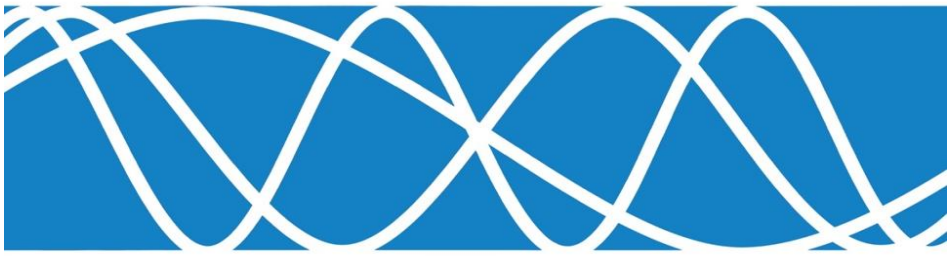
Detailed Noise Study

Proposed Residential Development
316 Grange Road
Guelph, Ontario

February 10, 2026
HGC Project #: 02500889



Prepared for:

1001232683 Ontario Inc.
275 Hanlon Creek Boulevard,
Unit 2
Guelph, Ontario
N1C 0A1

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NOISE | VIBRATION | ACOUSTICS

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Version Control
Noise and Vibration Feasibility Study/316 Grange Road, Guelph, Ontario

Ver.	Date	Version Description	Prepared By
1.0	February 10, 2026	Noise Feasibility Study in support of the approvals process.	E. Jaklic / S. Paul

Prepared by:

Elise Jaklic, BEng

Reviewed by:

Sheeba Paul, MEng, PEng



Howe Gastmeier Chapnik Limited

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Table of Contents

1 INTRODUCTION AND SUMMARY 1

2 SITE DESCRIPTION AND NOISE SOURCES 2

3 TRAFFIC NOISE ASSESSMENT 2

3.1 Traffic Noise Criteria 2

3.2 Traffic Sound Level Assessment 4

3.2.1 Road Traffic Data 4

3.2.2 Traffic Noise Predictions 4

3.3 Traffic Noise Discussion and Recommendations 5

3.3.1 Building Façade Constructions 5

3.3.2 Indoor Living Areas and Ventilation Requirements 6

3.3.3 Outdoor Living Areas 7

4 WARNING CLAUSES 7

5 SUMMARY OF RECOMMENDATIONS 9

6 IMPLEMENTATION 10

7 CONCLUSIONS 11

Figure 1 – Key Plan
Figure 2 – Proposed Draft Plan Showing Prediction Locations
Figure 3 – Proposed Draft Plan Showing Ventilation Requirements
Figure 4a – Proposed Draft Plan Showing Barrier Requirements (Option 1)
Figure 4b – Proposed Draft Plan Showing Barrier Requirements (Option 2)

APPENDIX A – Road Traffic Data
APPENDIX B – Sample STAMSON 5.04 Output
APPENDIX C – Relevant Pages from the City of Guelph Noise Control Guidelines

1 INTRODUCTION AND SUMMARY

HGC Noise Vibration Acoustics was retained by 1001232683 Ontario Inc. to conduct a noise feasibility study for a proposed residential development to be located at 316 Grange Road, in Guelph, Ontario. The proposed development will include two single detached units, 20 semi-detached units, 60 townhouse units, associated roadways, and a park. There are residential uses surrounding the subject site. The study is required by the municipality as part of the approvals process.

The primary noise source impacting the site was determined to be road traffic on Grange Road. Relevant traffic data was obtained from the City of Guelph and was used to predict future sound levels at the locations of the proposed building façades and in the outdoor living areas. The predicted sound levels were compared to the guidelines of the Ministry of the Environment, Conservation and Parks (MECP) and the City of Guelph to develop noise control recommendations for the proposed development.

The predictions indicate that future traffic sound levels will exceed MECP guidelines at the proposed dwellings closest to the major roadway. The dwellings closest to Grange Road should be designed with a provision for the installation of central air conditioning at the occupant's discretion. Any exterior wall, and double-glazed window construction meeting the minimum requirements of the Ontario Building Code (OBC) will provide adequate sound insulation for the remaining dwelling units in this development. Acoustic barriers are required for the rear yards of dwellings with flanking exposure onto Grange Road. When detailed grading information is available, the acoustic barrier requirements should be refined. Warning clauses are also recommended to inform future residents of the traffic noise impacts.

2 SITE DESCRIPTION AND NOISE SOURCES

Figure 1 shows a key plan which identifies the location of the proposed development. The site is located at 316 Grange Road in the City of Guelph, Ontario. Figure 2 shows the draft plan prepared by MHBC dated January 19, 2026. The proposed development will consist of two single detached dwelling units, 20 semi-detached units, 60 townhouse units, associated roadways, and a park. Figure 2 also indicates the sound level prediction locations.

HGC personnel visited the site on January 7, 2026, to make observations of the acoustical environment and identify significant noise sources within the vicinity. The primary noise source impacting the site was determined to be road traffic on Grange Road. The site is surrounded by existing residential lands. There is a sports field located approximately 250 metres west of the proposed development site. This sports field is associated with both a high school and an elementary school, which are situated around 520 metres northwest of the site. There is also a commercial plaza located approximately 500 m to the west. There are many residential uses closer in proximity to these facilities than the subject site, and as such, there are no significant sources of stationary noise within 500 m of the subject site. The site is considered to be in a Class 2, semi urban acoustical environment area as per the requirements of the City of Guelph.

3 TRAFFIC NOISE ASSESSMENT

3.1 Traffic Noise Criteria

Guidelines for acceptable levels of road traffic noise impacting residential developments are given in MECP Publication NPC-300, "Environmental Noise Guideline Stationary and Transportation Sources – Approval and Planning", release date October 21, 2013, and are listed in Table 1 below. The City of Guelph Noise Control Guidelines (GNCG) version 1.0 effective January 1, 2019 were also used in conjunction with NPC-300. The values in Table 1 are energy equivalent (average) sound levels [L_{EQ}] in units of A-weighted decibels [dBA].

Table 1: MECP Road Traffic Noise Criteria (dBA)

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

Daytime refers to the time period from 07:00 to 23:00 and nighttime refers to 23:00 to 07:00. The term "Outdoor Living Area" (OLA) is a noise sensitive space intended for the quiet enjoyment of the outdoor environment and is readily accessible from the building. OLA's include backyards areas of single family, semi-detached and townhouse dwellings, gardens, patios, balconies and elevated terraces (e.g. Rooftops) that are not enclosed with a minimum depth of 4 meters, common outdoor amenity areas associated with high-rise and other multi-unit buildings and passive recreational areas such as parks if identified by the City. Front yards are not considered OLA's.

The target sound level in an OLA is 55 dBA. The guidelines in the MECP publication allow the sound level in an OLA to be exceeded by up to 5 dBA, without mitigation, if warning clauses are placed in property and rental agreements. Where OLA sound levels exceed 60 dBA, physical mitigation is required to reduce the OLA sound level to 55 dBA. Where mitigation is not technically, economically and administratively feasible, a minor excess above 55 dBA is acceptable with the use of a noise warning clause with some justification.

A central air conditioning system as an alternative means of ventilation to open windows is required for dwellings where nighttime sound levels at the façade exceed 60 dBA or daytime sound levels at the façade exceed 65 dBA. If the sound level in the plane of a bedroom or living/dining room window is greater than 55 dBA and less than or equal to 65 dBA, the dwelling should be designed with a provision for the installation of central air conditioning in the future, at the occupant's discretion.

Building components such as walls, windows and doors must be designed to achieve indoor sound level criteria when the sound level at the façade is greater than 60 dBA during the nighttime and greater than 65 dBA during the daytime hours due to road traffic noise.

Warning clauses are required to notify future residents of possible excesses when nighttime sound levels exceed 50 dBA at the plane of the bedroom window and daytime sound levels exceed 55 dBA in the outdoor living area and at the façade due to traffic noise.

3.2 Traffic Sound Level Assessment

3.2.1 Road Traffic Data

Traffic data for Grange Road was obtained from the City of Guelph in the form of annual average daily traffic (AADT) for the year 2023 and is included in Appendix A. A commercial vehicle percentage of 4.1% for medium trucks and 0.3% for heavy trucks were calculated for the roadway. Traffic volumes were conservatively assumed to grow at a rate of 2.5% per year and projected to 2040 (ten years beyond the expected construction completion date).

Table 2 summarizes the road traffic volume data used in this study.

Table 2: Projected Traffic Data 2040

Roadway	AADT	Day / Night Split [%]	Trucks Percentage (%)		Speed Limit[km/h]
			Medium	Heavy	
Grange Road	12,941	90 / 10	4.1	0.3	50

3.2.2 Traffic Noise Predictions

To assess the levels of traffic noise that will impact the site in the future, predictions were made using STAMSON version 5.04, a computer algorithm developed by the MECP. Sample STAMSON output is included in Appendix B.

Predictions of the traffic sound levels were chosen around the proposed development to obtain an appropriate representation of future sound levels at

the outdoor living area and at various façades. Sound levels were predicted at the façades of the dwellings during daytime and nighttime hours to investigate ventilation requirements and in the rear yards to investigate acoustic barrier requirements. Prediction locations are indicated in Figure 2. The results of these predictions are summarized in Table 3.

Table 3: Road Traffic Sound Level Predictions, Daytime and Nighttime Hours [dBA]

Prediction Location	Description	Daytime ($L_{EQ-16hr}$) in the OLA	Daytime ($L_{EQ-16hr}$) at the Façade	Nighttime (L_{EQ-8hr}) at the Façade
[A]	South façade, adjacent to Grange Road	58	62	56
[B]	East façade, second row of townhouse units with exposure to Grange Road	<55	<55	<50
[C]	East façade, townhouse units with partial exposure to Grange Road	<55	<55	<50
[D]	South façade of townhouse blocks adjacent to amenity space with exposure to Grange Road	<55	<55	<50

3.3 Traffic Noise Discussion and Recommendations

The sound level predictions indicate that the future sound levels will exceed the MECP guidelines at the proposed development. Recommendations to address these excesses are discussed in the following sections.

3.3.1 Building Façade Constructions

All of the proposed dwellings within the development will have daytime sound levels of 65 dBA or less and nighttime sound levels of 60 dBA or less respectively. Any exterior wall, and double-glazed window construction meeting the minimum requirements of the OBC will be sufficient for all the dwelling units in the development.

As indicated in Section C7.1.3 Indoor Living Areas – Building Components (MECP, NPC-300), if the nighttime sound level outside the bedroom or living/dining room windows exceeds 60 dBA or the daytime sound level outside

the bedroom or living/dining area windows exceeds 65 dBA, building components including windows, walls and doors, where applicable, should be designed so that the indoor sound levels comply with the sound level limits in Table C-2. The acoustical performance of the building components (windows, doors and walls) should be specified. Conversely, if the nighttime sound level outside the bedroom or living rooms window is less than 60 dBA, the building components do not need to be specified. Ontario Building Code (OBC) construction is the minimum required in Ontario and upgrades beyond OBC are not required.

3.3.2 Indoor Living Areas and Ventilation Requirements

Central Air Conditioning

The predicted future sound levels outside the façade of the townhouse units adjacent to Grange Road (prediction location [A]) will be between 56 and 65 dBA during the daytime and between 51 and 60 dBA during the nighttime. To address this excess, the MECP guidelines recommend that these dwellings be equipped with the provision for the future installation of air conditioning at the occupant's discretion.

Remaining Dwelling Units

The predicted future sound levels outside at the façade of the remaining residential dwellings (prediction locations [B], [C], and [D]) will be less than or equal to 55 dBA during the day and less than 50 dBA during the night. There are no specific ventilation requirements for these proposed dwellings.

Figure 3 shows the ventilation requirements for the development. As a general note, the location, installation, and sound ratings of the outdoor air conditioning devices should minimize noise impacts and comply with the criteria of MECP publication NPC-216 and NPC-300, as applicable. The guidelines also recommend warning clauses for all units with ventilation requirements.

3.3.3 Outdoor Living Areas

The predicted sound levels in the rear yards with exposure to Grange Road will be up to 58 dBA (prediction location [A_{OLA}]), 3 dBA in excess of the MECP limit of 55 dBA. Acoustic barriers of 1.8 m height are required for these dwellings to meet 55 dBA.

The location and extent of the required barriers are shown in Figures 4a and 4b, presenting two feasible configurations. Option 1 consists of 1.8 m high barriers placed along the southern and eastern/western property lines of the units adjacent to Grange Road, including barrier returns to the southern facades. Option 2 extends the barrier along the southern property lines, which removes the requirements for barrier returns to the southern façades.

Both configurations are expected to effectively reduce sound levels in the rear yard to meet the 55 dBA criterion. The selection of the preferred option may be determined by the developer based on design, constructability, or other site considerations. When final detailed grading is available and setbacks of the buildings are determined, the acoustic barrier height and extents should be refined.

As a general note, the wall component of the barrier should be of a solid construction with a surface density of no less than 20 kg/m^2. The walls may be constructed from a variety of materials such as wood, brick, pre-cast concrete or other concrete/wood composite systems or transparent materials provided that it is free of gaps or cracks within or below its extent. The Guelph specific requirements for the construction of the acoustic barrier are included in Appendix C.

4 WARNING CLAUSES

The MECP guidelines recommend that warning clauses be included in the property and tenancy agreements for all dwelling units with anticipated road traffic sound level excesses. Wording from the City of Guelph Noise Control Guidelines is included in Appendix C and provided below.

A:

The Transferee of Units [XX] for himself, his heirs, executors, administrators, successors, and assigns acknowledge being advised that despite the inclusion of noise control features in the development and/or within the building unit sound levels due to increasing road traffic may occasionally interfere with some indoor and/or outdoor activities of the dwelling occupants as the sound levels may at times exceed the sound level limits of the municipal and provincial noise criteria.

The development includes a number of measures to help reduce noise impacts, listed below. To ensure that provincial and municipal sound level limits are not exceeded and/or to keep sound levels as low as possible it is important to maintain the sound attenuation features provided.

This development includes building and street orientation to help increase setback distances to major noise sources and shield some rear yards from excessive noise levels.

B:

This development includes an acoustic barrier to help reduce the sound levels within the rear yard of this and other nearby units.

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 municipal and provincial sound level limits.

The building components of this dwelling unit (walls, windows and exterior doors) have been designed to provide acoustic insulation so that, when windows and exterior doors are closed, the indoor sound levels are within the municipal and provincial sound level limits. The details of this building component design are available by contacting the builder of this unit.

F:

The Transferee, for himself, his heirs, executors, administrators, successors and assigns acknowledge being additionally advised that the installed acoustic barrier is on private property and must be maintained and kept in good repair by the property owner. Any maintenance, repair or replacement is the responsibility of the property owner and shall be

> the same material or to the same standards, having the same colour, appearance and function of the original.

The City requires the following general clause to be included for all units.

General (Gen):

> The transferee covenants with the Transferor that the below clause, verbatim, will be included in all subsequent Agreements of purchase of sale or lease and Sale and Deeds conveying the lands described herein, which covenant shall run with the said lands and is for the benefit of the subsequent owners and renters of the said lands and the owner of the adjacent road.

These sample clauses are provided only as examples, and can be modified by the owner's legal representative, in consultation with the Municipality in order to suit site-specific requirements.

5 SUMMARY OF RECOMMENDATIONS

The following list and Table 4 summarize the recommendations made in this report. The reader is referred to the previous sections of the report where these recommendations are discussed in more detail.

1. The provision for the future installation of air conditioning at the occupant's discretion is required for the units adjacent to Grange Road. There are no ventilation requirements for the remaining dwellings of the proposed development. Ventilation requirements are shown in Figure 3.

2. Any exterior wall, and double-glazed window construction meeting the minimum requirements of the OBC will provide adequate sound insulation for the proposed dwellings.

3. Acoustic barriers are required for the dwellings with OLAs adjacent to Grange Road. See section 3.3.3 for detailed requirements. Barrier requirements are shown in Figures 4a and 4b as two different options.

4. Noise warning clauses to inform the occupants of the sound level excesses

should be placed in the property and tenancy agreements and offers of purchase and sale.

The reader is referred to the previous sections of the report where these recommendations are discussed in more detail.

Table 4: Summary of Noise Control Requirements and Noise Warning Clauses

Prediction Location	Description	Acoustic Barrier	*Ventilation Requirements	Type of Warning Clause	Building Construction
[A]	Southernmost units adjacent to Grange Road of Block 14 and Block 21	✓	Provision for A/C	Gen, A, B, C, F	OBC
[B], [C], [D]	Remaining dwelling units	--	--	Gen, A	OBC

Note:
-- No specific requirement
✓ See section 3.3.3 for details.
* The location, installation and sound rating of the air conditioning condensers must be compliant with MECP Guideline NPC-300, as applicable.
OBC – Ontario Building Code

6 IMPLEMENTATION

To ensure that the noise control recommendations outlined above are fully implemented, it is recommended that:

1) When detailed grading information is available, the acoustic barrier heights should be refined.

2) Prior to the issuance of occupancy permits for this development, a Professional Engineer qualified to provide acoustical engineering services in the Province of Ontario to certify that the suggested noise control measures have been properly installed and constructed.

7 CONCLUSIONS

Acoustic modelling has been undertaken to assess the noise impact of surrounding transportation sources on the proposed development. The results of this study indicate that the proposed development at 316 Grange Road is feasible on this site from a noise impact perspective, with the inclusion of a noise barrier and forced air ventilation with ducts sized for the future installation of air conditioning by the occupant for the closest two lots to Grange Road, and any building construction and double-glazed window construction meeting the minimum requirements of the OBC. Warning clauses are recommended to advise residents of road traffic noise.

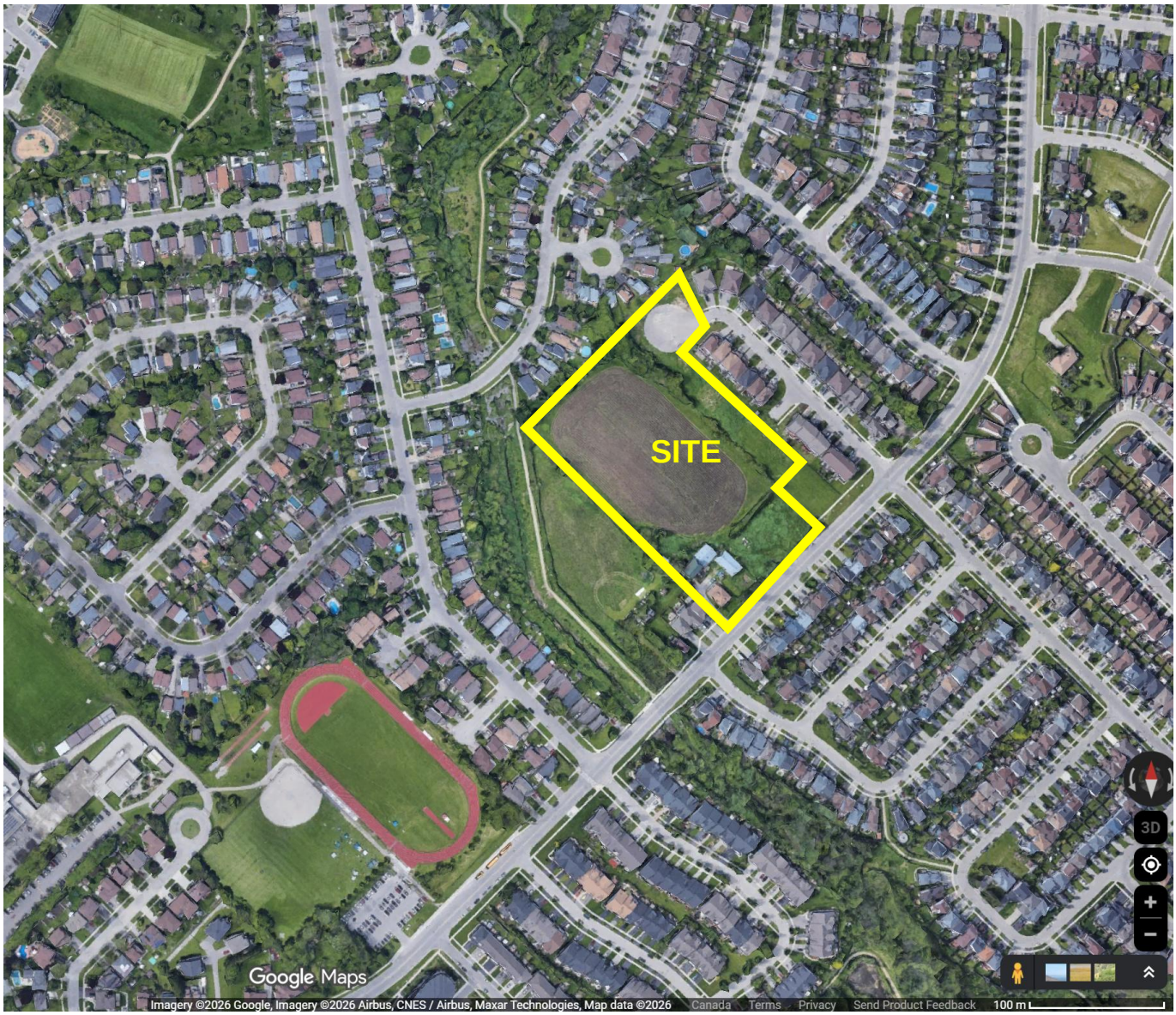


Figure 1: Key Plan

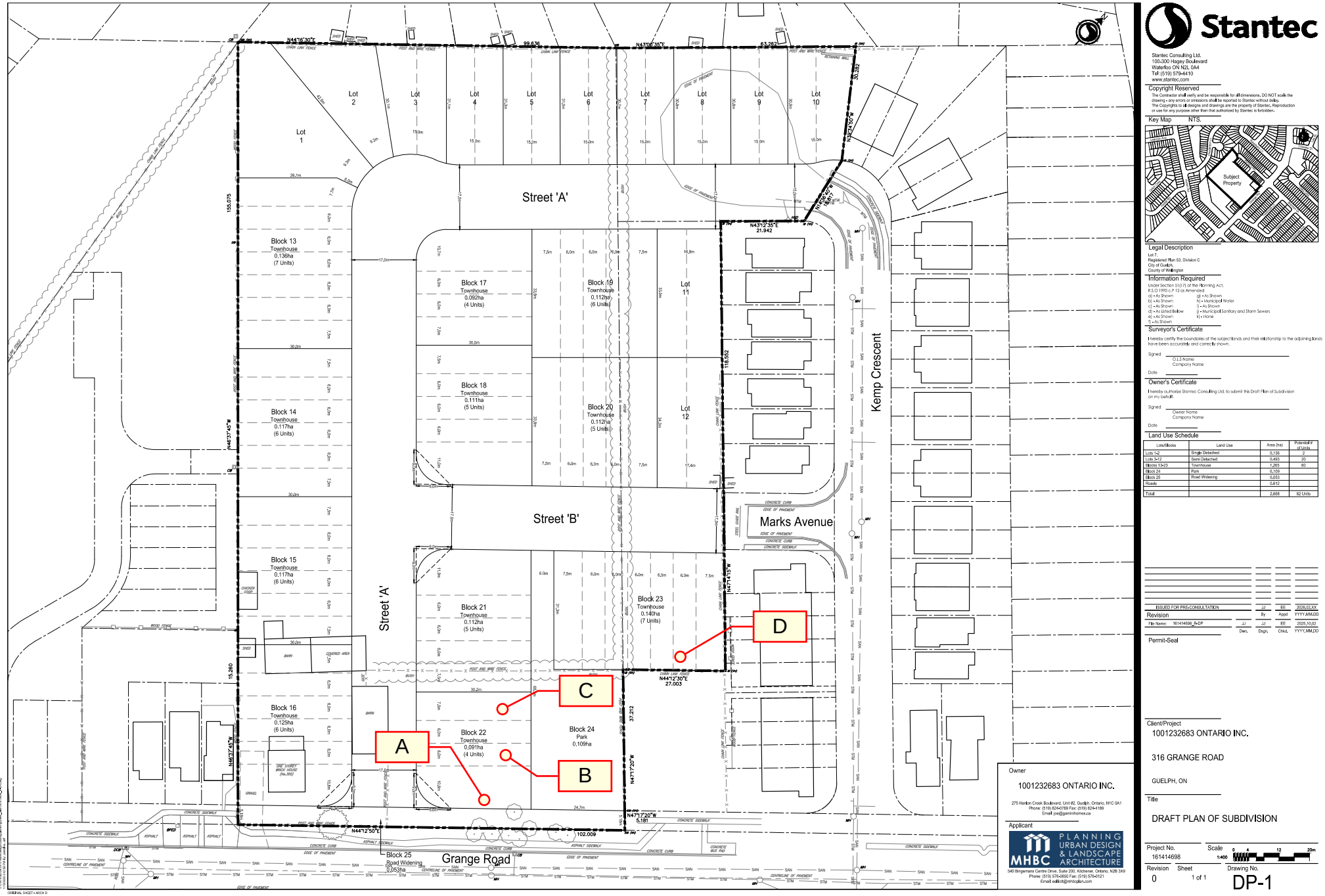


Figure 2: Proposed Draft Plan Showing Prediction Locations

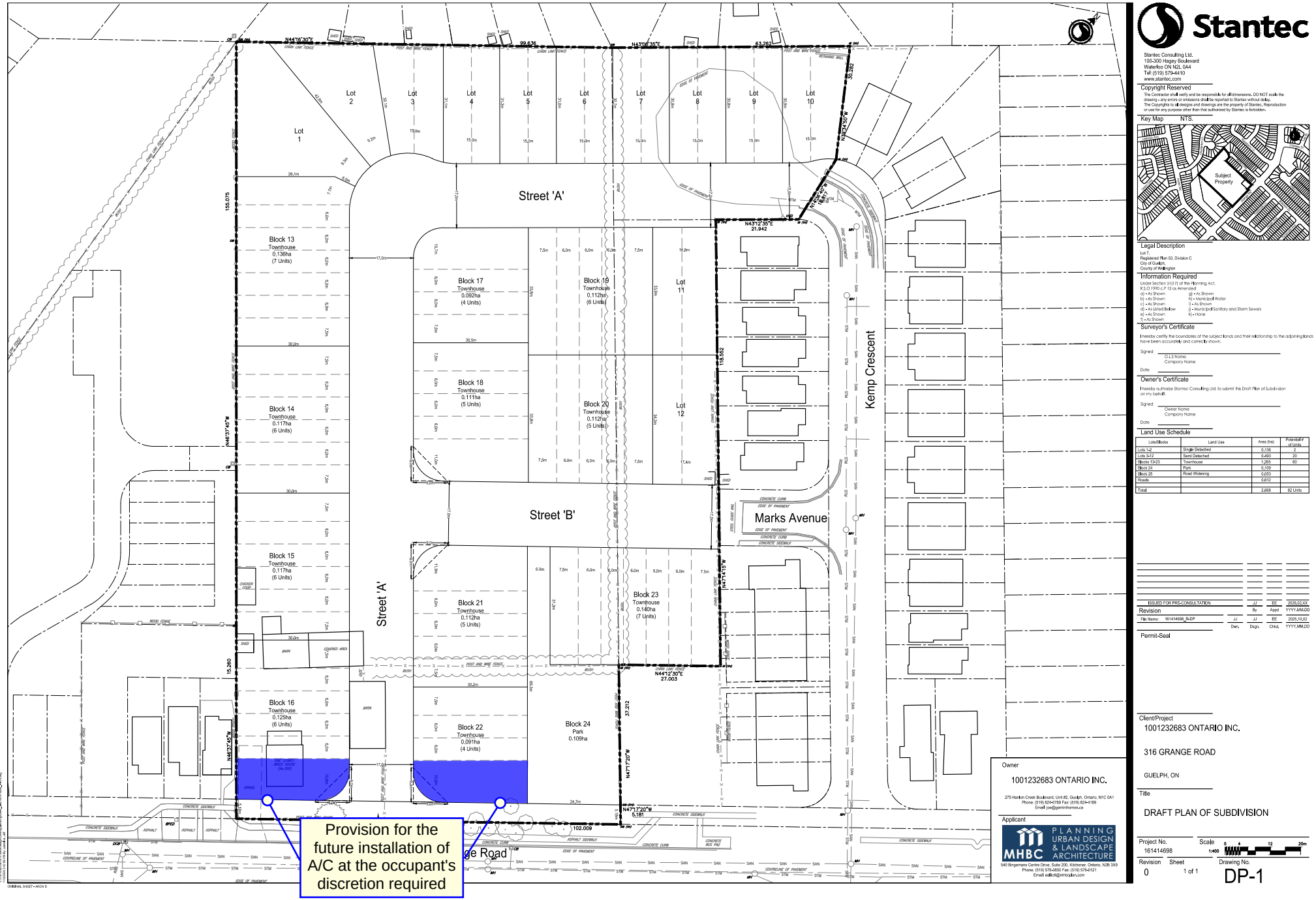
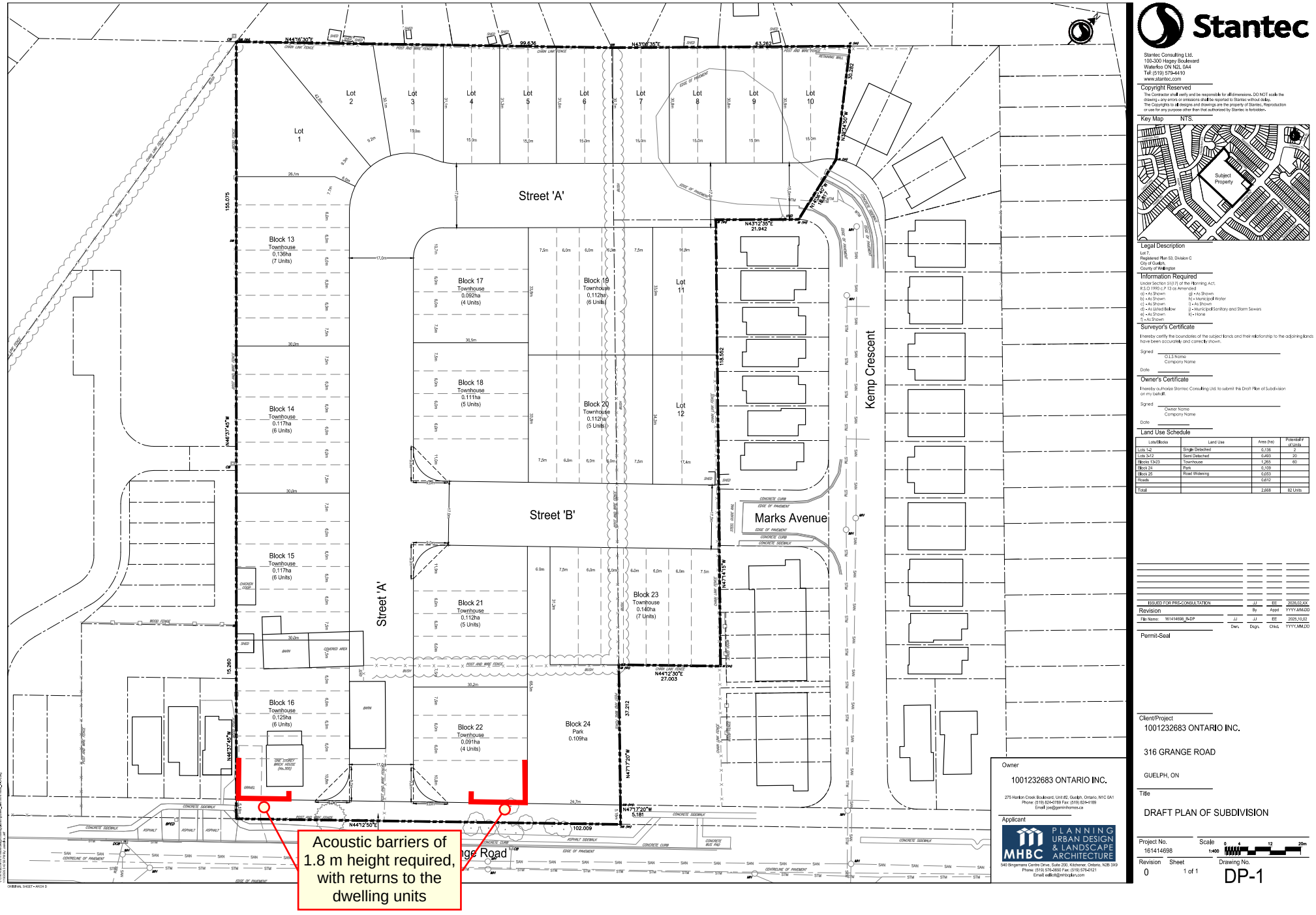


Figure 3: Proposed Draft Plan Showing Ventilation Requirements



Stantec

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Key Map NTS.

Subject Property

Legal Description
Lot 7,
Registered Plan 53, Division C
City of Guelph,
County of Wellington

Information Required
Under Section 51(17) of the Planning Act, R.S.O 1990 c.P 13 as Amended
a) - As Shown
b) - As Shown
c) - As Shown
d) - As Listed Below
e) - As Shown
f) - As Shown
g) - As Shown
h) - Municipal Water
i) - As Shown
j) - Municipal Sanitary and Storm Sewers
k) - None

Surveyor's Certificate
I hereby certify the boundaries of the subject lands and their relationship to the adjoining lands have been accurately and correctly shown.
Signed
O.L.S Name
Company Name
Date

Owner's Certificate
I hereby authorize Stantec Consulting Ltd. to submit this Draft Plan of Subdivision on my behalf.
Signed
Owner Name
Company Name
Date

Land Use Schedule

Lots/Blocks	Land Use	Area (ha)	Potential # of Units
Lots 1-2	Single Detached	0.136	2
Lots 3-12	Semi Detached	0.493	20
Blocks 13-23	Townhouse	1.265	60
Block 24	Park	0.109	
Block 25	Road Widening	0.053	
Roads		0.612	
Total		2.668	82 Units

Revision	By	Appd	YYYY.MM.DD
ISSUED FOR PRE-CONSULTATION	JJ	EE	2026.02.XX
File Name: 161414698_B-DP	JJ	EE	2025.10.22
	Dwn.	Dsgn.	Chkd. YYYY.MM.DD

Permit-Seal

Client/Project
1001232683 ONTARIO INC.

316 GRANGE ROAD

GUELPH, ON

Title
DRAFT PLAN OF SUBDIVISION

Owner
1001232683 ONTARIO INC.
275 Hanlon Creek Boulevard, Unit #2, Guelph, Ontario, N1C 0A1
Phone: (519) 824-0769 Fax: (519) 824-1189
Email: joe@gpminhomes.ca

Applicant
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540 Bingemans Centre Drive, Suite 200, Kitchener, Ontario, N2B 3X9
Phone: (519) 576-3650 Fax: (519) 576-0121
Email: edilich@mhbcplan.com

Project No. 161414698
Scale 1:400 (0, 4, 12, 20m)
Revision 0
Sheet 1 of 1
Drawing No. DP-1

Figure 4a: Proposed Draft Plan Showing Barrier Requirements (Option 1)

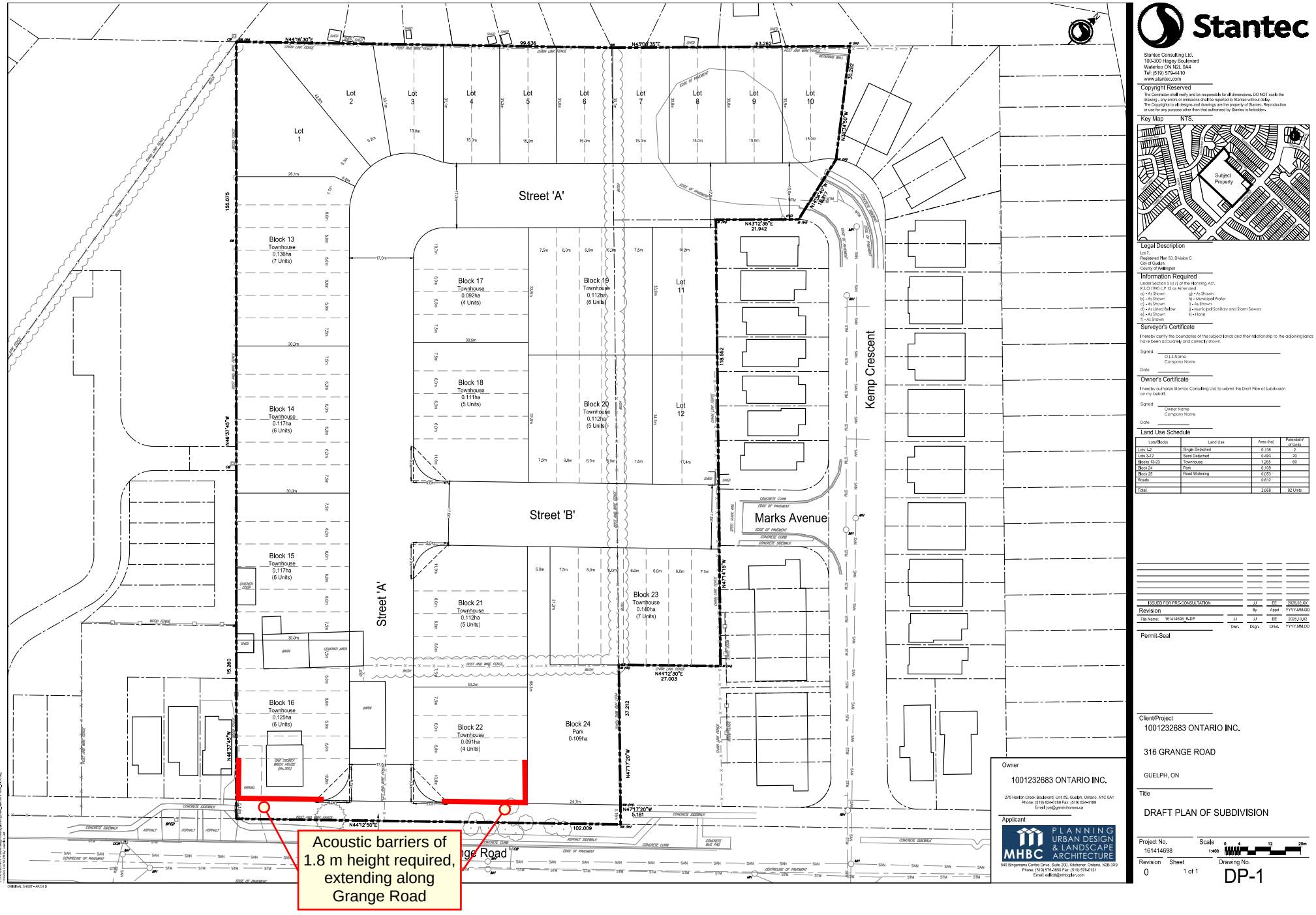


Figure 4b: Proposed Draft Plan Showing Barrier Requirements (Option 2)

Appendix A
Road Traffic Data

City of Guelph
Transportation Services

Site Code:

Grange Rd
btwn Hagan Ave and Bradson Dr

Start	22-May-23		Tue		Wed		Thu		Fri		Sat		Sun		Week Average	
Time	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB
12:00 AM	*	*	*	*	23	13	29	11	39	14	86	44	87	66	53	30
01:00	*	*	*	*	18	10	15	7	20	12	42	27	71	40	33	19
02:00	*	*	*	*	17	4	14	3	12	6	23	11	38	33	21	11
03:00	*	*	*	*	3	10	8	7	8	5	10	15	32	15	12	10
04:00	*	*	*	*	15	33	10	28	14	25	15	17	20	12	15	23
05:00	*	*	*	*	36	98	33	93	27	79	12	43	17	25	25	68
06:00	*	*	*	*	73	175	67	174	65	167	26	65	26	66	51	129
07:00	*	*	*	*	142	247	133	247	131	214	61	125	65	86	106	184
08:00	*	*	*	*	**252**	**439**	**229**	**399**	**214**	**412**	126	255	96	218	183	**345**
09:00	*	*	*	*	192	258	148	218	175	220	197	299	166	320	176	263
10:00	*	*	*	*	162	188	157	202	160	201	261	**331**	304	400	209	264
11:00	*	*	*	*	189	184	187	175	183	182	**305**	305	**305**	**424**	**234**	254
12:00 PM	*	*	*	*	247	232	220	211	265	252	328	**324**	386	364	289	277
01:00	*	*	*	*	205	208	214	190	210	201	314	292	**486**	391	286	256
02:00	*	*	*	*	301	234	256	220	260	216	**362**	280	382	**398**	312	270
03:00	*	*	*	*	383	333	348	303	363	276	320	285	391	329	361	305
04:00	*	*	*	*	394	310	390	316	**394**	309	326	283	361	339	373	**311**
05:00	*	*	**447**	**351**	**445**	**351**	**405**	313	374	**318**	303	225	392	306	**394**	311
06:00	*	*	361	306	349	254	339	**326**	321	243	313	244	345	310	338	280
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11:00	*	*	78	33	79	24	73	34	85	65	110	79	67	52	82	48
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Day	0		3001		8477		8192		7991		8473		9871		8626	
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Vol.	-	-	-	-	252	439	229	399	214	412	305	331	305	424	234	345
PM Peak	-	-	17:00	17:00	17:00	17:00	17:00	18:00	16:00	17:00	14:00	12:00	13:00	14:00	17:00	16:00
Vol.	-	-	447	351	445	351	405	326	394	318	362	324	486	398	394	311

City of Guelph
Transportation Services

Site Code:

Grange Rd
btwn Hagan Ave and Bradson Dr

Start	29-May-23		Tue		Wed		Thu		Fri		Sat		Sun		Week Average	
Time	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB
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02:00	6	2	16	3	*	*	*	*	*	*	*	*	*	*	11	2
03:00	7	11	7	5	*	*	*	*	*	*	*	*	*	*	7	8
04:00	9	39	16	38	*	*	*	*	*	*	*	*	*	*	12	38
05:00	31	94	29	99	*	*	*	*	*	*	*	*	*	*	30	96
06:00	78	185	66	171	*	*	*	*	*	*	*	*	*	*	72	178
07:00	140	256	139	253	*	*	*	*	*	*	*	*	*	*	140	254
08:00	**249**	**432**	**238**	**415**	*	*	*	*	*	*	*	*	*	*	**244**	**424**
09:00	188	228	172	208	*	*	*	*	*	*	*	*	*	*	180	218
10:00	167	202	157	189	*	*	*	*	*	*	*	*	*	*	162	196
11:00	186	202	208	184	*	*	*	*	*	*	*	*	*	*	197	193
12:00 PM	217	197	219	216	*	*	*	*	*	*	*	*	*	*	218	206
01:00	239	197	187	190	*	*	*	*	*	*	*	*	*	*	213	194
02:00	268	230	231	195	*	*	*	*	*	*	*	*	*	*	250	212
03:00	408	311	366	289	*	*	*	*	*	*	*	*	*	*	387	300
04:00	406	336	404	**334**	*	*	*	*	*	*	*	*	*	*	405	335
05:00	**456**	**372**	**406**	321	*	*	*	*	*	*	*	*	*	*	**431**	**346**
06:00	333	323	*	*	*	*	*	*	*	*	*	*	*	*	333	323
07:00	328	243	*	*	*	*	*	*	*	*	*	*	*	*	328	243
08:00	325	175	*	*	*	*	*	*	*	*	*	*	*	*	325	175
09:00	202	93	*	*	*	*	*	*	*	*	*	*	*	*	202	93
10:00	94	73	*	*	*	*	*	*	*	*	*	*	*	*	94	73
11:00	87	39	*	*	*	*	*	*	*	*	*	*	*	*	87	39
Lane	4479	4277	2906	3144	0	0	0	0	0	0	0	0	0	0	4378	4181
Day	8756		6050		0		0		0		0		0		8559	
AM Peak	08:00	08:00	08:00	08:00	-	-	-	-	-	-	-	-	-	-	08:00	08:00
Vol.	249	432	238	415	-	-	-	-	-	-	-	-	-	-	244	424
PM Peak	17:00	17:00	17:00	16:00	-	-	-	-	-	-	-	-	-	-	17:00	17:00
Vol.	456	372	406	334	-	-	-	-	-	-	-	-	-	-	431	346

Comb. Total	8756	9051	8477	8192	7991	8473	9871	17185

ADT ADT 9,145 AADT 8,505

City of Guelph
Transportation Services

Site Code:

Grange Rd
btwn Hagan Ave and Bradson Dr

EB, WB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classed	Total
05/30/23	0	53	1	0	2	0	0	0	0	0	0	0	0	0	56
01:00	0	32	1	0	1	0	0	0	0	0	0	0	0	0	34
02:00	0	18	4	0	0	0	0	0	0	0	0	0	0	0	22
03:00	0	11	2	0	1	0	0	0	0	0	0	0	0	0	14
04:00	0	49	8	0	6	0	0	0	0	0	0	0	0	0	63
05:00	2	114	21	1	11	0	0	0	0	0	0	0	0	0	149
06:00	5	185	54	1	27	0	0	0	0	0	0	0	0	2	274
07:00	4	361	66	2	14	1	0	0	0	0	0	0	0	6	454
08:00	17	582	100	5	32	3	0	1	0	0	0	0	0	15	755
09:00	10	331	66	4	24	1	0	2	0	0	0	0	0	2	440
10:00	1	316	49	1	28	0	0	2	0	0	0	0	0	3	400
11:00	8	360	55	1	25	0	0	2	0	0	0	0	0	2	453
12 PM	4	388	80	3	17	1	0	1	0	0	0	0	0	9	503
13:00	4	334	62	3	28	1	0	1	0	0	0	0	0	3	436
14:00	10	374	80	2	14	4	0	0	0	0	0	0	0	9	493
15:00	9	585	105	0	36	4	0	1	0	0	0	0	0	17	757
16:00	8	648	147	3	29	1	0	0	0	0	0	0	0	17	853
17:00	8	651	126	1	28	0	0	0	0	0	0	0	0	26	840
18:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
19:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
20:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
21:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
22:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
23:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Total	90	5392	1027	27	323	16	0	10	0	0	0	0	0	111	6996
Percent	1.3%	77.1%	14.7%	0.4%	4.6%	0.2%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	1.6%	
AM Peak	08:00	08:00	08:00	08:00	08:00	08:00		09:00						08:00	
Vol.	17	582	100	5	32	3		2						15	
PM Peak	14:00	17:00	16:00	12:00	15:00	14:00		12:00						17:00	
Vol.	10	651	147	3	36	4		1						26	
Grand Total	841	50791	9275	188	2403	159	0	87	1	0	0	0	1	1078	64824
Percent	1.3%	78.4%	14.3%	0.3%	3.7%	0.2%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	1.7%	

Appendix B
Sample STAMSON 5.04 Output

```
STAMSON 5.0        NORMAL REPORT        Date: 06-02-2026 13:38:03
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: a.te                 Time Period: Day/Night 16/8 hours
Description: A_South Facade

Road data, segment # 1: grange rd (day/night)
----------------------------------------------
Car traffic volume  : 11135/1237  veh/TimePeriod  *
Medium truck volume :   478/53    veh/TimePeriod  *
Heavy truck volume  :    35/4     veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):   8505
    Percentage of Annual Growth        :   2.50
    Number of Years of Growth          :  17.00
    Medium Truck % of Total Volume     :   4.10
    Heavy Truck  % of Total Volume     :   0.30
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 1: grange rd (day/night)
----------------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  19.00 / 19.00  m
Receiver height           :   4.50 / 4.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Results segment # 1: grange rd (day)
-----------------------------------

Source height = 0.74 m

ROAD (0.00 + 62.12 + 0.00) = 62.12 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.00  63.14   0.00  -1.03   0.00   0.00   0.00   0.00  62.12
-------------------------------------------------------------------------------

Segment Leq : 62.12 dBA

Total Leq All Segments: 62.12 dBA
```

Results segment # 1: grange rd (night)

Source height = 0.75 m

ROAD (0.00 + 55.59 + 0.00) = 55.59 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	56.62	0.00	-1.03	0.00	0.00	0.00	0.00	55.59

Segment Leq : 55.59 dBA

Total Leq All Segments: 55.59 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 62.12
(NIGHT): 55.59

Appendix C

Relevant Pages from the City of Guelph Noise Control Guidelines

Appendix B: Specifications for Noise Barriers

Noise Barrier System Requirements

The details presented below refer to noise barriers as a system of various components including the base berm, the wall, and all other associated components.

Noise Barrier Systems can be designed using barrier walls or fences, earth berms, or a combination thereof. Any combination of wall and/or berm, constructed to mitigate noise, is considered a noise barrier system and can also be referred to more simply as a noise barrier.

Design Requirements:

- Where a barrier is required, the receptors must be located within its acoustical shadow zone.
- Noise barrier wall/fence heights for new development shall be 1.8m. If a higher barrier system is required to mitigation noise, other mitigation measures should be considered instead of, or in combination with, the noise barrier wall. Noise barrier wall heights above 1.8m will be reviewed on a case-by-case basis, and justification must be included in the report.
- The noise barrier should be continuous and turned through appropriate angles and lengths away from the source at both ends to protect the receivers from the flanking sides.
- In cases where the barrier system is interrupted, barrier returns or parallel screens may be required and the detailed design and calculations of the treatment in such cases will have to be incorporated into the noise report. The report and the grading plan must include a detailed plan and appropriate cross sections of such cases.
- The City may approve the use of an acoustic gate where the installation of the gate is advantageous in order to allow for access to a rear yard amenity area while shortening the overall length of the noise barrier. Note that gates must be placed so as to limit fugitive noise when open.
- Where possible proposed barrier systems should be complimentary with nearby existing barrier systems, and must not negatively impact existing receivers (acoustically).

Material:

Noise barriers should have the following general characteristics:

- Have no holes or gaps.
- Be non-combustible
- Be resistant to graffiti or include a graffiti resistive coating conforming to relevant ASTM standards (fences)
- Be vermin and fungus resistant (fences)
- Have a minimum predicted maintenance free lifespan of 20 years.
- Final barrier material/manufacturer shall be approved by the City.

The noise barrier shall be designed to withstand all possible forces and loads encountered during the design life of the barrier and remain serviceable. The design shall be site specific with reference to the wind pressure, earthquake load, freezing depth and soil conditions.

All components of noise barrier systems, including their performance, such as corrosion and weathering, to be in accordance with the applicable CSA, ASTM, CAN/L1LC, ULC, CSA/CAN and ANSI standards.

Acoustic Characteristics:

Sound Transmission Class

Noise barriers must provide the desired minimum sound level reduction and protect all receiver locations subject to the guidelines. All barriers must have one or more of the following acoustic characteristics:

- The Sound Transmission Class (STC) of the panel material to be 20, or greater, when tested in accordance with ASTM-E90 (a test report to be submitted for approval).
- The Sound Transmission Class (STC) of the panel material has historically been demonstrated to be 30 or greater (include references).
- Surface mass density not less than 20 kg/sq.m (4 lbs/sq-ft).

Sound Absorption

Noise barrier systems should be noise absorptive on both sides. Barrier panels should be tested to determine the Noise Reduction Coefficient (NRC) in accordance with ASTM-C423. An assembly of panels should be tested, as required, in accordance with the ASTM Procedures for free-standing screens. The average Noise Reduction Coefficient (NRC) shall be not less than 0.70 (70%).

Construction:

Height and Alignment

The noise barrier is to be constructed to the height and alignment as specified by the acoustical consultant. The minimum specified top of barrier elevation shall be maintained at all times.

Site Grading and Preparation

All barriers must be installed based on the required top of barrier elevation outlined in the approved study. Changes in alignment and/or height shall occur at the posts, by suitable means, to avoid acoustical degradation.

To prevent openings from occurring under the barrier an additional timber, not less than 5mm x 20mm in section, shall be securely fastened horizontally to the bottom of the barrier, and shall extend the full width of each barrier panel between adjacent vertical posts. This additional timber shall be buried to a depth equal to one-half its width during the final grading operation. Earth and pavement grading shall be sloped at a minimum of 2% and a maximum of 33% away from the barrier.

Document Submission Requirements

The following items shall be submitted to the City for approval for each noise barrier system project as part of a detailed noise study:

- Shop drawings, signed and sealed by a qualified Professional Engineer licensed by the Professional Engineers of Ontario, showing the details of noise barrier system components, including material specifications.
- Structural drawing(s), signed and sealed by a qualified Professional Engineer licensed by the Professional Engineers of Ontario, showing foundation details and specifying design criteria, climatic design loads, as well as applicable geotechnical data used in the design.
- Layout plan complete with proposed grade and top of barrier elevations.
- Typical and specific (as necessary) cross sections of barrier system.
- A covering letter stating deviations or exceptions to the City requirements and the reasons/justification for the deviations.
- The manufacturer's name and address and trade name of the product.
- A general statement as to the composition of the materials.
- Barrier section/elevation drawings showing proposed materials, colours and patterns.
- An estimate of life cycle cost over the period of installation, maintenance and repair through replacement in 20 or more years.