REPORT

DIXIE MALL REDEVELOPMENT

MISSISSAUGA, ONTARIO

NOISE AND VIBRATION IMPACT STUDY

RWDI #2100834

April 11, 2024

SUBMITTED TO

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VERSION HISTORY

Index	Date	Description	Prepared by	Reviewed by
1	November 30, 2022	Draft	KD	GER
2	December 6, 2022	Final	KD	GER
3	April 9, 2024	Addressing City Comments	KD	GER

EXECUTIVE SUMMARY

RWDI was retained to prepare a Noise and Vibration Impact Study for the proposed Dixie Mall Redevelopment located in Mississauga, Ontario. The proposed development will consist of 4 blocks. Block 1 consists of an 8-storey building. Block 2 consists of an 18-storey building. Block 3 consists of a 15-storey and 19-storey building. Block 4 is a community park. This assessment was completed to support the Official Plan Amendment (OPA) and Re-Zoning Application (RZA) resubmission as required by the City of Mississauga.

The following noise control measures are recommended for the proposed development:

1. Installation of central air-conditioning so that all suites' windows can remain closed.
2. The inclusion of noise warning clauses related to transportation and commercial sound levels at the building façade and in the outdoor amenity areas.
3. Minimum sound isolation performance:
    a. Suite bedroom window glazing with minimum sound isolation performance of STC-38.
    b. Suite exterior balcony door with minimum sound isolation performance of STC-35.
4. Construction of perimeter noise barriers along the outdoor amenity areas if feasible, with the applicable warning clause.

Rail is located further than 500 m away from the proposed development, therefore no noise or vibration impacts from rail are expected.

The potential noise levels from stationary sources of sound were evaluated. Mechanical equipment from the remaining retail portions of the existing Dixie Mall have the potential to have a significant effect on environmental noise at the proposed development. Based on the noise modelling results, the remaining Dixie mall is compatible with the proposed development with respect to environmental noise, with the inclusion of mitigation measures. Mitigation measures include the installation of air conditioning, allowing windows and doors to be closed, as well as a warning clause to inform prospective occupants of the potential for audible noise from Dixie Mall.

At this stage in design the noise levels produced by the development on itself and its surroundings could not be quantitatively assessed. However, the effect on both the building itself and its surroundings is expected to be feasible to meet the applicable criteria. We recommend that the building design is evaluated prior to building permit to ensure that the acoustical design is adequately implemented in order to meet the applicable criteria.

Based on the results of the analysis including implementation of the recommendations included with this assessment, the proposed development to meets the applicable sound and vibration criteria.

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1 INTRODUCTION

Slate Asset Management retained RWDI to prepare a Noise and Vibration Impact Study for the proposed Dixie Mall Redevelopment located in Mississauga, Ontario. The proposed development will consist of 4 blocks. Block 1 consists of an 8-storey building. Block 2 consists of an 18-storey building. Block 3 consists of a 15-storey and 19-storey building. Block 4 is a community park. The context site plan is shown in **Figure 1**.

The site is exposed to noise from road traffic from: the North Service Road, South Service Road and the QEW to the north and Dixie Road to the east.

Rail is located further than 500 m away from the proposed development, therefore no noise or vibration impacts from rail are expected.

The potential noise levels from stationary sources of sound were evaluated. Mechanical equipment from the remaining retail portions of the existing Dixie Mall have the potential to have a significant effect on environmental noise at the proposed development.

This assessment was completed to support the Official Plan Amendment (OPA) and Re-Zoning Application (RZA), as required by the City of Mississauga. This assessment was based on design drawings dated April 3, 2024. A copy of the drawings are included in **Appendix A.**

2 APPLICABLE CRITERIA

Applicable criteria for transportation noise sources (road) are adopted from the Ontario Ministry of the Environment, Conservation and Parks (MECP) NPC-300 Environmental Noise Guideline (MOE, 2013), with a summary of the applicable criteria included with **Appendix B**.

3 THE EFFECTS OF THE ENVIRONMENT ON THE PROPOSED DEVELOPMENT

3.1 Transportation Source Assessment

3.1.1 Road Traffic Volume Data

The North Service Road, South Service Road, Queen Elizabeth Way (QEW) and Dixie Road traffic volumes were obtained from The City of Mississauga. The other smaller roads in the area are minor, or distant and are not expected to significantly affect the development.

The NPC-300 guidelines require that assessments be completed for a 10-year horizon. However, the Region of Peel General Guidelines for the Preparation of Acoustical Reports required the Ultimate Annual Daily Traffic (UADT) numbers based on the number of lanes of traffic be used. These UADT values were used for the North Service Road, South Service Road and Dixie Road. Traffic data for the provincial highway QEW was forecasted for the horizon year 2034. A 90%/10% daytime/nighttime split was applied for North Service Road and South Service Road. Truck percentages were obtained from the Turning Movement Counts (TMCs) at the intersections of North Service Road and Cawthra Road, and South Service Road and Cawthra Road. In the absence of specific data for Dixie Road, truck percentages at Cawthra Road were applied to Dixie Road.

The most recent road traffic data for the QEW was obtained from the Ontario Ministry of Transportation in 2020. The data included Average Annual Daily Traffic (AADT) volumes from 2010 to 2016. The AADT for 2034 was linearly extrapolated from the given list of AADTs. The truck percentages were based on recommended values from the Ontario Road Noise Analysis Method for Environment and Transportation, Technical Publication (MECP, 1989). An 85%/15% daytime/nighttime freeway split was applied for the QEW and Dixie Road. The day-night split was drawn from data of similarly sized major highways within the Greater Toronto Area.

A summary of the traffic data used is included in **Table 1** below with more detailed information included in **Appendix C**.

Table 1: Road Traffic Volumes

Roadway	2034 Future Traffic (AADT or UADT)	% Day/Night	Speed Limit (km/hr)	% Trucks
North Service Road	16,200	90% / 10%	60	1.9%
South Service Road	16,200	90% / 10%	60	2.1%
QEW	170901	85% / 15%	100	15%
Dixie Road	8,100	85% / 15%	60	3.8%

3.1.2 Representative Receptors

The selection of receptors affected by transportation noise sources was based on the drawings reviewed for this assessment. Using the "building evaluation" feature of Cadna/A, each façade of the residential buildings was assessed.

Outdoor Living Areas (OLAs) would include outdoor areas intended and designed for the quiet enjoyment of the outdoor environment and which are readily accessible from the building. OLAs may include any common outdoor amenity spaces associated with a multi-unit residential development (e.g. courtyards, roof-top terraces), and/or private backyards and terraces with a minimum depth of 4m provided they are the only outdoor living area for the occupant. In absence of detailed drawings, the locations and number of OLAs are estimated based off the drawings. Daytime sound levels were assessed at the following identified OLAs:

- OLA_01: Outdoor Amenity Area Block 1 Level 7
- OLA_02: Outdoor Amenity Area Block At-Grade
- OLA_03: Outdoor Amenity Area Block 2 Level 7 West
- OLA_04: Outdoor Amenity Area Block 2 Level 7 East
- OLA_05: Outdoor Amenity Area Block 3 Level 7

The OLAs are indicated in **Figure 2**.

3.1.3 Analysis and Results

Sound levels due to the adjacent transportation (road) sources were predicted using the RLS-90 standard (RLS,1990) as implemented in the Cadna/A software package.

To assess the effect of transportation noise on suites, the maximum sound level on each façade was determined with the results summarized in **Table 2**.

Table 2: Predicted Ground Transportation Source Sound Levels – Plane of Window

Building	Façade	Road		Notes
		Day L_{EQ}, 16hr	Night L_{EQ}, 8hr	
Block 1: 6-Storey	West Façade	71	66	1
Block 1: Tower A 8-Storey	West Façade	70	66	1
Block 2: 6-Storey	North Façade	78	73	1
Block 2: Tower B 18-Storey	North Façade	77	73	1
Block 3: 6-Storey	North Façade	78	73	1
Block 3: Tower C1 15-Storey	North Façade	77	73	1
Block 3: Tower C2 19-Storey	North Façade	77	72	1

Note(s):
1. The acoustical performance of building components must be specified to meet the indoor sound level criteria. Installation of air conditioning to allow for windows and doors to remain closed, warning clause "Type D". Refer to **Appendix D** for guidance regarding air-conditioning as a noise mitigation measure.

To assess the effect of transportation noise on the qualifying OLAs for the development, predicted sound level results are summarized in **Table 3**.

Table 3: Transportation Sound Levels in Outdoor Living Areas (OLAs)

Receptor	Description	Daytime L_{EQ}, 16hr	Notes
OLA_01	Outdoor Amenity Area Block 1 Level 7	56 dBA	2
OLA_02	Outdoor Amenity Area Block 1 At-Grade	53 dBA	1
OLA_03	Outdoor Amenity Area Block 2 Level 7 West	66 dBA	3
OLA_04	Outdoor Amenity Area Block 2 Level 7 East	65 dBA	3
OLA_05	Outdoor Amenity Area Block 3 Level 7	64 dBA	3

Note(s):
1. The predicted sound level meets the NPC-300 criterion for OLAs. Noise control measures are not required.
2. Noise mitigation is recommended to meet the ≤55 dBA OLA sound level criterion. If noise controls are not feasible to meet the 55 dBA criterion for technical, economic or administrative reasons, an exceedance of 5 dB may be acceptable (to a maximum sound level of 60 dBA). In this case, a warning clause "Type B" is recommended.
3. For OLA sound levels >55 dBA and ≤60 dBA, noise controls may be applied to meet the 55 dBA criterion. If noise control measures are not provided, a warning clause "Type A" is recommended.

3.2 Stationary Source Assessment

Under NPC-300 all stationary sources are assessed against the relevant sound level limits, including those exempt from any environmental permitting requirements. When considering mitigation of stationary sources that exceed the applicable sound level limits, sources are grouped into two categories: Those that have a permit with the Ontario Ministry of the Environment, Conservation and Parks (MECP) through an Environmental Compliance Approval (ECA) or Environmental Activity and Sector Registry (EASR); and those that are exempt from ECA or EASR permit requirements.

In the case where a stationary source has an Environmental Compliance Approval (ECA) or Environmental Activity and Sector Registry (EASR) permit with the MECP, and would be put in a position where it is no longer in compliance with the applicable sound level criteria due to the encroachment of the proposed new development, source specific mitigation and/or formal classification of the proposed development lands as a "Class 4 Area" (refer to C.4.4.2 "Class 4 Area" in NPC-300) would be required. In this case, coordination and agreements between the stationary source owner, proposed new development owner, the land-use planning authority and potentially the MECP would be needed.

In the case where a stationary source is exempt from ECA or EASR permit requirements with the MECP, the noise mitigation guidance for sources with "MOE approval" from NPC-300 would not be directly applicable. In this case, mitigation of sound levels due to stationary sources is still required from a due diligence perspective to avoid nuisance complaints from future occupants of the proposed new development. Mitigation could be in the form of mitigation at the source (with agreement from the stationary source owner) and/or mitigation at the receptor through site and building element design (building orientation, acoustical barriers, façade sound insulation design).

3.2.1 Dixie Outlet Mall

Dixie Outlet Mall currently operates under ECA #0294-6EAMWZ from January 13, 2006. However, according to changes to Ontario Regulation 5243/98 which occurred after the issuance of the ECA, the facility is now exempt from environmental permitting requirements. Dixie Outlet mall intends to revoke their permit as it is no longer required. It should be noted that the long-term intent is re-develop the entirety of the Dixie Outlet Mall lands, eliminating these existing sources of stationary noise. It is expected that new mechanical equipment installed to support new buildings and uses would be designed to meet the applicable sound level limits.

Dixie Mall mainly consists of HVAC rooftop units. Shipping and receiving doors are located on the south of the Mall and shielded by the mall itself and also further than 300 m from the proposed development. Therefore, truck movements, loading and unloading were considered insignificant and not included in this assessment.

3.2.2 Stationary Source Modelling

Due to the proximity of Dixie Outlet Mall, noise modelling has been conducted to quantify the potential impact of stationary sources on the proposed development.

3.2.2.1 Representative Receptors

Using the "building evaluation" feature of Cadna/A, each façade of the proposed residential units in the development was assessed. Additionally, outdoor points of receptions (OPORs) for this development were assessed at the residential outdoor amenity space.

3.2.2.2 Assumed Sources and Sound Power Levels

Stationary sources of noise surrounding the proposed development were identified using publicly available aerial imagery and street-level imagery.

RWDI proxy data were used for the sound power (PWL) levels of the HVAC units included in the model. As the mall does not operate between 2300 and 0700h, it was assumed HVAC equipment would operate at a reduced capacity of 30 minutes per worst-case hour. The assumed sound power levels for the stationary sources are presented in **Table 4**. The locations of the sources summarized in **Table 4** are illustrated in **Figure 4**.

Table 4: Stationary source Sound Power Level Assumptions

Facility	Source	Sound Power Level (dBA)	Duty Cycle	
			Daytime (07:00h – 23:00h)	Nighttime (07:00h – 23:00h)
Dixie Outlet Mall	HVAC 1 Fan	82	Continuous	30 min/hour
	HVAC 2 Fan	85	Continuous	30 min/hour
	HVAC 3 Fan	87	Continuous	30 min/hour
	HVAC 4 Fan	88	Continuous	30 min/hour
	HVAC 6 Fan	90	Continuous	30 min/hour

3.2.2.1 Analysis and Results

Stationary source noise modelling was carried out using the Cadna/A software package, a commercially available implementation of the ISO 9613 (ISO, 1994 and ISO, 1996) algorithms. The predicted sound levels attributable to stationary sources are presented in **Table 5**.

The sound level limits which the predicted sound levels are assessed against are the NPC-300 exclusion limits or the ambient sound levels due to road traffic, whichever is higher. Road traffic ambient sound levels were calculated for the quietest hour for daytime and nighttime using RLS-90 traffic noise algorithms based on hourly traffic volumes for Dixie road, South and North Service Road which are presented in **Appendix C**. Due to the absence of hourly traffic data for the QEW, the default traffic distribution published by the Institute of Transportation Engineers (ITE, 2010) was used to determine hourly traffic volumes. The lowest hourly traffic volume was used to estimate the background sound levels for Dixie Road. A range of values for the sound level limits are presented in **Table 5** as the sound level varies across the façade.

Table 5: Predicted Sound Levels – Continuous Stationary Sources – Worst-case façade

Building	Description	Worst-case Stationary Source Sound Levels $L_{EQ, 1hr}$	Class 1 Sound Level Limits $L_{EQ, 1hr}$	Meets Target?
		Daytime/Nighttime	Daytime/Nighttime	
Block 1: 6-Storey	East Façade	53 dBA / 50 dBA	51 - 57 dBA / 45- 46 dBA	N
Block 1: Tower A 8-Storey	East Façade	52 dBA / 49 dBA	54 - 56 dBA / 45 – 46 dBA	N
Block 2: 6-Storey	East/South Façade	55 dBA / 52 dBA	54 – 71 dBA / 43 – 60 dBA	N
Block 2: Tower B 18-Storey	East/South Façade	54 dBA / 51 dBA	51 – 53 dBA / 48 – 51 dBA	N
Block 3: 6-Storey	South Façade	57 dBA / 54 dBA	50 – 70 dBA / 45 – 60 dBA	N

Building	Description	Worst-case Stationary Source Sound Levels $L_{EQ, 1hr}$	Class 1 Sound Level Limits $L_{EQ, 1hr}$	Meets Target?
		Daytime/Nighttime	Daytime/Nighttime	
Block 3: Tower C1 15-Storey	South Façade	56 dBA / 53 dBA	50 – 71 dBA / 45 – 60 dBA	N
Block 3: Tower C2 19-Storey	South Façade	56 dBA / 53 dBA	50 - 71 dBA / 45 – 60 dBA	N
OLA_01: Outdoor Amenity Area Block 1 Level 7		50 dBA / --	55 dBA / --	Y
OLA_02: Outdoor Amenity Area Block 1 At-Grade		47 dBA / --	55 dBA / --	Y
OLA_03: Outdoor Amenity Area Block 2 Level 7 West		28 dBA / --	64 dBA / --	Y
OLA_04: Outdoor Amenity Area Block 2 Level 7 East		50 dBA / --	63 dBA / --	Y
OLA_05: Outdoor Amenity Area Block 3 Level 7		50 dBA / --	62 dBA / --	Y

The daytime and nighttime continuous sound levels at the façade due to existing stationary sources are predicted to exceed the Class 1 sound level limits based on noise modelling. Exceedances are found in all blocks, on facades facing the Dixie Mall. The worst-case exceedances of 8 dB (over a limit of 45 dBA) occur at Block 3 during the nighttime. Recommendations based on the modelling are provided in Section 3.3.2.

3.3 Recommendations

Based on the noise and vibration assessment results, the following recommendations were determined for the project. Recommendations are provided for both transportation sources and stationary sources.

3.3.1 Transportation Sources

The following recommendations are provided to address transportation sources.

3.3.1.1 Building Façade Components

Due to the elevated transportation sound levels in the area, acoustical design of the façade components including spandrel, window glazing, and exterior doors, are recommended to be specified for the proposed development.

To assess the development's feasibility, preliminary window glazing, and exterior balcony door sound isolation requirements were determined. These were based on following assumptions:

- Typical residential living room:
  - Glazing 60% of façade, Door: 20% of façade
  - 55% Façade to floor area Ratio
- Typical residential bedroom:
  - Glazing 80% of façade, Door: N/A
  - 81% Façade to floor area Ratio
- Acoustical character of rooms: High absorption finishes/furniture for bedrooms and intermediate absorption finishes/furniture for living rooms.

Based on the predicted plane of window sound levels and the assumptions listed above, recommendations for the minimum sound insulation ratings for the building components were determined using the National Research Council of Canada "BPN-56 method" (NRCC, 1985). The reported results are in terms of Sound Transmission Class (STC) ratings as summarized in **Table 4**.

Table 6: Recommended Facade Component Minimum Sound Insulation Rating

Portion of Development	Façade	Window Glazing	Exterior Door	Façade Wall
Block 1: 6-Storey	West Façade	STC-32	STC-29	STC-45
Block 1: Tower A 8-Storey	West Façade	STC-30	STC-26	STC-45
Block 2: 6-Storey	North Façade	STC-38	STC-35	STC-45
Block 2: Tower B 18-Storey	North Façade	STC-38	STC-32	STC-45
Block 3: 6-Storey	North Façade	STC-38	STC-35	STC-45
Block 3: Tower C1 15-Storey	North Façade	STC-38	STC-32	STC-45
Block 3: Tower C2 19-Storey	North Façade	STC-37	STC-35	STC-45

Note(s):
1. "OBC" denotes that the noise insulation design is not required to be specified. Building envelope assemblies meeting the minimum Ontario Building Code (OBC) requirements will also exhibit sufficient noise reduction to meet the interior sound level criteria.

The maximum requirement for the window glazing was determined to be STC-38, and STC-35 for the exterior door, which is considered feasible as this can be achieved by various double-glazed configurations of insulated glazing units. The window to wall ratio includes conservative assumptions. As the design progresses, these STC ratings should be revisited, as these requirements may be lower than those presented herein. The STC ratings provided are the worst-case facades which face the adjacent roadways. The facades facing away from the roadways will have lower STC requirements.

Taking into account the assumptions used as a basis to determine the glazing requirements, the applicable indoor transportation source sound level criteria are predicted to be achieved.

We recommend that the façade construction is reviewed during detailed design to ensure that the indoor sound level limits will be met, and that the window/door supplier is requested to provide STC laboratory test reports as part of shop drawing submittal to confirm that the glazing/door components will meet the minimum STC requirements.

3.3.1.2 Ventilation Recommendations

Due to the transportation sound levels at the plane of the façade, central air conditioning is recommended for the proposed development to allow for windows and doors to remain closed as a noise mitigation measure. Further, prospective purchasers or tenants should be informed by a warning clause "Type D".

3.3.1.3 Outdoor Living Areas

Due to exposure to transportation sources along the nearby QEW sound levels in OLAs are predicted to be elevated. The road daytime average sound levels for the OLAs included in the assessment are in the range of 53-66 dBA. To reduce the transportation sound levels in OLAs to meet the applicable criteria, noise barriers are recommended.

The recommended geometry of the noise barriers are included with **Figure 3**. Locations of most barriers are shown in the current design plans, but will be updated based on this analysis in drawings for Site Plan Approval (SPA) application. The barrier heights are summarized in **Table 5**. General guidance with respect to noise barrier design is included with **Appendix D**.

Table 7: Barrier Height Recommendations for OLAs

Receptor	Description	Predicted Sound Level	Barrier Height (m) to Meet Sound Level Criterion					
		Daytime L_{EQ}, 16hr	≤ 55 dBA[1]	≤ 56 dBA[2]	≤ 57 dBA[2]	≤ 58 dBA[2]	≤ 59 dBA[2]	≤ 60 dBA[2]
OLA_01	Block 1 Level 7	56 dBA	1.2 m [3]	--	--	--	--	--
OLA_02	Block 1 At-Grade	53 dBA	--	--	--	--	--	--
OLA_03	Block 2 Level 7 West	66 dBA	>5.0 m [4]	4.8 m [3]	4.2 m [3]	3.7 m [3]	3.3 m [3]	3.0 m
OLA_04	Block 2 Level 7 East	65 dBA	4.2 m [3]	3.8 m [3]	3.3 m [3]	2.9 m [3]	2.5 m [3]	2.2 m

Receptor	Description	Predicted Sound Level	Barrier Height (m) to Meet Sound Level Criterion					
		Daytime L_{EQ}, 16hr	≤ 55 dBA[1]	≤ 56 dBA[2]	≤ 57 dBA[2]	≤ 58 dBA[2]	≤ 59 dBA[2]	≤ 60 dBA[2]
OLA_05	Block 3 Level 7	64 dBA	3.9 m [3]	3.3 m [3]	2.7 m [3]	2.3 m [3]	1.8 m [3]	1.5 m

Note(s):

1. Refer to Figure 3 for barrier geometry to meet 55 dBA.
2. Refer to Figure 3 for barrier geometry to meet 60 dBA. A warning clause "Type B" is recommended in cases where the OLA sound level is >55 dBA (to a maximum of 60 dBA).
3. If noise control measures are not provided, a warning clause "Type A" is recommended.
4. 55 dBA criterion cannot be met with a 5.0 m barrier, therefore achieving 55 dBA criterion is not feasible.

The 55 dBA criterion cannot be met with a barrier under 5.0 m for OLA_03. In this case, achieving 55 dBA criterion would not feasible and a warning clause "Type B" is recommended.

3.3.2 Stationary Sources

The facilities in the area surrounding the proposed development are exempt from requiring environmental permits (ECA or EASR), and therefore the proposed OPA and ZBA is not anticipated to affect any environmental approvals.

3.3.2.1 Dixie Outlet Mall

The analysis is based on the proxy data and worst-case assumptions as a conservative approach. Reduction of sound levels is typically done though at-source reduction, interruption of the path of sound (barriers) or at-receptor reductions. As the intent is to re-develop Dixie mall, mitigation at-receptor is the most practical path forward. At-receptor mitigation would include the installation of air conditioning to allow windows and doors to be closed. With windows and doors closed indoor sound level limits will be achieved. A warning clause is recommended to ensure that occupants understand their suites have been equipped with air conditioning to allow windows and doors to be closed to achieve indoor sound level limits.

3.3.3 Warning Clauses

The following warning clauses are recommended for the proposed development:

1. NPC-300 Type A or B to address transportation sound levels in Outdoor Living Areas (OLAs)
2. NPC-300 Type D to address transportation sound levels at the plane of window
3. NPC-300 Type E to address central air-conditioning requirements so that all suites' windows can remain closed

Warning clauses are recommended to be included on all development agreements, offers of purchase and agreements of purchase and sale or lease. The wording of the recommended warning clauses is included with **Appendix E**.

4 THE EFFECTS OF THE PROPOSED DEVELOPMENT ON ITS SURROUNDINGS AND ON ITSELF

On-site stationary sources for the development are expected to consist of HVAC related equipment in the roof-top mechanical penthouse as well as various exhaust fans. Further, consideration should be given to control airborne and structure-borne noise generated within the proposed development.

Within the development itself the main sources of noise that are likely to affect the uses of the building are the mechanical systems. The potential noise effect of the commercial component of the development is recommended to be reviewed during detailed design, to ensure the applicable criteria will be met.

Provided that best practices for the acoustical design of the building are followed, noise from building services equipment associated with the development are expected to be feasible to meet the applicable sound level criteria due to the nature (residential) of the proposed development.

We recommend that the potential noise effect of the proposed development is reviewed during detailed design to ensure the applicable sound level criteria will be achieved.

5 CONCLUSIONS

RWDI was retained to prepare a Noise and Vibration Impact Study for the proposed mixed-use development located in Mississauga, Ontario.

The following noise control measures are recommended for the proposed development:

1. Installation of central air-conditioning so that all suites' windows can remain closed.
2. The inclusion of noise warning clauses related to transportation and stationary source sound levels at the building façade and in the outdoor amenity areas.
3. Minimum sound isolation performance:
    a. Suite bedroom window glazing with minimum sound isolation performance of STC-38.
    b. Suite exterior balcony door with minimum sound isolation performance of STC-35.
4. Construction of perimeter noise barriers along the outdoor amenity areas if feasible, with the applicable warning clause.

Rail is located further than 500 m away from the proposed development, therefore no noise or vibration impacts from rail are expected.

The potential noise levels from stationary sources of sound were evaluated. Mechanical equipment from the remaining retail portions of the existing Dixie Mall have the potential to have a significant effect on environmental noise at the proposed development. Based on the noise modelling results, the remaining Dixie mall is compatible with the proposed development with respect to environmental noise, with the inclusion of mitigation measures. Mitigation measures include the installation of air conditioning, allowing windows and doors to be closed, as well as a warning clause to inform prospective occupants of the potential for audible noise from Dixie Mall.

At this stage in design the noise levels produced by the development on itself and its surroundings could not be quantitatively assessed. However, the effect on both the building itself and its surroundings is expected to be feasible to meet the applicable criteria. We recommend that the building design is evaluated prior to building permit to ensure that the acoustical design is adequately implemented in order to meet the applicable criteria.

Based on the results of the analysis including implementation of the recommendations included with this assessment, the proposed development meets the applicable sound and vibration criteria.

6 REFERENCES

1. Ontario Ministry of the Environment (MOE), August 2013, Publication NPC-300, Environmental Noise Guideline Stationary and Transportation Sources – Approval and Planning (MOE, 2013).
2. Richtlinien für den Lärmschutz an Strassen (RLS). BM für Verkehr, Bonn, 1990 (RLS, 1990).
3. Controlling Sound Transmission into Buildings (BPN-56), National Research Council Canada (NRCC, 1985).
4. City of Mississauga, Noise Control By-Law 360-79 (Link, accessed 2022-11-28).
5. Institute of Transportation Engineers (ITE), 2010, Traffic Engineering Handbook, 6th Edition.

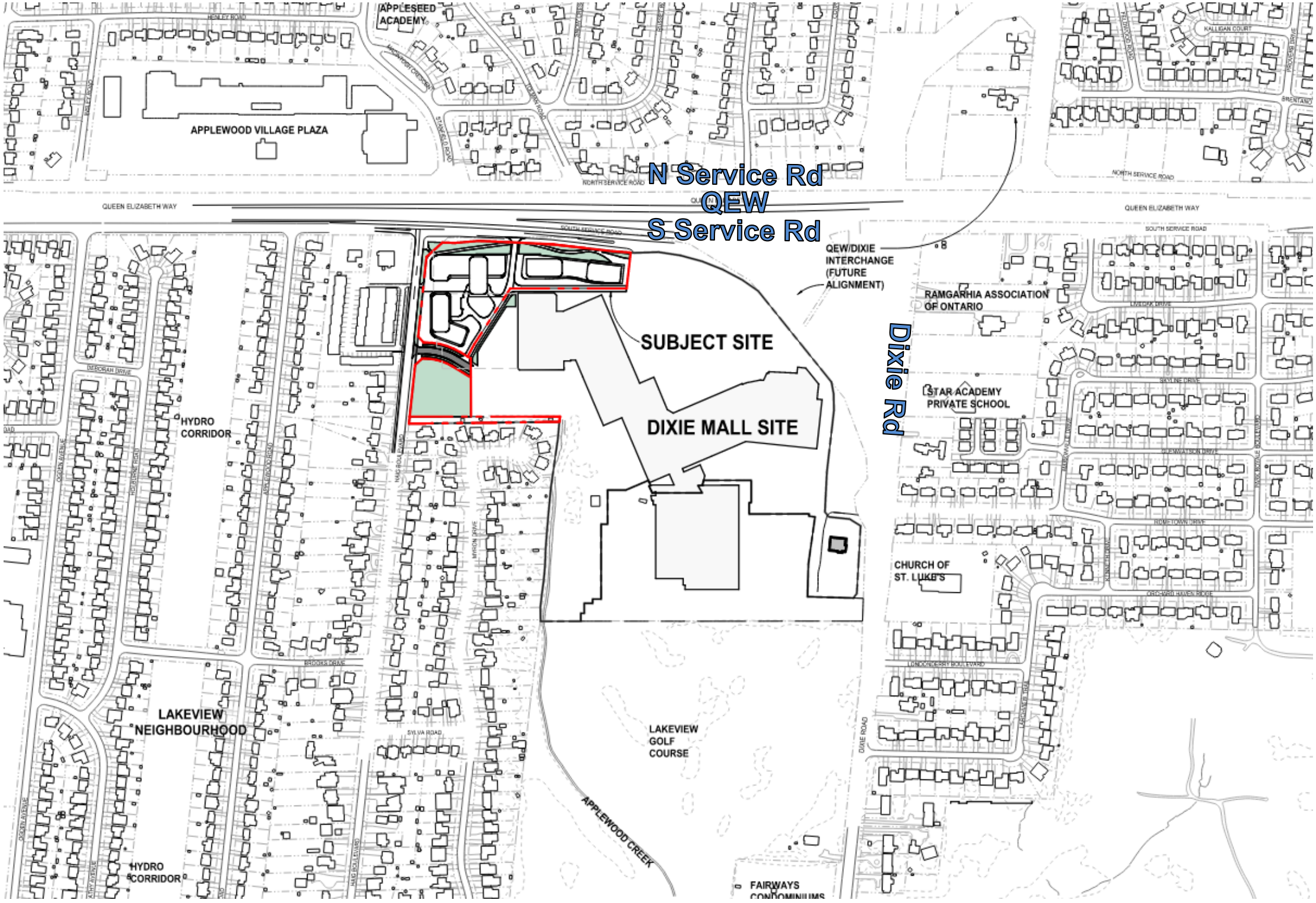
7 STATEMENT OF LIMITATIONS

This report entitled Dixie Mall Redevelopment was prepared by Rowan Williams Davies & Irwin Inc. ("RWDI") for Slate Asset Management ("Client"). The findings and conclusions presented in this report have been prepared for the Client and are specific to the project described herein ("Project"). The conclusions and recommendations contained in this report are based on the information available to RWDI when this report was prepared. Because the contents of this report may not reflect the final design of the Project or subsequent changes made after the date of this report, RWDI recommends that it be retained by Client during the final stages of the project to verify that the results and recommendations provided in this report have been correctly interpreted in the final design of the Project.

The conclusions and recommendations contained in this report have also been made for the specific purpose(s) set out herein. Should the Client or any other third party utilize the report and/or implement the conclusions and recommendations contained therein for any other purpose or project without the involvement of RWDI, the Client or such third party assumes any and all risk of any and all consequences arising from such use and RWDI accepts no responsibility for any liability, loss, or damage of any kind suffered by Client or any other third party arising therefrom.

Finally, it is imperative that the Client and/or any party relying on the conclusions and recommendations in this report carefully review the stated assumptions contained herein and to understand the different factors which may impact the conclusions and recommendations provided.

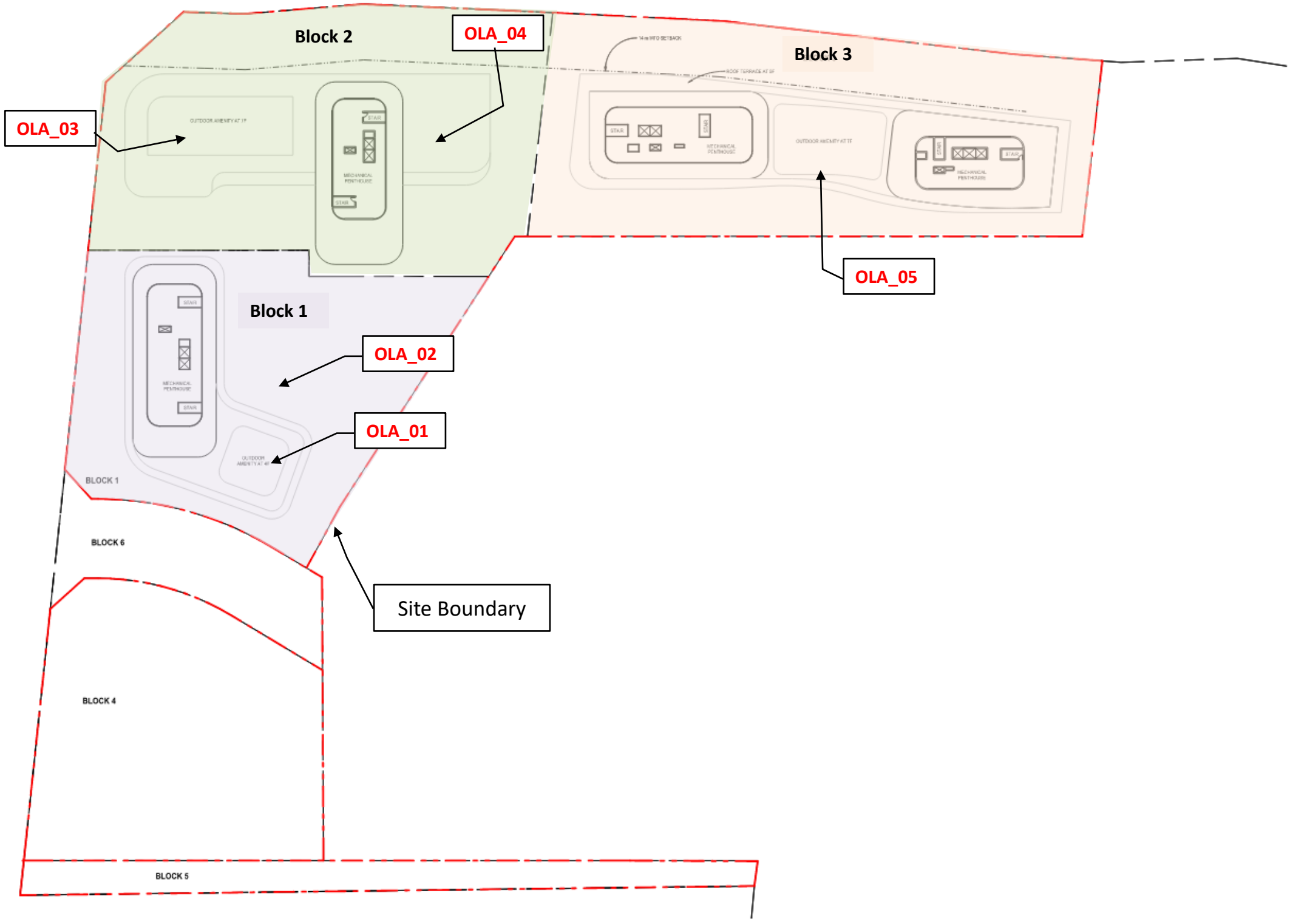
FIGURES



Site Plan - Overview

Dixie Mall Redevelopment – Phase 1 – Mississauga, Ontario

Drawn by:	KD	Figure:	1
Project #:			2100834
Date:			2024-04-10

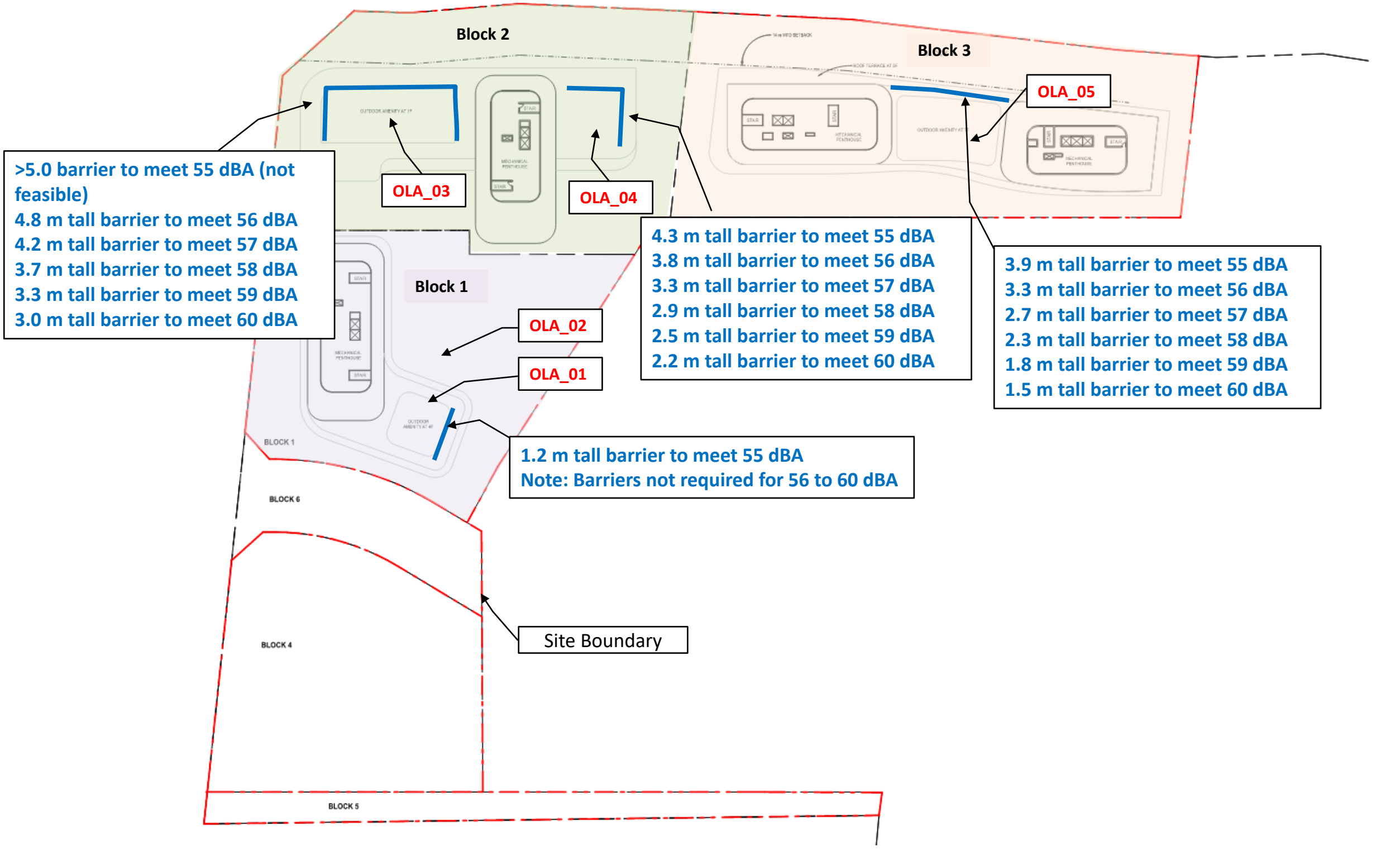


Outdoor Living Areas (OLAs) Locations

Location of Common Outdoor Amenity Areas

Dixie Mall Redevelopment – Phase 1 – Mississauga, Ontario

Drawn by:	KD	Figure:	2
Project #:			2100834
Date:			2024-04-10

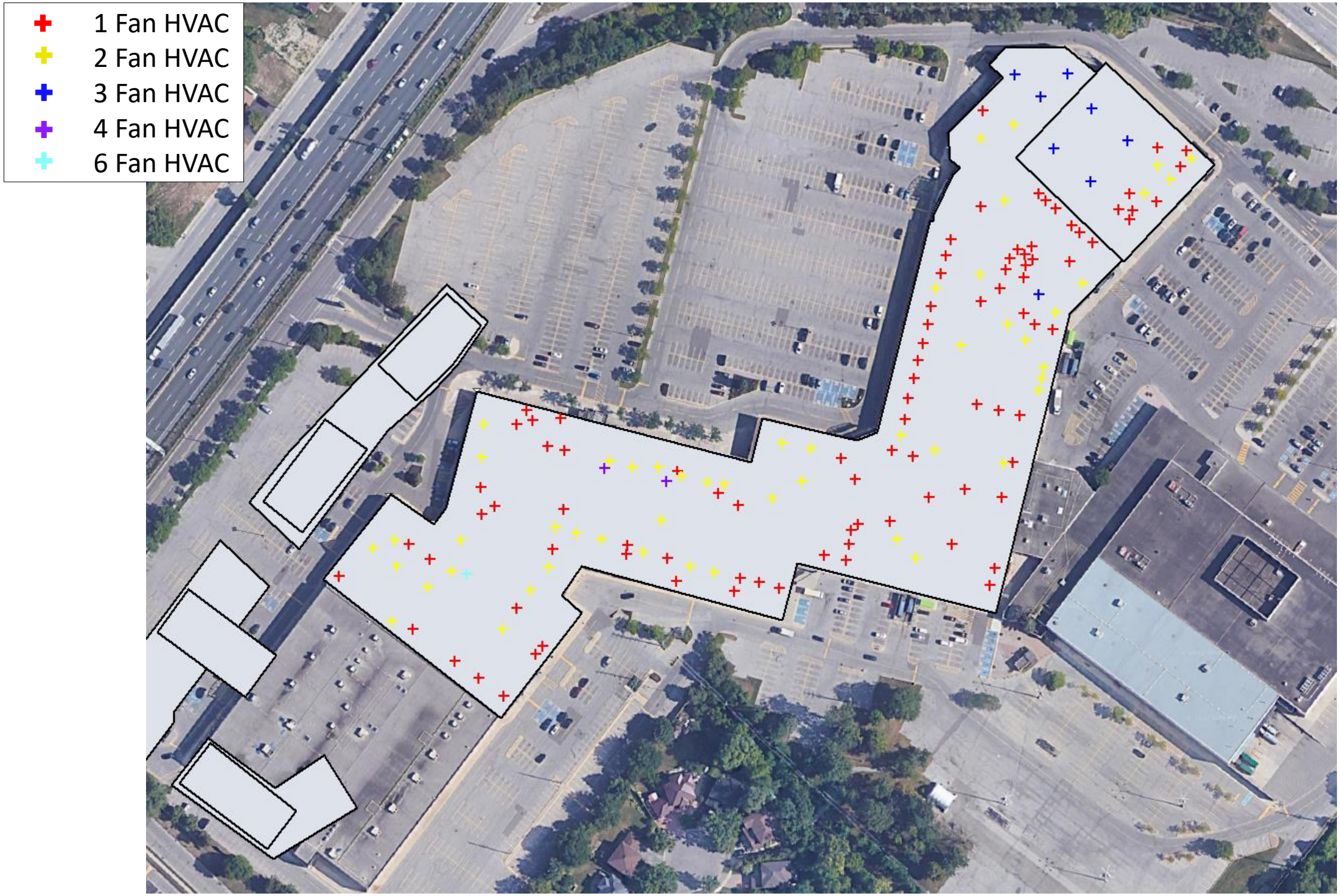


Outdoor Living Areas (OLAs) Mitigation to meet 55 dBA to 60 dBA

Recommended Barrier Geometry and Height to meet 55 dBA to 60 dBA

Dixie Mall Redevelopment – Phase 1 – Mississauga, Ontario

Drawn by: KD	Figure: 3
Project #:	2100834
Date:	2024-04-10



Stationary Source Locations

Dixie Mall Redevelopment – Phase 1 – Mississauga, Ontario

Drawn by:	KD	Figure:	4
Project #:			2100834
Date:			2024-04-10

APPENDIX A

DIXIE MALL DEVELOPMENT

1250 South Service Road
Mississauga, ON L5E 3E5

PART LOT 6 CONCESSION 2 SOUTH DUNDAS ST (TOWNSHIP OF TORONTO) & PART BLOCKS A & B
PLAN 305 AS IN RO854869 EXCEPT PARTS 1 & 2 PLAN 43R20591, PARTS 1, 2 & 3 EXPROPRIATION PLAN HR3431305 AND PARTS 1 TO 9 EXPROPRIATION PLAN HR3431900; T/W TT133286; S/T RO789903, RO799179, RO969553, RO969556, TT109061, TT150694 CITY OF MISSISSAUGA

Issued for Zoning Bylaw Application and Official Plan Amendment Re-Submission 2024-03-26

PROJECT DIRECTORY

Owner
SCREO I Dixie Outlet Mall Inc.
(Slate Asset Management)
121 King St W, Suite 200
Toronto, ON M5H 3T9
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Architect
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Toronto, ON M5V 2J6
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Planner
Glen Schnarr & Associates
700 - 10 Kingsbridge Garden Circle
Mississauga, ON L5R 3K6
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Landscape Architect
Janet Rosenberg & Studio
148 Kenwood Avenue
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Civil and Site Services
KWA Site Development Consulting
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Burlington, ON L7L 7A9
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Transportation Engineer
LEA Consulting Ltd.
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DRAWING LIST

Revision	Date
5 ISSUE FOR ZBA/OPA RESUBMIT	2024.03.26
3 ISSUED FOR ZBA/OPA	2022.12.16

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DIXIE MALL
REDEVELOPMENT
1250 South Service Road
Mississauga, ON L5E 3E5

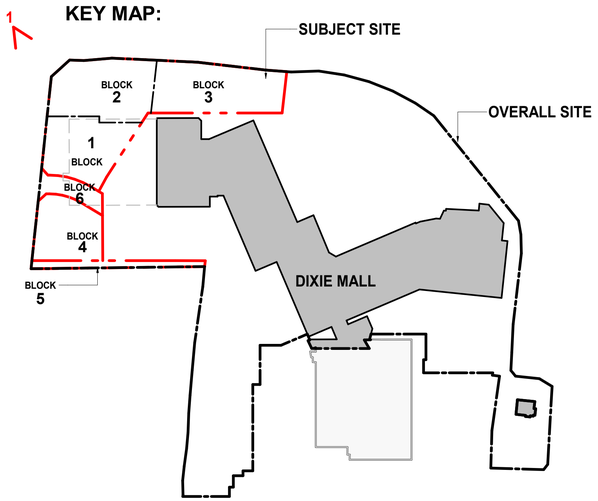
COVER SHEET

DRAWN BY:	MH
CHECKED BY:	AV
PROJECT START DATE:	06/28/22
PROJECT NO.:	22138
SHEET NUMBER	

A000

PLOT DATE: 2024-04-03 5:17:32 PM

KEY MAP:



Revision	Date
5 ISSUE FOR ZBA/OPA RESUBMIT	2024.03.26
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DIXIE MALL REDEVELOPMENT

1250 South Service Road
Mississauga, ON L5E 3E5

RENDERINGS - VIEW 1

DRAWN BY:	MH
CHECKED BY:	AV
PROJECT START DATE:	06/28/22
PROJECT NO.:	22138
SHEET NUMBER	

A010

PLOT DATE: 2024-04-03 5:03:38 PM

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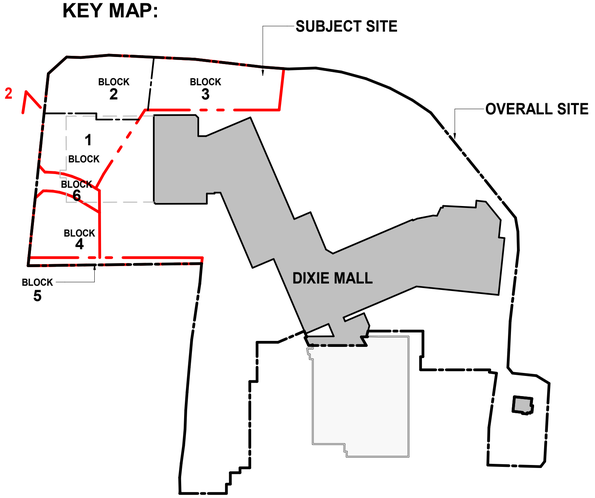

Revision	Date
5 ISSUE FOR ZBA/OPA RESUBMIT	2024.03.26
3 ISSUED FOR ZBA/OPA	2022.12.16

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DIXIE MALL
REDEVELOPMENT
1250 South Service Road
Mississauga, ON L5E 3E5

RENDERINGS - VIEW 2

DRAWN BY:	MH
CHECKED BY:	AV
PROJECT START DATE:	06/28/22
PROJECT NO.:	22138
SHEET NUMBER	A011

PLOT DATE: 2024-04-03 5:03:39 PM

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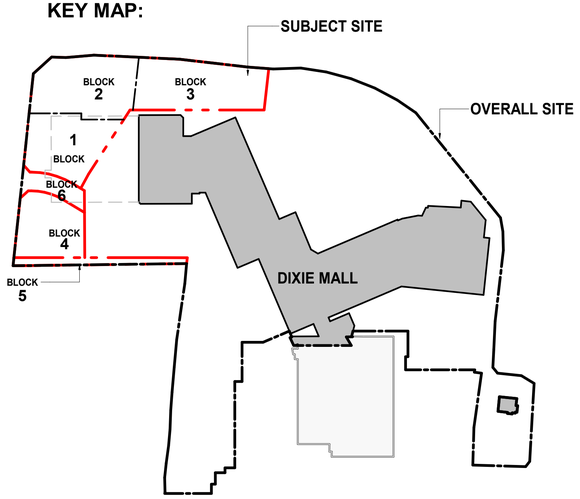

	sm	sf
OVERALL SITE AREA	143,681	1,546,564
	ha	ac
	14.37	35.50
	sm	sf
DIXIE MALL GFA (RETAINED PORTION OF THE MALL WITHIN OVERALL SITE)	34,760	374,157
	sm	sf
TOTAL GFA (DIXIE MALL + PROPOSED DEVELOPMENT)	111,800	1,203,408
OVERALL FSI	0.78	

SUBJECT SITE GROSS AREA

BLOCK	*DESCPRIPTION*	SM	SF	ACRES	HA
BLOCK 1	*MID-RISE (8 LEVELS)*	**5569.32**	**59947.70**	**1.38**	**0.56**
BLOCK 2	*TOWER (18 LEVELS) AND PODIUM (6 LEVELS)*	**6832.90**	**73548.76**	**1.69**	**0.68**
BLOCK 3	*TWO TOWERS (15+19 LEVELS) AND PODIUM (6 LEVELS)*	**7102.42**	**76449.86**	**1.76**	**0.71**
BLOCK 4	*COMMUNITY PARK*	**4585.47**	**49357.57**	**1.13**	**0.46**
BLOCK 5	*EASEMENT*	**1393.71**	**15001.78**	**0.34**	**0.14**
BLOCK 6	*R.O.W.*	**1488.38**	**16020.77**	**0.37**	**0.15**
		26972.21	**290326.45**	**6.66**	**2.70**

PROPOSED PARKING RATE

RESIDENTIAL	0.85
VISITOR	0.15

BLOCK 1+2 PARKING STALLS

Block	*Parking Type*	*Count*
BLOCK 1+2	RESIDENTIAL	414
BLOCK 1+2	RESIDENTIAL (BF) (A)	4
BLOCK 1+2	RESIDENTIAL (BF) (B)	8
BLOCK 1+2	VISITOR	76
BLOCK 1+2	VISITOR (BF) (A)	1
BLOCK 1+2	VISITOR (BF) (B)	3

TOTAL PARKING STALLS : 506

BLOCK 3 PARKING STALLS

Block	*Parking Type*	*Count*
BLOCK 3	RESIDENTIAL	419
BLOCK 3	RESIDENTIAL (BF) (B)	3
BLOCK 3	VISITOR	76
BLOCK 3	VISITOR (BF) (A)	3
BLOCK 3	VISITOR (BF) (B)	2

TOTAL PARKING STALLS : 503

BLOCK 1

BUILDING HEIGHT	35.4 M
SITE COVERAGE	2065.2 SM
FSI	**2.10**

UNIT MIX TARGETS
1BD (45-65sm) - **65%**
2BD (68-74sm) - **20%**
3BD (80-94sm) - **15%**

BLOCK 1 - GCA

Level	*SM*	*SF*
Level 1	2065.20	22229.60
Level 2	1921.20	20679.59
Level 3	1921.20	20679.59
Level 4	1921.20	20679.59
Level 5	1537.54	16549.96
Level 6	1537.54	16549.96
Level 7	1289.62	13881.32
Level 8	999.09	10754.11
	13192.58	**142003.74**

BLOCK 1 - GFA DEDUCTIONS

SM	*SF*
790.92	8513.41
58.29	627.42
58.29	627.42
58.29	627.42
58.51	629.81
58.51	629.81
376.28	4050.23
45.82	493.22
1504.91	**16198.72**

BLOCK 1 - GFA

SM	*SF*
1274.28	13716.19
1862.91	20052.18
1862.91	20052.18
1862.91	20052.18
1479.03	15920.16
1479.03	15920.16
913.34	9831.09
953.27	10260.90
11687.67	**125805.02**

BLOCK 1 - RESIDENTIAL UNIT COUNT

Level	*Unit Count*
Level 1	13
Level 2	23
Level 3	23
Level 4	23
Level 5	24
Level 6	24
Level 7	14
Level 8	15
TOTAL UNIT COUNT	**159**

*REQUIRED AMENITY 5.6 SM PER DWELLING = 912.8 SM

BLOCK 1 - INDOOR AMENITY

Level	*SM*	*SF*
Level 1	311.32	3351.05
Level 1	126.40	1360.56
Level 7	39.93	429.80

BLOCK 1 - OUTDOOR AMENITY

Level	*SM*	*SF*
Level 1	151.67	1632.60
Level 7	290.53	3127.21

BLOCK 1 - TOTAL AMENITY

SM	*SF*
919.85	**9901.22**
919.85	**9901.22**

BLOCK 2

BUILDING HEIGHT *INCL. MPH.*	71.1 M
SITE COVERAGE	2600.6 SM
FSI	**3.76**

BLOCK 2 - GCA

Level	*SM*	*SF*
Level 1	2600.60	27992.64
Level 2	2608.55	28078.15
Level 3	2886.55	31070.59
Level 4	2886.55	31070.59
Level 5	2886.55	31070.59
Level 6	2886.55	31070.59
Level 7	1945.95	20946.00
Level 8	990.54	10662.08
Level 9	990.54	10662.08
Level 10	990.54	10662.08
Level 11	990.54	10662.08
Level 12	990.54	10662.08
Level 13	990.54	10662.08
Level 14	990.54	10662.08
Level 15	990.54	10662.08
Level 16	990.54	10662.08
Level 17	990.54	10662.08
Level 18	990.54	10662.08
	29597.24	**318582.06**

BLOCK 2 - GFA DEDUCTIONS

SM	*SF*
1319.92	14207.49
151.55	1631.24
169.01	1819.24
169.01	1819.24
169.01	1819.24
169.01	1819.24
1250.37	13458.85
45.58	490.62
45.58	490.62
45.58	490.62
45.58	490.62
45.58	490.62
45.58	490.62
45.58	490.62
45.58	490.62
45.58	490.62
45.58	490.62
45.58	490.62
3899.27	**41971.39**

BLOCK 2 - GFA

SM	*SF*
1280.68	13785.15
2457.00	26446.91
2717.54	29251.35
2717.54	29251.35
2717.54	29251.35
2717.54	29251.35
695.58	7487.15
944.96	10171.46
944.96	10171.46
944.96	10171.46
944.96	10171.46
944.96	10171.46
944.96	10171.46
944.96	10171.46
944.96	10171.46
944.96	10171.46
944.96	10171.46
944.96	10171.46
25697.97	**276610.67**

BLOCK 2 - RESIDENTIAL UNIT COUNT

Level	*Unit Count*
Level 1	9
Level 2	29
Level 3	34
Level 4	34
Level 5	34
Level 6	34
Level 7	10
Level 8	14
Level 9	14
Level 10	14
Level 11	14
Level 12	14
Level 13	14
Level 14	14
Level 15	14
Level 16	14
Level 17	14
Level 18	14
TOTAL UNIT COUNT	**338**

*REQUIRED AMENITY 5.6 SM PER DWELLING = 1915.2 SM

BLOCK 2 - INDOOR AMENITY

Level	*SM*	*SF*
Level 1	741.10	7977.13
Level 7	249.38	2684.30

BLOCK 2 - OUTDOOR AMENITY

Level	*SM*	*SF*
Level 7	955.41	10283.92

BLOCK 2 - TOTAL AMENITY

SM	*SF*
1945.89	**20945.36**
1945.89	**20945.36**

BLOCK 3

BUILDING HEIGHT *INCL. MPH.*	63.2 M + 74.7 M
SITE COVERAGE	3258.62 SM
FSI	**4.88**

BLOCK 3 - GCA

Level	*SM*	*SF*
Level 1	3258.62	35075.50
Level 2	3288.84	35400.82
Level 3	3288.84	35400.82
Level 4	3288.84	35400.82
Level 5	2538.26	27321.57
Level 6	2538.26	27321.57
Level 7	2313.33	24900.52
Level 8	1880.24	20238.78
Level 9	1880.24	20238.78
Level 10	1880.24	20238.78
Level 11	1880.24	20238.78
Level 12	1880.24	20238.78
Level 13	1880.24	20238.78
Level 14	1880.24	20238.78
Level 15	1880.24	20238.78
Level 16	906.32	9755.60
Level 17	906.32	9755.60
Level 18	906.32	9755.60
Level 19	906.32	9755.60
	39182.26	**421754.28**

BLOCK 3 - GFA DEDUCTIONS

SM	*SF*
1931.88	20794.54
99.44	1070.37
99.44	1070.37
99.44	1070.37
99.44	1070.37
99.44	1070.37
1062.14	11432.80
100.01	1076.51
100.01	1076.51
100.01	1076.51
100.01	1076.51
100.01	1076.51
100.01	1076.51
100.01	1076.51
100.01	1076.51
52.42	564.25
52.42	564.25
52.42	564.25
52.42	564.25
4500.99	**48448.24**

BLOCK 3 - GFA

SM	*SF*
1326.74	14280.96
3189.40	34330.46
3189.40	34330.46
3189.40	34330.46
2438.82	26251.20
2438.82	26251.20
1251.19	13467.72
1780.23	19162.28
1780.23	19162.28
1780.23	19162.28
1780.23	19162.28
1780.23	19162.28
1780.23	19162.28
1780.23	19162.28
1780.23	19162.28
853.90	9191.35
853.90	9191.35
853.90	9191.35
853.90	9191.35
34681.27	**373306.05**

BLOCK 3 - RESIDENTIAL UNIT COUNT

Level	*Unit Count*
Level 1	8
Level 2	38
Level 3	38
Level 4	38
Level 5	38
Level 6	38
Level 7	22
Level 8	28
Level 9	28
Level 10	28
Level 11	28
Level 12	28
Level 13	28
Level 14	28
Level 15	28
Level 16	14
Level 17	14
Level 18	14
Level 19	14
TOTAL UNIT COUNT	**500**

*REQUIRED AMENITY 5.6 SM PER DWELLING = 2833.6 SM

BLOCK 3 - INDOOR AMENITY

Level	*SM*	*SF*
Level 1	645.61	6949.28
Level 7	340.38	3663.85

BLOCK 3 - OUTDOOR AMENITY

Level	*SM*	*SF*
Level 7	621.75	6692.45

BLOCK 3 - TOTAL AMENITY

SM	*SF*
1607.74	**17305.58**
1607.74	**17305.58**

OVERALL GCA

SM	*SF*
81972.08	**882340.09**

OVERALL GFA

SM	*SF*
72066.91	**775721.74**

OVERALL RESIDENTIAL UNIT COUNT

Unit Count
997

OVERALL AMENITY

SM	*SF*
4473.48	**48152.15**

Revision	Date
5 ISSUE FOR ZBA/OPA RESUBMIT	2024.03.26
3 ISSUED FOR ZBA/OPA	2022.12.16

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DIXIE MALL REDEVELOPMENT
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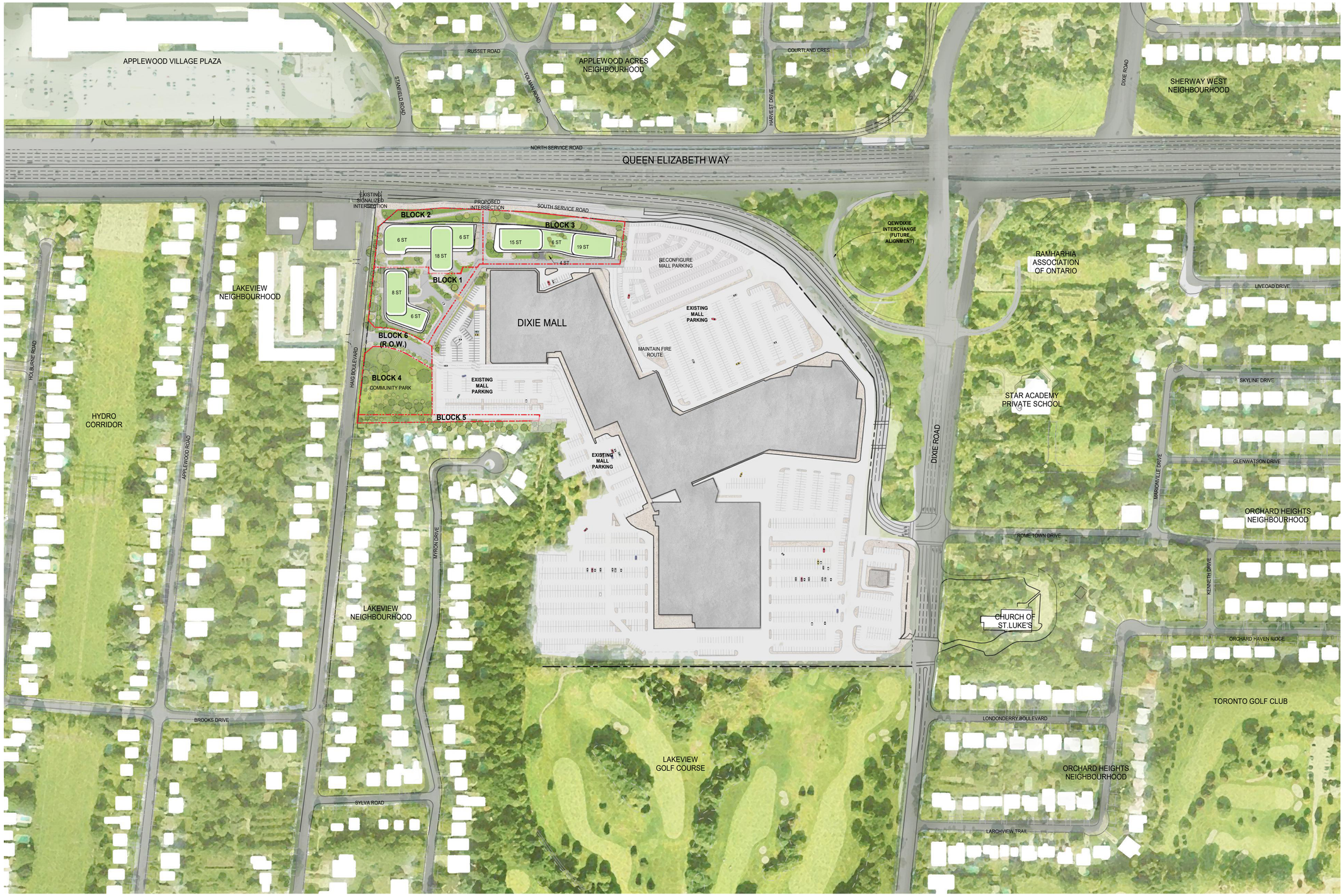
Mississauga, ON L5E 3E5

STATISTICS

DRAWN BY:	MH
CHECKED BY:	AV
PROJECT START DATE:	06/28/22
PROJECT NO.:	22138
SHEET NUMBER	A013

PLOT DATE: 2024-04-03 5:03:56 PM



Revision	Date

5	ISSUE FOR ZBA/OPA RESUBMIT	2024.03.26
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Revision Date

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DIXIE MALL REDEVELOPMENT
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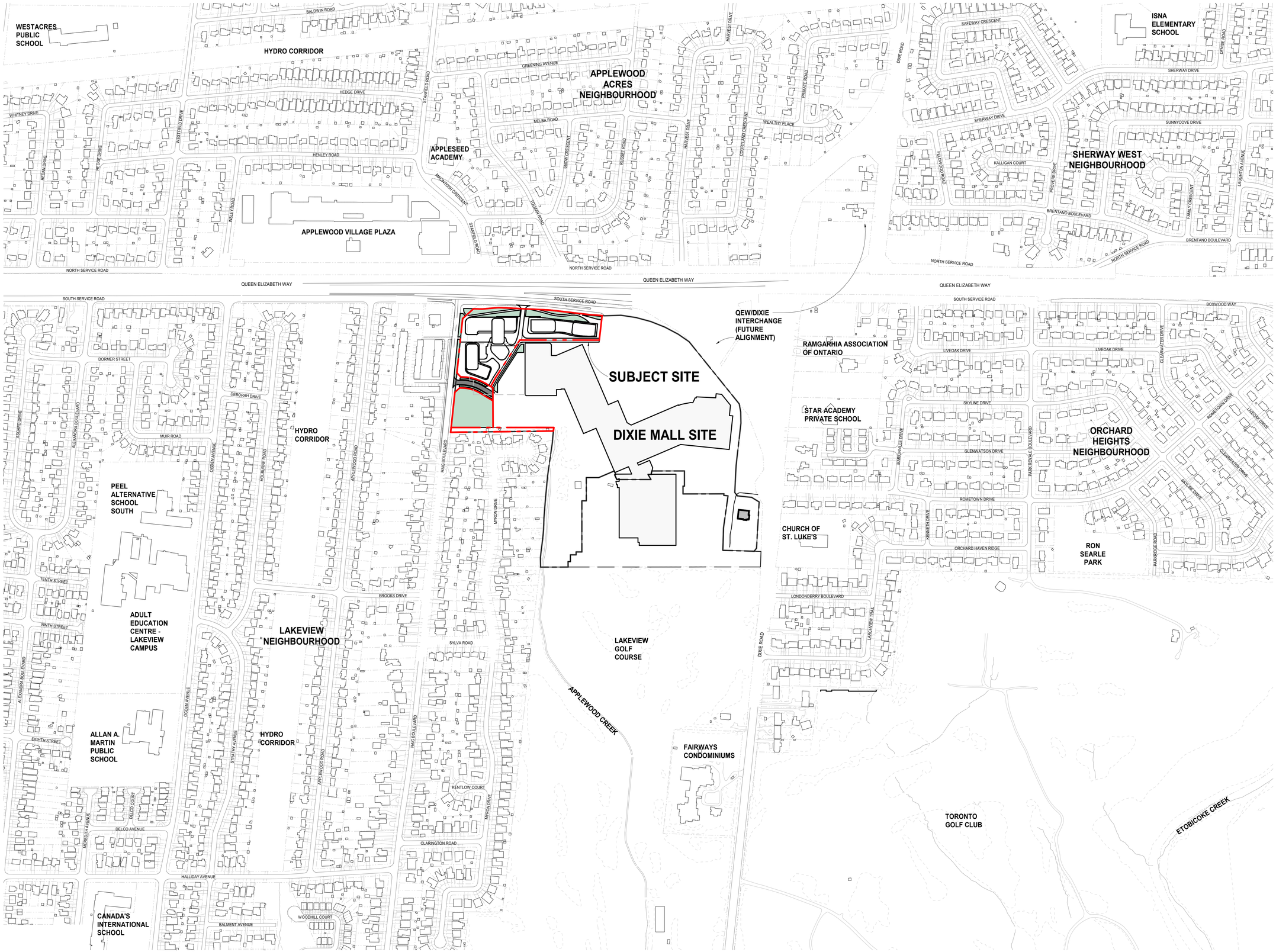
Mississauga, ON L5E 3E5

RENDERED SITE PLAN

DRAWN BY:	MH/YY
CHECKED BY:	AV
PROJECT START DATE:	06/28/22
PROJECT NO.:	22138
SHEET NUMBER	

A014

PLOT DATE: 2024-04-03 5:03:58 PM



Revision	Date
5 ISSUE FOR ZBA/OPA RESUBMIT	2024.03.26
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DIXIE MALL REDEVELOPMENT
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CONTEXT MAP

DRAWN BY:	MH
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PROJECT START DATE:	06/28/22
PROJECT NO.:	22138
SHEET NUMBER	A015

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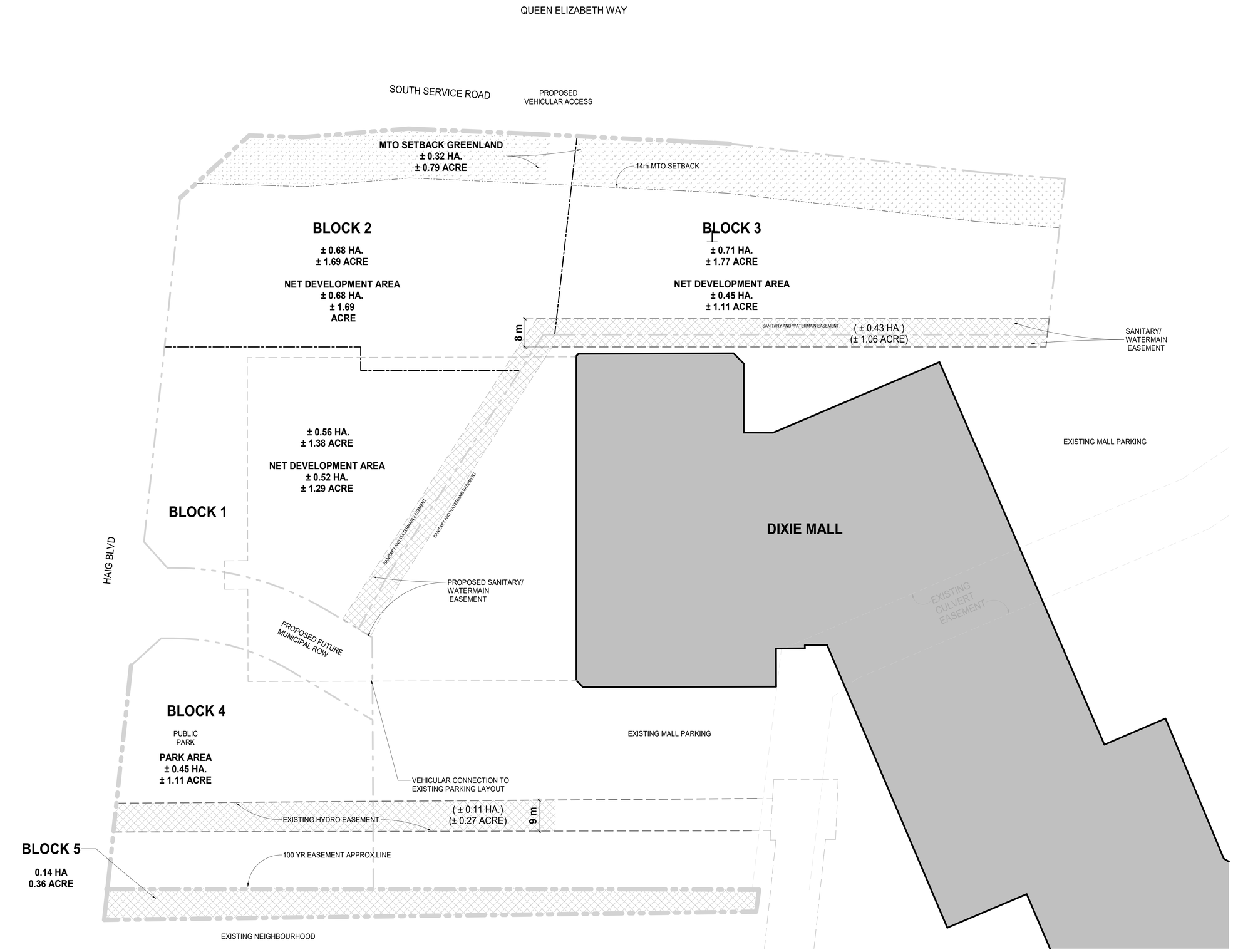

1 / A017 BLOCK PLAN
1 : 500

Revision	Date
5 ISSUE FOR ZBA/OPA RESUBMIT	2024.03.26
3 ISSUED FOR ZBA/OPA	2022.12.16

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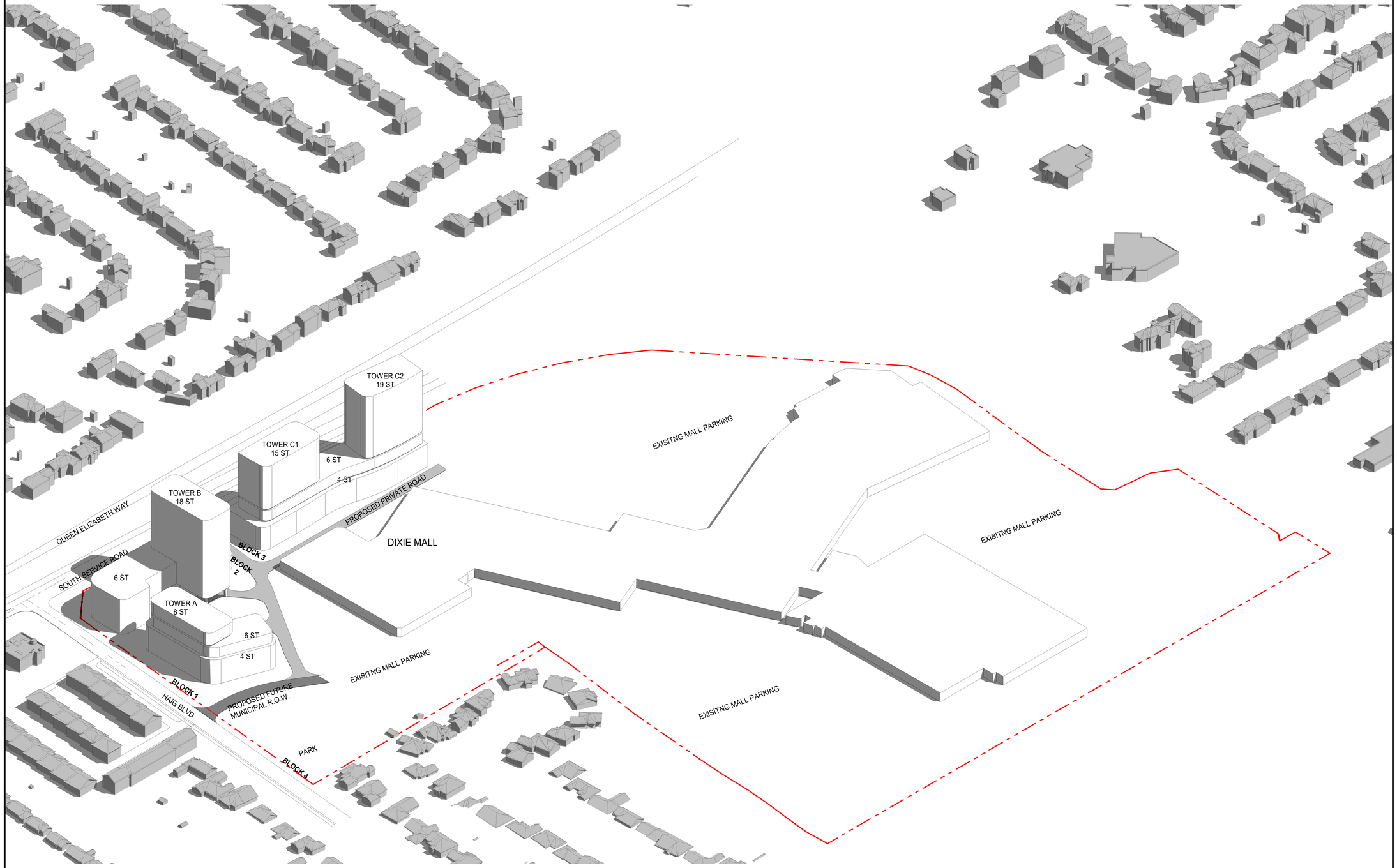
Mississauga, ON L5E 3E5

BLOCK PLAN

DRAWN BY:	MH
CHECKED BY:	AV
PROJECT START DATE:	06/28/22
PROJECT NO.:	22138
SHEET NUMBER	

A017

PLOT DATE: 2024-04-03 5:04:49 PM



Revision	Date
5 ISSUE FOR ZBA/OPA RESUBMIT	2024.03.26

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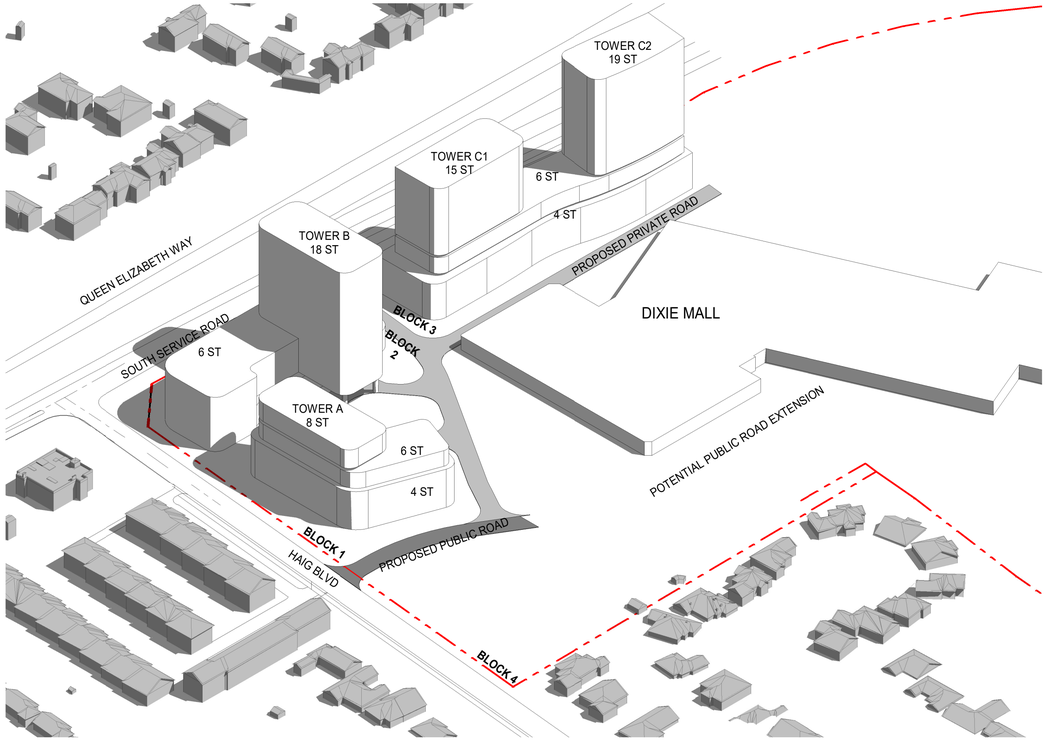
DIXIE MALL
REDEVELOPMENT
1250 South Service Road
Mississauga, ON L5E 3E5

3D SITE MASSING VIEW

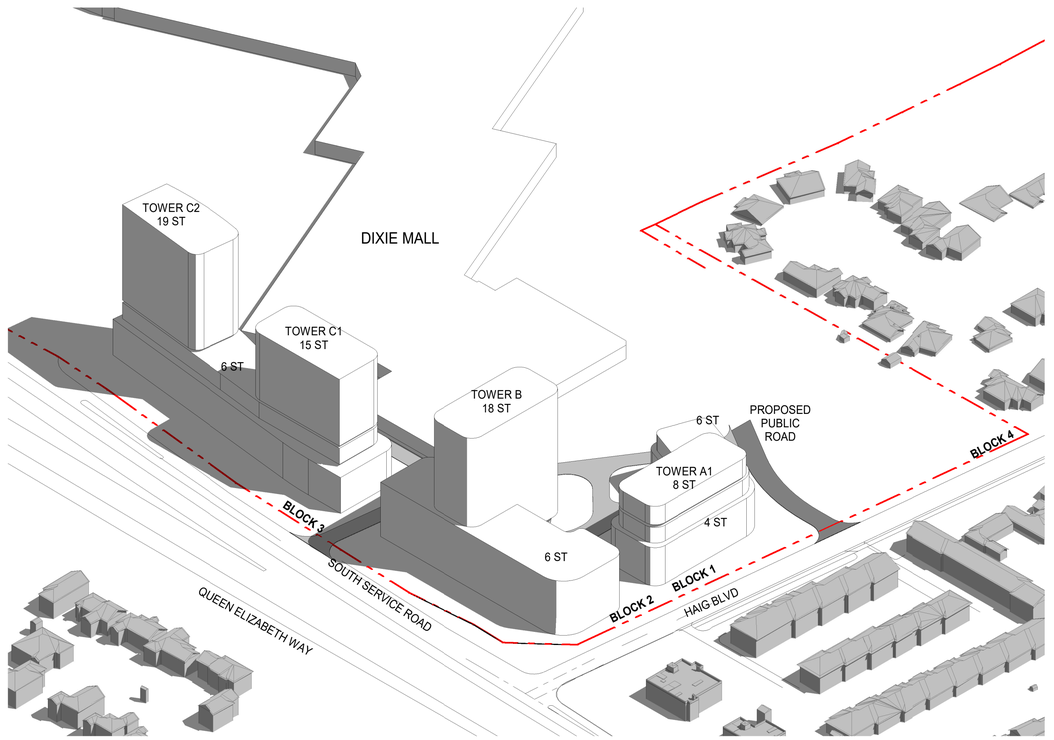
DRAWN BY:	Author
CHECKED BY:	Checker
PROJECT START DATE:	12/04/23
PROJECT NO.:	22138
SHEET NUMBER	

A050

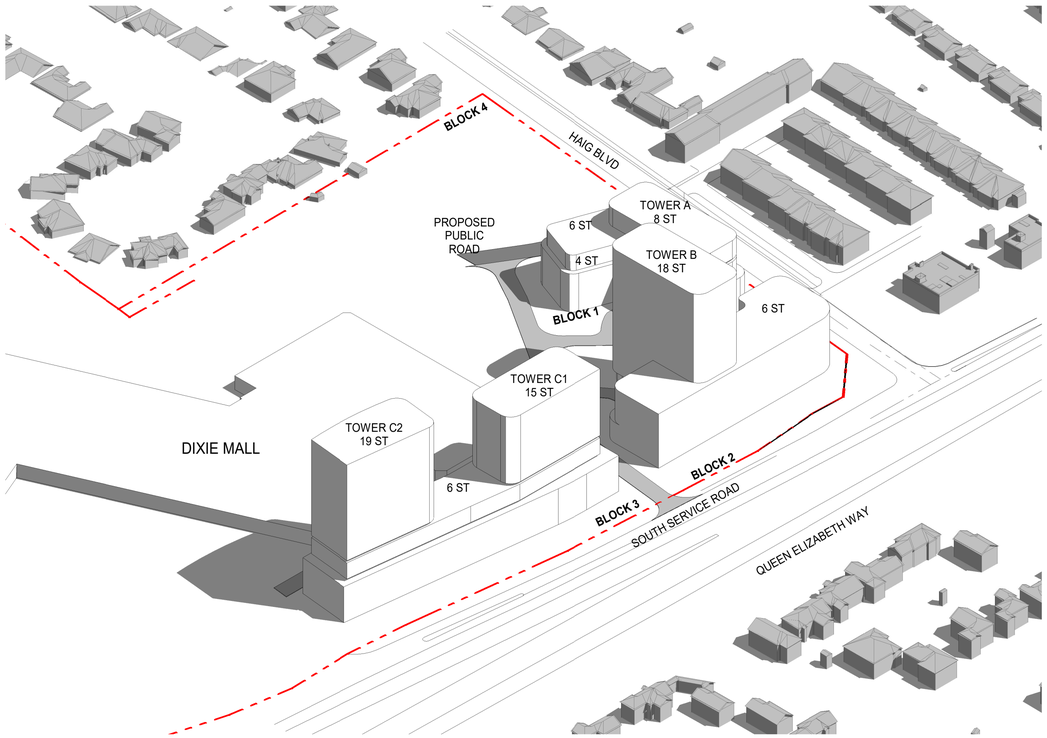
PLOT DATE: 2024-04-03 5:06:49 PM



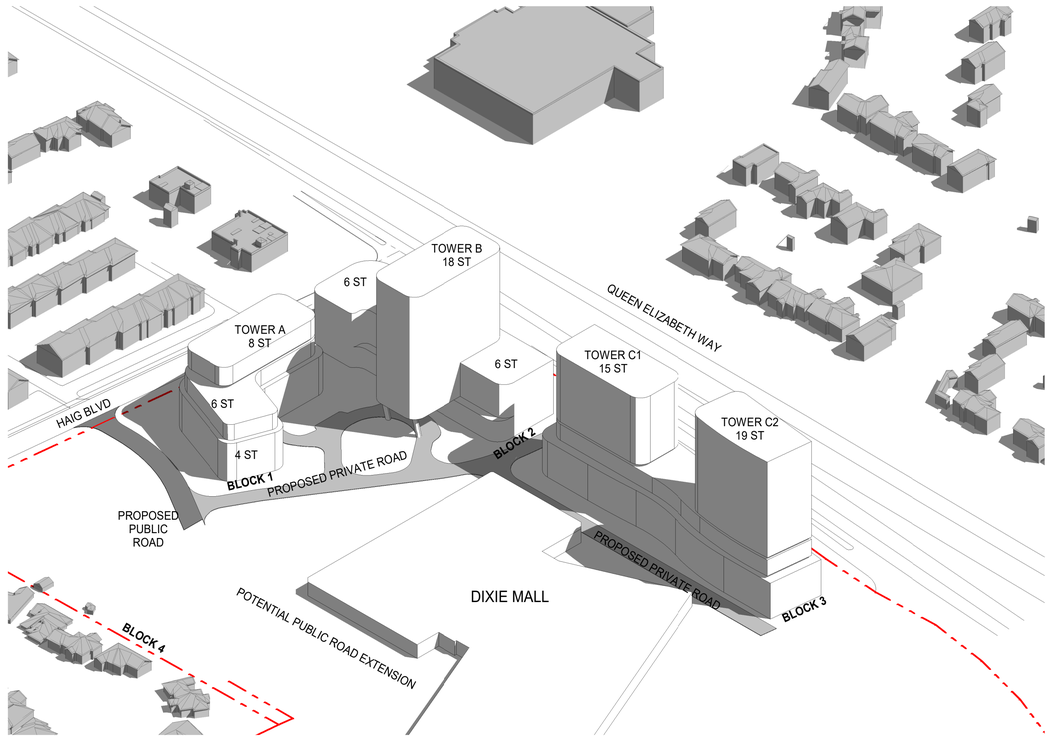
1 A051 PRES_BLOCK SOUTH



2 A051 PRES_BLOCK WEST



3 A051 PRES_BLOCK NORTH



4 A051 PRES_BLOCK EAST

Revision	Date

Revision	Date
5 ISSUE FOR ZBA/OPA RESUBMIT	2024.03.26

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DIXIE MALL REDEVELOPMENT
1250 South Service Road
Mississauga, ON L5E 3E5

3D MASSING VIEWS

DRAWN BY:	Author
CHECKED BY:	Checker
PROJECT START DATE:	12/04/23
PROJECT NO.:	22138
SHEET NUMBER	

A051

PLOT DATE: 2024-04-03 5:08:50 PM

QUEEN ELIZABETH WAY

QUEEN ELIZABETH WAY

(KNOWN AS) SOUTH SERVICE ROAD

QUEEN ELIZABETH WAY
(ROAD ALLOWANCE BETWEEN CONCESSIONS 1 AND 2, SOUTH OF DUNDAS STREET)

SOUTH SERVICE ROAD

EXISTING SIGNALIZED INTERSECTION

PROPOSED VEHICULAR ACCESS

OFF-RAMP

EXISTING ACCESS TO BE RELOCATED

EXISTING RETAIL AUTO REPAIR

EXISTING DRIVEWAY

EXISTING NEIGHBOURHOOD

HAIG BLVD

HAIG BOULEVARD
DEDICATED BY REGISTERED PLAN 305

EXISTING DRIVEWAY

EXISTING NEIGHBOURHOOD

MTO SETBACK

14.0 m

16.5 m

OUTLINE OF TOWER (FLOORS 8-18)

OUTDOOR AMENITY

5.8 m

5.6 m

6 ST
(H=22.6 m)

31.0 m

TOWER B
18 ST
(H=61.2 m)

22.0 m

28.0 m

20.0 m

11.5 m

8.5 m

2 ST

OUTLINE OF 5F - 6F

BLOCK 2

48.0 m

URBAN MEWS

PICK UP/DROP OFF

22.0 m

15.0 m

8.4 m

8.0 m

2.0 m

9.3 m

2.0 m

23.0 m

26.4 m

23.0 m

22.0 m

37.5 m

21.7 m

3.0 m

15.0 m

FIRE ROUTE

TOWER A
8 ST
(H=30.6 m)

46.1 m

OUTLINE OF MIDRISE (FLOORS 7-8)
OUTLINE OF MIDRISE (5F-6F)

OUTDOOR AMENITY

4 ST

6 ST
(H=22.6 m)

7.3 m

6.9 m

BLOCK 1

SIDEWALK
BIOSWALE
ROADWAY
SIDEWALK

PROPOSED FUTURE MUNICIPAL ROW

14m MTO SETBACK

OUTLINE OF TOWER (7F - 15F)

OUTLINE OF 5F - 6F

4.4 m

TOWER C1
15 ST
(H=51.6 m)

43.8 m

6.2 m

22.0 m

2.6 m

4 ST

6 ST
(H=22.6 m)

30.3 m

TOWER C2
19 ST
(H=64.2 m)

41.4 m

OUTLINE OF TOWER (7F - 19F)

3.0 m

5.9 m

BLOCK 3

11.9 m

11.9 m

OUTLINE OF UNDERGROUND LEVEL

SANITARY AND WATERMAIN EASEMENT

PRIVATE STREET 'A'

3.5 m

5.4 m

9.5 m

3.5 m

6.0 m

4.3 m

RECONFIGURE MALL PARKING

SANITARY/ WATERMAIN EASEMENT

EXISTING CURBS AND APRON TO BE RETAINTED

EXISTING CURB TO BE PARTIALLY RETAINTED

EXISTING MALL PARKING

6.9 m

47.5 m

ESTIMATED EXISTING MALL ENTRANCE

FFE=104.11

PROPOSED MALL PARKING

PEDESTRIAN CONNECTION

ESTIMATED NEW RETAIL ACCESS

DIXIE MALL

SANITARY AND WATERMAIN EASEMENT

SANITARY AND WATERMAIN EASEMENT

4.6 m

PROPOSED SANITARY/ WATERMAIN EASEMENT

EXISTING CULVERT EASEMENT

PART 28, PLAN 43R-20591
PART 26, PLAN 43R-20591

PART 27, PLAN 43R-20591

EXISTING MALL VEHICULAR DRIVE AISLE

EXISTING MALL PARKING

EXISTING MALL VEHICULAR DRIVE AISLE

EXISTING MALL VEHICULAR DRIVE AISLE

EXISTING MALL PARKING

EXISTING MALL PARKING

EXISTING MALL PARKING

PART 15, PLAN 43R-20591

PART 18, PLAN 43R-20591

PART 10, PLAN 43R-20591

PART 9, PLAN 43R-20591

PART 11, PLAN 43R-20591

PLANTER

BLOCK 4
COMMUNITY PARK (0.45 ha)

EXISTING HYDRO EASEMENT

100 YR EASEMENT APPROX. LINE

VEHICULAR CONNECTION TO EXISTING PARKING LAYOUT

BLOCK 5

EXISTING NEIGHBOURHOOD

184.91

21.40

1 A100 SITE PLAN
1 : 500

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Revision	Date
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SITE PLAN

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PROJECT START DATE:	06/28/22
PROJECT NO.:	22138
SHEET NUMBER	

A100

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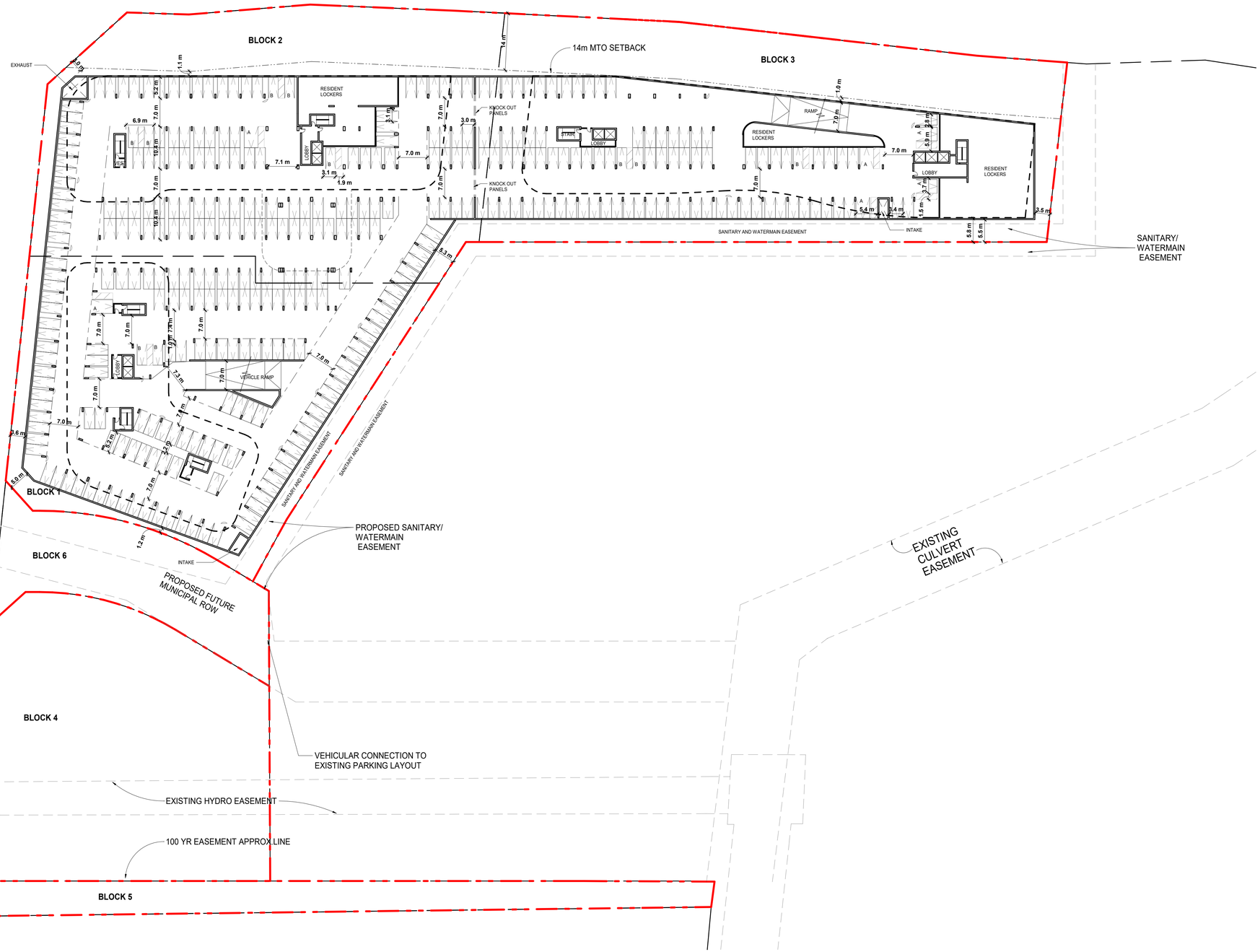

1 / A102 P2 & P3 PLAN
1 : 500

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P2 & P3 PLAN

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PROJECT START DATE:	06/28/22
PROJECT NO.:	22138
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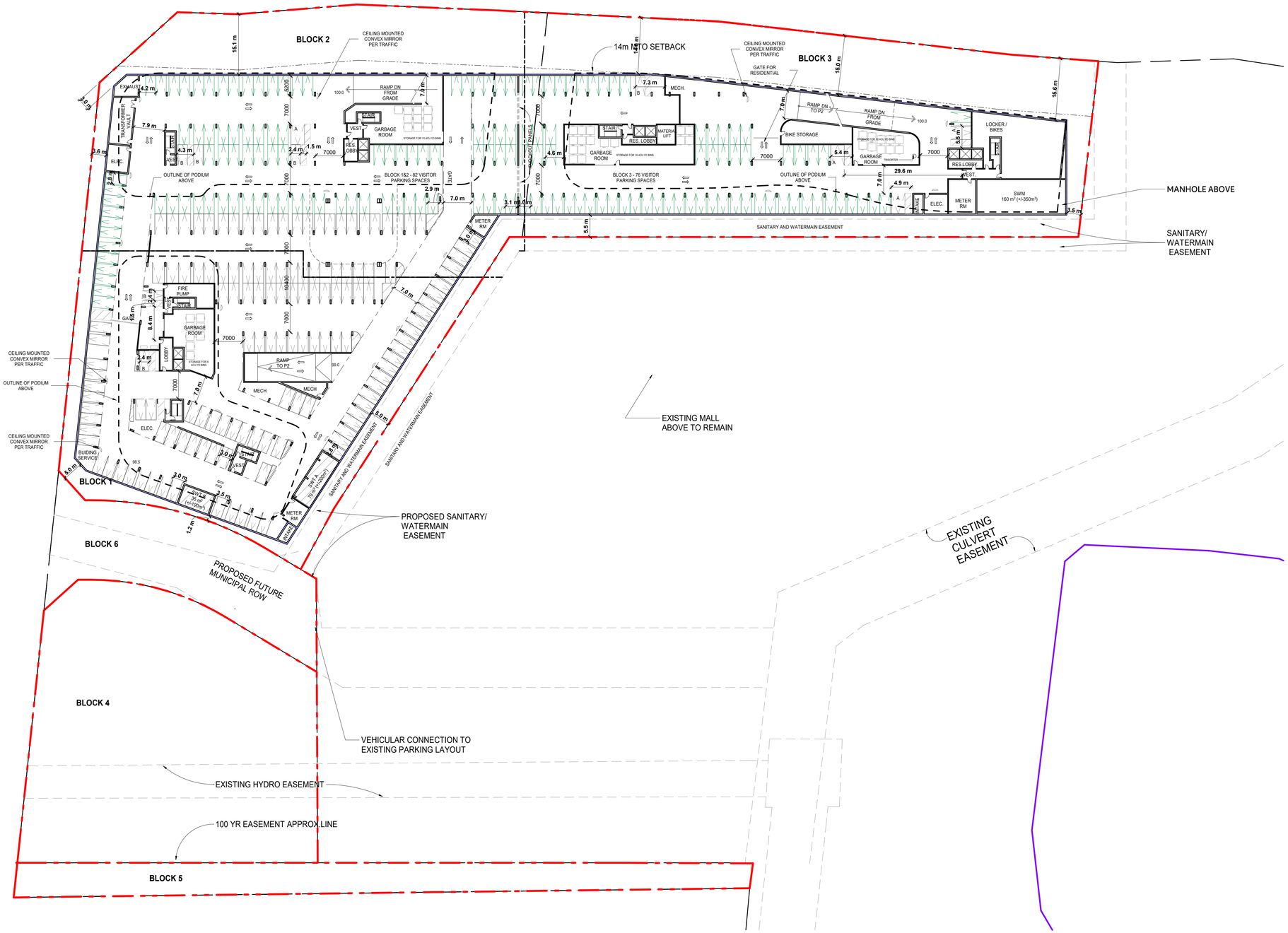

1 / A103 P1

1 : 500

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P1 PLAN

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PROJECT START DATE:	06/28/22
PROJECT NO.:	22138
SHEET NUMBER	A103

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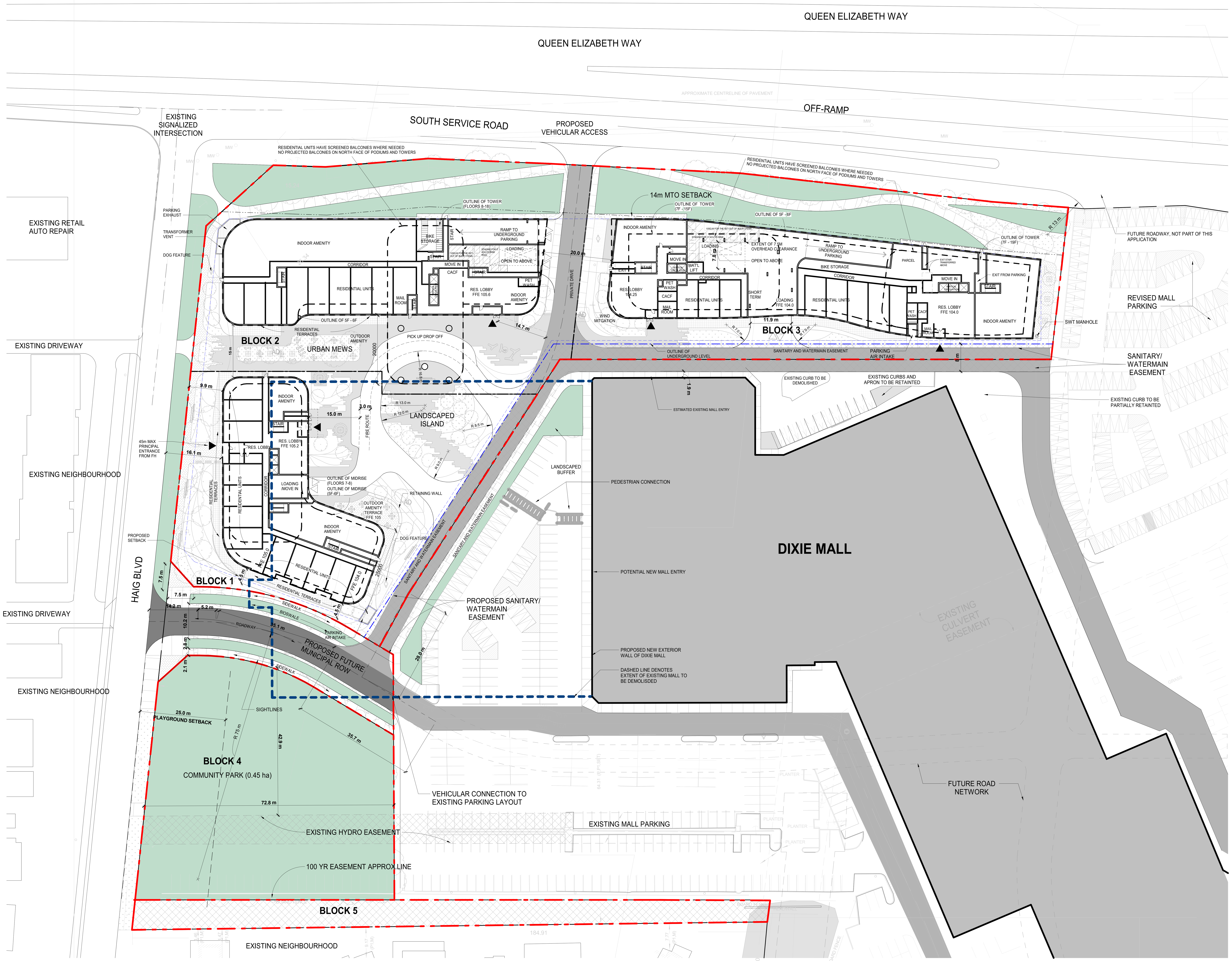

1 GROUND FLOOR PLAN
A201
1 : 500

Revision		Date
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GROUND FLOOR PLAN

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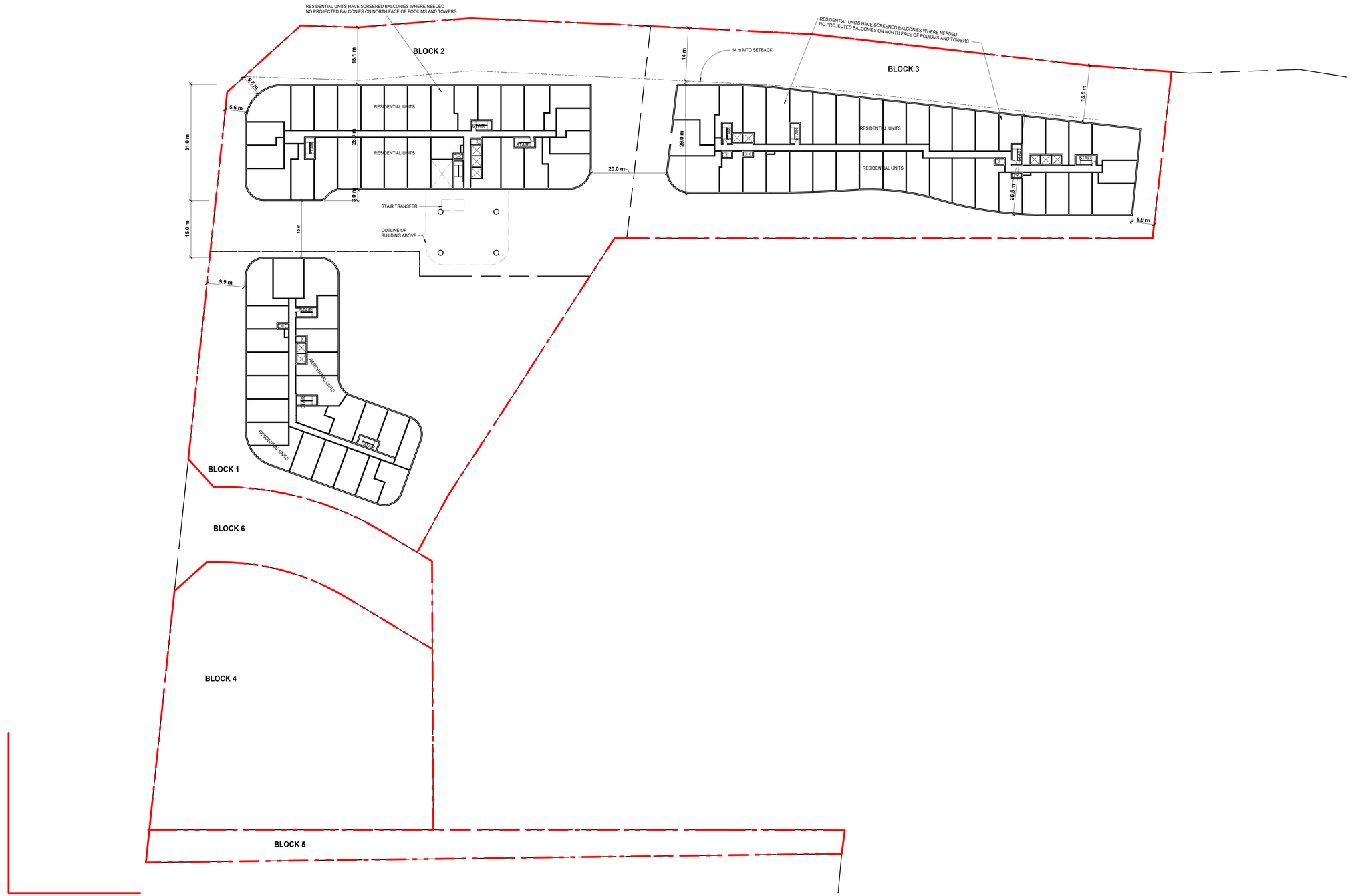

1 / A203 TYPICAL PODIUM FLOOR PLAN
1 : 500

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TYPICAL LOWER PODIUM FLOOR PLAN

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PROJECT NO.:	22138
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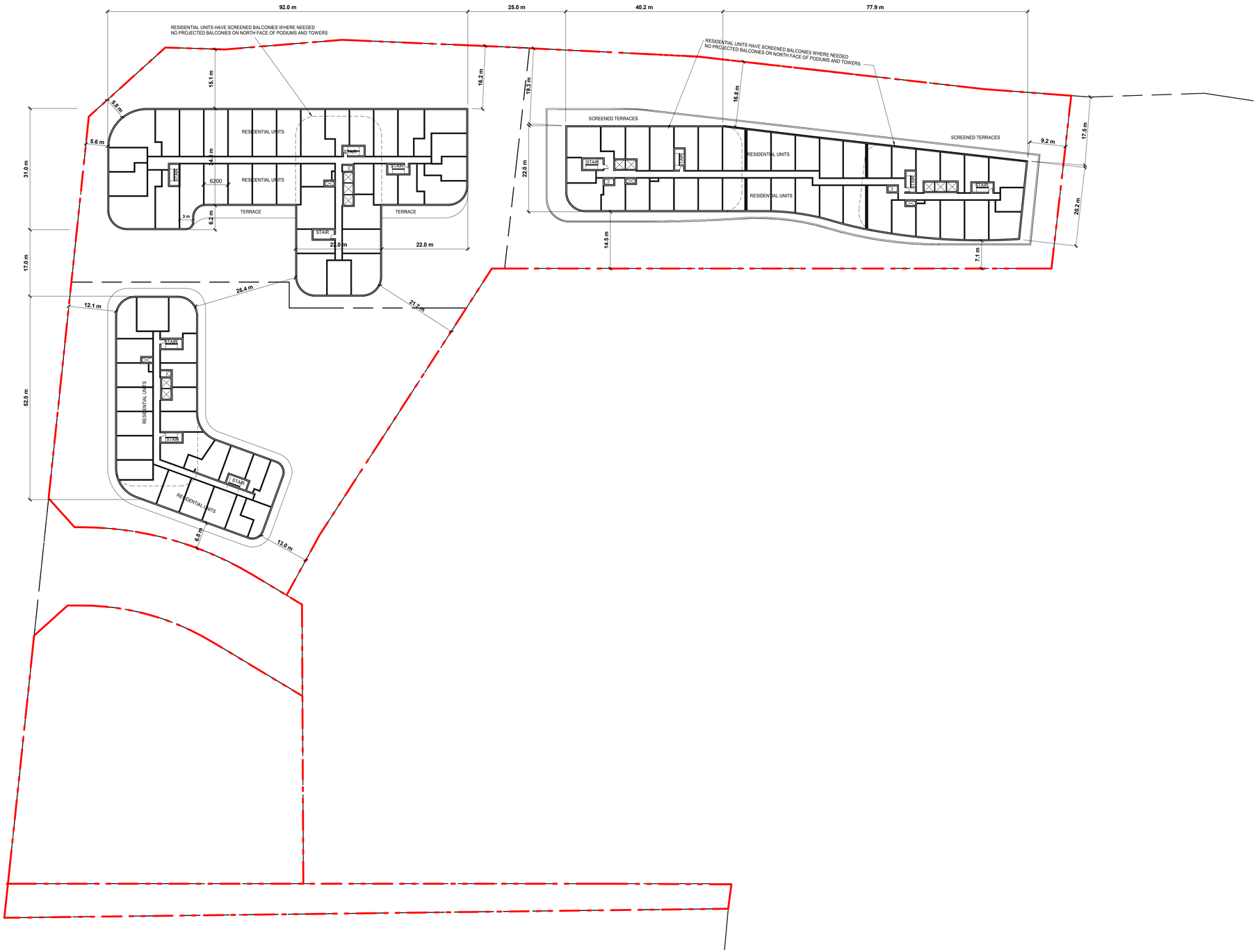

1 / A205 Level 5_Revision

1 : 500

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TYPICAL UPPER PODIUM FLOOR PLAN

DRAWN BY:	Author
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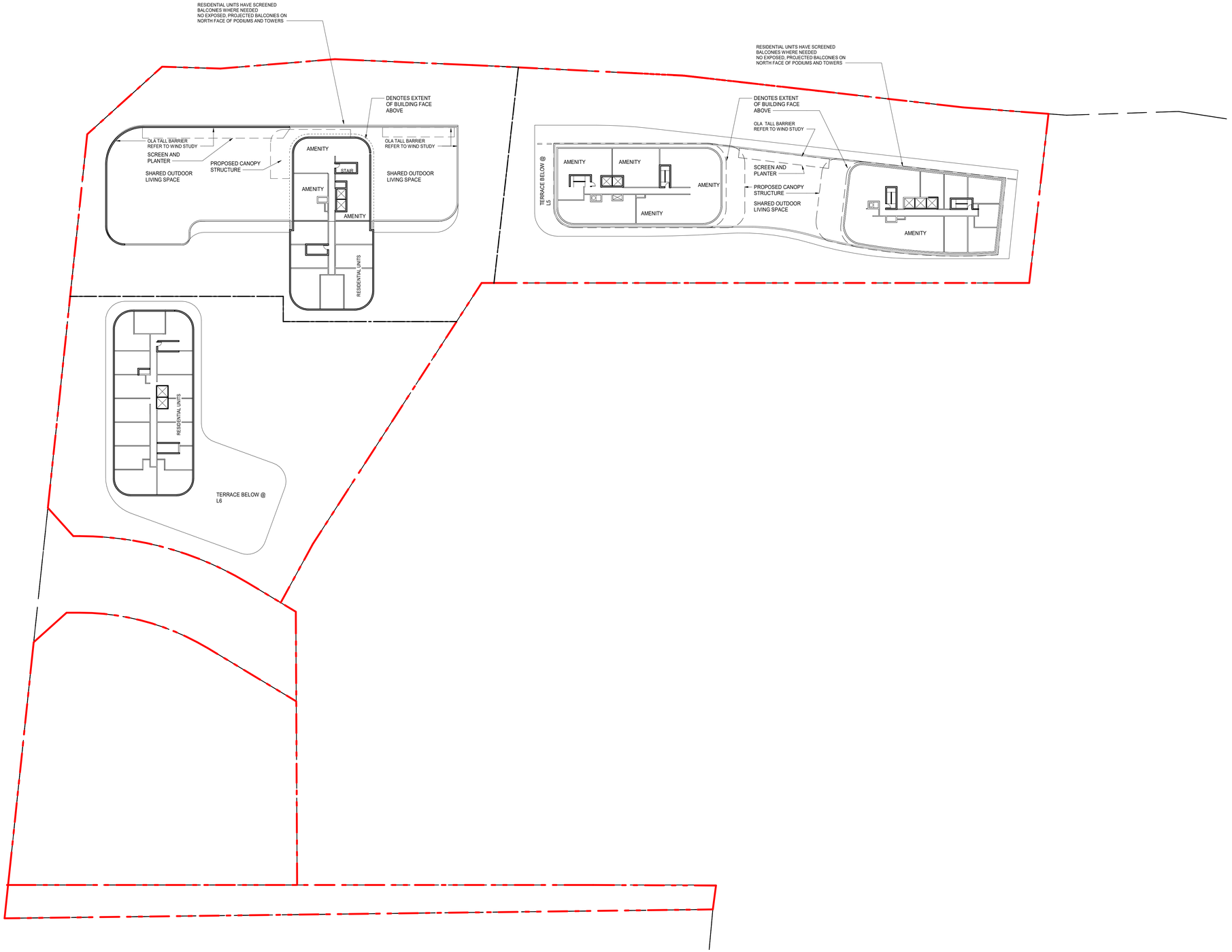
PROJECT START DATE:	11/30/23
PROJECT NO.:	22138
SHEET NUMBER	

A205

PLOT DATE: 2024-04-03 5:09:05 PM



1 A207 Level 7
1 : 500

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7th FLOOR PLAN AMENITY

DRAWN BY:	Author
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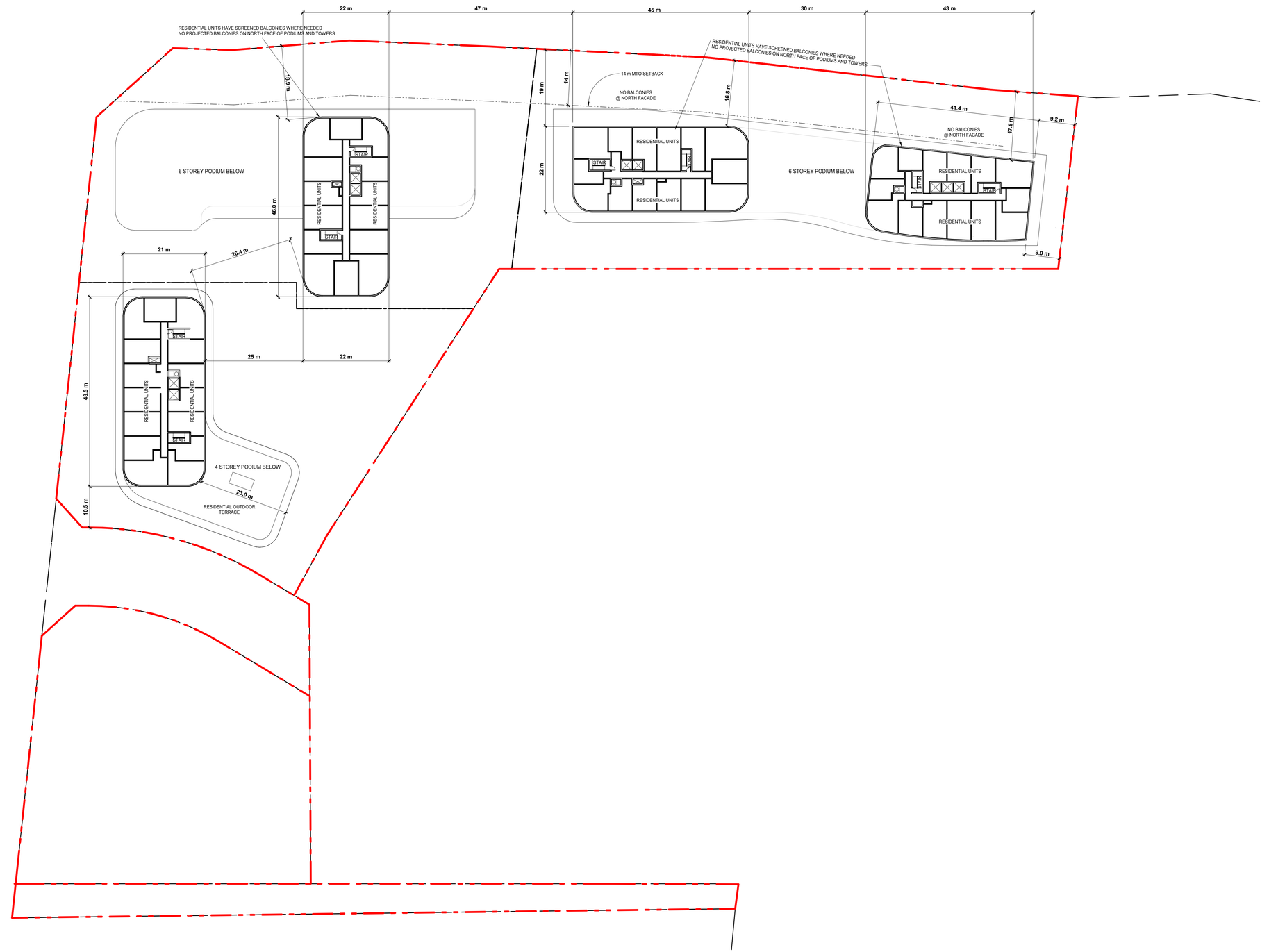
PROJECT START DATE:	02/13/24
PROJECT NO.:	22138
SHEET NUMBER	A207

PLOT DATE: 2024-04-03 5:09:06 PM



1 / A208 TYPICAL TOWER PLAN
1 : 500

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TYPICAL TOWER FLOOR PLAN

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PROJECT NO.:	2213B
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A208

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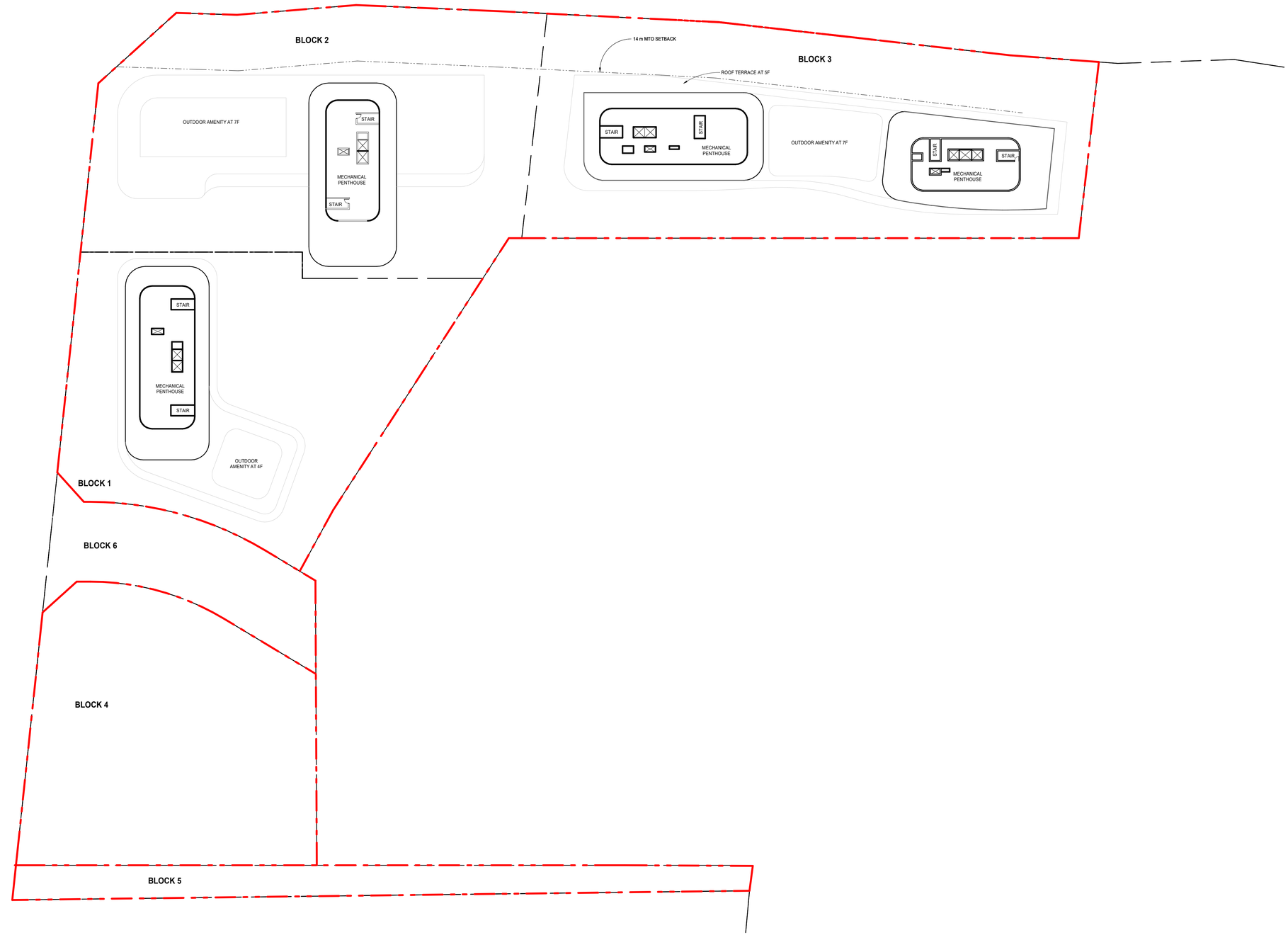

1 / A219 MECHANICAL PENTHOUSE PLAN
1 : 500

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MECHANICAL PENTHOUSE PLAN

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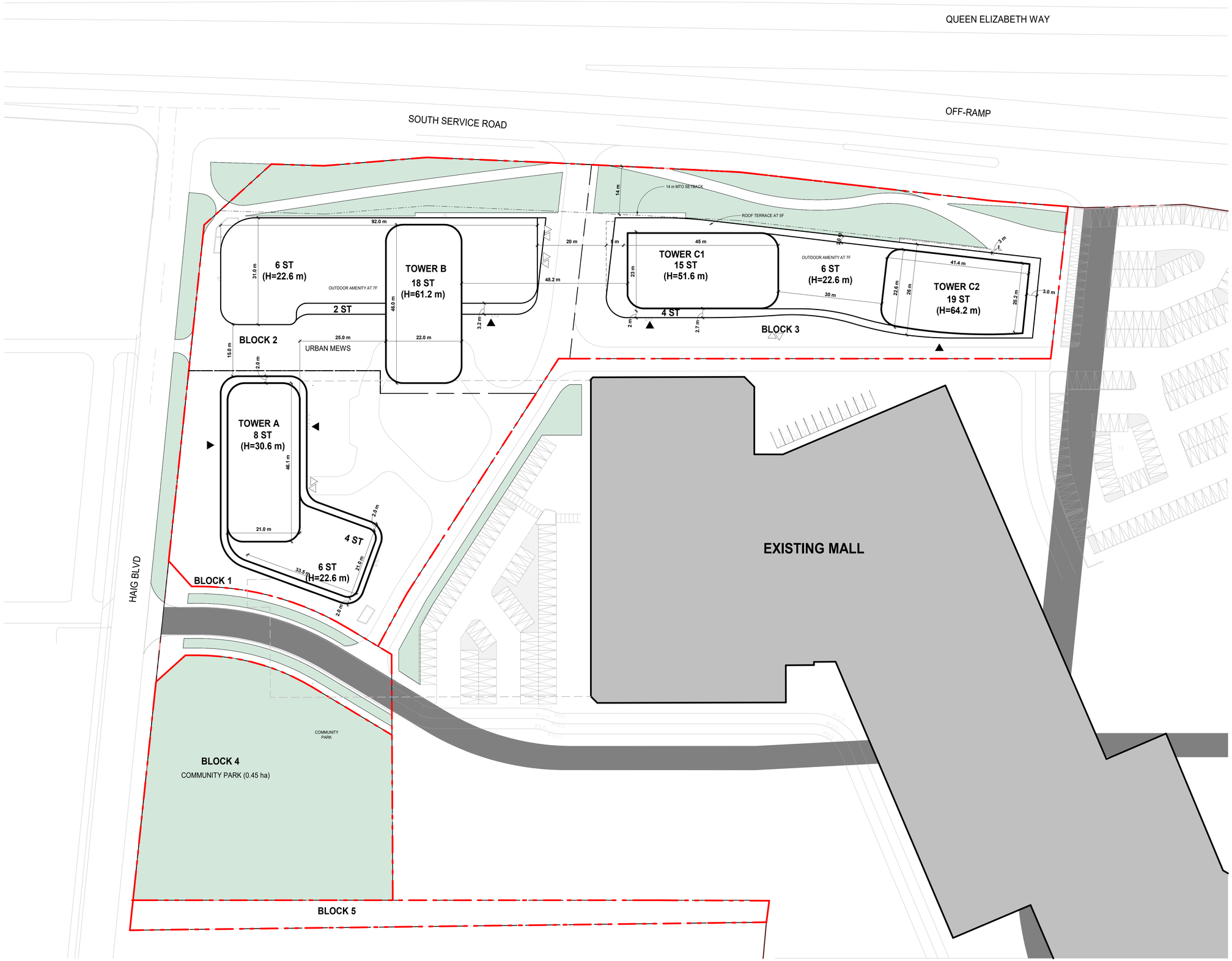
A219



1 / A220 ROOF PLAN
1 : 500

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ROOF PLAN & TOWER SEPARATIONS

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A220

PLOT DATE: 2024-04-03 5:09:12 PM

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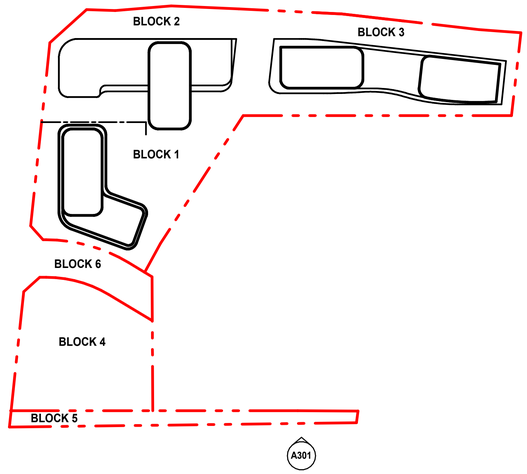

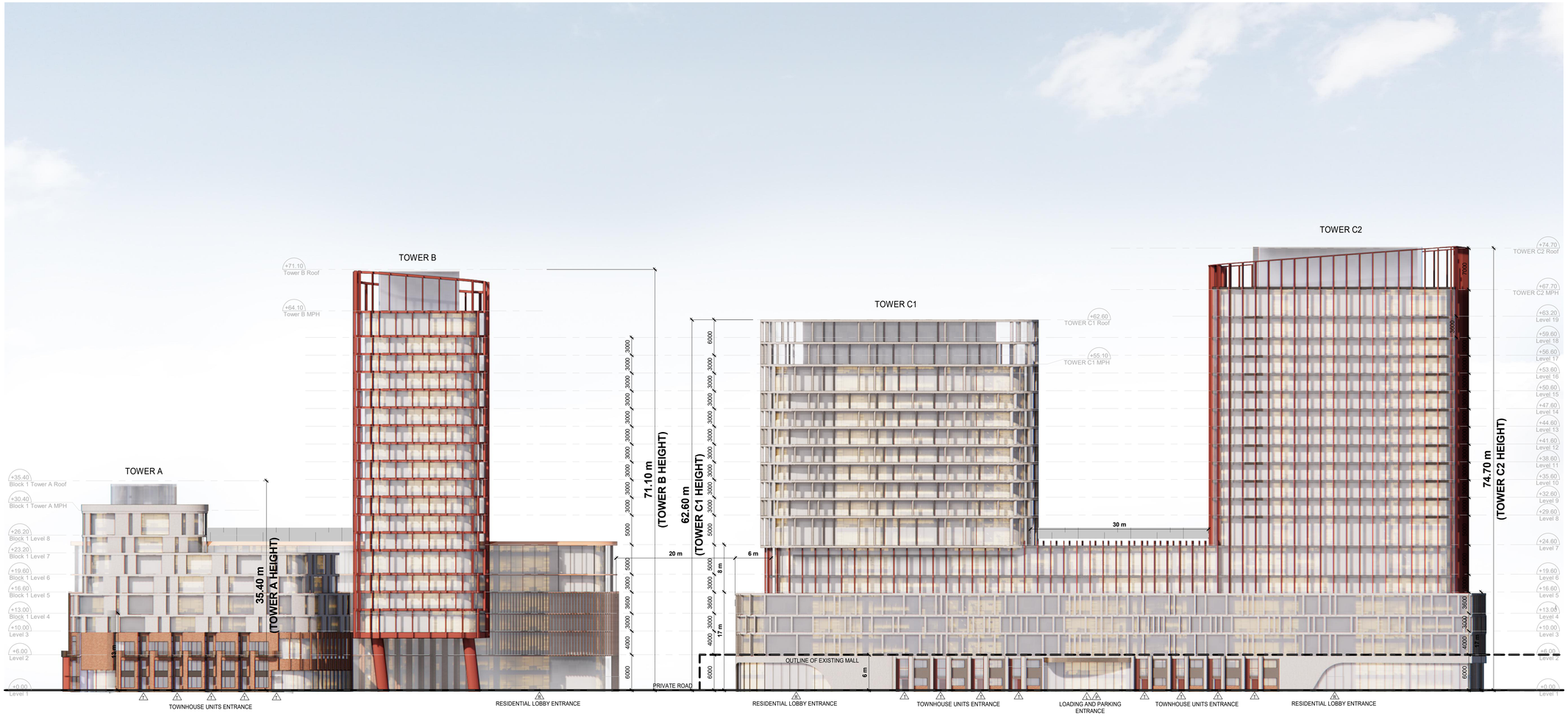

1 / A301 SOUTH ELEVATION
1 : 350

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SOUTH ELEVATION

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PROJECT START DATE:	06/28/22
PROJECT NO.:	22138
SHEET NUMBER	A301

PLOT DATE: 2024-04-03 5:09:16 PM

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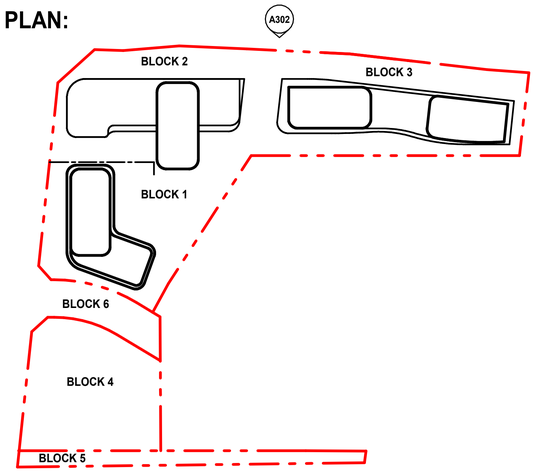

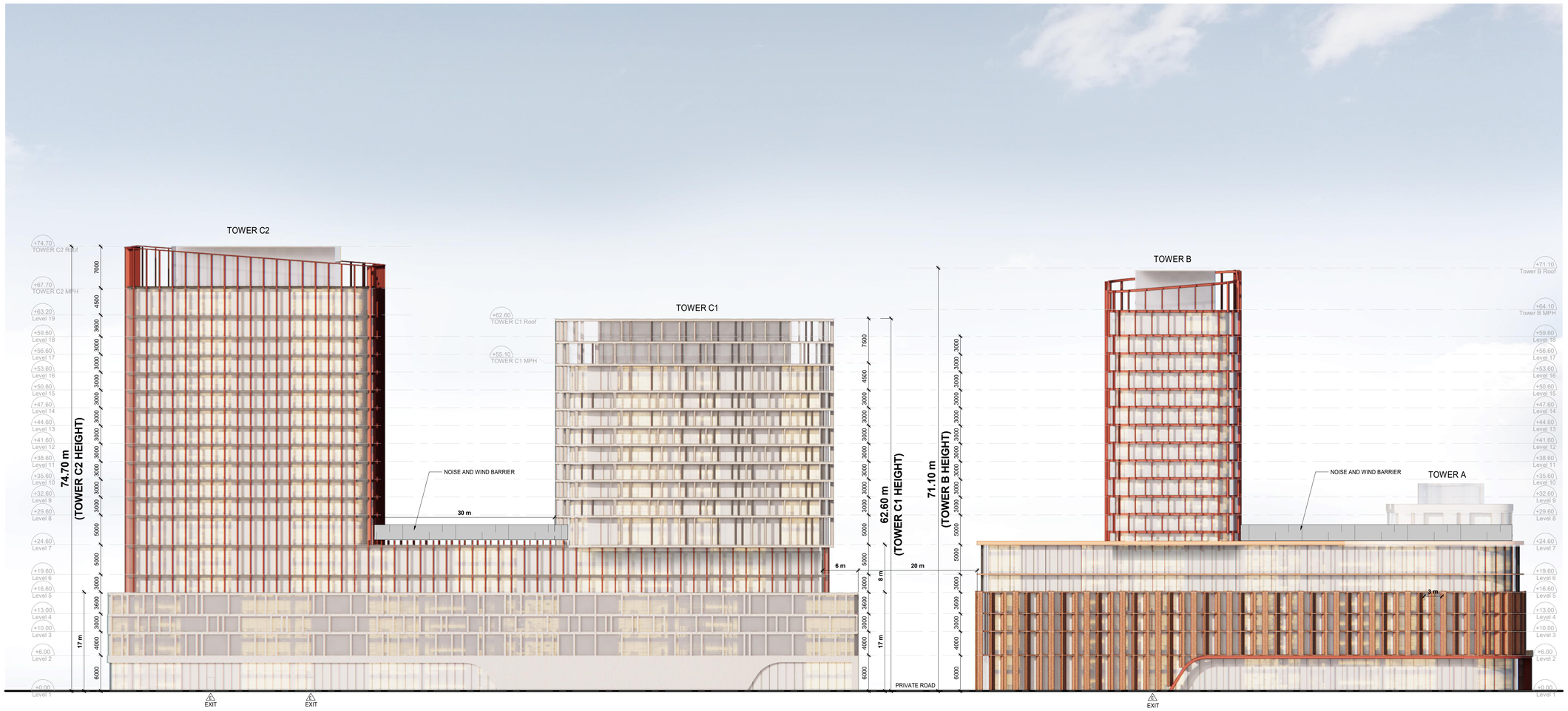

1 / A302 NORTH ELEVATION
1 : 350

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NORTH ELEVATION

DRAWN BY:	MH
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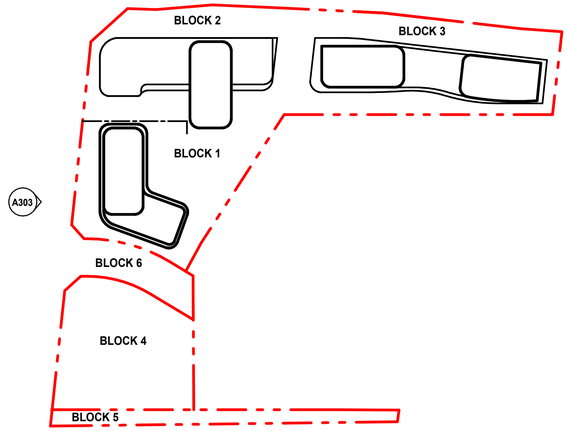
PROJECT START DATE:	06/28/22
PROJECT NO.:	22138
SHEET NUMBER	A302

KEY PLAN:



1 / A303 WEST ELEVATION
1 : 350

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WEST ELEVATION

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PROJECT NO.:	22138
SHEET NUMBER	A303

PLOT DATE: 2024-04-03 5:09:22 PM

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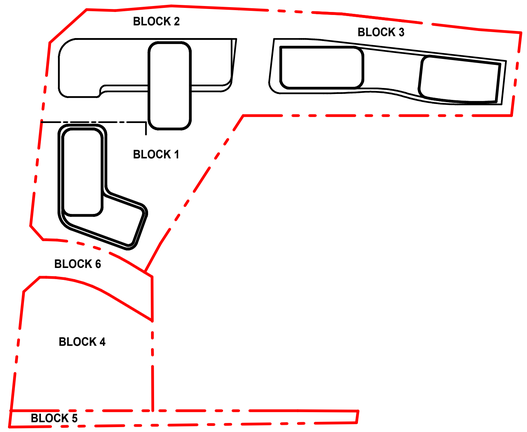

A304

1 / A304 EAST ELEVATION
1 : 350

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EAST ELEVATION

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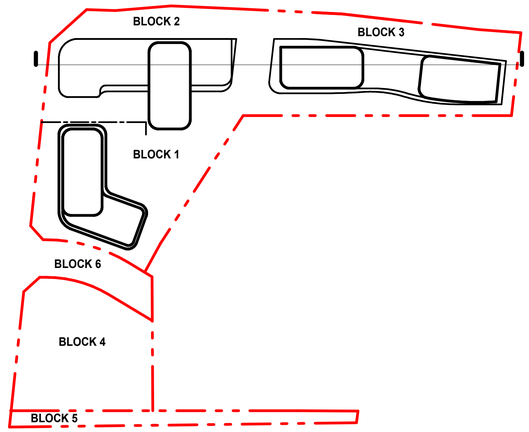

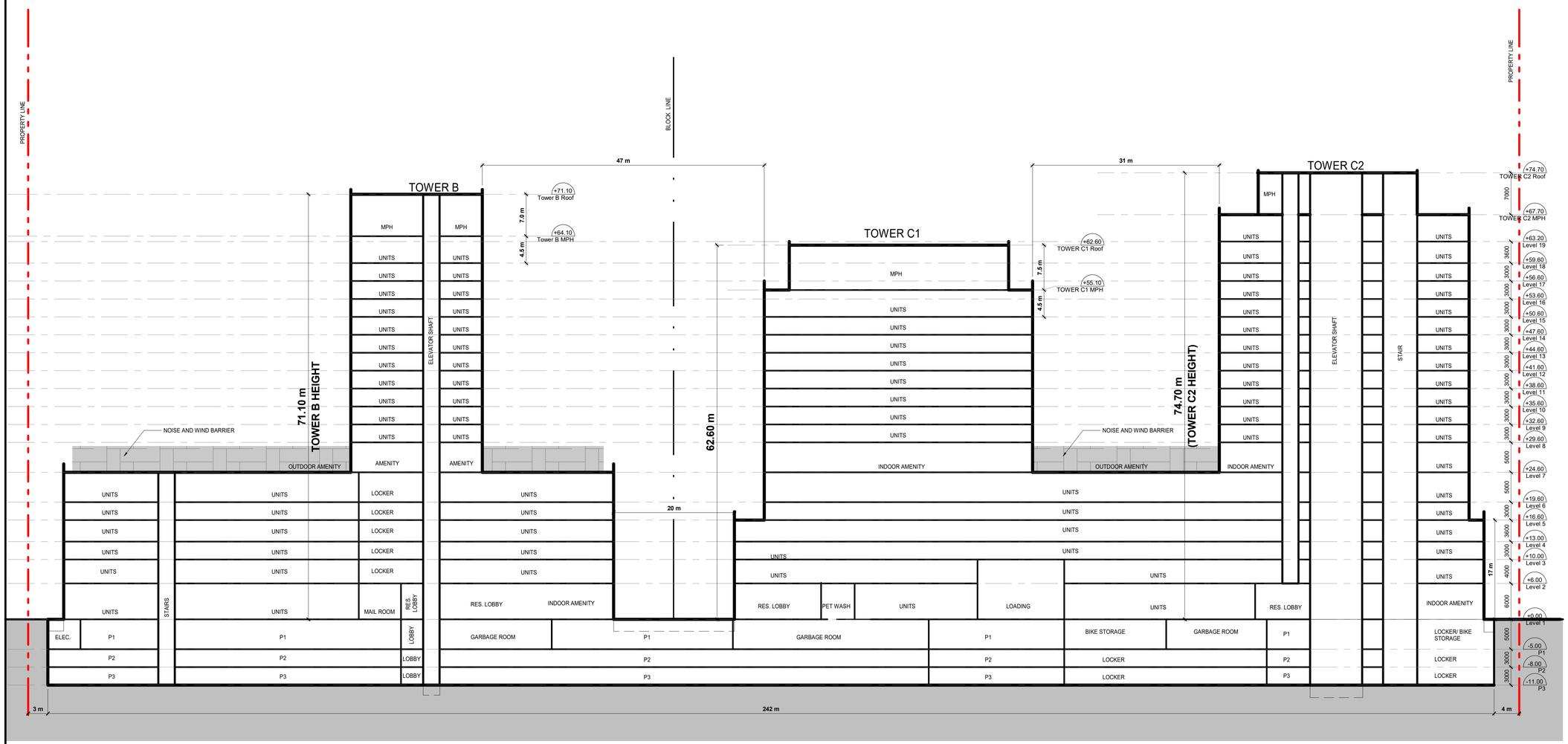

1 / A401 East-west Section

1 : 350

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EAST-WEST SCHEMATIC SECTION

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PROJECT NO.:	22138
SHEET NUMBER	A401

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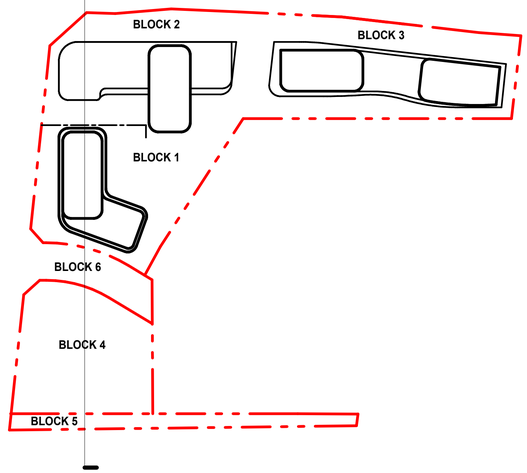

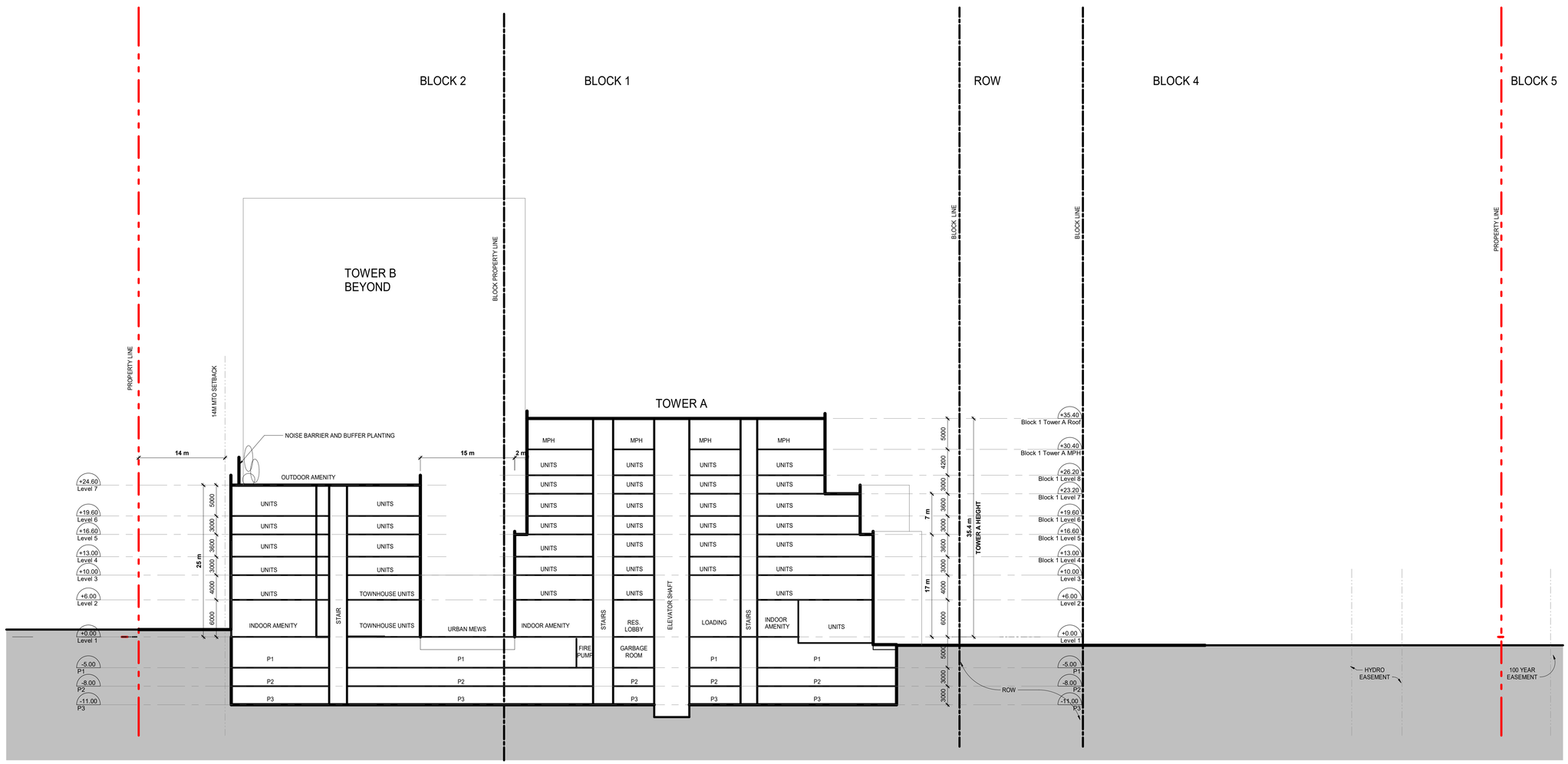

1 / A402 North-south Section

1 : 350

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NORTH-SOUTH SCHEMATIC SECTOIN

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PROJECT START DATE:	06/28/22
PROJECT NO.:	22138
SHEET NUMBER	A402

PLOT DATE: 2024-04-03 5:09:27 PM

APPENDIX B

CRITERIA

Transportation Sources

Guidance from the Ontario Ministry of the Environment, Conservation and Parks (MECP) NPC-300 Environmental Noise Guideline was used to assess environmental noise generated by transportation-related sources. There are three aspects to consider, which include the following:

i. Transportation source sound levels in indoor living areas (living rooms and sleeping quarters), which determines building façade elements (windows, exterior walls, doors) sound insulation design recommendations.
ii. Transportation source sound levels at the plane of the window, which determines air-conditioning and ventilation system recommendations and associated warning clauses which inform the future occupants that windows and doors must be closed in order to meet the indoor sound level criteria.
iii. Transportation source sound levels in Outdoor Living Areas (OLAs), which determines OLA noise mitigation and related warning clause recommendations.

Road and Rail

Indoor Sound Level Criteria

For assessing sound originating from transportation sources, NPC-300 defines sound level criteria as summarized in **Table 1** for indoor areas of sensitive uses. The specified values are maximum sound levels and apply to the indicated indoor spaces with the windows and doors closed.

Table 1: Indoor Sound Level Criteria for Road and Rail Sources

Type of Space	Source	Sound Level Criteria (Indoors)	
		Daytime $L_{eq,16\text{-}hr}$ 07:00h – 23:00h	Nighttime $L_{eq,8\text{-}hr}$ 23:00h – 07:00h
Living Quarters Examples: Living, dining and den areas of residences, hospitals, nursing homes, schools and daycare centres	**Road**	45 dBA	
	Rail	40 dBA	
Sleeping Quarters	**Road**	45 dBA	40 dBA
	Rail	40 dBA	35 dBA

NPC-300 also provides guidelines for acceptable indoor sound levels that are extended to land uses and developments which are not normally considered noise sensitive. The guideline sound level criteria presented in **Table 2** are provided to inform good-practice design objectives.

Table 2: Supplementary Indoor Sound Level Criteria for Road and Rail Sources

Type of Space	Source	Sound Level Criteria (Indoors)	
		Daytime $L_{eq,16\text{-}hr}$ 07:00h – 23:00h	Nighttime $L_{eq,8\text{-}hr}$ 23:00h – 07:00h
General offices, reception areas, retail stores, etc.	**Road**	50 dBA	-
	Rail	45 dBA	-
Theatres, places of worship, libraries, individual or semi-private offices, conference rooms, reading rooms, etc.	**Road**	45 dBA	-
	Rail	40 dBA	-
Sleeping quarters of residences, hospitals, nursing/retirement homes, etc.	**Road**	-	40 dBA
	Rail	-	35 dBA
Sleeping quarters of hotels/motels	**Road**	-	45 dBA
	Rail	-	40 dBA

Outdoor Living Areas (OLAs)

Outdoor Living Areas (OLAs) would include outdoor areas intended and designed for the quiet enjoyment of the outdoor environment and which are readily accessible from the building.

OLAs may include any common outdoor amenity spaces associated with a multi-unit residential development (e.g. courtyards, roof-top terraces), and/or private backyards and terraces with a minimum depth of 4m provided they are the only outdoor living area for the occupant. The sound level criteria for outdoor living areas is summarized in **Table 3**.

Table 3: Sound Level Criteria – Outdoor Living Area

Assessment Location	Sound Level Criteria (Outdoors)	
	Daytime $L_{eq,16\text{-}hr}$ 07:00h – 23:00h	Nighttime $L_{eq,8\text{-}hr}$ 23:00h – 07:00h
Outdoor Living Area (OLA) (Combined Road and Rail)	55 dBA	-

Outdoor and Plane of Window Sound Levels

In addition to the sound level criteria, noise control measures and requirements for ventilation and warning clauses requirements are recommended for residential land-uses based on predicted transportation source sound levels incident in the plane of window at bedrooms and living/dining rooms, and/or at outdoor living areas. These recommendations are summarized in **Table 4** below.

Table 4: Ventilation, Building Component, and Warning Clauses Recommendations for Road/Rail Sources

Assessment Location	Transportation Sound Level (Outdoors)		Recommendations
	Daytime $L_{eq,16\text{-}hr}$ 07:00h – 23:00h	Nighttime $L_{eq,8\text{-}hr}$ 23:00h – 07:00h	
Plane of Window (Road)	> 65 dBA	> 60 dBA	Installation of air conditioning to allow windows to remained closed. The sound insulation performance of building components must be specified and designed to meet the indoor sound level criteria. Warning clause "Type D" is recommended.
	> 55 dBA	> 50 dBA	Applicable for low and medium density development: Forced-air ventilation system to allow for the future installation of air-conditioning. Warning clause "Type C" is recommended. Applicable for high density development: Air conditioning to allow windows to remained closed. Warning clause "Type D" is recommended.
Plane of Window (Rail [1, 2])	> 60 dBA	> 55 dBA	The acoustical performance of building façade components should be specified such that the indoor sound level limits are predicted to be achieved. Warning clause "Type D" is recommended.
	> 60 dBA ($L_{eq,\ 24hr}$) and < 100m from tracks		Exterior walls consisting of a brick veneer or masonry equivalent for the first row of dwellings. Warning clause "Type D" is recommended.
Outdoor Living Area (Combined Road and Rail [3])	≤ 60 dBA > 55 dBA	-	If sound levels are predicted to exceed 55 dBA, but are less than 60 dBA, noise controls may be applied to reduce the sound level to 55 dBA. If noise control measures are not provided, a warning clause "Type A" is recommended.
	> 60 dBA	-	Noise controls (barriers) should be implemented to meet the 55 dBA criterion. If mitigation is not feasible to meet the 55 dBA criterion for technical, economic or administrative reasons, an exceedance of 5 dB may be acceptable (to a maximum sound level of 60 dBA). In this case a warning clause "Type B" would be recommended.

Note(s):

1. Whistle noise is included (if applicable) in the determination of the sound level at the plane of window.
2. Some railway companies (e.g. CN, CP) may require that the exterior walls include a brick veneer or masonry equivalent for the façade facing the railway line, regardless of the sound level.
3. Whistle noise is not included in the determination of the sound level at the OLA.

Rail Layover Sites

NPC-300 provides a sound level limit for rail layover sites to be the higher of the background sound level or 55 dBA $L_{eq,1\text{-}hr,}$ for any one-hour period.

Rail Vibration Criteria

An assessment of rail vibration is generally recommended for developments within 75m of a rail corridor or rail yard, and adjacent to or within a setback of 15m of a transit (subway or light-rail) rail line.

The generally accepted vibration criterion for sensitive land-uses is the threshold of perception for human exposure to vibration, being a vibration velocity level of 0.14 mm/s RMS in any one-third octave band centre frequency in the range of 4 Hz to 200 Hz.

This vibration criterion is based on a one-second exponential time-averaged maximum hold root-mean-square (RMS) vibration velocity level and is consistent with the Railway Associations of Canada (RAC, 2013) guideline, the U.S. Federal Transit Authority (FTA, 2018) criterion for residential land-uses, the Toronto Transit Commission (TTC) guidelines for the assessment of potential vibration impact of future expansion (MOEE/TTC, 1993).

Aircraft

Land-use compatibility in the vicinity of airports is addressed in Ministry of the Environment, Conservation, and Parks (MECP) Guideline NPC-300 (MOE, 2013). The guideline provides recommendations for ventilation, and noise control for different Noise Exposure Forecast (NEF) values, which would be based on NEF contour maps available from the airport authority. The NEF values can be expressed as $L_{A,eq,24hr}$ sound levels by using the expression NEF = $L_{Aeq,24hr}$ -32 dBA.

Table 5: Indoor Sound Level Criteria for Aircraft Sources

Assessment Location	Indoor Sound Level Criteria NEF ($L_{eq,\ 24hr}$) [1]
Living/dining/den areas of residences, hospitals, schools, nursing/retirement homes, daycare centres, etc.	NEF- 5 (37 dBA)
Sleeping quarters	NEF-0 (32 dBA)

NPC-300 also provides guidelines for acceptable indoor sound levels that are extended to land uses and developments which are not normally considered noise sensitive. The guideline sound level criteria presented in **Table 6** are provided to inform good-practice design objectives.

Table 6: Supplementary Indoor Sound Level Criteria for Aircraft Sources

Assessment Location	Indoor Sound Level Criteria[1]
General offices, reception areas, retail stores, etc.	NEF-15 (47 dBA)
Individual or semi-private offices, conference rooms, etc.	NEF-10 (42 dBA)
Sleeping quarters of hotels/motels, theatres, libraries, places of worship, etc.	NEF-5 (37 dBA)

Table 7: NPC-300 Sound Level Criteria for Aircraft (Outdoors)

Assessment Location	Outdoor Sound Level Criteria[1]
Outdoor areas, including OLA	NEF-30 (62 dBA)

Table 8: Ventilation, Building Component, and Warning Clauses Recommendations for Aircraft Sources

Assessment Location	Aircraft Sound Level	NPC-300 Requirements
	NEF ($L_{EQ,24\text{-}hr}$)	
Outdoors	≥NEF 30	Air conditioning to allow windows to remained closed. The sound insulation performance of building components must be specified and designed to meet the indoor sound level criteria. Warning clauses "Type D" and "Type B" are recommended.
	< NEF 30 ≥ NEF 25	The sound insulation performance of building components must be specified and designed to meet the indoor sound level criteria. Applicable for low and medium density development: Forced-air ventilation system to allow for the future installation of air-conditioning. Warning clause "Type C" is recommended. Applicable for high density development: Air conditioning to allow windows to remained closed. Warning clause "Type D" is recommended.
	< NEF 25	Further assessment not required

Stationary Sources

NPC-300 Sound Level Criteria – Stationary Sources

Guidance from the MECP NPC-300 Environmental Noise Guideline is used to assess environmental noise generated by stationary sources, for example industrial and commercial facilities.

Noise from stationary sources is treated differently from transportation sources and requires sound levels be assessed for the predictable worst-case one-hour average sound level (L_{eq}) for each period of the day. For assessing sound originating from stationary sources, NPC-300 defines sound level criteria for two types of Points of Reception (PORs): outdoor and plane of window.

The assessment criteria for all PORs is the higher of either the exclusion limit per NPC-300 or the minimum background sound level that occurs or is likely to occur at a POR. The applicable exclusion limit is determined based on the level of urbanization or "Class" of the area. The NPC-300 exclusion limits for continuously operating stationary sources are summarized in **Table 9**.

Table 9: NPC-300 Exclusion Limits – Continuous and Quasi-Steady Impulsive Stationary Sources (LAeq-1hr)

Time Period	Class 1 Area		Class 2 Area		Class 3 Area		Class 4 Area	
	Outdoor	Plane of Window	Outdoor	Plane of Window	Outdoor	Plane of Window	Outdoor	Plane of Window
Daytime 0700-1900h	50 dBA	50 dBA	50 dBA	50 dBA	45 dBA	45 dBA	55 dBA	60 dBA
Evening 1900-2300h	50 dBA	50 dBA	45 dBA	50 dBA	40 dBA	40 dBA	55 dBA	60 dBA
Nighttime 2300-0700h	--	45 dBA	--	45 dBA	--	40 dBA	--	55 dBA

Note(s):

1. The applicable sound level criterion is the background sound level or the exclusion limit, whichever is higher.
2. Class 1, 2 and 3 sound level criteria apply to a window that is assumed to be open.
3. Class 4 area criteria apply to a window that is assumed closed. Class 4 area requires formal designation by the land-use planning authority.
4. Sound level criteria for emergency backup equipment (e.g. generators) operating in non-emergency situations such as testing or maintenance are 5 dB greater than the applicable sound level criteria for stationary sources.

For impulsive sound, other than quasi-steady impulsive sound, from a stationary source, the sound level criteria at a POR is expressed in terms of the Logarithmic Mean Impulse Sound Level (L_{LM}), and is summarized in **Table 10**.

Table 10: NPC-300 Exclusion Limits – Impulsive Stationary Sources (L_{LM})

Time Period	Number of Impulses in Period of One-Hour	Class 1 and 2 Areas		Class 3 Areas		Class 4 Areas	
		Outdoor	Plane of Window	Outdoor	Plane of Window	Outdoor	Plane of Window
Daytime (0700-2300h)	9 or more	50 dBAI	50 dBAI	45 dBAI	45 dBAI	55 dBAI	60 dBAI
Nighttime (2300–0700h)		-	45 dBAI	-	40 dBAI	-	55 dBAI
Daytime (0700-2300h)	7 to 8	55 dBAI	55 dBAI	50 dBAI	50 dBAI	60dBAI	65 dBAI
Nighttime (2300–0700h)		-	50 dBAI	-	45 dBAI	-	60 dBAI
Daytime (0700-2300h)	5 to 6	60 dBAI	60 dBAI	55 dBAI	55 dBAI	65 dBAI	70 dBAI
Nighttime (2300–0700h)		-	55 dBAI	-	50 dBAI	-	65 dBAI
Daytime (0700-2300h)	4	65 dBAI	65 dBAI	60 dBAI	60 dBAI	70 dBAI	75 dBAI
Nighttime (2300–0700h)		-	60 dBAI	-	55 dBAI	-	70 dBAI
Daytime (0700-2300h)	3	70 dBAI	70 dBAI	65 dBAI	65 dBAI	75 dBAI	80 dBAI
Nighttime (2300–0700h)		-	65 dBAI	-	60 dBAI	-	75 dBAI
Daytime (0700-2300h)	2	75 dBAI	75 dBAI	70 dBAI	70 dBAI	80 dBAI	85 dBAI
Nighttime (2300–0700h)		-	70 dBAI	-	65 dBAI	-	80 dBAI
Daytime (0700-2300h)	1	80 dBAI	80 dBAI	75 dBAI	75 dBAI	85 dBAI	90 dBAI
Nighttime (2300–0700h)		-	75 dBAI	-	70 dBAI	-	85 dBAI

Note(s):

1. The applicable sound level criterion is the background sound level or the exclusion limit, whichever is higher.

D-Series Guidelines

The MECP D-series guidelines (MOE, 1995) provide direction for land use planning to maximize compatibility of industrial uses with adjacent land uses. The goal of Guideline D-6 is to minimize encroachment of sensitive land uses on industrial facilities and vice versa, in order to address potential incompatibility due to adverse effects such as noise, odour and dust.

For each class of industry, the guideline provides an estimate of potential influence area and states that this influence area shall be used in the absence of the recommended technical studies. Guideline D-6 also recommends a minimum separation distance between each class of industry and sensitive land uses (see **Table 11**). Section 4.10 of D-6 identifies exceptional circumstances with respect to redevelopment, infill and mixed-use areas. In these cases, the guideline suggests that separation distances at, or less than, the recommended minimum separation distance may be acceptable if a justifying impact assessment is provided.

Table 11: Summary of Guideline D-6

Industry Class	Definition	Potential Influence Area	Recommended Minimum Separation Distance (property line to property line)
Class I	Small scale, self-contained, daytime only, infrequent heavy vehicle movements, no outside storage.	70 m	20 m
Class II	Medium scale, outdoor storage of wastes or materials, shift operations and frequent heavy equipment movement during the daytime.	300 m	70 m
Class III	Large scale, outdoor storage of raw and finished products, large production volume, continuous movement of products and employees during daily shift operations.	1000 m	300 m

Guideline D-6 provides criteria for classifying industrial land uses, based on their outputs, scale of operations, processes, schedule and intensity of operations. **Table 12** provides the classification criteria and examples.

Table 12: Guideline D-6 Industrial Categorization Criteria

Criteria	Class I	Class II	Class III
Outputs	• Sound not audible off property • Infrequent dust and/ or odour emissions and not intense • No ground-borne vibration	• Sound occasionally audible off property • Frequent dust and/ or odour emissions and occasionally intense • Possible ground-borne vibration	• Sound frequently audible off property • Persistent and intense dust and/ or odour emissions • Frequent ground-borne vibration
Scale	• No outside storage • Small scale plant or scale is irrelevant in relation to all other criteria	• Outside storage permitted • Medium level of production	• Outside storage of raw and finished products • Large production levels
Process	• Self-contained plant or building which produces / stores a packaged product • Low probability of fugitive emissions	• Open process • Periodic outputs of minor annoyance • Low probability of fugitive emissions	• Open process • Frequent outputs of major annoyances • High probability of fugitive emissions
Operation / Intensity	• Daytime operations only • Infrequent movement of products and/or heavy trucks	• Shift operations permitted • Frequent movements of products and/or heavy trucks with majority of movements during daytime hours	• Continuous movement of products and employees • Daily shift operations permitted
Examples	• Electronics Manufacturing • Furniture refinishing • Beverage bottling • Auto parts • Packaging services • Dairy distribution • Laundry and linen supply	• Magazine printing • Paint spray booths • Metal command • Electrical production • Dairy product manufacturing • Feed packing plant	• Paint and varnish manufacturing • Organic chemicals manufacturing • Breweries • Solvent recovery plant • Soap manufacturing • Metal manufacturing

APPENDIX C

Ministry of Transportation
Ministère des Transports

Version: 1.0 Feb 1, 2016

Intersection Layout Sheet

Contract # 9015-E-0009
Work Order # 054

Date: MAY 31 / 2016 Day: TUES / Hrs: 06 - 10 + 15 - 19 + ___ - ___

Location: HWY 1 @ CAWTHRA RD IC -134 Ramps: NORTH / 61

Reg/Mun: CR Town/City: Mississauga Area: -

File Name: 1101510000 Device: Gretch / Jamar Unit # 8 / Interval 1: (AM) / NN / PM

Observer: OXANA VYATKINA Weather: Clear / Road Condition: CLOSED LANE /

LHRS & O/S: 10151 - 0

GPS: G-STAR IV

Datum: WGS 84 (Y) / N

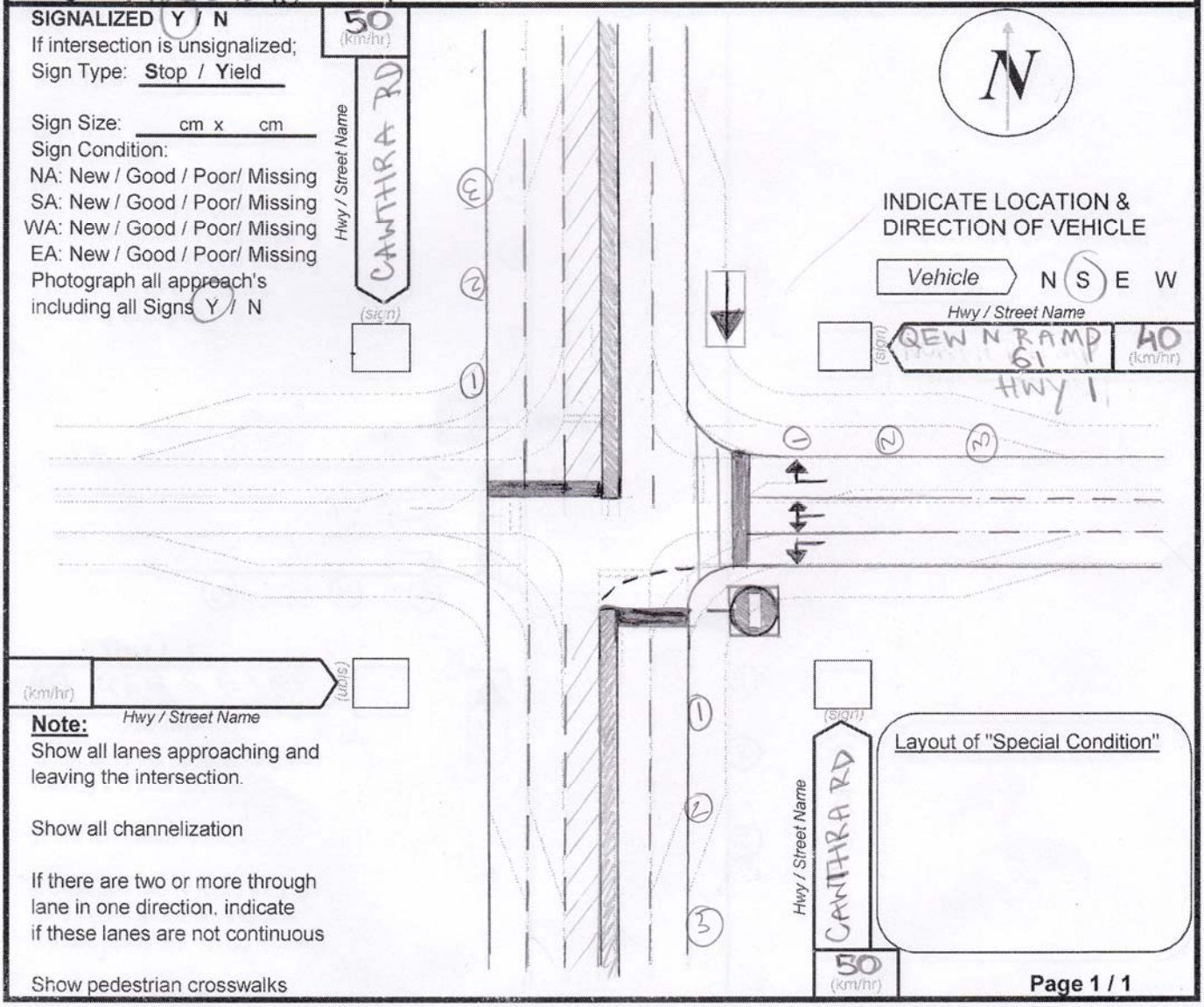
Lat: 43.584396

Long: -79.584393

Comments:
NORTHBOUND TRAFFIC END OF 06-10 PERIOD
BEGINNING OF 15-19 PERIOD
SB LEFT LANE CLOSED

SIGNALIZED (Y) / N
If intersection is unsignalized;
Sign Type: Stop / Yield

Sign Size: ___ cm x ___ cm
Sign Condition:
NA: New / Good / Poor/ Missing
SA: New / Good / Poor/ Missing
WA: New / Good / Poor/ Missing
EA: New / Good / Poor/ Missing
Photograph all approach's including all Signs (Y) / N



Note:
Show all lanes approaching and leaving the intersection.

Show all channelization

If there are two or more through lane in one direction, indicate if these lanes are not continuous

Show pedestrian crosswalks

Layout of "Special Condition"

Ontario

Ministry of Transportation

TVIS II - Traffic Volume Information System

Ad Hoc Turning Movement Count Total Report

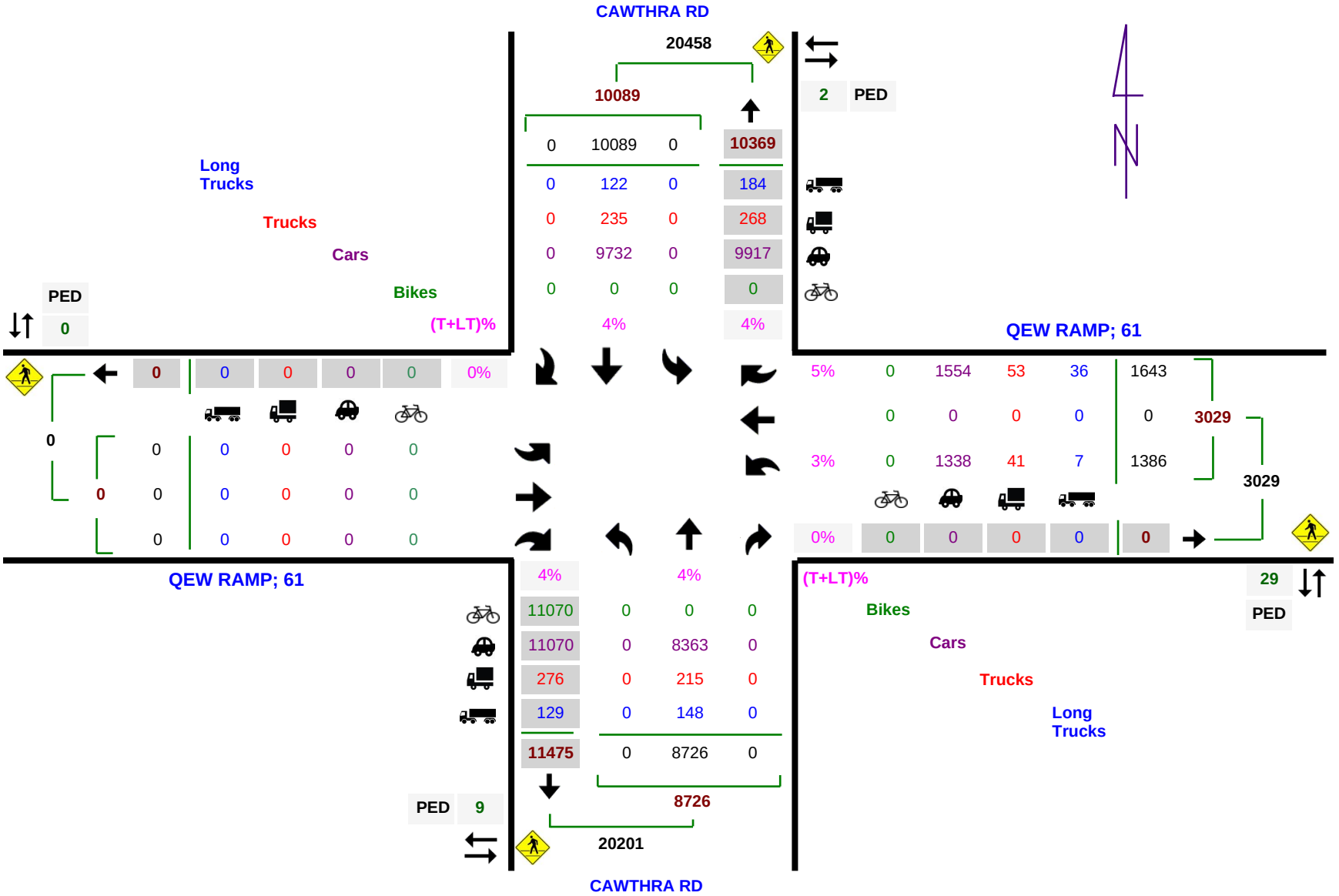
Description: QEW @ CAWTHRA RD (NRT)

Region: CENTRAL | **Survey Type:** TM – Interchange | **Hwy:** QEW

Start Date: 31-May-2016 (Tue) | **I/C Side:** N | **LHRS:** 10151

End Date: 31-May-2016 (Tue) | **Int. Type:** T - E | **Offset:** 0

Schedule Summary: TUES-THURS, 06:00-10:00, 15:00-19:00



Ontario

Ministry of Transportation

TVIS II - Traffic Volume Information System

Turning Movement 15 Minute Report

Description: QEW @ CAWTHRA RD (NRT)
Region: CENTRAL | **Survey Type:** TM – Interchange | **Hwy:** QEW
Start Date: 31-May-2016 (Tue) | **I/C Side:** N | **LHRS:** 10151
End Date: 31-May-2016 (Tue) | **Int. Type:** T - E | **Offset:** 0
Schedule Summary: TUES-THURS, 06:00-10:00, 15:00-19:00

	Major Road Approaches																		Minor Road Approaches																
	North CAWTHRA RD									South CAWTHRA RD									East QEW RAMP: Ramp(s): 61									Not Configured								
Start Time	Cars			Trucks			Long Trucks			Ped	Cars			Trucks			Long Trucks			Ped	Cars			Trucks			Long Trucks			Ped	Cars			Trucks			Long Trucks			Ped	Total Veh.
	←	↑	→	←	↑	→	←	↑	→		←	↑	→	←	↑	→	←	↑	→		←	↑	→	←	↑	→	←	↑	→		←	↑	→	←	↑	→	←	↑	→		
Period 1																																								
06:00	0	148	0	0	4	0	0	3	0	0	0	115	0	0	0	0	0	0	0	0	10	0	42	1	0	2	0	0	0	0										325
06:15	0	229	0	0	4	0	0	1	0	0	0	150	0	0	0	0	0	4	0	0	16	0	32	0	0	0	0	0	1	1										437
06:30	0	219	0	0	5	0	0	2	0	0	0	179	0	0	2	0	0	3	0	0	30	0	34	1	0	0	0	0	0	0										475
06:45	0	271	0	0	8	0	0	4	0	0	0	167	0	0	3	0	0	3	0	0	37	0	61	4	0	3	0	0	0	0										561
07:00	0	282	0	0	10	0	0	3	0	0	0	180	0	0	3	0	0	2	0	0	29	0	56	1	0	0	0	0	4	0										570
07:15	0	270	0	0	9	0	0	4	0	0	0	201	0	0	5	0	0	4	0	1	34	0	50	2	0	2	0	0	1	0										582
07:30	0	264	0	0	8	0	0	14	0	0	0	268	0	0	8	0	0	4	0	1	30	0	32	0	0	3	0	0	0	0										631
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09:45	0	242	0	0	13	0	0	2	0	0	0	243	0	0	11	0	0	6	0	0	30	0	70	4	0	6	1	0	1	0										629
Period 2																																							
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15:30	0	340	0	0	11	0	0	2	0	0	0	264	0	0	6	0	0	5	0	0	52	0	36	3	0	1	0	0	0	3										720
15:45	0	330	0	0	11	0	0	9	0	0	0	281	0	0	10	0	0	3	0	0	58	0	35	1	0	1	0	0	4	0										743
16:00	0	362	0	0	7	0	0	4	0	0	0	311	0	0	9	0	0	11	0	0	47	0	57	0	0	3	0	0	1	2										812

Ontario

Ministry of Transportation

TVIS II - Traffic Volume Information System

Turning Movement 15 Minute Report

Description: QEW @ CAWTHRA RD (NRT)
Region: CENTRAL **Survey Type:** TM – Interchange **Hwy:** QEW
Start Date: 31-May-2016 (Tue) **I/C Side:** N **LHRS:** 10151
End Date: 31-May-2016 (Tue) **Int. Type:** T - E **Offset:** 0
Schedule Summary: TUES-THURS, 06:00-10:00, 15:00-19:00

	Major Road Approaches																				Minor Road Approaches																				
	North CAWTHRA RD										South CAWTHRA RD										East QEW RAMP: Ramp(s): 61										Not Configured									
Start Time	Cars			Trucks			Long Trucks			Ped	Cars			Trucks			Long Trucks			Ped	Cars			Trucks			Long Trucks			Ped	Cars			Trucks			Long Trucks			Ped	Total Veh.
	←	↑	→	←	↑	→	←	↑	→		←	↑	→	←	↑	→	←	↑	→		←	↑	→	←	↑	→	←	↑	→		←	↑	→	←	↑	→	←	↑	→		
16:15	0	372	0	0	7	0	0	4	0	0	0	272	0	0	7	0	0	7	0	4	48	0	52	0	0	1	0	0	1	0												**771**
16:30	0	362	0	0	5	0	0	0	0	0	0	305	0	0	6	0	0	8	0	0	46	0	70	0	0	0	0	0	0	0												**802**
16:45	0	320	0	0	4	0	0	5	0	0	0	243	0	0	3	0	0	3	0	0	62	0	63	0	0	4	0	0	1	0												**708**
17:00	0	335	0	0	5	0	0	1	0	0	0	294	0	0	4	0	0	1	0	0	47	0	75	1	0	1	1	0	0	2												**765**
17:15	0	282	0	0	4	0	0	4	0	0	0	261	0	0	7	0	0	3	0	0	62	0	79	0	0	0	0	0	0	0												**702**
17:30	0	364	0	0	3	0	0	3	0	0	0	255	0	0	6	0	0	2	0	0	41	0	34	0	0	0	0	0	0	0												**708**
17:45	0	364	0	0	2	0	0	3	0	0	0	236	0	0	5	0	0	3	0	0	49	0	32	1	0	1	0	0	0	0												**696**
18:00	0	386	0	0	1	0	0	1	0	0	0	307	0	0	13	0	0	4	0	1	36	0	42	0	0	1	0	0	0	1												**791**
18:15	0	363	0	0	2	0	0	0	0	0	0	295	0	0	6	0	0	2	0	0	58	0	42	0	0	0	0	0	1	0												**769**
18:30	0	325	0	0	2	0	0	3	0	0	0	256	0	0	7	0	0	6	0	0	47	0	53	2	0	0	0	0	1	0												**702**
18:45	0	266	0	0	3	0	0	1	0	0	0	249	0	0	10	0	0	1	0	0	54	0	42	1	0	0	0	0	1	0												**628**

Ontario

Ministry of Transportation

TVIS II - Traffic Volume Information System

AdHoc Turning Movement Total Count and Peak Summary Report

Description: QEW @ CAWTHRA RD (NRT)

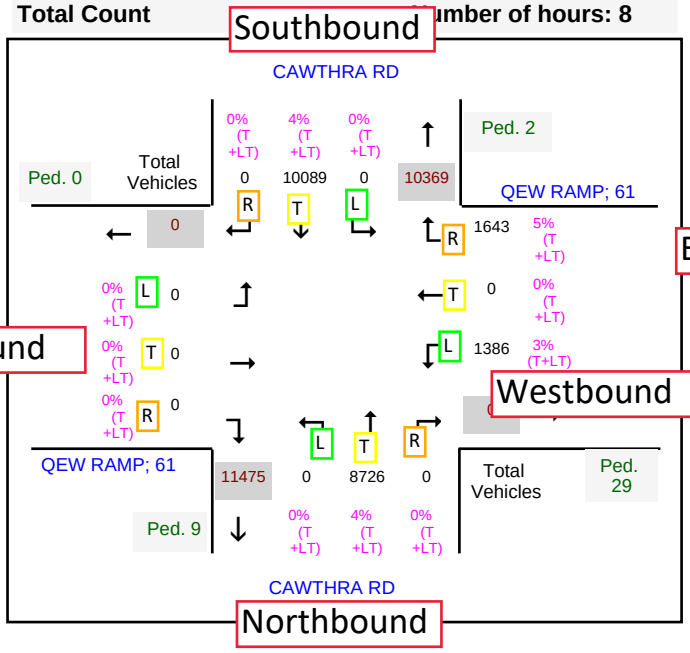
Region: CENTRAL | **Survey Type:** TM – Interchange | **Hwy:** QEW

Start Date: 31-May-2016 (Tue) | **I/C Side:** N | **LHRS:** 10151

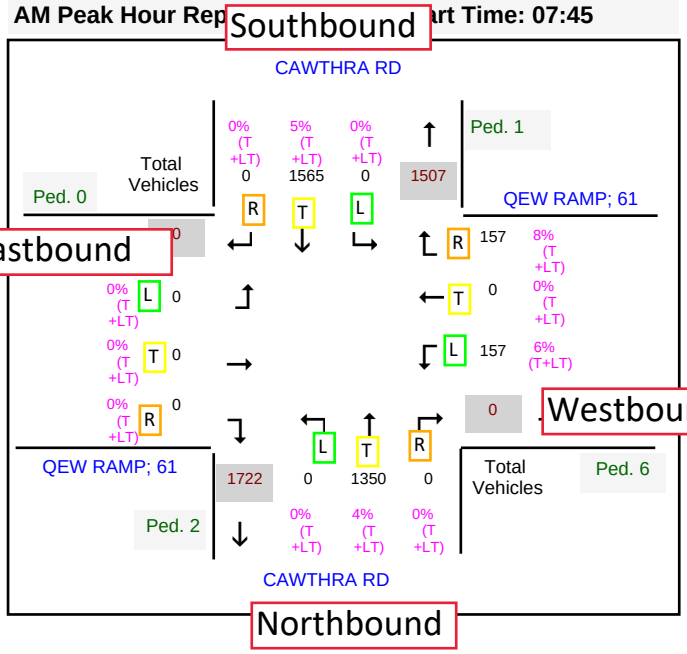
End Date: 31-May-2016 (Tue) | **Int. Type:** T - E | **Offset:** 0

Schedule Summary: TUES-THURS, 06:00-10:00, 15:00-19:00

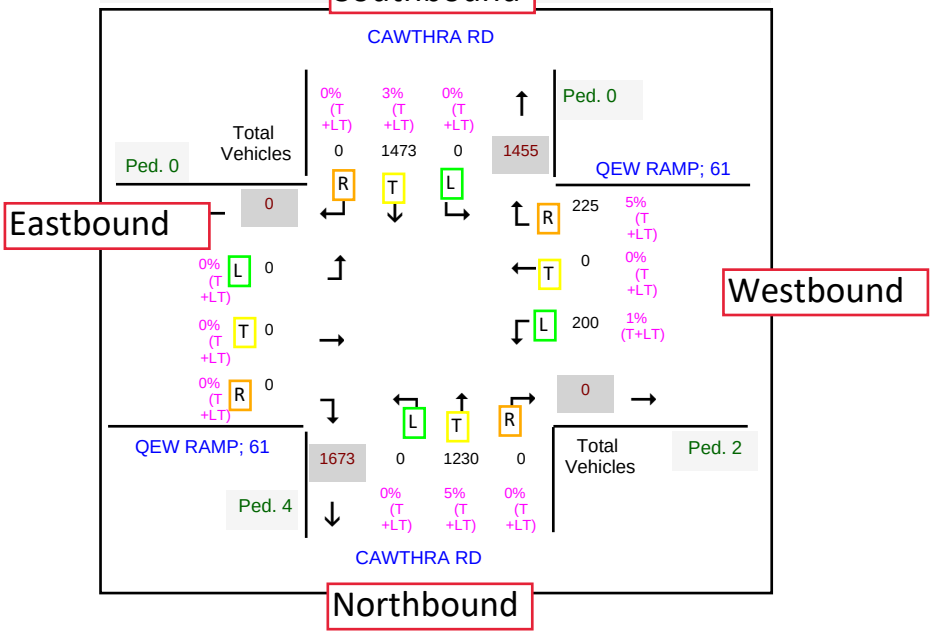
Total Count ... umber of hours: 8



AM Peak Hour Rep ... **rt Time: 07:45**



PM Peak Hour Repo ... **t Time: 15:45**



Ontario

Ministry of Transportation

TVIS II - Traffic Volume Information System

Traffic Signal Warrant

Description: QEW @ CAWTHRA RD (NRT)

Region: CENTRAL | **Survey Type:** TM – Interchange | **Hwy:** QEW

Start Date: | **I/C Side:** N | **LHRS:** 10151

End Date: | **Intersection Type:** T - E | **Offset:** 0

Schedule Summary: Tuesday, Wednesday, Thursday AM 06:00-10:00, PM 15:00-19:00
Currently this schedule was used by Central Region for data collected in Spring

Intersection Configuration:

MAJOR ROADS

Approach	Name	Channel	Right	Pattern
N	CAWTHRA RD			UNCL
S	CAWTHRA RD			UNCL

☐ 2 or more approach Lanes

MINOR ROADS

Approach	Name	Channel	Right	Pattern
E	QEW RAMP			UNCL
	Ramps 61			
	Ramps			

☐ 2 or more approach Lanes

Intersection Type: T - E

Traffic Control: Traffic Signal

Flow Condition: Restricted

Justification 1 - Minimum Vehicle Volume:

Calculated using raw data

1A: All approach lanes:

1B: Minor road approaches:

	Major Road Approaches						Minor Road Approaches					
	North Approach			South Approach			East Approach			Not configured		
Time	←	↑	→	←	↑	→	←	↑	→	←	↑	→
06:00	0	898	0	0	626	0	99	0	0	0	0	0
07:00	0	1284	0	0	991	0	128	0	0	0	0	0
08:00	0	1407	0	0	1413	0	161	0	0	0	0	0
09:00	0	968	0	0	1075	0	156	0	0	0	0	0
15:00	0	1357	0	0	1203	0	239	0	0	0	0	0
16:00	0	1452	0	0	1185	0	203	0	0	0	0	0
17:00	0	1370	0	0	1077	0	202	0	0	0	0	0
18:00	0	1353	0	0	1156	0	198	0	0	0	0	0
TotalsTM	0	10089	0	0	8726	0	1386	0	0	0	0	0
Approach		10089			8726			1386			0	

1A		1B	
Min. Req.	%	Min. Req.	%
900	100	255	100
720	80	204	80
Total	%	Total	%
1623	100	99	39
2403	100	128	39
2981	100	161	39
2199	100	156	39
2799	100	239	39
2840	100	203	39
2649	100	202	39
2707	100	198	39
20201	800	1386	530
Section %	100	Section %	66

Justification 1 Minimum Compliance: 66 %

Ontario

Ministry of Transportation

TVIS II - Traffic Volume Information System

Traffic Signal Warrant

Description: QEW @ CAWTHRA RD (NRT)

Region: CENTRAL **Survey Type:** TM – Interchange **Hwy:** QEW

Start Date: **I/C Side:** N **LHRS:** 10151

End Date: **Intersection Type:** T - E **Offset:** 0

Schedule Summary: Tuesday, Wednesday, Thursday AM 06:00-10:00, PM 15:00-19:00
Currently this schedule was used by Central Region for data collected in Spring

Justification 2 - Delay to Cross Traffic:

Calculated using raw data

2A: Major road appraoches:

2B: Minor road approaches:

	Major Road Approaches						Minor Road Approaches						
	North Approach			South Approach			East Approach			Not configured			
Time													
06:00	0	898	0	0	626	0	99	0	0	0	0	0	0
07:00	0	1284	0	0	991	0	128	0	0	0	0	0	0
08:00	0	1407	0	0	1413	0	161	0	0	0	0	0	0
09:00	0	968	0	0	1075	0	156	0	0	0	0	0	0
15:00	0	1357	0	0	1203	0	239	0	0	0	0	0	0
16:00	0	1452	0	0	1185	0	203	0	0	0	0	0	0
17:00	0	1370	0	0	1077	0	202	0	0	0	0	0	0
18:00	0	1353	0	0	1156	0	198	0	0	0	0	0	0
Totals: TM	0	10089	0	0	8726	0	1386	0	0	0	0	0	0
Approach			10089			8726			1386			0	

2A		2B	
Min. Req.	%	Min. Req.	%
900	100	75	100
720	80	60	80
Total	%	Total	%
1524	100	99	100
2275	100	132	100
2820	100	162	100
2043	100	157	100
2560	100	239	100
2637	100	207	100
2447	100	202	100
2509	100	199	100
18815	800	1397	800
Section %	100	Section %	100

* Pedestrians crossing major road

Justification 2 Minimum Compliance: 100 %

Justification 3 - Volume / Delay Combination:

Calculated using raw data

	Minimum Compliance (%)
Justification 1 - Minimum Vehicle Volume:	66 %
Justification 2 - Delay to Cross Traffic:	100 %
Justification 3 Minimum Compliance:	66 %

Ontario

Ministry of Transportation

TVIS II - Traffic Volume Information System

Traffic Signal Warrant

Description: QEW @ CAWTHRA RD (NRT)

Region: CENTRAL **Survey Type:** TM – Interchange **Hwy:** QEW

Start Date: **I/C Side:** N **LHRS:** 10151

End Date: **Intersection Type:** T - E **Offset:** 0

Schedule Summary: Tuesday, Wednesday, Thursday AM 06:00-10:00, PM 15:00-19:00
Currently this schedule was used by Central Region for data collected in Spring

Justification 5 - Collision Experience

	Warrant Threshold *	%
	5	100

Preceding Months	Number of Collisions **	%
1 - 12	0	0
13 - 24	0	0
25 - 36	0	0
Totals	0	0

Justification 5 Compliance: 0 %

* Per twelve-month period.

** Include only collisions that are susceptible to correction

Calculation Options - Use raw data

Factors for major road approaches

North Approach		South Approach	
Factor	1.0	Factor	1.0

Factors for minor road approaches

East Approach		Not Configured	
Factor	1.0	Factor	

Factor for pedestrian crossing major road 1.0

CONCLUSION: TRAFFIC SIGNALS ARE **WARRANTED**

Ministry of Transportation
Ministère des Transports

Intersection Layout Sheet

Version: 1.0 Feb 1, 2016

Contract # 9015-E-0009
Work Order # 056

Date: MAY 31 / 2016 Day: TUES / Hrs: 06 - 10 + 15 - 19 + ___ - ___

Location: CAWTHRA RD IC - B4 - NORTH SERVICE RD Ramps: - /

Reg/Mun: CR Town/City: MISSISSAUGA Area: -

File Name: 0101510000 Device: Gretch / Jamar Unit # 8 / Interval 1: (AM) NN / PM

Observer: OXANA VYATKINA Weather: Clear / Road Condition: GOOD /

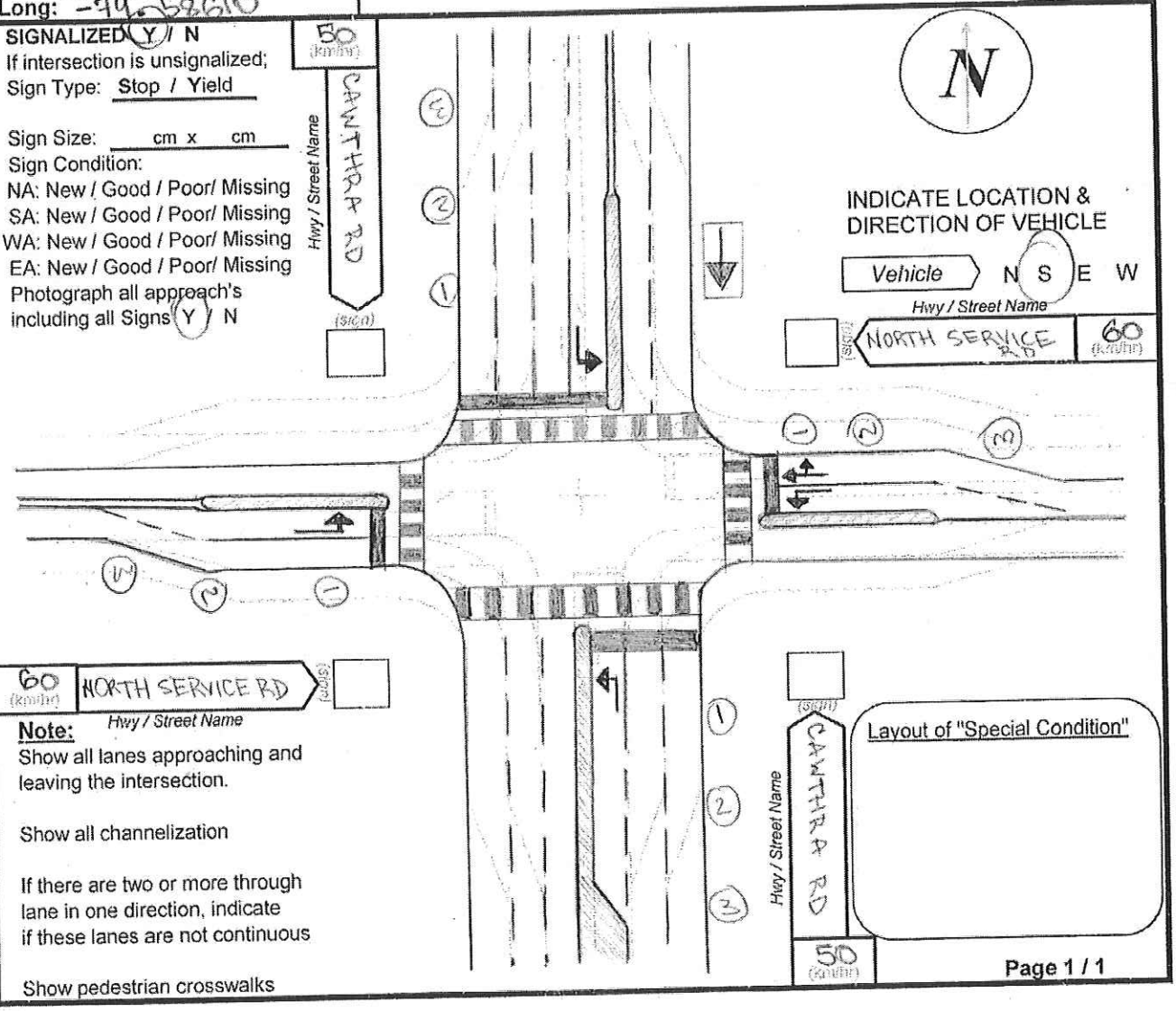
LHRS & O/S: 10151 — 0

GPS: G - STAR IV
Datum: WGS 84 (Y) / N
Lat: 43.58515
Long: -79.58610

Comments:

SIGNALIZED (Y) / N
If intersection is unsignalized;
Sign Type: Stop / Yield

Sign Size: ___ cm x ___ cm
Sign Condition:
NA: New / Good / Poor / Missing
SA: New / Good / Poor / Missing
WA: New / Good / Poor / Missing
EA: New / Good / Poor / Missing
Photograph all approach's including all Signs (Y) / N



Note:
Show all lanes approaching and leaving the intersection.

Show all channelization

If there are two or more through lane in one direction, indicate if these lanes are not continuous

Show pedestrian crosswalks

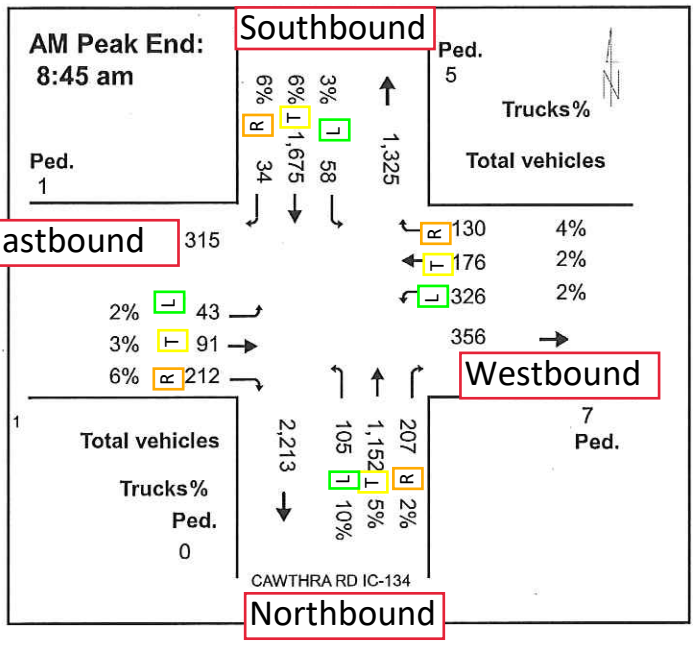
Layout of "Special Condition"

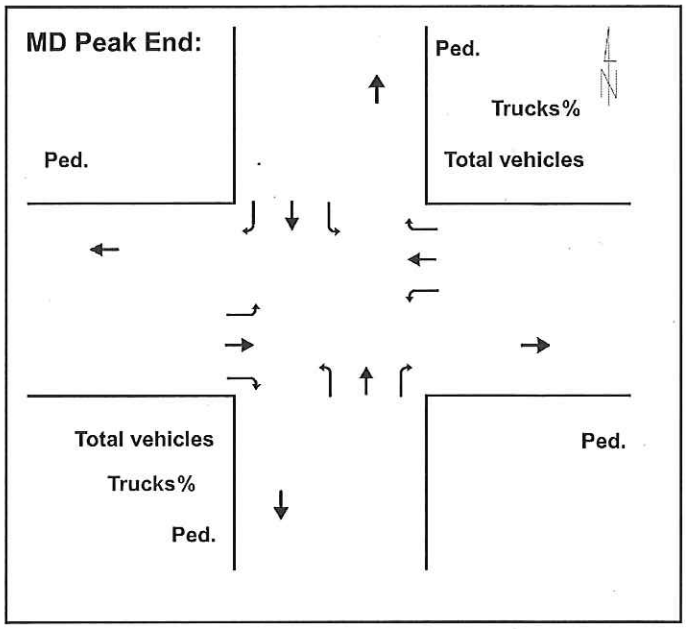
Ontario

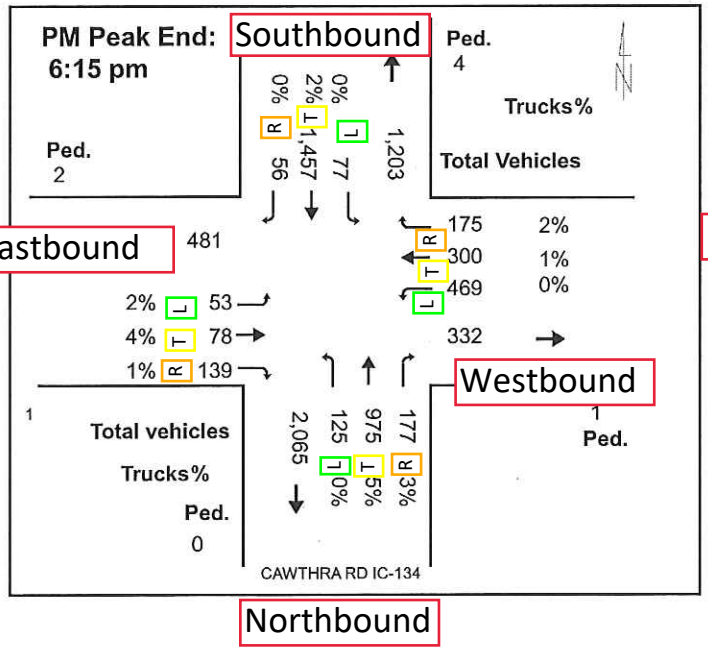
HWY 1 @ CAWTHRA RD IC-134

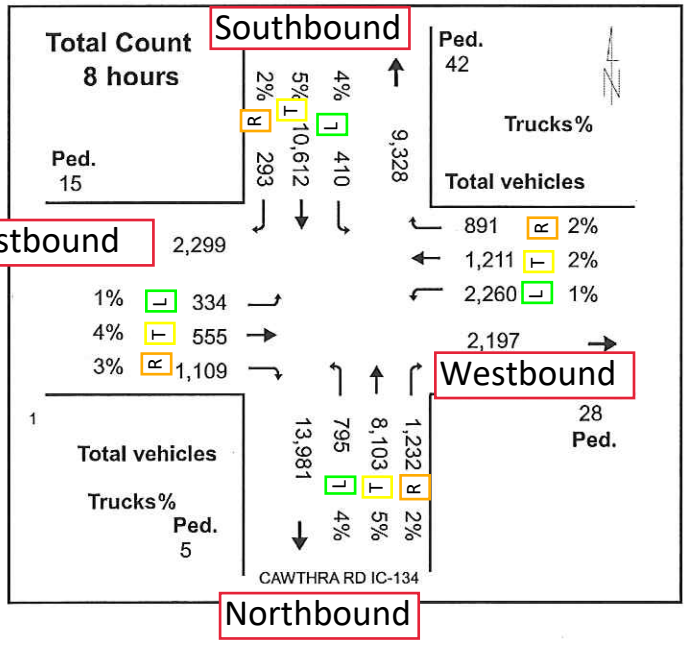
Central

Intersection ID:101510000 **Count Day: Tuesday** **Count Date: 31-May-2016**









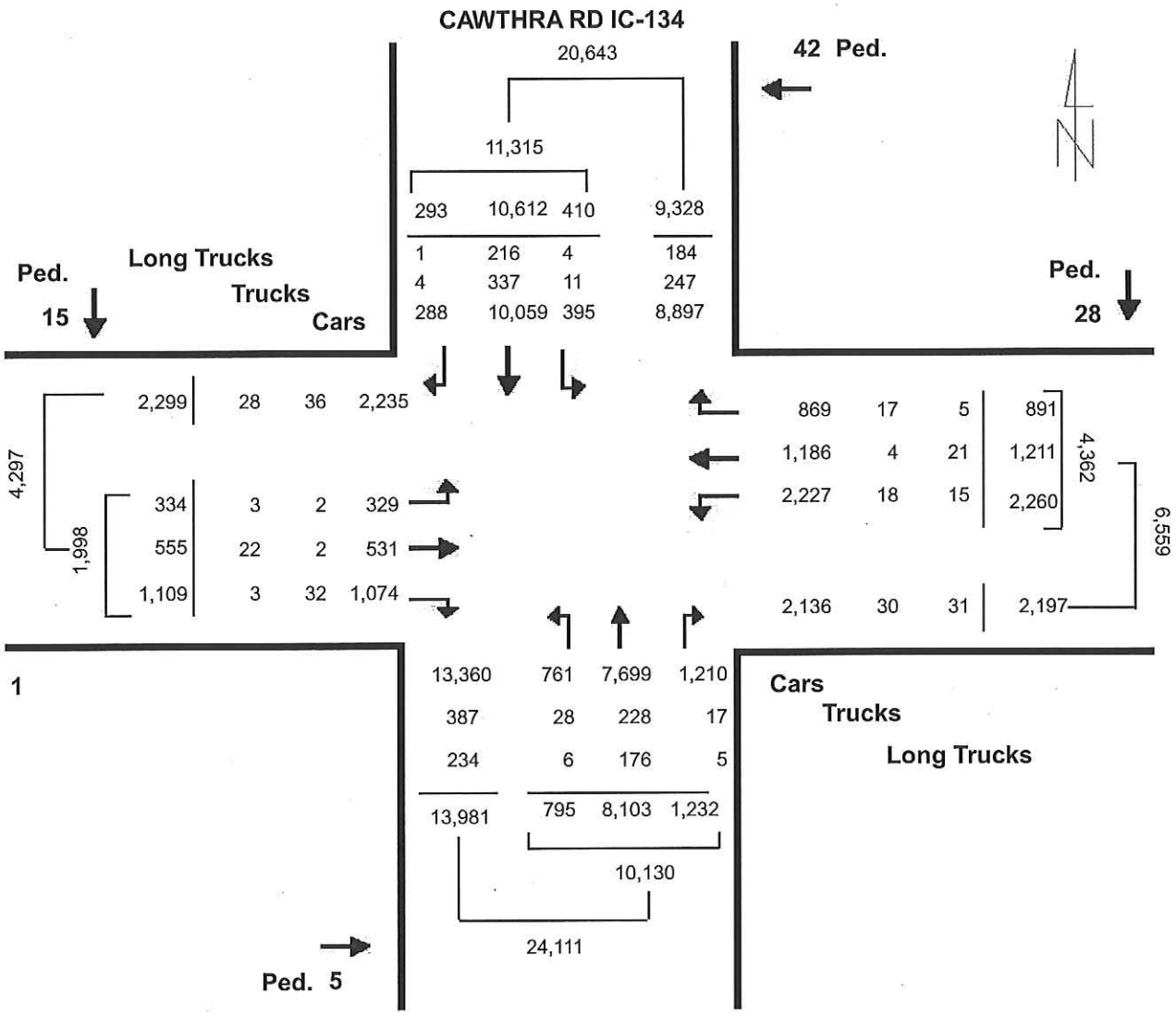
Traffic Engineering Software

COUNT TOTAL

HWY 1 @ CAWTHRA RD IC-134

Central

Intersection ID:101510000 **Date: 31-May-2016**



15 MIN REPORT

Intersection ID:101510000 **HWY 1 @ CAWTHRA RD IC-134** **Municipality: Central** **Date: 31-May-2016**

	NORTH APPROACH										EAST APPROACH										SOUTH APPROACH										WEST APPROACH										
Time	Cars			Trucks			Heavies			Ped	Cars			Trucks			Heavies			Ped	Cars			Trucks			Heavies			Ped	Cars			Trucks			Heavies			Ped	Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		
Period1																																									
6:15	3	160	1	0	3	0	0	2	0	0	10	1	6	0	0	0	0	0	0	2	16	119	8	2	0	0	0	0	0	0	7	3	24	0	0	0	0	1	1	0	369
6:30	1	191	7	0	5	0	0	2	0	0	25	2	2	0	0	0	0	1	0	0	5	150	9	0	0	0	0	5	0	0	8	3	36	0	0	2	0	0	0	0	454
6:45	6	235	7	0	4	0	0	3	0	0	20	3	8	1	0	0	0	1	0	0	7	165	18	0	2	0	1	2	0	0	13	7	36	0	0	0	0	1	0	0	540
7:00	4	238	1	1	14	0	1	6	0	1	17	4	10	1	0	1	0	0	0	0	12	174	5	1	5	0	1	3	0	0	9	11	38	0	0	1	0	1	0	1	561
7:15	4	249	3	0	11	0	0	7	0	1	30	4	14	2	0	0	1	1	0	0	14	190	13	0	3	0	0	5	1	0	6	17	30	0	0	0	0	1	0	0	607
7:30	8	274	8	0	14	1	0	9	0	1	52	14	27	0	0	0	0	1	0	0	10	224	19	1	6	0	0	6	0	0	16	12	35	0	0	1	0	0	1	1	741
7:45	3	352	7	0	15	0	0	18	0	0	62	30	30	0	0	0	0	1	0	1	15	242	30	2	8	0	0	3	0	0	16	13	45	0	0	0	0	1	0	0	894
8:00	11	380	5	1	11	1	0	9	0	4	73	47	33	1	0	2	1	0	1	2	15	277	38	2	10	0	0	7	0	0	6	21	55	0	0	5	0	0	0	0	1018
8:15	10	426	8	0	15	0	0	8	1	0	89	45	33	0	0	0	0	1	0	3	22	275	49	3	8	2	1	5	1	0	11	17	50	0	1	3	0	1	0	0	1088
8:30	17	403	7	1	16	0	0	13	0	0	66	29	27	0	1	0	1	0	0	1	31	297	53	1	5	1	1	10	0	0	15	23	51	0	0	2	0	1	0	1	1074
8:45	18	364	12	0	20	0	0	10	0	1	92	52	32	0	0	1	3	1	1	1	27	244	63	2	6	0	0	8	0	0	10	27	44	0	0	2	1	0	0	0	1042
9:00	17	259	13	0	12	0	1	7	0	0	64	54	27	0	0	0	0	1	0	1	38	310	70	1	15	1	1	8	0	0	10	18	35	0	0	2	0	1	0	0	966
9:15	16	288	5	2	26	0	1	7	0	1	47	29	32	1	0	1	0	0	0	0	22	264	38	0	12	1	0	6	0	0	7	13	31	0	0	0	0	1	0	0	851
9:30	19	253	10	0	14	0	0	7	0	2	35	14	24	1	0	0	0	1	0	1	19	259	46	1	10	0	0	5	1	2	11	14	19	0	0	0	0	0	0	2	770
9:45	6	240	8	2	19	0	0	10	0	0	43	8	23	0	0	1	2	1	0	3	13	253	35	0	9	0	0	1	0	0	11	18	25	0	0	0	0	1	0	1	733
10:00	10	219	10	0	16	1	0	7	0	0	43	16	20	1	0	0	0	0	0	0	13	222	50	2	15	1	0	6	0	0	11	19	32	1	0	0	0	0	0	1	716
Period2																																									
15:15	13	298	6	1	10	0	0	10	0	6	53	31	24	1	0	1	0	1	0	2	22	278	46	1	11	1	0	8	1	0	9	20	24	0	0	2	1	3	1	0	885
15:30	16	342	15	0	9	0	0	3	0	4	73	38	28	1	0	1	1	1	0	3	28	280	44	0	7	1	0	17	1	2	7	17	22	0	0	2	0	0	0	0	963
15:45	16	333	11	0	11	1	0	8	0	1	92	43	45	1	1	1	0	0	0	2	20	236	43	2	5	1	0	5	0	0	5	13	37	1	0	2	0	0	0	3	939
16:00	9	361	12	1	19	0	0	8	0	3	76	57	24	0	0	1	3	1	0	2	29	235	50	2	11	0	0	7	0	0	12	29	30	0	0	2	0	1	0	0	985
16:15	15	377	8	0	12	0	0	6	0	3	98	47	27	1	0	0	0	0	0	1	28	298	31	1	10	0	1	10	0	0	8	22	34	0	0	2	0	1	0	0	1041
16:30	18	386	10	0	11	0	1	8	0	2	91	50	35	1	0	0	0	1	2	1	28	260	51	1	6	0	0	8	0	0	8	32	28	0	0	1	0	0	0	2	1042
16:45	10	402	14	0	9	0	0	3	0	1	91	57	21	0	0	0	0	1	0	0	34	264	49	0	6	0	0	8	0	0	6	21	27	0	0	0	0	1	0	0	1025
17:00	13	378	8	1	10	0	0	7	0	0	83	48	22	0	1	2	0	0	0	0	38	252	30	2	5	1	0	4	0	0	7	13	21	0	1	0	0	1	0	0	948
17:15	16	334	12	0	5	0	0	6	0	2	110	60	29	0	0	2	0	1	1	1	31	279	39	0	4	0	0	1	0	1	10	15	31	0	0	1	0	0	0	0	991
17:30	11	351	13	0	4	0	0	5	0	0	95	48	37	0	0	0	0	1	0	0	40	258	47	0	7	1	0	4	0	0	22	21	30	0	0	1	0	1	0	0	997
17:45	23	388	14	0	4	0	0	5	0	3	123	87	38	1	0	1	2	1	0	1	31	200	38	0	4	1	0	3	0	0	9	18	22	0	0	1	1	1	0	2	1022
18:00	20	318	13	0	4	0	0	4	0	1	128	92	43	1	0	2	0	0	0	0	20	217	42	0	6	1	0	5	0	0	14	24	46	0	0	0	0	1	0	0	1002
18:15	23	367	16	0	3	0	0	4	0	0	119	70	54	0	0	0	0	1	0	0	34	255	45	0	13	2	0	3	0	0	7	12	39	0	0	0	0	0	0	0	1067
18:30	13	321	8	1	3	0	0	2	0	4	97	44	29	1	0	0	1	1	0	0	35	244	43	0	4	1	0	4	0	0	15	17	42	0	0	0	0	1	0	0	931
18:45	15	290	11	0	5	0	0	10	0	1	65	31	33	0	0	0	0	0	0	0	38	272	35	1	6	1	0	7	0	0	10	7	29	0	0	0	0	0	0	1	868
19:00	11	282	5	0	3	0	0	2	0	0	65	31	32	2	1	0	0	1	0	0	26	206	33	0	9	0	0	2	0	0	13	14	26	0	0	0	0	1	0	0	765

Ministry of Transportation
Ministère des Transports

Intersection Layout Sheet

Version: 1.0 Feb 1, 2016

Contract # 1015-E-0009
Work Order # 058

Date: MAY 31/2016 Day: TUES / Hrs: 06 - 10 + 15 - 19 + ___ - ___

Location: HWY 1@ CAWTHRA RD EC-BU Ramps: SOUTH / 51

Reg/Mun: CR Town/City: MISSISSAUGA Area: ___

File Name: 2101510009 Device: Gretch / Jamar Unit # 8 / Interval 1: (AM) / NN / PM

Observer: OXANA VYATKINA Weather: Clear / Road Condition: LANE CLOSED

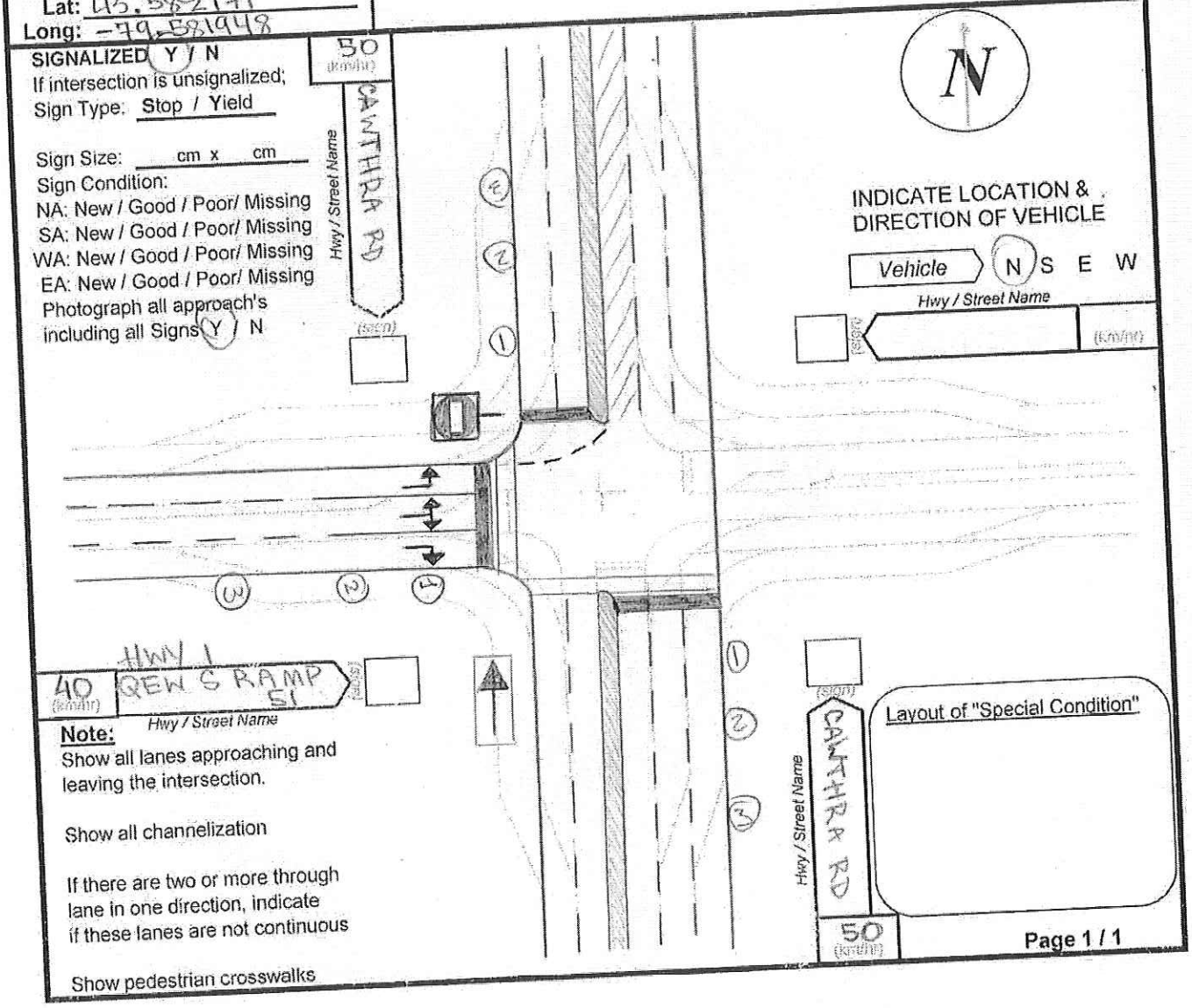
LHRS & O/S: 10151 - O

GPS: G-STAR IV
Datum: WGS 84 (Y) / N
Lat: 43.582171
Long: -79.581948

Comments:

SIGNALIZED Y / N
If intersection is unsignalized;
Sign Type: Stop / Yield

Sign Size: ___ cm x ___ cm
Sign Condition:
NA: New / Good / Poor/ Missing
SA: New / Good / Poor/ Missing
WA: New / Good / Poor/ Missing
EA: New / Good / Poor/ Missing
Photograph all approach's including all Signs (Y) / N



Layout of "Special Condition"

Note:
Show all lanes approaching and leaving the intersection.

Show all channelization

If there are two or more through lane in one direction, indicate if these lanes are not continuous

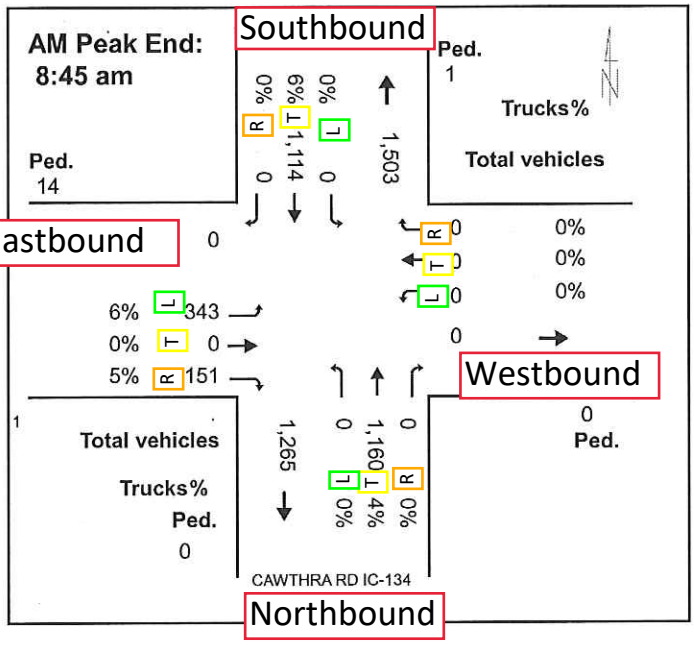
Show pedestrian crosswalks

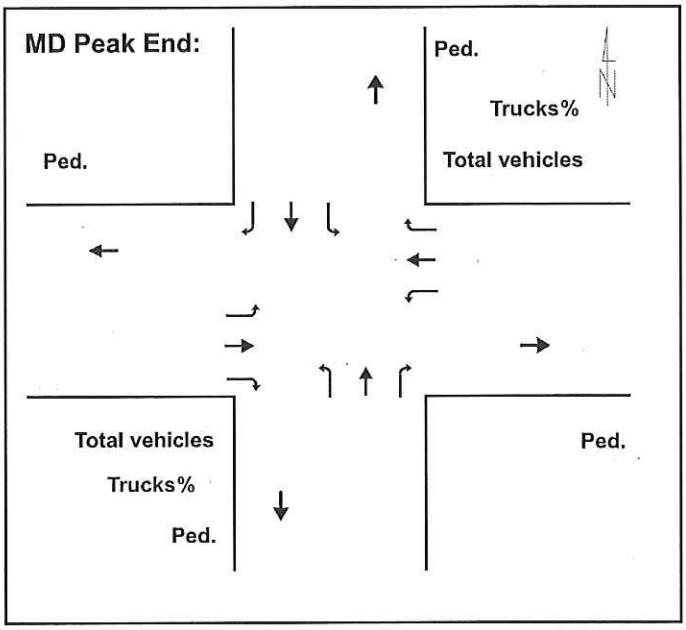
Ontario

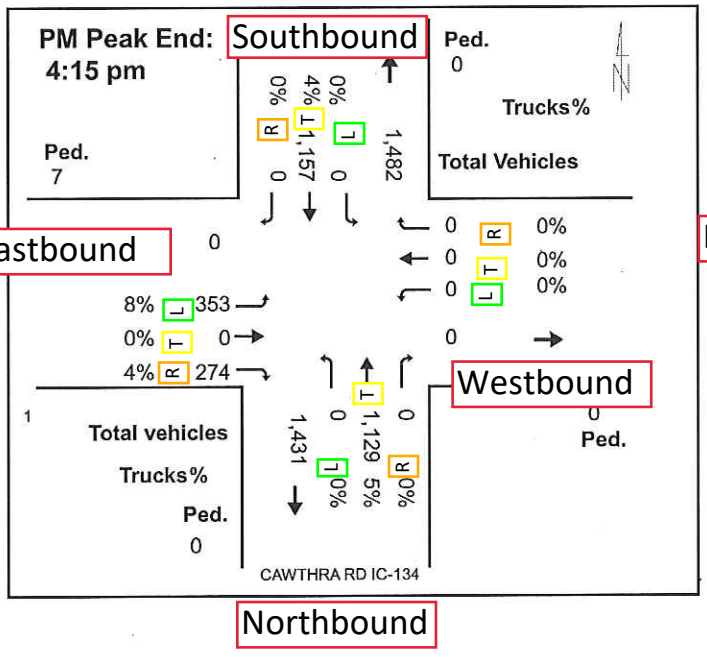
HWY 1 @ CAWTHRA RD IC-134

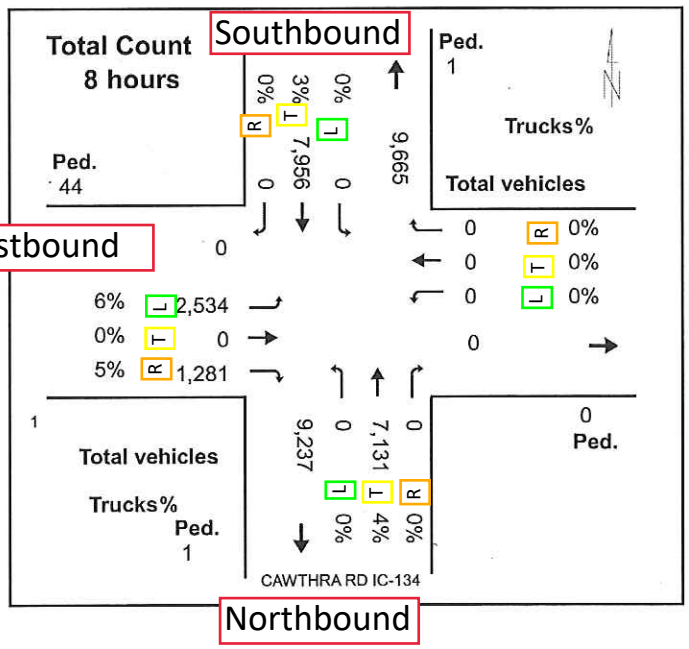
Central

Intersection ID:101510000(--S--) **Count Day: Tuesday** **Count Date: 31-May-2016**









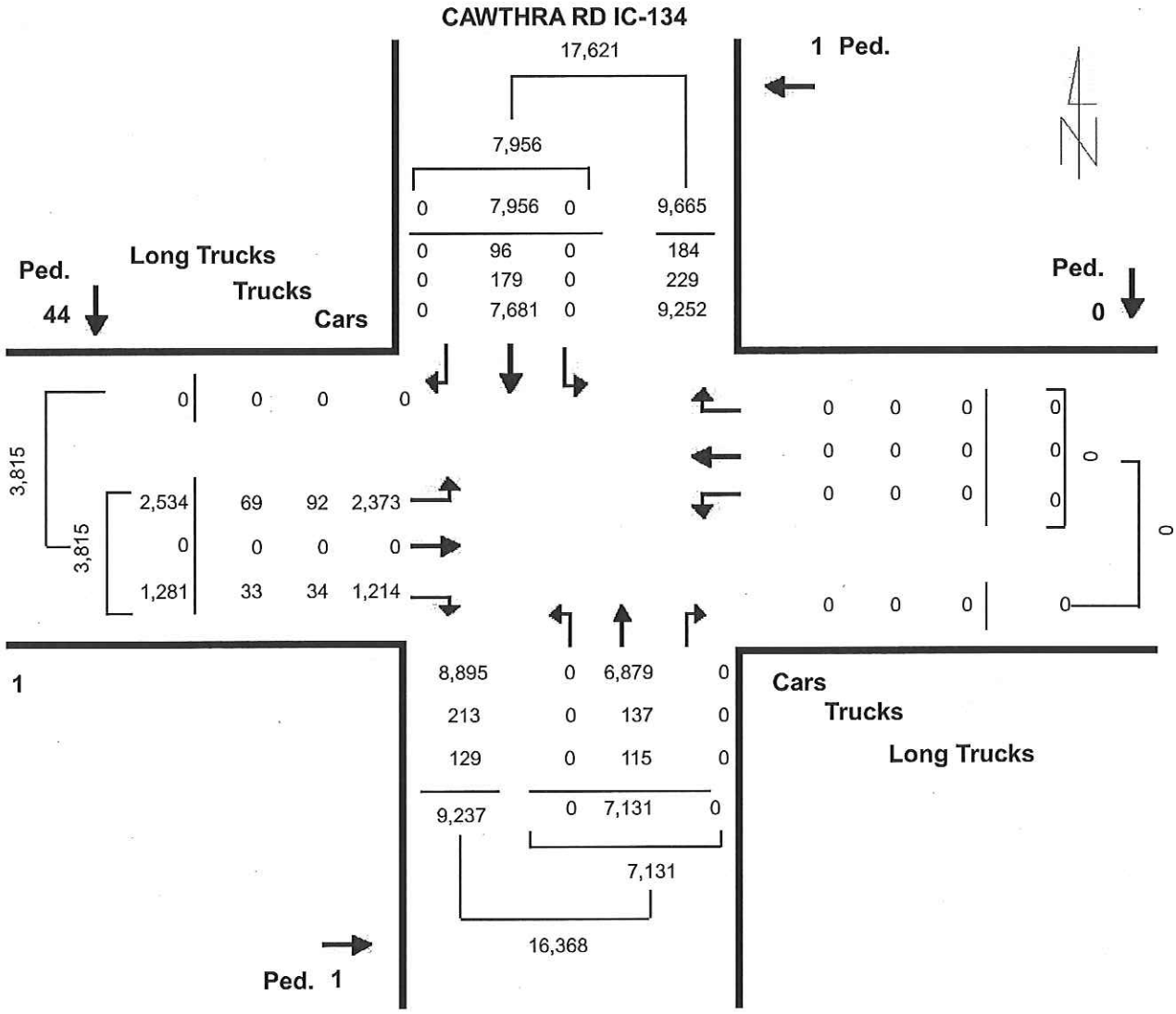
Traffic Engineering Software

COUNT TOTAL

HWY 1 @ CAWTHRA RD IC-134

Central

Intersection ID:101510000(--S--) **Date: 31-May-2016**



15 MIN REPORT

Intersection ID:101510000(--S--) **HWY 1 @ CAWTHRA RD IC-134** **Municipality: Central** **Date: 31-May-2016**

	NORTH APPROACH										EAST APPROACH										SOUTH APPROACH										WEST APPROACH										
Time	Cars			Trucks			Heavies			Ped	Cars			Trucks			Heavies			Ped	Cars			Trucks			Heavies			Ped	Cars			Trucks			Heavies			Ped	Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		
Period1																																									
6:15	0	48	0	0	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	76	0	0	0	0	0	1	0	0	44	0	22	0	0	0	0	0	1	0	195
6:30	0	101	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	131	0	0	1	0	0	1	0	0	57	0	13	0	0	0	3	0	0	0	308
6:45	0	105	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	169	0	0	0	0	0	4	0	0	45	0	15	2	0	0	0	0	2	3	347
7:00	0	144	0	0	6	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	150	0	0	1	0	0	3	0	0	47	0	11	2	0	1	0	0	0	1	369
7:15	0	152	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	201	0	0	3	0	0	2	0	0	34	0	13	0	0	0	1	0	2	0	410
7:30	0	143	0	0	3	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	169	0	0	3	0	0	4	0	1	42	0	10	1	0	0	2	0	1	3	384
7:45	0	199	0	0	9	0	0	12	0	0	0	0	0	0	0	0	0	0	0	0	0	229	0	0	5	0	0	5	0	0	59	0	21	2	0	1	0	0	0	1	543
8:00	0	249	0	0	11	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	291	0	0	8	0	0	6	0	0	76	0	27	1	0	1	2	0	1	3	683
8:15	0	276	0	0	12	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	258	0	0	7	0	0	6	0	0	74	0	29	4	0	0	3	0	0	2	674
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8:45	0	225	0	0	9	0	0	5	0	1	0	0	0	0	0	0	0	0	0	0	0	277	0	0	7	0	0	4	0	0	90	0	43	4	0	2	3	0	3	7	680
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Period2																																									
15:15	0	282	0	0	9	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	219	0	0	3	0	0	5	0	0	69	0	62	5	0	2	3	0	3	0	671
15:30	0	286	0	0	9	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	275	0	0	6	0	0	15	0	0	85	0	78	3	0	1	5	0	2	1	769
15:45	0	242	0	0	8	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	249	0	0	9	0	0	4	0	0	99	0	74	3	0	1	3	0	2	2	699
16:00	0	304	0	0	9	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	232	0	0	3	0	0	3	0	0	68	0	80	5	0	3	2	0	0	4	719
16:15	0	280	0	0	5	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	319	0	0	7	0	0	7	0	0	72	0	31	4	0	2	4	0	0	0	733
16:30	0	292	0	0	6	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	224	0	0	4	0	0	3	0	0	100	0	46	1	0	1	4	0	1	1	686
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17:00	0	344	0	0	3	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	215	0	0	3	0	0	5	0	0	74	0	36	1	0	0	1	0	0	0	686
17:15	0	310	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	242	0	0	1	0	0	1	0	0	90	0	41	2	0	1	0	0	0	0	692
17:30	0	332	0	0	2	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	193	0	0	4	0	0	3	0	0	66	0	30	3	0	0	2	0	1	3	642
17:45	0	336	0	0	3	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	206	0	0	3	0	0	4	0	0	35	0	19	2	0	1	0	0	0	1	611
18:00	0	341	0	0	3	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	208	0	0	2	0	0	2	0	0	63	0	42	3	0	2	2	0	0	0	669
18:15	0	318	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	248	0	0	10	0	0	2	0	0	82	0	55	3	0	0	1	0	0	0	720
18:30	0	318	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	225	0	0	1	0	0	2	0	0	87	0	50	5	0	0	1	0	1	4	694
18:45	0	295	0	0	5	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	211	0	0	2	0	0	1	0	0	84	0	44	5	0	0	5	0	0	1	655
19:00	0	270	0	0	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	180	0	0	5	0	0	0	0	0	99	0	55	5	0	1	1	0	1	1	621

Ministry of Transportation
Ministère des Transports

Intersection Layout Sheet

Version: 1.0 Feb 1, 2016

Contract # 9015-E-0009
Work Order # 057

Date: MAY 31/2016 Day: TUES/ Hrs: 06 - 10 + 15 - 19 + ___ - ___

Location: CAWTHRA RD [C-134 - SOUTH SERVICE RD Ramps: - /

Reg/Mun: CR Town/City: MISSISSAUGA Area: -

File Name: 01015 0000 Device: Gretch / Jamar Unit # 8 / Interval 1: (AM) / NN / PM

Observer: OXANA VYATKINA Weather: Clear/ Road Condition: GOOD /

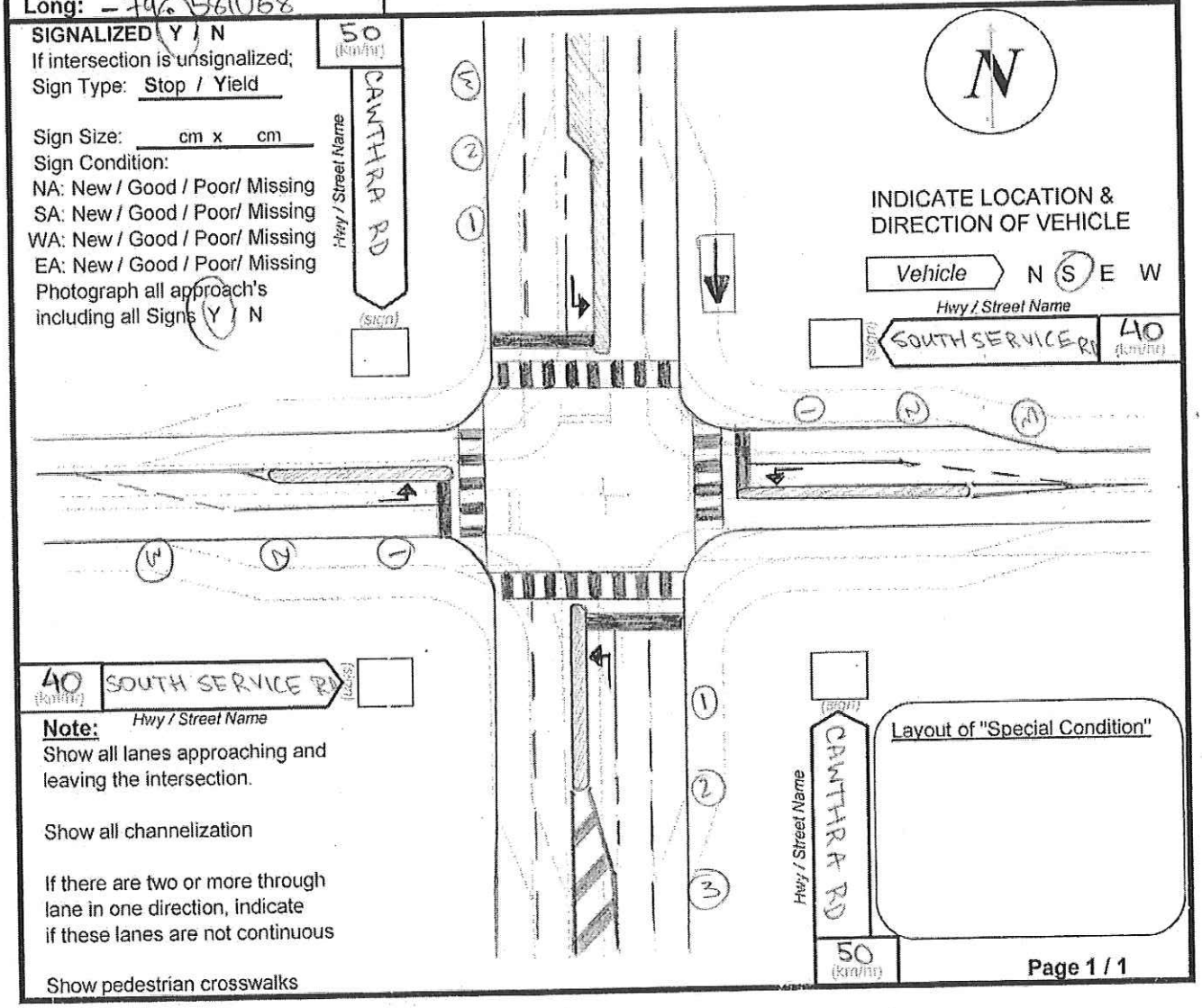
LHRS & O/S: 10151 — O

GPS: G-STAR IV
Datum: WGS 84 (Y) / N
Lat: 43.580812
Long: -79.581068

Comments:

SIGNALIZED (Y) / N
If intersection is unsignalized;
Sign Type: Stop / Yield

Sign Size: ___ cm x ___ cm
Sign Condition:
NA: New / Good / Poor/ Missing
SA: New / Good / Poor/ Missing
WA: New / Good / Poor/ Missing
EA: New / Good / Poor/ Missing
Photograph all approach's including all Signs (Y) / N



Note:
Show all lanes approaching and leaving the intersection.

Show all channelization

If there are two or more through lane in one direction, indicate if these lanes are not continuous

Show pedestrian crosswalks

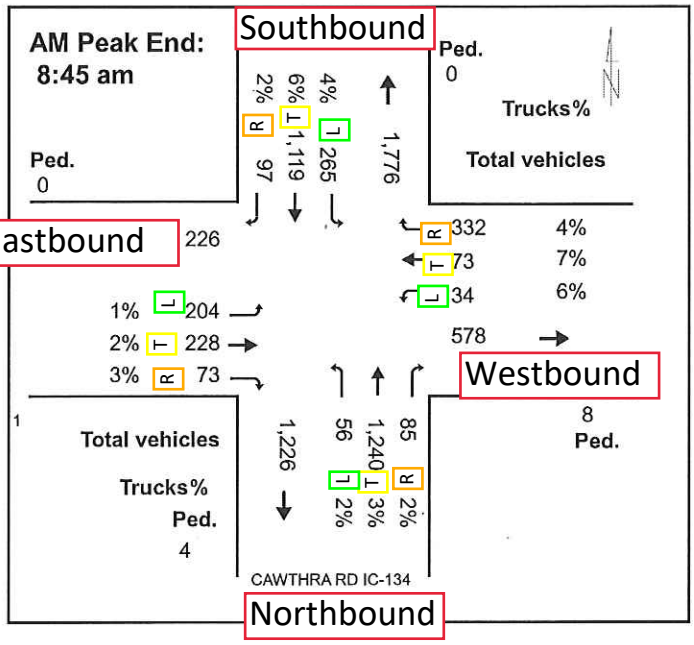
Layout of "Special Condition"

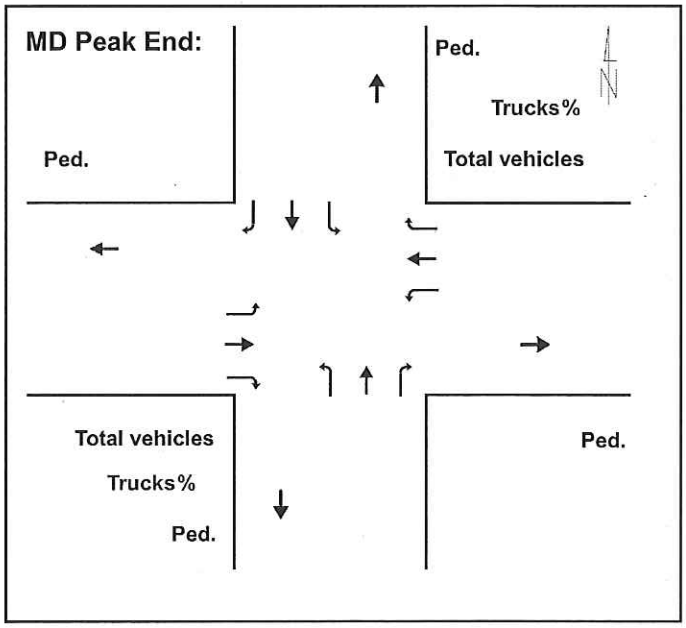
Ontario

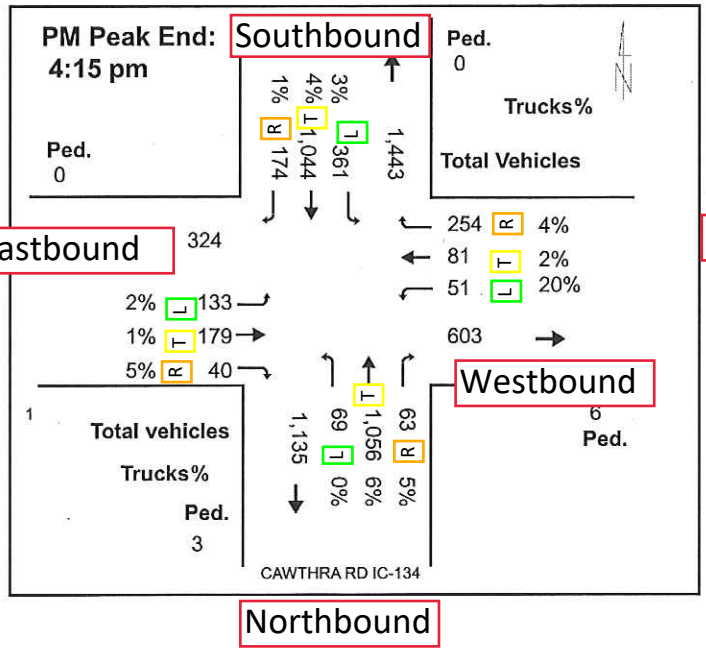
HWY 1 @ CAWTHRA RD IC-134

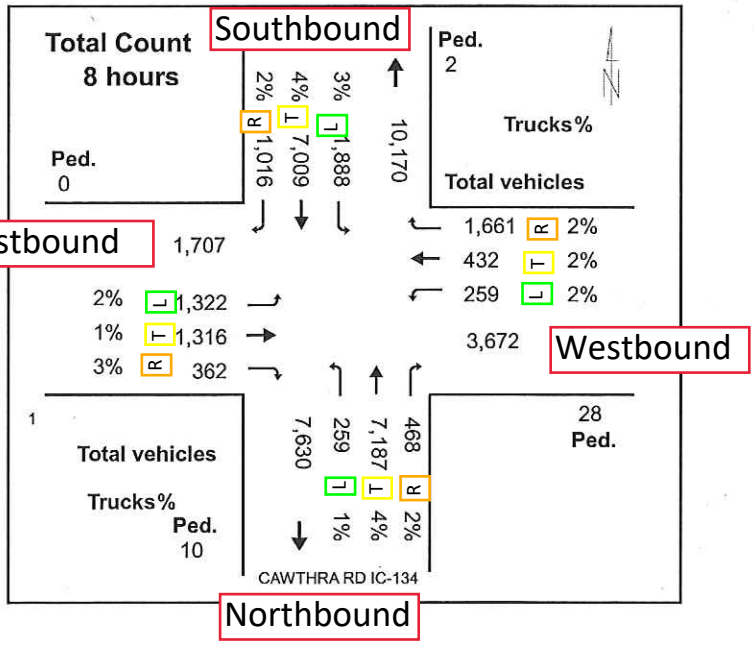
Central

Intersection ID:101510000 **Count Day: Tuesday** **Count Date: 31-May-2016**









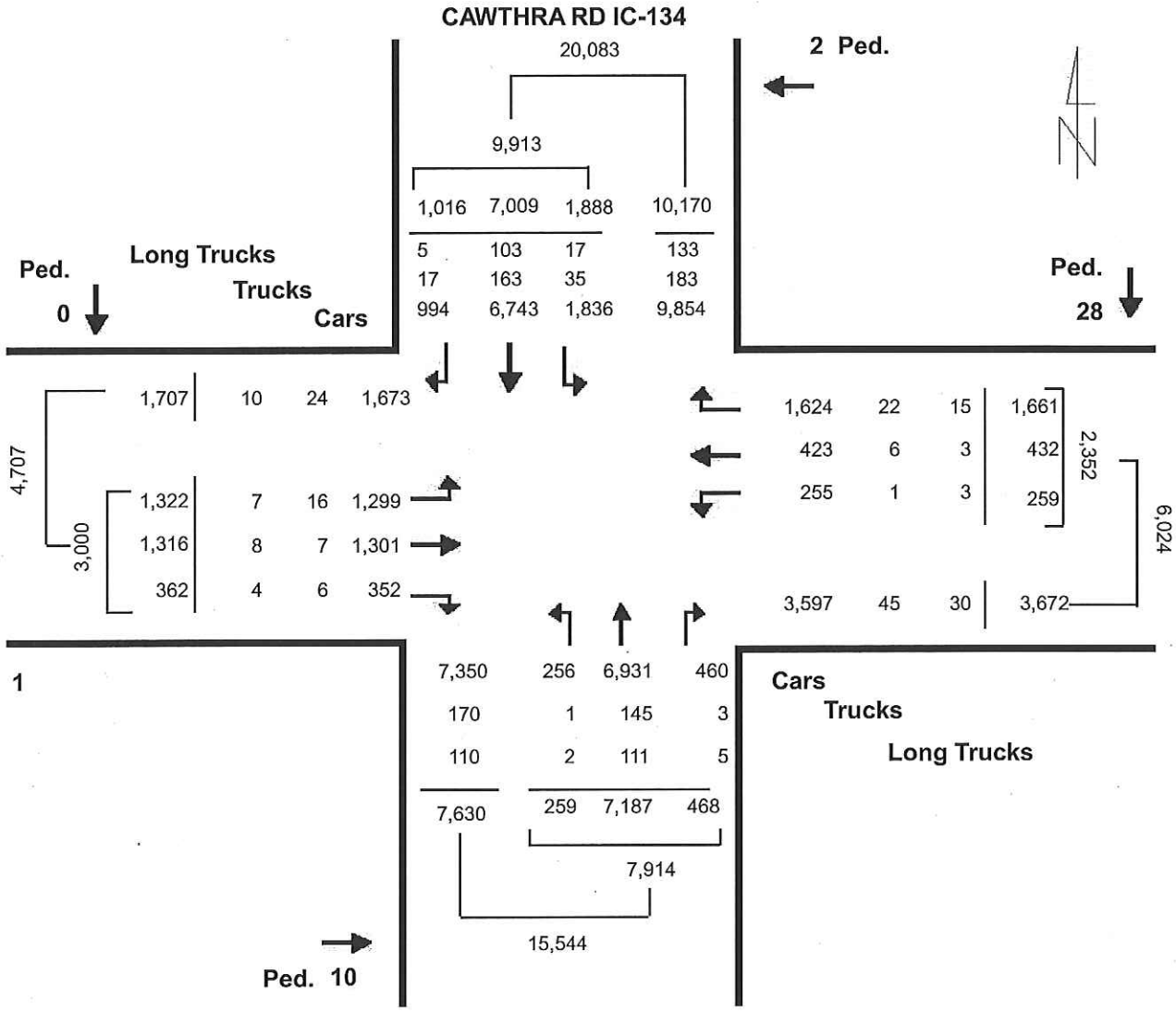
Traffic Engineering Software

COUNT TOTAL

HWY 1 @ CAWTHRA RD IC-134

Central

Intersection ID:101510000 **Date: 31-May-2016**



15 MIN REPORT

Intersection ID:101510000 **HWY 1 @ CAWTHRA RD IC-134** **Municipality: Central** **Date: 31-May-2016**

	NORTH APPROACH										EAST APPROACH										SOUTH APPROACH										WEST APPROACH										
Time	Cars			Trucks			Heavies			Ped	Cars			Trucks			Heavies			Ped	Cars			Trucks			Heavies			Ped	Cars			Trucks			Heavies			Ped	Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		
Period1																																									
6:15	12	62	5	0	1	0	1	1	0	0	0	1	8	0	0	0	0	0	0	0	0	111	5	0	0	0	0	0	0	0	28	3	4	0	0	0	0	0	0	0	242
6:30	22	80	1	0	0	0	0	2	0	0	1	3	27	0	0	0	0	0	0	0	1	139	8	0	1	0	0	1	0	0	22	35	6	0	0	0	0	0	0	0	349
6:45	23	93	5	0	1	1	0	1	1	0	2	2	32	0	0	0	0	0	1	0	1	183	20	0	1	0	0	3	0	0	34	32	3	0	0	0	0	0	0	0	439
7:00	29	129	5	0	6	1	0	3	0	0	4	0	19	0	0	0	0	0	1	0	3	182	25	0	2	0	0	3	0	0	43	59	11	0	1	0	0	0	0	0	526
7:15	43	115	12	0	2	0	1	0	1	0	2	3	36	0	0	0	0	0	1	0	0	232	16	0	4	0	0	2	0	0	40	59	10	0	0	1	1	0	0	0	581
7:30	44	134	14	0	4	0	1	2	0	0	5	1	35	0	0	0	0	0	1	3	0	256	26	0	7	1	0	2	0	0	58	69	10	0	0	0	0	0	0	0	673
7:45	77	167	16	3	6	0	6	7	0	0	1	9	55	0	0	1	0	0	3	0	5	274	21	0	7	0	0	2	1	0	45	41	9	0	0	0	0	0	0	0	756
8:00	86	211	22	5	10	0	1	6	0	0	5	14	85	0	2	3	2	2	4	0	11	282	20	0	5	0	0	2	0	0	56	72	10	1	1	0	0	2	1	0	921
8:15	84	256	18	1	10	0	0	3	0	0	5	23	89	0	1	3	0	0	1	4	11	262	19	0	4	0	1	9	2	2	49	68	26	1	0	0	0	1	0	0	953
8:30	45	330	34	1	12	1	0	7	0	0	8	19	77	0	0	2	0	0	0	3	19	340	21	0	4	0	0	5	0	0	48	46	24	0	0	0	0	0	1	0	1047
8:45	40	259	21	2	10	0	0	5	1	0	14	12	67	0	0	1	0	0	0	1	14	318	23	0	5	0	0	4	0	2	49	38	11	0	0	0	0	0	0	0	897
9:00	31	163	18	0	8	1	0	5	0	0	7	10	41	0	0	0	0	0	0	1	6	266	13	0	14	0	0	6	0	0	40	33	9	0	0	0	0	0	0	0	672
9:15	38	154	25	1	11	0	0	4	0	0	3	12	36	0	0	0	0	0	0	1	2	183	19	0	7	0	0	2	1	0	48	21	8	0	0	1	1	2	0	0	580
9:30	57	167	10	1	10	0	0	6	1	1	2	5	46	0	0	0	0	0	0	2	3	188	16	0	5	0	0	2	0	0	54	28	10	0	0	0	0	0	0	0	614
9:45	49	158	12	0	6	1	1	2	0	0	6	6	31	0	0	0	0	0	0	0	7	185	15	0	3	0	0	1	0	0	35	14	11	1	0	0	1	0	0	0	545
10:00	56	148	25	3	10	2	0	6	0	0	6	6	31	0	0	0	0	0	0	3	1	157	9	0	10	0	0	7	0	0	23	21	9	0	0	0	0	1	0	0	534
Period2																																									
15:15	60	259	33	2	9	0	1	10	0	0	10	17	57	0	0	0	0	0	1	0	12	242	8	1	3	0	0	2	0	1	23	11	6	0	0	0	1	0	0	0	769
15:30	65	251	52	4	6	0	1	4	0	0	13	15	61	0	1	4	0	0	1	3	16	279	16	0	6	0	0	17	0	1	26	17	10	0	1	0	0	0	1	0	871
15:45	95	238	38	1	9	0	0	4	0	0	12	19	66	0	0	1	0	0	0	2	15	241	11	0	9	0	0	5	1	0	22	21	6	0	0	0	0	0	1	0	817
16:00	125	286	43	3	8	1	0	5	1	0	11	26	75	0	1	2	0	0	1	1	25	176	18	0	3	2	0	3	0	2	39	74	11	1	0	0	0	0	0	0	943
16:15	66	225	39	1	6	0	0	2	0	0	14	19	43	0	0	0	1	0	0	0	13	301	15	0	9	0	0	7	0	0	43	66	11	1	0	0	1	0	0	0	883
16:30	71	264	53	0	3	3	2	2	0	1	7	16	56	0	0	0	0	1	0	1	5	176	10	0	6	0	1	3	0	1	37	38	10	4	0	0	1	1	0	0	773
16:45	50	255	44	0	2	1	0	0	0	0	14	7	49	0	0	0	0	0	0	1	10	236	12	0	2	0	0	4	0	0	25	30	9	0	0	0	0	0	0	0	751
17:00	71	269	55	1	2	0	0	4	0	0	11	21	52	0	0	1	0	0	0	0	5	205	7	0	3	0	0	1	0	0	40	37	15	1	1	0	0	0	0	0	802
17:15	62	251	49	2	2	0	0	2	0	0	13	22	58	0	1	1	0	0	0	0	18	198	12	0	0	0	0	3	0	0	21	28	15	1	1	0	0	0	0	0	760
17:30	54	263	54	0	0	1	0	4	0	0	9	25	68	0	0	1	0	0	0	0	7	196	13	0	4	0	0	2	0	0	31	36	15	0	0	1	0	0	0	0	784
17:45	64	255	57	1	2	2	0	1	0	0	17	27	54	0	0	0	0	0	0	0	7	200	5	0	3	0	0	4	0	0	57	74	16	0	1	0	0	1	0	0	848
18:00	63	272	75	0	3	1	0	1	0	0	11	24	41	0	0	1	0	0	0	0	7	182	11	0	3	0	0	3	0	0	93	91	16	0	0	1	1	0	0	0	900
18:15	78	260	48	0	0	0	0	1	0	0	10	17	60	0	0	0	0	0	0	0	11	193	9	0	7	0	0	2	0	0	57	45	10	3	0	1	0	0	0	0	812
18:30	66	294	49	0	0	1	1	0	0	0	10	15	59	1	0	0	0	0	0	2	9	202	16	0	1	0	0	2	0	0	39	40	14	0	0	0	0	0	0	0	821
18:45	56	250	33	3	1	0	0	2	0	0	10	12	55	0	0	0	0	0	0	0	8	189	9	0	5	0	0	1	0	1	35	31	5	0	0	0	0	0	0	0	706
19:00	54	225	29	0	3	0	1	1	0	0	12	15	55	0	0	1	0	0	0	0	4	157	12	0	2	0	0	1	0	0	39	23	12	2	1	1	0	0	0	0	650

APPENDIX D

NOISE MITIGATION GUIDANCE

Acoustic/Noise Barrier

Generally, noise controls to attenuate transportation sound levels at Outdoor Living Areas (OLAs) would consist of the implementation of acoustic/noise barriers with materials that would meet the guidance included in NPC-300, for example:

- A wall, berm, wall/berm combination or similar structure, used as a noise control measure, and high enough to break the line-of-sight between the source and the receptor.
- The minimum surface density (face weight) is 20 kg/m^2
    - Many materials could satisfy the surface density requirement, e.g. wood, glass, concrete, Plexiglas, Acrylite.
    - The required thickness can be determined by dividing the 20 kg/m^2 face weight by the material density (kg/m^3). Typically, this would imply:
        - 50 mm (2") thickness of wood
        - 13 mm (0.5") thickness of lighter plastic (like Plexiglas or PVC)
        - 6 mm (0.25") thickness of heavier material (like aluminum, glass, concrete)
- The barrier should be structurally sound, appropriately designed to withstand wind and snow load, and constructed without cracks or surface gaps. Joints between panels may need to be overlapped to ensure surfaces are free of gaps, particularly for wood construction.
- Any gaps under the barrier that are necessary for drainage purposes should be minimized and localized, so that the acoustical performance of the barrier is maintained.
- If a sound absorptive face is to be included in the barrier design, the minimum noise reduction coefficient is recommended to be NRC 0.7.

Building Ventilation and Air Conditioning

The use of air conditioning itself is not a noise control measure; however, it allows for windows and doors to remain closed, thereby reducing the indoor sound levels.

NPC-300 provides the following guidance with respect to implementation of building ventilation and air conditioning:

a. the noise produced by the proposed ventilation system in the space served does not exceed 40 dBA. In practice, this condition usually implies that window air conditioning units are not acceptable;
b. the ventilation system complies with all national, provincial and municipal standards and codes;
c. the ventilation system is designed by a heating and ventilation professional; and
d. the ventilation system enables the windows and exterior doors to remain closed.

Air conditioning systems also need to comply with Publication NPC-216, and/or any local municipal noise by-law that has provisions relating to air conditioning equipment.

APPENDIX E

WARNING CLAUSES

Warning clauses are recommended to be included on all development agreements, offers of purchase and agreements of purchase and sale or lease. Warning clauses may be used individually or in combination.

The following warning clauses are recommended based on the applicable guidelines; however, wording may be modified/customized during consultation with the planning authority to best suit the proposed development:

Transportation Sources

NPC-300 Type A: Recommended to address surface transportation sound levels in OLAs if sound level is in the range of >55 dBA but ≤ 60 dBA, and noise controls have not been provided.

"Purchasers/tenants are advised that sound levels due to increasing road traffic (rail traffic) (air traffic) may occasionally 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."

NPC-300 Type B: Recommended to address surface transportation sound levels in OLAs if the sound level is in the range of >55 dBA but ≤ 60 dBA, and noise controls have been provided. Recommended to address outdoor aircraft sound levels ≥NEF 30.

"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 (rail traffic) (air 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."

NPC-300 Type C: Applicable for low and medium density developments only, recommended to address transportation sound levels at the plane of window.

"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."

NPC-300 Type D: Recommended to address transportation sound levels at the plane of window.

"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."

Proximity to Railway Line: Metrolinx/CN/CP/VIA Warning Clause for developments that are within 300 metres of the right-of-way

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

Stationary Sources

NPC-300 Type E: Recommended to address proximity to commercial/industrial land-use

"Purchasers/tenants are advised that due to the proximity of the adjacent industrial/commercial land-uses, noise from the industrial/commercial land-uses may at times be audible."

NPC-300 Type F: Recommended to for Class 4 Area Notification

"Purchasers/tenants are advised that sound levels due to the adjacent industry (facility) (utility) are required to comply with sound level limits that are protective of indoor areas and are based on the assumption that windows and exterior doors are closed. This dwelling unit has been supplied with a ventilation/air conditioning system which will allow windows and exterior doors to remain closed."