



DILLON
CONSULTING

DISTRIKT DEVELOPMENTS

Air Quality Land Use Compatibility Assessment

217-227 Cross Avenue and 571-587 Argus Road
Oakville, Ontario

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1.0 Introduction

1.1 Purpose and Objectives

Dillon Consulting Limited (Dillon) was retained by Distrikt Developments to complete an Air Quality Land Use Compatibility Assessment (the Assessment) for a proposed residential development (Proposed Development) located at 217-227 Cross Avenue and 571-587 Argus Road in Oakville, Ontario. The Assessment has been completed in support of an Official Plan Amendment, Zoning By-law Amendment, and Site Plan Approval for the Proposed Development.

The purpose of the Assessment is to assess the potential for nuisance impacts resulting from air quality (including odour and dust) emissions from surrounding land uses as well as from the nearby 400-series highway on the Proposed Development.

The Assessment was conducted in consideration of the following documents:

- Halton Region's Land Use Compatibility Guidelines;
- The Provincial Policy Statement (PPS), 2020;
- The Ontario Environmental Protection Act (EPA);
- The Ministry of Environment, Conservation and Parks' (MECP's) D-Series of Guidelines for land use compatibility between industrial and sensitive land uses;
- The MECP's local air quality regulation, Ontario Regulation 419/05.; and
- The MTO's Environmental Guide for Assessing and Mitigating the Air Quality Impacts and Greenhouse Gas Emissions of Provincial Transportation Projects (the MTO Guide).

2.0

Description of the Site and Surrounding Area

The proposed development is located at 217-227 Cross Avenue and 571-587 Argus Road in Oakville, Ontario. The subject lands are currently occupied by the following land uses:

- Two 1-storey restaurants;
- A 3-storey medical centre; and
- A 1-storey medical centre.

The development is proposed to consist of three residential towers with commercial and office spaces as follows:

- Building A – 37 storeys with 1 storey of commercial space, 2 storeys with indoor amenity spaces, and 35 storeys of residential units;
- Building B – 49 storeys with 1 storey of commercial space, 1 storey of indoor amenity space, and 47 storeys of residential units; and
- Building C – 65 storeys with 1 storey of commercial space, 1 storey of office space, 2 storeys with indoor amenity spaces, and 62 storeys of residential units.

Surrounding the proposed development are the following existing land uses:

- North – Hotel and Commercial;
- East – Commercial;
- South – Oakville GO Station; and
- West – Commercial.

The subject site and surrounding area are shown in Figure 1. The site plan is provided in Appendix A.

2.1

Zoning

At the time of this assessment, the subject lands are zoned Midtown Transitional Commercial (MTC) as per the Town of Oakville's Zoning By-Law 2014-014.

Immediately adjacent to the subject lands in all directions are lands also zoned Midtown Transitional Commercial (MTC). Beyond the adjacent lands, the following zoned lands are located with respect to the proposed development:

- Midtown Transitional Employment (MTE) – Located adjacent northeast of the proposed development;
- Urban Centre (MU3) – Located 200 m southeast of the proposed development;

- Residential High (RH), Future Development (FD), and Natural Area (N) – Located 360 m south and southwest of the proposed development;
- Residential Medium (RM4) and Residential Low (RL2) – Located 250 m northwest of the proposed development; and
- Commercial (C3) and Utility (U) – Located 270 m north of the proposed development.

The zones listed are identified in the zoning map - obtained from the Town of Oakville's online interactive zoning map - provided in Appendix B.

3.0

Summary of Relevant Land Use Policies, Regulations, and Guidelines

The following documents and guidelines, described in detail in this section, were considered in the Land Use Compatibility Assessment:

- Halton Region's Land Use Compatibility Guidelines;
- Halton Region's Air Quality Guidelines;
- The Provincial Policy Statement (PPS), 2020;
- The Ontario Environmental Protection Act (EPA);
- The Ministry of Environment, Conservation and Parks' (MECP's) D-Series of Guidelines for land use compatibility between industrial and sensitive land uses;
- The MECP's local air quality regulation, Ontario Regulation 419/05; and
- The MTO's Environmental Guide for Assessing and Mitigating the Air Quality Impacts and Greenhouse Gas Emissions of Provincial Transportation Projects (the MTO Guide).

3.1

Halton Region's Land Use Compatibility Guidelines

The Halton Region's Land Use Compatibility Guidelines provide a framework for the assessment of land use compatibility within the Region. With respect to this study, the application of the Halton Region's Land Use Compatibility Guidelines follows the framework provided in the MECP's D-Series Guidelines (described in Section 3.4).

The Halton Region's Land Use Compatibility Guidelines applies to industrial and sensitive land uses that are in proximity to each other, and is used to inform Official Plan and Zoning By-law amendments. The goal of the guidelines is to minimize adverse effects of industrial, transportation, and utility on sensitive uses. Section 3.2 of guidelines provides the following steps for determining land use compatibility between a proposed sensitive land use and existing industrial uses:

1. Determine the nature of the proposed development;
2. If proposed development is a sensitive land use, identify potential land use compatibility conflicts;
3. If the proposed development is within the potential influence area of an existing industry, carry out studies to determine actual area of influence; and
4. If the proposed development falls within actual area of influence of existing industry, assess potential approaches to mitigation.

The Land Use Compatibility Guidelines have been applied to assess the potential for and minimize adverse effects between industrial/commercial lands that are in proximity to the residential land uses of the proposed development.

3.2 Halton Region's Air Quality Guidelines

The Halton Region's Air Quality Guidelines require that any sensitive uses within 30 m of an arterial road or 150 m of a Provincial highway require an assessment of transportation-related air quality. As the proposed development is within 150 m of a Provincial highway (the QEW), a transportation air quality assessment has been included in this study.

3.3 Provincial Policy Statement, 2020

The latest update to the Provincial Policy Statement (PPS) was issued under Section 3 of the Planning Act and came into effect May 1, 2020. The PPS provides policy direction on matters of provincial interest related to land use planning and development. The update to the PPS supports the government's goals related to increasing housing, supporting jobs, and reducing red tape.

The PPS states under Part V Section 1.2.6:

"1.2.6.1 Major facilities and sensitive land uses shall be planned and developed to avoid, or if avoidance is not possible, minimize and mitigate any potential adverse effects from odour, noise and other contaminants, minimize risk to public health and safety, and to ensure the long-term operational and economic viability of major facilities in accordance with provincial guidelines, standards and procedures.

1.2.6.2 Where avoidance is not possible in accordance with policy 1.2.6.1, planning authorities shall protect the long-term viability of existing or planned industrial, manufacturing or other uses that are vulnerable to encroachment by ensuring that the planning and development of proposed adjacent sensitive land uses are only permitted if the following are demonstrated in accordance with provincial guidelines, standards and procedures:

- a) *there is an identified need for the proposed use;*

- b) *alternative locations for the proposed use have been evaluated and there are no reasonable alternative locations;*
- c) *adverse effects to the proposed sensitive land use are minimized and mitigated; and*
- d) *potential impacts to industrial, manufacturing or other uses are minimized and mitigated.”*

Employment Areas are defined under the PPS as “those areas designated in an official plan for clusters of business and economic activities including, but not limited to, manufacturing, warehousing, offices, and associated retail and ancillary facilities.”

The PPS states in Section 1.3.2 that in relation to Employment Areas:

“1.3.2.2 At the time of the official plan review or update, planning authorities should assess employment areas identified in local official plans to ensure that this designation is appropriate to the planned function of the employment area.

Employment areas planned for industrial and manufacturing uses shall provide for separation or mitigation from sensitive land uses to maintain the long-term operational and economic viability of the planned uses and function of these areas.

“1.3.2.3 Within employment areas planned for industrial or manufacturing uses, planning authorities shall prohibit residential uses and prohibit or limit other sensitive land uses that are not ancillary to the primary employment uses in order to maintain land use compatibility.

Employment areas planned for industrial or manufacturing uses should include an appropriate transition to adjacent non-employment areas.”

As per the region of Halton’s Official Plan Map 6a – Midtown Oakville GO UGC/MTSA, the proposed development is not located within a regional employment area. Regional employment areas are located approximately 600 m north and 850 m southwest of the proposed development.

At the time of this assessment, the Ontario government has issued a proposal to combine A Place to Grow and the Provincial Policy Statement. The updated policy is currently in the proposal stage. It is our understanding that the proposal does not materially affect the land use compatibility assessment process.

3.4

Environmental Protection Act

The Ontario Environmental Protection Act (EPA) provides a framework under which industrial compliance and land use compatibility are assessed. With respect to land use compatibility, the EPA provides direction that:

1. Under Section 9 of the EPA, all regulated industrial and commercial facilities must apply for and obtain approval for any activities that may cause or results in contaminants to be discharged to the natural environment, as described in regulations 419/05 and 1/17;
2. Under Section 14 of the EPA, a person shall not discharge a contaminant or cause or permit the discharge of a contaminant into the natural environment, if the discharge causes or may cause an adverse effect. Adverse effects are defined within the EPA as:

"one or more of,

- a) impairment of the quality of the natural environment for any use that can be made of it,*
- b) injury or damage to property or to plant or animal life,*
- c) harm or material discomfort to any person,*
- d) an adverse effect on the health of any person,*
- e) impairment of the safety of any person,*
- f) rendering any property or plant or animal life unfit for human use,*
- g) loss of enjoyment of normal use of property, and*
- h) interference with the normal conduct of business;"*

The EPA's definition of a contaminant includes but is not limited to: air contaminants, odours, noise, and vibration, and has been determined in past decisions to include light. Obtaining approval for air and noise requires that a facility demonstrate, through a technical assessment, compliance with the applicable guidelines and regulations such as Ontario Regulation 419/05 and NPC-300.

The adverse effect clause in the EPA is applicable to the assessment of nuisance complaints in a land use compatibility context. Nuisance contaminants, such as noise, vibration, dust, and odour, may result in complaints which may be determined to fall under the adverse effects clause. When considering land use changes which may introduce new sensitive receptors in an area, it is important to consider a facility's current environmental approval as well as the potential for their operations to result in a nuisance impact.

3.5

D-Series Guidelines

The intent of the MECP's D-Series of Guidelines is to minimize or prevent, through the use of buffers and separation of uses, the encroachment of incompatible land uses. Guideline D-6 delegates responsibility to the planning authorities and requires that they be followed where there is potentially encroachment of sensitive land uses to existing industrial lands and vice versa.

With respect to Guideline D-6, sensitive receptors include: residences, senior-citizen homes, schools, day care facilities, hospitals, and churches or similar institutional uses, as well as recreation areas deemed by the planning authority to be sensitive. Certain commercial and institutional uses may be deemed sensitive on a case-by-case basis and based on typical operating hours.

Guideline D-6 provides industrial categorization criteria for the purpose of classifying industrial and commercial facilities based on their output, scale, process, and operations. The industrial categorization criteria is provided in Table 1.

Note that the examples provided in this table should not be considered a comprehensive list but are to be used to provide examples of each industrial category. Additionally, the examples listed in Table 1 may not apply to all instances of a particular industry type; for example, some electronics manufacturing and repair facilities may meet the definition of a Class II or Class III facility.

Table 3-1: Industrial Categorization Criteria

Class	Outputs	Scale	Process	Operations/Intensity	Possible Examples
I	<p>Noise: Sound not audible off property</p> <p>Dust and/or Odour: Infrequent and not intense</p> <p>Vibration: No ground borne vibration on plant property</p>	<p>No outside storage</p> <p>Small scale plant or scale is irrelevant in relation to all other criteria for this Class</p>	<p>Self-contained plant or building which produces/stores a packaged product. Low probability of fugitive emissions</p>	<p>Daytime operations only</p> <p>Infrequent movement of products and/or heavy trucks</p>	<p>Electronics manufacturing and repair</p> <p>Furniture repair and refinishing</p> <p>Beverages bottling</p> <p>Auto parts supply</p>
II	<p>Noise: Sound occasionally audible off property</p> <p>Dust and/or Odour: Frequent and occasionally intense</p> <p>Vibration: Possible groundborne vibration, but cannot be perceived off property</p>	<p>Outside storage permitted</p> <p>Medium level of production allowed</p>	<p>Open process</p> <p>Periodic outputs of minor annoyance</p> <p>Low probability of fugitive emissions</p>	<p>Shift operations permitted</p> <p>Frequent movement of products and/or heavy trucks with the majority of movements during daytime hours</p>	<p>Magazine printing</p> <p>Paint spray booths</p> <p>Metal command</p> <p>Electrical production manufacturing</p> <p>Manufacturing of dairy products</p>
III	<p>Noise: sound frequently audible off property</p> <p>Dust and/or Odour: Persistent and/or intense</p> <p>Vibration: Ground-borne vibration can frequently be perceived off property</p>	<p>Outside storage of raw and finished products</p> <p>Large production levels</p>	<p>Open process</p> <p>Frequent outputs of major annoyances</p> <p>High probability of fugitive emissions</p>	<p>Continuous movement of products and employees</p> <p>Daily shift operations permitted</p>	<p>Manufacturing of paint and varnish</p> <p>Organic chemicals manufacturing</p> <p>Solvent recovery plants</p> <p>Metal manufacturing</p>

Guideline D-6 also prescribes Recommended Minimum Separation Distances and Potential Influence Areas based on three industrial classifications (i.e., Class I, Class II, and Class III). The Potential Influence Area is the area within which adverse effects from an industry may be experienced at a sensitive receptor. It also represents the area between an industry and sensitive receptors within which technical studies should be performed to demonstrate the uses are compatible prior to approval. These studies may include air dispersion modelling to determine the actual influence area, which is defined by Guideline D-6 as the overall range within which an adverse effect would be or is experienced. Should the actual influence area intersect with the proposed use, further detailed assessment may be required to assess compatibility and determine mitigative solutions, as required.

The Recommended Minimum Separation Distance from an industry represents the area within which adverse effects to a sensitive land use are likely to occur. Developing a sensitive land use within an industry's Recommended Minimum Separation Distance requires detailed technical studies (e.g., air dispersion modelling) to demonstrate that the land uses are compatible. The Recommended Minimum Separation Distance was established based on MECP studies and historical complaint data.

The Potential Influence Area and Recommended Minimum Separation Distance for each industry class as defined by the D-Series Guidelines are provided in Table 2. The described distances vary for Class I, II, and III industries due to the frequency and magnitude of potential adverse effects.

Table 3-2: Industrial Classification Study Distances

Industrial Categorization	Potential Influence Area (m)	Recommended Minimum Separation Distance (m)
Class I	70	20
Class II	300	70
Class III	1000	300

In the assessment of distances between the Proposed Development and surrounding industries, the distance was considered to be the shortest length measured between property boundaries.

3.6

Ontario Regulations 419/05 and 1/17 – Local Air Quality

The MECP's environmental permissions framework includes Environmental Compliance Approvals (ECA) issued under Section 9 of the EPA and following the requirements of Ontario Regulation 419/05 (O.Reg. 419/05), and Environmental Activity and Sector Registry (EASR) approvals issued under Section 9 of the EPA and following the requirements of Ontario Regulation 1/17 (O.Reg. 1/17). The applicability of the two instruments (ECA and EASR) is based on the facility's industrial classification. Both instruments provide the same level of environmental protection; the EASR approach allows less-intensive industries to follow a streamlined review process.

Both approvals mechanisms require the same supporting technical studies and reporting and for the purpose of this report will collectively be referred to as “Environmental Permissions”. The Environmental Permissions process provides a framework under which industries are required to assess the potential impact of their air quality (including dust, and odour), noise, and vibration emissions.

The MECP requires any industry applying for Environmental Permissions to perform an assessment of air emissions as described in O.Reg. 419/05 and associated guidance documents. O.Reg. 419/05 outlines the requirements of the technical assessment and provides contaminant-specific air quality standards to be applied. All contaminants are required to be in compliance with these standards at all points off-site, while nuisance contaminants such as odours are regulated at sensitive receptors such as residences, schools, and places of worship. The implications of O.Reg. 419/05 from a land use compatibility perspective are:

- All industries which operate in compliance with an approval should meet the air quality standards for regulated contaminants at all points off-site, including locations which are allowed under current zoning, regardless of existing land use. Industries do not have to demonstrate compliance at elevated receptors where zoning does not allow for their construction. Note that these assessments would not consider ambient air quality (i.e., the ambient concentration of contaminants without the influence of the industry).
- Zoning changes to allow for elevated receptors in an area may impose new regulatory obligations for existing industries and can lead to compliance issues, as such locations would not have been assessed during the regulatory application process. Land use compatibility assessments should consider the potential impact on a facility’s existing Environmental Permission.
- Existing industries are not required to meet nuisance impact limits for fugitive dust and odour at lands which are not zoned for sensitive uses. Where zoning changes are proposed, a land use compatibility study (as described in the D-Series Guidelines section) should be performed to determine compatibility.

3.7 The MTO Air Quality Guide

The MTO’s air quality and greenhouse gas guideline is intended to be used in the preparation of a Class Environmental Assessment for provincial highway projects. As this project is concerning the introduction of new residential uses, the MTO Guide does not technically apply to this project. However, the MTO Guide provides a comprehensive framework which can followed when performing technical assessments of the air quality impacts resulting from roadway operations. As such, Dillon has applied the technical recommendations from the MTO Guide where applicable in the transportation assessment portion of this project.

Industry Classification within the Surrounding Area

Dillon reviewed the area surrounding the subject lands in order to classify the existing industrial and commercial lands using the MECP's D-Series framework, as well as to identify nearby vacant lands which are zoned to allow for commercial or industrial uses.

A site visit was conducted by Dillon personnel on August 1st, 2023, to identify industrial or commercial operations with the potential influence areas that intersect the Proposed Development.

Industries were classified based on site visit observations, consultation with industry staff, review of existing MECP approvals documents, and through publicly available information.

Within the study area, only Class I existing industries were identified. Table 4-1 summarizes the industrial and commercial facilities with potential influence areas that intersect with the Proposed Development. From an air quality perspective, no compatibility issues were identified in this assessment. It is noted that there is the potential for cooking odours at the Proposed Development as a result of neighbouring restaurants. It is Dillon's opinion that cooking odours are typical in an urban setting and do not typically represent a land use compatibility issue. Figure 2 shows the industries identified during the Assessment.

Table 4-1: Class I Industries

Facility Name and Address	Description of Industry and Operations	D-6 Guideline Industrial Classification	Distance to Proposed Development (m)	Potential for Compatibility Concerns?
Commercial Complex 187 Cross Avenue	<ul style="list-style-type: none"> Commercial facilities include restaurants, a medical clinic, and retail store Operations include infrequent shipment of products 	I	20 ^[1]	The majority of uses are not expected to have air quality emissions. Occasional odours from the restaurants are possible, and are typically managed at a municipal level. It is Dillon's opinion that cooking odours are typically in an urban setting and do not typically represent a land use compatibility issue.
Oakland Ford Lincoln Auto Dealership 570 Trafalgar Road	<ul style="list-style-type: none"> Auto dealership with auto repair services Operations include repair and servicing of automobiles. The Facility confirmed that there is no paint spray booth. 	I	20 ^[1]	As there are no spraying operations occurring at the Facility, there are not expected to be any nuisance emissions related to operations.
Allfix Automotive 570 Argus Road	<ul style="list-style-type: none"> Auto repair shop Operations include repair of automobiles. The Facility confirmed that there is no paint spray booth. 	I	20 ^[1]	As there are no spraying operations occurring at the Facility, there are not expected to be any nuisance emissions related to operations.
Commercial Complex 177 Cross Avenue	<ul style="list-style-type: none"> Commercial facilities include a medical clinic and self-operated car wash and vacuuming services Operations include the use of outdoor car wash and vacuuming equipment during the daytime, evening, and nighttime periods 	I	65	From an air quality perspective, there are no air emission sources. Compatibility issues are not expected.

Notes: [1] Distance is less than the recommended minimum separation distance

[2] Industrial property is adjacent to Site

"NA": Environmental Permissions not available / were not identified

Future Industrial Uses

The lands surrounding the Proposed Development were reviewed to identify vacant lands that have permitted land uses that could potentially be incompatible with the Proposed Development. The following vacant lands were identified in proximity to the Proposed Development:

420 South Service Road East – Former General Electric Corp.'s Lamp Plant

The vacant land located at 420 South Service Road is approximately 560 m northeast of the Proposed Development.

Based on the separation distance between the vacant land and the Proposed Development, the Proposed Development would be located within the vacant land's potential influence area if the future industrial use is a Class III facility.

At the time of this assessment, the vacant land is zoned as Midtown Transitional Employment (MTE). The only permitted use for Midtown Transitional Employment that would be considered a Class III facility includes a food production facility. The additional regulations for food production under a Midtown Transitional Employment limit that a building's food production use may only occupy 20% of the net floor area. Based on this limitation, it is expected that the scale of future food production facilities would be considered small or medium level and the facility would be classified as a Class I or II facility. Considering this, it is Dillon's opinion that, under the existing zoning by law, no Class III facility could be developed on the site. Accordingly, adverse effects from the vacant land's possible future industrial land uses on the Proposed Development are not expected.

540, 546, and 548 Trafalgar Road

The lands located at 540, 546, and 548 Trafalgar Road are located approximately 20 m from the Proposed Development and have an area of approximately 0.69 hectares. The lands were previously used as a commercial complex. Dillon understands the former uses were removed between August 2020 and July 2021.

At the time of this assessment, the lands are vacant and zoned as Midtown Transitional Employment (MTE). The distances between the vacant lands and the Proposed Development are less than the potential influence area of a Class I industry and the recommended minimum separation distance of a Class II industry.

Dillon has reviewed the permitted uses of a Midtown Transitional Employment zone and identified land uses that may be considered a Class I or Class II industry and have potential for adverse effects at the Proposed Development. While most of the permitted uses of these lands could be developed without

compatibility issues with the Proposed Development, the following permitted land uses may be incompatible with the Proposed Development with a 20 m separation distance:

- Food production;
- Restaurant; and
- Service commercial establishment.

These land uses could potentially be designed to be compatible with the Proposed Development if the adverse effects are assessed and mitigated prior to development. Dillon recommends that the implementation of any of the uses listed above on the vacant lands should be accompanied by a land use compatibility study demonstrating compatibility with the Proposed Development.

547 Trafalgar Road and 312 South Service Road

The lands located at 547 Trafalgar Road and 312 South Service Road are located approximately 160 m from the Proposed Development and have an area of approximately 0.76 hectares and 1.00 hectares, respectively. The lands were previously used as a commercial complex and auto servicing facility. Dillon understands the former uses were removed between October 2021 and October 2022.

At the time of this assessment, the lands are vacant and zoned as Midtown Transitional Employment (MTE). The distances between the vacant lands and the Proposed Development are less than the potential influence area of a Class II industry.

Dillon has reviewed the permitted uses of a Midtown Transitional Employment zone and identified land uses that may be considered a Class I or Class II industry and have potential future adverse effects on the Proposed Development. While most of the permitted uses of these lands can be developed without compatibility issues with the Proposed Development, the following permitted land uses may be incompatible with the Proposed Development with a 160 m separation distance:

- Food production; and
- Service commercial establishment.

These land uses could potentially be designed to be compatible with the Proposed Development if the adverse effects are assessed and mitigated prior to development. Dillon recommends that the implementation of any of the uses listed above on the vacant lands should be accompanied by a land use compatibility study demonstrating compatibility with the Proposed Development.

6.0 Transportation Facilities

The Halton Region Air Quality Guideline prescribes conditions under which an assessment of transportation air quality impacts is required. As the separation distance between the proposed development and the Queen Elizabeth Way (QEW) is less than the 150 m buffer between sensitive land uses and a provincial freeway, a transportation air quality study was conducted to assess the impact from traffic-related contaminants from the QEW.

To evaluate the impact of transportation emissions on the Proposed Development, an air quality assessment was conducted following the Ontario Ministry of Transportation (MTO)'s *Environmental Guide for Assessing and Mitigating the Air Quality Impacts and Greenhouse Gas Emissions of Provincial Transportation Projects (May 2020)*. This section summarizes the assessment methodology, model inputs, and results of the transportation study. Detailed emission calculations and results are presented in Appendix C.

6.1 Assessment Methodology

A transportation emission estimation model was used along with an air dispersion model to assess the impact of air emissions from the QEW on the Proposed Development. The following sections describe the methodologies for transportation emission estimations and dispersion modeling.

Transportation Emission Estimations

Traffic data for the road section between Trafalgar Road Interchange and Dorval Road Interchange were obtained from the MTO for the most recent year with available data (i.e., 2019) and projected to the 2023 assessment year using a growth rate of 2% per annum. The traffic data consist of traffic volume Annual Average Daily Traffic (AADT) for all vehicle types including heavy trucks. The traffic volume AADT and breakdown by vehicle types are presented in Appendix C.

The U.S. EPA's Motor Vehicle Emission Simulator (MOVES) Model was used to obtain vehicle tailpipe emission factors. MOVES is a state-of-the-science emission model that estimates vehicle emission factors for transportation-related air contaminants. As per the MTO's guide, the relevant transportation-related air contaminants include: carbon monoxide (CO), nitrogen oxides (NO_x), particulate matter, sulphur dioxide (SO₂), and VOCs including 1,3-butadiene, acetaldehyde, acrolein, benzene, formaldehyde, and benzo(a)pyrene (B[a]P). The MOVES tailpipe emission factors for particulate matter include the PM_{2.5}, PM₁₀, and TSP size fractions from vehicular exhaust, brake wear, and tire wear. The MOVES model was conducted to generate "rate-per-distance" (i.e.; grams-per-kilometre) emission factors for all applicable vehicle types running at the posted speed limit (100 km/hr) for the QEW. The MOVES emission factors were applied to the projected QEW traffic volumes to estimate emission rates

of the relevant air contaminants. The MOVES model input parameters and results are summarized in Appendix C.

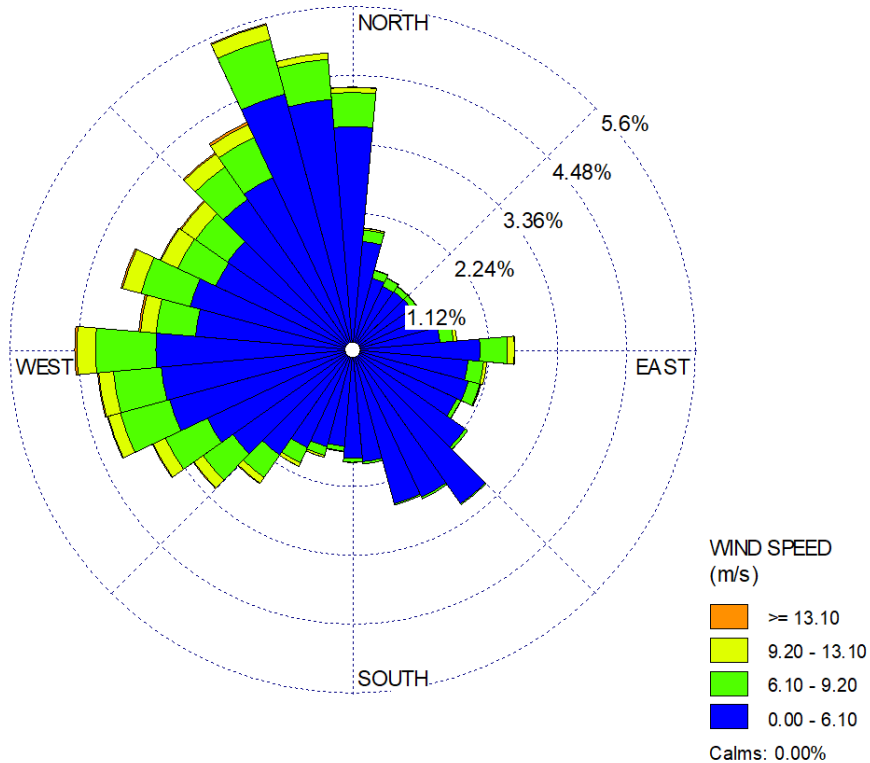
In addition to the vehicle tailpipe particulates, the re-suspended road dust due to the mechanical disturbance of vehicle tires on the road surface and the wake caused by the passing of the vehicle was assessed based on the projected QEW traffic volume and the U.S. EPA’s emission factors for paved roads. The emission calculations for the road dust are also included in Appendix C.

Air Dispersion Modeling

The U.S. EPA’s air dispersion model, AERMOD (Version 22112 - the latest version approved by the MECP), was used to predict the maximum concentrations of contaminants at the Proposed Development. The dispersion modelling followed the MECP’s *Air Dispersion Modeling Guidance for Ontario (ADMGO)*.

A 5-year meteorological dataset (1996-2020) for Toronto suburban surface conditions and Canadian Digital Elevation Model (CDEM) terrain files, both published by the MECP, were used for the assessment. The frequency distribution of hourly surface wind speed and direction at the Toronto station is presented as a wind rose in Figure 6-1. The prevailing winds are blowing from the north-north-west direction.

Figure 6-1 Wind Rose at Toronto Station (wind blowing from)



The AERMOD model predicts concentration at receptors which include ground-level and elevated points at the Proposed Development. An AERMOD unity run using 1 g/s emission rate was performed for the maximum concentrations at receptors which were “scaled-up” based on the actual emission rates of contaminants.

6.2 Assessment Results

Table 6-1 presents the model results from the unity model run. Table 6-2 presents the predicted concentrations of each relevant contaminant at the Proposed Development with comparisons against the Ontario Ambient Air Quality Criteria (Ontario AAQC).

Table 6-1 Unity Run Results

Averaging period	Predicted Concentrations at the Proposed Development
	($\mu\text{g}/\text{m}^3$ per 1 g/s emitted)
1-hr	28.62
24-hr	15.62
Annual	5.01

Notes:

1. The above concentrations for different averaging periods represent the maximum concentrations at model receptors from model unity runs using an emission rate of 1 g/s.
2. The max concentrations from unity runs are used to scale for the max concentrations of various air contaminants.
3. Ground-level and elevated model receptors are placed around the proposed three building towers, at a horizontal and vertical spacing of 10 m, to represent residence receptors.
4. The 1-hour concentrations are assessed using the AERMOD variable emission option by hour of the day. The 24-hr and annual concentrations are assessed based on the daily average emissions.

Table 6-2 Model Results Summary

Pollutants	Averaging Period	Air Quality Criteria ($\mu\text{g}/\text{m}^3$)	Emission Rate (g/s)	Maximum Concentration ($\mu\text{g}/\text{m}^3$)	Percentage of AAQC (%)
Oxides of Nitrogen (NO_x) ¹	1-hr	400	5.3E+00	1.5E+02	38%
	24-hr	200	2.8E+00	4.4E+01	22%
Carbon Monoxide (CO)	1-hr	36200	1.3E+01	3.6E+02	< 1%
	8hr ²	15700	1.3E+01	3.6E+02	2%
Sulfur Dioxide (SO_2)	1-hr	106.4	1.1E-02	3.3E-01	< 1%
	Annual	10.6	6.2E-03	3.1E-02	< 1%
Acrolein	1-hr	4.5	3.6E-03	1.0E-01	2%
	24-hr	0.4	1.9E-03	3.0E-02	7%

Pollutants	Averaging Period	Air Quality Criteria ($\mu\text{g}/\text{m}^3$)	Emission Rate (g/s)	Maximum Concentration ($\mu\text{g}/\text{m}^3$)	Percentage of AAQC (%)
Acetaldehyde	1/2hr ³	500	2.1E-02	5.9E-01	< 1%
	24-hr	500	1.1E-02	1.7E-01	< 1%
Benzene	24-hr	10	4.0E-03	6.2E-02	< 1%
	Annual	0.45	4.0E-03	2.0E-02	4%
Formaldehyde	24-hr	65	2.3E-02	3.6E-01	< 1%
1,3-Butadiene	24-hr	10	1.0E-01	1.6E+00	16%
	Annual	2	1.0E-01	5.2E-01	26%
Total PM2.5 (Exhaust + Brake wear + Tire wear + Road dust)	24-hr	27	2.0E-01	3.2E+00	12%
	Annual	9	1.9E-01	9.7E-01	11%
Total PM10 (Exhaust + Brake wear + Tire wear + Road dust)	24-hr	50	6.1E-01	9.6E+00	19%
Total B[a]P (Particulate and Gas)	24-hr	0.00005	5.5E-06	8.7E-05	173%
	Annual	0.00001	5.5E-06	2.8E-05	278%
Total TSP (Exhaust + Brake wear + Tire wear + Road dust)	24-hr	120	2.3E+00	3.7E+01	31%
	Annual	60	2.2E+00	1.1E+01	18%

Notes:

1. Per Ontario Ambient Air Quality Criteria, estimates of total NO_x are compared to the criteria for NO_2 .
2. The maximum 1-hour concentration of CO from unit model runs was conservatively used for determining the maximum 8-hr average concentration of CO.
3. The 1/2hr averaging concentration of Acetaldehyde was assumed equal to the 1hr concentration as emission sources operate continuously within an hour.

The results of the modelling assessment indicate the maximum concentrations of all air contaminants, resulting from the QEW transportation, were predicted to be below the Ontario AAQC at all residential receptors of the Proposed Development, with the exception of B[a]P. The maximum 24-hr B[a]P concentration is predicted at 173% of the corresponding criteria and the annual B[a]P concentration is predicted at 278% of the corresponding criteria.

The exceedance of B[a]P is a wide-spread issue in Southern Ontario due to high vehicle traffic, particularly around provincial highways. The ambient concentrations of B[a]P measured at some monitor stations in Ontario, operated under the National Air Pollution Surveillance (NAPS) Program, exceeds the AAQC. For instance, the 2021 annual average of B[a]P measured at the Highway 401 Station (125 Resources Road, Etobicoke; NAPS ID 60438) was 4.3 times higher than the relevant AAQC, which is likely attributed to the high vehicle traffic on Highway 401. While this does not diminish the fact that exceedances of the relevant criteria are predicted for B[a]P at the Proposed Development, this is not unique to the development location.

Dillon recommends that incorporating mitigation into the design of the Proposed Development may help to lessen the impact of elevated B[a]P concentrations and provide better indoor air quality more generally. The following section describes conceptual mitigation approaches which may be applicable to the Proposed Development.

6.3 Mitigation Measures

The section summarizes the mitigation measures that can be implemented at the Proposed Development to improve indoor air quality.

- Use of an activated carbon filtration system on the building air intake(s) to remove VOCs and other gaseous pollutants from the intake air. Such a system should be paired with a pre-filter to reduce particulate matter at the building intakes.
- Maintaining the building under a slight positive pressure under normal weather conditions can help to limit the ingress of contaminants when windows are closed.
- Locating air intakes on locations furthest from the QEW may reduce traffic-related air contaminants.

7.0

Conclusions

Dillon Consulting Limited (Dillon) was retained by Distrikt Developments to complete a Land Use Compatibility Assessment (the Assessment) for a proposed residential development (Proposed Development) located at 217-227 Cross Avenue and 571-587 Argus Road in Oakville, Ontario. The Assessment has been completed in support of a Official Plan Amendment, Zoning By-law Amendment, and Site Plan Approval for the Proposed Development.

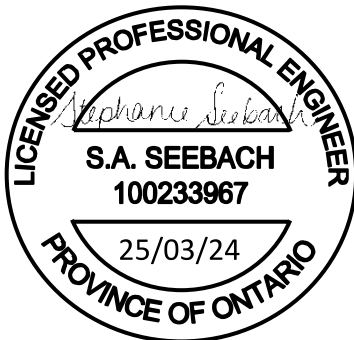
The land use compatibility assessment found that the Proposed Development is compatible with the existing established uses in the area. There are vacant lands in proximity to the Proposed Development which are zoned to allow some uses which may be incompatible with the Proposed Development. Dillon recommends that a land use compatibility study be performed should any of the identified potentially incompatible uses be proposed for the vacant lands.

The transportation air quality assessment identified that one contaminant (benzo(a)pyrene) is predicted to exceed the relevant air quality criteria, which is common in Southern Ontario due to traffic-related pollutants. Dillon has recommended building mitigation approaches which could be used to improve indoor air quality at the Proposed Development.

No additional land use compatibility concerns from an air quality perspective were identified.

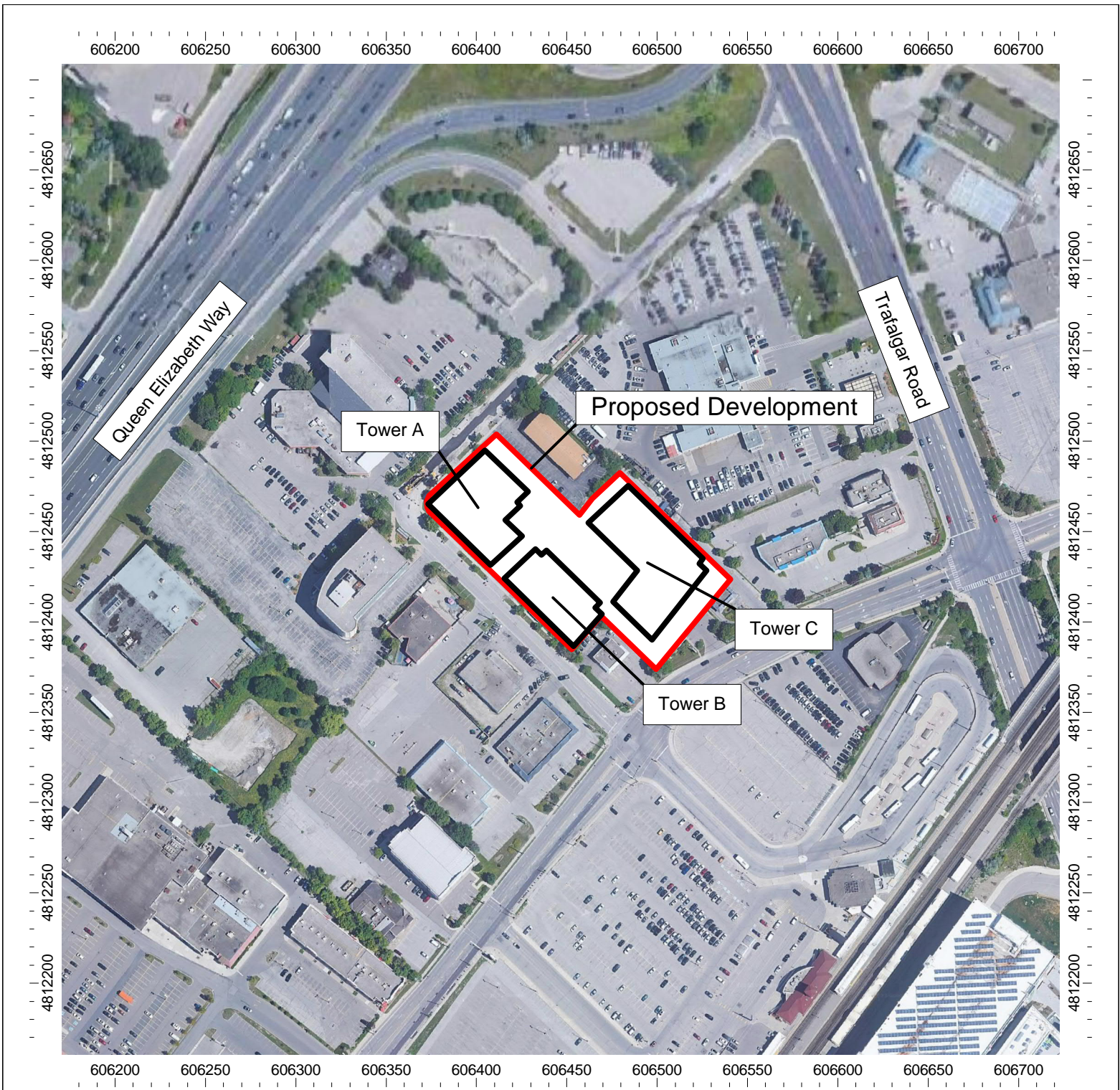
Sincerely,

DILLON CONSULTING LIMITED



Stephanie Seebach, P.Eng.
Associate

Figures



Scale 1: 3,000

Figure 1

Project # 23-7122

Nov 2023

Subject Site



217-227 Cross Avenue and 571-587 Argus Road, Oakville Ontario



Scale 1: 5,000

Figure 2

Project # 23-7122

Nov 2023

Surrounding Area

217-227 Cross Avenue and 571-587 Argus Road, Oakville Ontario



Appendix A

Site Plans

BDP. Quadrangle

Quadrangle Architects Limited
The Well, 8 Spadina Avenue, Suite 2100, Toronto, ON M5V 0S8
t 416 598 1240 www.bdpquadrangle.com



217-227 Cross Avenue and 571-587 Argus Road

for
Distrikt Developments

Project No. 19072
Date 25 March 2024
Issued for Coordination

ARCHITECTURAL DRAWINGS

A000 S	Cover Page
A101 S	Site Plan and Statistics
A102 S	Circulation Site Plan and Phase Plan
A111 S	P1 and P1/P1 Underground Plans
A112 S	P2 and P1 Underground Plan
A113 S	P1 Mezzanine Underground Plan
A201 S	Ground and Bicycle Mezzanine Plans
A202 S	Second and Typical Third to Sixth Floor Plans
A203 S	Seventh and Eighth Floor Plans
A204 S	Typical Tower and Mechanical Penthouse Plans
A205 S	Floor Plan
A401 S	Building A and B - East and North Elevations
A402 S	Building A and B - West and South Elevations
A403 S	Building C - East and North Elevations
A404 S	Building C - West and South Elevations
A410 S	Building C - Coloured Elevation
A411 S	Building A and B Sections
A412 S	Building B and C Sections

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CIVIL CONSULTANT

Trafalgar Engineering Ltd.
1-481 Mordern Rd
Oakville, ON L6K 3W6
T (905) 338-3366

URBAN DESIGN & LANDSCAPE ARCHITECT

Janet Rosenberg & Studio Inc.
148 Kenwood Ave
York, ON M6C 2S3
T (416) 656-6665

TRAFFIC CONSULTANT 1

BA Consulting Group Ltd
45 St Clair Ave W
Toronto, ON M4V 1K9
T (416) 961-7110

TRAFFIC CONSULTANT 2

Paradigm Transportation Solutions Ltd
150 Pinebush Rd #5A
Cambridge, ON N1R 8J8
T (519) 896-3163

STRUCTURAL CONSULTANT

Jablonsky Ast & Partners
3 Concorde Gate, Unit 400
Toronto, ON M3C 3N7
T (416) 447-7405

MECHANICAL & ELECTRICAL CONSULTANT

Smith + Andersen
1100-100 Sheppard Ave. East
Toronto, ON M2N 6N5
T (416) 487-8151

INTERIOR DESIGN CONSULTANT

Figure 3
200 University Avenue, Suite 200
Toronto, ON M5H 3C6
T (416) 363-6993



3 CONTEXT PLAN
A101.S

2 KEY PLAN
A101.S

217-227 Cross Ave and 571-587 Argus Rd Distrikt Developments			
Gross Lot Area:	sm	12599	sf
Area of Road Conveyances:	sm	2685	28905
Area of Promenade Conveyances:	sm	631	6794
Net Lot Area:	sm	9282	99914
POPS Area (not conveyed):	sm	2846	30639

BUILDING A 37 STOREY	Proposed Residential											
	Floor	Floor Area/Typ. Floor (sm)	No. Typ. Floors	Gross Floor Area**		Residential GFA (sm)	Non-Res GFA (sm)		Indoor Amenity GFA (sm)	Outdoor Amenity (sm)	Residential Net Saleable Area - RNSA (sm)	No. of Units
				sm	sf		Retail (sm)	Office (sm)				
Tower A	MPH	0	1	0	0	0	0	0	0	0	0	0
	Level 9-37	850	29	24650	265333	24650	0	0	0	19343	348	
	Level 8	850	1	850	9149	850	0	0	0	627	12	
Podium A	Level 7	621	1	621	6689	372	0	0	224	241	5	
	Level 3-6	1543	4	6171	68430	6175	0	0	154	1541	88	
	Level 2	1279	1	1279	13765	0	0	0	867	462	0	
	Mezzanine	889	1	889	9570	0	0	0	0	0	0	
	Ground	1692	1	1692	18212	1105	460	0	0	0	0	
Building A Total				36153	389148	33152	460	0	1092	1181	453	100%

BUILDING B 49 STOREY	Proposed Residential											
	Floor	Floor Area/Typ. Floor (sm)	No. Typ. Floors	Gross Floor Area**		Residential GFA (sm)	Non-Res GFA (sm)		Indoor Amenity GFA (sm)	Outdoor Amenity (sm)	Residential Net Saleable Area - RNSA (sm)	No. of Units
				sm	sf		Retail (sm)	Office (sm)				
Tower B	MPH	0	1	0	0	0	0	0	0	0	0	
	Level 9-49	850	41	34850	375125	34850	0	0	0	27709	530	
	Level 8	850	1	850	9149	850	0	0	0	679	13	
Podium B	Level 7	850	1	850	9149	850	0	0	0	679	13	
	Level 3-6	1239	4	4958	53364	4958	0	0	0	4169	68	
	Level 2	1298	1	1298	13972	0	0	881	190	0	0	
	Mezzanine	882	1	882	9492	0	0	0	0	0	0	
	Ground	1137	1	1137	12240	907	230	0	107	0	0	
Building B Total				44825	482493	42415	230	0	881	297	624	100%

BUILDING C 65 STOREY	Proposed Residential											
	Floor	Floor Area/Typ. Floor (sm)	No. Typ. Floors	Gross Floor Area**		Residential GFA (sm)	Non-Res GFA (sm)		Indoor Amenity GFA (sm)	Outdoor Amenity (sm)	Residential Net Saleable Area - RNSA (sm)	No. of Units
				sm	sf		Retail (sm)	Office (sm)				
Tower C	MPH	0	1	0	0	0	0	0	0	0	0	
	Level 33-65	850	35	29750	320229	29750	0	0	0	23252	455	
	Level 32	850	1	850	9149	850	0	0	0	525	10	
	Level 9-31	850	21	17850	192137	17850	0	0	0	13951	273	
	Level 8	972	1	972	10457	657	0	0	314	255	7	
Podium C	Level 7	1164	1	1164	12525	0	0	847	951	0	0	
	Level 3-6	2058	4	8233	88624	8233	0	0	0	6753	116	
	Level 2	2694	1	2694	29002	0	0	2694	0	0	0	
	Mezzanine	1596	1	1596	17175	0	0	612	0	0	0	
	Ground	2652	1	2652	28547	1777	875	0	111	32	0	
Building C Total				65761	707846	59118	875	2694	1885	1239	861	100%

Total Floor Area, Gross**	146,738 sm	± 1,579,487 sf
Total Residential Net Saleable Area:	103,503 sm	± 1,114,109 sf
FSI*	11.65	
Total No. of Units	1938	

Parking			
Resident	Min. Rate	Min. No.	Provided
Visitor	0.15	276	291
Retail	1.08	17	17
Office	1.08	29	29
TOTAL		1242	1257
P1 Mezzanine		37	143
P2		209	217
P3		217	217
P4		217	217
P5		217	217
P6		217	217
TOTAL		1257	

Bicycle Parking			
Long Term	Min. Rate	Min. No.	Provided
Short Term	0.25	1454	1454
Retail	1	2	2
Office	1	3	3
TOTAL		1942	1944
Mezzanine		1284	316
P1 Mezzanine		344	0
P2		0	0
P3		0	0
P4		0	0
P5		0	0
P6		0	0
TOTAL		1844	

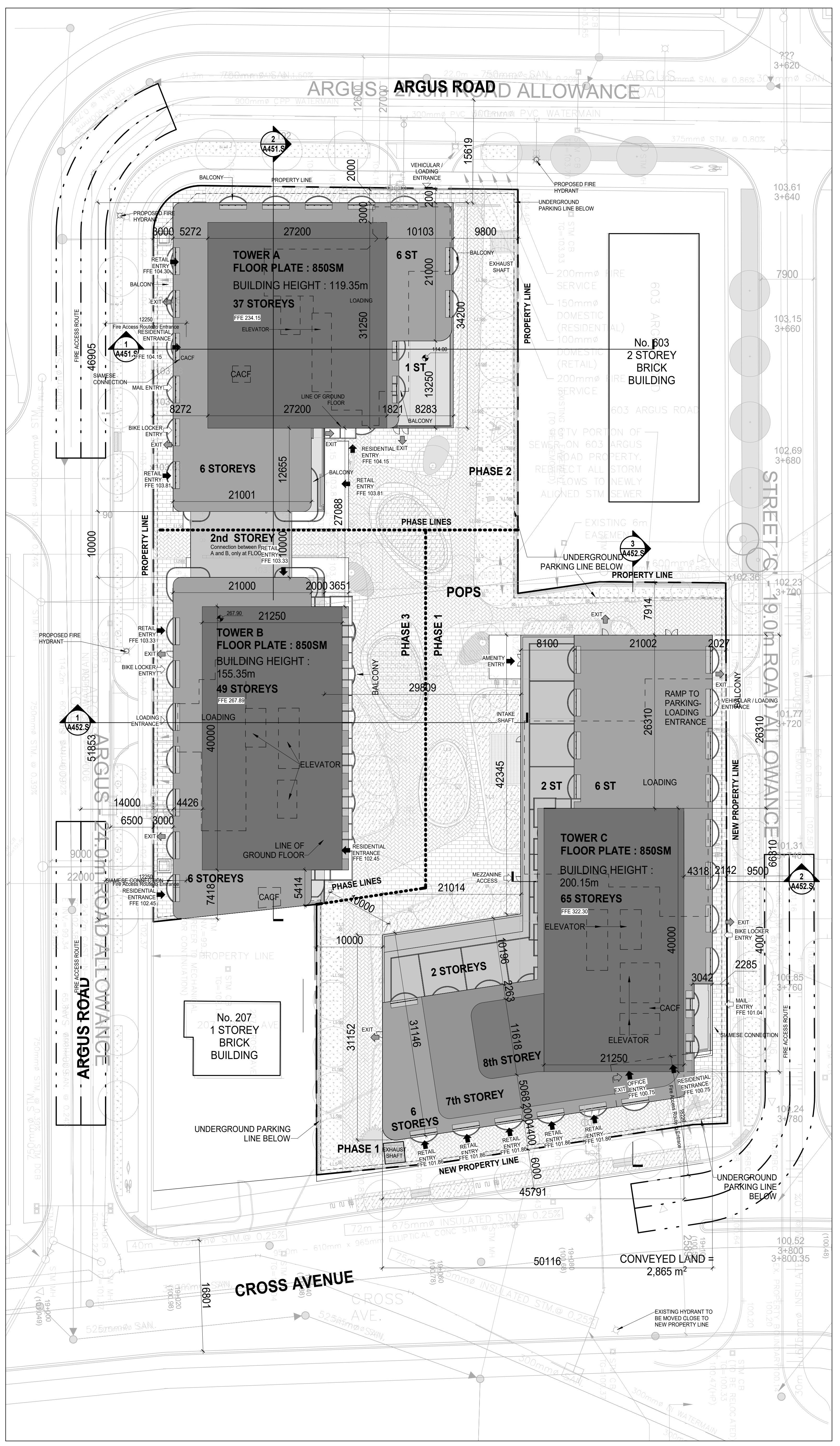
Residential Amenity	
Indoor	3857 1.99
Outdoor	2717 1.40
TOTAL	6574

Lockers	
P1 Mezzanine	0
P2	108
P3	237
P4	237
P5	237
P6	237
TOTAL	1293

Approx. Unit Mix			
Studios	1B	2B	3B
98	1,164	542	134
5%	60%	28%	7%

Definitions of Gross Floor Area, Net Floor Area and FSI are taken from Oakville By Law 2014-014, 2015-018 and 2023-065
 * FSI - Floor Space Index By-Law 2014-014: means the net floor area of all buildings on a lot divided by the lot area.
 Amended by 2023-065 to read: means the gross floor area of all buildings on a lot divided by the lot area.
 ** Gross Floor Area Definition By-Law 2023-065: means the total area of all of the floors in a building measured from the exterior faces of the exterior walls, but shall not include an attic, basement or mechanical penthouse.

STATISTICS



1 SITE PLAN
A101.S
SCALE: 1:300

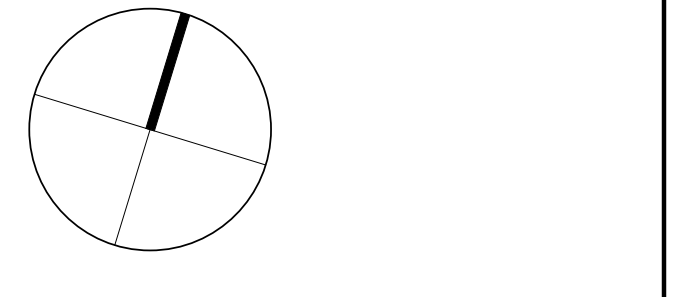
SITE PLAN LEGEND

- PROPERTY LINE
- LINE OF UNDERGROUND GARAGE BELOW
- MAIN BUILDING ENTRANCE
- RETAIL ENTRANCE
- EXIT
- VEHICLE / LOADING ENTRANCE / EXIT
- FIRE HYDRANT
- SIAMSESE CONNECTION
- MANHOLE COVER
- AREA DRAIN
- CATCH BASIN
- FLOOR DRAIN (PARKING SLAB)
- FLOOR DRAIN (INTERIOR)
- EXISTING LIGHT
- TYPICAL PARKING SPACE
- TYPICAL B.F. PARKING SPACE
- F.F.E.
- EXISTING ELEVATION
- PROPOSED ELEVATION
- TOP OF ROOF
- BUILDING ENVELOPE
- FIRE ACCESS ROUTE HEAVY DUTY PAVING ASSEMBLY TO BE DESIGNED TO MEET THE LOADS IMPOSED BY FIRE FIGHTING EQUIPMENT.
- GREEN ROOF
- TERRACE PAVERS

Date	No.	Description

Date	No.	Description

Date	Description
2023-10-01	Issued for Rezoning & OLT
2022-04-19	Issued for Rezoning



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217-227 Cross Avenue and 571-587 Argus Road

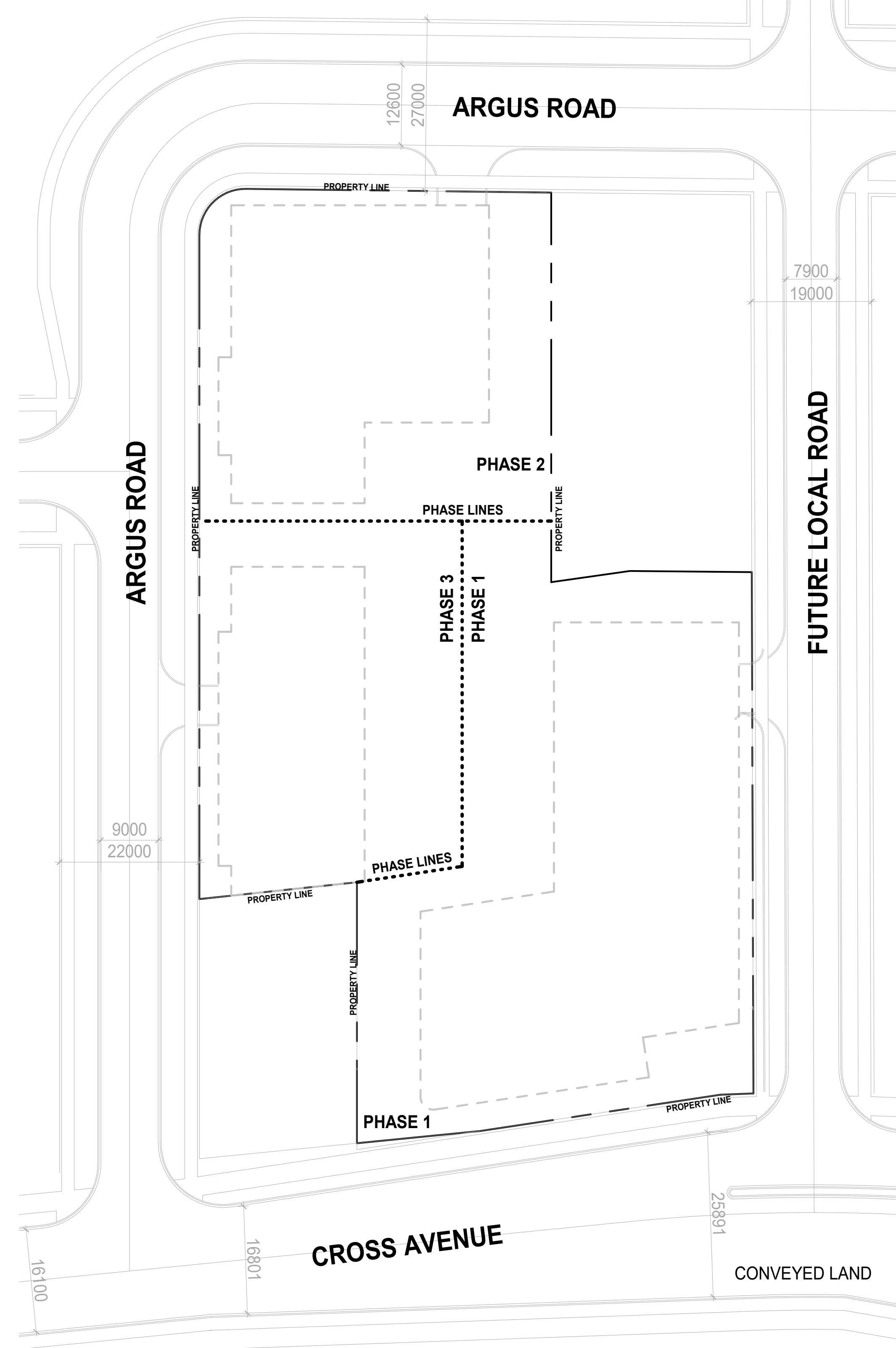
for Distrikt Developments

19072 1:300 UI KVE
 PROJECT SCALE DRAWN REVIEWED

Site Plan and Statistics

A101.S

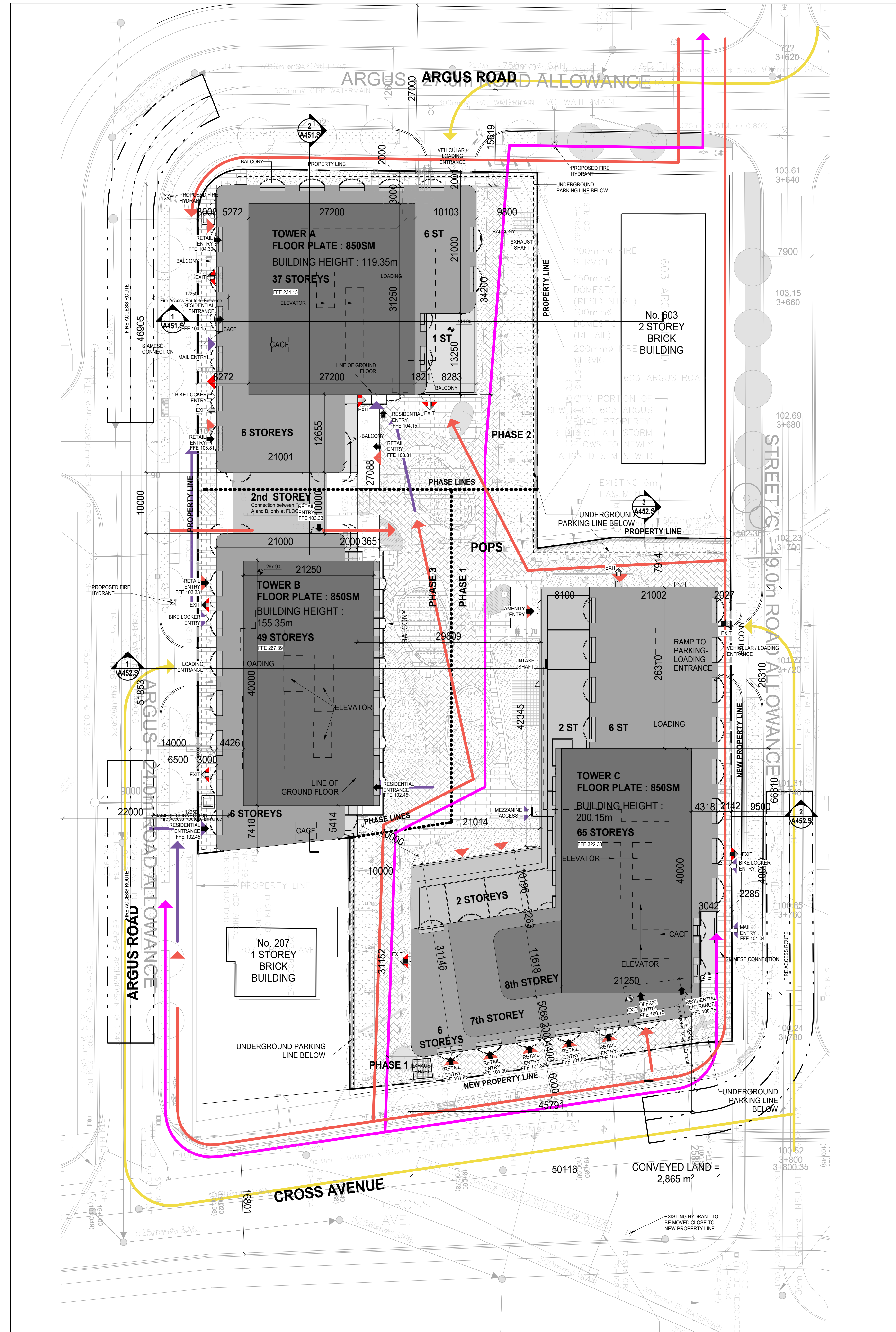
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3 PHASING PLAN
A102.S

CIRCULATION LEGEND

- PEDESTRIAN CONNECTION FROM GO STATION
- PEDESTRIAN PUBLIC
- PEDESTRIAN PRIVATE
- VEHICULAR CIRCULATION
- FIRE EXIT
- PRIVATE ENTRANCE
- PUBLIC ENTRANCE



1 SITE PLAN
A102.S

Date	No.	Description
2023-10-01		Issued for Rezoning & OLT
2022-04-19		Issued for Rezoning

REVISION RECORD

Date	No.	Description

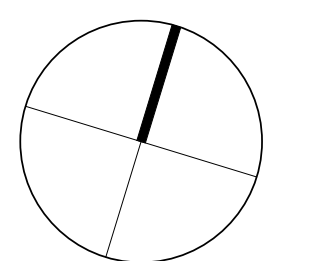
ISSUE RECORD

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2023-10-01 Issued for Rezoning & OLT

2022-04-19 Issued for Rezoning

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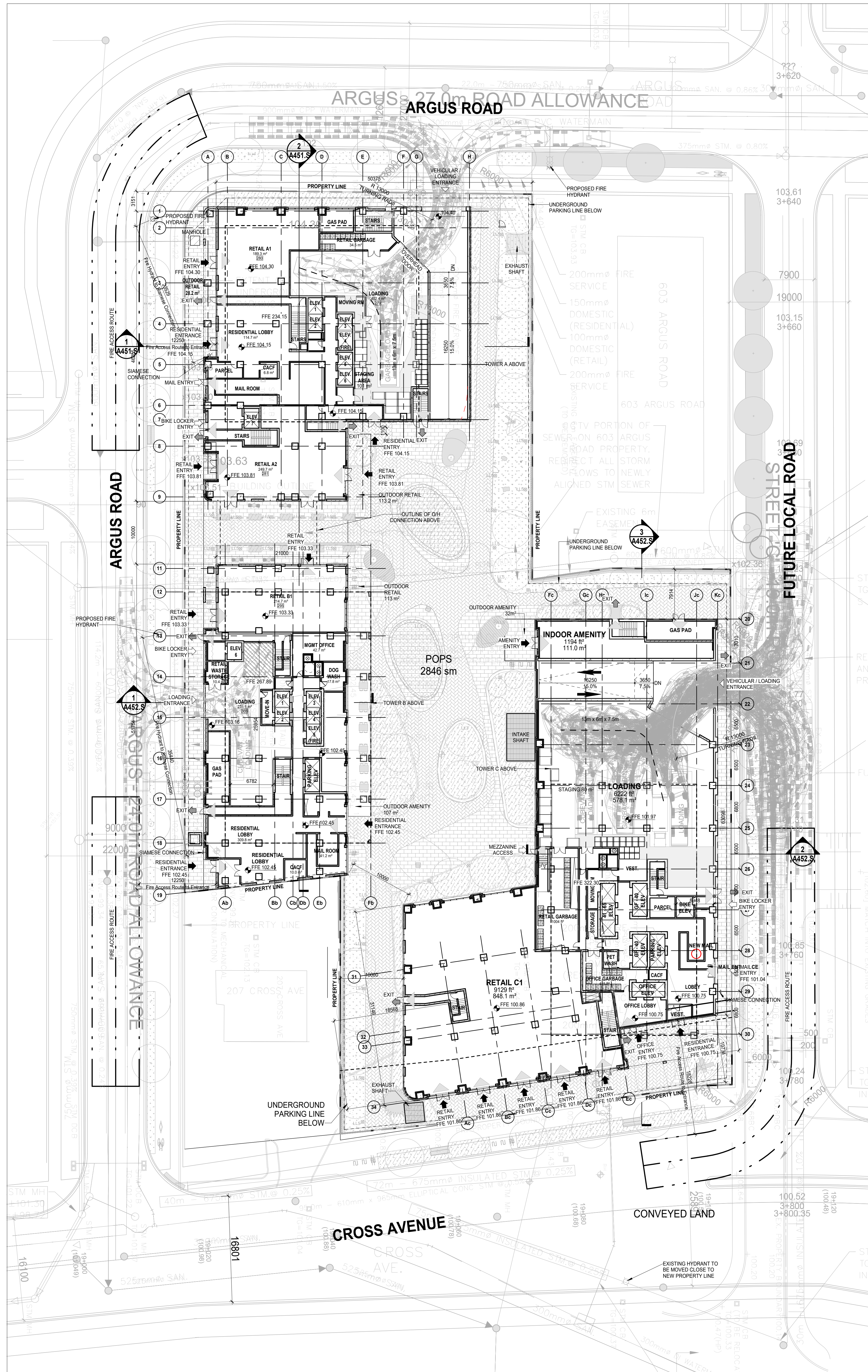
for
Distrikt Developments

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PROJECT SCALE DRAWN REVIEWED

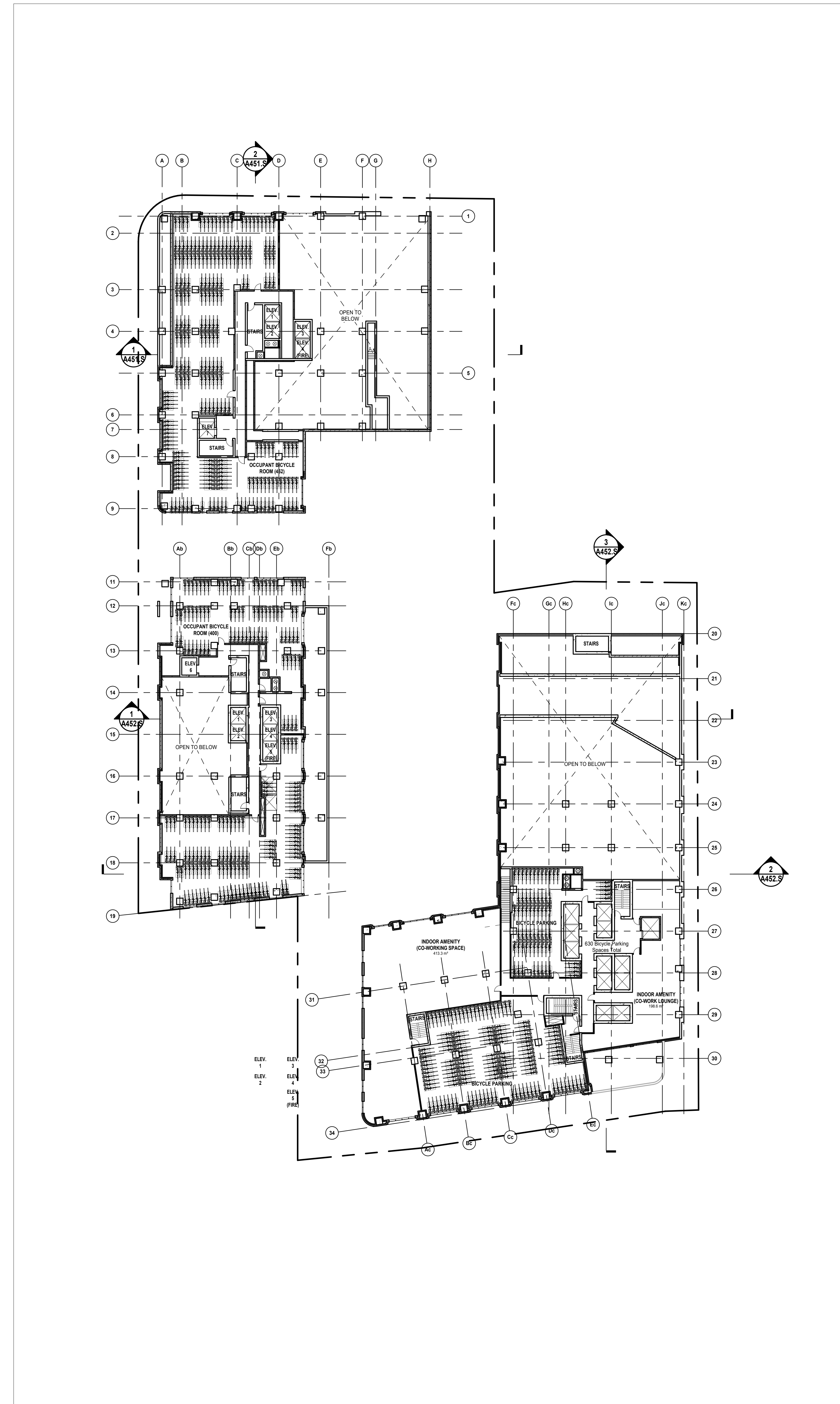
Circulation Site Plan and Phase
Plan

A102.S

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1 GROUND FLOOR PLAN
SCALE: 1:300

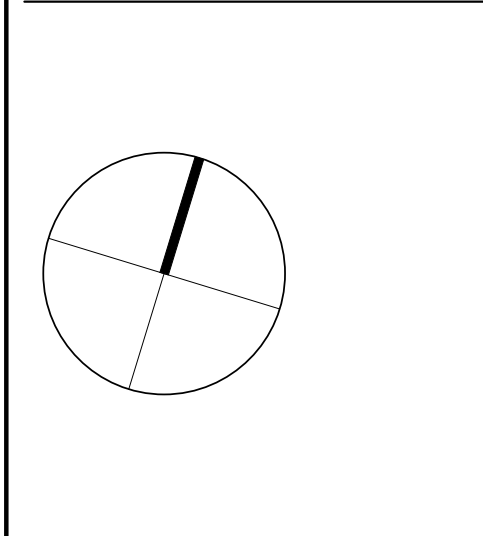


2 BICYCLE MEZZANINE PLAN
SCALE: 1:300

Date	No.	Description
2023-10-01	1	Issued for Rezoning & OLT
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2022-04-19	Issued for Rezoning



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217-227 Cross Avenue and
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for
Distrikt Developments

19072 1:300 EG KVE
PROJECT SCALE DRAWN REVIEWED

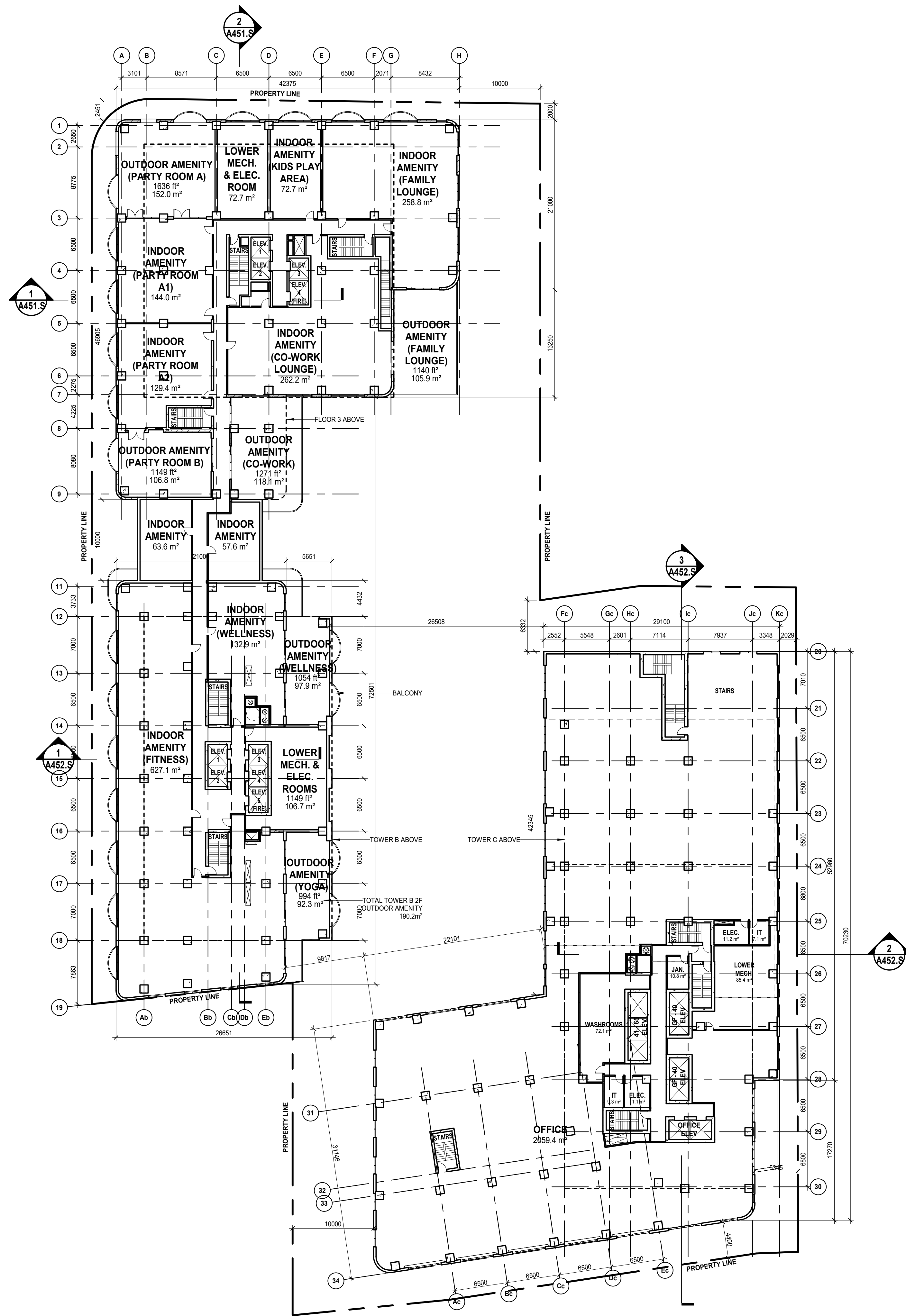
Ground and Bicycle Mezzanine
Plans

A201.S

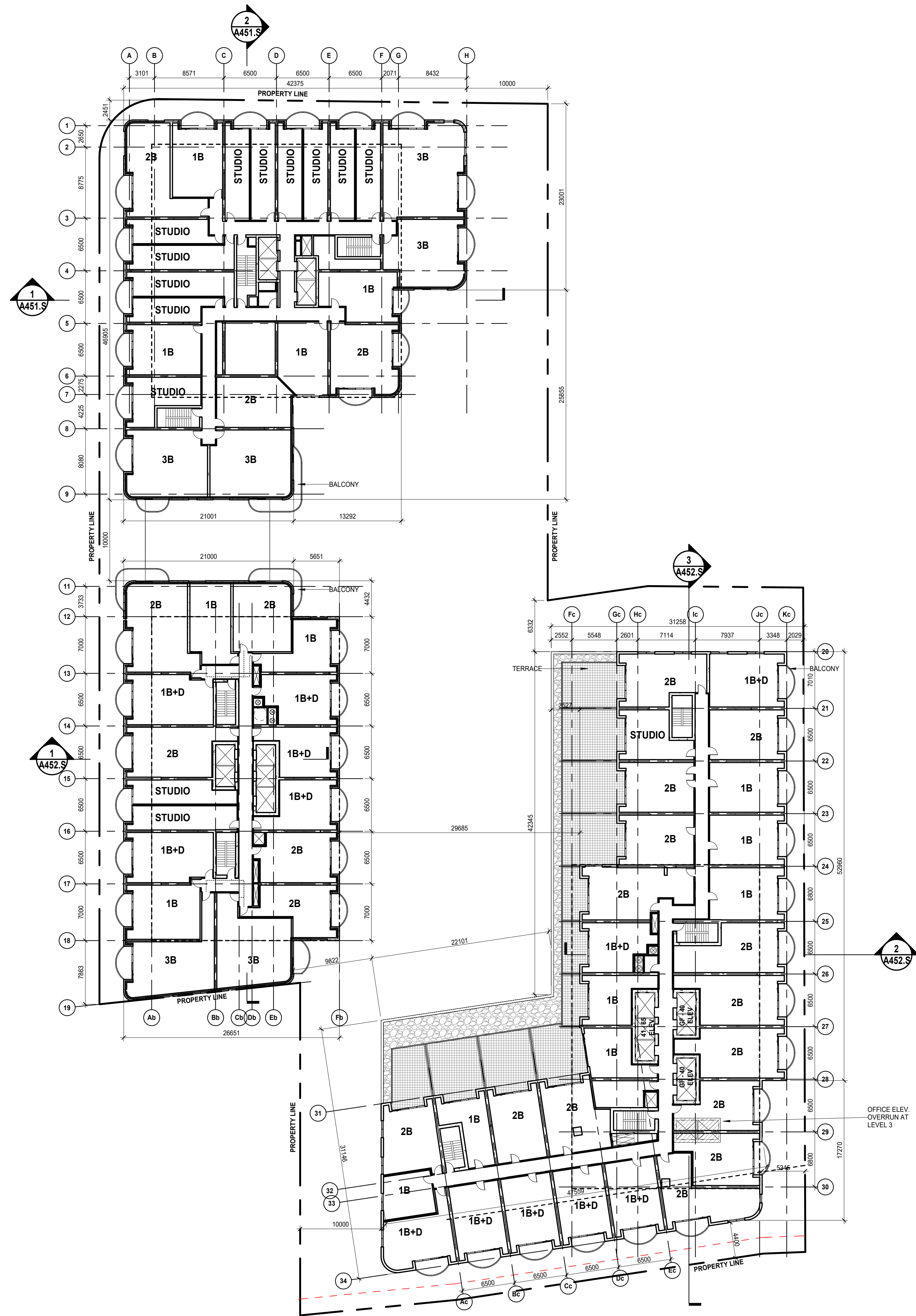
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2023-10-01 10:48:01 AM



1 SECOND FLOOR PLAN
SCALE: 1:300



2 TYPICAL THIRD TO SIXTH FLOOR PLAN
SCALE: 1:300

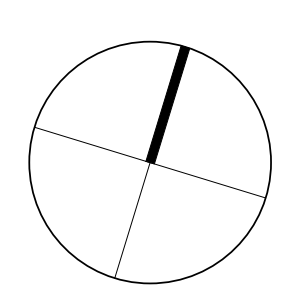
Date	No.	Description
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2022-04-19	2	Issued for Rezoning

REVISION RECORD

Date	No.	Description
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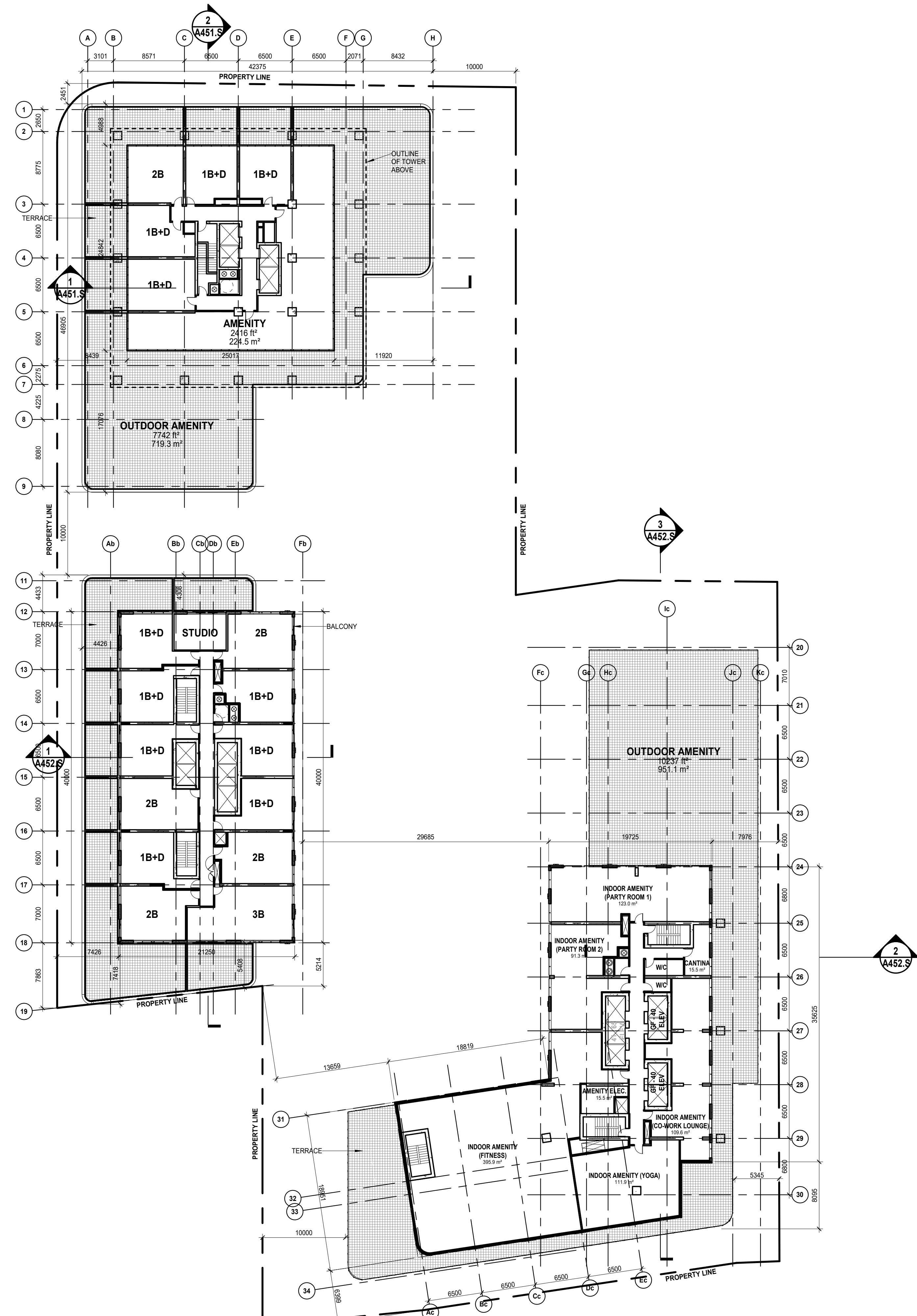
for
Distrikt Developments

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PROJECT SCALE DRAWN REVIEWED

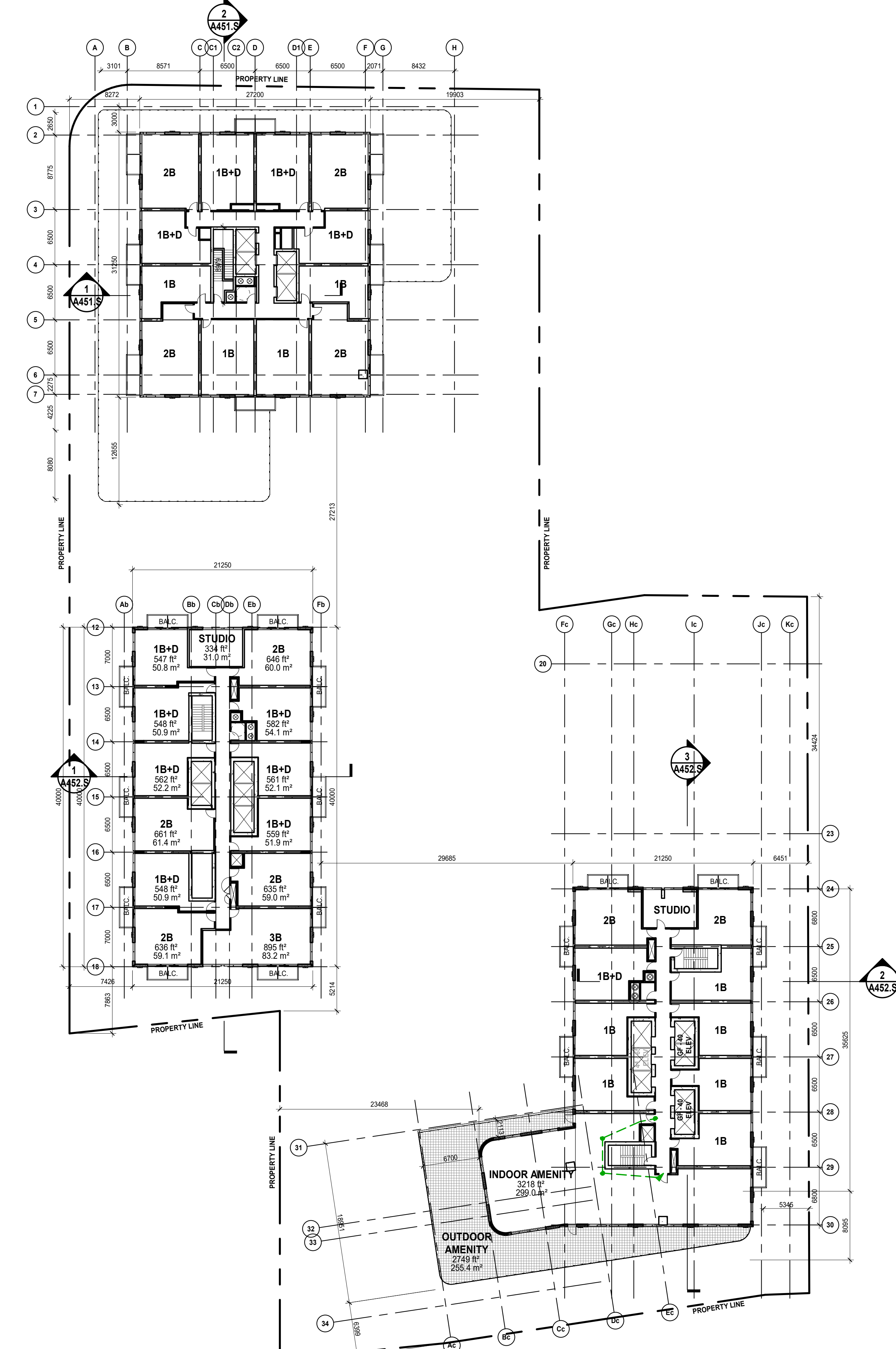
Second and Typical Third to Sixth
Floor Plans

A202.S

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1 SEVENTH FLOOR PLAN
SCALE: 1 : 300
A203.S



2 EIGHTH FLOOR PLAN
SCALE: 1 : 300
A203.S

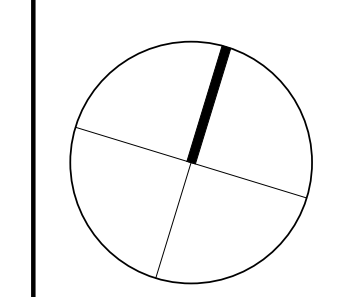
Date	No.	Description
2023-10-01	1	Issued for Rezoning & OLT
2022-04-19	2	Issued for Rezoning

REVISION RECORD

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Date	No.	Description
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2022-04-19	2	Issued for Rezoning

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217-227 Cross Avenue and
571-587 Argus Avenue

for
Distrikt Developments

19072 1 : 300 DC KVE
PROJECT SCALE DRAWN REVIEWED

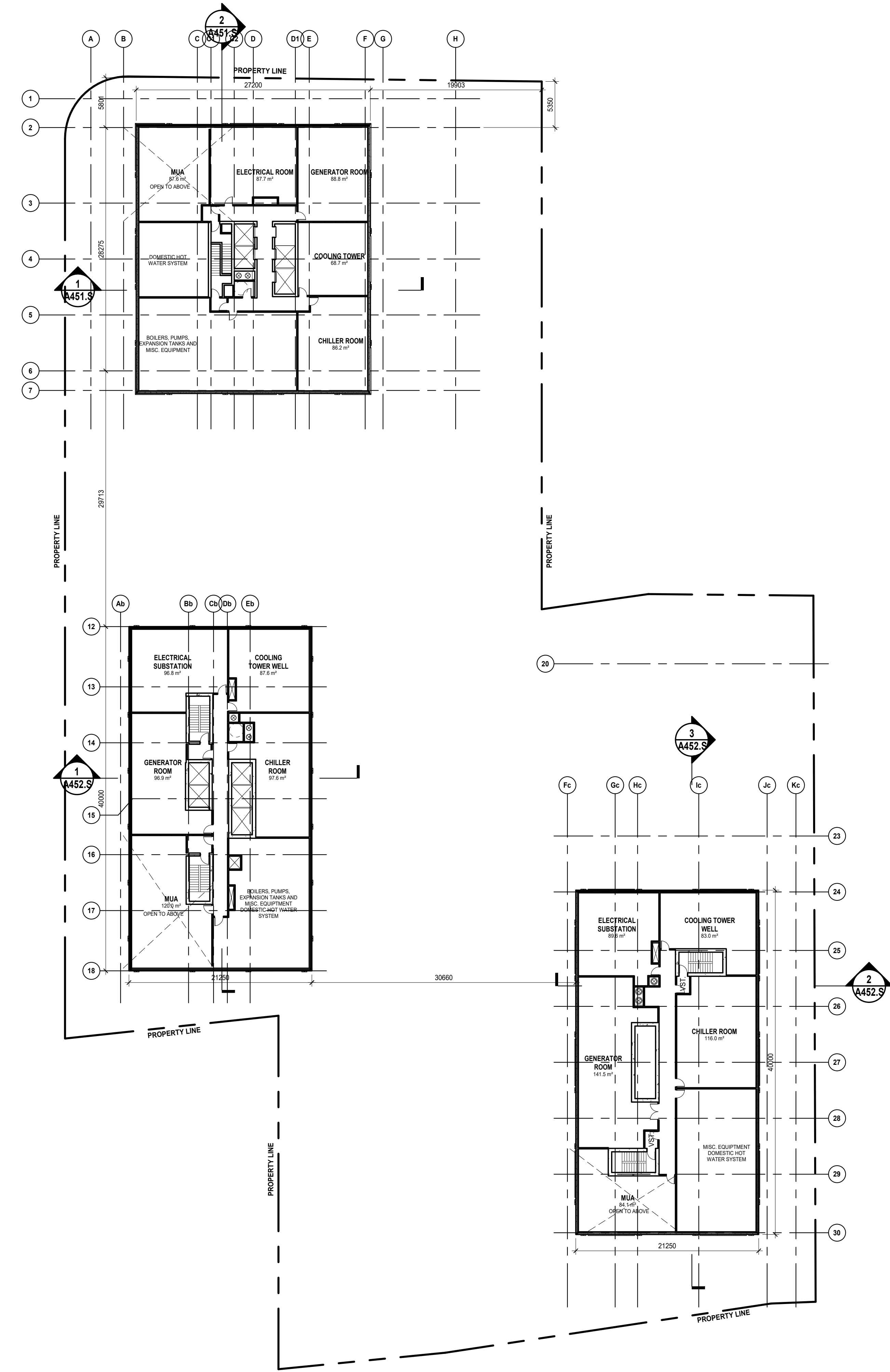
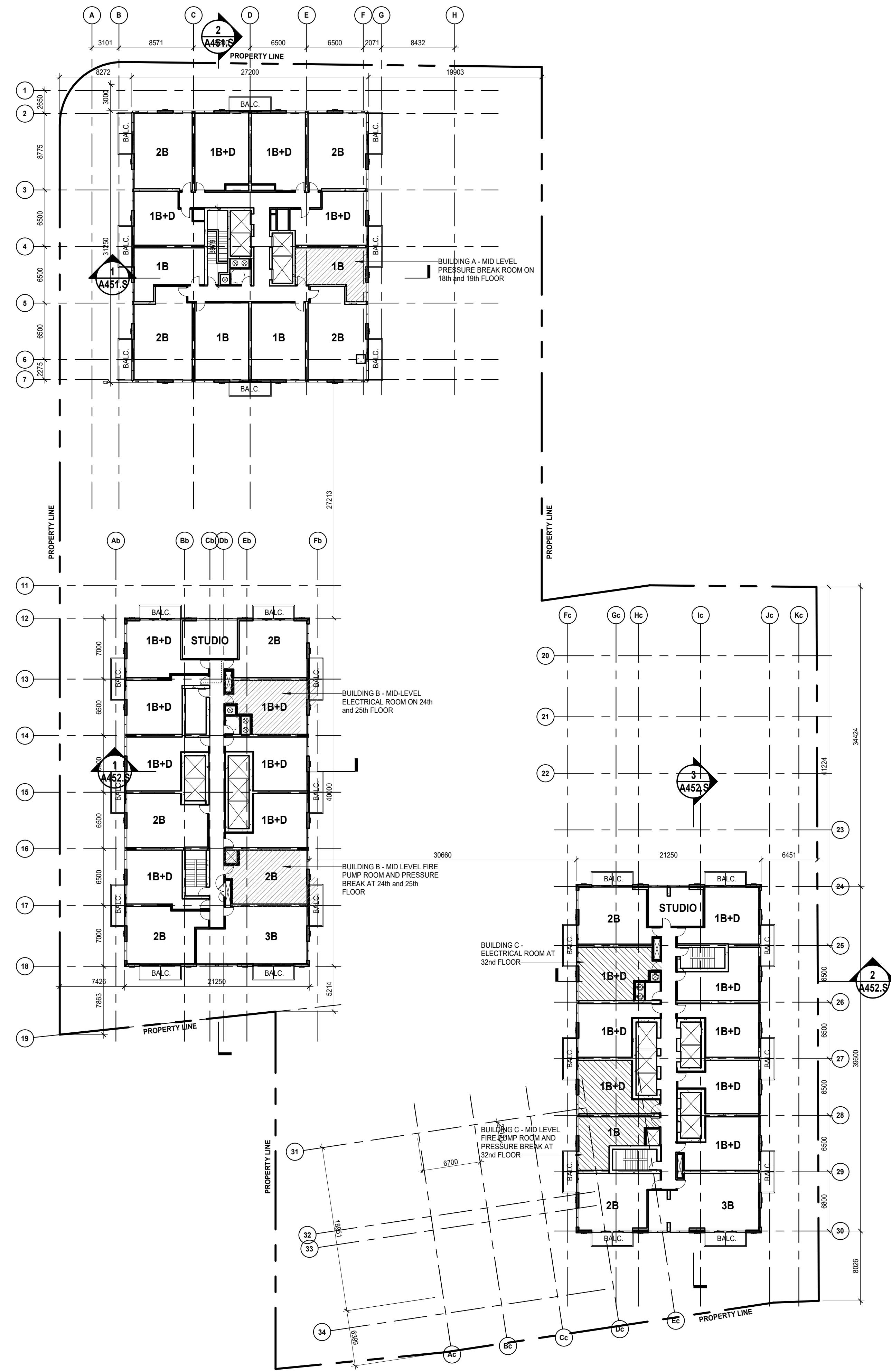
Seventh and Eighth Floor Plans

A203.S

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Date	No.	Description
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2022-04-19	Issued for Rezoning	

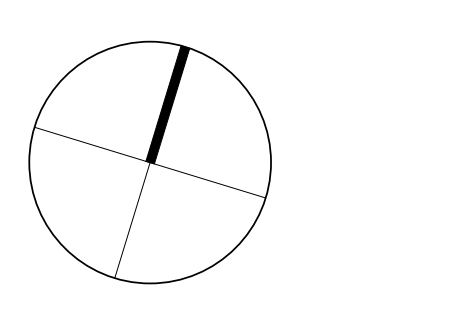
REVISION RECORD

Date	No.	Description

ISSUE RECORD

Date	Description
2023-10-01	Issued for Rezoning & OLT
2022-04-19	Issued for Rezoning

ISSUE RECORD



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217-227 Cross Avenue and
571-587 Argus Road

for
Distrikt Developments

19072 1 : 300 DC KVE
PROJECT SCALE DRAWN REVIEWED

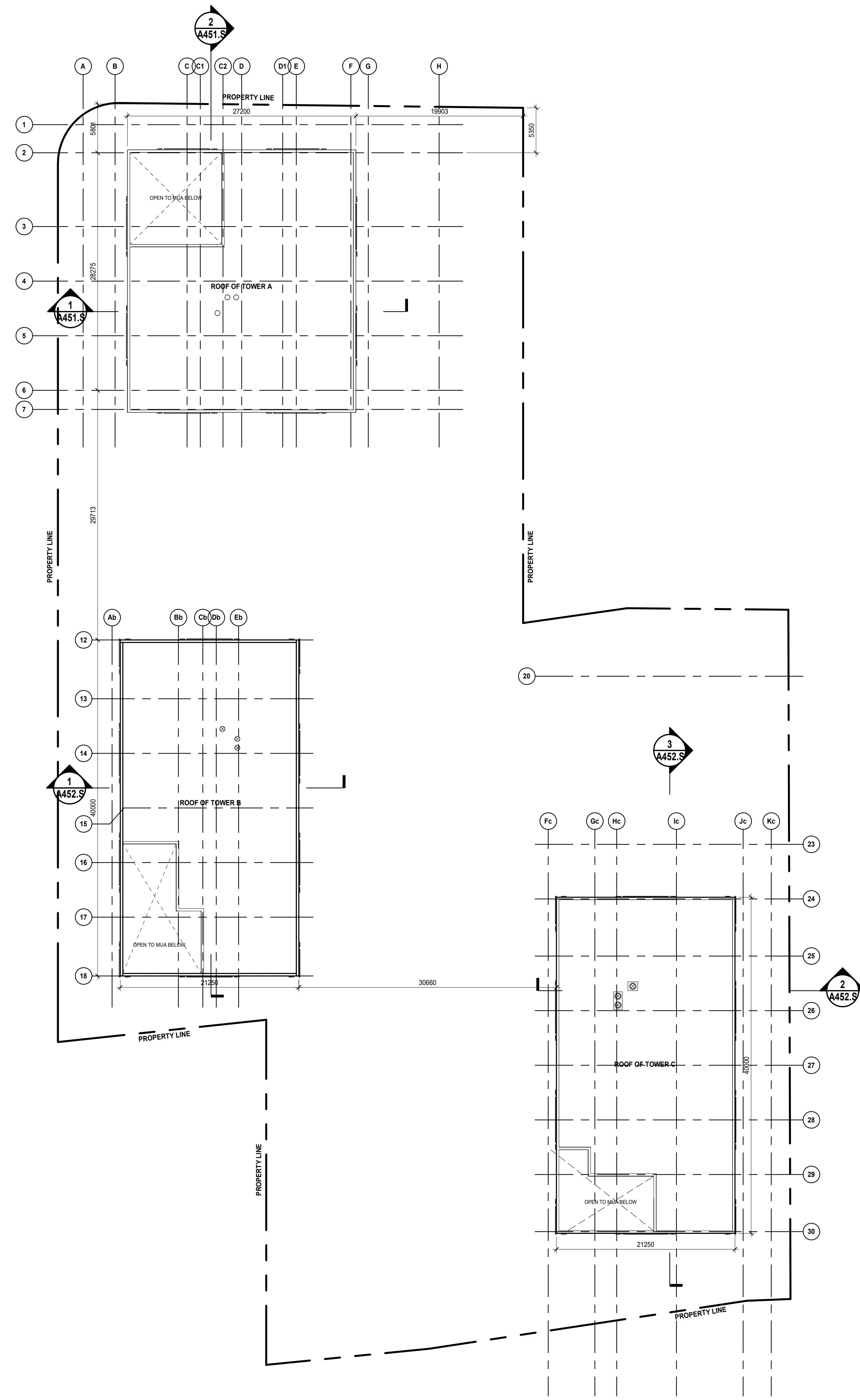
Typical Tower and Mechanical
Penthouse Plans

A204.S

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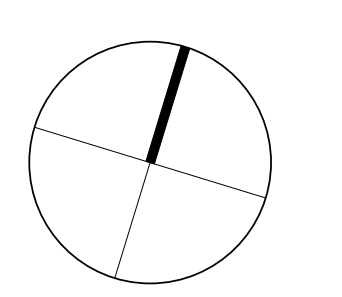


1 ROOF PLAN
A205.S

Date	No.	Description
REVISION RECORD		

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19072 1 : 300 AutoChecker
PROJECT SCALE DRAWN REVIEWED

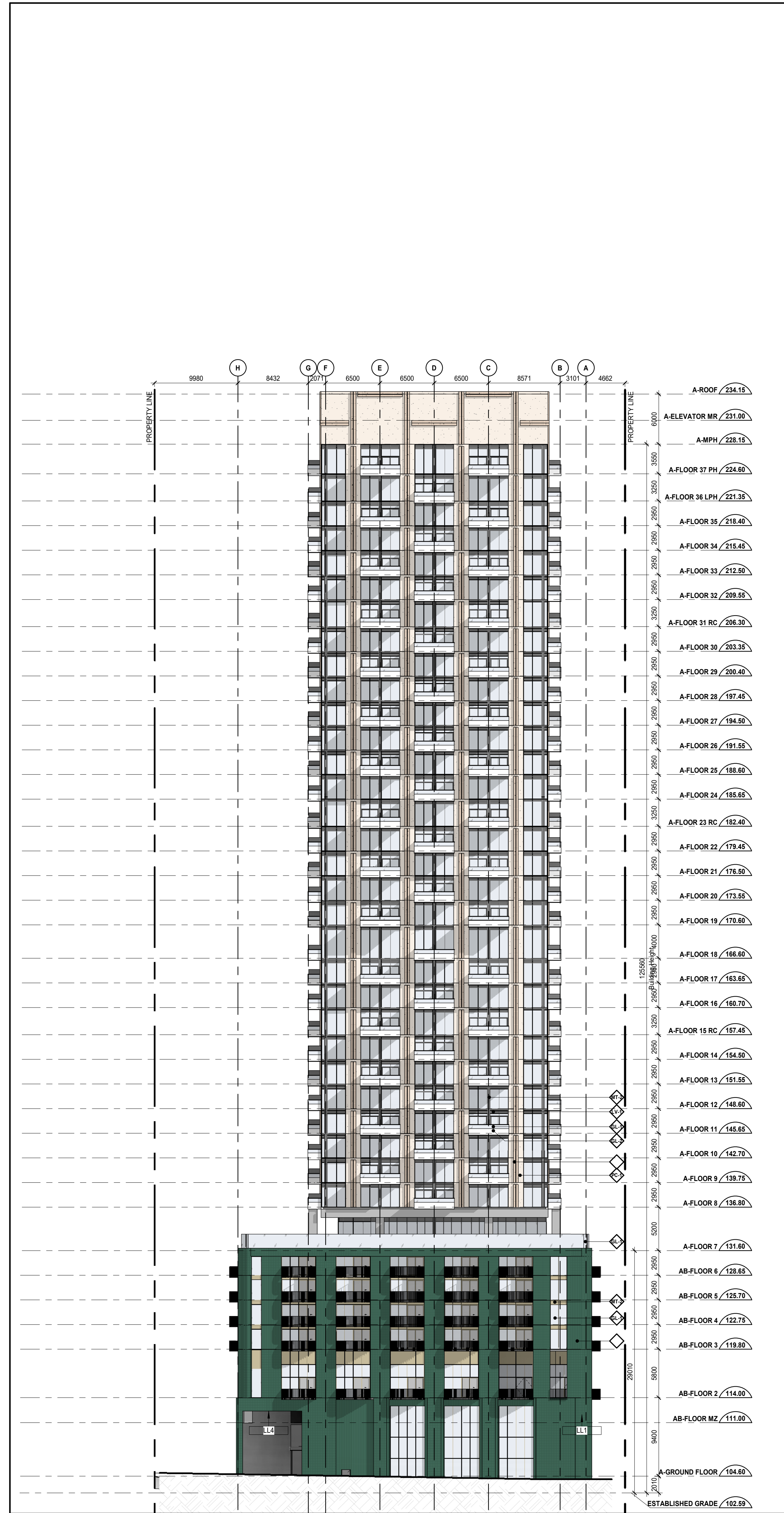
Roof Plan

A205.S

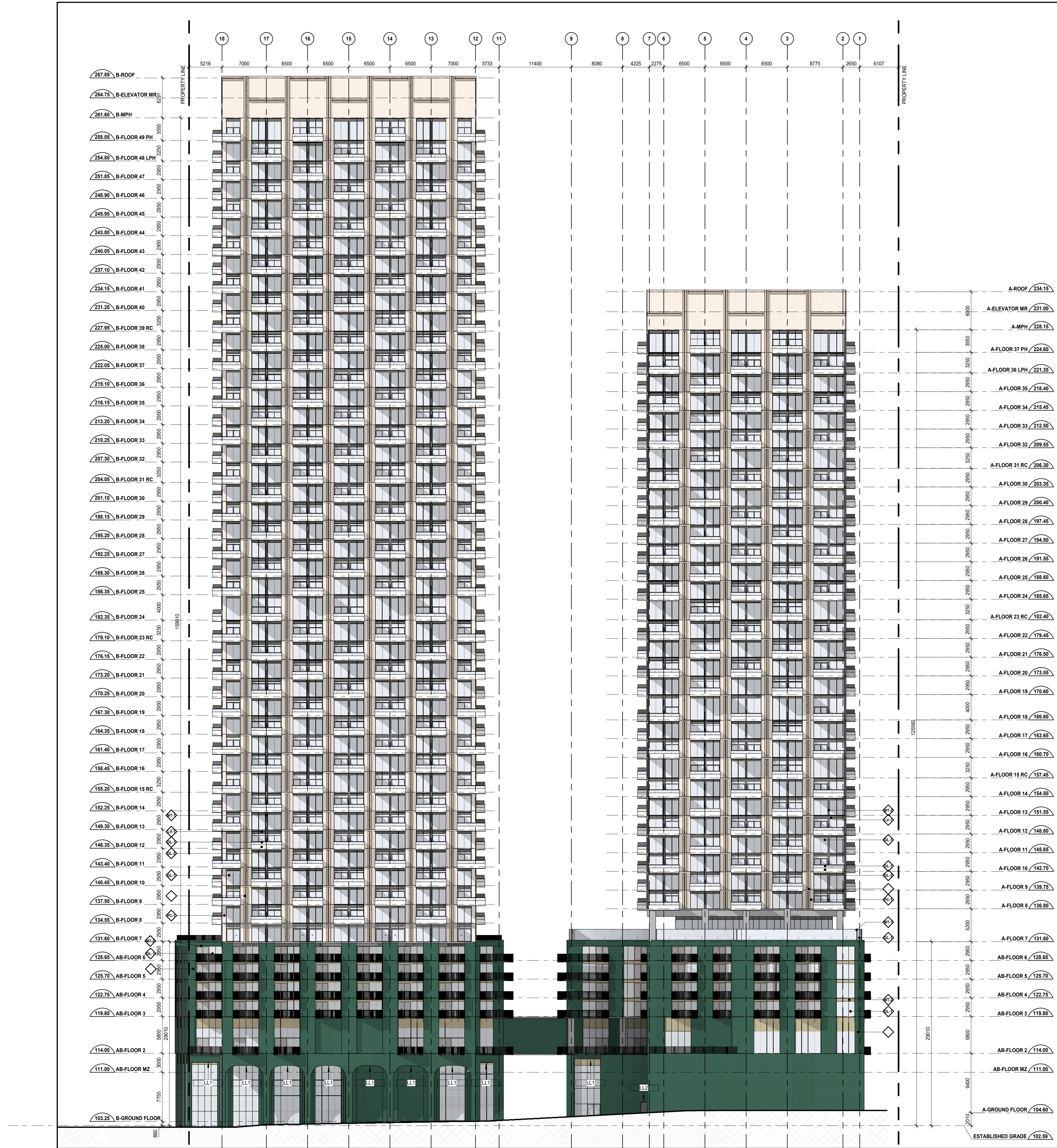
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1 BUILDING A - NORTH ELEVATION
SCALE: 1:300



2 BUILDING AB - EAST ELEVATION
SCALE: 1:300

- LEGEND:**
- TERRACOTTA - COLOUR 1
 - PRECAST PANEL
 - PREFINISHED ALUMINUM - COLOUR 1
 - PREFINISHED ALUMINUM - COLOUR 2
 - VISION GLAZING
 - RAILING GLASS WITH BIRD FRIENDLY FRIT PATTERN
 - RESIDENTIAL AND STOREFRONT WINDOW SYSTEM LOUVRE

Date	No.	Description
2023-10-01	1	Issued for Rezoning & OLT
2022-04-19	2	Issued for Rezoning

REVISION RECORD

No.	Description
1	Issued for Rezoning & OLT
2	Issued for Rezoning

ISSUE RECORD

No.	Description
1	Issued for Rezoning & OLT
2	Issued for Rezoning

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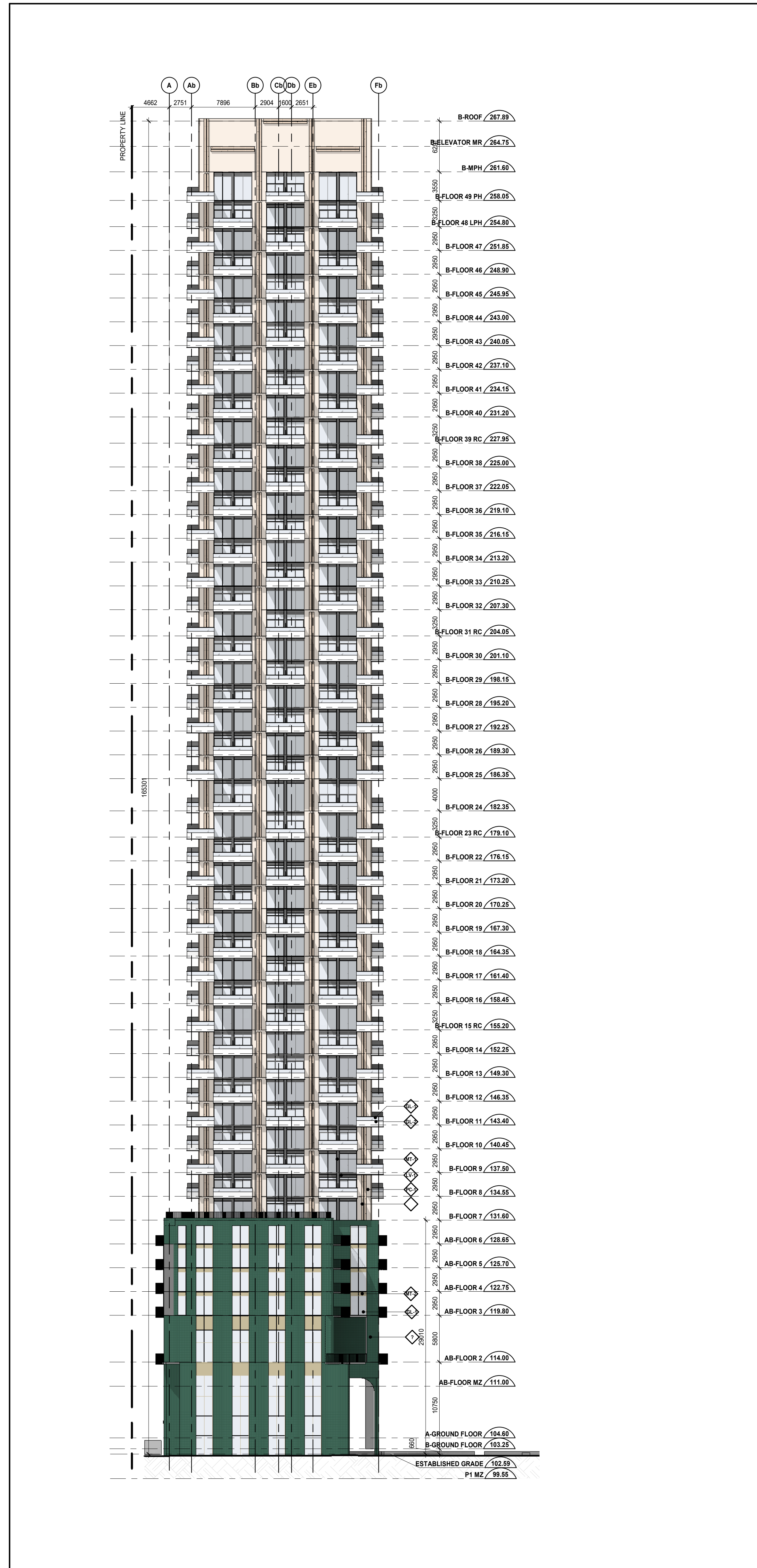
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19072 1:300 HL KVE
PROJECT SCALE DRAWN REVIEWED

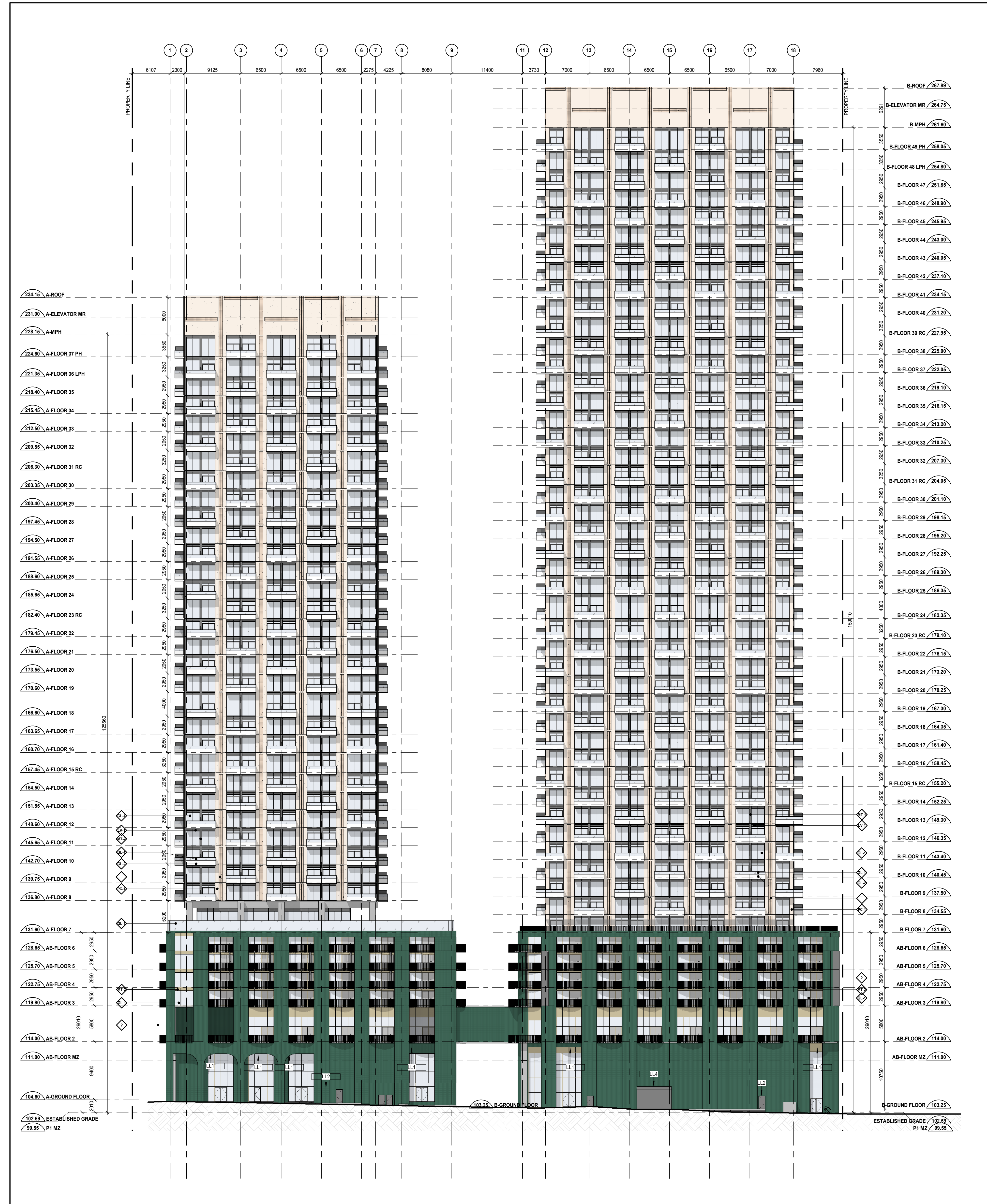
Building A and B - East and North
Elevations

A401.S

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2 BUILDING B - SOUTH ELEVATION
SCALE: 1:300



1 BUILDING AB - WEST ELEVATION
SCALE: 1:300

- LEGEND:**
- TERRACOTTA - COLOUR 1
 - PRECAST PANEL
 - PREFINISHED ALUMINUM - COLOUR 1
 - PREFINISHED ALUMINUM - COLOUR 2
 - VISION GLAZING
 - RAILING GLASS WITH BIRD FRIENDLY FRIT PATTERN
 - RESIDENTIAL AND STOREFRONT WINDOW SYSTEM LOUVRE

Date	No.	Description
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REVISION RECORD

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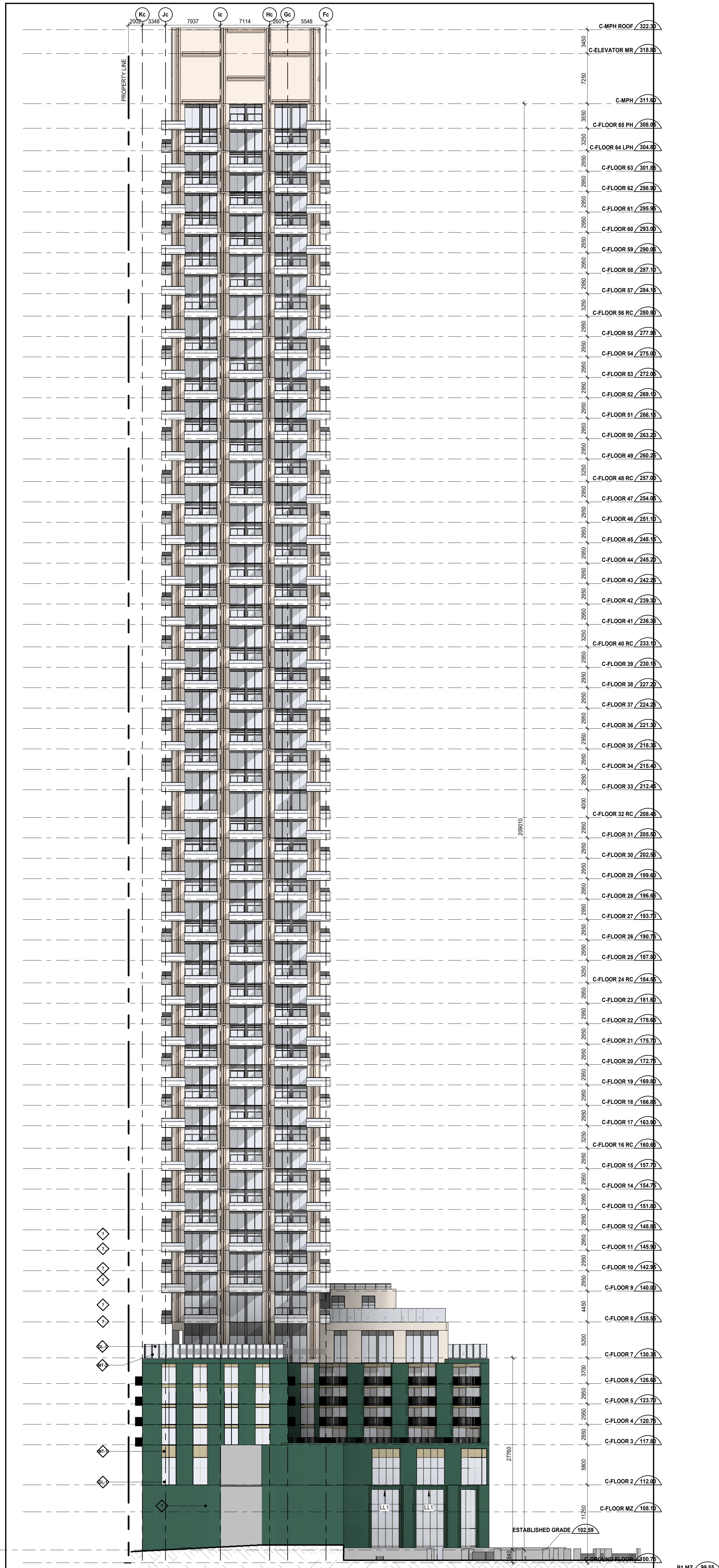
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19072 1:300 HL KVE
PROJECT SCALE DRAWN REVIEWED

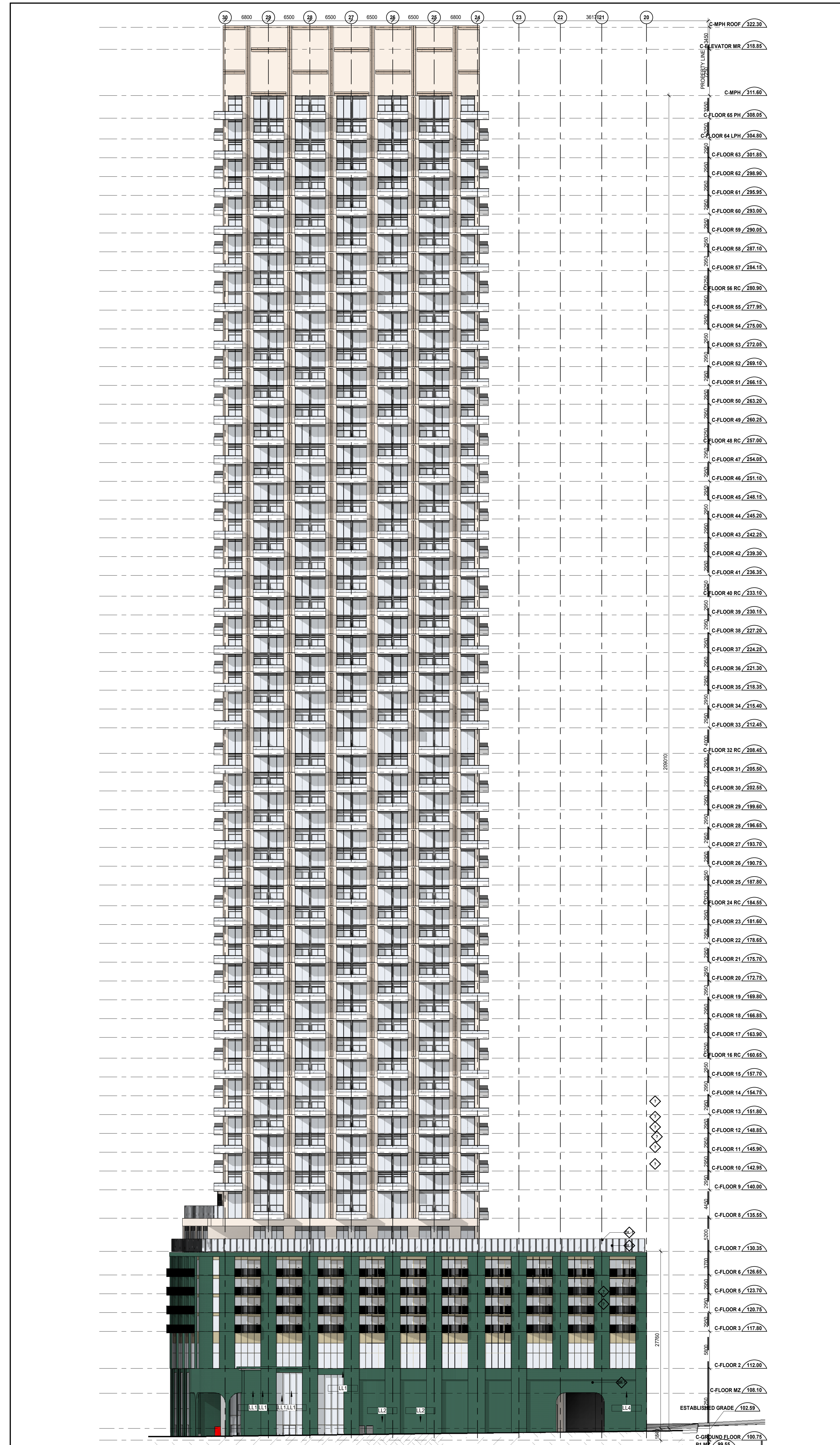
Building A and B - West and
South Elevations

A402.S

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2 BUILDING C - NORTH ELEVATION
SCALE: 1 : 300



1 BUILDING C - EAST ELEVATION
SCALE: 1 : 300

LEGEND:

- TERRACOTTA - COLOUR 1
- PRECAST PANEL
- REFINISHED ALUMINIUM - COLOUR 1
- REFINISHED ALUMINIUM - COLOUR 2
- VISION GLAZING
- RAILING GLASS WITH BIRD FRIENDLY FRIT PATTERN
- RESIDENTIAL AND STOREFRONT WINDOW SYSTEM LODGIE

Date	No.	Description
2023-10-01	1	Issued for Rezoning & OLT
2022-04-19	1	Issued for Rezoning

REVISION RECORD

Date	No.	Description

ISSUE RECORD

Date	No.	Description

DRAFT

2023-10-01 Issued for Rezoning & OLT

2022-04-19 Issued for Rezoning

ISSUE RECORD

Date	No.	Description

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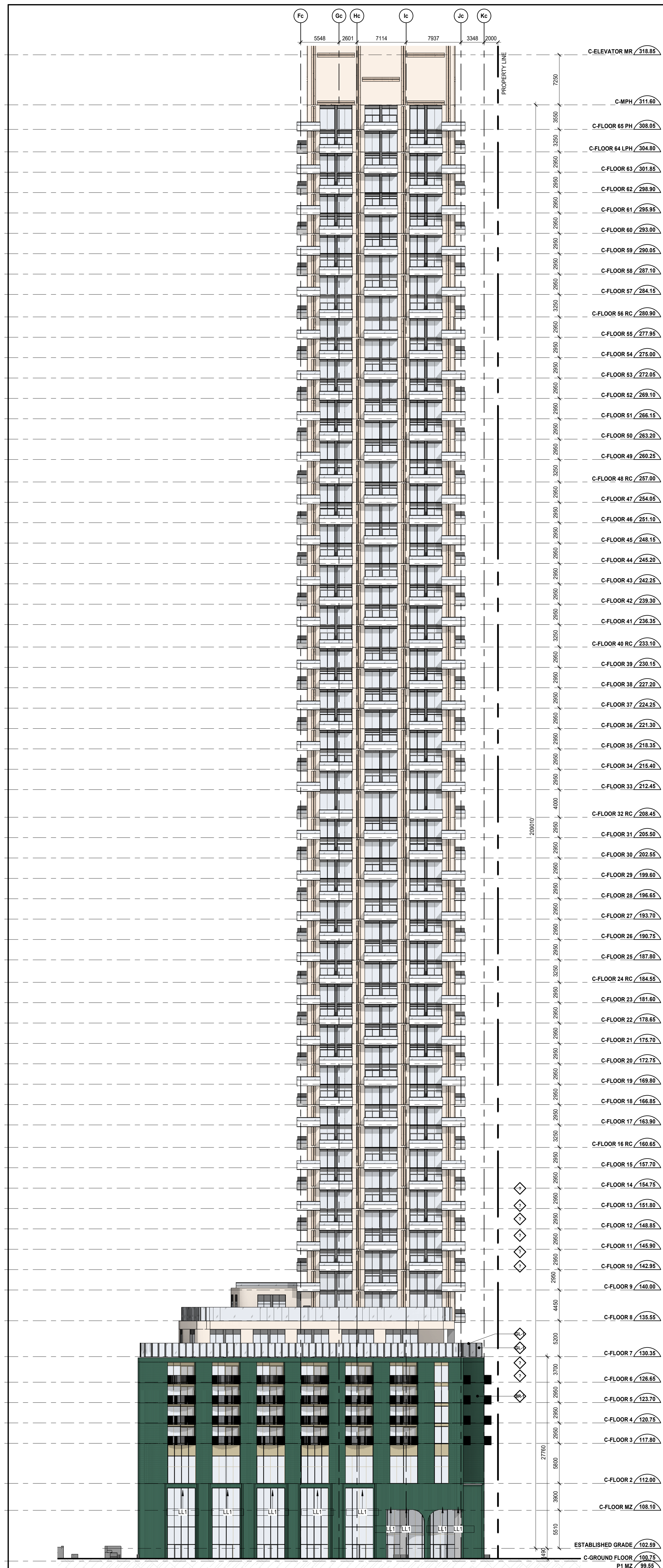
for
Distrikt Developments

19072 As indicated HL KVE
PROJECT SCALE DRAWN REVIEWED

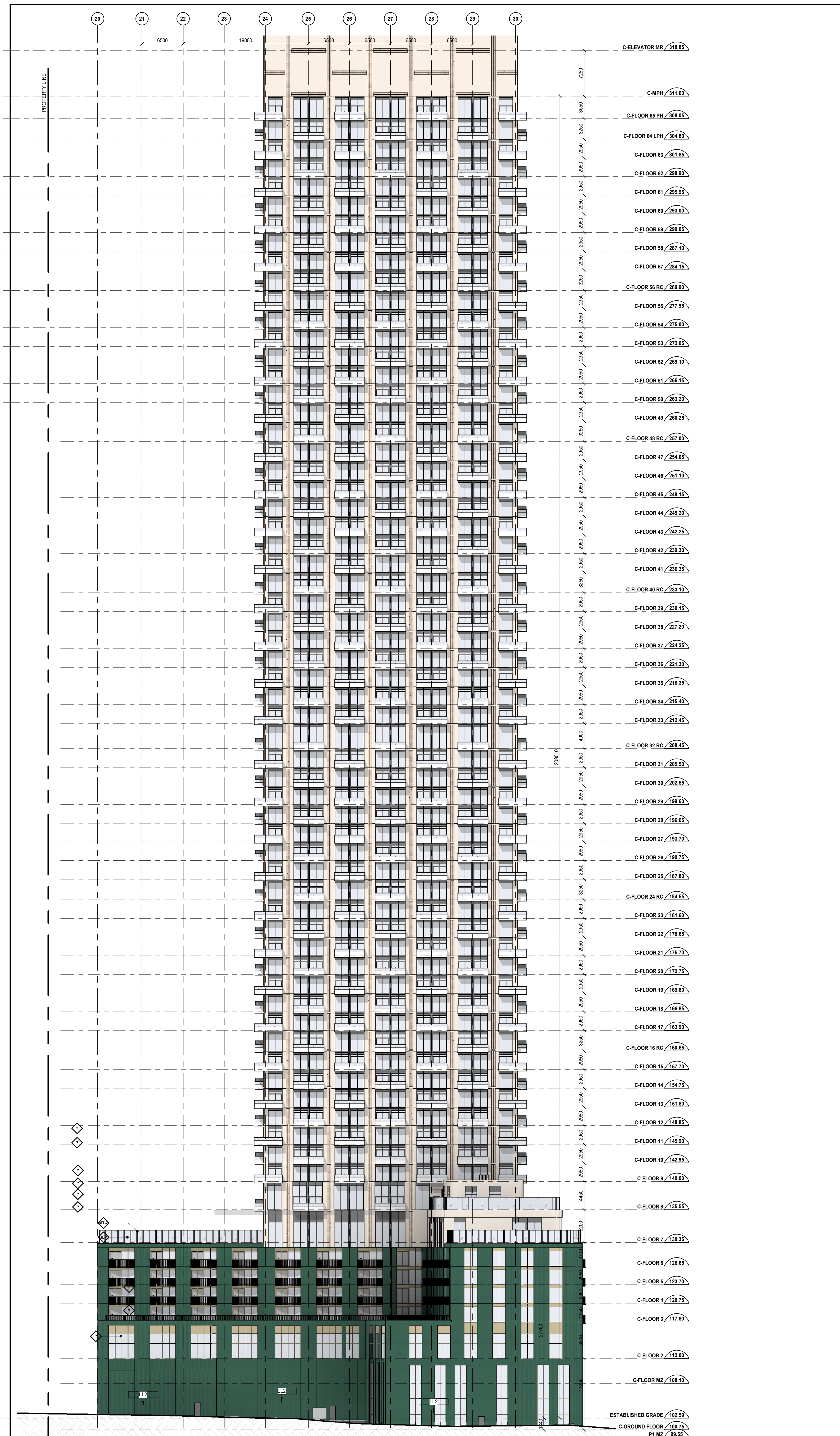
Building C - East and North
Elevations

A403.S

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1 BUILDING C - SOUTH ELEVATION
SCALE: 1:300



2 BUILDING C - WEST ELEVATION
SCALE: 1:300

LEGEND:

	TERRACOTTA - COLOUR 1
	PRECAST PANEL
	PREFINISHED ALUMINUM - COLOUR 1
	PREFINISHED ALUMINUM - COLOUR 2
	VISION GLAZING
	RAILING GLASS WITH BIRD FRIENDLY FRIT PATTERN
	RESIDENTIAL AND STOREFRONT WINDOW SYSTEM LODGIE

Date	No.	Description
2023-10-01	1	Issued for Rezoning & OLT
2022-04-19	1	Issued for Rezoning

REVISION RECORD

ISSUE RECORD

2023-10-01 Issued for Rezoning & OLT

2022-04-19 Issued for Rezoning

ISSUE RECORD

2023-10-01 Issued for Rezoning & OLT

2022-04-19 Issued for Rezoning

ISSUE RECORD

2023-10-01 Issued for Rezoning & OLT

2022-04-19 Issued for Rezoning

ISSUE RECORD

2023-10-01 Issued for Rezoning & OLT

2022-04-19 Issued for Rezoning

ISSUE RECORD

2023-10-01 Issued for Rezoning & OLT

2022-04-19 Issued for Rezoning

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2023-10-01 Issued for Rezoning & OLT

2022-04-19 Issued for Rezoning

ISSUE RECORD

2023-10-01 Issued for Rezoning & OLT

2022-04-19 Issued for Rezoning

ISSUE RECORD

2023-10-01 Issued for Rezoning & OLT

2022-04-19 Issued for Rezoning

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2023-10-01 Issued for Rezoning & OLT

2022-04-19 Issued for Rezoning

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2022-04-19 Issued for Rezoning

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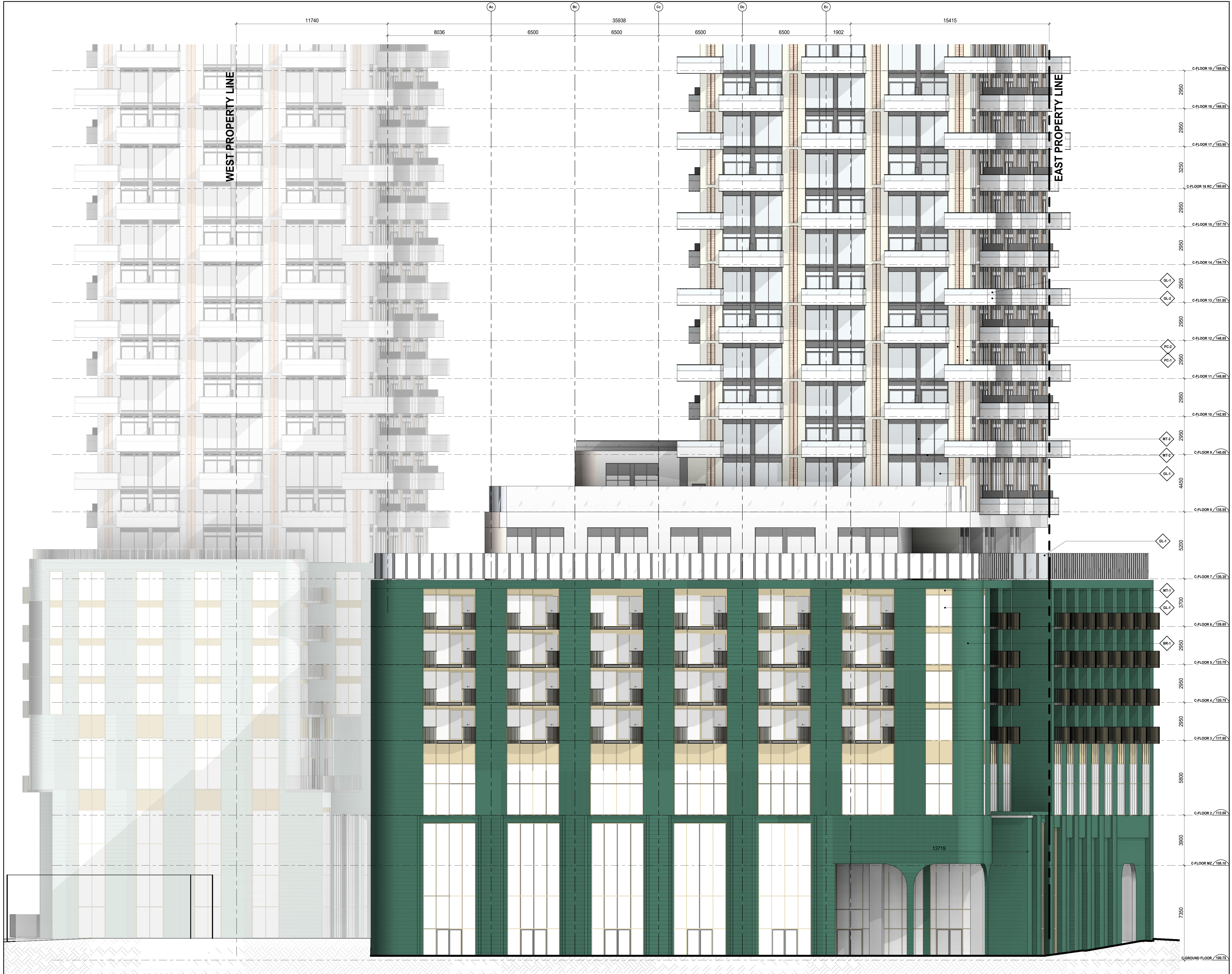
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PROJECT SCALE DRAWN REVIEWED

Building C - West and South
Elevations

A404.S

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- LEGEND:**
- TERRACOTTA - COLOUR 1
 - PRECAST PANEL
 - REFINISHED ALUMINIUM - COLOUR 1
 - REFINISHED ALUMINIUM - COLOUR 2
 - VISION GLAZING
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Date	No.	Description
REVISION RECORD		

DRAFT

Date	No.	Description
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Building C - Coloured Elevation

A410.S

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1 BUILDING C - COLOURED ELEVATION

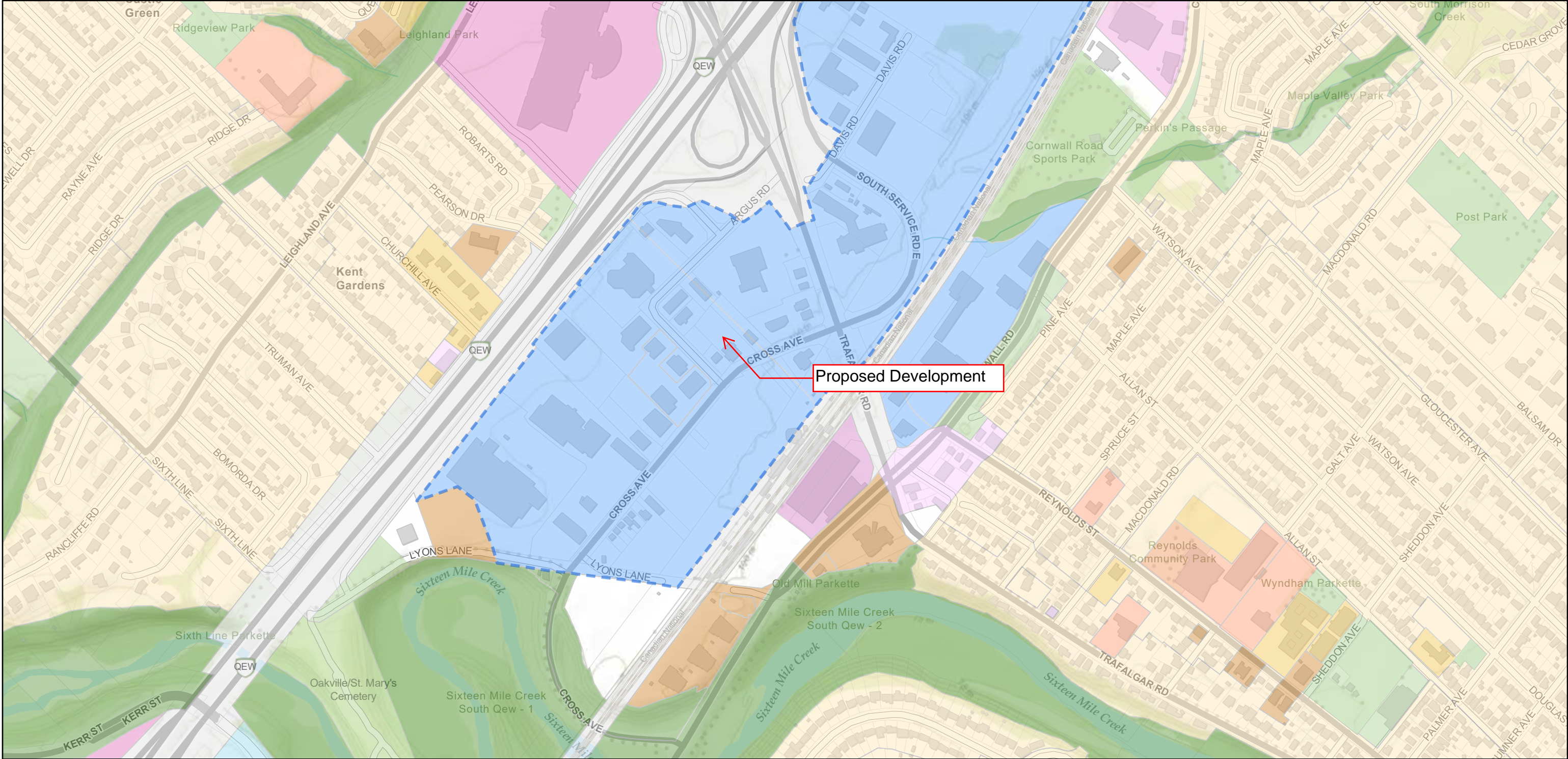
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Appendix B

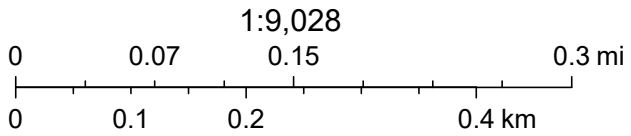
Zoning

Zoning By-Law



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	By-Law 2014-014 Appeal		CU		RL2-0		RM4		MU3		MTC
Zoning By-Law 2014 - 014											
	O1		E2		RL3		U		CEM		
	RM1		RH		RL5-0		C2		RL4-0		
	N		RL3-0		O2		C3		I		



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Midtown Oakville Zones

Portions of this by-law not yet in effect are covered with a blue tone. This version consolidates all amendments and orders of the OMB up to the consolidation date shown below. Contact the Building Services or Planning Services departments for more information.

7.1 List of Applicable Zones

Midtown Transitional Commercial	MTC
Midtown Transitional Employment	MTE

7.2 Permitted Uses

Uses permitted in the Midtown Oakville Zones are denoted by the symbol “✓” in the column applicable to that *Zone* and corresponding with the row for a specific permitted use in Table 7.2, below.

Table 7.2: Permitted Uses in the Midtown Oakville Zones		
	MTC	MTE
Legal uses of land, buildings, and structures existing on the lot as of the effective date of this By-law	✓	✓
Retail Uses		
Outside display and sales area	✓	✓
Retail propane and transfer facility	✓ (1)(2)	
Retail store	✓	✓ (3)
Service Commercial Uses		
Adult entertainment establishment		✓
Commercial school	✓	
Dry cleaning/laundry	✓	
Financial institution	✓	✓ (3)
Food production	✓	✓ (3)
Pet care establishment	✓	
Place of entertainment	✓ (4)	
Restaurant	✓	✓ (3)
Service commercial establishment	✓	✓ (3)
Sports facility	✓	✓ (3)
Veterinary clinic	✓	
Office Uses		
Business office	✓	✓
Medical office		✓
Community Uses		
Day care	✓	✓ (3)
Emergency service facility	✓	✓

OMB Appeals

Part 7 in its entirety

36 - General Electric Canada

Once Midtown Strategy projects are complete, staff anticipate an Official Plan Amendment will be required to update various schedules in the Livable Oakville Plan. Corresponding policy amendments may also be required to reflect changes recommended in the Parking Strategy and Mobility Hub Study work being undertaken in tandem with the Class Environmental Assessment.

In the interim, staff are recommending two transition zones – Midtown Transitional Commercial (MTC) and Midtown Transitional Employment (MTE) – apply that freeze building envelopes to those legally existing February 25, 2014. New buildings and structures would require a planning application, allowing Council to review a proposal and establish conformity with the Livable Oakville Plan (in particular, the acquisition of future roads required in Midtown Oakville). A limited range of additional uses are permitted that conform to the uses permitted in the Livable Oakville Plan to allow for the continued use of existing buildings should vacancies emerge.

Staff anticipate Midtown Strategy work to be complete later in 2015. Implementing zoning for Midtown Oakville would be introduced through a separate process, including a dedicated statutory public meeting for the Official Plan and Zoning By-law Amendments.

Portions of this by-law not yet in effect are covered with a blue tone. This version consolidates all amendments and orders of the OMB up to the consolidation date shown below. Contact the Building Services or Planning Services departments for more information.

Midtown Oakville Zones

Table 7.2: Permitted Uses in the Midtown Oakville Zones		
	MTC	MTE
Open Space Uses		
<i>Conservation use</i>	✓	✓
<i>Park, public</i>	✓	✓
<i>Stormwater management facility</i>	✓	✓
Employment Uses		
<i>Training facility</i>		✓
Hospitality Uses		
<i>Hotel</i>		✓
<i>Public hall</i>	✓ (1)	✓
Community Uses		
<i>Art gallery</i>	✓	
<i>Community centre</i>	✓	✓
<i>Day care</i>	✓	✓
<i>Emergency service facility</i>	✓	✓
<i>Library</i>	✓	
<i>School, private</i>	✓	
Community Uses		
<i>Conservation use</i>	✓	✓
<i>Park, public</i>	✓	✓
<i>Stormwater management facility</i>	✓	✓

Additional Regulations for Permitted Uses Table 7.2

1. Not permitted on a *lot* abutting a residential *zone*.
2. Only permitted for the sale of propane to the general public for automotive and recreational purposes.
3. Permitted only within the same *building* or part thereof *used* by any other *use* not subject to this footnote.
A maximum of 20% of the *net floor area* of the *building* shall be cumulatively occupied by all *uses* subject to this footnote.
4. Permitted only as an *accessory use*.

Midtown Oakville Zones

Portions of this by-law not yet in effect are covered with a blue tone. This version consolidates all amendments and orders of the OMB up to the consolidation date shown below. Contact the Building Services or Planning Services departments for more information.

7.3 Regulations

The regulations for the Midtown Oakville *Zones* are set out in Table 7.3, below.

Table 7.3: Regulations in the Midtown Oakville Zones		
	MTC	MTE
Minimum <i>lot frontage</i>	Shall be as legally existing as of the effective date of this By-law.	
Minimum <i>lot area</i>		
Maximum <i>lot coverage</i>		
Minimum <i>front yard</i>		
Minimum <i>flankage yard</i>		
Minimum <i>interior side yard</i>		
Minimum <i>rear yard</i>		
Maximum <i>height</i>		

Portions of this by-law not yet in effect are covered with a blue tone. This version consolidates all amendments and orders of the OMB up to the consolidation date shown below. Contact the Building Services or Planning Services departments for more information.

Commercial Zones

9.1 List of Applicable Zones

Neighbourhood Commercial	C1
Community Commercial	C2
Core Commercial	C3
Service Station	C4

Be sure to refer to all Parts of this By-law to ensure that you have reviewed all regulations that may apply to your lot. Contact staff in zoning section of the Building Services department to confirm the applicable zoning.

9.2 Permitted Uses (2016-023)

Uses permitted in the Commercial Zones are denoted by the symbol “✓” in the column applicable to that Zone and corresponding with the row for a specific permitted use in Table 9.2, below.

	C1	C2	C3	C4
<i>Art gallery</i>	✓	✓	✓	
<i>Business office</i>	✓	✓	✓	
<i>Commercial parking area</i>				
<i>Commercial school</i>	✓	✓	✓	
<i>Community centre</i>	✓	✓	✓	
<i>Conservation use</i>	✓	✓	✓	✓
<i>Day care</i>	✓ (1)	✓	✓	
<i>Drive-through facility</i>	✓ (1)	✓ (1)	✓ (1)	✓ (1)(2)
<i>Dry cleaning depot (2016-023)</i>	✓	✓	✓	
<i>Dry cleaning/laundry establishment (2016-023)</i>		✓	✓	
<i>Emergency service facility</i>	✓	✓	✓	
<i>Emergency shelter (PL240317)</i>	✓ (7)			
<i>Financial institution</i>	✓	✓	✓	
<i>Food bank</i>	✓	✓	✓	
<i>Food production</i>	✓	✓	✓	
<i>Funeral home</i>		✓		
<i>Library</i>	✓	✓	✓	
<i>Medical office</i>	✓	✓	✓	
<i>Motor vehicle repair facility</i>			✓ (6)	
<i>Motor vehicle service station</i>			✓	✓
<i>Motor vehicle washing facility</i>			✓	✓ (5)
<i>Museum</i>	✓	✓	✓	
<i>Outside display and sales area</i>	✓	✓	✓	✓
<i>Outside miniature golf</i>		✓	✓	
<i>Park, public</i>	✓	✓ ✓	✓	✓
<i>Pet care establishment</i>	✓	✓	✓	
<i>Place of entertainment</i>		✓	✓	
<i>Place of worship</i>	✓ (4)	✓ (4)	✓ (4)	

Commercial Zones

Table 9.2: Permitted Uses in the Commercial Zones (2017-025)				
	C1	C2	C3	C4
<i>Rental establishment</i>		✓	✓	
<i>Restaurant</i>	✓	✓	✓	✓ (5)
<i>Retail propane and transfer facility</i>			✓ (3)	✓ (3)
<i>Retail store</i>	✓	✓	✓	✓ (5)
<i>School, private (2016-023)</i>	✓ (1)	✓	✓	
<i>Service commercial establishment</i>	✓	✓	✓	
<i>Sports facility</i>	✓	✓	✓	
<i>Stormwater management facility</i>	✓	✓	✓	✓
<i>Veterinary clinic</i>	✓	✓	✓	

Additional Regulations for Permitted Uses Table 9.2

1. Permitted only on a *lot* abutting a major *arterial road*.
2. A maximum one *drive-through facility* shall be permitted on a *lot*.
3. Shall not be permitted on a *lot* abutting any *Residential Zone*.
4. The maximum *lot area* shall be 2.5 hectares. The maximum percentage of *net floor area* permitted to be occupied by a *place of worship* is 50% of the total *net floor area* on the *lot*.
5. Permitted only *accessory* to a *motor vehicle service station*.
6. Permitted only *accessory* to a *retail store*.
7. Prohibited on the *first storey* of a *building*. (PL140317)

9.3 Regulations

The regulations for *lots* in a Commercial Use *Zone* are set out in Table 9.3, below.

Table 9.3: Regulations in the Commercial Zones				
<i>(2015-018)</i>	C1	C2	C3	C4
Minimum <i>lot area</i>	0.2 ha	2.0 ha	4.0 ha	n/a
Minimum <i>lot frontage</i>	30.0 m	n/a	n/a	30.0 m
Minimum <i>lot depth</i>	n/a	n/a	n/a	30.0 m
Minimum <i>front yard</i> A	0.0 m	3.0 m	3.0 m	3.0 m
Maximum <i>front yard</i> B	17.5 m	17.5 m (1)	17.5 m (1)	n/a
Minimum <i>flankage yard</i> C	0.0 m	3.0 m	3.0 m	3.0 m
Maximum <i>flankage yard</i> C	17.5 m	17.5 m (1)	17.5 m (1)	n/a
Minimum <i>interior side yard</i> D	0.0 m	0.0 m	0.0 m	3.0 m

Portions of this by-law not yet in effect are covered with a blue tone. This version consolidates all amendments and orders of the OMB up to the consolidation date shown below. Contact the Building Services or Planning Services departments for more information.

Residential Zones

6.1 List of Applicable Zones

Residential Low	RL1, RL2, RL3, RL4, RL5, RL6 RL7, RL8, RL9, RL10, RL11
Residential Uptown Core	RUC
Residential Medium	RM1, RM2, RM3, RM4
Residential High	RH

6.2 Permitted Uses

Uses permitted in the Residential Zones are denoted by the symbol “✓” in the column applicable to that Zone and corresponding with the row for a specific permitted use in Tables 6.2.1 and 6.2.2, below.

Table 6.2.1: Permitted Uses in the Residential Low Zones and the Residential Uptown Core Zone (2017-025)						
		RL1, RL2, RL3, RL4, RL5, RL6	RL7, RL8, RL9	RL10	RL11	RUC
<i>Accessory dwelling unit</i> (2023-024)		✓	✓	✓	✓	✓
<i>Bed and breakfast establishment</i>	(1)	✓	✓	✓	✓	✓
<i>Conservation use</i>		✓	✓	✓	✓	✓
<i>Day care</i>	(1)	✓	✓	✓	✓	✓
<i>Detached dwelling</i>		✓	✓	✓		✓
<i>Duplex dwelling</i>				✓		
<i>Emergency service facility</i>		✓	✓	✓	✓	✓
<i>Emergency shelter</i>						
<i>Home occupation</i>		✓	✓	✓	✓	✓
<i>Linked dwelling</i>					✓	
<i>Lodging house</i>	(1)(2)	✓			✓	✓
<i>Park, public</i>		✓	✓	✓	✓	✓
<i>Place of worship</i>						
<i>Private home day care</i>	(1)	✓	✓	✓	✓	✓
<i>Private school</i>						
<i>Semi-detached dwelling</i>			✓			✓
<i>Short-term accommodation</i> (2023-024)	(1)	✓	✓	✓	✓	✓
<i>Stormwater management facility</i>		✓	✓	✓	✓	✓
<i>Townhouse dwelling</i>						✓

Additional Regulations for Permitted Uses Table 6.2.1

1. A maximum of one of the *uses* subject to this footnote shall be permitted on a *lot*. (2023-024)
2. The maximum number of *lodging units* shall be 3.
3. Permitted only on a *corner lot*.

Residential Zones

Table 6.2.2: Permitted Uses in the Residential Medium and Residential High Zones (2017-025)					
	RM1	RM2	RM3	RM4	RH
<i>Accessory Dwelling Unit (2023-024)</i>	✓				
<i>Apartment dwelling</i>				✓	✓
<i>Back-to-back townhouse dwelling</i>		✓			
<i>Conservation use</i>	✓	✓	✓	✓	✓
<i>Day care (1)</i>	✓	✓	✓	✓	✓
<i>Emergency service facility</i>	✓	✓	✓	✓	✓
<i>Home occupation</i>	✓	✓	✓	✓	✓
<i>Long term care facility</i>			✓	✓	✓
<i>Park, public</i>	✓	✓	✓	✓	✓
<i>Private home daycare (1)</i>	✓	✓	✓	✓	✓
<i>Retail store, accessory</i>					✓
<i>Retirement home</i>			✓	✓	✓
<i>Short-term accommodation (1)</i>	✓	✓	✓	✓	✓
<i>Stacked townhouse dwelling</i>			✓		
<i>Stormwater management facility</i>	✓	✓	✓	✓	✓
<i>Townhouse dwelling</i>	✓				

Additional Regulations for Permitted Uses Table 6.2.2

1. A maximum of one of the *accessory uses* subject to this footnote shall be permitted in a *dwelling* or an *accessory dwelling unit* associated with the main *dwelling*. (2023-024)

Portions of this by-law not yet in effect are covered with a blue tone. This version consolidates all amendments and orders of the OMB up to the consolidation date shown below. Contact the Building Services or Planning Services departments for more information.

Mixed Use Zones

8.1 List of Applicable Zones

Central Business District	CBD
Main Street 1	MU1
Main Street 2	MU2
Urban Centre	MU3
Urban Core	MU4

8.2 Permitted Uses

Uses permitted in the Mixed Use Zones are denoted by the symbol “✓” in the column applicable to that Zone and corresponding with the row for a specific permitted use in Table 8.2, below.

	CBD	MU1	MU2	MU3	MU4
<i>Accessory dwelling unit (2023-024)</i>	✓	✓	✓		
<i>Apartment dwelling</i>	✓ (1)	✓ (3)	✓ (3)	✓ (3)	✓ (3)
<i>Art gallery</i> (7)	✓	✓	✓	✓	✓
<i>Bed and breakfast establishment</i> (5)	✓				
<i>Business office</i> (6)(7)	✓	✓	✓	✓	✓
<i>Commercial parking area</i>	✓	✓	✓	✓	✓
<i>Commercial school</i> (7)	✓	✓	✓	✓	✓
<i>Community centre</i>	✓	✓	✓	✓	✓
<i>Conservation use</i>	✓	✓	✓	✓	✓
<i>Day care</i>	✓ (5)	✓	✓	✓	✓
<i>Detached dwelling</i> (2)	✓	✓	✓		
<i>Dormitory</i> (4)	✓	✓	✓	✓	✓
<i>Dry cleaning depot (PL140317)</i> (7)	✓	✓	✓	✓	✓
<i>Dry cleaning/laundry establishment (PL140317)</i> (7)	✓	✓	✓	✓	✓
<i>Emergency service facility</i>	✓	✓	✓	✓	✓
<i>Emergency shelter (PL140317)</i>	✓ (8)	✓ (8)	✓ (8)	✓ (8)	✓ (8)
<i>Financial institution</i> (7)	✓	✓	✓	✓	✓
<i>Food bank</i> (7)	✓	✓	✓	✓	✓
<i>Food production</i> (7)	✓	✓	✓	✓	✓
<i>Funeral home</i>	✓				
<i>Home Occupation</i> (5)	✓	✓	✓	✓	✓
<i>Hotel</i> (7)	✓			✓	✓
<i>Library</i>	✓	✓	✓	✓	✓
<i>Live-work dwelling (2017-025)</i> (2)	✓	✓	✓		
<i>Long term care facility</i>	✓ (1)	✓ (3)	✓ (3)	✓ (3)	✓ (3)
<i>Medical office</i> (6)(7)	✓	✓	✓	✓	✓
<i>Motor vehicle rental facility</i>				✓	✓

Mixed Use Zones

Table 8.2: Permitted Uses in the Mixed Use Zones (2017-025)					
	CBD	MU1	MU2	MU3	MU4
<i>Museum</i>	✓	✓	✓	✓	✓
<i>Outside display and sales area</i> (7)	✓	✓	✓	✓	✓
<i>Park, public</i>	✓	✓	✓	✓	✓
<i>Pet care establishment</i> (7)	✓	✓	✓	✓	✓
<i>Place of entertainment</i> (7)	✓	✓	✓	✓	✓
<i>Place of worship</i>	✓	✓	✓	✓	✓
<i>Post-secondary school</i>	✓	✓	✓	✓	✓
<i>Private home day care</i> (5)	✓	✓	✓	✓	✓
<i>Public hall</i> (7)	✓			✓	✓
<i>Rental establishment</i> (7)	✓	✓	✓	✓	✓
<i>Restaurant</i> (7)	✓	✓	✓	✓	✓
<i>Retail store</i> (7)	✓	✓	✓	✓	✓
<i>Retirement home</i>	✓ (1)	✓ (3)	✓ (3)	✓ (3)	✓ (3)
<i>School, private</i>	✓	✓	✓	✓	✓
<i>School, public</i>	✓	✓	✓	✓	✓
<i>Semi-detached dwelling</i> (2)	✓	✓	✓		
<i>Service commercial establishment</i> (7)	✓	✓	✓	✓	✓
<i>Short-term accommodation</i> (2023-024) (5)	✓	✓	✓	✓	✓
<i>Sports facility</i> (7)	✓	✓	✓	✓	✓
<i>Stormwater management facility</i>	✓	✓	✓	✓	✓
<i>Taxi dispatch</i> (7)	✓	✓	✓	✓	✓
<i>Townhouse dwelling</i> (2)	✓	✓	✓		
<i>Veterinary clinic</i> (7)	✓	✓	✓	✓	✓

Additional Regulations for Permitted Uses Table 8.2

1.
 - a) Stand-alone residential *buildings* are not permitted on *lots* having a *front lot line* or *flankage lot line* abutting Lakeshore Road. (2021-068)
 - b) Residential *dwelling units* located on the *first storey* shall have the *main front entrance* oriented towards a *public road*. (2021-068)
2. Permitted only where the use legally existed on the lot on the effective date of this By-law.
3.
 - a) Prohibited in the first 9.0 metres of depth of the *building*, measured in from the *main wall* oriented toward the *front lot line*, on the *first storey*. (2021-068)
 - b) Notwithstanding this, an *ancillary residential use* on the *first storey* is permitted to occupy a maximum of 15% of the length of the *main wall* oriented toward a *front lot line*. (2021-068)
4. Only permitted *accessory* to and on the same *lot* as a post-secondary school or private school.

Portions of this by-law not yet in effect are covered with a blue tone. This version consolidates all amendments and orders of the OMB up to the consolidation date shown below. Contact the Building Services or Planning Services departments for more information.

Open Space Zones

12.1 List of Applicable Zones

Park	O1
Private Open Space	O2
Cemetery	CEM

12.2 Permitted Uses

Uses permitted in the Open Space Zones are denoted by the symbol “✓” in the column applicable to that Zone and corresponding with the row for a specific permitted use in Table 12.2, below.

Be sure to refer to all Parts of this By-law to ensure that you have reviewed all regulations that may apply to your lot. Contact staff in zoning section of the Building Services department to confirm the applicable zoning.

	O1	O2	CEM
<i>Business office</i>		✓ (1)	
<i>Cemetery</i>			✓
<i>Commercial school</i>		✓ (1)	
<i>Community centre</i>	✓	✓	
<i>Conservation use</i>	✓	✓	✓
<i>Emergency service facility</i>	✓	✓	
<i>Golf course</i>		✓	
<i>Library</i>		✓ (1)	
<i>Marina</i>	✓		
<i>Museum</i>		✓ (1)	
<i>Outside miniature golf course</i>		✓	
<i>Park, private</i>		✓	
<i>Park, public</i>	✓	✓	
<i>Public hall</i>		✓ (1)	
<i>Restaurant</i>		✓ (1)	
<i>Retail store</i>		✓ (1)	
<i>Stormwater management facility</i>	✓	✓	✓
<i>Service commercial establishment</i>		✓ (1)	
<i>Sports facility</i>		✓	

Additional Regulations for Permitted Uses Table 12.2

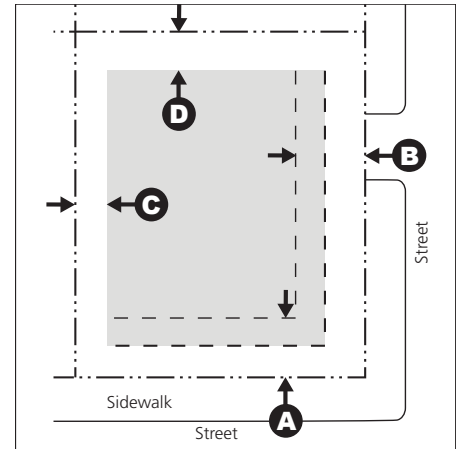
1. Permitted only *accessory* to another permitted use.

Open Space Zones

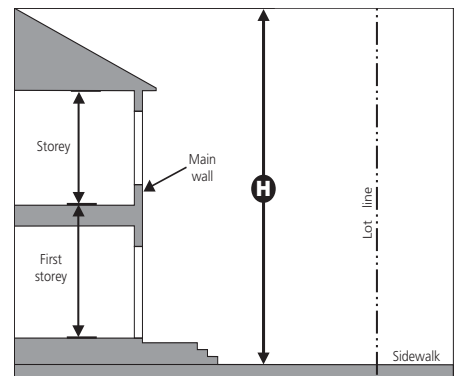
12.3 Regulations

The regulations for *lots* in an Open Space *Zone* are set out in Table 12.3, below.

Table 12.3: Regulations in the Open Space Zones			
	O1	O2	CEM
Minimum <i>lot area</i>	n/a	n/a	n/a
Minimum <i>lot frontage</i>	n/a	n/a	n/a
Minimum <i>front yard</i> (2015-018)	A 0.0 m	12.0 m	5.0 m
Minimum <i>flankage yard</i> (2015-018)	B 0.0 m	12.0 m	5.0 m
Minimum <i>interior side yard</i> (2015-018)	C 4.5 m	12.0 m	5.0 m
Minimum <i>rear yard</i> (2015-018)	D 4.5 m	12.0 m	7.5 m
Maximum <i>height</i>	H 14.0 m	14.0 m	14.0 m
Maximum <i>lot coverage</i>	25%	25%	30%



The black circles are letters corresponding to the applicable yard in the regulations table. The shaded area represents the potential building envelope remaining once minimum yards are removed.



Height is measured to the tallest point of the building.

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Other Zones

14.1 List of Applicable Zones

Utility	U
Future Development (2023-024)	FD
Stormwater Management Facility	SMF

Be sure to refer to all Parts of this By-law to ensure that you have reviewed all regulations that may apply to your lot. Contact staff in the zoning section of the Building Services department to confirm the applicable zoning.

14.2 Permitted Uses

Uses permitted in the Other Zones are denoted by the symbol “✓” in the column applicable to that Zone and corresponding with the row for a specific permitted use in Table 14.2, below.

	U	FD	SMF
Conservation use	✓	✓	✓
Emergency service facility		✓	
Legal uses of land existing on the lot as of the effective date of this By-law		✓ (1)	
Major transit station (2017-025)	✓ (2)		
Park, private			✓
Park, public		✓	✓
Stormwater management facility	✓	✓	✓

Additional Regulations for Permitted Uses Table 14.2

1.
 - a) Only buildings and structures legally existing on the effective date of this By-law and one accessory building or structure constructed after the effective date of this By-law are permitted.
 - b) If the use is a dwelling, the uses listed under accessory residential uses in Table 6.2.1 of this By-law are additionally permitted, subject to the additional regulations of that Table, and Section 6.5 of this By-law shall apply to permit accessory buildings and structures.
2.
 - a) Only permitted within and adjacent to a railway corridor at locations designated by an operator of a passenger rail service.
 - b) Accessory uses to a major transit station
 - i) shall be limited to restaurants, retail stores, dry cleaning/laundry and service commercial establishments;
 - ii) may be stand-alone or within shared premises;
 - iii) shall have a maximum total net floor area of 500.0 square metres; and,
 - iv) shall be exempt from the parking and yard regulations of this By-law (2017-025)

The Utility (U) Zone applies to most significant infrastructure facilities in Oakville. Infrastructure is permitted broadly across Oakville in Section 4.10 of this By-law and not in the Permitted Use Tables.

Other Zones

14.3 Regulations

The regulations for the Other *Zones* are set out in Table 14.3, below.

	U	FD	SMF
Minimum <i>lot area</i>	n/a	n/a	n/a
Minimum <i>lot frontage</i>	n/a	n/a	n/a
Minimum <i>front yard</i>	7.5 m	9.0 m	n/a
Minimum <i>flankage yard</i>	6.0 m	2.4 m	n/a
Minimum <i>interior side yard</i>	6.0 m	2.4 m	n/a
Minimum <i>rear yard</i>	7.5 m	7.5 m	n/a
Maximum <i>height</i>	n/a	10.0 m	n/a
Maximum <i>lot coverage</i>	n/a	(1)	n/a

Additional Regulations for Zone Regulations Table 14.3

1.
 - a) The maximum *lot coverage* and *floor area* shall be the *lot coverage* and *floor area* that legally existed on the effective date of this By-law, and may be increased by a maximum of 10% at the location of the *building* only.
 - b) For *accessory buildings* or *structures*, the regulations of Section 6.5 shall apply.

Appendix C

Transportation Emission Calculations

MOVES Input Parameter Summary

Key MOVES Parameters	MOVES Emission Rate Run
Geography	A surrogate U.S. city (Niagara county) was selected.
Time Span	2023 Year - current assessment year. January and July as worst-case months.
Meteorology	Average temperature and humidity for January and July months in Oakville in 2023 January: 33.8 °F, 81% July:71.6 °F, 75%
Vehicle types	Passenger Cars Passenger trucks Light Commercial Trucks Single-unit short-haul trucks Single-unit long-haul trucks Combination-unit short-haul Trucks Combination-unit long-haul Trucks Transit Bus
Road types	Urban Restricted Access (MOVES ID= 4)
Pollutants	CO, NOx, SO2, Particulates, and VOCs including 1,3-butadiene, acetaldehyde, acrolein, benzene, benzo(a)pyrene and formaldehyde.
Vehicle Type VMT	county default hour VMT Fraction.
Age Distribution	county-default age group
Average Speed Distribution	All vehicle are assumed to travel under the posted speed limit (100 km/hr) (MOVES speed bin=13)
Fuel	county default fuel inputs It is assumed all trucks and buses use diesel fuel and passenger cars use gasoline.

Road		2019 Base AADT ⁽¹⁾	2023 Projected AADT	Road Length (KM)
Queen Elizabeth Way (QEW) (between Trafalgar Rd Interchange and Dorval Rd Interchange)	All Vehicles	212,300	229,800	2.13
	Heavy Trucks	19,100	20,674	

The traffic volume AADT was obtained from the Ministry of Transportation (MTO) for the most recent year with available data (i.e., 2019) and projected for AADT 2023 year using a growth rate of 2% per annum.

The MTO classifies percentage of trucks based on the vehicle length (typically exceeds 12.49 meter which is considered as heavy trucks).

The MTO indicated the traffic counts collected during the COVID-19 pandemic (after March 2020) should not be used for assessing impacts.

<https://www.library.mto.gov.on.ca/SydneyPLUS/TechPubs/Portal/tp/tvSplash.aspx>

Ontario vehicle by type of vehicle in 2019 and corresponding vehicle types in MOVES

Vehicle Category	Type of Vehicle	Number of Vehicle - 2019 Ontario	Vehicle Category Percentages	Corresponding MOVES Vehicle types in MOVES	MOVES Source ID
Passenger Cars and Trucks	Vehicles weighing less than 4,500 kilograms	8,514,952	89.3%	Passenger cars Passenger trucks	21, 31
Median Trucks	Vehicles weighing 4,500 kilograms to 14,999 kilograms	134,789	1.4%	Light commercial trucks Single-unit short-haul trucks Single-unit long-haul trucks	32,52,53
Heavy Trucks	Vehicles weighing 15,000 kilograms or more	-	9.0%	Combination-unit short-haul Trucks Combination-unit long-haul Trucks	61,62
Buses	Buses	30,752	0.3%	Transit Bus	42
Total Vehicle - above categories		8,680,493	100.0%	-	-

Ontario vehicle data obtained from Statistics Canada for the 2019 year.

The heavy trucks percentage is based on the MTO traffic volume AADT while other vehicle distributions (Passenger cars and trucks, median trucks, and buses) are based on the registered vehicle number obtained from Statistics Canada

As the traffic volume AADT from Statistics Canada is only available by vehicle category, the emission factors for the corresponding MOVES source types were averaged for each vehicle class and applied to the traffic volume.

Estimated QEW AADT breakdown by vehicle category

Vehicle Category	QEW AADT by Vehicle Category	Vehicle Kilometer Travelled per day (VKT/day)	Vehicle Kilometer Travelled in the peak hour (VKT/hr)
Passenger Cars and Trucks	205,138	436,943	33,833
Median Trucks	3,247	6,917	536
Heavy Trucks	20,674	44,037	3,410
Buses	741	1,578	122
Total Vehicles -2023 year	229,800	489,475	37,900

Notes:

Traffic volume for each vehicle category is estimated based on the projected AADT for 2023 and the percentages of each vehicle category for Ontario.

Vehicle Kilometer Travelled (VKT) per day = AADT x road length (2.13 km)

Vehicle Kilometer Travelled (VKT) in the peak hour = AADT x VKT fraction for the peak hour x road length (2.13 km)

MOVES VKT distribution by hour of the day

Hour of the Day	VKT distribution - Urban Weekday	Ratio to the peak VKT (for estimating variable hourly emissions)
1	0.00986	0.1273
2	0.00627	0.0810
3	0.00506	0.0653
4	0.00467	0.0603
5	0.00699	0.0903
6	0.01849	0.2388
7	0.04596	0.5936
8	0.06964	0.8994
9	0.06083	0.7856
10	0.05029	0.6495
11	0.04994	0.6450
12	0.05437	0.7022
13	0.05765	0.7445
14	0.05803	0.7495
15	0.06226	0.8041
16	0.071	0.9170
17	0.07697	0.9941
18	0.07743	1.0000
19	0.05978	0.7721
20	0.04439	0.5733
21	0.03545	0.4578
22	0.03182	0.4110
23	0.02494	0.3221
24	0.01791	0.2313
Sum of all fractions	1	
VKT fraction for the peak hour	0.07743	

Typical hourly traffic profile for weekdays for an urban roadway was used to scale for the hourly VKT and associated hourly traffic tailpipe emissions.

For assessing contaminants with 1-hr average criteria, variable hourly emissions are estimated and used for dispersion modeling.

For assessing contaminants with 24-hr average criteria, daily average emission rates are estimated and used for dispersion modeling.

MOVES Emission Rate Summary for Selected Vehicle Types

Pollutants	Pollutant ID	Vehicle Types	Passenger Cars	Passenger Trucks	Light Commercial Trucks	Transit Buses	Single Unit Short-Haul Trucks	Single Unit Long-Haul Trucks	Combination Short-Haul Trucks	Combination Long-Haul Trucks
		Process ID	Emission Rate (g/VKT)	Emission Rate (g/VKT)	Emission Rate (g/VKT)	Emission Rate (g/VKT)	Emission Rate (g/VKT)	Emission Rate (g/VKT)	Emission Rate (g/VKT)	Emission Rate (g/VKT)
Oxides of Nitrogen (NOx)	3	1	9.5E-02	6.3E-01	4.8E-01	1.1E+00	7.1E-01	6.6E-01	1.7E+00	2.0E+00
Carbon Monoxide (CO)	2	1	1.5E+00	9.3E-01	6.6E-01	7.6E-01	4.7E-01	4.6E-01	8.4E-01	9.2E-01
Sulfur Dioxide (SO2)	31	1	8.3E-04	9.4E-04	9.5E-04	2.7E-03	1.7E-03	1.6E-03	3.0E-03	3.0E-03
Primary Exhaust PM10 - Total	100	1	1.3E-03	3.0E-02	2.1E-02	9.6E-03	2.0E-02	1.9E-02	2.8E-02	3.4E-02
Primary PM10 - Brakewear Particulate	106	9	3.0E-03	4.7E-03	5.0E-03	9.7E-03	1.0E-02	1.0E-02	7.0E-03	7.7E-03
Primary PM10 - Tirewear Particulate	107	10	1.1E-02	1.3E-02	1.4E-02	2.1E-02	2.0E-02	2.0E-02	3.5E-02	3.9E-02
Primary Exhaust PM2.5 - Total	110	1	1.1E-03	2.7E-02	1.9E-02	8.8E-03	1.8E-02	1.7E-02	2.6E-02	3.2E-02
Primary PM2.5 - Brakewear Particulate	116	9	3.7E-04	5.9E-04	6.3E-04	1.2E-03	1.2E-03	1.3E-03	8.8E-04	9.7E-04
Primary PM2.5 - Tirewear Particulate	117	10	1.6E-03	2.0E-03	2.1E-03	3.1E-03	3.1E-03	3.1E-03	5.2E-03	5.9E-03
Benzo(a)pyrene particle	74	1	5.0E-07	1.5E-06	9.9E-07	3.5E-07	8.6E-07	8.2E-07	7.7E-07	1.2E-06
Benzo(a)pyrene gas	174	1	5.0E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Acrolein	27	1	1.1E-05	6.8E-04	4.5E-04	2.0E-04	2.7E-04	2.7E-04	2.4E-04	3.0E-04
Acetaldehyde	26	1	1.8E-04	3.8E-03	2.5E-03	1.3E-03	1.6E-03	1.6E-03	1.8E-03	2.1E-03
Benzene	20	1	7.3E-04	7.8E-04	5.2E-04	2.1E-04	3.1E-04	3.0E-04	1.9E-04	2.7E-04
Formaldehyde	25	1	2.4E-04	8.1E-03	5.4E-03	2.5E-03	3.3E-03	3.2E-03	2.6E-03	3.4E-03
1,3-Butadiene	24	1	6.4E-05	2.9E-04	1.9E-04	6.4E-05	1.1E-04	1.1E-04	6.8E-05	9.4E-05
Total PM2.5 (Exhaust + Brakewear + tirewear)	110+116+117	-	3.1E-03	3.0E-02	2.2E-02	1.3E-02	2.2E-02	2.2E-02	3.2E-02	3.8E-02
Total PM10 (Exhaust + Brakewear + tirewear)	100+106+107	-	1.5E-02	4.8E-02	4.0E-02	4.0E-02	5.0E-02	5.0E-02	7.0E-02	8.1E-02
Total BaP (Particulate and Gas)	74+174	-	5.1E-07	1.5E-06	9.9E-07	3.5E-07	8.6E-07	8.2E-07	7.7E-07	1.2E-06

Averaged Emission Rate for Vehicle Categories

Pollutants	Averaged Emission Rate by Vehicle Categories (g/VKT)				
	Pollutant ID	Passenger Cars and Trucks	Median Trucks	Heavy Trucks	Buses
Oxides of Nitrogen (NOx)	3	3.6E-01	6.2E-01	1.8E+00	1.1E+00
Carbon Monoxide (CO)	2	1.2E+00	5.3E-01	8.8E-01	7.6E-01
Sulfur Dioxide (SO2)	31	8.9E-04	1.4E-03	3.0E-03	2.7E-03
Acrolein	27	3.4E-04	3.3E-04	2.7E-04	2.0E-04
Acetaldehyde	26	2.0E-03	1.9E-03	1.9E-03	1.3E-03
Benzene	20	7.6E-04	3.8E-04	2.3E-04	2.1E-04
Formaldehyde	25	4.2E-03	4.0E-03	3.0E-03	2.5E-03
1,3-Butadiene	24	1.8E-04	1.4E-04	8.1E-05	6.4E-05
Total PM2.5 (Exhaust + Brakewear + tirewear)	110+116+117	1.7E-02	2.2E-02	3.5E-02	1.3E-02
Total PM10 (Exhaust + Brakewear + tirewear)	100+106+107	3.1E-02	4.6E-02	7.6E-02	4.0E-02
Total BaP (Particulate and Gas)	74+174	9.8E-07	8.9E-07	9.9E-07	3.5E-07

24-hr Average Tailpipe Emission Rates

Pollutants	24-hr Average Tailpipe Emission Rates (g/s)				
	Passenger Cars and Trucks	Median Trucks	Heavy Trucks	Buses	Total Vehicles
Oxides of Nitrogen (NOx)	1.8E+00	4.9E-02	9.3E-01	2.0E-02	2.8E+00
Carbon Monoxide (CO)	6.2E+00	4.3E-02	4.5E-01	1.4E-02	6.7E+00
Sulfur Dioxide (SO2)	4.5E-03	1.1E-04	1.5E-03	5.0E-05	6.2E-03
Acrolein	1.7E-03	2.7E-05	1.4E-04	3.6E-06	1.9E-03
Acetaldehyde	1.0E-02	1.5E-04	9.9E-04	2.3E-05	1.1E-02
Benzene	3.8E-03	3.0E-05	1.2E-04	3.8E-06	4.0E-03
Formaldehyde	2.1E-02	3.2E-04	1.5E-03	4.6E-05	2.3E-02
1,3-Butadiene	8.9E-04	1.1E-05	4.1E-05	1.2E-06	9.4E-04
Total PM2.5 (Exhaust + Brakewear + tirewear)	8.4E-02	1.8E-03	1.8E-02	2.4E-04	1.0E-01
Total PM10 (Exhaust + Brakewear + tirewear)	1.6E-01	3.7E-03	3.8E-02	7.3E-04	2.0E-01
Total BaP (Particulate and Gas)	5.0E-06	7.1E-08	5.0E-07	6.5E-09	5.5E-06
Total TSP (Exhaust + Brakewear + tirewear)	1.6E-01	3.7E-03	3.8E-02	7.3E-04	2.0E-01

Notes:

As the particulates from tailpipe exhaust are mainly PM2.5 and PM10, the TSP emissions are assumed equal to PM10.

24-hr tailpipe emission rates (g/s)= Vehicle Travelling Emission Factor (g/VKT) x Vehicle Kilometer Travelled per day (VKT/day) / 24 (hr/day) / 3600 (s/hr)

Sample calculation for 24-hr SO2 emission rate for Buses (g/s)

= SO2 Emission factor (g/VKT) X Bus kilometer travelled per day (VKT/day)/ 24 (hrs/day) /3600 (s/hr)

= 0.00273894 (g/VKT) x 1578 (VKT/day) / 24 (hrs/day) /3600 (s/hr)

5.0E-05 (g/s)

1-hr Average Tailpipe Emission Rates (Peak Hour)

Pollutants	Peak Hour Tailpipe Emission Rates (g/s)				
	Passenger Cars and Trucks	Median Trucks	Heavy Trucks	Buses	Total Vehicles
Oxides of Nitrogen (NOx)	3.4E+00	9.2E-02	1.7E+00	3.8E-02	5.3E+00
Carbon Monoxide (CO)	1.2E+01	7.9E-02	8.3E-01	2.6E-02	1.3E+01
Sulfur Dioxide (SO2)	8.3E-03	2.1E-04	2.9E-03	9.3E-05	1.1E-02
Acrolein	3.2E-03	4.9E-05	2.6E-04	6.7E-06	3.6E-03
Acetaldehyde	1.9E-02	2.8E-04	1.8E-03	4.3E-05	2.1E-02
Benzene	7.1E-03	5.6E-05	2.2E-04	7.0E-06	7.4E-03
Formaldehyde	3.9E-02	5.9E-04	2.8E-03	8.6E-05	4.3E-02
1,3-Butadiene	1.6E-03	2.0E-05	7.7E-05	2.2E-06	1.7E-03
Total PM2.5 (Exhaust + Brakewear + tirewear)	1.6E-01	3.3E-03	3.3E-02	4.5E-04	1.9E-01
Total PM10 (Exhaust + Brakewear + tirewear)	2.9E-01	6.9E-03	7.2E-02	1.4E-03	3.7E-01
Total BaP (Particulate and Gas)	9.2E-06	1.3E-07	9.4E-07	1.2E-08	1.0E-05
Total TSP (Exhaust + Brakewear + tirewear)	2.9E-01	6.9E-03	7.2E-02	1.4E-03	3.7E-01

Notes

As the particulates from tailpipe exhaust are mainly PM2.5 and PM10, the TSP emissions are assumed equal to PM10.

1-hr tailpipe emission rates (g/s)= Vehicle Travelling Emission Factor (g/VKT) x Vehicle Kilometer Travelled in the peak hour (VKT/hr) / 3600 (s/hr)

Sample calculation for 1-hr NOx emission rate for Heavy Trucks (g/s)

= NOx Emission factor (g/VKT) X Heavy Trucks kilometer travelled in the peak hour (VKT/hour) /3600 (s/hr)

= 1.83197 (g/VKT) x 3410(VKT/hour) /3600 (s/hr)

1.7E+00 (g/s)

Re-suspended road dust from vehicle travel

Emission estimation method reference: US EPA AP-42 Chapter 13.2.1 Paved Roads

Re-suspended road dust from vehicle travel

Total VKT in the peak hour ⁽¹⁾	Total VKT in a day ⁽²⁾	Particulate Emission Factor ⁽³⁾ - Hourly and Daily	Particulate Emission Factor ⁽³⁾ - Annual	Particulate Emission Rates (g/s)			
				Contaminants	1-hr	24-hr	Annual ⁽⁴⁾
VKT/hr	VKT/day	g/VKT	g/VKT				
37,900	489,475	0.379	0.344	TSP	3.98	2.14	1.95
		0.073	0.066	PM10	0.76	0.41	0.37
		0.018	0.016	PM2.5	0.19	0.10	0.09

Notes:

(1) Total VKT in the peak hour is conservatively used for estimating the worst-case hourly emission of re-suspended road dust.

(2) Total distance travelled per day is the sum of distance travelled daily for all vehicle categories.

(3) Emission factors obtained from US EPA AP-42 Chapter 13.2.1 "Paved Roads" Equation 2.

For long-term annual emissions, a control factor (i.e., 1-P/4N) related to precipitation frequency is applied.

No emission controls are applied to short-term emissions (i.e., hourly and daily)

$$E = k (sL)^{0.91} \times (W)^{1.02} \times (1-P/4N)$$

where,

E= average particulate emission factor (g/VKT)

k = particle size multiplier for particle size range and units of interest (see below)

sL = road surface silt loading (g/m²)

W = average weight (tons) of the vehicles traveling the road.

P= number of "wet" days with at least 0.254 mm (0.01 in) of precipitation

N= number of days in the averaging period

Road surface silt loading (sL)	0.015	g/m ²
TSP (< 30 um)	3.23	g/VKT
PM10	0.62	g/VKT
PM2.5	0.15	g/VKT
Precipitation days (P) (> 0.254 mm)	132	days
Averaging period	365	days

Recommended value for limited access highways with AADT > 10,000, from the MTO Guide for Assessing and Mitigating Air Quality Impacts and Greenhouse Gas Emissions Particle Size Multipliers. From Table 13.2.1.-1 of US EPA (2011) Emission Factor Documentation for AP-42 Section 13.2.1 – Paved Roads (Fifth Edition).

Obtained from Toronto Pearson Airport 2022 MET data

Calculate Mean Weight of vehicle fleet (W)

	Weight (Tonne)	Total travelled distance (VKT/day)
Passenger Cars and Trucks	3	436,943
Median Trucks	10	6,917
Heavy Trucks	20	44,037
Buses	25	1,578
Mean Weight of vehicle fleet (W) (tons)		5.2

Mean Weight of vehicle fleet (W) is calculated based on the assumed average vehicle weight and the daily VKT for each vehicle category.

(4) Annual emission rates are based on daily traffic volume AADT and the annual particulate emission factors which has the "wet" control applied.