Noise Impact Statement

Yonge Street and Birch Avenue

Proposed Mixed-use Development

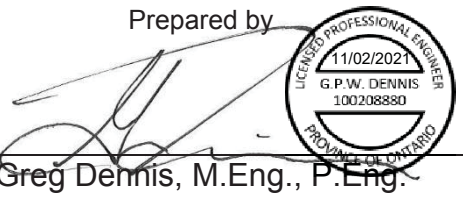
8 Birch Avenue & 1198-1210 Yonge Street
City of Toronto

November 2, 2021
Project: 119-0342

Prepared for

Birch Equities Limited

Prepared by



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EXECUTIVE SUMMARY

Valcoustics Canada Ltd. (VCL) was retained to prepare a Noise Impact Statement in support of the proposed mixed-use development addressing the topics required for the City of Toronto submissions. The topics addressed are:

- the effect of the environment on the project;
- the effect of the project on the environment; and
- the effect of the project on itself.

The proposed development will consist of a 15 storey mixed-use building with three levels of underground parking. Retail space will be located at grade and residential suites will be located on Levels 3 to 15. Common indoor and outdoor amenity spaces will be provided on the mechanical penthouse level. Certain units will also be provided with private balconies/terraces, some of which will be larger than 4 m in depth.

The Effect of the Environment on the Project

The significant transportation noise sources in the vicinity are road traffic on Yonge Street and rail traffic along the CPR North Toronto Subdivision.

To meet the applicable Ministry of the Environment, Conservation and Parks (MECP) transportation noise source guideline limits:

- All residential suites in the development require mandatory air conditioning for noise control purposes.
- South facing bedrooms will require upgraded exterior walls meeting a Sound Transmission Class (STC) rating of 60 and exterior windows meeting an STC rating up to 44. Note that the requirement is based on bedrooms having a single facade exposed to the noise source.

- For all other units, upgraded exterior wall construction meeting an STC rating of 54 and windows ranging between STC 31 and STC 42 could be required. Methods to reduce the window STC requirements are discussed in Section 3.1.3.1.1.
- The final wall/window requirements should be checked when detailed building plans are available.
- A 1.1 m high sound barrier parapet wall is required at the common outdoor amenity terrace on the mechanical penthouse level. See Figure 2.

The stationary noise sources in the vicinity with the potential for impact at the proposed development are the commercial/retail buildings along Yonge Street to the north of the site and along Birch Avenue to the west of the site. The main noise sources associated with these buildings are the rooftop HVAC units. An assessment of the noise impact from these buildings show that the applicable stationary noise source guideline limits are predicted to be met at the subject site without the need for mitigation measures.

The Effect of the Project on the Environment

The main source of noise associated with the proposed development, with the potential for significant impact on surrounding buildings, is the mechanical equipment. Mechanical equipment interfacing with the exterior must comply with the MECP noise guideline limits in NPC-300. These systems have not yet been designed. These systems should be reviewed in more detail once sufficient information is available.

The Effect of the Project on Itself

Consideration should be given to the control of airborne and/or structure-borne noise generated within the building as part of detailed design. The major items requiring attention are the common boundaries and building services. With proper design and construction, a satisfactory environment is readily achievable. This is typically determined during the detailed design stages of the project, when more detailed information regarding partition types, room layouts, and mechanical/electrical equipment selections are available.

1.0 INTRODUCTION

1.1 PROJECT DESCRIPTION

VCL was retained to prepare a Noise Impact Statement for the proposed mixed-use development in support of the Zoning By-law Amendment application submission to the City of Toronto. The predicted sound levels and noise mitigation measures required for the proposed development to comply with applicable MECP noise guideline limits are outlined herein.

1.2 THE SITE AND SURROUNDING AREA

The site is located at 8 Birch Avenue and 1198-1210 Yonge Street, at the northwest corner of the intersection of Yonge Street and Birch Avenue in the City of Toronto.

The site is bounded by:

- existing 3-4 storey commercial buildings along Yonge Street, to the north;

- Yonge Street, with an existing 6-storey office building beyond, to the east;
- Birch Avenue, with a transformer station and the CPR Toronto North Subdivision beyond, to the south; and
- Existing 1-3 storey commercial buildings, with low-rise residential development beyond, to the west.

The site is currently occupied by low-rise commercial and residential buildings, which will be demolished as part of the development.

A Key Plan is included as Figure 1.

The study is based on the architectural drawing set dated October 13, 2021, prepared by KPMB Architects. The architectural drawing set is included as Appendix A. The Site / Roof Plan from the drawing set is included as Figure 2.

1.3 THE PROPOSED DEVELOPMENT

The proposed development consists of a 15-storey mixed-use building with three levels of underground parking and ground-floor retail. The retail units will be located along the east side of the ground floor, fronting onto Yonge Street and Birch Avenue. Residential suites will be located on Levels 3 to 15, with common indoor and outdoor amenity spaces at the mechanical penthouse floor. Most of the residential units will also be provided with balconies/terraces. The balconies/terraces that are greater than 4 m in depth will be located at Level 8 (Suite 704) and Level 14 (Suite 1302).

2.0 ENVIRONMENTAL NOISE GUIDELINES

2.1 MECP PUBLICATION NPC-300

The applicable noise guidelines for new residential development are those in MECP Publication NPC-300, *"Environmental Noise Guideline, Stationary and Transportation Sources - Approval and Planning"*.

The environmental noise guidelines of the MECP, as provided in Publication NPC-300, are discussed briefly below and summarized in Appendix C.

2.1.1 Transportation Noise Sources

2.1.1.1 Architectural Elements

In the daytime, the indoor criterion for road noise is $L_{eq\ Day}$ of 45 dBA for sensitive spaces such as living/dining rooms, dens and bedrooms. At night, the indoor criterion for road noise is $L_{eq\ Night}$ of 45 dBA for sensitive spaces such as living/dining rooms and dens and 40 dBA for bedrooms. The indoor criteria for rail noise are 5 dBA more stringent than those for the road; that is 40 dBA for living/dining rooms, dens and bedrooms during the daytime and nighttime periods except for bedrooms where the nighttime indoor criterion is 35 dBA.

NPC-300 also provides a supplementary table of indoor sound level criteria for transportation noise sources for various commercial uses including retail stores, offices, etc. The sound level limits are presented as good-practice design objective. For road traffic noise sources, the indoor criteria are $L_{eq\ Day}$ of 50 dBA for retail areas. The rail traffic criteria are 5 dB more stringent. There are no nighttime noise criteria for retail spaces.

The architectural design of the building envelope (walls, windows, etc.) must provide adequate sound isolation to achieve these indoor sound level limits, based on the applicable outdoor sound level on the facades.

2.1.1.2 Ventilation Requirements

In accordance with the MECP noise guideline for road traffic sources, if the daytime sound level, $L_{eq\ Day}$, at the exterior face of a noise sensitive window is greater than 65 dBA, means must be provided so that windows can be kept closed for noise control purposes and central air conditioning is required. For daytime sound levels between 56 dBA and 65 dBA inclusive, there need only be the provision for adding air conditioning at a later date. At nighttime, air conditioning would be required when the sound level exceeds 60 dBA ($L_{eq\ Night}$) at a noise sensitive window (provision for adding air conditioning is required when greater than 50 dBA).

A warning clause advising the occupant of the potential interference with some activities is also required.

2.1.1.3 Outdoor Living Areas

For outdoor amenity areas ("Outdoor Living Areas" - OLA's), the traffic noise guideline is $L_{eq\ Day}$ of 55 dBA, with an excess not exceeding 5 dBA considered acceptable if it is technically not practicable to achieve the 55 dBA objective, provided warning clauses are registered on title.

Note that for road and rail traffic sources, a balcony is not considered an OLA, unless it is:

- the only OLA for the occupant;
- at least 4 m in depth; and
- unenclosed.

2.1.2 Stationary Noise Sources

2.1.2.1 Sound Level Criteria

The site and area are Class 1; i.e., an area where the ambient sound environment is dominated by "urban hum", primarily traffic noise during the daytime, evening and nighttime.

The MECP requires a "worst case" one-hour operating scenario be analyzed. This would typically occur when the background ambient sound level is at a minimum and the noise generated from the stationary noise sources is at a maximum.

The guideline limits apply to the outdoor plane of window of habitable spaces such as living/dining/family rooms and sleep areas as well as at locations amenable for use outdoors. No indoor sound level guidelines are provided for stationary sources.

MECP Publication NPC-300 states that the guideline limits shall be defined by the higher of the ambient sound level, due to road traffic noise, or the minimum exclusion limits. For a Class 1 area, the minimum exclusion limits at a noise sensitive plane of window are 50 dBA in the daytime (0700 to 1900 hours) and evening (1900 to 2300 hours) and 45 dBA in the nighttime (2300 to 0700 hours). The minimum exclusion limit at an outdoor point of reception is 50 dBA in the daytime and evening. The sound level limit does not apply at an outdoor point of reception at night.

2.2 FEDERATION OF CANADIAN MUNICIPALITIES AND RAILWAY ASSOCIATION OF CANADA

Canadian Pacific Railway (CPR) does not have a published noise guideline. However, for developments adjacent to rail lines, the typically applied guideline document is that from the Federation of Canadian Municipalities and the Railway Association of Canada (FCM/RAC). See Reference 5.

Based on the criterion indicated by FCM/RAC, the rail line would be a principal main line. The standard mitigation requirements of the FCM/RAC suggest a minimum building setback of 30 m for a residential development adjacent to a principal main line. A crash wall or safety berm is recommended in the case of a train derailment. Due to the distance separation and intervening structures between the subject site and the CPR North Toronto Subdivision, a crash wall/safety berm is likely not required for the development.

Warning clauses specific to the railway are required for all residential buildings within 300 m of the right-of-way.

Aside from “standard” requirements regarding the setback of dwellings and safety berm/sound barrier configuration, the sound level design objectives of FCM/RAC are similar to those of the MECP.

3.0 THE EFFECT OF THE ENVIRONMENT ON THE PROJECT

3.1 TRANSPORTATION NOISE IMPACT ASSESSMENT

3.1.1 Noise Sources

3.1.1.1 Road Traffic

The main road traffic noise source with potential for noise impact on the proposed development is road traffic on Yonge Street. Traffic volumes on the other surrounding roadways are anticipated to be minor and no significant noise impact is expected.

Road traffic volumes applicable to the year 2014 for the Yonge Street were obtained from the City of Toronto in the form of 8-hour turning movement counts (TMCs). Daily (24-hour) traffic volumes were obtained by multiplying the 8-hour TMC data by a factor of 2.2 (that is, the 8-hour period consists of 45% of the total daily traffic volume). A day/night split of 90%/10% was used as is typical for well-travelled roadways. A growth rate of 2%, compounded annually, was used to obtain future (year 2031) traffic volumes. Overall truck percentages were obtained from the TMCs, with the ratio of heavy trucks to medium trucks was assumed to be 60%/40% of the total truck volume. Buses were considered as medium trucks. The road traffic data correspondence is included in Appendix B.

The road traffic data is summarized in Table 1A.

3.1.1.2 Rail Traffic

The CPR North Toronto Subdivision rail corridor runs east-west, approximately 45 m to the south of the site. Rail traffic on this corridor consists of freight trains. Freight train traffic volumes applicable to the year 2019 were obtained from CPR. The CPR rail traffic data was projected to the year 2031 design condition at a rate of 2.5% compounded annually. This growth rate is suggested by the railway authorities when preparing environmental noise studies.

The TTC Subway Yonge-University Line 1 subway is located below grade approximately 80 m east of the site. The nearest above grade portion of the subway is approximately 300 m south of the site. Based on the setback distance and screening provided by intervening development, noise impact from the subway is not expected and has not been considered further.

Note, the vibration impact of the above railways has been addressed under separate cover.

Rail traffic data is summarized in Table 1B.

3.1.2 Noise Impact Assessment

Using the road and rail traffic data in Tables 1A and 1B, the sound levels, in terms of $L_{eq\ Day}$ and $L_{eq\ Night}$, were determined using STAMSON V5.04 – ORNAMENT and STEAM, the computerized road and rail traffic noise prediction models of the MECP.

The daytime and nighttime sound levels at the residential building facades were assessed at a height of 50.2 m above grade, representing a worst-case (top-storey) window. At the MPH common rooftop outdoor amenity area and private balconies/terraces greater than 4 m in depth, the daytime OLA sound levels were assessed at standing height of 1.5 m above the height of the floor slab, at the centre of the amenity area.

Inherent screening of each building face due to its orientation to the noise sources was taken into account. Screening from other buildings in the vicinity of the site was not considered.

At the residential building facades, the maximum predicted daytime/nighttime sound levels are:

- 74 dBA/73 dBA along the south facade;
- 73 dBA/72 dBA along the east facade;
- 68 dBA/61 dBA along the north facade; and
- 68 dBA/69 dBA along the west facade.

The daytime OLA sound level at the common rooftop amenity terrace is predicted to be 56 dBA. At the large private balcony/terraces on Levels 8 and 14, the predicted sound levels are 72 dBA and 63 dBA, respectively. All other balconies/terraces in the development are less than 4 m in depth and thus are not considered OLA's under the MECP definitions.

At the retail units, the highest sound levels are predicted at Retail 1 (towards the south), with daytime sound levels of 74 dBA and 73 dBA on the south and east facades, respectively.

Table 2 summarizes the predicted sound levels outdoor at specific locations due to the transportation noise sources. Appendix D contains a sample sound level calculation.

3.1.3 Noise Control Requirements

The noise control requirements can be generally classified into two categories which are interrelated, but which the designer can treat separately for the most part:

a) Architectural elements to achieve acceptable indoor noise guideline limits; and

b) Design features to protect the OLA's.

Noise abatement requirements are summarized in Table 3.

3.1.3.1 Architectural Elements

The indoor sound level limits can be achieved by using appropriate construction for exterior walls, windows and doors. In determining the worst-case architectural requirements for the residential units, exterior wall and window areas were assumed to be 20% and 80% respectively, of the associated floor area for each facade of the building.

To meet the indoor sound level guidelines:

- Upgraded exterior walls meeting an STC rating of 60 and exterior windows meeting an STC rating of 44 are required for south facing bedrooms with windows along a single facade. Note, if corner bedrooms are provided with windows along multiple facades, the STC rating would increase up to 2 points (i.e. STC 46 windows with STC 60 exterior walls).
- For all other units, exterior wall construction meeting an STC rating of 54 and the following upgraded exterior windows are required:
  - Bedrooms:
    - Rooms with windows on a single facade:
      - Up to STC 42 on the east facade;
      - Up to STC 40 on the west facade;
      - Up to STC 31 on the north facade.
  - Living rooms:
    - Corner rooms with windows on both facades
      - Up to STC 42 at the southeast corner;
      - Up to STC 40 at the southwest corner;
      - Up to STC 38 at the northeast corner;
      - Up to STC 35 at the northwest corner.
    - Rooms with windows on a single facade:
      - Up to STC 39 at the south facade;
      - Up to STC 38 at the east facade;
      - Up to STC 35 at the west facade;

- Up to STC 31 at the north facade.

- Retail Units:
  - up to STC 35.

3.1.3.1.1 *Methods to Reduce Window STC Requirements*

The window STC requirements noted above are high. Design measures can be used to reduce the STC requirements and should be considered early in the design. These measures include:

- Reducing the size of the windows or ensuring that the exterior window area is small relative to floor area of the associated space. That is, do not use floor-to-floor window or curtain walls.
- Designing the spaces such that the rooms at the corners of the buildings have windows on only one facade.
- Having non-noise sensitive space, such as walk-in closets or washrooms at the corners of the building.
- The high STC ratings are primarily due to the high sound level caused by rail traffic noise on the CPR rail line. The data provided by the authorities indicates the trains travel at a speed of 80 kph along the rail corridor. As the subject site is located in a dense urban area, it is expected that the trains may travel at a slower speed when passing in the vicinity of the site. This would result in lower sound levels at the subject site and thus lower STC ratings for the development. Sound measurements/observations can be completed as part of a future submission to confirm the sound levels at the subject site.

Note, the window frames themselves must also be designed to ensure that the overall sound isolation performance for the entire window unit meets the sound isolation requirement. This should be confirmed by the window manufacturer through the submission of acoustical test data.

The final sound isolation requirements should be reviewed when architectural drawing and floor plans are further developed. Wall and window constructions should also be reviewed at this point to ensure that the required sound isolation performance is met.

3.1.3.2 Ventilation Requirements

Based on the predicted daytime and nighttime sound levels, all residential units require mandatory air conditioning to allow windows to remain closed for noise control purposes.

3.1.3.3 Outdoor Living Area Requirements

The unmitigated daytime OLA sound levels at the rooftop common amenity area and large private balconies/terraces in the development exceed the 55 dBA design objective. Thus, sound barriers are required for noise control purposes.

The unmitigated daytime OLA sound level at the rooftop common amenity terrace is predicted to be 56 dBA. A 1.1 m high parapet sound barrier around the south and west perimeter of the terrace would be required to mitigate the OLA sound level to the 55 dBA design objective. The location and orientation of the sound barrier parapet wall is shown on Figure 2.

The unmitigated daytime sound levels at the private balconies/terraces on Level 8 (Suite 704) and Level 14 (Suite 1302) are 72 dBA and 63 dBA, respectively. Sound barriers, up to 5.1 m in height, would be required to mitigate the sound levels to the 55 dBA design objective, or up to 2.2 m in height to meet the 60 dBA upper allowable limit of the MECP. These sound barrier requirements are not considered feasible as they would essentially enclose the balconies. In addition, as there is common outdoor amenity space available for the occupants to use on the MPH level which meets the MECP noise guidelines, sound barriers are not considered warranted at these private terraces/balconies.

The sound barrier parapet wall must be of solid construction with no gaps, cracks or holes and must have a minimum surface density of 20 kg/m^2. A variety of materials are available, including glass, wood, masonry, composite material, or a combination of the above.

3.1.3.4 Warning Clauses

Warning clauses are a tool to inform prospective owners/occupants of potential annoyance due to existing noise sources. Where the guideline sound level limits are exceeded, appropriate warning clauses should be registered on title or included in the development agreement that is registered on title. The warning clauses should also be included in agreements of Offers of Purchase and Sale and lease/rental agreements to make future occupants aware of the potential noise situation.

Table 3 and the notes to Table 3 summarize the warning clauses for the site.

3.2 STATIONARY SOURCE NOISE IMPACT ASSESSMENT

3.2.1 Noise Sources

3.2.1.1 1212 Yonge Street

There is a 3-storey commercial/office building located at 1212 Yonge Street directly north of the site. Tenants include Thirty Six Knots, a luxury home decor store on the first floor, Ultimate Athletic, a fitness study on the second floor and commercial office uses on the third floor.

VCL staff visited the building on August 13, 2020, to complete sound measurements and observations. Noise sources at the facility include 3 small rooftop HVAC units towards the north side of the roof. An assessment of the noise impact from the units onto the proposed development was completed using on-site sound measurement data.

The noise sources are shown on Figure 3. Source sound power level data and source heights are shown in Appendix E.

3.2.1.2 1220 Yonge Street

There is a 4-storey multi-tenant commercial/office building at 1220 Yonge Street, approximately 15 m north of the site. Tenants include Spinco, a spin class studio on the first floor, and office uses above.

VCL staff visited the facility on August 13, 2020, to complete sound measurements and observations at the building. Noise sources at the facility include 3 rooftop HVAC units. An assessment of the noise impact from the units onto the proposed development was completed using on-site sound measurement data.

3.2.1.3 10 Birch Avenue

There is a single storey pet store directly west of the site located at 14 Birch Avenue. The pet store, Wooftown, offers premium pet foods, pet essentials and grooming services.

VCL staff were not able to access the facility for measurements. However, based on observations completed during a site visit to the area, the only anticipated noise source associated with this facility is a single HVAC unit on the roof of the building. An assessment of the noise impact from the unit was completed using sound data based on VCL projects completed at similar facilities.

3.2.1.4 14 Birch Avenue

There is a 3- storey commercial building located at 14 Birch Avenue, approximately 20 m west of the site. The facility is operated by Central Station, an advertising adjacency.

VCL staff were not able to access the facility for measurements. However, based on observations completed during a site visit to the area, the only anticipated noise source associated with this facility are two HVAC unit on the roof of the building. An assessment of the noise impact from the units was completed using sound data based on VCL projects completed at similar facilities.

3.2.1.5 Other Stationary Noise Sources

There are existing 6-storey commercial/retail buildings on the east side of the Yonge Street relative to the subject site, at the northeast and southeast corners of the intersection of Yonge Street and Shaftesbury Avenue. The only noise sources associated with these buildings are expected to be the rooftop HVAC equipment. Based on the distance separation and the presence of the intervening Yonge Street (which increases the ambient sound level in the area), significant noise impact from these buildings is not expected at the subject site. As such, noise sources at these buildings have not been considered further in the assessment.

There is a transformer station south of the site on the south side of Birch Avenue. Noise sources associated with this type of facility are expected to be fans or an electrical hum from the transformers. Based on the distance separation between the facility and the subject site and that no audible tonal hum was observed by VCL staff during a site visit to the area, significant noise impact from the transformer station is not expected at the subject site. As such, noise sources at the facility have not been considered further in the assessment.

There is a LCBO facility at the southeast corner of the intersection of Birch Avenue and Yonge Street, extending south below the railway to Scrivener Square. The nearest corner of the building is approximately 30 m southeast of the subject site. The only noise sources associated with this facility is the rooftop HVAC equipment and truck activities at the loading docks. The loading docks are located at the northeast corner of the building, one bay facing north and the other facing east. As there are existing residential buildings overlooking both loading docks at a closer setback distance than the subject site, it is expected that the noise levels from the LCBO facility would comply with the noise limits at these residential receptors, and thus inherently comply at the subject site. Furthermore, based on the setback distance and presence of the intervening Yonge Street, significant noise impact from this facility is not expected at the subject site. As such, noise sources at the facility have not been considered further in the assessment.

There are no other stationary noise sources in the vicinity of the site that are expected to create a significant noise impact on the subject site. This was confirmed by VCL staff during a site visit to the area on August 13, 2020, when no other noise sources were audible at the subject site over the road traffic noise.

3.2.2 Noise Sensitive Receptors

The predicted sound levels at the proposed building were assessed using the building evaluation feature in CadnaA, which assesses the highest sound level at any storey, at multiple points around the building facade.

Five receptors that represent the worst-case locations were used in the assessment, as determined using the building evaluation feature. The receptors are described as:

- POW_01 – representing the plane of windows at the north facade of Level 10. The window is setback from the most northerly facade of the building and looks out onto a balcony.
- POW_02 – representing the plane of windows at the west facade of Level 4, at the northwest corner of the building.
- POW_03 – representing the plane of windows at the north facade of Level 7. The window is setback from the most northerly facade of the building and looks out onto a balcony
- POW_04 – representing the plane of windows at the west facade of Level 10, towards the centre of the building.
- OPOR_01 – represents the outdoor point of receptor at the rooftop common outdoor amenity area.

Receptors representing the plane of windows (POW) for Levels 4, 7 and 10 were assessed at heights of 14 m, 23 m and 33 m above grade, respectively. The receptor representing the rooftop outdoor point of receptor (OPOR) was assessed at a height of 1.5 m above the floor slab.

Note, as the floor plans indicate there will be no windows on the most northerly facade of the building, no points of reception were taken along this facade. However, there are windows facing north that look onto balconies which are setback from the most northerly facade. These windows were included in the assessment.

Figures 3 and 4 shows the locations of the assessment receptors.

3.2.2.1 Applicable Guideline Limits

As the nearest facade to the stationary noise sources are screening from the roadways by the development itself, the minimum exclusion limits were applied at all receptors.

3.2.3 OPERATING SCENARIOS

The MECP noise guidelines require assessing the noise impact during the “predictable worst case” hour. The scenarios considered reflect the worst case operating condition, as required by the MECP guidelines.

For each of the 4 properties in the vicinity of the site (1212 Yonge Street, 1220 Yonge Street, 10 Birch Avenue, and 14 Birch Avenue), two operating scenarios were analysed representing the daytime/evening hour (any hour between 0700 and 2300) and the nighttime hour (any hour between 2300 and 0700). The operating scenarios are:

- Daytime (0700 to 1900 hour) and evening (1900 to 2300 hours):
  - All HVAC units operate for the full hour;

- Nighttime (2300 to 0700 hours):
  - All HVAC units operate at 50% duty cycle (i.e. 30 minutes out of the hour).

3.2.4 ANALYSIS METHOD

A 3-D acoustic model of the proposed development was created using CadnaA V2020 MR 1 environmental noise modelling software, which follows the protocol of ISO Standard 9613-2,*"Acoustics – Attenuation of Sound During Propagation Outdoors"*, to predict sound levels at each of the receptor locations. Accounting for distance, atmospheric absorption and ground attenuation, the combined sound level from the noise sources (hourly L_{eq}) was determined at the worst case plane of window receptors and outdoor points of reception. Hard ground (G = 0) was used everywhere. Two orders of sound reflection from the building facades were included in the acoustical model.

As per NPC-300 guidelines, the noise impact from each property in the vicinity of the site was assessed independently of the others.

3.2.5 SOUND LEVEL ASSESSMENT

Table 4 and Figures 3 and 4 show the predicted sound levels at the assessment receptors, together with the applicable guideline limits for 1212 Yonge Street, 1220 Yonge Street, 10 Birch Avenue, and 14 Birch Avenue.

As can be seen from Table 4 and Figures 3 and 4, the sound levels at the subject site due to the nearby stationary sources are predicted to meet the guideline limits at all receptors. Thus, mitigation measures are not required.

4.0 THE EFFECT OF THE PROJECT ON THE NEIGHBOURHOOD

The main source of noise associated with this development, with the potential for significant impact on surrounding buildings, is the mechanical equipment serving both the residential and commercial portions of the project.

4.1 MECHANICAL EQUIPMENT

Mechanical equipment interfacing to the outdoors must comply with the MECP noise guideline limits in NPC-300. Through proper engineering design, all requirements can be met and no significant noise impact would be created for surrounding uses. Appropriate choice of location, equipment type, and noise control features should be considered during detailed design for such items as rooftop equipment and air intakes and exhausts, including underground parking garage ventilation systems. Any parking garage air shafts located immediately adjacent to residential uses, in addition to appropriate choice of fan type, may need special noise control treatment such as acoustically lining the shaft or providing silencers.

For any emergency generators, appropriate steps should be taken to ensure that the equipment placement, treatment, and the routine testing schedule will not generate significant noise impact on neighbouring properties. The generator will require silencers on the intake and exhaust cooling air paths, as well as a muffler on the combustion exhaust.

The additional road traffic generated by this project will be small relative to existing traffic volumes within the general area and is not expected to create significant noise impact.

In accordance with Chapter 363 of the Toronto Municipal Code, a construction vibration "zone of influence" will be required to determine if any significant impact will be caused by the proposed construction methods. This is typically determined at the building permit application stage.

5.0 THE EFFECT OF THE PROJECT ON ITSELF

Consideration should be given to the control of airborne and/or structure-borne noise generated within the building as part of the detailed design. The major items requiring attention are the common boundaries and building services.

The common boundaries, in general, are those between adjacent noise sensitive areas (such as two adjacent residential units) and between noise sensitive areas and noisy service areas (such as a residential unit and a mechanical space). Building services include mechanical equipment, plumbing, etc.

5.1 COMMON WALL BOUNDARIES

The OBC has requirements for airborne sound isolation of residential units. The requirements apply to both separating partitions between spaces (direct path) as well as flanking partitions (i.e. any path, other than the direct path, that allows the transmission of sound between spaces). The requirements are:

- The demising partition separating a *dwelling unit* from an elevator shaft or a refuse chute must have an *STC* rating not less than 55; and
- A *dwelling unit* shall be separated from every other space in a *building* in which noise may be generated by:
  - a separating assembly and adjoining construction, which, together, provide an *apparent sound transmission class (ASTC) rating not* less than 47. (Note that the ASTC accounts for all flanking sound paths); or
  - a separating assembly that provides an STC rating not less than 50 and adjoining construction that conforms to prescribed methods outlined in the OBC.

There are no requirements for impact noise control in the OBC. However, a minimum Impact Insulation Class (IIC) rating for floors between two sensitive spaces of 50 to 55 is recommended. This rating procedure, the IIC, is deliberately configured so that the significance of the IIC number is similar to the STC rating system for airborne sound.

Adequate sound isolation can be achieved if pertinent details of design and construction are followed consistently. Included in these details, for example, is careful closure of all cracks by caulking or equivalent and the sealing of all wall penetrations, including electrical outlets. Attention must be paid to items which can degrade the performance of the boundaries such as services passing through or mounted to the walls or floors/ceilings (e.g., plumbing). Electrical boxes serving two different units should not be within the same stud space or masonry cavity.

During design, consideration should be given to the noise impact at the noise sensitive spaces in the vicinity of potentially noisy areas. High sound isolation construction may be required to adequately mitigate any potential noise impacts. The incorporation of secondary sound isolation ceilings, floating floors, or cavity walls are some examples.

With proper design and construction, a satisfactory environment is readily achievable.

5.2 BUILDING SERVICES

There will be insignificant effect of the building on the occupants, except potentially in close proximity to any mechanical equipment areas and in those areas affected by sound transmitted by ducts and other paths, from mechanical equipment. Here, the isolation of vibration and sound will be a matter of design of the mechanical system and of the sound control associated with it. With proper design, a satisfactory environment is readily achievable.

Refuse chutes/compactors, stairwells, elevator shafts, plumbing systems and transformer vaults are all possible sources of annoyance with respect to both air-borne and structure-borne noise.

Reference sound level limits considered appropriate for indoor (residential) uses, and due to continuous building services, such as air handling units, cooling towers, chillers and pumps, are published by various authorities (such as ASHRAE). These are specified in terms of Noise Criteria (NC) curves, and present maximum desirable sound levels at the recipient in the various frequency bands, based on the use of the space. The NC limits are guidelines only. Table 5 shows the recommended NC limits for various spaces/uses.

6.0 NOISE CONTROL SUMMARY

The normal City of Toronto process requires review of working drawings by a qualified acoustical engineer prior to issuing building permits. This allows for verification of the sound isolation requirements and resolution of details not available at the time of the re-zoning or site plan application.

6.1 MINIMUM REQUIREMENTS

The development is feasible in terms of achieving the applicable indoor and outdoor MECP noise guidelines.

To meet the noise mitigation requirements and provide guidelines for subsequent design, preliminary recommendations/requirements are summarized below. These are considered mandatory to comply with the OBC or the MECP noise guidelines.

- All residential suites within the development require mandatory air conditioning for noise control purposes.
- For south-facing bedrooms, upgraded exterior walls meeting an STC rating of 60 will be required along with windows an STC rating of 44.
- For all other spaces, exterior wall construction meeting an STC rating of 54 and upgraded exterior windows meeting an STC rating up to 42 are required.
- A 1.1 m high sound barrier parapet wall is required at the common outdoor amenity terrace on the mechanical penthouse floor.
- To comply with the OBC, construction providing an STC rating of not less than 50 must be used for the boundaries between residential units, or between residential units and other spaces in which noise may be generated. Where a suite is adjacent to an elevator shaft or refuse chute, the separating construction must have an STC rating of at least 55.
- Mechanical equipment interfacing with the outside environment must comply with the MECP noise guideline limits in NPC-300. During detailed design, noise from the mechanical equipment should be assessed to ensure compliance with NPC-300. Noise mitigation may be required.

7.0 CONCLUSION

With the incorporation of the recommended noise mitigation measures, the applicable MECP noise guidelines can be met and a suitable acoustic environment provided. The approvals and administrative procedures are available to ensure that the noise requirements are implemented.

8.0 REFERENCES

1. PC STAMSON 5.04, "Computer Program for Road Traffic Noise Assessment", Ontario Ministry of the Environment, Conservation and Parks.

2. Building Practice Note No. 56: "Controlling Sound Transmission into Buildings", by J. D. Quirt, Division of Building Research, National Council of Canada, September 1985.

3. "Road and Rail Noise: Effects on Housing", Canada Mortgage and Housing Corporation, Publication NHA 5156, 81/10.

4. "Environmental Noise Guideline, Stationary and Transportation Sources – Approval and Planning", Ontario Ministry of the Environment, Conservation and Parks, Publication NPC-300, October 21, 2013.

5. "Guidelines for New Development in Proximity to Railway Operations", Prepared for The Federation of Canadian Municipalities and the Railway Association of Canada, May 2013.

6. "Chapter 48 – Noise and Vibration Control", ASHRAE Handbook – HVAC Application, 2011.

KM\GD\mv
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TABLE 1A ROAD TRAFFIC DATA

Roadway	24-Hour Volume(1)	% Trucks		Speed Limit (km/hr)	Day/ Night Split
		Heavy	Medium		
Yonge Street(2)	30 078 (42 118)	1.7	1.3	50	90%/10%

Notes:

(1) Values shown in brackets have been extrapolated to the year 2031 design condition using a 2.0% growth rate, compounded annually.
(2) Based on year 2014 turning movement count data obtained from the City of Toronto.

TABLE 1B RAIL TRAFFIC DATA

Track	Period	Train Type	Maximum # of Trains	Maximum # of Cars per Train	Maximum # of Locomotives per Train	Maximum Speed (kph)
CPR North Toronto Subdivision	Daytime (0700-2300 Hours)	Freight	15 (20.2)(1)	176	4	80
	Nighttime (2300-0700 Hours)	Freight	8 (10.8)((1)	176	4	80

Note:

(1) The data in brackets have been extrapolated to the year 2031 design condition using a 2.5% growth rate, compounded annually.

TABLE 2 PREDICTED UNMITIGATED OUTDOOR SOUND LEVELS

Location	Source	Distance (m)[1]	$L_{eq,Day}$ (dBA)[2][3]	$L_{eq,Night}$ (dBA)[2][3]
Southeast Corner, South Facade	Yonge Street	13	67	61
	CPR North Toronto Subdivision	51	72	73
	Total	**-**	**74**	**73**
Southeast Corner, East Facade	Yonge Street	13	70	64
	CPR North Toronto Subdivision	51	71	71
	Total	**-**	**73**	**72**
Northeast Corner, North Facade	Yonge Street	11	68	61
MPH Common Outdoor Amenity – OLA	CPR North Toronto Subdivision	64	56	-
Suite 704 Balcony – OLA	Yonge Street	15	59	-
	CPR North Toronto Subdivision	55	72	-
	Total	**-**	**72**	-
Retail 1 – Ground Floor, East Facade	Yonge Street	11	71	-
	CPR North Toronto Subdivision	67	69	-
	Total	-	**73**	-

Notes:

(1) Distance to the OLA/building facade, respectively, from the centreline of the noise source.
(2) Daytime sound level for the OLA assessed at a height of 1.5 m above the terrace slab. There are no nighttime guideline limits for OLA's and retail spaces.
(3) Daytime and nighttime sound levels for the residential facades were assessed at a height of 50.2 m above grade for the building facades, and 1.5 m above grad for the retail spaces.

TABLE 3 MINIMUM NOISE ABATEMENT MEASURES

Location	Air Conditioning (1)	Exterior Walls (2)	Exterior Windows (3)	Sound Barriers (4)	Warning Clauses (5)
Residential bedrooms facing south	Mandatory	STC 60	Up to STC 44	1.1 m high sound barrier parapet wall at rooftop amenity space	A + B + C + D
All other residential spaces		STC 54 (e.g. brick veneer)	Up to STC 42		A + B + C + D
Retail Units	---	STC 54	Up to STC 35	---	---

Notes:

(1) Where means must be provided to allow windows to remain closed for road noise control purposes, a commonly used technique is that of air conditioning.

(2) STC - Sound Transmission Class Rating (Reference ASTM-E413).

The requirements are based on assumed percentages of wall and window area to associated floor area and should be checked once architectural floor plans and building plans are finalized.

(3) STC - Sound Transmission Class Rating (Reference ASTM-E413).

A sliding glass walkout door should be considered as a window and be included in the percentage of glazing.

The requirements are based on assumed percentages of wall and window area to associated floor area and should be checked once architectural floor plans and building plans are finalized.

(4) Sound barrier parapet walls must be of solid construction having a minimum face density of 20 kg/m^2 with no gaps, cracks or holes. A variety of materials are available, including concrete, masonry, wood, specialty composite materials, or a combination of the above.

Sound barrier requirements are based on flat topography and should be reviewed when grading plans are available.

(5) Warning clauses to be included in Occupancy Agreements:

A. "Purchasers are advised that despite the inclusion of noise control features in the development and within the building units, sound levels due to increasing road and/or rail traffic may occasionally interfere with some activities of the dwelling occupants as the sound level may exceed the noise guidelines of the Municipality and the Ministry of the Environment, Conservation and Parks."

B. "This dwelling unit has been supplied with an air conditioning system which will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the sound level limits of the Municipality and the Ministry of the Environment, Conservation and Parks."

C. "Purchasers are advised that due to the proximity of the adjacent commercial buildings, noise from these facilities may at times be audible."

D. "Canadian Pacific Railway or its affiliated railway companies has or have a railway right-of-way within 300 m from this dwelling unit. There may be alterations to or expansions of the railway facilities of such right-of-way in the future, including the possibility that Canadian Pacific Railway or its affiliated railway companies as aforesaid, or their assigns or successors may expand their business operations. Such expansion may affect the living and business environment of the residents, tenants and their visitors, employees, customers and patients in the vicinity, notwithstanding the inclusion of any noise and vibration attenuating features in the design of the development. Canadian Pacific Railway, its affiliated railway companies and their successors and assigns will not be responsible for any complaints or claims arising from use of such facilities and/or operations on, over or under the aforesaid right-of-way."

(6) All exterior doors shall be fully weather-stripped.

TABLE 4 UNMITIGATED PREDICTED SOUND LEVELS – STATIONARY SOURCES

Receptor (1)	Hourly Sound Levels $L_{eq\ 1hr}$ (dBA)(2)								Applicable Guideline Limits (dBA)(3)	
	1212 Yonge Street		1220 Yonge Street		10 Birch Avenue		14 Birch Avenue			
	Day/Eve	Night	Day/Eve	Night	Day/Eve	Night	Day/Eve	Night	Day/Eve	Night
POW_01	47	44	47	44	19	16	21	18	50	45
POW_02	48	45	46	43	46	43	44	41	50	45
POW_03	38	35	39	35	36	33	41	38	50	45
POW_04	39	36	37	34	38	35	41	38	50	45
OPOR_01	26	-	25	-	19	-	29	-	50	-

Notes:

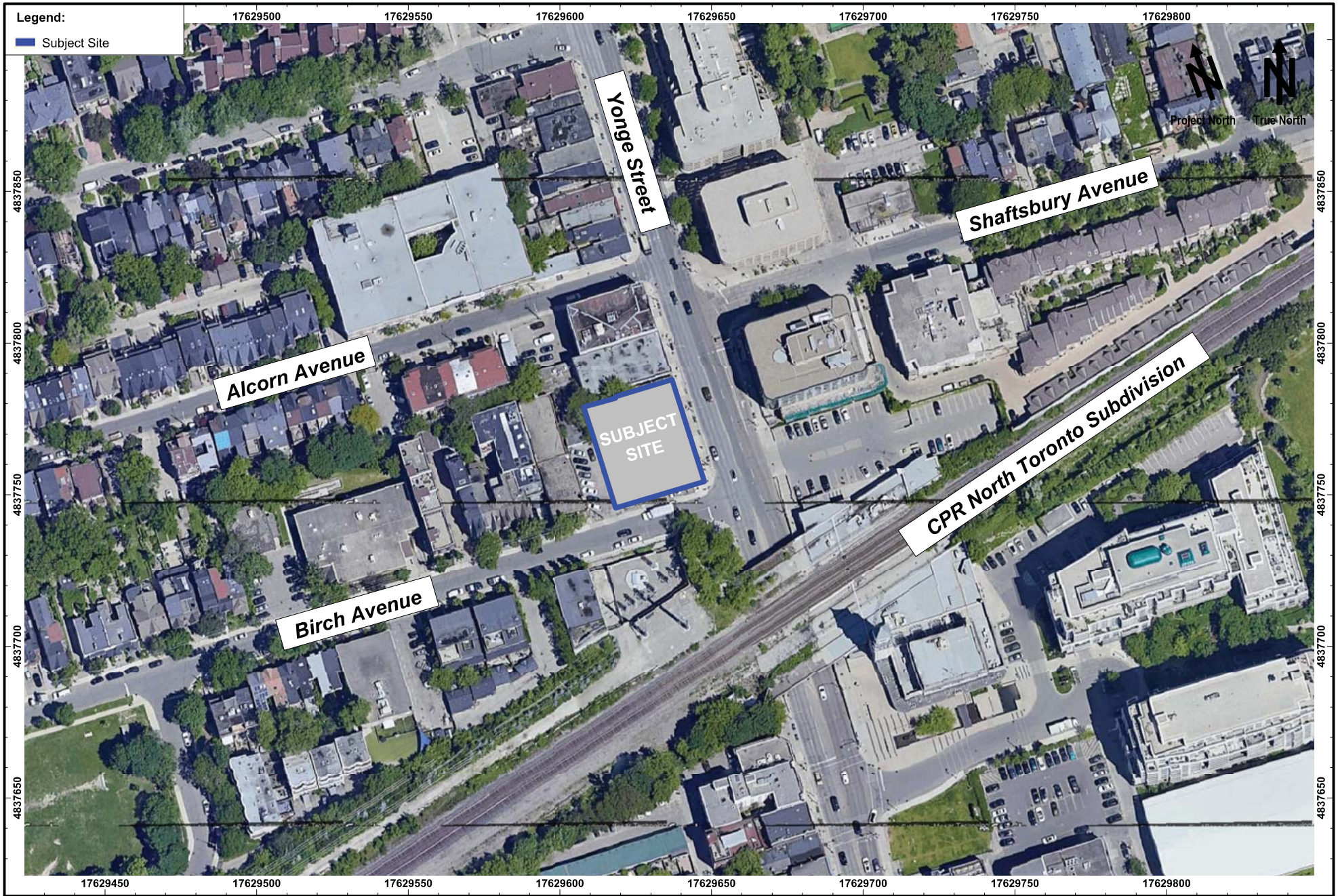
(1) See Figure 3 for receptor locations.
(2) Day = 0700 to 1900 hours, Eve = 1900 to 2300 hours, Night = 2300 to 0700 hours
(3) Minimum exclusion limits of the MECP (Class 1). Sound levels do not apply at an OPOR at night.

TABLE 5 TYPICAL INDOOR NOISE CONTROL GUIDELINES FOR CONTINUOUS BUILDING SERVICES

Type of Space	Recommended Maximum NC (Noise Criteria) Curves (1)
Residences, Apartments, Condominiums	
Living Area	NC 30
Bathrooms, Kitchens, Utility Rooms	NC 35

Note:

(1) Taken from Reference [6]. Each number rating typically represents a range of ± 5 dB for the design target.



VALCOUSTICS Canada Ltd. consulting acoustical engineers	Title: **Key Plan**	Date: **2021-11-01**	Figure: **1**
	Project Name: **Yonge Street and Birch Avenue, Toronto**	Project No.: **1190342.000**	

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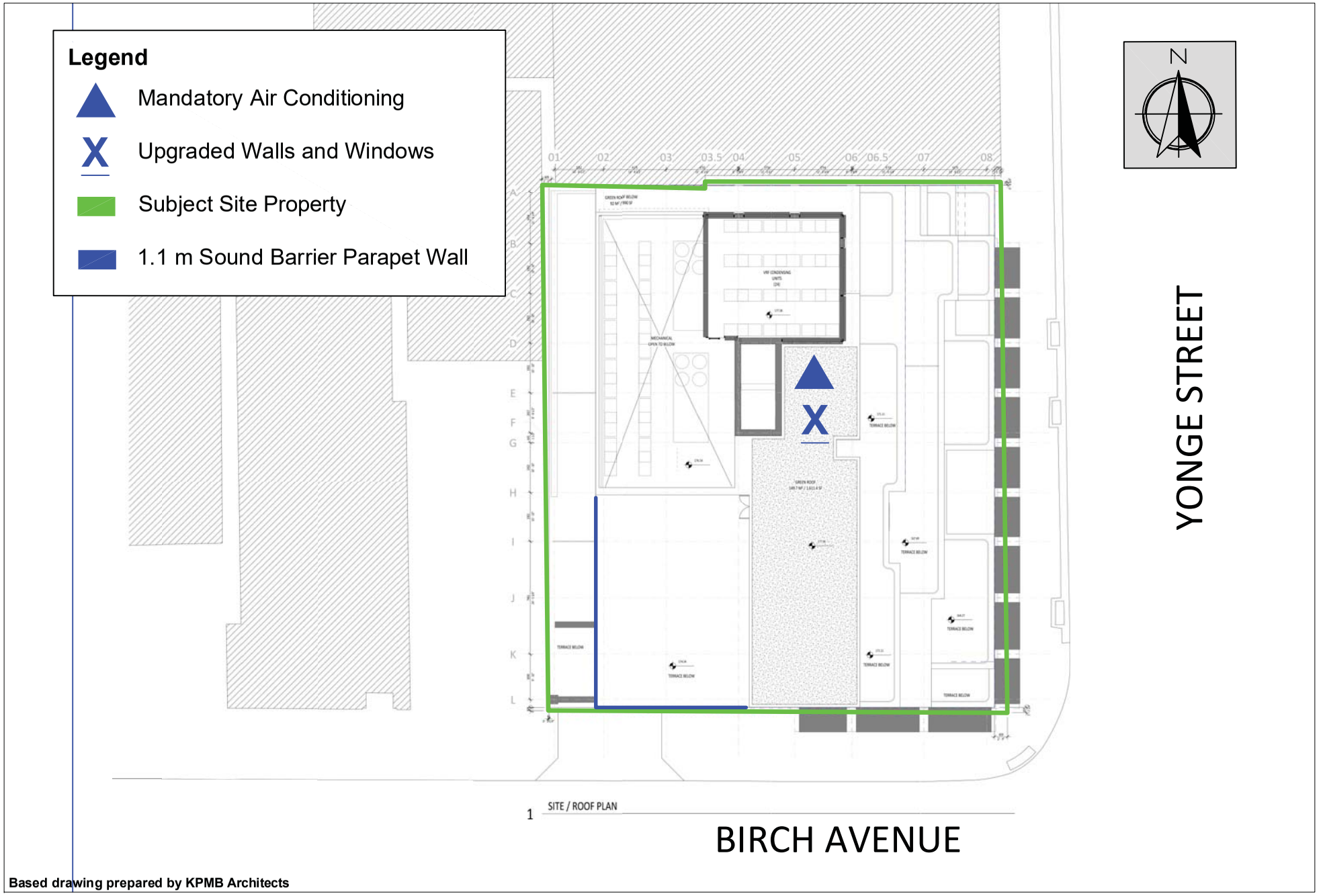
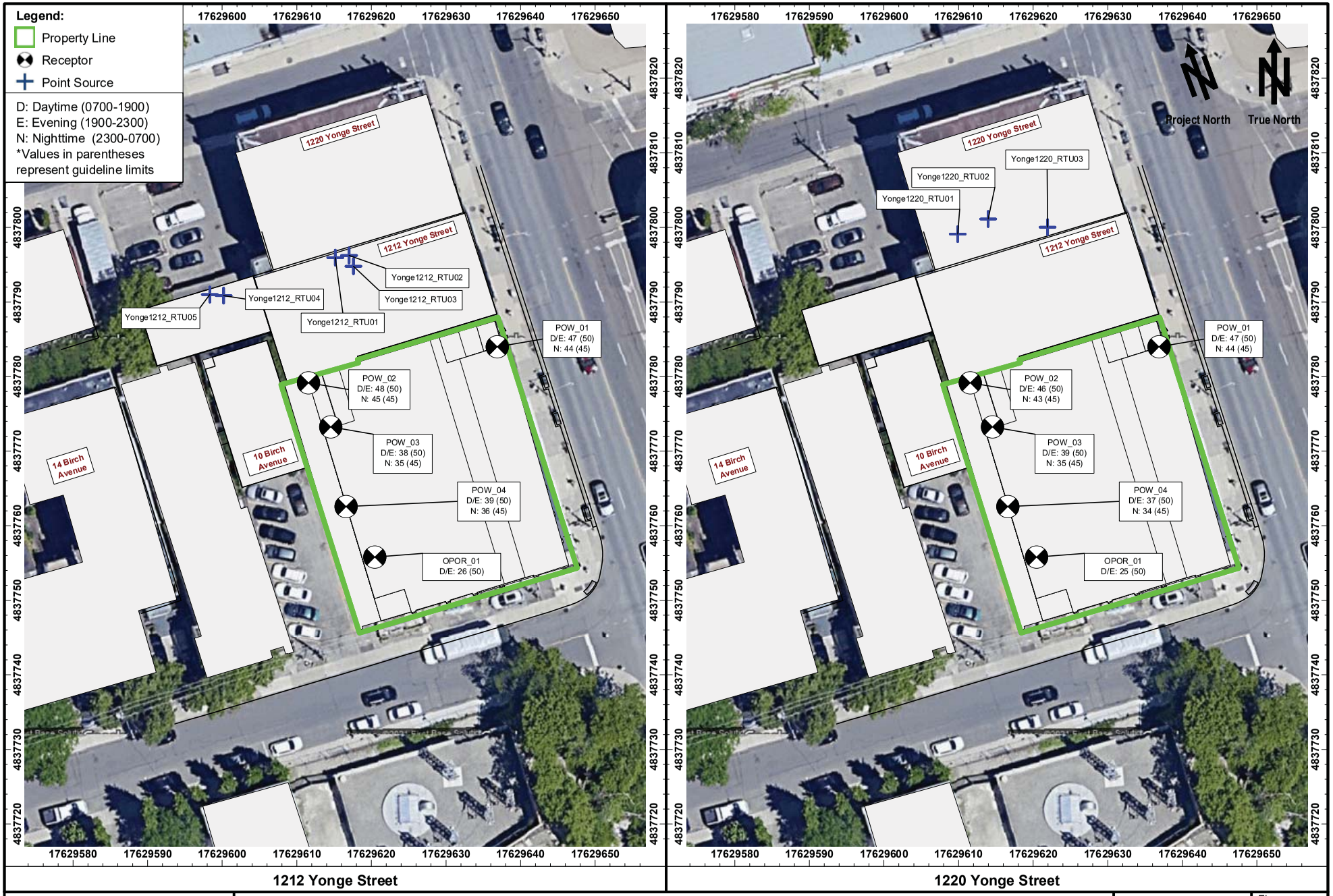
Date Plotted: 02.11.21



Based drawing prepared by KPMB Architects

VALCOUSTICS Canada Ltd.	Title: Site / Roof Plan	Date: 2021-11-01	Figure: 2
	Project Name: Yonge Street and Birch Avenue, Toronto	Project No.: 119-0342	



1212 Yonge Street

1220 Yonge Street

VALCOUSTICS Canada Ltd.
consulting acoustical engineers

Title
Unmitigated Predicted Sound Levels (dBA) - Stationary Noise Sources to the north

Date
Nov 1, 2021

Figure
3

Project Name
Yonge Street and Birch Avenue

Project No.
1190342.000

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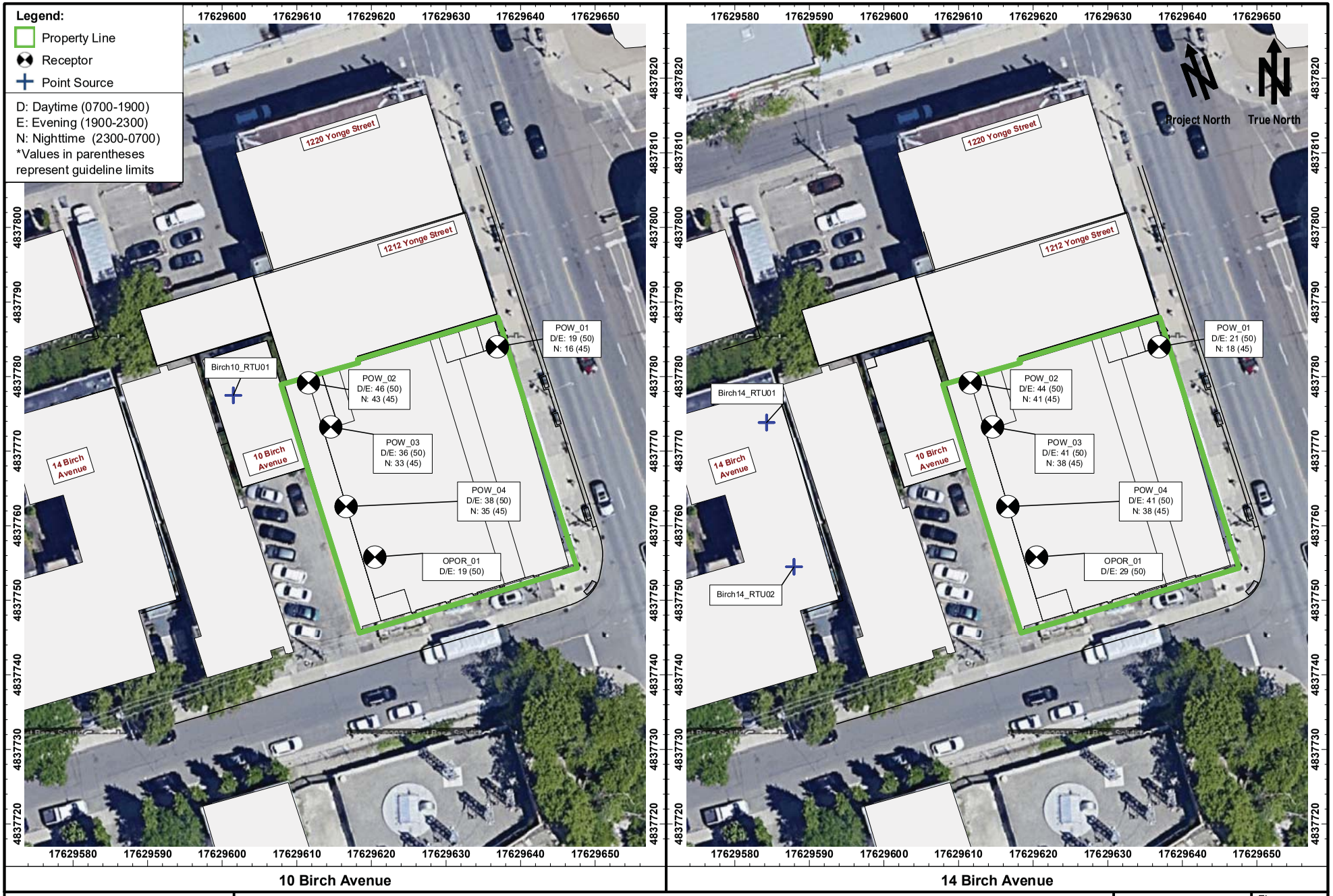
Date Plotted: 02.11.21



10 Birch Avenue

14 Birch Avenue

VALCOUSTICS Canada Ltd. consulting acoustical engineers	Title: **Unmitigated Predicted Sound Levels (dBA) - Stationary Noise Sources to the West**	Date: **Nov 1, 2021**	Figure: **4**
	Project Name: **Yonge Street and Birch Avenue**	Project No.: **1190342.000**	

J:\2019\1190342\000\Analysis\Cadna\2021-05-11 Base model for report\14 Birch - 2021-05-13.cna

Date Plotted: 02.11.21

APPENDIX A
ARCHITECTURAL DRAWINGS

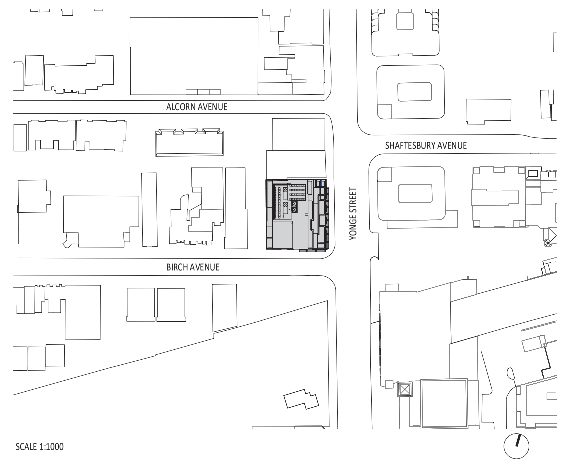
1196-1210 YONGE ST.

Pre-Application Meeting

DRAWING LIST

Sheet No.	Drawing Name	Rev. No.	Issue Date
A0.000	COVER SHEET		09/10/19
A1.000	BOUNDARY PLAN		09/09/19
A1.001	TOPOGRAPHICAL SURVEY		09/09/19
A1.002	SITE PLAN		09/09/19
A1.003	Context Plan		02/24/21
A2.001	P3 PARKING PLAN		10/09/19
A2.002	P1AND P2 PARKING PLAN		09/09/19
A2.003	GROUND PLAN AND MEZZANINE		09/09/19
A2.004	LEVEL 3 AND LEVEL 4		09/09/19
A2.005	LEVEL 5 AND LEVEL 6		09/09/19
A2.006	LEVEL 7 AND LEVEL 8		09/09/19
A2.008	LEVEL 11 AND LEVEL 12		09/09/19
A2.009	LEVEL 13 AND LEVEL 14		09/09/19
A2.010	LEVEL 15 AND LEVEL 16 / M.P.H.		09/09/19
A2.011	ROOF PLAN		09/09/19
A2.007	LEVEL 9 AND LEVEL 10		11/27/20
A5.001	SOUTH & WEST ELEVATIONS		09/09/19
A5.002	NORTH & EAST ELEVATIONS		09/09/19
A6.001	BUILDING SECTIONS		09/09/19
A6.002	BUILDING SECTIONS		09/09/19
A6.003	BUILDING SECTIONS		03/30/21

CONTEXT PLAN



SCALE 1:1000

OWNER AND CONSULTANT LIST

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CIVIL ENGINEERING

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CODE CONSULTANT

NOISE & VIBRATION

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SHORING

Isherwood Geostructural Engineers
3100 Ridgeway Dr., #3
Mississauga, ON
L5L 5M5
T: 905-820-3480

GENERAL NOTES:

1. Drawings are not to be scaled. Contractor will verify all existing conditions and dimensions required to perform the Work and will report any discrepancies with the Contract Documents to the Architect before commencing work.
2. The Architectural Drawings are to be read in conjunction with all other Contract Documents including the Project Manuals and the Structural, Mechanical and Electrical Drawings. In cases of difference between the Consultants' documents with respect to the quantity, sizes or scope of work, the greater shall apply.
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4. Dimensions indicated are taken between the faces of finished surfaces unless otherwise noted.
5. The architect has not been retained for supervision of construction and assumes no responsibility for means, methods and techniques of construction.
6. These documents are not to be used for construction unless specifically noted for such purpose.

DRAFT

Rev. Date Issued

KPMB
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416 977 5104

Woodcliffe
1196-1210 YONGE ST.

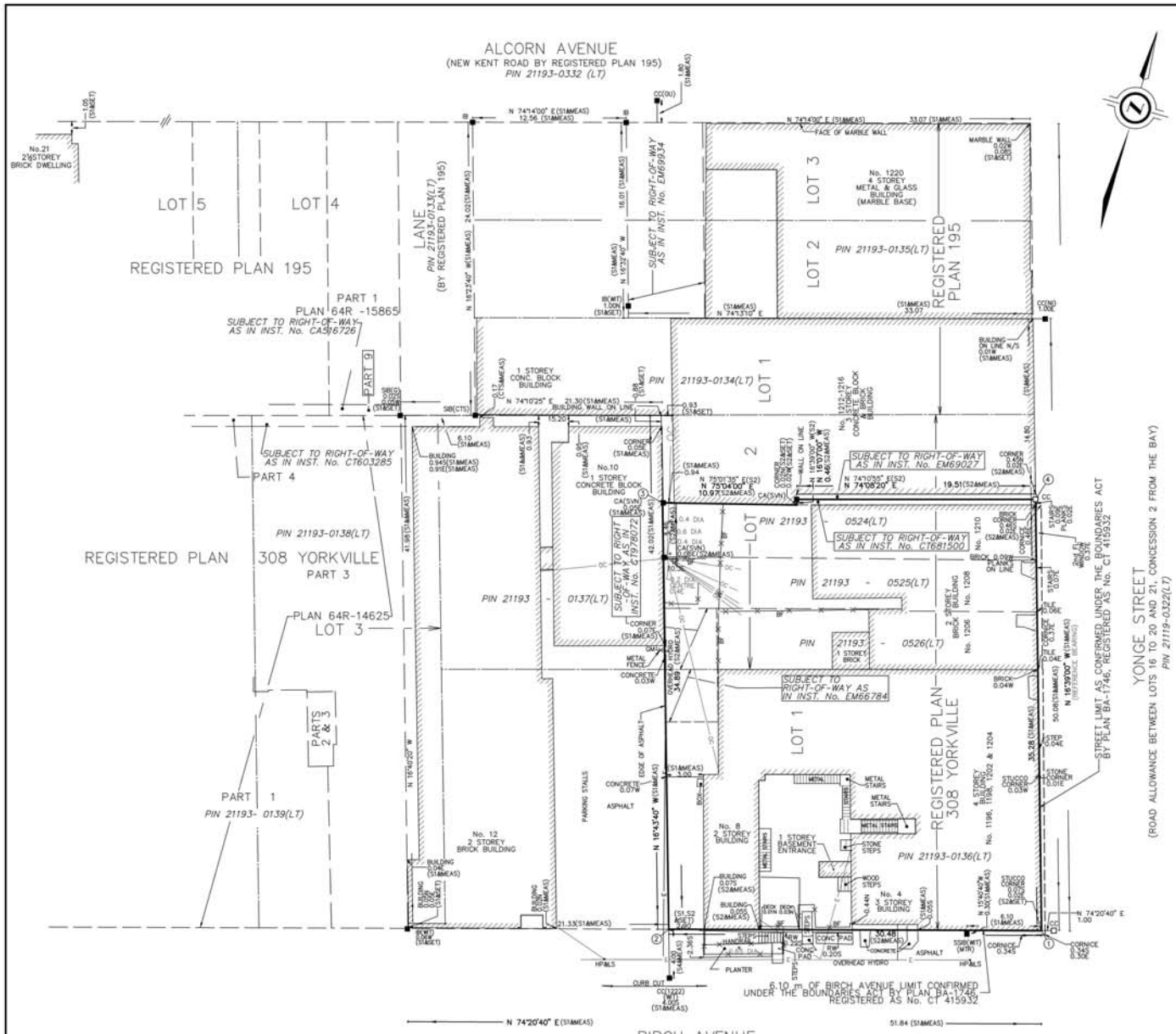
DRAFT

Project North True North

SCALE 1 : 1000
PROJECT NO. 1714
ISSUE DATE 29.01.21

COVER SHEET

A0.000



PLAN OF SURVEY OF

PART OF LOTS 1 AND 2 REGISTERED PLAN 308 YORKVILLE CITY OF TORONTO

TO BE READ IN CONJUCTION WITH THE SURVEYOR'S REAL PROPERTY REPORT, DATED: SEPT. 19, 2019.

SCALE 1 : 200

5 0 5 10 metres

J. D. BARNES LIMITED

METRIC DISTANCES AND/OR COORDINATES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048.

NOTES

BEARINGS ARE GRID AND ARE REFERRED TO THE WESTERLY LIMIT OF YONGE STREET, HAVING A BEARING OF N 16°39'00"W IN ACCORDANCE WITH PLAN BA-1746.

■	DENOTES	SURVEY MONUMENT FOUND
□	DENOTES	SURVEY MONUMENT SET
SIB	DENOTES	STANDARD IRON BAR
IB	DENOTES	IRON BAR
OU	DENOTES	ORIGIN UNKNOWN
1222	DENOTES	C.E. DOTTERILL O.L.S.
597	DENOTES	H.C.G. WHEELER O.L.S.
CTS	DENOTES	CITY OF TORONTO SURVEYS
G	DENOTES	W.S.GIBSON, O.L.S.
MTR	DENOTES	METRO TORONTO ROADS AND TRAFFIC
SVN	DENOTES	SPEIGHT, VAN NOSTRAND, WARD & ANDERSON
S1	DENOTES	PLAN OF SURVEY BY JD BARNES LTD., DATED FEBRUARY 20, 2015
S2	DENOTES	PLAN OF SURVEY BY C.E. DOTTERILL LTD., DATED FEBRUARY 2, 2005
BLDG	DENOTES	BUILDING
RW	DENOTES	RETAINING WALL
• P	DENOTES	TELEPHONE POLE

SITE AREA: 1 070.3 (Sq.m.)

ASSOCIATION OF ONTARIO LAND SURVEYORS
PLAN SUBMISSION FORM
2093103
THIS PLAN IS NOT VALID UNLESS IT IS AN EMBOSSED ORIGINAL COPY ISSUED BY THE SURVEYOR
In accordance with Regulation 1026, Section 29(3)

SURVEYOR'S CERTIFICATE

I CERTIFY THAT:

1. THIS SURVEY AND PLAN ARE CORRECT AND IN ACCORDANCE WITH THE SURVEYS ACT, THE SURVEYORS ACT AND THE REGULATIONS MADE UNDER THEM.
2. THE SURVEY WAS COMPLETED ON SEPTEMBER 16, 2019.

SEPTEMBER 19, 2019
DATE

COLIN B. BOGUE
ONTARIO LAND SURVEYOR

CO-ORDINATE TABLE
3°WM, ZONE 10, NAD 27

No.	EASTING (m)	NORTHING (m)
1	313 531.15	4 837 731.86
2	313 501.79	4 837 723.64
3	313 491.76	4 837 757.05
4	313 521.04	4 837 765.66

J.D.BARNES LIMITED
SURVEYING MAPPING GIS
LAND INFORMATION SPECIALISTS
411 RICHMOND ST. EAST, SUITE 107, TORONTO, ON M5A 3S5
T: (416) 368-3737 F: (416) 368-5308 www.jdbarnes.com

DRAWN BY:	CHECKED BY:	REFERENCE NO.:
MYP/AS/BE	CBB/MN/TRR	91-22-856-09

FILE: G:\91-22-856\09\Drawing\91-22-856-09(PS).dgn DATED: SEPT 19/19

PLOTTED: 9/19/19

GENERAL NOTES:

1. Drawings are not to be scaled. Contractor shall verify all existing conditions and dimensions required to perform the Work and will report any discrepancies with the Contract Documents to the Architect before commencing work.
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5. These documents are not be reentered for supervision of construction and assumes no responsibility for means, methods and techniques of construction.
6. These documents are not to be used for construction unless specifically noted for such purpose.

No.	Date	Issue

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Woodcliffe
1196-1210 YONGE ST.

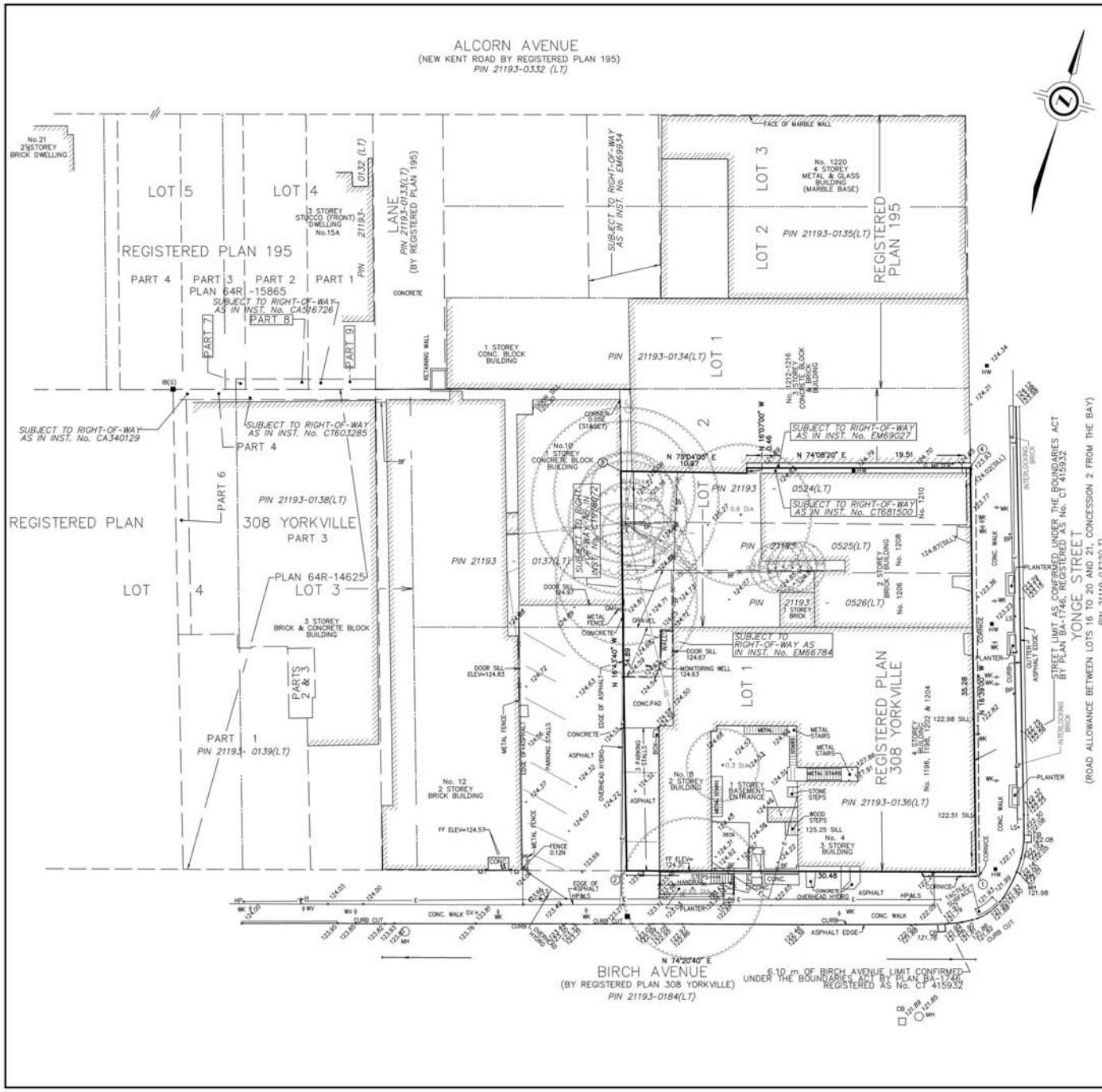
DRAFT

Project North True North

SCALE
PROJECT NO. 1714
ISSUE DATE 29.01.21

BOUNDARY PLAN

A1.000



COMPILED PLAN SHOWING TOPOGRAPHY OF

PART OF LOTS 1 AND 2 REGISTERED PLAN 308 YORKVILLE CITY OF TORONTO

SCALE 1 : 200

5 0 5 10 metres

J. D. BARNES LIMITED

METRIC DISTANCES AND/OR COORDINATES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048.

NOTES

BEARINGS ARE GRID AND ARE REFERRED TO THE WESTERLY LIMIT OF YONGE STREET, HAVING A BEARING OF N 16°39'00"W IN ACCORDANCE WITH PLAN BA-1746.

ELEVATIONS SHOWN ON THIS PLAN ARE RELATED TO GEODETIC DATUM AND ARE DERIVED FROM CITY OF TORONTO BENCHMARK No. 12219740315, HAVING A PUBLISHED ELEVATION OF 122.897 METRES.

LEGEND

□ CB	DENOTES SINGLE CATCHBASIN
+ GV	DENOTES GAS VALVE
◯ HMH	DENOTES HYDRO MANHOLE
◯ MH	DENOTES MANHOLE
▥ TMH	DENOTES TELEPHONE MANHOLE
• BOL	DENOTES BOLLARD
• HP	DENOTES HYDRO POLE
• LS	DENOTES LIGHT STANDARD
• PLR	DENOTES PILLAR
• P	DENOTES POLE
• POST	DENOTES POST
◂ SIGN	DENOTES SIGN
⊞ PED	DENOTES TELEPHONE PEDESTAL
⊣ H	DENOTES FIRE HYDRANT
⊸ WK	DENOTES WATER KEY
⊸ WV	DENOTES WATER VALVE
■ HHW	DENOTES HYDRO HAND WELL
• BP	DENOTES BIKE POST
MB	DENOTES MAIL BOX
• TP	DENOTES TELEPHONE POLE
BF	DENOTES BOARD FENCE
• G METER	DENOTES GAS METER
■ HW	DENOTES HANDWELL

THE FIELD WORK WAS COMPLETED ON AUGUST 30, 2019.

J.D.BARNES LIMITED — SURVEYING MAPPING GIS

LAND INFORMATION SPECIALISTS

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DRAWN BY:	CHECKED BY:	REFERENCE NO.:
MYP/AS/BE	CBB/MN/TRR	05-22-368-04

FILE: G:\91-22-856\09\Drawing\91-22-856-09(Topo).dgn — DATED: SEPT 19/19

PLOTTED: 9/19/19

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Woodcliffe

1196-1210 YONGE ST.

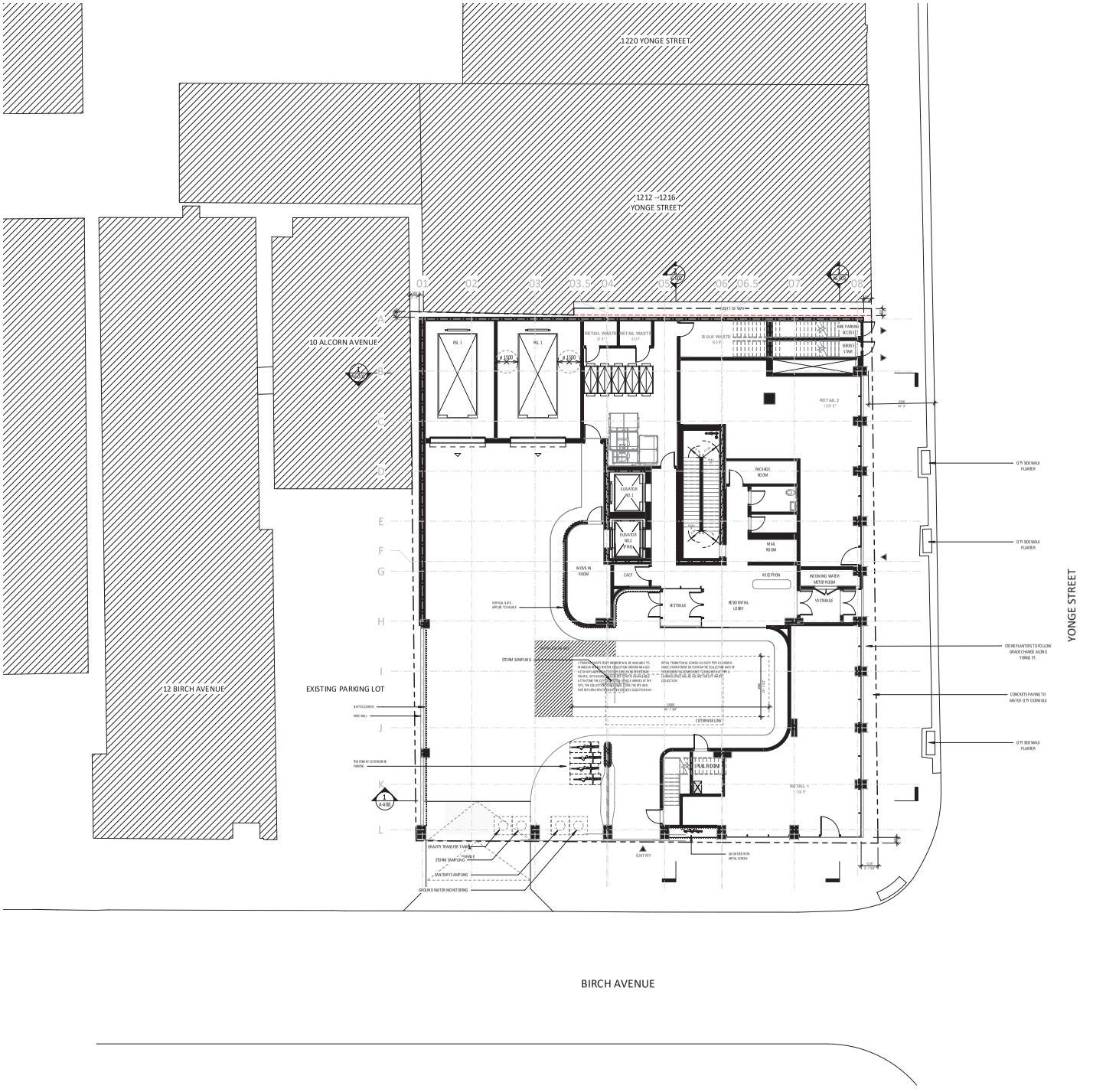
DRAFT

Project North True North

SCALE
PROJECT NO. 1714
ISSUE DATE 20.01.21

TOPOGRAPHICAL SURVEY

A1.001



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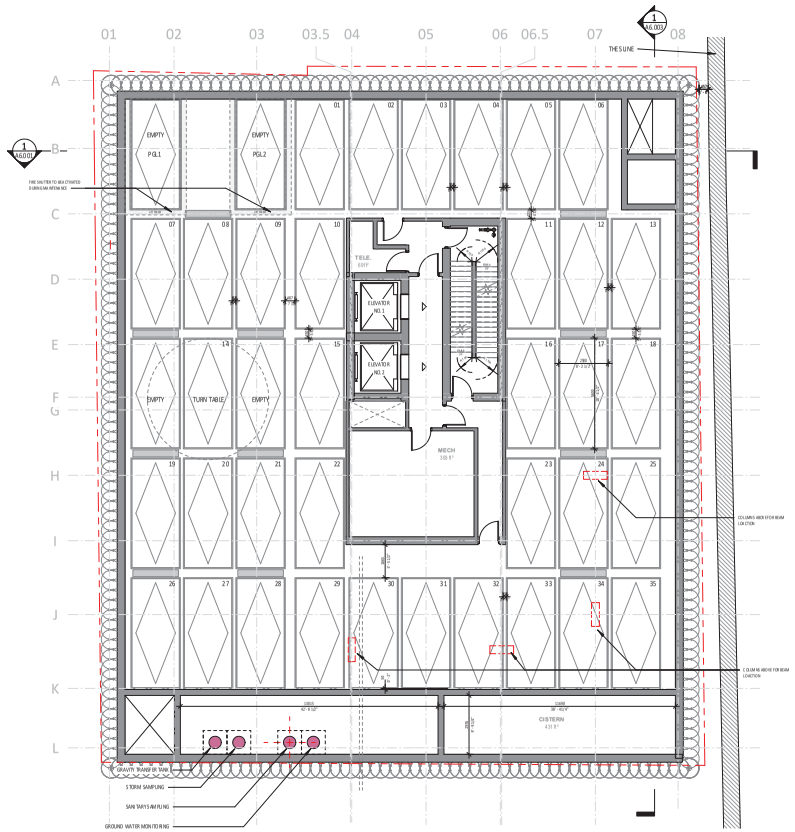
Project North | True North

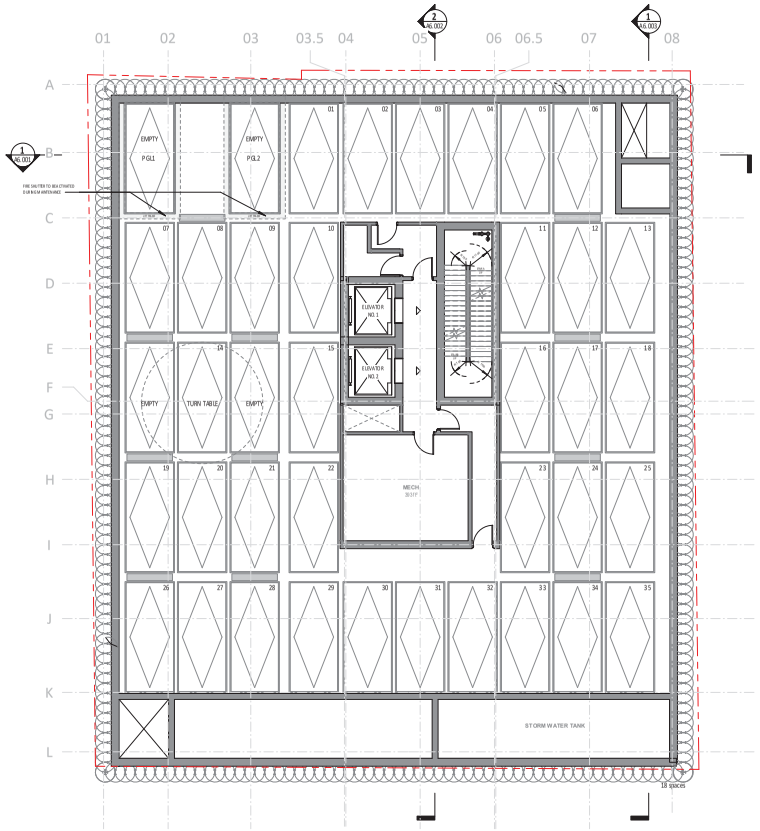
SCALE 1 : 100
PROJECT NO. 17144
ISSUE DATE 29.01.21

SITE PLAN

A1.002



1 P1 PARKING PLAN



2 P2 PARKING PLAN

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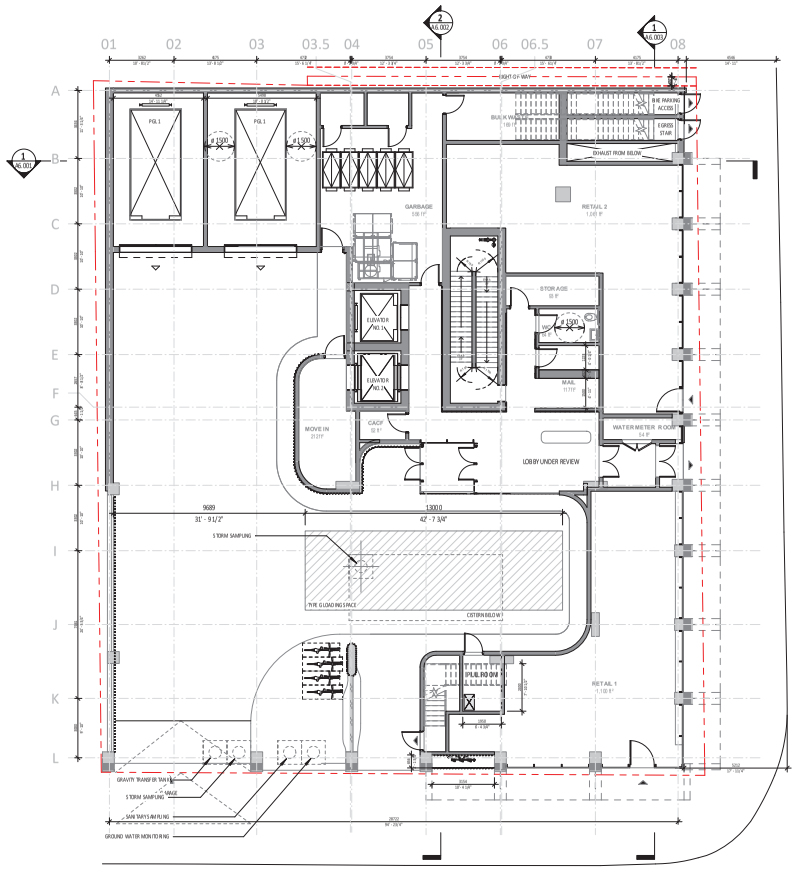
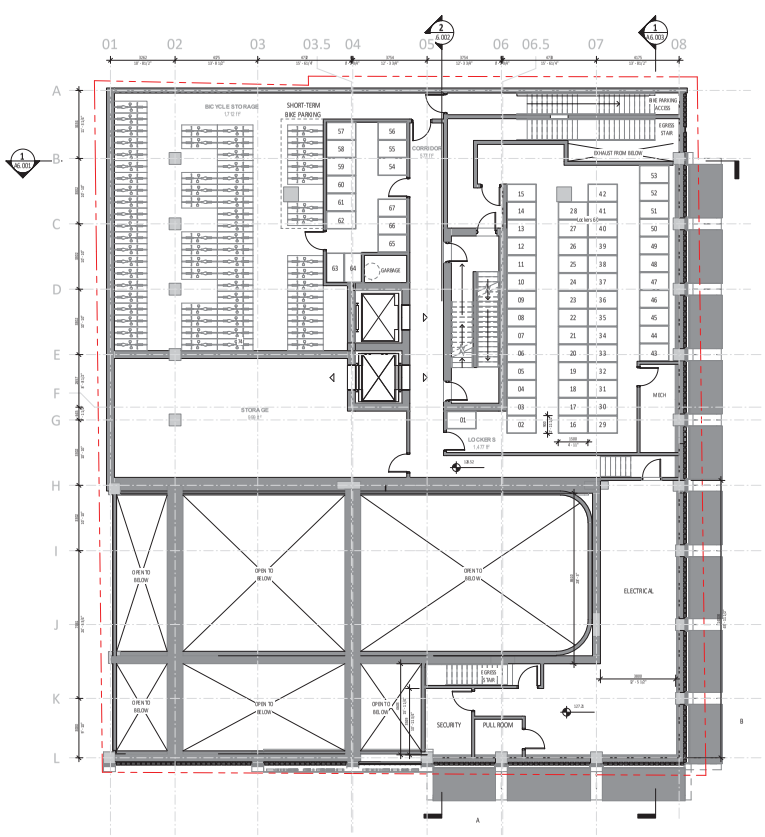
P1AND P2 PARKING PLAN

A2.002



1 LEVEL 1



2 MEZZANINE LEVEL

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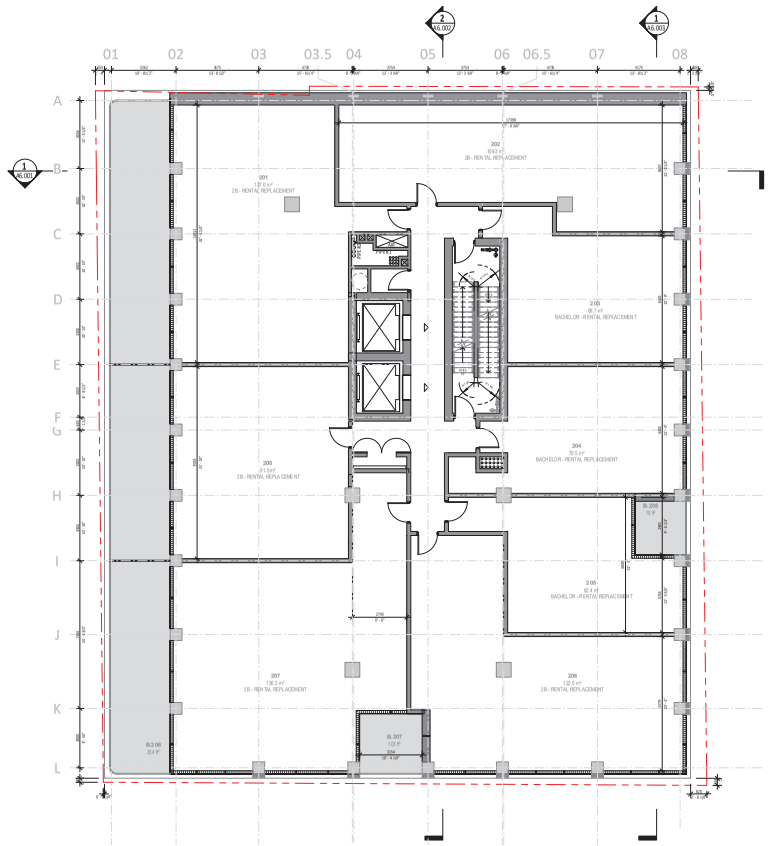
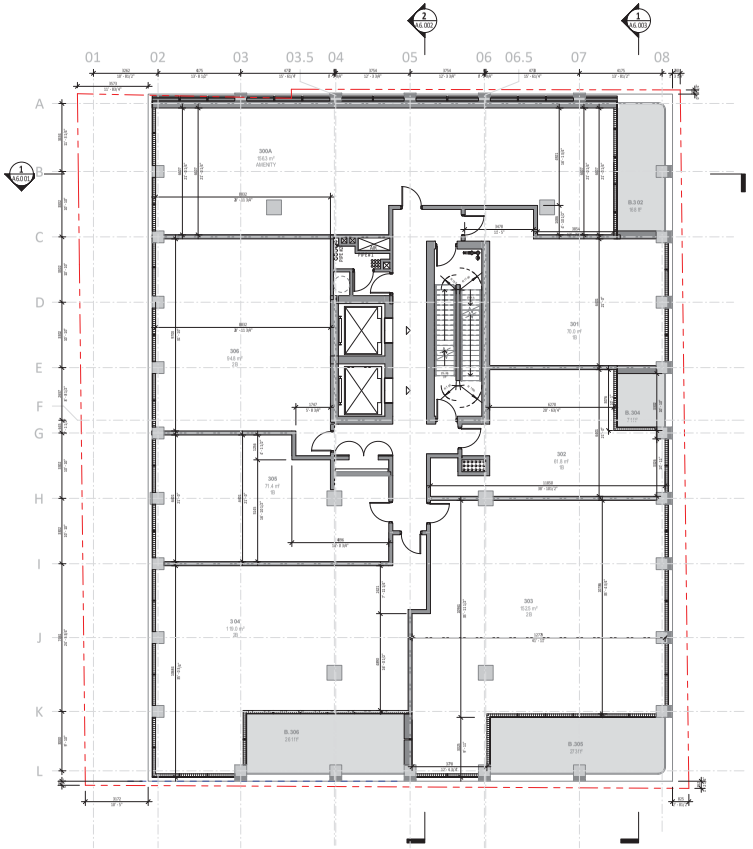
GROUND PLAN AND MEZZANINE

A2.003



1 LEVEL 3



2 LEVEL 4

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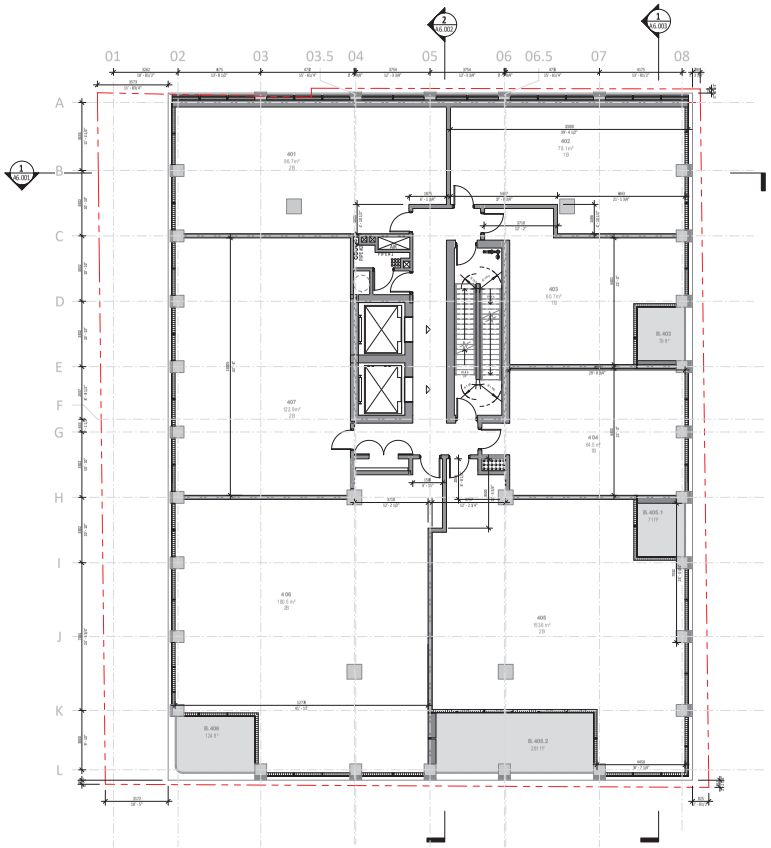
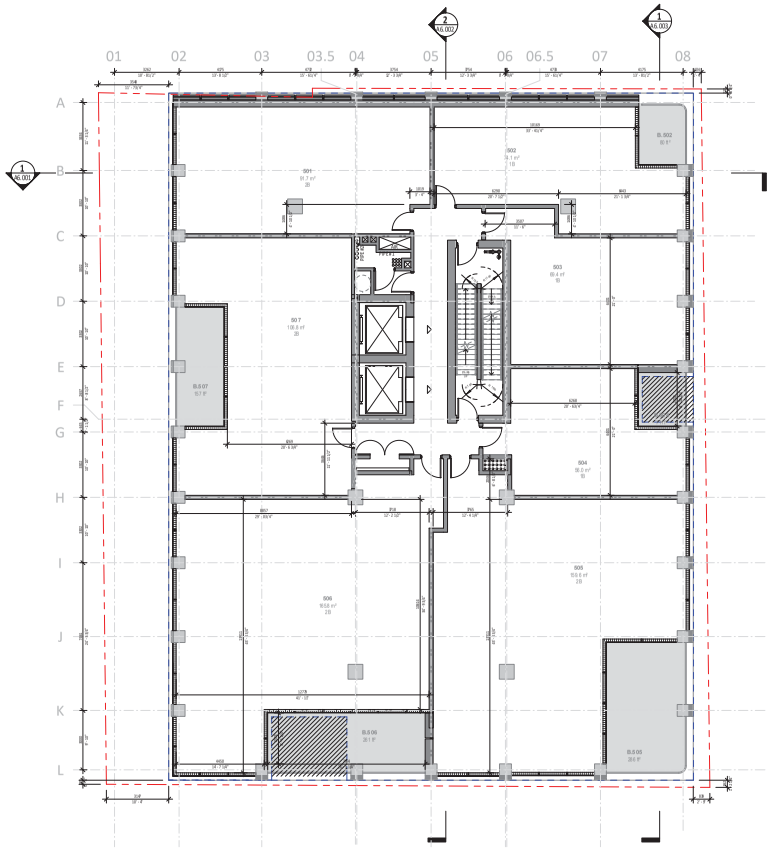
LEVEL 3 AND LEVEL 4

A2.004



1 LEVEL 5



2 LEVEL 6

GENERAL NOTES:

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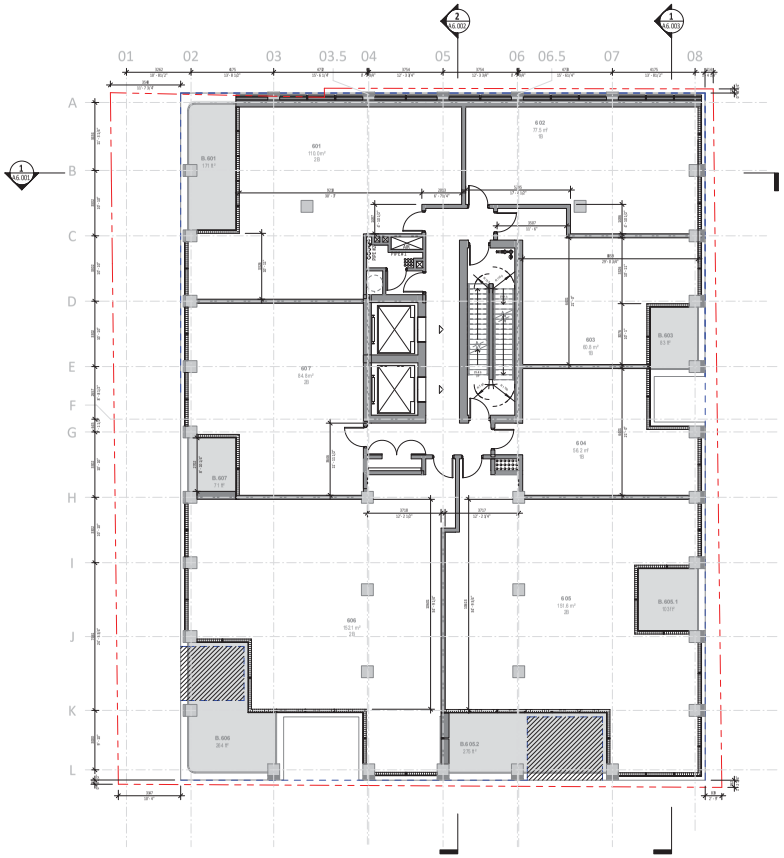
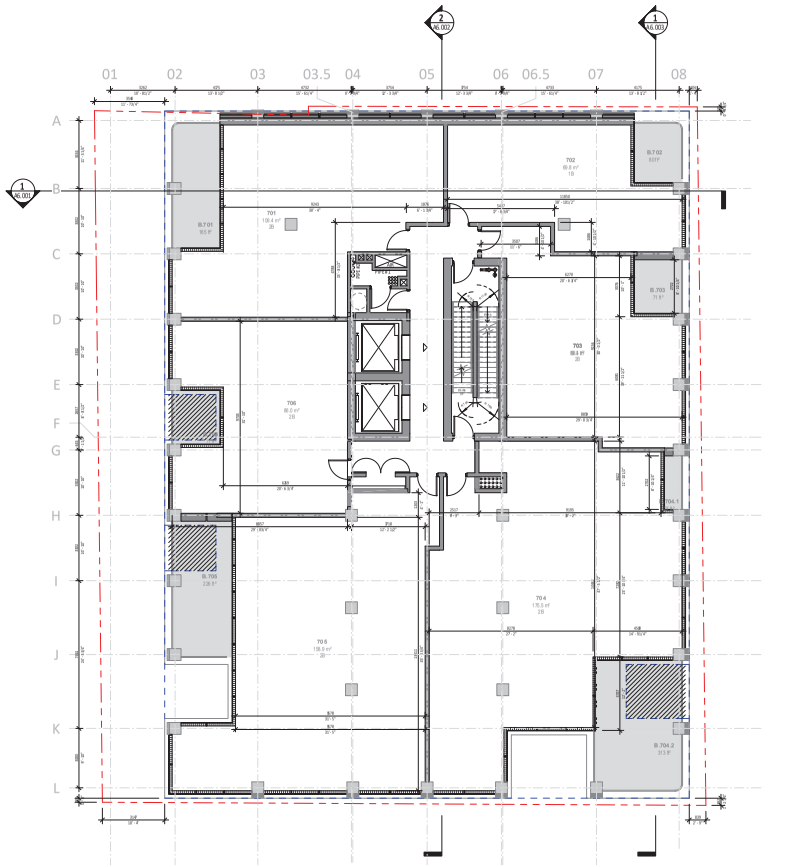
LEVEL 5 AND LEVEL 6

A2.005



1 LEVEL 7



2 LEVEL 8

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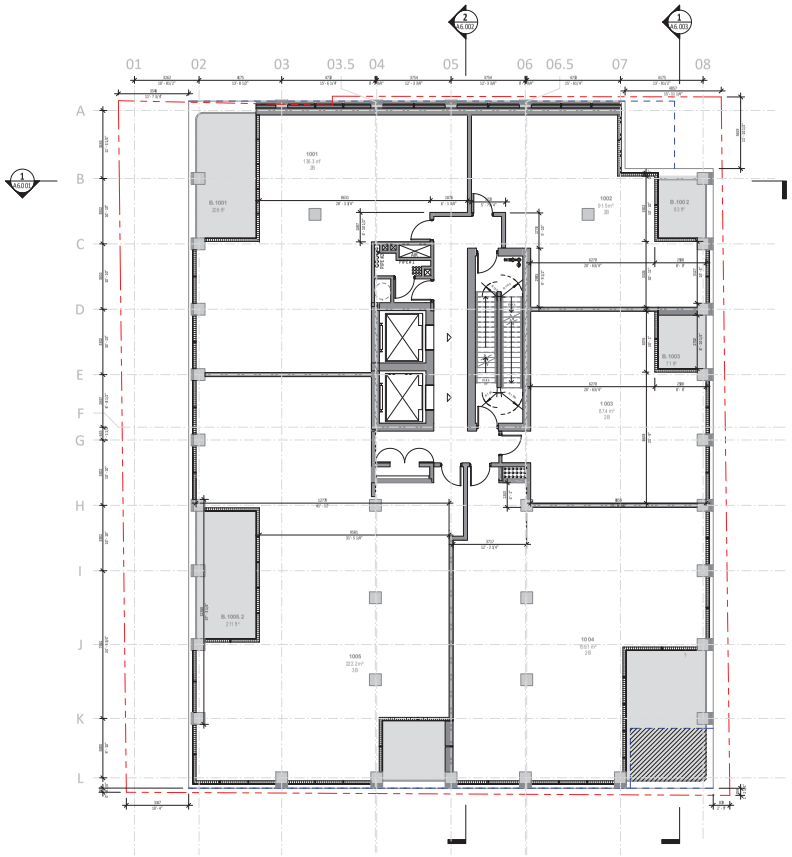
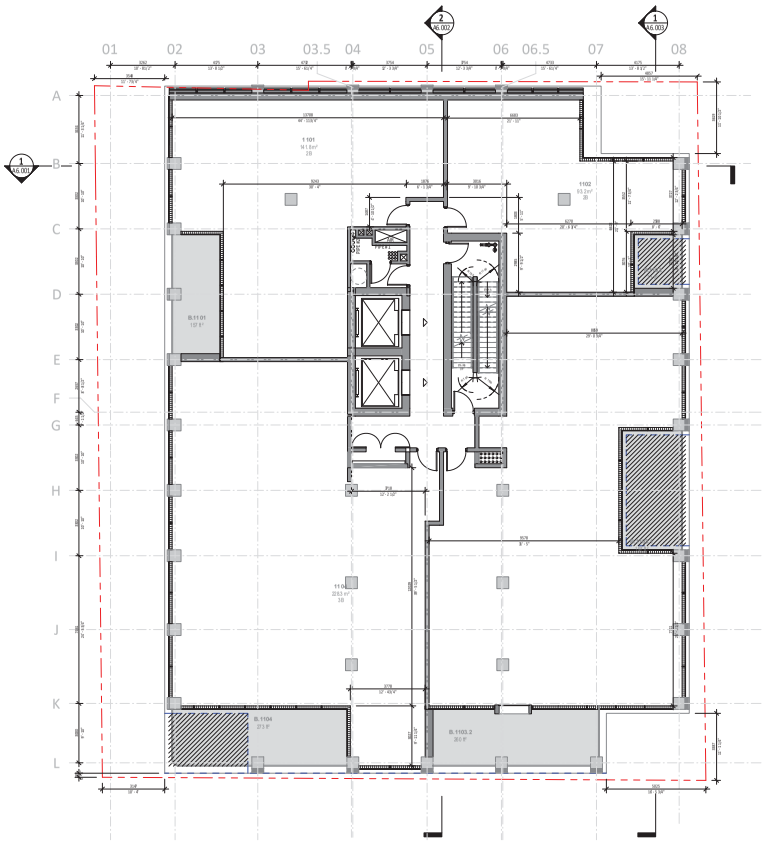
LEVEL 7 AND LEVEL 8

A2.006



1 LEVEL 11



2 LEVEL 12

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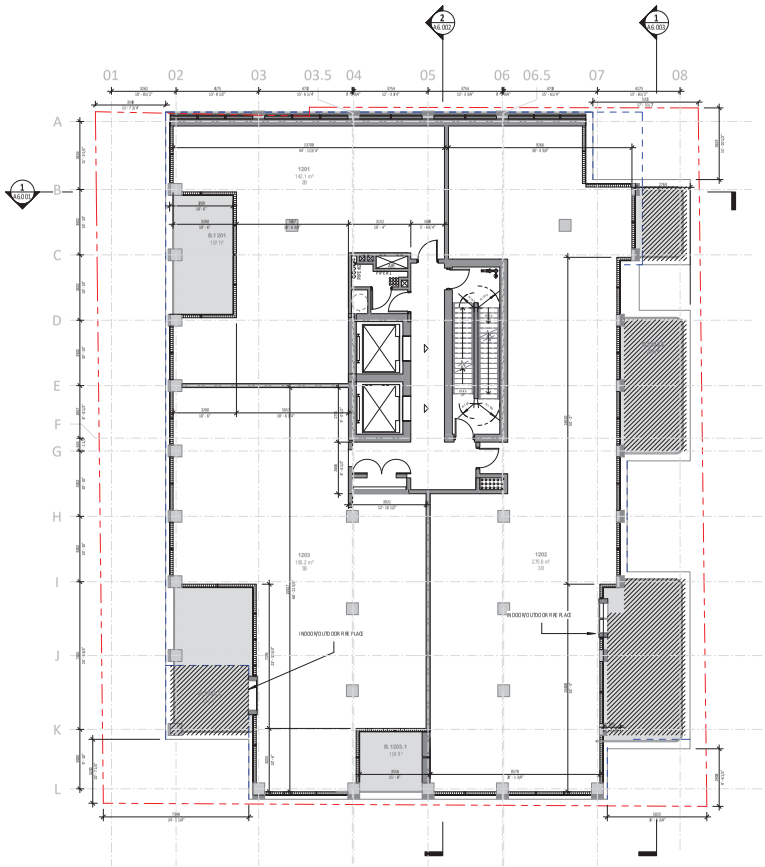
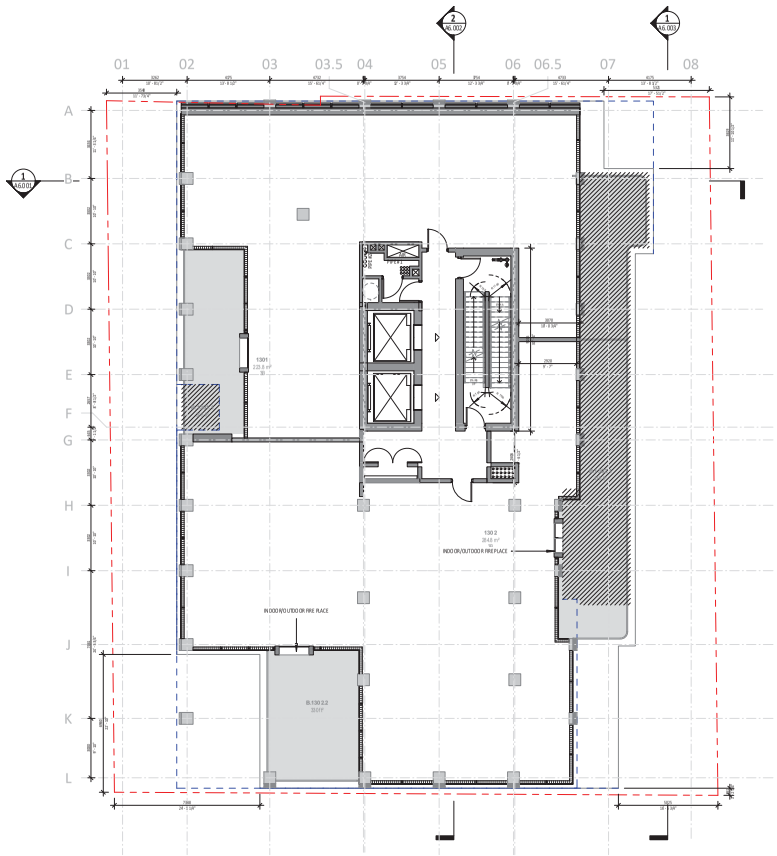
LEVEL 11 AND LEVEL 12

A2.008



1 LEVEL 13



2 LEVEL 14

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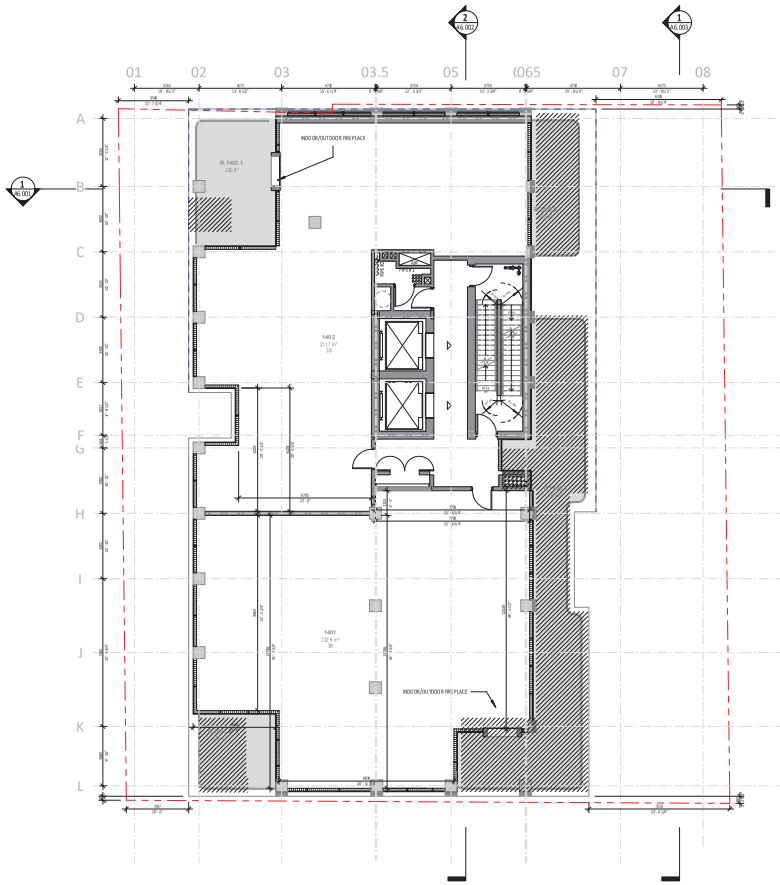
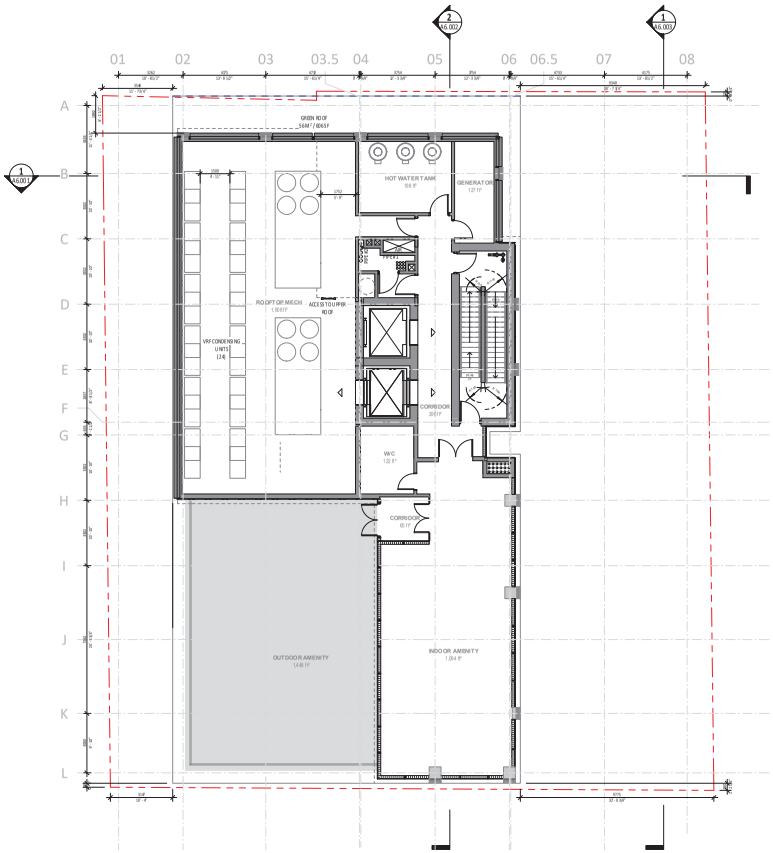
LEVEL 13 AND LEVEL 14

A2.009



1 LEVEL 15



2 M.P.H.

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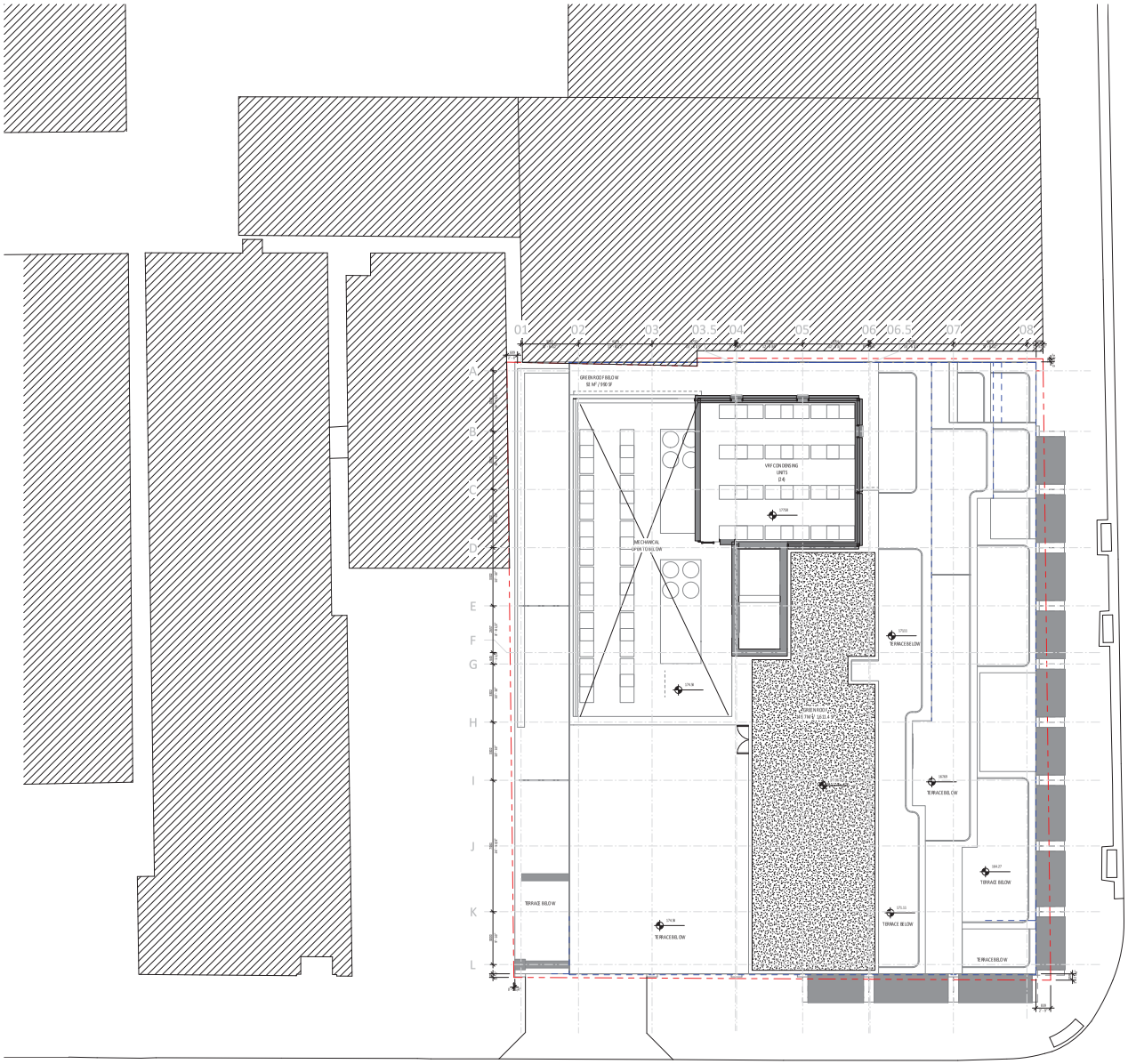
LEVEL 15 AND LEVEL 16 / M.P.H.

A2.010



1 SITE / ROOF PLAN

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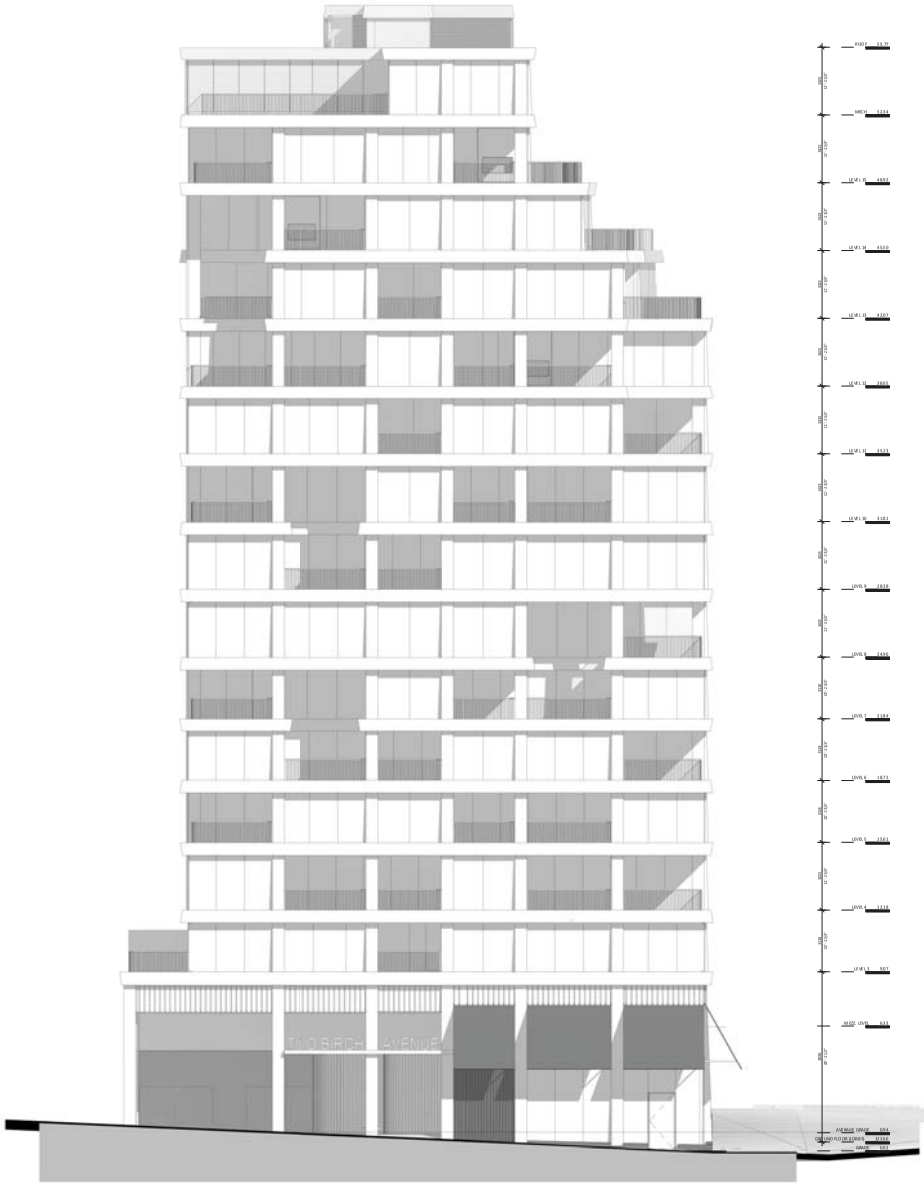
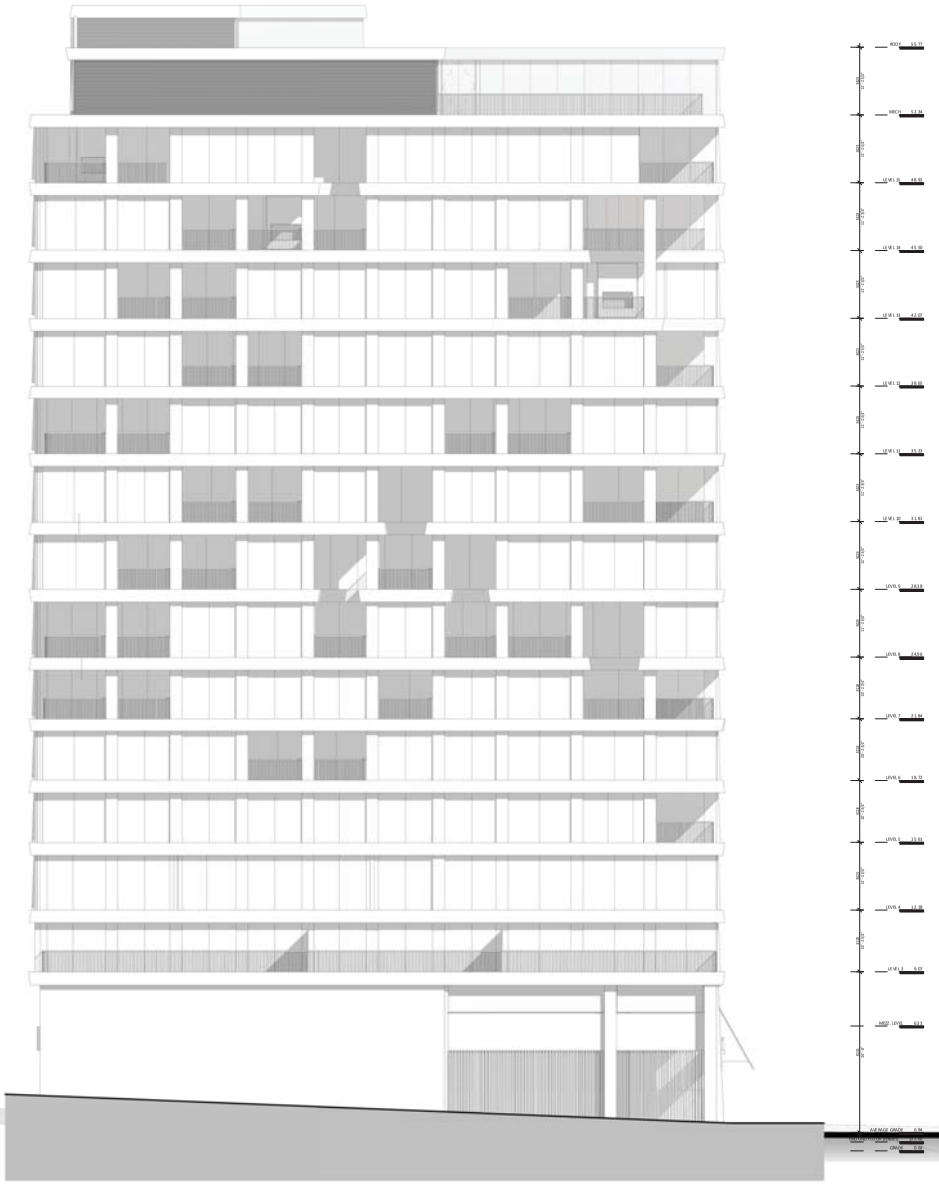
ROOF PLAN

A2.011



1 SOUTH ELEVATION



2 WEST ELEVATION

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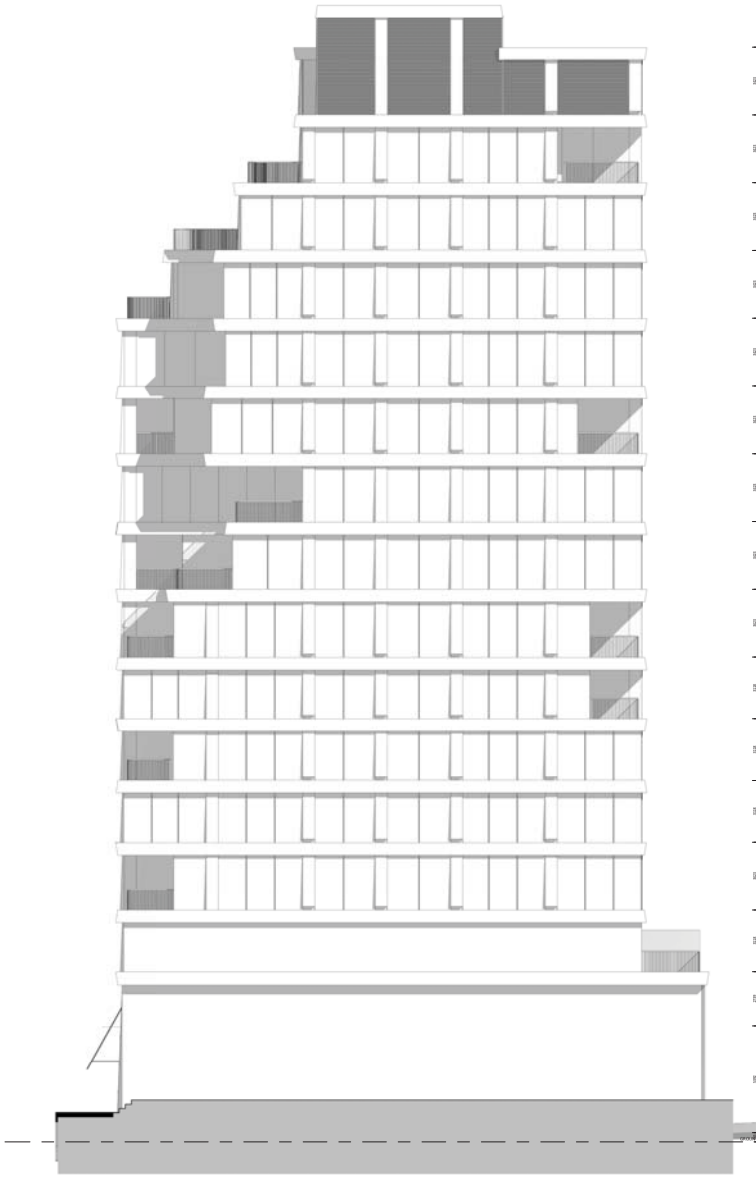
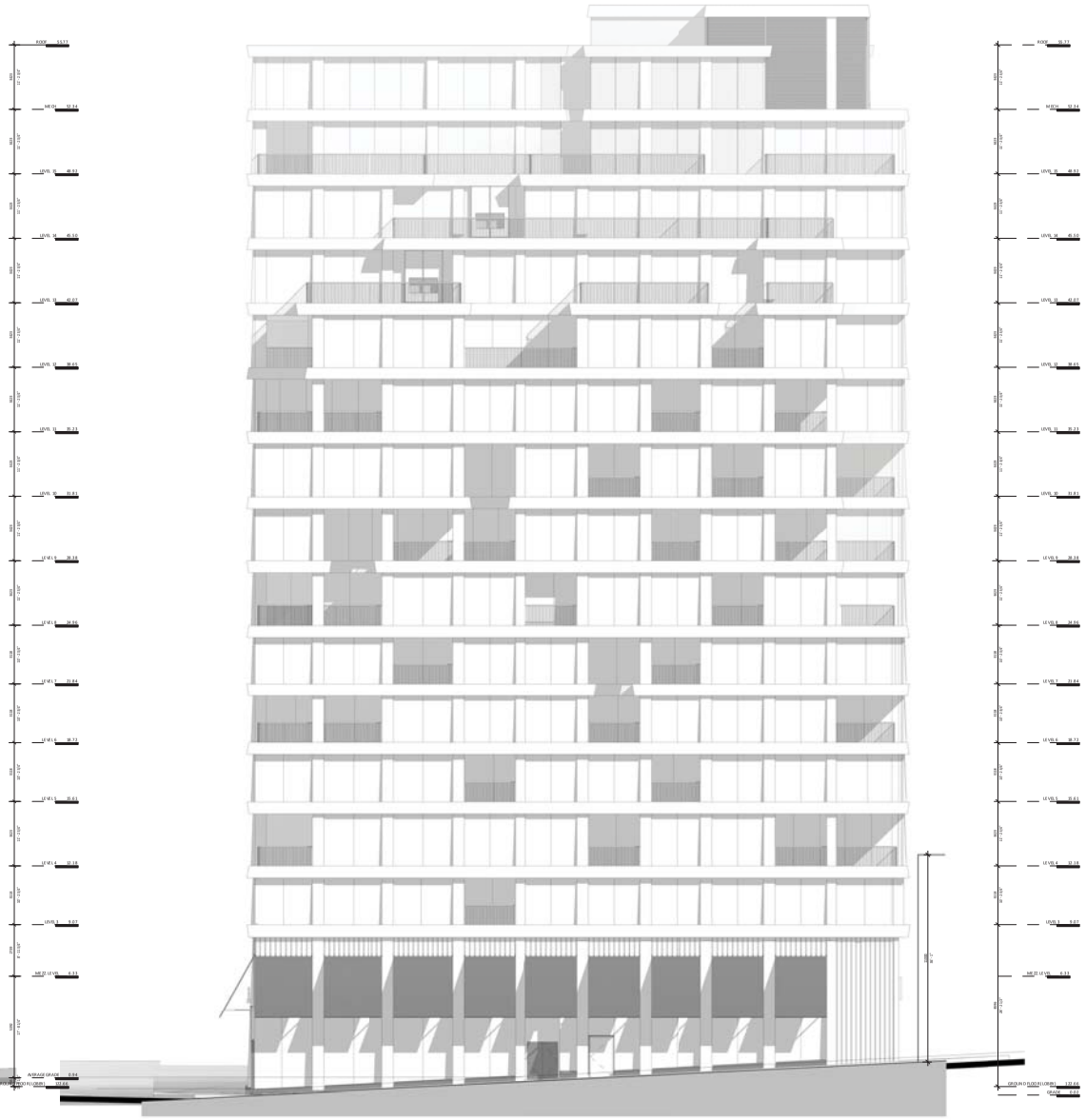
SOUTH & WEST ELEVATIONS

A5.001



1 NORTH ELEVATION



2 EAST ELEVATION

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NORTH & EAST ELEVATIONS

A5.002

1 SECTION - EW FACING SOUTH

GENERAL NOTES:

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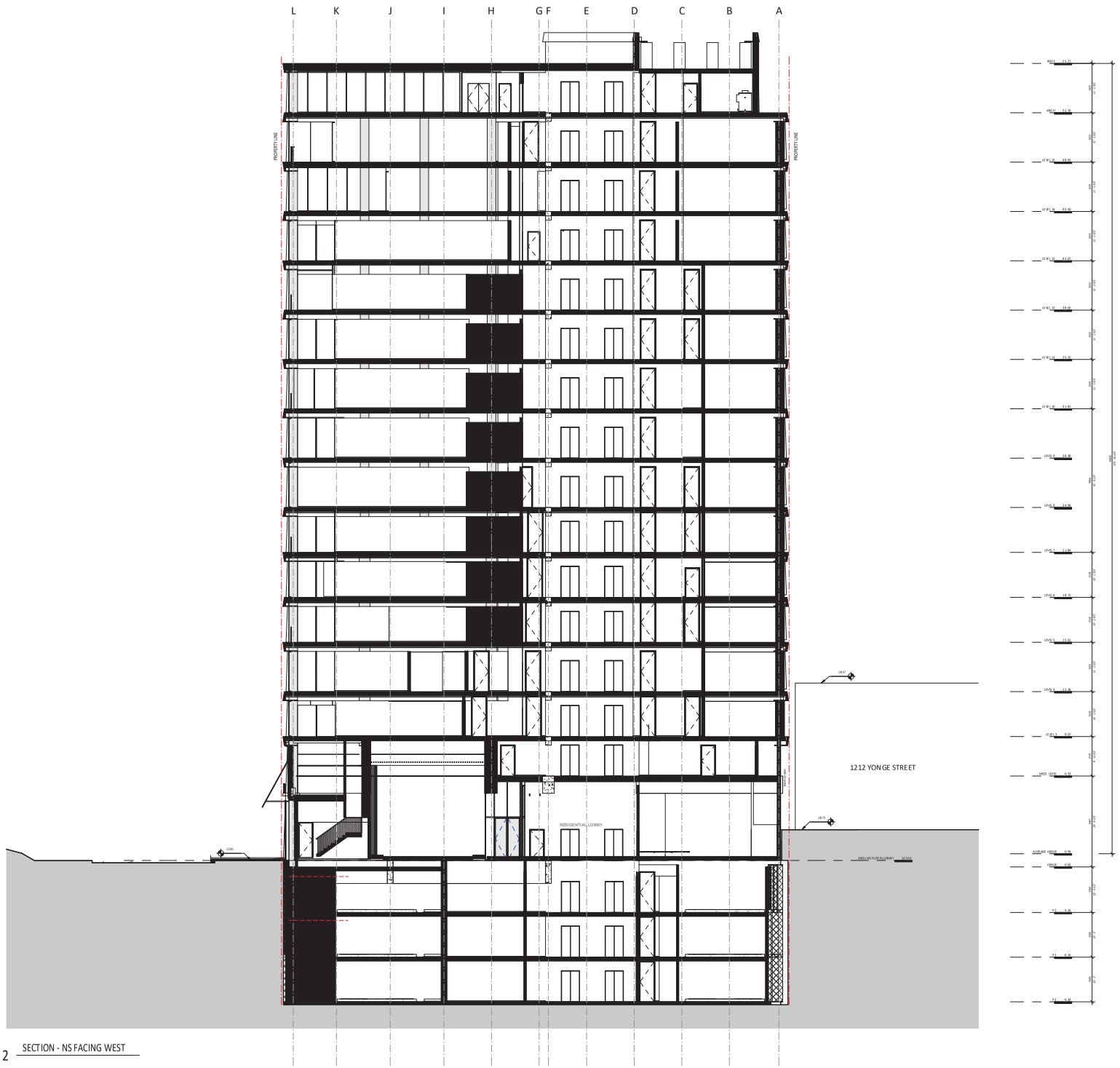
BUILDING SECTIONS

A6.001



2 SECTION - NS FACING WEST

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KPMB
KPMB Architects
3 22 King St W, 3rd Fl
Toronto, ON, Canada M5V 1J2
4 169 775 104

Woodcliffe

1196-1210 YONGE ST.

DRAFT

Project North | True North

SCALE 1 : 100
PROJECT NO. 1714
ISSUE DATE 29.01.21

BUILDING SECTIONS

A6.002

APPENDIX B
ROAD AND RAIL TRAFFIC DATA

City of Toronto - Traffic Safety Unit

Turning Movement Count Summary Report

ALCORN AVE AT SHAFTESBURY AVE & YONGE ST (PX 45)

Survey Date: 2014-May-06 (Tuesday)

Survey Type: Routine Hours

Time Period	Vehicle Type	NORTHBOUND Exits	Left	Thru	Right	Total	EASTBOUND Exits	Left	Thru	Right	Total	SOUTHBOUND Exits	Left	Thru	Right	Total	WESTBOUND Exits	Left	Thru	Right	Total		Peds	Bike	Other
07:45-08:45	CAR	756	25	717	44	786	64	17	0	21	38	1,162	20	1,106	12	1,138	37	35	0	22	57	N	278	67	0
	TRK	17	0	16	0	16	0	1	0	0	1	21	0	20	0	20	0	1	0	0	1	S	201	25	0
AM PEAK	BUS	6	0	5	0	5	0	1	0	1	2	3	0	1	0	1	3	1	3	0	4	E	202	10	0
																						W	180	0	0
	TOTAL:	**779**	**25**	**738**	**44**	**807**	**64**	**19**	**0**	**22**	**41**	**1,186**	**20**	**1,127**	**12**	**1,159**	**40**	**37**	**3**	**22**	**62**				
17:00-18:00	CAR	1,170	22	1,111	39	1,172	61	23	0	22	45	813	22	743	15	780	38	48	1	36	85	N	270	47	0
	TRK	16	0	14	0	14	0	1	0	0	1	7	0	6	0	6	0	1	0	1	2	S	164	70	0
PM PEAK	BUS	6	0	2	0	2	0	4	0	2	6	3	0	1	0	1	1	0	1	0	1	E	446	3	0
																						W	247	1	0
	TOTAL:	**1,192**	**22**	**1,127**	**39**	**1,188**	**61**	**28**	**0**	**24**	**52**	**823**	**22**	**750**	**15**	**787**	**39**	**49**	**2**	**37**	**88**				
OFF HR AVG	CAR	738	17	693	31	741	46	17	0	18	35	702	15	655	18	688	35	29	0	28	57	N	132	26	0
	TRK	31	0	29	1	30	2	1	0	1	2	31	1	29	1	31	1	1	0	1	2	S	80	24	0
	BUS	0	0	0	0	0	0	0	0	1	1	2	0	1	0	1	1	0	1	0	1	E	204	3	0
																						W	228	0	0
	TOTAL:	**769**	**17**	**722**	**32**	**771**	**48**	**18**	**0**	**20**	**38**	**735**	**16**	**685**	**19**	**720**	**37**	**30**	**1**	**29**	**60**				
07:30-09:30	CAR	1,395	39	1,320	77	1,436	126	34	1	36	71	2,200	48	2,093	31	2,172	70	71	0	41	112	N	496	116	0
	TRK	44	0	43	0	43	0	1	0	0	1	45	0	43	2	45	2	2	0	0	2	S	358	60	0
2 HR AM	BUS	9	0	6	0	6	0	3	0	1	4	7	0	5	0	5	6	1	6	0	7	E	359	16	0
																						W	345	1	0
	TOTAL:	**1,448**	**39**	**1,369**	**77**	**1,485**	**126**	**38**	**1**	**37**	**76**	**2,252**	**48**	**2,141**	**33**	**2,222**	**78**	**74**	**6**	**41**	**121**				
16:00-18:00	CAR	2,266	37	2,161	76	2,274	110	39	2	41	82	1,592	32	1,469	31	1,532	71	82	3	66	151	N	465	86	0
	TRK	39	0	32	0	32	1	4	1	1	6	18	0	15	3	18	3	2	0	3	5	S	327	122	0
2 HR PM	BUS	10	0	5	0	5	0	5	0	2	7	5	0	3	0	3	2	0	2	0	2	E	816	6	0
																						W	461	1	0
	TOTAL:	**2,315**	**37**	**2,198**	**76**	**2,311**	**111**	**48**	**3**	**44**	**95**	**1,615**	**32**	**1,487**	**34**	**1,553**	**76**	**84**	**5**	**69**	**158**				
07:30-18:00	CAR	6,611	142	6,251	275	6,668	419	140	4	147	291	6,597	140	6,181	132	6,453	278	269	4	220	493	N	1,490	306	0
	TRK	206	0	189	4	193	7	10	1	4	15	184	2	172	10	184	11	8	1	7	16	S	1,003	278	0
8 HR SUM	BUS	20	0	11	0	11	0	9	0	7	16	19	0	11	0	11	11	1	11	0	12	E	1,989	34	0
																						W	1,717	2	0
	TOTAL:	**6,837**	**142**	**6,451**	**279**	**6,872**	**426**	**159**	**5**	**158**	**322**	**6,800**	**142**	**6,364**	**142**	**6,648**	**300**	**278**	**16**	**227**	**521**				

Total 8 Hour Vehicle Volume: 14,363

Total 8 Hour Bicycle Volume: 620

Total 8 Hour Intersection Volume: 14,983

Comment:

Printed On: 29 Jul, 2020 10:20:28AM

800 - 1290 Central Parkway West
Mississauga, Ontario
Canada L5C 4R3

T 905 803 3429
E josie_tomei@cpr.ca

December 6, 2019

Via email: anthony@valcoustics.com

Anthony Amarra
Valcoustics
30 Wertheim Court
Unit 25
Richmond Hill, ON L4B 1B9

Dear Sir/Madam:

Re: Rail Traffic Volumes, CP Mileage 2.2, North Toronto Subdivision, Yonge Street at CP Rail, Toronto

This is in reference to your request for rail traffic data in the vicinity of Yonge Street at CP Rail in the City of Toronto. The study area is located at mile 2.2 of our North Toronto Subdivision, which is classified as a Principal Main line.

The information requested is as follows:

1. Number of freight trains between 0700 & 2300: 15
   Number of freight trains between 2300 & 0700: 8
2. Maximum cars per train freight: 176
3. Number of locomotives per train: 2 to 4 (maximum)
4. Maximum permissible train speed: 50 mph
5. There are no public grade crossings through the study area, however, the whistle may be sounded if deemed necessary by the train crew for safety reasons at any time.
6. There are 2 mainline tracks at this location, both with continuously welded rail.

The information provided is based on recent rail traffic. Variations of the above may exist on a day-to-day basis. Specific measurements may also vary significantly depending on customer needs.

Yours truly,

Josie Tomei SR/WA
Specialist Real Estate Sales & Acquisitions – Ontario

APPENDIX C

ENVIRONMENTAL NOISE GUIDELINES

APPENDIX C

ENVIRONMENTAL NOISE GUIDELINES

MINISTRY OF THE ENVIRONMENT, CONSERVATION AND PARKS (MECP)

Reference: MECP Publication NPC-300, October 2013: "Environmental Noise Guideline, Stationary and Transportation Source - Approval and Planning".

SPACE	SOURCE	TIME PERIOD	CRITERION
Living/dining, den areas of residences, hospitals, nursing homes, schools, daycare centres, etc.	Road Rail Aircraft	07:00 to 23:00 07:00 to 23:00 24-hour period	45 dBA 40 dBA NEF/NEP 5
Living/dining, den areas of residences, hospitals, nursing homes, etc. (except schools or daycare centres)	Road Rail Aircraft	23:00 to 07:00 23:00 to 07:00 24-hour period	45 dBA 40 dBA NEF/NEP 5
Sleeping quarters	Road Rail Aircraft	07:00 to 23:00 07:00 to 23:00 24-hour period	45 dBA 40 dBA NEF/NEP 0
Sleeping quarters	Road Rail Aircraft	23:00 to 07:00 23:00 to 07:00 24-hour period	40 dBA 35 dBA NEF/NEP 0
Outdoor Living Areas	Road and Rail	07:00 to 23:00	55 dBA up to 60 dBA allowed in some cases
Outdoor Point of Reception	Aircraft Stationary Source Class 1 Area Class 2 Area Class 3 Area Class 4 Area	24-hour period 07:00 to 19:00(1) 19:00 to 23:00(1) 07:00 to 19:00(2) 19:00 to 23:00(2) 07:00 to 19:00(3) 19:00 to 23:00(3) 07:00 to 19:00(4) 19:00 to 23:00(4)	NEF/NEP 30# 50* dBA 50* dBA 50* dBA 45* dBA 45* dBA 40* dBA 55* dBA 55* dBA

...../cont'd

SPACE	SOURCE	TIME PERIOD	CRITERION
Plane of a Window of Noise Sensitive Spaces	Stationary Source		
	Class 1 Area	07:00 to 19:00(1)	50* dBA
		19:00 to 23:00(1)	50* dBA
		23:00 to 07:00(1)	45* dBA
	Class 2 Area	07:00 to 19:00(2)	50* dBA
		19:00 to 23:00(2)	50* dBA
		23:00 to 07:00(2)	45* dBA
	Class 3 Area	07:00 to 19:00(3)	45* dBA
		19:00 to 23:00(3)	45* dBA
		23:00 to 07:00(3)	40* dBA
	Class 4 Area	07:00 to 19:00(4)	60* dBA
		19:00 to 23:00(4)	60* dBA
		23:00 to 07:00(4)	55* dBA

Notes:

(1) may not apply to in-fill or re-development.
or the minimum hourly background sound level $L_{eq}(1)$, due to road traffic, if higher.
(2) Class 1 Area : Urban
(3) Class 2 Area : Urban during day; rural-like evening and night
(4) Class 3 Area : Rural
(5) Class 4 Area: Subject to land use planning authority's approval

.

APPENDIX D

SAMPLE CALCULATIONS

TRANSPORTATION NOISE SOURCES

```
STAMSON 5.04        NORMAL REPORT        Date: 17-05-2021 18:00:08
MINISTRY OF ENVIRONMENT, CONSERVATION AND PARKS / NOISE ASSESSMENT

Filename: se_sf.te             Time Period: Day/Night 16/8 hours
Description: Sample Calculation - SE Corner, S Facade


Rail data, segment # 1: CPR Toronto (day/night)
-----------------------------------------------
Train            ! Trains      ! Speed !# loc !# Cars! Eng  !Cont
Type             !             !(km/h) !/Train!/Train! type !weld
-----------------+-------------+-------+------+------+------+----
* 1. CPR Toronto !  20.2/10.8  !  80.0 !  4.0 !176.0 !Diesel! Yes

* The identified number of trains have been adjusted for
  future growth using the following parameters:

Train type:         ! Unadj. ! Annual % ! Years of !
 No  Name           ! Trains ! Increase !  Growth  !
--------------------+--------+----------+----------+
  1. CPR Toronto    !  15.0/8.0   !    2.50  !   12.00  !

Data for Segment # 1: CPR Toronto (day/night)
---------------------------------------------
Angle1   Angle2           : -73.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  50.80 / 50.80  m
Receiver height           :  50.20 / 50.20  m
Topography                :      1       (Flat/gentle slope; no barrier)
No Whistle
Reference angle           :   0.00


Results segment # 1: CPR Toronto (day)
--------------------------------------

LOCOMOTIVE (0.00 + 71.60 + 0.00) = 71.60 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -73     90   0.00  77.33  -5.30  -0.43   0.00   0.00   0.00  71.60
-------------------------------------------------------------------------

WHEEL (0.00 + 64.62 + 0.00) = 64.62 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -73     90   0.00  70.35  -5.30  -0.43   0.00   0.00   0.00  64.62
-------------------------------------------------------------------------

Segment Leq : 72.39 dBA

Total Leq All Segments: 72.39 dBA
```

```
Results segment # 1: CPR Toronto (night)
----------------------------------------

LOCOMOTIVE (0.00 + 71.89 + 0.00) = 71.89 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -73     90   0.00  77.62  -5.30  -0.43   0.00   0.00   0.00  71.89
-------------------------------------------------------------------------

WHEEL (0.00 + 64.91 + 0.00) = 64.91 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -73     90   0.00  70.64  -5.30  -0.43   0.00   0.00   0.00  64.91
-------------------------------------------------------------------------

Segment Leq : 72.68 dBA

Total Leq All Segments: 72.68 dBA

Road data, segment # 1: Yonge Street (day/night)
------------------------------------------------
Car traffic volume  : 36768/4085  veh/TimePeriod  *
Medium truck volume :   493/55    veh/TimePeriod  *
Heavy truck volume  :   644/72    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):  30078
    Percentage of Annual Growth        :   2.00
    Number of Years of Growth          :  17.00
    Medium Truck % of Total Volume     :   1.30
    Heavy Truck  % of Total Volume     :   1.70
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 1: Yonge 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  :  12.50 / 12.50  m
Receiver height           :  50.20 / 50.20  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

```
Results segment # 1: Yonge Street (day)
---------------------------------------

Source height = 1.14 m

ROAD (0.00 + 67.10 + 0.00) = 67.10 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     90   0.00  69.32   0.00   0.79  -3.01   0.00   0.00   0.00  67.10
-------------------------------------------------------------------------------

Segment Leq : 67.10 dBA

Total Leq All Segments: 67.10 dBA

Results segment # 1: Yonge Street (night)
-----------------------------------------

Source height = 1.14 m

ROAD (0.00 + 60.58 + 0.00) = 60.58 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     90   0.00  62.80   0.00   0.79  -3.01   0.00   0.00   0.00  60.58
-------------------------------------------------------------------------------

Segment Leq : 60.58 dBA

Total Leq All Segments: 60.58 dBA


TOTAL Leq FROM ALL SOURCES (DAY): 73.52
                           (NIGHT): 72.94
```

APPENDIX E

SAMPLE CALCULATIONS

STATIONARY NOISE SOURCES

Receiver Table

Name	M.	ID	Level Lr			Limit. Value			Land Use			Height		Coordinates		
			Day	Eve	Night	Day	Eve	Night	Type	Auto	Noise Type			X	Y	Z
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)				(m)		(m)	(m)	(m)
POW_01		L9_all	46.5	46.5	43.5	0.0	0.0	0.0		x	Total	33.00	r	17629636.88	4837783.99	33.00
POW_02		L3_all	45.7	45.7	42.7	0.0	0.0	0.0		x	Total	14.00	r	17629611.58	4837779.16	14.00
POW_03		L6_all	38.5	38.5	35.5	0.0	0.0	0.0		x	Total	23.00	r	17629614.54	4837773.24	23.00
POW_04		L9_all	36.6	36.6	33.6	0.0	0.0	0.0		x	Total	33.00	r	17629616.61	4837762.56	33.00
OPOR_01		L15_all	25.0	25.0	22.0	0.0	0.0	0.0		x	Total	1.50	g	17629620.46	4837755.79	53.67

Point Sources

Name	M.	ID	Result. PWL			Lw / Li			Correction			Sound Reduction		Attenuation	Operating Time			K0	Freq.	Direct.	Height		Coordinates		
			Day	Evening	Night	Type	Value	norm.	Day	Evening	Night	R	Area		Day	Special	Night						X	Y	Z
			(dBA)	(dBA)	(dBA)			dB(A)	dB(A)	dB(A)	dB(A)		(m²)		(min)	(min)	(min)	(dB)	(Hz)		(m)		(m)	(m)	(m)
		Yonge1220_RTU02	79.2	79.2	79.2	Lw	RTU02		0.0	0.0	0.0				60.00	60.00	30.00	0.0		(none)	2.00	g	17629613.98	4837801.12	14.00
	~	Birch14_RTU01	79.2	79.2	79.2	Lw	RTU02		0.0	0.0	0.0				60.00	60.00	30.00	0.0		(none)	1.50	g	17629584.27	4837773.83	10.50
	~	Birch14_RTU02	76.9	76.9	76.9	Lw	RTU_4T		0.0	0.0	0.0				60.00	60.00	30.00	0.0		(none)	1.50	g	17629587.94	4837754.49	10.50
		Yonge1220_RTU03	73.0	73.0	73.0	Lw	RTU03		0.0	0.0	0.0				60.00	60.00	30.00	0.0		(none)	0.70	g	17629621.94	4837800.03	12.70
		Yonge1220_RTU01	84.3	84.3	84.3	Lw	RTU01		0.0	0.0	0.0				60.00	60.00	30.00	0.0		(none)	1.50	g	17629609.89	4837799.11	13.50
	~	Yonge1212_RTU01	80.1	80.1	80.1	Lw	AC_1212Y		0.0	0.0	0.0				60.00	60.00	30.00	0.0		(none)	1.50	g	17629615.16	4837795.96	10.50
	~	Yonge1212_RTU02	80.1	80.1	80.1	Lw	AC_1212Y		0.0	0.0	0.0				60.00	60.00	30.00	0.0		(none)	1.50	g	17629617.00	4837796.25	10.50
	~	Yonge1212_RTU03	80.1	80.1	80.1	Lw	AC_1212Y		0.0	0.0	0.0				60.00	60.00	30.00	0.0		(none)	1.50	g	17629617.59	4837794.79	10.50
	~	Yonge1212_RTU04	79.2	79.2	79.2	Lw	RTU02		0.0	0.0	0.0				60.00	60.00	30.00	0.0		(none)	1.50	g	17629600.20	4837790.85	4.50
	~	Yonge1212_RTU05	73.0	73.0	73.0	Lw	RTU03		0.0	0.0	0.0				60.00	60.00	30.00	0.0		(none)	1.50	g	17629598.33	4837791.01	4.50
	~	Birch10_RTU01	76.9	76.9	76.9	Lw	RTU_4T		0.0	0.0	0.0				60.00	60.00	30.00	0.0		(none)	1.50	g	17629601.49	4837777.47	4.50

Sound Level Library

Name	ID	Type	Oktave Spectrum (dB)												Source
			Weight.	31.5	63	125	250	500	1000	2000	4000	8000	A	lin	
York RTU	RTU01	Lw		78.0	86.4	85.1	87.0	83.1	77.7	72.6	69.7	66.2	84.3	92.1	2020-08-13 VCL measurements
Lennox RTU	RTU02	Lw		75.7	83.6	79.1	78.5	77.6	74.7	68.3	64.4	59.6	79.2	87.1	2020-08-13 VCL measurements
RTU	RTU03	Lw		73.8	75.0	82.4	72.4	68.4	67.4	63.9	58.8	52.7	73.0	84.2	2020-08-13 VCL measurements
AC on 1212 Yonge St	AC_1212Y	Lw		77.4	85.3	79.2	77.3	77.7	75.9	71.7	66.8	57.9	80.1	88.1	2020-08-13 VCL measurement
Carrier 5 ton - 48hj - 006	RTU_4T	Lw		0.0	59.1	68.9	68.7	71.9	74.0	68.9	65.7	59.0	76.9	78.4	Product Data

Receiver
Name: POW_01
ID: L9_all
X: 17629636.88 m
Y: 4837783.99 m
Z: 33.00 m

Point Source, ISO 9613, Name: "", ID: "Yonge1220_RTU01"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
1	17629609.89	4837799.11	13.50	0	D	A	84.3	0.0	0.0	0.0	0.0	42.3	0.2	-3.0	0.0	0.0	0.0	0.0	0.0	44.9
1	17629609.89	4837799.11	13.50	0	N	A	84.3	0.0	-3.0	0.0	0.0	42.3	0.2	-3.0	0.0	0.0	0.0	0.0	0.0	41.9
1	17629609.89	4837799.11	13.50	0	E	A	84.3	0.0	0.0	0.0	0.0	42.3	0.2	-3.0	0.0	0.0	0.0	0.0	0.0	44.9

Point Source, ISO 9613, Name: "", ID: "Yonge1220_RTU02"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
4	17629613.98	4837801.12	14.00	0	D	A	79.2	0.0	0.0	0.0	0.0	41.7	0.2	-3.0	0.0	0.0	0.0	0.0	0.0	40.3
4	17629613.98	4837801.12	14.00	0	N	A	79.2	0.0	-3.0	0.0	0.0	41.7	0.2	-3.0	0.0	0.0	0.0	0.0	0.0	37.3
4	17629613.98	4837801.12	14.00	0	E	A	79.2	0.0	0.0	0.0	0.0	41.7	0.2	-3.0	0.0	0.0	0.0	0.0	0.0	40.3

Point Source, ISO 9613, Name: "", ID: "Yonge1220_RTU03"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
14	17629621.94	4837800.03	12.70	0	D	A	73.0	0.0	0.0	0.0	0.0	40.5	0.2	-3.0	0.0	0.0	0.0	0.0	0.0	35.3
14	17629621.94	4837800.03	12.70	0	N	A	73.0	0.0	-3.0	0.0	0.0	40.5	0.2	-3.0	0.0	0.0	0.0	0.0	0.0	32.3
14	17629621.94	4837800.03	12.70	0	E	A	73.0	0.0	0.0	0.0	0.0	40.5	0.2	-3.0	0.0	0.0	0.0	0.0	0.0	35.3