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ENVIRONMENTAL NOISE ASSESSMENT

PROPOSED RESIDENTIAL DEVELOPMENT
1720 SHERWOOD FORREST CIRCLE
LOT 3, RANGE 1
SOUTH OF DUNDAS STREET
CITY OF MISSISSAUGA

PREPARED FOR:

SHERWOOD FORREST LIMITED PARTNERSHIP

Revised May 2024
October 2023
Y2324A

EXECUTIVE SUMMARY

The proposed residential development is located west of Mississauga Road and south of Dundas Street West in the City of Mississauga.

The May 2024 Revised Environmental Noise Assessment is issued to present the assessment of the proposed development and recommend any noise abatement features necessary to achieve sound levels acceptable to the City of Mississauga and the Ministry of Environment, Conservation and Parks.

The transportation noise sources having the potential to affect the living environment within the proposed development area include Mississauga Road and Dundas Street West. The ultimate traffic volumes for the roads are used as input to the Stamson's 5.04 to generate the resultant sound levels. Copies of the correspondence regarding traffic data is included in Appendix 1 in this report.

The results of the noise assessments are described in Sections 5.1, 5.2, 5.3, 5.4 and summarized in Tables 3 to 5 of this report and on the attached Drawing Y2324. These measures include:

1. Provision for air conditioning is required for Lot 1.

2. Standard window and exterior wall constructions are sufficient for all residential units within the proposed development .

3. All applicable warning clauses shall be listed in the City of Mississauga Development Agreement and also be inserted in the Agreements of Purchase and Sale or Lease and registered on title.

4. Prior to the issuance of occupancy permits, the City's building inspector or a Professional Engineer qualified to perform acoustical engineering services in Ontario shall certify that the noise control measures have been properly installed and constructed.

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1.0 INTRODUCTION

PURPOSE

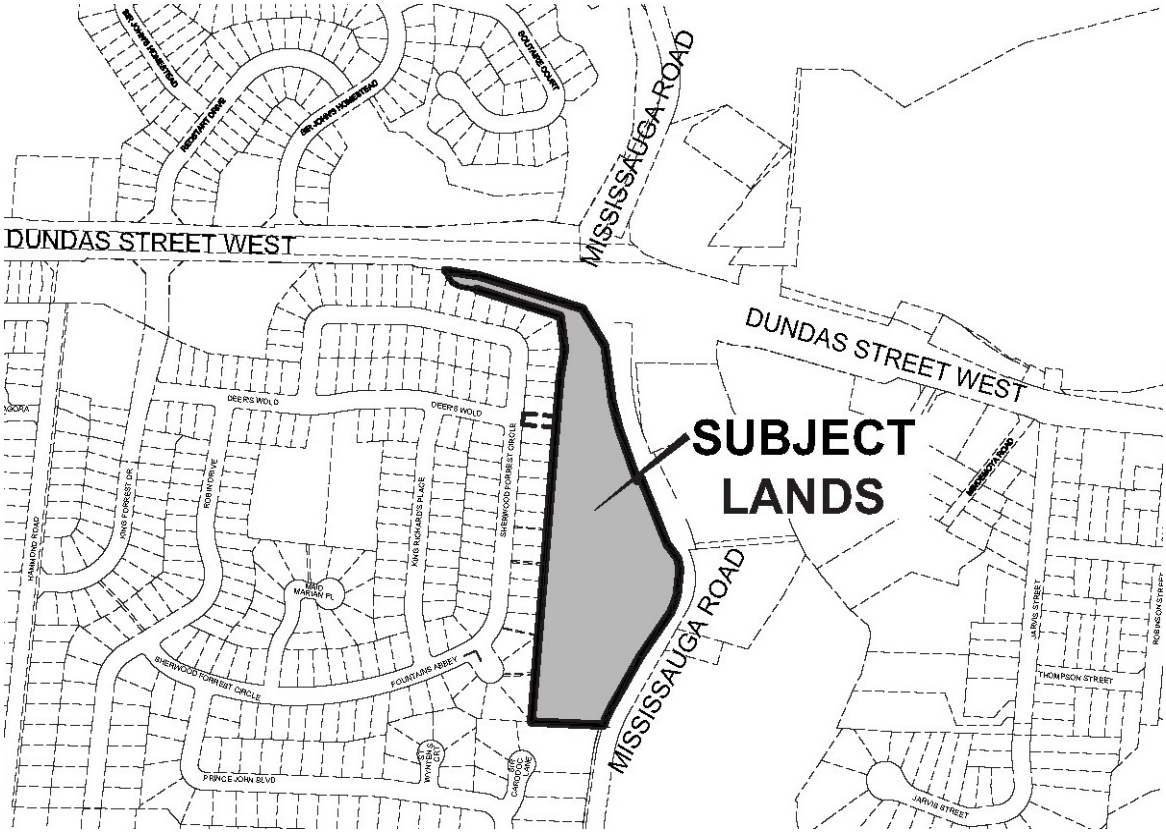
A residential development has been proposed by Sherwood Forrest Limited Partnership in the City of Mississauga. This report is an analysis of future sound levels within the proposed residential development and describes the types and locations of noise mitigation measures which will be required based on the latest Development Concept Plan dated April 2024 prepared by GSAI and latest topography dated May 2023 prepared by R-PE Surveying Ltd.

SITE DESCRIPTION AND LOCATION

This development will consist of Detached dwellings, a Natural Heritage System, open spaces and local internal roads located south of Dundas Street West and west of Mississauga Road in the City of Mississauga. The surrounding land uses are existing residential developments to the west, south, residential and institutional uses to the north and Creek/Open spaces to the west and north, and open spaces to the east.

KEY PLAN

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



KEY PLAN

2.0 SOUND LEVEL CRITERIA

The sound level descriptors (L_{eq} in dBA) are 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.

Aircraft noise impact assessment is based on Noise Exposure Forecast/Noise Exposure Projection (NEF/NEP) contours determined by methods approved by Transport Canada.

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, 5 NEF/NEP Aircrafts
Bedroom (7 a.m.–11 p.m.) = 0 NEF/NEP Aircrafts
Bedrooms (11 p.m. – 7 a.m.) = 40 dBA Roads, 0 NEF/NEP Aircrafts

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 1 or 2 area classification. 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) for a class 2 area.

3.0 NOISE SOURCES

ROAD TRAFFIC

The proposed residential development will be located west of Mississauga Road and south of Dundas Street West in the City of Mississauga. The traffic from Mississauga Road and Dundas Street West traffic are expected to have a negative noise impact on the proposed residential development. Due to distance separation and shielding, all other road noise sources are considered to be acoustically insignificant

The ultimate traffic volume information for Dundas Street West and Mississauga Road were obtained from the City of Mississauga dated June 2023 and are summarized in Tables 1 and 2 below:

TABLE 1: DUNDAS STREET WEST TRAFFIC DATA	
Projected Annual Average Daily Traffic *	50,300
Percent Trucks	4 %
Medium to Heavy trucks ratio	55:45
Posted Speed	60 km/hr
Day/Night Split	90/10
Number of Lanes	4
Road Gradient	2 %
Ultimate R.O.W.	40 m

TABLE 2: MISSISSAUGA ROAD TRAFFIC DATA	
Projected Annual Average Daily Traffic *	7,700
Percent Trucks	4 %
Medium to Heavy trucks ratio	55:45
Posted Speed	50 km/hr
Day/Night Split	90/10
Number of Lanes	2
Road Gradient	2 %
Ultimate R.O.W.	26 m

* Ultimate Traffic information provided by the City of Mississauga.

AIRCRAFT TRAFFIC

Aircraft noise impact assessment is based on Noise Exposure Forecast/Noise Exposure Projection (NEF/NEP) contours determined by methods approved by Transport Canada. Due to the proximity of Toronto Pearson International Airport, the proposed development has been verified and the site is outside the NEF/NEP 25 Noise Contour. Therefore, aircraft noise is not expected to be a significant concern.

The noise contour line map for the Toronto Pearson International Airport is included in Appendix 1.

RAILWAY TRAFFIC

There is a railway located to the northeast approximately 2.5km from the proposed residential development. Due to distance separation, shielding from existing developments in between the railway and proposed residential, the noise impact from the railway is considered insignificant.

In addition, a vibration study is not required as the railway is more than 75m from the proposed development.

STATIONARY NOISE SOURCES

The University of Toronto Mississauga Campus is located to the northeast at 500m or more from the proposed development. Due to distance separation and the high ambient sound level from Dundas Street West, the noise impact from the stationary noise sources is considered insignificant.

4.0 NOISE ASSESSMENT

4.1 TRAFFIC NOISE SOURCE ASSESSMENT

Drawing Y2324 is based on the latest Development Concept Plan dated April 2024 prepared by GSAI showing various noise analysis locations and noise mitigation measures within the proposed residential development. 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

LOTS		DISTANCE TO CENTRELINE OF ROAD (m)	DAYTIME (16 Hr. Leq (dBA))		NIGHT-TIME (8 Hr. Leq (dBA))
			OUTDOOR AMENITY	DWELLING WALL	SECOND STOREY
Lot 1	Side Wall	100.0[1] 100.0[2]	-	55.57 48.43 (56.34)	49.94 42.82 (50.71)
	Rear Yard	92.0[1] 103.0[2]	56.06 46.51 (56.45)	-	-
Lot 2	Front Wall	130.0[1] 110.0[2]	-	53.42 47.78 (54.47)	47.91 42.21 (48.95)
	Rear Yard	132.0[1] 120.0[2]	51.04 44.92 (51.99)	-	-
Lot 30	Side Wall	100.0[2]	-	48.43	42.82
	Rear Yard	97.0[1]	47.86	-	-
Lot 43	Side Wall	200.0[1] 100.0[2]	-	50.46 48.43 (52.57)	45.12 42.82 (47.13)
	Rear Yard	202.0[1] 97.0[2]	49.99 47.86 (52.06)	-	-
Lot 47	Side Wall	300.0[1] 102.0[2]	-	47.68 48.29 (51.01)	42.50 42.70 (45.61)
	Rear Yard	310.0[1] 105.0[2]	46.27 47.28 (49.81)	-	-
Lot 56	Side Wall	400.0[1] 100.0[2]	-	45.71 48.43 (50.29)	40.63 42.82 (44.87)
	Rear Yard	402.0[1] 96.0[2]	44.40 47.93 (49.52)	-	-

* Dundas Street West
** Mississauga Road

The following Table 4 has been added to show the sound levels by lot ranges:

TABLE 4: UNATTENUATED SOUND LEVELS (BY LOT RANGE)		
LOTS	**DAYTIME (16 Hr. Leq (dBA))**	**NIGHT-TIME (8 Hr. Leq (dBA))**
Lot 1	55-57	50-51
Lots 2 to 56	50 to <55	42 to <50

4.2 NOISE FROM THE PROPOSED DEVELOPMENT ON ITSELF AND SURROUNDING ENVIRONMENT

The proposed development is all residential and the possible noise sources of concern are the air conditioner units within the proposed residential development which are the proposed stationary noise sources.

The air conditioning condenser units must comply with the MOE NPC-216 and must be in accordance with the City's zoning by-law in order to meet the sound level requirements on the surrounding environment and the proposed development itself.

5.0 RECOMMENDED NOISE MITIGATION MEASURES

5.1 OUTDOOR MEASURES

Table 3 indicates that daytime sound level at Lot 1 is slightly above 55 dBA, for all lots at the sound levels at the outdoor amenity areas are expected to be 55dBA or less in absence of mitigative measures due to road traffic.

Therefore, outdoor noise mitigation measures are not required for the lots within the proposed residential development.

5.2 VENTILATION REQUIREMENTS

MANDATORY AIR CONDITIONERS

Based on the information in Table 3, the sound levels at the following locations are expected to be below 65dBA during the daytime and/or below 60dBA during the nighttime due to road traffic. Therefore, mandatory air conditioning is not required for the proposed residential development.

PROVISION FOR AIR CONDITIONERS

Based on the information in Table 3, the following locations must be constructed with a forced air heating system with ducting, in order to allow the occupants the option of installing air conditioning should he or she wish to do so in the future due to road traffic:

- Lot 1

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

> Warning Clause Type C:
>
> *"This dwelling unit was fitted with ducting sized to accommodate an air conditioning to allow windows and exterior doors to be kept closed, thereby achieving indoor sound levels within the limits recommended by the Municipality and the Ministry of Environment. The air conditioning condenser units must comply with the MOE NPC-216 and must be in accordance with the City's zoning by-law"*

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 building and 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 the living area is located at the side of the building 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 1) daytime sound level of 56 dBA was calculated due to road traffic. To ensure acceptable daytime indoor sound levels of 45dBA from road noise sources, the building components must provide an STC rating of 16 for windows, STC 26 for exterior wall construction.

NIGHT-TIME SOUND LEVELS

For the worst-case location during night-time, (Lot 1) night-time sound level of 51 dBA was calculated. To ensure acceptable nighttime indoor sound levels of 40dBA from road noise sources, the building components must provide an STC rating of 17 for windows, STC 24 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, standard windows and exterior wall construction meeting the Ontario Building Code standard are sufficient for all residential units within the proposed development.

WINDOWS

The following are some window configurations meeting an STC rating of 30, assuming the ratio of window area to room floor area is 70%:

- double glazing 3mm x 3mm thickness with 13mm air space (Sliding) or
- double glazing 4mm x 4mm thickness with 6mm air space (Casement or fixed) or
- any other window type yielding a similar or greater STC rating
-

EXTERIOR WALLS

The following exterior wall constructions EW1 meet the STC 38 rating, assuming a ratio of wall area to room floor area of 80%:

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 stucco/siding.

Sample window and exterior wall configurations are included in Appendix 4 for additional options.

5.4 WARNING CLAUSES

We recommend the following warning clauses to be incorporated into the Development Agreement, which will be registered on title and included in all offers of purchase and sale or lease of suites noted below.

- Lot 1

  Warning Clause Type A

  “Occupants are advised that sound levels due to increasing road traffic may occasionally interfere with some activities of the occupants as the sound levels may exceed the noise criteria of the Municipality and the Ministry of the Environment."

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
Lot 1	Provision for air conditioning	Windows: OBC* Walls: OBC	No	Type A, C
All remaining lots	No Requirements	No Requirements	No Requirements	No Requirements

* Ontario Building Code Standard

7.0 RECOMMENDATIONS AND CONCLUSION

RECOMMENDATIONS

1. Provision for air conditioning is required for Lot 1.

2. Standard windows and exterior wall constructions are sufficient for all residential units within the proposed development.

3. All applicable warning clauses shall be listed in the City of Mississauga Subdivision Agreement and also be inserted in the Agreements of Purchase and Sale or Lease and registered on title.

4. Prior to the issuance of occupancy permits, the City's building inspector or a Professional Engineer qualified to perform acoustical engineering services in Ontario shall certify that the noise control measures have been properly installed and constructed.

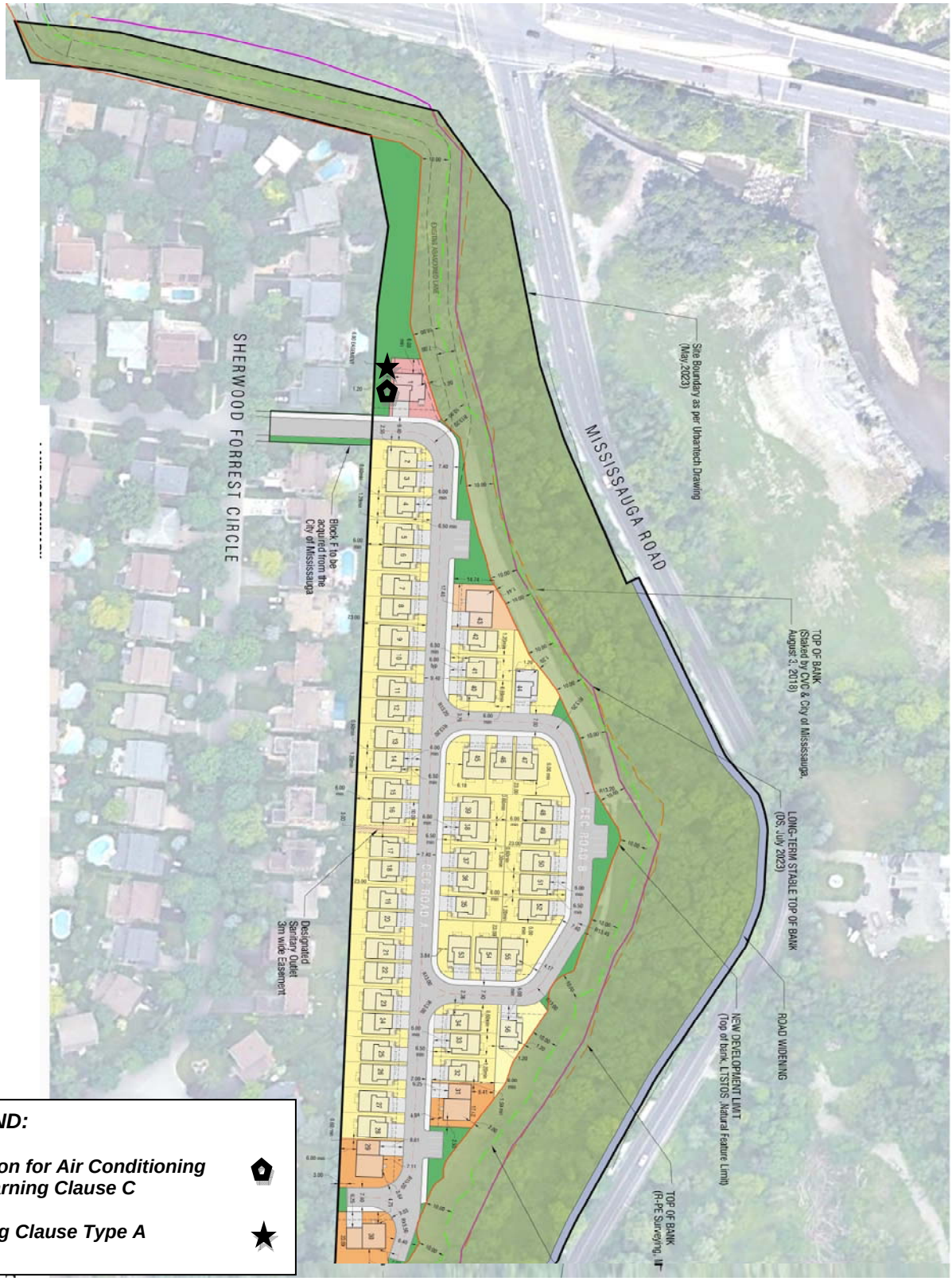
CONCLUSION

This report has determined that sound levels acceptable to the Ministry of Environment, Conservation and Parks and the City of Mississauga are expected to be achieved using the abatement measures in this report and as shown on the attached Drawing Y2324.

Respectfully submitted,

YCA ENGINEERING Limited

Hava Jouharchi, P.Eng.
Senior Project Engineer



DRAWING Y2324A – 1720 Sherwood Forrest Circle
Development Concept Plan
NOISE MITIGATION MEASURES

APPENDIX 1

TRAFFIC DATA

NOISE REPORT FOR PROPOSED DEVELOPMENT

Date:

REQUESTED BY:

Name: Hava Jouharchi, P.Eng

Company: YCA Engineering

PREPARED BY:

Name: Naveda Dukhan C.E .T

Tel#: 905-615-3200 ext. 8949

MISSISSAUGA

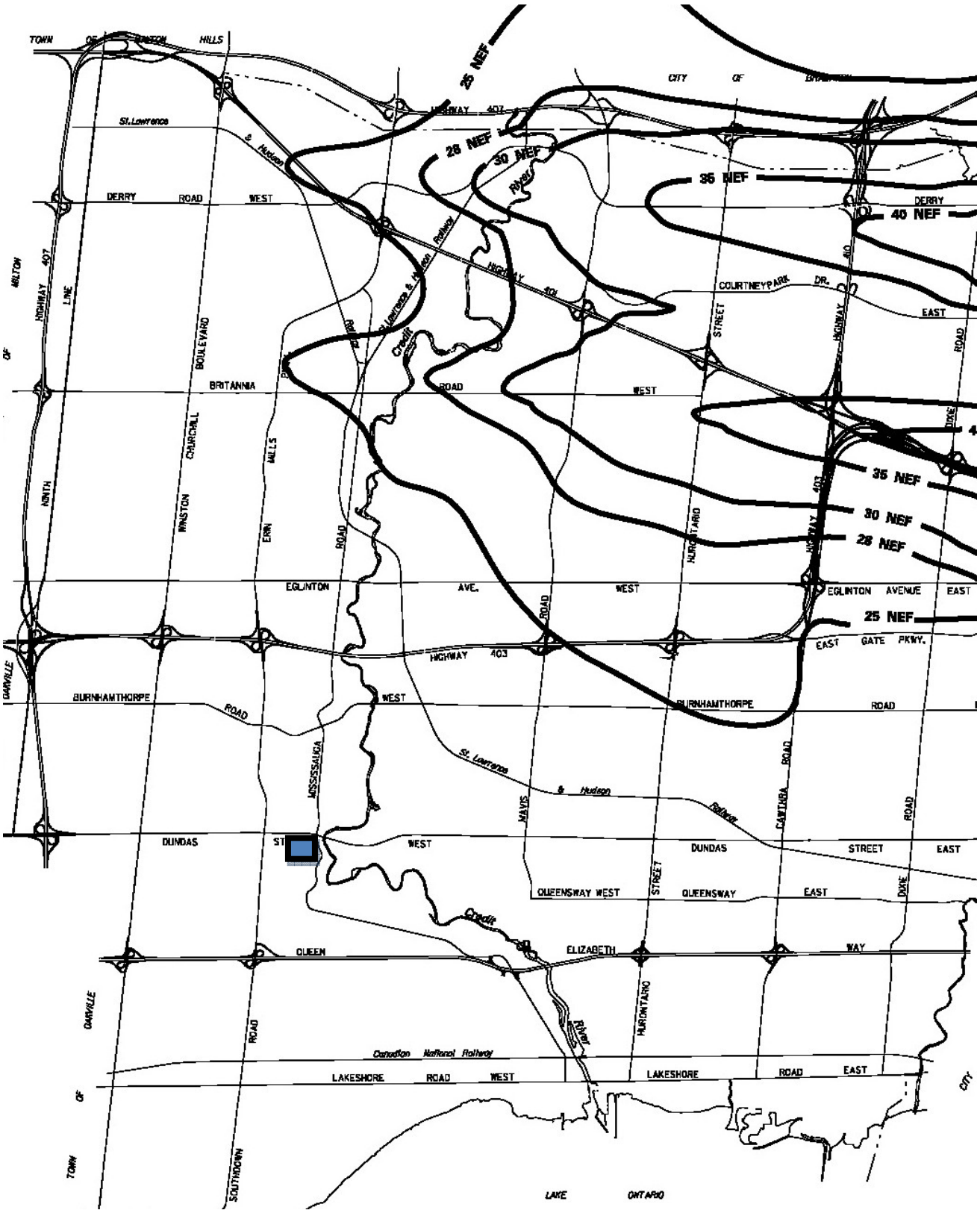
Location: 1. Dundas St w.
2. Mississauga Rd

ID# 596

ON SITE TRAFFIC DATA

Specific	Street Names				
[redacted]	1. Dundas St. W	2. Mississauga Rd			
AADT:	50300	7700			
# of Lanes:	4 lanes	2 lanes			
% Trucks:	4%	4%			
Medium/Heavy Trucks Ratio:	55/45	55/45			
Day/Night Split:	90/10	90/10			
Posted Speed Limit:	60 km/hr	50km/hr			
Gradient Of Road:	2%	2%			
Ultimate R.O.W:	40m	26m			

Comments: Ultimate Traffic Data only (2041)



Toronto Pearson Airport Noise Contour Lines

APPENDIX 2

STAMSON 5.04
SOUND LEVEL CALCULATIONS

```
STAMSON 5.0        SUMMARY REPORT        Date: 26-04-2024 13:45:08
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT
Filename: 2sw.te               Time Period: Day/Night 16/8 hours
Description: Lot 1, Side Wall

Road data, segment # 1: Dundast St (day/night)
----------------------------------------------
Car traffic volume  : 43459/4829  veh/TimePeriod  *
Medium truck volume :   996/111   veh/TimePeriod  *
Heavy truck volume  :   815/91    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):  50300
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   2.20
    Heavy Truck  % of Total Volume     :   1.80
    Day (16 hrs) % of Total Volume     :  90.00
Data for Segment # 1: Dundast St (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: Missiga Rd (day/night)
----------------------------------------------
Car traffic volume  :  6653/739   veh/TimePeriod  *
Medium truck volume :   152/17    veh/TimePeriod  *
Heavy truck volume  :   125/14    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     2 %
Road pavement       :     1 (Typical asphalt or concrete)
* Refers to calculated road volumes based on the following input:
    24 hr Traffic Volume (AADT or SADT):   7700
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   2.20
    Heavy Truck  % of Total Volume     :   1.80
    Day (16 hrs) % of Total Volume     :  90.00
Data for Segment # 2: Missiga 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  : 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.Dundast St       !     1.16 !    55.57 !    55.57
 2.Missiga Rd       !     1.16 !    48.43 !    48.43
--------------------+---------+---------+---------
                      Total                  56.34 dBA

Result summary (night)
----------------------
                    !  source  !   Road   !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+---------+---------+---------
 1.Dundast St       !     1.16 !    49.94 !    49.94
 2.Missiga Rd       !     1.16 !    42.82 !    42.82
--------------------+---------+---------+---------
                      Total                  50.71 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 56.34
                           (NIGHT): 50.71
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```
STAMSON 5.0        SUMMARY REPORT        Date:261-04-2024 13:51:24
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT
Filename: 2ry.te               Time Period: Day/Night 16/8 hours
Description: Lot 1, Rear Yard

Road data, segment # 1: Dundast St (day/night)
----------------------------------------------
Car traffic volume  : 43459/4829  veh/TimePeriod  *
Medium truck volume :   996/111   veh/TimePeriod  *
Heavy truck volume  :   815/91    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):  50300
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   2.20
    Heavy Truck  % of Total Volume     :   1.80
    Day (16 hrs) % of Total Volume     :  90.00
Data for Segment # 1: Dundast St (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  :  97.00 / 97.00  m
Receiver height           :   1.50 / 7.50   m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            :   0.00 deg   Angle2 : 90.00 deg
Barrier height            :   0.00 m
Barrier receiver distance :   5.00 / 5.00   m
Source elevation          : 106.50 m
Receiver elevation        : 116.80 m
Barrier elevation         : 116.70 m
Road data, segment # 2: Missiga Rd (day/night)
----------------------------------------------
Car traffic volume  :  6653/739   veh/TimePeriod  *
Medium truck volume :   152/17    veh/TimePeriod  *
Heavy truck volume  :   125/14    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     2 %
Road pavement       :     1 (Typical asphalt or concrete)
* Refers to calculated road volumes based on the following input:
    24 hr Traffic Volume (AADT or SADT):   7700
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   2.20
    Heavy Truck  % of Total Volume     :   1.80
    Day (16 hrs) % of Total Volume     :  90.00
Data for Segment # 2: Missiga 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  : 102.00 / 100.00 m
Receiver height           :   1.50 / 7.50   m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -90.00 deg   Angle2 : 90.00 deg
Barrier height            :   0.00 m
Barrier receiver distance :   5.00 / 10.00  m
Source elevation          : 104.00 m
Receiver elevation        : 116.80 m
Barrier elevation         : 116.70 m
Result summary (day)
--------------------
                    !  source  !   Road   !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+---------+---------+---------
 1.Dundast St       !     1.16 !    56.09 !    56.06 *
 2.Missiga Rd       !     1.16 !    46.51 !    46.51 *
--------------------+---------+---------+---------
                      Total                  56.45 dBA
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STAMSON 5.0        SUMMARY REPORT        Date: 11-07-2023 11:25:23
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT
Filename: 56fw.te              Time Period: Day/Night 16/8 hours
Description: Lot 2, Front Wall

Road data, segment # 1: Dundast St (day/night)
----------------------------------------------
Car traffic volume  : 43459/4829  veh/TimePeriod  *
Medium truck volume :   996/111   veh/TimePeriod  *
Heavy truck volume  :   815/91    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):  50300
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   2.20
    Heavy Truck  % of Total Volume     :   1.80
    Day (16 hrs) % of Total Volume     :  90.00
Data for Segment # 1: Dundast St (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  : 130.00 / 130.00 m
Receiver height           :   4.50 / 7.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Road data, segment # 2: Missiga Rd (day/night)
----------------------------------------------
Car traffic volume  :  6653/739   veh/TimePeriod  *
Medium truck volume :   152/17    veh/TimePeriod  *
Heavy truck volume  :   125/14    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     2 %
Road pavement       :     1 (Typical asphalt or concrete)
* Refers to calculated road volumes based on the following input:
    24 hr Traffic Volume (AADT or SADT):   7700
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   2.20
    Heavy Truck  % of Total Volume     :   1.80
    Day (16 hrs) % of Total Volume     :  90.00
Data for Segment # 2: Missiga 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  : 110.00 / 110.00 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.Dundast St       !     1.16 !    53.42 !    53.42
 2.Missiga Rd       !     1.16 !    47.78 !    47.78
--------------------+---------+---------+---------
                      Total                  54.47 dBA
Result summary (night)
----------------------
                    !  source  !   Road   !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+---------+---------+---------
 1.Dundast St       !     1.16 !    47.91 !    47.91
 2.Missiga Rd       !     1.16 !    42.21 !    42.21
--------------------+---------+---------+---------
                      Total                  48.95 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 54.47
                           (NIGHT): 48.95
```

STAMSON 5.0 SUMMARY REPORT Date: 11-07-2023 11:25:42
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT
Filename: 56ry.te Time Period: Day/Night 16/8 hours
Description: Lot 2, Rear Yard

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

Car traffic volume : 43459/4829 veh/TimePeriod *
Medium truck volume : 996/111 veh/TimePeriod *
Heavy truck volume : 815/91 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): 50300
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.20
Heavy Truck % of Total Volume : 1.80
Day (16 hrs) % of Total Volume : 90.00
Data for Segment # 1: Dundast St (day/night)

Angle1 Angle2 : 0.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 1 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 132.00 / 132.00 m
Receiver height : 1.50 / 7.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : 0.00 deg Angle2 : 90.00 deg
Barrier height : 0.00 m
Barrier receiver distance : 5.00 / 5.00 m
Source elevation : 106.50 m
Receiver elevation : 116.80 m
Barrier elevation : 116.70 m
Road data, segment # 2: Missiga Rd (day/night)

Car traffic volume : 6653/739 veh/TimePeriod *
Medium truck volume : 152/17 veh/TimePeriod *
Heavy truck volume : 125/14 veh/TimePeriod *
Posted speed limit : 50 km/h
Road gradient : 2 %
Road pavement : 1 (Typical asphalt or concrete)
* Refers to calculated road volumes based on the following input:
24 hr Traffic Volume (AADT or SADT): 7700
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.20
Heavy Truck % of Total Volume : 1.80
Day (16 hrs) % of Total Volume : 90.00
Data for Segment # 2: Missiga Rd (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 : 120.00 / 100.00 m
Receiver height : 1.50 / 7.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : 90.00 deg
Barrier height : 0.00 m
Barrier receiver distance : 5.00 / 10.00 m
Source elevation : 104.00 m
Receiver elevation : 116.80 m
Barrier elevation : 116.70 m
Result summary (day)
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Dundast St	1.16	51.04	51.04 *
2.Missiga Rd	1.16	44.92	44.92 *
Total			51.99 dBA

STAMSON 5.0 SUMMARY REPORT Date: 11-07-2023 11:24:02
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT
Filename: 3sw.te Time Period: Day/Night 16/8 hours
Description: Lot 43, Side Wall

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

Car traffic volume : 43459/4829 veh/TimePeriod *
Medium truck volume : 996/111 veh/TimePeriod *
Heavy truck volume : 815/91 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): 50300
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.20
Heavy Truck % of Total Volume : 1.80
Day (16 hrs) % of Total Volume : 90.00
Data for Segment # 1: Dundast St (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 : 200.00 / 200.00 m
Receiver height : 4.50 / 7.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Road data, segment # 2: Missiga Rd (day/night)

Car traffic volume : 6653/739 veh/TimePeriod *
Medium truck volume : 152/17 veh/TimePeriod *
Heavy truck volume : 125/14 veh/TimePeriod *
Posted speed limit : 50 km/h
Road gradient : 2 %
Road pavement : 1 (Typical asphalt or concrete)
* Refers to calculated road volumes based on the following input:
24 hr Traffic Volume (AADT or SADT): 7700
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.20
Heavy Truck % of Total Volume : 1.80
Day (16 hrs) % of Total Volume : 90.00
Data for Segment # 2: Missiga 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 : 100.00 / 100.00 m
Receiver height : 4.50 / 7.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Result summary (day)
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Dundast St	1.16	50.46	50.46
2.Missiga Rd	1.16	48.43	48.43
Total			52.57 dBA

Result summary (night)
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Dundast St	1.16	45.12	45.12
2.Missiga Rd	1.16	42.82	42.82
Total			47.13 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 52.57
(NIGHT): 47.13

STAMSON 5.0 SUMMARY REPORT Date: 11-07-2023 11:25:59
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT
Filename: 3ry.te Time Period: Day/Night 16/8 hours
Description: Lot 43, Rear Yard

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

Car traffic volume : 43459/4829 veh/TimePeriod *
Medium truck volume : 996/111 veh/TimePeriod *
Heavy truck volume : 815/91 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): 50300
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.20
Heavy Truck % of Total Volume : 1.80
Day (16 hrs) % of Total Volume : 90.00
Data for Segment # 1: Dundast St (day/night)

Angle1 Angle2 : -10.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 202.00 / 202.00 m
Receiver height : 1.50 / 7.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -10.00 deg Angle2 : 90.00 deg
Barrier height : 0.00 m
Barrier receiver distance : 5.00 / 5.00 m
Source elevation : 106.00 m
Receiver elevation : 116.50 m
Barrier elevation : 116.50 m
Road data, segment # 2: Missiga Rd (day/night)

Car traffic volume : 6653/739 veh/TimePeriod *
Medium truck volume : 152/17 veh/TimePeriod *
Heavy truck volume : 125/14 veh/TimePeriod *
Posted speed limit : 50 km/h
Road gradient : 2 %
Road pavement : 1 (Typical asphalt or concrete)
* Refers to calculated road volumes based on the following input:
24 hr Traffic Volume (AADT or SADT): 7700
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.20
Heavy Truck % of Total Volume : 1.80
Day (16 hrs) % of Total Volume : 90.00
Data for Segment # 2: Missiga 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 : 97.00 / 100.00 m
Receiver height : 1.50 / 7.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : 90.00 deg
Barrier height : 0.00 m
Barrier receiver distance : 5.00 / 10.00 m
Source elevation : 102.00 m
Receiver elevation : 116.50 m
Barrier elevation : 116.50 m

Result summary (day)
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Dundast St	1.16	49.99	49.99 *
2.Missiga Rd	1.16	47.86	47.86 *
Total			52.06 dBA

```
STAMSON 5.0        SUMMARY REPORT        Date: 11-07-2023 11:24:20
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT
Filename: 10sw.te              Time Period: Day/Night 16/8 hours
Description: Lot 47, Side Wall

Road data, segment # 1: Dundast St (day/night)
----------------------------------------------
Car traffic volume  : 43459/4829  veh/TimePeriod  *
Medium truck volume :   996/111   veh/TimePeriod  *
Heavy truck volume  :   815/91    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):  50300
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   2.20
    Heavy Truck  % of Total Volume     :   1.80
    Day (16 hrs) % of Total Volume     :  90.00
Data for Segment # 1: Dundast St (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  : 300.00 / 300.00 m
Receiver height           :   4.50 / 7.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Road data, segment # 2: Missiga Rd (day/night)
----------------------------------------------
Car traffic volume  :  6653/739   veh/TimePeriod  *
Medium truck volume :   152/17    veh/TimePeriod  *
Heavy truck volume  :   125/14    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     2 %
Road pavement       :     1 (Typical asphalt or concrete)
* Refers to calculated road volumes based on the following input:
    24 hr Traffic Volume (AADT or SADT):   7700
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   2.20
    Heavy Truck  % of Total Volume     :   1.80
    Day (16 hrs) % of Total Volume     :  90.00
Data for Segment # 2: Missiga 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  : 102.00 / 102.00 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.Dundast St       !     1.16 !    47.68 !    47.68
 2.Missiga Rd       !     1.16 !    48.29 !    48.29
--------------------+---------+---------+---------
                      Total                  51.01 dBA
Result summary (night)
----------------------
                    !  source  !   Road   !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+---------+---------+---------
 1.Dundast St       !     1.16 !    42.50 !    42.50
 2.Missiga Rd       !     1.16 !    42.70 !    42.70
--------------------+---------+---------+---------
                      Total                  45.61 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 51.01
                           (NIGHT): 45.61
```

STAMSON 5.0 SUMMARY REPORT Date: 11-07-2023 11:26:31
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT
Filename: 10ry.te Time Period: Day/Night 16/8 hours
Description: Lot 47, Rear Yard

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

Car traffic volume : 43459/4829 veh/TimePeriod *
Medium truck volume : 996/111 veh/TimePeriod *
Heavy truck volume : 815/91 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): 50300
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.20
Heavy Truck % of Total Volume : 1.80
Day (16 hrs) % of Total Volume : 90.00
Data for Segment # 1: Dundast St (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 : 310.00 / 310.00 m
Receiver height : 1.50 / 7.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : 0.00 deg Angle2 : 90.00 deg
Barrier height : 0.00 m
Barrier receiver distance : 5.00 / 5.00 m
Source elevation : 106.00 m
Receiver elevation : 116.25 m
Barrier elevation : 116.25 m
Road data, segment # 2: Missiga Rd (day/night)

Car traffic volume : 6653/739 veh/TimePeriod *
Medium truck volume : 152/17 veh/TimePeriod *
Heavy truck volume : 125/14 veh/TimePeriod *
Posted speed limit : 50 km/h
Road gradient : 2 %
Road pavement : 1 (Typical asphalt or concrete)
* Refers to calculated road volumes based on the following input:
24 hr Traffic Volume (AADT or SADT): 7700
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.20
Heavy Truck % of Total Volume : 1.80
Day (16 hrs) % of Total Volume : 90.00
Data for Segment # 2: Missiga 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 : 105.00 / 100.00 m
Receiver height : 1.50 / 7.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : 90.00 deg
Barrier height : 0.00 m
Barrier receiver distance : 5.00 / 10.00 m
Source elevation : 98.50 m
Receiver elevation : 116.25 m
Barrier elevation : 116.25 m
Result summary (day)
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Dundast St	1.16	46.27	46.27 *
2.Missiga Rd	1.16	47.28	47.28 *
Total			49.81 dBA

```
STAMSON 5.0        SUMMARY REPORT        Date: 11-07-2023 11:24:37
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT
Filename: 24sw.te              Time Period: Day/Night 16/8 hours
Description: Lot 56, Side Wall

Road data, segment # 1: Dundast St (day/night)
----------------------------------------------
Car traffic volume  : 43459/4829  veh/TimePeriod  *
Medium truck volume :   996/111   veh/TimePeriod  *
Heavy truck volume  :   815/91    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):  50300
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   2.20
    Heavy Truck  % of Total Volume     :   1.80
    Day (16 hrs) % of Total Volume     :  90.00
Data for Segment # 1: Dundast St (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  : 400.00 / 400.00 m
Receiver height           :   4.50 / 7.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Road data, segment # 2: Missiga Rd (day/night)
----------------------------------------------
Car traffic volume  :  6653/739   veh/TimePeriod  *
Medium truck volume :   152/17    veh/TimePeriod  *
Heavy truck volume  :   125/14    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     2 %
Road pavement       :     1 (Typical asphalt or concrete)
* Refers to calculated road volumes based on the following input:
    24 hr Traffic Volume (AADT or SADT):   7700
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   2.20
    Heavy Truck  % of Total Volume     :   1.80
    Day (16 hrs) % of Total Volume     :  90.00
Data for Segment # 2: Missiga 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  : 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.Dundast St       !     1.16 !    45.71 !    45.71
 2.Missiga Rd       !     1.16 !    48.43 !    48.43
--------------------+---------+---------+---------
                      Total                  50.29 dBA
Result summary (night)
----------------------
                    !  source  !   Road   !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+---------+---------+---------
 1.Dundast St       !     1.16 !    40.63 !    40.63
 2.Missiga Rd       !     1.16 !    42.82 !    42.82
--------------------+---------+---------+---------
                      Total                  44.87 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 50.29
                           (NIGHT): 44.87
```

STAMSON 5.0 SUMMARY REPORT Date: 11-07-2023 11:26:49
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT
Filename: 24ry.te Time Period: Day/Night 16/8 hours
Description: Lot 56, Rear Yard

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

Car traffic volume : 43459/4829 veh/TimePeriod *
Medium truck volume : 996/111 veh/TimePeriod *
Heavy truck volume : 815/91 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): 50300
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.20
Heavy Truck % of Total Volume : 1.80
Day (16 hrs) % of Total Volume : 90.00
Data for Segment # 1: Dundast St (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 : 402.00 / 402.00 m
Receiver height : 1.50 / 7.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : 0.00 deg Angle2 : 90.00 deg
Barrier height : 0.00 m
Barrier receiver distance : 5.00 / 5.00 m
Source elevation : 106.00 m
Receiver elevation : 116.00 m
Barrier elevation : 116.00 m
Road data, segment # 2: Missiga Rd (day/night)

Car traffic volume : 6653/739 veh/TimePeriod *
Medium truck volume : 152/17 veh/TimePeriod *
Heavy truck volume : 125/14 veh/TimePeriod *
Posted speed limit : 50 km/h
Road gradient : 2 %
Road pavement : 1 (Typical asphalt or concrete)
* Refers to calculated road volumes based on the following input:
24 hr Traffic Volume (AADT or SADT): 7700
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.20
Heavy Truck % of Total Volume : 1.80
Day (16 hrs) % of Total Volume : 90.00
Data for Segment # 2: Missiga 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 : 96.00 / 100.00 m
Receiver height : 1.50 / 7.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : 90.00 deg
Barrier height : 0.00 m
Barrier receiver distance : 5.00 / 10.00 m
Source elevation : 99.20 m
Receiver elevation : 116.00 m
Barrier elevation : 116.00 m
Result summary (day)
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Dundast St	1.16	44.40	44.40 *
2.Missiga Rd	1.16	47.93	47.93 *
Total			49.52 dBA

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*

TABLE 2
Indoor Sound Level Criteria (Aircraft)
Applicable over 24 hour period

Type of Space	*Indoor NEF/NEP*
Living/dining areas of residences, hospitals, schools, nursing/retirement homes, day-care centers, etc.	*5*
Sleeping quarters	*0*

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 6
AIRCRAFT NOISE ONLY - 24 HOURS

ASSESSMENT LOCATION	*NEF/NEP*	*VENTILATION REQUIREMENTS*	*NOISE CONTROL REQUIREMENT*	*WARNING CLAUSE*
ANY LOCATION ON PROPERTY OR LOT	*Less than NEF 25*	*None Required*	*Building Compliant with the OBC*	*Not required*
	Greater or equal to NEF 25 to less than NEF 30	*Provision for central air conditioning*	*Building components must be designed to achieve indoor sound level criteria*	*Required Type C*
	Greater than NEF 30	*Central air Conditioning*	*Building components must be designed to achieve indoor sound level criteria*	*Required Type B and D*

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:

Warning Clause Type A:

"Occupants are advised that sound levels due to increasing road traffic may occasionally interfere with some activities of the occupants as the sound levels may exceed the noise criteria of the Municipality and the Ministry of the Environment."

Warning Clause Type C:

"This dwelling unit was fitted with ducting sized to accommodate an air conditioning to allow windows and exterior doors to be kept closed, thereby achieving indoor sound levels within the limits recommended by the Municipality and the Ministry of Environment. The air conditioning condenser units must comply with the MOE NPC-216 and must be in accordance with the City's zoning by-law"

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.