March 23, 2017 Reference No. 11140664

Mr. Vincent Lo
President
280 Herzberg Development Corp.
Kanata, Ontario

Dear Mr. Lo:

Re: Road Traffic and Stationary Noise Impact Study
280 Herzberg Road, Kanata, Ontario

1. Introduction

GHD was retained to complete a Road Traffic and Stationary Noise Impact Study (Study) for the proposed development located at 280 Herzberg Road in Kanata, Ontario (Site).

The Site will be developed into a 4 storey mid-rise residential building. The Site Plan is provided as Attachment A. Stationary noise impact predictions were evaluated for each façade separately for on-site rooftop mechanical equipment and also for off-site mechanical equipment located at the adjacent commercial buildings.

The Study characterizes the environmental noise exposure levels at the Site for comparison to the applicable Ontario Ministry of the Environment and Climate Change (MOECC) land use planning guideline noise limits and the City of Ottawa requirements. This Study has determined that the potential environmental noise impact from road traffic is significant. The proposed development will require ventilation requirements, noise warning clauses for each unit, and enhanced building components. Road traffic noise control requirements for the Site were determined based on road traffic volumes forecast provided by the City of Ottawa (City).

The Study was prepared consistent with MOECC NPC 300, "Environmental Noise Guideline, Stationary and Transportation Sources–Approval and Planning", August 2013, and the City's "Environmental Noise Control Guidelines", January 2016.

The following attachments were included with this Study:

- Attachment A – Site Plan with Worst Case Noise Impacts
- Attachment B – Traffic Noise Impact Summary Table & Sample Stamson Traffic Model Outputs
- Attachment C – Stationary Noise Impact Summary & Source Data

2. Land Development and Site Conditions

The Site has two roadways in the vicinity of the development, Terry Fox Drive and Herzberg Road. The City of Ottawa classifies Terry Fox Drive as a 2-lane urban arterial road, and it is located approximately 15 m to the south-west of the site. The City of Ottawa classifies Herzberg Road as a local road, as confirmed by e-mail and included in Appendix B. As this is dead-end road servicing a small number of houses the road traffic volumes have been considered insignificant and excluded from our analysis.

There is a CN rail line within 300 m of the site. However, CN has confirmed that this rail line is inactive. This confirmation is included in Attachment B.

The site is located in an Acoustical Class 1 area defined by NPC-300 as an area with an acoustical environment typical of a major population centre, where background sound level is dominated by the activities of people, usually road traffic.

The noise impact from off-site stationary noise sources located at adjacent buildings were evaluated at the Site as well as self-contamination façade noise impacts from rooftop mechanical equipment.

3. Road Traffic Analysis

3.1 Road Traffic Noise Modeling Methodology

The road traffic noise impact was conducted using STAMSON, the MOECC's computerized model of ORNAMENT. The Application of the model for the site was consistent with the ORNAMENT technical documents. The computer model input parameters include, among other data, the number of road segments, number of house rows, the positional relationship of the receptor to a noise source or barrier in terms of distance, elevation and angle of exposure to the source, the basic site topography, the ground surface type, traffic volumes, traffic composition and speed limit.

The predicted sound level is based on the 1-hour equivalent sound level, designated as Leq, and is adjusted by the STAMSON program to the 16-hour daytime and the 8-hour nighttime equivalent sound level. The applicable noise criteria for noise sensitive spaces are specified in terms of the 16-hour daytime period (7:00 a.m. to 11:00 p.m.) and 8-hour nighttime period (11:00 p.m. to 7:00 a.m.) enabling a direct comparison between the STAMSON model output and the noise limits.

3.2 Road Traffic Model Input Parameters

This section describes the STAMSON model input parameters used to predict road traffic noise impact for the Site.

3.2.1 Road Traffic Parameters

Appendix B of the City of Ottawa's 2016 Environmental Noise Control Guideline has provided the following information for each roadway:

Terry Fox Drive

- AADT: 15,000
- Commercial Vehicle Rates: 7 percent medium trucks and 5 percent heavy trucks
- Posted Speed Limit: 60 km/h
- Day Night Splits: 92 percent day and 8 percent night

3.3 Road Traffic Noise Modeling Results

GHD calculated the Plane of Window (POW) worst case noise exposure for each facade of the condominium for the separate daytime and nighttime periods.

The STAMSON road traffic model outputs are provided in Attachment B.

Point of Reception	Modelled Impact Day/Night (dBA)
Northwest Façade	63/56
Southwest Façade	70/62
Southeast Façade	63/56
Northeast Façade	46/38

3.4 Road Traffic Modeling Discussion

Noise control requirements will be defined based on NPC 300.

Daytime Outdoor Living Area Assessment (NPC 300, Section C7.1.1)

NPC-300 section A5 (pages 13-14) defines an Outdoor Living Area (OLA). As part of this definition, a balcony or terrace is considered an OLA if it has a minimum depth of 4 meters (m). All balconies are less than 4 m in depth and therefore will not be considered as OLAs.

Plane of a Window – Ventilation Requirements (NPC 300, Section C7.1.2)

The predicted daytime and nighttime Plane of Window (POW) noise impact assumes a worst-case and direct line of sight noise exposure to both roads, unless the condominium itself blocks line-of-sight (full or partial).

The following summarizes NPC-300 POW noise impact requirements:

Daytime Level (dBA)	Nighttime Level (dBA)	Ventilation Requirements and Warning Clauses	Special Building Components
55	50	Not Required	Not Required
55 – 65	50 – 60	Yes with Type C Warning Clause	Not Required
66 or more	60 or more	Yes with Type D Warning Clause	Yes

Table B.1 summarizes the predicted worst case sound levels and the requirements for the units.

GHD has provided a summary of the warning clauses required for this project:

Warning Clause C: Purchasers/tenants are advised that sound levels due to road traffic will interfere with outdoor activities as the sound levels exceed the sound level limits of the City and the Ministry of the Environment and Climate Change. This dwelling unit has also been designed with the provision for adding central air conditioning at the occupant's discretion. Installation of central air conditioning will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the sound level limits of the City and the Ministry of the Environment and Climate Change.

Warning Clause D: Purchasers/tenants are advised that sound levels due to road traffic will interfere with outdoor activities as the sound levels exceed the sound level limits of the City and the Ministry of the Environment and Climate Change. This dwelling unit has been supplied with a central air conditioning system and other measures which will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the sound level limits of the City and the Ministry of the Environment and Climate Change.

Indoor Living Areas – Building Components (NPC 300, Section C7.1.3)

The building must be constructed to standard Ontario Building Code requirements. Improved building components in the form of windows with a minimum STC are required as summarized in Table B.1.

4. Stationary Noise Impact Analysis

4.1 Stationary Noise Impact Sound Level Criteria

The general criteria for stationary noise sources are defined by NPC 300. The criteria defined in Table C-5 and C-6, "Exclusion Limit Values of One-Hour Equivalent Sound Level (Leq, dBA) Outdoor Points of Reception" and "Exclusion Limit Values of One-Hour Equivalent Sound Level (Leq, dBA) Plane of Window of Noise Sensitive Spaces" is used to evaluate the noise impact at the proposed development.

The criteria for a Class 1 area have been summarized below:

Receiver Category	Time Period	Stationary Noise Criteria
Plane of Window (POW)	Day = 7:00 to 23:00	Leq = 50 dBA
	Night = 23:00 to 7:00	Leq = 45 dBA
Outdoor Living Area (OLA)	Day = 7:00 to 23:00	Leq = 50 dBA

The road traffic analysis determined that the sound levels are elevated above the minimum MOECC limits. However, as the stationary noise impacts were below the minimum criteria no elevated criteria were necessary.

4.2 Modelling Methodology

The stationary noise impact from the adjacent office buildings and the onsite-noise sources for the proposed development were evaluated using the CadnaA acoustic modelling software that is based on the ISO 9613-2 standard. Topographic contours were from the Digital Raster Acquisition Project – East, to account for the change in elevation at and surrounding the Site.

4.3 Noise Impact Summary

The following noise sources were considered in the analysis, with the approximate locations shown on Figure C1. Information regarding the offsite HVAC equipment was obtained through Francis HVAC Services Limited, their confirmation e-mail is included in Appendix C. GHD has selected representative sound level data and locations for the onsite equipment, which are intended to represent the likely worst case noise impact. The sound level data is summarized in Appendix C. A standard 50% duty cycle was applied to the HVAC units during the nighttime hours.

Offsite:

- 30 Rooftop HVAC units (York DJ036)

Onsite:

- 32 Condensing Units (~3 Tons)
- 1 Rooftop HVAC unit (~2000 cfm)
- 1 Transformer (~300 MVA)

4.3.1 Façade Noise Impact Summary

The steady state noise impact on the Site is below the applicable sound level limits, as shown in the table below. This includes the impact from onsite and offsite noise sources.

Location	Worst Case Sound Level (Day/Night)	Sound Level Limit (Day/Night)	Limits met?
Northwest Façade	44/41	50/45	Yes
Southwest Façade	35/32	50/45	Yes
Southeast Façade	31/28	50/45	Yes
Northeast Façade	44/42	50/45	Yes

4.3.2 Offsite Noise Impact Summary

The closest noise sensitive receptors to the Site are a number of detached, two-storey residences approximately 100 m north of the Site. The predicted noise impact from the Site on the closest two points-of-reception (POR) due to the Site's equipment are summarized below. POR1 is a two-storey residence located at 298 Herzberg Road and POR2 is a two-storey residence located at 295 Herzberg Road.

Location	Worst Case Sound Level (Day/Night)	Sound Level Limit (Day/Night)	Limits met?
POR1 - POW	20/17	50/45	Yes
POR1 - OLA	20	50	Yes
POR2 - POW	26/24	50/45	Yes
POR2 - OLA	23	50	Yes

5. Recommendations

GHD has the following recommendations:

1. GHD recommends that the CadnaA analysis be updated once the equipment selection and locations for the project have been finalized.

6. Conclusions

The results of this Study indicate that the potential environmental impact from road traffic is significant. Mitigation measures will be required including ventilation requirements, noise warning clauses for each unit, and enhanced building components. The results of this Study indicate that the potential stationary noise impacts from existing adjacent commercial operations are below the applicable MOECC limits based on GHD's modelling of the current activities that occur off-site. The study also indicates that the

noise impacts from the Site's rooftop equipment units are below the applicable MOECC limits based on GHD's modelling at the Site itself and to the nearby residences.

Should you have any questions on the above, please do not hesitate to contact us.

Sincerely,

GHD

Matthew Brenner, BASc

MB/cb/1

Encl.

Attachment A

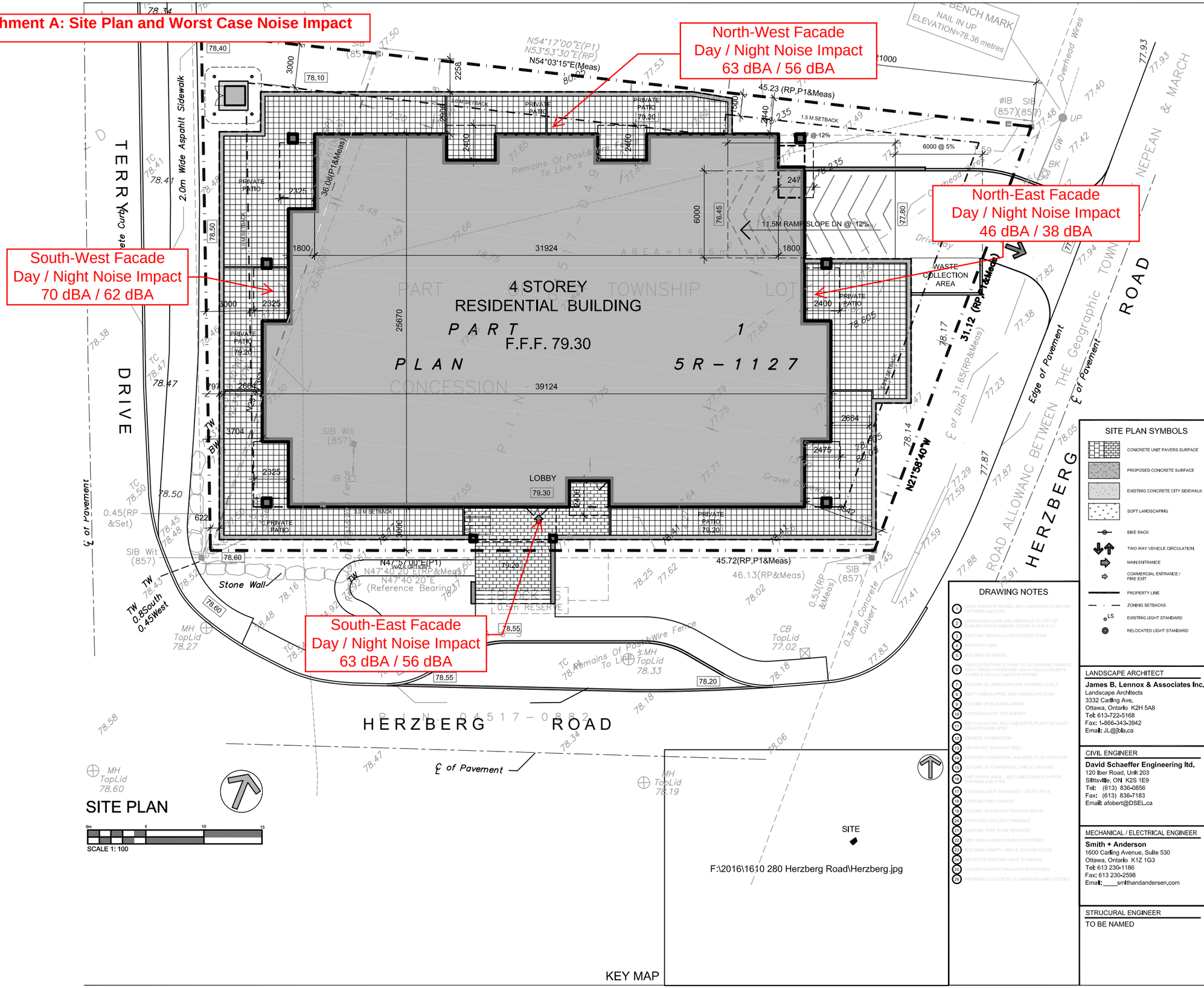
Attachment A: Site Plan and Worst Case Noise Impact

North-West Facade
Day / Night Noise Impact
63 dBA / 56 dBA

North-East Facade
Day / Night Noise Impact
46 dBA / 38 dBA

South-West Facade
Day / Night Noise Impact
70 dBA / 62 dBA

South-East Facade
Day / Night Noise Impact
63 dBA / 56 dBA



SITE PLAN

SCALE 1: 100

KEY MAP

PROJECT INFORMATION

ZONING BY-LAW 2008-250 RSC [1866(H25) & IP6[1549]

SITE AREA 1,680.7 sq. m. (18,091 sq. ft.)

ZONING REQUIREMENTS

AMENITY SPACE

PRIVATE BALCONY =		568.0 sq. m.
COMMUNAL INTERIOR =		100.0 sq. m.
EXTERIOR AT GRADE =		125.0 sq. m.
TOTAL =		793.0 sq. m.

SITE COVERAGE

BUILDING FOOTPRINT =	54.4%	914.0 sq. m.
DRIVING SURFACE =	4.7%	80.1 sq. m.
SOFTSHARD LANDSCAPE =	40.9%	686.6 sq. m.
TOTAL =	100.0%	1,680.7 sq. m.

GROSS BUILDING FLOOR AREA
(OTTAWA ZONING DEFINITION)

PARKING LEVEL - P1 1403 sq. m. (15,372 sq. ft.)

GROUND FLOOR

2nd - 4th FLOOR

TOTAL AREA ABOVE GRADE

UNIT STATISTICS

1 BEDROOM UNIT	14
2 BEDROOM UNIT	17
TOTAL	31

CAR PARKING

REQUIRED

RESIDENCE	- 1.0 PER UNIT (31 UNITS)	31
VISITOR	0.2 PER UNIT (31 UNITS)	6
TOTAL		37

PROVIDED

RESIDENCE	- 1.05 PER UNIT (31 UNITS)	33
VISITOR	- 0.20 PER DWELLING UNIT	6
TOTAL		39

BICYCLE PARKING

REQUIRED	- 0.5 PER UNIT (31 UNITS)	16

PROVIDED

INTERIOR	31
EXTERIOR	4

SITE PLAN SYMBOLS

- CONCRETE UNIT PAVERS SURFACE
- PROPOSED CONCRETE SURFACE
- EXISTING CONCRETE CITY SIDEWALK
- SOFT LANDSCAPING
- BIKE RACK
- TWO WAY VEHICLE CIRCULATION
- MAIN ENTRANCE
- COMMERCIAL ENTRANCE / FIRE EXIT
- PROPERTY LINE
- ZONING SETBACKS
- LS EXISTING LIGHT STANDARD
- RELOCATED LIGHT STANDARD

DRAWING NOTES

1. HARD SURFACE PAVING, SEE LANDSCAPE PLAN FOR PATTERN AND TYPE
2. DEPRESSED CURB AND SIDEWALK TO CITY OF BURLINGTON STANDARD DETAIL S10 & S110
3. EXISTING SIDEWALK WITH STREET CURB
4. PROPERTY LINE
5. BUILDING SETBACKS
6. VEHICLE ENTRANCE RAMP TO U/G PARKING GARAGE WITH TRENCH DRAIN AND 150mm HIGH CONCRETE CURBS & 150mm CONCRETE PAVING
7. OUTLINE OF UNDERGROUND PARKING LEVELS
8. SOFT LANDSCAPING, SEE LANDSCAPE PLAN
9. OUTLINE OF BUILDING ABOVE
10. EXTERIOR ROOF TOP AMENITY
11. BICYCLE RACKS, SEE LANDSCAPE PLAN FOR EXACT LOCATION AND SPEC
12. SIAMESE CONNECTION
13. AIR INTAKE / EXHAUST GRILL
14. EXISTING COMMERCIAL BUILDING TO BE REMOVED
15. OUTLINE OF COMMERCIAL UNIT AT GROUND
16. UNIT PAVER WALK, SEE LANDSCAPE PLAN FOR PATTERN AND TYPE
17. EXISTING LIGHT STANDARD / UTILITY POLE
18. EXISTING FIRE HYDRANT
19. OUTLINE OF PRIVATE TERRACE ABOVE
20. PROPOSED DAYLIGHT TRIANGLE
21. EXISTING TREE TO BE REMOVED
22. NEW 1800mm HIGH SOLID WOOD FENCE
23. BUILDING CANOPY, ABOVE GROUND FLOOR
24. RELOCATE EXISTING LIGHT STANDARD
25. LOW DECORATIVE WROUGHT IRON FENCE
26. PROPOSED LOCATION OF UNDERGROUND UTILITIES

LANDSCAPE ARCHITECT
James B. Lennox & Associates Inc.
Landscape Architects
3332 Carling Ave.
Ottawa, Ontario K2H 5A8
Tel: 613-722-5168
Fax: 1-866-343-3942
Email: JL@jbla.ca

PROJECT DEVELOPER
280 Herzberg Development Corp.
118 Iber Road, Ottawa, ON, K2S 1E9
Tel. 613-836-3070
Fax. 613-836-3065

CIVIL ENGINEER
David Schaeffer Engineering ltd,
120 Iber Road, Unit 203
Stittsville, ON K2S 1E9
Tel: (613) 836-0856
Fax: (613) 836-7183
Email: afobert@DSEL.ca

LEGAL DESCRIPTION
TOPOGRAPHICAL SURVEY
PART OF LOT 7
CONCESSION 4
Geographic TOWNSHIP OF MARCH
CITY OF OTTAWA
(Being PARTS 1&2, PLAN 5R-1127)

MECHANICAL / ELECTRICAL ENGINEER
Smith + Anderson
1600 Carling Avenue, Suite 530
Ottawa, Ontario K1Z 1G3
Tel: 613 230-1186
Fax: 613 230-2598
Email: ____smithandandersen.com

SURVEYOR
Annis O'Sullivan Vollebekk Ltd.
Ontario Land Surveyors
14 Concourse Gate, Suite 500,
Nepean, Ontario K2E 7S6
Tel: (613) 727-0850
Fax: (613) 727-1079
EMAIL: AndyS@aovltd.com

STRUCURAL ENGINEER
TO BE NAMED

PLANNER
Novatech Eng. Consultants Limited
200 - 240 Michael Cowpland Drive
Ottawa, Ontario, K2M 1P6
Tel: 613 254-9643
Fax: 613 254-5867
Email: a.thompson@novatech-eng.com
Email: m.Chown@novatech-eng.com

Attachment B

Table B.1

Road Noise Modelling Results
280 Herzberg Road
Kanata, Ontario

Point-of-Reception ID	Point-of-Reception Description	Sound Level at Point-of-Reception (Day) (Average Leq)	Sound Level at Point-of-Reception (Night) (Average Leq)	Ventilation Requirements NPC-300	Warning Clause NPC-300	Special Building Components
North-West Façade						
POW	Floors 1 to 4	63.4 (dBA)	55.8 (dBA)	Provisions for Air Conditioning	Type C	Compliance with Ontario Building Code
South-West Façade						
POW	Floors 1 to 4	70.0 (dBA)	62.4 (dBA)	Air Conditioning	Type D	Minimum Window STC Rating of 30
South-East Façade						
POW	Floors 1 to 4	63.4 (dBA)	55.8 (dBA)	Provisions for Air Conditioning	Type C	Compliance with Ontario Building Code
North-East Façade						
POW	Floors 1 to 4	46.0 (dBA)	38.4 (dBA)	Not Required	Not Required	Compliance with Ontario Building Code

Brenner, Matthew

To: CONTACT
Subject: RE: Rail Traffic Inquiry (CID:j83$jdww17w9zpmwkd)

From: CONTACT [mailto:contact@cn.ca]
Sent: Monday, February 06, 2017 4:25 PM
To: Brenner, Matthew
Subject: RE: Rail Traffic Inquiry (CID:j83$jdww17w9zpmwkd)

Good day Matthew,

Thank you for contacting CN's public inquiry line. CN does not have any freight trains pass through the Beachburg Subdivision in Kanata ON. This is now an inactive line.

Regards,

Nadia
CN Public Inquiries
Renseignements généraux du CN
1-888-888-5909
contact@cn.ca

Brenner, Matthew

To: vincent Lo
Subject: RE: 280 Herzberg Road - Road Classification

From: Dickinson, Mary [mailto:mary.dickinson@ottawa.ca]
Sent: Monday, February 13, 2017 2:15 PM
To: Vincent Lo
Subject: 280 Herzberg Road - Road Classification

Vincent,
Based on the Official Plan, Herzberg Road adjacent to the subject site is a local road and is intended to remain a dead end.

Mary Dickinson, MCIP, RPP
Planner
Development Review West
Urbaniste
Examen des demandes d'aménagement ouest

City of Ottawa | Ville d'Ottawa
613.580.2424 ext./poste 13923
ottawa.ca/planning / ottawa.ca/urbanisme

STAMSON 5.0 NORMAL REPORT Date: 15-02-2017 15:48:57
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: nw.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: Terry Fox Dr (day/night)

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 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): 15000
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 # 1: Terry Fox Dr (day/night)

Angle1 Angle2 : 0.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 34.50 / 34.50 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Terry Fox Dr (day)

Source height = 1.50 m

ROAD (0.00 + 63.37 + 0.00) = 63.37 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.00	70.00	0.00	-3.62	-3.01	0.00	0.00	0.00	63.37

Segment Leq : 63.37 dBA

Total Leq All Segments: 63.37 dBA

Results segment # 1: Terry Fox Dr (night)

Source height = 1.50 m

ROAD (0.00 + 55.77 + 0.00) = 55.77 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.00	62.40	0.00	-3.62	-3.01	0.00	0.00	0.00	55.77

Segment Leq : 55.77 dBA

Total Leq All Segments: 55.77 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 63.37
(NIGHT): 55.77

STAMSON 5.0 NORMAL REPORT Date: 15-02-2017 15:49:57
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: sw.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: Terry Fox Dr (day/night)

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 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): 15000
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 # 1: Terry Fox Dr (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 15.00 / 15.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Terry Fox Dr (day)

Source height = 1.50 m

ROAD (0.00 + 70.00 + 0.00) = 70.00 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	70.00	0.00	0.00	0.00	0.00	0.00	0.00	70.00

Segment Leq : 70.00 dBA

Total Leq All Segments: 70.00 dBA

Results segment # 1: Terry Fox Dr (night)

Source height = 1.50 m

ROAD (0.00 + 62.40 + 0.00) = 62.40 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	62.40	0.00	0.00	0.00	0.00	0.00	0.00	62.40

Segment Leq : 62.40 dBA

Total Leq All Segments: 62.40 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 70.00
(NIGHT): 62.40

STAMSON 5.0 NORMAL REPORT Date: 15-02-2017 15:49:39
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: se.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: Terry Fox Dr (day/night)

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 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): 15000
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 # 1: Terry Fox Dr (day/night)

Angle1 Angle2 : 0.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 34.50 / 34.50 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Terry Fox Dr (day)

Source height = 1.50 m

ROAD (0.00 + 63.37 + 0.00) = 63.37 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.00	70.00	0.00	-3.62	-3.01	0.00	0.00	0.00	63.37

Segment Leq : 63.37 dBA

Total Leq All Segments: 63.37 dBA

Results segment # 1: Terry Fox Dr (night)

Source height = 1.50 m

ROAD (0.00 + 55.77 + 0.00) = 55.77 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.00	62.40	0.00	-3.62	-3.01	0.00	0.00	0.00	55.77

Segment Leq : 55.77 dBA

Total Leq All Segments: 55.77 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 63.37
(NIGHT): 55.77

STAMSON 5.0 NORMAL REPORT Date: 15-02-2017 15:48:04
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: ne.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: Terry Fox Dr (day/night)

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 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): 15000
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 # 1: Terry Fox Dr (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 54.00 / 54.50 m
Receiver height : 1.50 / 1.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : 90.00 deg
Barrier height : 15.00 m
Barrier receiver distance : 15.00 / 15.50 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Results segment # 1: Terry Fox Dr (day)

Source height = 1.50 m

Barrier height for grazing incidence

Source ! Receiver ! Barrier ! Elevation of
Height (m) ! Height (m) ! Height (m) ! Barrier Top (m)
---+---+---+---

1.50 ! 1.50 ! 1.50 ! 1.50

ROAD (0.00 + 45.97 + 0.00) = 45.97 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	70.00	0.00	-5.56	0.00	0.00	0.00	-18.47	45.97

Segment Leq : 45.97 dBA

Total Leq All Segments: 45.97 dBA

Results segment # 1: Terry Fox Dr (night)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	1.50	1.50	1.50

ROAD (0.00 + 38.35 + 0.00) = 38.35 dBA

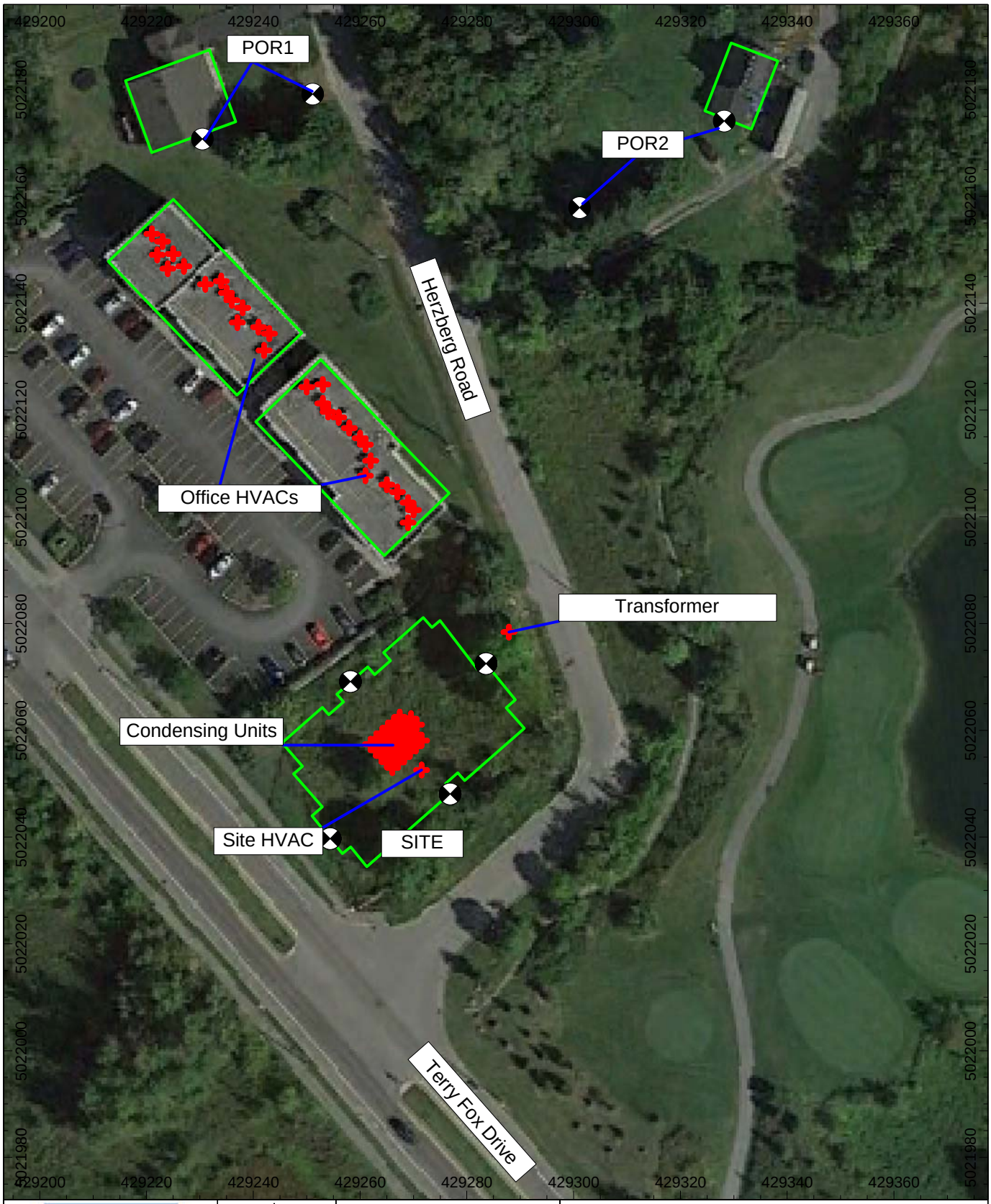
Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	62.40	0.00	-5.60	0.00	0.00	0.00	-18.44	38.35

Segment Leq : 38.35 dBA

Total Leq All Segments: 38.35 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 45.97
(NIGHT): 38.35

Attachment C



GHD

Point Source
Building
Receiver
Building Evaluation

STATIONARY NOISE IMPACT ASSESSMENT
280 HERZBERG ROAD, KANATA, ON

FIGURE C1
STATIONARY NOISE SOURCE AND POR LOCATIONS

Table C.1

Stationary Noise Modelling Results
280 Herzberg Road
Kanata, Ontario

Point-of-Reception ID	Point-of-Reception Description	Sound Level at Point-of-Reception (Day) (Average Leq)	Sound Level at Point-of-Reception (Night) (Average Leq)	Daytime Compliance Limit 07:00-23:00 (Leq)	Nightime Compliance Limit 23:00-07:00 (Leq)	Compliance with Perfomance Limit (Yes/No)
North-West Façade						
POW1	1st Floor of Condominium	39.2 (dBA)	36.2 (dBA)	50.0 (dBA)	45.0 (dBA)	Yes
POW2	2nd Floor of Condominium	41.3 (dBA)	38.2 (dBA)	50.0 (dBA)	45.0 (dBA)	Yes
POW3	3rd Floor of Condominium	44.0 (dBA)	41.0 (dBA)	50.0 (dBA)	45.0 (dBA)	Yes
POW4	4th Floor of Condominium	44.1 (dBA)	41.1 (dBA)	50.0 (dBA)	45.0 (dBA)	Yes
South-West Façade						
POW1	1st Floor of Condominium	29.0 (dBA)	26.0 (dBA)	50.0 (dBA)	45.0 (dBA)	Yes
POW2	2nd Floor of Condominium	29.7 (dBA)	26.7 (dBA)	50.0 (dBA)	45.0 (dBA)	Yes
POW3	3rd Floor of Condominium	30.3 (dBA)	27.3 (dBA)	50.0 (dBA)	45.0 (dBA)	Yes
POW4	4th Floor of Condominium	31.2 (dBA)	28.2 (dBA)	50.0 (dBA)	45.0 (dBA)	Yes
South-East Façade						
POW1	1st Floor of Condominium	30.8 (dBA)	27.9 (dBA)	50.0 (dBA)	45.0 (dBA)	Yes
POW2	2nd Floor of Condominium	32.0 (dBA)	29.1 (dBA)	50.0 (dBA)	45.0 (dBA)	Yes
POW3	3rd Floor of Condominium	33.4 (dBA)	30.4 (dBA)	50.0 (dBA)	45.0 (dBA)	Yes
POW4	4th Floor of Condominium	34.9 (dBA)	31.9 (dBA)	50.0 (dBA)	45.0 (dBA)	Yes
North-East Façade						
POW1	1st Floor of Condominium	42.0 (dBA)	40.9 (dBA)	50.0 (dBA)	45.0 (dBA)	Yes
POW2	2nd Floor of Condominium	42.2 (dBA)	40.6 (dBA)	50.0 (dBA)	45.0 (dBA)	Yes
POW3	3rd Floor of Condominium	43.1 (dBA)	40.8 (dBA)	50.0 (dBA)	45.0 (dBA)	Yes
POW4	4th Floor of Condominium	44.1 (dBA)	41.5 (dBA)	50.0 (dBA)	45.0 (dBA)	Yes

Table C.2

Stationary Noise Impact Study - Source Sound Data
280 Herzberg Road
Kanata, Ontario

Noise Source Description	Location	Cadna ID	Total PWL (dBA)	Height Absolute (m)	Height Relative (m)	x	y
Office HVAC	Offsite	NS-01	72.4	91.0	1.0	429269	5022099
Office HVAC	Offsite	NS-02	72.4	91.0	1.0	429270	5022101
Office HVAC	Offsite	NS-03	72.4	91.0	1.0	429269	5022103
Office HVAC	Offsite	NS-04	72.4	91.0	1.0	429267	5022105
Office HVAC	Offsite	NS-05	72.4	91.0	1.0	429265	5022106
Office HVAC	Offsite	NS-06	72.4	91.0	1.0	429261	5022108
Office HVAC	Offsite	NS-07	72.4	91.0	1.0	429262	5022110
Office HVAC	Offsite	NS-08	72.4	91.0	1.0	429261	5022114
Office HVAC	Offsite	NS-09	72.4	91.0	1.0	429260	5022115
Office HVAC	Offsite	NS-10	72.4	91.0	1.0	429258	5022117
Office HVAC	Offsite	NS-11	72.4	91.0	1.0	429256	5022119
Office HVAC	Offsite	NS-12	72.4	91.0	1.0	429254	5022120
Office HVAC	Offsite	NS-13	72.4	91.0	1.0	429253	5022121
Office HVAC	Offsite	NS-14	72.4	91.0	1.0	429253	5022125
Office HVAC	Offsite	NS-15	72.4	91.0	1.0	429250	5022124
Office HVAC	Offsite	NS-16	72.4	91.2	1.0	429242	5022131
Office HVAC	Offsite	NS-17	72.4	91.2	1.0	429243	5022134
Office HVAC	Offsite	NS-18	72.4	91.2	1.0	429241	5022136
Office HVAC	Offsite	NS-19	72.4	91.2	1.0	429237	5022136
Office HVAC	Offsite	NS-20	72.4	91.2	1.0	429238	5022139
Office HVAC	Offsite	NS-21	72.4	91.2	1.0	429236	5022141
Office HVAC	Offsite	NS-22	72.4	91.2	1.0	429235	5022142
Office HVAC	Offsite	NS-23	72.4	91.2	1.0	429234	5022144
Office HVAC	Offsite	NS-24	72.4	91.2	1.0	429231	5022144
Office HVAC	Offsite	NS-25	72.4	91.2	1.0	429221	5022153
Office HVAC	Offsite	NS-26	72.4	91.2	1.0	429223	5022152
Office HVAC	Offsite	NS-27	72.4	91.2	1.0	429222	5022149
Office HVAC	Offsite	NS-28	72.4	91.2	1.0	429225	5022149
Office HVAC	Offsite	NS-29	72.4	91.2	1.0	429224	5022146
Office HVAC	Offsite	NS-30	72.4	91.2	1.0	429227	5022147
Transformer	Onsite	S-01	70.9	80.0	2.0	429288	5022078
Site HVAC	Onsite	S-02	75.4	97.0	1.0	429272	5022053
Condensing Unit	Onsite	S-03	69.8	97.0	1.0	429262	5022057
Condensing Unit	Onsite	S-04	69.8	97.0	1.0	429263	5022058
Condensing Unit	Onsite	S-05	69.8	97.0	1.0	429264	5022059
Condensing Unit	Onsite	S-06	69.8	97.0	1.0	429265	5022060
Condensing Unit	Onsite	S-07	69.8	97.0	1.0	429266	5022061
Condensing Unit	Onsite	S-08	69.8	97.0	1.0	429267	5022062
Condensing Unit	Onsite	S-09	69.8	97.0	1.0	429263	5022056
Condensing Unit	Onsite	S-10	69.8	97.0	1.0	429264	5022057
Condensing Unit	Onsite	S-11	69.8	97.0	1.0	429265	5022058
Condensing Unit	Onsite	S-12	69.8	97.0	1.0	429266	5022059
Condensing Unit	Onsite	S-13	69.8	97.0	1.0	429267	5022060
Condensing Unit	Onsite	S-14	69.8	97.0	1.0	429268	5022061
Condensing Unit	Onsite	S-15	69.8	97.0	1.0	429264	5022055
Condensing Unit	Onsite	S-16	69.8	97.0	1.0	429265	5022056
Condensing Unit	Onsite	S-17	69.8	97.0	1.0	429266	5022057
Condensing Unit	Onsite	S-18	69.8	97.0	1.0	429267	5022058
Condensing Unit	Onsite	S-19	69.8	97.0	1.0	429268	5022059
Condensing Unit	Onsite	S-20	69.8	97.0	1.0	429269	5022060
Condensing Unit	Onsite	S-21	69.8	97.0	1.0	429265	5022054
Condensing Unit	Onsite	S-22	69.8	97.0	1.0	429266	5022055
Condensing Unit	Onsite	S-23	69.8	97.0	1.0	429267	5022056
Condensing Unit	Onsite	S-24	69.8	97.0	1.0	429268	5022057
Condensing Unit	Onsite	S-25	69.8	97.0	1.0	429269	5022058
Condensing Unit	Onsite	S-26	69.8	97.0	1.0	429271	5022059
Condensing Unit	Onsite	S-27	69.8	97.0	1.0	429266	5022053
Condensing Unit	Onsite	S-28	69.8	97.0	1.0	429267	5022054
Condensing Unit	Onsite	S-29	69.8	97.0	1.0	429268	5022055
Condensing Unit	Onsite	S-30	69.8	97.0	1.0	429269	5022056
Condensing Unit	Onsite	S-31	69.8	97.0	1.0	429270	5022057
Condensing Unit	Onsite	S-32	69.8	97.0	1.0	429272	5022058
Condensing Unit	Onsite	S-33	69.8	97.0	1.0	429271	5022061
Condensing Unit	Onsite	S-34	69.8	97.0	1.0	429270	5022062

Brenner, Matthew

Subject: RE: 300 Terry Fox - Rooftop Units

From: Tyler Francis [mailto:tylerfrancis@francishvac.ca]
Sent: Tuesday, February 14, 2017 10:06 AM
To: Vincent Lo
Subject: RE: 300 Terry Fox - Rooftop Units

Hi Vincent,

As per your email below. All the rooftops share the same Manufacturer & Model Numbers:

YORK
M# DJ036N08P2AAA2A

Tyler Francis
Francis H.V.A.C. Services Ltd.
81 Auriga Dr, Unit 1 | Ottawa, ON | K2E 7Y5
P: 613-723-7869 x712 | F: 613-723-1499 | C: 613-978-1223
tylerfrancis@francishvac.ca

YORK®
Heating and Air Conditioning

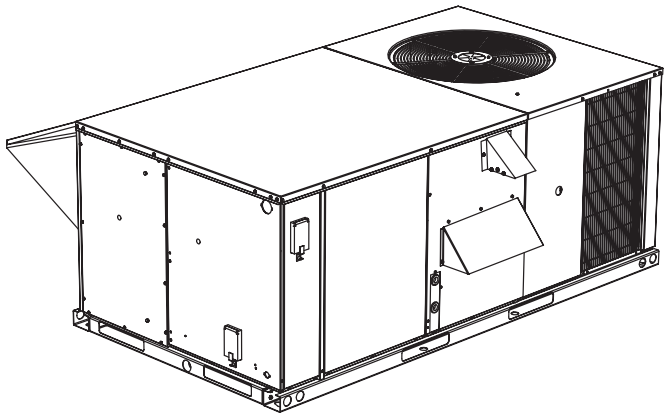
TECHNICAL GUIDE

SINGLE PACKAGE GAS/ELECTRIC UNITS AND SINGLE PACKAGE AIR CONDITIONERS

DJ 036, 048 & 060

3, 4 & 5 NOMINAL TONS

13.00 to 13.50 SEER



DESCRIPTION

YORK Sunline Magnum™ units are convertible single package air conditioners with a common cabinet and a common roof curb for the 3, 4 and 5 ton sizes. The units were designed for light commercial and commercial applications. They can easily be installed on a roof curb, slab, roof jack or frame.

All units include:

- Powder Paint finish that meets ASTM-B-117 1000 hour salt spray standards
- Permanently lubricated motors
- Bottom or side air discharge configuration capability (field convertible)
- Manufactured under the quality standards of ISO9001
- Simplicity® Control Board
- Copper tube/aluminum fin coils
- Easy access to all components
- Rigging holes in base rails for lifting
- Fork lift slots on three sides
- Single point power connection
- Direct Drive or Belt Drive Blower with high static drive option
- Complete factory package - tested, charged and wired
- CSA agency listing on all units

WARRANTY

- Factory Limited Parts Warranty
- One-year parts warranty
- A Five-year parts warranty on the compressor and electric heat elements.
- Ten-year parts warranty on the gas-fired heat exchangers.

C US

CERTIFIED

DESIGN CERTIFIED

ARI PERFORMANCE CERTIFIED
ARI Standard 210/240
Unitary Air Conditioners

The power exhaust option can only be used on bottom duct configurations.

- **BAROMETRIC RELIEF DAMPER** - This damper accessory can be used to relieve internal building air pressure on units with an economizer without power exhaust. This accessory includes a rain hood, a bird screen and a fully assembled damper. With bottom duct connections, the damper should be mounted over the opening in the return air panel. With horizontal ductwork, the accessory should be mounted on the return air duct.
- **ENTHALPY ACCESSORY CONTROL KIT** - This kit contains the required components to convert a single enthalpy economizer to dual enthalpy.
- **BURGLAR BARS** - Mount in the supply and return openings to prevent entry into the duct work.
- **FLUE EXHAUST EXTENSION KIT** - In locations with wind or weather conditions which may interfere with proper exhausting of furnace combustion products, this kit can be installed to prevent the flue exhaust from entering nearby fresh air intakes.
- **CO_2 SENSOR** - Senses CO_2 levels and automatically overrides the economizer when levels rise above the present limits.
- **COIL GUARD** - Customers can purchase a coil guard kit to protect the condenser coil from damage. This is not a hail guard kit.
- **HAIL GUARD** - Hail Guard kit is available to prevent unit from hail damage. This is a sloped hood that fits above the coil.
- **GAS PIPING KIT** - This kit supplies all necessary fittings and shut off valve.

TABLE 1: CAPACITY RATINGS - (ARI 210/240)[1]

MODEL	MBH	EER[2]	SEER[3]	CFM	SOUND RATING (Db)[4]
DJ036	35.8	11.65	13.50	1200	84
DJ048	46.5	11.75	13.45	1600	83
DJ060	60.0	11.20	13.0	1700	81

1. 80/67°F Indoor and 95°F outdoor.
2. EER = Energy Efficiency Ratio at full load - the cooling capacity in Btu's per hour (Btuh) divided by the power input in watts, expressed in Btuh per watt (Btuh/watt).
3. SEER = Seasonal Energy Efficiency Ratio.
4. Rated in accordance with ARI 270 Standard.

TABLE 2: GAS HEAT RATINGS[1]

MODEL	MBH INPUT	MBH OUTPUT	AFUE (%)	TEMP RISE ºF
DJ036N04	50	40	80.9	15 - 45
DJ036N08	100	80	80.5	45 - 75
DJ048N06	75	60	80.9	25 - 70
DJ048N10	125	100	80.3	45 - 75
DJ060N08	100	80	80.5	25 - 55
DJ060N10	125	100	80.3	35 - 75

1. All units are single-stage heating.

TABLE 3: 2 STAGE GAS HEAT RATINGS

MODEL[1,2]	MBH INPUT		MBH OUTPUT		STEADY STATE EFFICIENCY		RISE		MINIMUM HEATING AIRFLOW (CFM)
	1ST STAGE	2ND STAGE	1ST STAGE	2ND STAGE	1ST STAGE	2ND STAGE	MIN.	MAX.	
DJ036D06	45	75	35.8	60.8	79.4	81.1	35	70	790
DJ036D10	69	115	55.2	92	80.0	80.2	55	90	950
DJ048D06	45	75	35.7	60.8	79.4	81.1	25	70	790
DJ048D10	75	125	60.4	100.6	80.5	80.5	45	75	1230
DJ060D06	45	75	35.8	60.8	79.4	81.1	20	55	1010
DJ060D10	75	125	60.4	100.6	80.5	80.5	35	75	1230

1. Models are 3Ø only.
2. All 2 Stage Gas Heat, 60% Capacity 1ST Stage, 40% Capacity 2ND Stage.