HGC ENGINEERING

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Noise Feasibility Study
Proposed Residential Development
Ecometrix, Phase 2, 15462 Mount Pleasant Road
Caledon, Ontario

Prepared for:

Ecometrix Inc.
6800 Campobello Road
Mississauga, Ontario
L5N 2L8

Prepared by

Sheeba Paul, MEng, PEng

January 9, 2024

HGC Project Number: 02200830

Table of Contents

1 Introduction & Summary

HGC Engineering was retained by Ecometrix Inc. to conduct a noise feasibility study for Phase 2 of a proposed residential development located at 15462 Mount Pleasant Road, in Caledon, Ontario. The proposed development will consist of five Lots on the south side of Mulloy Court. This study is required by the municipality for an Official Plan Amendment, Zoning By-law Amendment, and Plan of Subdivision.

The primary source of noise impacting the site was determined to be road traffic on Mount Pleasant Road. Road traffic data was obtained from the City of Caledon for Phase 1 of the Development. Relevant traffic data was used to predict future traffic sound levels at the proposed residential development. The predicted sound levels were compared to the guidelines of the Ministry of Environment, Conservation and Parks (MECP) and the Region to develop noise control recommendations.

The sound level predictions indicate that the future road traffic sound levels will not exceed the MECP guidelines at any of the proposed dwelling units. There are no specific acoustic recommendations for the development. Any building construction meeting the minimum requirements of the Ontario Building Code will provide adequate sound insulation for all the dwelling units.

2 Site Description & Noise Sources

Figure 1 shows a key plan of the subject site. A site plan prepared by Ecometrix for Stellar Homes Inc. dated January 9, 2024 is shown in Figure 2. The proposed development will consist of five Residential Lots.

HGC Engineering personnel visited the site on December 1, 2022, to make observations of the acoustical environment. The primary source of noise impacting the site is road traffic on Mount Pleasant Road. The site is currently vacant and the area surrounding the site is rural in nature. There are existing residences to the north of the site, north of Mulloy Court, which are part of Phase 1 of the development. There are no significant sources of stationary noise within 500 m of the development site.

3 Noise Level Criteria

3.1 Road Traffic Noise

Guidelines for acceptable levels of road traffic noise applicable to residential developments are given in the MECP publication NPC-300, "Environmental Noise Guideline Stationary and Transportation Sources – Approval and Planning", release date October 21, 2013 and are listed in Table I below. The values in Table I are energy equivalent (average) sound levels [L_{EQ}] in units of A-weighted decibels [dBA].

Table I: MECP Road Traffic Noise Criteria [dBA]

Space	Daytime L_{EQ} (16 hour) Road	Nighttime L_{EQ} (8 hour) Road
Outdoor Living Areas	55 dBA	--
Inside Living/Dining Rooms	45 dBA	45 dBA
Inside Bedrooms	45 dBA	40 dBA

Daytime refers to the period between 07:00 and 23:00, while nighttime refers to the period between 23:00 and 07:00. The term "Outdoor Living Area" (OLA) is used in reference to an outdoor patio, a backyard, a terrace or other area where passive recreation is expected to occur. Small balconies are not considered OLAs for the purposes of assessment. Terraces greater than 4 m in depth (measured perpendicular to the building façade) are considered to be OLAs.

The guidelines in the MECP publication allow the daytime sound levels in an Outdoor Living Area to be exceeded by up to 5 dBA, without mitigation, if warning clauses are placed in the purchase and rental agreements to the property. Where OLA sound levels exceed 60 dBA, physical mitigation is required to reduce the OLA sound level to below 60 dBA and as close to 55 dBA as technically, economically, and administratively practical.

A central air conditioning system as an alternative means of ventilation to open windows is required for all dwellings where nighttime sound levels outside bedroom/living/dining room windows exceed 60 dBA or daytime sound levels outside bedroom/living/dining room windows exceed 65 dBA. Forced-air ventilation with ducts sized to accommodate the future installation of air conditioning is

required when nighttime sound levels at bedroom/living/dining room windows are in the range of 51 to 60 dBA or when daytime sound levels at bedroom/living/dining room windows are in the range of 56 to 65 dBA.

Building components such as walls, windows and doors must be designed to achieve indoor sound level criteria when the plane of the window nighttime sound level exceeds 60 dBA or the daytime sound level exceeds 65 dBA due to road traffic noise.

Warning clauses to notify future residents of possible noise excesses are also required when nighttime sound levels exceed 50 dBA at the plane of a bedroom/living/dining room window and when daytime sound levels exceed 55 dBA at the plane of a bedroom/living/dining room window due to road traffic.

4 Traffic Noise Assessment

4.1 Road Traffic Data

Road traffic information for Mount Pleasant Road was obtained from the City of Caledon for Phase 1 of the development, in the form of AADT from 2010, and is provided in Appendix A. A commercial vehicle percentage of 5% was used in the analysis and was further split into 2% and 3% for medium and heavy trucks, respectively. A day/night split of 90%/10% was included in the calculations. The data was projected to the year 2034 using a 2.5%/year growth rate. A posted speed limit of 60 km/h was also applied in the analysis. Table II summarizes the traffic volume data used in this study.

Table II: Projected Road Traffic Data

Road Name		Cars	Medium Trucks	Heavy Trucks	Total
Mount Pleasant Road	Daytime	2 938	62	93	3 093
	Nighttime	326	7	10	344
	Total	**3 265**	**69**	**103**	**3 437**

4.2 Traffic Noise Predictions

To assess the levels of road traffic noise which will impact the study area in the future, sound level predictions were made using STAMSON version 5.04. Sample STAMSON output is included in Appendix B. The minimum traffic volume input for STAMSON is 40 vehicles per hour. For volumes less than 40 vehicles per hour, the sound level was adjusted for the decreased volume.

Predictions of the traffic sound levels were chosen around the proposed development to obtain an appropriate representation of future sound levels. Sound levels were predicted at the plane of the top storey bedroom and/or living/dining room windows during the daytime and nighttime hours to investigate ventilation and façade construction requirements. Figure 2 shows the site plan with the proposed building envelopes and prediction locations for Phase 2. The results of these predictions are summarized in Table III.

Table III: Daytime and Nighttime Predicted Future Sound Levels [dBA], Without Mitigation

Prediction Location	Description	Daytime – at the Façade $L_{EQ-16\ hr}$	Nighttime – at the Facade $L_{EQ-8\ hr}$
A	Lot 5 Dwelling – East Façade	55	<50
B	Lot 5 Dwelling – South Facade	<55	<50
C	Lot 5 Dwelling – OLA	55	--

5 Traffic Noise Recommendations

The sound level predictions indicate that the sound levels at all proposed dwelling units will not exceed the MECP guidelines listed in Table I. Physical mitigation, specific ventilation requirements or the use of warning clauses will not be required.

5.1 Outdoor Living Areas

The rear yards of the proposed units will have predicted sound levels less than the MECP limit of 55 dBA. Further mitigation is not required.

5.2 Indoor Living Areas & Ventilation Requirements

The predicted future sound levels at the plane of the top storey windows at the proposed dwellings are less than or equal to 50 dBA and 55 dBA during nighttime and daytime, respectively. This is below the MECP limit and thus there are no specific ventilation requirements for the proposed development.

5.3 Building Façade Constructions

Since the future road traffic sound levels outside all the dwelling units within the development will be less than 60 dBA at night and less than 65 dBA during the daytime, any exterior wall, insulated metal exterior door and double-glazed window construction meeting the minimum requirements of the Ontario Building Code (OBC) will provide adequate sound insulation meeting the minimum requirements of the Ontario Building Code (OBC) will provide adequate sound insulation.

6 Summary & Recommendations

The following list and Table IV summarize the recommendations made in this report. The reader is referred to the previous sections of the report where these recommendations are applied and discussed in more detail.

1. There are no specific ventilation requirements or acoustic barriers required.

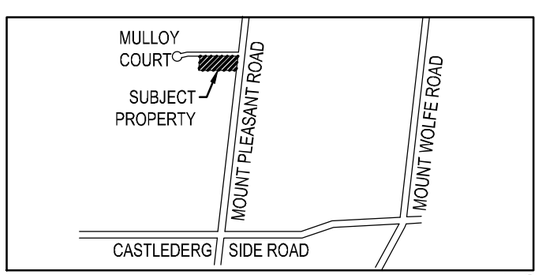
2. Any building construction meeting the minimum requirements of the Ontario Building Code will provide adequate acoustical insulation for all units within the development.

3. The use of warning clauses in the property and tenancy agreements is not required.

50m 0 50m 100m

SCALE 1:2000

KEY PLAN



NTS

LEGEND

SUBJECT LANDS - 4.07 ha

EXISTING BUILDINGS

CONCEPTUAL LOT LINES
5 LOTS PROPOSED; MINIMUM LOT AREA =0.78 ha

50m 0

SC

NOTES

1. IMAGE SOURCE: GOOGLE MAPS, RETRIEVED SEPTEMBER 2021. IMAGE PLACEMENT IS APPROXIMATE AND NOT ORTHORECTIFIED.

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STELLAR HOMES INC.

STELLAR ESTATES PHASE II
PART OF LOT 18, CONCESSION 8 (ALBION)
TOWN OF CALEDON, REGION OF PEEL

CONCEPTUAL LOTTING PLAN

Figure 1: Key Plan

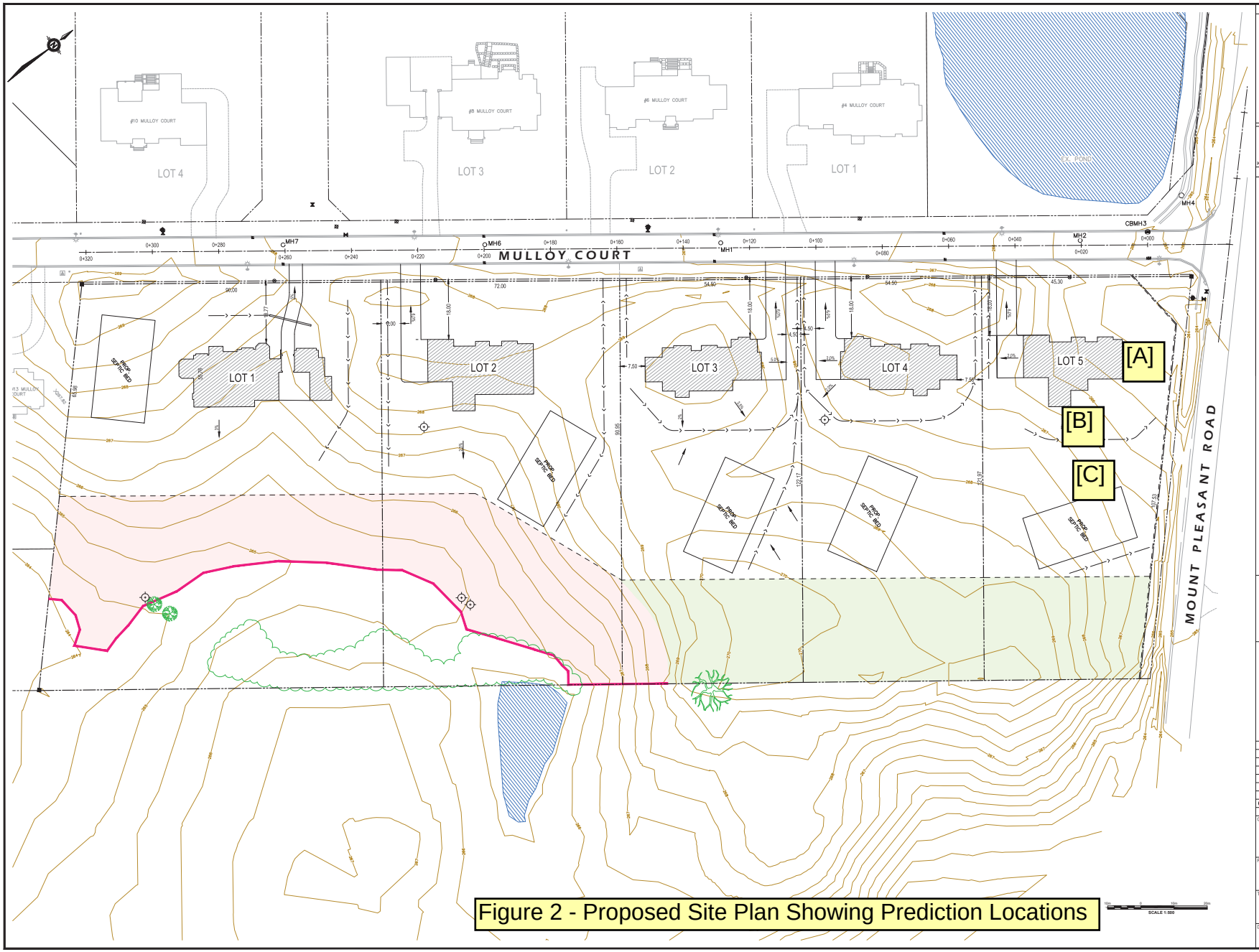
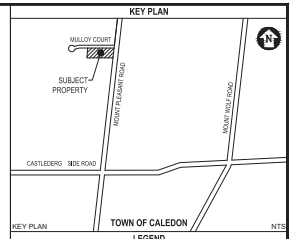


Figure 2 - Proposed Site Plan Showing Prediction Locations

KEY PLAN



LEGEND

- PROPERTY LINES (PROPOSED)
- PROPERTY LINES (EXISTING)
- KEY NATURAL HERITAGE FEATURE
- LIMIT OF STRUCTURE ENVELOPE (PROPOSED)
- PROP. GRASSED SWALE
- PROP. WATER BOX
- MIN. 56 sq.m. BACKYARD AMENITY AREA (CONCEPT PLAN)
- MVPZ REHABILITATION PLANTINGS
- LOT AREA OUTSIDE STRUCTURE ENVELOPE

Ecometrix | Environmental Intelligence
www.ecometrix.ca

DESIGNED BY	APPROVED BY

N°	Date	Revisions	Dwn.	Dsgn.	Chk'd.
0	09/JAN/2024	GENERAL COORDINATION	AAF	AAF	RJW

Client:
STELLAR HOMES INC.

Project Name:
STELLAR ESTATES PHASE 2
MULLOY COURT, TOWN OF CALEDON

Title Name:
SITE PLAN

Drawing N°:	Sheet N°:	Rev. N°:
22-3001-SP	1 OF 1	A
	Scale: 1:500	

Appendix A

Road Traffic Data

Sheeba Paul

From: Geoff Hebbert <geoff.hebbert@caledon.ca>
Sent: March-03-11 9:03 AM
To: Sheeba Paul
Subject: RE: Road traffic volume request

Follow Up Flag: Follow up
Flag Status: Flagged

apparently it has been updated for 2010.

From: Sheeba Paul [mailto:spaul@hgcengineering.com]
Sent: Tuesday, March 01, 2011 4:53 PM
To: Geoff Hebbert
Subject: RE: Road traffic volume request

HI Geoff

What year is the data from?

Thanks,

Sheeba Paul, MEng. PEng.
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From: Geoff Hebbert [mailto:geoff.hebbert@caledon.ca]
Sent: February-15-11 4:00 PM
To: Sheeba Paul
Subject: RE: Road traffic volume request

the only info I have is that the ADT is 1276 vehicles and the posted speed is 60 kmph. I would assume 5 % or less commercial vehicles local deliveries only. All truck routes are on Regional roads.
Geoff

From: Sheeba Paul [mailto:spaul@hgcengineering.com]
Sent: Tuesday, February 15, 2011 10:06 AM
To: Geoff Hebbert
Subject: re: Road traffic volume request

Hello Geoff,

HGC Engineering is performing a noise study for Stellar Homes residential development to be located 15462 Mount Pleasant Road in the Town of Caledon, Ontario. A google link is attached for your reference.

http://maps.google.ca/maps?hl=en&q=15462+mount+pleasant+road,+caledon,+on&ie=UTF8&hq=&hnear=15462+Mt+Pleasant+Rd,+Caledon,+Peel+Regional+Municipality,+Ontario+L7E+3M4&gl=ca&ll=43.933691,-79.762545&spn=0.038384,0.111151&t=h&z=14

We would like to request road traffic data for Mount Pleasant Road. Please provide a recent AADT along with commercial vehicle percentages (medium/heavy trucks) and a speed limit for the roadway.

If you have ultimate traffic volumes for the roadway (projected to a date in the future), we can also use this data.

Thank you in advance for the data.

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Appendix B

Sample STAMSON 5.04 Output

```
STAMSON 5.0        NORMAL REPORT        Date: 09-01-2024 18:33:42
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: lot5_e.te            Time Period: Day/Night 16/8 hours
Description: Daytime and nighttime sound levels at Lot 5, east façade

Road data, segment # 1: MtPleasant (day/night)
----------------------------------------------
Car traffic volume  :  2938/326   veh/TimePeriod  *
Medium truck volume :    62/7     veh/TimePeriod  *
Heavy truck volume  :    93/10    veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):   1900
    Percentage of Annual Growth        :   2.50
    Number of Years of Growth          :  24.00
    Medium Truck % of Total Volume     :   2.00
    Heavy Truck  % of Total Volume     :   3.00
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 1: MtPleasant (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  :  30.00 / 30.00  m
Receiver height           :   4.50 / 4.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Results segment # 1: MtPleasant (day)
-------------------------------------

Source height = 1.32 m

ROAD (0.00 + 55.44 + 0.00) = 55.44 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
---
   -90     90   0.58  61.49   0.00  -4.74  -1.31   0.00   0.00   0.00
55.44
-------------------------------------------------------------------------
---

Segment Leq : 55.44 dBA

Total Leq All Segments: 55.44 dBA
```

```
Results segment # 1: MtPleasant (night)
----------------------------------------

Source height = 1.31 m

ROAD (0.00 + 48.83 + 0.00) = 48.83 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
---
   -90     90   0.58  54.89   0.00  -4.74  -1.31   0.00   0.00   0.00
48.83
-------------------------------------------------------------------------
---

Segment Leq : 48.83 dBA

Total Leq All Segments: 48.83 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 55.44
                           (NIGHT): 48.83
```

```
STAMSON 5.0        NORMAL REPORT        Date: 09-01-2024 18:33:53
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: lot5_o.te            Time Period: 16 hours
Description:   Daytime sound level at Lot 5, OLA, prediction location [C]

Road data, segment # 1: MtPleasant
----------------------------------
Car traffic volume  :  2938 veh/TimePeriod  *
Medium truck volume :    62 veh/TimePeriod  *
Heavy truck volume  :    93 veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

Data for Segment # 1: MtPleasant
--------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  30.00 m
Receiver height           :   1.50 m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Results segment # 1: MtPleasant
--------------------------------

Source height = 1.32 m

ROAD (0.00 + 55.04 + 0.00) = 55.04 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
---
   -90     90   0.66  61.49   0.00  -5.00  -1.46   0.00   0.00   0.00
55.04
-------------------------------------------------------------------------
---

Segment Leq : 55.04 dBA

Total Leq All Segments: 55.04 dBA

TOTAL Leq FROM ALL SOURCES:       55.04
```