

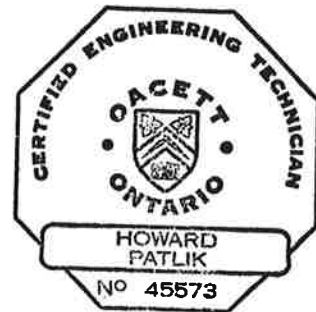
**NOISE & VIBRATION IMPACT STUDY  
MIXED-USE DEVELOPMENT  
466 DOVERCOURT ROAD  
TORONTO, ONTARIO**

**FOR**

**466DCR URBAN PROPERTIES INC.**

**COMPLETED BY**

  
**HOWARD R. PATLIK, C.E.T.**



**CHECKED BY**

  
**JOHN E. COULTER, B.A.Sc., P.ENG.**



**J.E. COULTER ASSOCIATES LIMITED  
1210 SHEPPARD AVENUE EAST, SUITE 211  
TORONTO, ONTARIO  
M2K 1E3**

**DECEMBER 17, 2019**

## TABLE OF CONTENTS

|   |    |
|---|----|
| INTRODUCTION .....                                      | 1  |
| DESCRIPTION OF PROPOSED SITE AND SURROUNDING AREA.....  | 1  |
| NOISE CRITERIA.....                                     | 1  |
| TRANSPORTATION SOURCES .....                            | 4  |
| PROJECTED SOUND LEVELS (TRANSPORTATION SOURCES) .....   | 4  |
| IMPACT OF EXTERIOR NOISE ON BUILDING .....              | 6  |
| IMPACT OF BUILDING ON ITSELF AND SURROUNDING AREA ..... | 6  |
| IMPACT OF SURROUNDING AREA ON BUILDING.....             | 6  |
| TTC STREETCAR VIBRATION ANALYSIS.....                   | 9  |
| TRANSPORTATION NOISE MITIGATION MEASURES .....          | 10 |
| FAÇADE COMPONENTS.....                                  | 11 |
| CONCLUSIONS .....                                       | 11 |
| RECOMMENDATIONS .....                                   | 12 |

## LIST OF TABLES

|   |    |
|---|----|
| Table 1: Sound Level Limits – Road And Rail.....  | 2  |
| Table 2: Indoor Sound Level Limits.....   | 3  |
| Table 3: Traffic $L_{eq}$ Sound Levels.....   | 5  |
| Table 4: Calculated Background Sound Levels (dB $L_{eq}$ , 1 Hour).....                           | 7  |
| Table 5: Summary of Off-Site Stationary Unmitigated Sound Sources at Receivers<br>Daytime .....   | 8  |
| Table 6: Summary of Off-Site Stationary Unmitigated Sound Sources at Receivers<br>Nighttime ..... | 9  |
| Table 7: Streetcar Vibration Monitoring.....  | 10 |

## APPENDICES

APPENDIX A: FIGURES

APPENDIX B: SOUND LEVEL CALCULATIONS

APPENDIX C: WARNING CLAUSES

APPENDIX D: NOISE CRITERIA

APPENDIX E: REFERENCES

## INTRODUCTION

At the request of 466DCR Urban Properties Inc., J.E. COULTER ASSOCIATES LIMITED has reviewed the plans for the proposed residential building at 466 Dovercourt Road (north of College Street) in the City of Toronto (see Appendix A, Figure 1).

The purpose of this report is to identify any noise sources that may have an impact on the proposed development, the possible impact of the proposed building on the surrounding neighbourhood, and the potential noise impact of the building itself on the occupants. The report will provide recommendations on the abatement of these noise sources, should these measures be required. The Ministry of the Environment, Conservation and Parks noise criteria are listed in Appendix D.

## DESCRIPTION OF PROPOSED SITE AND SURROUNDING AREA

The proposed site layout includes a 6-storey mixed-use building on the west side of Dovercourt Road, approximately 30m north of College Street. The floor plans are provided in Appendix A, Figures 2 to 6). Elevations of the proposed building are provided in Appendix A, Figures 7 to 9. The east façade is approximately 13m from the centreline of Dovercourt Road. The site includes commercial space on floor 1 with the remaining floors (2 to 6) as residential units. Along the north side of College Street directly south of the proposed development is an existing 3-storey building (approximately 9m high) with commercial at grade and two-storey apartment units above. To the east, along the north side of College Street are similar types of buildings (grade level commercial with 2- and 3-storey apartments above).

## NOISE CRITERIA

### Ministry of the Environment, Conservation and Parks (MECP)

MECP's noise criteria for outdoor living areas (OLAs) outlined in *NPC-300* is 55 dB  $L_{eq}$  daytime as outlined in Sections C7.1.1 and C7.2.1. The pertinent sections of the guideline are noted below:

#### C7.1.1 Outdoor Living Areas

If the 16-Hour Equivalent Sound Level,  $L_{eq}$  (16) in the OLA is greater than 55 dBA and less than or equal to 60 dBA, noise control measures may be applied to reduce the sound level to 55 dBA. If measures are not provided, prospective purchasers or tenants should be informed of potential noise problems by a warning clause Type A.

If the 16-Hour Equivalent Sound Level,  $L_{eq}$  (16) in the OLA is greater than 60 dBA, noise control measures should be implemented to reduce the level to 55 dBA. Only in cases where the required noise control measures are not feasible for technical, economic or administrative reasons would an excess above the limit (55 dBA) be acceptable with a warning clause Type B. In the above situations, any excess above the limit will not be acceptable if it exceeds 5 dB.

**C7.1.2.1 Daytime Period, 07:00 – 23:00 Hours**

Noise control measures may not be required if the  $L_{eq}$  (16) daytime sound level in the plane of a bedroom or living/dining room window is less than or equal to 55 dBA. If the sound level in the plane of a bedroom or living/dining room window is greater than 55 dBA and less than or equal to 65 dBA, the dwelling should be designed with a provision for the installation of central air conditioning in the future, at the occupant's discretion. A warning clause is also recommended.

If the daytime sound level in the plane of a bedroom or living/dining room window is greater than 65 dBA, installation of central air conditioning should be implemented with a warning clause Type D. In addition, building components including windows, walls and doors, where applicable, should be designed so that the indoor sound levels comply with the sound level limits in Table C-2. The location and installation of the outdoor air conditioning device should comply with sound level limits of Publication *NPC-216*, Reference [32], and guidelines contained in *Environmental Noise Guidelines for Installation of Residential Air Conditioning Devices*, or should comply with other criteria specified by the municipality.

The criteria are summarized below:

| <b>Table 1: Sound Level Limits<br/>Road And Rail</b>   |                    |                                  |             |
|--|--------------------|----------------------------------|-------------|
| <b>Type of Space</b>   | <b>Time Period</b> | <b><math>L_{eq}</math> (dBA)</b> |             |
|  |                    | <b>Road</b>                      | <b>Rail</b> |
| <b>INDOOR LIMITS</b>   |                    |                                  |             |
| Living/dining, den areas of residences, hospitals, nursing homes, schools, daycare centres, etc.           | 07:00 – 23:00      | 45                               | 40          |
| Living/dining, den areas of residences, hospitals, nursing homes, etc. (except schools or daycare centres) | 23:00 – 07:00      | 45                               | 40          |
| Sleeping quarters  | 07:00 – 23:00      | 45                               | 40          |
|  | 23:00 – 07:00      | 40                               | 35          |
| <b>OUTDOOR LIMITS</b>  |                    |                                  |             |
| Outdoor recreation areas <sup>1</sup>  | 07:00 – 23:00      | 55                               | 55          |
| Outside bedroom window   | 23:00 – 07:00      | 50                               | 50          |
| Outside living room window   | 07:00 – 23:00      | 55                               | 55          |

<sup>1</sup> Up to 5 dB excess above criteria is allowed, provided a warning clause is given. Above 60 dB  $L_{eq}$ , exterior noise mitigation measures (i.e. noise barriers, intervening structures, additional set back from source) are required.

“Outdoor living area (OLA)” (applies to impact assessments of transportation sources) means that part of a noise sensitive land use that is:

- a. intended and designed for the quiet enjoyment of the outdoor environment; and
- b. readily accessible from the building. The OLA includes:
- c. backyards, front yards, gardens, terraces or patios;
- d. balconies and elevated terraces (e.g., rooftops), with a minimum depth of 4 metres, that are not enclosed, provided they are the only outdoor living area (OLA) for the occupant; or
- e. common outdoor living areas (OLAs) associated with high-rise multi-unit buildings.

The following considerations apply to OLAs:

1. For the purposes of noise impact assessment in an OLA at grade, the point of assessment is typically:
  - a. 3 metres from the building façade;
  - b. 1.5 metres above grade or floor level; and
  - c. aligned with the midpoint of the subject façade.
2. For elevated OLAs or those at grade that are less than 6 metres in depth, the point of assessment is in the middle of the OLA at 1.5 metres above grade or floor level.
3. The noise impact assessment at an OLA excludes the effect of sound reflection from the façade. In general, the point of assessment in the OLA is a point used for prediction (including extrapolation), rather than measurement, of sound levels.

As the development includes commercial, institutional, hotel and office areas, MECP requires the interior sound levels meet the following limits:

| <b>Table 2: Indoor Sound Level Limits</b>  |                    |                             |             |
|--|--------------------|-----------------------------|-------------|
| <b>Type of Space</b>   | <b>Time Period</b> | <b>L<sub>eq</sub> (dBA)</b> |             |
|  |                    | <b>Road</b>                 | <b>Rail</b> |
| General offices, reception areas, retail stores, etc.  | 07:00 – 23:00      | 50                          | 45          |
| Living/dining areas of residences, hospitals, schools, nursing/retirement homes, daycare centres, theatres, places of worship, libraries, individual or semiprivate offices, conference rooms, reading rooms, etc. | 07:00 – 23:00      | 45                          | 40          |
| Sleeping quarters of hotels/motels   | 23:00 – 07:00      | 45                          | 40          |
| Sleeping quarters of residences, hospitals, nursing/retirement homes, etc.   | 23:00 – 07:00      | 40                          | 35          |

For stationary noise sources affecting this site, such as HVAC equipment on adjacent buildings, or equipment on this building affecting other sensitive receivers, *NPC-300* from the MECP, echoed in the City of Toronto Noise Bylaw, applies. In this case, *NPC-300* indicates the average noise at the façades of the building from adjacent noise sources should not exceed the average sound levels from the surrounding roadways. Because of the high sound levels created by the surrounding roadways, the area's sensitivity to conventional sources of stationary noise is low.

## **TRANSPORTATION SOURCES**

The potential sources of transportation noise at the proposed site are vehicular traffic on College Street (cars, trucks and streetcars) and Dovercourt Road. Traffic information for College Street and Dovercourt Road was provided by the City of Toronto (see Appendix B).

Currently (2017, latest data), College Street west of Dovercourt Road carried 14,876 vehicles per day (AADT). Projecting the traffic to the year 2029 at an annual growth rate of 2% (compounded) for the purposes of noise control measures, the traffic volume is estimated to be approximately 18,866 vehicles per day (AADT). The medium and heavy truck mix is 2.65% and 0.35% of the total traffic, respectively. There are 351 streetcar passbys per 24 hours (260 and 91 during the day and night times, respectively).

The projected traffic volumes for College Street West and Dovercourt Road, for the purposes of our calculations, represent an increase from the current sound levels of only 1 dB, a change most people cannot detect over the long term (i.e., from one hour to the next).

The posted speed limit is 50 kph on both roads. All recommendations for noise control measures are based on the exterior sound levels at the bedroom and living room windows.

The TTC Streetcar passbys and the resultant ground-borne vibration levels are presented later in this report.

## **PROJECTED SOUND LEVELS (TRANSPORTATION SOURCES)**

The following table summarizes the road traffic sound levels at various façade locations. Details of the sound level calculations are provided in Appendix B.

**Table 3: Traffic L<sub>eq</sub> Sound Levels**

| Location       | Daytime Sound Level (Top Floor) |            |                 |       | Nighttime Sound Level (Top Floor) |            |                 |       |
|----------------|---------------------------------|------------|-----------------|-------|-----------------------------------|------------|-----------------|-------|
|                | College Street                  | Streetcars | Dovercourt Road | Total | College Street                    | Streetcars | Dovercourt Road | Total |
| R1 – SE Façade | 60                              | 58         | 60              | 64    | 53                                | 57         | 53              | 60    |
| R2 – SW Façade | 60                              | 57         | 51              | 62    | 53                                | 56         | 45              | 58    |
| R3 – NW Façade | 56                              | 54         | 49              | 59    | 49                                | 53         | 42              | 55    |
| R4 – NE Façade | 56                              | 54         | 60              | 62    | 49                                | 53         | 53              | 57    |

Notes: 1. The sound levels above represent the worst case sound levels at the development. The overall sound levels at the lower floors will be marginally less (1–2 dB) compared to the top floor.

2. MECP's STAMSON 5.04 programme cannot directly calculate the sound levels where the setback is less than 15m. The east façade of the building is 10.5m from the centreline of Dovercourt Road and the programme has been adjusted to account for the shorter setback.

## **IMPACT OF EXTERIOR NOISE ON BUILDING**

The impact at the exterior building façade from the roadway noise is anticipated to be modest. Adequate interior sound levels can be achieved in the bedroom and living/dining room areas using standard types of façade construction, potentially with minor upgrades for very large window areas. We would expect any OBC compatible double glazing using 3mm lites on a 13mm air space to be typical, an arrangement likely needed for wind load in any case.

The MECP does not consider a terrace whose depth is less than 4m to be an outdoor amenity space. All outdoor amenity area are less than 4m in depth and do not need to be considered for noise.

## **IMPACT OF BUILDING ON ITSELF AND SURROUNDING AREA**

Refuse is to be collected via the internal storage area located at grade level. It is anticipated the garbage collection will not be a noise problem for the occupants of the proposed building, as there are no suites directly above this area, nor will this be a noise concern for the surrounding neighbourhood. Mitigation measures are not required.

At this time, the final details for the mechanical equipment are not known.

Based on preliminary information, the following equipment will be present:

1. Rooftop VRF units (8)
2. Chiller (Mezzanine Floor, west side)
3. Rooftop Make-up Air Unit, MUA (2)
4. Rooftop Emergency Generator.

Our initial review of the VRF units and MUA units was based on a sound level power of 76 and 84 dB PWLA, respectively. The unmitigated sound level at the adjacent residential buildings north and south of this site are expected to be well below (12 to 14 dB) the MECP's noise criteria of 50 dB and 45 dB  $L_{eq}$ , 1 hour, day and nighttime, respectively. No noise control measures are expected. Once the final mechanical equipment is selected and located, the acoustic consultant should verify that the noise criteria will be satisfied.

A review of the emergency generator was conducted. Based on a sound level of 75 dBA at 7m (typical for a generator with an acoustic enclosure and muffler), the sound level at the apartment units to the south are expected to generate a minor noise excess. Measures to reduce the sound levels include shifting the generator a few metres north so that it is centralized on the roof allowing the roof edge to provide a barrier. Alternatively, constructing a 1.5m U-shaped acoustic screen located 1m from the generator casing will also be adequate.

## **IMPACT OF SURROUNDING AREA ON BUILDING**

A site review of the existing commercial and residential uses was undertaken by this office. Directly to the south of this development, at the northwest corner of College Street West and Dovercourt Road, there is existing building with grade level retail with 2-storey apartment above. The building includes rooftop ventilation equipment and at the rear of the building, several air-cooled condensers units mounted to the north exterior wall, typically about 2.4m above grade (see Appendix A, Figures 2, 9 and 10).



The calculated sound levels from the off-site mechanical ventilation equipment at the College Street 3-storey building to the south are as follows during the daytime (Table 5) and nighttime (Table 6):

| <b>Table 5: Summary of Off-Site Stationary Unmitigated Sound Sources at Receivers Daytime</b> |                                |                                |                                |                                |                                |                                |                                |                                |                                |                                |                                |
|---|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|
| <b>Off-site Sources</b>   | <b>R1<br/>(2<sup>nd</sup>)</b> | <b>R2<br/>(2<sup>nd</sup>)</b> | <b>R2<br/>(3<sup>rd</sup>)</b> | <b>R2<br/>(4<sup>th</sup>)</b> | <b>R2<br/>(5<sup>th</sup>)</b> | <b>R2<br/>(6<sup>th</sup>)</b> | <b>R3<br/>(2<sup>nd</sup>)</b> | <b>R3<br/>(3<sup>rd</sup>)</b> | <b>R3<br/>(4<sup>th</sup>)</b> | <b>R3<br/>(5<sup>th</sup>)</b> | <b>R3<br/>(6<sup>th</sup>)</b> |
| Mitsubishi Wall-Mounted Condensers  | 37.0                           | 24.2                           | 35.3                           | 35.1                           | 34.9                           | 34.6                           | 35.4                           | 23.8                           | 32.3                           | 31.6                           | 30.9                           |
| Roof HVAC Units   | 48.8                           | 40.0                           | 42.5                           | 42.9                           | 42.8                           | 42.7                           | 33.5                           | 40.3                           | 49.8                           | 49.7                           | 49.5                           |
| Lennox Elevated (North Façade)  | 50.4                           | 23.6                           | 43.0                           | 42.6                           | 42.1                           | 41.5                           | 43.2                           | 23.5                           | 30.7                           | 30.5                           | 30.4                           |
| Condenser Elevated (North Façade)   | 45.7                           | 31.2                           | 40.1                           | 39.9                           | 39.6                           | 39.1                           | 40.3                           | 30.9                           | 39.3                           | 38.6                           | 37.9                           |
| <b>Total (dB L<sub>eq</sub>)</b>  | <b>54</b>                      | <b>41</b>                      | <b>47</b>                      | <b>47</b>                      | <b>47</b>                      | <b>46</b>                      | <b>46</b>                      | <b>41</b>                      | <b>50</b>                      | <b>50</b>                      | <b>50</b>                      |
| Noise Criteria (dB), Class 1  | 50                             | 50                             | 50                             | 50                             | 50                             | 50                             | 53                             | 53                             | 53                             | 53                             | 53                             |
| Noise Impact (dB)   | <b>4</b>                       | <b>-9</b>                      | <b>-3</b>                      | <b>-3</b>                      | <b>-3</b>                      | <b>-4</b>                      | <b>-7</b>                      | <b>-12</b>                     | <b>-3</b>                      | <b>-3</b>                      | <b>-3</b>                      |

| <b>Table 6: Summary of Off-Site Stationary Unmitigated Sound Sources at Receivers<br/>Nighttime</b> |                                |                                |                                |                                |                                |                                |                                |                                |                                |                                |                                |
|---|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|
| <b>Off-Site Sources</b>   | <b>R1<br/>(2<sup>nd</sup>)</b> | <b>R2<br/>(2<sup>nd</sup>)</b> | <b>R2<br/>(3<sup>rd</sup>)</b> | <b>R2<br/>(4<sup>th</sup>)</b> | <b>R2<br/>(5<sup>th</sup>)</b> | <b>R2<br/>(6<sup>th</sup>)</b> | <b>R3<br/>(2<sup>nd</sup>)</b> | <b>R3<br/>(3<sup>rd</sup>)</b> | <b>R3<br/>(4<sup>th</sup>)</b> | <b>R3<br/>(5<sup>th</sup>)</b> | <b>R3<br/>(6<sup>th</sup>)</b> |
| Mitsubishi<br>Wall-Mounted<br>Condensers  | 34.0                           | 21.2                           | 32.3                           | 32.1                           | 31.9                           | 31.6                           | 32.4                           | 20.8                           | 29.3                           | 28.6                           | 27.9                           |
| Roof HVAC Units   | 43.5                           | 33.5                           | 39.2                           | 39.5                           | 39.4                           | 39.3                           | 28.3                           | 33.9                           | 43.4                           | 43.2                           | 43.1                           |
| Lennox Elevated<br>(North Façade)   | 47.4                           | 20.6                           | 40.0                           | 39.6                           | 39.1                           | 38.5                           | 40.2                           | 20.5                           | 27.7                           | 27.5                           | 27.4                           |
| Condenser<br>Elevated<br>(North Façade)   | 42.7                           | 28.2                           | 37.1                           | 36.9                           | 36.6                           | 36.1                           | 37.3                           | 27.9                           | 36.3                           | 35.6                           | 34.9                           |
| <b>Total (dB L<sub>eq</sub>)</b>  | 50                             | 35                             | 44                             | 44                             | 44                             | 43                             | 43                             | 35                             | 44                             | 44                             | 44                             |
| Noise Criteria<br>(dB), Class 1   | 45                             | 45                             | 45                             | 45                             | 45                             | 45                             | 45                             | 45                             | 45                             | 45                             | 45                             |
| Noise Impact (dB)   | <b>5</b>                       | <b>-10</b>                     | <b>-1</b>                      | <b>-1</b>                      | <b>-1</b>                      | <b>-2</b>                      | <b>-2</b>                      | <b>-10</b>                     | <b>-1</b>                      | <b>-1</b>                      | <b>-1</b>                      |

The projected sound levels from the mechanical equipment from the property to the south are 4 and 5 dB above MECF's noise criteria, if unmitigated during the daytime and nighttime, respectively. As a result, noise control measures for the exterior living room door at Suite 204 are required.

To control off-site mechanical system from the building to the south at the northwest corner of College Street West and Dovercourt Road, the condominium building has been designed so that fixed windows or non-sensitive rooms are placed along the south façade. Where there is a noise sensitive point of reception (i.e. living room patio door at Suite 204), a full height (floor to underside of slab above) solid barrier (constructed with any combination of glass, concrete or solid metal) has been proposed to shield the stationary sources. The full-height barrier is to be 2.46m long along the south limit of the balcony (see Appendix A, Figures 9 and 10). With this glass screen in place, the sound level is expected to be well within MECF's noise criteria at all times of the day or night.

## **TTC STREETCAR VIBRATION ANALYSIS**

On-site vibration monitoring was conducted at the proposed location of the south façade closest to College Street. The setback from the closest track (WB) to the south façade of the building is approximately 38m. The monitoring took place November 15, 2019 prior to and during the afternoon rush hour. Twenty-five streetcar passbys were measured. The results are summarized below.

| <b>Table 7: Streetcar Vibration Monitoring</b> |                             |                  |
|--|-----------------------------|------------------|
|  | <b>RMS Vibration (mm/s)</b> | <b>Direction</b> |
| Streetcar 1                                    | 0.05                        | Westbound        |
| Streetcar 2                                    | 0.04                        | Eastbound        |
| Streetcar 3                                    | 0.05                        | Westbound        |
| Streetcar 4                                    | 0.04                        | Eastbound        |
| Streetcar 5                                    | 0.06                        | Westbound        |
| Streetcar 6                                    | 0.05                        | Westbound        |
| Streetcar 7                                    | 0.05                        | Westbound        |
| Streetcar 8                                    | 0.04                        | Westbound        |
| Streetcar 9                                    | 0.03                        | Eastbound        |
| Streetcar 10                                   | 0.03                        | Eastbound        |
| Streetcar 11                                   | 0.05                        | Westbound        |
| Streetcar 12                                   | <b>0.09</b>                 | Westbound        |
| Streetcar 13                                   | 0.05                        | Westbound        |
| Streetcar 14                                   | 0.05                        | Westbound        |
| Streetcar 15                                   | 0.05                        | Eastbound        |
| Streetcar 16                                   | 0.05                        | Westbound        |
| Streetcar 17                                   | 0.05                        | Westbound        |
| Streetcar 18                                   | 0.03                        | Eastbound        |
| Streetcar 19                                   | 0.04                        | Eastbound        |
| Streetcar 20                                   | 0.06                        | Eastbound        |
| Streetcar 21                                   | 0.05                        | Westbound        |
| Streetcar 22                                   | 0.03                        | Eastbound        |
| Streetcar 23                                   | 0.05                        | Westbound        |
| Streetcar 24                                   | 0.04                        | Westbound        |
| Streetcar 25                                   | 0.04                        | Eastbound        |

The criterion for ground-borne vibration is 0.14 mm/sec (velocity), the level of perception. The highest single streetcar measured was 0.09mm/sec velocity (Streetcar 12). The measured ground-borne vibration levels were less than the upper limit of the criterion at the south building façade and thus no further review is needed.

#### **TRANSPORTATION NOISE MITIGATION MEASURES**

The sound levels at the exterior façades are less or equal to 65 dB  $L_{eq}$  daytime and/or 60 dB  $L_{eq}$  nighttime. Central air conditioning is not required; however, the proponent is installing this feature in any case thus automatically meeting the requirements of MECP and the City.

All *Agreements of Purchase and Sale* will require a warning clause notifying each homeowner that the exterior sound levels will exceed MECP's traffic noise criteria (see Warning Clauses "A" and "D", Appendix C).

## **FAÇADE COMPONENTS**

A detailed analysis of the bedrooms and living room areas was undertaken at this time based on the proposed suite layouts and building elevations. The exterior sound levels are modest. Using OBC-compatible double glazing (3mm lites) rated at Sound Transmission Class (STC) of 27 (operable), and the minimum wall construction equivalent to STC 45, the interior sound levels are anticipated to be less than 40 dB  $L_{eq}$  nighttime in the bedrooms and 45 dB  $L_{eq}$  daytime, meeting the provincial requirements. Any OBC compatible double glazed window system will be adequate to meet the interior noise criteria aimed at controlling exterior traffic noise.

Note that the ratio of the window-to-floor area can be increased (i.e., larger window areas for the same floor area can be used) by installing thicker glazing and/or a larger air gap between the panes of glass, two steps that are acoustically better than needed and therefore will be acceptable. At the time of final design, the acoustic consultant should verify the final window requirements.

No special requirements for wall or ceiling construction are necessary to meet the noise criteria.

## **CONCLUSIONS**

The noise analysis indicates the exterior traffic noise will have a minor impact on the development. This can be controlled by the use of standard building design (central air conditioning, exterior façade requirements, and warning clauses) that is incorporated into many new condominium developments throughout the City.

The testing of the TTC Streetcar passbys found the ground-borne vibration levels to be well within the criteria (0.14mm/sec). No further measures are needed.

The neighbouring mechanical systems at the adjacent commercial/residential block to the south were found to impact a limited area of the proposed development. An acoustic screen has been proposed to meet the criteria.

The mechanical systems (HVAC and generator) for the proposed condominium will need to be reviewed, to ensure MECP's noise criteria are met, and should be confirmed at the time of submission for building permit.

## RECOMMENDATIONS

To meet the requirements of the City of Toronto and the Ministry of the Environment, Conservation and Parks, the following recommendations are proposed:

### Transportation Sources

1. A detailed analysis of the bedrooms and living room areas was undertaken at this time based on the proposed suite layouts and building elevations. The exterior sound levels are modest. Using OBC-compatible double glazing (3mm lites) rated at Sound Transmission Class (STC) of 27 (operable), and the minimum wall construction equivalent to STC 45, the interior sound levels are anticipated to be less than 40 dB  $L_{eq}$  nighttime in the bedrooms and 45 dB  $L_{eq}$  daytime, meeting the provincial requirements. Any OBC compatible double glazed window system will be adequate to meet the interior noise criteria for noise from traffic.
2. All *Agreements of Purchase and Sale* for each suite will require a warning clause notifying each homeowner that the exterior sound levels have exceeded the Ministry of the Environment, Conservation and Parks' noise criteria (see Warning Clauses "A" and "D", Appendix C).

### Stationary Sources

To meet the City and MECP's noise criteria, the following measures are recommended:

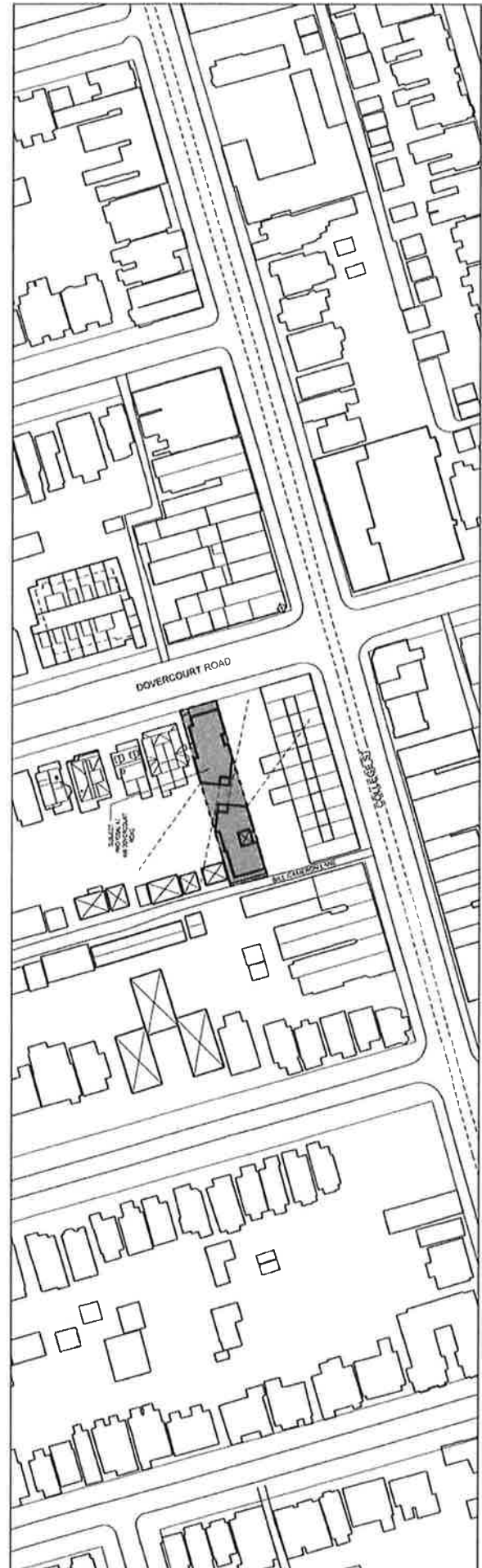
1. A review of the emergency generator is required. The proposed location of the rooftop generator will require either an acoustic screen or be relocated a few metres to the north, to meet MECP's 55 dB  $L_{eq}$  1 hour criteria.
2. It is recommended that once the final mechanical units (HVAC and generator) are selected, the acoustic consultant should review the details, to ensure any potential noise issues are identified and mitigated where needed. Noise control measures for the grade level parking exhaust are expected to be necessary to meet MECP's noise criteria.
3. It is recommended that the living room patio door at Suite 204 incorporate a full height solid barrier (constructed with any combination of glass, concrete or solid metal). The full height barrier is to be 2.46m long along the south limit of the balcony (see Appendix A, Figure 8). With this glass screen in place, the sound level is expected to be well within MECP's noise criteria at all times of the day or night.
4. For the remaining units in this proposed condominium development, fixed windows or non-sensitive rooms have to be placed along the south façade.

## APPENDIX A: FIGURES

| Cycling Infrastructure                                      |  | Recruited | Proposed | Proposed % |
|---|--|-----------|----------|------------|
| Number of long-term bicycle parking spaces (residential)    |  | 27        | 27       | 100%       |
| Number of long-term bicycle parking spaces (all other uses) |  | 0         | 0        | 100%       |
| Number of long-term bicycle parking (all uses) located on:  |  |           |          |            |
| a) first storey of building                                 |  | *         | *        |            |
| b) second storey of building                                |  | 27        | 27       | 100%       |
| c) first level below-ground                                 |  | *         | *        |            |
| d) second level below-ground                                |  | *         | *        |            |
| e) other levels below-ground                                |  | *         | *        |            |

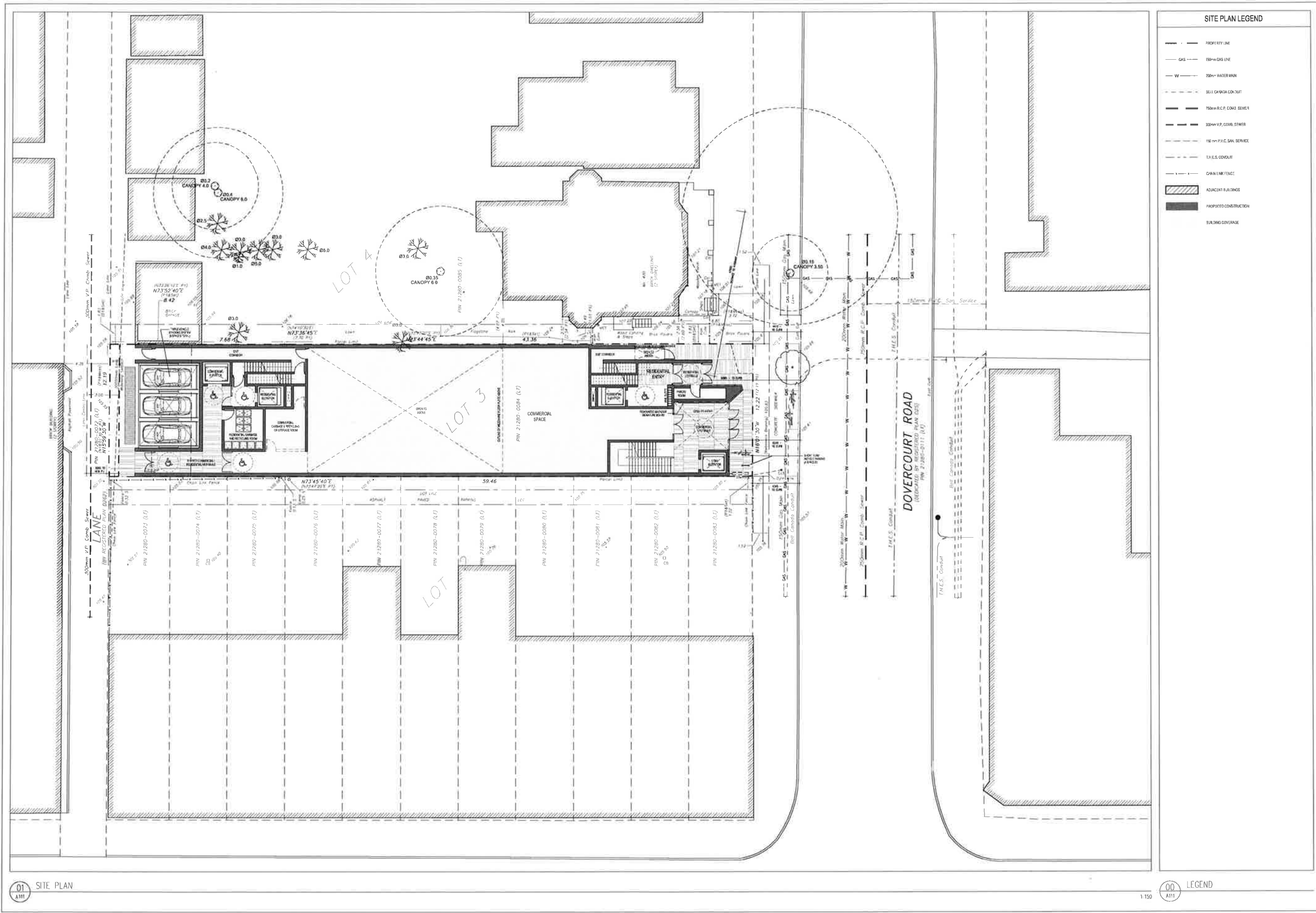
| Green & Cool Roofs  |  | Recruited | Proposed | Proposed % |
|---|--|-----------|----------|------------|
| Available Roof Space (m <sup>2</sup> )                          |  |           | TED SPA  |            |
| Available Roof Space provided as Green Roof (m <sup>2</sup> )   |  |           |          |            |
| Available Roof Space provided as Cool Roof (m <sup>2</sup> )    |  |           |          |            |
| Available Roof Space provided as Solar Panels (m <sup>2</sup> ) |  |           |          |            |

| Cyclists 20m user capacity  |  | Recruited | Proposed | Proposed % |
|---|--|-----------|----------|------------|
| a) track from high-walkways at entries  |  |           |          |            |
| b) shade from energy generation structures  |  |           |          |            |
| Percentage of required car-parking spaces under cover (maximum 75%)(non-residential only) |  |           |          |            |



01 KEY PLAN  
A101  
1:1500

FIGURE 1

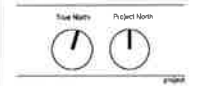


**SITE PLAN LEGEND**

- PROPERTY LINE
- GAS 150mm GAS LINE
- W 200mm WATER MAIN
- SELL CANADA COV-OUT
- 150mm R.C.P. COMB. SEWER
- 300mm V.P. COMB. SEWER
- 150mm P.V.C. SAN. SERVICE
- T.H.E.S. CONDUIT
- CHAIN LINK FENCE
- ▨ ADJACENT BUILDINGS
- ▨ PROPOSED CONSTRUCTION
- ▨ BUILDING COVERAGE

1. Coverage of this drawing is reserved by the Architect. The drawing and all associated documents are the property of the Architect. No part of this drawing or any information contained herein may be reproduced or transmitted in any form or by any means without prior written permission of the Architect.
2. These Contract Documents are the work of the Architect. The Architect does not accept responsibility for the interpretation of these documents by the Contractor. User who requires the services of a professional engineer or other qualified professional shall be responsible for obtaining such services. The Architect will not be liable for any errors or omissions in the Contract Documents. The Contractor will be liable for any errors or omissions in the drawings as indicated by the Contractor or design contractor only.
3. Drawings are not to be scaled by contractor. The Contractor is to verify all dimensions and dimensions required to perform the work in respect and compliance with the Contract Documents to the Architect before commencing any work.
4. Positions of existing items for mechanical and electrical service and fixtures are indicated on a typical and 2D basis. The location of items on the actual field of work governs the mechanical and electrical settings. These items not clearly located will be located as directed by the Architect.
5. These drawings are not to be used for construction unless noted below as "Issued for Construction".
6. All work is to be carried out in accordance with the Code of Ethics of the Architect's Regulatory Institution.
7. The Architect of these plans is a registered professional engineer or architect or other qualified professional who is licensed by the jurisdiction in which the work is to be carried out. All regulations or requirements applicable to the work shall be followed and all work is to be done in accordance with the applicable laws, codes and regulations of the jurisdiction.

| No. | Revision             | Date     |
|-----|----------------------|----------|
| 1   | CITY PRE-APPLICATION | 19.10.31 |
| 2   | CPA / ZBA            | 19.12.16 |



**466 & 468 DOVERCOURT ROAD RESIDENCES**  
 466 & 468 DOVERCOURT ROAD  
 TORONTO, ON

466DCR  
 URBAN PROPERTIES INC.  
 491 EGLINTON AVENUE, W  
 SUITE 503, TORONTO ON  
 M5N 1A8

**SITE PLAN**

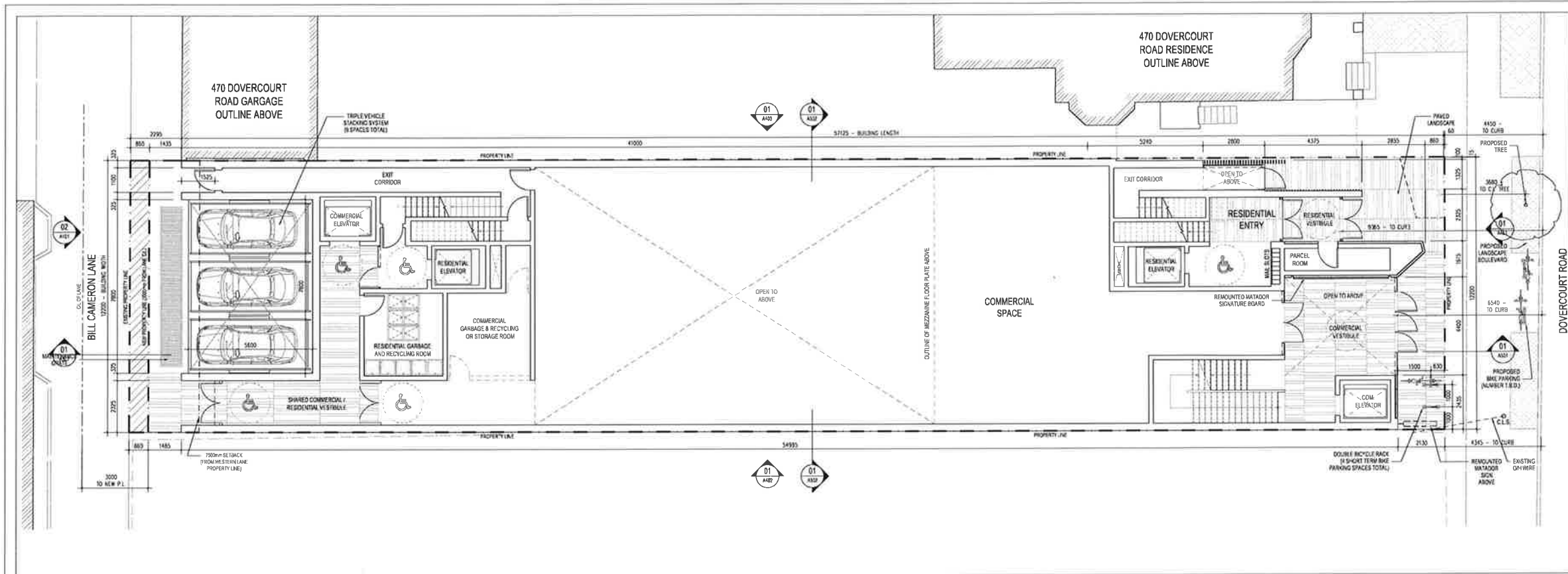
19513  
 Date: 23rd, 2019  
 Scale: 1:150  
 Author: MG  
 Checker: [blank]

01 SITE PLAN  
 A111

00 LEGEND  
 A111  
 1:150

**A111**

**FIGURE 2**



01 GROUND FLOOR PLAN  
A202

### FLOOR PLAN LEGEND

- PROPERTY LINE
- SETBACK
- EXTENT OF LAKE BEDDING
- CENTRE LINE OF LAKE
- SAMPLE
- PROPOSED SOFT LANDSCAPING
- PROPOSED BALCONIES AND TERRACES
- PROPOSED BASED PLANTER BED

SUITE #  
TYPE  
AREA M2  
AREA SF

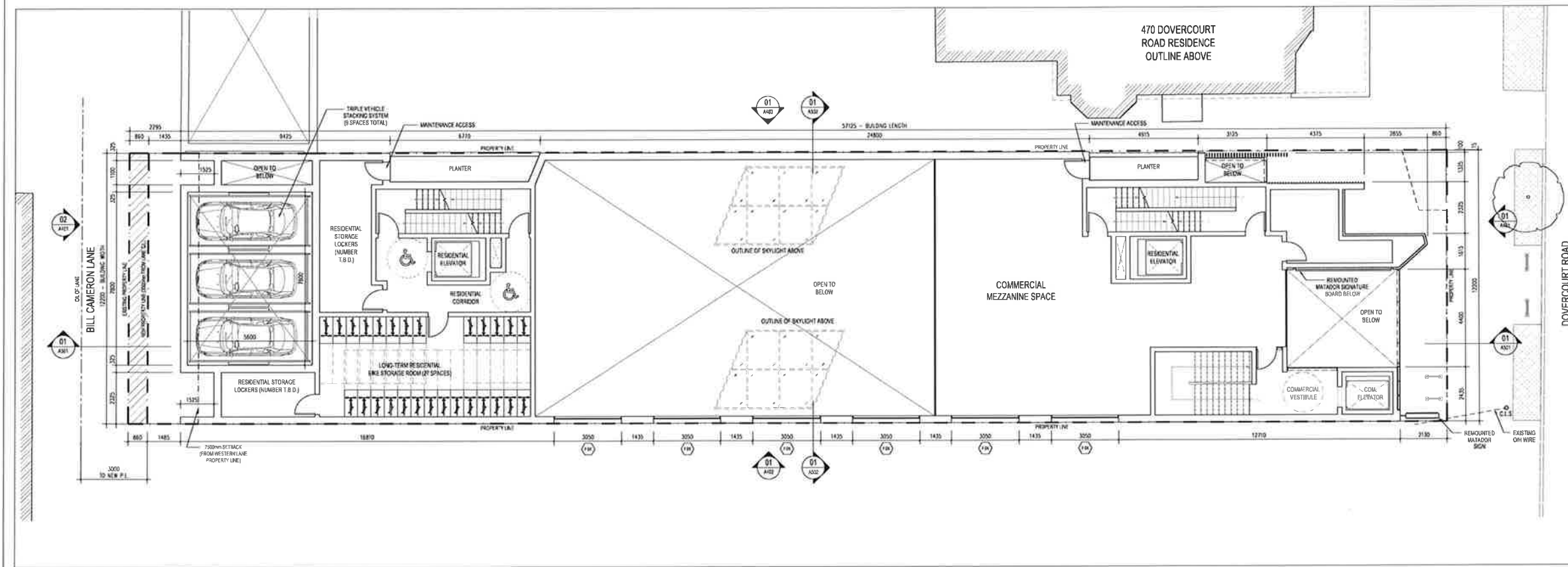
- RESIDENTIAL, SUITE TYPE AND AREA
- 1800mm DIAMETER BARRIER FREE TURNING RADIUS
- FIXED GLAZING

### FLOOR PLAN GENERAL NOTES

| No. | Revision             | Date     |
|-----|----------------------|----------|
| 1   | CITY PRE-APPLICATION | 19.10.31 |
| 2   | OPA / ZBA            | 19.12.16 |

- Copyright of the drawings is reserved by the Architect. The drawing and all associated documents are the property of the Architect. The drawing and the information contained therein are to be used only for the project and site without further permission of the Architect.
- These General Documents are the result of the Architect's professional services. The Architect is not responsible for the information or data provided to the Architect. The Architect is not responsible for the information or data provided to the Architect. The Architect is not responsible for the information or data provided to the Architect.
- Drawings are not to be scaled for construction. The Contractor is to verify all dimensions and dimensions against the drawings and dimensions against the drawings and dimensions against the drawings.
- Provision of access to the site for the construction of the building is the responsibility of the Contractor. The Contractor is to provide access to the site for the construction of the building. The Contractor is to provide access to the site for the construction of the building.
- It is the responsibility of the Contractor to ensure that the building is constructed in accordance with the drawings and dimensions against the drawings and dimensions against the drawings.

| No. | Revision             | Date     |
|-----|----------------------|----------|
| 1   | CITY PRE-APPLICATION | 19.10.31 |
| 2   | OPA / ZBA            | 19.12.16 |



02 MEZZANINE FLOOR PLAN  
A202

### LEGEND

00



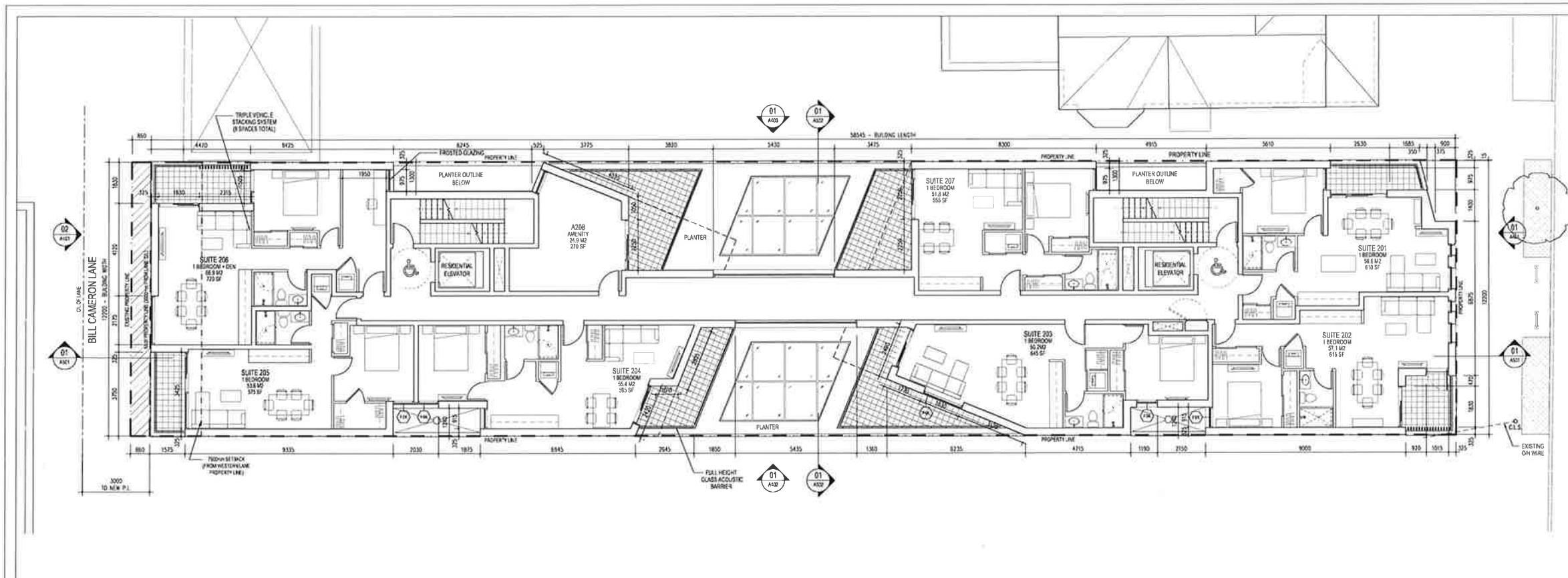
466 & 468 DOVERCOURT ROAD RESIDENCES  
466 & 468 DOVERCOURT ROAD  
TORONTO, ON

466DCR URBAN PROPERTIES INC.  
491 EGLINTON AVENUE, W  
SUITE 503, TORONTO ON  
M5K 1A6

GROUND AND MEZZANINE FLOOR PLANS

18513  
Dec 23rd, 2019  
1:100  
MIG

A202



### FLOOR PLAN LEGEND

- PROPERTY LINE
- SETBACK
- EXTENT OF LAKE WEAVING
- CENTER LINE OF LAKE
- BACKFILL
- PROPOSED SOFT LANDSCAPING
- PROPOSED BALCONIES AND TERRACES
- PROPOSED RAISED PLANTER BED
- SUITE #  
TYPE  
AREA M2  
AREA SF
- 100mm SQUARE BARRIER FREE TURNING RADIUS
- FIXED GLAZING

1. Copyright of this drawing is reserved by the Architect. The drawing and all associated documents are the property of the Architect. No part of this drawing may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, or by any information storage and retrieval system, without prior written permission of the Architect.

2. These Contract Documents are the property of the Architect. The Architect does not accept responsibility for the interpretation of these documents by the Contractor. Upon the completion of the project, the Contractor shall provide a complete set of these documents to the Architect. The Contractor shall retain the original set of these documents. The Architect will retain the original set of these documents for the Contractor to refer to as needed.

3. Drawings are not to be used for construction. The Contractor is to verify all existing conditions and dimensions required to perform the work in a report and memorandum with the Contract Documents to the Architect before commencing any work.

4. Permits are to be obtained for any work not specifically defined. All work is to be in accordance with the applicable laws and regulations. The Contractor shall be responsible for obtaining all necessary permits and for the cost thereof. The Contractor shall be responsible for the cost of any work not specifically defined.

5. These drawings are not to be used for any other purpose without the prior written consent of the Architect.

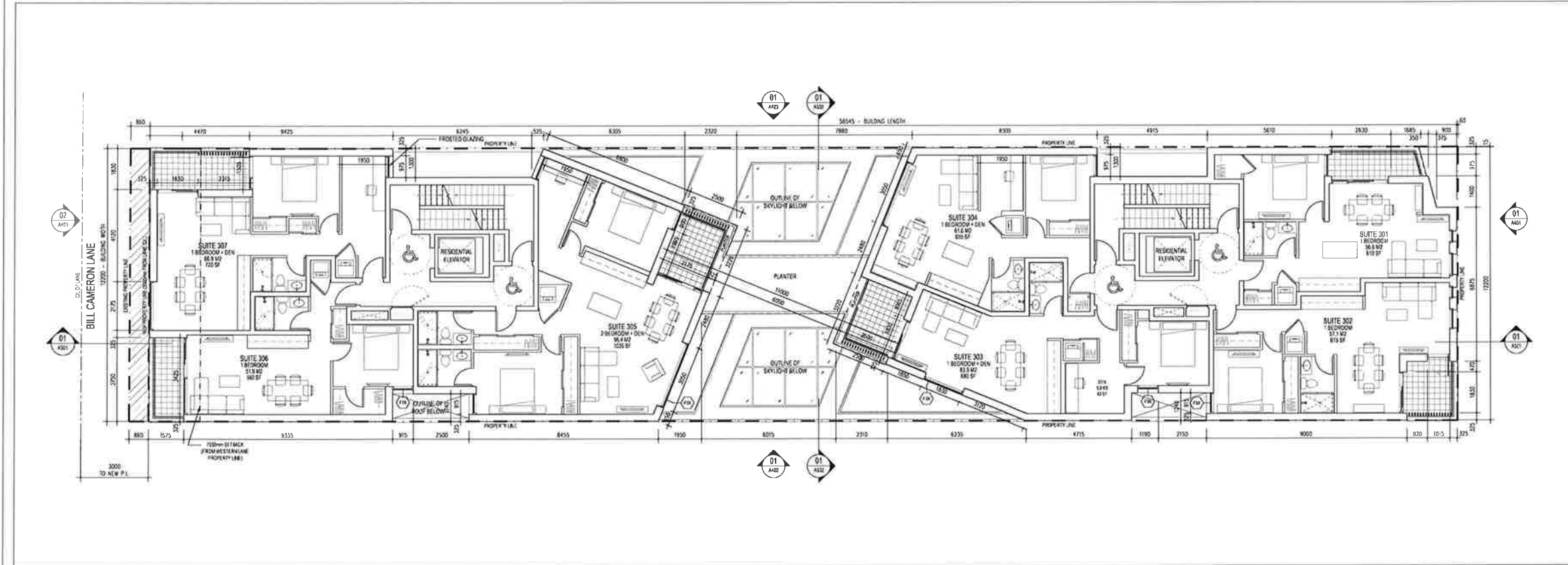
6. All work is to be in accordance with the Code and Rules of the Authority having jurisdiction.

7. The Architect's design is a preliminary design. The Contractor shall be responsible for the final design. All construction shall be in accordance with the applicable laws and regulations. The Contractor shall be responsible for the cost of any work not specifically defined.

| No. | Revision             | Date     |
|-----|----------------------|----------|
| 1   | CITY PRE-APPLICATION | 19.10.31 |
| 2   | OFA / ZBA            | 19.12.16 |

### FLOOR PLAN GENERAL NOTES

01 SECOND FLOOR PLAN  
A203



### LEGEND

**AXM DESIGN ASSOCIATES**  
 5000 Campbell Ave. Unit 204  
 Toronto, ON M3J 3K5  
 TEL: (416) 248-1830

466 & 468 DOVERCOURT ROAD RESIDENCES  
 466 & 468 DOVERCOURT ROAD  
 TORONTO, ON

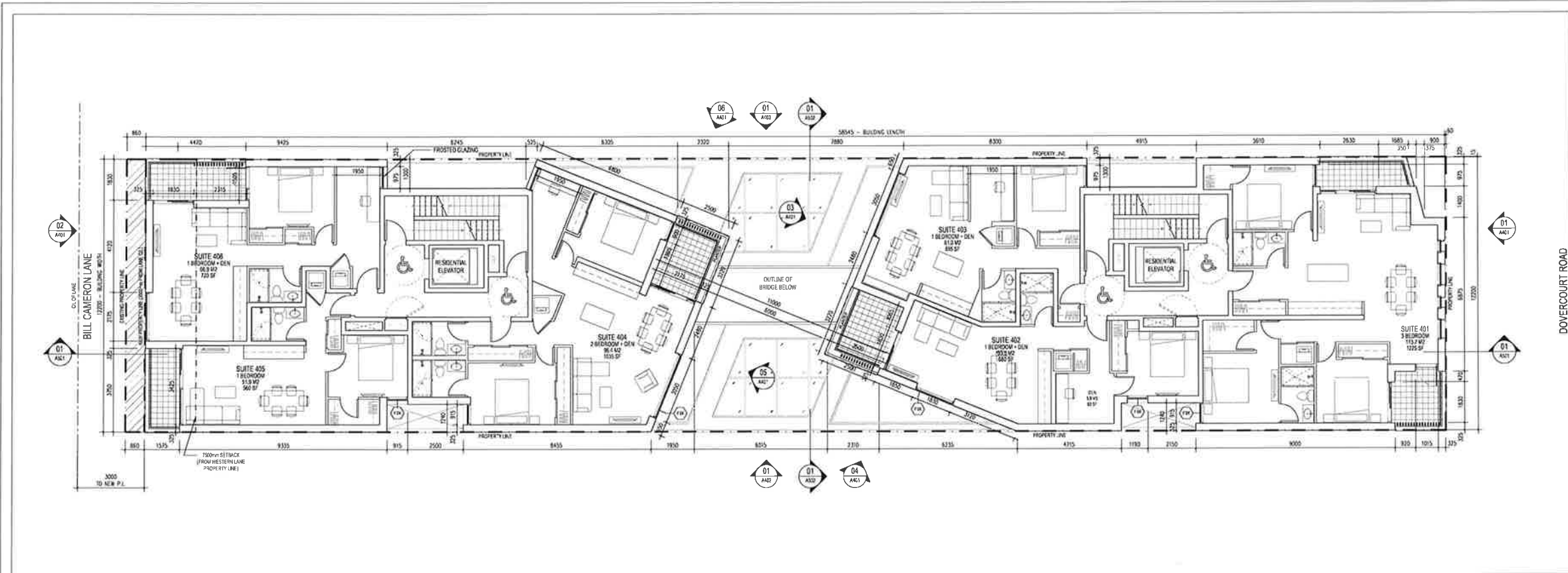
16600R URBAN PROPERTIES INC.  
 491 EGLINTON AVENUE, W  
 SUITE 503, TORONTO ON  
 M5H 1A8

SECOND AND THIRD FLOOR PLANS

18513  
 Dec 23rd, 2019  
 1:100  
 MG

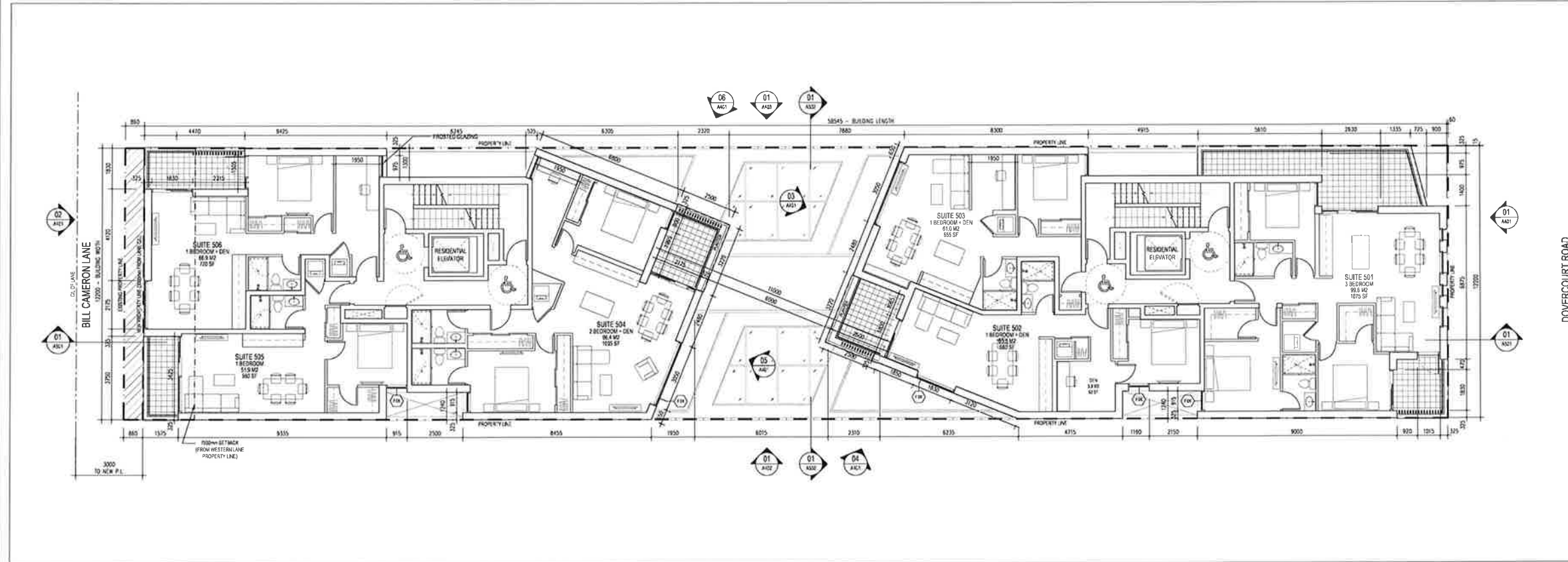
A203

02 THIRD FLOOR PLAN  
A203



01  
A204 FOURTH FLOOR PLAN

1/100



02  
A204 FIFTH FLOOR PLAN

1/100

### FLOOR PLAN LEGEND

- PROPERTY LINE
- SETBACK
- /// EXTENT OF LAKE VIEWING
- CENTRE LINE OF LAKE
- BACKFILL
- PROPOSED SOFT LANDSCAPING
- PROPOSED BALCONIES AND TERRACES
- PROPOSED RAISED PLANTER BED
- SUITE #  
TYPE  
AREA M2  
AREA SF
- 1800mm DIAMETER BARBER FIRE CURVING RADIUS
- FIXED GLAZING

### FLOOR PLAN GENERAL NOTES

| No. | Revision             | Date     |
|-----|----------------------|----------|
| 1   | CITY PRE-APPLICATION | 19.10.31 |
| 2   | OPA / ZBA            | 19.12.16 |

1. Copy right of the drawings is reserved by the Architect. The drawings and associated documents are the property of the Architect. The Architect shall be responsible for the information contained herein and shall not be responsible for any errors or omissions without prior written permission of the Architect.

2. These Contract Documents are a part of the project. The Contractor shall be responsible for the information contained herein and shall not be responsible for any errors or omissions without prior written permission of the Architect.

3. Drawings are not to be scaled for construction. The Contractor shall verify all existing conditions and dimensions required to prepare the work and report and coordinate with the Contract Documents to the Architect before commencing the work.

4. Performance of these drawings is for residential or institutional use only. They are not intended for commercial or industrial use. The Contractor shall verify all existing conditions and dimensions required to prepare the work and report and coordinate with the Contract Documents to the Architect before commencing the work.

5. These drawings are not to be used for construction without the written consent of the Architect.

6. All work is to be carried out in accordance with the Code and Bylaws of the Authority having jurisdiction.

7. The Architect of these plans is not responsible for the construction of the building or any other work not shown on these drawings. All construction is to be carried out in accordance with the Code and Bylaws of the Authority having jurisdiction.

**AXM DESIGN ASSOCIATES**  
300 College Ave. Unit 204  
Toronto, ON Canada M5P 3K5  
Tel: +1 416 345 4381

466 & 468 DOVERCOURT ROAD RESIDENCES  
466 & 468 DOVERCOURT ROAD TORONTO, ON

466DCR URBAN PROPERTIES INC.  
491 EGLINTON AVENUE, W SUITE 503, TORONTO ON M5N 1A8

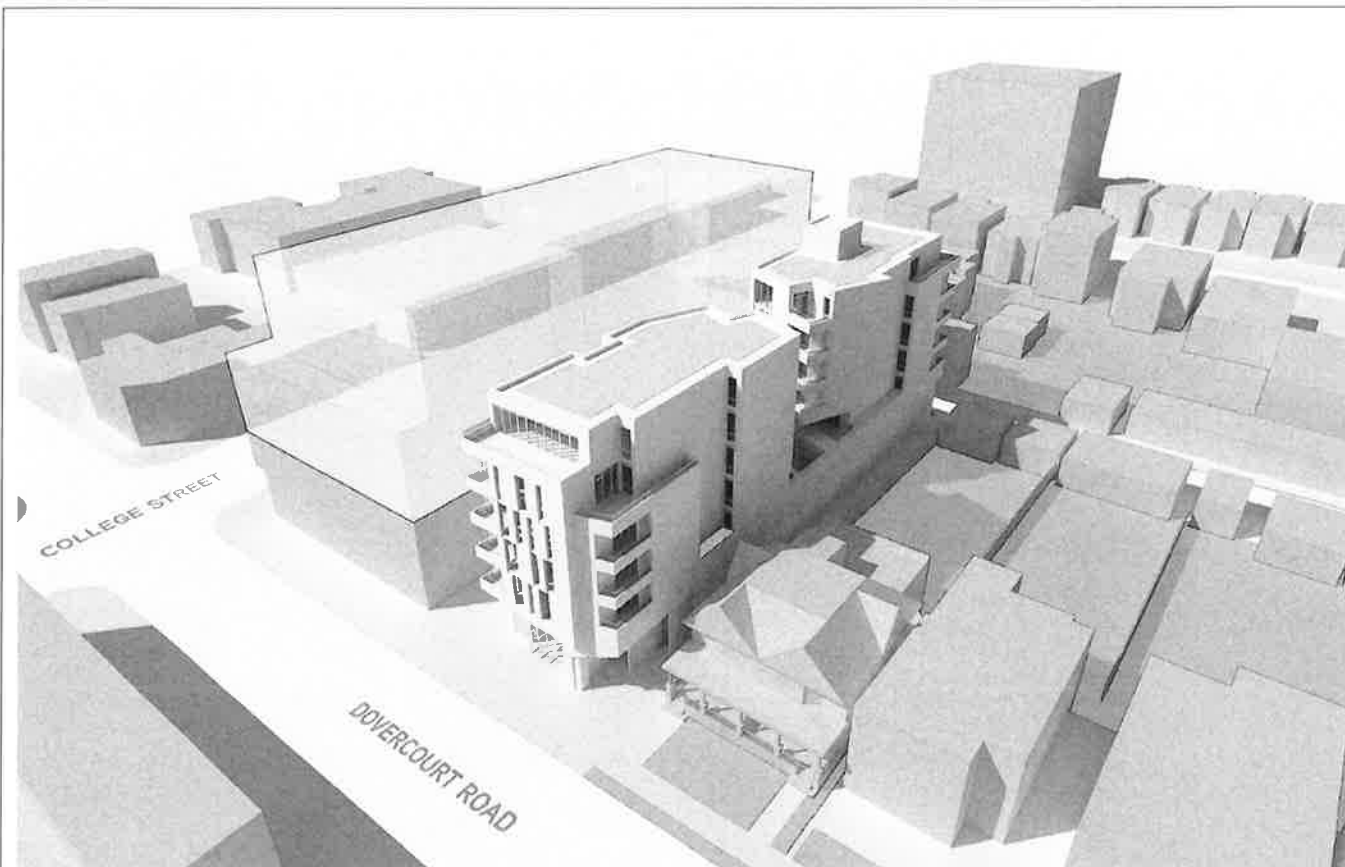
FOURTH AND FIFTH FLOOR PLANS

18913  
Dec 23rd, 2019  
1:100  
MG

A204

FIGURE 5





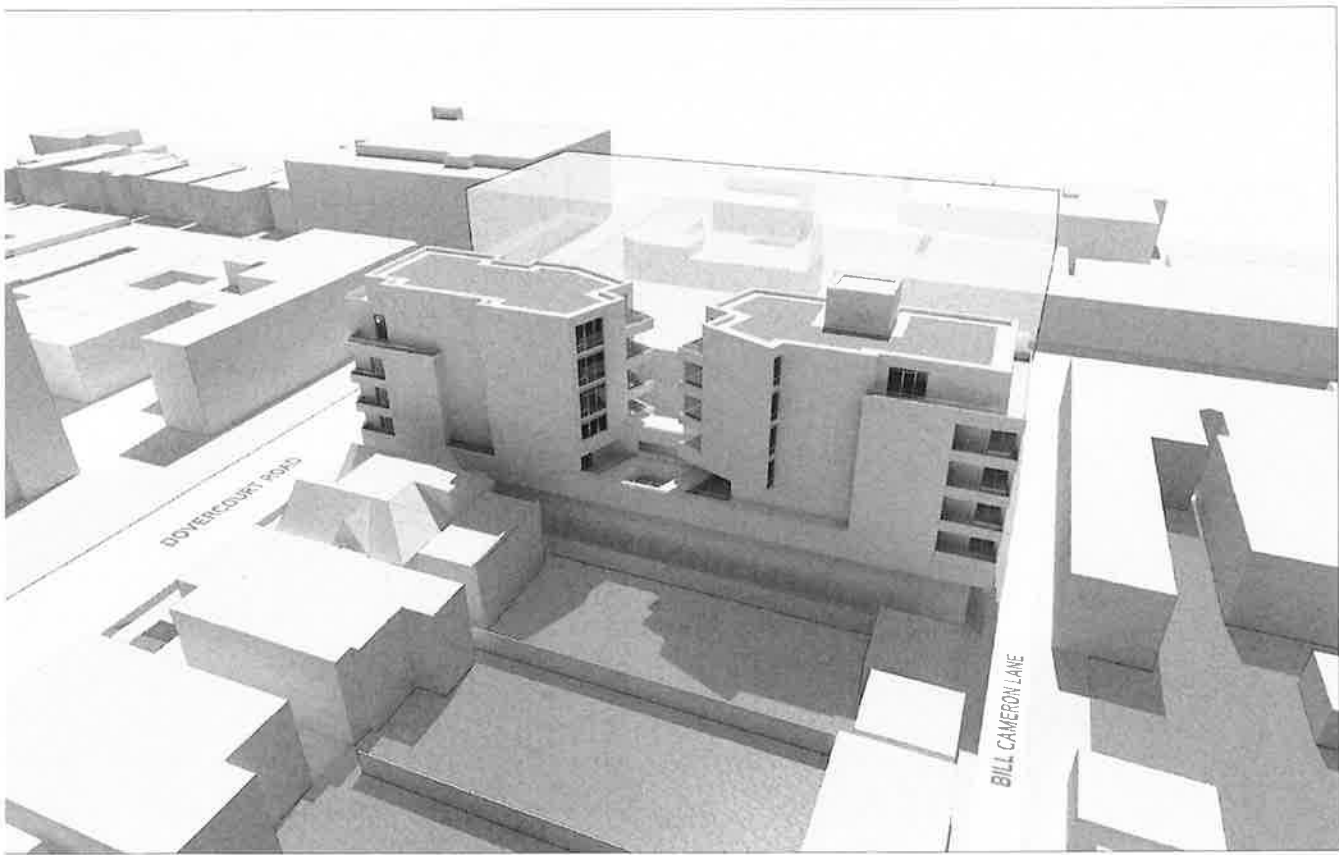
01 NORTH EAST STREET VIEW MASSING  
A601



02 NORTH WEST STREET VIEW MASSING  
NTS A601



03 NORTH EAST COURTYARD VIEW MASSING  
A601



04 NORTH WEST COURTYARD VIEW MASSING  
NTS A601

1. Copyright of this drawing is retained by the Architect. The drawing and all associated documents are the property of the Architect. The drawing and the information contained herein may not be reproduced in whole or in part without written permission of the Architect.

2. These Contract Documents are the property of the Architect. The Architect does not accept responsibility for the interpretation of these documents by the Contractor. Use of these documents by the Contractor shall be at the Contractor's risk and the Contractor shall be responsible for the interpretation of these documents. The Architect will review the Contractor's drawings and specifications for compliance with the Contract Documents. The Contractor shall be responsible for the design and construction of the project.

3. Drawings are not to be scaled to construct. The Contractor is to verify all existing conditions and dimensions required to perform the work and report and discrepancy with the Contract Documents to the Architect before commencing the work.

4. Portions of these drawings are for informational purposes only and are not to be used for construction unless noted below as "Noted for Construction".

5. All work is to be done in accordance with the Code and Rules of the Authority having jurisdiction.

6. The Architect of these plans and specifications does not warrant or represent to any party about the completeness of the drawings or specifications. All contractors or subcontractors must verify the conditions, existing and all items in use that they can verify construct the work, consistent with these plans.

| No. | Revision             | Date     |
|-----|----------------------|----------|
| 1   | CITY PRE-APPLICATION | 19.10.31 |
| 2   | OPA / ZBA            | 19.12.16 |

**AXM**  
DESIGN ASSOCIATES  
300 Dundas St. W. Suite 200  
Toronto, ON M5G 1R8  
TEL: +1 416 593 8800

Task Name: Project Name:

**466 & 468 DOVERCOURT ROAD RESIDENCES**  
466 & 468 DOVERCOURT ROAD  
TORONTO, ON

466DCR  
URBAN PROPERTIES INC.  
491 EGLINTON AVENUE, W  
SUITE 503, TORONTO ON  
M5M 1A8

AXONOMETRIC VIEWS

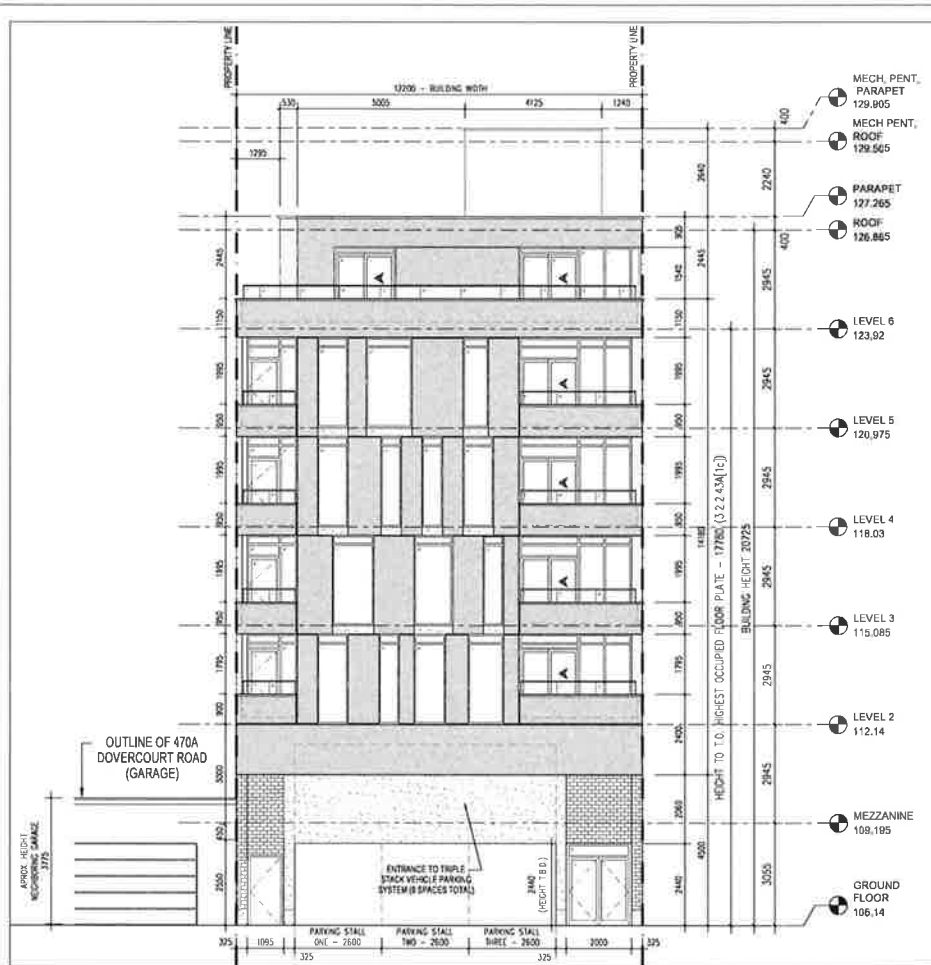
19513  
Dec 23rd, 2018  
NTS  
MG

**A601**

FIGURE 7



01 EAST ELEVATION - DOVERCOURT ROAD



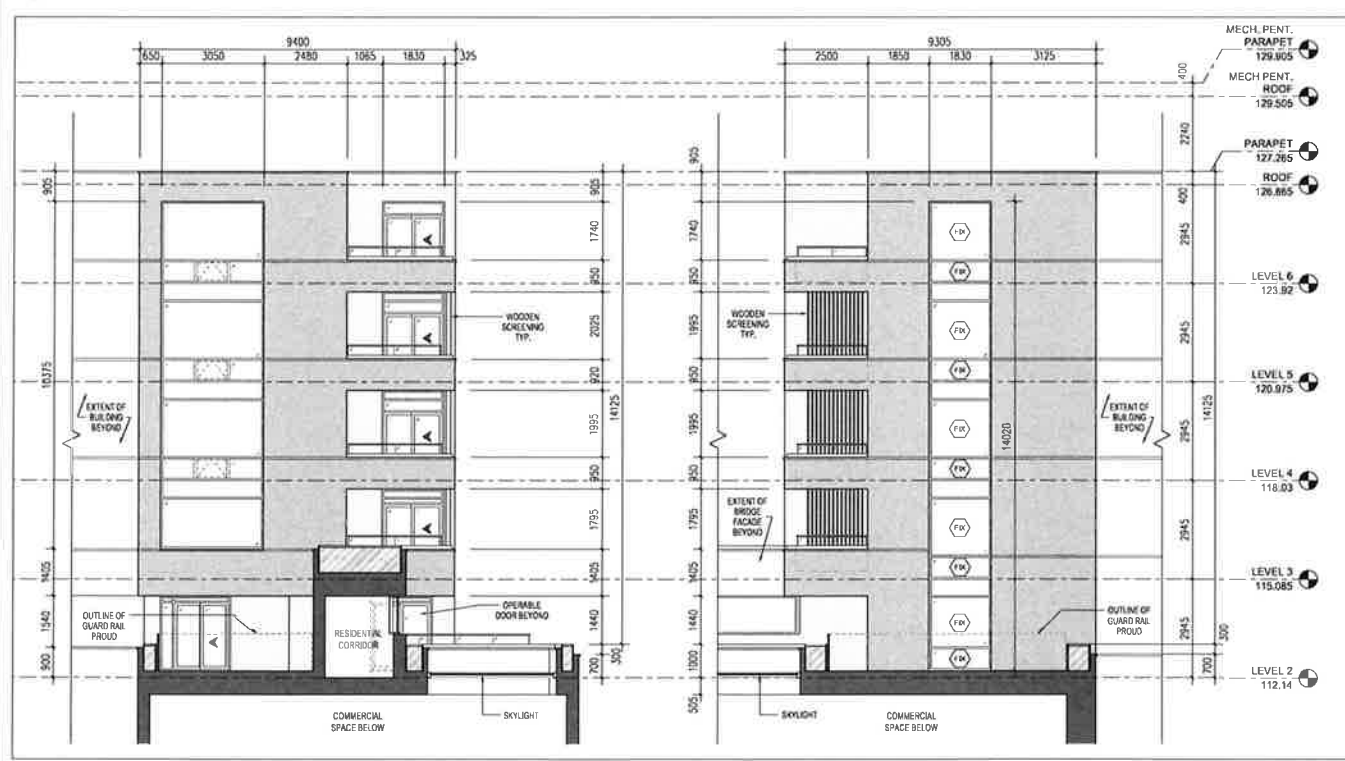
02 WEST ELEVATION - BILL CAMERON LANE

**ELEVATION LEGEND**

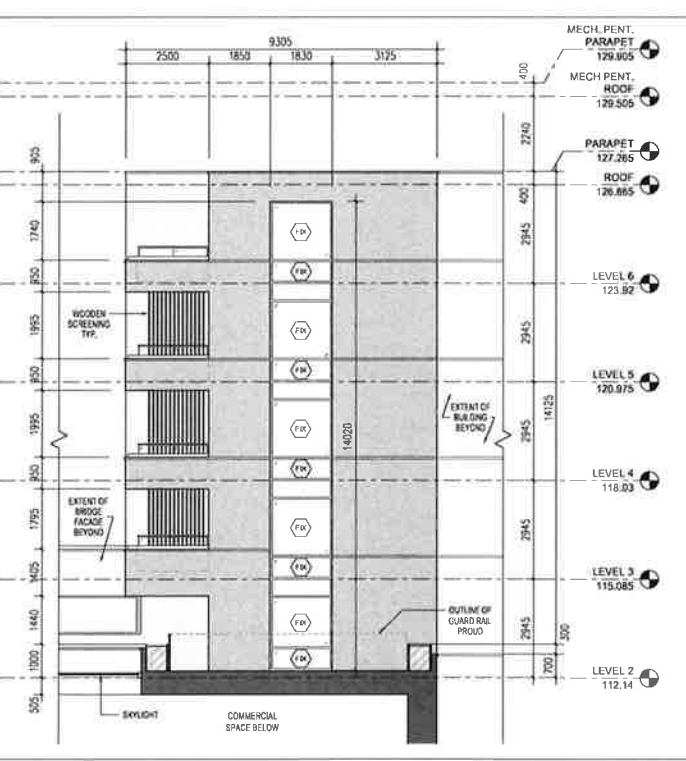
- PROPERTY LINE
- BAWREL
- PROPOSED CONSTRUCTION
- BRICKMASONRY CLADDING
- ACOUSTICS GLASS BARRIER
- GLAZING
- BRICK MASONRY CLADDING
- SANITOSTAL CLADDING
- SANITOSTAL CLADDING, TYPE 2
- C.I.P., CONCRETE
- FIXED GLAZING
- OPENING DIRECTION OF OPERABLE SLIDING DOOR

- Copyright of this drawing is reserved by the Architect. The drawing and all associated documents are the property of the Architect. The Architect does not accept responsibility for the reproduction of these documents by the Contractor. Upon completion of the project all rights shall revert to the Architect. The Contractor shall indemnify and hold the Architect harmless from and against all claims, damages, costs and expenses, including reasonable attorneys' fees, arising out of or from the use of these documents by the Contractor for any purpose whatsoever.
- These Contract Documents are the property of the Architect. The Architect does not accept responsibility for the reproduction of these documents by the Contractor. Upon completion of the project all rights shall revert to the Architect. The Contractor shall indemnify and hold the Architect harmless from and against all claims, damages, costs and expenses, including reasonable attorneys' fees, arising out of or from the use of these documents by the Contractor for any purpose whatsoever.
- Drawings are not to be scaled for construction. The Contractor is to verify all existing conditions and dimensions required to perform the work and report any discrepancies with the Contract Documents to the Architect before commencing the work.
- Portions of drawings that are for informational or electrical details are not to be used for construction unless specifically noted as such. The Contractor shall verify the location of any existing conditions and dimensions required to perform the work and report any discrepancies with the Contract Documents to the Architect before commencing the work.
- These drawings are not to be used for construction unless specifically noted as such. The Contractor shall verify the location of any existing conditions and dimensions required to perform the work and report any discrepancies with the Contract Documents to the Architect before commencing the work.
- All work is to be completed in accordance with the Code and Rules of the Authority having jurisdiction.
- The Architect of these plans is not responsible for any specifications given to the Contractor or any other party. The Contractor shall verify the location of any existing conditions and dimensions required to perform the work and report any discrepancies with the Contract Documents to the Architect before commencing the work.

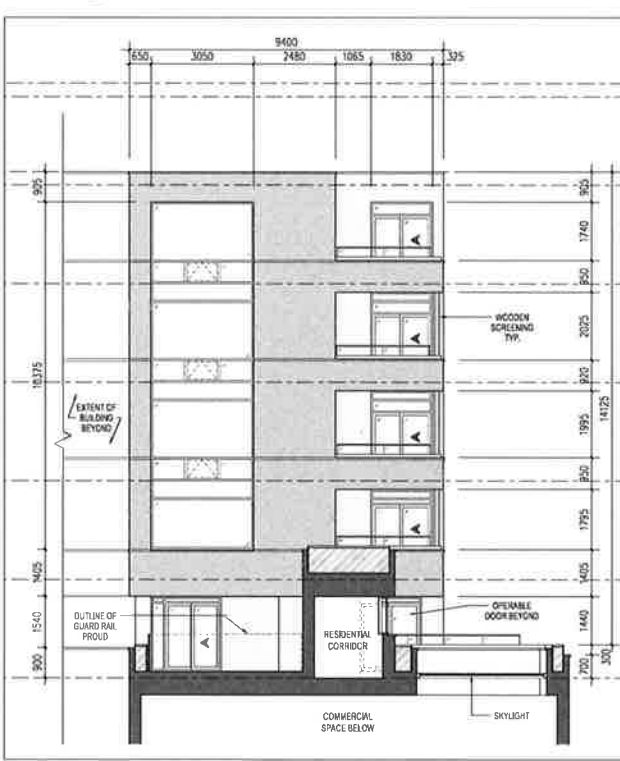
| No. | Revision             | Date     |
|-----|----------------------|----------|
| 1   | CITY PRE-APPLICATION | 19.10.31 |
| 2   | GPA / ZBA            | 19.12.16 |



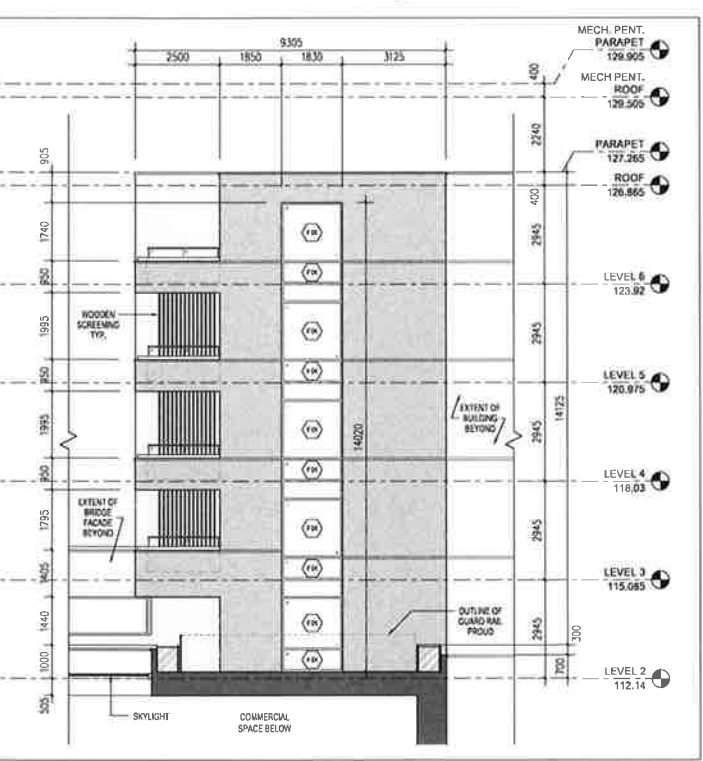
03 EAST COURTYARD BLOCK - WEST ELEVATION



04 EAST COURTYARD BLOCK - SOUTH ELEVATION



05 EAST COURTYARD BLOCK - WEST ELEVATION



06 WEST COURTYARD BLOCK - NORTH ELEVATION



AXM  
DESIGN ASSOCIATES  
300 Carlton Ave. Unit 304  
Toronto, ON M5H 2K7  
TEL: 416-593-4400

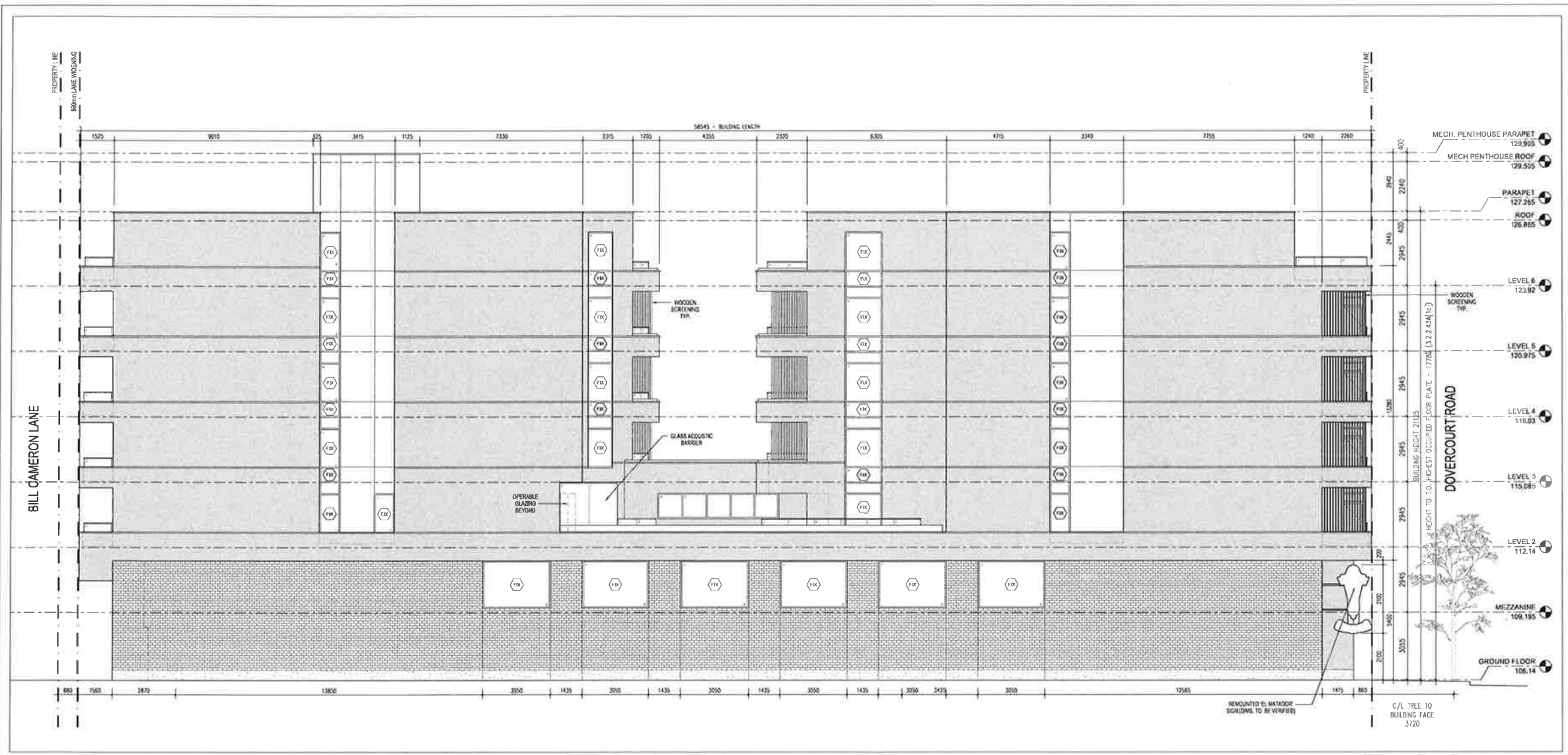
True North  
Project North

466 & 468 DOVERCOURT ROAD RESIDENCES  
466 & 468 DOVERCOURT ROAD  
TORONTO, ON

466DCR URBAN PROPERTIES INC.  
461 EGLINTON AVENUE, W  
SUITE 503, TORONTO ON  
M5N 1A8

EAST, WEST AND COURTYARD ELEVATIONS  
19513  
Dec 23rd, 2019  
1:100  
MG

A401



01 SOUTH ELEVATION  
4402

1:100

### ELEVATION LEGEND

- PROPERTY LINE
- BRICK MASONRY CLADDING
- ACQUSTIC GLASS BANNER
- GLAZING
- BRICK MASONRY CLADDING
- SANDSTONE CLADDING
- SANDSTONE CLADDING - TYPE 2
- C.F. CONCRETE
- FRESH GLAZING
- OPENING DIRECTION OF OPERABLE SLIDING DOOR

1. Copyright of this drawing is retained by the Architect. The drawing and all associated documents are the property of the Architect. The use of any part of the drawing or information contained herein, without the written consent of the Architect, is strictly prohibited.

2. These Contract Documents are the property of the Architect. The Architect does not accept liability for the interpretation of these documents by the Contractor. Upon completion of the project, the Contractor shall provide the Architect with a copy of the Contract Documents. The Architect will retain the original documents and the Contractor will retain the copies.

3. Drawings are not to be used for construction. The Contractor is to verify all existing conditions and dimensions required to perform the work as reported and shown on the Contract Documents by the Architect before commencing the work.

4. Products or systems that are not specified in the Contract Documents shall be used as a minimum on a submittal and drawing. The Contractor shall provide the Architect with a copy of the submittal and drawing. The Contractor shall provide the Architect with a copy of the submittal and drawing. The Contractor shall provide the Architect with a copy of the submittal and drawing.

5. These drawings are not to be used for construction. The Contractor is to verify all existing conditions and dimensions required to perform the work as reported and shown on the Contract Documents by the Architect before commencing the work.

6. All work shall be completed in accordance with the Code of Practice of the Architect's governing jurisdiction.

7. The Contractor shall provide a copy of the submittal and drawing to the Architect. The Contractor shall provide the Architect with a copy of the submittal and drawing. The Contractor shall provide the Architect with a copy of the submittal and drawing.

8. All work shall be completed in accordance with the Code of Practice of the Architect's governing jurisdiction.

| No. | Revision             | Date     |
|-----|----------------------|----------|
| 1   | CITY PRE-APPLICATION | 19.10.31 |
| 2   | CPA7 ZBA             | 19.12.16 |

**AXM**  
DESIGN ASSOCIATES

300 Centre Ave. Unit 504  
Toronto, ON M5G 1B7  
Tel: (416) 593-4300

Think North. Project North.

466 & 468 DOVERCOURT ROAD RESIDENCES  
466 & 468 DOVERCOURT ROAD TORONTO, ON

466 DCR URBAN PROPERTIES INC.  
491 EGLINTON AVENUE, W SUITE 503, TORONTO ON M5N 1A8

**SOUTH ELEVATION**

19513  
Dec 23rd, 2019  
1:100  
MJC  
A402

FIGURE 9



FIGURE 10

## APPENDIX B: SOUND LEVEL CALCULATIONS

Filename: ne.te                            Time Period: Day/Night 16/8 hours  
Description: NE Facade - Top Floor

Road data, segment # 1: College St. (day/night)

-----  
Car traffic volume    : 16470/1830    veh/TimePeriod    \*  
Medium truck volume   :    450/50        veh/TimePeriod    \*  
Heavy truck volume    :     59/7        veh/TimePeriod    \*  
Posted speed limit    :     50 km/h  
Road gradient          :     0 %  
Road pavement         :     1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 14876  
Percentage of Annual Growth        : 2.00  
Number of Years of Growth         : 12.00  
Medium Truck % of Total Volume    : 2.65  
Heavy Truck % of Total Volume     : 0.35  
Day (16 hrs) % of Total Volume    : 90.00

Data for Segment # 1: College St. (day/night)

-----  
Angle1    Angle2                    : -90.00 deg    0.00 deg  
Wood depth                        :     0        (No woods.)  
No of house rows                  :     0 / 0  
Surface                            :     2        (Reflective ground surface)  
Receiver source distance         : 53.00 / 53.00 m  
Receiver height                    : 16.50 / 16.50 m  
Topography                         :     1        (Flat/gentle slope; no barrier)

Road data, segment # 2: Dovercourt (day/night)

-----  
Car traffic volume    : 10219/1135    veh/TimePeriod    \*  
Medium truck volume   :    21/2        veh/TimePeriod    \*  
Heavy truck volume    :    21/2        veh/TimePeriod    \*  
Posted speed limit    :     40 km/h  
Road gradient          :     0 %  
Road pavement         :     1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 8989  
Percentage of Annual Growth        : 2.00  
Number of Years of Growth         : 12.00  
Medium Truck % of Total Volume    : 0.20  
Heavy Truck % of Total Volume     : 0.20  
Day (16 hrs) % of Total Volume    : 90.00

Data for Segment # 2: Dovercourt (day/night)

-----  
Angle1    Angle2                    : -90.00 deg    90.00 deg  
Wood depth                        :     0        (No woods.)  
No of house rows                  :     0 / 0  
Surface                            :     2        (Reflective ground surface)  
Receiver source distance         : 10.50 / 10.50 m  
Receiver height                    : 16.50 / 16.50 m  
Topography                         :     1        (Flat/gentle slope; no barrier)

Results segment # 1: College St. (day)

Source height = 0.77 m

ROAD (0.00 + 55.84 + 0.00) = 55.84 dBA

| Angle1 | Angle2 | Alpha | RefLeq | P.Adj | D.Adj | F.Adj | W.Adj | H.Adj | B.Adj | SubLeq |
|--------|--------|-------|--------|-------|-------|-------|-------|-------|-------|--------|
| -90    | 0      | 0.00  | 64.34  | 0.00  | -5.48 | -3.01 | 0.00  | 0.00  | 0.00  | 55.84  |

Segment Leq : 55.84 dBA

Results segment # 2: Dovercourt (day)

Source height = 0.67 m

ROAD (0.00 + 59.80 + 0.00) = 59.80 dBA

| Angle1 | Angle2 | Alpha | RefLeq | P.Adj | D.Adj | F.Adj | W.Adj | H.Adj | B.Adj | SubLeq |
|--------|--------|-------|--------|-------|-------|-------|-------|-------|-------|--------|
| -90    | 90     | 0.00  | 58.25  | 0.00  | 1.55  | 0.00  | 0.00  | 0.00  | 0.00  | 59.80  |

Segment Leq : 59.80 dBA

Total Leq All Segments: 61.27 dBA

Results segment # 1: College St. (night)

Source height = 0.78 m

ROAD (0.00 + 49.35 + 0.00) = 49.35 dBA

| Angle1 | Angle2 | Alpha | RefLeq | P.Adj | D.Adj | F.Adj | W.Adj | H.Adj | B.Adj | SubLeq |
|--------|--------|-------|--------|-------|-------|-------|-------|-------|-------|--------|
| -90    | 0      | 0.00  | 57.84  | 0.00  | -5.48 | -3.01 | 0.00  | 0.00  | 0.00  | 49.35  |

Segment Leq : 49.35 dBA

Results segment # 2: Dovercourt (night)

Source height = 0.65 m

ROAD (0.00 + 53.16 + 0.00) = 53.16 dBA

| Angle1 | Angle2 | Alpha | RefLeq | P.Adj | D.Adj | F.Adj | W.Adj | H.Adj | B.Adj | SubLeq |
|--------|--------|-------|--------|-------|-------|-------|-------|-------|-------|--------|
| -90    | 90     | 0.00  | 51.61  | 0.00  | 1.55  | 0.00  | 0.00  | 0.00  | 0.00  | 53.16  |

Segment Leq : 53.16 dBA

Total Leq All Segments: 54.67 dBA

RT/Custom data, segment # 1: Streetcars (day/night)

1 - ALRV:

Traffic volume : 260/91 veh/TimePeriod

Speed : 50 km/h

Data for Segment # 1: Streetcars (day/night)

-----  
Angle1 Angle2 : -90.00 deg 0.00 deg  
Wood depth : 0 (No woods.)  
No of house rows : 0 / 0  
Surface : 2 (Reflective ground surface)  
Receiver source distance : 53.00 / 53.00 m  
Receiver height : 16.50 / 16.50 m  
Topography : 1 (Flat/gentle slope; no barrier)

Results segment # 1: Streetcars (day)

-----  
Source height = 0.50 m

RT/Custom (0.00 + 54.07 + 0.00) = 54.07 dBA

| Angle1 | Angle2 | Alpha | RefLeq | D.Adj | F.Adj | W.Adj | H.Adj | B.Adj | SubLeq |
|--------|--------|-------|--------|-------|-------|-------|-------|-------|--------|
|--------|--------|-------|--------|-------|-------|-------|-------|-------|--------|

|     |   |      |       |       |       |      |      |      |       |
|-----|---|------|-------|-------|-------|------|------|------|-------|
| -90 | 0 | 0.00 | 62.56 | -5.48 | -3.01 | 0.00 | 0.00 | 0.00 | 54.07 |
|-----|---|------|-------|-------|-------|------|------|------|-------|

-----  
Segment Leq : 54.07 dBA

Total Leq All Segments: 54.07 dBA

Results segment # 1: Streetcars (night)

-----  
Source height = 0.50 m

RT/Custom (0.00 + 52.52 + 0.00) = 52.52 dBA

| Angle1 | Angle2 | Alpha | RefLeq | D.Adj | F.Adj | W.Adj | H.Adj | B.Adj | SubLeq |
|--------|--------|-------|--------|-------|-------|-------|-------|-------|--------|
|--------|--------|-------|--------|-------|-------|-------|-------|-------|--------|

|     |   |      |       |       |       |      |      |      |       |
|-----|---|------|-------|-------|-------|------|------|------|-------|
| -90 | 0 | 0.00 | 61.01 | -5.48 | -3.01 | 0.00 | 0.00 | 0.00 | 52.52 |
|-----|---|------|-------|-------|-------|------|------|------|-------|

-----  
Segment Leq : 52.52 dBA

Total Leq All Segments: 52.52 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 62.02

(NIGHT): 56.74

Filename: nw.te                    Time Period: Day/Night 16/8 hours  
Description: NW Facade - Top Floor

Road data, segment # 1: College St. (day/night)

-----  
Car traffic volume : 16470/1830 veh/TimePeriod \*  
Medium truck volume : 450/50 veh/TimePeriod \*  
Heavy truck volume : 59/7 veh/TimePeriod \*  
Posted speed limit : 50 km/h  
Road gradient : 0 %  
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 14876  
Percentage of Annual Growth : 2.00  
Number of Years of Growth : 12.00  
Medium Truck % of Total Volume : 2.65  
Heavy Truck % of Total Volume : 0.35  
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: College St. (day/night)

-----  
Angle1 Angle2 : 0.00 deg 90.00 deg  
Wood depth : 0 (No woods.)  
No of house rows : 0 / 0  
Surface : 2 (Reflective ground surface)  
Receiver source distance : 53.00 / 53.00 m  
Receiver height : 16.50 / 16.50 m  
Topography : 1 (Flat/gentle slope; no barrier)

Road data, segment # 2: Dovercourt (day/night)

-----  
Car traffic volume : 10219/1135 veh/TimePeriod \*  
Medium truck volume : 21/2 veh/TimePeriod \*  
Heavy truck volume : 21/2 veh/TimePeriod \*  
Posted speed limit : 40 km/h  
Road gradient : 0 %  
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 8989  
Percentage of Annual Growth : 2.00  
Number of Years of Growth : 12.00  
Medium Truck % of Total Volume : 0.20  
Heavy Truck % of Total Volume : 0.20  
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 2: Dovercourt (day/night)

-----  
Angle1 Angle2 : -90.00 deg 0.00 deg  
Wood depth : 0 (No woods.)  
No of house rows : 0 / 0  
Surface : 2 (Reflective ground surface)  
Receiver source distance : 62.00 / 62.00 m  
Receiver height : 16.50 / 16.50 m  
Topography : 1 (Flat/gentle slope; no barrier)

Results segment # 1: College St. (day)

Source height = 0.77 m

ROAD (0.00 + 55.84 + 0.00) = 55.84 dBA

| Angle1 | Angle2 | Alpha | RefLeq | P.Adj | D.Adj | F.Adj | W.Adj | H.Adj | B.Adj | SubLeq |
|--------|--------|-------|--------|-------|-------|-------|-------|-------|-------|--------|
| 0      | 90     | 0.00  | 64.34  | 0.00  | -5.48 | -3.01 | 0.00  | 0.00  | 0.00  | 55.84  |

Segment Leq : 55.84 dBA

Results segment # 2: Dovercourt (day)

Source height = 0.67 m

ROAD (0.00 + 49.08 + 0.00) = 49.08 dBA

| Angle1 | Angle2 | Alpha | RefLeq | P.Adj | D.Adj | F.Adj | W.Adj | H.Adj | B.Adj | SubLeq |
|--------|--------|-------|--------|-------|-------|-------|-------|-------|-------|--------|
| -90    | 0      | 0.00  | 58.25  | 0.00  | -6.16 | -3.01 | 0.00  | 0.00  | 0.00  | 49.08  |

Segment Leq : 49.08 dBA

Total Leq All Segments: 56.67 dBA

Results segment # 1: College St. (night)

Source height = 0.78 m

ROAD (0.00 + 49.35 + 0.00) = 49.35 dBA

| Angle1 | Angle2 | Alpha | RefLeq | P.Adj | D.Adj | F.Adj | W.Adj | H.Adj | B.Adj | SubLeq |
|--------|--------|-------|--------|-------|-------|-------|-------|-------|-------|--------|
| 0      | 90     | 0.00  | 57.84  | 0.00  | -5.48 | -3.01 | 0.00  | 0.00  | 0.00  | 49.35  |

Segment Leq : 49.35 dBA

Results segment # 2: Dovercourt (night)

Source height = 0.65 m

ROAD (0.00 + 42.43 + 0.00) = 42.43 dBA

| Angle1 | Angle2 | Alpha | RefLeq | P.Adj | D.Adj | F.Adj | W.Adj | H.Adj | B.Adj | SubLeq |
|--------|--------|-------|--------|-------|-------|-------|-------|-------|-------|--------|
| -90    | 0      | 0.00  | 51.61  | 0.00  | -6.16 | -3.01 | 0.00  | 0.00  | 0.00  | 42.43  |

Segment Leq : 42.43 dBA

Total Leq All Segments: 50.15 dBA

RT/Custom data, segment # 1: Streetcars (day/night)

1 - ALRV:

Traffic volume : 260/91 veh/TimePeriod  
Speed : 50 km/h

Data for Segment # 1: Streetcars (day/night)

-----  
Angle1 Angle2 : 0.00 deg 90.00 deg  
Wood depth : 0 (No woods.)  
No of house rows : 0 / 0  
Surface : 2 (Reflective ground surface)  
Receiver source distance : 53.00 / 53.00 m  
Receiver height : 16.50 / 16.50 m  
Topography : 1 (Flat/gentle slope; no barrier)

Results segment # 1: Streetcars (day)

-----  
Source height = 0.50 m

RT/Custom (0.00 + 54.07 + 0.00) = 54.07 dBA

| Angle1 | Angle2 | Alpha | RefLeq | D.Adj | F.Adj | W.Adj | H.Adj | B.Adj | SubLeq |
|--------|--------|-------|--------|-------|-------|-------|-------|-------|--------|
| 0      | 90     | 0.00  | 62.56  | -5.48 | -3.01 | 0.00  | 0.00  | 0.00  | 54.07  |

-----  
Segment Leq : 54.07 dBA

Total Leq All Segments: 54.07 dBA

Results segment # 1: Streetcars (night)

-----  
Source height = 0.50 m

RT/Custom (0.00 + 52.52 + 0.00) = 52.52 dBA

| Angle1 | Angle2 | Alpha | RefLeq | D.Adj | F.Adj | W.Adj | H.Adj | B.Adj | SubLeq |
|--------|--------|-------|--------|-------|-------|-------|-------|-------|--------|
| 0      | 90     | 0.00  | 61.01  | -5.48 | -3.01 | 0.00  | 0.00  | 0.00  | 52.52  |

-----  
Segment Leq : 52.52 dBA

Total Leq All Segments: 52.52 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 58.57  
(NIGHT): 54.51

Filename: se.te                    Time Period: Day/Night 16/8 hours  
Description: SE Facade - Top Floor

Road data, segment # 1: College St. (day/night)

-----  
Car traffic volume    : 16470/1830    veh/TimePeriod    \*  
Medium truck volume   :    450/50        veh/TimePeriod    \*  
Heavy truck volume    :     59/7         veh/TimePeriod    \*  
Posted speed limit    :     50 km/h  
Road gradient         :     0 %  
Road pavement         :     1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 14876  
Percentage of Annual Growth         : 2.00  
Number of Years of Growth           : 12.00  
Medium Truck % of Total Volume       : 2.65  
Heavy Truck % of Total Volume        : 0.35  
Day (16 hrs) % of Total Volume      : 90.00

Data for Segment # 1: College St. (day/night)

-----  
Angle1    Angle2                : -90.00 deg    90.00 deg  
Wood depth                        :     0         (No woods.)  
No of house rows                  :     0 / 0  
Surface                            :     2         (Reflective ground surface)  
Receiver source distance         : 41.00 / 41.00 m  
Receiver height                    : 16.50 / 16.50 m  
Topography                         :     1         (Flat/gentle slope; no barrier)

Road data, segment # 2: Dovercourt (day/night)

-----  
Car traffic volume    : 10219/1135    veh/TimePeriod    \*  
Medium truck volume   :    21/2        veh/TimePeriod    \*  
Heavy truck volume    :    21/2        veh/TimePeriod    \*  
Posted speed limit    :     40 km/h  
Road gradient         :     0 %  
Road pavement         :     1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 8989  
Percentage of Annual Growth         : 2.00  
Number of Years of Growth           : 12.00  
Medium Truck % of Total Volume       : 0.20  
Heavy Truck % of Total Volume        : 0.20  
Day (16 hrs) % of Total Volume      : 90.00

Data for Segment # 2: Dovercourt (day/night)

-----  
Angle1    Angle2                : -90.00 deg    90.00 deg  
Wood depth                        :     0         (No woods.)  
No of house rows                  :     0 / 0  
Surface                            :     2         (Reflective ground surface)  
Receiver source distance         : 10.50 / 10.50 m  
Receiver height                    : 16.50 / 16.50 m  
Topography                         :     1         (Flat/gentle slope; no barrier)

Results segment # 1: College St. (day)

Source height = 0.77 m

ROAD (0.00 + 59.97 + 0.00) = 59.97 dBA

| Angle1 | Angle2 | Alpha | RefLeq | P.Adj | D.Adj | F.Adj | W.Adj | H.Adj | B.Adj | SubLeq |
|--------|--------|-------|--------|-------|-------|-------|-------|-------|-------|--------|
| -90    | 90     | 0.00  | 64.34  | 0.00  | -4.37 | 0.00  | 0.00  | 0.00  | 0.00  | 59.97  |

Segment Leq : 59.97 dBA

Results segment # 2: Dovercourt (day)

Source height = 0.67 m

ROAD (0.00 + 59.80 + 0.00) = 59.80 dBA

| Angle1 | Angle2 | Alpha | RefLeq | P.Adj | D.Adj | F.Adj | W.Adj | H.Adj | B.Adj | SubLeq |
|--------|--------|-------|--------|-------|-------|-------|-------|-------|-------|--------|
| -90    | 90     | 0.00  | 58.25  | 0.00  | 1.55  | 0.00  | 0.00  | 0.00  | 0.00  | 59.80  |

Segment Leq : 59.80 dBA

Total Leq All Segments: 62.90 dBA

Results segment # 1: College St. (night)

Source height = 0.78 m

ROAD (0.00 + 53.48 + 0.00) = 53.48 dBA

| Angle1 | Angle2 | Alpha | RefLeq | P.Adj | D.Adj | F.Adj | W.Adj | H.Adj | B.Adj | SubLeq |
|--------|--------|-------|--------|-------|-------|-------|-------|-------|-------|--------|
| -90    | 90     | 0.00  | 57.84  | 0.00  | -4.37 | 0.00  | 0.00  | 0.00  | 0.00  | 53.48  |

Segment Leq : 53.48 dBA

Results segment # 2: Dovercourt (night)

Source height = 0.65 m

ROAD (0.00 + 53.16 + 0.00) = 53.16 dBA

| Angle1 | Angle2 | Alpha | RefLeq | P.Adj | D.Adj | F.Adj | W.Adj | H.Adj | B.Adj | SubLeq |
|--------|--------|-------|--------|-------|-------|-------|-------|-------|-------|--------|
| -90    | 90     | 0.00  | 51.61  | 0.00  | 1.55  | 0.00  | 0.00  | 0.00  | 0.00  | 53.16  |

Segment Leq : 53.16 dBA

Total Leq All Segments: 56.33 dBA

RT/Custom data, segment # 1: Streetcars (day/night)

1 - ALRV:

Traffic volume : 260/91 veh/TimePeriod  
Speed : 50 km/h

Data for Segment # 1: Streetcars (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg  
Wood depth : 0 (No woods.)  
No of house rows : 0 / 0  
Surface : 2 (Reflective ground surface)  
Receiver source distance : 41.00 / 41.00 m  
Receiver height : 16.50 / 4.50 m  
Topography : 1 (Flat/gentle slope; no barrier)

Results segment # 1: Streetcars (day)

Source height = 0.50 m

RT/Custom (0.00 + 58.19 + 0.00) = 58.19 dBA

| Angle1 | Angle2 | Alpha | RefLeq | D.Adj | F.Adj | W.Adj | H.Adj | B.Adj | SubLeq |
|--------|--------|-------|--------|-------|-------|-------|-------|-------|--------|
| -90    | 90     | 0.00  | 62.56  | -4.37 | 0.00  | 0.00  | 0.00  | 0.00  | 58.19  |

Segment Leq : 58.19 dBA

Total Leq All Segments: 58.19 dBA

Results segment # 1: Streetcars (night)

Source height = 0.50 m

RT/Custom (0.00 + 56.64 + 0.00) = 56.64 dBA

| Angle1 | Angle2 | Alpha | RefLeq | D.Adj | F.Adj | W.Adj | H.Adj | B.Adj | SubLeq |
|--------|--------|-------|--------|-------|-------|-------|-------|-------|--------|
| -90    | 90     | 0.00  | 61.01  | -4.37 | 0.00  | 0.00  | 0.00  | 0.00  | 56.64  |

Segment Leq : 56.64 dBA

Total Leq All Segments: 56.64 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 64.16  
(NIGHT): 59.50

Filename: sw.te                    Time Period: Day/Night 16/8 hours  
Description: SW Facade - Top Floor

Road data, segment # 1: College St. (day/night)

-----  
Car traffic volume    : 16470/1830    veh/TimePeriod    \*  
Medium truck volume   :    450/50        veh/TimePeriod    \*  
Heavy truck volume    :     59/7         veh/TimePeriod    \*  
Posted speed limit    :     50 km/h  
Road gradient          :     0 %  
Road pavement         :     1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 14876  
Percentage of Annual Growth        : 2.00  
Number of Years of Growth          : 12.00  
Medium Truck % of Total Volume     : 2.65  
Heavy Truck % of Total Volume      : 0.35  
Day (16 hrs) % of Total Volume     : 90.00

Data for Segment # 1: College St. (day/night)

-----  
Angle1    Angle2                : -90.00 deg    90.00 deg  
Wood depth                    :     0         (No woods.)  
No of house rows              :     0 / 0  
Surface                        :     2         (Reflective ground surface)  
Receiver source distance      : 41.00 / 41.00 m  
Receiver height                : 16.50 / 16.50 m  
Topography                     :     1         (Flat/gentle slope; no barrier)

Road data, segment # 2: Dovercourt (day/night)

-----  
Car traffic volume    : 10584/1176    veh/TimePeriod    \*  
Medium truck volume   :    108/12     veh/TimePeriod    \*  
Heavy truck volume    :    108/12     veh/TimePeriod    \*  
Posted speed limit    :     40 km/h  
Road gradient          :     0 %  
Road pavement         :     1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 12000  
Percentage of Annual Growth        : 0.00  
Number of Years of Growth          : 10.00  
Medium Truck % of Total Volume     : 1.00  
Heavy Truck % of Total Volume      : 1.00  
Day (16 hrs) % of Total Volume     : 90.00

Data for Segment # 2: Dovercourt (day/night)

-----  
Angle1    Angle2                :    0.00 deg    90.00 deg  
Wood depth                    :     0         (No woods.)  
No of house rows              :     0 / 0  
Surface                        :     2         (Reflective ground surface)  
Receiver source distance      : 62.00 / 62.00 m  
Receiver height                : 16.50 / 16.50 m  
Topography                     :     1         (Flat/gentle slope; no barrier)

Results segment # 1: College St. (day)

Source height = 0.77 m

ROAD (0.00 + 59.97 + 0.00) = 59.97 dBA

| Angle1 | Angle2 | Alpha | RefLeq | P.Adj | D.Adj | F.Adj | W.Adj | H.Adj | B.Adj | SubLeq |
|--------|--------|-------|--------|-------|-------|-------|-------|-------|-------|--------|
| -90    | 90     | 0.00  | 64.34  | 0.00  | -4.37 | 0.00  | 0.00  | 0.00  | 0.00  | 59.97  |

Segment Leq : 59.97 dBA

Results segment # 2: Dovercourt (day)

Source height = 1.00 m

ROAD (0.00 + 51.48 + 0.00) = 51.48 dBA

| Angle1 | Angle2 | Alpha | RefLeq | P.Adj | D.Adj | F.Adj | W.Adj | H.Adj | B.Adj | SubLeq |
|--------|--------|-------|--------|-------|-------|-------|-------|-------|-------|--------|
| 0      | 90     | 0.00  | 60.65  | 0.00  | -6.16 | -3.01 | 0.00  | 0.00  | 0.00  | 51.48  |

Segment Leq : 51.48 dBA

Total Leq All Segments: 60.55 dBA

Results segment # 1: College St. (night)

Source height = 0.78 m

ROAD (0.00 + 53.48 + 0.00) = 53.48 dBA

| Angle1 | Angle2 | Alpha | RefLeq | P.Adj | D.Adj | F.Adj | W.Adj | H.Adj | B.Adj | SubLeq |
|--------|--------|-------|--------|-------|-------|-------|-------|-------|-------|--------|
| -90    | 90     | 0.00  | 57.84  | 0.00  | -4.37 | 0.00  | 0.00  | 0.00  | 0.00  | 53.48  |

Segment Leq : 53.48 dBA

Results segment # 2: Dovercourt (night)

Source height = 1.00 m

ROAD (0.00 + 44.95 + 0.00) = 44.95 dBA

| Angle1 | Angle2 | Alpha | RefLeq | P.Adj | D.Adj | F.Adj | W.Adj | H.Adj | B.Adj | SubLeq |
|--------|--------|-------|--------|-------|-------|-------|-------|-------|-------|--------|
| 0      | 90     | 0.00  | 54.12  | 0.00  | -6.16 | -3.01 | 0.00  | 0.00  | 0.00  | 44.95  |

Segment Leq : 44.95 dBA

Total Leq All Segments: 54.05 dBA

RT/Custom data, segment # 1: Streetcars (day/night)

1 - ALRV:

Traffic volume : 260/91 veh/TimePeriod  
Speed : 50 km/h

Data for Segment # 1: Streetcars (day/night)

-----  
Angle1 Angle2 : -90.00 deg 90.00 deg  
Wood depth : 0 (No woods.)  
No of house rows : 0 / 0  
Surface : 2 (Reflective ground surface)  
Receiver source distance : 53.00 / 53.00 m  
Receiver height : 16.50 / 16.50 m  
Topography : 1 (Flat/gentle slope; no barrier)

Results segment # 1: Streetcars (day)

-----  
Source height = 0.50 m

RT/Custom (0.00 + 57.08 + 0.00) = 57.08 dBA

| Angle1 | Angle2 | Alpha | RefLeq | D.Adj | F.Adj | W.Adj | H.Adj | B.Adj | SubLeq |
|--------|--------|-------|--------|-------|-------|-------|-------|-------|--------|
| -90    | 90     | 0.00  | 62.56  | -5.48 | 0.00  | 0.00  | 0.00  | 0.00  | 57.08  |

-----  
Segment Leq : 57.08 dBA

Total Leq All Segments: 57.08 dBA

Results segment # 1: Streetcars (night)

-----  
Source height = 0.50 m

RT/Custom (0.00 + 55.53 + 0.00) = 55.53 dBA

| Angle1 | Angle2 | Alpha | RefLeq | D.Adj | F.Adj | W.Adj | H.Adj | B.Adj | SubLeq |
|--------|--------|-------|--------|-------|-------|-------|-------|-------|--------|
| -90    | 90     | 0.00  | 61.01  | -5.48 | 0.00  | 0.00  | 0.00  | 0.00  | 55.53  |

-----  
Segment Leq : 55.53 dBA

Total Leq All Segments: 55.53 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 62.16  
(NIGHT): 57.86

## **APPENDIX C: WARNING CLAUSES**

### **TYPE A**

"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 Municipality's and the Ministry of the Environment, Conservation & Park's noise criteria."

### **TYPE B:**

"Purchasers/tenants are advised that despite the inclusion of noise control features in the development and within the building units, sound levels due to increasing road traffic (rail traffic) (air traffic) may on occasions interfere with some activities of the dwelling occupants as the sound levels exceed the Municipality's and the Ministry of the Environment, Conservation & Park's noise criteria."

### **TYPE C:**

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

### **TYPE D:**

"This dwelling unit has been supplied with a central air conditioning system which will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the Municipality's and the Ministry of the Environment, Conservation & Park's noise criteria."

## APPENDIX D: NOISE CRITERIA

The noise study will be based on the following criteria for residential units, as required by the City of Toronto and the Ministry of the Environment, Conservation and Parks:

1. Bedrooms (23:00 – 07:00) = 40 dB  $L_{eq}$
2. Living/dining rooms (07:00 – 23:00) = 45 dB  $L_{eq}$
3. Outdoor areas (07:00 – 23:00) = 55 dB  $L_{eq}$  (up to 60 dB  $L_{eq}$  with warning clause).

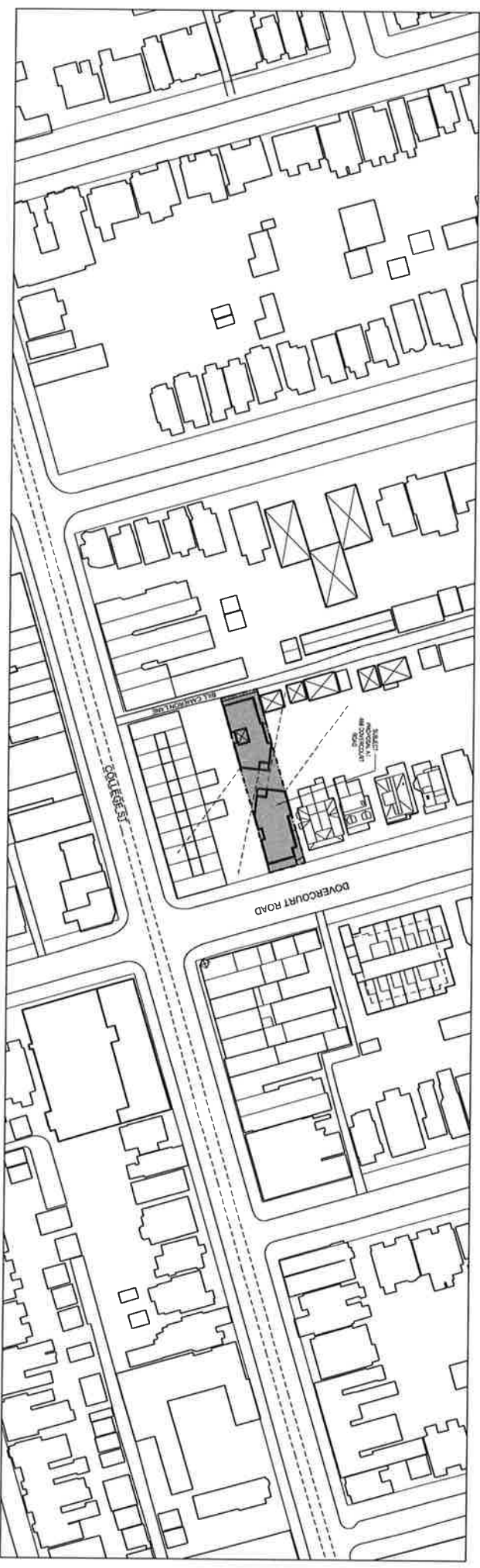
All calculations were based on the site and floors plans by Axia Design Associates, dated December 19, 2019.

### $L_{eq}$

The  $L_{eq}$  is defined as the mean energy of the noise level averaged over the measurement period. It can be considered as the continuous steady noise level which would have the same acoustic energy as the real fluctuating noise measured over the same period of time.

## APPENDIX E: REFERENCES

1. Ministry of the Environment's *STAMSON* Computer Programme (Version 5.04) for the IBM PC.
2. Ministry of the Environment, "Publication NPC-300, Environmental Noise Guideline – Stationary and Transportation Sources – Approval and Planning", August 2013.
3. Ministry of the Environment, *ORNAMENT*, "Ontario Road Noise Analysis Method for Environment and Transportation", November 1988.
4. Quirt, D.J., "Controlling Sound Transmission into Buildings", National Research Council, *Building Practice Note 56*.



| Cycling Infrastructure                                      | Required | Proposed | Proposed % |
|---|----------|----------|------------|
| Number of long-term bicycle parking spaces (residential)    | 27       | 27       | 100%       |
| Number of long-term bicycle parking spaces (all other uses) | 0        | 0        | 100%       |
| Number of long-term bicycle parking (all uses) located on:  |          |          |            |
| a) first story of building                                  | *        | *        |            |
| b) second story of building                                 | 27       | 27       | 100%       |
| c) first level below-ground                                 | *        | *        |            |
| d) second level below-ground                                | *        | *        |            |
| e) other levels below-ground                                | *        | *        |            |

| Green & Cool Roofs  | Required | Proposed | Proposed % |
|---|----------|----------|------------|
| Available Roof Space provided as Green Roof (m <sup>2</sup> )   | 180 SPA  |          |            |
| Available Roof Space provided as Cool Roof (m <sup>2</sup> )    |          |          |            |
| Available Roof Space provided as Solar Panels (m <sup>2</sup> ) |          |          |            |

| Percentage of glazing within 12m above grade treated with: |  |  |  |  |
|--|--|--|--|--|
| a) Low reflectance opaque materials                        |  |  |  |  |
| b) Visual markers  |  |  |  |  |
| c) Shading   |  |  |  |  |

FIGURE 1