NOISE IMPACT STUDY

SCHOOL WEST INVESTMENTS INC., SCHOOL VALLEY SOUTH LTD.

SCHOOL VALLEY DEVELOPMENTS LTD., &

BROOKVALLEY DEVELOPMENTS (HWY 10) LTD.

PROPOSED MIXED-USE SUBDIVISION

PART OF LOTS 19 AND 20 CONCESSION 2, PART OF LOT 21 CONCESSION 1 &

PART OF LOT 22 CONCESSIONS 1 AND 2

MAYFIELD WEST PHASE 2 STAGE 3 SETTLEMENT AREA

TOWN OF CALEDON

FILE NO. PRE 2023-0256 & PRE 2023-0257

APRIL 8TH 2024

CANDEVCON GROUP INC.
CONSULTING ENGINEERS & PLANNERS
TEL (905) 794-0600 FAX (905) 794-0611

PROJECT NO. W23093

NOISE IMPACT STUDY

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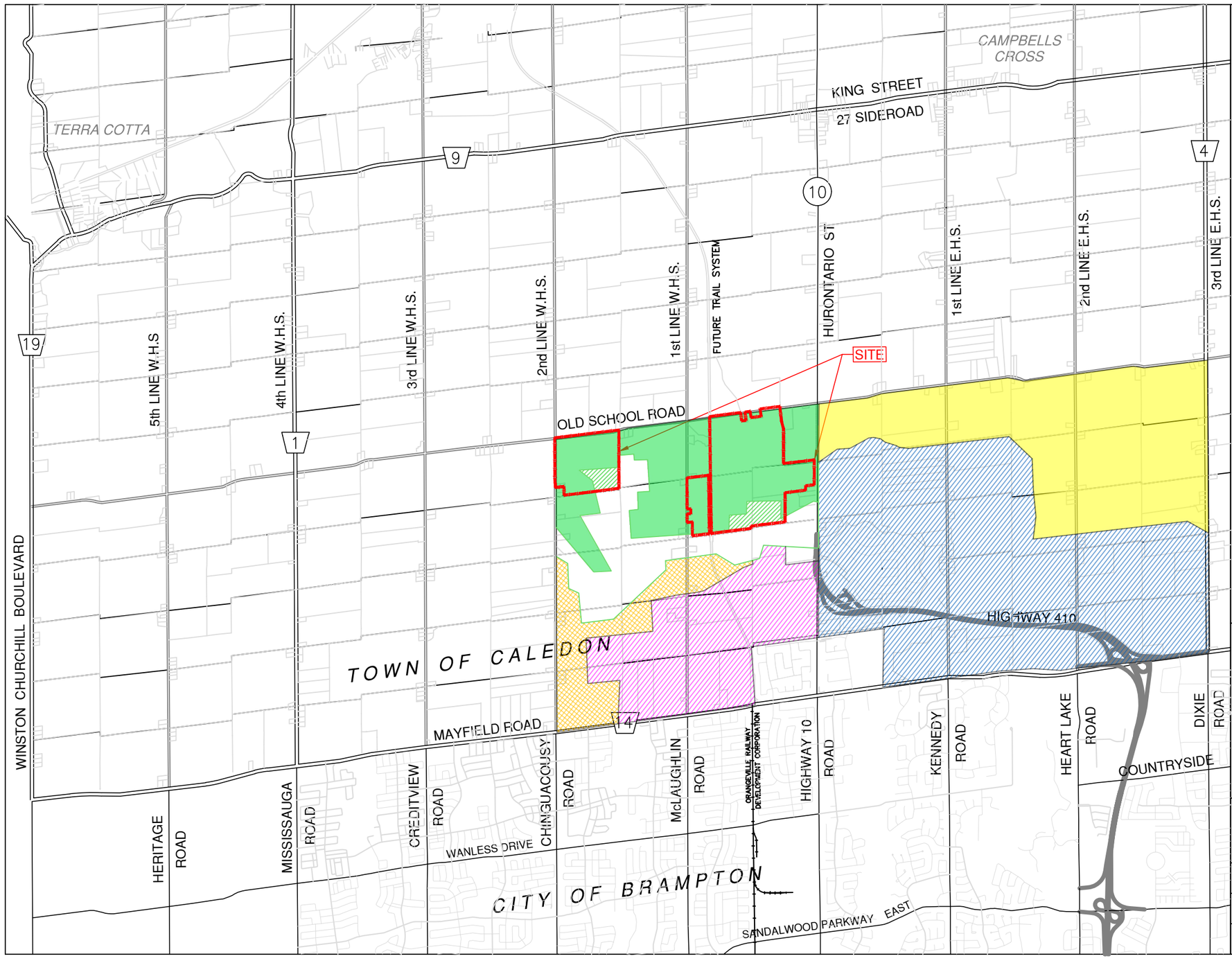
1. INTRODUCTION

This Noise Impact Study for the proposed Mixed-Use Subdivision that has a west parcel at the southeast corner of the Chinguacousy Road at Old School Road intersection and an east parcel that is immediately south of Old School Road and east of McLaughlin Road was prepared by CANDEVCON GROUP INC. on behalf of School West Investments Inc., School Valley South Ltd., School Valley Developments Ltd. and Brookvalley Developments (HWY 10) Ltd. The purpose of the Study is to project the potential noise impacts to the residential developments within the proposed Subdivision from transportation noise sources and to provide recommendations with respect to mitigation measures.

The Subject Lands are within the Mayfield West Phase 2 Stage 3 Settlement Area, located in the Town of Caledon. The Location Plan is provided in **Figure 1** and the proposed Draft Plan of Subdivision is provided in **Figure 2**.

This Study defines the projected sound levels from road and aircraft noise sources and provides recommendations with respect to noise mitigation requirements.



LEGEND:

- MAYFIELD WEST PHASE 1
- MAYFIELD WEST PHASE 2 - STAGE 1
- MAYFIELD WEST PHASE 2 - STAGE 2
- MAYFIELD WEST PHASE 2 - STAGE 3
- MAYFIELD WEST PHASE 3
- SITE

SCHOOL WEST INVESTMENTS INC.,
SCHOOL VALLEY SOUTH LTD.
SCHOOL VALLEY DEVELOPMENTS LTD., &
BROOKVALLEY DEVELOPMENTS (HWY 10) LTD.

LOCATION PLAN

MAYFIELD WEST PHASE 2 STAGE 3 SETTLEMENT AREA

TOWN OF CALEDON

CANDEVCON GROUP INC.
CONSULTING ENGINEERS AND PLANNERS
9358 COREWAY DRIVE BRAMPTON, ONTARIO L6P 0M7
TEL. (905) 794-0600 FAX (905) 794-0611

DATE MAR. 8th 2024	PROJECT No W23093
DRAWN S.N.	FIGURE No. 1
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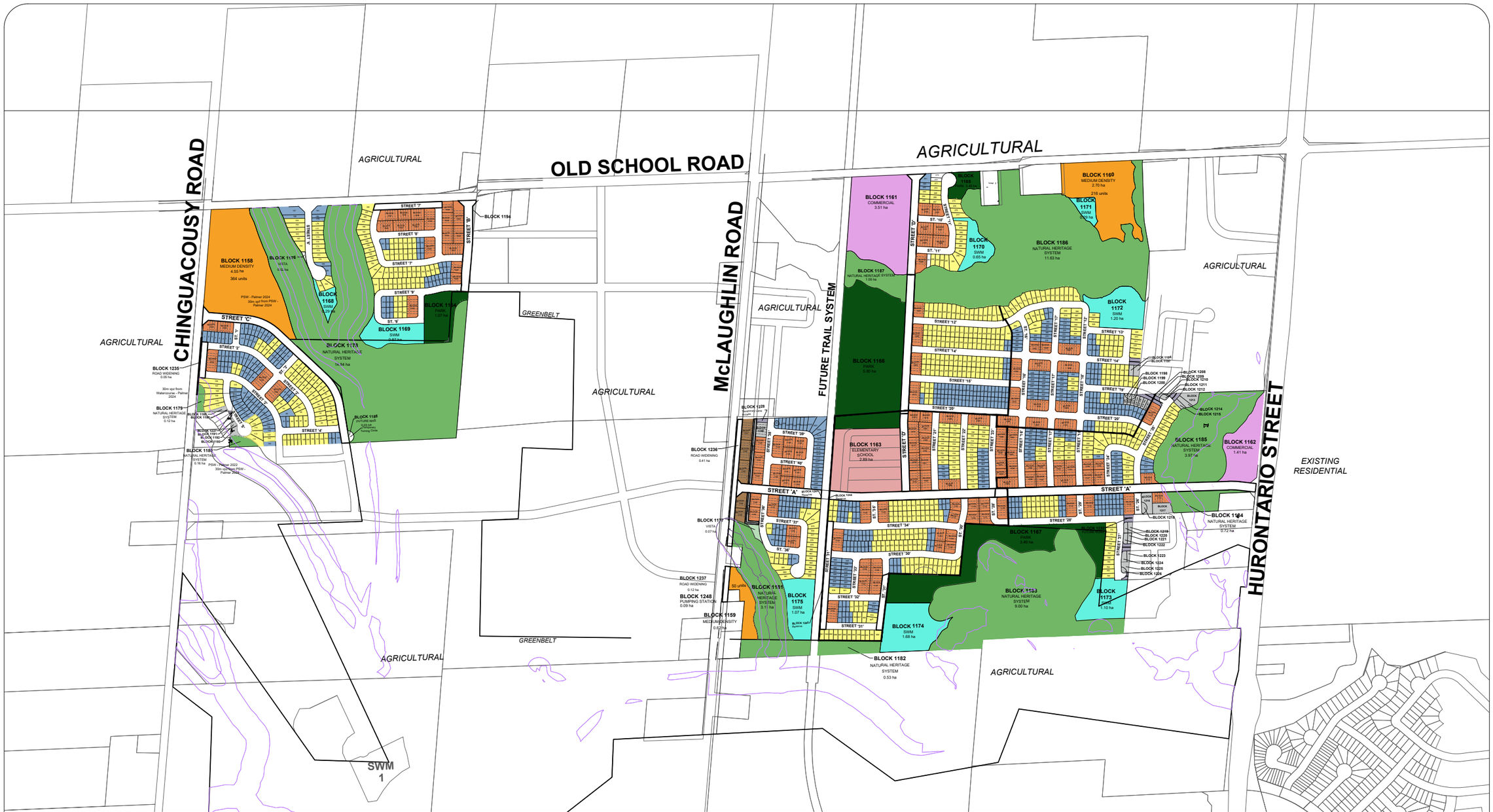

NOISE IMPACT STUDY

SCHOOL WEST INVESTMENTS INC., SCHOOL VALLEY SOUTH LTD.
SCHOOL VALLEY DEVELOPMENTS LTD., &
BROOKVALLEY DEVELOPMENTS (HWY 10) LTD.

PROPOSED DRAFT PLAN OF SUBDIVISION

CANDEVCON GROUP INC.
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TEL. (905) 794-0600 FAX (905) 794-0611

DATE: APRIL. 3rd 2024	JOB No. W23093
DESIGN: S.N.	FIG. No. 2
SCALE: 1:10000	

2. NOISE ASSESSMENT

2.1 Roadway Traffic Noise Sources

The principal roadway noise sources that will impact the proposed residential land uses within the Subject Lands are the vehicular traffic on Hurontario Street, McLaughlin Road, Old School Road, Chinguacousy Road and the proposed Collector Roads. For Hurontario Street, McLaughlin Road, Old School Road and Chinguacousy Road, the projected roadway traffic volumes, the recommended number of lanes and the proposed Road Classification were taken from the Preliminary Transportation Assessment[1] prepared by the BA Group. This Study reviewed the traffic volumes projected by the Traffic Impact Study for the Subject Subdivision and concluded that they are comparable[2]. Relevant excerpts from the background studies are provided in **Appendix A**. The Preliminary Transportation Assessment provided the projected traffic volumes for the A.M. and P.M. Peak Hours. To determine the AADT, the Study assumed that the worse-case peak hour volume is 10 percent of the AADT. The proposed Collector Roads are assumed to have a daily volume of 8,500 vehicles, which is a typical assumption for a collector road.

Hurontario Street is an arterial road under the jurisdiction of the Ministry of Transportation Ontario (MTO). Currently, it is a five (5) lane roadway with a posted speed limit of 80 km/h and a rural cross section. It is recommended for the roadway to be widened to six (6) lanes and it is anticipated that the speed limit will remain at 80 km/h. In addition, for the purpose of this Study, 10 percent trucks was assumed with a heavy to medium truck ratio of 2.33 (70%/30% split).

[1] Mayfield West Phase 2 Stage 3 – Preliminary Transportation Assessment, BA Group, December 21, 2018.
[2] Mayfield West Phase 2 Stage 3 – Traffic Impact Study, GHD Limited, April 5, 2024.

2. NOISE ASSESSMENT (CONT'D)

2.1 Roadway Traffic Noise Sources (Cont'd)

McLaughlin Road is a collector road under the jurisdiction of the Town of Caledon. Currently, it is a two (2) lane roadway with a posted speed limit of 80 km/h and a rural cross section. It is recommended for the roadway to be widened to four (4) lanes and it is anticipated that the speed limit will be 60 km/h in the future. In addition, for the purpose of this Study, 5 percent trucks was assumed with a medium to heavy truck ratio of 1.5 (60%/40% split).

Old School Road is a collector road under the jurisdiction of the Town of Caledon. Currently, it is a two (2) lane roadway with a posted speed limit of 70 km/h and a rural cross section. It is recommended for the roadway to be widened to four (4) lanes in the future. In addition, for the purpose of this Study, 5 percent trucks was assumed with a medium to heavy truck ratio of 1.5 (60%/40% split).

Chinguacousy Road is a collector road under the jurisdiction of the Town of Caledon. Currently, it is a two (2) lane roadway with a posted speed limit of 80 km/h and a rural cross section. It is recommended for the roadway to be widened to four (4) lanes and to be upgraded to an arterial road. It is anticipated that the speed limit will be 60 km/h in the future. In addition, for the purpose of this Study, 5 percent trucks was assumed with a medium to heavy truck ratio of 1.5 (60%/40% split).

The proposed Collector Roads (Streets "A" to "D") are assumed to have a daily volume of 8,500 vehicles, which is a typical assumption for a collector road. In addition, the assumed speed limit will be 50 km/h and the predicted total percentage of trucks is 2 percent with a ratio of medium to heavy trucks of 19 (95/5 percent split).

Table 1 summarizes the projected traffic volumes used in the analysis.

2. NOISE ASSESSMENT (CONT'D)

2.1 Roadway Traffic Noise Sources (Cont'd)

TABLE 1
PROJECTED (ULTIMATE) ROADWAY TRAFFIC VOLUMES

Road Characteristic	Hurontario Street	McLaughlin Road	Chinguacousy Road	Old School Road	Proposed Collector Roads
Jurisdiction	MTO	Caledon	Caledon	Caledon	Caledon
Ultimate No. Lanes	6	4	4	4	2
Ultimate AADT	70,000	25,000	16,000	23,000[2] 18,000[3]	8,500[1]
Traffic Speed (See Note 4)	90 km/h	70 km/h	70 km/h	80 km/h	60 km/h
% Trucks Medium **Heavy**	3.00% 7.00%	3.00% 2.00%	3.00% 2.00%	3.00% 2.00%	1.90% 0.10%
Day/Night Volume Ratio	90%/10%	90%/10%	90%/10%	90%/10%	90%/10%

Note 1: Typical volume assumption for Collector Roads.
Note 2: Traffic volume from McLaughlin Road to Hurontario Street.
Note 3: Traffic volume from Chinguacousy Road to McLaughlin Road.
Note 4: The Town of Caledon requires that sound level projections are to assume that traffic is travelling 10 km/h above the speed limit.[3]

[3] Development Standards Manual Version 5.0, Town of Caledon, 2019.

2. NOISE ASSESSMENT (CONT'D)

2.1.1 Roadway Traffic Noise Sources – Highway 413 (GTA West Corridor)

The design of Highway 413 (GTA West Corridor) is in its preliminary stages and the alignment of the corridor has yet to be finalized. Since the alignment has not been finalized, the roadway was not considered in this Study. However, impacts from Highway 413 will be evaluated when final plans become available.

2.2 Railway Noise

The Orangeville-Brampton Railway, which runs across the east parcel of the proposed Mixed-Use Subdivision, travels in the north-south direction and is approximately 200 metres east of McLaughlin Road. Recently, ownership of the railway has been transferred from the Town of Orangeville to the Region of Peel. The railway system has been decommissioned and the Region of Peel has plans to construct a future Trail System within the ROW. Therefore, an assessment for the impacts from railway noise sources is no longer required.

2. NOISE ASSESSMENT (CONT'D)

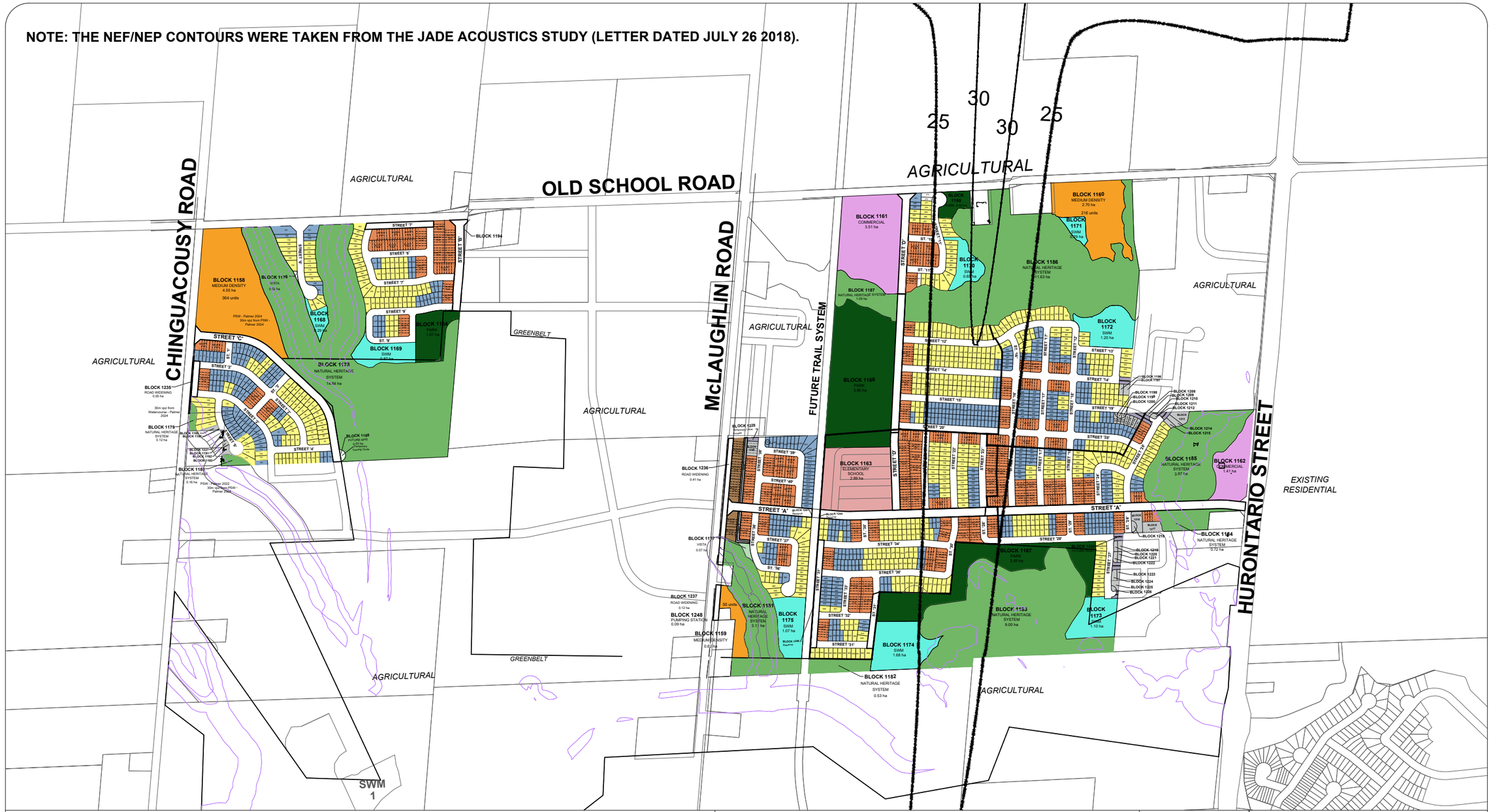
2.3 Aircraft Noise

A figure illustrating the location of the 2023 Noise Exposure Forecast and the 2028 Noise Exposure Projection contours for the Brampton Flight Centre in relation to Mayfield West Phase 2 was taken from the 2nd Response to Region of Peel Comments to the Addendum to Environmental Noise Vibration Impact Assessment for Mayfield West Phase 2 Stage 2 – Secondary Plan Part B Evaluation of Land-Use Options; which was prepared by Jade Acoustics and dated July 26, 2018[4]. The figure prepared by Jade Acoustics is provided in **Appendix B**. The 2023 NEF/2028 NEP contours have been reviewed by the Brampton Flight Centre and by Transport Canada. The location of the 2023 NEF/2028 NEP contours that were taken from the letter prepared by Jade Acoustics and the land uses within the proposed Mixed-Use Subdivision is illustrated in **Figure 3**.

As illustrated in **Figure 3**, there are residential lands within the proposed Mixed-Use Subdivision that are between the 25 and 30 NEF/NEP contours. For these lands, the Ministry of the Environment, Conservation and Parks (MECP) requires forced air heating with provision for central air conditioning and special building components.

[4] 2nd Response to Region of Peel Comments – Addendum to Environmental Noise Vibration Impact Assessment, Mayfield West Phase 2 Stage 2 – Secondary Plan Part B Evaluation of Land-Use Options, Jade Acoustics, July 26, 2018.

NOTE: THE NEF/NEP CONTOURS WERE TAKEN FROM THE JADE ACOUSTICS STUDY (LETTER DATED JULY 26 2018).



NOISE IMPACT STUDY

SCHOOL WEST INVESTMENTS INC., SCHOOL VALLEY SOUTH LTD. SCHOOL VALLEY DEVELOPMENTS LTD., & BROOKVALLEY DEVELOPMENTS (HWY 10) LTD.

2023 NEF AND 2028 NEP CONTOURS FOR THE BRAMPTON FLIGHT CENTRE

CANDEVCON GROUP INC.
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DATE: APR. 4th 2024	JOB No. W23093
DESIGN: S.N.	FIG. No. 3
SCALE: 1:10000	

2. NOISE ASSESSMENT (CONT'D)

2.4 Stationary Noise Sources

As illustrated in **Figure 2**, the east parcel of the proposed Mixed-Use Subdivision will provide commercial blocks (Block 1161 and 1162). However, residential land uses will not be within the vicinity of Block 1162. In addition, for Block 1161, a collector road (Street 'D') is between the commercial land uses and the residential land uses nearby. Since the roadway traffic on the collector road will drown out any potential stationary noise source(s), there will be no concerns.

2. NOISE ASSESSMENT (CONT'D)

2.5 Noise Criteria

Noise impacts from the sources mentioned in Section 2 were assessed using the principles and procedures in the MECP's Environmental Noise Guideline[5], the Region of Peel's General Guidelines for the Preparation of Acoustical Reports[6] and the Town of Caledon's Development Standards Manual.

For sound level projections, when considering roadway noise sources, the sound level criteria for an outdoor living area and ventilation requirements is summarized in **Table 2**.

TABLE 2

REGION OF PEEL OUTDOOR NOISE CRITERIA (ROAD TRAFFIC)

Location	Outdoor
Outdoor Living Area	55 dBA (7 am - 11 pm) L_{eq} (16 hour)
Bedroom Window	50 dBA (11 pm - 7 am) L_{eq} (8 hour)
Living Room Window	55 dBA (7 am - 11 pm) L_{eq} (16 hour)

[5] Environmental Noise Guideline, Stationary and Transportation Sources -Approval and Planning, Publication NPC-300, Ministry of the Environment, Conservation and Parks , August 2013

[6] General Guidelines for the Preparation of Acoustical Reports in the Region of Peel, Updated August 2020.

2. NOISE ASSESSMENT (CONT'D)

2.5 Noise Criteria (Cont'd)

When considering aircraft noise sources, the sound level criteria in reference to NEF/NEP values is summarized in **Table 3**.

TABLE 3

MECP OUTDOOR NOISE CRITERIA FOR RESIDENTIAL LAND USE (AIRCRAFT)

NEF/NEP	AIR CONDITIONING	FORCED AIR VENTILATION	WARNING CLAUSE 'B'	OLA PERMITTED	UPGRADED BUILDING COMPONENTS
<25	-	-	-	Yes	-
25-30	-	Yes	-	Yes	Yes
>30[1]	Yes	-	Yes	No	Yes

Note 1: Noise criteria refers to redevelopments or infill developments. New residential developments are prohibited in these lands.

For the requirement of upgraded building components, the indoor noise criteria for residential land use is summarized in **Table 4**.

2. NOISE ASSESSMENT (CONT'D)

2.5 Noise Criteria (Cont'd)

TABLE 4

MECP INDOOR NOISE CRITERIA FOR RESIDENTIAL LAND USE

Time Period	Road	Aircraft
Daytime (7 am - 11 pm)	45 dBA L_{eq} (16 hour)	31 dBA L_{eq} (16 hour)
Night-time (11 pm - 7 am)	40 dBA L_{eq} (8 hour)	31 dBA L_{eq} (8 hour)

An outdoor living area (OLA) in a residential development generally refers to a rear yard, a rooftop and a patio or a balcony having a minimum depth of 4 metres.

As per the requirements set forth by the Town of Caledon, where the sound levels exceed the 55 dBA L_{eq} sound level limit, noise mitigation measures such as barriers are required to attenuate the sound levels to the 55 dBA L_{eq} sound level limit (Town approval is required where sound levels exceed the limit by no more than 5 dBA). If the town approves an outdoor living area with a projected daytime sound level that exceeds the noise criteria by no more than 5 dBA, a warning clause in all Offers of Purchase and Sale that informs the purchaser of the potential noise concern is required. The wording of such warning clauses is provided in **Appendix C**.

2. NOISE ASSESSMENT (CONT'D)

2.5 Noise Criteria (Cont'd)

In addition, based on the Town of Caledon requirements, where the noise attenuating barrier is adjacent to public property, a warning clause in the Development Agreement and in all Offers of Purchase and Sale for the specific lots/units is required to inform the purchasers/tenants that the noise attenuating barrier (including the berm, if applicable) is within their property and that they are responsible for any repairs or replacements. For the Region of Peel, the requirements for a warning clause in the Development Agreement and in all Offers of Purchase and Sale apply to all the specific lots/units to where a noise attenuating barrier is provided, regardless of whether the noise attenuating barrier is adjacent to public property.

The MECP have ventilation requirements which are based on the sound level at the exterior building facade.

2. NOISE ASSESSMENT (CONT'D)

2.5 Noise Criteria (Cont'd)

When analysing the noise impacts due to roadway noise sources, where the daytime (7:00-23:00) sound levels in the plane of a bedroom or living/dining room window are greater than 65 dBA L_{eq} and/or where the night-time (23:00-7:00) sound levels in the plane of a bedroom or living/dining room window are greater than 60 dBA L_{eq}, mandatory central air conditioning for the specific lots/units is required. Further to this requirement, where central air conditioning is required, the Region of Peel requires that the central air conditioning unit be located at a noise insensitive area or that proper noise attenuation for the stationary noise source be applied and that this requirement is to be stated in the Subdivision Agreement. Where daytime (7:00-23:00) sound levels in the plane of a bedroom or living/dining room window are greater than 55 dBA L_{eq} and less than or equal to 65 dBA L_{eq}, and/or where night-time (23:00-7:00) sound levels in the plane of a bedroom or living/dining room window are greater than 50 dBA L_{eq} and less than or equal to 60 dBA L_{eq}, forced air heating with provision for central air conditioning for the specific lots/units is required.

When analysing the noise impacts due to aircraft noise sources, ventilation requirements are needed for residential developments above the NEF/NEP 25 contours. For residential developments that are between the NEF/NEP 25 and 30 contours, forced air heating with provision for central air conditioning is required.

Residences with ventilation requirements due to roadway and/or aircraft noise must provide a warning clause in the Subdivision Agreement and in all Offers of Purchase and Sale.

2. NOISE ASSESSMENT (CONT'D)

2.5 Noise Criteria (Cont'd)

The indoor sound levels due to transportation noise sources must not exceed the limits provided in **Table 4** as a result of the criterion set forth by the MECP. When the building components, as per standard construction requirements that comply with the minimum structural and safety requirements of the Ontario Building Code (OBC), are not able to attenuate the sound levels to meet the criterion, upgraded building components (mainly windows and walls) are required.

When analysing the noise impacts due to roadway noise sources, where the daytime sound levels outside the bedroom or living/dining room window exceed 65 dBA L_{eq} and/or the night-time sound levels outside the bedroom or living/dining room window exceed 60 dBA L_{eq}, upgraded building components including windows, walls and doors, where applicable, should be designed so that the indoor sound levels comply with the sound level limit criteria specified in **Table 4**.

When analysing the noise impacts due to aircraft noise sources, for residential developments that are within the NEF/NEP 25 contour, upgraded building components including windows, walls, roofs and doors, where applicable, should be designed so that the indoor sound levels comply with the sound level limit criteria specified in **Table 4**.

Finally, if special building components are required as a result of roadway and aircraft noise, the minimum special building component requirements must also take into account the logarithmic sum of all sound levels from each transportation noise source.

2. NOISE ASSESSMENT (CONT'D)

2.6 Projected Sound Levels

Using the road traffic data in **Table 1**, L_{eq} sound levels were projected for the worst-case single detached homes and townhouse units within the Subject Subdivision. Since the buildings are not yet sited, typical configurations and setbacks were assumed. For the Medium Density Residential Blocks, a noise impact assessment will be conducted when plans become available.

For the rear yards provided by the single detached homes and townhouse units, outdoor daytime sound levels were projected at a point located 3m from the rear wall of the building facade and 1.5m above the ground. In addition, daytime sound levels were projected for the first storey facade at a height of 1.5m above the ground and night-time sound levels were projected for the second storey façade at a height of 4.5m above the ground.

All sound level projections were calculated using the computerized model[7] of the MECP's ORNAMENT procedure[78]. The results from the Stamson 5.04 model are summarized in **Table 5**; assuming no acoustical barriers. Typical computer reports are included in **Appendix D**.

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7 STAMSON 5.04 computer model, Ministry of the Environment, Conservation and Parks, 2000.

8 ORNAMENT, Ontario Road Noise Analysis Method for Environment and Transportation, Technical Document, Ministry of the Environment, Conservation and Parks, 1989.

2. NOISE ASSESSMENT (CONT'D)

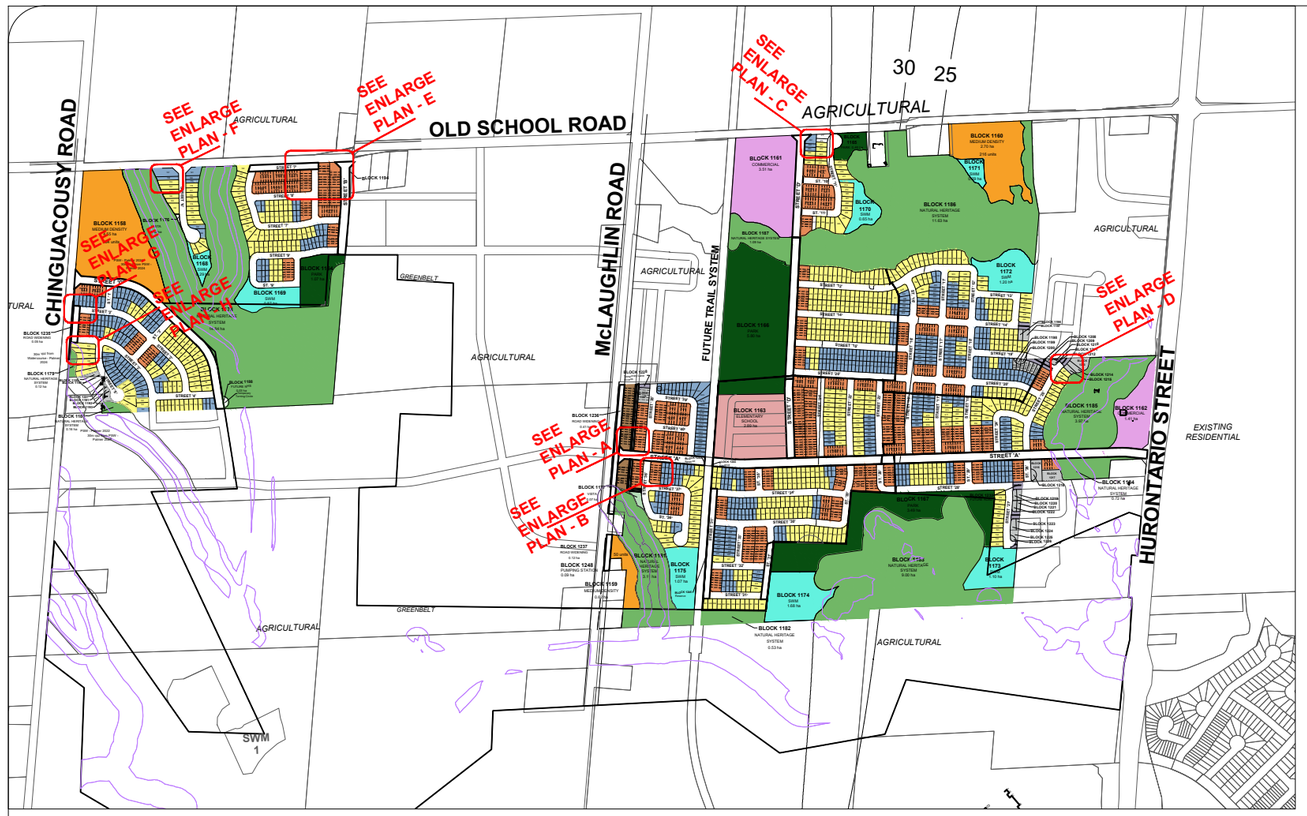
2.6 Projected Sound Levels (Cont'd)

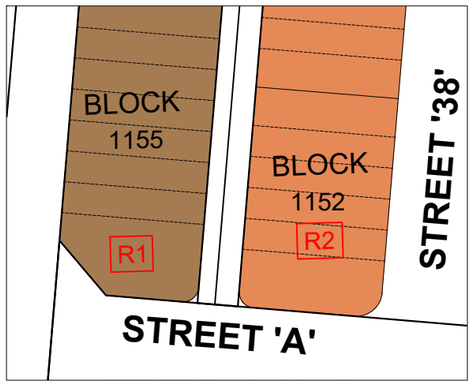
TABLE 5
PROJECTED L_{eq} SOUND LEVELS - NO ACOUSTICAL BARRIER

Location	Daytime L_{eq} Rear Yard	Night-time L_{eq} 2nd Storey	Daytime L_{eq} Side Facade
R1	n/a	59 dBA*	66 dBA
R2	n/a	49 dBA*	56 dBA
R3	59 dBA	54 dBA*	60 dBA
R4	69 dBA	64 dBA*	70 dBA
R5	58 dBA	53 dBA*	59 dBA
R6	53 dBA	49 dBA*	55 dBA
R7	62 dBA	63 dBA*	69 dBA
R8	57 dBA	52 dBA*	57 dBA
R9	60 dBA	59 dBA*	65 dBA
R10	54 dBA	56 dBA*	62 dBA
R11	67 dBA	63 dBA*	69 dBA
R12	59 dBA	54 dBA*	60 dBA
R13	54 dBA	50 dBA*	56 dBA
R14	63 dBA	58 dBA*	64 dBA
R15	65 dBA	63 dBA*	69 dBA
R16	60 dBA	54 dBA*	60 dBA
R17	56 dBA	48 dBA*	54 dBA
R18	61 dBA	59 dBA*	66 dBA
R19	54 dBA	49 dBA*	55 dBA
R20	67 dBA	59 dBA*	66 dBA

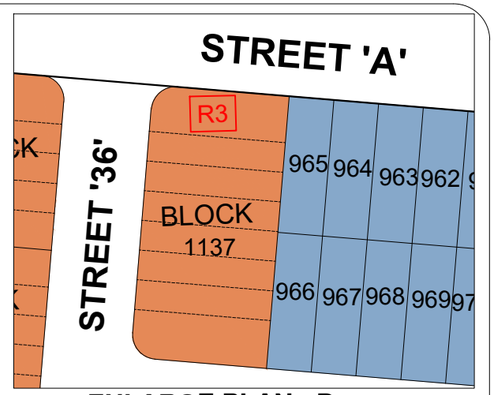
*Note: * Night-time sound level at the 2nd storey bedroom window.*

Figure 4 illustrates the receptor locations which were analysed in this study.

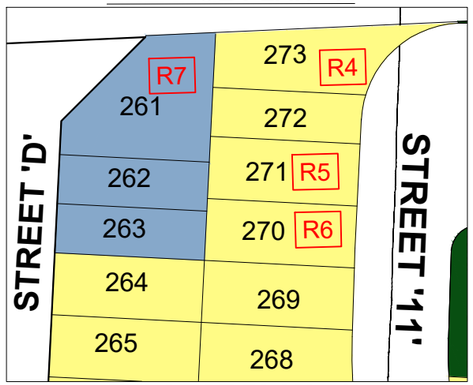




ENLARGE PLAN - A



ENLARGE PLAN - B



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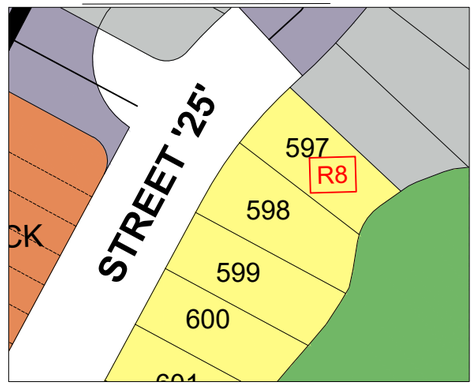
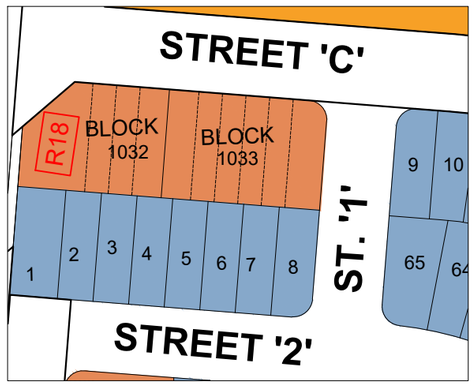
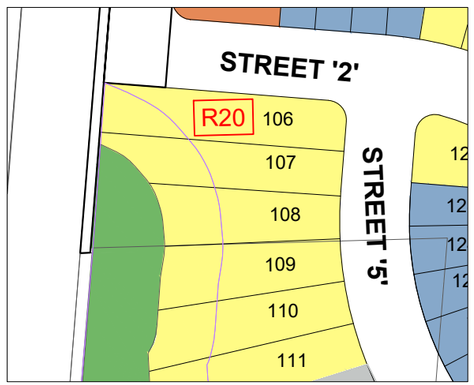


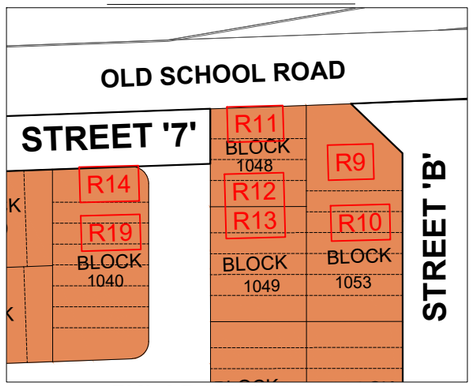
ENLARGE PLAN - D



ENLARGE PLAN - G



ENLARGE PLAN - H



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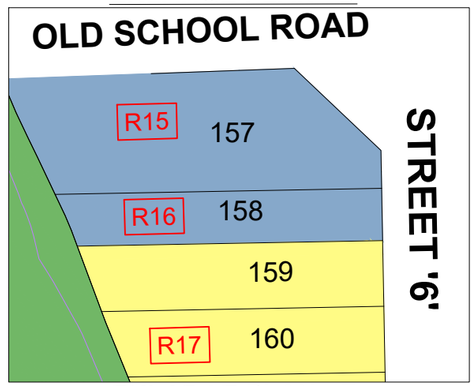

ENLARGE PLAN - F

NOISE IMPACT STUDY

SCHOOL WEST INVESTMENTS INC., SCHOOL VALLEY SOUTH LTD.
SCHOOL VALLEY DEVELOPMENTS LTD., &
BROOKVALLEY DEVELOPMENTS (HWY 10) LTD.

RECEPTOR LOCATION PLAN

CANDEVCON GROUP INC.
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9358 GOREWAY DRIVE, BRAMPTON, ONTARIO L6P 0M7
TEL. (905) 794-0600 FAX (905) 794-0611

DATE: APRIL 5th 2024	JOB No. W23093
DESIGN: S.N.	FIG. No. 4
SCALE: N.T.S	

3. NOISE ATTENUATION MEASURES

3.1 Outdoor Living Area

In reference to **Figure 4**, for the townhouse unit in Block 1032 that is closest to Chinguacousy Road, the townhouse unit in Block 1040 that is closest to Old School Road, the three (3) townhouse units in Block 1048 that are closest to Old School Road and Lots 1, 106 to 111, 157, 181, 261, 272 and 273, the sound levels at the outdoor living area during the daytime will exceed 60 dBA.

For dwelling units flanking or backing onto a collector road, the 2nd closest townhouse unit from Old School Road at Block 1040, the townhouse unit in Block 1048 that is farthest from Old School Road, the two (2) townhouse units in Block 1053 that are closest to Old School Road, the townhouse unit in Block 1111 that is closest to Hurontario Street, the townhouse unit in Block 1112 that is closest to Hurontario Street, Blocks 1213 to 1215, the townhouse unit in Block 1217 that is closest to Hurontario Street and Lots 158 to 160, 178 to 180, 183 to 185, 271 and 597 to 613, the sound levels at the outdoor living area during the daytime will exceed the noise criteria by no more than 5 dBA.

As per the requirements set forth by the Town of Caledon, where the sound levels exceed the 55 dBA L_{eq} sound level limit, noise mitigation measures such as barriers are required to attenuate the sound levels to the 55 dBA L_{eq} sound level limit (Town approval is required where sound levels exceed the limit by no more than 5 dBA). If the town approves an outdoor living area with a projected daytime sound level that exceeds the noise criteria by no more than 5 dBA, a warning clause in all Offers of Purchase and Sale is required. The wording of such warning clauses is provided in **Appendix C**.

3. NOISE ATTENUATION MEASURES (CONT'D)

3.1 Outdoor Living Area (Cont'd)

In addition, based on the Town of Caledon requirements, where the noise attenuating barrier is adjacent to public property, a warning clause in the Development Agreement and in all Offers of Purchase and Sale for the specific lots/units is required to inform the purchasers/tenants that the noise attenuating barrier (including the berm, if applicable) is within their property and that they are responsible for any repairs or replacements. For the Region of Peel, the requirements for a warning clause in the Development Agreement and in all Offers of Purchase and Sale apply to all the specific lots/units to where a noise attenuating barrier is provided, regardless of whether the noise attenuating barrier is adjacent to public property.

3. NOISE ATTENUATION MEASURES (CONT'D)

3.2 Minimum Barrier Requirements

To attenuate the outdoor daytime sound levels, the following recommendations are proposed:

- A 1.8m high acoustic barrier for dwelling units flanking or backing onto a proposed Collector Road (Streets 'A' to 'D'),
- A 2.4m high acoustic barrier along the west property line for Lot 1 and Block 1032,
- A 2.4m high acoustic barrier along the north, south and west property lines for Lots 106 to 111,
- A 2.4m high acoustic barrier along the north and west property lines for Lots 157 to 159,
- A 2.4m high acoustic barrier along the north and east property lines for Lots 179 to 181,
- A 2.4m high acoustic barrier along the north and west property lines for Lots 182 to 184,
- A 2.4m high acoustic barrier along the north and west property lines of the townhouse in Block 1040 that is closest to Old School Road,
- A 2.4m high acoustic barrier along the north property line of Blocks 1048 and 1053,
- A 2.7m high acoustic barrier (consisting of a 2.4m high acoustic fence and a 0.3m high berm) along the north property line for Lots 261 and 273,
- A 1.8m high acoustic barrier along the east property line for Lots 597 to 613 and Blocks 1111 and 1213 to 1215,
- A 1.8m high acoustic barrier along the east property line of Blocks 1112 and 1217.

3. NOISE ATTENUATION MEASURES (CONT'D)

3.2 Minimum Barrier Requirements (Cont'd)

The location and length of the acoustic barriers are illustrated in **Figure 5**, which is attached.

Table 6 summarizes the projected sound level at the concerned lots/units with the recommended barrier height in place.

TABLE 6
PROJECTED L_{eq} SOUND LEVELS - WITH ACOUSTICAL BARRIERS

Location	Recommended Barrier Height	Daytime L_{eq} Rear Yard (Recommended Height)
R3	1.8m	53 dBA
R4	2.7m	60 dBA
R5	n/a (Note 1)	54 dBA
R7	2.7m	57 dBA
R9	2.4m	55 dBA
R11	2.4m	60 dBA
R12	n/a (Note 2)	54 dBA
R14	2.4m	57 dBA
R15	2.4m	59 dBA
R16	2.4m	55 dBA
R18	2.4m	56 dBA
R20	2.4m	59 dBA

Note 1: The outdoor daytime sound level with the proposed acoustic barrier for Lots 261 and 273.

Note 2: The outdoor daytime sound level with the proposed acoustic barrier for the townhouse units in Blocks 1048 and 1053 that are closest to Old School Road.

3. NOISE ATTENUATION MEASURES (CONT'D)

3.2 Minimum Barrier Requirements (Cont'd)

For Lots 1, 106 to 111, 157, 181, 182, 261, 272 and 273, the townhouse unit in Block 1032 that is closest to Chinguacousy Road, the townhouse unit in Block 1040 that is closest to Old School Road and the three (3) townhouse units in Block 1048 that are closest to Old School Road, with the proposed acoustic barriers, the outdoor daytime sound levels will exceed the 55 dBA L_{eq} sound level limit by no more than 5 dBA. As a result, a warning clause in all Offers of Purchase and Sale is required. The wording of such warning clauses is provided in **Appendix C**. Although the outdoor daytime sound levels meet the MECP criteria, the sound levels are pending the Town's approval.

In addition, based on the Town of Caledon requirements, where the noise attenuating barrier is adjacent to public property, a warning clause in the Development Agreement and in all Offers of Purchase and Sale for the specific lots/units is required to inform the purchasers/tenants that the noise attenuating barrier (including the berm, if applicable) is within their property and that they are responsible for any repairs or replacements. For the Region of Peel, the requirements for a warning clause in the Development Agreement and in all Offers of Purchase and Sale apply to all the specific lots/units to where a noise attenuating barrier is provided, regardless of whether the noise attenuating barrier is adjacent to public property.

3. NOISE ATTENUATION MEASURES (CONT'D)

3.3 Ventilation Requirements

The MECP's guidelines require that acoustical fencing be solid, with no gaps or holes and have a minimum surface density of 20 kg/m^2 (4 lb/ft^2). Appropriate treatment of attenuation barriers at discontinuities and points of termination involves extending the barrier to approximately the midpoint of the house; returning to the side wall of the house or extending the sound barrier for a minimum of 3 times the distance between the side wall and barrier, past the rear wall of the house.

For the townhouse unit in Block 1032 that is closest to Chinguacousy Road, the two (2) townhouse units in Block 1048 that are closest to Old School Road, the townhouse unit in Block 1154 that is closest to Street 'A', the townhouse unit in Block 1155 that is closest to Street 'A' and Lots 1, 106, 157, 181, 182, 261 and 273, since the daytime sound levels in the plane of a bedroom or living/dining room window are greater than 65 dBA L_{eq} and/or the night-time sound levels in the plane of a bedroom or living/dining room window are greater than 60 dBA L_{eq}, mandatory central air conditioning is required.

3. NOISE ATTENUATION MEASURES (CONT'D)

3.3 Ventilation Requirements (Cont'd)

Due to impacts from roadway traffic, for dwelling units that are immediately adjacent to the proposed Collector Roads (Streets 'A' to 'D'), for the townhouse units in Blocks 1034, 1037 to 1039, 1153, 1156 and 1157, the two (2) townhouse units in Block 1040 that are closest to Old School Road, the two (2) townhouse units in Block 1048 that are farthest from Old School Road, the townhouse unit in Block 1049 that is closest to Old School Road, the townhouse unit in Block 1139 that is 2nd closest to Street 'A', the townhouse unit in Block 1152 that is 2nd closest to Street 'A', the townhouse units in Blocks 1154 and 1155 that are not adjacent to Street A, Blocks 1213 to 1215, the townhouse unit in Block 1217 that is closest to Hurontario Street and Lots 107 to 111, 158, 159, 179, 180, 183, 184, 271, 272 and 597 to 613, since the daytime sound levels in the plane of a bedroom or living/dining room window are greater than 55 dBA L_{eq} and less than or equal to 65 dBA L_{eq}, and/or the night-time sound levels in the plane of a bedroom or living/dining room window are greater than 50 dBA L_{eq} and less than or equal to 60 dBA L_{eq}, forced air heating with provision for central air conditioning is required.

As illustrated in **Figures 3 and 5**, there are residential lands that are between the 25 and 30 NEF/NEP contours. For these lands, to attenuate impacts from Aircraft noise, forced air heating with provision for central air conditioning is required.

3. NOISE ATTENUATION MEASURES (CONT'D)

3.4 Façade Components

To comply with the MECP's interior sound level criterion that is provided in **Table 4**, STC rating requirements were examined for building facade components, namely windows, walls and doors.

Due to impacts from roadway traffic, for the townhouse unit in Block 1032 that is closest to Chinguacousy Road, the two (2) townhouse units in Block 1048 that are closest to Old School Road, the townhouse unit in Block 1154 that is closest to Street 'A', the townhouse unit in Block 1155 that is closest to Street 'A' and Lots 1, 106, 157, 181, 182, 261 and 273, since the daytime sound levels in the plane of a bedroom or living/dining room window are greater than 65 dBA L_{eq} and/or the night-time sound levels in the plane of a bedroom or living/dining room window are greater than 60 dBA L_{eq}, special building components are required.

Due to impacts from aircraft noise, for the residential lands that are above the 25 NEF/NEP contours, special building components are required.

Special building components will be reviewed when the final grading plans become available at the final approval stage.

For residential lands that require special building components due to impacts from roadway traffic and aircraft noise, the minimum special building component requirements must also take into account the logarithmic sum of all sound levels from each transportation noise source.

4. SUMMARY

This Study analyzed the impacts of the potential transportation noise sources on the proposed Mixed-Use Subdivision as summarized below.

For dwelling units flanking or backing onto a collector road, the townhouse unit in Block 1032 that is closest to Chinguacousy Road, the two (2) townhouse units in Block 1040 that are closest to Old School Road, all of the townhouse units in Block 1048, the two (2) townhouse units in Block 1053 that are closest to Old School Road, the townhouse unit in Block 1111 that is closest to Hurontario Street, the townhouse unit in Block 1112 that is closest to Hurontario Street, Blocks 1213 to 1215, the townhouse unit in Block 1217 that is closest to Hurontario Street and Lots 1, 106 to 111, 157 to 160, 178 to 181, 183 to 185, 261, 271 to 273, and 597 to 613, the sound levels exceed the 55 dBA L_{eq} sound level limit. Therefore, noise mitigation measures such as barriers are required to attenuate the sound levels to 55 dBA L_{eq} or less. (60 dBA L_{eq} or less if it is permitted by the Town of Caledon).

4. SUMMARY (CONT'D)

To attenuate the outdoor daytime sound levels, the following recommendations are proposed:

- A 1.8m high acoustic barrier for dwelling units flanking or backing onto a proposed Collector Road (Streets 'A' to 'D'),
- A 2.4m high acoustic barrier along the west property line for Lot 1 and Block 1032,
- A 2.4m high acoustic barrier along the north, south and west property lines for Lots 106 to 111,
- A 2.4m high acoustic barrier along the north and west property lines for Lots 157 to 159,
- A 2.4m high acoustic barrier along the north and east property lines for Lots 179 to 181,
- A 2.4m high acoustic barrier along the north and west property lines for Lots 182 to 184,
- A 2.4m high acoustic barrier along the north and west property lines of the townhouse in Block 1040 that is closest to Old School Road,
- A 2.4m high acoustic barrier along the north property line of Blocks 1048 and 1053,
- A 2.7m high acoustic barrier (consisting of a 2.4m high acoustic fence and a 0.3m high berm) along the north property line for Lots 261 and 273,
- A 1.8m high acoustic barrier along the east property line for Lots 597 to 613 and Blocks 1111 and 1213 to 1215,
- A 1.8m high acoustic barrier along the east property line of Blocks 1112 and 1217.

4. SUMMARY (CONT'D)

For Lots 1, 106 to 111, 157, 181, 182, 261, 272 and 273, the townhouse unit in Block 1032 that is closest to Chinguacousy Road, the townhouse unit in Block 1040 that is closest to Old School Road and the three (3) townhouse units in Block 1048 that are closest to Old School Road, with the proposed acoustic barriers, the outdoor daytime sound levels will exceed the 55 dBA L_{eq} sound level limit by no more than 5 dBA. As a result, a warning clause in all Offers of Purchase and Sale is required. The wording of such warning clauses is provided in **Appendix C**. Although the outdoor daytime sound levels meet the MECP criteria, the sound levels are pending the Town's approval.

In addition, based on the Region of Peel requirements, a warning clause in the Development Agreement and in all Offers of Purchase and Sale is required for all the specific lots/units to where a noise attenuating barrier is provided, regardless of whether the noise attenuating barrier is adjacent to public property.

For the townhouse unit in Block 1032 that is closest to Chinguacousy Road, the two (2) townhouse units in Block 1048 that are closest to Old School Road, the townhouse unit in Block 1154 that is closest to Street 'A', the townhouse unit in Block 1155 that is closest to Street 'A' and Lots 1, 106, 157, 181, 182, 261 and 273, since the daytime sound levels in the plane of a bedroom or living/dining room window are greater than 65 dBA L_{eq} and/or the night-time sound levels in the plane of a bedroom or living/dining room window are greater than 60 dBA L_{eq}, mandatory central air conditioning is required.

4. SUMMARY (CONT'D)

Due to impacts from roadway traffic, for dwelling units that are immediately adjacent to the proposed Collector Roads (Streets 'A' to 'D'), for the townhouse units in Blocks 1034, 1037 to 1039, 1153, 1156 and 1157, the two (2) townhouse units in Block 1040 that are closest to Old School Road, the two (2) townhouse units in Block 1048 that are farthest from Old School Road, the townhouse unit in Block 1049 that is closest to Old School Road, the townhouse unit in Block 1139 that is 2nd closest to Street 'A', the townhouse unit in Block 1152 that is 2nd closest to Street 'A', the townhouse units in Blocks 1154 and 1155 that are not adjacent to Street A, Blocks 1213 to 1215, the townhouse unit in Block 1217 that is closest to Hurontario Street and Lots 107 to 111, 158, 159, 179, 180, 183, 184, 271, 272 and 597 to 613, since the daytime sound levels in the plane of a bedroom or living/dining room window are greater than 55 dBA L_{eq} and less than or equal to 65 dBA L_{eq}, and/or the night-time sound levels in the plane of a bedroom or living/dining room window are greater than 50 dBA L_{eq} and less than or equal to 60 dBA L_{eq}, forced air heating with provision for central air conditioning is required.

There are residential lands that are between the 25 and 30 NEF/NEP contours. For these lands, to attenuate impacts from Aircraft noise, forced air heating with provision for central air conditioning is required.

4. SUMMARY (CONT'D)

Due to impacts from roadway traffic, for the townhouse unit in Block 1032 that is closest to Chinguacousy Road, the two (2) townhouse units in Block 1048 that are closest to Old School Road, the townhouse unit in Block 1154 that is closest to Street 'A', the townhouse unit in Block 1155 that is closest to Street 'A' and Lots 1, 106, 157, 181, 182, 261 and 273, since the daytime sound levels in the plane of a bedroom or living/dining room window are greater than 65 dBA L_{eq} and/or the night-time sound levels in the plane of a bedroom or living/dining room window are greater than 60 dBA L_{eq}, special building components are required.

Due to impacts from aircraft noise, for the residential lands that are within the 25 NEF/NEP contour, special building components are required.

Special building components will be reviewed when the final grading plans become available at the final approval stage.

The noise mitigation measures that are recommended are illustrated in **Figure 5**, which is enclosed.

For the commercial blocks (Block 1161 and 1162) located in the east parcel of the Subject Lands, the residential land uses will not be directly affected as they are not within the immediately vicinity of these blocks. In addition, for Block 1161, a collector road (Street 'D') is between the commercial land uses and the residential land uses nearby. Since the roadway traffic on the collector road will drown out any potential stationary noise source(s), there will be no concerns.

For the future development of the Medium Density Residential Blocks, a noise impact assessment will be conducted when plans become available.

4. SUMMARY (CONT'D)

Based on the above analysis, with the measures given, the proposed Mixed-Use Subdivision will satisfy the requirements of the Ministry of the Environment, Conservation and Parks, the Region of Peel and the Town of Caledon.

This Report was prepared by:

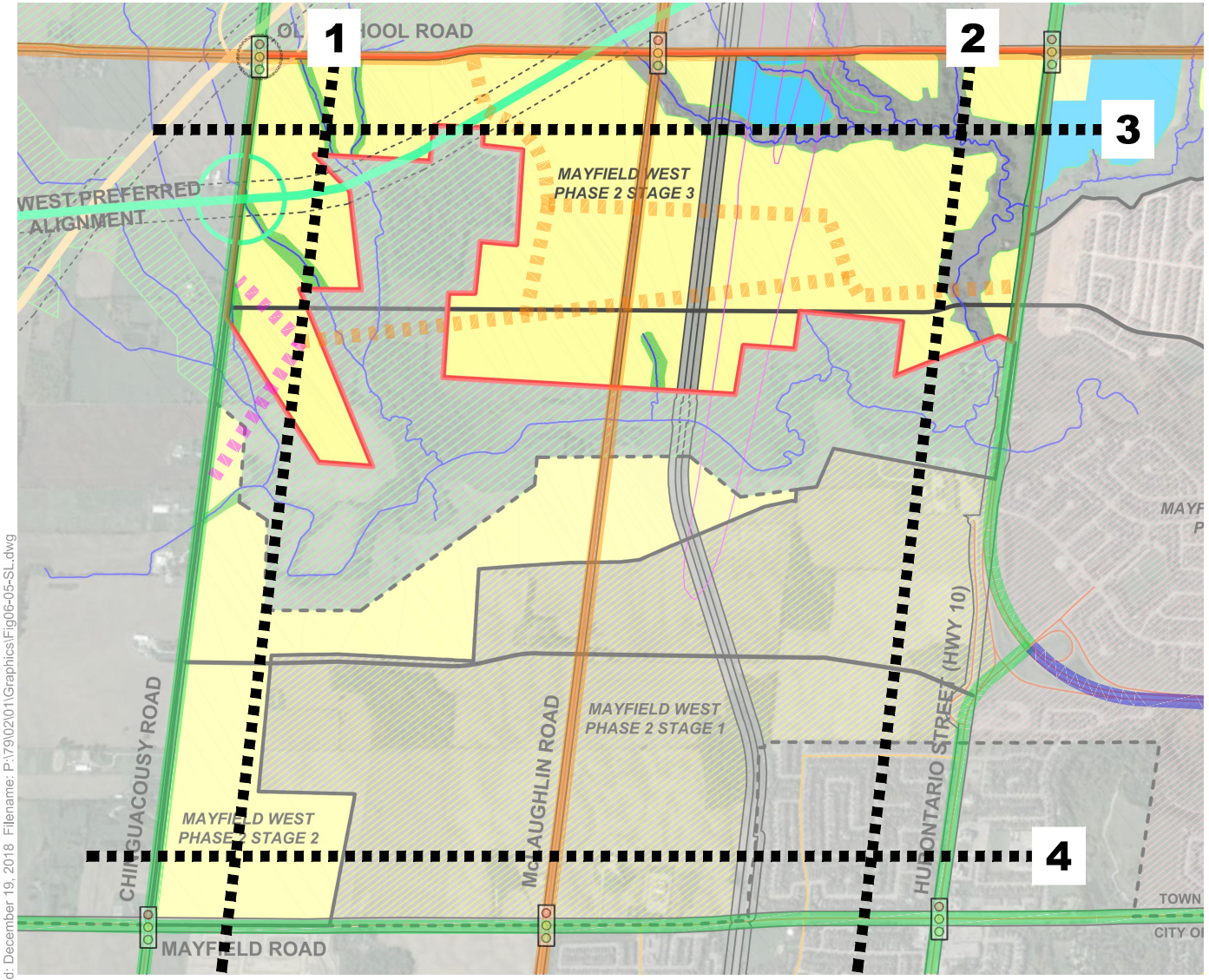
CANDEVCON GROUP INC.

Brian Wong, P. Eng.
Intermediate Transportation Engineer

David Lee, P. Eng.
Project Manager

APPENDIX A

Excerpts taken from the
Preliminary Transportation Assessment Prepared by the BA Group
and the
Traffic Impact Study Prepared by GHD Limited



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SCREENLINE LOCATIONS

BA Group

Mayfield Phase 2 Stage 3
7902-01 December 2018

Figure 6

TABLE 4 2041 SCREENLINE ANALYSIS – WITH RECOMMENDED IMPROVEMENTS

	Future Background - Road Config. Per TMP				Future Total - Road Config. Per TMP				Future Total - With Road Config. Req. for Stage 3			
	Vol	No. of Lanes	Capacity	V/C	Vol	No. of Lanes	Capacity	V/C	Vol	No. of Lanes	Capacity	V/C
SCREENLINE 1: East of Chinguacousy Road												
Old School Road	869 (1,226)	2	1,700	0.51 (0.72)	1,309 (1,776)	2	1,700	0.77 (1.04)	1,309 (1,776)	4	3,400	0.39 (0.52)
Mayfield Road	3,097 (3,029)	5	4,250	0.73 (0.71)	3,172 (3,099)	5	4,250	0.75 (0.73)	3,172 (3,099)	5	4,250	0.75 (0.73)
Overall (Screenline)	**3,966 (4,255)**	**--**	**5,950**	**0.67 (0.72)**	**4,481 (4,875)**	**--**	**5,950**	**0.75 (0.82)**	**4,481 (4,875)**	**--**	**7,650**	**0.59 (0.64)**
SCREENLINE 2: West of Hurontario Street												
Old School Road	1,240 (1,728)	2	1,700	0.73 (1.02)	1,688 (2,258)	2	1,700	0.99 (1.33)	1,688 (2,258)	4	3,400	0.50 (0.66)
Mayfield Road	4,007 (4,473)	6	5,100	0.79 (0.88)	4,077 (4,538)	6	5,100	0.80 (0.89)	4,077 (4,538)	6	5,100	0.80 (0.89)
Overall (Screenline)	**5,247 (6,201)**	**--**	**6,800**	**0.77 (0.91)**	**5,765 (6796)**	**--**	**6,800**	**0.85 (1.00)**	**5,765 (6,796)**	**--**	**8,500**	**0.68 (0.80)**
SCREENLINE 3: South of Old School Road												
Chinguacousy Road	1,158 (1,580)	2	1,700	0.68 (0.93)	1,158 (1,580)	2	1,700	0.68 (0.93)	1,158 (1,580)	4	3,400	0.34 (0.46)
McLaughlin Road	985 (1,500)	2	1,700	0.58 (0.88)	1,758 (2,475)	2	1,700	1.03 (1.46)	1,758 (2,475)	4	3,400	0.52 (0.73)
Hurontario Street	5,834 (6,838)	6	5,100	1.14 (1.34)	5,992 (7,038)	6	5,100	1.17 (1.38)	5,992 (7,038)	6	5,100	1.17 (1.38)
Overall (Screenline)	**7,977 (9,918)**	**--**	**8,500**	**0.94 (1.17)**	**8,907 (11,093)**	**--**	**8,500**	**1.05 (1.31)**	**8,907 (11,093)**	**--**	**11,900**	**0.75 (0.93)**
SCREENLINE 4: North of Mayfield Road												
Chinguacousy Road	737 (826)	2	1,700	0.43 (0.49)	802 (886)	2	1,700	0.47 (0.52)	802 (886)	4	3,400	0.24 (0.26)
McLaughlin Road	1,251 (284)	2	1,700	0.74 (0.17)	1,611 (614)	2	1,700	0.95 (0.36)	1,611 (614)	4	3,400	0.47 (0.18)
Hurontario Street	3,482 (4,060)	6	5,100	0.68 (0.80)	3,577 (4,135)	6	5,100	0.70 (0.81)	3,577 (4,135)	6	5,100	0.70 (0.81)
Overall (Screenline)	**5,470 (5,170)**	**--**	**8,500**	**0.64 (0.61)**	**5,990 (5,635)**	**--**	**8,500**	**0.70 (0.66)**	**5,990 (5,635)**	**-**	**11,900**	**0.50 (0.47)**

6.0 INTERNAL ROAD NETWORK CONSIDERATIONS

A preliminary concept for an internal road network structure has been developed for the purposes of this analysis. The concept features an internal collector road network through the Stage 3 lands. The layout of the collector network was generally derived using the following guiding principals:

- maintaining an intersection spacing of 300-400 metres along the arterial road network;
- minimizing the number of crossings of environmentally sensitive areas;
- achieving at least one collector road connection between arterial streets; and
- providing an internal collector road network with sufficient coverage to allow all units to be within 400 metres of a collector street (and any potential future transit that may run along collector roads).

The corresponding conceptual internal collector network is set out the Road Network Plan (Figure 1).

Based on a preliminary review of traffic volumes, a 2 lane cross-section will be sufficient to accommodate forecast internal traffic volumes with auxiliary lanes provided at arterial-collector intersections.

The detailed configuration of the internal collector roads, including the street pattern, number of roads, alignment, and cross sectional elements will be confirmed through future detailed studies (e.g. a future Secondary Plan / Environmental Assessment processes).

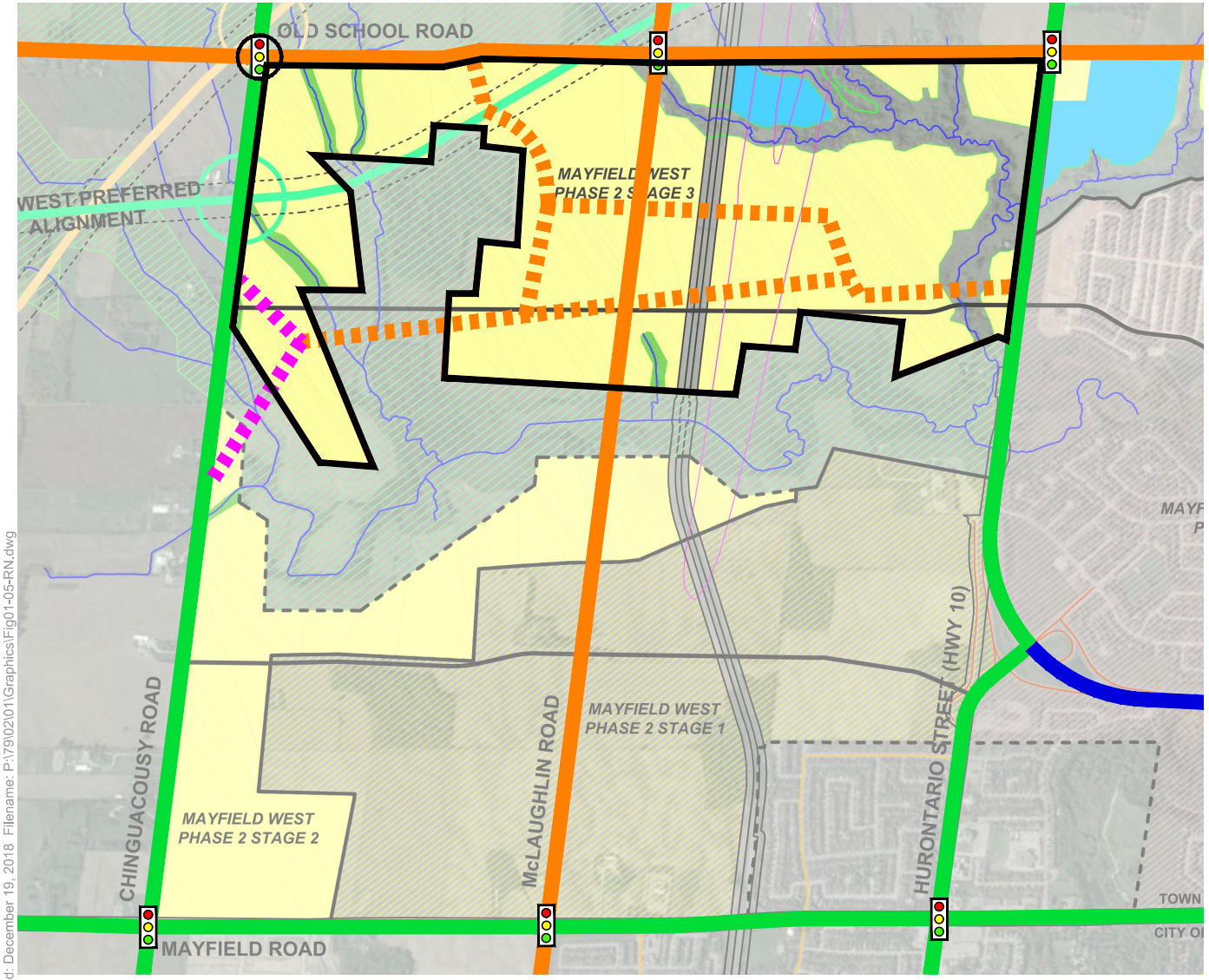
7.0 GTA WEST CORRIDOR CONSIDERATIONS

7.1 BACKGROUND

The province had previously been protecting land along the north edge of the site for a future east-west transportation corridor for new 400 series highway (referred to as the GTA West Corridor) that would link from Highway 400 to Highway 401 and Highway 407 in Halton Hills. In December 2015 the Ministry of Transportation (MTO) suspended work on the Environmental Assessment study for the GTA West Highway corridor pending the results of an advisory panel that was struck to assist the MTO in reviewing the need for the GTA West corridor. Based on the advice of the panel, the Minister of Transportation confirmed that the province will not proceed with any further planning or work on the Environmental Assessment for the highway corridor[3].

Subsequent to the cancellation of the GTA West Highway corridor project, MTO and the Independent Electrical System Operator (IESO) initiated a joint study to identify a smaller corridor that will be protected for future infrastructure needs such as utilities, transit or other transportation options[4]. This study is referred to as the GTA Corridor Identification Study. The intended timeframe for the completion of the GTA Corridor Identification Study is approximately 9-12 months from study initiation which occurred in approximately February 2018.

[3] Source: https://www.gta-west.com/



Stage 3 Boundary

Provincial Freeway

Collector Roadway

High Capacity Arterial Roadway

Proposed Collector Roadway

Potential Connection Options

Signalization recommended per January 2018 TMP Update

Existing Signalized Intersection

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STAGE 3 CONCEPT AND ROAD CLASSIFICATION

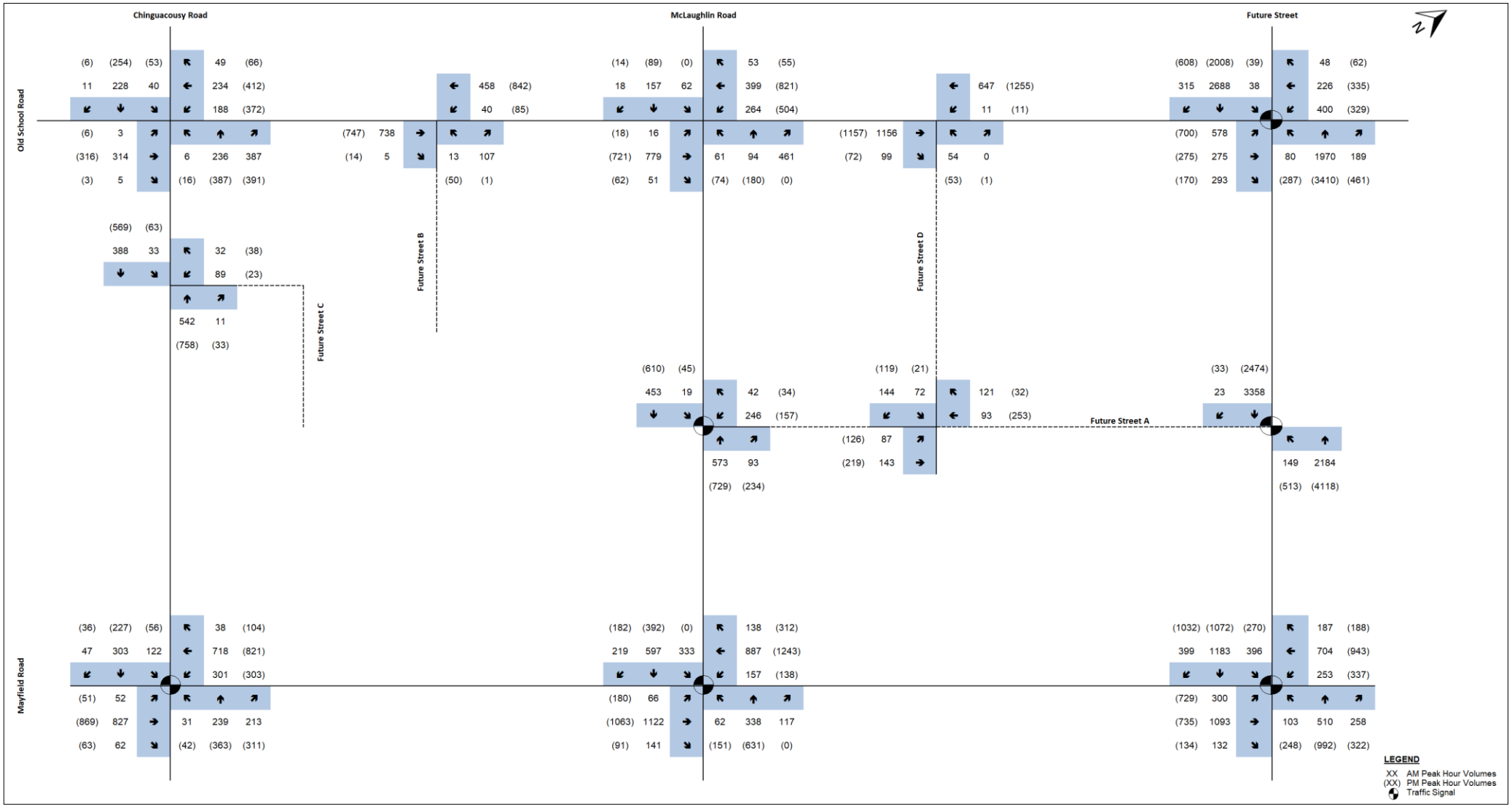
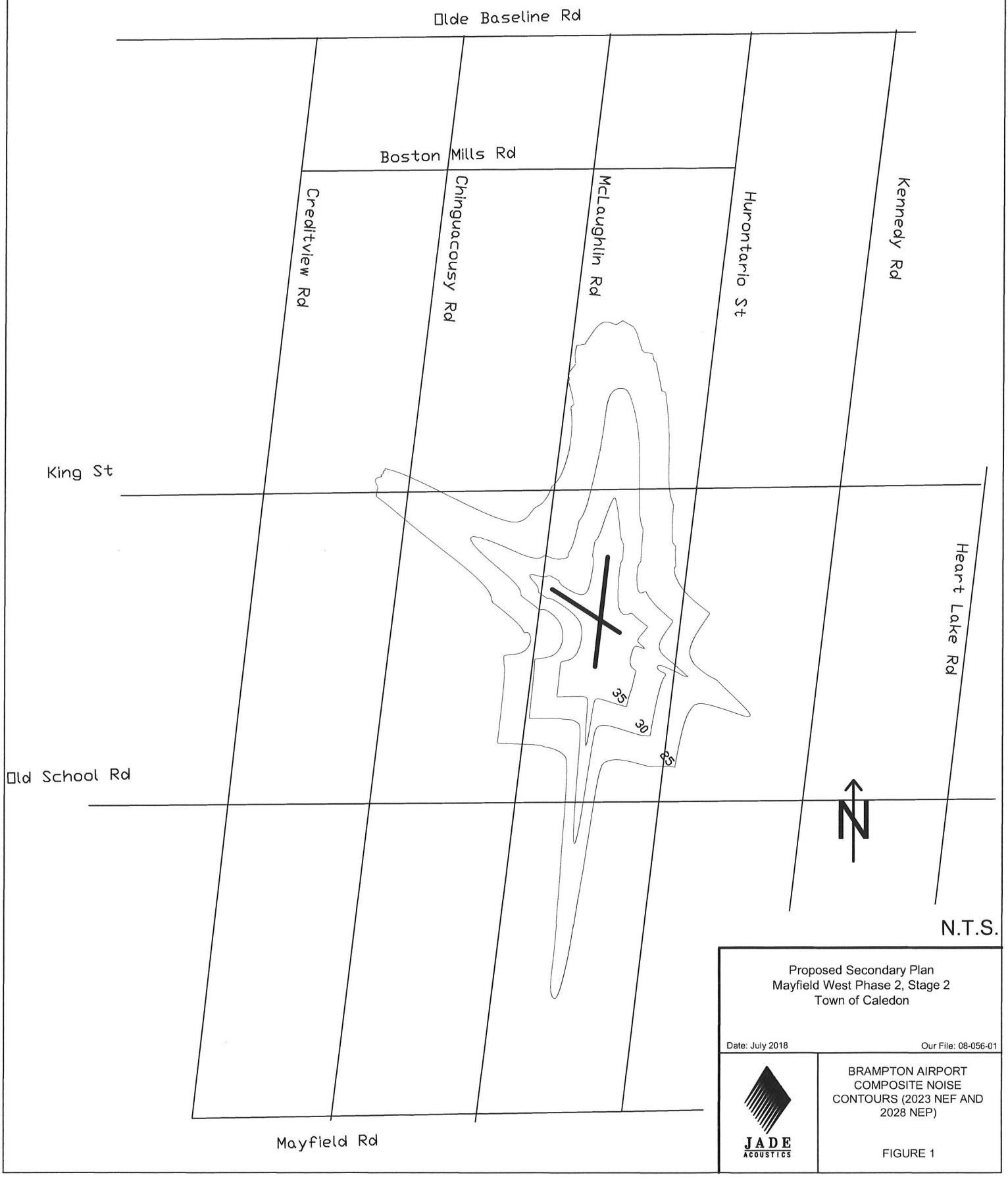


Figure 39 2041 Future Total Traffic Volumes – Without GTA West Highway

APPENDIX B

Brampton Airport Composite Noise Contours (2023 NEF and 2028 NEP)

Prepared by Jade Acoustics



N.T.S.

Proposed Secondary Plan
Mayfield West Phase 2, Stage 2
Town of Caledon

Date: July 2018 Our File: 08-056-01

JADE ACOUSTICS

BRAMPTON AIRPORT COMPOSITE NOISE CONTOURS (2023 NEF AND 2028 NEP)

FIGURE 1

APPENDIX C

Warning Clauses

APPENDIX C
Warning Clauses

Warning Clause "B"

"Purchasers/tenants 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 on occasions interfere with some activities of the dwelling occupants as the sound levels exceed the sound level limits of the Municipality and the Ministry of the Environment, Conservation and Parks."

Warning Clause "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 in low and medium density developments 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, Conservation and Parks."

Warning Clause "D"

"This dwelling unit has been supplied 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, Conservation and Parks. The air cooled condenser unit is located in a noise insensitive area and has a maximum ARI rating of 7.6 Bels for 3.5 tons or less."

APPENDIX C

Warning Clauses (Cont'd)

Warning Clause "F"

"Purchasers/tenants are advised that a noise barrier wall is located at the rear/side of this property. The owner of this property also owns his/her section of the noise barrier wall. The noise barrier wall is not in public ownership. Monitoring, maintenance, inspection, repair and replacement of this noise barrier wall, including any associated costs, are the sole responsibility of the property owner. The Town of Caledon is in no way responsible for this noise barrier wall. Should this noise barrier wall fail, it is the property owner's responsibility to repair or replace his/her section of the wall, at his/her cost. If the property owner fails to maintain the noise barrier wall, the Town of Caledon will notify the requirement to repair in writing. If the property owner does not comply with the Town's request, the Town will correct the deficiency and bill the property owner accordingly."

APPENDIX D

Stamson 5.04 Sound Level Calculations

STAMSON REPORT – RECEPTOR LOCATION 4
[DAYTIME, REAR YARD, NO ACOUSTIC BARRIER]

```
STAMSON 5.0        NORMAL REPORT        Date: 22-02-2024 11:49:07
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r4d.te               Time Period: 16 hours
Description:


Road data, segment # 1: Old School
----------------------------------
Car traffic volume  : 19665 veh/TimePeriod  *
Medium truck volume :   621 veh/TimePeriod  *
Heavy truck volume  :   414 veh/TimePeriod  *
Posted speed limit  :    80 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

Data for Segment # 1: Old School
--------------------------------
Angle1   Angle2           : -90.00 deg   51.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  17.00 m
Receiver height           :   1.50 m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Road data, segment # 2: Collector
---------------------------------
Car traffic volume  :  7497 veh/TimePeriod  *
Medium truck volume :   145 veh/TimePeriod  *
Heavy truck volume  :     8 veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

Data for Segment # 2: Collector
-------------------------------
Angle1   Angle2           : -17.00 deg   7.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  42.00 m
Receiver height           :   1.50 m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

```
Road data, segment # 3: Old School
----------------------------------
Car traffic volume  : 19665 veh/TimePeriod  *
Medium truck volume :   621 veh/TimePeriod  *
Heavy truck volume  :   414 veh/TimePeriod  *
Posted speed limit  :    80 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

Data for Segment # 3: Old School
--------------------------------
Angle1   Angle2           :  51.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      1
House density             :     95 %
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  17.00 m
Receiver height           :   1.50 m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Road data, segment # 4: Collector
---------------------------------
Car traffic volume  :  7497 veh/TimePeriod  *
Medium truck volume :   145 veh/TimePeriod  *
Heavy truck volume  :     8 veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

Data for Segment # 4: Collector
--------------------------------
Angle1   Angle2           :   7.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      1
House density             :     95 %
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  42.00 m
Receiver height           :   1.50 m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

```
Results segment # 1: Old School
-------------------------------

Source height = 1.19 m

ROAD (0.00 + 68.91 + 0.00) = 68.91 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
---
   -90     51   0.66  71.91   0.00  -0.90  -2.10   0.00   0.00   0.00
68.91
-------------------------------------------------------------------------
---

Segment Leq : 68.91 dBA

Results segment # 2: Collector
-------------------------------

Source height = 0.57 m

ROAD (0.00 + 46.02 + 0.00) = 46.02 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
---
   -17      7   0.66  62.22   0.00  -7.42  -8.78   0.00   0.00   0.00
46.02
-------------------------------------------------------------------------
---

Segment Leq : 46.02 dBA

Results segment # 3: Old School
-------------------------------

Source height = 1.19 m

ROAD (0.00 + 50.86 + 0.00) = 50.86 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
---
    51     90   0.66  71.91   0.00  -0.90 -10.05   0.00 -10.10   0.00
50.86
-------------------------------------------------------------------------
---

Segment Leq : 50.86 dBA
```

```
Results segment # 4: Collector
------------------------------

Source height = 0.57 m

ROAD (0.00 + 40.01 + 0.00) = 40.01 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
---
     7     90   0.66  62.22   0.00  -7.42  -4.97   0.00  -9.82   0.00
40.01
-------------------------------------------------------------------------
---

Segment Leq : 40.01 dBA

Total Leq All Segments: 69.00 dBA

TOTAL Leq FROM ALL SOURCES:       69.00
```

STAMSON REPORT – RECEPTOR LOCATION 4
[NIGHT-TIME, FACADE, NO ACOUSTIC BARRIER]

```
STAMSON 5.0        NORMAL REPORT        Date: 22-02-2024 11:51:25
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r4n.te               Time Period: 8 hours
Description:


Road data, segment # 1: Old School
----------------------------------
Car traffic volume  :  2185 veh/TimePeriod  *
Medium truck volume :    69 veh/TimePeriod  *
Heavy truck volume  :    46 veh/TimePeriod  *
Posted speed limit  :    80 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

Data for Segment # 1: Old School
--------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  15.00 m
Receiver height           :   4.50 m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Road data, segment # 2: Collector
---------------------------------
Car traffic volume  :   833 veh/TimePeriod  *
Medium truck volume :    16 veh/TimePeriod  *
Heavy truck volume  :     1 veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

Data for Segment # 2: Collector
-------------------------------
Angle1   Angle2           : -12.00 deg   13.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  45.00 m
Receiver height           :   4.50 m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

```
Road data, segment # 3: Collector
---------------------------------
Car traffic volume  :   833 veh/TimePeriod  *
Medium truck volume :    16 veh/TimePeriod  *
Heavy truck volume  :     1 veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

Data for Segment # 3: Collector
-------------------------------
Angle1   Angle2           :  13.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      1
House density             :     95 %
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  45.00 m
Receiver height           :   4.50 m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Results segment # 1: Old School
-------------------------------

Source height = 1.19 m

ROAD (0.00 + 64.06 + 0.00) = 64.06 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
---
   -90     90   0.58  65.38   0.00   0.00  -1.32   0.00   0.00   0.00
64.06
-------------------------------------------------------------------------
---

Segment Leq : 64.06 dBA

Results segment # 2: Collector
-------------------------------

Source height = 0.59 m

ROAD (0.00 + 39.49 + 0.00) = 39.49 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
---
   -12     13   0.60  55.71   0.00  -7.62  -8.59   0.00   0.00   0.00
39.49
-------------------------------------------------------------------------
---

Segment Leq : 39.49 dBA
```

```
Results segment # 3: Collector
------------------------------

Source height = 0.59 m

ROAD (0.00 + 33.03 + 0.00) = 33.03 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
---
    13     90   0.60  55.71   0.00  -7.62  -5.31   0.00  -9.75   0.00
33.03
-------------------------------------------------------------------------
---

Segment Leq : 33.03 dBA

Total Leq All Segments: 64.08 dBA

TOTAL Leq FROM ALL SOURCES:       64.08
```

STAMSON REPORT – RECEPTOR LOCATION 4
[DAYTIME, FACADE, NO ACOUSTIC BARRIER]

```
STAMSON 5.0        NORMAL REPORT        Date: 22-02-2024 11:50:49
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r4df.te              Time Period: 16 hours
Description:


Road data, segment # 1: Old School
----------------------------------
Car traffic volume  : 19665 veh/TimePeriod  *
Medium truck volume :   621 veh/TimePeriod  *
Heavy truck volume  :   414 veh/TimePeriod  *
Posted speed limit  :    80 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

Road data, segment # 2: Collector
---------------------------------
Car traffic volume  :  7497 veh/TimePeriod  *
Medium truck volume :   145 veh/TimePeriod  *
Heavy truck volume  :     8 veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

Data for Segment # 2: Collector
-------------------------------
Angle1   Angle2           : -12.00 deg   13.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  45.00 m
Receiver height           :   1.50 m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

```
Road data, segment # 3: Collector
---------------------------------
Car traffic volume  :  7497 veh/TimePeriod  *
Medium truck volume :   145 veh/TimePeriod  *
Heavy truck volume  :     8 veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

Data for Segment # 3: Collector
-------------------------------
Angle1   Angle2           :  13.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      1
House density             :     95 %
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  45.00 m
Receiver height           :   1.50 m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Results segment # 1: Old School
-------------------------------

Source height = 1.19 m

ROAD (0.00 + 70.45 + 0.00) = 70.45 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
---
   -90     90   0.66  71.91   0.00   0.00  -1.46   0.00   0.00   0.00
70.45
-------------------------------------------------------------------------
---

Segment Leq : 70.45 dBA

Results segment # 2: Collector
------------------------------

Source height = 0.57 m

ROAD (0.00 + 45.71 + 0.00) = 45.71 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
---
   -12     13   0.66  62.22   0.00  -7.92  -8.60   0.00   0.00   0.00
45.71
-------------------------------------------------------------------------
---

Segment Leq : 45.71 dBA
```

```
Results segment # 3: Collector
------------------------------

Source height = 0.57 m

ROAD (0.00 + 39.11 + 0.00) = 39.11 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
---
    13     90   0.66  62.22   0.00  -7.92  -5.44   0.00  -9.75   0.00
39.11
-------------------------------------------------------------------------
---

Segment Leq : 39.11 dBA

Total Leq All Segments: 70.47 dBA

TOTAL Leq FROM ALL SOURCES:       70.47
```

STAMSON REPORT – RECEPTOR LOCATION 4
[DAYTIME, REAR YARD, 2.7m HIGH ACOUSTIC BARRIER]

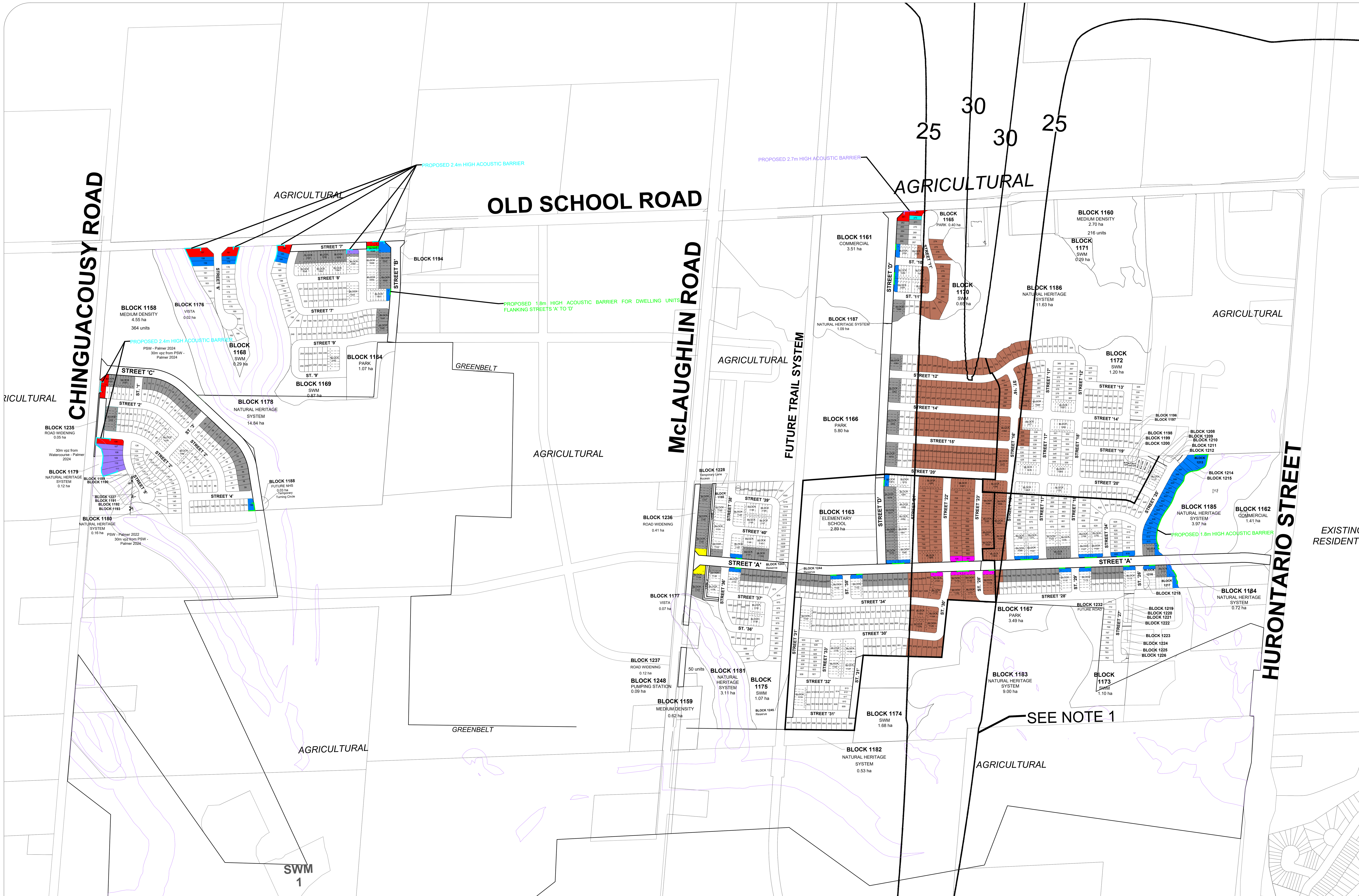
```
STAMSON 5.0        NORMAL REPORT        Date: 22-02-2024 14:49:15
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r4db.te              Time Period: 16 hours
Description:


Road data, segment # 1: Old School
----------------------------------
Car traffic volume  : 19665 veh/TimePeriod  *
Medium truck volume :   621 veh/TimePeriod  *
Heavy truck volume  :   414 veh/TimePeriod  *
Posted speed limit  :    80 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

Data for Segment # 1: Old School
--------------------------------
Angle1   Angle2           : -90.00 deg   51.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  17.00 m
Receiver height           :   1.50 m
Topography                :      2       (Flat/gentle slope; with
barrier)
Barrier angle1            : -90.00 deg   Angle2 : 51.00 deg
Barrier height            :   2.70 m
Barrier receiver distance :   6.80 m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Road data, segment # 2: Collector
---------------------------------
Car traffic volume  :  7497 veh/TimePeriod  *
Medium truck volume :   145 veh/TimePeriod  *
Heavy truck volume  :     8 veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

Data for Segment # 2: Collector
-------------------------------
Angle1   Angle2           : -17.00 deg   7.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  42.00 m
Receiver height           :   1.50 m
Topography                :      2       (Flat/gentle slope; with
barrier)
Barrier angle1            : -17.00 deg   Angle2 : 7.00 deg
Barrier height            :   2.40 m
Barrier receiver distance :  18.00 m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00


Road data, segment # 3: Old School
----------------------------------
Car traffic volume  : 19665 veh/TimePeriod  *
Medium truck volume :   621 veh/TimePeriod  *
Heavy truck volume  :   414 veh/TimePeriod  *
Posted speed limit  :    80 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

Data for Segment # 3: Old School
--------------------------------
Angle1   Angle2           :  51.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      1
House density             :     95 %
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  17.00 m
Receiver height           :   1.50 m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

```
Road data, segment # 4: Collector
---------------------------------
Car traffic volume  :  7497 veh/TimePeriod  *
Medium truck volume :   145 veh/TimePeriod  *
Heavy truck volume  :     8 veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

Data for Segment # 4: Collector
------------------------------
Angle1   Angle2           :   7.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      1
House density             :     95 %
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  42.00 m
Receiver height           :   1.50 m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00


Results segment # 1: Old School
------------------------------

Source height = 1.19 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.19 !        1.50 !        1.38 !         1.38

ROAD (0.00 + 59.60 + 0.00) = 59.60 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
---
   -90     51   0.51  71.91   0.00  -0.82  -1.91   0.00   0.00  -9.58
59.60
-------------------------------------------------------------------------
---

Segment Leq : 59.60 dBA
```

```
Results segment # 2: Collector
------------------------------

Source height = 0.57 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       0.57 !        1.50 !        1.10 !         1.10

ROAD (0.00 + 38.31 + 0.00) = 38.31 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
---
   -17      7   0.54  62.22   0.00  -6.90  -8.78   0.00   0.00  -8.24
38.31
-------------------------------------------------------------------------
---

Segment Leq : 38.31 dBA


Results segment # 3: Old School
-------------------------------

Source height = 1.19 m

ROAD (0.00 + 50.86 + 0.00) = 50.86 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
---
    51     90   0.66  71.91   0.00  -0.90 -10.05   0.00 -10.10   0.00
50.86
-------------------------------------------------------------------------
---

Segment Leq : 50.86 dBA
```

```
Results segment # 4: Collector
------------------------------

Source height = 0.57 m

ROAD (0.00 + 40.01 + 0.00) = 40.01 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
---
     7     90   0.66  62.22   0.00  -7.42  -4.97   0.00  -9.82   0.00
40.01
-------------------------------------------------------------------------
---

Segment Leq : 40.01 dBA

Total Leq All Segments: 60.21 dBA

TOTAL Leq FROM ALL SOURCES:       60.21
```



LEGEND:

Red
- WARNING CLAUSES "B", "D" AND "F".
- ROAD TRAFFIC WILL CONTINUE TO BE OF CONCERN DESPITE INCLUSION OF NOISE CONTROL FEATURES.
- MANDATORY AIR CONDITIONING.
- THIS NOISE BARRIER IS THE SOLE RESPONSIBILITY OF THE OWNER. IT IS THE OWNER'S RESPONSIBILITY TO REPAIR OR REPLACE HIS/HER SECTION OF THE WALL.
- SPECIAL BUILDING COMPONENTS.

Green
- WARNING CLAUSES "B" AND "D".
- ROAD TRAFFIC WILL CONTINUE TO BE OF CONCERN DESPITE INCLUSION OF NOISE CONTROL FEATURES.
- MANDATORY AIR CONDITIONING.
- SPECIAL BUILDING COMPONENTS.

Yellow
- WARNING CLAUSE "D".
- MANDATORY AIR CONDITIONING.
- SPECIAL BUILDING COMPONENTS.

Purple
- WARNING CLAUSES "B", "C" AND "F".
- ROAD TRAFFIC WILL CONTINUE TO BE OF CONCERN DESPITE INCLUSION OF NOISE CONTROL FEATURES.
- PROVISION FOR AIR CONDITIONING.
- THIS NOISE BARRIER IS THE SOLE RESPONSIBILITY OF THE OWNER. IT IS THE OWNER'S RESPONSIBILITY TO REPAIR OR REPLACE HIS/HER SECTION OF THE WALL.

Cyan
- WARNING CLAUSES "B" AND "C".
- ROAD TRAFFIC WILL CONTINUE TO BE OF CONCERN DESPITE INCLUSION OF NOISE CONTROL FEATURES.
- PROVISION FOR AIR CONDITIONING.

Magenta
- WARNING CLAUSES "C" AND "F".
- PROVISION FOR AIR CONDITIONING.
- THIS NOISE BARRIER IS THE SOLE RESPONSIBILITY OF THE OWNER. IT IS THE OWNER'S RESPONSIBILITY TO REPAIR OR REPLACE HIS/HER SECTION OF THE WALL.
- SPECIAL BUILDING COMPONENTS.

Blue
- WARNING CLAUSES "C" AND "F".
- PROVISION FOR AIR CONDITIONING.
- THIS NOISE BARRIER IS THE SOLE RESPONSIBILITY OF THE OWNER. IT IS THE OWNER'S RESPONSIBILITY TO REPAIR OR REPLACE HIS/HER SECTION OF THE WALL.

Brown
- WARNING CLAUSE "C".
- PROVISION FOR AIR CONDITIONING.
- SPECIAL BUILDING COMPONENTS.

Grey
- WARNING CLAUSE "C".
- PROVISION FOR AIR CONDITIONING.

Green line
- PROPOSED 1.8m HIGH ACOUSTIC BARRIER.

Cyan line
- PROPOSED 2.4m HIGH ACOUSTIC BARRIER.

Purple line
- PROPOSED 2.7m HIGH ACOUSTIC BARRIER.

NOTES:

1. THE NEF/NEP CONTOURS WERE TAKEN FROM THE JADE ACOUSTICS STUDY (LETTER DATED JULY 26 2018).

NOISE IMPACT STUDY

SCHOOL WEST INVESTMENTS INC., SCHOOL VALLEY SOUTH LTD. SCHOOL VALLEY DEVELOPMENTS LTD., & BROOKVALLEY DEVELOPMENTS (HWY 10) LTD.

NOISE MITIGATION PLAN

CANDEVCON GROUP INC.
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DATE:	APR. 8th 2024	JOB No.	W23093
DESIGN:	B.W.	FIG. No.	5
SCALE:	1:10000		