NOISE & VIBRATION IMPACT STUDY

"BRANT CONDOS"
11-STOREY + MEZZANINE CONDO BUILDING
& 12-TWO STOREY TOWNHOUSES
688, 694 & 698 BRANT STREET
BURLINGTON, ON

Prepared for:

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Our File No: 23-4006
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1.0 INTRODUCTION

dBA Acoustical Consulting Inc. has been retained to conduct a noise impact study on behalf of Elite 688 Brant Holdings Inc. for the proposed "Brant Condos" a mixed-use development, located at 688, 694 & 698 Brant Street in Burlington, ON.

The purpose of the study is to determine the noise impact from Brant Street vehicular traffic that may impact the proposed development, as required for OPA/ZBA application approval for the City of Burlington.

This study will detail noise impact relative to the site plan and recommend noise control measures necessary (if applicable) to meet Ministry of Environment, Conservation & Parks (MECP) Publication NPC-300 entitled "Stationary & Transportation Sources-Approval & Planning guidelines while satisfying the planning requirements of the City of Burlington and the Region of Halton.

Vibration is not considered as there are no heavy industrial operations in the proposed development. Aircraft is not a concern as the development is located outside the NEF 25 contour of the area. See attached Figure 1.

2.0 SITE DESCRIPTION

Proposed for the site are 2 Blocks of 6, two-storey townhouses with outdoor amenity areas between the two Blocks as well as at the rear of the two Blocks. As well as an 11-storey + mezzanine mixed-use condo building with three levels of underground parking. This building will consist of 293 units. There is a rooftop outdoor amenity area as well as seven (7) private terraces at the north facade of the second floor. Retail space is on the ground floor and mezzanine with residential units starting on the second floor. There is a rooftop mechanical room that will house the HVAC units and therefore will have no acoustical impact on the surrounding area.

The proposed site property is located approximately 25m south of Brant Street. Baldwin Street is approximately 228m east of the proposed development, however due to low traffic volume, distance, and speed limit it will not have an acoustical impact on the proposed development. To the north of the proposed development are 1-2-storey homes as well as small commercial businesses. To the west is Olga Drive with 3-storey apartment buildings. To the south are 1-2-storey homes on Alfred Crescent and to the east is a 4-storey commercial building (Brant Arts IDA Pharmacy) with a rooftop HVAC unit equipped with noise mitigation apparatuses and will not have an acoustical impact on the proposed development.

Brant Street is a 3-lane roadway with a centre turn lane and a posted speed of 50 km/hr. The speed limit of 40 km/hr. is utilized only during school days/hours when lights are flashing. Site Plan is attached in Figure 2.

The underground parking lot (P1) may have exhaust and intake fans that will need to be assessed prior to site plan approval for noise impact as well as any generators or transformers proposed for the site to ensure that the noise levels comply with MECP noise guidelines.

3.0 NOISE IMPACT ASSESSMENT

3.1 NOISE CRITERIA

MECP specifies limits for road noise relative to new residential developments. The MECP Publication NPC-300 entitled "Stationary & Transportation Sources-Approval & Planning, specifies the criteria, summarized as follows:

TABLE1- Road Traffic Sound Levels Limits	
Time Period	Leq (dBA)
07:00 – 23:00 (16 hr.)	55 Outdoor Living area
07:00 – 23:00 (16 hr.)	55 Plane of Window
23:00 – 07:00 (8 hr.)	50 Plane of Bedroom window

The OLA refers to an outdoor patio, a terrace or other area where outdoor passive recreation is expected. Noise levels are calculated at the upper storey bedroom window to represent nighttime (23:00-0700) periods.

Where noise levels estimated at the first-floor window (POW) are equal to or less than the values listed in Table 1, no noise control measures are required. Where noise levels exceed Table 1 values, the following action is required:

TABLE 2 –Noise Control Requirements		
Time Period	Noise Level Leq (dBA)	Action Required
07:00 - 23:00 Daytime (OLA)	56 to 60	Warning Clause Type "A"
	> 60	Barrier & Warning Clause Type "B"
07:00 – 23:00 Daytime (POW)	>55	Provision for A/C, Warning Clause "C"
	>65	Central A/C, Warning Clause "D"
	>65	Building Component Specification
23:00 to 07:00 Nighttime (POW)	> 50	Provision for A/C and Warning Clause Type "C"
	> 60	Building Component Specification
	> 60	Central Air and Warning Clause Type "D"

Where nighttime noise levels exceed 60 dBA, building components must be designed to meet Table 3 indoor sound level limits.

TABLE 3 - Indoor Road Sound Levels Limits	
Indoor Location	Leq (dBA)
	Road
Living/Dining/ Bedroom 7:00 – 23:00	45
Living/Dining/ Bedroom 23:00 - 07:00	40

3.2 ROAD NOISE

Predicted road traffic noise levels were calculated for Brant Street, the major road noise source in the area. Road traffic volumes for Brant Street AADT 2017 (Annual Average Daily Traffic) were sourced by the City of Burlington Open Data Platform. (See Appendix "A").

The MECP computer program STAMSON version 5.04 was used to carry out prediction calculations (See Appendix "A"). Traffic data is summarized in Table 4.

The daytime/nighttime volume ratio relative to Brant Street, is calculated using an 90/10 split, as required by the MECP. The percentage of annual growth was figured at 2% over 16 years, volumes used are reflective of the worst-case scenario. Truck volumes were factored at 2% medium and 2% heavy of the total vehicle volumes for Brant Street.

TABLE 4 – Future Road Traffic Volumes			
Brant Street	AADT 23602 Vehicles		
	Cars	Medium Trucks	Heavy Trucks
Daytime	20392	425	425
Nighttime	2266	47	47

The following Table 5 summarizes Brant Street "free field" traffic noise prediction results, modeled at nine receptor locations represents the north façade, east and west façades within the proposed development as well as OLA's. (see Figure 3 Receptor Locations).

TABLE 5 – Predicted Brant Street Future Traffic Noise (dBA)		
Location	07:00 – 23:00	23:00 – 07:00
R1 - 2nd Floor North Façade (8m)	63 dBA	56 dBA
R2 – 11th Floor North Façade (36m)	65 dBA	59 dBA
R3 – 2nd Floor East & West Facades (8m)	59 dBA	52 dBA
R4 - 11th Floor East & West Facades (36m)	61 dBA	55 dBA
R5 – 2nd Floor North Façade Terrace (8m) Mitigated 1.22m (4 ft)	51 dBA	N/A
R6 - Townhouses 1st Floor (2m)	45 dBA	39 dBA
R7 – Townhouses 2nd Floor (5m)	46 dBA	38 dBA
R8 – Townhouse Middle OLA's (1.5m) Unmitigated	45 dBA	N/A
R9 – Rooftop OLA (38m) Mitigated 1.22m (4 ft)	49 dBA	N/A

3.3 VIBRATION

The City of Burlington Construction & Mobility Policy requires pre-condition surveys of area buildings within the area of influence (to be established), vibration protocol, shoring approval and vibration monitoring during shoring and all heavy construction activities. Further information will be provided prior to the issuance of a building permit or as The City of Burlington staff require the documents for approval.

4.0 RECOMMENDATIONS - NOISE CONTROL

4.1 OUTDOOR NOISE LEVELS

Calculated road noise levels exceed the 55 dBA daytime criteria outlined in Table 1 for the 11-storey building (R1-R4). The proposed development includes a rooftop outdoor amenity space as well as 2nd storey terraces and will require a 1.22m (4 ft) safety railing or equivalent that achieves the MECP requirements, noted below.

Proposed are standard balconies that are less than 4m in depth and not considered an outdoor amenity space as defined by the MECP, and as such no noise mitigation is required however, due to increasing road traffic on occasion may interfere with some activities of the dwelling occupants. The City of Burlington recommends a Type "A" Warning Clause for all units in the 11-storey building.

Calculated road noise levels do not exceed the 55 dBA daytime criteria outlined in Table 1 for the twelve townhouses (apartments) and do not require any noise mitigation measures to achieve the MECP noise criteria.

For reference, the MECP requirements for an acoustical barrier are:

- Minimum surface density (Face Weight) of 20 kg/m².
- Structurally sound.
- Appropriately designed to withstand wind and snow load and constructed without cracks or surface gaps. (See Figure 4, Noise Barrier Location)

4.2 INDOOR NOISE LEVELS

Calculated nighttime road noise levels at the Plane of Window (POW) exceed the 50 dBA criteria outlined in Table 1 for indoor space for all residential units. Specific building components (walls, windows, doors etc.) are required and confirmed using the STC (Sound Transmission Class) method and are summarized in Table 6 following, with minimum window, door and wall construction specified throughout the development. The STC values are calculated for each room type, based on window to floor ratios of 80%.

TABLE 6 – Recommended Door, Wall, and Window Construction

LOCATION	Window STC To Be Used	Exterior Wall STC	Patio Door Construction STC
11-Storey Building (all floors/all units)	Example	Example	Example
Bedroom	36	43	36
Living room	36	43	36
Townhouses	Example	Example	Example
Bedroom	28	OBC	28
Living room	28	OBC	28

5.0 VENTILATION / WARNING CLAUSES

Ventilation and Warning Clause requirements are required for this project as noted in Table 7 following. It is recommended that the appropriate Warning Clauses be inserted into all Offers and Agreements of Purchase and Sale or Lease.

TABLE 7 - Ventilation and Warning Clause Requirements		
LOCATION	VENTILATION	WARNING CLAUSE
11-Storey Building	Central Air Conditioning	Type "A", "B" and "D"
Townhouses/Apartments	OBC	Not Required

The following are the required warning clauses.

TYPE A: (11-Storey Building)

"Purchasers/tenants are advised that sound levels due to increasing road traffic may occasionally interfere with some activities of the dwelling occupants as the sound levels exceed the Municipality's and the MECP's noise criteria."

TYPE B: (11-Storey Building)

"Purchasers/tenants are advised that despite the inclusion of noise control features in the development and within the buildings units, sound levels due to increasing road traffic may on occasions interfere with some activities of the dwelling occupants as the sound levels exceed the Municipality's and the MECP's noise criteria."

TYPE D: (11-Storey Building)

"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 MECP's noise criteria."

6.0 SUMMARY OF RECOMMENDATIONS

The following noise control measures are required for this development:

- Table 6 recommends acoustically tested windows, walls, in Section 4.2 to ensure MECP compliance.
- Appropriate ventilation requirements and warning clauses are inserted into all Offers and Agreements of Purchase and Sale or Lease (Section 5, Table 7).
- 1.22m Safety Railing or Equivalent required for 2nd Floor Terraces and rooftop OLA as noted in Figure 4.
- A letter from the Window supplier to confirm STC value for windows will be installed.
- The City of Burlington will require a detailed noise study at the Site Plan stage when the OPA/ZBA Subdivision application is approved.
- The City of Burlington specifies that window air conditioning units are not allowed for any of the 11-storey building units or townhouses/apartments.
- A noise study update will be required to address the underground parking vents/exhausts/intake fans/ground level transformers, any emergency generators.

It is recommended that a Qualified Acoustical Consultant certify that the required noise control measures have been incorporated into the builder's plans, prior to issuance of a building permit.

Prior to issuance of an occupancy permit, it is recommended the Qualified Acoustical Consultant certify that the approved noise control measures have been property installed.

7.0 CONCLUSIONS

dBA Acoustical Consulting Inc. has provided a noise impact study on behalf of Elite 688 Brant Holdings Inc. for the proposed "Brant Condos" a mixed-use development, located at 688, 694 & 698 Brant Street in Burlington, ON.

The study determined the noise impact from Brant Street vehicular traffic that impacted the proposed development, as required for OPA/ZBA application approval for the City of Burlington.

This study detailed noise impact relative to the site plan and recommended noise control measures necessary to meet Ministry of Environment, Conservation & Parks (MECP) Publication NPC-300 entitled "Stationary & Transportation Sources-Approval & Planning guidelines while satisfying the planning requirements of the City of Burlington and the Region of Halton.

FIGURE 1
SITE LOCATION



FIGURE 2
SITE PLAN

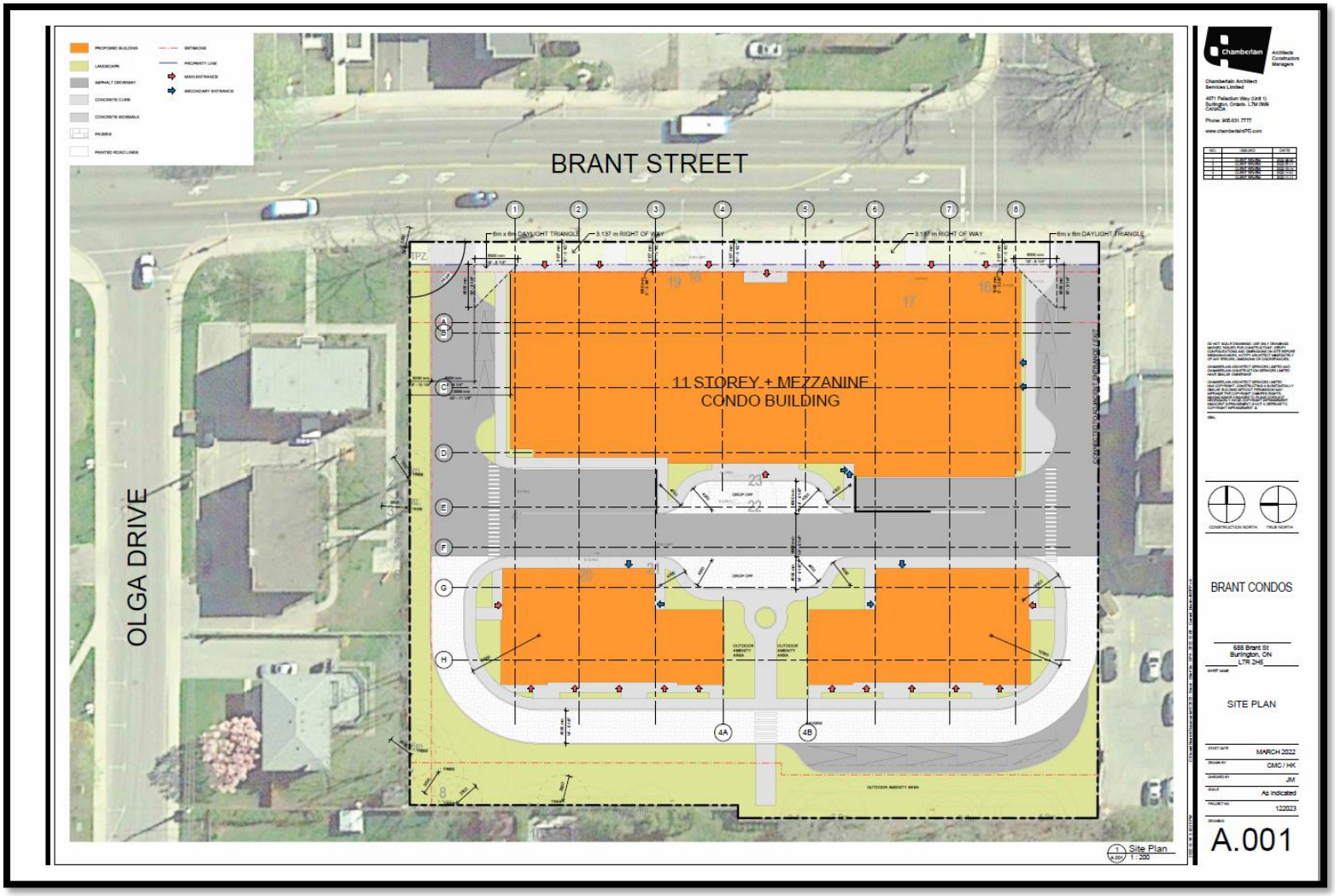


FIGURE 3
RECEPTOR LOCATIONS

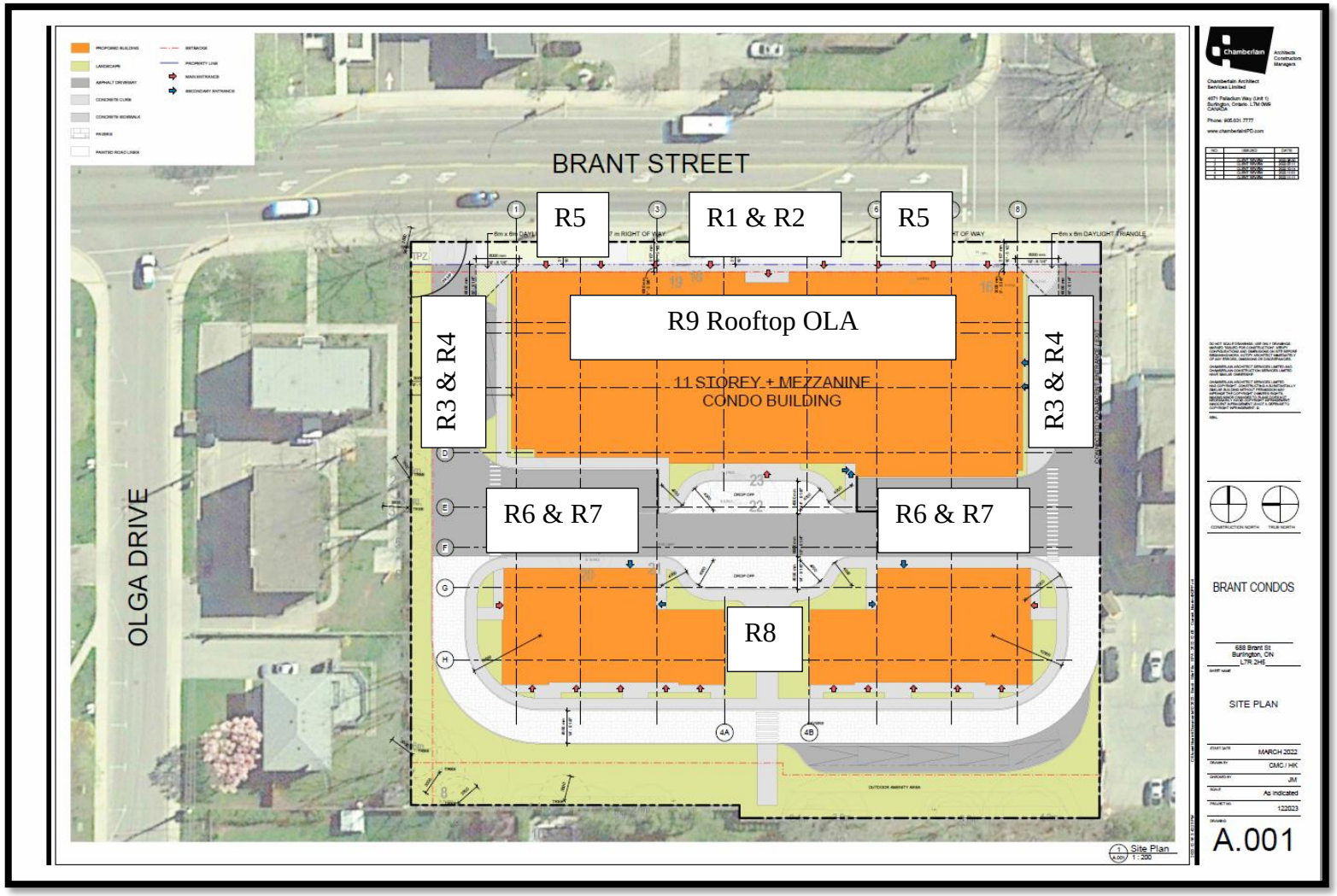
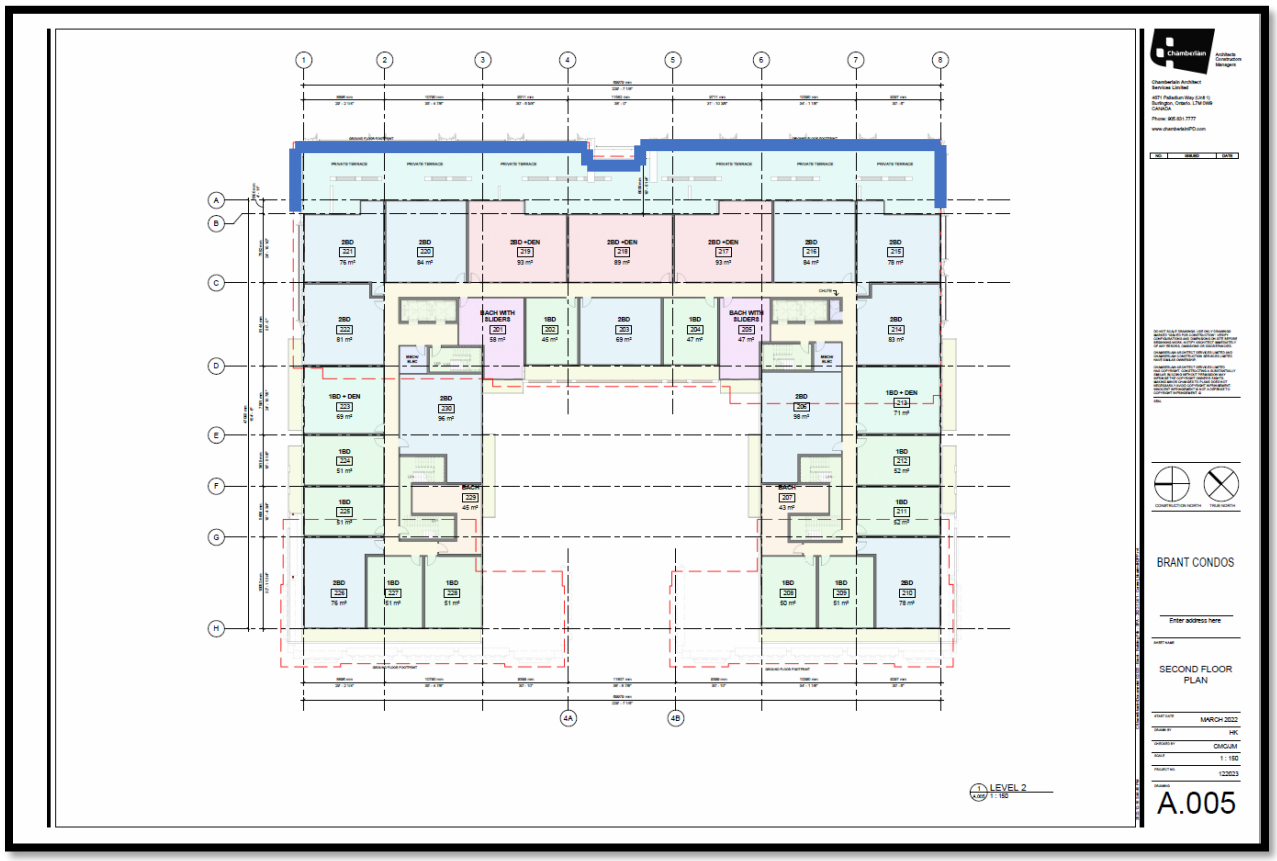
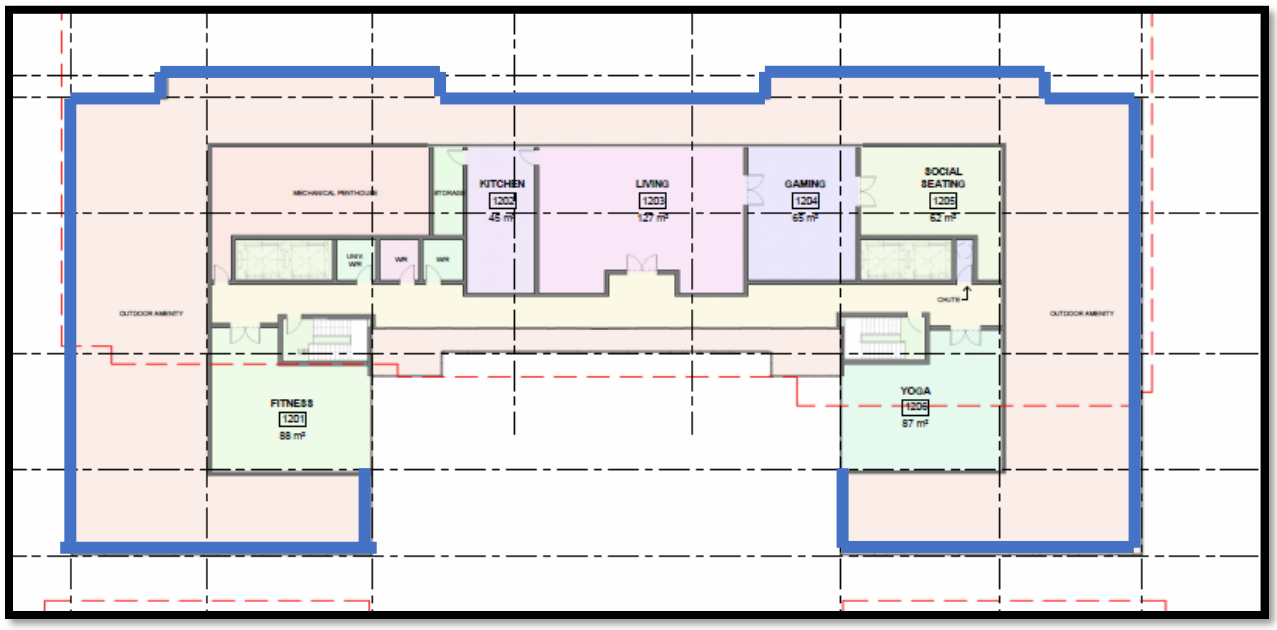


FIGURE 4
1.22M (4FT) SAFETY RAILING OR EQUIVALENT 2nd FLOOR TERRACES



1.22m Safety Railing or Equivalent with Wrap Around Glass Railing Must Be Tempered, Laminated, or Wire.

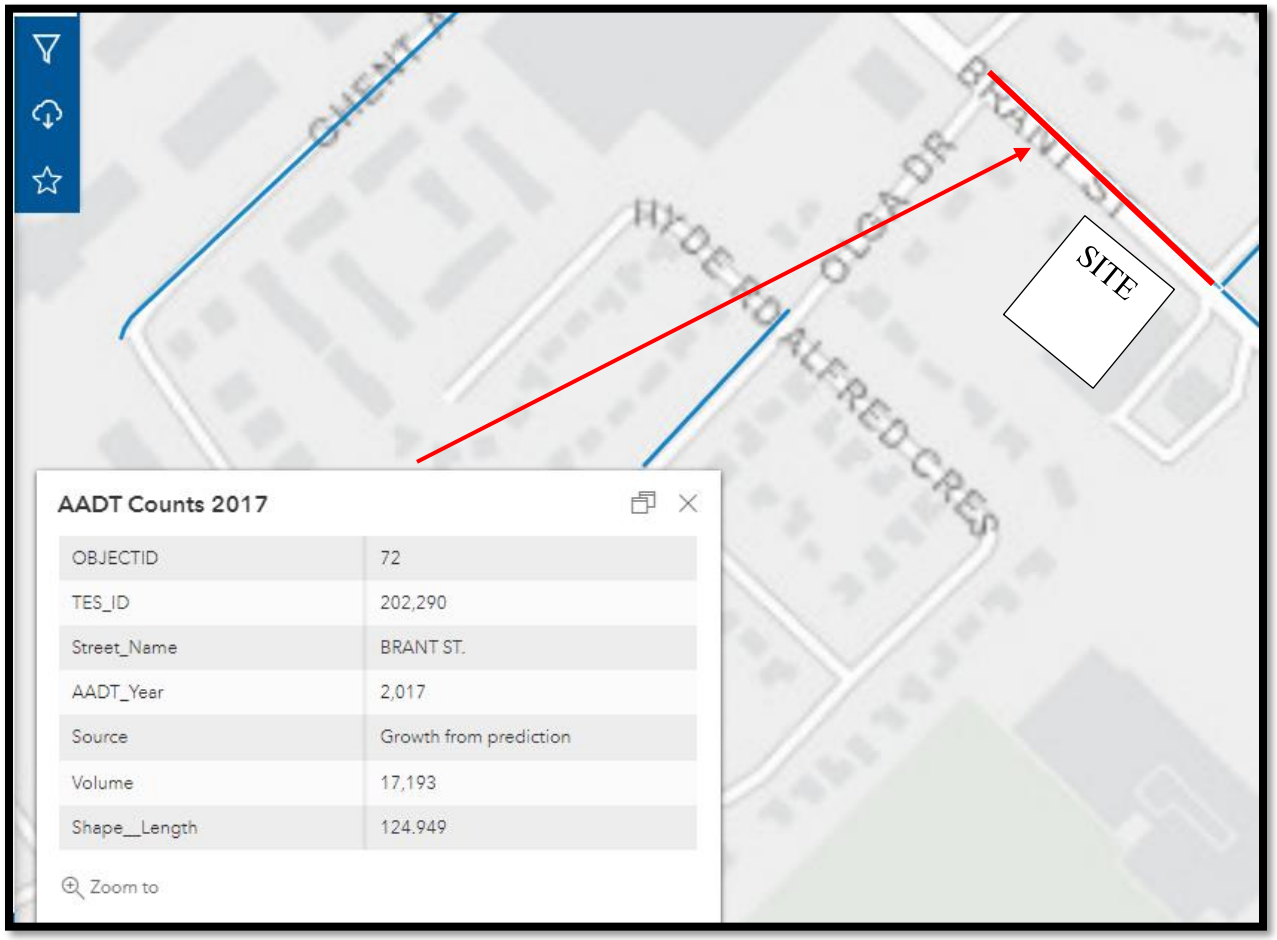
FIGURE 4
1.22M (4FT) SAFETY RAILING OR EQUIVALENT ROOFTOP OLA



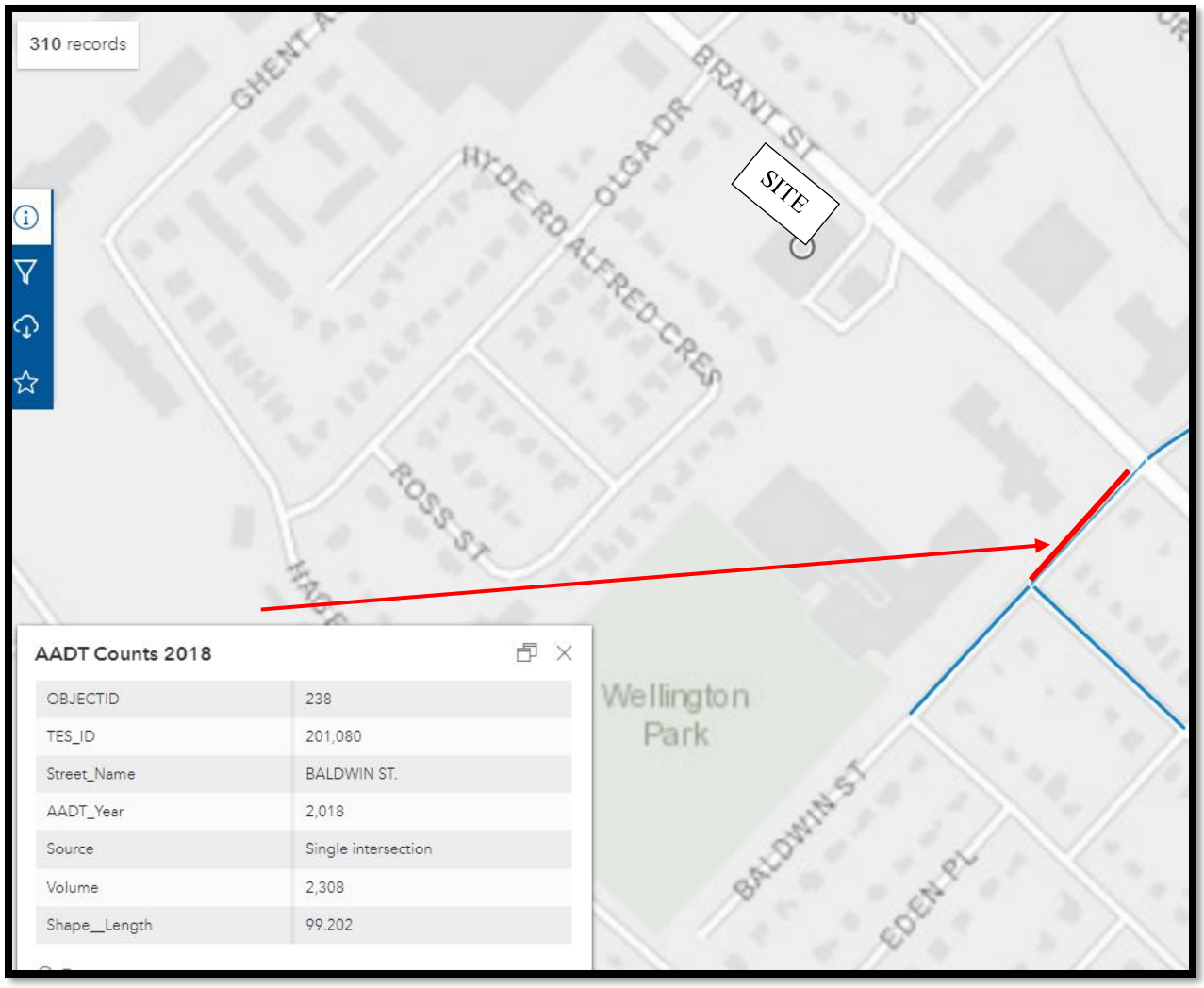
1.22m Safety Railing or Equivalent with Wrap Around Glass Railing Must Be Tempered, Laminated, or Wire.

APPENDIX "A"

2017 CITY OF BURLINGTON AADT
BRANT STREET



2018 CITY OF BURLINGTON AADT
BALDWIN STREET



Baldwin Street Low Traffic Volumes, Low Speed Limit, Distance Separation, Extensive Shielding for Central Schools and Will Not Have Any Traffic Noise Impact on the Proposed Development

STAMSON CALCULATIONS

```
STAMSON 5.04        SUMMARY REPORT        Date: 10-01-2023 12:20:50
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: R1Brant.te           Time Period: Day/Night 16/8 hours
Description: R1- 2nd Floor North Facade
                    TOTAL Leq FROM ALL SOURCES                    (DAY): 62.92
                                                                  (NIGHT): 56.38

Road data, segment # 1: Brant Street (day/night)
-----------------------------------------------
Car traffic volume  : 20392/2266  veh/TimePeriod  *
Medium truck volume :   425/47    veh/TimePeriod  *
Heavy truck volume  :   425/47    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):  17193
    Percentage of Annual Growth        :   2.00
    Number of Years of Growth          :  16.00
    Medium Truck % of Total Volume     :   2.00
    Heavy Truck  % of Total Volume     :   2.00
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 1: Brant Street (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  :  25.00 / 25.00  m
Receiver height           :   8.00 / 8.00   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Result summary (day)
--------------------
                    !  source  !   Road   !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+---------+---------+---------
 1.Brant Street     !     1.19 !    62.92 !    62.92
--------------------+---------+---------+---------
                      Total                  62.92 dBA

Result summary (night)
----------------------
                    !  source  !   Road   !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+---------+---------+---------
 1.Brant Street     !     1.19 !    56.38 !    56.38
--------------------+---------+---------+---------
                      Total                  56.38 dBA
```

```
STAMSON 5.04        SUMMARY REPORT        Date: 10-01-2023 12:36:14
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r2brant.te           Time Period: Day/Night 16/8 hours
Description: R2- 11th Floor North Facade
                     TOTAL Leq FROM ALL SOURCES                    (DAY): 65.10
                                                                   (NIGHT): 58.56

Road data, segment # 1: Brant Street (day/night)
-----------------------------------------------
Car traffic volume  : 20392/2266  veh/TimePeriod  *
Medium truck volume :   425/47    veh/TimePeriod  *
Heavy truck volume  :   425/47    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):  17193
    Percentage of Annual Growth        :   2.00
    Number of Years of Growth          :  16.00
    Medium Truck % of Total Volume     :   2.00
    Heavy Truck  % of Total Volume     :   2.00
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 1: Brant Street (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  :  25.00 / 25.00  m
Receiver height           :  36.00 / 36.00  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Result summary (day)
--------------------
                     !  source  !   Road   !  Total
                     !  height  !   Leq    !   Leq
                     !   (m)    !  (dBA)   !  (dBA)
--------------------+---------+---------+---------
 1.Brant Street      !     1.19 !    65.10 !    65.10
--------------------+---------+---------+---------
                       Total                  65.10 dBA

Result summary (night)
----------------------
                     !  source  !   Road   !  Total
                     !  height  !   Leq    !   Leq
                     !   (m)    !  (dBA)   !  (dBA)
--------------------+---------+---------+---------
 1.Brant Street      !     1.19 !    58.56 !    58.56
--------------------+---------+---------+---------
                                   Total                  58.56 dBA
```

```
STAMSON 5.04        SUMMARY REPORT        Date: 10-01-2023 12:46:14
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r3brant.te           Time Period: Day/Night 16/8 hours
Description: R3- 2nd Floor East and West Facade
                     TOTAL Leq FROM ALL SOURCES                    (DAY): 58.75
                                                                   (NIGHT): 52.20

Road data, segment # 1: Brant Street (day/night)
-----------------------------------------------
Car traffic volume  : 20392/2266  veh/TimePeriod  *
Medium truck volume :   425/47    veh/TimePeriod  *
Heavy truck volume  :   425/47    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):  17193
    Percentage of Annual Growth        :   2.00
    Number of Years of Growth          :  16.00
    Medium Truck % of Total Volume     :   2.00
    Heavy Truck  % of Total Volume     :   2.00
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 1: Brant Street (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  :  30.00 / 30.00  m
Receiver height           :   8.00 / 8.00   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Result summary (day)
--------------------
                    !  source  !   Road   !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+---------+---------+---------
 1.Brant Street     !     1.19 !    58.75 !    58.75
--------------------+---------+---------+---------
                      Total                  58.75 dBA

Result summary (night)
----------------------
                    !  source  !   Road   !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+---------+---------+---------
 1.Brant Street     !     1.19 !    52.20 !    52.20
--------------------+---------+---------+---------
                      Total                  52.20 dBA
```

```
STAMSON 5.04        SUMMARY REPORT        Date: 10-01-2023 12:55:28
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r4brant.te           Time Period: Day/Night 16/8 hours
Description: R4- 11th Floor East and West Facade
                    TOTAL Leq FROM ALL SOURCES                    (DAY): 61.30
                                                                  (NIGHT): 54.76

Road data, segment # 1: Brant Street (day/night)
-----------------------------------------------
Car traffic volume  : 20392/2266  veh/TimePeriod  *
Medium truck volume :   425/47    veh/TimePeriod  *
Heavy truck volume  :   425/47    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):  17193
    Percentage of Annual Growth        :   2.00
    Number of Years of Growth          :  16.00
    Medium Truck % of Total Volume     :   2.00
    Heavy Truck  % of Total Volume     :   2.00
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 1: Brant Street (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  :  30.00 / 30.00  m
Receiver height           :  36.00 / 36.00  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Result summary (day)
--------------------
                     !  source  !   Road   !  Total
                     !  height  !   Leq    !   Leq
                     !   (m)    !  (dBA)   !  (dBA)
--------------------+---------+---------+---------
 1.Brant Street      !     1.19 !    61.30 !    61.30
--------------------+---------+---------+---------
                       Total                  61.30 dBA

Result summary (night)
----------------------
                     !  source  !   Road   !  Total
                     !  height  !   Leq    !   Leq
                     !   (m)    !  (dBA)   !  (dBA)
--------------------+---------+---------+---------
 1.Brant Street      !     1.19 !    54.76 !    54.76
--------------------+---------+---------+---------
                       Total                  54.76 dBA
```

```
STAMSON 5.04        SUMMARY REPORT        Date: 10-01-2023 13:12:25
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r5brant.te           Time Period: Day/Night 16/8 hours
Description: R5- 2nd Floor Terrace North Facade
                    TOTAL Leq FROM ALL SOURCES                    (DAY): 50.60 (OLA)

Road data, segment # 1: Brant Street (day/night)
-----------------------------------------------
Car traffic volume  : 20392/2266  veh/TimePeriod  *
Medium truck volume :   425/47    veh/TimePeriod  *
Heavy truck volume  :   425/47    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):  17193
    Percentage of Annual Growth        :   2.00
    Number of Years of Growth          :  16.00
    Medium Truck % of Total Volume     :   2.00
    Heavy Truck  % of Total Volume     :   2.00
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 1: Brant Street (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  :  25.00 / 25.00  m
Receiver height           :   8.00 / 8.00   m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -90.00 deg   Angle2 : 90.00 deg
Barrier height            :   1.22 m
Barrier receiver distance :   3.00 / 3.00   m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   8.00 m
Reference angle           :   0.00

Result summary (day)
--------------------
                    !  source  !   Road   !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+---------+---------+---------
 1.Brant Street     !     1.19 !    50.60 !    50.60
--------------------+---------+---------+---------
                      Total                  50.60 dBA
```

```
STAMSON 5.04        SUMMARY REPORT        Date: 10-01-2023 13:28:51
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r6brant.te           Time Period: Day/Night 16/8 hours
Description: R6- 2nd Floor Apartments North Facade
                     TOTAL Leq FROM ALL SOURCES                    (DAY): 45.27
                                                                   (NIGHT): 38.73

Road data, segment # 1: Brant Street (day/night)
-----------------------------------------------
Car traffic volume  : 20392/2266  veh/TimePeriod  *
Medium truck volume :   425/47    veh/TimePeriod  *
Heavy truck volume  :   425/47    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):  17193
    Percentage of Annual Growth        :   2.00
    Number of Years of Growth          :  16.00
    Medium Truck % of Total Volume     :   2.00
    Heavy Truck  % of Total Volume     :   2.00
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 1: Brant Street (day/night)
-----------------------------------------------
Angle1   Angle2           : -20.00 deg   20.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 129.00 / 129.00 m
Receiver height           :   2.00 / 2.00   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Result summary (day)
--------------------
                     !  source  !   Road   !  Total
                     !  height  !   Leq    !   Leq
                     !   (m)    !  (dBA)   !  (dBA)
--------------------+---------+---------+---------
 1.Brant Street      !     1.19 !    45.27 !    45.27
--------------------+---------+---------+---------
                       Total                  45.27 dBA

Result summary (night)
----------------------
                     !  source  !   Road   !  Total
                     !  height  !   Leq    !   Leq
                     !   (m)    !  (dBA)   !  (dBA)
--------------------+---------+---------+---------
 1.Brant Street      !     1.19 !    38.73 !    38.73
--------------------+---------+---------+---------
                       Total                  38.73 dBA
```

```
STAMSON 5.04        SUMMARY REPORT        Date: 10-01-2023 13:32:22
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r7brant.te           Time Period: Day/Night 16/8 hours
Description: R7- 2nd Floor Apartments North Facade
                     TOTAL Leq FROM ALL SOURCES                    (DAY): 45.27
                                                                   (NIGHT): 38.73

Road data, segment # 1: Brant Street (day/night)
-----------------------------------------------
Car traffic volume  : 20392/2266  veh/TimePeriod  *
Medium truck volume :   425/47    veh/TimePeriod  *
Heavy truck volume  :   425/47    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):  17193
    Percentage of Annual Growth        :   2.00
    Number of Years of Growth          :  16.00
    Medium Truck % of Total Volume     :   2.00
    Heavy Truck  % of Total Volume     :   2.00
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 1: Brant Street (day/night)
-----------------------------------------------
Angle1   Angle2           : -20.00 deg   20.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 129.00 / 129.00 m
Receiver height           :   2.00 / 2.00   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Result summary (day)
--------------------
                     !  source  !   Road   !  Total
                     !  height  !   Leq    !   Leq
                     !   (m)    !  (dBA)   !  (dBA)
--------------------+---------+---------+---------
 1.Brant Street      !     1.19 !    45.27 !    45.27
--------------------+---------+---------+---------
                       Total                  45.27 dBA

Result summary (night)
----------------------
                     !  source  !   Road   !  Total
                     !  height  !   Leq    !   Leq
                     !   (m)    !  (dBA)   !  (dBA)
--------------------+---------+---------+---------
 1.Brant Street      !     1.19 !    38.73 !    38.73
--------------------+---------+---------+---------
                       Total                  38.73 dBA
```

```
STAMSON 5.04        SUMMARY REPORT        Date: 10-01-2023 13:47:55
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r8brant.te           Time Period: Day/Night 16/8 hours
Description: R8- Ground Floor Apartments North Facade OLA
                    TOTAL Leq FROM ALL SOURCES                    (DAY): 44.89 (OLA)

Road data, segment # 1: Brant Street (day/night)
-----------------------------------------------
Car traffic volume  : 20392/2266  veh/TimePeriod  *
Medium truck volume :   425/47    veh/TimePeriod  *
Heavy truck volume  :   425/47    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):  17193
    Percentage of Annual Growth        :   2.00
    Number of Years of Growth          :  16.00
    Medium Truck % of Total Volume     :   2.00
    Heavy Truck  % of Total Volume     :   2.00
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 1: Brant Street (day/night)
-----------------------------------------------
Angle1   Angle2           : -20.00 deg   20.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 135.00 / 135.00 m
Receiver height           :   1.50 / 1.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Result summary (day)
--------------------
                     !  source  !   Road   !  Total
                     !  height  !   Leq    !   Leq
                     !    (m)   !  (dBA)   !  (dBA)
--------------------+---------+---------+---------
 1.Brant Street      !     1.19 !    44.89 !    44.89
--------------------+---------+---------+---------
                       Total                  44.89 dBA
```

```
STAMSON 5.04        SUMMARY REPORT        Date: 10-01-2023 13:58:35
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r9brant.te           Time Period: Day/Night 16/8 hours
Description: R9- Rooftop Amenity Area
                    TOTAL Leq FROM ALL SOURCES                    (DAY): 48.51

Road data, segment # 1: Brant Street (day/night)
-----------------------------------------------
Car traffic volume  : 20392/2266  veh/TimePeriod  *
Medium truck volume :   425/47    veh/TimePeriod  *
Heavy truck volume  :   425/47    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

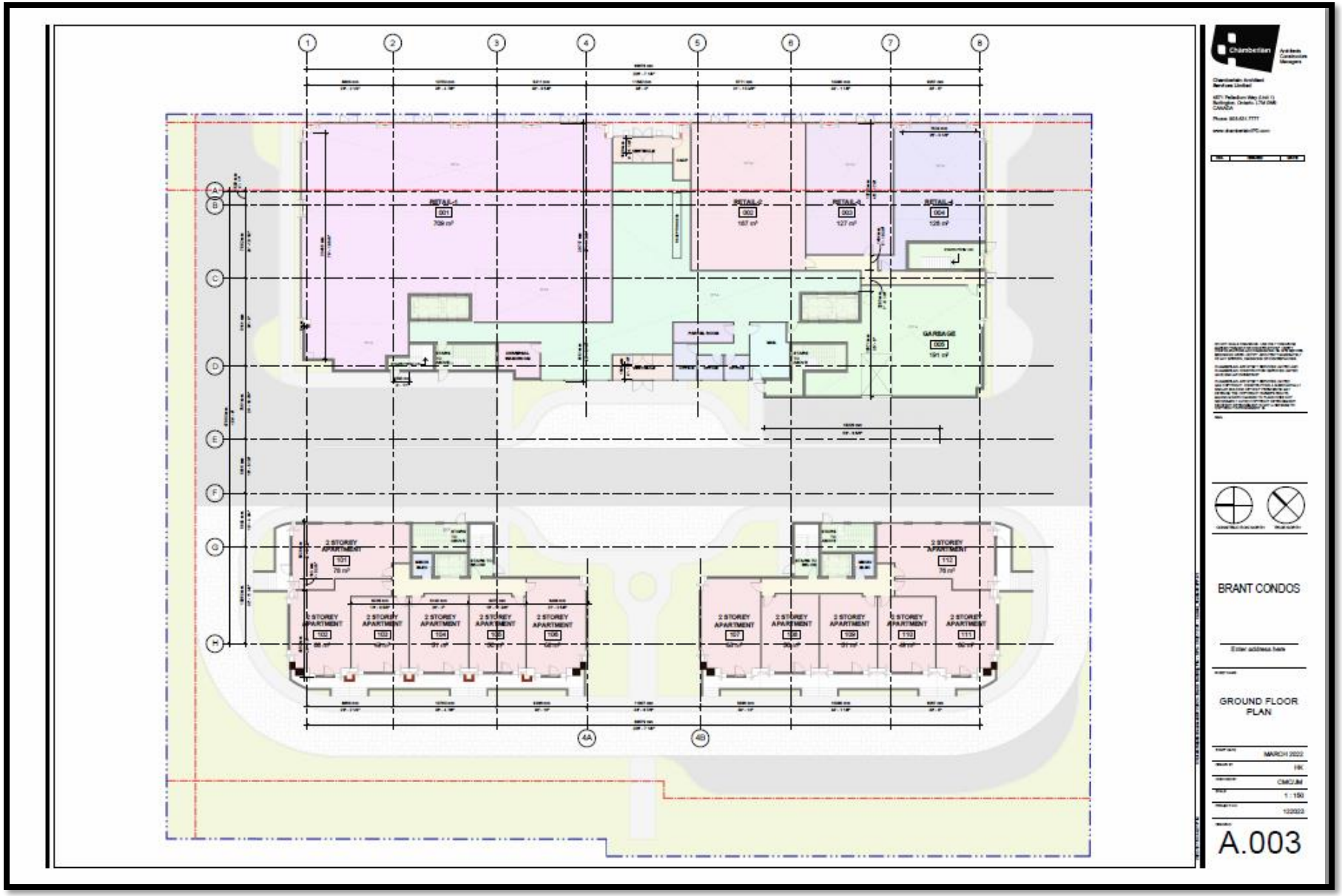
* Refers to calculated road volumes based on the following input:

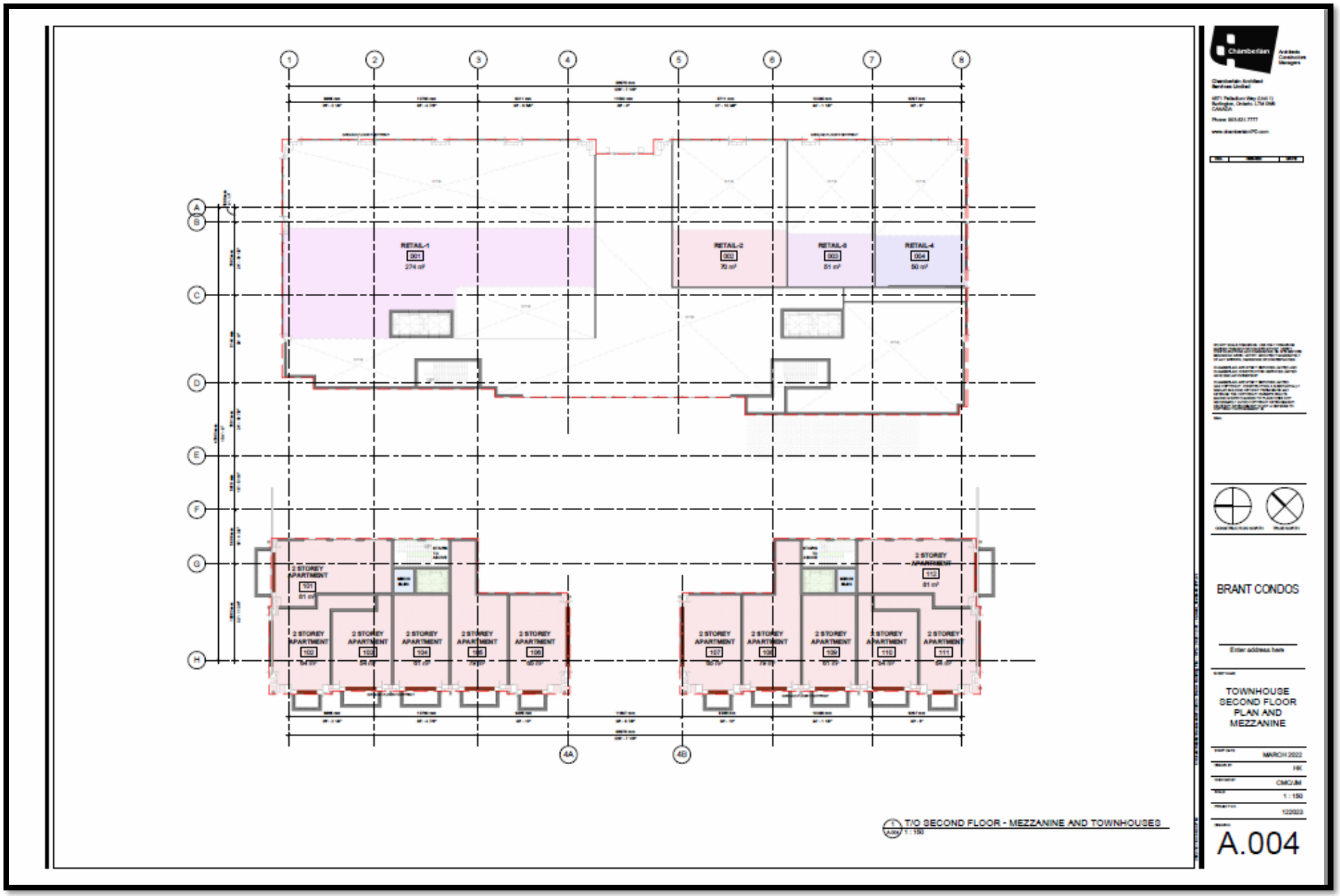
    24 hr Traffic Volume (AADT or SADT):  17193
    Percentage of Annual Growth        :   2.00
    Number of Years of Growth          :  16.00
    Medium Truck % of Total Volume     :   2.00
    Heavy Truck  % of Total Volume     :   2.00
    Day (16 hrs) % of Total Volume     :  90.00

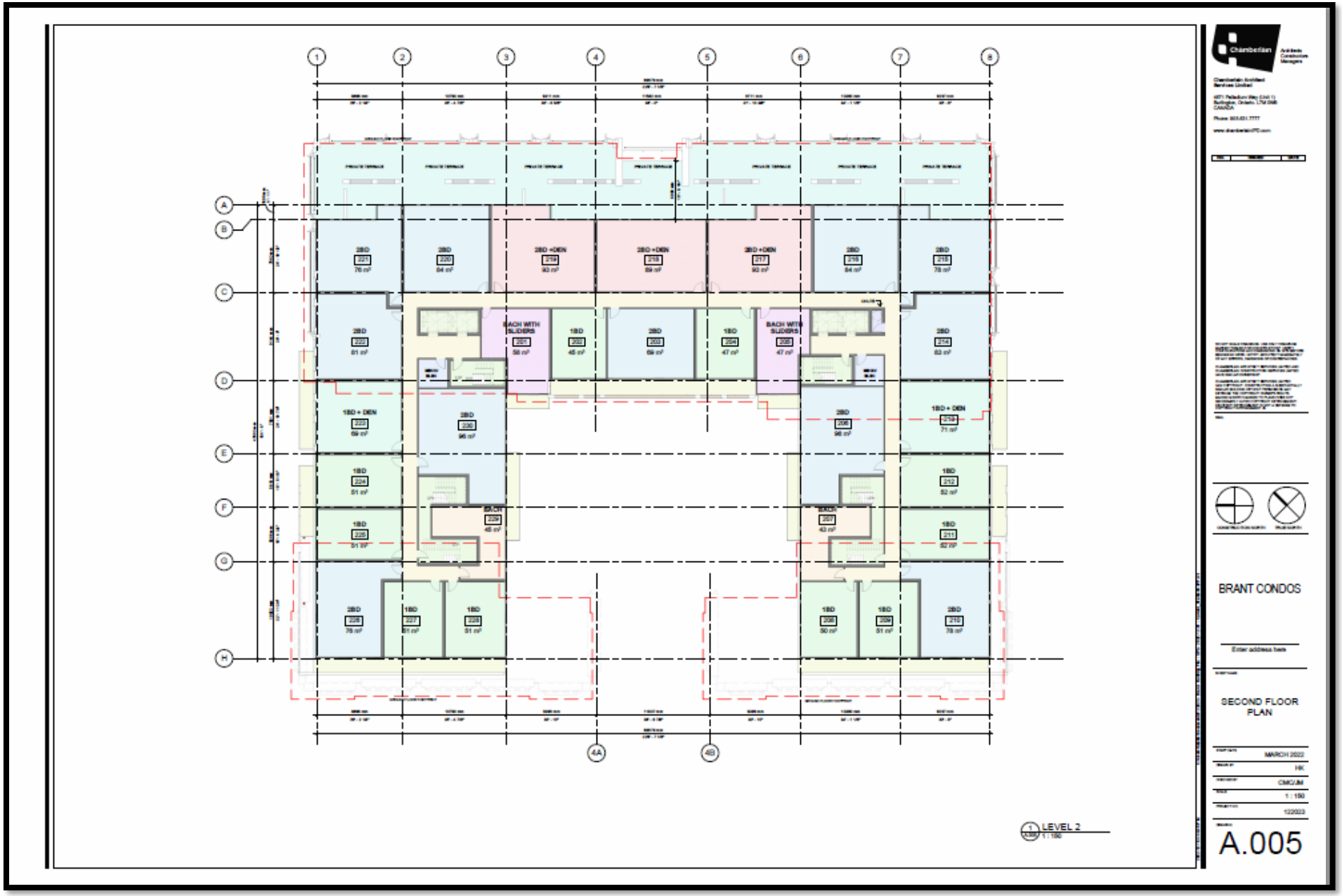
Data for Segment # 1: Brant Street (day/night)
-----------------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  25.00 / 25.00  m
Receiver height           :  38.00 / 38.00  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -90.00 deg   Angle2 : 90.00 deg
Barrier height            :   1.22 m
Barrier receiver distance :   3.00 / 10.00  m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :  38.00 m
Reference angle           :   0.00

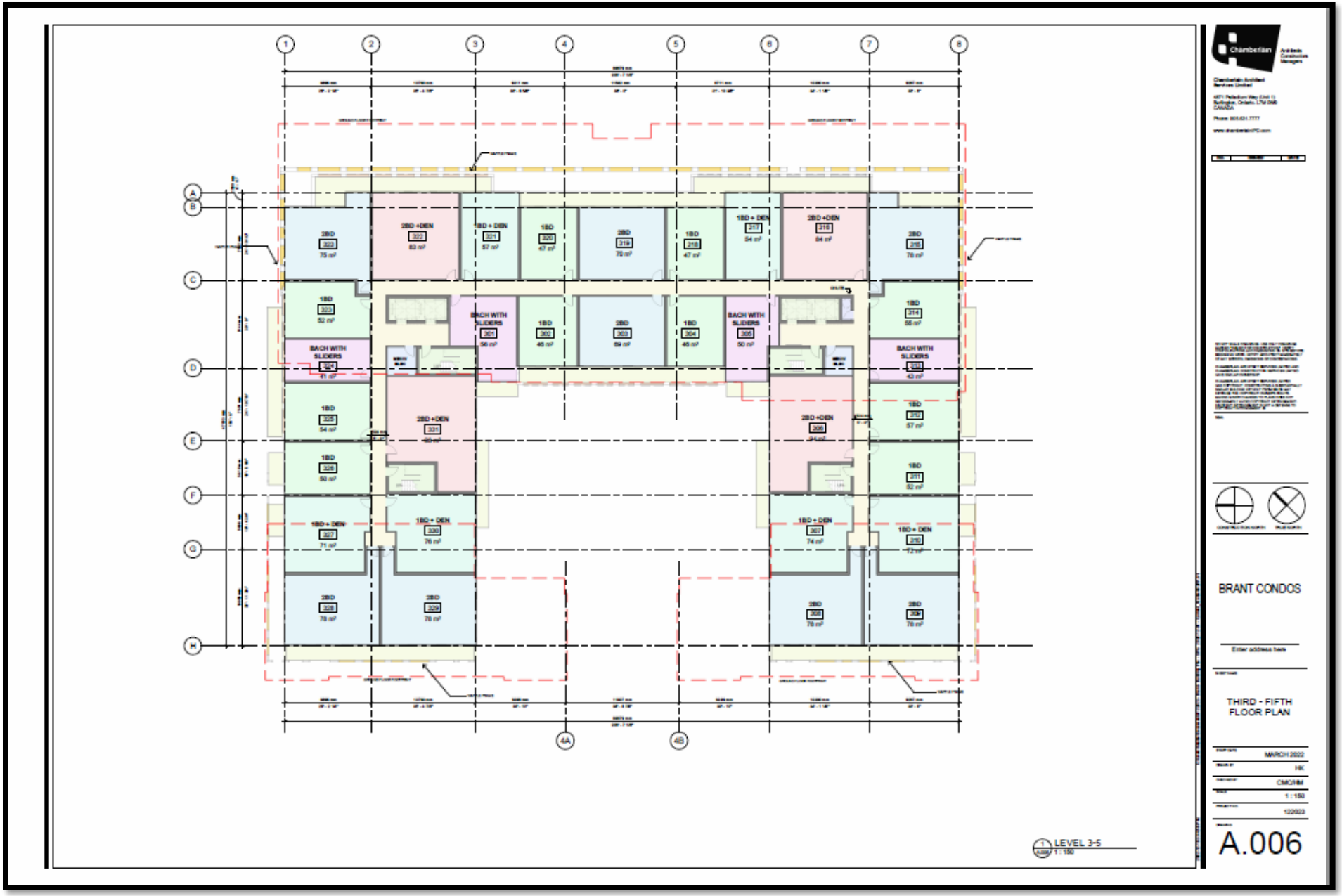
Result summary (day)
--------------------
                    !  source  !   Road   !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+---------+---------+---------
 1.Brant Street     !     1.19 !    48.51 !    48.51
--------------------+---------+---------+---------
                      Total                  48.51 dBA
```

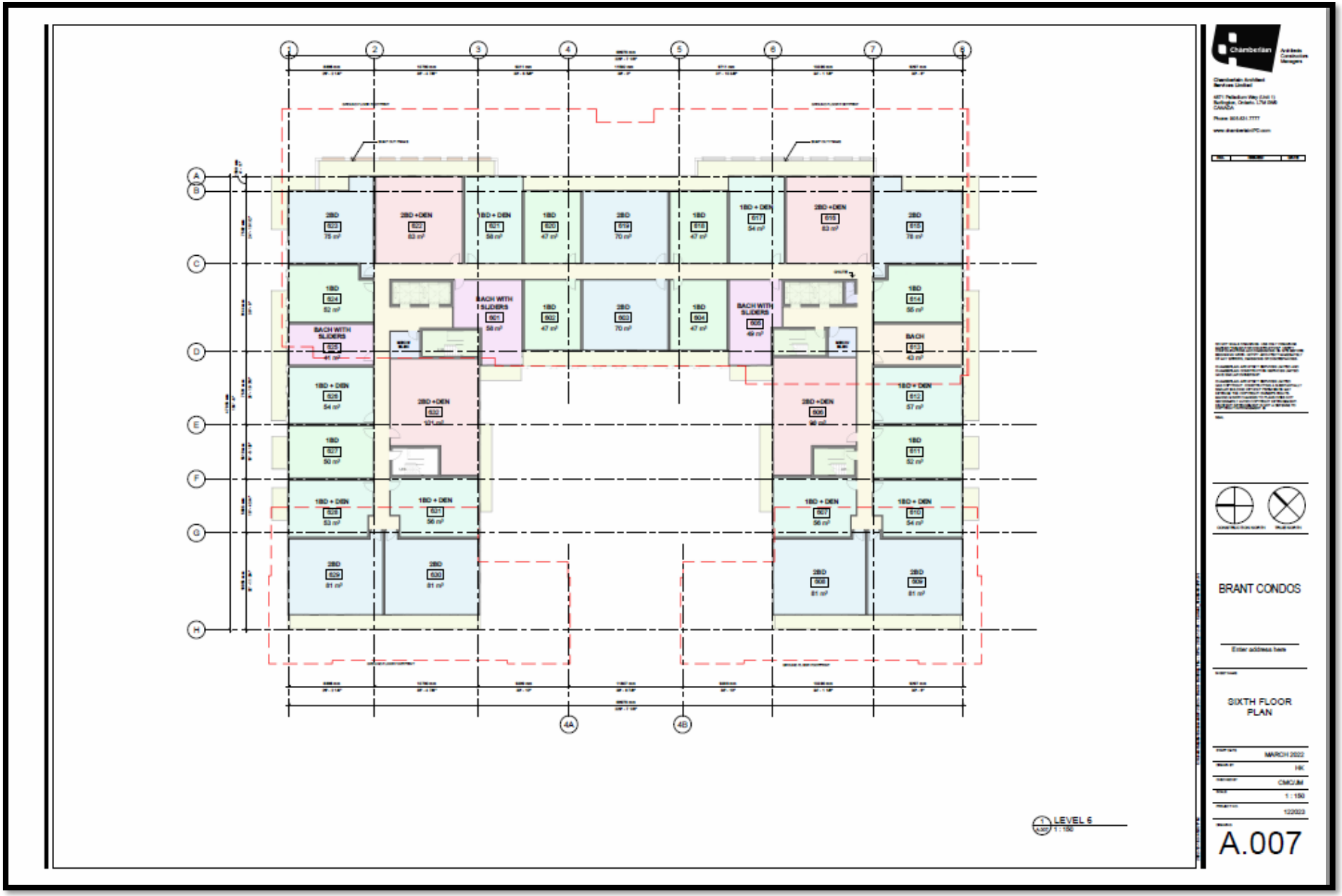
FLOOR PLANS

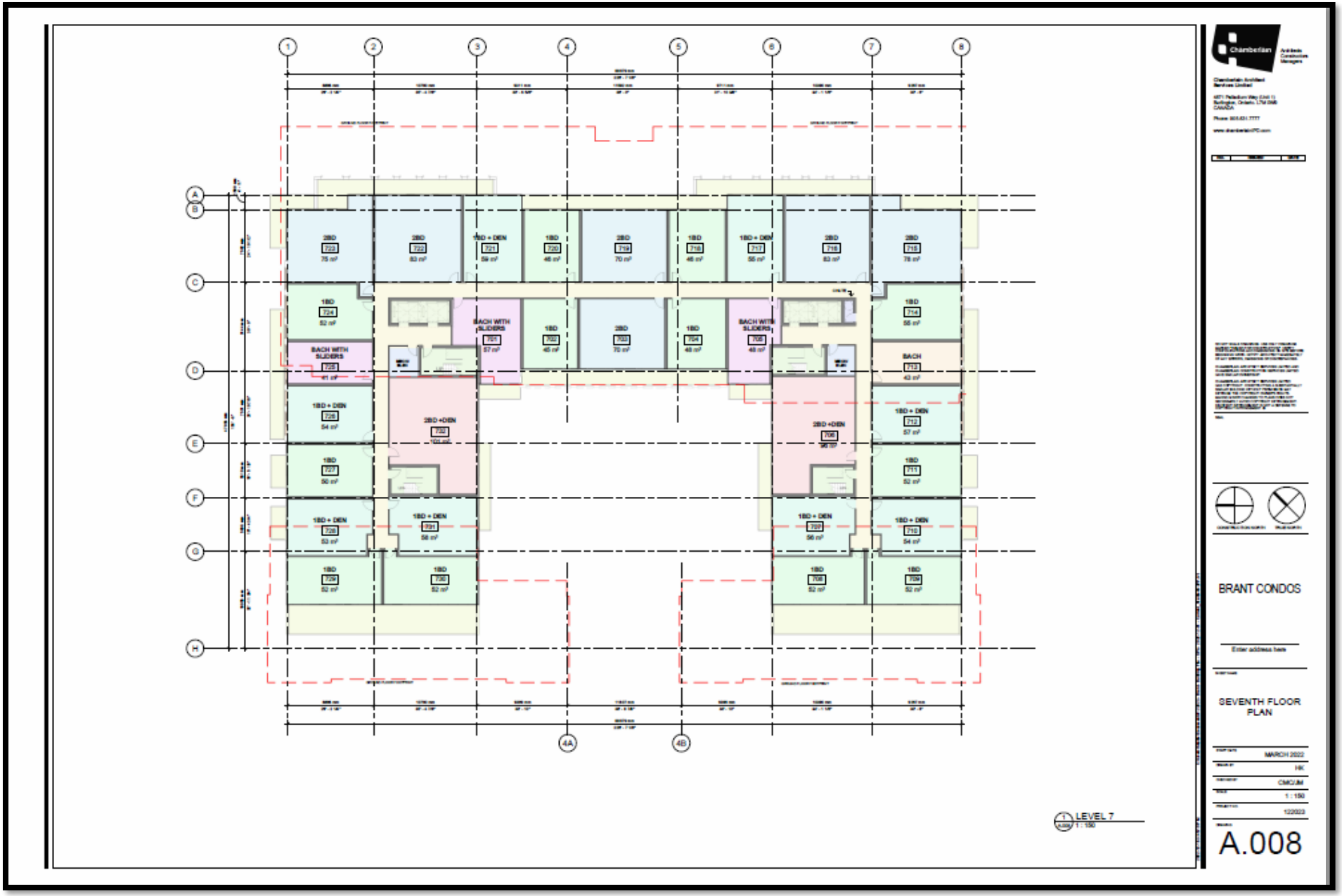

BRANT CONDOS
GROUND FLOOR PLAN
A.003

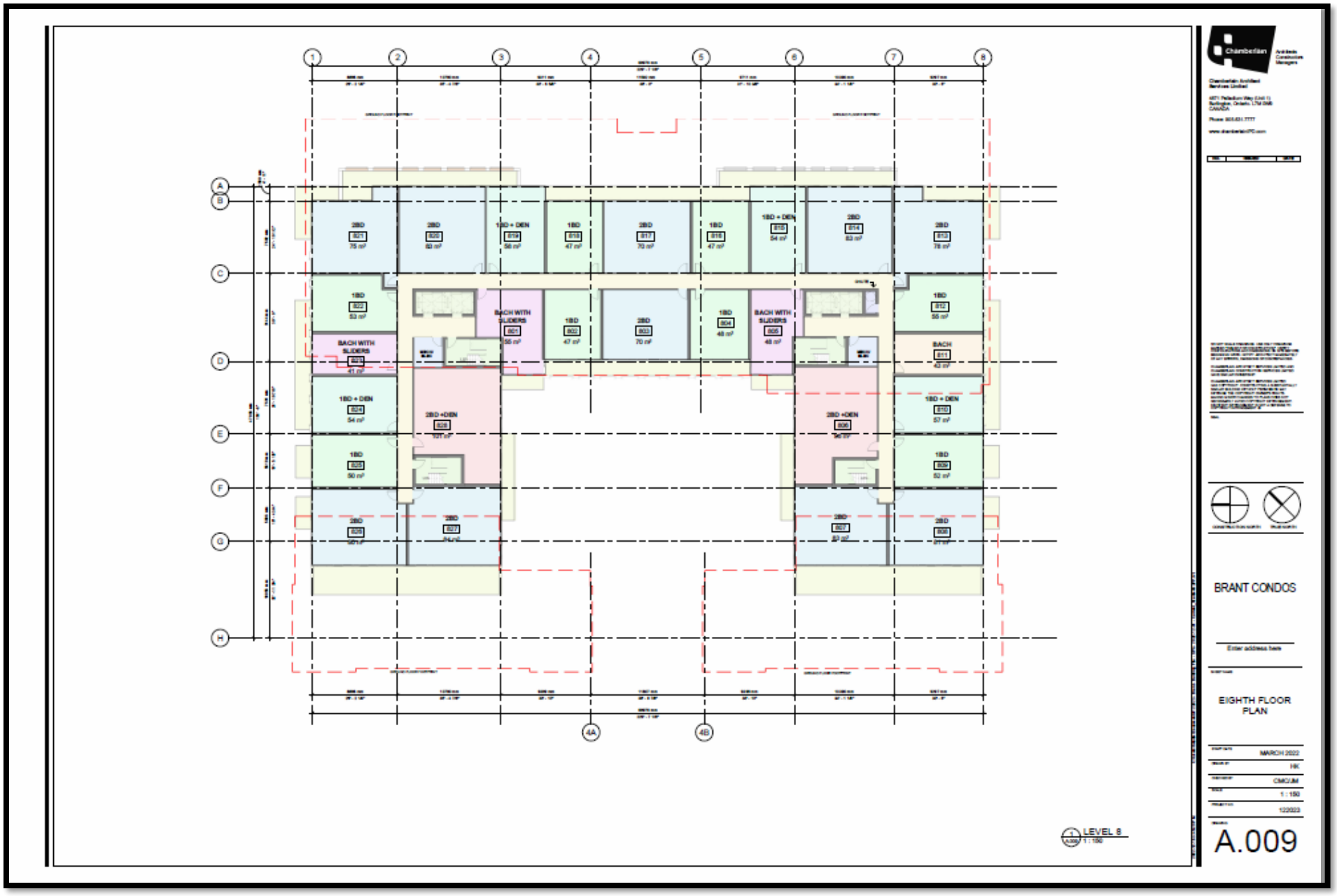

RETAIL-1
001
274 m²
RETAIL-2
002
70 m²
RETAIL-3
003
51 m²
RETAIL-4
004
50 m²
2 STOREY APARTMENT
101
81 m²
2 STOREY APARTMENT
102
84 m²
2 STOREY APARTMENT
103
81 m²
2 STOREY APARTMENT
104
81 m²
2 STOREY APARTMENT
105
79 m²
2 STOREY APARTMENT
106
65 m²
2 STOREY APARTMENT
107
80 m²
2 STOREY APARTMENT
108
79 m²
2 STOREY APARTMENT
109
81 m²
2 STOREY APARTMENT
110
84 m²
2 STOREY APARTMENT
111
65 m²
2 STOREY APARTMENT
112
81 m²
4A
4B
T/O SECOND FLOOR - MEZZANINE AND TOWNHOUSES
1 : 150
Chamberlain
Chamberlain Architect Services Limited
4371 Fellerton Way (Unit 1)
Burlington, Ontario, L7M 0W6
CANADA
Phone: 905.631.7777
www.chamberlainPC.com
BRANT CONDOS
Enter address here
TOWNHOUSE SECOND FLOOR PLAN AND MEZZANINE
MARCH 2022
HK
CM/JM
1 : 150
122023
A.004

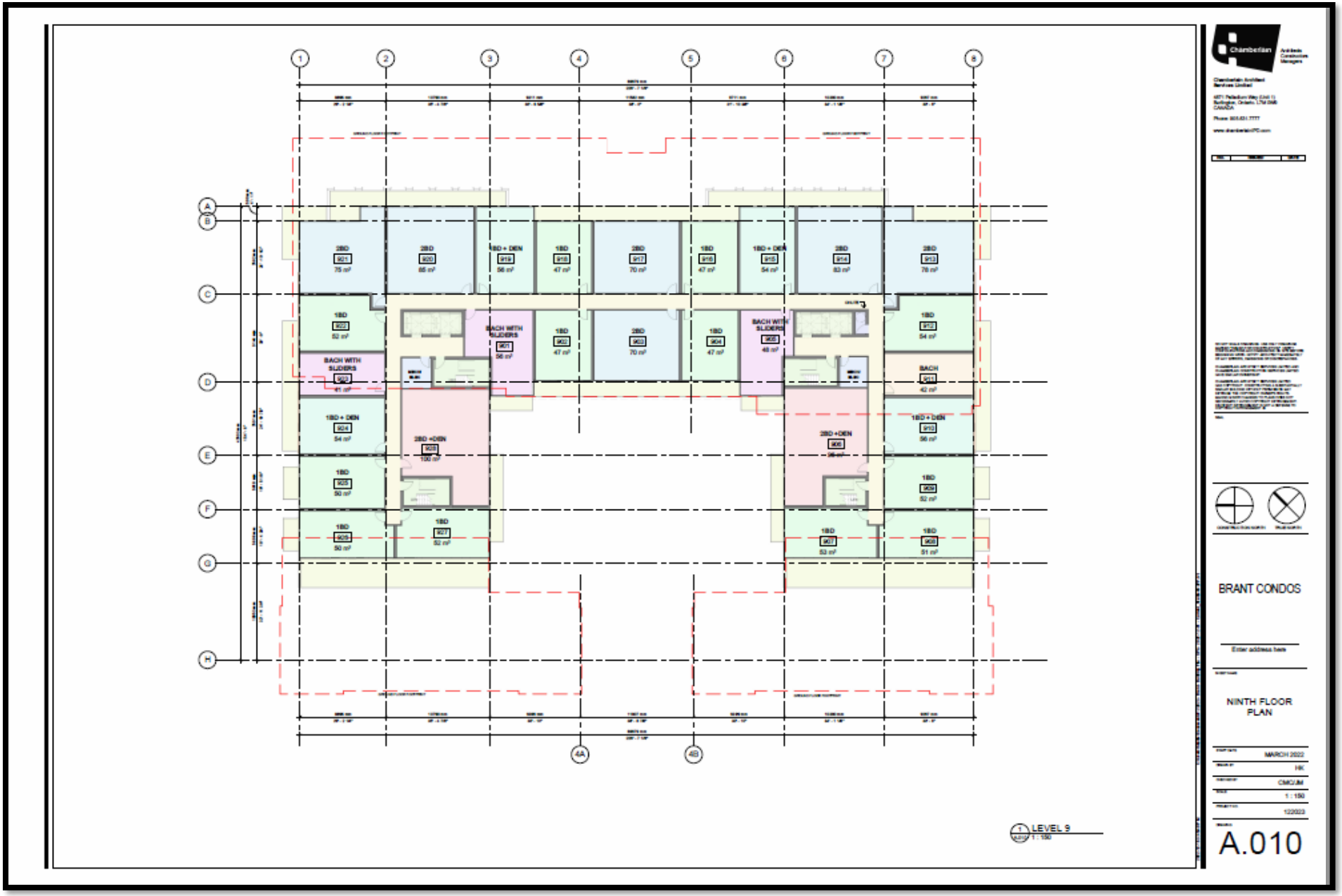

BRANT CONDOS
SECOND FLOOR PLAN
LEVEL 2
A.005

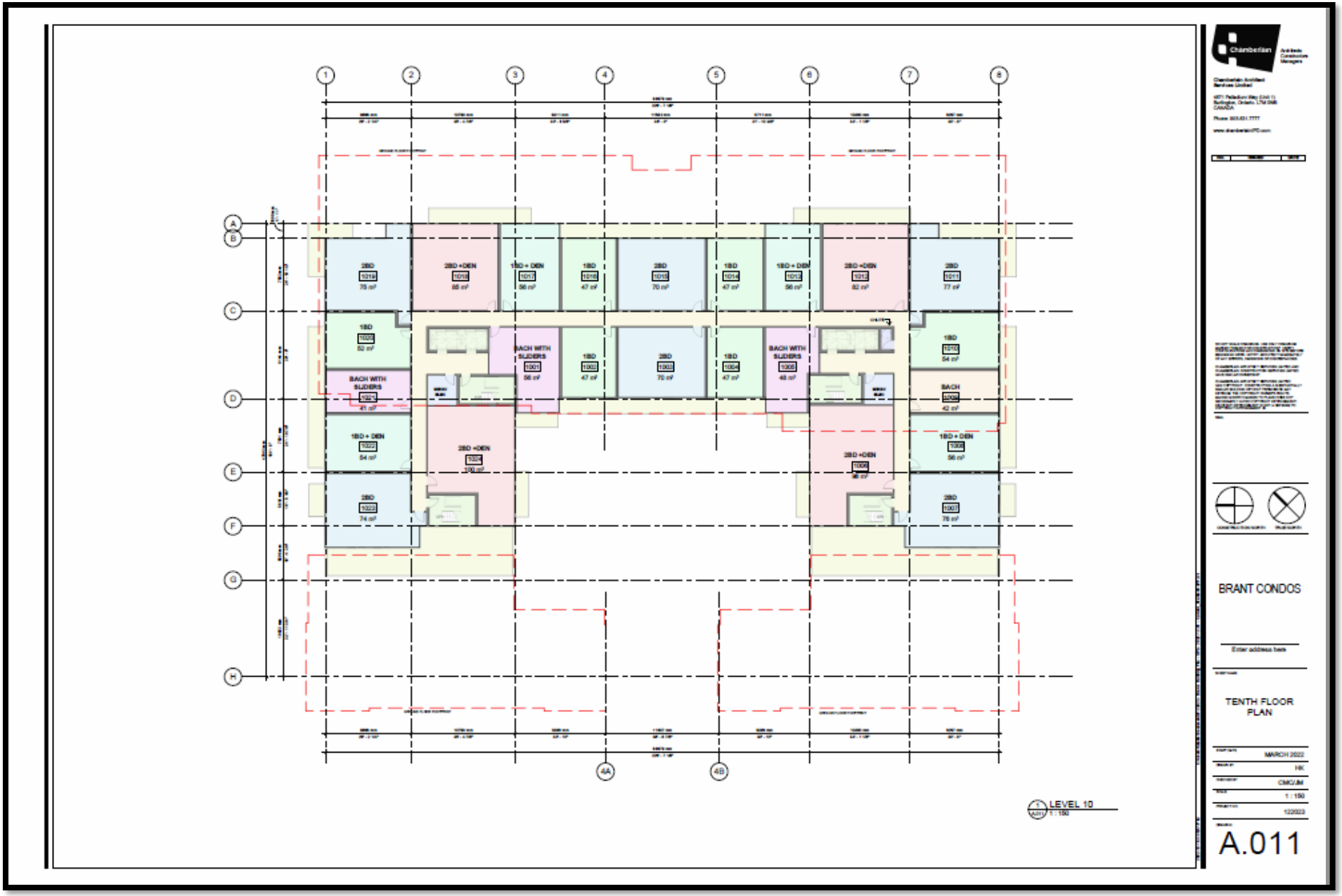

BRANT CONDOS
THIRD - FIFTH FLOOR PLAN
A.006
LEVEL 3-5

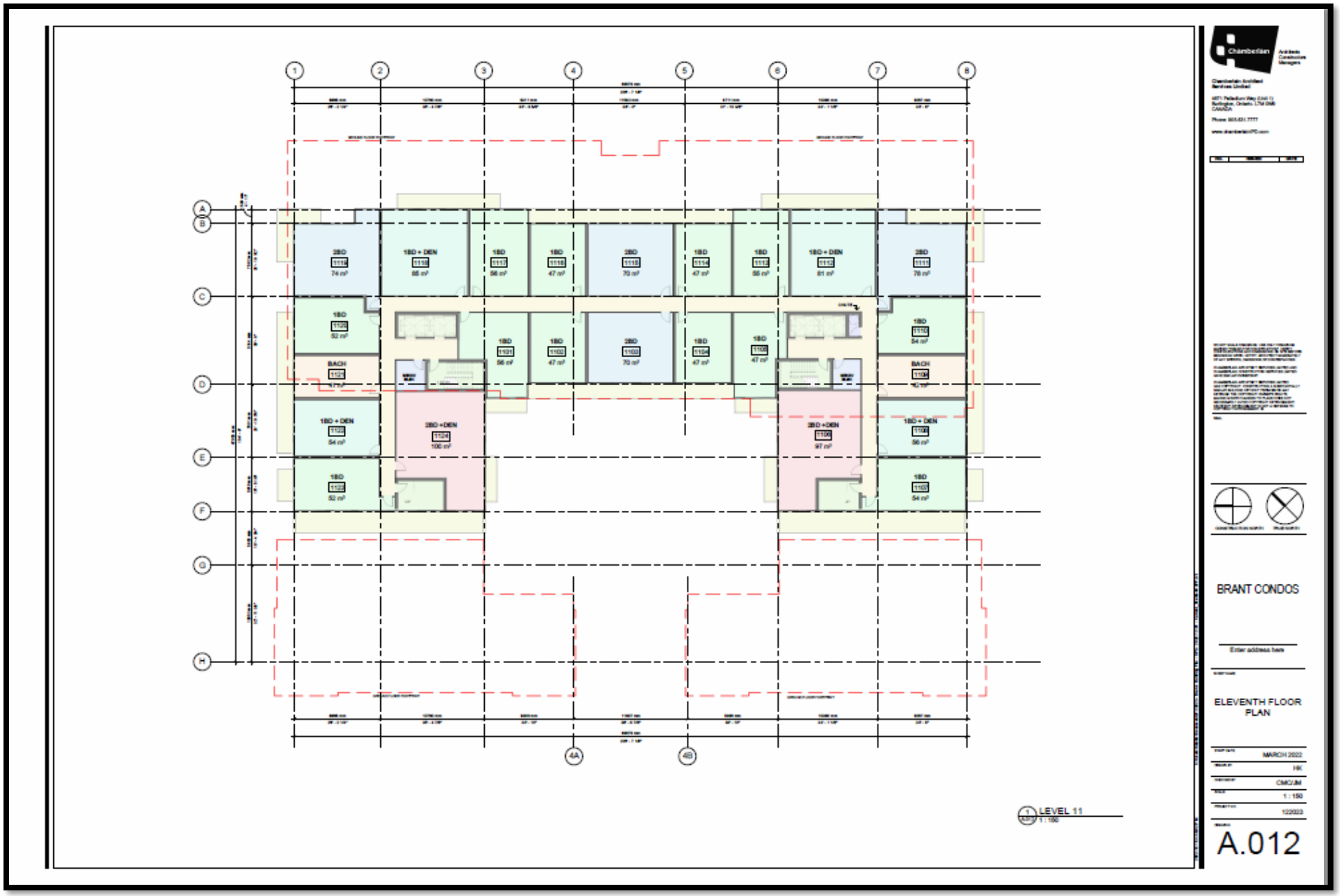

BRANT CONDOS
SIXTH FLOOR PLAN
A.007
LEVEL 6
1 : 150

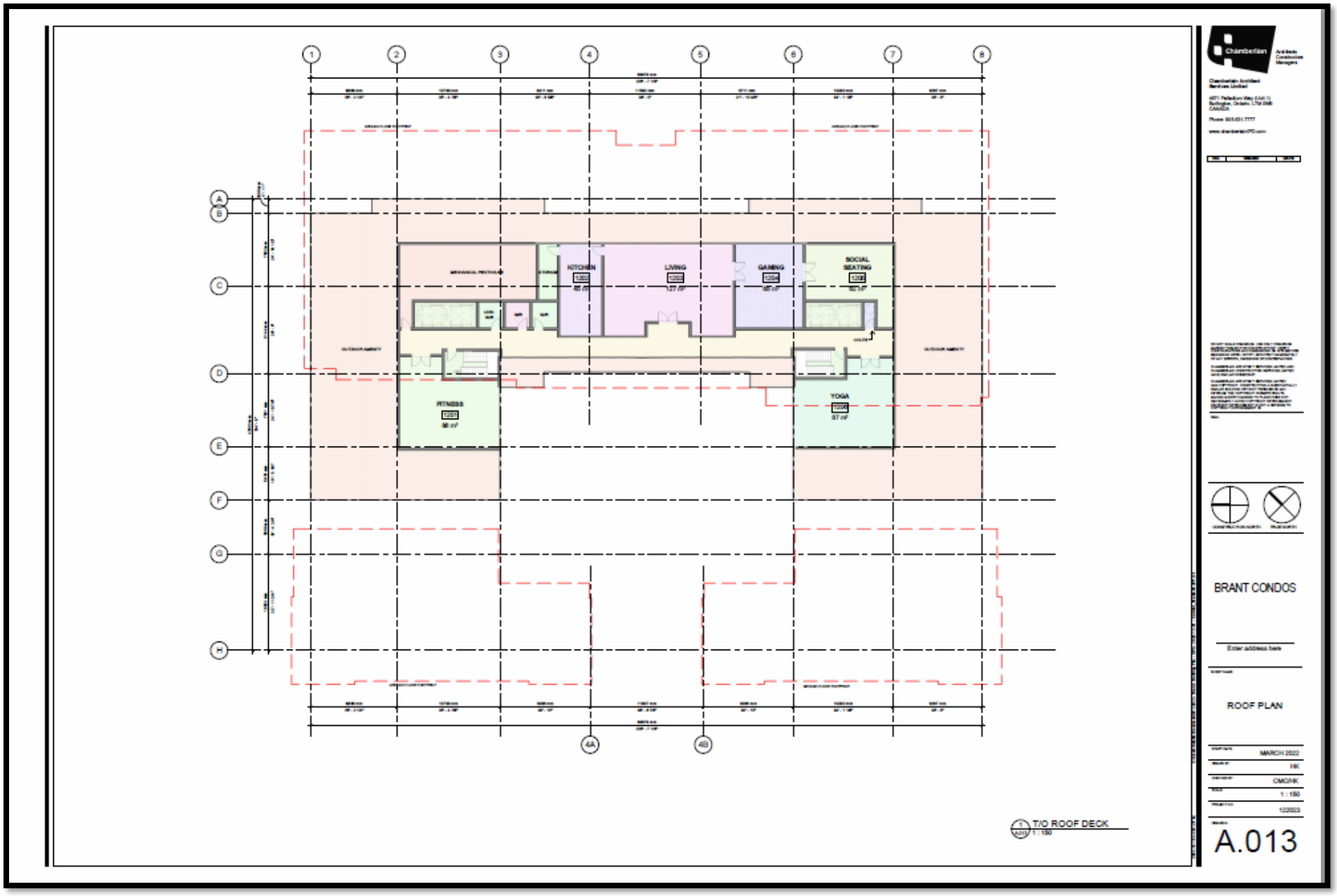

BRANT CONDOS
SEVENTH FLOOR PLAN
A.008
LEVEL 7
1 : 150


BRANT CONDOS
EIGHTH FLOOR PLAN
A.009
LEVEL 8

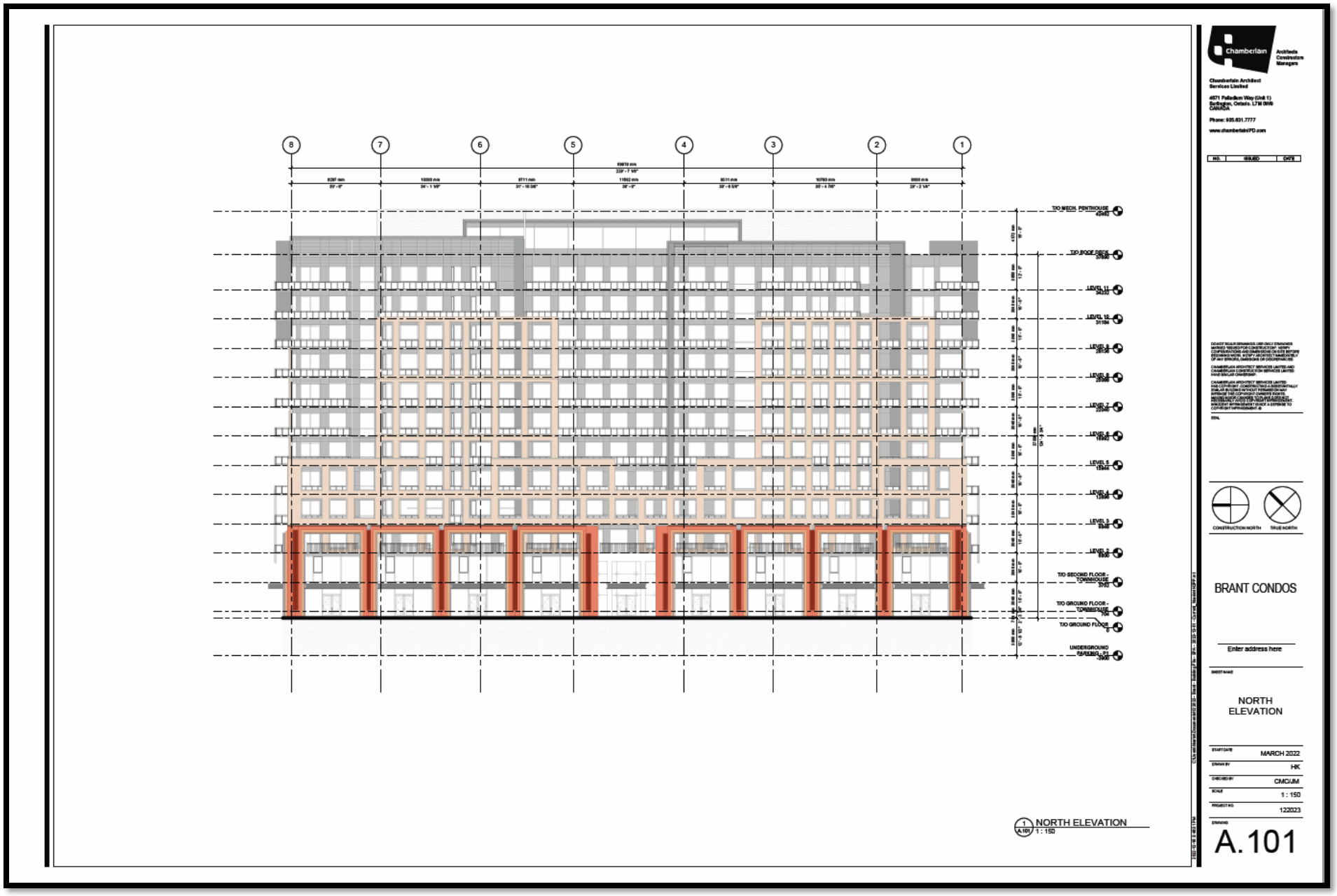

BRANT CONDOS
NINTH FLOOR PLAN
A.010
LEVEL 9

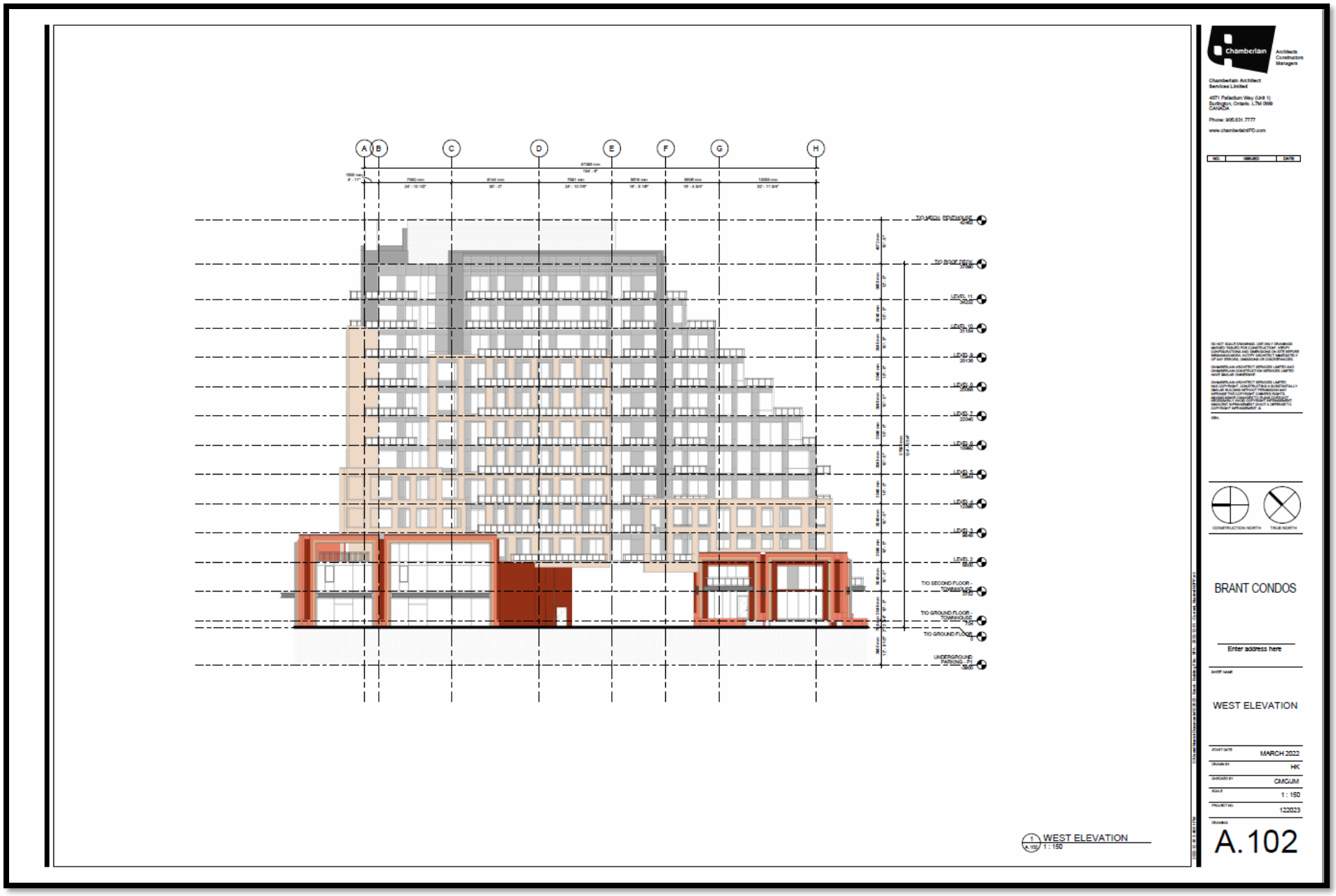

BRANT CONDOS
TENTH FLOOR PLAN
A.011
LEVEL 10


BRANT CONDOS
ELEVENTH FLOOR PLAN
A.012
LEVEL 11

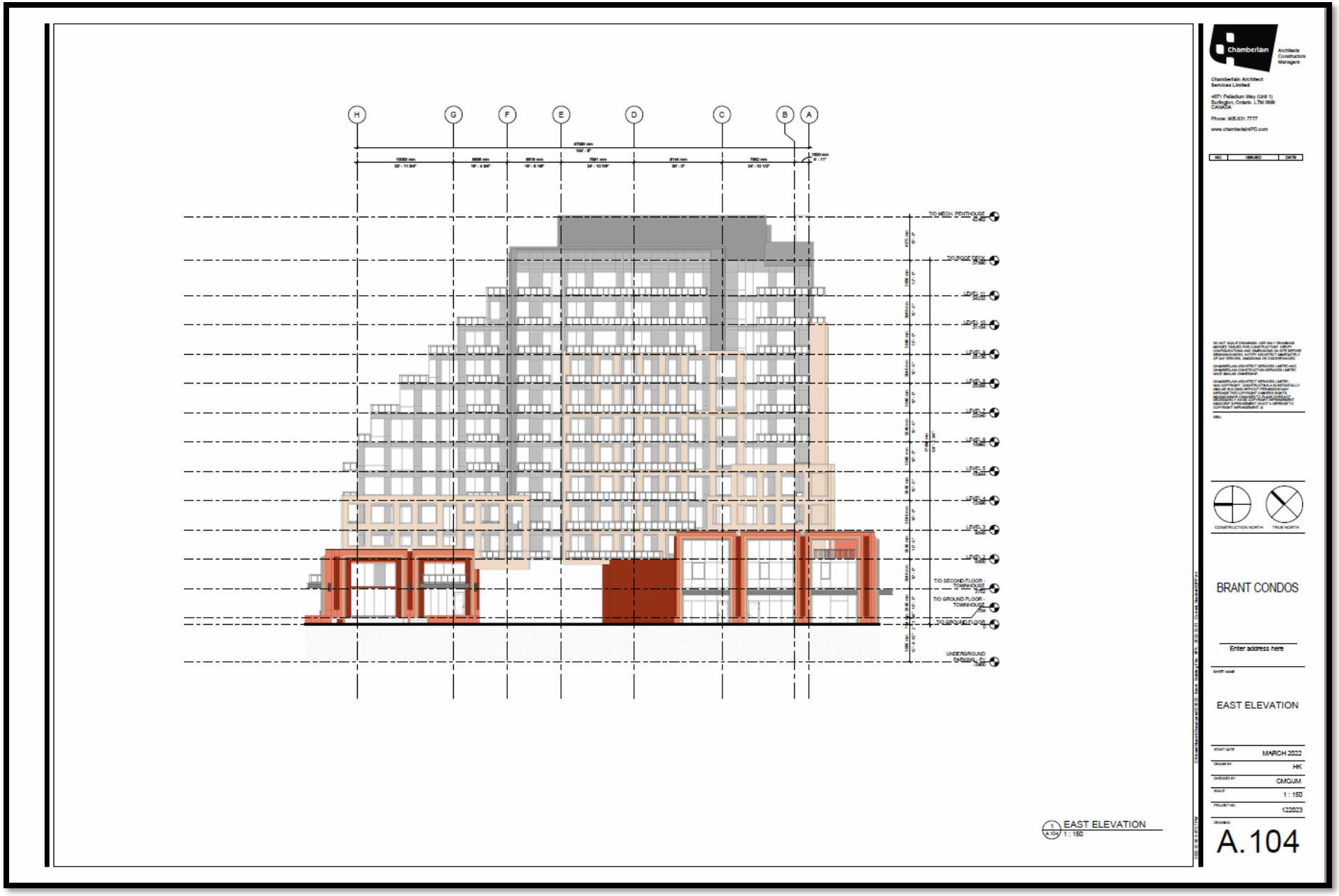

KITCHEN
LIVING
GAMING
SOCIAL SEATING
FITNESS
YOGA
T/O ROOF DECK
Chamberlain
BRANT CONDOS
ROOF PLAN
MARCH 2022
A.013

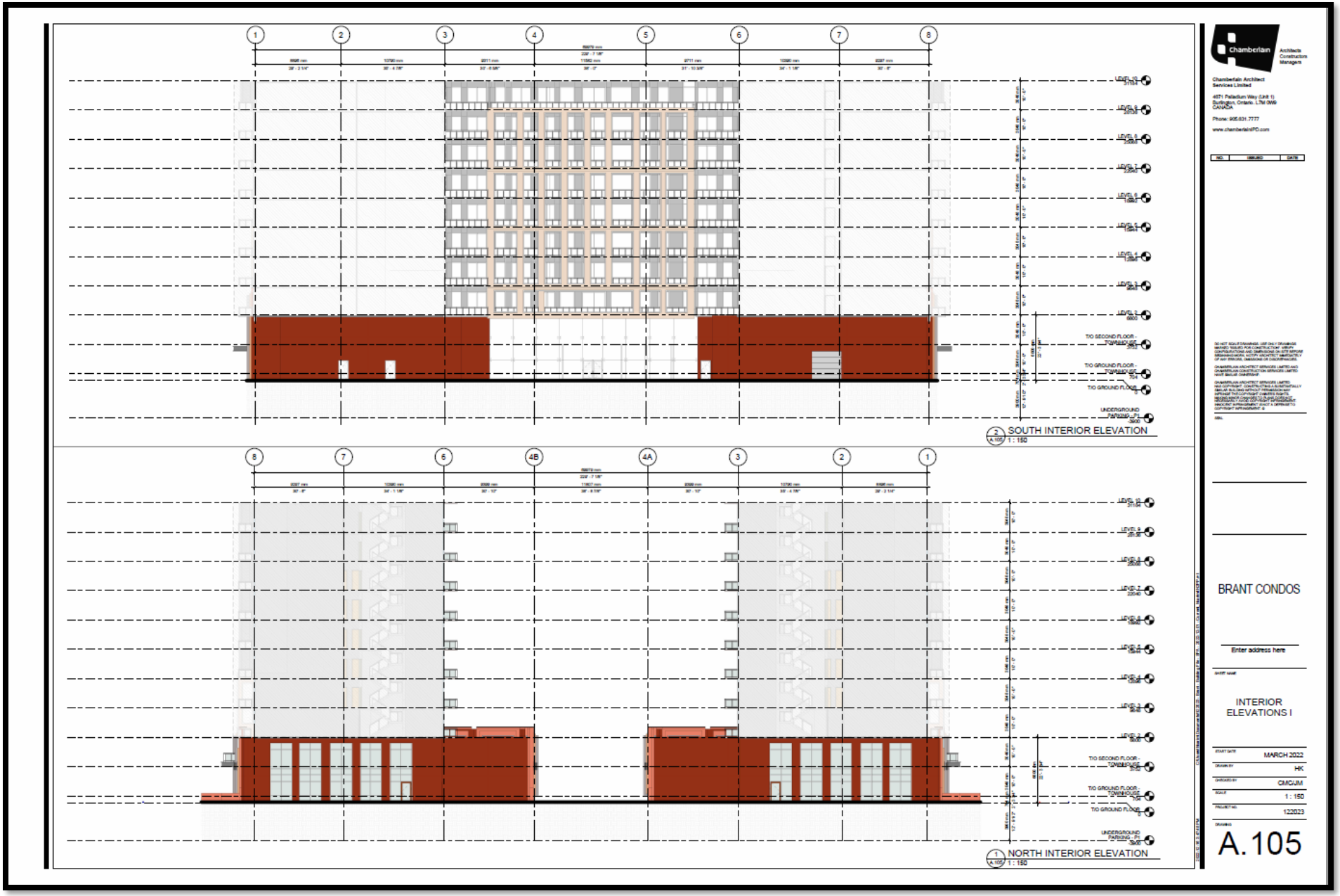
ELEVATIONS

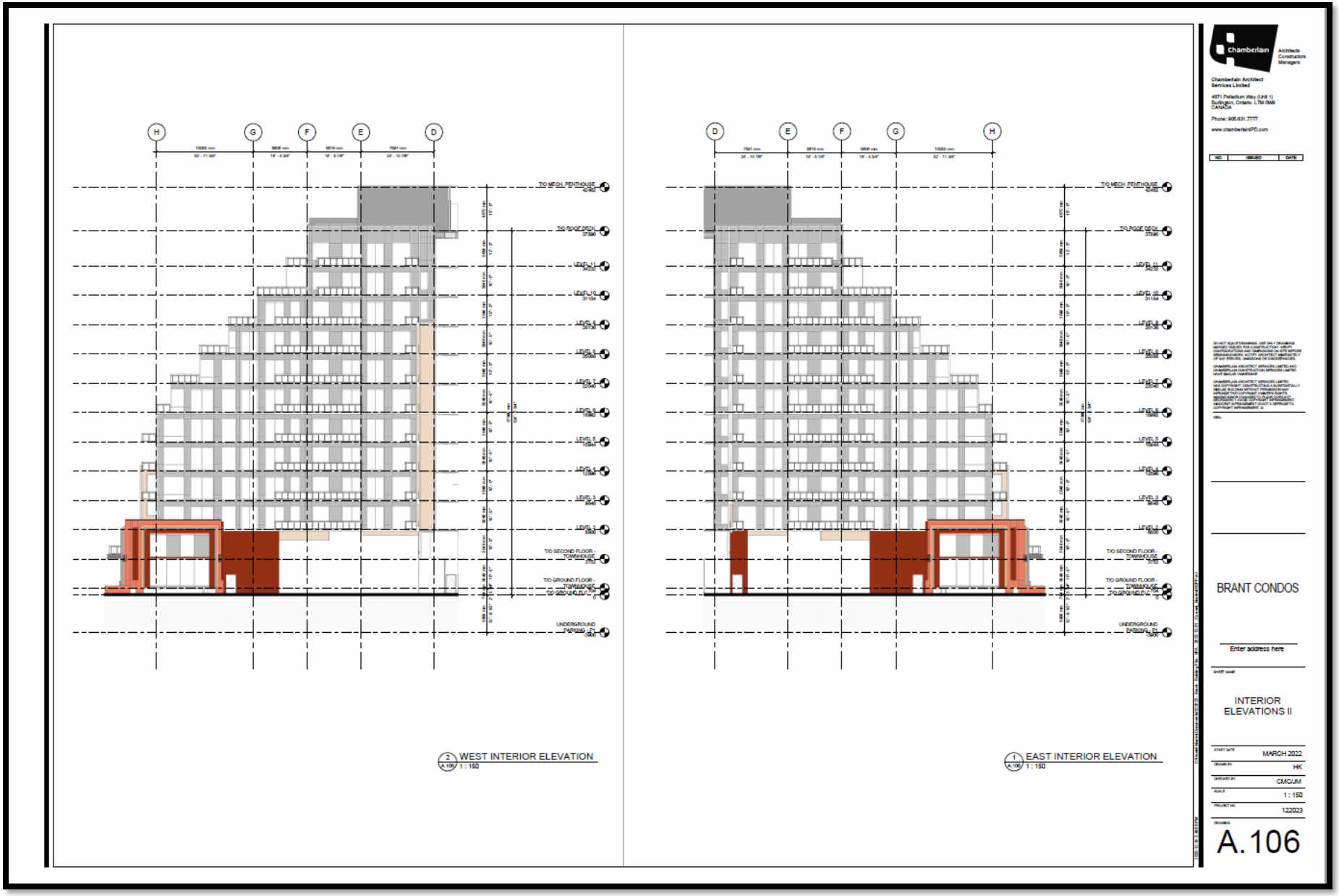

8
7
6
5
4
3
2
1
T/O MECH. PENTHOUSE
T/O ROOF DECK
LEVEL 11
LEVEL 10
LEVEL 9
LEVEL 8
LEVEL 7
LEVEL 6
LEVEL 5
LEVEL 4
LEVEL 3
LEVEL 2
T/O SECOND FLOOR - TOWNHOUSE
T/O GROUND FLOOR - TOWNHOUSE
T/O GROUND FLOOR
UNDERGROUND
1 NORTH ELEVATION
A.101 1 : 150
Chamberlain
Architects
Construction Managers
Chamberlain Architect Services Limited
4671 Palladium Way (Unit 1)
Burlington, Ontario, L7M 0W9
CANADA
Phone: 905.631.7777
www.chamberlainPD.com
NO.
ISSUED
DATE
CONSTRUCTION NORTH
TRUE NORTH
BRANT CONDOS
Enter address here
NORTH ELEVATION
START DATE
MARCH 2022
DRAWN BY
HK
CHECKED BY
CM/JM
SCALE
1 : 150
PROJECT NO.
122023
DRAWING
A.101


A
B
C
D
E
F
G
H
TIO MECH PENTHOUSE
TIO ROOF DECK
LEVEL 11
LEVEL 10
LEVEL 9
LEVEL 8
LEVEL 7
LEVEL 6
LEVEL 5
LEVEL 4
LEVEL 3
LEVEL 2
TIO SECOND FLOOR - TOWNHOUSE
TIO GROUND FLOOR - TOWNHOUSE
TIO GROUND FLOOR
UNDERGROUND PARKING - P1
WEST ELEVATION
1 : 150
Chamberlain
Architects
Constructors
Managers
Chamberlain Architect Services Limited
4571 Palladium Way (Unit 1)
Burlington, Ontario, L7M 0W6
CANADA
Phone: 905.631.7777
www.chamberlainPD.com
NO.
ISSUED
DATE
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TRUE NORTH
BRANT CONDOS
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WEST ELEVATION
START DATE
MARCH 2022
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HK
CHECKED BY
CM/CJM
SCALE
1 : 150
PROJECT NO.
122023
DRAWING
A.102

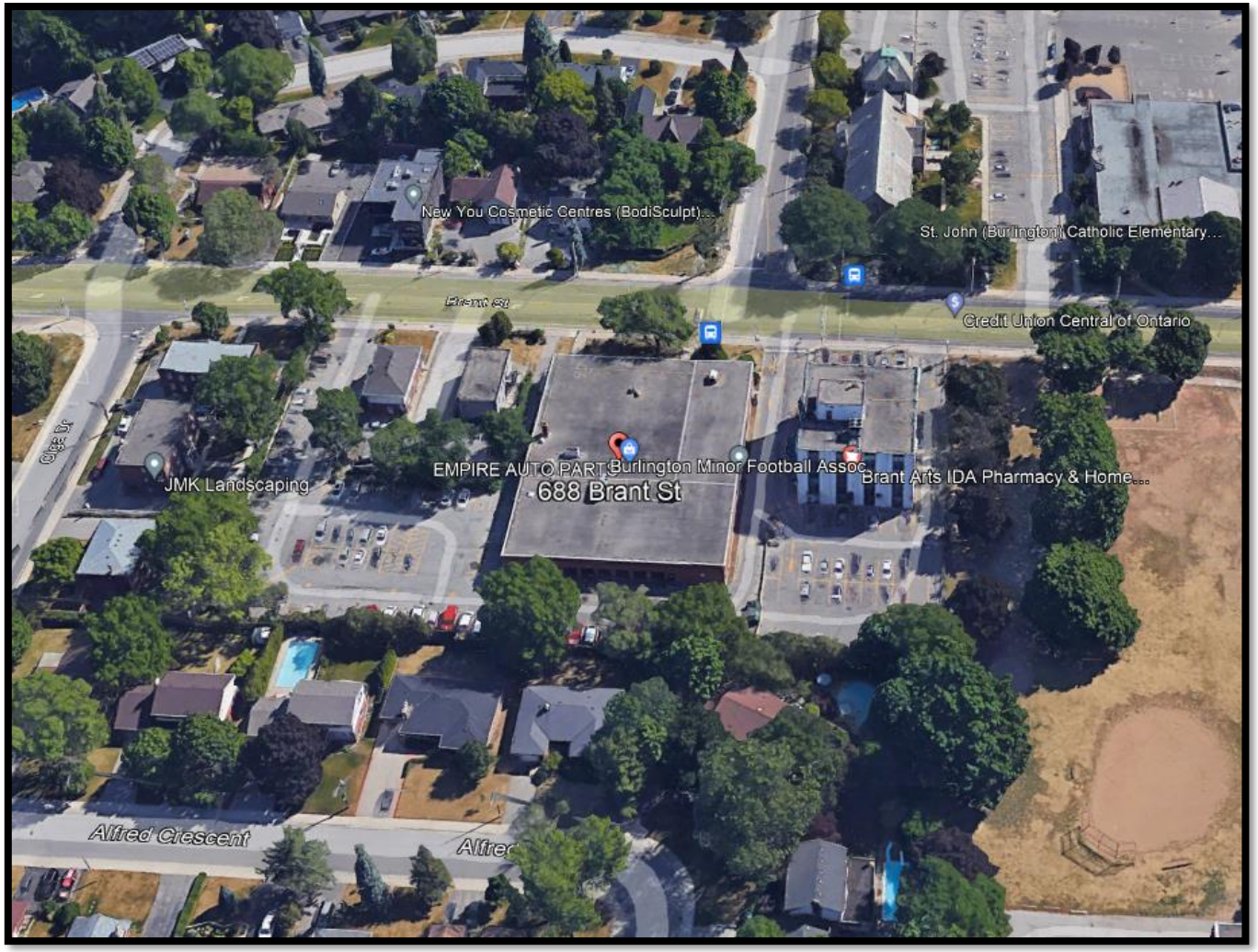

1
2
3
4A
4B
6
7
8
T/O MECH. PENTHOUSE
T/O ROOF SLAB
LEVEL 11
LEVEL 10
LEVEL 9
LEVEL 8
LEVEL 7
LEVEL 6
LEVEL 5
LEVEL 4
LEVEL 3
LEVEL 2
T/O SECOND FLOOR - TOWNHOUSE
T/O GROUND FLOOR - TOWNHOUSE
SOUTH ELEVATION
1 : 150
Chamberlain
Architects Constructors Managers
Chamberlain Architect Services Limited
4671 Pelladium Way (Unit 1)
Burlington, Ontario, L7M 0W6
CANADA
Phone: 905.631.7777
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ISSUED
DATE
CONSTRUCTION NORTH
TRUE NORTH
BRANT CONDOS
Enter address here
SOUTH ELEVATION
MARCH 2022
HK
GM/JM
1 : 150
122023
A.103


H
G
F
E
D
C
B
A
TO MECH. PENTHOUSE
TO ROOF DECK
LEVEL 11
LEVEL 10
LEVEL 9
LEVEL 8
LEVEL 7
LEVEL 6
LEVEL 5
LEVEL 4
LEVEL 3
LEVEL 2
LEVEL 1
TO SECOND FLOOR TOWNHOUSE
TO GROUND FLOOR TOWNHOUSE
TO GENERATOR
UNDERGROUND GARAGE - P1
1 EAST ELEVATION
A.104 1 : 150
Chamberlain
Architects
Construction
Managers
Chamberlain Architect Services Limited
4671 Palladium Way (Unit 1)
Burlington, Ontario, L7M 0W6
CANADA
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www.chamberlainPD.com
NO.
ISSUED
DATE
CONSTRUCTION NORTH
TRUE NORTH
BRANT CONDOS
Enter address here
EAST ELEVATION
MARCH 2022
HK
CM/GUM
1 : 150
122023
A.104


1 2 3 4 5 6 7 8
LEVEL 10
LEVEL 9
LEVEL 8
LEVEL 7
LEVEL 6
LEVEL 5
LEVEL 4
LEVEL 3
LEVEL 2
T/O SECOND FLOOR - TOWNHOUSE
T/O GROUND FLOOR - TOWNHOUSE
T/O GROUND FLOOR
UNDERGROUND PARKING - P1
2 SOUTH INTERIOR ELEVATION
A.105 1 : 150
8 7 6 4B 4A 3 2 1
1 NORTH INTERIOR ELEVATION
A.105 1 : 150
Chamberlain
Architects Constructors Managers
Chamberlain Architect Services Limited
4571 Palladium Way (Unit 1)
Burlington, Ontario. L7M 0W9
CANADA
Phone: 905.631.7777
www.chamberlainPD.com
NO. ISSUED DATE
BRANT CONDOS
Enter address here
INTERIOR ELEVATIONS I
START DATE MARCH 2022
DRAWN BY HK
CHECKED BY CM/JM
SCALE 1 : 150
PROJECT NO. 122023
DRAWING
A.105


H
G
F
E
D
TO MECH. PENTHOUSE
TO ROOF DECK
LEVEL 11
LEVEL 10
LEVEL 9
LEVEL 8
LEVEL 7
LEVEL 6
LEVEL 5
LEVEL 4
LEVEL 3
LEVEL 2
TO SECOND FLOOR - TOWNHOUSE
TO GROUND FLOOR - TOWNHOUSE
UNDERGROUND PARKING - P1
WEST INTERIOR ELEVATION
1 : 150
EAST INTERIOR ELEVATION
1 : 150
Chamberlain
Architects
Constructors
Managers
Chamberlain Architect Services Limited
4071 Palladium Way (Unit 1)
Burlington, Ontario. L7M 0W6
CANADA
Phone: 905.631.7777
www.chamberlainPD.com
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ISSUED
DATE
BRANT CONDOS
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INTERIOR ELEVATIONS II
START DATE
MARCH 2022
DRAWN BY
HK
CHECKED BY
CM/CJM
SCALE
1 : 150
PROJECT NO.
122023
DRAWING
A.106

AREA OVERVIEW



EXTERIOR WALL STC RATINGS

EXTERIOR WALL STC RATINGS

Wall Configuration	EW1	EW2	EW3	EW4	EW1R	EW2R	EW3R	EW5	EW4R	EW6	EW7 EW5R	EW8
STC Rating	**38**	**40**	**43**	**46**	**47**	**48**	**49**	**54**	**55**	**57**	**58**	**62**

Source: National Research Council, Division of Building Research

NOTES:

1 The common structure of walls EW1 to EW5 is composed of 12.7mm gypsum board, vapour barrier and 38x89 mm studs with 50 mm (or thicker) mineral wool or glass fibre batts in inter-stud cavities.

- EW1 denotes the common structure, plus sheathing, plus wood siding or metal siding and fibre backer board
- EW2 denotes the common structure, plus rigid insulation (25 to 30 mm), and wood siding or metal siding and fibre backer board.
- EW3 denotes simulated mansard with the common structure, plus sheathing, 28 X89 mm framing, sheathing and asphalt roofing material
- EW4 denotes the common structure, plus sheathing and 20 mm stucco.
- EW5 denotes the common structure, plus sheathing, 25 mm air space, 100mm brick veneer.
- EW6 denotes exterior wall composed of 12.7 mm gypsum board, rigid insulation (25 to 50 mm), 100 mm back-up block 100 mm face brick.
- EW7 denotes exterior wall composed of 12.7 mm gypsum board, rigid insulation (25 to 50 mm), 140mm back-up block, 100 mm face brick.
- EW8 denotes exterior wall composed of 12.7 mm gypsum board, rigid insulation (25 to 50 mm), 200 mm concrete.

2 R signifies the mounting of the interior gypsum board on resilient clips.

3 An exterior wall conforming to rainscreen design principles and composed of 12.7 mm gypsum board, 100 mm concrete block, rigid insulation (25 to 50 mm), 25 mm air space, and 100 mm brick veneer has the same STC as EW6.

4 An exterior wall described in EW1 with the addition of rigid insulation (25 to 50 mm) between the sheathing and the external finish has the same STC as EW2.