aercoustics

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NOISE IMPACT STUDY – **Project: 21443.00**

1305 Maritime Way
Proposed Commercial Hotel Development
Kanata, Ontario

Prepared for:

McIntosh Perry Consulting Engineers
115 Wallgreen Road, RR#3
Carp, ON
K0A 1L0

Prepared by:

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Derek Flake, M.Sc., P.Eng

April 18, 2022

Revision History

Version	Description	Author	Reviewed	Date
- -	Initial Report	SZ	DF	April 18, 2022

Important Notice and Disclaimer

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1 Introduction

McIntosh Perry Consulting Engineers (McIntosh Perry) has retained Aercoustics Engineering Limited to prepare a Noise Impact Study (NIS) to support a Site Plan Control application for a six-storey, 102-room hotel with associated parking at 1305 Maritime Way, Kanata, Ontario.

The study has been carried out to evaluate the impact potential of the surrounding noise environment on future receptors associated with the proposed development as well as the potential impact of noise generated by the development on existing noise sensitive receptors in the study area. This report also investigates the noise controls required for the development to abide by the noise guidelines of Ontario's Ministry of the Environment, Conservation and Parks (MECP) and to satisfy the requirements of the City of Ottawa. This report considers the MECP guideline NPC-300 "Stationary and Transportation Sources – Approval and Planning" (August 2013) and the City of Ottawa guideline "Environmental Noise Control Guidelines" ("ENCG") (September 2016).

The subject site is located on the north side of Maritime Way and approximately 115 m north of arterial roadway Kanata Avenue and 300 m northwest of Highway 417. Adjacent land uses include hotels and residences immediately north, east and south of the site on Canadian Shield Avenue and Maritime Way.

The dominant road traffic sources in the subject study area are Maritime Way, Kanata Avenue and Highway 417. The dominant stationary noise sources are mechanical rooftop equipment serving the existing neighbouring hotels and residences. Mechanical equipment proposed for the subject site has also been considered. The study area is not significantly affected by rail traffic or aircraft traffic.

Figure 1 provides a key plan showing the proposed development location. Figure 2 shows the concept plan of the proposed development, including the critical noise sensitive receptors.

2 Guidelines and Criteria

2.1 Transportation Noise – Outdoor Living Area (OLA)

MECP guidelines and the ENCG state that equivalent noise levels (L_{eq}-16hr) in outdoor living areas should not exceed 55 dBA. If it is not technically, economically, or administratively feasible to achieve a level of 55 dBA, predicted noise levels between 55 dBA and 60 dBA may be acceptable at the discretion of the City of Ottawa. Noise levels above 60 dBA are generally not acceptable and will warrant noise control measures.

All unenclosed balconies that are less than 4 m in depth and outside the exterior of the building façade are exempt from meeting the MECP outdoor noise criteria with regards to

transportation noise sources. Should the depth of the future balconies and terraces be greater than 4 m, they will be subject to the MECP noise level limit of 55 dBA.

2.2 Transportation Noise – Indoor Living Spaces

Hotel sleeping quarters are required to meet an indoor road traffic noise level (L_{eq}-8hr) of 45 dBA during nighttime hours only. The indoor daytime noise level (L_{eq}-16hr) must not exceed 45 dBA in individual or semi-private offices, conference rooms and reading rooms, or 50 dBA inside general offices and reception areas. To achieve these levels, the MECP guidelines provide a basis for the types of windows, exterior walls, and doors that will be required based on projected outdoor noise levels.

The MECP guidelines also provide recommendations for the installation of or provision for adding central air conditioning to newly constructed dwellings depending on the outdoor transportation noise levels. An assessment against this aspect of the guidelines has not been conducted since central air conditioning is typically provided to hotel developments as a matter of course.

The required limits as per NPC-300 are summarized in Table 1.

Table 1: Noise Limits Due to Road Traffic

Type of Space	Time Period	Maximum L_{eq} (dBA) Road Traffic
General offices, reception areas, retail stores (Indoor)	07:00 – 23:00	50 dBA
Individual or semi-private offices, conference rooms, reading rooms (Indoor)	07:00 – 23:00	45 dBA
Sleeping quarters of hotels/motels (Indoor)	23:00 – 07:00	45 dBA
Outdoor Living Areas (OLA)	07:00 – 23:00	55 dBA

2.3 Stationary Noise Sources

For sound from a stationary source, the NPC-300 sound level limit at a point of reception, expressed in terms of the one-hour equivalent sound level (L_{eq}-1hr), is the higher of the applicable exclusion limit value given in Table 2, or the background sound level for that point of reception. Owing to the subject site's proximity to the 416/417 corridor and in accordance with the ENCG, it is located within a Class 1 area in which background sound levels are dominated by the activities of people, usually road traffic. For conservatism and simplicity, the exclusion limit values have been used for this assessment although they are likely exceeded by the background sound level at receptors most exposed to noise from road traffic.

Table 2: Noise Exclusion Limits – Stationary Noise Sources – Class 1

Time of Day	Sound Level Exclusion Limit* Class 1 Area
	Outdoor Points of Reception
Day (07:00 to 19:00)	50 dBA
Evening (19:00 to 23:00)	50 dBA
	Plane of Window of Noise Sensitive Spaces
Day (07:00 to 19:00)	50 dBA
Evening (19:00 to 23:00)	50 dBA
Night (23:00 to 07:00)	45 dBA

*or the minimum existing hourly background sound level L_{eq}, whichever is higher

The outdoor sound level limits for stationary sources apply only to daytime and evening hours, while sound level limits apply at all times for the Plane of Window of a noise sensitive space. In general, outdoor points of reception will be protected during the nighttime as a consequence of meeting the sound level limits at the adjacent Plane of Window of noise sensitive spaces.

For Class 1 areas, the Plane of Window limits apply to a window that is assumed to be open. Inoperable windows associated with noise sensitive spaces in noise sensitive commercial buildings including hotels are generally not considered points of reception and thus not subject to sound level limits.

The sound level limits listed in Table 2 for an outdoor point of reception define the point of reception as any area that is amenable for use by residents and do not apply to outdoor locations associated with a noise sensitive commercial purpose including hotels. The sound level limit is also valid for a point of reception location at the centre of the plane of a residential window.

3 Noise Level Predictions

3.1 Road Traffic Noise

3.1.1 Road Traffic Noise Calculations Procedure

The dominant road traffic noise sources in the subject study area are Maritime Way, Kanata Avenue and Highway 417. Neighbouring local roads Great Lakes Avenue and Canadian Shield Avenue are considered acoustically insignificant due to their low traffic volumes.

Road traffic noise level calculations were performed in accordance with the MECP guidelines and ENCG using the Ontario Road Noise Analysis Method for Environment and Transportation (ORNAMENT). Sample copies of the traffic noise predictions from MECP's

Road and Rail Traffic Noise Prediction Model STAMSON (Version 5.04) are included in Appendix B.

The equivalent sound levels (L_{eq}) due to road traffic were calculated at worst-case noise sensitive receptors on the west, east and south façades of the proposed development. No calculations were made for outdoor amenity areas as none are shown on the current Site Plan shown in Appendix A. Calculations were performed for both daytime and nighttime conditions.

3.1.2 Road Traffic Data

Road traffic noise predictions were based on the road traffic data outlined in Table 3.

Road traffic volume counts and truck percentages for Kanata Avenue and Highway 417 were based on the relevant values of ENCG Appendix B: Table of Traffic and Road Parameters to be Used for Sound Level Predictions. In both cases, these values were confirmed to be more conservative than those extrapolated from data provided by the City of Ottawa and the Province of Ontario.

Since ENCG Appendix B does not provide data inputs for local roadway classes, volume counts and heavy vehicle percentages for Maritime Way were based on data provided by the City of Ottawa. Per MECP guidance, volumes were escalated by 2% per annum for a 10-year period following the estimated completion of the development to establish an ultimate AADT.

Copies of the correspondence and received data are included in Appendix B. Receptor locations and exposure angles to each road segment are shown in Figures B1 to B4.

Table 3: Road Traffic Volumes

	Maritime Way	Kanata Avenue	Highway 417
Implied Roadway Class	Local	4-Lane Urban Arterial-Undivided (4-UAU)[1]	Freeway, Queensway, Highway
24-hour Volume (Current AADT)	3,472	-	-
24-hour Volume (Ultimate AADT)	4,581	30,000	146,664 (18,333 per lane)
No. of Lanes	2	4[1]	8
Day/Night Split (%)	92/8[2]	92/8	92/8
Percentage of Trucks (%)	3.5[3]	12	12
Medium/Heavy Split (%)	50/50[2]	58/42	58/42
Grade (%)	0	0	0
Posted Speed (km/hr)	40	50	100

[1]Kanata Avenue is to be widened from two lanes to four lanes per Table A3 of the City of Ottawa Transportation Master Plan (November 2013) and has been considered as such for the purpose of this assessment
[2]Assumed values
[3]Based on total number of "heavy vehicles" reported in City study

3.2 Stationary Noise

3.2.1 Stationary Noise Calculation Procedure

The stationary noise source prediction model was generated using Datakustik's CadnaA Noise Prediction Software. This model is based on established noise prediction methods outlined in the ISO 9613-2 standard "Acoustic – Attenuation of sound during propagation outdoors – Part 2: General method and calculation". Noise levels were predicted using conditions of downwind propagation, generally with hard ground in paved areas. The worst-case receptor heights for the proposed residential tower were determined using the Building Evaluation tool.

3.2.2 Impact on Development

For the purpose of this assessment, it has been assumed that hotel suites will feature operable windows which are therefore subject to the sound level limits as set out in Section 2.3.

The dominant noise sources expected to impact the subject site are rooftop mechanical equipment serving the surrounding residence and hotels as indicated on Figure 3. The following stationary noise sources have been identified based on a review of recent satellite imagery and Aercoustics' experience of conducting similar studies:

- 15 ton HVAC unit serving 1100 Canadian Shield Avenue (S01)
- 5 ton HVAC unit serving 1100 Canadian Shield Avenue (S02)

- 10 ton HVAC unit serving 1100 Canadian Shield Avenue (S03)
- 20 ton HVAC unit serving 1251 Maritime Way (S04)
- 10 ton HVAC unit serving 1250 Maritime Way (S05)
- 10 ton HVAC unit serving 1250 Maritime Way (S06)

A 100% daytime/evening and 50% nighttime duty cycle was assumed for each unit. Equipment sound power levels retrieved from Aercoustics' internal library are shown in Appendix C.

Any assumed equipment levels were conservative and are not expected to alter the conclusions of this study.

3.2.3 Impact from Development

The proposed rooftop heat recovery unit has been identified as the main item of mechanical equipment with potential to impact neighbouring noise sensitive receptors. It is understood that the unit will be oriented with the outside air intake and return air exhaust terminals facing east and west respectively as shown in Figure 4.

A 100% daytime and evening and 50% nighttime duty cycle has been assumed. Sound power levels for the supply fan inlet and return fan exhaust terminals have been based on those shown on equipment specification sheets provided by McIntosh Perry as shown in Appendix C. Sound power levels for the condenser fan bank have been based on typical levels retrieved from Aercoustics' internal library.

This above modelling assumptions should be confirmed once finalized mechanical drawings and equipment selections are available.

Additional stationary noise sources associated with the development are expected to have minimal additional impact. This should be confirmed once details of any further HVAC equipment, parking exhaust fans, cooling towers or emergency standby generator equipment becomes available.

<u>Development Self-Impact</u>

Noise sensitive receptors within the development itself at risk of being impacted by the heat recovery unit noise will be those directly below on the top floor. In this case the sound transmission path of concern will be that which occurs through the roof and ceiling assembly between the unit and point(s) of reception. Performance criteria for this transmission path are not addressed within NPC-300 and the ENCG however it is recommended that the sound isolation performance of the ceiling and roof construction be reviewed once available to ensure noise levels are kept within suitable limits.

4 Noise Predictions

4.1 Road Traffic Noise Predictions

Table 4 lists the predicted 16-hour daytime and 8-hour nighttime L_{eq} noise levels due to road traffic at noise sensitive locations within the development, labelled as locations C01 to C03 on Figure 2. Sample calculations are provided in Appendix B.

Table 4: Calculated Noise Levels Due to Road Traffic

Location	Height (m)	Road Segment	Distance (m)	Exposure (deg.)	L_{eq} (dBA)	
					Day	Night
C01 West Façade	16.5	Maritime (EW)	25	-40 to +30	62	55
		Maritime (NS)	15	-90 to -60		
		Kanata	115	+15 to +90		
		Highway 417 (N)	310	+50 to +90		
		Highway 417 (S)	345	+50 to +90		
C02 East Façade	16.5	Maritime (E)	65	-90 to -35	65	57
		Maritime (W)	30	-70 to -45		
		Highway 417 (N)	295	-90 to 0		
		Highway 417 (S)	330	-90 to 0		
C03 South Façade	16.5	Maritime (E)	55	-90 to -45	65	58
		Maritime (W)	15	-80 to +50		
		Kanata	100	+35 to +90		
		Highway 417 (N)	295	-90 to -15		
		Highway 417 (S)	330	-90 to -15		

4.2 Stationary Noise Predictions

4.2.1 Impact on Development

Table 5 lists the predicted worst-case daytime and nighttime 1-hour L_{eq} noise impacts at future receptors due to the stationary noise sources outlined in Section 3.2.2. Noise Impact contours are shown in Figure 5.

Table 5: Stationary Noise Impact on Development

Receptor	Daytime L_{eq} (dBA)			Nighttime L_{eq} (dBA)		
	Predicted	Limit	Exceedance	Predicted	Limit	Exceedance
R01	48	50	No	45	45	No
R02	46	50	No	43	45	No

4.2.2 Impact from Development

Table 6 lists the predicted worst-case daytime and nighttime 1-hour Leq noise impacts at existing neighbouring receptors due to the stationary noise sources outlined in Section 3.2.3. Noise impact contours are shown in Figure 6.

Table 6: Stationary Noise Impact from Development

Receptor	Daytime L_{eq} (dBA)			Nighttime L_{eq} (dBA)		
	Predicted	Limit	Exceedance	Predicted	Limit	Exceedance
R03	43	50	No	40	45	No
R04	42	50	No	39	45	No
R05	47	50	No	44	45	No

5 Noise Control Recommendations

5.1 Transportation Noise – Outdoor Living Areas

No OLAs are proposed on the current Site Plan. Further analysis will be required if they are introduced later in the design process.

5.2 Transportation Noise – Indoor Living Spaces

Indoor sound levels were examined with respect to MECP Guidelines as summarized in Section 2 of this report. Based on the predicted road traffic noise levels for receptor locations C01 to C03, standard exterior wall and window components that meet the requirements of the Ontario Building Code (OBC) will be sufficient for meeting the indoor sound level limits of Table 1.

5.3 Stationary Noise Sources – Impact on Development

As shown in Table 5, the MECP sound level limits are not predicted to be exceeded at any noise sensitive points of reception associated with the development. Therefore, no noise mitigation measures are required to address the impact of stationary noise sources on the development.

5.4 Stationary Noise Sources – Impact from Development

As shown in Table 6, the MECP sound level limits are not predicted to be exceeded at any noise sensitive points of reception in the vicinity of the development. Therefore, no noise mitigation measures are required based on the current design assumptions outlined in this report.

The noise impact contours as shown in Figure 6 indicate that increased noise impacts would be likely for any points of reception that are on-axis with either the outside air intake or return air exhaust terminals of the heat recovery unit. It is therefore recommended that the unit be orientated as modelled for this report to ensure that no additional mitigation is required.

6 Conclusions

The results of this study indicate that standard exterior wall and window components that meet the requirements of the Ontario Building Code (OBC) should be sufficient to achieve compliance with the MECP criteria for indoor sound levels due to road traffic.

Noise impacts on the proposed development from existing neighbouring stationary noise sources are predicted to be within the applicable stationary noise limits without any noise controls.

Based on the modelling assumptions set out in this study, no noise controls will be required to address impacts from the development's proposed heat recovery unit on its surrounding noise sensitive receptors.

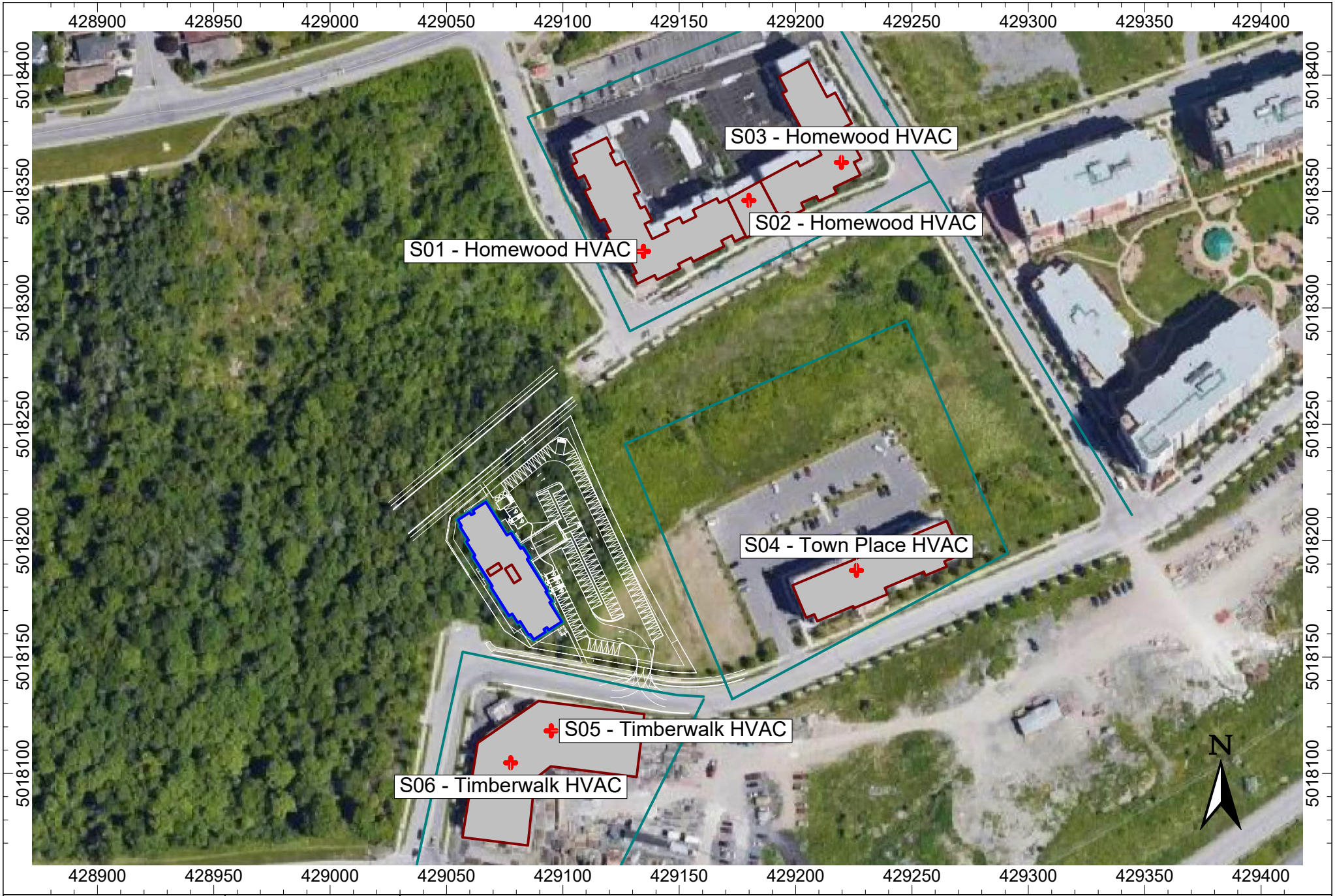
Further analysis should be conducted to confirm the noise impact of the development on itself when detailed information is available for the proposed roof and ceiling construction separating the heat recovery unit and top floor receptors.

aercoustics	Project ID: 21443.00 Scale: NTS Drawn by: SZ Reviewed by: KC Date: Feb 9, 2022 Revision: 1	**Project Name** 1305 Maritime Way **Figure Title** Key Plan

Figure 1

aercoustics	Project ID: 21443.00 Scale: NTS Drawn by: SZ Reviewed by: KC Date: Feb 9, 2022 Revision: 1	**Project Name** 1305 Maritime Way **Figure Title** Concept Plan & Assessment Locations

Figure 2



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Revision: 1

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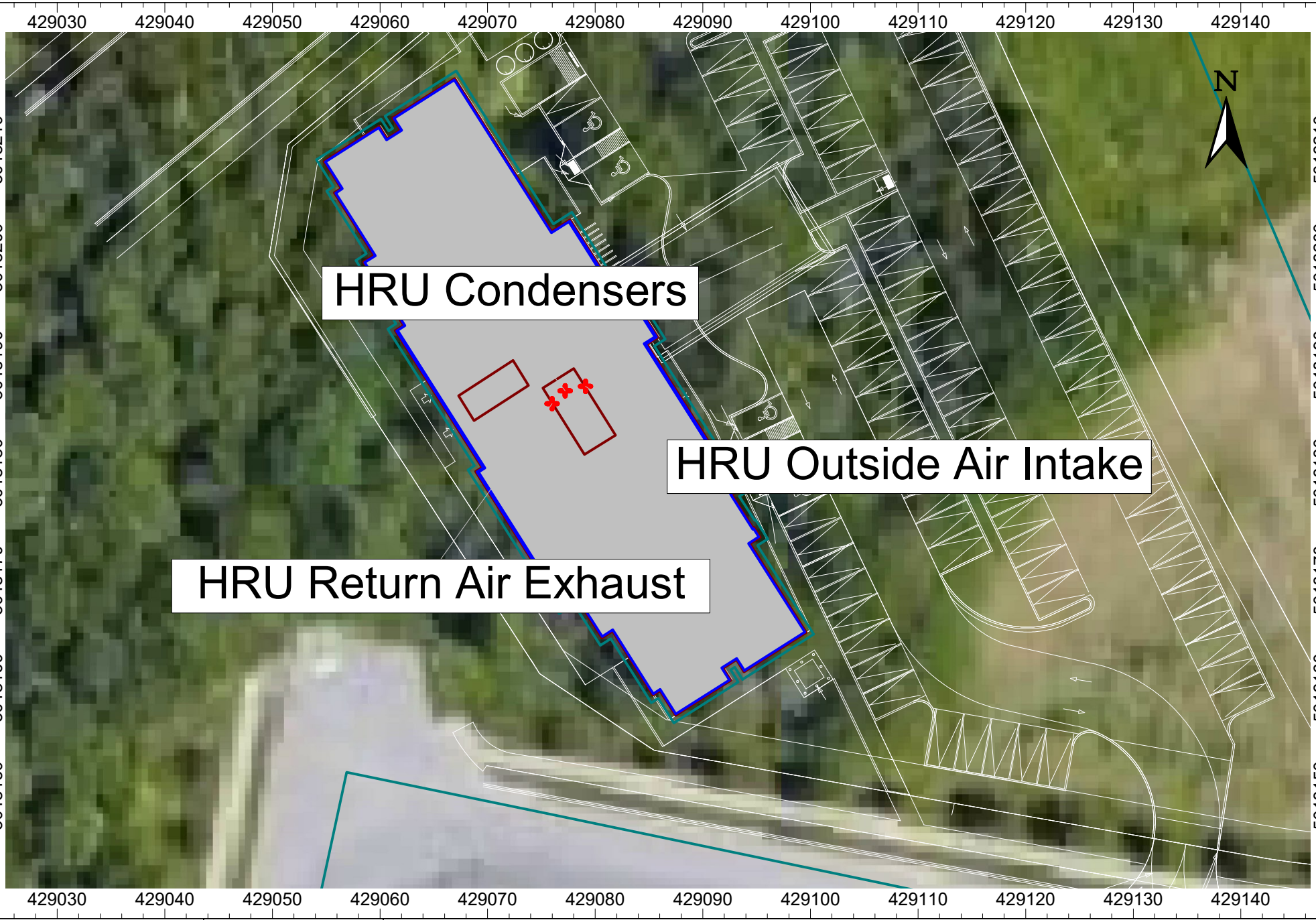
1305 Maritime Way

Figure Title

Existing Stationary Noise Sources

Figure 3



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Revision: 1

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Figure Title

Proposed Heat Recovery Unit Noise Source Locations

Figure 4

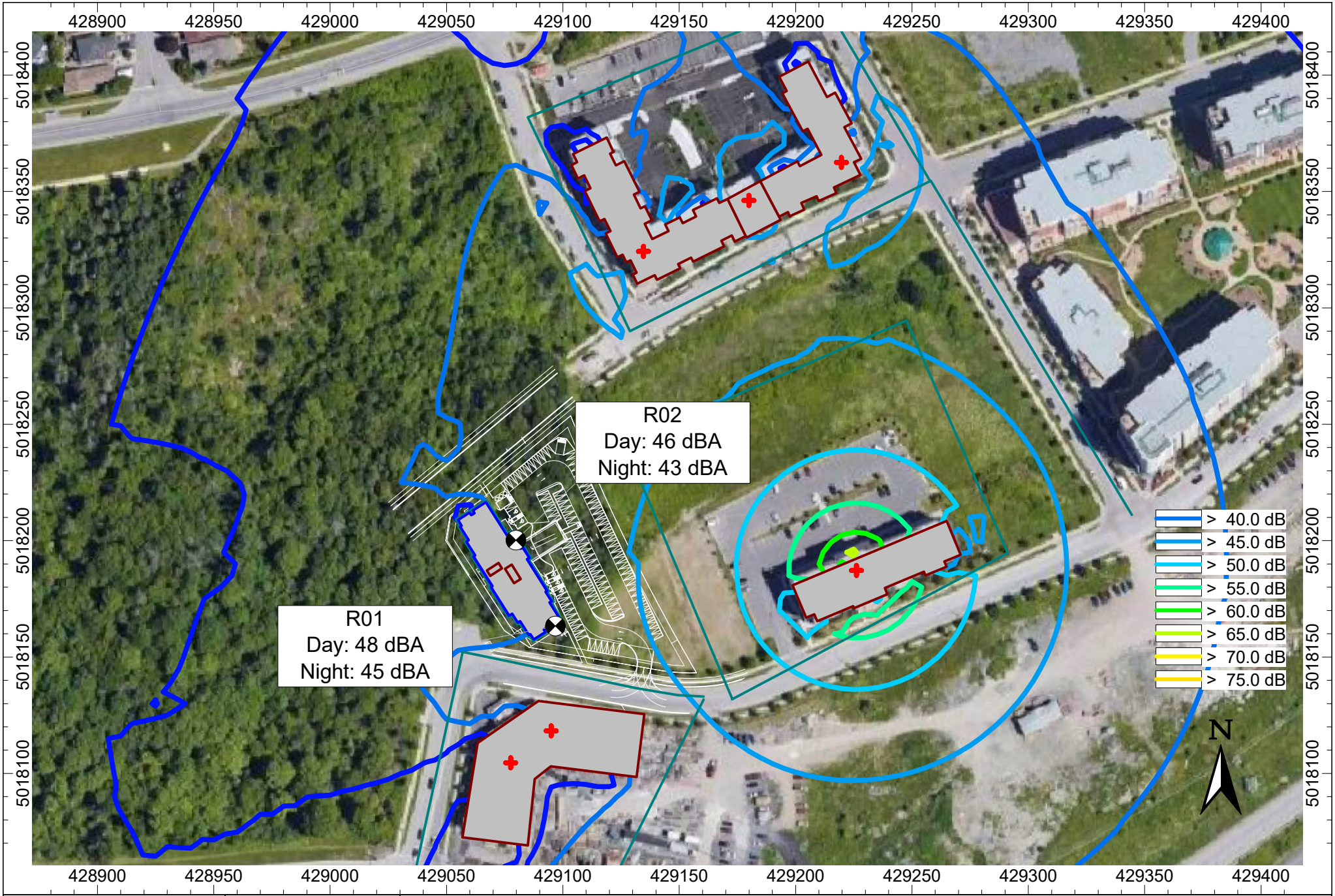

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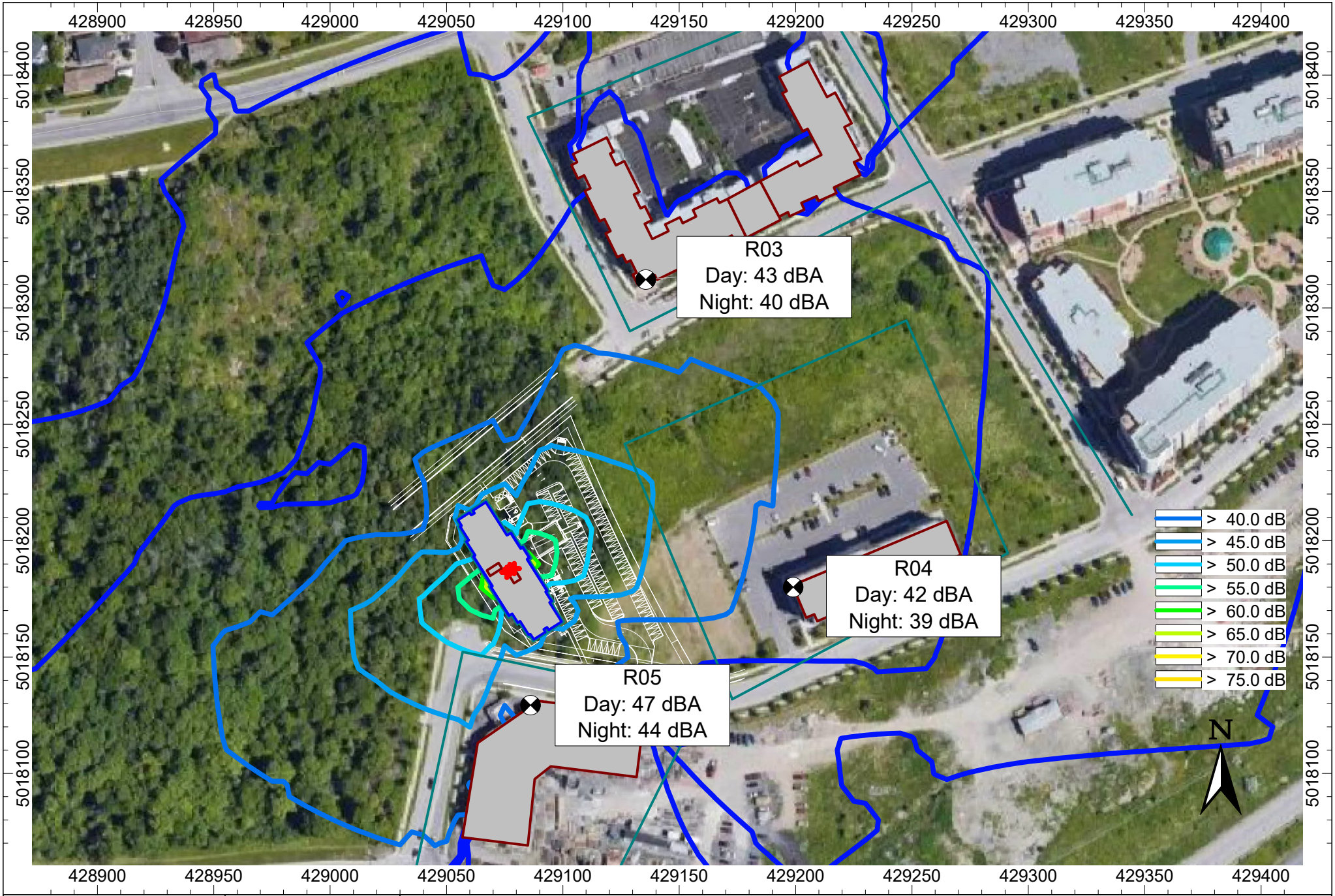
Figure Title

Noise Impact Contours (daytime) at 6th Storey Level

Figure 5



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Reviewed by: KC
Date: Feb 9, 2022
Revision: 1

Project Name

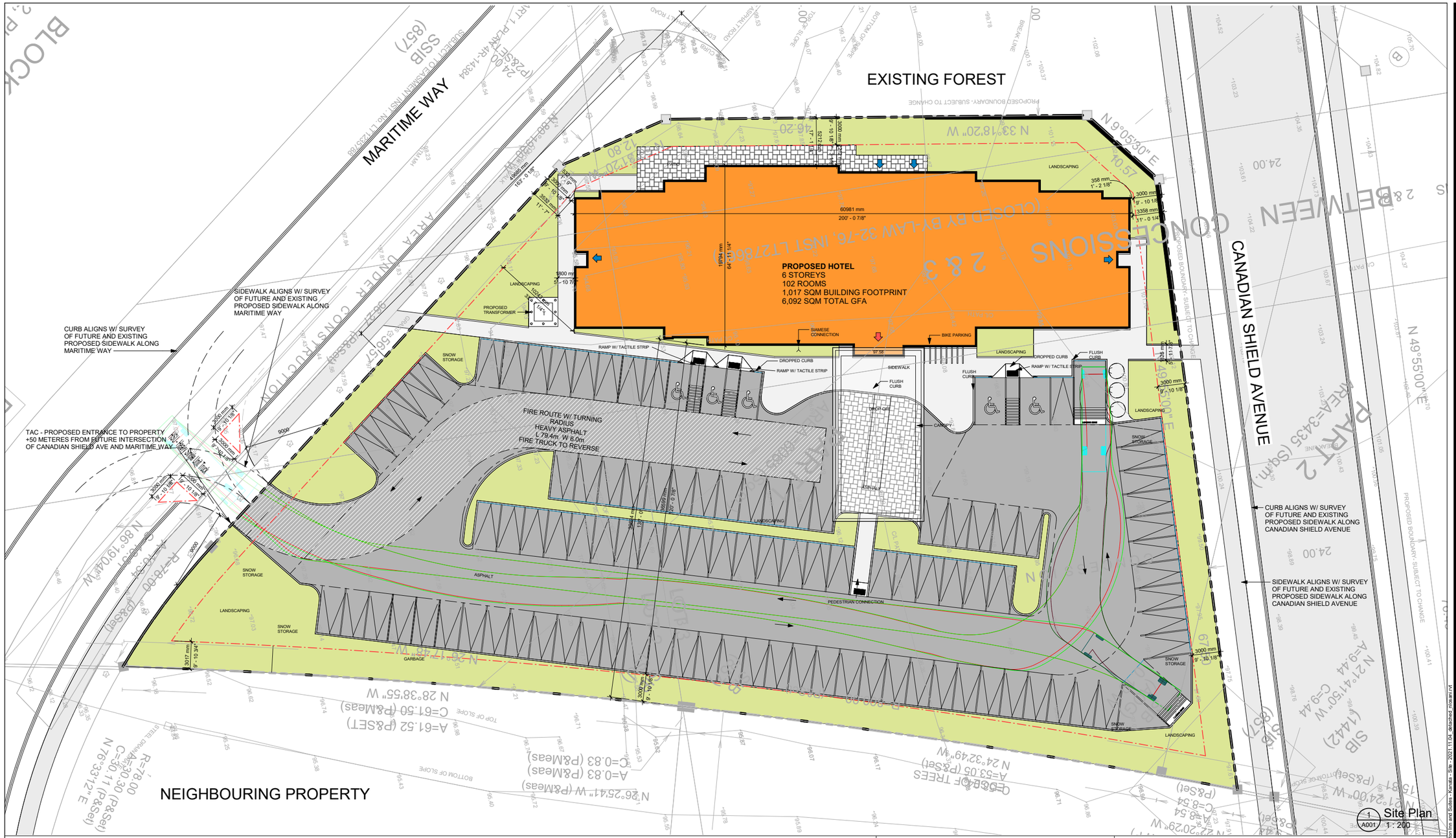
1305 Maritime Way

Figure Title

Noise Impact Contours at 1.5 m Above 1305 Maritime Way Roof Level (daytime)

Figure 6

Appendix A
Site Plan & Drawings



1 Site Plan
A001 1 : 200

GENERAL PROVISIONS
ZONE MC5 H[35] – 200 - 250 CONSOLIDATION – PART 10 MIXED USE
OTTAWA ZONING BY-LAW NO. 2017-295

LEGAL DESCRIPTION
KANATA AVENUE PIN 04507-0826 PART 2, PLAN 4R-9182
*NOTE: BETWEEN CONCESSIONS 2 & 3

ZONING DATA	REQUIRED	PROVIDED
LOT WIDTH	NONE	NONE
LOT AREA	NONE	1,017 SQM
FSI	NONE	96%
SETBACKS		
• FRONT YARD	NONE	39.3
• REAR YARD	6.0m	6.0m
• INTERIOR SIDE YARD	3.5M	3.5M
• CORNER SIDE YARD	NONE	NONE
LANDSCAPE BUFFER		
• NOT ABUTTING A STREET	1.5m	1.5m
• ABUTTING A STREET	3.0m	3.0m
BUILDING HEIGHT EMPLOYMENT	11m	11m

PARKING REQUIRMENTS

COUNT

- **HOTEL**
  = 1 BEDROOM = 1.0 PARKING SPOT
  = 102 BEDROOM
  = 102 PARKING SPOTS

TOTAL PARKING REQUIRED = 102 PARKING SPOTS

SIZES:

- TYPICAL PARKING
  = 2.6 X 5.2
- ACCESSIBLE PARKING
  = TYPE A : 3.6 X 5.2

*NOTE: 10m MIN FRONT YARD & CORNER SIDE YARD SETBACK FOR SURFACE PARKING

BICYCLE SPOTS:

= 1 PER 1000 SQM OF GROSS FLOOR AREA
= 6,092/ 1000
= 6.092 (7)

TOTAL REQUIRED BICYCLE SPOTS = 7

SITE STATISTICS (ACRES)			
DESCRIPTION	AREA (SM)	AREA (SF)	PERCENTAGE
BUILDING FOOTPRINT			
BUILDING FOOTPRINT	1069.83 m²	11516 ft²	17.2%
	1069.83 m²	11516 ft²	17.2%
HARD LANDSCAPE			
ASHPALT	3020.25 m²	32510 ft²	48.5%
CURB	69.50 m²	748 ft²	1.1%
PAVER	200.55 m²	2159 ft²	3.2%
SIDEWALK	351.34 m²	3782 ft²	5.6%
	3641.64 m²	39198 ft²	58.5%
SOFT LANDSCAPE			
LANDSCAPE	1510.92 m²	16263 ft²	24.3%
	1510.92 m²	16263 ft²	24.3%
OVERALL SITE	6073.58 m²	65375 ft²	100.0%

BLDG COVERAGE = BLDG FOOTPRINT / TOT SITE
= 1,016.95 m² / 6,080 m²
= 0.17 (17%)

SITE COVERAGE = LANDSCAPE / TOT SITE
= 5,063.05 m² / 6,080 m²
= 0.83(83%)

FSI = TOT BLDG GFA/ TOTSITE
= 6,092/ 6080.13
= 1.00 (100%)

PARKING SCHEDULE		
TYPE	DESCRIPTION	COUNT
ACCESSIBLE STALL	5.2m x 3.6m	5
TYPICAL STALL	5.2m x 2.6m	97
TOTAL		102
LOADING	3.5m x 7.0m	2
BIKE - HORIZONTAL	1.8 x 0.6m	7

NOTES:

- BUILDING PERMIT ISSUANCE SHALL BE SUBJECT TO THE BUILDING PERMIT DRAWINGS NOT BEING IN CONTRAVENTION WITH THESE APPROVED PLANS AND DRAWINGS INCLUDING, BUT NOT LIMITED TO, THE EXTERIOR DESIGN OF THE BUILDING AND THE EXTERIOR BUILDING MATERIALS.
- PROPOSED FIRE ROUTE SHALL PROVIDE LOAD SUPPORT SUFFICIENT TO SUPPORT THE EXPECTED LOADS IMPOSED BY FIRE FIGHTING EQUIPMENT AND MEET THE REQUIRMENTS OF THE CANADIAN HIGHWAY BRIDGE CODE, CAN/CSA-6S6, AND SHALL BE SURFACED IN ORDER TO BE ACCESSIBLE UNDER ALL CLIMATIC CONDITIONS.
- THE OWNER SHALL INCLUDE ON THE SITE SERVICING DRAWING THE LOCATION OFF ALL STORMWATER COLLECTION PIPE MONITORING SYSTEMS, TO THE SATISFACTION OF THE EXECUTIVE DIRECTOR, ENGINEERING AND CONSTRUCTION SERVICES IN CONSULTATION WITH THE GENERAL MANAGER, " THE CITY OF VAUGHAN WATER SERVICES DEPARTMENT"

NOTES:

- IT IS RESPONSIBILITY OF THE APPLICANT TO COMPLY WITH THE SEWER USE BY-LAW AND OBTAIN ALL APPROVALS/PERMITS FROM THE CITY OF OTTAWA WATER SERVICES DEPARTMENT FOR ANY PROPOSED TEMPORARY OR PERMANENT DISCHARGE OF GROUNDWATER INTO THE MUNICIPAL SEWER SYSTEMS AND WATERCOURSES;
- THE APPLICANT IS ALSO RESPONSIBLE FOR COMPLYING WITH ALL APPLICABLE PROVINCIAL REQUIRMENTS AND OBTAINING THE NECESSARY APPROVALS AND/OR PERMITS FROM THE MINISTRY OF THE ENVIRONMENT & CLIMATE CHANGE WITH REGARD TO ANY PROPOSED DEWATERING;
- ALL TREE PRESERVATION WITHIN THE RIGHT OF WAY LANDS SHALL BE IN ACCORDANCE WITH LANDSCAPE DRAWINGS AND TREE PRESERVATION DRAWINGS AND REPORTS, APPROVED BY CITY OF OTTAWA'S URBAN FORESTS;
- PRIOR TO COMMENCING ANY WORK WITHING THE RIGHT OF WAY, THE CONTRACTOR, DEVELOPER, OR CONSULTANT WILL OBTAIN ALL NECESSARY ROAD OCCUPANCY PERMITS FROM THE CITY'S RIGHT OF WAY MANAGEMENT UNIT;
- STAFF HAS REVIEWED THE APPLICATION ON THE UNDERSTANDING IT WILL COMPRISE A SINGLE PARCEL OF LAND, UNDER ONE OWNER, UPON COMPLETION. IF ANY PARTY, INCLUDING THE APPLICANT ARE ANY SUBSEQUENT OWNER, SUBMITS AN APPLICATION FOR SEVERANCE, PART-LOT CONTROL,SUBDIVISION, CONDOMINIUM APPROVAL OR ANY OTHER FORM OF THE LAND DIVISON FOR THIS DEVELOPMENT NOT IN ACCORDANCE WITH THIS ASSUMPTIO, DIFFERENT SERVICING CONNECTIONS, INCLUDING ALL ASSOCIATED STORMWATER MANAGEMENT FACILITIES AND ANY NECESSARY REVISED PLANS AND STUDIES, MAY BE REQUIRED BY THE CITY AT THE SOLE COST TO THAT APPLICANT
- REFER TO THE APPROVED ENGINEERING DRAWINGS FOR THIS SUBJECT SITE, PREPARED BY ARCHITECTURE INC. FOR ALL SITE SERVICING AND ABOVE GROUND CONNECTIONS INFORMATION.
- ALL CONC. BASES TO BE ARCHITECTURAL BASE I. FLAG POLE, LIGHT POST, ETC.

- PROPOSED BUILDING
- LANDSCAPE
- ASPHALT DRIVEWAY
- CONCRETE CURB
- CONCRETE SIDEWALK
- PAVERS
- MULCH/ WOODCHIPS
- PAINTED ROAD LINES
- WOOD DECKING
- 6m WIDE FIRE ROUTE WITH HEAVY DUTY ASPHALT
- SIAMESE CONNECTION
- LIGHT STANDARD
- PROPOSED FIRE HYDRANT
- DEPRESSED CURB
- NO PARKING SIGN FOR FIRE ROUTE, IN ACCORDANCE WITH THE CITY OF WELLAND SIGN BY-LAW AND OBC
- SETBACKS
- PROPERTY LINE
- HANDICAP PARKING
- MOLLUK
- MH MANHOLE
- CB CATCHBASIN
- CU PROPOSED MECHANICAL CONDENSING UNIT ON CONCRETE HOUSEKEEPING PAD - SEE MECH DWGS
- PROPOSED PAD MOUNTED TRANSFORMER (REFER TO ELECTRICAL DRAWINGS
- MAIN ENTRANCE
- SECONDARY ENTRANCE
- SERVICE ENTRANCE

Chamberlain
Architects
Constructors
Managers

Chamberlain Architect Services Limited

4671 Palladium Way (Unit 1)
Burlington, Ontario. L7M 0W9
CANADA

Phone: 905.631.7777

www.chamberlainIPD.com

NO.	ISSUED	DATE
1	FOR COORDINATION	2019.09.23
2	SITE PLAN APPROVAL	2021.04.21
3	PRE CONSULTATION	2021.08.04

SEAL

ONTARIO ASSOCIATION OF ARCHITECTS
STEPHEN A. MAURO
LICENCE
6514

CONSTRUCTION NORTH

TRUE NORTH

KANATA HAMPTON INN & SUITES

Hampton by HILTON

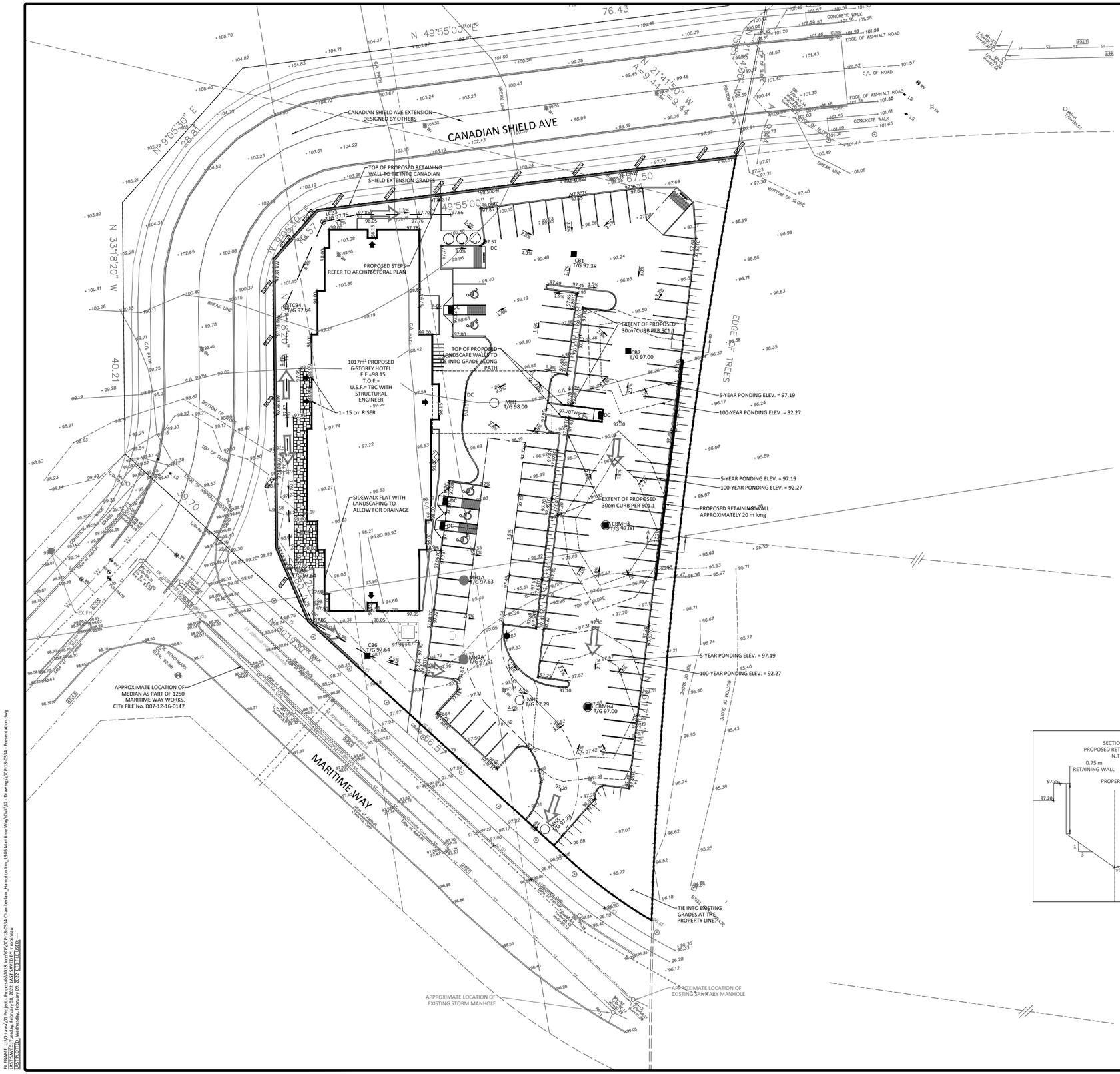
1251 MARITIME WAY,
KANATA, ON

SHEET NAME

SITE PLAN

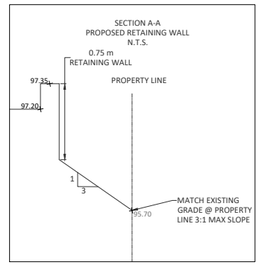
START DATE	SEPT 19, 2019
DRAWN BY	LGJ, DM, MOR,NAL
CHECKED BY	SM
SCALE	As indicated
PROJECT NO.	117079
DRAWING	A001

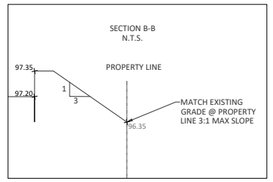
C:\Users\nkaan\Documents\117079 - Hampton Inn and Suites - Kanata - Site - 2021.11.04_detached_nkaan.rvt
11/5/2021 12:46:47 PM

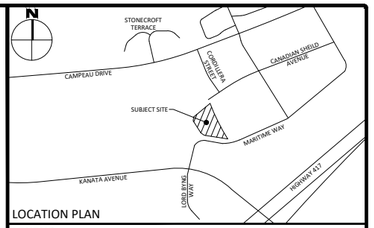


GENERAL NOTES

1. THE ORIGINAL TOPOGRAPHY, GROUND ELEVATION AND SURVEY DATA SHOWN ARE SUPPLIED FOR INFORMATION PURPOSES ONLY, AND IMPLY NO GUARANTEE OF ACCURACY. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY ALL INFORMATION SHOWN.
2. THIS PLAN IS NOT A CADASTRAL SURVEY SHOWING LEGAL PROPERTY BOUNDARIES AND EASEMENTS. THE PROPERTY BOUNDARIES SHOWN HEREON HAVE BEEN DERIVED INFORMATION SUPPLIED BY (OR SHOWN ON) J.D. BARNES LTD.. JOB No. 18-10-115-00, DATED OCTOBER 16, 2018 AND CANNOT BE RELIED UPON TO BE ACCURATE OR COMPLETE. THE PRECISE LOCATION OF THE CURRENT PROPERTY BOUNDARIES AND EASEMENTS CAN ONLY BE DETERMINED BY AN UP-TO DATE LAND TITLES SEARCH AND A SUBSEQUENT CADASTRAL SURVEY PERFORMED AND CERTIFIED BY AN ONTARIO LAND SURVEYOR.
3. ELEVATIONS SHOWN DERIVED FROM INFORMATION SUPPLIED BY (OR SHOWN ON) J.D.BARNES LTD. JOB No. 18-10-115-00, DATED OCTOBER 16, 2018 WERE ESTABLISHED USING GLOBAL POSITIONING SYSTEM (GPS) EQUIPMENT TO ESTABLISH ELLIPSOIDAL HEIGHTS. ELIPSOIDAL HEIGHTS WERE TRANSFORMED TO CGVD-1928 DATUM (GEODETIC) USING THE FEDERAL HT2.0 HEIGHT TRANSFORMATION MODEL.
4. THE CONTRACTOR IS TO OBTAIN AND PAY FOR ALL NECESSARY PERMITS AND APPROVALS FROM THE CITY OR TOWNSHIP BEFORE COMMENCING CONSTRUCTION.
5. THE CONTRACTOR IS RESPONSIBLE FOR ALL LAYOUT.
6. THE CONTRACTOR IS TO DETERMINE THE EXACT LOCATION, SIZE, MATERIAL AND ELEVATION OF ALL EXISTING UTILITIES PRIOR TO COMMENCING CONSTRUCTION. PROTECT AND ASSUME ALL RESPONSIBILITY FOR EXISTING UTILITIES WHETHER OR NOT SHOWN ON THESE DRAWINGS. IF THERE IS ANY DISCREPANCY THE CONTRACTOR IS TO NOTIFY THE ENGINEER PROMPTLY.
7. RESTORE ALL TRENCHES AND SURFACES OF PUBLIC ROAD ALLOWANCES TO CONDITION EQUAL OR BETTER THAN ORIGINAL CONDITION AND TO THE SATISFACTION OF THE CITY OR TOWNSHIP AUTHORITIES.
8. EXCAVATE AND DISPOSE OF ALL EXCESS EXCAVATED MATERIAL, SUCH AS ASPHALT, CURBING AND DEBRIS, OFF SITE AS DIRECTED BY THE ENGINEER AND THE CITY OR TOWNSHIP.
9. TOPSOIL TO BE STRIPPED AND STOCKPILED FOR REHABILITATION. CLEAN FILL TO BE PLACED IN FILL AREAS AND COMPACTED TO 95% STANDARD PROCTOR DENSITY.
10. CONTRACTOR IS RESPONSIBLE TO KEEP ROAD FREE AND CLEAN FROM MUD OR DEBRIS.
11. ALL DISTURBED AREAS TO BE RESTORED TO ORIGINAL CONDITION OR BETTER UNLESS OTHERWISE SPECIFIED.
12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TRAFFIC CONTROL AND SAFETY MEASURES DURING THE CONSTRUCTION PERIOD, INCLUDING THE SUPPLY, INSTALLATION, AND REMOVAL OF ALL NECESSARY SIGNAGE, DELINEATORS, MARKERS AND BARRIERS.
13. DO NOT ALTER GRADING OF THE SITE WITHOUT PRIOR APPROVAL OF THE CITY OR TOWNSHIP.
14. ALL ROADWAY, PARKING LOT, AND GRADING WORKS TO BE UNDERTAKEN IN ACCORDANCE WITH CITY OR TOWNSHIP STANDARDS AND SPECIFICATIONS. THE CONTRACTOR IS TO PROVIDE POSITIVE DRAINAGE AWAY FROM THE BUILDING.
15. CONTACT THE CITY OR TOWNSHIP FOR INSPECTION OF ROUGH GRADING OF PARKING LOTS, ROADWAYS AND LANDSCAPED AREAS PRIOR TO PLACEMENT OF ASPHALT AND TOPSOIL. ALL DEFICIENCIES NOTED SHALL BE RECTIFIED TO THE CITY OR TOWNSHIP SATISFACTION PRIOR TO PLACEMENT OF ANY ASPHALT, TOPSOIL, SEED & MULCH AND/OR SOD.
16. ALL DIMENSIONS AND INVERTS MUST BE VERIFIED PRIOR TO CONSTRUCTION, IF THERE IS ANY DISCREPANCY THE CONTRACTOR IS TO NOTIFY THE ENGINEER PROMPTLY.
17. ELECTRICAL, GAS, TELEPHONE AND TELEVISION SERVICE LOCATIONS ARE SUBJECT TO THE INDIVIDUAL AGENCY:
    - ELECTRICAL SERVICE - HYDRO OTTAWA,
    - GAS SERVICE - ENBRIDGE,
    - TELEPHONE SERVICE - BELL CANADA,
    - TELEVISION SERVICE - ROGERS.
17. INSTALLATION TO BE IN ACCORDANCE WITH CURRENT CODES AND STANDARDS OF APPROVAL AGENCIES HYDRO OTTAWA, BELL AND THE CITY OR TOWNSHIP.
18. ALL PROPOSED CURB SHALL BE CONCRETE BARRIER CURB UNLESS SPECIFIED.
19. ALL EXISTING REDUNDANT PRIVATE APPROACHES FRONTING THIS DEVELOPMENT MUST BE REMOVED TO THE SATISFACTION OF THE CITY OR TOWNSHIP.
20. NO EXCESS DRAINAGE, EITHER DURING OR AFTER CONSTRUCTION, WILL BE DIRECTED TOWARDS NEIGHBOURING PROPERTIES.
21. NO ALTERATION OF EXISTING GRADES AND DRAINAGE PATTERNS ON PROPERTY BOUNDARIES AS PER CITY OF OTTAWA SITE ALTERATION BY-LAW 2018-164.
22. THIS PLAN MUST BE READ IN CONJUNCTION WITH GEOTECHNICAL REPORT BY McINTOSH PERRY REPORT #CP-18-0056, DATED MAY 2018 AND THE SITE SERVICING REPORT BY McINTOSH PERRY REPORT #CP-18-0534, DATED AUGUST 2019.







LOCATION PLAN

LEGEND

BARRIER CURB / DEPRESSED CURB (DC)	SILT FENCE (AS PER OPSD 219.130)
MOUNTABLE CURB	STRAW BALE CHECK DAM (AS PER OPSD 219.180)
EASEMENT	SIAMESE CONNECTION
MH7 STORM MANHOLE	
CB6 DI6 CATCHBASIN OR DITCH INLET c/w 3.0m SUBDRAIN STUBS	
CBMH# T/G CATCHBASIN MANHOLE	
ECB4 TCB4 LANDSCAPE CATCHBASIN	
PERFORATED PIPE	
MH7A SANITARY MANHOLE	
WATER VAVLE/CHAMBER	
FIRE HYDRANT	
CENTRELINE OF SWALE	
SLOPING AT 3:1 (UNLESS SPECIFIED)	
100.35 / 99.52 PROPOSED ELEVATION / EXISTING ELEVATION	
100.20 TW SWALE ELEVATION	
TW/100.50 B/W/99.50 TOP OF WALL ELEVATION / BOTTOM OF WALL ELEVATION	
100.50 PROPOSED CANADIAN SHIELD AVE EXTENSION ELEVATION	
EMERGENCY OVERLAND FLOW ROUTE	
RETAINING WALL	

FOR REVIEW ONLY
NOT FOR CONSTRUCTION

No.	Revisions	Date
1	ISSUED FOR REVIEW	

Check and verify all dimensions before proceeding with the work — Do not scale drawings

SCALE 1 : 300
0 5 10 15 20 25 30 Metres

McINTOSH PERRY
115 Walgreen Road, RR3, Carp, ON K0A 1L0
Tel: 613-836-2184 Fax: 613-836-3742
www.mcintoshperry.com

Stamp:

Client:
SILVER HOTELS (KANATA) INC
100 DIDSBURY ROAD #77
OTTAWA, ON K2T 0C2

Project:
PROPOSED 6-STOREY HOTEL
1305 MARITIME WAY
OTTAWA, ON

Drawing Title:
SITE GRADING AND DRAINAGE PLAN

Scale: 1:300	Project Number: CCO-18-0534
Drawn By: R.R.R.	
Checked By: A.J.G.	Drawing Number: C101
Designed By: A.J.G,	

FILENAME: L:\Ottawa\01 Project - Projects\2018 Jobs\CP\CP-18-0534 Chamberlain_Hampton Inn_1305 Maritime Way\Civil\12 - Drawings\CP-18-0534 - Presentation.dwg
LAST SAVED: Tuesday, February 09, 2022 LAST SAVED BY: r.robineau
LAST PLOTTED: Wednesday, February 09, 2022 PLOTTED BY:

Appendix B
Road Traffic Data & Sample Calculations

Appendix B: Table of Traffic and Road Parameters To Be Used For Sound Level Predictions

Table B1 Traffic And Road Parameters To Be Used For Sound Level Predictions

Row Width (m)	Implied Roadway Class	AADT Vehicles/Day	Posted Speed Km/Hr	Day/Night Split %	Medium Trucks %	Heavy Trucks % [1]
NA [2]	Freeway, Queensway, Highway	18,333 per lane	100	92/8	7	5
37.5-44.5	6-Lane Urban Arterial-Divided (6 UAD)	50,000	50-80	92/8	7	5
34-37.5	4-Lane Urban Arterial-Divided (4-UAD)	35,000	50-80	92/8	7	5
23-34	4-Lane Urban Arterial-Undivided (4-UAU)	30,000	50-80	92/8	7	5
23-34	4-Lane Major Collector (4-UMCU)	24,000	40-60	92/8	7	5
30-35.5	2-Lane Rural Arterial (2-RAU)	15,000	50-80	92/8	7	5
20-30	2-Lane Urban Arterial (2-UAU)	15,000	50-80	92/8	7	5
20-30	2-Lane Major Collector (2-UMCU)	12,000	40-60	92/8	7	5
30-35.5	2-Lane Outer Rural Arterial (near the extremities of the City) (2-RAU)	10,000	50-80	92/8	7	5
20-30	2-Lane Urban Collector (2-UCU)	8,000	40-50	92/8	7	5

[1] The MOE Vehicle Classification definitions should be used to estimate automobiles, medium trucks and heavy trucks.

[2] The number of lanes is determined by the future mature state of the roadway.

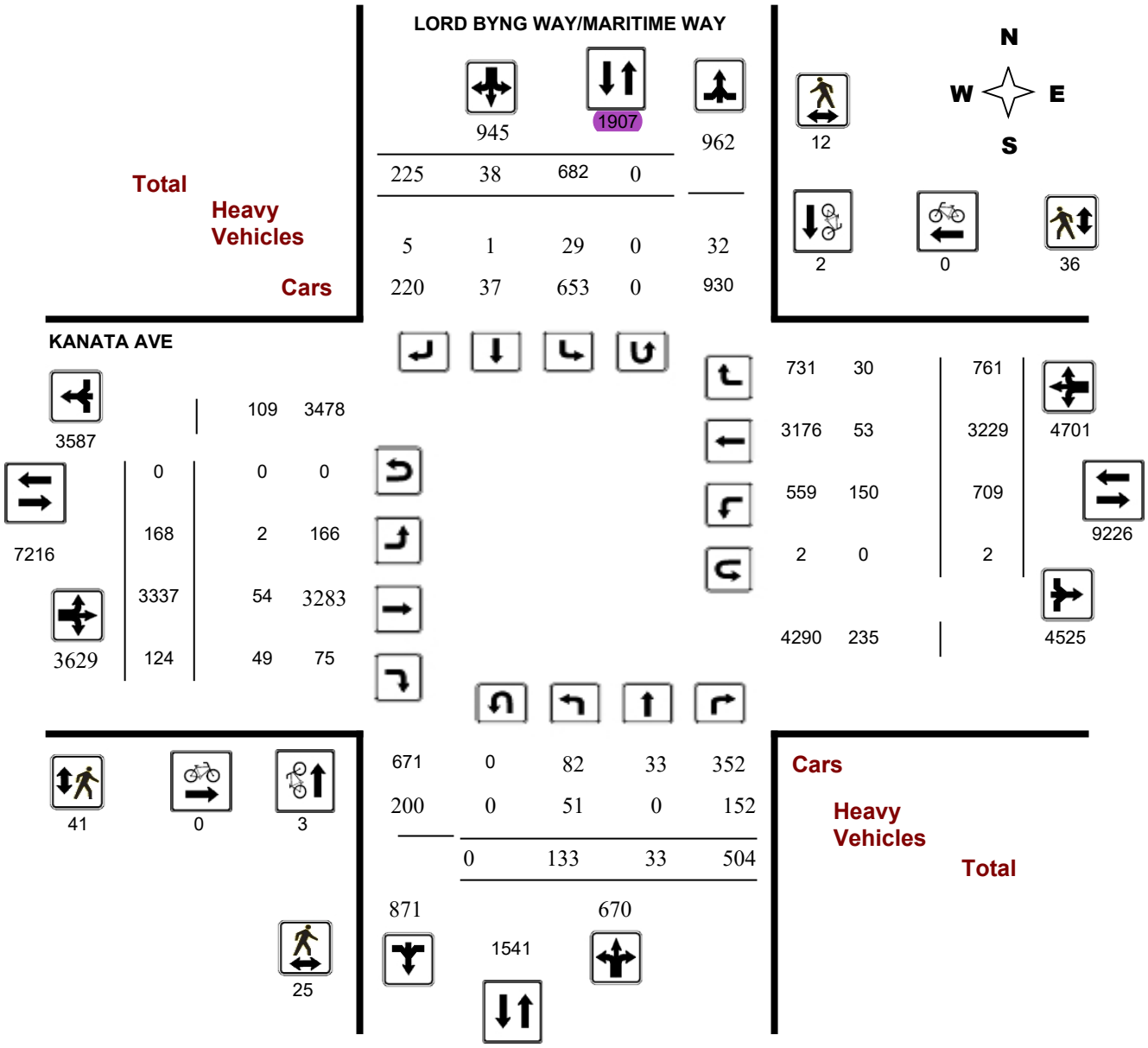
Transportation Services - Traffic Services

Turning Movement Count - Study Results

KANATA AVE @ LORD BYNG WAY/MARITIME WAY

Survey Date: Tuesday, March 20, 2018
Start Time: 07:00
WO No: 37606
Device: Miovision

Full Study Diagram



Transportation Services - Traffic Services

Turning Movement Count - Study Results

KANATA AVE @ LORD BYNG WAY/MARITIME WAY

Survey Date: Tuesday, March 20, 2018 **WO No:** 37606

Start Time: 07:00 **Device:** Miovision

Full Study Summary (8 HR Standard)

Survey Date: Tuesday, March 20, 2018

Total Observed U-Turns

Northbound: 0 Southbound: 0

Eastbound: 0 Westbound: 2

AADT Factor

1.00

	LORD BYNG WAY/MARITIME WAY									KANATA AVE									
	Northbound				Southbound					Eastbound				Westbound					
Period	LT	ST	RT	**NB TOT**	LT	ST	RT	**SB TOT**	**STR TOT**	LT	ST	RT	**EB TOT**	LT	ST	RT	**WB TOT**	**STR TOT**	**Grand Total**
07:00 08:00	15	1	50	**66**	81	2	24	**107**	**173**	2	482	12	**496**	44	163	65	**272**	**768**	**941**
08:00 09:00	18	6	35	**59**	92	4	20	**116**	**175**	14	423	14	**451**	79	214	119	**412**	**863**	**1038**
09:00 10:00	11	5	55	**71**	69	1	33	**103**	**174**	15	323	14	**352**	57	256	67	**380**	**732**	**906**
11:30 12:30	14	3	54	**71**	79	6	38	**123**	**194**	28	355	12	**395**	87	432	70	**589**	**984**	**1178**
12:30 13:30	12	3	60	**75**	76	4	20	**100**	**175**	17	451	12	**480**	77	416	74	**567**	**1047**	**1222**
15:00 16:00	15	5	75	**95**	93	4	27	**124**	**219**	27	397	18	**442**	99	533	116	**748**	**1190**	**1409**
16:00 17:00	24	3	93	**120**	101	8	34	**143**	**263**	26	448	21	**495**	122	598	130	**850**	**1345**	**1608**
17:00 18:00	24	7	82	**113**	91	9	29	**129**	**242**	39	458	21	**518**	144	617	120	**881**	**1399**	**1641**
Sub Total	133	33	504	**670**	682	38	225	**945**	**1615**	168	3337	124	**3629**	709	3229	761	**4699**	**8328**	**9943**
U Turns	0			**0**	0			**0**	**0**	**0**			**0**	2			**2**	**2**	**2**
Total	133	33	504	**670**	682	38	225	**945**	**1615**	168	3337	124	**3629**	711	3229	761	**4701**	**8330**	**9945**
EQ 12Hr	185	46	701	**932**	948	53	313	**1314**	**2246**	234	4638	172	**5044**	988	4488	1058	**6534**	**11578**	**13824**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.														**1.39**					
AVG 12Hr	185	46	701	**932**	948	53	313	**1314**	**2246**	234	4638	172	**5044**	988	4488	1058	**6534**	**11578**	**13824**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.														**1.00**					
AVG 24Hr	242	60	918	**1220**	1242	69	410	**1721**	**2941**	307	6076	225	**6608**	1294	5879	1386	**8559**	**15167**	**18108**
Note: These volumes are calculated by multiplying the Average Daily 12 hr. totals by 12 to 24 expansion factor.														**1.31**					

Note: U-Turns provided for approach totals. Refer to 'U-Turn' Report for specific breakdown.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

KANATA AVE @ LORD BYNG WAY/MARITIME WAY

Survey Date: Tuesday, March 20, 2018 **WO No:** 37606

Start Time: 07:00 **Device:** Miovision

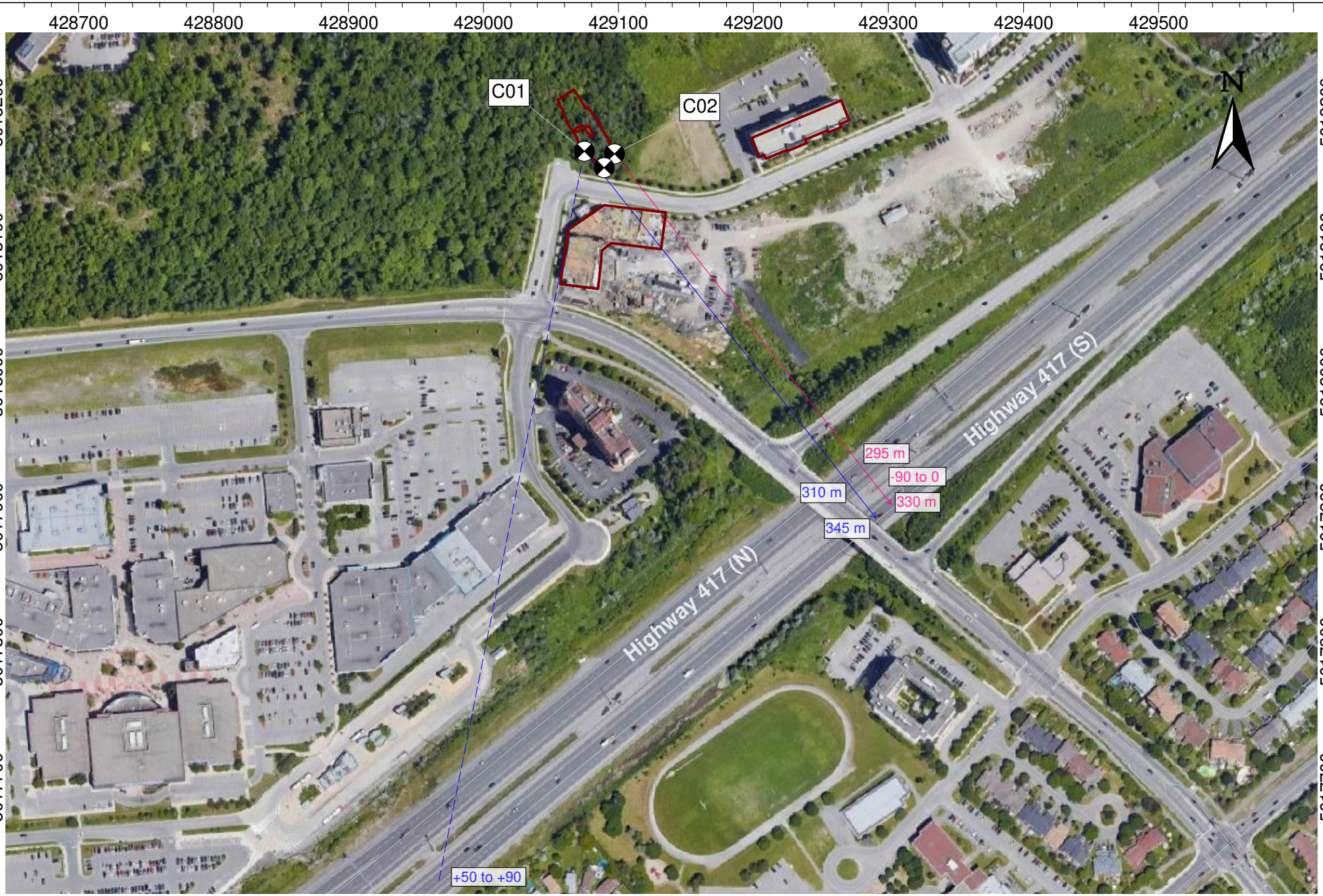
Full Study Heavy Vehicles

LORD BYNG WAY/MARITIME WAY **KANATA AVE**

Time Period		Northbound				Southbound					Eastbound				Westbound					
		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	07:15	1	0	8	**9**	0	0	1	**1**	**10**	0	0	1	**1**	7	0	0	**7**	**8**	**18**
07:15	07:30	1	0	5	**6**	3	0	0	**3**	**9**	0	2	1	**3**	3	1	1	**5**	**8**	**17**
07:30	07:45	1	0	5	**6**	1	0	2	**3**	**9**	0	1	2	**3**	5	8	0	**13**	**16**	**25**
07:45	08:00	1	0	9	**10**	0	0	0	**0**	**10**	0	3	2	**5**	5	2	0	**7**	**12**	**22**
08:00	08:15	3	0	4	**7**	1	0	0	**1**	**8**	0	0	2	**2**	5	0	7	**12**	**14**	**22**
08:15	08:30	2	0	2	**4**	2	0	0	**2**	**6**	0	2	2	**4**	3	3	1	**7**	**11**	**17**
08:30	08:45	2	0	5	**7**	3	0	0	**3**	**10**	0	1	2	**3**	6	2	0	**8**	**11**	**21**
08:45	09:00	0	0	5	**5**	0	0	0	**0**	**5**	0	2	1	**3**	6	1	2	**9**	**12**	**17**
09:00	09:15	3	0	8	**11**	2	0	0	**2**	**13**	2	4	2	**8**	4	4	3	**11**	**19**	**32**
09:15	09:30	1	0	4	**5**	1	0	0	**1**	**6**	0	1	1	**2**	6	0	0	**6**	**8**	**14**
09:30	09:45	1	0	6	**7**	1	0	0	**1**	**8**	0	1	1	**2**	6	3	0	**9**	**11**	**19**
09:45	10:00	0	0	7	**7**	0	0	0	**0**	**7**	0	0	3	**3**	6	2	4	**12**	**15**	**22**
11:30	11:45	2	0	2	**4**	1	0	0	**1**	**5**	0	2	1	**3**	4	1	1	**6**	**9**	**14**
11:45	12:00	0	0	4	**4**	2	0	1	**3**	**7**	0	2	1	**3**	3	2	2	**7**	**10**	**17**
12:00	12:15	3	0	5	**8**	2	0	0	**2**	**10**	0	2	2	**4**	2	3	0	**5**	**9**	**19**
12:15	12:30	0	0	4	**4**	0	0	0	**0**	**4**	0	2	3	**5**	6	2	1	**9**	**14**	**18**
12:30	12:45	3	0	5	**8**	1	0	0	**1**	**9**	0	1	0	**1**	3	3	0	**6**	**7**	**16**
12:45	13:00	0	0	4	**4**	0	0	0	**0**	**4**	0	3	3	**6**	5	1	3	**9**	**15**	**19**
13:00	13:15	0	0	4	**4**	3	0	0	**3**	**7**	0	3	0	**3**	3	1	3	**7**	**10**	**17**
13:15	13:30	0	0	3	**3**	2	0	1	**3**	**6**	0	3	3	**6**	5	3	1	**9**	**15**	**21**
15:00	15:15	2	0	6	**8**	1	0	0	**1**	**9**	0	4	3	**7**	3	2	0	**5**	**12**	**21**
15:15	15:30	1	0	3	**4**	1	0	0	**1**	**5**	0	3	2	**5**	4	2	0	**6**	**11**	**16**
15:30	15:45	2	0	5	**7**	0	1	0	**1**	**8**	0	1	1	**2**	4	1	1	**6**	**8**	**16**
15:45	16:00	3	0	5	**8**	0	0	0	**0**	**8**	0	1	0	**1**	7	1	0	**8**	**9**	**17**
16:00	16:15	3	0	3	**6**	0	0	0	**0**	**6**	0	1	2	**3**	2	3	0	**5**	**8**	**14**
16:15	16:30	2	0	4	**6**	0	0	0	**0**	**6**	0	1	2	**3**	6	2	0	**8**	**11**	**17**
16:30	16:45	2	0	4	**6**	0	0	0	**0**	**6**	0	1	0	**1**	4	0	0	**4**	**5**	**11**
16:45	17:00	3	0	4	**7**	0	0	0	**0**	**7**	0	2	0	**2**	6	0	0	**6**	**8**	**15**
17:00	17:15	3	0	5	**8**	0	0	0	**0**	**8**	0	2	2	**4**	5	0	0	**5**	**9**	**17**
17:15	17:30	2	0	3	**5**	1	0	0	**1**	**6**	0	2	1	**3**	3	0	0	**3**	**6**	**12**
17:30	17:45	3	0	5	**8**	1	0	0	**1**	**9**	0	1	2	**3**	7	0	0	**7**	**10**	**19**
17:45	18:00	1	0	6	**7**	0	0	0	**0**	**7**	0	0	1	**1**	6	0	0	**6**	**7**	**14**
Total:	None	51	0	152	**203**	29	1	5	**35**	**238**	2	54	49	**105**	150	53	30	**233**	**338**	**576**

aercoustics

Project ID: 21443.00	**Project Name**
Scale: NTS	1305 Maritime Way
Drawn by: SZ	**Figure Title**
Reviewed by: KC	Road Traffic Noise Calculations C01 & C02
Date: Jan 31, 2022	Distance & Exposure to Maritime Way & Kanata Avenue
Revision: 1	**Figure B1**



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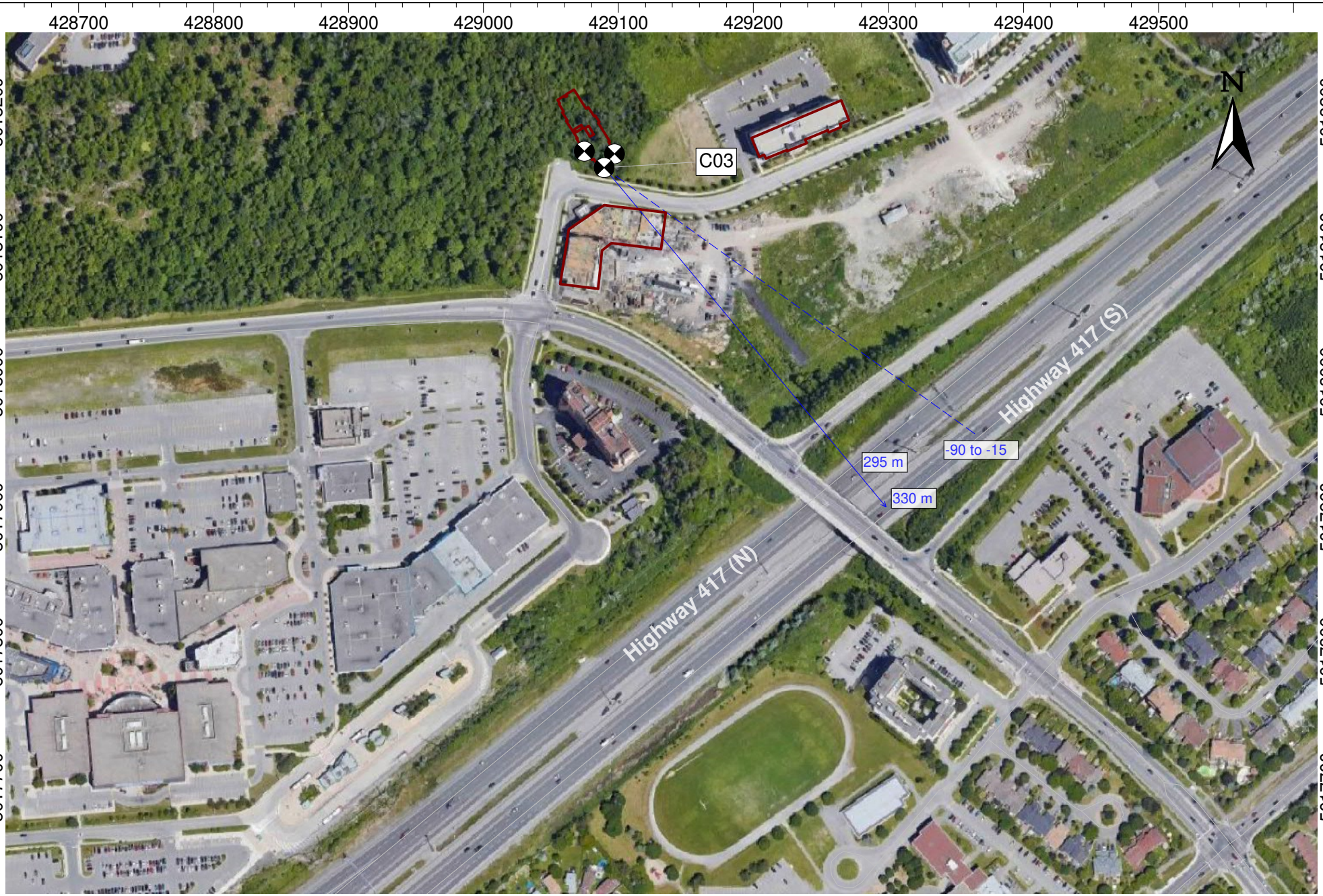
Project ID: 21443.00	**Project Name**
Scale: NTS Drawn by: SZ Reviewed by: KC Date: Jan 31, 2022 Revision: 1	1305 Maritime Way **Figure Title** Road Traffic Noise Calculations C01 & C02 Distance & Exposure to Highway 417

Figure B2

aercoustics

Project ID: 21443.00	**Project Name**
Scale: NTS	1305 Maritime Way
Drawn by: SZ	**Figure Title**
Reviewed by: KC	Road Traffic Noise Calculations C03
Date: Jan 31, 2022	Distance & Exposure to Maritime Way & Kanata Avenue
Revision: 1	**Figure B3**



aercoustics

Project ID: 21443.00

Scale: NTS
Drawn by: SZ
Reviewed by: KC
Date: Jan 31, 2022
Revision: 1

Project Name

1305 Maritime Way

Figure Title

Road Traffic Noise Calculations C03
Distance & Exposure to Highway 417

Figure B4

```
STAMSON 5.0        SUMMARY REPORT        Date: 07-01-2022 19:52:18
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: c01.te               Time Period: Day/Night 16/8 hours
Description: C01 West Facade

Road data, segment # 1: Maritime EW (day/night)
----------------------------------------------
Car traffic volume  :  4067/354   veh/TimePeriod  *
Medium truck volume :    74/6     veh/TimePeriod  *
Heavy truck volume  :    74/6     veh/TimePeriod  *
Posted speed limit  :    40 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):   3472
    Percentage of Annual Growth        :   2.00
    Number of Years of Growth          :  14.00
    Medium Truck % of Total Volume     :   1.75
    Heavy Truck  % of Total Volume     :   1.75
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 1: Maritime EW (day/night)
---------------------------------------------
Angle1   Angle2           : -40.00 deg   30.00 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           :  16.50 / 16.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Road data, segment # 2: Maritime NS (day/night)
----------------------------------------------
Car traffic volume  :  4067/354   veh/TimePeriod  *
Medium truck volume :    74/6     veh/TimePeriod  *
Heavy truck volume  :    74/6     veh/TimePeriod  *
Posted speed limit  :    40 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):   3472
    Percentage of Annual Growth        :   2.00
    Number of Years of Growth          :  14.00
    Medium Truck % of Total Volume     :   1.75
    Heavy Truck  % of Total Volume     :   1.75
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: Maritime NS (day/night)
---------------------------------------------
Angle1   Angle2           : -90.00 deg   -60.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  15.00 / 15.00  m
Receiver height           :  16.50 / 16.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Road data, segment # 3: Kanata (day/night)
------------------------------------------
Car traffic volume  : 24288/2112  veh/TimePeriod  *
Medium truck volume :  1932/168   veh/TimePeriod  *
Heavy truck volume  :  1380/120   veh/TimePeriod  *
Posted speed limit  :    50 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):  30000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 3: Kanata (day/night)
----------------------------------------
Angle1   Angle2           :  15.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 115.00 / 115.00 m
Receiver height           :  16.50 / 16.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

```
Road data, segment # 4: Hwy 417 N (day/night)
----------------------------------------------
Car traffic volume  : 59370/5163  veh/TimePeriod  *
Medium truck volume :  4723/411   veh/TimePeriod  *
Heavy truck volume  :  3373/293   veh/TimePeriod  *
Posted speed limit  :   100 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):  73332
    Percentage of Annual Growth         :   0.00
    Number of Years of Growth           :   0.00
    Medium Truck % of Total Volume      :   7.00
    Heavy Truck  % of Total Volume      :   5.00
    Day (16 hrs) % of Total Volume      :  92.00

Data for Segment # 4: Hwy 417 N (day/night)
--------------------------------------------
Angle1   Angle2           :  50.00 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           :  16.50 / 16.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Road data, segment # 5: Hwy 417 S (day/night)
----------------------------------------------
Car traffic volume  : 59370/5163  veh/TimePeriod  *
Medium truck volume :  4723/411   veh/TimePeriod  *
Heavy truck volume  :  3373/293   veh/TimePeriod  *
Posted speed limit  :   100 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):  73332
    Percentage of Annual Growth         :   0.00
    Number of Years of Growth           :   0.00
    Medium Truck % of Total Volume      :   7.00
    Heavy Truck  % of Total Volume      :   5.00
    Day (16 hrs) % of Total Volume      :  92.00
```

```
Data for Segment # 5: Hwy 417 S (day/night)
-------------------------------------------
Angle1   Angle2           :  50.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 345.00 / 345.00 m
Receiver height           :  16.50 / 16.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Maritime EW	1.15	51.08	51.08
2.Maritime NS	1.15	48.67	48.67
3.Kanata	1.50	56.30	56.30
4.Hwy 417 N	1.50	57.76	57.76
5.Hwy 417 S	1.50	57.20	57.20
Total			62.43 dBA

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Maritime EW	1.13	43.29	43.29
2.Maritime NS	1.13	40.88	40.88
3.Kanata	1.50	48.70	48.70
4.Hwy 417 N	1.49	50.17	50.17
5.Hwy 417 S	1.49	49.60	49.60
Total			54.81 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 62.43
(NIGHT): 54.81

```
STAMSON 5.0        SUMMARY REPORT        Date: 07-01-2022 19:52:41
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: c02.te               Time Period: Day/Night 16/8 hours
Description: C02 East Facade

Road data, segment # 1: Maritime E (day/night)
----------------------------------------------
Car traffic volume  :  4067/354   veh/TimePeriod  *
Medium truck volume :    74/6     veh/TimePeriod  *
Heavy truck volume  :    74/6     veh/TimePeriod  *
Posted speed limit  :    40 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):   3472
    Percentage of Annual Growth        :   2.00
    Number of Years of Growth          :  14.00
    Medium Truck % of Total Volume     :   1.75
    Heavy Truck  % of Total Volume     :   1.75
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 1: Maritime E (day/night)
--------------------------------------------
Angle1   Angle2           : -90.00 deg   -35.00 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           :  16.50 / 16.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Road data, segment # 2: Maritime W (day/night)
----------------------------------------------
Car traffic volume  :  4067/354   veh/TimePeriod  *
Medium truck volume :    74/6     veh/TimePeriod  *
Heavy truck volume  :    74/6     veh/TimePeriod  *
Posted speed limit  :    40 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):   3472
    Percentage of Annual Growth        :   2.00
    Number of Years of Growth          :  14.00
    Medium Truck % of Total Volume     :   1.75
    Heavy Truck  % of Total Volume     :   1.75
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: Maritime W (day/night)
--------------------------------------------
Angle1   Angle2           : -70.00 deg   -45.00 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           :  16.50 / 16.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Road data, segment # 3: 417 N (day/night)
-----------------------------------------
Car traffic volume  : 59370/5163  veh/TimePeriod  *
Medium truck volume :  4723/411   veh/TimePeriod  *
Heavy truck volume  :  3373/293   veh/TimePeriod  *
Posted speed limit  :   100 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):  73332
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 3: 417 N (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  : 295.00 / 295.00 m
Receiver height           :  16.50 / 16.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

```
Road data, segment # 4: 417 S (day/night)
-----------------------------------------
Car traffic volume  : 59370/5163  veh/TimePeriod  *
Medium truck volume :  4723/411   veh/TimePeriod  *
Heavy truck volume  :  3373/293   veh/TimePeriod  *
Posted speed limit  :   100 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):  73332
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 4: 417 S (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  : 330.00 / 330.00 m
Receiver height           :  16.50 / 16.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Result summary (day)
--------------------

                   !  source  !   Road   !  Total
                   !  height  !   Leq    !   Leq
                   !    (m)   !  (dBA)   !  (dBA)
-------------------+----------+----------+----------
 1.Maritime E      !     1.15 !    44.07 !    44.07
 2.Maritime W      !     1.15 !    45.09 !    45.09
 3.417 N           !     1.50 !    62.17 !    62.17
 4.417 S           !     1.50 !    61.58 !    61.58
-------------------+----------+----------+----------
                     Total                  64.98 dBA
```

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Maritime E	1.13	36.27	36.27
2.Maritime W	1.13	37.29	37.29
3.417 N	1.49	54.57	54.57
4.417 S	1.49	53.98	53.98
Total			57.37 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 64.98
(NIGHT): 57.37

```
STAMSON 5.0        SUMMARY REPORT        Date: 07-01-2022 19:53:04
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: c03.te               Time Period: Day/Night 16/8 hours
Description: C03 South Facade

Road data, segment # 1: Maritime E (day/night)
----------------------------------------------
Car traffic volume  :  4067/354   veh/TimePeriod  *
Medium truck volume :    74/6     veh/TimePeriod  *
Heavy truck volume  :    74/6     veh/TimePeriod  *
Posted speed limit  :    40 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):   3472
    Percentage of Annual Growth        :   2.00
    Number of Years of Growth          :  14.00
    Medium Truck % of Total Volume     :   1.75
    Heavy Truck  % of Total Volume     :   1.75
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 1: Maritime E (day/night)
--------------------------------------------
Angle1   Angle2           : -90.00 deg   -45.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  55.00 / 55.00  m
Receiver height           :  16.50 / 16.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Road data, segment # 2: Maritime W (day/night)
----------------------------------------------
Car traffic volume  :  4067/354   veh/TimePeriod  *
Medium truck volume :    74/6     veh/TimePeriod  *
Heavy truck volume  :    74/6     veh/TimePeriod  *
Posted speed limit  :    40 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):   3472
    Percentage of Annual Growth        :   2.00
    Number of Years of Growth          :  14.00
    Medium Truck % of Total Volume     :   1.75
    Heavy Truck  % of Total Volume     :   1.75
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: Maritime W (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  :  15.00 / 15.00  m
Receiver height           :  16.50 / 16.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Road data, segment # 3: Kanata (day/night)
------------------------------------------
Car traffic volume  : 24288/2112  veh/TimePeriod  *
Medium truck volume :  1932/168   veh/TimePeriod  *
Heavy truck volume  :  1380/120   veh/TimePeriod  *
Posted speed limit  :    50 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):  30000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 3: Kanata (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  : 100.00 / 100.00 m
Receiver height           :  16.50 / 16.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

```
Road data, segment # 4: 417 N (day/night)
-----------------------------------------
Car traffic volume  : 59370/5163  veh/TimePeriod  *
Medium truck volume :  4723/411   veh/TimePeriod  *
Heavy truck volume  :  3373/293   veh/TimePeriod  *
Posted speed limit  :   100 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):  73332
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 4: 417 N (day/night)
---------------------------------------
Angle1   Angle2           : -90.00 deg   -15.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 295.00 / 295.00 m
Receiver height           :  16.50 / 16.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Road data, segment # 5: 417 S (day/night)
-----------------------------------------
Car traffic volume  : 59370/5163  veh/TimePeriod  *
Medium truck volume :  4723/411   veh/TimePeriod  *
Heavy truck volume  :  3373/293   veh/TimePeriod  *
Posted speed limit  :   100 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):  73332
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00
```

```
Data for Segment # 5: 417 S (day/night)
---------------------------------------
Angle1   Angle2           : -90.00 deg   -15.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 330.00 / 330.00 m
Receiver height           :  16.50 / 16.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Maritime E	1.15	43.91	43.91
2.Maritime W	1.15	56.25	56.25
3.Kanata	1.50	55.45	55.45
4.417 N	1.50	61.26	61.26
5.417 S	1.50	60.67	60.67
Total			65.19 dBA

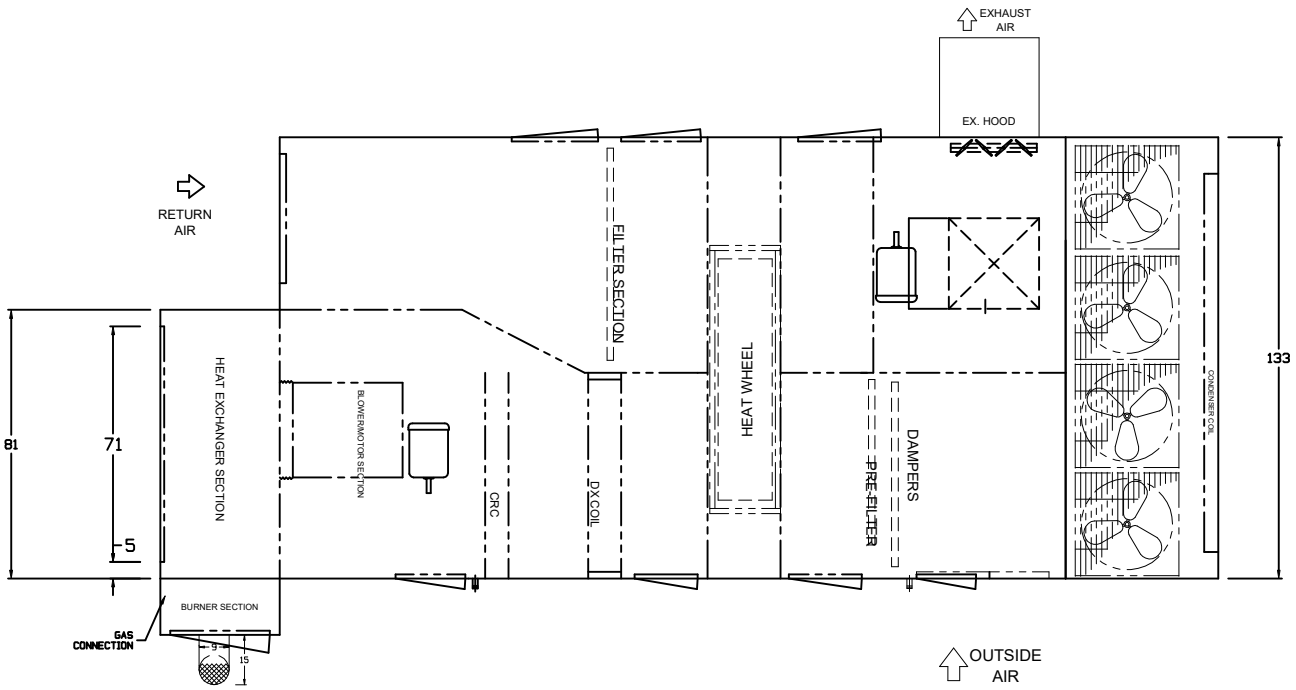
Result summary (night)

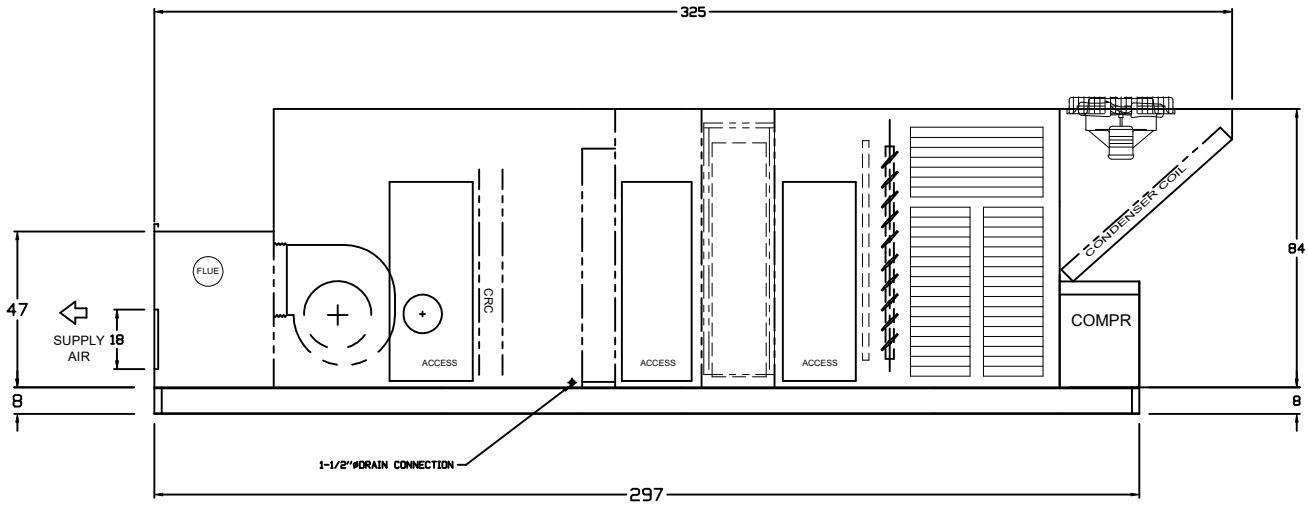
	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Maritime E	1.13	36.12	36.12
2.Maritime W	1.13	48.46	48.46
3.Kanata	1.50	47.86	47.86
4.417 N	1.49	53.66	53.66
5.417 S	1.49	53.07	53.07
Total			57.56 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 65.19
(NIGHT): 57.56

Appendix C
Sound Power Level Data

Source	Sound Power level dB								
	63	125	250	500	1k	2k	4k	8k	**A**
5 ton HVAC	57	76	72	73	75	75	71	69	**81**
10 ton HVAC	98	90	86	85	84	78	71	66	**88**
15 ton HVAC	87	90	86	84	83	79	74	69	**87**
20 ton HVAC	100	99	97	95	92	89	85	78	**97**
Condenser Fans	93	95	90	86	81	75	71	66	**88**





DOOR SIZES AND INTERNAL COMPONENTS ARE APPROX. VALUES. DIMENSIONS SHOWN IN INCHES ONLY UNLESS OTHERWISE NOTED.

DRAWING PATH:

FWE224/DJS100/HRW1800

TAG: HRU-2

PRELIMINARY DRAWING ONLY - NOT FOR CONSTRUCTION.

EngA®

ENGINEERED AIR®

REVISIONS:			
DATE: JUL 21 2020	DRWN BY: GG	CHKD BY: -	DRWG NO.:

RECOVERY AIR™
ENERGY RECOVERY WHEELS

ENTHALPY WHEEL PERFORMANCE DATA

Version 1.1.18

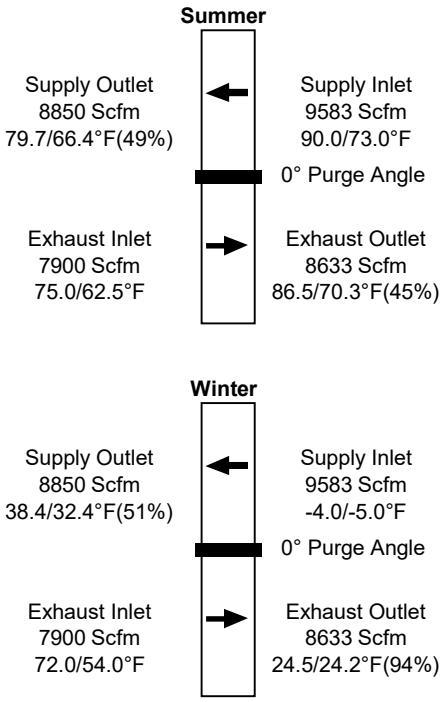
JOB NAME: _____ **JOB NO:** _____

CUSTOMER: _____ **ENGINEER:** _____

LOCATION: Toronto, ON **ALTITUDE:** 578 ft (176.2 m)

EngA MODEL: _____ **QTY:** _____ **TAG:** ERW HRU-2

Enthalpy Wheel Selection Data - Model AEW10-1800 (Note 1)			
		Supply	Exhaust
Summer Design	Inlet Static Pressure	-0.5"Wc	-1.25"Wc
	Air Flow Through wheel	8850 Scfm Outlet	7900 Scfm Inlet
	Entering Temperature DB(RH)/WB	90.0/73.0°F	75.0/62.5°F
	Leaving Temperature DB/WB(RH)	79.7/66.4°F(49%)	86.5/70.3°F(45%)
	Air Pressure Drop	1.07"Wc	0.94"Wc
	Enthalpy Recovery	220.89 Mbh	
	Sensible Recovery	98.01 Mbh	
	Moisture Removal	107.75 Lb/Hr	
	S/A Sensible/Total Efficiency	68.4 / 64.6%	
	ASHRAE Sensible/Total Effectiveness	76.6 / 72.4%	
Winter Design (Note 2)	Inlet Static Pressure	-0.5"Wc	-1.25"Wc
	Air Flow Through wheel	8850 Scfm Outlet	7900 Scfm Inlet
	Entering Temperature DB(RH)/WB	-4.0/-5.0°F	72.0/54.0°F
	Leaving Temperature DB/WB(RH)	38.4/32.4°F(51%)	24.5/24.2°F(94%)
	Air Pressure Drop	0.93"Wc	0.88"Wc
	Enthalpy Recovery	496.38 Mbh	
	Sensible Recovery	404.85 Mbh	
	Moisture Addition	84.4 Lb/Hr	
	Frost Point	7.0°F	
	ASHRAE Sensible/Total Effectiveness	76.6 / 74.4%(Note 3)	



Notes: 1. Energy recovery component certified to the ARI Air-to-Air Energy Recovery Ventilation Equipment Certification Program in accordance with ARI Standard 1060-2001

2. Wheel performance in the winter design section includes the effects of frost control.

3. Values are under no frost condition

DATE: 21-Jul-2020 **SUBMITTED BY:** _____

EngA ENGINEERED AIR

PACKAGED AIR COOLED SYSTEM PERFORMANCE DATA - EEV UNIT

Version 3.5.40.S

Job Name: _____ **Job No.:** _____

Customer: _____ **Tag No.:** _____

Location: Toronto, ON **Altitude:** 578 feet

Coil Tag	CC-2
Unit Model	FWE224 *
DX Coil Size, in (H x L x R x FPI)	60 x 40 x 8R 8 (1/2")
DX Coil Size, mm (H x L x R x FPI)	1524 x 1025 x 8R 8 (13 mm)
DX Coil Blank Tube	0
Header Qty. & Size, in (mm)	(4) 7/8 (22 mm)
Distributors Qty. & Size	(4) 4-3-4
# of HGBP / Ton/Circ (Ton)	1 / 1.45
Design Ambient, °F (°C) DB	95.0 (35.0)
Net Capacity, MBH (kw)	278 (81.5)
Total / Sensible Capacity, MBH (kw)	278 (81.5) / 217 (63.5)
Air Flow Conditions	Standard CFM
Total / DX Air Flow, CFM (l/s)	8850 (4177.2) / 8850 (4177.2)
Air EDBT, °F (°C) / EWBT, °F (°C)	79.7 (26.5) / 66.4 (19.1)
DX LDBT / LWBT, °F (°C)	57.0 (13.9) / 56.4 (13.6)
D/A LDBT / LWBT, °F (°C)	57.0 (13.9) / 56.4 (13.6)
Water Removal, lb/h (kg/h)	53.2 (24.1)
Drain Pan, in (mm) / No. of Mid. Pan	9 (239) / 1
Leaving Coil Velocity, AFPM (m/s)	532 (2.70)
Coil Pressure Drop, in.wc. (pa)	0.84 (209.0)
SST / SCT, °F (°C)	51.6 (10.9) / 126.2 (52.3)
S/A Motor Information	
R/A Motor Information	
CSA C746-17 EER / IEER (Min. Requirement)	10.0 / 11.6
AHRI 340/360-2007 EER / IEER Rating	10.4 / 11.7
Notes	4,5,11

Notes:

[4] The coil performance data is based on R-410A refrigerant.

[5] Make-up application.

[11] Standard components listed above may change at Engineered Air's discretion provided that the unit model listed efficiency & capacity are maintained.

Submitted By: _____ Date: 7/21/2020

Job Name:

Fans & Blowers
Twin City

Customer:
Job ID:
Date: July 21, 2020

Tag: S/A HRU-1

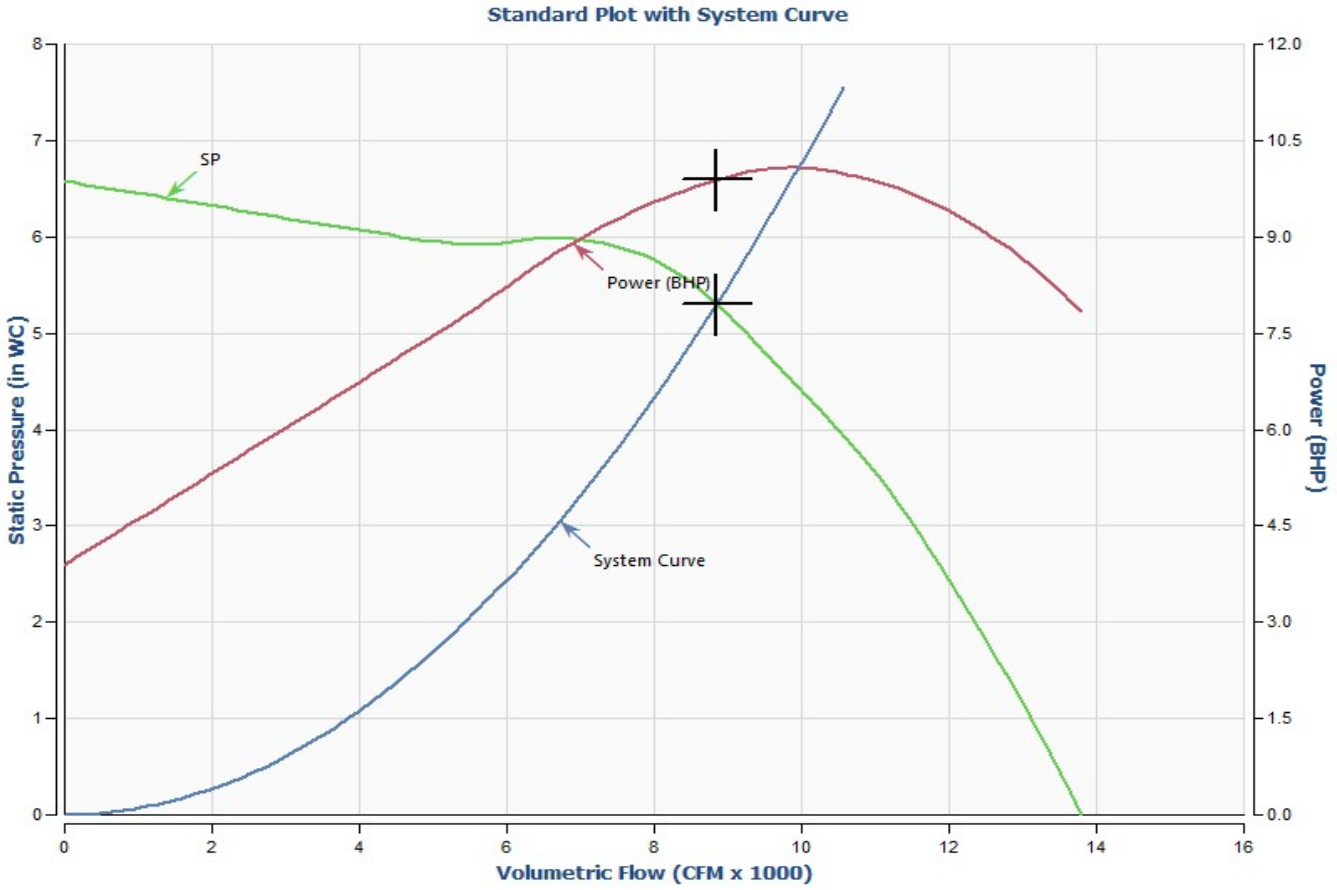
Fan information

Size/Model 182/BAE-DW
Volumetric Flow (CFM) 8850
SP (in WC) 5.3

Class II
Speed (RPM) 2294
Max Speed . . 2,930 RPM @ 70 °F
Power (BHP) 9.89

Outlet Vel (FPM) 2565
Density (lb/ft³) 0.075
FEG FEG90

Adjusted for



Sound Power Ea.	Octave Bands	1	2	3	4	5	6	7	8	LwA	dBA
	Inlet dB	93	93	97	97	90	83	79	75	97	82
	Outlet dB	103	100	95	95	89	84	81	78	96	81

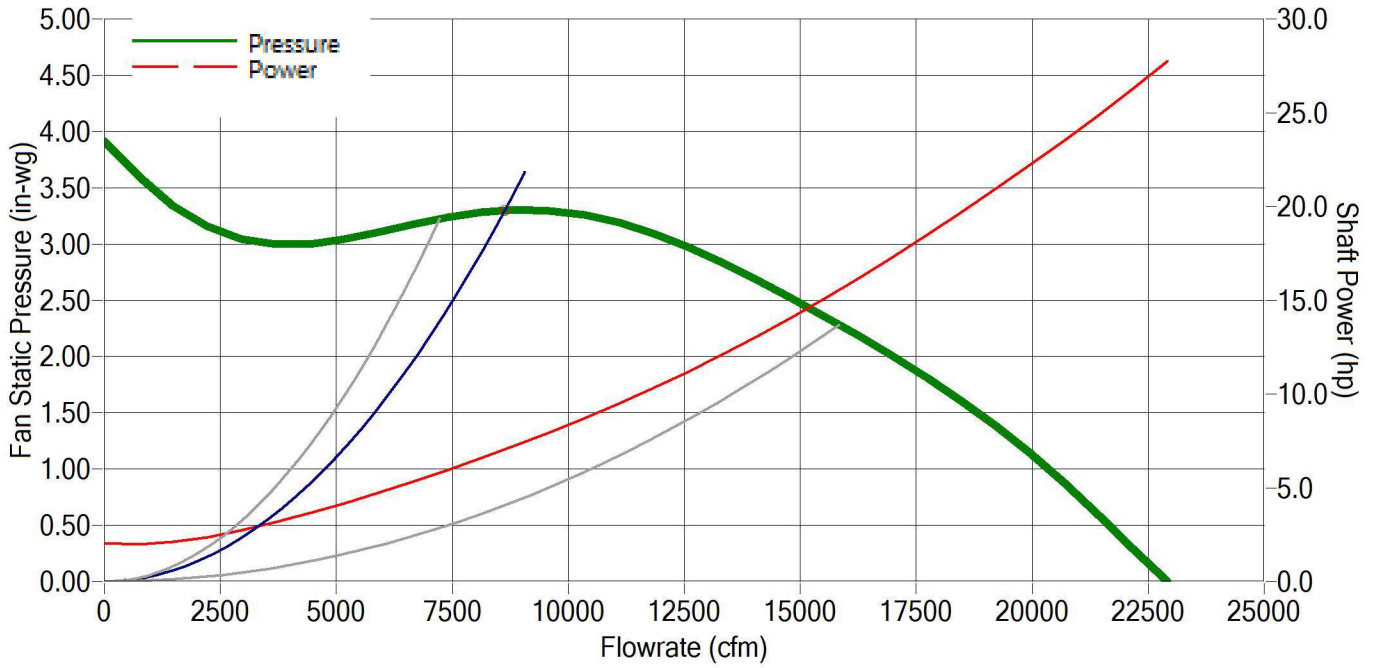
LwA: The overall (single value) fan sound power level in dB re. 10^{-12} Watts, 'A' weighted.
dBA: Estimated sound pressure level (re:0.0002 microbar) based on a single ducted installation at 5 ft., using a directivity factor of 1.

Job Name	Submitted by/notes

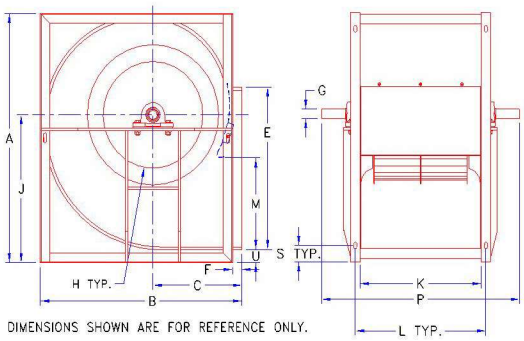
Model	Flow	Pressure (Ps)	Temperature	Altitude	Density	Q Derate	P Derate	VAV Set Point	Date
MODEL A20-18H	8633 CFM	3.30 in-wg	70 °F	0 ft	0.075 lb/ft³	0 cfm	0.00 in-wg	0.00 in-wg	07-21-2020

Fan Tag	Flow	Pressure (Ps)	Power	Static Efficiency	Total Efficiency	Speed	Outlet Velocity	Efficiency Rating	
	8633 CFM	3.30 in-wg	7.04 hp	63.8 %	69.7 %	889 rpm	2225 fpm	FEG75	
	Impeller Dia	Outlet Area	Max Speed	AMCA Class	Drive	Blades	P Volume	Turndown	
	20.0 in	3.88 ft²	1020 rpm	I	Belt Drive	37	25.4 ft³	100 %	

Performance



Sound (Lwi/Lwo)	63	125	250	500	1000	2000	4000	8000	Lw	LwA
	88/ 90	91/ 91	90/ 92	92/ 96	89/ 92	89/ 90	87/ 90	84/ 82	98/101	96/ 98



Options Available

Available Bores: 1-3/16, 1-7/16, 1-11/16, 1-15/16, 2-1/4, 2-3/16, 2-7/16,2-11/16, 2-15/16, 3, 4, 4-1/2 and 5 inch
Wheels available separately

A	B	C	E	F	G	H	J	K	L	M	P	S	U
38.00	32.75	14.44	24.75	1.50	1.44	16.25	22.53	22.75	24.25	15.00	35.25	2.50	2.00

Dimensions in inches

Lau Industries, Inc. certifies that the H-Series BD shown herein is licenced to bear the AMCA Seal. The ratings shown are based on test and procedures performed in accordance with AMCA Publication 211 and comply with the requirements of the AMCA certified ratings program.

Performance certified is for the installation B: Free Inlet, Ducted Outlet. Performance ratings do not include the effects of appurtenances (accessories).
Power ratings (hp or kW) do not include transmission losses.

The AMCA Certified Ratings Seal applies to air performance only

Appendix D
Stationary Noise Sample Calculations

Receiver: R01
Project: 1305 Maritime Way
Project Number: 21443

Time Period	Total (dBA)
Day	48

Receiver Name	Receiver ID	X	Y	Z
R01	R01	429096.81 m	5018163.33 m	115.15 m

Source ID	Source Name	X	Y	Z	Refl.	Lw	L/A	Freq	Adiv	K0	Agr	Abar	Aatm	Afol	Ahous	Cmet	Dc	RL	Lr
S01	S01 - Homewood HVAC	429134.6	5018324.3	123.0	0	87	0.0	A	55.4	0.0	-3.0	13.1	0.9	0.0	0.0	0.0	0.0	0.0	21
S03	S03 - Homewood HVAC	429219.7	5018362.6	123.0	0	88	0.0	A	58.4	0.0	-3.0	10.1	0.9	0.0	0.0	0.0	0.0	0.0	21
S04	S04 - Town Place HVAC	429226.2	5018187.2	115.0	0	97	0.0	A	53.4	0.0	-3.0	0.0	0.7	0.0	0.0	0.0	0.0	0.0	46
S05	S05 - Timberwalk HVAC	429095.0	5018118.3	123.0	0	88	0.0	A	44.2	0.0	-3.0	5.7	0.2	0.0	0.0	0.0	0.0	0.0	41
S06	S06 - Timberwalk HVAC	429077.6	5018104.5	123.0	0	88	0.0	A	46.9	0.0	-3.0	7.5	0.3	0.0	0.0	0.0	0.0	0.0	36

Receiver: R02
Project: 1305 Maritime Way
Project Number: 21443

Time Period	Total (dBA)
Day	46

Receiver Name	Receiver ID	X	Y	Z
R02	R02	429079.84 m	5018200.19 m	115.15 m

Source ID	Source Name	X	Y	Z	Refl.	Lw	L/A	Freq	Adiv	K0	Agr	Abar	Aatm	Afol	Ahous	Cmet	Dc	RL	Lr
S01	S01 - Homewood HVAC	429134.6	5018324.3	123.0	0	87	0.0	A	53.7	0.0	-3.0	0.0	0.7	0.0	0.0	0.0	0.0	0.0	36
S03	S03 - Homewood HVAC	429219.7	5018362.6	123.0	0	88	0.0	A	57.6	0.0	-3.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0	32
S04	S04 - Town Place HVAC	429226.2	5018187.2	115.0	0	97	0.0	A	54.3	0.0	-3.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0	45
S05	S05 - Timberwalk HVAC	429095.0	5018118.3	123.0	0	88	0.0	A	49.4	0.0	-3.0	15.9	0.4	0.0	0.0	0.0	0.0	0.0	25
S06	S06 - Timberwalk HVAC	429077.6	5018104.5	123.0	0	88	0.0	A	50.6	0.0	-3.0	20.0	0.4	0.0	0.0	0.0	0.0	0.0	20

Project: 1305 Maritime Way
Project Number: 21443

Source ID	Source Name	Point of Reception R01		Point of Reception R02	
		Distance to POR (m)	Sound Level at POR (dBA) Day	Distance to POR (m)	Sound Level at POR (dBA) Day
S01	S01 - Homewood HVAC	166	21	136	36
S02	S02 - Homewood HVAC	201	5	177	7
S03	S03 - Homewood HVAC	234	21	214	32
S04	S04 - Town Place HVAC	132	46	147	45
S05	S05 - Timberwalk HVAC	46	41	84	25
S06	S06 - Timberwalk HVAC	62	36	96	20
Total Level [dBA]			**48**		**46**

End of Report