.18 !
   1.90 !  172.70 !   63.18 !   63.18 !
   2.00 !  172.80 !   63.18 !   63.18 !
   2.10 !  172.90 !   58.74 !   58.74 !
   2.20 !  173.00 !   58.69 !   58.69 !
   2.30 !  173.10 !   58.57 !   58.57 !
   2.40 !  173.20 !   58.36 !   58.36 !
   2.50 !  173.30 !   58.10 !   58.10 !
   2.60 !  173.40 !   57.78 !   57.78 !
   2.70 !  173.50 !   57.43 !   57.43 !
   2.80 !  173.60 !   57.04 !   57.04 !
   2.90 !  173.70 !   56.64 !   56.64 !
   3.00 !  173.80 !   56.23 !   56.23 !
   3.10 !  173.90 !   55.82 !   55.82 !
   3.20 !  174.00 !   55.40 !   55.40 !
```

```
STAMSON 5.0        SUMMARY REPORT        Date: 06-12-2024 10:40:37
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT
Filename: bk7sw.te             Time Period: Day/Night 16/8 hours
Description: Block 77, Side Wall

Road data, segment # 1: Peter Matthe (day/night)
-----------------------------------------------
Car traffic volume  : 18216/2024  veh/TimePeriod  *
Medium truck volume :  1109/123   veh/TimePeriod  *
Heavy truck volume  :   475/53    veh/TimePeriod  *
Posted speed limit  :    60 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):  22000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   5.60
    Heavy Truck  % of Total Volume     :   2.40
    Day (16 hrs) % of Total Volume     :  90.00
Data for Segment # 1: Peter Matthe (day/night)
-----------------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      1 / 1
House density             :     30 %
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  85.00 / 85.00  m
Receiver height           :   4.50 / 7.50   m
Topography                :      1       (Flat/gentle slope; no barrier)

Result summary (day)
--------------------
                    !  source  !   Road   !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+---------+---------+---------
 1.Peter Matthe     !     1.24 !    55.63 !    55.63
--------------------+---------+---------+---------
                      Total                 55.63 dBA

Result summary (night)
----------------------
                    !  source  !   Road   !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+---------+---------+---------
 1.Peter Matthe     !     1.25 !    49.95 !    49.95
--------------------+---------+---------+---------
                      Total                 49.95 dBA


TOTAL Leq FROM ALL SOURCES (DAY): 55.63
                           (NIGHT): 49.95
```

```
STAMSON 5.0        SUMMARY REPORT        Date: 06-12-2024 11:03:12
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT
Filename: bk7ry.te             Time Period: Day/Night 16/8 hours
Description: Block 77, Rear Yard

Road data, segment # 1: Peter Matthe (day/night)
-----------------------------------------------
Car traffic volume  : 18216/2024  veh/TimePeriod  *
Medium truck volume :  1109/123   veh/TimePeriod  *
Heavy truck volume  :   475/53    veh/TimePeriod  *
Posted speed limit  :    60 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):  22000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   5.60
    Heavy Truck  % of Total Volume     :   2.40
    Day (16 hrs) % of Total Volume     :  90.00
Data for Segment # 1: Peter Matthe (day/night)
-----------------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      1 / 1
House density             :     30 %
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  87.00 / 85.00  m
Receiver height           :   1.50 / 7.50   m
Topography                :      1       (Flat/gentle slope; no barrier)

Result summary (day)
--------------------
                    !  source  !   Road   !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+---------+---------+---------
 1.Peter Matthe     !     1.24 !    54.70 !    54.70
--------------------+---------+---------+---------
                      Total                  54.70 dBA
```

```
STAMSON 5.0        SUMMARY REPORT        Date: 06-12-2024 10:40:59
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT
Filename: bk78sw.te            Time Period: Day/Night 16/8 hours
Description: Block 78, Side Wall

Road data, segment # 1: Peter Matthe (day/night)
-----------------------------------------------
Car traffic volume  : 18216/2024  veh/TimePeriod  *
Medium truck volume :  1109/123   veh/TimePeriod  *
Heavy truck volume  :   475/53    veh/TimePeriod  *
Posted speed limit  :    60 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):  22000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   5.60
    Heavy Truck  % of Total Volume     :   2.40
    Day (16 hrs) % of Total Volume     :  90.00
Data for Segment # 1: Peter Matthe (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  :  75.00 / 75.00  m
Receiver height           :   4.50 / 7.50   m
Topography                :      1       (Flat/gentle slope; no barrier)

Result summary (day)
--------------------
                    !  source  !   Road   !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+---------+---------+---------
 1.Peter Matthe     !     1.24 !    57.89 !    57.89
--------------------+---------+---------+---------
                      Total                 57.89 dBA

Result summary (night)
----------------------
                    !  source  !   Road   !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+---------+---------+---------
 1.Peter Matthe     !     1.25 !    52.16 !    52.16
--------------------+---------+---------+---------
                      Total                 52.16 dBA


TOTAL Leq FROM ALL SOURCES (DAY): 57.89
                           (NIGHT): 52.16
```

```
STAMSON 5.0        SUMMARY REPORT        Date: 06-12-2024 11:03:37
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT
Filename: bk78ry.te            Time Period: Day/Night 16/8 hours
Description: Block 78, Rear Yard

Road data, segment # 1: Peter Matthe (day/night)
-----------------------------------------------
Car traffic volume  : 18216/2024  veh/TimePeriod  *
Medium truck volume :  1109/123   veh/TimePeriod  *
Heavy truck volume  :   475/53    veh/TimePeriod  *
Posted speed limit  :    60 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):  22000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   5.60
    Heavy Truck  % of Total Volume     :   2.40
    Day (16 hrs) % of Total Volume     :  90.00
Data for Segment # 1: Peter Matthe (day/night)
-----------------------------------------------
Angle1   Angle2           : -70.00 deg   80.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  77.00 / 77.00  m
Receiver height           :   1.50 / 7.50   m
Topography                :      1       (Flat/gentle slope; no barrier)

Result summary (day)
--------------------
                    !  source  !   Road   !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+---------+---------+---------
 1.Peter Matthe     !     1.24 !    56.71 !    56.71
--------------------+---------+---------+---------
                      Total                  56.71 dBA
```

```
STAMSON 5.0        SUMMARY REPORT        Date: 06-12-2024 10:41:17
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT
Filename: bk81sw.te            Time Period: Day/Night 16/8 hours
Description: Block 81, Side Wall

Road data, segment # 1: Peter Matthe (day/night)
-----------------------------------------------
Car traffic volume  : 18216/2024  veh/TimePeriod  *
Medium truck volume :  1109/123   veh/TimePeriod  *
Heavy truck volume  :   475/53    veh/TimePeriod  *
Posted speed limit  :    60 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):  22000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   5.60
    Heavy Truck  % of Total Volume     :   2.40
    Day (16 hrs) % of Total Volume     :  90.00
Data for Segment # 1: Peter Matthe (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  :  65.00 / 65.00  m
Receiver height           :   4.50 / 7.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Result summary (day)
--------------------
                    !  source  !   Road   !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+---------+---------+---------
 1.Peter Matthe     !     1.24 !    58.87 !    58.87
--------------------+---------+---------+---------
                      Total                 58.87 dBA

Result summary (night)
----------------------
                    !  source  !   Road   !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+---------+---------+---------
 1.Peter Matthe     !     1.25 !    53.08 !    53.08
--------------------+---------+---------+---------
                      Total                 53.08 dBA


TOTAL Leq FROM ALL SOURCES (DAY): 58.87
                           (NIGHT): 53.08
```

```
STAMSON 5.0        SUMMARY REPORT        Date: 06-12-2024 11:03:56
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT
Filename: bk81ry.te            Time Period: Day/Night 16/8 hours
Description: Block 81, Rear Yard

Road data, segment # 1: Peter Matthe (day/night)
-----------------------------------------------
Car traffic volume  : 18216/2024  veh/TimePeriod  *
Medium truck volume :  1109/123   veh/TimePeriod  *
Heavy truck volume  :   475/53    veh/TimePeriod  *
Posted speed limit  :    60 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):  22000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   5.60
    Heavy Truck  % of Total Volume     :   2.40
    Day (16 hrs) % of Total Volume     :  90.00
Data for Segment # 1: Peter Matthe (day/night)
-----------------------------------------------
Angle1   Angle2           : -80.00 deg   50.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  67.00 / 67.00  m
Receiver height           :   1.50 / 7.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Result summary (day)
--------------------
                    !  source  !   Road   !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+---------+---------+---------
 1.Peter Matthe     !     1.24 !    57.23 !    57.23
--------------------+---------+---------+---------
                      Total                 57.23 dBA

Result summary (night)
----------------------
                    !  source  !   Road   !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+---------+---------+---------
 1.Peter Matthe     !     1.25 !    52.02 !    52.02
--------------------+---------+---------+---------
                      Total                 52.02 dBA


TOTAL Leq FROM ALL SOURCES (DAY): 57.23
                           (NIGHT): 52.02
```

# APPENDIX 3

# SOUND LEVEL CRITERIA

# MINISTRY OF THE ENVIRONMENT, CONSERVATION AND PARKS

## ENVIRONMENTAL NOISE GUIDELINE
## Stationary and Transportation Sources - Approval and Planning
## Publication NPC-300

*August 2013*

### Day-time Outdoor Sound Level Limit

*Table C-1 gives the equivalent sound level ($L_{eq}$) limit for designated Outdoor Living Areas. The limit applies to the entire day-time period from 07:00 to 23:00.*

**TABLE C-1**
**Sound Level Limit for Outdoor Living Areas**
**Road and Rail**

| *Time Period* | *$L_{eq}$(16) (dBA)* |
|---|---|
| *16 hr, 07:00 - 23:00* | *55* |

### Indoor Sound Level Limit

*Table C-2 gives the equivalent sound level ($L_{eq}$) limits and the applicable time periods for the indicated types of indoor space. The specified sound level criteria are minimum requirements and apply to the indicated indoor spaces with the windows and doors closed.*

**TABLE C- 2**
**Indoor Sound Level Limits (Road and Rail)**

| *Type of Space* | *Time Period* | *$L_{eq}$ (Time Period) (dBA)* | |
|---|---|---|---|
| | | *Road* | *Rail* |
| *Living/dining, den areas of residences, nursing/retirement homes, hospitals, schools, day-care centers, etc.* | *07:00-23:00* | *45* | *40* |
| *Living/dining areas of residences, nursing/retirement homes, hospitals, etc. (except schools or daycare centres)* | *23:00 - 07:00* | *45* | *40* |
| *Sleeping quarters* | *07:00-23:00* | *45* | *40* |
| *Sleeping quarters* | *23:00 - 07:00* | *40* | *35* |

## SUPPLEMENTARY NOISE LIMITS

Indoor limits for transportation sources applicable to noise sensitive land uses are specified in Table C-2 and Table C-9.

**TABLE C-9**

**Indoor Sound Level Limits (Road and Rail)**

| *Type of Space* | *Time Period* | *$L_{eq}$ (Time Period) (dBA)* | |
|---|---|---|---|
| | | *Road* | *Rail* |
| *General offices, reception areas, retail stores, etc.* | *16 hours between 07:00-23:00* | *50* | *45* |
| *Living/dining areas of residences, hospitals, schools, nursing/retirement, homes day-care centers, theatres, place of worship, libraries, individual or semi-private offices, conference rooms, reading rooms etc.* | *16 hours between 07:00-23:00* | *45* | *40* |
| *Sleeping quarters of hotels/motels* | *8 hours between 23:00 - 07:00* | *45* | *40* |
| *Sleeping quarters of residences, hospitals, nursing/retirement homes etc* | *8 hours between 23:00 - 07:00* | *40* | *35* |

## SUMMARY OF MINIMUM NOISE CONTROL AND VENTILATION REQUIREMENTS FOR ROAD AND RAIL NOISE

**TABLE 1**

**COMBINATION OF ROAD AND RAIL NOISE, DAY-TIME (0700 - 2300)**

**OUTDOOR, VENTILATION AND WARNING CLAUSE REQUIREMENTS**

| *ASSESSMENT LOCATION* | *$L_{eq}$ (16 hr) (dBA)* | *VENTILATION REQUIREMENTS* | *OUTDOOR CONTROL MEASURES* | *WARNING CLAUSE* |
|---|---|---|---|---|
| *OUTDOOR LIVING AREA (OLA)* | *Less than or equal to 55 dBA* | *N/A* | *None required* | *Not required* |
| | *Greater than 55 dBA to less than or equal to 60 dBA* | *N/A* | *Control measures (barriers) not required but should be considered* | *Required if resultant $L_{eq}$ exceeds 55 dBA Type A* |
| | *Greater than 60 dBA* | *N/A* | *Control measures (barriers) required to reduce the $L_{eq}$ below 60 dBA and as close to 55 dBA as technically, economically and administratively feasible* | *Required if resultant $L_{eq}$ exceeds 55 dBA Type B* |
| *PLANE OF LIVING ROOM WINDOW* | *Greater than 50 dBA to less than or equal to 55 dBA* | *None required* | *N/A* | *Not required* |
| | *Greater than 55 dBA to less than or equal to 65 dBA* | *Forced air heating with provision for central air conditioning* | *N/A* | *Required Type C* |
| | *Greater than 65 dBA* | *Central air conditioning* | *N/A* | *Required Type D* |

**TABLE 2**

**COMBINATION OF ROAD AND RAIL NOISE, NIGHT-TIME (2300 - 0700)**

**VENTILATION AND WARNING CLAUSE REQUIREMENTS**

| *ASSESSMENT LOCATION* | *$L_{eq}$(8hr) (dBA)* | *VENTILATION REQUIREMENTS* | *WARNING CLAUSE* |
|---|---|---|---|
| *PLANE OF BEDROOM WINDOW* | *Greater than 50 dBA to less or equal to 60 dBA* | *Forced air heating with provision for central air conditioning* | *Required Type C* |
| | *Greater than 60 dBA* | *Central air conditioning* | *Required Type D* |

**TABLE 3**
**ROAD AND RAIL NOISE, DAY-TIME (0700 - 2300)**
**BUILDING COMPONENT REQUIREMENTS**

| *ASSESSMENT LOCATION* | | *$L_{eq}$ (16 hr)* | *BUILDING COMPONENT REQUIREMENTS* |
|---|---|---|---|
| *PLANE OF LIVING ROOM WINDOW* | *ROAD* | *Less than or equal to 65 dBA* | *Building compliant with the Ontario Building Code* |
| | | *Greater than 65 dBA* | *Building components (walls, windows, etc.) must be designed to achieve indoor sound level criteria* |
| | *RAIL* | *Less than or equal to 60 dBA* | *Building compliant with the Ontario Building Code* |
| | | *Greater than 60 dBA* | *Building components (walls, windows, etc.) must be designed to achieve indoor sound level criteria* |

**TABLE 4**
**ROAD AND RAIL NOISE, NIGHT-TIME (2300-0700)**
**BUILDING COMPONENT REQUIREMENTS**

| *ASSESSMENT LOCATION* | | *$L_{eq}$ (8 hr)* | *BUILDING COMPONENT REQUIREMENTS* |
|---|---|---|---|
| *PLANE OF BEDROOM WINDOW* | *ROAD* | *Less than or equal to 60 dBA* | *Building compliant with the Ontario Building Code* |
| | | *Greater than 65 dBA* | *Building components (walls, windows, etc.) must bed designed to achieve indoor sound level criteria* |
| | *RAIL* | *Less than or equal to 60 dBA* | *Building compliant with the Ontario Building Code* |
| | | *Greater than 60 dBA* | *Building components (walls, windows, etc.) must be designed to achieve indoor sound level criteria* |

***TABLE 5***
***FACADE REQUIREMENT FOR RAIL NOISE ONLY - 24 HOURS***

| *ASSESSMENT LOCATION* | *DISTANCE TO RAILWAY (m)* | *$L_{eq}$ (24 hr) (dBA)* | *NOISE CONTROL REQUIREMENT* |
|---|---|---|---|
| *PLANE OF BEDROOM WINDOW* | *Less than 100 m* | *Less than or equal to 60 dBA* | *No additional requirement* |
| | | *Greater than 60 dBA* | *Brick veneer or acoustically equivalent* |
| | *Greater than 100 m* | *Less than or equal to 60 dBA* | *No additional requirement* |
| | | *Greater than 60 dBA* | *No additional requirement* |

**TABLE B- 1**
**Exclusion Limit Values of One-Hour Equivalent Sound Level (Leq dBA)**
**Outdoor Points of Reception**

| *Time of Day* | *Class 1 Area* | *Class 2 Area* | *Class 3 Area* | *Class 4 Area* |
|---|---|---|---|---|
| *07:00-19:00* | *50* | *50* | *45* | *55* |
| *19:00 -23:00* | *50* | *45* | *40* | *55* |

**TABLE B- 2**
**Exclusion Limit Values of One-Hour Equivalent Sound Level (Leq dBA)**
**Plane of Window of Noise Sensitive Spaces**

| *Time of Day* | *Class 1 Area* | *Class 2 Area* | *Class 3 Area* | *Class 4 Area* |
|---|---|---|---|---|
| *07:00-19:00* | *50* | *50* | *45* | *60* |
| *19:00 -23:00* | *50* | *50* | *40* | *60* |
| *23:00-07:00* | *45* | *45* | *40* | *55* |

***WARNING CLAUSES***

*The following warning clauses may be used individually or in combination:*

*TYPE A:*

*“Purchasers are advised that sound levels due to increasing road traffic may occasionally interfere with some activities of the dwelling occupants and the outdoor sound level may exceed the Municipality and the Ministry of Environment's noise criteria.”*

*TYPE B:*

*“Purchasers are advised that despite the inclusion of noise abatement features within the development area and the individual building units, sound levels due to road traffic may be of concern, occasionally interfering with some activities of the dwelling occupants and the outdoor sound level may exceed the Municipality and the Ministry of Environment’s noise criteria.”*

*TYPE C:*

*"This dwelling unit has been fitted with a forced air heating system and the ducting, etc. was sized to accommodate central air conditioning/ventilation system. Installation of central air conditioning by the occupant will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the Municipality's and the Ministry of the Environment's noise criteria. (Note: The location and installation of the outdoor air conditioning device should be done so as to comply with noise criteria of MOE and thus minimize the noise impacts both on and in the immediate vicinity of the subject property.)"*

*TYPE D:*

*"This dwelling unit has been supplied with a central air conditioning/ventilation system which will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the Municipality's and the Ministry of the Environment's noise criteria. (Note: The location and installation of the outdoor air conditioning device should be done so as to comply with noise criteria of MOE and thus minimize the noise impacts both on and in the immediate vicinity of the subject property.)"*

# APPENDIX 4

# SAMPLE WINDOW AND EXTERIOR WALL CONFIGURATIONS

# WINDOW STC RATINGS

| STC | Double Glazing of indicated glass thickness | | | | | Triple Glazing | |
|---|---|---|---|---|---|---|---|
| | **2mm and 2mm glass** | **3mm and 3mm glass** | **4mm and 4mm glass** | **3mm and 6mm glass** | **6mm and 6mm glass** | **3mm 3mm and 3mm glass** | **3mm 3mm and 6mm glass** |
| | Interpane Spacing (mm) | | | | | Interpane Spacing (mm) | |
| **27** | 6 | | | | | | |
| **28** | 13 | | | | | | |
| **29** | 15 | 6 | | | | | |
| **30** | 18 | 13 | 6 | | | | |
| **31** | 22 | 16 | 13 | 6 | 6 | 6,6 | |
| **32** | 28 | 20 | 16 | 13 | 13 | 6,10 | 6,6 |
| **33** | 35 | 25 | 20 | 16 | 16 | 6,15 | 6,10 |
| **34** | 42 | 32 | 25 | 20 | 20 | 6,20 | 6,15 |
| **35** | 50 | 40 | 32 | 25 | 24 | 6,30 | 6,20 |
| **36** | 63 | 50 | 40 | 32 | 30 | 6,40 | 6,30 |
| **37** | 80 | 63 | 50 | 40 | 37 | 6,50 | 6,40 |
| **38** | 100 | 80 | 63 | 55 | 50 | 6,65 | 6,50 |
| **39** | 125 | 100 | 80 | 75 | 70 | 6,80 | 6,65 |
| **40** | 150 | 125 | 100 | 95 | 90 | 6,100 | 6,80 |
| **41** | | 150 | 125 | 110 | 100 | | 6,100 |
| **42** | | | 150 | 135 | 125 | | |

Source: National Research Council, Division of Building Research

EXPLANATORY NOTES:

1. STC data listed in the table are for the well-fitted weather-stripped units that can be opened. The STC values apply only when the windows are closed. For windows fixed and sealed to the frame, add three to the STC given in the table.

2. If the interpane spacing or glass thickness for a specific double-glazed window is not listed in the table, the nearest listed values should be used.

3. If the interpane spacing for a specific triple-glazed window are not listed in the table, use the listed case whose combined spacing are nearest the actual combined spacing.

4. The STC data listed in the table are for typical windows, but details of glass mounting, window seals, etc., may result in slightly different performance for some manufacturer's products. If the laboratory sound transmission loss data (conforming to ASTM test method E-90) are available, these should be used.

# EXTERIOR WALL STC RATINGS

| Wall Configuration | EW1 | EW2 | EW3 | EW4 | EW1R | EW2R | EW3R | EW5 | EW4R | EW6 | EW7 EW5R | EW8 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **STC Rating** | **38** | **40** | **43** | **46** | **47** | **48** | **49** | **54** | **55** | **57** | **58** | **62** |

Source: National Research Council, Division of Building Research

NOTES:

1 The common structure of walls EW1 to EW5 is composed of 12.7mm gypsum board, vapour barrier and 38x89 mm studs with 50 mm (or thicker) mineral wool or glass fibre batts in inter-stud cavities.

- EW1 denotes the common structure, plus sheathing, plus wood siding or metal siding and fibre backer board
- EW2 denotes the common structure, plus rigid insulation (25 to 30 mm), and wood siding or metal siding and fibre backer board.
- EW3 denotes simulated mansard with the common structure, plus sheathing, 28 X89 mm framing, sheathing and asphalt roofing material
- EW4 denotes the common structure, plus sheathing and 20 mm stucco.
- EW5 denotes the common structure, plus sheathing, 25 mm air space, 100mm brick veneer.
- EW6 denotes exterior wall composed of 12.7 mm gypsum board, rigid insulation (25 to 50 mm), 100 mm back-up block 100 mm face brick.
- EW7 denotes exterior wall composed of 12.7 mm gypsum board, rigid insulation (25 to 50 mm), 140mm back-up block, 100 mm face brick.
- EW8 denotes exterior wall composed of 12.7 mm gypsum board, rigid insulation (25 to 50 mm), 200 mm concrete.

2 R signifies the mounting of the interior gypsum board on resilient clips.

3 An exterior wall conforming to rainscreen design principles and composed of 12.7 mm gypsum board, 100 mm concrete block, rigid insulation (25 to 50 mm), 25 mm air space, and 100 mm brick veneer has the same STC as EW6.

4 An exterior wall described in EW1 with the addition of rigid insulation (25 to 50 mm) between the sheathing and the external finish has the same STC as EW2.