Environmental Noise Feasibility Study

5209 Stonehaven Drive

Proposed Residential Development

City of Burlington

May 25, 2017
Project: 117-0082-100

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Environmental Noise Feasibility Study

5209 Stonehaven Drive

Proposed Residential Development

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1.0 PURPOSE

Valcoustics Canada Ltd. (VCL) has prepared this Environmental Noise Feasibility Study in support of the Draft Plan of Subdivision and Re-zoning application for the proposed residential development on the south side of Dundas Street (municipally known as 5209 Stonehaven Drive) as well as the Consent application for the 3-lot parcel on the east side of Orchard Road (municipally known as 2474 Sutton Drive) in the City of Burlington. The purpose is to assess the potential impact of environmental noise on the subject site and determine appropriate mitigation measures required to meet the applicable Ministry of the Environment and Climate Change (MOE) noise guideline limits.

2.0 THE SITE AND SURROUNDING AREA

2.1 PROPOSED DEVELOPMENT SITE

The site consists of two parcels: a larger parcel (5209 Stonehaven Drive) located on the southeast corner of Dundas Street and the Canadian National Railways (CN) Halton Subdivision consisting of 10 detached lots and one 8-unit townhouse block; and a smaller parcel (2474 Sutton Drive) on the east side of Orchard Road consisting of 3 detached lots.

Figure 1 shows a key plan. The assessment is based on the Concept Plan (Concept A1) prepared by IBI Group dated May 23, 2017. Figure 2 shows the Concept Plan in reduced form.

On the west side of the site, adjacent to the CN rail line, there is an existing 3 m high sound barrier atop the 2.5 m high rail safety berm. Additional acoustic barriers are also proposed. These can be seen on the concept plan, See Figure 2.

2.2 SITE LOCATION

The site is located on the south side of Dundas Street, east of the CN rail line. The larger portion of the site is surrounded by:

- the CN rail line, with an existing fitness facility (gym) and other retail/commercial uses beyond, to the west;
- Dundas Street, with existing industrial uses beyond (Dufferin Custom Concrete and Forterra Brick), to the north;
- a proposed public park, with an existing school (John William Boich Public School) to the east; and
- existing residential uses to the south.

The smaller portion of the site is located southeast of the larger portion, to the southeast of the proposed park, and is an extension of the existing dwellings located on the east side of Orchard Road.

2.3 ZONING INFORMATION

The small parcel east of Orchard Road and the western portion of the large parcel are both located on lands zoned RO3 – Residential. The remaining portion of the larger parcel is zoned D – Development. The D zone allows for the construction of a single residential dwelling. The proposed change in zoning is for the portion of the larger parcel within the 'D' zone, and is to an RO3 zone. This zoning change along with additional site specific zoning standards will allow for the proposed residential dwellings.

The surrounding area includes lands zoned RO3 – Residential, CR – Regional Commercial, GE – General Employment and S – Utility Services.

Appendix A contains a zoning map.

3.0 NOISE SOURCES

3.1 TRANSPORTATION NOISE SOURCES

The primary transportation noise sources with potential to impact the site are road traffic on Dundas Street and rail traffic on the CN rail line. Appleby Line is over 400 m west of the site and is not expected to cause any significant noise impact, relative to the primary sources. In addition, traffic volumes on other surrounding minor roadways would also be minor compared to Dundas Street and have therefore not been considered.

Road and rail traffic data correspondence are included as Appendix B.

3.1.1 Road Traffic

Existing (2016) road traffic volumes for Dundas Street were obtained from the Region of Halton. The data was in the form of 15 minute volume counts over a 24 hour period. The volumes were also provided in terms of length of vehicle. Percentage of commercial vehicles (heavy/medium trucks) were derived from the length data based on guidance from the Region.

The day/night split and truck percentages were taken from the traffic counts. The 24-hour volume was escalated to the year 2037 (20 years) as per the Region of Halton Noise Abatement Policy for regional roads.

The Region of Halton is in the process of completing detailed design work for the road widening of Dundas Street. It will eventually be six lanes. As part of the Class Environmental Assessment, a noise assessment was done by MMM Group. The assessment used a future (2031) traffic volume of 42,800 vehicles per day with the Dundas Street widening. This volume was less than that provided by the Region of Halton for this study (55,463 vehicles per day, extrapolated to the 20-year design condition). Thus, to be conservative, the higher volume provided by the Region of Halton was used.

Note, the grade of Dundas Street is elevated relative to the site, as the highway passes over the the railway line. This was accounted for in the assessment.

The road traffic data is shown in Table 1A.

3.1.2 Rail Traffic

CN rail traffic for the Halton Subdivision applicable to the year 2016 was obtained directly from CN. The rail traffic data was escalated to the year 2027 design condition at a rate of 2.5% compounded annually, as indicated in the traffic data correspondence from CN.

The rail traffic data is summarized in Table 1B.

The CN Halton Subdivision contains two mainline tracks and is continuously welded throughout the study area.

3.2 STATIONARY SOURCES

There are several industrial/commercial establishments in the vicinity of the site. The facilities of potential concern are:

- the Forterra Brick facility to the north;
- John William Boich Public School to the east;
- existing commercial buildings to the northwest and west; and
- the Dufferin Custom Concrete facility to the northwest.

Figure 1 shows the locations of the above stationary sources.

3.2.1 Commercial Facilities and School

VCL visited the site on February 27, 2017 and April 28, 2017 to observe the existing conditions. It was noted that noise emissions from the commercial buildings in the vicinity and the school were not audible over the ambient sound environment, which was dominated by road traffic.

The significant noise sources at the school would be the mechanical equipment. Noise from children in the yard would be exempt from the noise guidelines. It appears that the mechanical equipment is located within a penthouse on the roof of the school building, which would mostly contain the noise. Although there does appear to be air louvres on the penthouse, where some noise could be emitted. However, these louvres are located over 200 m from the proposed dwellings. As such noise impact from the school is not anticipated.

To the northwest of the site is an existing commercial/industrial complex. The closest uses to the site include an LA Fitness (gym) at the northwest corner of Dundas Street and rail line; other retail facilities further west of the fitness facility; and existing industrial facilities (including the Dufferin Concrete Facility) north of the fitness facility. With the exception of Dufferin Concrete, the commercial industrial facilities are too far removed and/or are sufficiently screened from the site to cause significant noise impact. Thus, these facilities have not been considered further. Dufferin Concrete is discussed below in Section 3.2.3.

The noise sources at the commercial facilities to the west and southwest would be the rooftop equipment and the trucks at the loading dock at the Fortinos food store. With the substantial setback distance of the site, over 100 m to the closest buildings, significant noise impact from the rooftop equipment is not expected. Likewise, the loading dock at Fortinos is significantly setback (about 200 m) and is on the opposite side of the existing 5.5 m high sound barrier located at the west side of the site. As such significant noise impact is not expected from the loading dock area.

3.2.2 Forterra Brick

VCL previously assessed noise from Forterra Brick for other proposed residential developments in the area. See Reference 4 and 5.

Forterra Brick operates two plants on the northern portion of the site. The noise sources associated with the facility include stacks, dust collectors and front end loaders. These sources are located toward the northern portion of the facility, approximately 400 m from the subject site and on the opposite side of the intervening roadway (Dundas Street).

It is noted that a majority of the site is screened from this facility by the elevation of Dundas Street.

An assessment of the noise impact from this facility is discussed further in Section 5.2.

3.2.3 Dufferin Concrete

Dufferin Custom Concrete is a ready-mix concrete batching plant. Noise sources associated with the facility include truck idling and movements, front end loader activities and a dust collector at the silo.

During the site visit, it was observed that there is a direct line of sight from the subject site to the Dufferin Custom Concrete facility, through the railway underpass at Dundas Street. An assessment of the noise impact from Dufferin Custom Concrete was included and is discussed further in Section 5.2.

4.0 ROAD AND RAIL NOISE IMPACT ASSESSMENT

4.1 TRANSPORTATION NOISE CRITERIA

4.1.1 MOE

The applicable noise guidelines for new residential development are those in MOE Publication NPC-300, *"Environmental Noise Guideline, Stationary and Transportation Sources - Approval and Planning"*.

The environmental noise guidelines of the MOE, as provided in Publication NPC-300, are discussed briefly below and summarized in Appendix C.

4.1.1.1 Architectural Elements

In the daytime, the indoor criterion for road noise is $L_{eq\ Day}$(1) of 45 dBA for sensitive spaces such as living/dining rooms, dens and bedrooms. At night, the indoor criterion for road noise is $L_{eq\ Night}$(2) of 45 dBA for sensitive spaces such as living/dining rooms and dens and 40 dBA for bedrooms.

The architectural design of the building envelope (walls, windows, etc.) must provide adequate sound isolation to achieve these indoor sound exposure limits, based on the applicable outdoor sound exposure on the facades.

4.1.1.2 Ventilation

In accordance with the MOE noise guideline for road traffic sources, if the daytime sound level ($L_{eq\ ,Day}$), at the exterior face of a noise sensitive window is greater than 65 dBA, means must be provided so that windows can be kept closed for noise control purposes and central air conditioning is required. For daytime sound levels between 56 dBA and 65 dBA inclusive, there need only be the provision for adding air conditioning at a later date. A warning clause advising the occupant of the potential interference with some activities is also required. At nighttime, air conditioning would be required when the sound level exceeds 60 dBA ($L_{eq\ Night}$) at a noise sensitive window (provision for adding air conditioning is required when greater than 50 dBA).

4.1.1.3 Outdoors

For outdoor amenity areas ("Outdoor Living Areas" - OLA's), the guideline is 55 dBA $L_{eq\ Day}$ (0700 to 2300 hours), with an excess not exceeding 5 dBA considered acceptable if it is technically not practicable to achieve the 55 dBA objective, providing warning clauses are registered on title. Note that for road traffic sources, a balcony is not considered an OLA, unless it is the only OLA for the occupant and it is:

- at least 4 m in depth; and
- unenclosed.

4.1.2 Region of Halton Noise Abatement Guidelines

The Region of Halton has published a Noise Attenuation Technical Policy for Regional Roads and New Developments (Report CS-69-06) as well as a Noise Abatement Guideline document. These policies indicate that the sound level criteria that should be met and are essentially the same as those outlined in the MOE noise guidelines (i.e., NPC-300). There are also some additional requirements for sound barriers in the Policy:

- Sound barriers must be installed on complete blocks, and constructed on the Region's right-of-way (where feasible).

(1) $L_{eq\ Day}$ - 16-hour energy-equivalent continuous sound level (0700-2300 hours).
(2) $L_{eq\ Night}$ - 8-hour energy-equivalent continuous sound level (2300-0700 hours).

- The maximum height of a noise barrier wall is 3 metres measured from the base elevation, with higher noise barrier walls allowed by the Region subject to investigation of the aesthetics and depending on the availability of a wide right-of-way (R.O.W.) and deep residential lots.

The Region also requires that noise assessments be based on a future 20 year design criterion, i.e., road traffic volumes are to be extrapolated 20 years in the future.

4.1.3 Federation of Canadian Municipalities/Railway Association of Canada

The Federation of Canadian Municipalities and Railway Association of Canada (FCM/RAC) published noise control guidelines in 2013. CN has adopted the use of these guidelines. The publication suggests a dwelling setback of at least 30 m for a residential development adjacent to a principal main line, if in combination with a safety berm of at least 2.5 m (at a 2.5:1 slope). A 5.5 m high sound barrier is also suggested (i.e., 3.0 m high acoustic fence atop the 2.5 m high safety berm).

Aside from the above, the sound level design objectives of the FCM/RAC are similar to those of the MOE.

4.2 PREDICTED SOUND LEVELS

Using the traffic data in Tables 1A and 1B, the sound levels, in terms of $L_{eq\ Day}$ and $L_{eq\ Night}$, were determined using STAMSON V5.04 – ORNAMENT, the computerized road traffic noise prediction model of the MOE.

The daytime and nighttime sound levels were calculated at 4.5 m above grade representing the second-storey windows. At the rear yard OLA's, the receptor height used was 1.5 m above grade.

The existing and proposed sound barriers shown on the concept plan have been included in the assessment of sound levels at the OLA's. To be conservative, these sound barriers were not included in the assessment of the facade sound levels.

Note, lot numbers have been added for ease of reference. Figure 3 shows these assigned lot numbers.

Table 2 shows the predicted sound levels due to transportation noise sources. A sample calculation is included as Appendix D.

The highest plane-of-window sound levels of 68 dBA daytime and 67 dBA nighttime are predicted to occur on Lot 4, closest to both the CN railway line and Dundas Street.

At the rear yard OLA's, the highest sound daytime sound level of 60 dBA is predicted to occur at Lot 3.

4.3 NOISE CONTROL MEASURES

The noise control measures for transportation noise sources can generally be classified into two categories which are inter-related, but which can be treated separately for the most part:

(a) Architectural elements to achieve acceptable indoor noise guidelines;

(b) Design features to protect the OLA's.

Figure 3, Table 3 and the Notes to Table 3 summarize the transportation noise abatement recommendations.

4.3.1 Exterior Wall and Window Construction

The required Sound Transmission Class (STC) ratings for the exterior facades were calculated assuming windows have a surface area equalling 30% of the associated room floor area, and exterior walls were assumed to have a surface area equal to 80% of the associated room floor area.

The exterior wall and window requirements are based on standard assumptions and should be checked once detailed floor plan and elevation drawings are available for the dwellings.

Based on these assumptions:

- Lots 1 to 6 require brick veneer (or masonry equivalent) exterior wall construction from the foundation to the rafters, and windows meeting a rating of up to STC 36.
- Lots 7 to 9 and the townhouse block require brick veneer exterior wall construction (or equivalent construction meeting STC 54) and windows meeting a rating of up to STC 30.
- Exterior wall and window construction meeting the minimum non-acoustical requirements of the Ontario Building Code (OBC) are expected to be sufficient for Lots 10 to 13.

4.3.2 Ventilation Requirements

Blocks 1 to 7 require central air conditioning.

Lots 8 to 13 and the townhouse block require the provision to allow the future installation of air conditioning by the occupant. For low-density developments, this normally takes the form of a ducted ventilation system suitably sized to accommodate the addition of central air conditioning.

4.3.3 Outdoors

With the sound barriers shown on the Concept Plan, the sound levels at the rear yards are predicted to be less 60 dBA or less. This is over the 55 dBA objective sound level limit of the MOE; however, it is within the 5 dBA leeway provided in the guidelines. Therefore, the proposed sound barriers are expected to be sufficient to comply with the MOE guidelines.

Note, sound barriers must be made of solid construction with no gaps, cracks or holes and have a minimum surface density of 20 kg/m^2. Suitable construction may include wood, metal or concrete fences, earth berms, etc.

4.3.4 Warning Clauses

Warning clauses are a tool to inform prospective owners/occupants of potential annoyance due to existing noise sources. Where the guideline sound level limits are exceeded, appropriate warning clauses should be registered on the title or included in the development agreement that is registered on title. The warning clauses should also be included in agreements of Offers of Purchase and Sale and lease/rental agreements to make future occupants aware of the potential noise situation.

Table 3 and the notes to Table 3 summarize the warning clauses for the site.

4.4 RAILWAY SAFETY BERM

There is an existing railway safety berm for the existing dwellings to the south of the subject site. The berm currently terminates at the north end of the subject site. It is understood that the berm will be extended eastward along the north end of the site.

On the west side of the site, the existing berm is approximately 3 m high above the top rail. This is expected to meet the requirements of the RAC/FCM. However, it should be noted that the berm is a railway safety feature and the requirements/acceptability for safety berms adjacent to railways will need to be confirmed by others.

5.0 STATIONARY NOISE IMPACT ASSESSMENT

5.1 MOE – STATIONARY NOISE SOUND LEVEL LIMITS

The applicable environmental noise guidelines for new residential developments are given in MOE Publication NPC-300 and are summarized in Appendix C.

The sound level limits under NPC-300 are expressed in terms of one-hour L_{eq} (as opposed to a 16-hour day/8-hour night L_{eq} which is used for ground transportation sources). The applicable sound levels at a receptor location are the higher of the ambient sound level due to road traffic noise or the minimum exclusion limits. For a Class 1 area, the exclusion limits are:

- 50 dBA during the daytime (0700-1900 hours) and evening (1900-2300 hours); and
- 45 dBA during the nighttime (2300-0700 hours).

The above sound level limits apply at the outdoor plane of window of a noise sensitive space such as a bedroom, living room, den, etc., at all time periods and at an outdoor point of reception during the daytime and evening periods. The sound level limits do not apply to non-noise sensitive windows (at all times) or to outdoor points of reception during the nighttime.

5.1.1 Applicable Guideline Limits

Due to the proximity of Dundas Street to the proposed development, the ambient sound levels are dominated by road traffic during the day and evening. At night when road traffic volumes are less,

and at locations which have less exposure to the roadways, the minimum exclusion limits would apply.

The ambient due to road traffic was calculated using the existing traffic volume provided by the Region of Halton (applicable to the year 2016).

Appendix E shows the traffic count data and calculation procedure as well as the predicted ambient sound levels at locations on the site.

5.2 NOISE IMPACT FROM STATIONARY SOURCES

5.2.1 Environmental Approvals From MOE

5.2.1.1 Dufferin Custom Concrete

Dufferin Custom Concrete operates under an existing Amended Certificate of Approval (CofA) #4133-6XYS2Q issued February 21, 2007. The performance limits in the CofA require the facility to operate in compliance with the MOE Publication NPC-205 noise guideline. (Note, NPC-205 is an older noise guideline document that was replaced and superceded with the release of Publication NPC-300).

To be in compliance with the CofA document the facility must be in compliance with the sound level limits of NPC-205 at the existing noise-sensitive receptors in the vicinity (existing dwellings along Stonehaven Drive, Bird Boulevard and Orchard Road). In addition, Publication NPC-205 recognizes sites zoned for future residential uses as noise sensitive points of reception. Thus, as per the CofA document, the Dufferin Concrete facility is required to comply with the sound level limits in NPC-205 at the subject site.

In this case, the sound level limits in NPC-205 would essentially be the same as those in Publication NPC-300. As such, if the industry were to comply with NPC-205, the sound level limits in NPC-300 (applicable to the residential site) would also be met.

5.2.1.2 Forterra Brick

Forterra Brick operates under an existing Amended Environmental Compliance Approval (ECA) #6731-8KDKG2 issued April 3, 2012. An Acoustic Assessment Report (AAR) was prepared as part of the ECA submission. The AAR recommended noise mitigation measures be implemented for the facility and the implementation of these measures is part of the requirements of the ECA.

The performance limits in the ECA require the facility to operate in compliance with the MOE Publication NPC-205 noise guideline. Thus, noise emissions from Forterra Brick must be in compliance with NPC-205 at the existing noise-sensitive receptors in the vicinity. In addition, as with Dufferin Concrete, Forterra Brick is also required under their ECA to be in compliance with the noise guideline limits at the subject site, due to the existing zoning.

5.2.2 Analysis Method

Notwithstanding the requirement for both Dufferin Custom Concrete and Forterra Brick to be in compliance with the noise guidelines at the subject site, a more detailed assessment was completed for both industries.

The noise impact from the Dufferin Concrete facility and Forterra Brick was assessed using the source sound power level information presented in References 4 to 7. This information was used to reconstruct predictive acoustic models. As mentioned above, the CofA and ECA for the facilities require that Dufferin Concrete and Forterra Brick be in compliance with the sound level limits of NPC-205. Thus, the reconstructed acoustic model was calibrated to ensure that compliance would be achieved at the existing residential dwellings in the vicinity.

The acoustic model was developed using CadnaA V4.6 environmental acoustics modelling software. The 3-D model follows the procedures of ISO 9613 Part 2, *"Acoustics – Attenuation of Sound During Propagation Outdoors".*

Using the reconstructed acoustic models, the noise impact from these facilities was predicted at the subject site. The sound level predictions were done at receptors representing the top storey of the dwellings, at a height of 4.5 m above grade.

The existing and proposed sound barriers shown on the concept plans were included in the assessment.

The ambient sound levels were also calculated using existing road traffic volumes on Dundas Street to determine the applicable guideline limits.

5.2.3 Sources and Operating Scenarios

5.2.3.1 Dufferin Custom Concrete

The sources at Dufferin Custom Concrete are summarized in Table 4, and shown on Figure 4.

It is understood that the facility operates from about 0500 to 1800. However, the facility requires the ability to operate around the clock when needed. Thus, to be conservative, it was assumed that the facility could operate at any time, day, evening or night.

5.2.3.2 Forterra Brick

The sources at Forterra Brick are summarized in Table 5, and shown on Figure 4.

It is understood that the facility operates around the clock, day, evening and night.

5.2.3 Results

Appendix F contains sample stationary noise source calculations

5.2.3.1 Dufferin Custom Concrete

Figure 5 shows the sound levels due to Dufferin Custom Concrete. The left pane shows the predicted sound levels at the existing dwellings and the right pane shows the predicted sound levels at the proposed dwellings.

As can be seen from the figure, the sound levels from the concrete plant meet the applicable sound level limits at all existing dwellings as well as the proposed dwellings on the site. Thus, further mitigation would not be required on the site.

5.2.3.2 Forterra Brick

Figure 6 shows the sound levels due to Forterra Brick. The left pane shows the predicted sound levels at the existing dwellings and the right pane shows the predicted sound levels at the proposed dwellings.

As can be seen from the figure, the sound levels from the brick plant meet the applicable sound level limits at all existing dwellings as well as the proposed dwellings on the site. Thus, further mitigation would not be required on the site.

5.2.4 Back Up Beepers

It is anticipated that back up beepers would be used on most of the trucks and the front end loaders at both Dufferin Custom Concrete and Forterra Brick. Back up beepers are excluded sources under both MOE Publications NPC-300 and NPC-205. Thus, these sources are not required to be included in the assessments for the approvals of the stationary sources or of the proposed residential site.

Notwithstanding, at Forterra Brick the equipment using the back up beepers would be located far enough away that noise impact would not be expected. At Dufferin Custom Concrete, the noise impact from back up beepers would be greater, as these sources would be operated closer to the subject site. However, the noise impact will be significantly reduced by the proposed sound barriers. As such, the use of the back up beepers is not expected to cause any significant noise impact on the site.

6.0 CONCLUSIONS

An assessment of noise impact on the proposed site due to the near-by road, rail and stationary noise sources has been completed.

- To meet the transportation source sound level limits, mitigation measures including ventilation and upgraded facade construction are required at some dwellings. See Figure 3.

- Significant noise impact from the existing commercial buildings in the vicinity as well as the John William Boich Public School to the east is not anticipated.

- The Dufferin Custom Concrete and Fortera Brick facilities both have approvals from the MOE under the Environmental Protection Act. The approvals require the facilities to be in compliance with the noise guideline limits at the subject site as well as at the existing residential dwellings in the vicinity.

- Notwithstanding the above, a more detailed acoustic assessment of the two industries was completed using information on hand. With the facilities operating in compliance with their environmental approval requirements, the resulting sound levels on the subject site would

also comply with the applicable sound level limits. This conclusion accounts for the acoustical screening provided by the existing and proposed sound barriers on the subject site. Thus, additional mitigation for these industries, over that currently proposed, would not be required.

- With appropriate design of the development, a suitable acoustical environment can be provided and the applicable MOE noise guideline requirements met. Thus, the proposed development is considered feasible with respect to transportation and stationary noise, by means of proper design, and will implement the development objectives of the City.

7.0 REFERENCES

1. PC STAMSON 5.04, "Computer Program for Road Traffic Noise Assessment", Ontario Ministry of the Environment.

2. Building Practice Note No. 56: "Controlling Sound Transmission into Buildings", by J. D. Quirt, Division of Building Research, National Council of Canada, September 1985.

3. "Environmental Noise Guideline, Stationary and Transportation Sources - Approval and Planning", Ontario Ministry of the Environment, Publication NPC-300, October 21, 2013.

4. "Evergreen Community – Proposed Mixed-Use Development, Tremaine Road and Dundas Street, City of Burlington", Environmental Noise Feasibility Report, Valcoustics Canada Ltd., July 2015.

5. "Responses to Amec Peer Review of Valcoustics Environmental Noise Feasibility Report of July 2015", Memorandum, Valcoustics Canada Ltd., July 19, 2016.

6. "Review of Environmental Noise Issues – Alton Community, Proposed Arterial Commercial Zone, City of Burlington", August 6, 2003, Valcoustics Canada Ltd., Project: 97-104-300.

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TABLE 1A

ROAD TRAFFIC DATA

Roadway	AADT[1]	% Trucks		Day/Night Split (%)	Speed Limit (kph)
		Medium	Heavy		
Dundas Street	36 593 (55 463)[2]	2	3	91.7/8.3	60

Notes:

(1) AADT – Annual Average Daily Traffic. Data obtained from the Region of Halton Waste Management and Road Operations department.

(2) Value in parenthesis has been escalated to the year 2037 design condition (20-year projection) using a 2% growth rate, compounded annually. The volume was split equally between the eastbound and westbound traffic in the analysis.

TABLE 1B

RAIL TRAFFIC DATA – CN HALTON SUBDIVISION

Period	Train Type	# of Trains[1]	# of Cars per Train	# of Locomotives per Train	Maximum Speed (kph)
Daytime (0700-2300 Hours)	Freight	10 (13.1)	140	4	80
Nighttime (2300-0700 Hours)	Freight	8 (10.5)	140	4	80

Notes:

(1) Data obtained from CN for the year 2016. Values shown in brackets has been extrapolated to the Year 2027 design condition (10-year projection) using a 2.5 % growth rate, compounded annually.

TABLE 2

PREDICTED OUTDOOR SOUND LEVELS

Location[1]	Source	Distance (m)[2]	$L_{eq\ Day}$ (dBA)	$L_{eq\ Night}$ (dBA)
Lot 1 West Facade	CN Halton Subdivision	47	61	63
	Dundas Street Westbound	122	58	51
	Dundas Street Eastbound	108	59	51
	TOTAL	–	64	64
Lot 3 West Facade	CN Halton Subdivision	41	63	65
	Dundas Street Westbound	94	60	53
	Dundas Street Eastbound	80	61	54
	TOTAL	–	66	65
Lot 4 West Facade	CN Halton Subdivision	43	64	66
	Dundas Street Westbound	81	62	55
	Dundas Street Eastbound	67	63	56
	TOTAL	–	68	67
Lot 5 Northwest Facade	CN Halton Subdivision	53	62	64
	Dundas Street Westbound	82	63	56
	Dundas Street Eastbound	68	64	57
	TOTAL	–	68	66
Lot 7 Northwest Facade	CN Halton Subdivision	87	51	53
	Dundas Street Westbound	83	62	55
	Dundas Street Eastbound	69	63	56
	TOTAL	–	66	59
Lot 8 North Facade	CN Halton Subdivision	53	50	52
	Dundas Street Westbound	100	60	52
	Dundas Street Eastbound	87	61	53
	TOTAL	–	64	57
Townhouse North Facade	Dundas Street Westbound	141	58	50
	Dundas Street Eastbound	128	58	51
	TOTAL	–	61	53
Lot 11 North Facade	Dundas Street Westbound	162	57	49
	Dundas Street Eastbound	148	57	50
	TOTAL	–	60	52
Lot 13 East Facade	Dundas Street Westbound	184	53	46
	Dundas Street Eastbound	170	54	46
	TOTAL	–	56	49
Lot 3 Rear Yard	CN Halton Subdivision	38	57	N/A
	Dundas Street Westbound	96	54	N/A
	Dundas Street Eastbound	83	54	N/A
	TOTAL	–	60	N/A

.../cont'd

TABLE 2 (continued)

PREDICTED OUTDOOR SOUND LEVELS

Location[1]	Source	Distance (m)[2]	$L_{eq\ Day}$ (dBA)	$L_{eq\ Night}$ (dBA)
Lot 4 OLA	CN Halton Subdivision	39	55	N/A
	Dundas Street Westbound	82	52	N/A
	Dundas Street Eastbound	68	53	N/A
	TOTAL	–	58	N/A
Lot 5 OLA	CN Halton Subdivision	56	49	N/A
	Dundas Street Westbound	78	55	N/A
	Dundas Street Eastbound	64	56	N/A
	TOTAL	–	59	N/A
Lot 6 OLA	CN Halton Subdivision	72	46	N/A
	Dundas Street Westbound	73	52	N/A
	Dundas Street Eastbound	59	56	N/A
	TOTAL	–	58	N/A
Lot 7 OLA	CN Halton Subdivision	92	46	N/A
	Dundas Street Westbound	84	54	N/A
	Dundas Street Eastbound	71	55	N/A
	TOTAL	–	58	N/A
Lot 8 OLA	Dundas Street Westbound	104	53	N/A
	Dundas Street Eastbound	90	57	N/A
	TOTAL	–	58	N/A
Lot 9 OLA	Dundas Street Westbound	116	52	N/A
	Dundas Street Eastbound	102	58	N/A
	TOTAL	–	59	N/A
Lot 10 OLA	Dundas Street Westbound	129	55	N/A
	Dundas Street Eastbound	115	55	N/A
	TOTAL	–	58	N/A
Townhouse OLA	Dundas Street Westbound	138	57	N/A
	Dundas Street Eastbound	125	57	N/A
	TOTAL	–	60	N/A
Lot 11 OLA	Dundas Street Westbound	164	56	N/A
	Dundas Street Eastbound	151	56	N/A
	TOTAL	–	59	N/A

Notes:

(1) See Figure 3 for assigned lot numbers.
(2) Distance to centreline of roadway. The indicated distances apply to a receptor at the indicated building facade.
(3) Daytime and nighttime sound levels taken at a height of 4.5 m . For the rear yards, the calculation was done at a height of 1.5 m.

TABLE 3

MINIMUM NOISE ABATEMENT MEASURES

Dwelling	Air Conditioning	Exterior Wall	Exterior Window	Sound Barrier	Warning Clause
Lots 1 to 3	Mandatory	Brick Veneer or Masonry Equivalent	up to STC 36	Existing 3.0 m High Acoustic Fence on Berm	A + B + D + E + F + G + H
Lot 4	Mandatory	Brick Veneer or Masonry Equivalent	up to STC 36	Extend the 3.0 m High Acoustic Fence on Berm along West Boundary + 5.5 m Sound Barrier on North Boundary	A + B + D + E + F + G + H
Lots 5 and 6	Mandatory	Brick Veneer or Masonry Equivalent	up to STC 36	5.5 m High Barrier on North Boundary	A + B + D + E + F + G + H
Lot 7	Mandatory	STC 54	up to STC 30	5.5 m High Barrier on North Boundary and 2.5 m High Barrier on East Boundary	A + B + D + E + F + G + H
Lot 8	Provision for Adding	STC 54	up to STC 30	2.5 m High Barrier on East Boundary	A + C + D + E + F + G + H
Lots 9, 10 and the Townhouse Block	Provision for Adding	STC 54	up to STC 30	None	A + C + D + E + F + G + H
Lots 11 to 13	Provision for Adding	OBC	OBC	1.8 m High Barrier	A + C + D + E + F + G + H

For notes to this table, see the following page.

NOTES TO TABLE 3

1. Minimum required noise control measures are the minimum measures needed to comply with the MOE noise guidelines. Recommended upgrades – measures have been recommended where deemed appropriate to better facilitate land use compatibility. These measures are not required under the MOE noise guidelines and are therefore considered upgrades.

2. Central air conditioning allows windows to remain closed for noise control purposes. Provision for adding air conditioning typically takes the form of a ducted ventilation system sized to accommodate the addition of central air conditioning by the occupant.

3. A sliding glass walkout door should be considered as a window and be included in the percentage of glazing. Window and exterior wall requirements were based on standard assumptions and should be reviewed once building (floor) plans are finalized.

   The window STC rating applies to the entire window assembly and not just the glazing. The window supplier should provide acoustical laboratory test data (following a recognized test standard) for the intended windows indicated the STC ratings can be met.

   For exterior walls, STC 54 can be met with brick veneer construction. Other constructions can also be used to meet the requirement. The details should be reviewed when available.

4. Sound barriers must be of solid construction with no gaps cracks or holes and must have a minimum surface density of 20 kg/m².

5. Standard example warning clauses to be registered on title and be included in Offers of Purchase and Sale and Leases on designated units:

   A. "Purchasers are advised that despite the inclusion of noise control features in the development and within the building units, sound levels due to increasing road traffic may occasionally interfere with some activities of the dwelling occupants as the sound level may exceed the noise guidelines of the Municipality and the Ministry of the Environment."

   B. "This dwelling unit has been designed with a central air conditioning system 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 Municipality and the Ministry of the Environment.

   C. "This dwelling unit has been designed with the provision for adding central air conditioning at the occupant's discretion. Installation of central air conditioning by the occupant will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the sound level limits of the Municipality and the Ministry of the Environment."

   D. "Warning: Canadian National Railway has a right-of-way within 300 metres from the land the subject hereof. There may be alterations to or expansions of the railway facilities on such rights-of-way in the future including the possibility that the railway or its assigns or successors as aforesaid may expand its operations, which expansion may affect the living environment of the residents in the vicinity, notwithstanding the inclusion of any noise and vibration attenuating measures in the design of the development and individual dwelling(s). Canadian National Railway will not be responsible for any complaints or claims arising from use of such facilities and/or operations on, over or under the aforesaid right-of-way."

   E. "Purchasers/occupants are advised that due to the proximity to the Dufferin Custom Concrete Facility, noise from this facility may at times be audible."

   F. "Purchasers/occupants are advised that due to the proximity to the Forterra Brick Facility, noise from this facility may at times be audible."

   G. "Purchasers/occupants are advised that due to the proximity to the John Boich Public School, noise from this facility may at times be audible."

   H. "Purchasers/occupants are advised that due to the proximity to the commercial uses in the vicinity, noise from these facilities may at times be audible."

6. Conventional roof construction meeting Ontario Building Code requirements is satisfactory in all cases.

7. All exterior doors shall be fully weatherstripped.

TABLE 4

DUFFERIN CUSTOM CONCRETE – SOURCES AND OPERATING SCENARIOS

Source ID[(1)]	Description	Sound Power Level (dBA re 10^{-12} W)	Duration (min per hour)		
			Daytime	Evening	Nighttime
DUF_BT1	Blower Truck	118[(2)]	60	0	0
DUF_CT1	Concrete truck being loaded	110	60	60	60
DUF_CT2	Concrete trucks idling (empty)	110[(3)]	60	60	30
DUF_CT3	Concrete trucks idling (full)	115[(4)]	60	60	30
DUF_DC	Dust Collector	107	60	60	60
DUF_FEL	Front End Loader	109	36	36	36

Moving Point Sources

Source ID[(1)]	Description	Sound Power Level (dBA re 10^{-12} W)	Duration (min per hour)			Speed (km/hr)
			Daytime	Evening	Nighttime	
DUF_AGT	Aggregate truck movement	105	4	4	4	20
DUF_RMT	Ready-mix truck movement	107	16	16	8	20
DUF_BT	Blower truck movement	108	1	0	0	20

Notes:

(1) See Figure 4 for source locations.
(2) Sound power level includes +5 dB penalty for tonal noise.
(3) Sound power level shown represents six trucks idling during the daytime and evening. The 30 minute duty cycle was used to represent the three trucks during the nighttime. These trucks do not have the revolving drum operating.
(4) Sound power level shown represents two trucks idling during the daytime and evening. The 30 minute duty cycle was used to represent the one truck during the nighttime. All trucks have revolving drum operating.

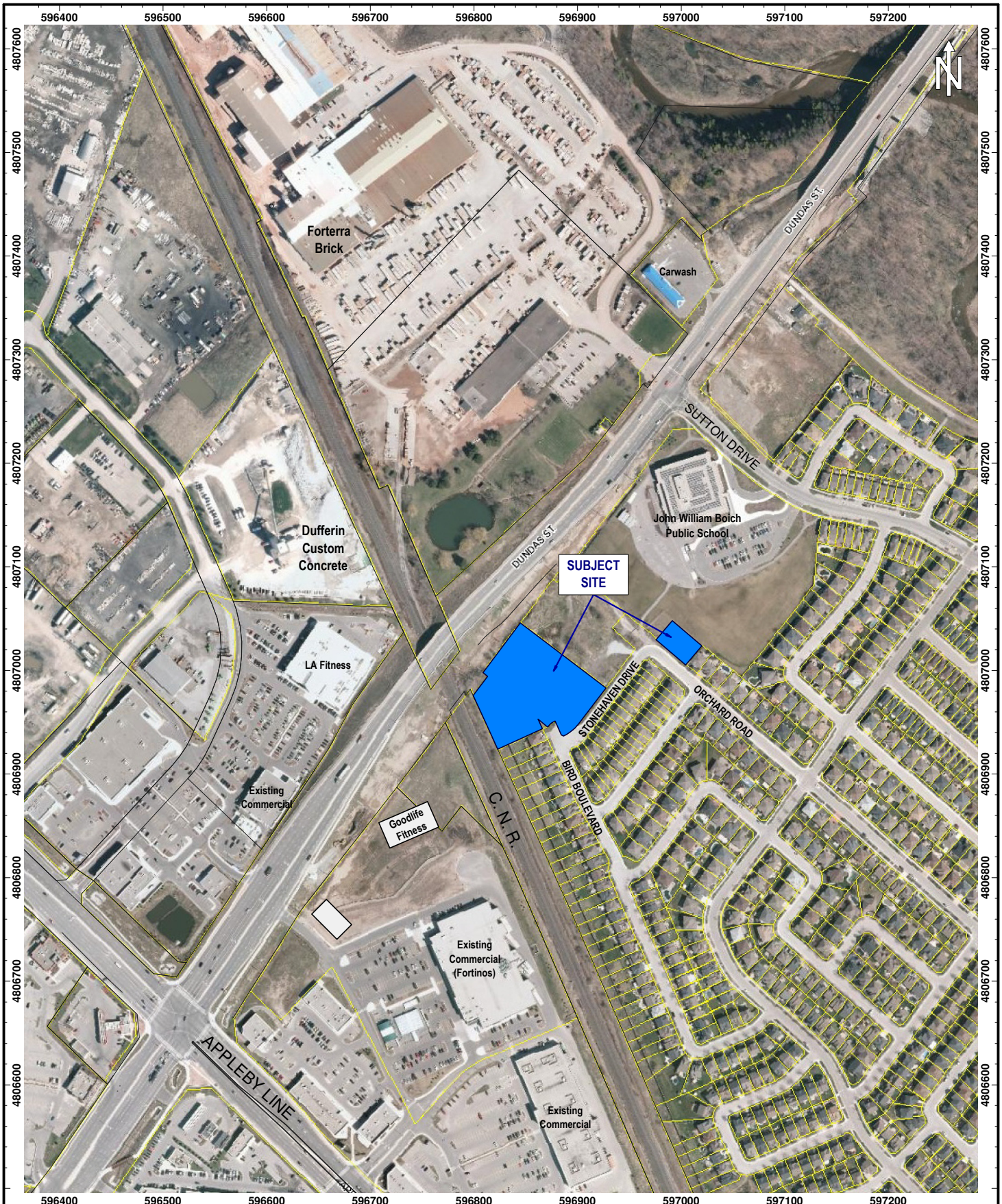
TABLE 5

FORTERRA BRICK – SOURCES AND OPERATING SCENARIOS

Source ID(1)	Description	Sound Power Level (dBA re 10^{-12} W)	Duration (min per hour)		
			Daytime	Evening	Nighttime
CB_KSP1	Kiln Stack Plant 1	102	60	60	60
CB_DC1	Dust Collector 1	107	60	60	60
CB_BUAP1	Blower Unloading Area Plant 1	123	60	60	60
CB_DC2	Dust Collector 2	102	60	60	60
CB_DC3S	Dust Collector 3 Stack	99	60	60	60
CB_DC3F	Dust Collector 3 Fan	97	60	60	60
CB_FEL1	Front End Loader 1	107	60	60	60
CB_DT1	Dump Trucks 1	108	60	60	60
CB_CS1	Crusher Shed 1	94	60	60	60
CB_KSP2	Kiln Stack Plant 2	101	60	60	60
CB_DSP2	Dryer Stack Plant 2	104	60	60	60

Note:

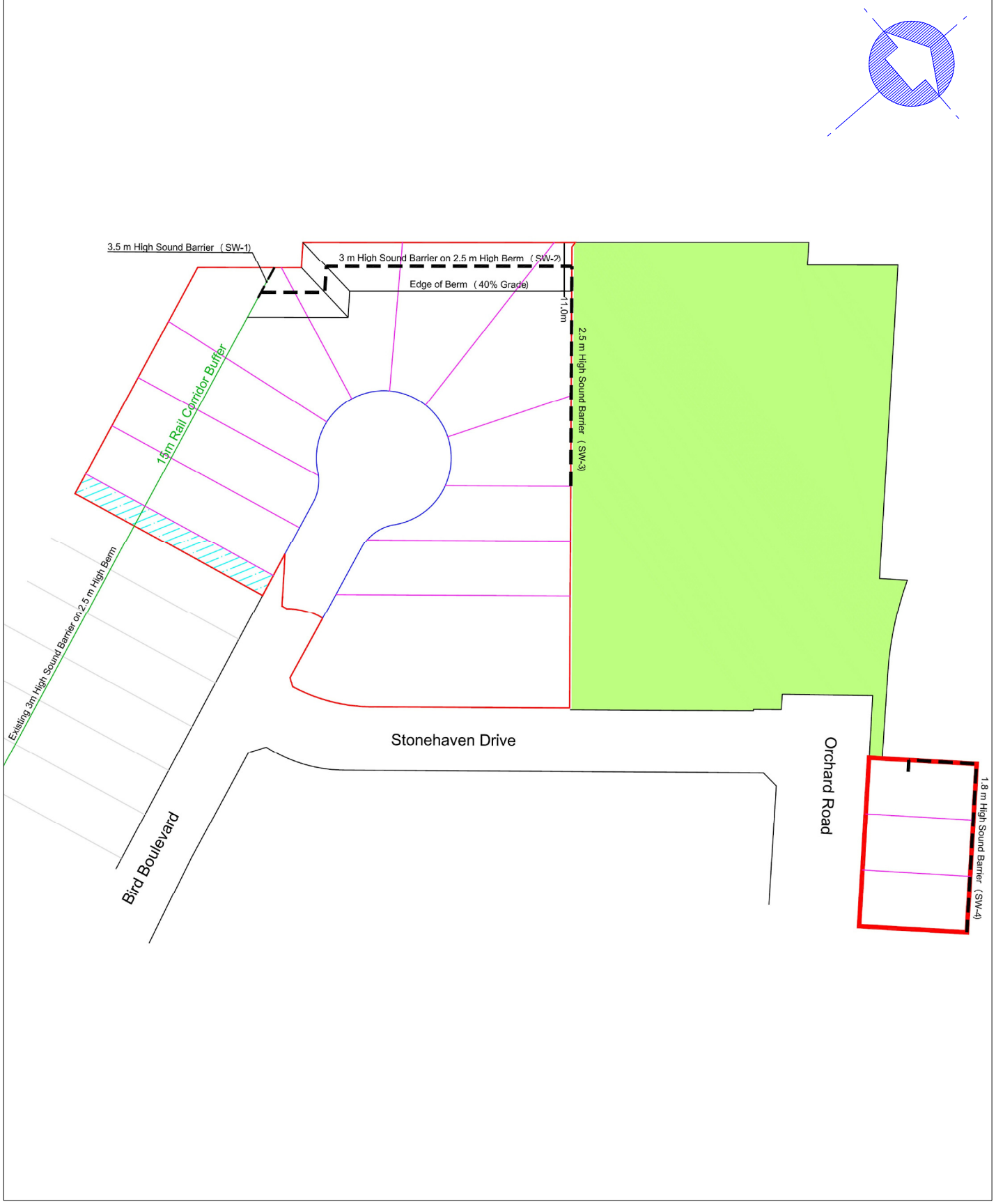
(1) See Figure 4 for source locations.



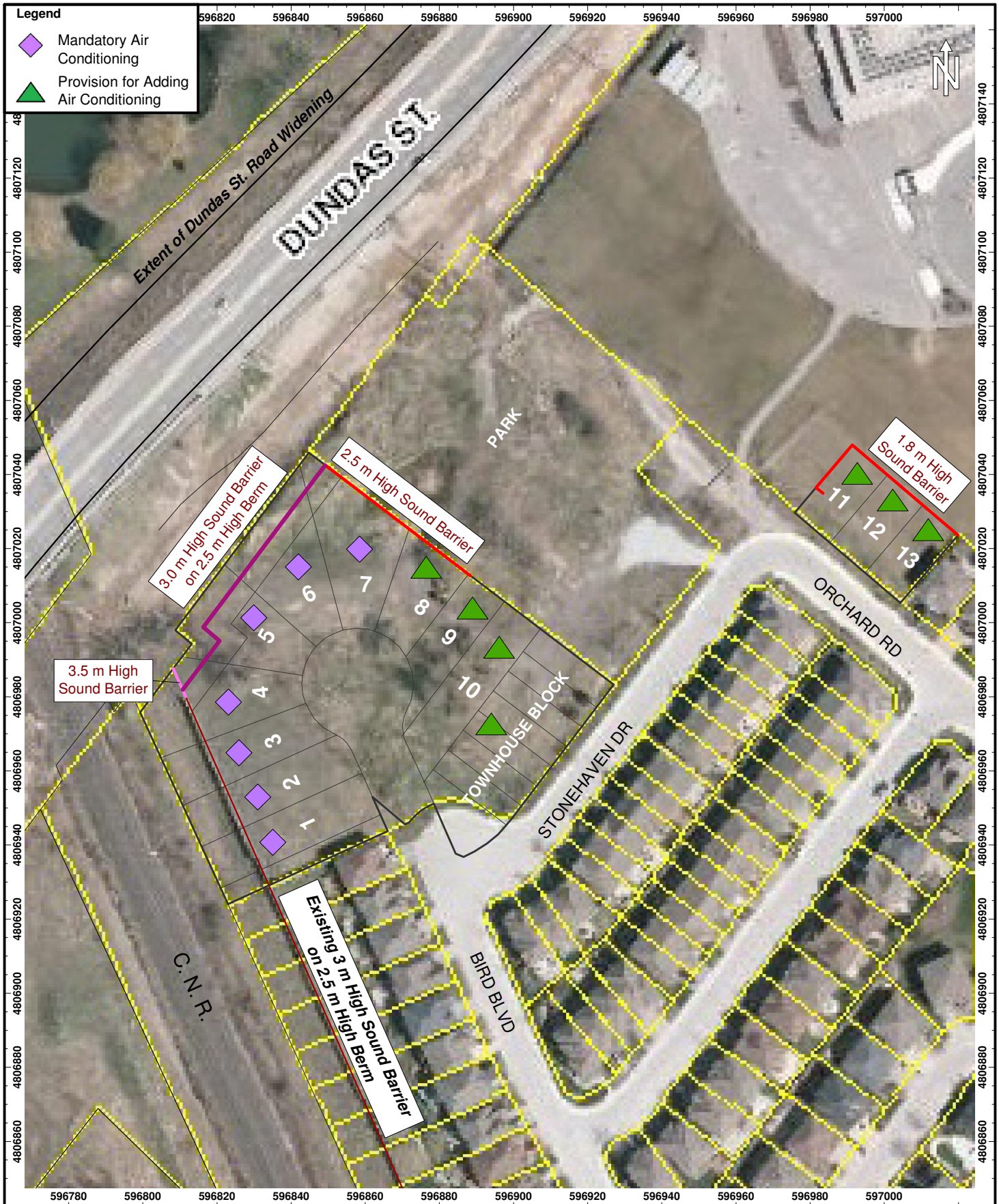
VALCOUSTICS Canada Ltd. consulting acoustical engineers	Title: **Key Plan**	Date: **2017-05-15**	Figure: **1**
	Project Name: **5209 Stonehaven Drive/Burlington**	Project No.: **117-0082-100**	

E:\AA\1170082\Cadna\Stonehaven.cna

Date Plotted: 15.05.17



VALCOUSTICS Canada Ltd.	Title: Concept Plan	Date: 2017-05-23	Figure: 2
	Project Name: 5209 Stonehaven Drive/Burlington	Project No.: 117-0082-100	



VALCOUSTICS
Canada Ltd.
consulting acoustical engineers

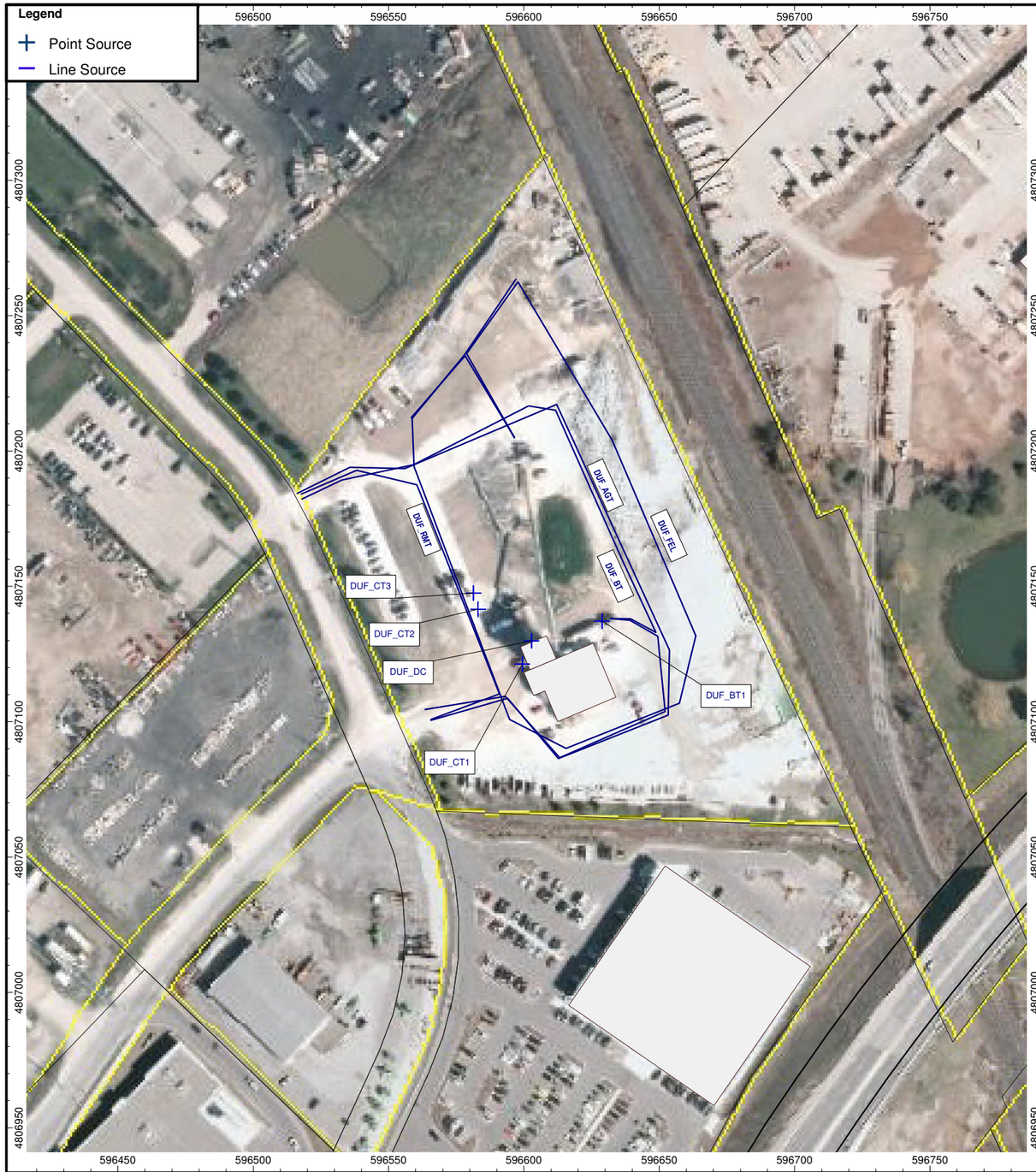
Title	Date	Figure
Noise Abatement Requirements - Transportation Sources	**2017-05-24**	**3**
Project Name: **5209 Stonehaven Drive/Burlington**	Project No.: **117-0082-100**	

E:\AA\1170082\Cadna\2017-05-17 Stonehaven - Transportation.cna

Date Plotted: 24.05.17

Legend

- Point Source
- Line Source



Dufferin Custom Concrete



Forterra Brick

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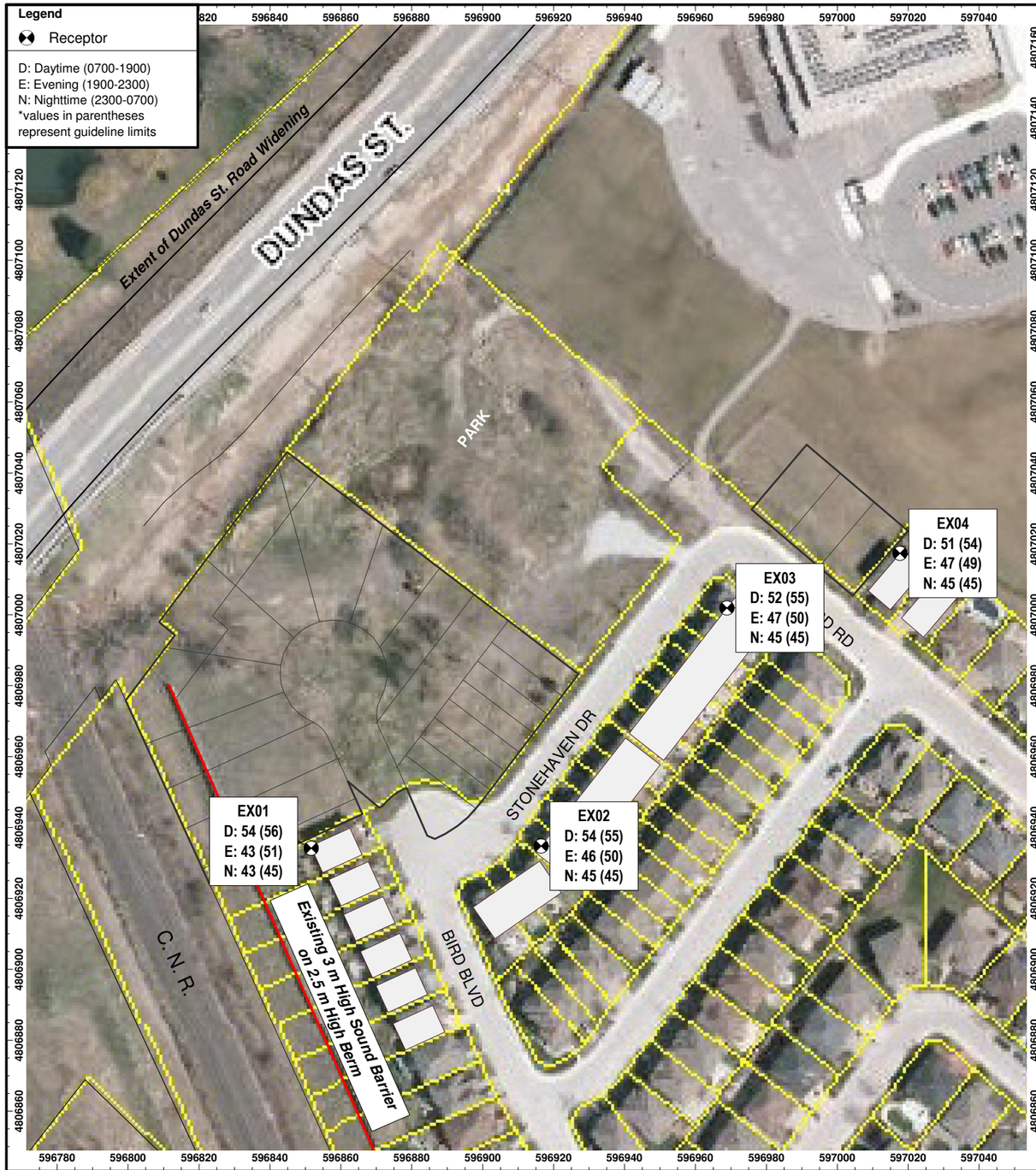
Title: **Stationary Noise Source IDs and Locations**		Date: **2017-05-24**	Figure: **4**
Project Name: **5209 Stonehaven Drive/Burlington**		Project No.: **117-0082-100**	

Date Plotted: 24.05.17

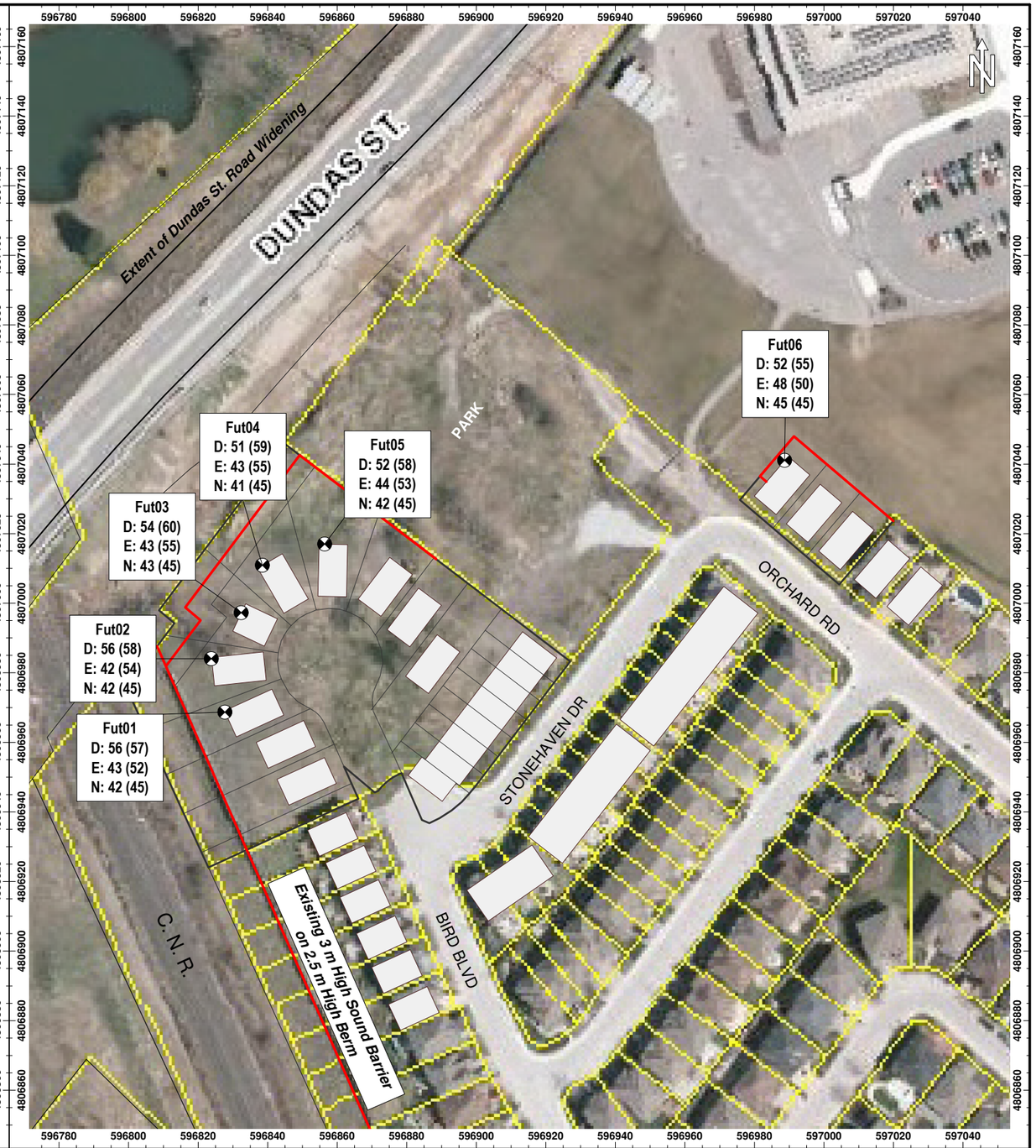
Legend

Receptor

D: Daytime (0700-1900)
E: Evening (1900-2300)
N: Nighttime (2300-0700)
*values in parentheses represent guideline limits



Receptors at Existing Dwellings



Receptors at Proposed Dwellings

VALCOUSTICS Canada Ltd.
consulting acoustical engineers

Title
Predicted Sound Levels (dBA) due to Dufferin Custom Concrete

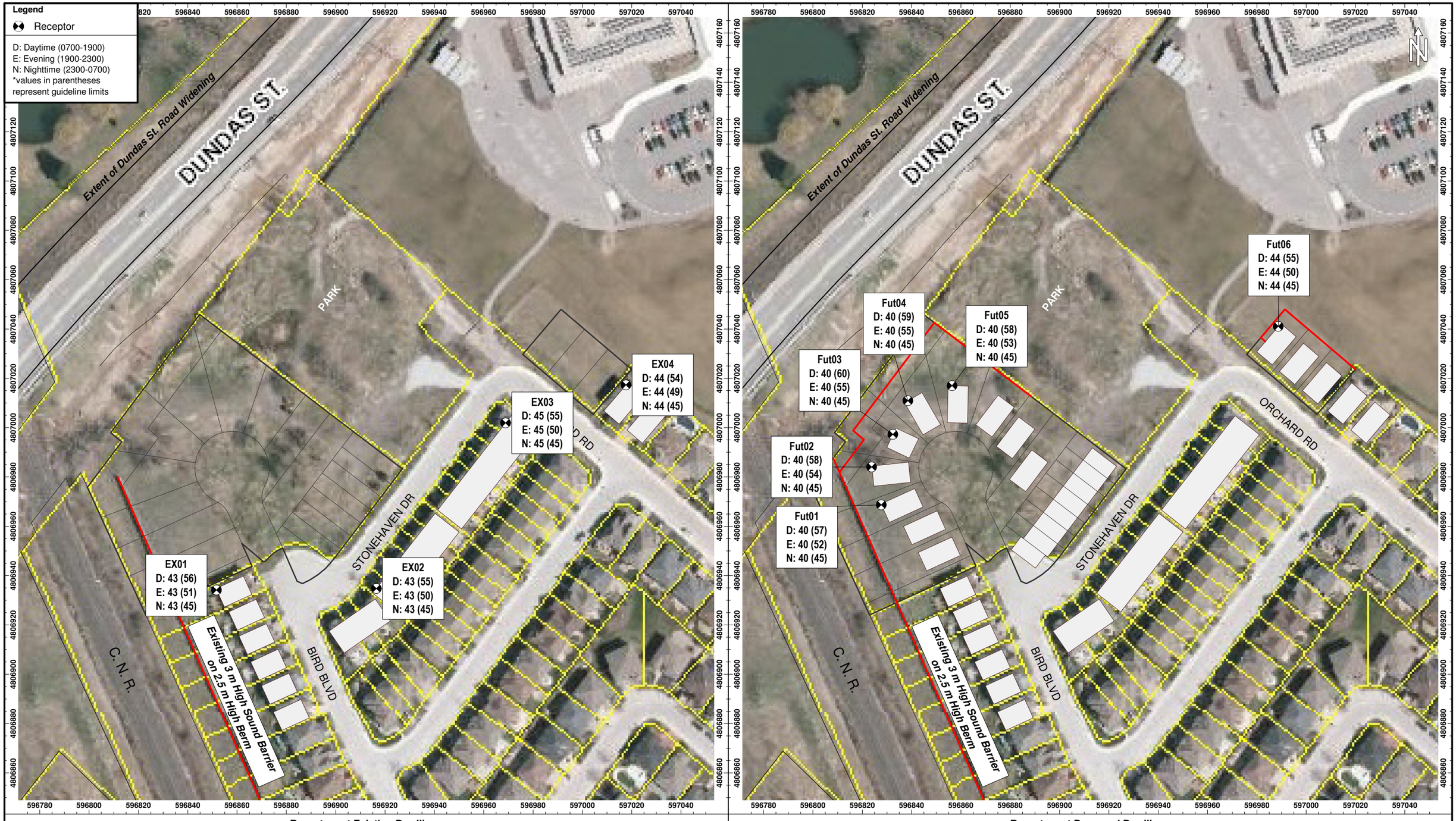
Project Name
5209 Stonehaven Drive/Burlington

Date
2017-05-24

Project No.
117-0082-100

Figure
5

Date Plotted: 24.05.17



Receptors at Existing Dwellings

Receptors at Proposed Dwellings

VALCOUSTICS Canada Ltd. consulting acoustical engineers

Title: **Predicted Sound Levels (dBA) due to Forterra Brick**	Date: **2017-05-24**
Project Name: **5209 Stonehaven Drive/Burlington**	Project No.: **117-0082-100**
	Figure: **6**

Date Plotted: 24.05.17

APPENDIX A

ZONING MAP

City of Burlington Mapping



May 16, 2017

1:5,000

0 0.04 0.08 0.16 mi

0 0.0475 0.095 0.19 km

- NEC Development Control
- Indian Point
- Roseland
- Shoreacres
- Zoning Bylaw
- Designated area for lot coverage

Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap contributors, and the GIS user community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
City of Burlington

APPENDIX B

TRAFFIC DATA

Class/Volume Report Graph

HI-Star ID: 20DF4				Begin: 2016-09-29 12:00 AM					End: 2016-09-30 12:00 AM				
Street: Dundas St - EB				Lane: EB					Hours: 24:00				
State: ON				Oper: MD					Period: 15				
City: Halton Region				Posted: 80					Raw Count: 18590				
Area: at Bronte Creek				AADT Factor: 1					AADT Count: 18590				
NC200 - Metres				0.0 to 4.9	5.0 to 8.4	8.5 to 9.9	10.0 to 12.9	13.0 to 15.9	16.0 to 18.9	19.0 to 22.4	22.5 >	Total	
2016-09-29 [12:00 AM-12:15 AM]			20	10	10	0	0	0	0	0	0	20	
2016-09-29 [12:15 AM-12:30 AM]			19	10	9	0	0	0	0	0	0	19	
2016-09-29 [12:30 AM-12:45 AM]			9	7	2	0	0	0	0	0	0	9	
2016-09-29 [12:45 AM-01:00 AM]			16	4	12	0	0	0	0	0	0	16	
			64	31	33	0	0	0	0	0	0	64	
2016-09-29 [01:00 AM-01:15 AM]			14	6	8	0	0	0	0	0	0	14	
2016-09-29 [01:15 AM-01:30 AM]			15	6	8	0	0	0	1	0	0	15	
2016-09-29 [01:30 AM-01:45 AM]			3	1	1	1	0	0	0	0	0	3	
2016-09-29 [01:45 AM-02:00 AM]			7	4	3	0	0	0	0	0	0	7	
			39	17	20	1	0	0	1	0	0	39	
2016-09-29 [02:00 AM-02:15 AM]			6	4	1	0	0	0	0	0	0	5	
2016-09-29 [02:15 AM-02:30 AM]			4	3	1	0	0	0	0	0	0	4	
2016-09-29 [02:30 AM-02:45 AM]			4	2	1	0	1	0	0	0	0	4	
2016-09-29 [02:45 AM-03:00 AM]			9	7	2	0	0	0	0	0	0	9	
			23	16	5	0	1	0	0	0	0	22	
2016-09-29 [03:00 AM-03:15 AM]			9	4	5	0	0	0	0	0	0	9	
2016-09-29 [03:15 AM-03:30 AM]			6	4	2	0	0	0	0	0	0	6	
2016-09-29 [03:30 AM-03:45 AM]			10	5	4	0	0	0	0	0	0	9	
2016-09-29 [03:45 AM-04:00 AM]			9	3	6	0	0	0	0	0	0	9	
			34	16	17	0	0	0	0	0	0	33	
2016-09-29 [04:00 AM-04:15 AM]			12	10	2	0	0	0	0	0	0	12	
2016-09-29 [04:15 AM-04:30 AM]			20	9	10	1	0	0	0	0	0	20	
2016-09-29 [04:30 AM-04:45 AM]			21	11	7	1	1	1	0	0	0	21	
2016-09-29 [04:45 AM-05:00 AM]			33	20	12	1	0	0	0	0	0	33	
			86	50	31	3	1	1	0	0	0	86	
2016-09-29 [05:00 AM-05:15 AM]			55	30	23	1	0	0	0	0	0	54	
2016-09-29 [05:15 AM-05:30 AM]			71	31	35	1	2	0	0	1	0	70	
2016-09-29 [05:30 AM-05:45 AM]			102	53	44	0	2	0	1	0	0	100	
2016-09-29 [05:45 AM-06:00 AM]			144	66	73	2	1	0	0	1	0	143	
			372	180	175	4	5	0	1	2	0	367	
2016-09-29 [06:00 AM-06:15 AM]			193	100	87	2	2	0	0	0	0	191	
2016-09-29 [06:15 AM-06:30 AM]			331	177	146	2	4	2	0	0	0	331	
2016-09-29 [06:30 AM-06:45 AM]			396	226	152	4	6	3	0	0	0	391	
2016-09-29 [06:45 AM-07:00 AM]			494	281	201	5	4	1	0	0	0	492	
			1414	784	586	13	16	6	0	0	0	1405	
2016-09-29 [07:00 AM-07:15 AM]			571	334	214	8	8	3	0	0	0	567	
2016-09-29 [07:15 AM-07:30 AM]			630	359	245	13	6	3	1	1	0	628	
2016-09-29 [07:30 AM-07:45 AM]			673	399	235	15	11	1	2	4	0	667	
2016-09-29 [07:45 AM-08:00 AM]			632	387	218	8	11	1	1	2	1	629	
			2506	1479	912	44	36	8	4	7	1	2491	
2016-09-29 [08:00 AM-08:15 AM]			576	341	200	19	7	2	1	0	2	572	
2016-09-29 [08:15 AM-08:30 AM]			548	321	198	14	8	1	1	0	3	546	
2016-09-29 [08:30 AM-08:45 AM]			498	286	182	15	10	1	0	0	1	495	
2016-09-29 [08:45 AM-09:00 AM]			466	284	154	16	7	0	1	0	1	463	
			2088	1232	734	64	32	4	3	0	7	2076	
2016-09-29 [09:00 AM-09:15 AM]			385	203	152	10	8	1	2	5	0	381	
2016-09-29 [09:15 AM-09:30 AM]			311	172	109	9	13	1	0	2	0	306	
2016-09-29 [09:30 AM-09:45 AM]			312	163	119	7	10	3	1	3	0	306	
2016-09-29 [09:45 AM-10:00 AM]			258	137	97	6	10	2	3	1	0	256	
			1266	675	477	32	41	7	6	11	0	1249	

NC200 - Metres				0.0 to 4.9	5.0 to 8.4	8.5 to 9.9	10.0 to 12.9	13.0 to 15.9	16.0 to 18.9	19.0 to 22.4	22.5 >	Total
2016-09-29 [10:00 AM-10:15 AM]			247	111	111	9	10	1	2	1	1	246
2016-09-29 [10:15 AM-10:30 AM]			246	120	104	8	5	3	1	3	0	244
2016-09-29 [10:30 AM-10:45 AM]			241	130	90	5	10	2	2	1	0	240
2016-09-29 [10:45 AM-11:00 AM]			237	129	94	4	3	2	2	1	1	236
			971	490	399	26	28	8	7	6	2	966
2016-09-29 [11:00 AM-11:15 AM]			225	131	75	5	8	0	1	3	1	224
2016-09-29 [11:15 AM-11:30 AM]			232	118	97	6	6	0	1	1	1	230
2016-09-29 [11:30 AM-11:45 AM]			228	119	89	4	6	1	0	2	5	226
2016-09-29 [11:45 AM-12:00 PM]			228	119	89	9	6	0	2	3	0	228
			913	487	350	24	26	1	4	9	7	908
2016-09-29 [12:00 PM-12:15 PM]			211	122	76	1	6	2	2	0	2	211
2016-09-29 [12:15 PM-12:30 PM]			218	106	94	5	5	3	1	1	1	216
2016-09-29 [12:30 PM-12:45 PM]			269	153	85	8	7	1	2	4	2	262
2016-09-29 [12:45 PM-01:00 PM]			253	134	96	4	11	1	2	1	2	251
			951	515	351	18	29	7	7	6	7	940
2016-09-29 [01:00 PM-01:15 PM]			239	114	102	6	7	3	0	4	0	236
2016-09-29 [01:15 PM-01:30 PM]			208	107	81	3	9	2	1	2	0	205
2016-09-29 [01:30 PM-01:45 PM]			228	123	93	1	7	2	0	1	0	227
2016-09-29 [01:45 PM-02:00 PM]			201	114	75	3	6	1	1	0	0	200
			876	458	351	13	29	8	2	7	0	868
2016-09-29 [02:00 PM-02:15 PM]			221	115	93	4	8	0	1	0	0	221
2016-09-29 [02:15 PM-02:30 PM]			197	107	81	1	1	0	1	2	0	193
2016-09-29 [02:30 PM-02:45 PM]			187	105	71	4	1	2	0	2	0	185
2016-09-29 [02:45 PM-03:00 PM]			236	132	96	3	2	1	0	0	0	234
			841	459	341	12	12	3	2	4	0	833
2016-09-29 [03:00 PM-03:15 PM]			191	98	77	5	4	1	0	1	1	187
2016-09-29 [03:15 PM-03:30 PM]			214	106	91	7	2	1	2	3	1	213
2016-09-29 [03:30 PM-03:45 PM]			236	132	92	4	5	1	0	2	0	236
2016-09-29 [03:45 PM-04:00 PM]			220	134	76	1	6	0	1	0	0	218
			861	470	336	17	17	3	3	6	2	854
2016-09-29 [04:00 PM-04:15 PM]			285	166	101	5	5	2	2	1	0	282
2016-09-29 [04:15 PM-04:30 PM]			258	145	100	6	5	1	0	0	0	257
2016-09-29 [04:30 PM-04:45 PM]			276	156	97	8	7	1	0	3	1	273
2016-09-29 [04:45 PM-05:00 PM]			291	179	102	5	2	0	0	0	0	288
			1110	646	400	24	19	4	2	4	1	1100
2016-09-29 [05:00 PM-05:15 PM]			287	157	109	9	5	1	0	0	1	282
2016-09-29 [05:15 PM-05:30 PM]			307	172	126	4	1	0	0	1	0	304
2016-09-29 [05:30 PM-05:45 PM]			290	160	117	7	2	1	2	0	0	289
2016-09-29 [05:45 PM-06:00 PM]			287	167	105	6	4	0	0	2	0	284
			1171	656	457	26	12	2	2	3	1	1159
2016-09-29 [06:00 PM-06:15 PM]			271	163	99	3	2	2	0	0	0	269
2016-09-29 [06:15 PM-06:30 PM]			283	175	98	1	4	1	1	1	0	281
2016-09-29 [06:30 PM-06:45 PM]			206	110	86	3	4	1	0	0	1	205
2016-09-29 [06:45 PM-07:00 PM]			210	121	80	1	3	0	2	0	0	207
			970	569	363	8	13	4	3	1	1	962
2016-09-29 [07:00 PM-07:15 PM]			182	101	74	3	3	0	0	0	0	181
2016-09-29 [07:15 PM-07:30 PM]			190	107	74	5	2	0	1	0	0	189
2016-09-29 [07:30 PM-07:45 PM]			166	89	68	5	1	0	0	0	1	164
2016-09-29 [07:45 PM-08:00 PM]			165	83	76	1	2	0	0	1	0	163
			703	380	292	14	8	0	1	1	1	697
2016-09-29 [08:00 PM-08:15 PM]			139	71	64	2	1	0	0	0	0	138
2016-09-29 [08:15 PM-08:30 PM]			142	80	57	2	2	0	0	0	0	141
2016-09-29 [08:30 PM-08:45 PM]			132	74	52	3	1	1	0	0	0	131
2016-09-29 [08:45 PM-09:00 PM]			112	69	38	3	0	0	0	0	0	110
			525	294	211	10	4	1	0	0	0	520

NC200 - Metres				0.0 to 4.9	5.0 to 8.4	8.5 to 9.9	10.0 to 12.9	13.0 to 15.9	16.0 to 18.9	19.0 to 22.4	22.5 >	Total
2016-09-29 [09:00 PM-09:15 PM]			106	60	41	1	2	0	0	0	1	105
2016-09-29 [09:15 PM-09:30 PM]			103	59	37	6	0	0	0	0	0	102
2016-09-29 [09:30 PM-09:45 PM]			86	47	35	3	0	0	0	0	0	85
2016-09-29 [09:45 PM-10:00 PM]			79	44	28	2	1	0	0	1	0	76
			374	210	141	12	3	0	0	1	1	368
2016-09-29 [10:00 PM-10:15 PM]			92	57	31	4	0	0	0	0	0	92
2016-09-29 [10:15 PM-10:30 PM]			83	47	34	1	0	0	0	0	0	82
2016-09-29 [10:30 PM-10:45 PM]			64	35	23	2	3	0	0	0	0	63
2016-09-29 [10:45 PM-11:00 PM]			49	24	23	1	0	0	0	0	0	48
			288	163	111	8	3	0	0	0	0	285
2016-09-29 [11:00 PM-11:15 PM]			43	24	17	0	0	0	0	1	0	42
2016-09-29 [11:15 PM-11:30 PM]			40	26	9	1	0	0	2	0	0	38
2016-09-29 [11:30 PM-11:45 PM]			28	21	4	1	0	0	0	0	0	26
2016-09-29 [11:45 PM-12:00 AM]			33	19	14	0	0	0	0	0	0	33
			144	90	44	2	0	0	2	1	0	139
Daily Totals:			18590	10367	7137	375	335	67	50	69	31	18431
Total Counted:		18590										
Total Classified:		18431	18590	10367	7137	375	335	67	50	69	31	18431
Total Unclassified:		159										
Report Percentages:				56.25%	38.72%	2.03%	1.82%	0.36%	0.27%	0.37%	0.17%	
Peak Time: (AM):		2016-09-29 [07:30 AM-07:45 AM]			Peak Count:	673						
Peak Time: (PM):		2016-09-29 [05:15 PM-05:30 PM]			Peak Count:	307						

Class/Volume Report Graph

HI-Star ID: 20DEC				Begin: 2016-09-29 12:00 AM					End: 2016-09-30 12:00 AM				
Street: Dundas St - WB				Lane: WB					Hours: 24:00				
State: ON				Oper: MD					Period: 15				
City: Halton Region				Posted: 80					Raw Count: 18003				
Area: at Bronte Creek				AADT Factor: 1					AADT Count: 18003				
NC200 - Metres				0.0 to 4.9	5.0 to 8.4	8.5 to 9.9	10.0 to 12.9	13.0 to 15.9	16.0 to 18.9	19.0 to 22.4	22.5 >	Total	
2016-09-29 [12:00 AM-12:15 AM]			41	28	13	0	0	0	0	0	0	41	
2016-09-29 [12:15 AM-12:30 AM]			22	16	5	0	0	0	0	0	0	21	
2016-09-29 [12:30 AM-12:45 AM]			19	14	5	0	0	0	0	0	0	19	
2016-09-29 [12:45 AM-01:00 AM]			21	16	5	0	0	0	0	0	0	21	
			103	74	28	0	0	0	0	0	0	102	
2016-09-29 [01:00 AM-01:15 AM]			6	4	1	0	0	0	0	0	0	5	
2016-09-29 [01:15 AM-01:30 AM]			12	6	6	0	0	0	0	0	0	12	
2016-09-29 [01:30 AM-01:45 AM]			9	8	1	0	0	0	0	0	0	9	
2016-09-29 [01:45 AM-02:00 AM]			13	6	7	0	0	0	0	0	0	13	
			40	24	15	0	0	0	0	0	0	39	
2016-09-29 [02:00 AM-02:15 AM]			10	5	5	0	0	0	0	0	0	10	
2016-09-29 [02:15 AM-02:30 AM]			7	3	3	0	0	0	0	0	0	6	
2016-09-29 [02:30 AM-02:45 AM]			7	4	3	0	0	0	0	0	0	7	
2016-09-29 [02:45 AM-03:00 AM]			5	2	3	0	0	0	0	0	0	5	
			29	14	14	0	0	0	0	0	0	28	
2016-09-29 [03:00 AM-03:15 AM]			6	4	2	0	0	0	0	0	0	6	
2016-09-29 [03:15 AM-03:30 AM]			6	1	4	0	0	0	0	0	0	5	
2016-09-29 [03:30 AM-03:45 AM]			6	5	0	0	0	1	0	0	0	6	
2016-09-29 [03:45 AM-04:00 AM]			5	4	1	0	0	0	0	0	0	5	
			23	14	7	0	0	1	0	0	0	22	
2016-09-29 [04:00 AM-04:15 AM]			5	1	2	0	1	0	0	0	0	4	
2016-09-29 [04:15 AM-04:30 AM]			5	3	1	0	0	0	0	0	0	4	
2016-09-29 [04:30 AM-04:45 AM]			9	5	1	0	1	0	0	0	0	7	
2016-09-29 [04:45 AM-05:00 AM]			17	11	4	0	0	0	0	1	0	16	
			36	20	8	0	2	0	0	1	0	31	
2016-09-29 [05:00 AM-05:15 AM]			20	12	8	0	0	0	0	0	0	20	
2016-09-29 [05:15 AM-05:30 AM]			19	13	6	0	0	0	0	0	0	19	
2016-09-29 [05:30 AM-05:45 AM]			45	22	19	2	0	0	1	0	0	44	
2016-09-29 [05:45 AM-06:00 AM]			44	26	15	0	1	0	0	0	0	42	
			128	73	48	2	1	0	1	0	0	125	
2016-09-29 [06:00 AM-06:15 AM]			39	21	13	2	0	0	1	0	0	37	
2016-09-29 [06:15 AM-06:30 AM]			47	25	13	3	0	0	2	0	0	43	
2016-09-29 [06:30 AM-06:45 AM]			85	39	35	3	1	1	1	1	0	81	
2016-09-29 [06:45 AM-07:00 AM]			95	48	35	7	2	0	0	0	0	92	
			266	133	96	15	3	1	4	1	0	253	
2016-09-29 [07:00 AM-07:15 AM]			143	85	43	2	5	1	1	0	1	138	
2016-09-29 [07:15 AM-07:30 AM]			141	69	54	8	3	3	0	0	0	137	
2016-09-29 [07:30 AM-07:45 AM]			198	98	86	2	2	1	0	0	0	189	
2016-09-29 [07:45 AM-08:00 AM]			250	151	82	3	4	0	0	2	0	242	
			732	403	265	15	14	5	1	2	1	706	
2016-09-29 [08:00 AM-08:15 AM]			262	141	98	4	11	1	2	1	0	258	
2016-09-29 [08:15 AM-08:30 AM]			274	151	106	1	4	0	3	2	0	267	
2016-09-29 [08:30 AM-08:45 AM]			264	144	98	2	6	0	2	2	2	256	
2016-09-29 [08:45 AM-09:00 AM]			255	147	89	5	2	5	1	2	0	251	
			1055	583	391	12	23	6	8	7	2	1032	
2016-09-29 [09:00 AM-09:15 AM]			222	118	91	3	4	1	1	0	1	219	
2016-09-29 [09:15 AM-09:30 AM]			276	144	107	4	6	2	2	0	1	266	
2016-09-29 [09:30 AM-09:45 AM]			203	101	76	7	7	0	4	3	0	198	
2016-09-29 [09:45 AM-10:00 AM]			219	120	79	6	6	0	2	2	0	215	
			920	483	353	20	23	3	9	5	2	898	

NC200 - Metres				0.0 to 4.9	5.0 to 8.4	8.5 to 9.9	10.0 to 12.9	13.0 to 15.9	16.0 to 18.9	19.0 to 22.4	22.5 >	Total
2016-09-29 [10:00 AM-10:15 AM]			195	109	68	4	6	0	1	3	0	191
2016-09-29 [10:15 AM-10:30 AM]			175	103	58	6	2	0	2	1	0	172
2016-09-29 [10:30 AM-10:45 AM]			182	102	65	6	4	0	1	0	0	178
2016-09-29 [10:45 AM-11:00 AM]			175	103	56	5	4	1	1	0	0	170
			727	417	247	21	16	1	5	4	0	711
2016-09-29 [11:00 AM-11:15 AM]			152	75	59	5	8	1	0	1	1	150
2016-09-29 [11:15 AM-11:30 AM]			175	93	65	8	3	1	1	0	0	171
2016-09-29 [11:30 AM-11:45 AM]			214	111	93	2	4	1	0	2	0	213
2016-09-29 [11:45 AM-12:00 PM]			192	98	81	3	4	1	1	1	0	189
			733	377	298	18	19	4	2	4	1	723
2016-09-29 [12:00 PM-12:15 PM]			215	115	84	5	5	0	1	2	0	212
2016-09-29 [12:15 PM-12:30 PM]			206	118	79	3	2	2	0	1	0	205
2016-09-29 [12:30 PM-12:45 PM]			225	131	80	2	3	1	1	1	0	219
2016-09-29 [12:45 PM-01:00 PM]			184	103	70	3	1	0	2	1	1	181
			830	467	313	13	11	3	4	5	1	817
2016-09-29 [01:00 PM-01:15 PM]			197	109	76	2	5	0	0	2	1	195
2016-09-29 [01:15 PM-01:30 PM]			218	130	71	7	3	0	1	0	1	213
2016-09-29 [01:30 PM-01:45 PM]			230	123	93	5	4	0	1	1	2	229
2016-09-29 [01:45 PM-02:00 PM]			231	140	78	4	2	0	2	1	0	227
			876	502	318	18	14	0	4	4	4	864
2016-09-29 [02:00 PM-02:15 PM]			204	118	69	7	3	3	0	2	0	202
2016-09-29 [02:15 PM-02:30 PM]			239	139	84	8	1	0	0	0	0	232
2016-09-29 [02:30 PM-02:45 PM]			268	148	100	8	7	3	0	0	0	266
2016-09-29 [02:45 PM-03:00 PM]			330	197	113	4	6	1	1	0	1	323
			1041	602	366	27	17	7	1	2	1	1023
2016-09-29 [03:00 PM-03:15 PM]			392	213	153	4	4	3	1	1	1	380
2016-09-29 [03:15 PM-03:30 PM]			452	283	157	1	5	1	2	0	0	449
2016-09-29 [03:30 PM-03:45 PM]			485	319	136	3	1	0	0	2	1	462
2016-09-29 [03:45 PM-04:00 PM]			540	363	155	2	4	2	1	0	0	527
			1869	1178	601	10	14	6	4	3	2	1818
2016-09-29 [04:00 PM-04:15 PM]			538	353	164	6	4	0	2	1	0	530
2016-09-29 [04:15 PM-04:30 PM]			549	350	168	2	7	2	1	0	0	530
2016-09-29 [04:30 PM-04:45 PM]			497	338	144	1	1	1	1	1	1	488
2016-09-29 [04:45 PM-05:00 PM]			549	374	145	5	3	1	4	2	0	534
			2133	1415	621	14	15	4	8	4	1	2082
2016-09-29 [05:00 PM-05:15 PM]			511	335	160	4	4	1	0	1	0	505
2016-09-29 [05:15 PM-05:30 PM]			517	343	148	3	1	5	1	0	0	501
2016-09-29 [05:30 PM-05:45 PM]			518	340	165	3	2	0	1	3	0	514
2016-09-29 [05:45 PM-06:00 PM]			532	363	154	0	7	1	0	1	0	526
			2078	1381	627	10	14	7	2	5	0	2046
2016-09-29 [06:00 PM-06:15 PM]			498	349	138	1	3	0	1	0	0	492
2016-09-29 [06:15 PM-06:30 PM]			539	356	166	0	4	2	1	0	0	529
2016-09-29 [06:30 PM-06:45 PM]			450	314	116	3	2	0	1	1	0	437
2016-09-29 [06:45 PM-07:00 PM]			319	202	105	2	3	1	0	0	0	313
			1806	1221	525	6	12	3	3	1	0	1771
2016-09-29 [07:00 PM-07:15 PM]			307	212	91	0	1	0	0	1	0	305
2016-09-29 [07:15 PM-07:30 PM]			267	168	80	2	2	0	1	0	0	253
2016-09-29 [07:30 PM-07:45 PM]			235	149	78	1	2	0	1	0	0	231
2016-09-29 [07:45 PM-08:00 PM]			224	151	66	1	0	0	0	0	0	218
			1033	680	315	4	5	0	2	1	0	1007
2016-09-29 [08:00 PM-08:15 PM]			207	121	76	0	1	0	1	2	0	201
2016-09-29 [08:15 PM-08:30 PM]			161	98	56	1	0	1	1	0	0	157
2016-09-29 [08:30 PM-08:45 PM]			150	97	51	0	0	0	0	0	0	148
2016-09-29 [08:45 PM-09:00 PM]			128	84	42	1	0	0	1	0	0	128
			646	400	225	2	1	1	3	2	0	634

NC200 - Metres				0.0 to 4.9	5.0 to 8.4	8.5 to 9.9	10.0 to 12.9	13.0 to 15.9	16.0 to 18.9	19.0 to 22.4	22.5 >	Total
2016-09-29 [09:00 PM-09:15 PM]			115	83	29	1	1	0	0	0	0	114
2016-09-29 [09:15 PM-09:30 PM]			121	78	39	0	0	0	0	0	0	117
2016-09-29 [09:30 PM-09:45 PM]			95	60	32	1	0	0	0	0	0	93
2016-09-29 [09:45 PM-10:00 PM]			89	49	35	0	1	0	1	1	0	87
			420	270	135	2	2	0	1	1	0	411
2016-09-29 [10:00 PM-10:15 PM]			79	49	26	1	1	0	0	0	0	77
2016-09-29 [10:15 PM-10:30 PM]			90	69	18	0	0	0	0	0	0	87
2016-09-29 [10:30 PM-10:45 PM]			42	24	17	0	0	0	0	0	0	41
2016-09-29 [10:45 PM-11:00 PM]			41	23	18	0	0	0	0	0	0	41
			252	165	79	1	1	0	0	0	0	246
2016-09-29 [11:00 PM-11:15 PM]			64	40	22	0	0	0	0	0	0	62
2016-09-29 [11:15 PM-11:30 PM]			55	35	18	1	0	0	0	0	0	54
2016-09-29 [11:30 PM-11:45 PM]			73	42	27	0	0	0	0	0	0	69
2016-09-29 [11:45 PM-12:00 AM]			35	25	10	0	0	0	0	0	0	35
			227	142	77	1	0	0	0	0	0	220
Daily Totals:			18003	11038	5972	211	207	52	62	52	15	17609
Total Counted:		18003										
Total Classified:		17609	18003	11038	5972	211	207	52	62	52	15	17609
Total Unclassified:		394										
Report Percentages:				62.68%	33.91%	1.20%	1.18%	0.30%	0.35%	0.30%	0.09%	
Peak Time: (AM):		2016-09-29 [09:15 AM-09:30 AM]			Peak Count:	276						
Peak Time: (PM):		2016-09-29 [04:15 PM-04:30 PM]			Peak Count:	549						

Classification Table – FHWA to Nu-Metrics
Measurements in Meters

Represented Classifications								
FHWA class bins	**1-4**	**5**	**6**	**7**	**8**	**9**	**10**	**11-13**
NC-97 class bins	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Readings to Conform to FHWA								
Meters From:	0	6.0	8.5	10.0	13.0	16.0	19.0	>22.5
To:	5.5	8.0	9.5	12.5	15.5	18.5	22.0	

NC-97 Class (Length) Bins

1 = Up to 5.5 meters in length - Cars, small pick-ups

2 = 6.0 - 8.0 meters in length - large pick-ups

3 = 8.5 - 9.5 meters in length - Buses, recreational vehicles, cube vans, medium trucks

4 = 10.0 - 12.5 meters in length - 3 axle trucks, cube vans

5 =13.0 - 15.5 meters in length - Straight truck

6 = 16.0 - 18.5 meters in length - tractor trailer

7 = 19.0 - 22.0 meters in length - tractor trailer, multi trailers

8 = More then 22.5 meters in length - multi trailers

System Engineering
Engineering Services

1 Administration Road
P.O. Box 1000
Concord, ON, L4K 1B9
T: 905.669.3184
F: 905.760.3406

Train Count Data

TRANSMITTAL

To: *Destinataire :*	Valcoustics Canada LTD 30 Wertheim Court, Unit 25 Richmond Hill, ON L4B 1B9	*Project :*	HAL-41.63 – Tremaine Road, Burlington, ON
Att'n:	Anthony Amarra	*Routing:*	Anthony@valcoustics.com
From: *Expéditeur :*	Derek Basso	*Date:* *date :*	June 13th, 2016
Cc:	Raymond Beshro CN via e-mail		

☐ Urgent ☐ For Your Use ☐ For Review ■ For Your Information ☐ Confidential

Re: Train Traffic Data – CN Hatlon Subdivision near Tremain Road in Burlington, ON

Please find attached the requested Train Traffic Data; this data does not reflect GO Metrolinx Traffic. The application fee in the amount of **$500.00** +HST will be invoiced.

Should you have any questions, please do not hesitate to contact the undersigned at 905-669-3184.

Sincerely,
CN Design & Construction

Derek Basso
Engineering Technician
Derek.Basso@cn.ca

Date: 2016/06/13 Project Number: HAL-41.63 – Tremaine Road, Burlington, ON

Dear Anothony:

Re: Train Traffic Data – CN Halton Subdivision near Tremaine Road in Burlington, ON

The following is provided in response to Anthony's 2015/05/24 request for information regarding rail traffic in the vicinity of Tremaine in Burlington at approximately Mile 41.63 on CN's Halton Subdivision.

Typical daily traffic volumes are recorded below. However, traffic volumes may fluctuate due to overall economic conditions, varying traffic demands, weather conditions, track maintenance programs, statutory holidays and traffic detours that when required may be heavy although temporary. For the purpose of noise and vibration reports, train volumes must be escalated by 2.5% per annum for a 10-year period.

Typical daily traffic volumes at this site location are as follows:

***Maximum train speed is given in Miles per Hour**

	0700-2300			
Type of Train	Volumes	Max.Consist	Max. Speed	Max. Power
Freight	10	140	50	4
Way Freight	0	25	50	4
Passenger	0	10	50	2

	2300-0700			
Type of Train	Volumes	Max.Consist	Max. Speed	Max. Power
Freight	8	140	50	4
Way Freight	0	25	50	4
Passenger	0	10	50	2

The volumes recorded reflect westbound and eastbound freight and passenger operations on CN's Halton Subdivision.

Except where anti-whistling bylaws are in effect, engine-warning whistles and bells are normally sounded at all at-grade crossings. There is one at-grade crossing in the immediate vicinity of the study area at Mile 42.20 (Burnhamthorpe Rd. W.). Anti-whistling bylaws are in effect at this crossing. Please note that engine warning whistles may be sounded in cases of emergency, as a safety and or warning precaution at station locations and pedestrian crossings and occasionally for operating requirements.

With respect to equipment restrictions, the gross weight of the heaviest permissible car is 286,000 lbs.

The double mainline track is considered to be continuously welded rail throughout the study area.

The Canadian National Railway continues to be strongly opposed to locating developments near railway facilities and rights-of-way due to potential safety and

environmental conflicts. Development adjacent to the Railway Right-of-Way is not appropriate without sound impact mitigation measures to reduce the incompatibility. For confirmation of the applicable rail noise, vibration and safety standards, Mr. Raymond Beshro, Canadian National Railway Properties at 514-399-7627 should be contacted directly.

I trust the above information will satisfy your current request.

Sincerely,

Derek Basso

Derek Basso
Engineering Technician
Derek.Basso@cn.ca

cc. Raymond Beshro – CN – via e-mail

APPENDIX C

ENVIRONMENTAL NOISE GUIDELINES

APPENDIX C

ENVIRONMENTAL NOISE GUIDELINES

MINISTRY OF THE ENVIRONMENT AND CLIMATE CHANGE (MOE)

Reference: MOE Publication NPC-300, October 2013: "Environmental Noise Guideline, Stationary and Transportation Source - Approval and Planning".

SPACE	SOURCE	TIME PERIOD	CRITERION
Living/dining, den areas of residences, hospitals, nursing homes, schools, daycare centres, etc.	Road	07:00 to 23:00	45 dBA
	Rail	07:00 to 23:00	40 dBA
	Aircraft	24-hour period	NEF/NEP 5
Living/dining, den areas of residences, hospitals, nursing homes, etc. (except schools or daycare centres)	Road	23:00 to 07:00	45 dBA
	Rail	23:00 to 07:00	40 dBA
	Aircraft	24-hour period	NEF/NEP 5
Sleeping quarters	Road	07:00 to 23:00	45 dBA
	Rail	07:00 to 23:00	40 dBA
	Aircraft	24-hour period	NEF/NEP 0
Sleeping quarters	Road	23:00 to 07:00	40 dBA
	Rail	23:00 to 07:00	35 dBA
	Aircraft	24-hour period	NEF/NEP 0
Outdoor Living Areas	Road and Rail	07:00 to 23:00	55 dBA up to 60 dBA allowed in some cases
Outdoor Point of Reception	Aircraft	24-hour period	NEF/NEP 30#
	Stationary Source		
	Class 1 Area	07:00 to 19:00(1)	50* dBA
		19:00 to 23:00(1)	50* dBA
	Class 2 Area	07:00 to 19:00(2)	50* dBA
		19:00 to 23:00(2)	45* dBA
	Class 3 Area	07:00 to 19:00(3)	45* dBA
		19:00 to 23:00(3)	40* dBA
	Class 4 Area	07:00 to 19:00(4)	55* dBA
		19:00 to 23:00(4)	55* dBA

...../cont'd

SPACE	SOURCE	TIME PERIOD	CRITERION
Plane of a Window of Noise Sensitive Spaces	Stationary Source		
	Class 1 Area	07:00 to 19:00(1)	50* dBA
		19:00 to 23:00(1)	50* dBA
		23:00 to 07:00(1)	45* dBA
	Class 2 Area	07:00 to 19:00(2)	50* dBA
		19:00 to 23:00(2)	50* dBA
		23:00 to 07:00(2)	45* dBA
	Class 3 Area	07:00 to 19:00(3)	45* dBA
		19:00 to 23:00(3)	45* dBA
		23:00 to 07:00(3)	40* dBA
	Class 4 Area	07:00 to 19:00(4)	60* dBA
		19:00 to 23:00(4)	60* dBA
		23:00 to 07:00(4)	55* dBA

\# may not apply to in-fill or re-development.
* or the minimum hourly background sound exposure $L_{eq}(1)$, due to road traffic, if higher.
(1) Class 1 Area : Urban
(2) Class 2 Area : Urban during day; rural-like evening and night
(3) Class 3 Area : Rural
(4) Class 4 Area: Subject to land use planning authority's approval

Reference: MOE Publication ISBN 0-7729-2804-5, 1987: "Environmental Noise Assessment in Land-Use Planning".

EXCESS ABOVE RECOMMENDED SOUND LEVEL LIMITS (dBA)	CHANGE IN SUBJECTIVE LOUDNESS ABOVE	MAGNITUDE OF THE NOISE PROBLEM	NOISE CONTROL MEASURES (OR ACTION TO BE TAKEN)
No excess (<55 dBA)	—	No expected noise problem	None
1 to 5 inclusive (56 to 60 dBA)	Noticeably louder	Slight noise impact	If no physical measures are taken, then prospective purchasers or tenants should be made aware by suitable warning clauses.
6 to 10 inclusive (61 - 65 dBA)	Almost twice as loud	Definite noise impact	Recommended.
11 to 15 inclusive (66 - 70 dBA)	Almost three times as loud	Serious noise impact	Strongly Recommended.
16 and over (>70 dBA)	Almost four times as loud	Very serious noise impact	Strongly Recommended (may be mandatory).

APPENDIX D

TRANSPORTATION SOURCE ASSESSMENT

SAMPLE SOUND LEVEL CALCULATION

```
STAMSON 5.04        NORMAL REPORT        Date: 23-05-2017 08:45:57
MINISTRY OF THE ENVIRONMENT AND CLIMATE CHANGE / NOISE ASSESSMENT

Filename: l4_wf.te             Time Period: Day/Night 16/8 hours
Description: Lot 4 (West Facade)

Rail data, segment # 1: CN Halton (day/night)
-----------------------------------------------
Train            ! Trains      ! Speed !# loc !# Cars! Eng  !Cont
Type             !             !(km/h) !/Train!/Train! type !weld
-----------------+-------------+-------+------+------+------+----
  1. Freight     !  13.1/10.5  !  80.0 !  4.0 !140.0 !Diesel! Yes

Data for Segment # 1: CN Halton (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  :  43.40 / 43.40  m
Receiver height           :   4.50 / 4.50   m
Topography                :      2       (Flat/gentle slope; with barrier)
No Whistle
Barrier angle1            : -90.00 deg   Angle2 : 0.00 deg
Barrier height            :   3.00 m
Barrier receiver distance :  12.90 / 12.90  m
Source elevation          : 154.00 m
Receiver elevation        : 156.71 m
Barrier elevation         : 158.00 m
Reference angle           :   0.00

Rail data, segment # 2: CN Halton (day/night)
-----------------------------------------------
Train            ! Trains      ! Speed !# loc !# Cars! Eng  !Cont
Type             !             !(km/h) !/Train!/Train! type !weld
-----------------+-------------+-------+------+------+------+----
  1. Freight     !  13.1/10.5  !  80.0 !  4.0 !140.0 !Diesel! Yes

Data for Segment # 2: CN Halton (day/night)
-----------------------------------------------
Angle1   Angle2           :   0.00 deg   58.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  43.40 / 43.40  m
Receiver height           :   4.50 / 4.50   m
Topography                :      2       (Flat/gentle slope; with barrier)
No Whistle
Barrier angle1            :   0.00 deg   Angle2 : 58.00 deg
Barrier height            :   0.00 m
Barrier receiver distance :  12.90 / 12.90  m
Source elevation          : 154.00 m
Receiver elevation        : 156.71 m
Barrier elevation         : 158.00 m
Reference angle           :   0.00
```

Results segment # 1: CN Halton (day)

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
4.00	4.50	2.26	160.26
0.50	4.50	1.22	159.22

LOCOMOTIVE (0.00 + 58.31 + 0.00) = 58.31 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.31	74.10	-6.07	-3.81	0.00	0.00	-5.91	58.31

WHEEL (0.00 + 48.39 + 0.00) = 48.39 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.42	67.50	-6.55	-4.03	0.00	0.00	-8.52	48.39

Segment Leq : 58.73 dBA

Results segment # 2: CN Halton (day)

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
4.00	4.50	2.26	160.26
0.50	4.50	1.22	159.22

LOCOMOTIVE (0.00 + 61.88 + 0.00) = 61.88 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	58	0.50	74.10	-6.90	-5.32	0.00	0.00	0.00	61.88*
0	58	0.50	74.10	-6.90	-5.32	0.00	0.00	0.00	61.88

* Bright Zone !

WHEEL (0.00 + 54.72 + 0.00) = 54.72 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	58	0.60	67.50	-7.38	-5.40	0.00	0.00	-0.44	54.27*
0	58	0.60	67.50	-7.38	-5.40	0.00	0.00	0.00	54.72

* Bright Zone !

Segment Leq : 62.64 dBA

Total Leq All Segments: 64.12 dBA

Results segment # 1: CN Halton (night)

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
4.00	4.50	2.26	160.26
0.50	4.50	1.22	159.22

LOCOMOTIVE (0.00 + 60.35 + 0.00) = 60.35 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.31	76.15	-6.07	-3.81	0.00	0.00	-5.91	60.35

WHEEL (0.00 + 50.44 + 0.00) = 50.44 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.42	69.55	-6.55	-4.03	0.00	0.00	-8.52	50.44

Segment Leq : 60.77 dBA

Results segment # 2: CN Halton (night)

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
4.00	4.50	2.26	160.26
0.50	4.50	1.22	159.22

LOCOMOTIVE (0.00 + 63.93 + 0.00) = 63.93 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	58	0.50	76.15	-6.90	-5.32	0.00	0.00	0.00	63.93*
0	58	0.50	76.15	-6.90	-5.32	0.00	0.00	0.00	63.93

* Bright Zone !

WHEEL (0.00 + 56.77 + 0.00) = 56.77 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	58	0.60	69.55	-7.38	-5.40	0.00	0.00	-0.44	56.32*
0	58	0.60	69.55	-7.38	-5.40	0.00	0.00	0.00	56.77

* Bright Zone !

Segment Leq : 64.69 dBA

Total Leq All Segments: 66.17 dBA

```
Road data, segment # 1: Dundas WB (day/night)
----------------------------------------------
Car traffic volume  : 24159/2187  veh/TimePeriod  *
Medium truck volume :   509/46    veh/TimePeriod  *
Heavy truck volume  :   763/69    veh/TimePeriod  *
Posted speed limit  :    80 km/h
Road gradient       :     2 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  27732
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   2.00
    Heavy Truck  % of Total Volume     :   3.00
    Day (16 hrs) % of Total Volume     :  91.70

Data for Segment # 1: Dundas WB (day/night)
-------------------------------------------
Angle1   Angle2           : -90.00 deg   53.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  81.20 / 81.20  m
Receiver height           :   4.50 / 4.50   m
Topography                :      4       (Elevated; with barrier)
Barrier angle1            : -90.00 deg   Angle2 : 53.00 deg
Barrier height            :   0.00 m
Elevation                 :   7.40 m
Barrier receiver distance :  60.55 / 60.55  m
Source elevation          : 164.11 m
Receiver elevation        : 156.71 m
Barrier elevation         : 164.11 m
Reference angle           :   0.00

Road data, segment # 2: Dundas EB (day/night)
---------------------------------------------
Car traffic volume  : 24159/2187  veh/TimePeriod  *
Medium truck volume :   509/46    veh/TimePeriod  *
Heavy truck volume  :   763/69    veh/TimePeriod  *
Posted speed limit  :    80 km/h
Road gradient       :     2 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  27732
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   2.00
    Heavy Truck  % of Total Volume     :   3.00
    Day (16 hrs) % of Total Volume     :  91.70
```

```
Data for Segment # 2: Dundas EB (day/night)
-------------------------------------------
Angle1   Angle2           : -90.00 deg   53.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  67.45 / 67.45  m
Receiver height           :   4.50 / 4.50   m
Topography                :      4       (Elevated; with barrier)
Barrier angle1            : -90.00 deg   Angle2 : 53.00 deg
Barrier height            :   0.00 m
Elevation                 :   7.40 m
Barrier receiver distance :  60.55 / 60.55  m
Source elevation          : 164.11 m
Receiver elevation        : 156.71 m
Barrier elevation         : 164.11 m
Reference angle           :   0.00

Results segment # 1: Dundas WB (day)
------------------------------------

Source height = 1.32 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.32 !        4.50 !        0.24 !       164.35

ROAD (0.00 + 62.16 + 0.00) = 62.16 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     53   0.35  73.72   0.00  -9.93  -1.63   0.00   0.00  -4.93  57.23*
   -90     53   0.35  73.72   0.00  -9.93  -1.63   0.00   0.00   0.00  62.16
-------------------------------------------------------------------------------

 * Bright Zone !

Segment Leq : 62.16 dBA

Results segment # 2: Dundas EB (day)
------------------------------------

Source height = 1.32 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.32 !        4.50 !        0.88 !       164.99


ROAD (0.00 + 63.25 + 0.00) = 63.25 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     53   0.35  73.72   0.00  -8.84  -1.63   0.00   0.00  -1.70  61.55*
   -90     53   0.35  73.72   0.00  -8.84  -1.63   0.00   0.00   0.00  63.25
-------------------------------------------------------------------------------

 * Bright Zone !

Segment Leq : 63.25 dBA

Total Leq All Segments: 65.75 dBA
```

```
Results segment # 1: Dundas WB (night)
---------------------------------------

Source height = 1.32 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.32 !        4.50 !        0.24 !       164.35

ROAD (0.00 + 54.73 + 0.00) = 54.73 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     53   0.35  66.29   0.00  -9.93  -1.63   0.00   0.00  -4.93  49.80*
   -90     53   0.35  66.29   0.00  -9.93  -1.63   0.00   0.00   0.00  54.73
-------------------------------------------------------------------------------

 * Bright Zone !

Segment Leq : 54.73 dBA

Results segment # 2: Dundas EB (night)
---------------------------------------

Source height = 1.32 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.32 !        4.50 !        0.88 !       164.99

ROAD (0.00 + 55.82 + 0.00) = 55.82 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     53   0.35  66.29   0.00  -8.84  -1.63   0.00   0.00  -1.70  54.12*
   -90     53   0.35  66.29   0.00  -8.84  -1.63   0.00   0.00   0.00  55.82
-------------------------------------------------------------------------------

 * Bright Zone !

Segment Leq : 55.82 dBA

Total Leq All Segments: 58.32 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 68.02
                           (NIGHT): 66.83
```

APPENDIX E

STATIONARY SOURCE ASSESSMENT AMBIENT SOUND LEVEL ANALYSIS

APPENDIX E

AMBIENT SOUND LEVEL ANALYSIS

The minimum ambient sound levels due to Dundas Street were predicted at the existing and proposed residential buildings using the CadnaA implementation of the RLS-90 traffic model. This is considered conservative as RLS-90 predicts sound levels that are typically lower than those predicted using the MOE ORNAMENT/STAMSON method.

The minimum hourly traffic volumes for the daytime, evening and nighttime periods were taken from the hourly traffic counts obtained from the Region of Halton (see Appendix B). The minimum volumes are:

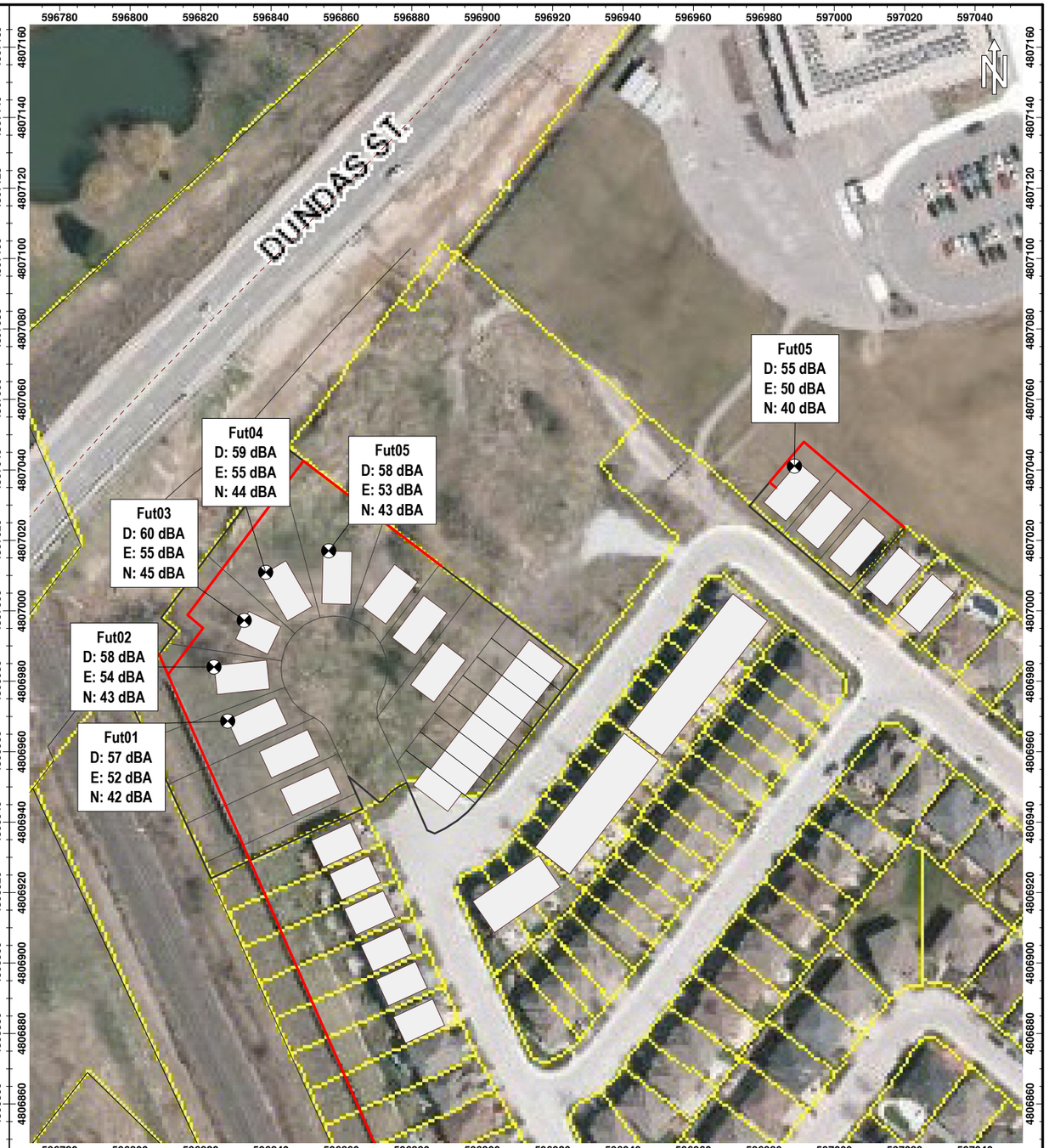
- Daytime – 1646 vehicles per hour;
- Evening – 540 vehicles per hour; and
- Nighttime – 52 vehicles per hour.

These volumes were then entered into the RLS-90 model to determine the applicable ambient sound levels.

Figure E1 shows the predicted sound levels due to road traffic at the existing and future proposed dwellings, respectively, in the daytime, evening and nighttime scenarios.



Receptors at Existing Dwellings



Receptors at Proposed Dwellings

VALCOUSTICS
Canada Ltd.
consulting acoustical engineers

Title
Ambient Sound Levels due to Road Traffic

Project Name
5209 Stonehaven Drive/Burlington

Date
2017-05-17

Project No.
117-0082-100

Figure
E1

Date Plotted: 19.05.17

APPENDIX F

STATIONARY SOURCE ASSESSMENT

SAMPLE SOUND LEVEL CALCULATION

Point Source Table

Name	M.	ID	Result. PWL			Lw / Li			Correction			Sound Reduction		Attenuation	Operating Time			K0	Freq.	Direct.	Height		Coordinates		
			Day	Evening	Night	Type	Value	norm.	Day	Evening	Night	R	Area		Day	Special	Night						X	Y	Z
			(dBA)	(dBA)	(dBA)			dB(A)	dB(A)	dB(A)	dB(A)		(m²)		(min)	(min)	(min)	(dB)	(Hz)		(m)		(m)	(m)	(m)
Blower Truck		DUF_BT1	118.0	118.0	118.0	Lw	113		5.0	5.0	5.0				60.00	0.00	0.00	0.0	500	(none)	1.00	r	596628.97	4807137.13	158.72
Cement truck being loaded		DUF_CT1	114.0	114.0	114.0	Lw	114		0.0	0.0	0.0							0.0	500	(none)	1.50	r	596599.37	4807121.28	158.50
6 Concrete trucks idling (empty)		DUF_CT2	109.8	109.8	109.8	Lw	102+10*log10(6)		0.0	0.0	0.0				60.00	60.00	30.00	0.0	500	(none)	1.50	r	596583.07	4807141.54	158.92
2 Concrete trucks idling (full)		DUF_CT3	115.0	115.0	115.0	Lw	112+10*log10(2)		0.0	0.0	0.0				60.00	60.00	30.00	0.0	500	(none)	1.50	r	596581.38	4807147.53	159.03
Dust Collector		DUF_DC	107.0	107.0	107.0	Lw	107		0.0	0.0	0.0							0.0	500	(none)	18.00	r	596602.84	4807129.87	175.01
Kiln Stack Plant 1		CB_KSP1	102.0	102.0	102.0	Lw	102		0.0	0.0	0.0							0.0	500	(none)	25.00	r	596582.05	4807606.07	181.08
Dust Collector 1		CB_DC1	107.0	107.0	107.0	Lw	107		0.0	0.0	0.0							0.0	500	(none)	5.00	r	596560.93	4807580.48	161.24
Blower Unloading Area Plant 1		CB_BUAP1	123.0	123.0	123.0	Lw	123		0.0	0.0	0.0							0.0	500	(none)	1.00	r	596528.37	4807619.17	156.95
Dust Collector 2		CB_DC2	102.0	102.0	102.0	Lw	102		0.0	0.0	0.0							0.0	500	(none)	8.00	r	596522.68	4807684.78	163.48
Dust Collector 3 Stack		CB_DC3S	99.0	99.0	99.0	Lw	99		0.0	0.0	0.0							0.0	500	(none)	10.00	r	596468.09	4807708.41	165.27
Dust Collector 3 Fan		CB_DC3F	97.0	97.0	97.0	Lw	97		0.0	0.0	0.0							0.0	500	(none)	2.00	r	596467.52	4807708.16	157.27
Front End Loader 1		CB_FEL1	107.0	107.0	107.0	Lw	107		0.0	0.0	0.0							0.0	500	(none)	3.20	r	596461.29	4807760.14	158.10
Dump Trucks 1		CB_DT1	107.5	107.5	107.5	Lw	107.5		0.0	0.0	0.0							0.0	500	(none)	2.40	r	596514.87	4807764.36	157.31
Crusher Shed 1		CB_CS1	94.0	94.0	94.0	Lw	94		0.0	0.0	0.0							0.0	63	(none)	0.10	g	596459.92	4807728.61	160.35
Kiln Stack Plant 2		CB_KSP2	101.0	101.0	101.0	Lw	107		0.0	0.0	0.0			6				0.0	500	(none)	21.00	r	596692.58	4807417.39	177.58
Dryer Stack Plant 2		CB_DSP2	104.0	104.0	104.0	Lw	111.5		0.0	0.0	0.0			7.5				0.0	500	(none)	11.00	r	596662.44	4807446.89	168.21

Line Source Table

Name	M.	ID	Result. PWL			Result. PWL'			Lw / Li			Correction			Sound Reduction		Attenuation	Operating Time			K0	Freq.	Direct.	Moving Pt. Src			
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Evening	Night	R	Area		Day	Special	Night				Number			Speed
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	dB(A)	dB(A)	dB(A)		(m²)		(min)	(min)	(min)	(dB)	(Hz)		Day	Evening	Night	(km/h)
Aggregate Trucks		DUF_AGT	93.2	93.2	93.2	68.0	68.0	68.0	PWL-Pt	105		0.0	0.0	0.0							0.0	500	(none)	4.0	4.0	4.0	20.0
Ready-mix Trucks		DUF_RMT	97.9	97.9	94.9	76.0	76.0	73.0	PWL-Pt	107		0.0	0.0	0.0							0.0	500	(none)	16.0	16.0	8.0	20.0
Blower Truck		DUF_BT	90.5	-9.5	-9.5	65.0	-35.0	-35.0	PWL-Pt	108		0.0	0.0	0.0							0.0	500	(none)	1.0	0.0	0.0	20.0
Front End Loader		DUF_FEL	109.0	109.0	109.0	81.5	81.5	81.5	Lw	109		0.0	0.0	0.0				36.00	36.00	36.00	0.0	500	(none)				

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Calculation Configuration

Configuration	
Parameter	Value
General	
Country	International
Max. Error (dB)	0.00
Max. Search Radius (m)	2000.00
Min. Dist Src to Rcvr	0.00
Partition	
Raster Factor	0.50
Max. Length of Section (m)	1000.00
Min. Length of Section (m)	1.00
Min. Length of Section (%)	0.00
Proj. Line Sources	On
Proj. Area Sources	On
Ref. Time	
Reference Time Day (min)	960.00
Reference Time Night (min)	480.00
Daytime Penalty (dB)	0.00
Recr. Time Penalty (dB)	6.00
Night-time Penalty (dB)	10.00
DTM	
Standard Height (m)	150.00
Model of Terrain	Triangulation
Reflection	
max. Order of Reflection	2
Search Radius Src	100.00
Search Radius Rcvr	100.00
Max. Distance Source - Rcvr	1000.00 1000.00
Min. Distance Rvcr - Reflector	1.00 1.00
Min. Distance Source - Reflector	0.10
Industrial (ISO 9613)	
Lateral Diffraction	some Obj
Obst. within Area Src do not shield	On
Screening	Excl. Ground Att. over Barrier
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	3.0 20.0 0.0
Temperature (°C)	10
rel. Humidity (%)	70
Ground Absorption G	0.00
Wind Speed for Dir. (m/s)	3.0
Roads (RLS-90)	
Strictly acc. to RLS-90	
Railways (Schall 03 (1990))	
Strictly acc. to Schall 03 / Schall-Transrapid	
Aircraft (???)	
Strictly acc. to AzB	

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Receiver
Name: (untitled)
ID: EX03
X: 596968.85
Y: 4807001.93
Z: 159.50

Point Source, ISO 9613, Name: "Cement truck being loaded", ID: "DUF_CT1"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
2	596599.37	4807121.28	158.50	0	DEN	500	114.0	0.0	0.0	0.0	0.0	62.8	0.7	-4.6	0.0	0.0	24.2	0.0	0.0	30.8

Point Source, ISO 9613, Name: "2 Concrete trucks idling (full)", ID: "DUF_CT3"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
4	596581.38	4807147.53	159.03	0	D	500	115.0	0.0	0.0	0.0	0.0	63.3	0.8	-4.7	0.0	0.0	9.6	0.0	0.0	45.9

Point Source, ISO 9613, Name: "Blower Truck", ID: "DUF_BT1"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
6	596628.97	4807137.13	158.72	0	D	500	118.0	0.0	0.0	0.0	0.0	62.3	0.7	-4.6	0.0	0.0	9.9	0.0	0.0	49.7

Point Source, ISO 9613, Name: "6 Concrete trucks idling (empty)", ID: "DUF_CT2"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
9	596583.07	4807141.54	158.92	0	D	500	109.8	0.0	0.0	0.0	0.0	63.3	0.8	-4.7	0.0	0.0	12.3	0.0	0.0	38.1

Point Source, ISO 9613, Name: "Dust Collector", ID: "DUF_DC"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
11	596602.84	4807129.87	175.01	0	DEN	500	107.0	0.0	0.0	0.0	0.0	62.8	0.7	-3.0	0.0	0.0	14.9	0.0	0.0	31.6

Line Source, ISO 9613, Name: "Front End Loader", ID: "DUF_FEL"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
15	596648.06	4807167.83	160.50	0	D	500	81.5	19.0	-2.2	0.0	0.0	62.2	0.7	-4.3	0.0	0.0	9.1	0.0	0.0	30.6
18	596593.82	4807103.11	159.52	0	D	500	81.5	6.9	-2.2	0.0	0.0	62.8	0.7	-4.4	0.0	0.0	9.4	0.0	0.0	17.6
20	596589.35	4807114.94	159.60	0	D	500	81.5	13.1	-2.2	0.0	0.0	63.0	0.8	-4.4	0.0	0.0	13.9	0.0	0.0	19.3
23	596582.38	4807133.40	159.73	0	D	500	81.5	12.8	-2.2	0.0	0.0	63.2	0.8	-4.5	0.0	0.0	19.1	0.0	0.0	13.5
26	596578.15	4807144.59	159.81	0	D	500	81.5	6.9	-2.2	0.0	0.0	63.4	0.8	-4.5	0.0	0.0	10.9	0.0	0.0	15.6
27	596568.35	4807170.54	160.00	0	D	500	81.5	17.0	-2.2	0.0	0.0	63.8	0.8	-4.6	0.0	0.0	9.4	0.0	0.0	27.0
30	596594.31	4807101.81	159.51	1	D	500	81.5	3.1	-2.2	0.0	0.0	63.1	0.8	-4.4	0.0	0.0	18.6	0.0	2.0	2.4
33	596615.21	4807233.19	160.50	0	D	500	81.5	18.3	-2.2	0.0	0.0	63.5	0.8	-4.5	0.0	0.0	9.3	0.0	0.0	28.5
35	596636.44	4807098.47	159.50	0	D	500	81.5	16.5	-2.2	0.0	0.0	61.8	0.7	-4.2	0.0	0.0	9.6	0.0	0.0	28.0
39	596621.14	4807092.36	159.50	1	D	500	81.5	10.9	-2.2	0.0	0.0	62.4	0.7	-4.3	0.0	0.0	9.4	0.0	2.0	19.9
42	596660.45	4807119.29	160.00	0	D	500	81.5	14.1	-2.2	0.0	0.0	61.4	0.6	-4.1	0.0	0.0	9.4	0.0	0.0	26.1
47	596587.69	4807220.42	160.50	0	D	500	81.5	15.5	-2.2	0.0	0.0	63.9	0.8	-4.6	0.0	0.0	9.3	0.0	0.0	25.4
50	596587.39	4807220.04	160.50	0	D	500	81.5	15.5	-2.2	0.0	0.0	63.9	0.8	-4.6	0.0	0.0	9.3	0.0	0.0	25.3
65	596605.08	4807095.47	159.50	0	D	500	81.5	13.7	-2.2	0.0	0.0	62.5	0.7	-4.3	0.0	0.0	9.4	0.0	0.0	24.7
67	596597.25	4807099.52	159.50	1	D	500	81.5	7.6	-2.2	0.0	0.0	63.1	0.8	-4.4	0.0	0.0	19.4	0.0	2.0	6.1
69	596612.21	4807091.79	159.50	1	D	500	81.5	8.7	-2.2	0.0	0.0	62.5	0.7	-4.3	0.0	0.0	9.4	0.0	2.0	17.7
71	596587.62	4807249.58	160.50	0	D	500	81.5	15.2	-2.2	0.0	0.0	64.2	0.9	-4.6	0.0	0.0	9.4	0.0	0.0	24.8
74	596588.32	4807249.20	160.50	0	D	500	81.5	15.1	-2.2	0.0	0.0	64.1	0.9	-4.6	0.0	0.0	9.4	0.0	0.0	24.7
78	596568.47	4807223.89	160.50	0	D	500	81.5	14.9	-2.2	0.0	0.0	64.2	0.9	-4.6	0.0	0.0	9.4	0.0	0.0	24.3
82	596568.29	4807223.77	160.50	0	D	500	81.5	14.8	-2.2	0.0	0.0	64.2	0.9	-4.6	0.0	0.0	9.4	0.0	0.0	24.3
85	596559.05	4807203.10	160.33	0	D	500	81.5	12.5	-2.2	0.0	0.0	64.2	0.9	-4.6	0.0	0.0	9.4	0.0	0.0	22.0

Line Source, ISO 9613, Name: "Ready-mix Trucks", ID: "DUF_RMT"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
54	596588.09	4807117.47	159.46	0	D	500	76.0	11.9	0.0	0.0	0.0	63.0	0.8	-4.4	0.0	0.0	14.9	0.0	0.0	13.7
56	596581.72	4807133.63	159.59	0	D	500	76.0	12.9	0.0	0.0	0.0	63.2	0.8	-4.5	0.0	0.0	19.0	0.0	0.0	10.3
59	596577.26	4807144.92	159.68	0	D	500	76.0	7.0	0.0	0.0	0.0	63.4	0.8	-4.5	0.0	0.0	11.0	0.0	0.0	12.3

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Line Source, ISO 9613, Name: "Ready-mix Trucks", ID: "DUF_RMT"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
62	596568.41	4807167.35	159.86	0	D	500	76.0	16.4	0.0	0.0	0.0	63.7	0.8	-4.6	0.0	0.0	9.4	0.0	0.0	23.0
92	596574.94	4807104.29	159.40	0	D	500	76.0	13.0	0.0	0.0	0.0	63.2	0.8	-4.5	0.0	0.0	9.4	0.0	0.0	20.1
95	596587.59	4807109.03	159.40	0	D	500	76.0	8.5	0.0	0.0	0.0	63.0	0.8	-4.4	0.0	0.0	12.8	0.0	0.0	12.5
99	596549.34	4807190.15	159.88	0	D	500	76.0	13.6	0.0	0.0	0.0	64.3	0.9	-4.6	0.0	0.0	9.4	0.0	0.0	19.7
103	596527.97	4807188.46	159.58	0	D	500	76.0	13.5	0.0	0.0	0.0	64.6	0.9	-4.7	0.0	0.0	9.5	0.0	0.0	19.2

Line Source, ISO 9613, Name: "Aggregate Trucks", ID: "DUF_AGT"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
88	596632.93	4807171.83	160.26	0	DEN	500	68.0	20.0	0.0	0.0	0.0	62.5	0.7	-4.4	0.0	0.0	9.2	0.0	0.0	19.9
106	596632.97	4807094.38	159.40	0	DEN	500	68.0	16.4	0.0	0.0	0.0	61.8	0.7	-4.2	0.0	0.0	9.6	0.0	0.0	16.5
108	596618.92	4807088.82	159.40	1	DEN	500	68.0	11.3	0.0	0.0	0.0	62.5	0.7	-4.4	0.0	0.0	9.5	0.0	2.0	8.9
110	596584.04	4807205.37	160.19	0	DEN	500	68.0	17.8	0.0	0.0	0.0	63.8	0.8	-4.6	0.0	0.0	9.4	0.0	0.0	16.5
112	596653.49	4807114.42	159.76	0	DEN	500	68.0	13.8	0.0	0.0	0.0	61.5	0.6	-4.1	0.0	0.0	9.6	0.0	0.0	14.3
118	596595.87	4807106.34	159.40	0	DEN	500	68.0	7.8	0.0	0.0	0.0	62.8	0.7	-4.4	0.0	0.0	13.5	0.0	0.0	3.2
119	596605.25	4807095.20	159.40	0	DEN	500	68.0	13.6	0.0	0.0	0.0	62.5	0.7	-4.3	0.0	0.0	9.4	0.0	0.0	13.3
121	596598.34	4807103.41	159.40	1	DEN	500	68.0	9.0	0.0	0.0	0.0	63.1	0.8	-4.5	0.0	0.0	21.1	0.0	2.0	-5.5
123	596610.37	4807089.13	159.40	1	DEN	500	68.0	8.6	0.0	0.0	0.0	62.6	0.7	-4.4	0.0	0.0	9.4	0.0	2.0	6.2
126	596576.67	4807103.68	159.40	0	DEN	500	68.0	13.6	0.0	0.0	0.0	63.2	0.8	-4.5	0.0	0.0	9.4	0.0	0.0	12.7
128	596590.81	4807107.73	159.40	0	DEN	500	68.0	8.1	0.0	0.0	0.0	62.9	0.8	-4.4	0.0	0.0	13.0	0.0	0.0	3.9
131	596545.85	4807193.74	159.90	0	DEN	500	68.0	13.1	0.0	0.0	0.0	64.3	0.9	-4.7	0.0	0.0	9.5	0.0	0.0	11.0
135	596526.00	4807189.16	159.61	0	DEN	500	68.0	13.4	0.0	0.0	0.0	64.6	0.9	-4.7	0.0	0.0	9.5	0.0	0.0	11.0

Line Source, ISO 9613, Name: "Blower Truck", ID: "DUF_BT"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
139	596624.04	4807187.36	160.40	0	D	500	65.0	17.8	0.0	0.0	0.0	62.9	0.8	-4.4	0.0	0.0	9.2	0.0	0.0	14.4
143	596632.68	4807095.23	159.40	0	D	500	65.0	16.3	0.0	0.0	0.0	61.9	0.7	-4.2	0.0	0.0	9.6	0.0	0.0	13.4
148	596619.39	4807089.40	159.40	1	D	500	65.0	11.3	0.0	0.0	0.0	62.5	0.7	-4.3	0.0	0.0	9.5	0.0	2.0	5.9
151	596580.48	4807205.80	160.23	0	D	500	65.0	16.8	0.0	0.0	0.0	63.8	0.8	-4.6	0.0	0.0	9.4	0.0	0.0	12.3
154	596650.79	4807117.66	159.82	0	D	500	65.0	14.5	0.0	0.0	0.0	61.6	0.7	-4.2	0.0	0.0	9.5	0.0	0.0	11.9
157	596642.53	4807146.35	160.33	0	D	500	65.0	14.7	0.0	0.0	0.0	62.0	0.7	-4.3	0.0	0.0	9.2	0.0	0.0	12.0
161	596595.48	4807106.69	159.40	0	D	500	65.0	8.5	0.0	0.0	0.0	62.8	0.7	-4.4	0.0	0.0	13.5	0.0	0.0	0.9
163	596605.53	4807095.37	159.40	0	D	500	65.0	13.7	0.0	0.0	0.0	62.5	0.7	-4.3	0.0	0.0	9.4	0.0	0.0	10.3
165	596598.35	4807103.45	159.40	1	D	500	65.0	8.9	0.0	0.0	0.0	63.1	0.8	-4.5	0.0	0.0	21.2	0.0	2.0	-8.6
168	596610.75	4807089.49	159.40	1	D	500	65.0	8.7	0.0	0.0	0.0	62.6	0.7	-4.4	0.0	0.0	9.4	0.0	2.0	3.3
171	596573.75	4807106.16	159.40	0	D	500	65.0	13.2	0.0	0.0	0.0	63.2	0.8	-4.5	0.0	0.0	9.4	0.0	0.0	9.2
175	596588.56	4807108.60	159.40	0	D	500	65.0	9.7	0.0	0.0	0.0	62.9	0.8	-4.4	0.0	0.0	12.9	0.0	0.0	2.5
180	596546.02	4807192.10	159.84	0	D	500	65.0	14.3	0.0	0.0	0.0	64.3	0.9	-4.7	0.0	0.0	9.5	0.0	0.0	9.3
182	596644.30	4807134.52	160.25	0	D	500	65.0	10.8	0.0	0.0	0.0	61.9	0.7	-4.2	0.0	0.0	9.3	0.0	0.0	8.1
183	596642.63	4807135.49	160.26	1	D	500	65.0	9.1	0.0	0.0	0.0	62.6	0.7	-4.4	0.0	0.0	9.3	0.0	2.0	3.8
186	596644.04	4807135.54	160.27	0	D	500	65.0	10.2	0.0	0.0	0.0	61.9	0.7	-4.2	0.0	0.0	9.3	0.0	0.0	7.6
189	596642.93	4807136.13	160.28	1	D	500	65.0	9.1	0.0	0.0	0.0	62.6	0.7	-4.4	0.0	0.0	9.3	0.0	2.0	3.8
190	596525.39	4807185.75	159.51	0	D	500	65.0	12.1	0.0	0.0	0.0	64.6	0.9	-4.7	0.0	0.0	9.5	0.0	0.0	6.8
193	596606.72	4807215.85	160.40	0	D	500	65.0	10.0	0.0	0.0	0.0	63.5	0.8	-4.5	0.0	0.0	9.3	0.0	0.0	6.0
196	596635.67	4807138.06	160.24	0	D	500	65.0	8.7	0.0	0.0	0.0	62.1	0.7	-4.3	0.0	0.0	9.3	0.0	0.0	5.9
200	596635.67	4807138.06	160.24	1	D	500	65.0	8.7	0.0	0.0	0.0	62.6	0.7	-4.4	0.0	0.0	9.3	0.0	2.0	3.5
203	596635.55	4807137.78	160.23	0	D	500	65.0	8.6	0.0	0.0	0.0	62.1	0.7	-4.3	0.0	0.0	9.3	0.0	0.0	5.8
205	596635.55	4807137.78	160.23	1	D	500	65.0	8.6	0.0	0.0	0.0	62.6	0.7	-4.4	0.0	0.0	9.3	0.0	2.0	3.3

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Receiver
Name: (untitled)
ID: Fut02
X: 596823.82
Y: 4806984.04
Z: 160.50

Point Source, ISO 9613, Name: "Cement truck being loaded", ID: "DUF_CT1"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5	596599.37	4807121.28	158.50	0	DEN	500	114.0	0.0	0.0	0.0	0.0	59.4	0.5	-4.2	0.0	0.0	28.4	0.0	0.0	29.9

Point Source, ISO 9613, Name: "2 Concrete trucks idling (full)", ID: "DUF_CT3"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
15	596581.38	4807147.53	159.03	0	D	500	115.0	0.0	0.0	0.0	0.0	60.3	0.6	-4.4	0.0	0.0	29.0	0.0	0.0	29.5

Point Source, ISO 9613, Name: "Blower Truck", ID: "DUF_BT1"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
24	596628.97	4807137.13	158.72	0	D	500	118.0	0.0	0.0	0.0	0.0	58.9	0.5	-4.3	0.0	0.0	9.3	0.0	0.0	53.6
35	596628.97	4807137.13	158.72	1	D	500	118.0	0.0	0.0	0.0	0.0	59.1	0.5	-4.3	0.0	0.0	9.3	0.0	2.0	51.4

Point Source, ISO 9613, Name: "6 Concrete trucks idling (empty)", ID: "DUF_CT2"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
40	596583.07	4807141.54	158.92	0	D	500	109.8	0.0	0.0	0.0	0.0	60.2	0.6	-4.3	0.0	0.0	28.5	0.0	0.0	24.9

Point Source, ISO 9613, Name: "Dust Collector", ID: "DUF_DC"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
48	596602.84	4807129.87	175.01	0	DEN	500	107.0	0.0	0.0	0.0	0.0	59.5	0.5	-3.0	0.0	0.0	23.5	0.0	0.0	26.5

Line Source, ISO 9613, Name: "Front End Loader", ID: "DUF_FEL"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
59	596648.06	4807167.83	160.50	0	D	500	81.5	19.0	-2.2	0.0	0.0	59.1	0.5	-3.8	0.0	0.0	11.5	0.0	0.0	31.0
75	596643.62	4807178.21	160.50	2	D	500	81.5	17.5	-2.2	0.0	0.0	60.1	0.5	-4.0	0.0	0.0	9.8	0.0	3.0	27.4
78	596592.54	4807106.48	159.54	0	D	500	81.5	10.8	-2.2	0.0	0.0	59.4	0.5	-3.8	0.0	0.0	8.8	0.0	0.0	25.3
79	596586.90	4807121.42	159.65	0	D	500	81.5	13.0	-2.2	0.0	0.0	59.8	0.5	-3.9	0.0	0.0	18.6	0.0	0.0	17.4
82	596578.77	4807142.95	159.80	0	D	500	81.5	14.2	-2.2	0.0	0.0	60.3	0.6	-4.1	0.0	0.0	28.3	0.0	0.0	8.4
84	596571.17	4807163.08	159.94	0	D	500	81.5	12.3	-2.2	0.0	0.0	60.8	0.6	-4.2	0.0	0.0	13.6	0.0	0.0	20.7
85	596563.80	4807182.58	160.08	0	D	500	81.5	13.9	-2.2	0.0	0.0	61.3	0.6	-4.3	0.0	0.0	9.1	0.0	0.0	26.5
97	596636.44	4807098.47	159.50	0	D	500	81.5	16.5	-2.2	0.0	0.0	57.8	0.4	-3.4	0.0	0.0	8.4	0.0	0.0	32.6
111	596623.54	4807093.31	159.50	1	D	500	81.5	12.4	-2.2	0.0	0.0	58.8	0.5	-3.7	0.0	0.0	8.7	0.0	2.0	25.5
114	596615.21	4807233.19	160.50	0	D	500	81.5	18.3	-2.2	0.0	0.0	61.2	0.6	-4.3	0.0	0.0	13.1	0.0	0.0	27.0
116	596615.21	4807233.19	160.50	2	D	500	81.5	18.3	-2.2	0.0	0.0	61.7	0.7	-4.4	0.0	0.0	9.7	0.0	3.0	26.9
123	596660.45	4807119.29	160.00	0	D	500	81.5	14.1	-2.2	0.0	0.0	57.5	0.4	-3.3	0.0	0.0	8.9	0.0	0.0	29.9
135	596605.08	4807095.47	159.50	0	D	500	81.5	13.7	-2.2	0.0	0.0	58.8	0.5	-3.7	0.0	0.0	8.6	0.0	0.0	28.8
145	596601.95	4807097.09	159.50	1	D	500	81.5	9.9	-2.2	0.0	0.0	60.0	0.5	-4.0	0.0	0.0	20.1	0.0	2.0	10.5
148	596612.99	4807091.39	159.50	1	D	500	81.5	7.5	-2.2	0.0	0.0	58.9	0.5	-3.7	0.0	0.0	8.7	0.0	2.0	20.5
187	596587.69	4807220.42	160.50	0	D	500	81.5	15.5	-2.2	0.0	0.0	61.5	0.6	-4.3	0.0	0.0	10.5	0.0	0.0	26.5
203	596587.22	4807221.25	160.50	2	D	500	81.5	15.3	-2.2	0.0	0.0	62.0	0.7	-4.4	0.0	0.0	9.5	0.0	3.0	23.8
206	596587.39	4807220.04	160.50	0	D	500	81.5	15.5	-2.2	0.0	0.0	61.5	0.6	-4.3	0.0	0.0	10.5	0.0	0.0	26.5
214	596586.85	4807220.93	160.50	2	D	500	81.5	15.2	-2.2	0.0	0.0	62.0	0.7	-4.4	0.0	0.0	9.5	0.0	3.0	23.7
220	596587.62	4807249.58	160.50	0	D	500	81.5	15.2	-2.2	0.0	0.0	62.0	0.7	-4.4	0.0	0.0	12.4	0.0	0.0	23.8
232	596587.62	4807249.58	160.50	2	D	500	81.5	15.2	-2.2	0.0	0.0	62.5	0.7	-4.5	0.0	0.0	9.6	0.0	3.0	23.2
236	596588.32	4807249.20	160.50	0	D	500	81.5	15.1	-2.2	0.0	0.0	62.0	0.7	-4.4	0.0	0.0	12.5	0.0	0.0	23.7
250	596588.32	4807249.20	160.50	2	D	500	81.5	15.1	-2.2	0.0	0.0	62.5	0.7	-4.5	0.0	0.0	9.6	0.0	3.0	23.1
257	596568.47	4807223.89	160.50	0	D	500	81.5	14.9	-2.2	0.0	0.0	61.9	0.7	-4.4	0.0	0.0	9.9	0.0	0.0	26.2
269	596575.13	4807231.97	160.50	2	D	500	81.5	9.9	-2.2	0.0	0.0	62.4	0.7	-4.5	0.0	0.0	9.5	0.0	3.0	18.1
274	596568.29	4807223.77	160.50	0	D	500	81.5	14.8	-2.2	0.0	0.0	61.9	0.7	-4.4	0.0	0.0	9.8	0.0	0.0	26.1
282	596575.14	4807231.65	160.50	2	D	500	81.5	9.7	-2.2	0.0	0.0	62.4	0.7	-4.5	0.0	0.0	9.5	0.0	3.0	17.9

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Line Source, ISO 9613, Name: "Front End Loader", ID: "DUF_FEL"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
286	596559.05	4807203.10	160.33	0	D	500	81.5	12.5	-2.2	0.0	0.0	61.7	0.7	-4.4	0.0	0.0	9.2	0.0	0.0	24.6

Line Source, ISO 9613, Name: "Ready-mix Trucks", ID: "DUF_RMT"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
151	596590.53	4807111.28	159.41	0	D	500	76.0	3.3	0.0	0.0	0.0	59.5	0.5	-3.9	0.0	0.0	8.8	0.0	0.0	14.4
154	596586.42	4807121.71	159.49	0	D	500	76.0	13.1	0.0	0.0	0.0	59.8	0.5	-4.0	0.0	0.0	18.8	0.0	0.0	13.9
158	596577.78	4807143.61	159.67	0	D	500	76.0	14.3	0.0	0.0	0.0	60.3	0.6	-4.1	0.0	0.0	28.3	0.0	0.0	5.2
164	596569.68	4807164.14	159.83	0	D	500	76.0	12.4	0.0	0.0	0.0	60.9	0.6	-4.2	0.0	0.0	13.7	0.0	0.0	17.4
167	596563.48	4807179.84	159.96	0	D	500	76.0	12.2	0.0	0.0	0.0	61.3	0.6	-4.3	0.0	0.0	9.2	0.0	0.0	21.4
313	596578.28	4807105.54	159.40	0	D	500	76.0	14.3	0.0	0.0	0.0	59.8	0.5	-4.0	0.0	0.0	8.9	0.0	0.0	25.2
335	596549.40	4807190.14	159.89	0	D	500	76.0	13.6	0.0	0.0	0.0	61.7	0.7	-4.4	0.0	0.0	9.2	0.0	0.0	22.4
336	596538.27	4807192.81	159.75	0	D	500	76.0	-9.1	0.0	0.0	0.0	62.0	0.7	-4.4	0.0	0.0	12.3	0.0	0.0	-3.6
348	596532.36	4807190.34	159.65	0	D	500	76.0	11.0	0.0	0.0	0.0	62.1	0.7	-4.4	0.0	0.0	12.4	0.0	0.0	16.3
351	596522.12	4807185.97	159.48	0	D	500	76.0	9.8	0.0	0.0	0.0	62.2	0.7	-4.5	0.0	0.0	26.3	0.0	0.0	1.1

Line Source, ISO 9613, Name: "Aggregate Trucks", ID: "DUF_AGT"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
299	596632.93	4807171.83	160.26	0	DEN	500	68.0	20.0	0.0	0.0	0.0	59.6	0.5	-3.9	0.0	0.0	10.5	0.0	0.0	21.3
305	596622.32	4807194.97	160.33	2	DEN	500	68.0	16.9	0.0	0.0	0.0	60.9	0.6	-4.2	0.0	0.0	9.7	0.0	3.0	14.9
321	596632.97	4807094.38	159.40	0	DEN	500	68.0	16.4	0.0	0.0	0.0	57.9	0.4	-3.5	0.0	0.0	8.5	0.0	0.0	21.1
333	596621.87	4807089.99	159.40	1	DEN	500	68.0	12.9	0.0	0.0	0.0	58.9	0.5	-3.8	0.0	0.0	8.7	0.0	2.0	14.6
362	596584.04	4807205.37	160.19	0	DEN	500	68.0	17.8	0.0	0.0	0.0	61.3	0.6	-4.3	0.0	0.0	9.8	0.0	0.0	18.5
372	596602.48	4807213.14	160.33	2	DEN	500	68.0	13.2	0.0	0.0	0.0	61.6	0.7	-4.4	0.0	0.0	9.6	0.0	3.0	10.7
374	596653.49	4807114.42	159.76	0	DEN	500	68.0	13.8	0.0	0.0	0.0	57.6	0.4	-3.4	0.0	0.0	8.4	0.0	0.0	18.8
386	596603.32	4807097.50	159.40	0	DEN	500	68.0	14.6	0.0	0.0	0.0	58.9	0.5	-3.8	0.0	0.0	8.7	0.0	0.0	18.3
396	596602.33	4807098.68	159.40	1	DEN	500	68.0	10.7	0.0	0.0	0.0	59.9	0.5	-4.0	0.0	0.0	20.9	0.0	2.0	-0.6
398	596611.21	4807088.13	159.40	1	DEN	500	68.0	6.7	0.0	0.0	0.0	59.1	0.5	-3.8	0.0	0.0	8.8	0.0	2.0	8.2
401	596579.80	4807104.58	159.40	0	DEN	500	68.0	14.7	0.0	0.0	0.0	59.7	0.5	-4.0	0.0	0.0	8.9	0.0	0.0	17.6
413	596546.37	4807193.73	159.90	0	DEN	500	68.0	12.8	0.0	0.0	0.0	61.8	0.7	-4.4	0.0	0.0	9.3	0.0	0.0	13.5
416	596536.26	4807193.95	159.82	0	DEN	500	68.0	0.1	0.0	0.0	0.0	62.0	0.7	-4.4	0.0	0.0	12.2	0.0	0.0	-2.4
427	596530.46	4807191.36	159.70	0	DEN	500	68.0	10.7	0.0	0.0	0.0	62.1	0.7	-4.5	0.0	0.0	12.3	0.0	0.0	8.0
430	596520.72	4807186.56	159.50	0	DEN	500	68.0	10.0	0.0	0.0	0.0	62.2	0.7	-4.5	0.0	0.0	26.2	0.0	0.0	-6.7

Line Source, ISO 9613, Name: "Blower Truck", ID: "DUF_BT"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
443	596632.68	4807095.23	159.40	0	D	500	65.0	16.3	0.0	0.0	0.0	57.9	0.4	-3.5	0.0	0.0	8.5	0.0	0.0	17.9
457	596622.22	4807090.65	159.40	1	D	500	65.0	12.9	0.0	0.0	0.0	58.9	0.5	-3.8	0.0	0.0	8.7	0.0	2.0	11.6
458	596624.04	4807187.36	160.40	0	D	500	65.0	17.8	0.0	0.0	0.0	60.1	0.5	-4.1	0.0	0.0	11.0	0.0	0.0	15.2
466	596620.45	4807195.43	160.40	2	D	500	65.0	16.3	0.0	0.0	0.0	60.9	0.6	-4.2	0.0	0.0	9.7	0.0	3.0	11.3
470	596650.79	4807117.66	159.82	0	D	500	65.0	14.5	0.0	0.0	0.0	57.8	0.4	-3.5	0.0	0.0	8.5	0.0	0.0	16.2
483	596642.53	4807146.35	160.33	0	D	500	65.0	14.7	0.0	0.0	0.0	58.7	0.5	-3.7	0.0	0.0	9.4	0.0	0.0	14.8
495	596603.17	4807098.02	159.40	0	D	500	65.0	14.8	0.0	0.0	0.0	58.9	0.5	-3.8	0.0	0.0	8.7	0.0	0.0	15.5
501	596602.38	4807098.92	159.40	1	D	500	65.0	10.7	0.0	0.0	0.0	59.9	0.5	-4.0	0.0	0.0	21.0	0.0	2.0	-3.8
502	596611.55	4807088.59	159.40	1	D	500	65.0	7.0	0.0	0.0	0.0	59.0	0.5	-3.8	0.0	0.0	8.7	0.0	2.0	5.5
505	596580.48	4807205.80	160.23	0	D	500	65.0	16.8	0.0	0.0	0.0	61.3	0.6	-4.3	0.0	0.0	9.7	0.0	0.0	14.4
514	596596.22	4807213.83	160.36	2	D	500	65.0	10.9	0.0	0.0	0.0	61.7	0.7	-4.4	0.0	0.0	9.6	0.0	3.0	5.3
519	596578.31	4807106.91	159.40	0	D	500	65.0	14.8	0.0	0.0	0.0	59.8	0.5	-4.0	0.0	0.0	8.9	0.0	0.0	14.5
527	596550.03	4807192.97	159.91	0	D	500	65.0	12.8	0.0	0.0	0.0	61.7	0.7	-4.4	0.0	0.0	9.2	0.0	0.0	10.5
530	596536.81	4807190.11	159.69	0	D	500	65.0	9.1	0.0	0.0	0.0	62.0	0.7	-4.4	0.0	0.0	12.5	0.0	0.0	3.5
542	596644.30	4807134.52	160.25	0	D	500	65.0	10.8	0.0	0.0	0.0	58.4	0.5	-3.6	0.0	0.0	9.1	0.0	0.0	11.4
552	596639.26	4807137.42	160.27	1	D	500	65.0	-5.7	0.0	0.0	0.0	59.2	0.5	-3.8	0.0	0.0	8.8	0.0	2.0	-7.3
554	596644.04	4807135.54	160.27	0	D	500	65.0	10.2	0.0	0.0	0.0	58.4	0.5	-3.6	0.0	0.0	9.1	0.0	0.0	10.9
562	596530.33	4807188.08	159.58	0	D	500	65.0	7.4	0.0	0.0	0.0	62.1	0.7	-4.4	0.0	0.0	12.5	0.0	0.0	1.5
567	596522.92	4807184.59	159.47	0	D	500	65.0	10.4	0.0	0.0	0.0	62.2	0.7	-4.5	0.0	0.0	26.4	0.0	0.0	-9.4
577	596635.67	4807138.06	160.24	0	D	500	65.0	8.7	0.0	0.0	0.0	58.7	0.5	-3.7	0.0	0.0	8.7	0.0	0.0	9.6
584	596635.67	4807138.06	160.24	1	D	500	65.0	8.7	0.0	0.0	0.0	59.2	0.5	-3.8	0.0	0.0	8.8	0.0	2.0	7.1
585	596635.55	4807137.78	160.23	0	D	500	65.0	8.6	0.0	0.0	0.0	58.7	0.5	-3.7	0.0	0.0	8.7	0.0	0.0	9.4
591	596635.55	4807137.78	160.23	1	D	500	65.0	8.6	0.0	0.0	0.0	59.2	0.5	-3.8	0.0	0.0	8.8	0.0	2.0	7.0
594	596606.72	4807215.85	160.40	0	D	500	65.0	10.0	0.0	0.0	0.0	61.0	0.6	-4.3	0.0	0.0	11.7	0.0	0.0	5.9
599	596606.72	4807215.85	160.40	2	D	500	65.0	10.0	0.0	0.0	0.0	61.6	0.6	-4.4	0.0	0.0	9.7	0.0	3.0	4.5

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Receiver
Name: (untitled)
ID: EX03
X: 596968.85
Y: 4807001.93
Z: 159.50

Point Source, ISO 9613, Name: "Blower Unloading Area Plant 1", ID: "CB_BUAP1"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
3	596528.37	4807619.17	156.95	0	DEN	500	123.0	0.0	0.0	0.0	0.0	68.6	1.5	-5.3	0.0	0.0	17.6	0.0	0.0	40.7

Point Source, ISO 9613, Name: "Dust Collector 1", ID: "CB_DC1"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5	596560.93	4807580.48	161.24	0	DEN	500	107.0	0.0	0.0	0.0	0.0	68.0	1.4	-4.8	0.0	0.0	28.1	0.0	0.0	14.3

Point Source, ISO 9613, Name: "Dryer Stack Plant 2", ID: "CB_DSP2"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
8	596662.44	4807446.89	168.21	0	DEN	500	104.0	0.0	0.0	0.0	0.0	65.7	1.0	-3.4	0.0	0.0	0.0	0.0	0.0	40.7

Point Source, ISO 9613, Name: "Dump Trucks 1", ID: "CB_DT1"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
12	596514.87	4807764.36	157.31	0	DEN	500	107.5	0.0	0.0	0.0	0.0	70.0	1.7	-5.3	0.0	0.0	23.8	0.0	0.0	17.3

Point Source, ISO 9613, Name: "Front End Loader 1", ID: "CB_FEL1"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
16	596461.29	4807760.14	158.10	0	DEN	500	107.0	0.0	0.0	0.0	0.0	70.2	1.8	-5.2	0.0	0.0	10.9	0.0	0.0	29.3

Point Source, ISO 9613, Name: "Kiln Stack Plant 2", ID: "CB_KSP2"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
19	596692.58	4807417.39	177.58	0	DEN	500	101.0	0.0	0.0	0.0	0.0	65.0	1.0	-3.0	0.0	0.0	0.0	0.0	0.0	38.1

Point Source, ISO 9613, Name: "Kiln Stack Plant 1", ID: "CB_KSP1"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
21	596582.05	4807606.07	181.08	0	DEN	500	102.0	0.0	0.0	0.0	0.0	68.1	1.4	-3.0	0.0	0.0	0.0	0.0	0.0	35.5

Point Source, ISO 9613, Name: "Dust Collector 2", ID: "CB_DC2"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
24	596522.68	4807684.78	163.48	0	DEN	500	102.0	0.0	0.0	0.0	0.0	69.2	1.6	-4.6	0.0	0.0	23.3	0.0	0.0	12.5

Point Source, ISO 9613, Name: "Dust Collector 3 Stack", ID: "CB_DC3S"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
29	596468.09	4807708.41	165.27	0	DEN	500	99.0	0.0	0.0	0.0	0.0	69.8	1.7	-4.5	0.0	0.0	9.3	0.0	0.0	22.8

Point Source, ISO 9613, Name: "Dust Collector 3 Fan", ID: "CB_DC3F"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
31	596467.52	4807708.16	157.27	0	DEN	500	97.0	0.0	0.0	0.0	0.0	69.8	1.7	-5.3	0.0	0.0	16.0	0.0	0.0	14.9
32	596467.52	4807708.16	157.27	1	DEN	500	97.0	0.0	0.0	0.0	0.0	69.8	1.7	-5.3	0.0	0.0	15.7	0.0	2.0	13.1

Point Source, ISO 9613, Name: "Crusher Shed 1", ID: "CB_CS1"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
33	596459.92	4807728.61	160.35	0	DEN	63	94.0	0.0	0.0	0.0	0.0	70.0	0.1	-5.0	0.0	0.0	9.8	0.0	0.0	19.2

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Receiver
Name: (untitled)
ID: Fut06
X: 596988.67
Y: 4807041.06
Z: 159.50

Point Source, ISO 9613, Name: "Blower Unloading Area Plant 1", ID: "CB_BUAP1"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
4	596528.37	4807619.17	156.95	0	DEN	500	123.0	0.0	0.0	0.0	0.0	68.4	1.4	-5.3	0.0	0.0	26.9	0.0	0.0	31.6

Point Source, ISO 9613, Name: "Dust Collector 1", ID: "CB_DC1"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
6	596560.93	4807580.48	161.24	0	DEN	500	107.0	0.0	0.0	0.0	0.0	67.8	1.3	-4.8	0.0	0.0	28.3	0.0	0.0	14.4
7	596560.93	4807580.48	161.24	1	DEN	500	107.0	0.0	0.0	0.0	0.0	68.7	1.5	-4.9	0.0	0.0	10.1	0.0	2.0	29.6
8	596560.93	4807580.48	161.24	2	DEN	500	107.0	0.0	0.0	0.0	0.0	68.7	1.5	-4.9	0.0	0.0	10.0	0.0	4.0	27.6

Point Source, ISO 9613, Name: "Dryer Stack Plant 2", ID: "CB_DSP2"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
9	596662.44	4807446.89	168.21	0	DEN	500	104.0	0.0	0.0	0.0	0.0	65.3	1.0	-3.3	0.0	0.0	0.0	0.0	0.0	41.0

Point Source, ISO 9613, Name: "Dump Trucks 1", ID: "CB_DT1"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
12	596514.87	4807764.36	157.31	0	DEN	500	107.5	0.0	0.0	0.0	0.0	69.7	1.7	-5.3	0.0	0.0	22.3	0.0	0.0	19.1

Point Source, ISO 9613, Name: "Front End Loader 1", ID: "CB_FEL1"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
15	596461.29	4807760.14	158.10	0	DEN	500	107.0	0.0	0.0	0.0	0.0	70.0	1.7	-5.2	0.0	0.0	11.1	0.0	0.0	29.4

Point Source, ISO 9613, Name: "Kiln Stack Plant 2", ID: "CB_KSP2"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
16	596692.58	4807417.39	177.58	0	DEN	500	101.0	0.0	0.0	0.0	0.0	64.6	0.9	-3.0	0.0	0.0	0.0	0.0	0.0	38.5

Point Source, ISO 9613, Name: "Kiln Stack Plant 1", ID: "CB_KSP1"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
18	596582.05	4807606.07	181.08	0	DEN	500	102.0	0.0	0.0	0.0	0.0	67.9	1.3	-3.0	0.0	0.0	0.0	0.0	0.0	35.8

Point Source, ISO 9613, Name: "Dust Collector 2", ID: "CB_DC2"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
19	596522.68	4807684.78	163.48	0	DEN	500	102.0	0.0	0.0	0.0	0.0	69.0	1.5	-4.6	0.0	0.0	23.4	0.0	0.0	12.7

Point Source, ISO 9613, Name: "Dust Collector 3 Stack", ID: "CB_DC3S"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
22	596468.09	4807708.41	165.27	0	DEN	500	99.0	0.0	0.0	0.0	0.0	69.6	1.6	-4.5	0.0	0.0	9.2	0.0	0.0	23.0

Point Source, ISO 9613, Name: "Dust Collector 3 Fan", ID: "CB_DC3F"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
24	596467.52	4807708.16	157.27	0	DEN	500	97.0	0.0	0.0	0.0	0.0	69.6	1.6	-5.3	0.0	0.0	16.4	0.0	0.0	14.7
26	596467.52	4807708.16	157.27	1	DEN	500	97.0	0.0	0.0	0.0	0.0	69.6	1.6	-5.3	0.0	0.0	16.0	0.0	2.0	13.1

Point Source, ISO 9613, Name: "Crusher Shed 1", ID: "CB_CS1"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
27	596459.92	4807728.61	160.35	0	DEN	63	94.0	0.0	0.0	0.0	0.0	69.8	0.1	-5.0	0.0	0.0	9.9	0.0	0.0	19.2

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