

Noise Feasibility Study

Proposed Mixed-Use/Residential Development

217 – 227 Cross Avenue and 571 – 587 Argus Road

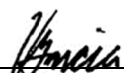
Oakville, Ontario

Prepared for:

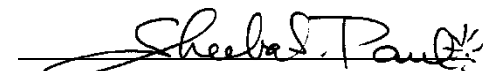
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ACOUSTICS



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1 Introduction and Summary

HGC Engineering was retained by Oakville Argus Cross LP to conduct a noise feasibility study for a proposed mixed-use/residential development located at 217 – 227 Cross Avenue and 571 – 587 Argus Road in Oakville, Ontario. The study is required by the municipality as part of the approvals process.

This report has been updated to include an updated site plan prepared by BDP Quadrangle and dated March 13, 2024.

The primary sources of noise are road traffic on the Queen Elizabeth Way (QEW), Trafalgar Road, and Cross Avenue, as well as rail traffic on the Canadian National (CN) railway to the south of the site. Road traffic data was obtained from the Ministry of Transportation (MTO), Region of Halton, and the Town of Oakville. Rail traffic data was obtained from Metrolinx and CN personnel. Traffic data was used to predict future traffic sound levels at the proposed buildings. The predicted sound levels were evaluated with respect to the guidelines of the Ministry of the Environment, Conservation and Parks (MECP), Region and Town.

The study finds that the traffic noise exceeds the MECP sound level criteria during daytime and nighttime hours at the proposed development. Acoustic barriers are required for several elevated terraces. Central air conditioning is required for the proposed buildings. Upgraded building and glazing constructions are required for the proposed buildings. When detailed floor plans and building elevations are available for the proposed buildings, the window glazing requirements should be refined based on actual window to floor area ratios.

Sound level impacts from the existing neighbouring commercial/retail uses were also investigated and were determined to be below the relevant MECP criteria. Detailed noise studies are recommended for each building as the development proposal proceeds.

Associated acoustical requirements are specified in this report. Warning clauses are recommended to inform future residents of the traffic noise impacts, the presence of the neighbouring commercial facilities and to address sound level excesses.



2 Site Descriptions and Sources of Sound

An aerial photo showing a key plan is attached as Figure 1 also showing the surrounding land uses. A site plan dated March 13, 2024 prepared by BDP Quadrangle and is included as Figure 2. The proposed development will consist of three residential towers: 37-storeys (Tower A) and 49-storeys (Tower B) each with 6-storey podiums, and 65-storeys (Tower C) with a 7-storey podium. Six levels of underground parking are expected to be provided beneath the towers with commercial/retail space provided on the ground floors.

The site is located at 217 – 227 Cross Avenue and 571 – 587 Argus Road in Oakville, Ontario. Currently the subject site includes various commercial/office buildings which are to be removed. Figure 3 shows an aerial photo showing the surrounding land uses. The remaining surrounding lands are primarily existing commercial/industrial land uses including: Holiday Inn Oakville and the Animal Hospital of Oakville to the north; All Fix Automotive, Grandeur Motors, KidLogic, a car wash and various commercial facilities to the west; various commercial buildings to the northeast; the Oakville GO Station and Avis Car Rental to the south. There are proposed mixed-use developments in the area and this is an area in transition. A site visit was conducted to investigate the noise sources associated with the surrounding uses and is further discussed in Section 6.0.

3 Sound Level Criteria

3.1 Road and Rail Traffic Noise

Guidelines for acceptable levels of road and rail traffic noise applicable to residential developments are given in the MECP publication NPC-300, “Environmental Noise Guideline Stationary and Transportation Sources – Approval and Planning”, release date October 21, 2013 and are listed in Table 1 below. The Federation of Canadian Municipalities (FCM) and Railway Association of Canada (RAC) “Guidelines for New Development in Proximity to Railway Operations”, dated May 2013 (RAC/FCM guidelines were also reviewed dated November 2006). The values in Table 1 are energy equivalent (average) sound levels [L_{EQ}] in units of A-weighted decibels [dBA].



Table 1: MECP Road and Rail Traffic Noise Criteria [dBA]

Space	Daytime L_{EQ} (16 hour) Road/Rail	Nighttime L_{EQ} (8 hour) Road/Rail
Outdoor Living Areas	55 dBA	--
Inside Living/Dining Rooms	45 dBA / 40 dBA	45 dBA / 40 dBA
Inside Bedrooms	45 dBA / 40 dBA	40 dBA / 35 dBA

Daytime refers to the period between 07:00 and 23:00, while nighttime refers to the period between 23:00 and 07:00. The term "Outdoor Living Area" (OLA) is used in reference to an outdoor patio, a backyard, a terrace or other area where passive recreation is expected to occur. Balconies that are less than 4 m in depth are not considered to be outdoor living areas under MECP guidelines.

The guidelines in the MECP publication allow the sound level in an OLA to be exceeded by up to 5 dBA, without mitigation, if warning clauses are placed in the purchase and rental agreements to the property. Where OLA sound levels exceed 60 dBA, physical mitigation is required to reduce the OLA sound level to below 60 dBA and as close to 55 dBA as technically, economically and administratively feasible.

Indoor guidelines for rail noise are 5 dBA more stringent than for road noise, to account for the low frequency (rumbling) character of locomotive sound, and its greater potential to transmit through exterior wall/window assemblies.

A central air conditioning system as an alternative means of ventilation to open windows is required for all dwellings where nighttime sound levels outside bedroom/living/dining room windows exceed 60 dBA or daytime sound levels outside bedroom/living/dining room windows exceed 65 dBA.

Forced-air ventilation with ducts sized to accommodate the future installation of air conditioning is required when nighttime sound levels at bedroom/living/dining room windows are in the range of 51 to 60 dBA or when daytime sound levels at bedroom/living/dining room windows are in the range of 56 to 65 dBA.

Building components such as walls, windows and doors must be designed to achieve indoor sound level criteria when the plane of bedroom/living/dining room window sound level is greater than 55 dBA due to nighttime and greater than 60 dBA during the daytime hours due to rail traffic noise.

Warning clauses are required to notify future residents of possible excesses when nighttime sound levels exceed 50 dBA at the plane of the bedroom/living/dining room window and daytime sound levels exceed 55 dBA in the outdoor living area and at the plane of the bedroom/living/dining room window due to rail traffic.

4 Traffic Noise Predictions

4.1 Road Traffic Data

Road traffic data for the QEW was obtained from the MTO in the form of summer average daily traffic (SADT) for the year 2019 and is provided in Appendix B. The data was projected to the year 2034 using a 2.5%/year growth rate. A daytime commercial vehicle percentage of 14% was split into 5.4% medium trucks and 8.6% heavy trucks, was used in the analysis. A day/night split of 67%/13% and a posted speed limit of 100 km/h were used in the analysis.

Road traffic data for Cross Avenue was obtained from the Town of Oakville. The data was provided in the form of peak hour turning movement counts for the year 2020 and is provided in Appendix B. The traffic data was projected to the year 2034 using a 2.5% growth rate. A commercial vehicle percentage for Cross Avenue of 5.4% was provided and split into 2.1% medium trucks and 3.3% heavy trucks. A day/night split of 90%/10% was assumed in the analysis. A posted speed limit of 50 km/h was used for Cross Avenue.

Road traffic data for Argus Road was obtained from the Town of Oakville. The data was provided in the form of peak hour turning movement counts for the year 2020 and is provided in Appendix B. The traffic data was projected to the year 2034 using a 2.5% growth rate. A commercial vehicle percentage for Argus Road of 7.8% was provided and split into 3.0% medium trucks and 4.8% heavy trucks. A day/night split of 90%/10% was assumed in the analysis. A posted speed limit of 50 km/h was used for Argus Road.

Ultimate road traffic information for Trafalgar Road was obtained from Region of Halton personnel and is provided in Appendix A. A posted speed limit of 50 km/h was used for Trafalgar Road. An existing commercial vehicle percentage of 2.7% was obtained from the Region of Halton, split into



1.5% medium trucks and 1.2% heavy trucks was also used in the analysis, along with a day-night split of 90%/10%. Table 2 summarizes the road traffic data used in the analysis.

Table 2: Road Traffic Data

Road Name		Cars	Medium Trucks	Heavy Trucks	Total
QEW <i>Projected to 2034</i>	Daytime	193 272	12 136	19 328	224 736
	Nighttime	95 194	5 978	9 520	110 692
	Total	288 466	18 114	28 848	335 428
Cross Avenue <i>Projected to 2034</i>	Daytime	17 839	396	622	18 857
	Nighttime	1 982	44	69	2 095
	Total	19 821	440	691	20 952
Argus Road <i>Projected to 2034</i>	Daytime	2 720	89	142	2 951
	Nighttime	302	10	16	328
	Total	3 022	99	158	3 279
Trafalgar Road <i>Ultimate</i>	Daytime	48 164	742	594	49 500
	Nighttime	5 352	82	66	5 500
	Total	53 516	824	660	55 000

4.2 Rail Traffic

Rail traffic data for the CN Oakville Subdivision was obtained from CN railway and Metrolinx/GO Transit personnel and is attached in Appendix B. This line is used for way freight and passenger operations and is classified as a principal main line. The maximum permissible train speed for way freight trains in the area of the site is 97 kph (60 mph), 129 kph (80 mph) for passenger, and 153 kph (95 mph) for GO trains. In conformance with CN and GO Transit assessment requirements, the maximum speeds, maximum number of cars and locomotives per train were used in the traffic noise analysis to yield a worst-case estimate of train noise. The data was projected to the year 2034 using a 2.5% per year growth rate. Table 3 summarises the Metrolinx and CN rail traffic data used in the analysis.

Table 3: Rail Traffic Data Projected to the Year 2034

Type of Train	Number of Trains Day/ Night	Number of locomotives	Number of cars	Max Speed (KPH)
Way Freight	5.8 / 3.1	4	25	56
Passenger	19.3 / 0.0	2	10	56
GO	362.9 / 55.4	1	12	129

Note: All GO trains are modelled as diesel, as per Metrolinx requirements

4.3 Traffic Noise Predictions

To assess the levels of traffic noise which will impact the site in the future, predictions were made using a numerical computer modeling package (*Cadna-A version 2023 MRI build 197.5343* due to the complexity of the site. The model is based on the methods from ISO Standard 9613-2.2, “*Acoustics - Attenuation of Sound During Propagation Outdoors*”, which accounts for reduction in sound level with distance due to geometrical spreading, air absorption, ground attenuation and acoustical shielding by intervening structures.

The road and rail noise sources have been included in the model as line sources included in *Cadna/A* which have been calibrated to Stamson. Our experience suggests that road and rail sound levels predicted by *Cadna* are reasonably accurate. The model road traffic values have been qualified to be within 1 – 2 dBA of those predicted in STAMSON 5.04, a computer algorithm developed by the MECP.

Predictions of overall sound levels from all road and rail sources were made at various representative façade locations throughout the site. The predicted sound levels from road and rail traffic impacting the proposed development are summarized in the following tables at each façade. Appendix C shows the figures indicating the predicted sound level from road and rail traffic along each façade of the proposed buildings.

Table 4: Daytime Predicted Future Sound Levels [dBA], Without Mitigation

Building	Façade	Daytime - at Façade L _{EQ(16)}		Daytime - at Façade Total L _{EQ(16)}
		Road	Rail	
Tower A 37-Storey	Northwest	74	<55	74
	Northeast	71	60	71
	Southeast	59	61	63
	Southwest	72	60	72
6-Storey Podium	Northwest	74	<55	74
	Northeast	71	59	71
	Interior Southeast	66	59	67
	Interior Southwest	60	58	62
	Southeast	58	59	61
	Southwest	72	60	72
	7 th Floor OLA	--	--	63*
Tower B 49-Storey	Northwest	70	<55	70
	Northeast	68	61	69
	Southeast	60	65	66
	Southwest	70	62	71
6-Storey Podium	Northwest	69	<55	69
	Northeast	67	57	67
	Southeast	60	64	66
	Southwest	70	62	71
Tower C 65-Storey	Northwest	70	<55	70
	Northeast	68	64	69
	Southeast	63	67	68
	Southwest	68	63	69
7-Storey Podium	Northwest	70	<55	70
	Northeast	69	64	70
	Southeast	65	67	69
	Southwest	65	63	67
	Interior Northwest	64	<55	64
	Interior Southwest	64	58	65
	7 th Floor OLA	--	--	65*
	8 th Floor OLA	--	--	66*

Note: *With a minimum 1.07 m solid parapet wall

Table 5: Nighttime Predicted Future Sound Levels [dBA], Without Mitigation

Building	Façade	Nighttime - at Façade L _{EQ(8)}		Nighttime - at Façade Total L _{EQ(8)}
		Road	Rail	
Tower A 37-Storey	Northwest	74	<50	74
	Northeast	71	55	71
	Southeast	58	56	60
	Southwest	72	55	72
6-Storey Podium	Northwest	73	<50	73
	Northeast	70	54	71
	Interior Southeast	66	54	66
	Interior Southwest	59	53	60
	Southeast	57	54	59
	Southwest	72	56	72
Tower B 49-Storey	Northwest	70	<50	70
	Northeast	67	56	67
	Southeast	57	60	62
	Southwest	70	57	70
6-Storey Podium	Northwest	69	<50	69
	Northeast	67	52	67
	Southeast	56	59	61
	Southwest	70	57	70
Tower C 65-Storey	Northwest	70	<50	70
	Northeast	68	59	69
	Southeast	57	62	63
	Southwest	68	58	68
7-Storey Podium	Northwest	70	<50	70
	Northeast	68	60	69
	Southeast	59	62	64
	Southwest	64	59	65
	Interior Northwest	65	<50	65
	Interior Southwest	64	53	64



5 Traffic Noise Recommendations

The predictions indicate that traffic sound levels exceed MECP limits during daytime and nighttime hours at the proposed façades of the buildings. The following recommendations are provided.

5.1 Outdoor Living Areas

There are several outdoor amenity spaces indicated on the drawings located on the 7th floors of the podium for Towers A and C and on the 8th floors of the podium for Tower C. The predicted sound level on all of the common outdoor amenity terraces were predicted with a minimum 1.07 m high solid parapet wall.

The predicted sound level on the proposed terraces throughout the site range from 65 dBA to 68 dBA, well in excess of the MECP limit of 55 dBA. Acoustic barriers on these terraces would need to be: 3.2 m for the 7th floor terrace at Tower A; 3.4 m for the 7th floor terrace, and 3.0 m for the 8th floor terrace at Tower C to reduce sound levels to 59 dBA. Barriers exceeding 3 m are not considered feasible technically or economically for the project. Consideration could be given in detail design to integrating some smaller structures, screens or landscaping features to create quieter pockets or zones on this terrace. A unique warning clause is suggested below to advise tenants that noise levels on this terrace will be high.

As a general note, the wall component of the barrier should be of a solid construction with a surface density of no less than 20 kg/m². The walls may be constructed from a variety of materials such as wood, brick, pre-cast concrete or other concrete/wood composite systems or transparent materials provided that it is free of gaps or cracks within or below its extent.

The dwelling units may have balconies that are less than 4 m in depth. These balconies are not considered outdoor living areas and do not need to be assessed under MECP guidelines.



5.2 Indoor Living Areas and Ventilation Requirements

Central Air Conditioning

The predicted nighttime sound levels at the proposed buildings will exceed 65 dBA during the daytime hours and 60 dBA during the nighttime hours, and thus air conditioning systems are required so that windows may remain closed.

Window or through-the-wall air conditioning units (similar to motel style) are not recommended for any residential units because of the noise they produce and because the units penetrate through the exterior wall which degrades the overall noise insulating properties of the envelope. This can be achieved if the heating and cooling within each unit is housed in its own closet with an access door for maintenance. The location, installation and sound ratings of the outdoor air conditioning devices should minimize noise impacts and comply with criteria of MECP publication NPC-216.

5.3 Building Façade Constructions

Future sound levels at the proposed buildings will exceed 65 dBA during the day and 60 dBA during the night due to road and rail traffic noise. MECP guidelines recommend that the windows, walls and doors be designed so that the indoor sound levels comply with MECP noise criteria.

Detailed glazing requirements for different facades and spaces could be considered in value engineering, if required, when detailed floor plans and building elevations are available.

Exterior Wall Constructions

The exterior walls of the proposed buildings may include precast/masonry panel portions, as well as spandrel glass panels within an aluminum window system. In this analysis, it has been assumed that sound transmitted through elements other than the glazing elements is negligible in comparison. For this assumption to be true, spandrel or metal panel sections must have an insulated drywall partition on separate framing behind.



Exterior Doors

There may be swing doors and some glazed sliding patio doors for entry onto the balconies from living/dining/bedrooms and some bedrooms. The glazing areas on the doors are to be counted as part of the total window glazing area. If exterior swing doors are to be used, they shall be insulated metal doors equipped with head, jamb and threshold weather seals.

Acoustical Requirements for Glazing

At the time of this report, detailed floor plans and elevations are under development. Assuming a typical window to floor area of 80% (60% fixed and 20% operable) for the living/dining rooms and bedrooms, the minimum acoustical requirement for the basic window glazing, including glass in fixed sections, swing or sliding doors, and operable windows, is provided in Table 6.



Table 6: Required Minimum Glazing STC Proposed Building

Building	Façade	Preliminary Glazing STC ^{1, 2}
Tower A 37-Storeys	Northwest	STC-42
	Northeast	STC-39
	Southeast	STC-33
	Southwest	STC-40
6-Storey Podium	Northwest	STC-41
	Northeast	STC-39
	Interior Southeast	STC-35
	Interior Southwest	STC-33
	Southeast	STC-33
Tower B 49-Storeys	Southwest	STC-40
	Northwest	STC-38
	Northeast	STC-36
	Southeast	STC-34
	Southwest	STC-39
	6-Storey Podium	Northwest
Northeast		STC-36
Southeast		STC-33
Southwest		STC-39
Tower C 65-Storeys	Northwest	STC-38
	Northeast	STC-38
	Southeast	STC-36
	Southwest	STC-37
7-Storey Podium	Northwest	STC-38
	Northeast	STC-38
	Southeast	STC-36
	Southwest	STC-35
	Interior Northwest	STC-33
	Interior Southwest	STC-33

Note:

¹ Based on 80% window to floor area ratio for living/dining rooms and bedrooms.

² STC requirement refers to fixed glazing. Small leaks through operable doors and windows are assumed, however, tight weather seals should be provided to reduce such leakage to the extent feasible.
 OBC – Ontario Building Code

The northwest, northeast, and southwest façades of Tower A and the 6-storey podium below it, have significant STC requirements. It is suggested that the window to floor area ratios be minimized as much as possible along these façades. Sliding patio doors should not be included into bedrooms, swing doors are more suitable for suites with exposure to the QEW.

These calculations assume insignificant sound transmission through the walls in comparison with the windows. Exterior walls that are not glazed should have sufficient acoustical insulation value such that the noise transmitted through is negligible in comparison with the windows. These aspects can be verified as part of the detail design of the envelope, as needed.

Note that acoustic performance varies with manufacturer's construction details, and these are only guidelines to provide some indication of the type of glazing likely to be required. Acoustical test data for the selected assemblies should be requested from the suppliers, to ensure that the stated acoustic performance levels will be achieved by their assemblies.

Further Review

When detailed floor plans and building elevations are available for the buildings, the glazing requirements should be refined based on actual window to floor area ratios.

5.4 Warning Clauses

The guidelines recommend that warning clauses be included in the development agreements, purchase and tenancy agreements and offers of the purchase and sale for the dwelling units. These are provided below.

Suitable wording for future dwellings with minor sound level excesses is given below.

Type A:

Purchasers/tenants are advised that despite the inclusion of noise control features in the development and within the building units, sound levels due to increasing road and rail traffic may continue to be of concern, occasionally interfere with some activities of the dwelling occupants as the sound levels exceed the Municipality's and the Ministry of the Environment, Conservation and Parks' noise criteria.

Suggested wording for future dwellings requiring central air conditioning systems is given below.

Type B:

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



These sample clauses are provided by the MECP as examples and can be modified by the Municipality as required.

Suggested wording for future dwellings where terraces cannot be sufficiently mitigated against traffic noise.

Type C:

Due to site constraints, an acoustical barrier to shield the outdoor amenity terrace from the road and rail traffic could not be accommodated. Noise levels on this terrace are expected to be well above the sound level limits of the Ministry of the Environment, Conservation and Parks.

CN requires a standard warning clause as this development is located near a principal mainline. The following sample clause is typical of those included in agreements of purchase and sale or lease on the Lands that are within 300 meters of the railway right-of-way.

Type D:

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

GO Transit's standard warning clause for residential developments located within 300 m of a railway right-of-way (principal main line) is given below.

Type E:

Warning: Metrolinx and its assigns and successors in interest has or have a right-of-way within 300 metres from the land the subject hereof. There may be alterations to or expansions of the rail facilities on such right-of-way in the future including the possibility that Metrolinx or any railway entering into an agreement with Metrolinx to use the right-of-way or their assigns or successors as aforesaid may expand their operations, which expansion may affect the living environment of the residents in the vicinity, notwithstanding the inclusion of any noise and vibration attenuating measures in the design of the development and individual dwelling(s). Metrolinx will not be responsible for any complaints or claims arising from use of such facilities and/or operations on, over or under the aforesaid right-of-way.



5.5 Impact of the Development on Itself

Section 5.8.1.1 of the Ontario Building Code (OBC), released on January 1, 2020, specifies the minimum required sound insulation characteristics for demising partitions, in terms of Sound Transmission Class (STC) or Apparent Sound Transmission Class (ASTC) values. In order to maintain adequate acoustical privacy between separate suites in a multi-tenant building, inter-suite walls must meet or exceed STC-50 or ASTC-47. Suite separation from a refuse chute or elevator shaft must meet or exceed STC-55. In addition, it is recommended that the floor/ceiling constructions separating suites from any amenity or commercial spaces also meet or exceed STC-55. Tables 1 and 2 in Section SB-3 of the Supplementary Guideline to the OBC provide a comprehensive list of constructions that will meet the above requirements.

Tarion's Builder Bulletin B19R requires the internal design of condominium projects to integrate suitable acoustic features to insulate the suites from noise from each other and amenities in accordance with the OBC, and limit the potential intrusions of mechanical and electrical services of the buildings on its residents. If B19R certification is needed, an acoustical consultant is required to review the mechanical and electrical drawings and details of demising construction and mechanical/electrical equipment, when available, to help ensure that the noise impact of the development on itself is maintained within acceptable levels.

5.6 Impact of the Development on the Environment

Sound levels from noise sources such as rooftop air-conditioners, cooling towers, exhaust fans, etc. should not exceed the minimum one-hour L_{EQ} ambient (background) sound level from road traffic, at any potentially impacted residential point of reception. Based on the levels observed during our site visit, the typical minimum ambient sound levels in the area are expected to be 50 dBA or more during the day and 45 dBA or more at night. Thus, any electro-mechanical equipment associated with this development (e.g. emergency generator testing, fresh-air handling equipment, etc.) should be designed such that they do not result in noise impact beyond these ranges.



6 Assessment of Stationary Sources of Sound at the Proposed Residential Units

6.1 Noise Source Description

There are existing commercial facilities surrounding the site including: Holiday Inn Oakville and the Animal Hospital of Oakville to the north; All Fix Automotive, Grandeur Motors, KidLogic, a car wash and various commercial facilities to the west; among other commercial buildings to the northeast; the Oakville GO Station and Avis Car Rental to the south.

The rooftop mechanical equipment (air conditioning units), automotive repair shops bay doors, car wash bays, are potentially significant stationary sources of sound. A site visit was conducted in January 2022 to investigate the acoustical environment. Sensitive receptor locations were taken at the façades of the proposed buildings.

At the Oakville GO Station, when trains were operated in reverse and when the train is about to leave the station, a warning bell is operated. Communications with GO transit staff indicate that these bells are safety devices used for warning purposes only, and are thus exempt from noise assessment under MECP guidelines. Other occasional noises emitted from this station (such as occasional announcements over the outdoor PA system) are not anticipated to be an issue.

6.2 Criteria for Acceptable Sound Levels

6.2.1 Stationary Noise Criteria

Under MECP guidelines, the acoustical environment in this area is classified as “urban” or “Class I”, as background sound levels are set by significant volumes of road traffic on surrounding roadways during daytime and nighttime hours.

Stationary sources of sound are collectively defined as all sources that emit sound within a commercial or industrial facility boundary. The facilities to the north, northwest and west are therefore classified as a stationary sources of sound.



MECP Guideline NPC-300 is the applicable guideline for use in investigating Land Use Compatibility issues with regard to noise. A commercial facility is classified in NPC-300 as a stationary source of sound (as compared to sources such as traffic or construction, for example) for noise assessment purposes. A stationary noise source encompasses the noise from all the activities and equipment within the property boundary of a facility including regular on-site truck traffic for deliveries, material handling and mechanical equipment. In terms of background sound, the development is located in an urban acoustical environment which is characterized by an acoustical environment dominated by road traffic and human activity.

Stationary Source (Steady Sound)

NPC-300 is intended for use in the planning of both residential and commercial/industrial land uses and provides the acceptability limits for sound due to commercial operations in that regard. The facade of a residence (i.e., in the plane of a window), or any associated usable outdoor area is considered a sensitive point of reception (within 30 m of a dwelling façade). NPC-300 stipulates that the exclusionary sound level limit for a stationary noise source in urban Class 1 and 2 areas are taken to be 50 dBA during daytime and evening hours (07:00 to 19:00 and 19:00 to 23:00), and 45 dBA during nighttime hours (23:00 to 07:00) at the plane of the windows of noise sensitive spaces. If the background sound levels due to road traffic exceed the exclusionary limits, then that background sound level becomes the criterion. The background sound level is defined as the sound level that occurs when the source under consideration is not operating, and may include traffic noise and natural sounds.

Commercial activities such as the occasional movement of customer/employee vehicles, deliveries to conveniences stores and restaurants and garbage collection are not of themselves considered to be significant noise sources in the MECP guidelines. Accordingly, these sources have not been considered in this study.

Hourly daytime traffic data was obtained for the QEW from the MTO and for Trafalgar Road from the Region of Halton. Hourly daytime traffic data was not available for Cross Avenue. Using the current traffic volumes obtained from the Town, the traffic data was applied to a generic 24 hour traffic pattern developed by the US Department of Transportation, Federal Highways Administration contained in the report titled “Summary of National and Regional Travel Trends 1970 – 1995” dated



May 1996. The traffic volumes were then used to predict sound levels at the residential receptors during the day/nighttime hours to determine the minimum hour background sound levels at those locations due to the traffic on the public roadways.

The minimum hour traffic volumes used in the analysis are summarized in the following table.

Table 7: Minimum Hourly Traffic Volumes on Surrounding Roadways

Roadway	Hourly Data		Commercial Vehicle %
	Day	Night	
QEW	3 921	922	14
Trafalgar Rd	1 099	59	2.7
Cross Ave	395	91	5.4

The predicted quietest daytime hour and nighttime hour sound levels at the facades of the proposed residences, which will be exposed to the commercial facilities are found to be higher than the MECP exclusionary limits in the daytime hours for the majority of facades with exposure to the QEW and Cross Avenue. As such, the sound level limits as summarized in Table 8 are therefore used in the following sections of this report as the applicable criteria for each façade of the proposed residential buildings.

Table 8: Applicable Sound Level Limits, L_{EQ} (dBA) for Class I Areas

Building	Façade	Sound Level Limits	
		Daytime (07:00 to 23:00)	Nighttime (23:00 to 07:00)
Tower A 37-Storeys	Northwest	68	61
	Northeast	62	56
	Southeast	50	45
	Southwest	65	58
6-Storey Podium	Northwest	67	60
	Northeast	65	58
	Interior Southeast	51	45
	Interior Southwest	50	45
	Southeast	50	45
	Southwest	63	57
	7th Floor OLA	57*	--
Tower B 49-Storeys	Northwest	64	57
	Northeast	61	55
	Southeast	52	45
	Southwest	63	56
6-Storey Podium	Northwest	61	54
	Northeast	60	54
	Southeast	54	49
	Southwest	62	55
Tower C 65-Storeys	Northwest	63	56
	Northeast	60	54
	Southeast	52	45
	Southwest	56	49
7-Storey Podium	Northwest	64	57
	Northeast	59	52
	Southeast	58	51
	Southwest	57	51
	Interior Northwest	55	49
	Interior Southwest	54	48
	7 th Floor North	59*	--
	8 ^h Floor OLA	59*	--

Note: *With a minimum 1.07 m solid parapet wall

Compliance with MECP criteria generally results in acceptable levels of sound at residential receptors although there may be residual audibility during periods of low background sound.

6.3 Stationary Source Assessment

Predictive noise modelling was used to assess the potential sound impact of the nearby land uses at the closest sensitive receptors. The noise prediction model was based on sound emission levels for the nearby noise sources, assumed operational profiles (during the day and night), and established engineering methods for the prediction of outdoor sound propagation. These methods include the effects of distance, air absorption, and acoustical screening by barrier obstacles.

Sound emission data for the rooftop equipment was obtained from HGC Engineering project files for typical commercial facilities. The source levels associated used in the analysis is listed in Table 11 below.

Table 11: Source Sound Power Levels [dB re 10-12 W]

Source	Octave Band Centre Frequency [Hz]							
	63	125	250	500	1k	2k	4k	8k
Exhaust Fan	84	88	86	85	80	80	76	74
Car Wash Bay	85	76	75	77	76	79	81	83
Vacuum	86	74	87	82	84	89	90	88
Condenser Fans	84	79	78	77	76	70	63	59
Tractor Trailer Acceleration	101	100	94	96	97	95	91	86
Medium Truck Acceleration	108	90	92	90	94	91	84	77
Medium Truck Reefer	82	77	78	67	67	64	58	50
Medium Truck Idle	72	68	70	65	72	69	60	52
Restaurant Exhaust Fan	86	74	87	82	84	89	90	88
Lennox KG060 (A-Weighted)	--	67	72	77	76	73	68	61
Lennox KG120 (A-Weighted)	--	76	79	84	83	79	73	66
Lennox KG150 (A-Weighted)	--	77	80	85	84	79	74	66
Lennox KG240 (A-Weighted)	--	79	84	88	89	85	82	73
Cooling Tower	95	91	86	86	84	85	86	85

The above outlined sound levels and site features were used as input to a predictive computer model. The software used for this purpose (*Cadna-A Version 2023 MR 1 build: 197.5343*) is a computer implementation of ISO Standard 9613-2.2 “Acoustics - Attenuation of Sound During Propagation Outdoors.” The ISO method accounts for reduction in sound level with distance due to geometrical spreading, air absorption, ground attenuation and acoustical shielding by intervening structures such as barriers.

The following information and assumptions were used in the analysis.

Commercial Buildings

- The rooftop units were assumed to be located as shown in Figure 4. The majority of rooftop units were assumed to be 1 m to 2.5 m tall with the exception of the condenser fans which were 4.0 m in height.
- Lines indicate truck movements.
- Typical hours of operation for the majority of the commercial buildings are daytime only (07:00 to 23:00).

Receptors

- Façades of proposed residential development.

Assumed daytime worst-case scenario:

- All rooftop HVAC equipment operating for 60 minutes in an hour;
- All car wash bays (coin operated) operating for 30 minutes each;
- All vacuums operating for 15 minutes each at the car wash;

Assumed night-time worst-case scenario:

- All rooftop HVAC equipment operating for 30 minutes in an hour;
- All car wash bays (coin operated) operating for 10 minutes each;
- All vacuums operating for 10 minutes each at the car wash;

6.4 Results

The calculations consider the acoustical effects of distance and shielding by the buildings. The sound levels due to the rooftop mechanical equipment at the façades of the proposed buildings are summarized in the following table and Figures 5 and 6.

Table 12: Predicted Stationary Source Sound Levels at the Proposed Residential Buildings [dBA]

Building	Façade	Criteria Day/Night	Daytime	Nighttime
Tower A 37-Storeys	Northwest	68 / 61	48	45
	Northeast	62 / 56	42	38
	Southeast	50 / 45	50	45
	Southwest	65 / 58	50	47
6-Storey Podium	Northwest	67 / 60	45	42
	Northeast	65 / 58	42	39
	Interior Southeast	51 / 45	42	36
	Interior Southwest	50 / 45	45	33
	Southeast	50 / 45	49	45
	Southwest	63 / 57	51	47
	7th Floor OLA	57* / --	40*	--
Tower B 49-Storeys	Northwest	64 / 57	47	44
	Northeast	61 / 55	45	36
	Southeast	52 / 45	48	42
	Southwest	63 / 56	53	47
6-Storey Podium	Northwest	61 / 54	47	44
	Northeast	60 / 54	38	35
	Southeast	54 / 49	49	44
	Southwest	62 / 55	51	47
Tower C 65-Storeys	Northwest	63 / 56	50	39
	Northeast	60 / 54	51	41
	Southeast	52 / 45	42	39
	Southwest	56 / 49	45	41
7-Storey Podium	Northwest	64 / 57	44	39
	Northeast	59 / 52	53	41
	Southeast	58 / 51	43	40
	Southwest	57 / 51	49	45
	Interior Northwest	55 / 49	46	42
	Interior Southwest	54 / 48	41	37
	7th Floor OLA	59* / --	36*	--
	8th Floor OLA	59* / --	39*	--

Note: *With a minimum 1.07 m solid parapet wall

The results of this analysis indicate that the predicted steady sound levels due to the surrounding commercial facilities are expected to be below the relevant MECP criteria considering a worst-case operational scenario.

A warning clause should be included in purchase and tenancy agreements to inform future occupants of the existing commercial facilities. Suggested wording is included below:

Type F:

Purchasers/tenants are advised that due to the proximity of nearby commercial facilities, sound from those facilities may at times be audible.

7 Summary and Recommendations

The following recommendations are provided with regard to noise control. Please refer to previous sections of this report where these recommendations are discussed in more detail.

1. Central air conditioning is required for all of the proposed buildings.
2. Upgraded building constructions are required for the façades of the proposed buildings as indicated in Section 5.3.
3. Warning clauses should be included in the property and tenancy agreements and offers of purchase and sale to inform the future owners/residents of the presence of the roadways and railway and the nearby commercial operations.
4. When detailed drawings are available, at SPA or as a condition, a detailed noise study should be conducted to refine the glazing constructions based on actual window to floor area ratios. It is suggested that the window to floor area ratios be minimized as much as possible along the façades with exposure to the QEW. Sliding patio doors should not be included into bedrooms, swing doors are more suitable for suites with exposure to the QEW.
5. Tarion's Builder Bulletin (B19R) requires that the internal design of condominium projects integrates suitable acoustic features to insulate the suites from noise from each other and amenities in accordance with the OBC, and limit the potential intrusions of mechanical and electrical services of the buildings on its residents. If B19R certification is needed, an acoustical consultant is required to review the mechanical and electrical drawings and details of demising constructions and mechanical/electrical equipment, when available, to help ensure that the noise impact of the development on itself are maintained within acceptable levels. Outdoor sound emissions should also be checked to ensure compliance with the Town's by-law.



8 Conclusions

Based on the assessment presented herein, the conceptual development proposal is considered to be feasible from a noise impact perspective. Preliminary noise modelling of the nearby existing commercial facilities indicates results to be within criteria at residential facades. Detailed noise studies are recommended for each building as the development proposal proceeds.



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Limitations

This document was prepared solely for the addressed party and titled project or named part thereof, and should not be relied upon or used for any other project without obtaining prior written authorization from HGC Engineering. HGC Engineering accepts no responsibility or liability for any consequence of this document being used for a purpose other than for which it was commissioned. Any person or party using or relying on the document for such other purpose agrees, and will by such use or reliance be taken to confirm their agreement to indemnify HGC Engineering for all loss or damage resulting therefrom. HGC Engineering accepts no responsibility or liability for this document to any person or party other than the party by whom it was commissioned.

Any conclusions and/or recommendations herein reflect the judgment of HGC Engineering based on information available at the time of preparation, and were developed in good faith on information provided by others, as noted in the report, which has been assumed to be factual and accurate. Changed conditions or information occurring or becoming known after the date of this report could affect the results and conclusions presented.



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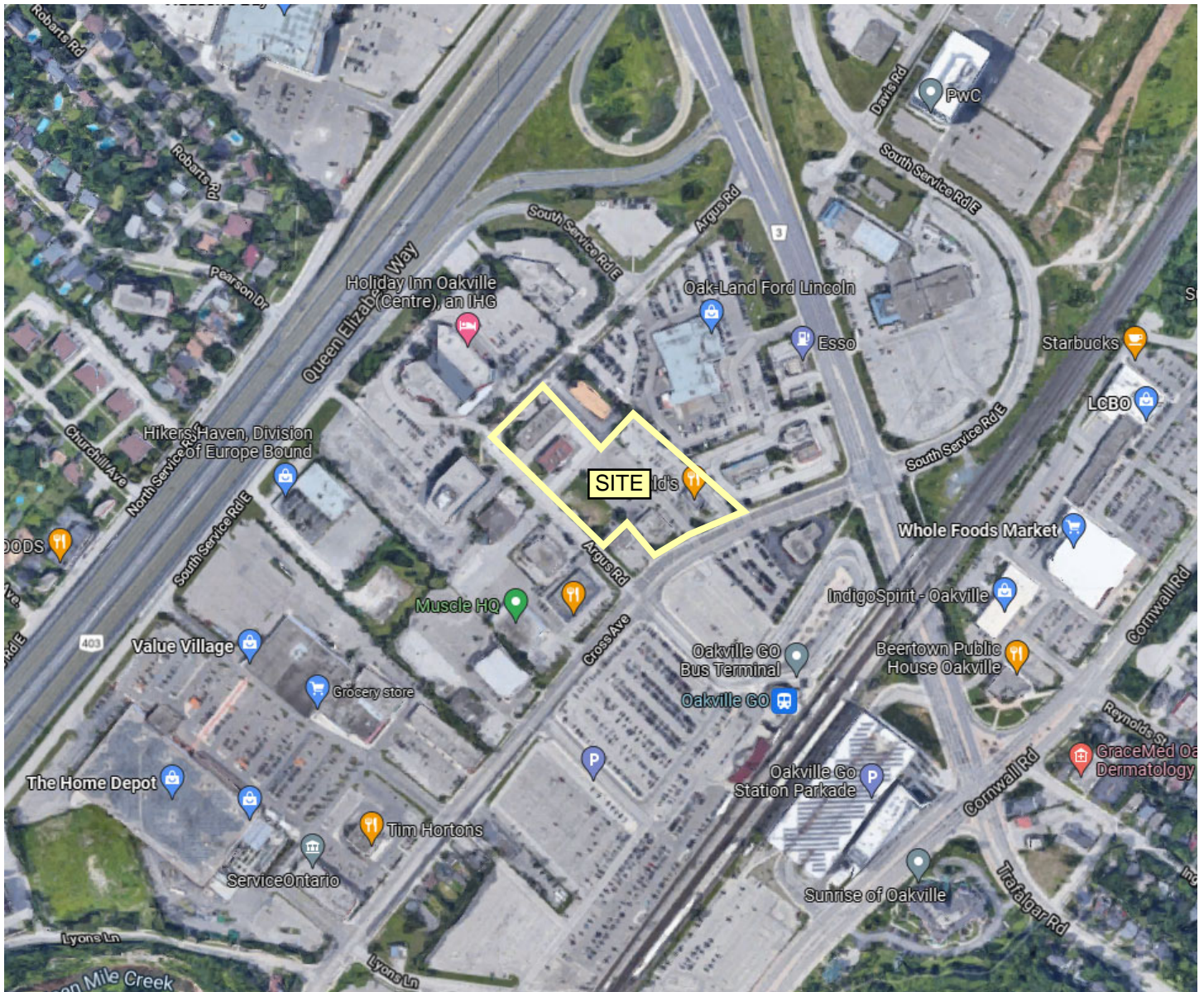


Figure 1 - Key Plan



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3 A101.S CONTEXT PLAN



2 A101.S KEY PLAN

217-227 Cross Ave and 571-587 Argus Rd Distrikt Developments										
Gross Lot Area:		12999		135613						
Area of Road Conveyances:		2685		28905						
Area of Promenade Conveyances:		631		6794						
Net Lot Area:		9282		99914						
POPS Area (not conveyed):		2846		30639						

Floor	Floor Area/Typ. Floor (sqm)	No. Typ. Floors	Gross Floor Area**		Residential GFA (sqm)		Non-Res GFA (sqm)		Indoor Amenity GFA (sqm)	Outdoor Amenity (sqm)	Residential Net Saleable Area - FNISA (sqm)	No. of Units
			sqm	sf	Retail (sqm)	Office (sqm)						
			sqm	sf	Retail (sqm)	Office (sqm)						
Proposed Residential												
BUILDING A 37 STOREY	MPH	0	0	0	0	0	0	0	0	0	0	0
	Level 9-37	850	29	24650	266333	24650	0	0	0	0	19343	348
	Level 8	850	1	850	9149	850	0	0	0	0	627	12
	Level 7	621	1	621	6689	372	0	0	224	719	241	5
	Level 3-6	1543	4	6171	66430	6175	0	0	0	0	5091	88
	Level 2	1279	1	1279	13765	0	0	0	850	462	0	0
	Mezzanine	889	1	889	9570	0	0	0	0	0	0	0
Ground	1692	1	1692	18212	1105	460	0	0	0	0	0	
Building A Total			36153	389148	33152	460	0	1074	1181	25301	453	
Proposed Residential												
BUILDING B 49 STOREY	MPH	0	1	0	0	0	0	0	0	0	0	0
	Level 9-49	850	41	34850	375125	34850	0	0	0	0	27709	530
	Level 8	850	1	850	9149	850	0	0	0	0	679	13
	Level 7	850	1	850	9149	850	0	0	0	0	679	13
	Level 3-6	1239	4	4958	53364	4958	0	0	0	0	4169	68
	Level 2	1298	1	1298	13972	0	0	0	881	190	0	0
	Mezzanine	882	1	882	9492	0	0	0	0	0	0	0
Ground	1137	1	1137	12240	927	230	0	107	0	0	0	
Building B Total			44825	482493	42415	230	0	881	297	33236	624	
Proposed Residential												
BUILDING C 65 STOREY	MPH	0	1	0	0	0	0	0	0	0	0	0
	Level 33-65	850	35	29750	320229	29750	0	0	0	0	23252	455
	Level 32	850	1	850	9149	850	0	0	0	0	525	10
	Level 9-31	850	21	17850	192137	17850	0	0	0	0	13951	273
	Level 8	972	1	972	10457	657	0	0	314	255	496	7
	Level 7	1164	1	1164	12525	0	0	0	847	951	0	0
	Level 3-6	2058	4	8233	88624	8233	0	0	0	0	6753	116
Level 2	2694	1	2694	29002	0	0	2694	0	0	0	0	
Mezzanine	1596	1	1596	17175	0	0	0	635	0	0	0	
Ground	2652	1	2652	28547	1777	875	2694	111	32	0	0	
Building C Total			65761	707846	59118	875	2694	1907	1239	44967	861	

Total Floor Area, Gross**	146,738 sqm	± 1,579,487 sqf
Total Residential Net Saleable Area:	103,503 sqm	± 1,114,109 sqf
FSI*		11.66
Total No. of Units		1938

	Min. Rate	Min. No.	Provided
Resident	0.5	920	920
Visitor	0.15	276	281
Retail	1.0	17	17
Office	1.0	20	20
TOTAL	1.242	1242	1247

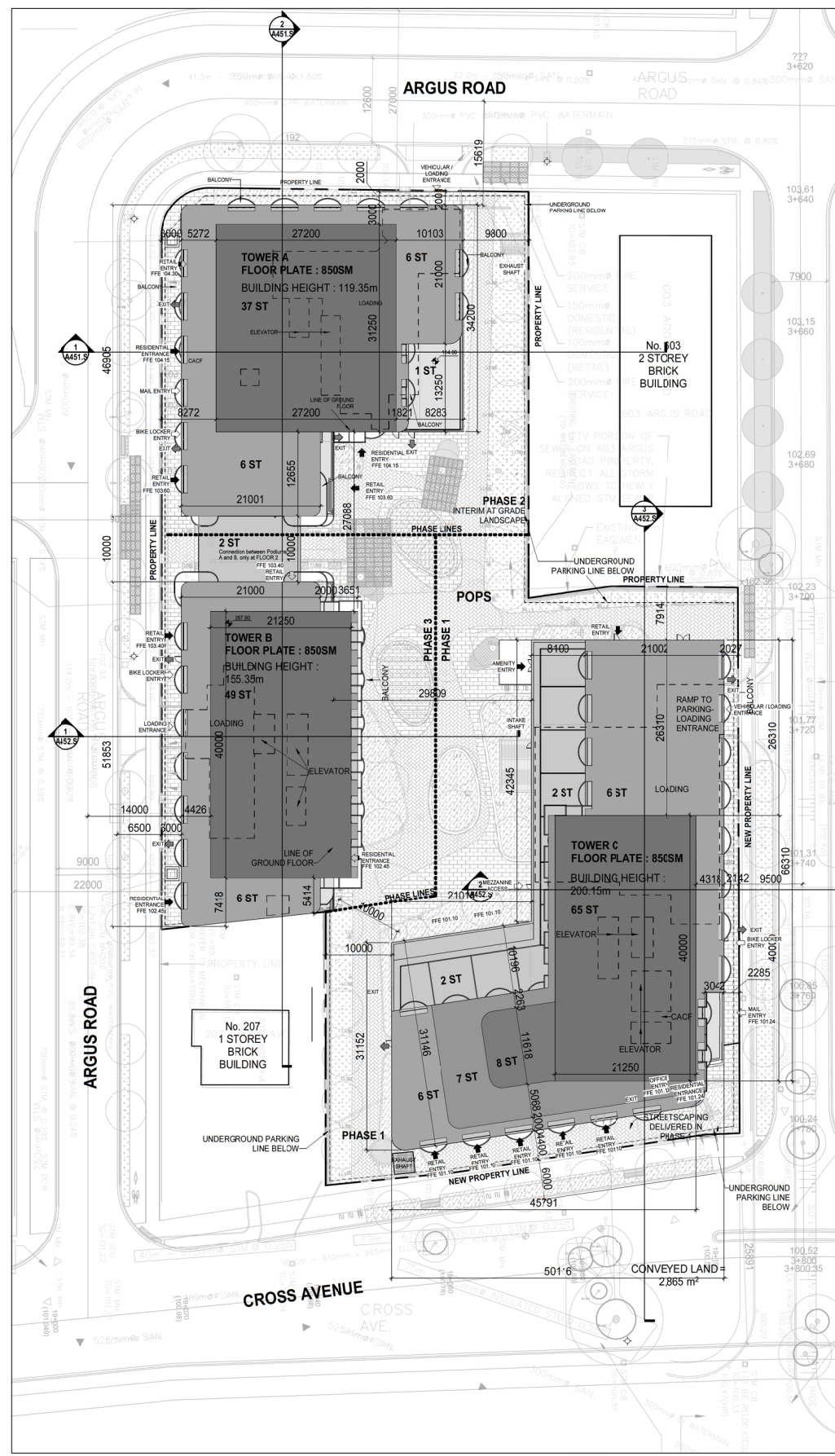
Approx. Unit Mix	1B	2B	3B
98%	1,144	542	134
5%	60%	28%	7%

	Min. Rate	Min. No.	Provided
Long Term	0.75	1454	1454
Short Term	0.25	485	485
Retail	1	2	2
Office	1	3	3
TOTAL	1942	1944	1944

Definitions of Gross Floor Area, Net Floor Area and FSI are taken from Oakville By Law 2014-0-4, 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

	Min. Rate	Min. No.	Provided
Indoor	3863	1454	1454
Outdoor	2717	140	140
TOTAL	6580	1594	1594

STATISTICS



1 A101.S SITE PLAN 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
- BARBICUE 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. FINISH FLOOR ELEVATION
- 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

REVISION RECORD

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

DRAFT

2022-10-01 Issued for Rezoning & OLT
 2022-04-19 Issued for Rezoning



BDP. Quadrangle

Quadrangle Architects Limited
 901 King Street West, Suite 101, Toronto, ON M5V 3H4
 T 416 598 1240 www.bdpquadrangle.com

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

Figure 2 - Proposed Site Plan

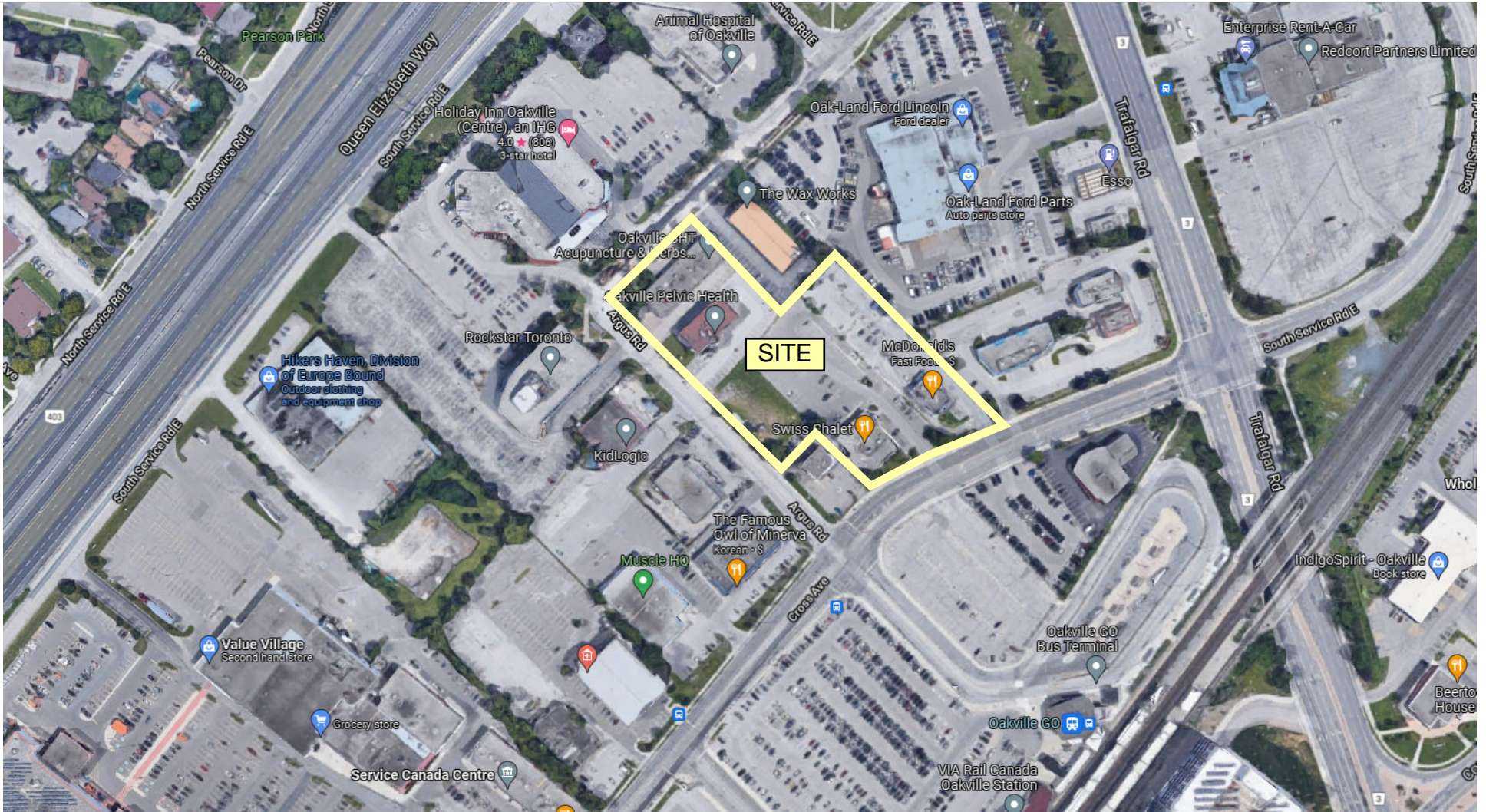


Figure 3 - Aerial Photo Showing Surrounding Land Uses



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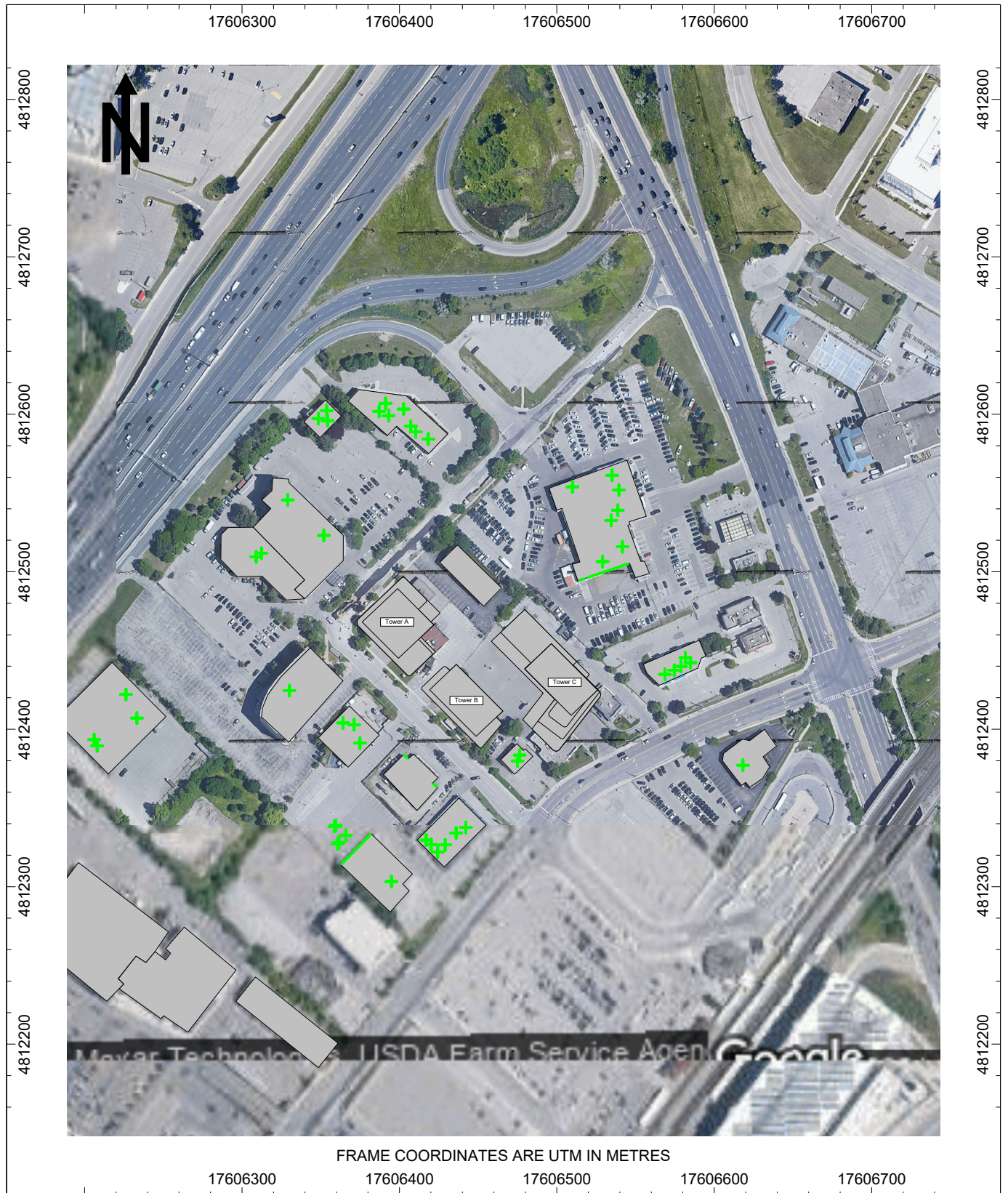


Figure 4: Aerial Photo Showing Source and Receptor Locations

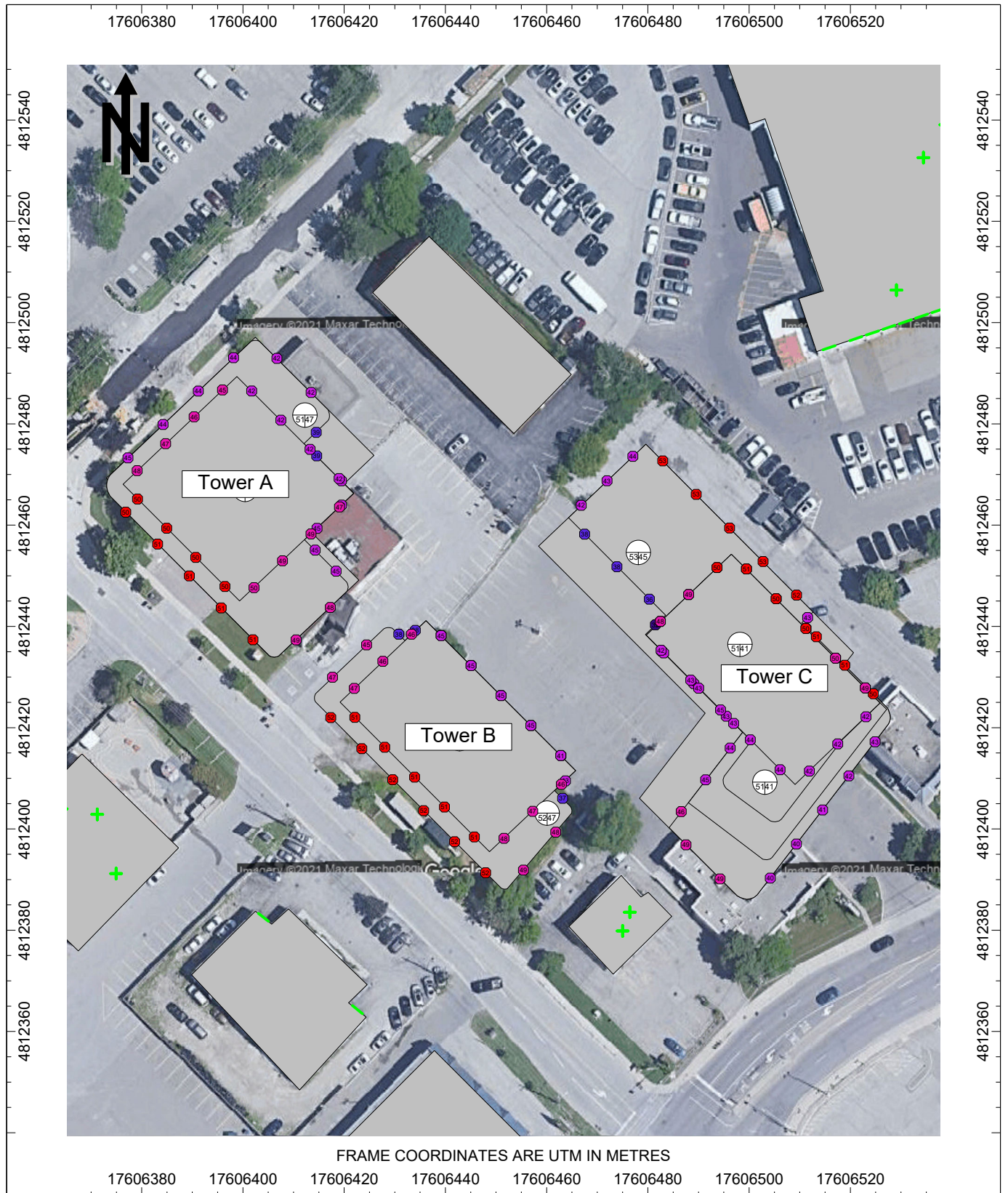


Figure 5: Sound Levels, dBA, Due to Steady Stationary Noise Sources, Daytime

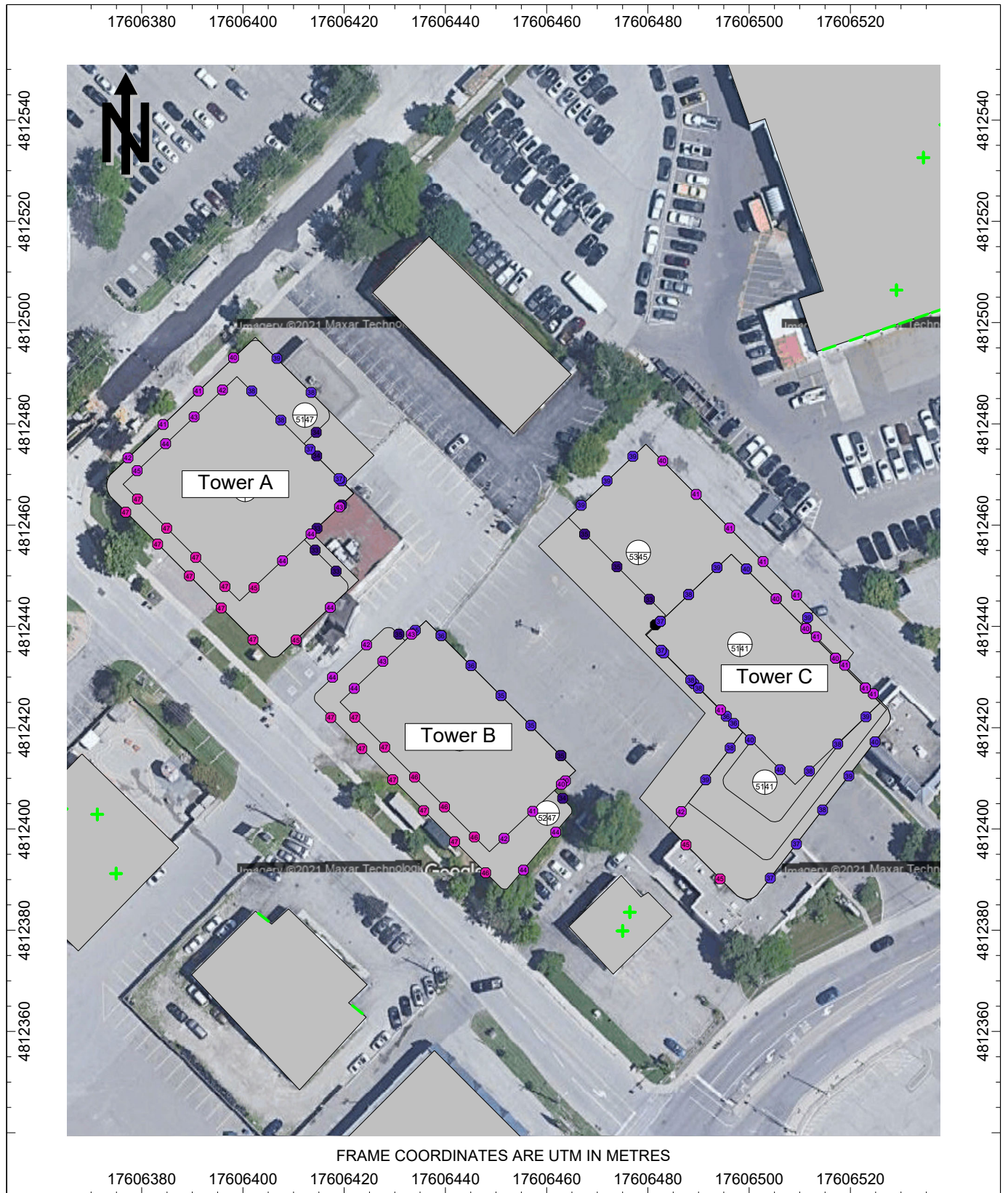


Figure 6: Sound Levels, dBA, Due to Steady Stationary Noise Sources, Nighttime

APPENDIX A

Road Traffic Data



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VIBRATION

Highway	Location Description	Dist (KM)	Year	Pattern Type	AADT	SADT	SAWDT	WADT
QEW			2013	C	187000	206100	203500	168300
QEW			2014	C	206000	226600	220400	185400
QEW			2015	C	210000	231000	224700	189000
QEW			2016	C	215000	236500	230000	193500
QEW			2017	C	205500	224800	224300	186500
QEW			2018	C	208900	229000	227700	188500
QEW			2019	C	212300	232100	230700	192200
QEW	TRAFALGAR RD IC-118	1.4	1988	C	111500	123800	123800	100400
QEW			1989	C	115300	128000	129100	103800
QEW			1990	C	120100	133300	133300	108100
QEW			1991	C	121300	133400	134600	110400
QEW			1992	C	123300	133200	136900	113400
QEW			1993	C	129500	141200	143300	119100
QEW			1994	C	130800	143200	145800	118400
QEW			1995	C	133800	146100	149900	122400
QEW			1996	C	136800	155100	155600	123500
QEW			1997	C	139800	158000	159400	125800
QEW			1998	C	142700	161300	161300	128400
QEW			1999	C	143400	160600	162000	129100
QEW			2000	C	146500	165500	165500	131800
QEW			2001	C	149700	168600	168900	134800
QEW			2002	C	152800	171100	172400	137500
QEW			2003	C	156000	174300	175400	140800
QEW			2004	C	158100	178100	178400	142400
QEW			2005	C	160800	179000	180500	144400
QEW			2006	C	163500	181700	183100	147100
QEW			2007	C	166200	184700	187200	149300
QEW			2008	C	168900	186400	183800	151500
QEW			2009	C	171600	188800	190500	154400
QEW			2010	C	174300	192100	193800	156900
QEW			2011	C	177000	195100	196800	159300
QEW			2012	C	179700	198000	193800	161800
QEW			2013	C	195000	214900	212200	175500
QEW			2014	C	200000	220000	214000	180000
QEW			2015	C	210000	231000	224700	189000
QEW			2016	C	215000	236500	230000	193500
QEW			2017	C	205000	224300	223800	186000
QEW			2018	C	208500	228500	227200	188200
QEW			2019	C	211900	231600	230200	191800
QEW	ROYAL WINDSOR DR (WBL) IC 119	3.1	1988	C	96000	106600	106600	86400
QEW			1989	C	99300	110200	111200	89400
QEW			1990	C	103200	114600	114600	92900
QEW			1991	C	103900	114300	115300	94500
QEW			1992	C	105400	113800	117000	97000
QEW			1993	C	106000	115500	117300	97500

Highway	QEW	Direction	FORT ERIE	Descriptor	WEST OF R	Highway	QEW	Direction	TORONTO	Descriptor					
VDS	Stator	LHRS	OS	VDS	Stator	LHRS	OS	Date	Time	VDS1	Volur	VDS2	Volur	Total	Volun
QEWDE02E	10135	0.7	QEWDE02E	10135	0.7	05/08/2019	1:00	1393	980	2373					
QEWDE02E	10135	0.7	QEWDE02E	10135	0.7	05/08/2019	2:00	779	629	1408					
QEWDE02E	10135	0.7	QEWDE02E	10135	0.7	05/08/2019	3:00	635	546	1181					
QEWDE02E	10135	0.7	QEWDE02E	10135	0.7	05/08/2019	4:00	991	661	1652					
QEWDE02E	10135	0.7	QEWDE02E	10135	0.7	05/08/2019	5:00	825	1552	2377					
QEWDE02E	10135	0.7	QEWDE02E	10135	0.7	05/08/2019	6:00	1924	5898	7822					
QEWDE02E	10135	0.7	QEWDE02E	10135	0.7	05/08/2019	7:00	4837	7597	12434					
QEWDE02E	10135	0.7	QEWDE02E	10135	0.7	05/08/2019	8:00	6373	7750	14123					
QEWDE02E	10135	0.7	QEWDE02E	10135	0.7	05/08/2019	9:00	5980	7466	13446					
QEWDE02E	10135	0.7	QEWDE02E	10135	0.7	05/08/2019	10:00	6466	6269	12735					
QEWDE02E	10135	0.7	QEWDE02E	10135	0.7	05/08/2019	11:00	5989	6433	12422					
QEWDE02E	10135	0.7	QEWDE02E	10135	0.7	05/08/2019	12:00	6066	6798	12864					
QEWDE02E	10135	0.7	QEWDE02E	10135	0.7	05/08/2019	13:00	6374	6347	12721					
QEWDE02E	10135	0.7	QEWDE02E	10135	0.7	05/08/2019	14:00	6383	6487	12870					
QEWDE02E	10135	0.7	QEWDE02E	10135	0.7	05/08/2019	15:00	6307	6662	12969					
QEWDE02E	10135	0.7	QEWDE02E	10135	0.7	05/08/2019	16:00	5659	7046	12705					
QEWDE02E	10135	0.7	QEWDE02E	10135	0.7	05/08/2019	17:00	6180	7186	13366					
QEWDE02E	10135	0.7	QEWDE02E	10135	0.7	05/08/2019	18:00	6806	7166	13972					
QEWDE02E	10135	0.7	QEWDE02E	10135	0.7	05/08/2019	19:00	7014	6598	13612					
QEWDE02E	10135	0.7	QEWDE02E	10135	0.7	05/08/2019	20:00	6333	5460	11793					
QEWDE02E	10135	0.7	QEWDE02E	10135	0.7	05/08/2019	21:00	4817	4486	9303					
QEWDE02E	10135	0.7	QEWDE02E	10135	0.7	05/08/2019	22:00	4270	3922	8192					
QEWDE02E	10135	0.7	QEWDE02E	10135	0.7	05/08/2019	23:00	3488	3048	6536					
QEWDE02E	10135	0.7	QEWDE02E	10135	0.7	05/08/2019	23:59	2386	1795	4181					
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QEWDE02E	10135	0.7	QEWDE02E	10135	0.7	05/14/2019	23:59	2318	1806	4124

Victor Garcia

From: Bee, Christopher (MTO) <Christopher.Bee@ontario.ca>
Sent: February 17, 2021 2:24 PM
To: Victor Garcia
Cc: Bee, Christopher (MTO)
Subject: RE: Commercial Vehicle % for QEW at Trafalgar Rd

To Victor Garcia, HGC Engineering

This location's major intersection is QEW and Trafalgar Road.

The % commercial vehicle at QEW near Trafalgar was 14% steady every year from 2007 to 2016 (10 yrs). 2016 is the latest year of official MTO data.

"% commercial" includes large long trucks, small short trucks, vans, cars with trailer, buses, and specials, but DOES NOT INCLUDE REGULAR CARS.

There is no further breakdown details within these classes.

Christopher Bee
MTO Central Region Traffic Office
Safety Traffic Information and Roadwork Coordination Section (STIRCS)

From: Victor Garcia <vgarcia@hgcengineering.com>
Sent: February-16-21 11:41 AM
To: Bee, Christopher (MTO) <Christopher.Bee@ontario.ca>
Subject: Commercial Vehicle % for QEW at Trafalgar Rd

CAUTION -- EXTERNAL E-MAIL - Do not click links or open attachments unless you recognize the sender.

Good morning,

HGC Engineering is conducting a noise feasibility study for a proposed residential development located at 157 – 165 Cross Avenue in Oakville, Ontario. A google link is included for your reference:

<https://goo.gl/maps/7G5T3Uj5vL8GTjAc6>

Do you have commercial vehicle percentages available for the QEW in the vicinity of this site?

Thanks,

Victor Garcia, P.Eng
Associate

HGC Engineering [NOISE](#) | [VIBRATION](#) | [ACOUSTICS](#)
Howe Gastmeier Chapnik Limited
2000 Argentia Road, Plaza One, Suite 203, Mississauga, Ontario, Canada L5N 1P7
t: 905.826.4044 e: vgarcia@hgcengineering.com
Visit our website – www.hgcengineering.com Follow Us – [LinkedIn](#) | [Twitter](#) | [YouTube](#)

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Victor Garcia

From: Krusto, Matt <Matt.Krusto@halton.ca>
Sent: March 2, 2021 9:44 AM
To: Victor Garcia
Subject: RE: Road Traffic Data Request
Attachments: 100323 - nb & sb volume.xls

Hi Victor,

Thanks for checking. I have attached a 2019 24 hour 2-way count on Trafalgar north of Cross. It is 47,400. Therefore, to consider the existing Trafalgar at-capacity, please use 55,000.

The Trafalgar volumes likely won't significantly impact the site at 157 Cross, as it is +300m to the west.

Matt

From: Victor Garcia <vgarcia@hgcengineering.com>
Sent: Tuesday, March 2, 2021 9:07 AM
To: Krusto, Matt <Matt.Krusto@halton.ca>
Subject: RE: Road Traffic Data Request

CAUTION: This email originated from outside the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe. If you are unsure or need assistance please contact the IT Service Desk.

Hi Matt,

We received the truck percentages from the email listed below, do you still provide ultimate traffic volumes for Trafalgar Rd or should we be projecting the volumes obtained from the TMC?

Thanks,

Victor Garcia, P.Eng
HGC Engineering **NOISE | VIBRATION | ACOUSTICS**
Howe Gastmeier Chapnik Limited
t: 905.826.4044

From: Krusto, Matt <Matt.Krusto@halton.ca>
Sent: February 16, 2021 11:50 AM
To: Victor Garcia <vgarcia@hgcengineering.com>
Subject: RE: Road Traffic Data Request

Hi Victor,

Any requests for turning movement counts go to trafficdatarequests@halton.ca Cornwall traffic data, other than at the Trafalgar Road intersection, must be obtained from the Town of Oakville.

Truck percentages must be based on existing truck percentages from the data you receive.

Master Station	Description	Count date	Total vol	lampk.cnt	lampk.vol	off pk.cnt	offpk.vol	pm.pk.cnt	pkhr.vol	8hr.vol	12hr.vol	pm10 speed (km)	50% speed (km)	avg (km)	85Percent	Variance	exceeding (%)	accs	# and trk	# med trk/hrs	# hvy trk	Sevacs	%normal trk	% med trk/hrs	% hvy trk	headway max (sec)	headway min (sec)	Temp min (C)	Temp max (C)	surface
10000	Trafalgar Road - between QEW WB Off-Ramp and Leighland/Isques	12-Sep-19	45,085	8-45	3,422	13-00	2,944	18-00	3,562	24,146	36,231	60	50	54	66.67	8.67	28.20%	43,237	343	692	540	96.5%	0.8%	1.5%	1.2%	0.93	64.29	19	29 Dry	

Prepared For: Halton Region
 Prepared By: *PYRAMID* Traffic Inc.
 Location: REG. RD. #3 200m north of Cross Ave
 Start Date: Thursday Sep 12, 2019

Site ID: 100323
 Interval: 15 min.

Period Ending	Channel 1 NB	Channel 2 SB	Hourly Summary	Period Ending	Channel 1 NB	Channel 2 SB	Hourly Summary
0:15	153	44		12:15	466	357	3070
0:30	68	37		12:30	419	326	3078
0:45	76	29		12:45	421	353	3135
1:00	35	28	470	13:00	428	368	3138
1:15	27	5	305	13:15	415	325	3055
1:30	15	24	239	13:30	438	298	3046
1:45	32	10	176	13:45	405	315	2992
2:00	14	11	138	14:00	438	315	2949
2:15	23	12	141	14:15	416	305	2930
2:30	20	6	128	14:30	458	278	2930
2:45	7	15	108	14:45	433	325	2968
3:00	8	7	98	15:00	435	343	2993
3:15	12	6	81	15:15	496	350	3118
3:30	7	3	65	15:30	501	324	3207
3:45	9	7	59	15:45	478	371	3298
4:00	9	7	60	16:00	483	331	3334
4:15	11	9	62	16:15	550	319	3357
4:30	12	15	79	16:30	518	337	3387
4:45	17	22	102	16:45	569	319	3426
5:00	19	47	152	17:00	467	316	3395
5:15	32	33	197	17:15	640	375	3541
5:30	33	56	259	17:30	635	343	3664
5:45	49	73	342	17:45	628	310	3714
6:00	67	103	446	18:00	492	323	3746
6:15	72	89	542	18:15	663	319	3713
6:30	97	158	708	18:30	436	312	3483
6:45	154	235	975	18:45	506	322	3373
7:00	164	280	1249	19:00	348	305	3211
7:15	200	295	1583	19:15	480	296	3005
7:30	255	381	1964	19:30	349	266	2872
7:45	283	389	2247	19:45	336	243	2623
8:00	326	449	2578	20:00	349	217	2536
8:15	343	452	2878	20:15	357	208	2325
8:30	446	496	3184	20:30	294	221	2225
8:45	437	406	3355	20:45	310	195	2151
9:00	339	453	3372	21:00	235	200	2020
9:15	328	376	3281	21:15	293	156	1904
9:30	301	324	2964	21:30	219	145	1753
9:45	314	340	2775	21:45	258	124	1630
10:00	341	340	2664	22:00	188	116	1499
10:15	325	276	2561	22:15	206	105	1361
10:30	363	284	2583	22:30	191	84	1272
10:45	336	305	2570	22:45	194	78	1162
11:00	354	301	2544	23:00	140	104	1102
11:15	369	305	2617	23:15	178	90	1059
11:30	399	338	2707	23:30	100	75	959
11:45	372	345	2783	23:45	144	55	886
12:00	414	379	2921	0:00	64	87	793

AM Peak: 3372

PM Peak: 3746

24 HR VOLUME: 47408



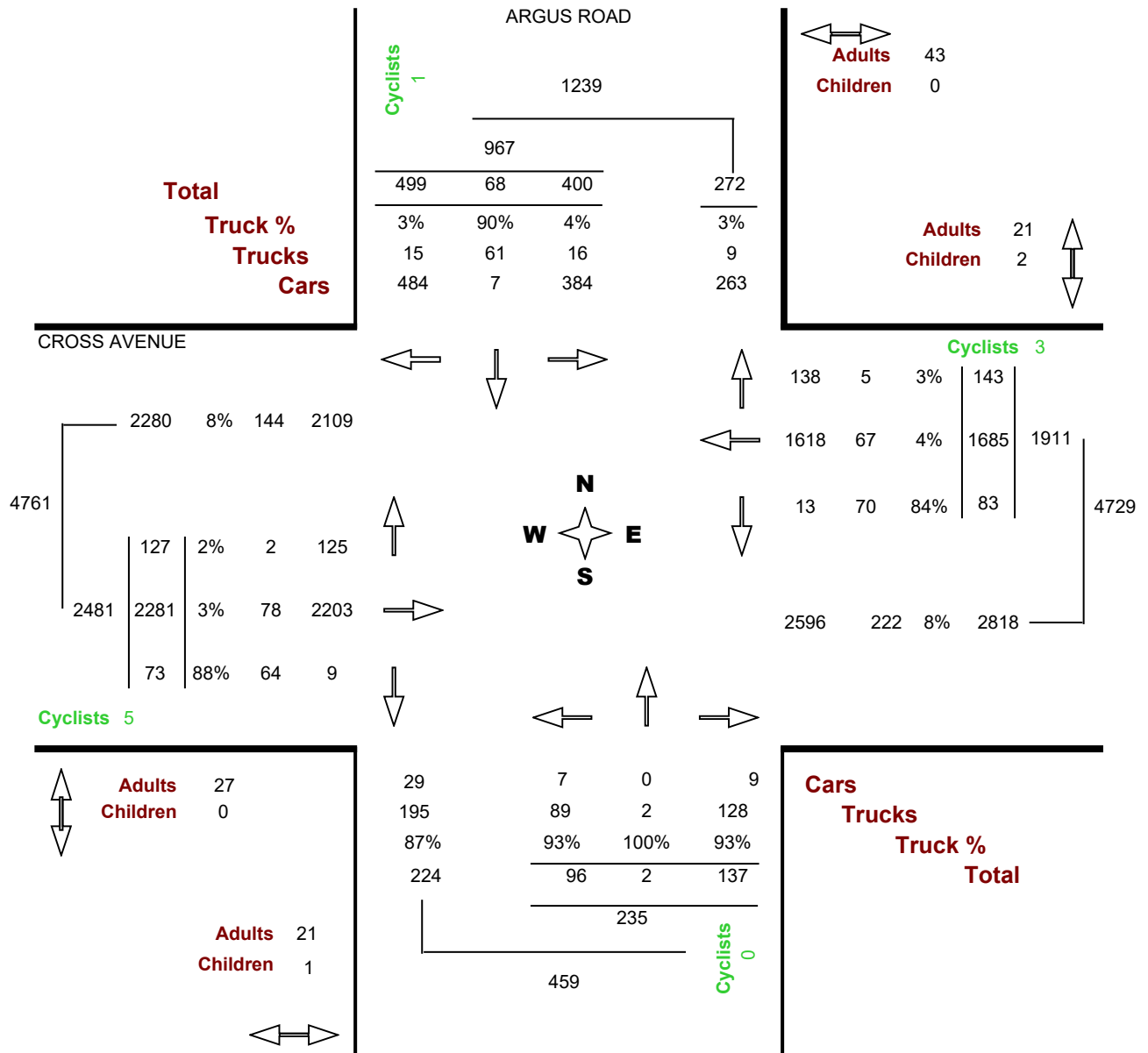
Turning Movements Count - Full Study Report

Location..... CROSS AVENUE @ ARGUS ROAD

Municipality..... OAKVILLE

GeoID..... 30151301

Count Date..... Wednesday, 30 September, 2020



In all counts dated before 2018 - Adult pedestrian numbers include seniors, and the senior count = 0



Turning Movements Report - AM Period

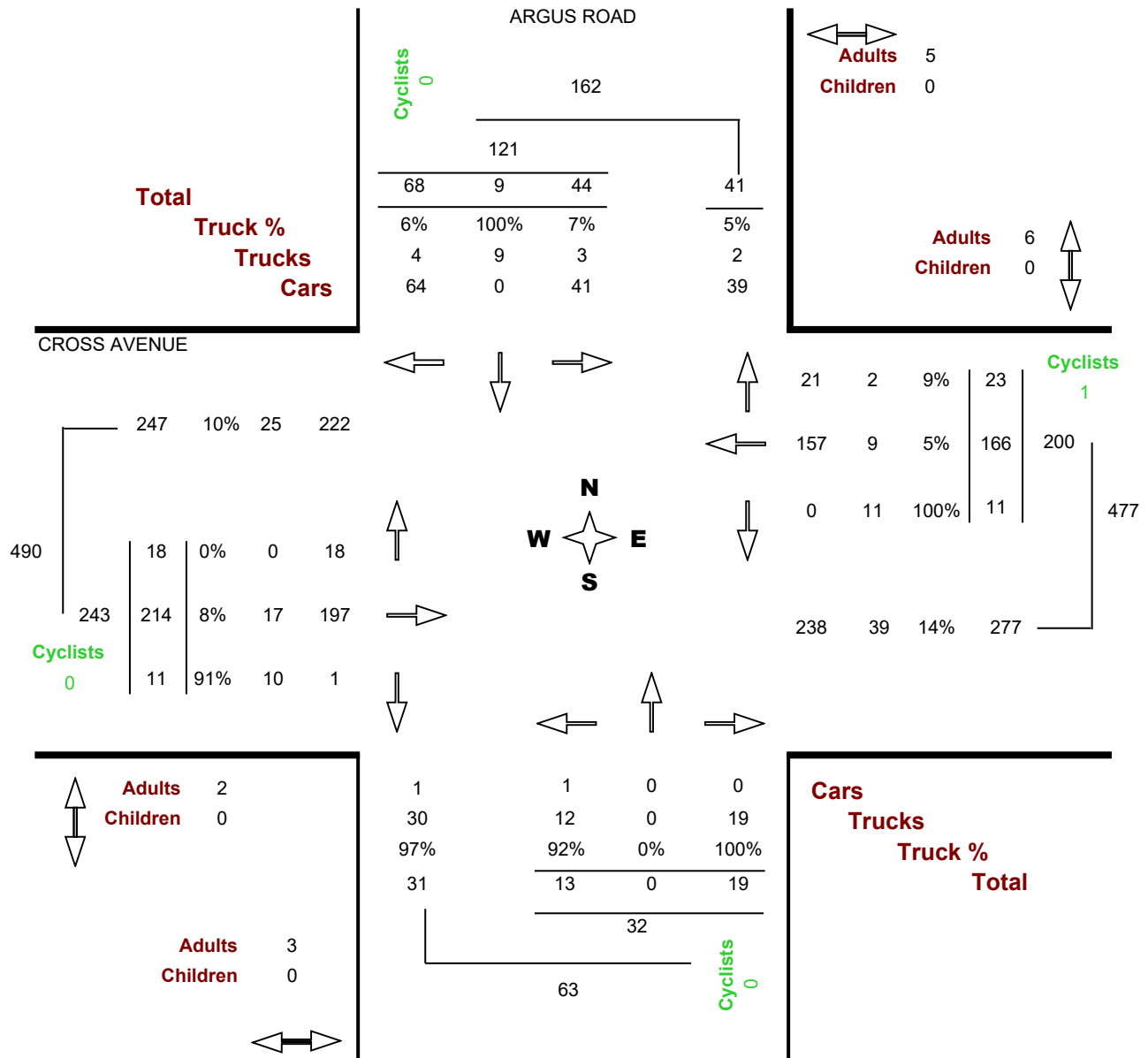
Location..... CROSS AVENUE @ ARGUS ROAD

Municipality..... OAKVILLE

GeoID..... 30151301

Count Date..... Wednesday, 30 September, 2020

Peak Hour..... 08:00 AM — 09:00 AM



THIS INFORMATION IS SUPPLIED FROM OUR RECORDS AND IS NOT GUARANTEED TO BE CORRECT. WE RECOMMEND FIELD CHECKING TO VERIFY THE INFORMATION SHOWN.

In all counts dated before 2018 - Adult pedestrian numbers include seniors, and the senior count = 0



Turning Movements Report - MD Period

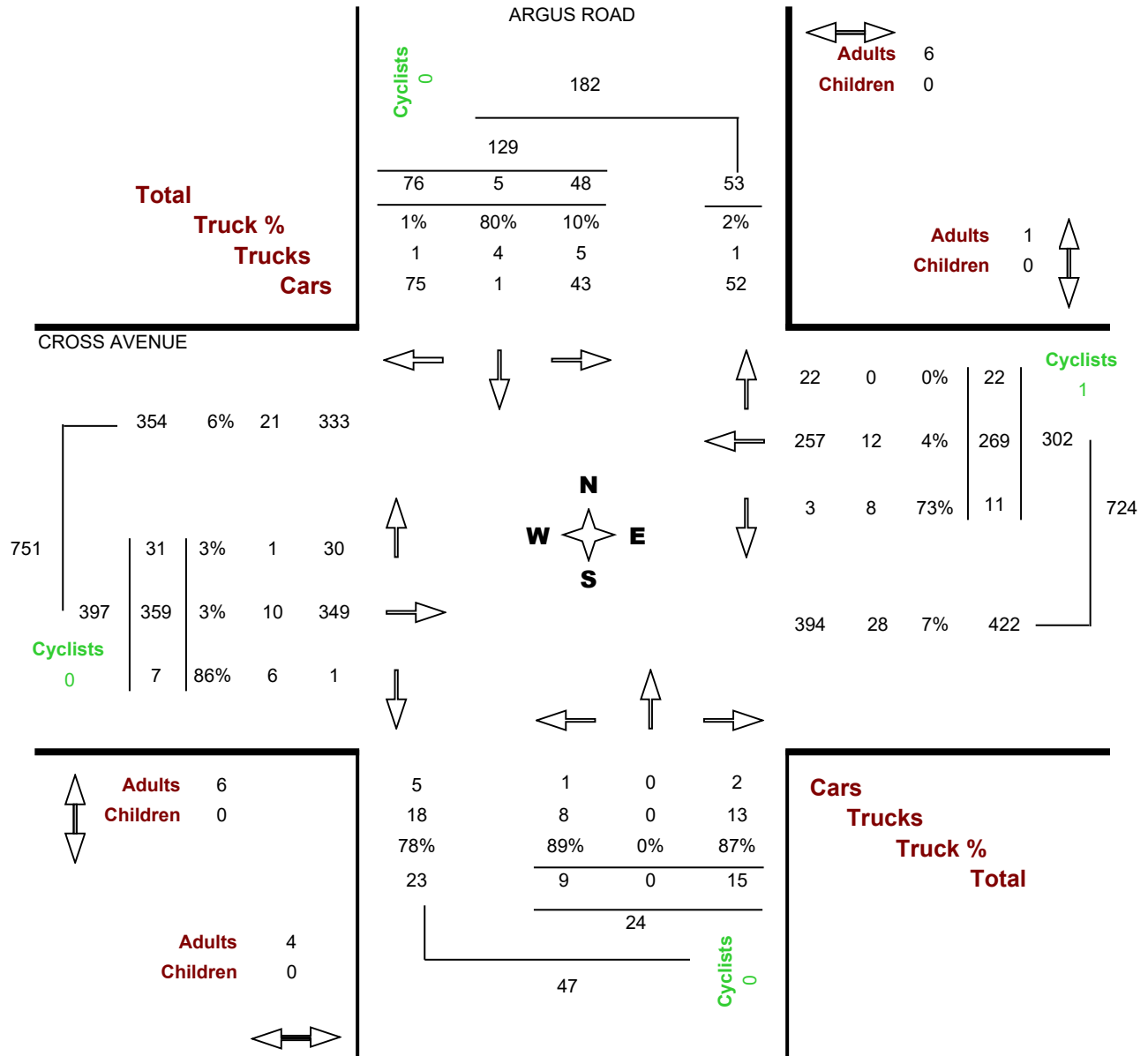
Location..... CROSS AVENUE @ ARGUS ROAD

Municipality..... OAKVILLE

GeoID..... 30151301

Count Date..... Wednesday, 30 September, 2020

Peak Hour..... 01:00 PM — 02:00 PM



THIS INFORMATION IS SUPPLIED FROM OUR RECORDS AND IS NOT GUARANTEED TO BE CORRECT. WE RECOMMEND FIELD CHECKING TO VERIFY THE INFORMATION SHOWN.

In all counts dated before 2018 - Adult pedestrian numbers include seniors, and the senior count = 0



Turning Movements Report - PM Period

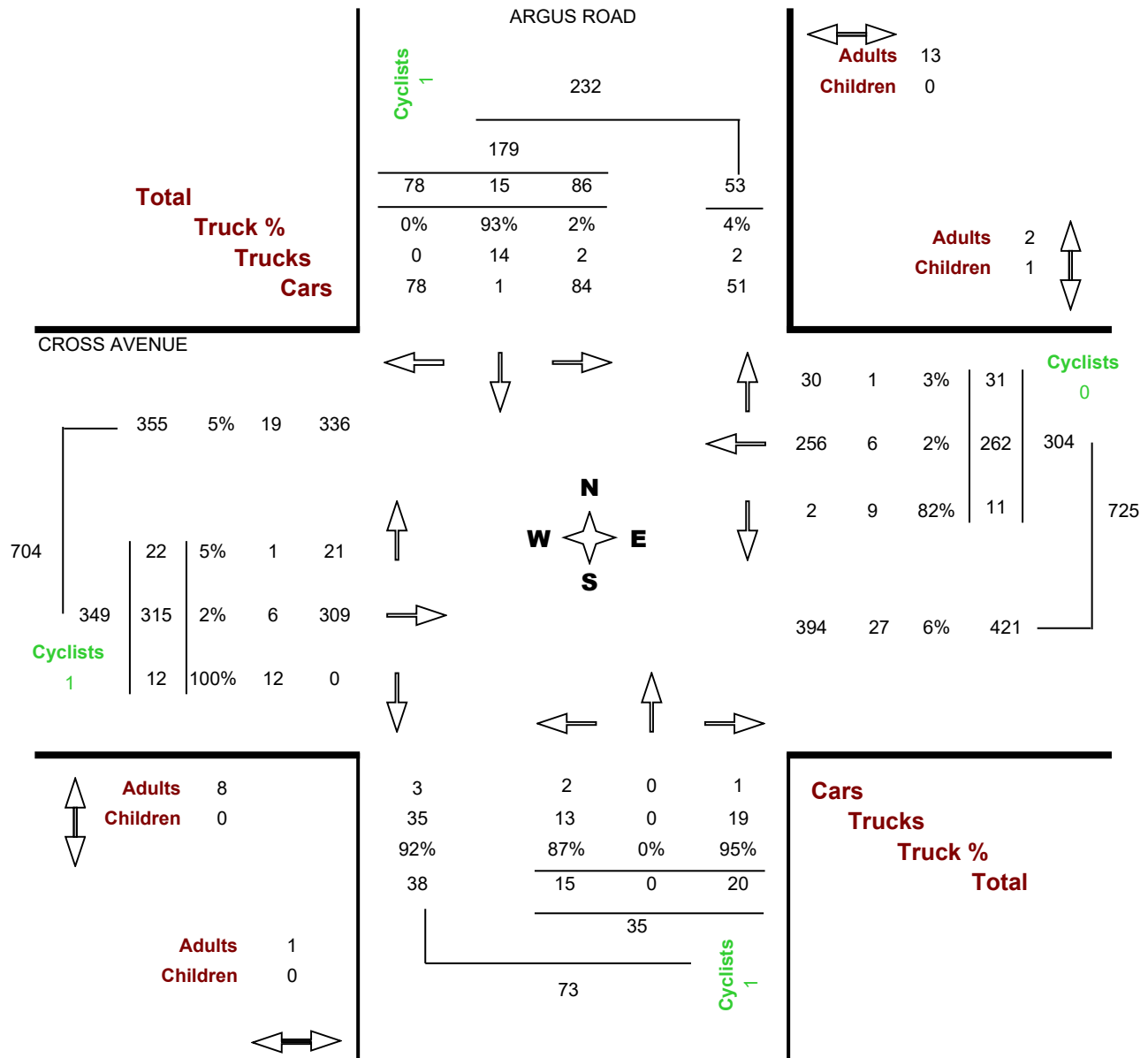
Location..... CROSS AVENUE @ ARGUS ROAD

Municipality..... OAKVILLE

GeoID..... 30151301

Count Date..... Wednesday, 30 September, 2020

Peak Hour..... 03:15 PM — 04:15 PM



THIS INFORMATION IS SUPPLIED FROM OUR RECORDS AND IS NOT GUARANTEED TO BE CORRECT. WE RECOMMEND FIELD CHECKING TO VERIFY THE INFORMATION SHOWN.

In all counts dated before 2018 - Adult pedestrian numbers include seniors, and the senior count = 0



Turning Movement Count - Details Report

Location..... CROSS AVENUE @ ARGUS ROAD
Municipality..... OAKVILLE
Count Date..... Wednesday, September 30, 2020

		ARGUS ROAD										CROSS AVENUE									
		North Approach					South Approach					East Approach					West Approach				
Time Period		LT	TH	RT	Cyclists	Ped	LT	TH	RT	Cyclists	Ped	LT	TH	RT	Cyclists	Ped	LT	TH	RT	Cyclists	Ped
07:00	07:15	3	4	9	0	1	6	0	7	0	1	4	29	1	0	0	1	19	3	0	0
07:15	07:30	3	1	12	0	0	1	0	1	0	0	1	31	3	0	2	4	41	2	0	1
07:30	07:45	3	3	7	0	0	5	0	8	0	0	6	36	1	0	0	2	37	4	0	1
07:45	08:00	6	1	18	0	4	0	0	3	0	0	2	29	3	0	2	1	40	1	0	0
Hourly Total		15	9	46	0	5	12	0	19	0	1	13	125	8	0	4	8	137	10	0	2
08:00	08:15	4	1	21	0	1	7	0	8	0	3	6	34	3	0	1	2	61	5	0	2
08:15	08:30	16	1	9	0	0	0	0	1	0	0	1	37	11	0	0	3	42	1	0	0
08:30	08:45	13	6	17	0	3	5	0	8	0	0	3	36	6	0	1	7	53	3	0	0
08:45	09:00	11	1	21	0	1	1	0	2	0	0	1	59	3	1	4	6	58	2	0	0
Hourly Total		44	9	68	0	5	13	0	19	0	3	11	166	23	1	6	18	214	11	0	2
11:00	11:15	4	0	4	0	0	6	0	6	0	0	1	28	3	0	0	1	41	1	0	0
11:15	11:30	10	0	23	0	1	2	1	1	0	1	1	64	2	0	0	5	84	1	3	0
11:30	11:45	14	2	24	0	0	2	0	3	0	0	2	79	7	0	1	3	91	1	1	3
11:45	12:00	7	0	8	0	0	3	1	3	0	0	4	56	4	0	0	3	95	0	0	1
Hourly Total		35	2	59	0	1	13	2	13	0	1	8	227	16	0	1	12	311	3	4	4
12:00	12:15	21	2	20	0	3	4	0	3	0	0	3	58	8	1	0	3	77	3	0	0
12:15	12:30	6	2	12	0	0	1	0	3	0	4	2	53	4	0	0	4	96	2	0	0
12:30	12:45	13	2	17	0	0	6	0	4	0	3	8	58	4	0	0	1	91	2	0	0
12:45	13:00	15	0	20	0	2	0	0	3	0	2	2	71	6	0	0	5	93	2	0	2
Hourly Total		55	6	69	0	5	11	0	13	0	9	15	240	22	1	0	13	357	9	0	2
13:00	13:15	15	4	23	0	0	5	0	4	0	1	4	66	3	1	0	2	95	2	0	0
13:15	13:30	8	0	16	0	0	0	0	3	0	1	0	71	6	0	0	6	94	2	0	3
13:30	13:45	12	0	18	0	3	3	0	4	0	1	4	55	6	0	1	5	82	2	0	2
13:45	14:00	13	1	19	0	3	1	0	4	0	1	3	77	7	0	0	18	88	1	0	1
Hourly Total		48	5	76	0	6	9	0	15	0	4	11	269	22	1	1	31	359	7	0	6
15:00	15:15	6	2	9	0	2	6	0	7	0	0	5	42	2	0	0	4	50	2	0	0
15:15	15:30	21	3	27	0	3	2	0	3	0	0	2	71	16	0	0	6	85	1	1	1
15:30	15:45	19	5	14	0	6	3	0	6	0	0	3	70	8	0	2	8	63	4	0	7
15:45	16:00	23	2	19	1	2	3	0	3	0	1	2	54	3	0	1	4	81	1	0	0
Hourly Total		69	12	69	1	13	14	0	19	0	1	12	237	29	0	3	22	279	8	1	8
16:00	16:15	23	5	18	0	2	7	0	8	0	0	4	67	4	0	0	4	86	6	0	0
16:15	16:30	6	1	13	0	2	1	0	4	0	0	0	55	5	0	2	4	89	3	0	0
16:30	16:45	17	6	15	0	2	4	0	6	0	0	3	57	2	0	4	3	72	5	0	0
16:45	17:00	19	1	23	0	0	1	0	3	0	0	1	58	3	0	1	4	94	1	0	0
Hourly Total		65	13	69	0	6	13	0	21	0	0	8	237	14	0	7	15	341	15	0	0
17:00	17:15	31	3	11	0	0	3	0	7	0	1	3	43	0	0	1	2	88	3	0	1
17:15	17:30	15	0	15	0	2	2	0	3	0	2	1	57	4	0	0	1	72	1	0	2
17:30	17:45	14	8	12	0	0	5	0	7	0	0	1	47	5	0	0	3	65	4	0	0
17:45	18:00	9	1	5	0	0	1	0	1	0	0	0	37	0	0	0	2	58	2	0	0
Hourly Total		69	12	43	0	2	11	0	18	0	3	5	184	9	0	1	8	283	10	0	3
Grand Total		400	68	499	1	43	96	2	137	0	22	83	1685	143	3	23	127	2281	73	5	27
Truck %		4%	90%	3%			93%	100%	93%			84%	4%	3%			2%	3%	88%		

APPENDIX B

Rail Traffic Data



ACOUSTICS



NOISE



VIBRATION



Train Count Data

TRANSMITTAL

To: HGC Engineering
Destinataire : 2000 Argentia Rd
Plaza, Suite 203
Mississauga ON
L5N 1P7

Project : OAK – 21.20 – Cornwall Rd, Oakville ON

Att'n: Victor Garcia

Routing: vgarcia@hgcengineering.com

From: Michael Vallins
Expéditeur :

Date: 2021/04/26

Cc: Adjacent Development
CN via e-mail

Urgent For Your Use For Review For Your Information Confidential

Re: Train Traffic Data – CN Oakville Subdivision near Cornwall Rd in Oakville, ON

Please find attached the requested Train Traffic Data; this data does not reflect GO Metrolinx Traffic. The application fee in the amount of **\$500.00** +HST will be invoiced.

Should you have any questions, please do not hesitate to contact the undersigned at permits.gld@cn.ca.

Sincerely,
CN Design & Construction

Michael Vallins P.Eng
Manager Public Works- Eastern Canada
Permits.gld@cn.ca

Date: 2021/04/26

Project Number: OAK – 21.20 – Cornwall Rd, Oakville ON

Dear Victor:

Re: Train Traffic Data – CN Oakville Subdivision near Cornwall Rd in Oakville, ON

The following is provided in response to Victor’s 2021/02/16 request for information regarding rail traffic in the vicinity of Cornwall Rd in Oakville at approximately Mile 21.20 on CN’s Oakville Subdivision.

Typical daily traffic volumes are recorded below. However, traffic volumes may fluctuate due to overall economic conditions, varying traffic demands, weather conditions, track maintenance programs, statutory holidays and traffic detours that when required may be heavy although temporary. For the purpose of noise and vibration reports, train volumes must be escalated by 2.5% per annum for a 10-year period.

Typical daily traffic volumes at this site location are as follows:

***Maximum train speed is given in Miles per Hour**

	0700-2300			
Type of Train	Volumes	Max.Consist	Max. Speed	Max. Power
Freight	2	140	60	4
Way Freight	0	25	60	4
Passenger	12	10	95	2

	2300-0700			
Type of Train	Volumes	Max.Consist	Max. Speed	Max. Power
Freight	2	140	60	4
Way Freight	0	25	60	4
Passenger	1	10	95	2

The volumes recorded reflect westbound and eastbound freight and passenger operations on CN’s Oakville Subdivision.

Except where anti-whistling bylaws are in effect, engine-warning whistles and bells are normally sounded at all at-grade crossings. There is one (1) at-grade crossing in the immediate vicinity of the study area at Mile 21.97 Kerr St. Anti-whistling bylaws are in effect at this crossing. Please note that engine warning whistles may be sounded in cases of emergency, as a safety and or warning precaution at station locations and pedestrian crossings and occasionally for operating requirements.

With respect to equipment restrictions, the gross weight of the heaviest permissible car is 286,000 lbs.

The four mainline tracks are considered to be continuously welded rail throughout the study area. The presence of four (4) switches located at Mile 21.85, 21.99, 22.07, and 22.20 may exacerbate the noise and vibration caused by train movements.

The Canadian National Railway continues to be strongly opposed to locating developments near railway facilities and rights-of-way due to potential safety and environmental conflicts. Development adjacent to the Railway Right-of-Way is not appropriate without sound impact mitigation measures to reduce the incompatibility. For confirmation of the applicable rail noise, vibration and safety standards, Adjacent Development, Canadian National Railway Properties at Proximity@cn.ca should be contacted directly.

I trust the above information will satisfy your current request.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Michael Vallins P.Eng', with a long horizontal flourish extending to the right.

Michael Vallins P.Eng
Manager Public Works- Eastern Canada
Permits.gld@cn.ca

Yvonne Lo

From: Rail Data Requests <RailDataRequests@metrolinx.com>
Sent: February 23, 2021 4:26 PM
To: Victor Garcia
Subject: RE: Rail Traffic Data Requests-157-165 Cross Ave, Oakville

Hi Victor:

Further to your request dated February 16, 2021, the subject lands (157-165 Cross Ave, Oakville) are located within 300 metres of the Metrolinx Oakville Subdivision (which carries Lakeshore West GO rail service).

It's anticipated that GO rail service on this Subdivision will be comprised of diesel and electric trains. The GO rail fleet combination on this Subdivision will consist of up to 2 locomotives and 12 passenger cars. The typical GO rail weekday train volume forecast near the subject lands, including both revenue and equipment trips is in the order of 255 trains. The planned detailed trip breakdown is listed below:

	1 Diesel Locomotive	2 Diesel Locomotives	1 Electric Locomotive	2 Electric Locomotives		1 Diesel Locomotive	2 Diesel Locomotives	1 Electric Locomotive	2 Electric Locomotives
Day (0700-2300)	60	11	101	42	Night (2300-0700)	8	4	21	8

The current track design speed near the subject lands is 80 mph (129 km/h).

With respect to future electrified rail service, Metrolinx is committed to finding the most sustainable solution for electrifying the GO rail network and we are currently working towards the next phase.

Options have been studied as part of the Transit Project Assessment Process (TPAP) for the GO Expansion program, currently in the procurement phase. The successful proponent team will be responsible for selecting and delivering the right trains and infrastructure to unlock the benefits of GO Expansion. The contract is in a multi-year procurement process and teams are currently completing the bids that will close in 2021. GO Expansion construction will get underway in 2022.

However, we can advise that train noise is dominated by the powertrain at lower speeds and by the wheel-track interaction at higher speeds. Hence, the noise level and spectrum of electric trains is expected to be very similar at higher speeds, if not identical, to those of equivalent diesel trains.

Given the above considerations, it would be prudent at this time, for the purposes of acoustical analyses for development in proximity to Metrolinx corridors, to assume that the acoustical characteristics of electrified and diesel trains are equivalent. In light of the aforementioned information, acoustical models should employ diesel train parameters as the basis for analyses. We anticipate that additional information regarding specific operational parameters for electrified trains will become available in the future once the proponent team is selected.

There are anti-whistling by-laws in affect at Kerr St and Chartwell Rd at-grade crossings.

Operational information is subject to change and may be influenced by, among other factors, service planning priorities, operational considerations, funding availability and passenger demand.

It should be noted that this information only pertains to Metrolinx rail service. It would be prudent to contact other rail operators in the area directly for rail traffic information pertaining to non-Metrolinx rail service.

I trust this information is useful. Should you have any questions or concerns, please do not hesitate to contact me.

Regards,

APPENDIX C

Preliminary Drawings



ACOUSTICS



NOISE



VIBRATION

BDP. Quadrangle

Quadrangle Architects Limited
901 King Street West, Suite 701 Toronto, ON M5V 3H5
t 416 598 1240 www.bdpquadrangle.com



217-227 Cross Avenue and 571-587 Argus Road

for
Distrikt Developments

Project No. 19072
Date 13 March 2024
Issued for Coordination

ARCHITECTURAL DRAWINGS

A000 S	Cover Page
A101 S	Site Plan and Statistics
A102 S	Circulation Site 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

PLANNING CONSULTANT

Bousfields Inc.
3 Church Street, Suite 200
Toronto, ON M5E 1M2
T (416) 947-9744

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 Pinetubish 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 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:	12599	sm	135613
Area of Road Conveyances:	2685	sm	28905
Area of Promenade Conveyances:	631	sm	6794
Net Lot Area:	9282	sm	99914
POPS Area (not conveyed):	2846	sm	30659

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	19343	348	
	Level 9-37	850	29	24650	265333	24650	0	0	0	627	12	
	Level 8	850	1	850	9149	850	0	0	0	241	5	
Podium A	Level 7	621	1	621	6689	372	0	224	719	5991	88	
	Level 3-6	1543	4	6171	68430	6175	0	850	462	0	0	
	Level 2	1279	1	1279	13765	0	0	0	0	0	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	1074	1181	25301	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	27709	530	
	Level 9-49	850	41	34850	375125	34850	0	0	0	679	13	
	Level 8	850	1	850	9149	850	0	0	0	4169	68	
Podium B	Level 7	850	1	850	9149	850	0	0	0	190	0	
	Level 3-6	1239	4	4958	53364	4958	0	0	0	0	0	
	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	881	297	33236	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	23252	455	
	Level 33-65	850	35	29750	320229	29750	0	0	0	525	10	
	Level 32	850	1	850	9149	850	0	0	0	13951	273	
	Level 9-31	850	21	17850	192137	17850	0	0	314	255	7	
	Level 8	972	1	972	10457	657	0	0	0	847	951	
Podium C	Level 7	1164	1	1164	12525	0	0	0	0	6753	116	
	Level 3-6	2058	4	8233	88624	8233	0	0	0	0	0	
	Level 2	2694	1	2694	29002	0	0	2694	0	0	0	
	Mezzanine	1596	1	1596	17175	0	0	635	0	0	0	
	Ground	2652	1	2652	28547	1777	875	0	111	32	0	
Building C Total				65761	707846	59118	875	2694	1907	44967	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	0.5	920	920
Visitor	0.15	276	281
Retail	1.08	17	17
Office	1.08	29	29
TOTAL	1.81	1242	1247

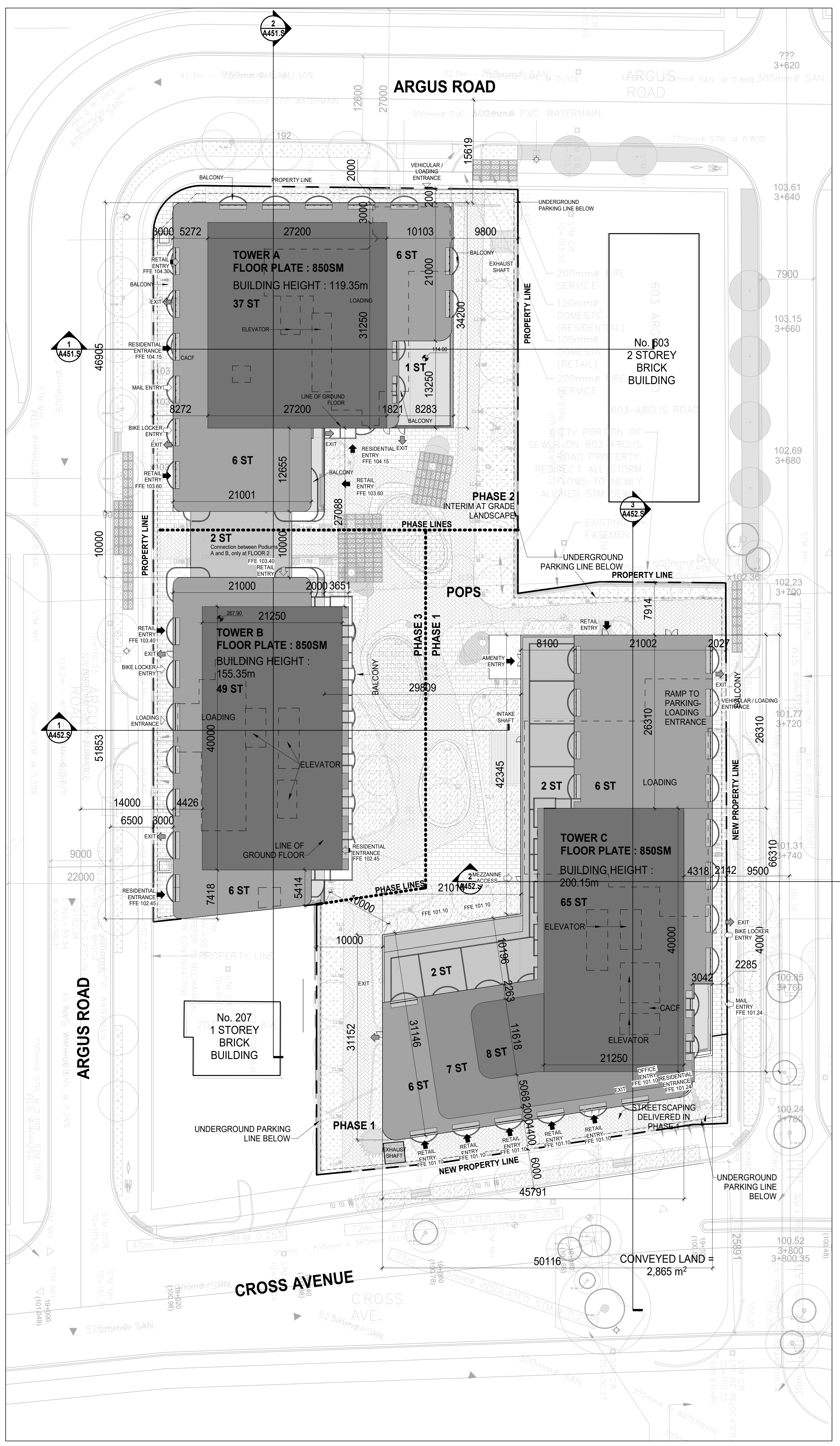
Bicycle Parking			
Long Term	0.75	1454	1454
Short Term	0.25	485	485
Retail	1	2	2
Office	1	3	3
TOTAL	1.94	1942	1944

Residential Amenity	
Indoor	3963
Outdoor	2717
TOTAL	6680

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

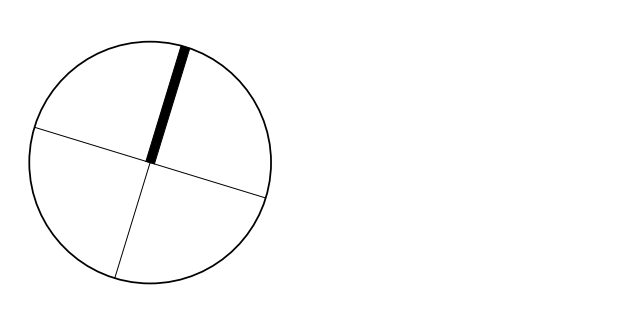


1 SITE PLAN
SCALE: 1:300
A101.S

- SITE PLAN LEGEND**
- PROPERTY LINE
 - LINE OF UNDER GARAGE BELOW
 - MAIN BUILDING ENTRANCE
 - RETAIL ENTRANCE
 - EXIT
 - VEHICLE / LOADING ENTRANCE / EXIT
 - FIRE HYDRANT
 - SIAMMSE 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 FLOOR
 - 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
2023-10-01	1	Issued for Rezoning & OLT
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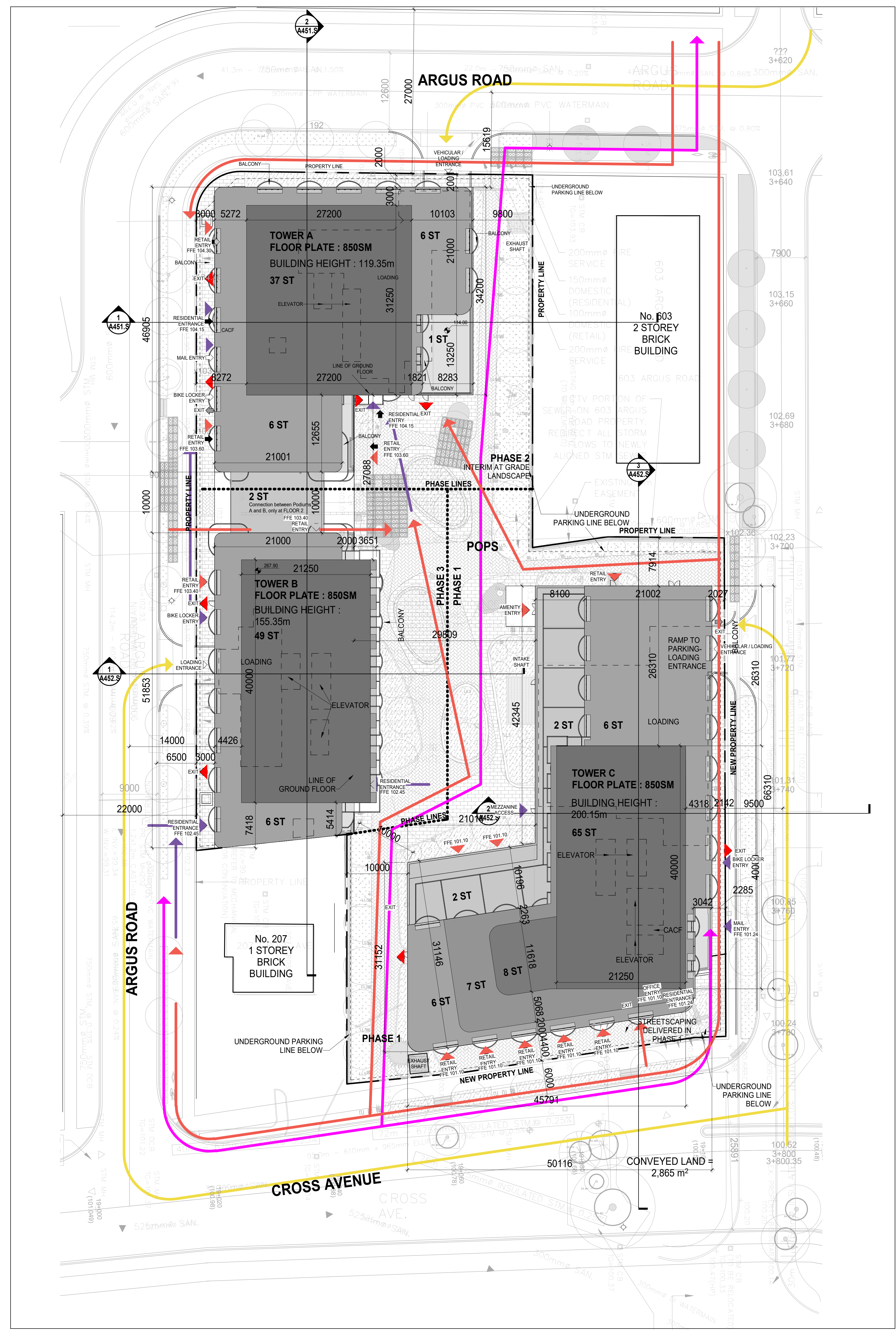
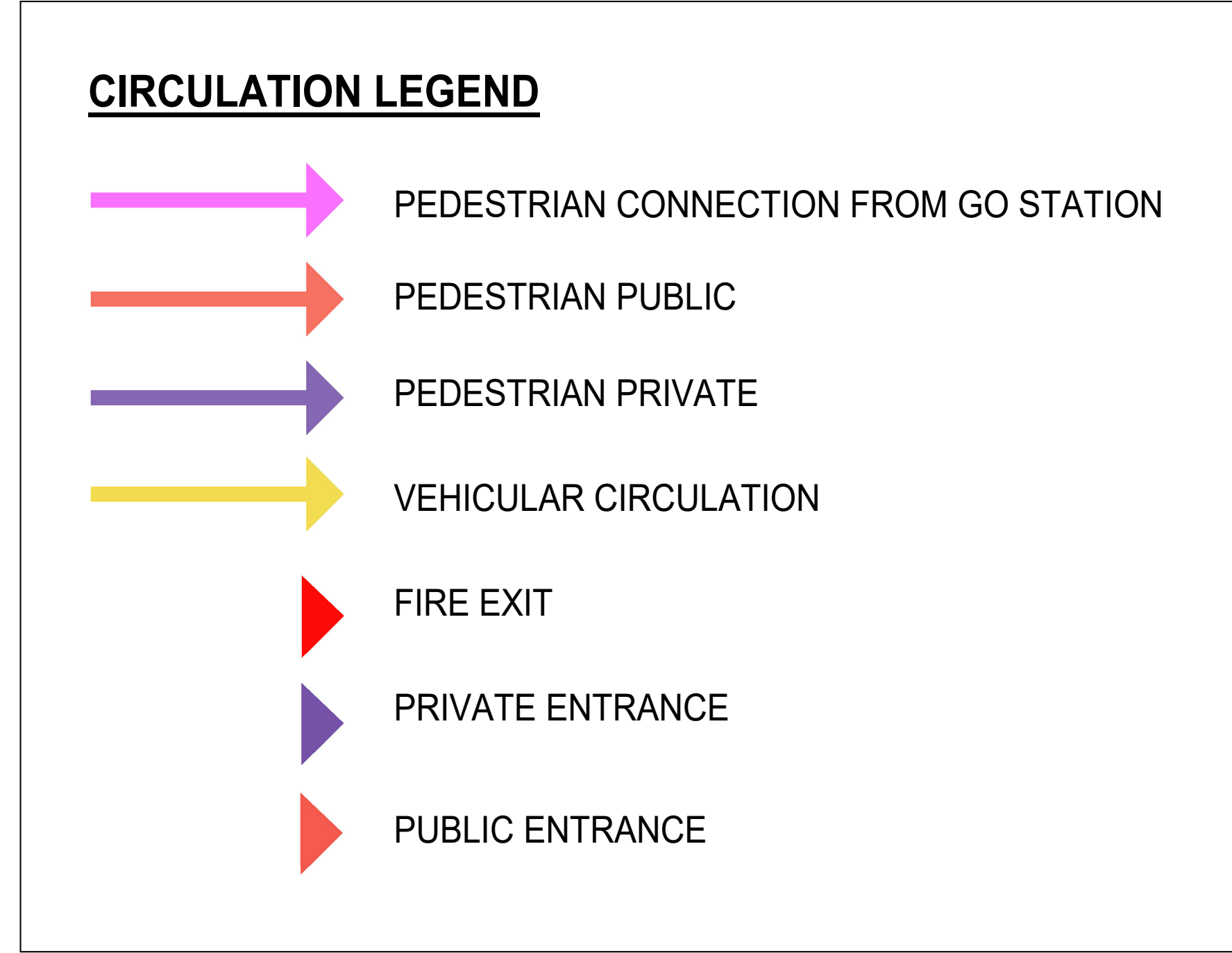
19072 1:300 UI KVE
 PROJECT SCALE DRAWN REVIEWED

Site Plan and Statistics

A101.S

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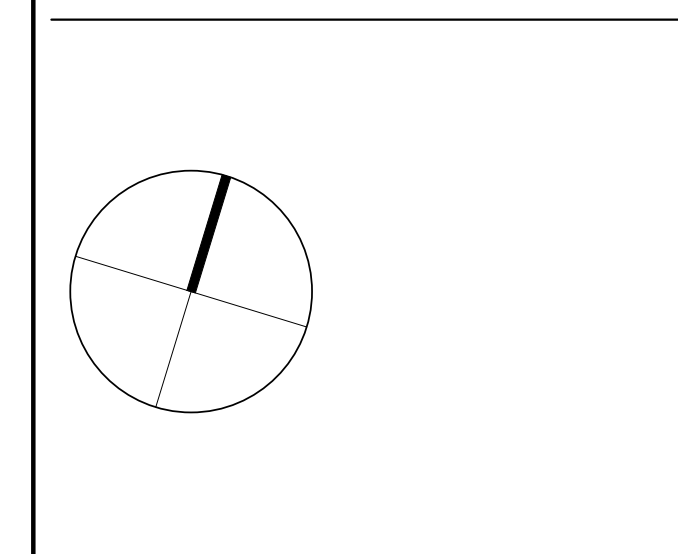
1 SITE PLAN
A102.S

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2022-04-19	2	Issued for Rezoning

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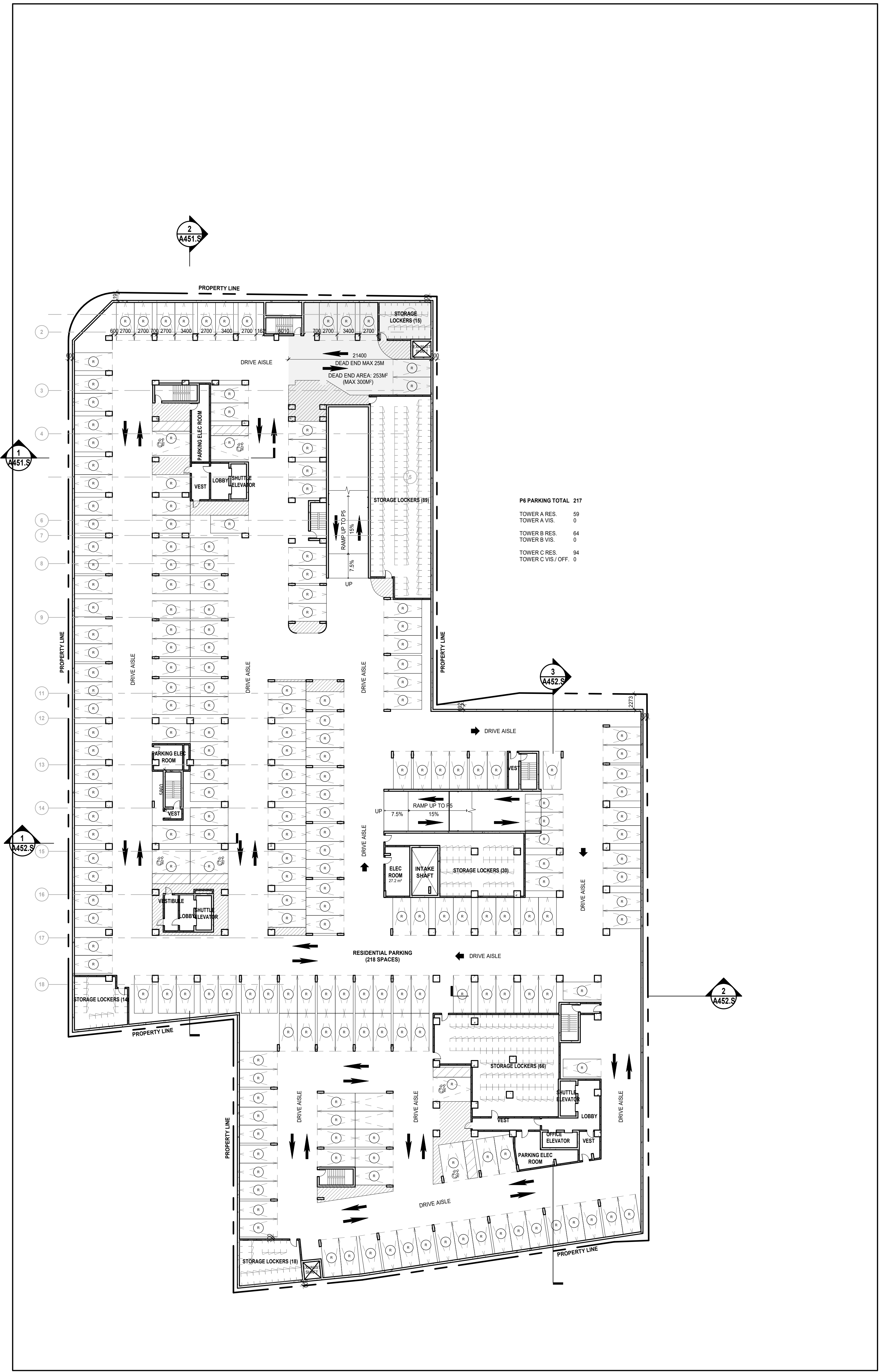
19072 1 : 300 UI KVE
PROJECT SCALE DRAWN REVIEWED

Circulation Site Plan

A102.S

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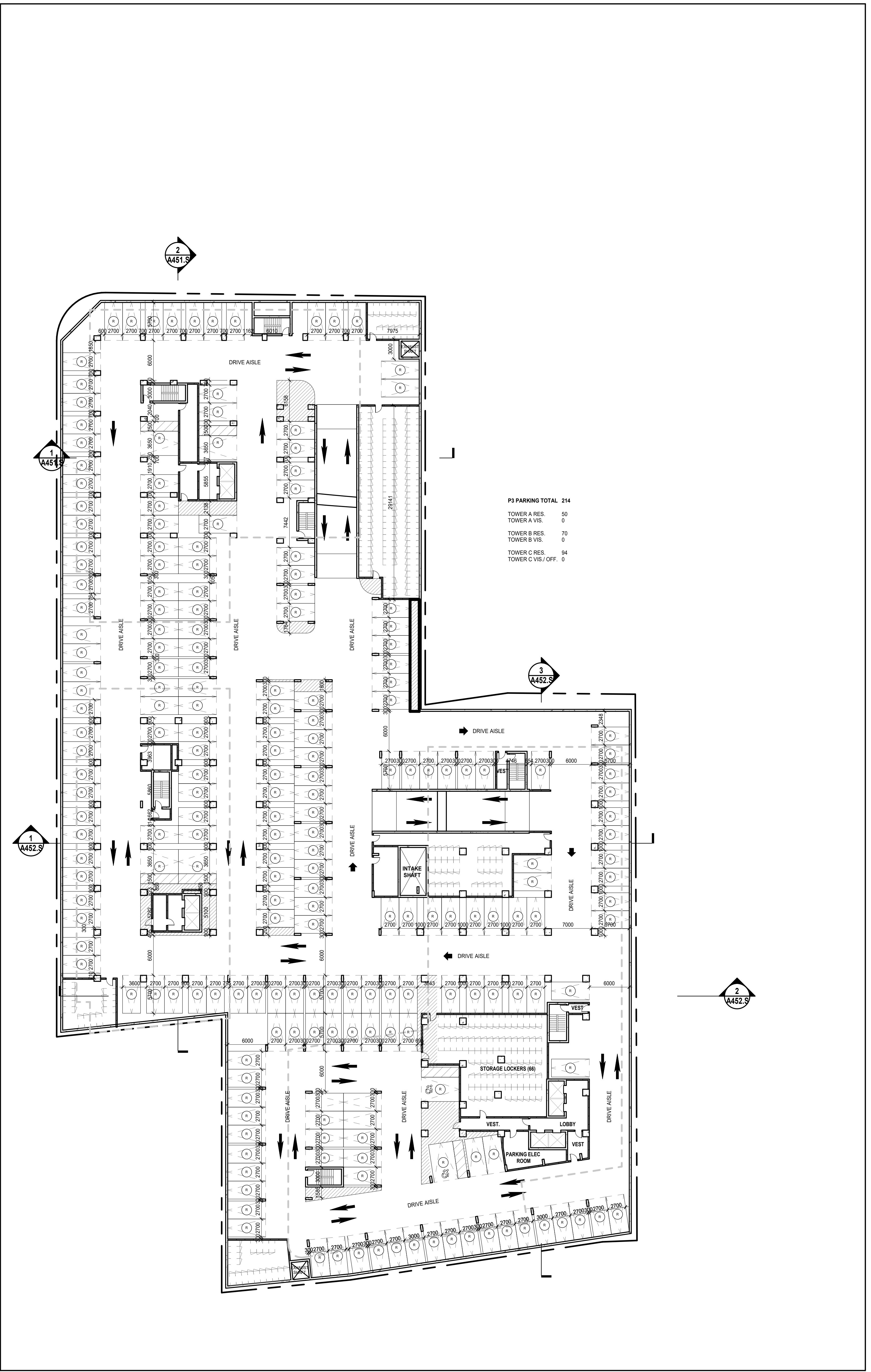
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P6 PARKING TOTAL: 217

TOWER A RES.	59
TOWER A VIS.	0
TOWER B RES.	64
TOWER B VIS.	0
TOWER C RES.	88
TOWER C VIS / OFF.	0

1 P6 UNDERGROUND PLAN



P3 PARKING TOTAL: 214

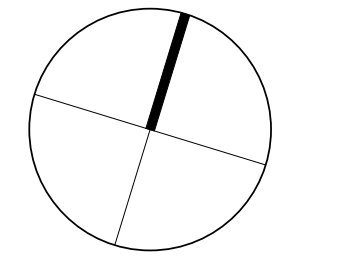
TOWER A RES.	59
TOWER A VIS.	0
TOWER B RES.	70
TOWER B VIS.	0
TOWER C RES.	88
TOWER C VIS / OFF.	0

2 P3-P5 UNDERGROUND PLAN

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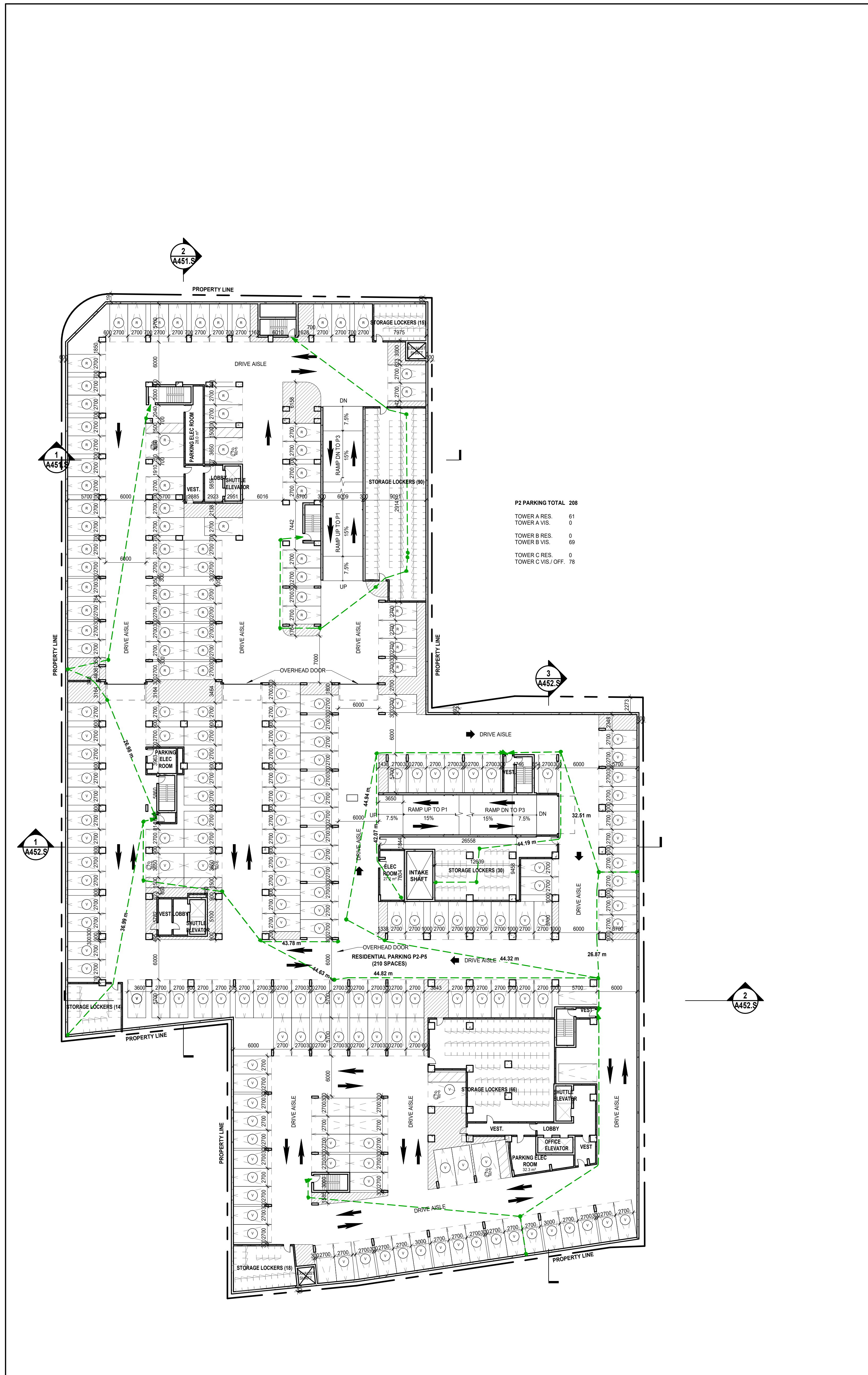
for
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19072 1 : 300 AutoChecker
 PROJECT SCALE DRAWN REVIEWED

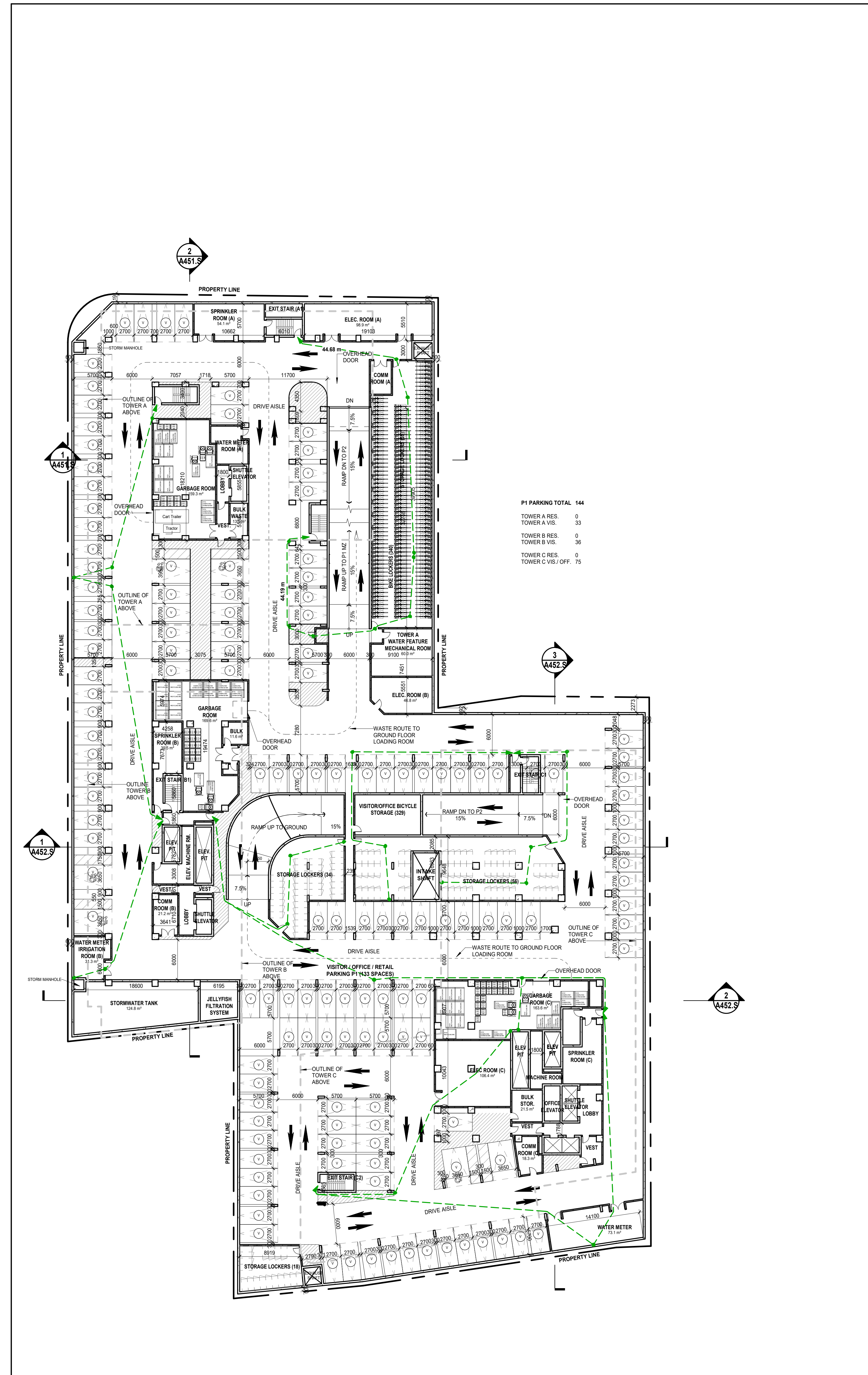
P6 and P3-P5 Underground Plans

A151.S

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2 A152.S P2 UNDERGROUND PLAN



1 A152.S P1 UNDERGROUND PLAN

- PARKING NOTES:**
- MINIMUM PARKING SPACE SIZES (UNLESS OTHERWISE NOTED):
- 2000mm WIDE X 5000mm LONG (NO SIDES OBSTRUCTED)
- 2000mm WIDE X 5000mm LONG (ONE SIDE OBSTRUCTED)
- 3000mm WIDE X 5000mm LONG (TWO SIDES OBSTRUCTED)
 - MAINTAIN MINIMUM DRIVE AISLE WIDTH OF 6000mm UNLESS OTHERWISE NOTED.
 - MAINTAIN MINIMUM HEADROOM CLEARANCE OF 2100mm THROUGHOUT.

- PARKING LEGEND:**
- COMMERCIAL PARKING SPACE
 - RESIDENTIAL PARKING SPACE
 - VISITOR PARKING SPACE
 - EXISTING PARKING SPACE
 - BIKE LOCKER
 - BIKE PARKING (STACKED)
 - BIKE PARKING (VERTICAL)
 - CONVEX MIRROR
 - ELECTRIC VEHICLE
 - LIGHT STANDARD
 - PAINTED LINES
 - FIRE-RATED BULKHEAD
 - TYPICAL
 - ONE SIDE OBSTRUCTED
 - PARALLEL PARKING
 - ACCESSIBLE VISITOR - TYPE A
 - ACCESSIBLE VISITOR - TYPE B

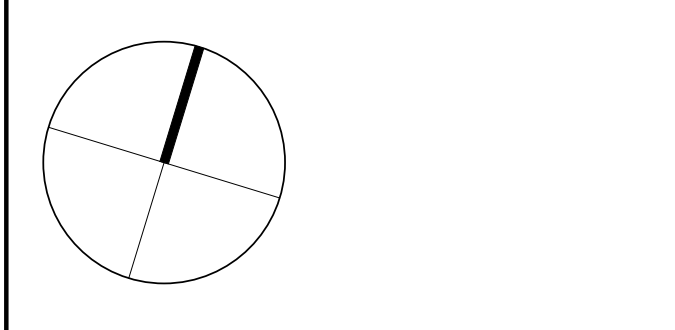
Date	No.	Description
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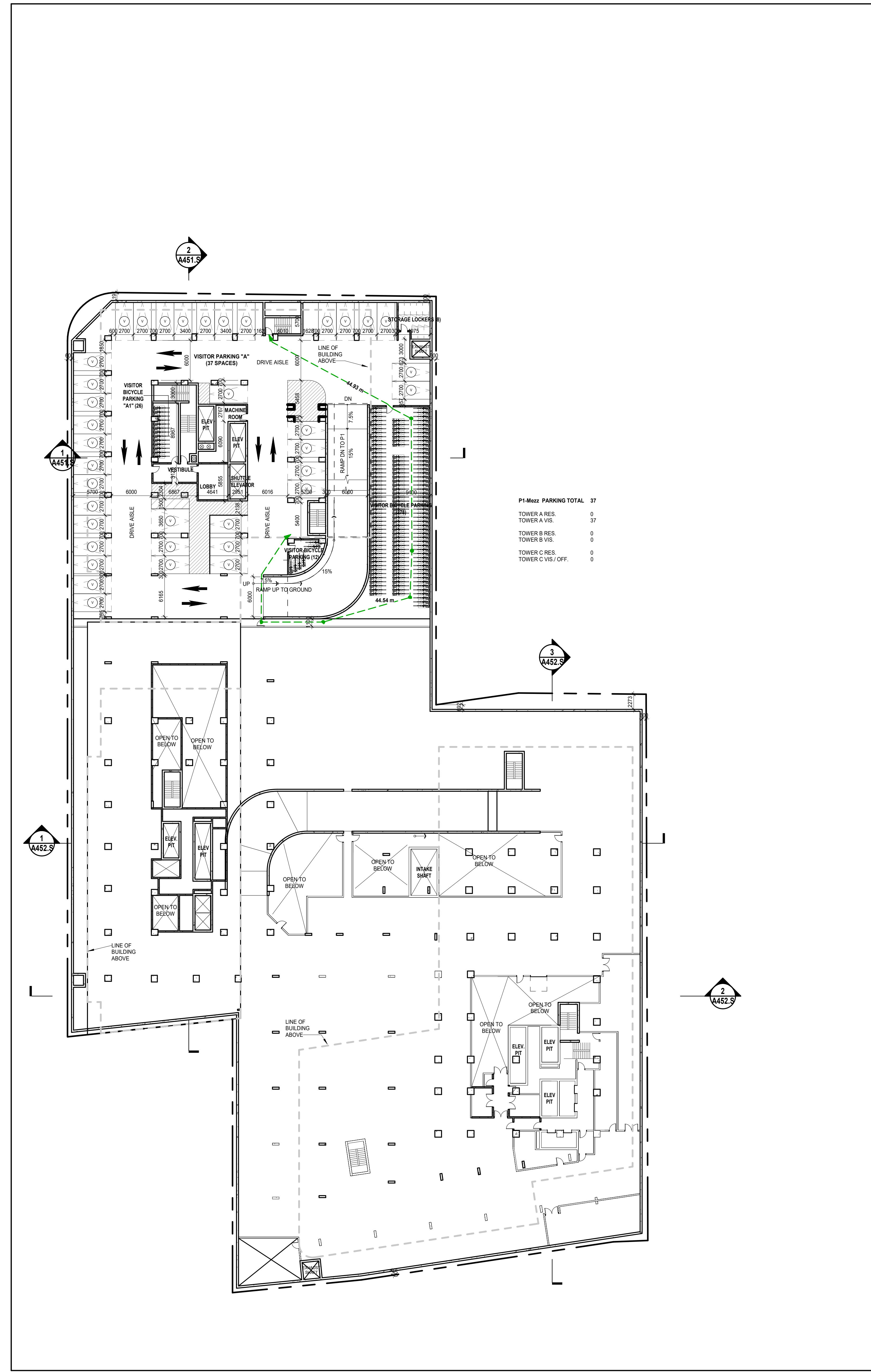
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19072 1:250 UI KVE
PROJECT SCALE DRAWN REVIEWED

P2 and P1 Underground Plan

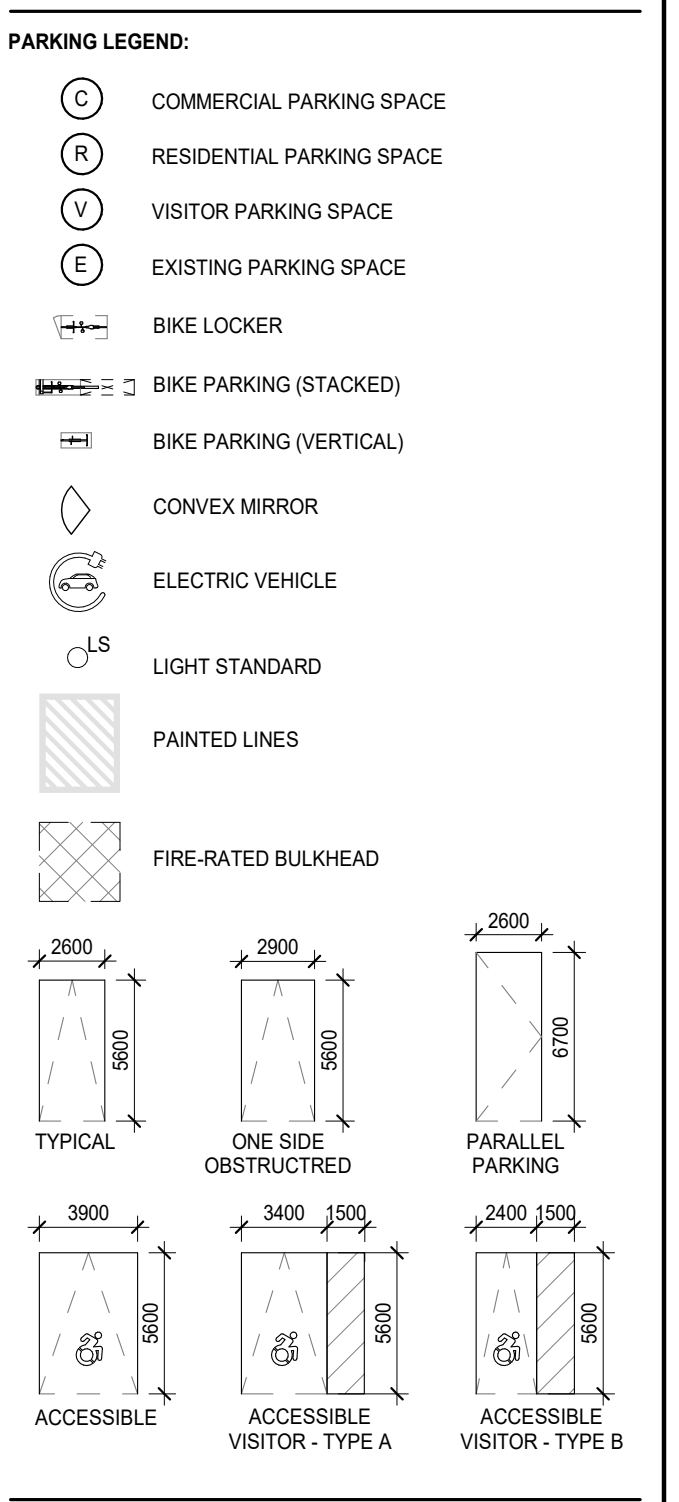
A152.S

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2 A153.S P1 MEZZ UNDERGROUND PLAN

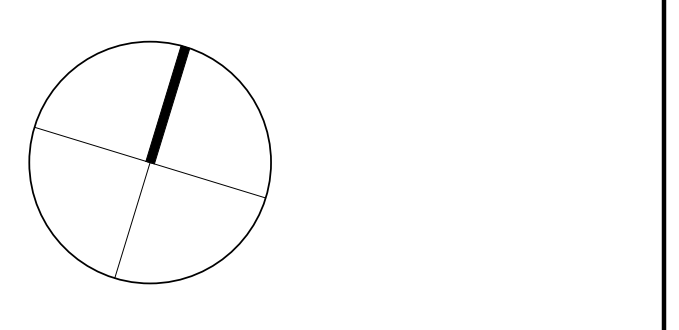
- PARKING NOTES:**
1. MINIMUM PARKING SPACE SIZES (UNLESS OTHERWISE NOTED)
 - 2000mm WIDE X 5000mm LONG (NO SIDES OBSTRUCTED)
 - 2000mm WIDE X 5000mm LONG (ONE SIDE OBSTRUCTED)
 - 3000mm WIDE X 5000mm LONG (TWO SIDES OBSTRUCTED)
 2. MAINTAIN MINIMUM DRIVE AISLE WIDTH OF 6000mm UNLESS OTHERWISE NOTED
 3. MAINTAIN MINIMUM HEADROOM CLEARANCE OF 2100mm THROUGHOUT



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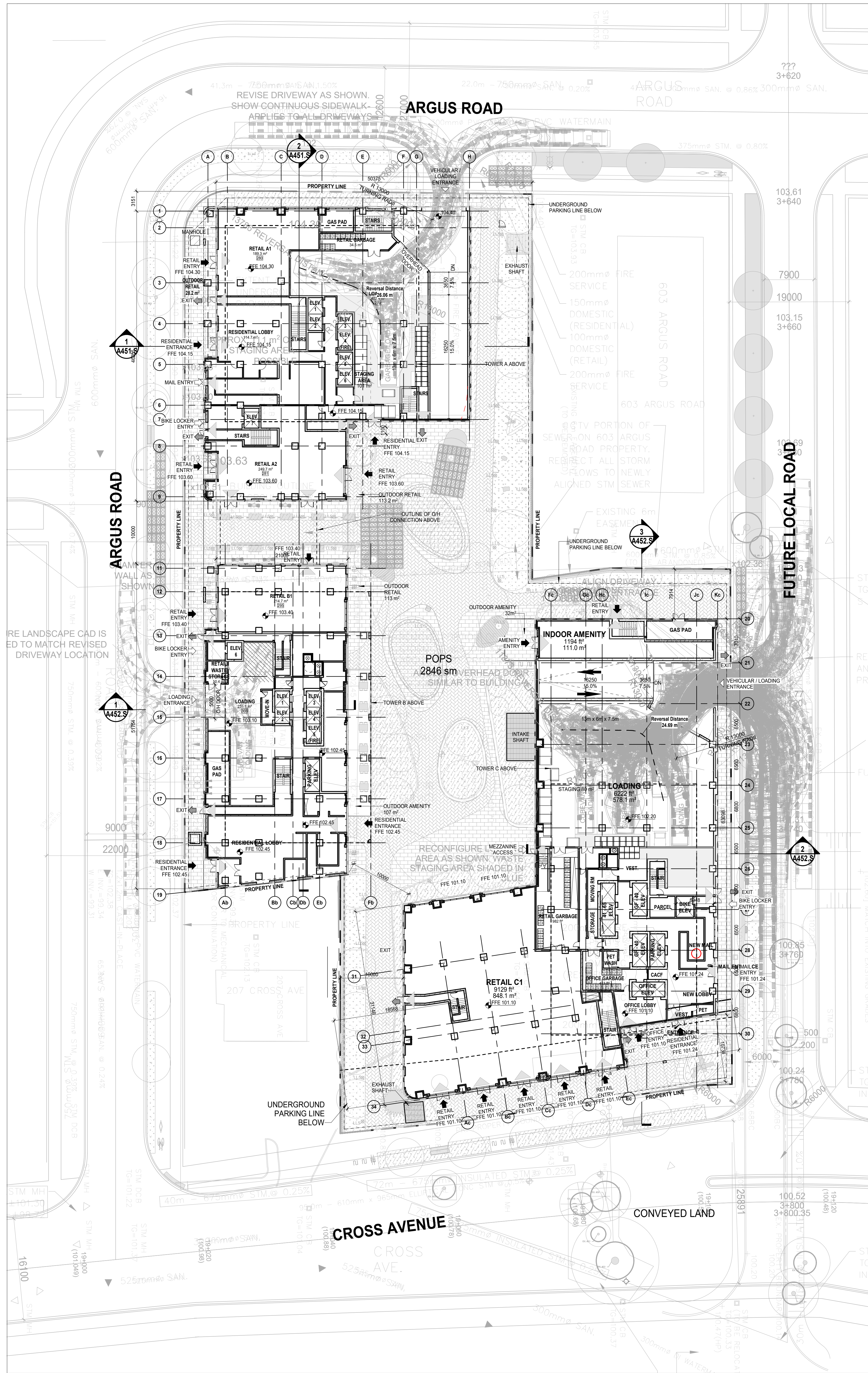
for
Distrikt Developments

19072 1:250 UI KVE
PROJECT SCALE DRAWN REVIEWED

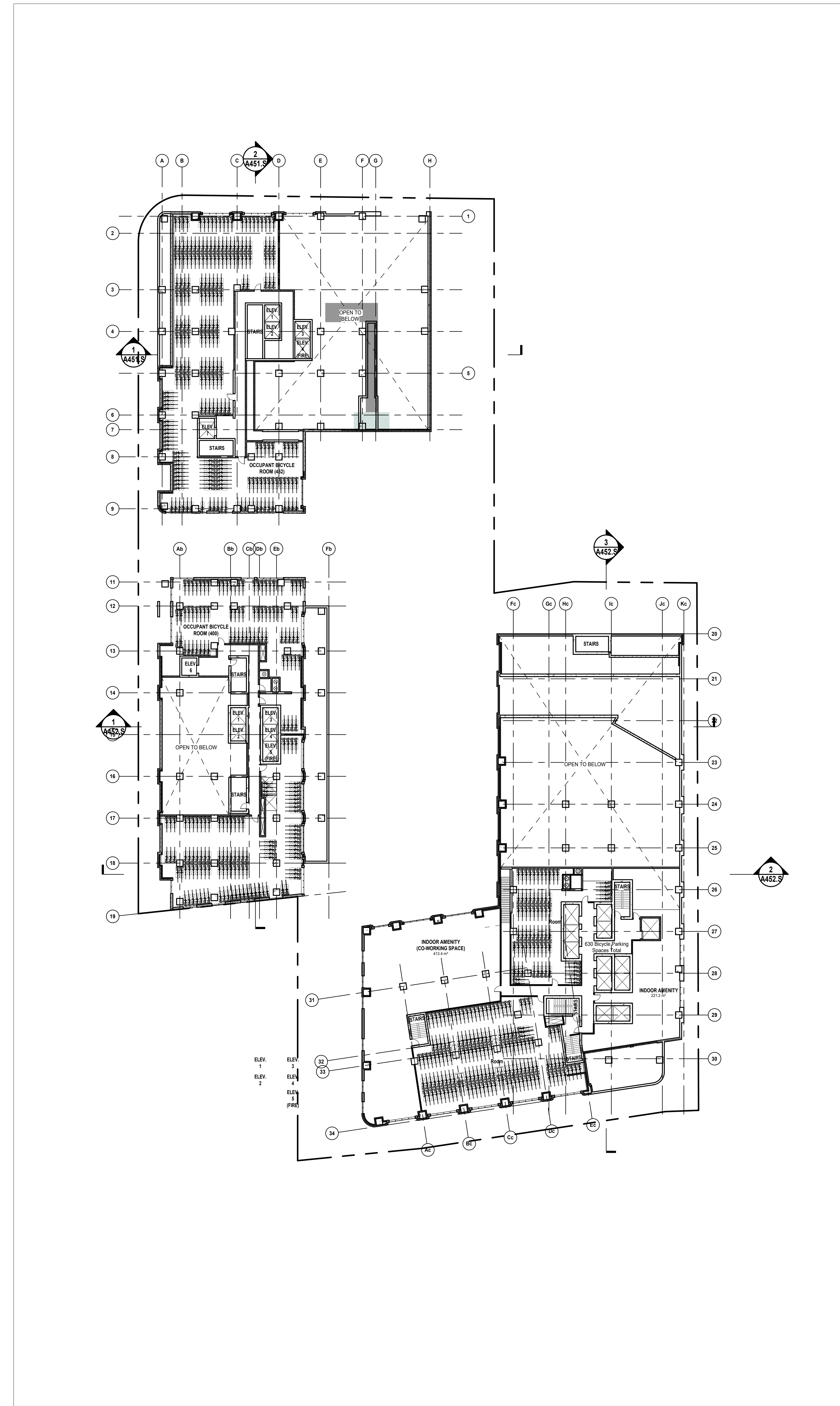
P1 Mezzanine Underground Plan

A153.S

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1 GROUND FLOOR PLAN
SCALE: 1:300



2 BICYCLE MEZZANINE PLAN
SCALE: 1:300

Date	No.	Description
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Date	No.	Description

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Date	No.	Description

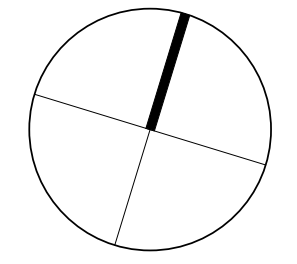
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19072 1:300 EG KVE
PROJECT SCALE DRAWN REVIEWED

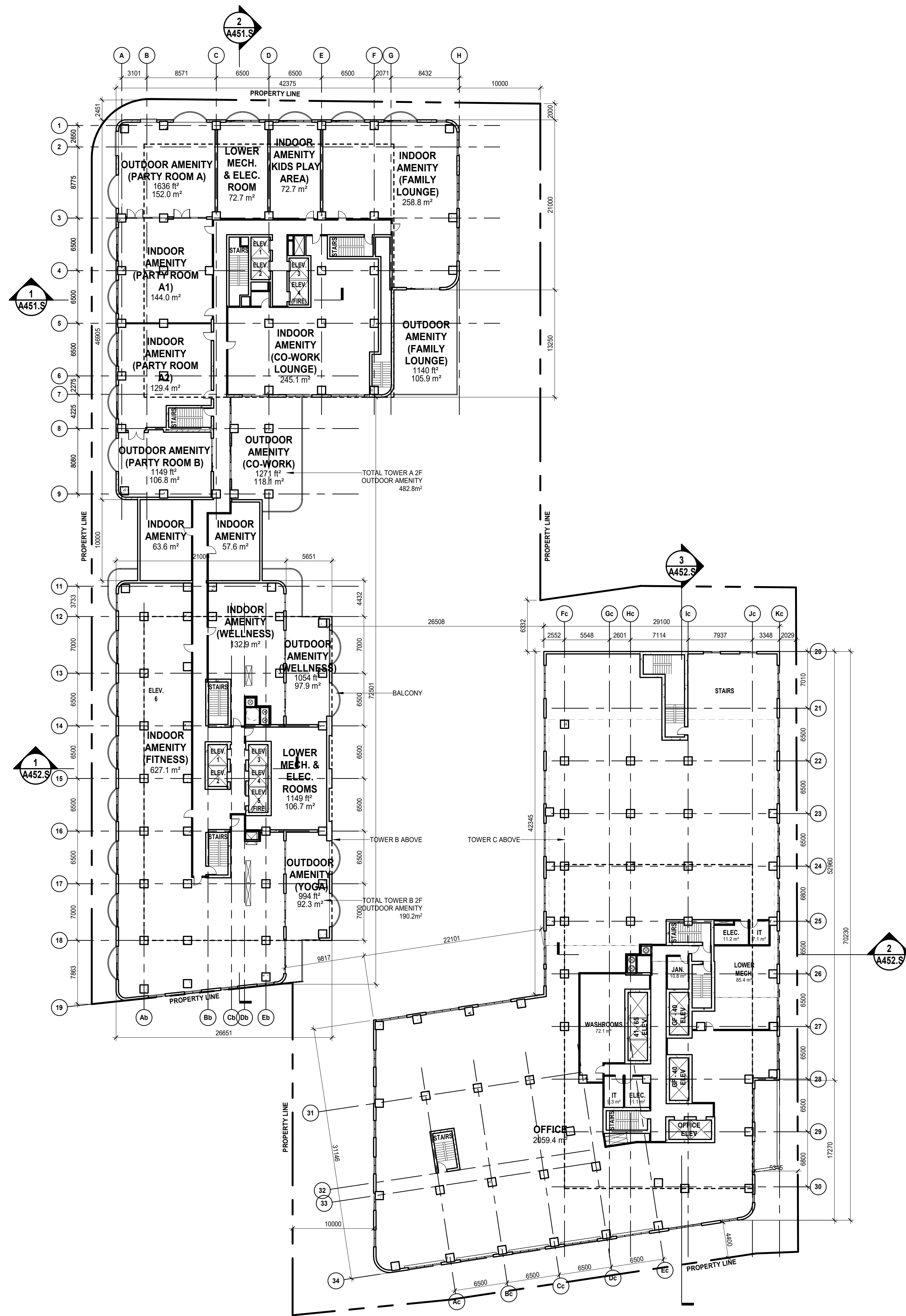
Ground and Bicycle Mezzanine
Plans

A201.S

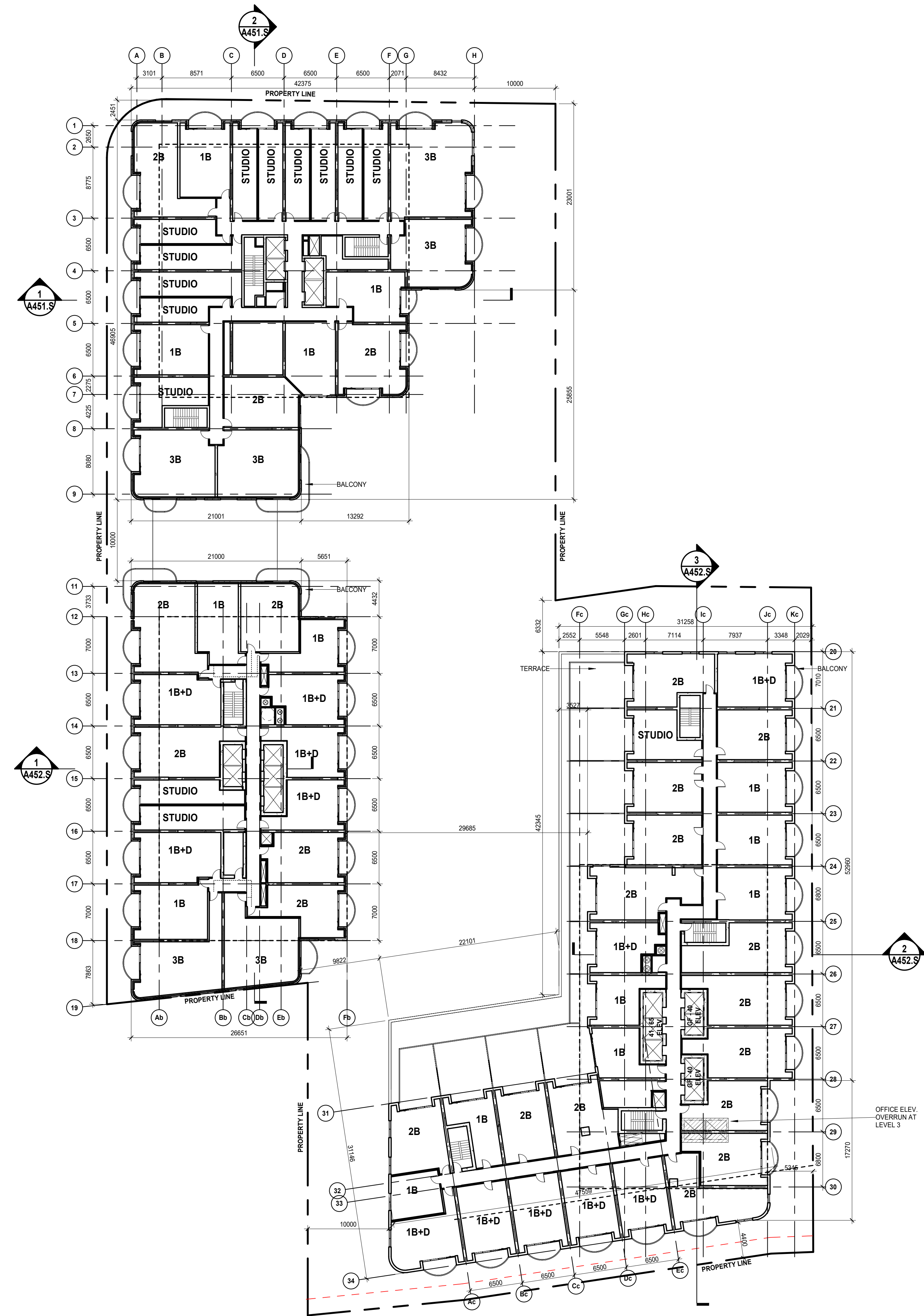
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1 SECOND FLOOR PLAN
SCALE: 1:300



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

Date	No.	Description
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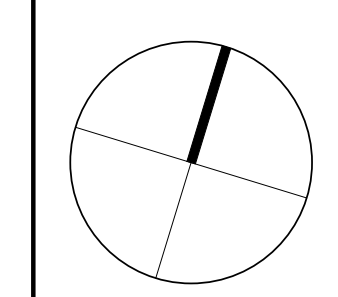
Date	No.	Description

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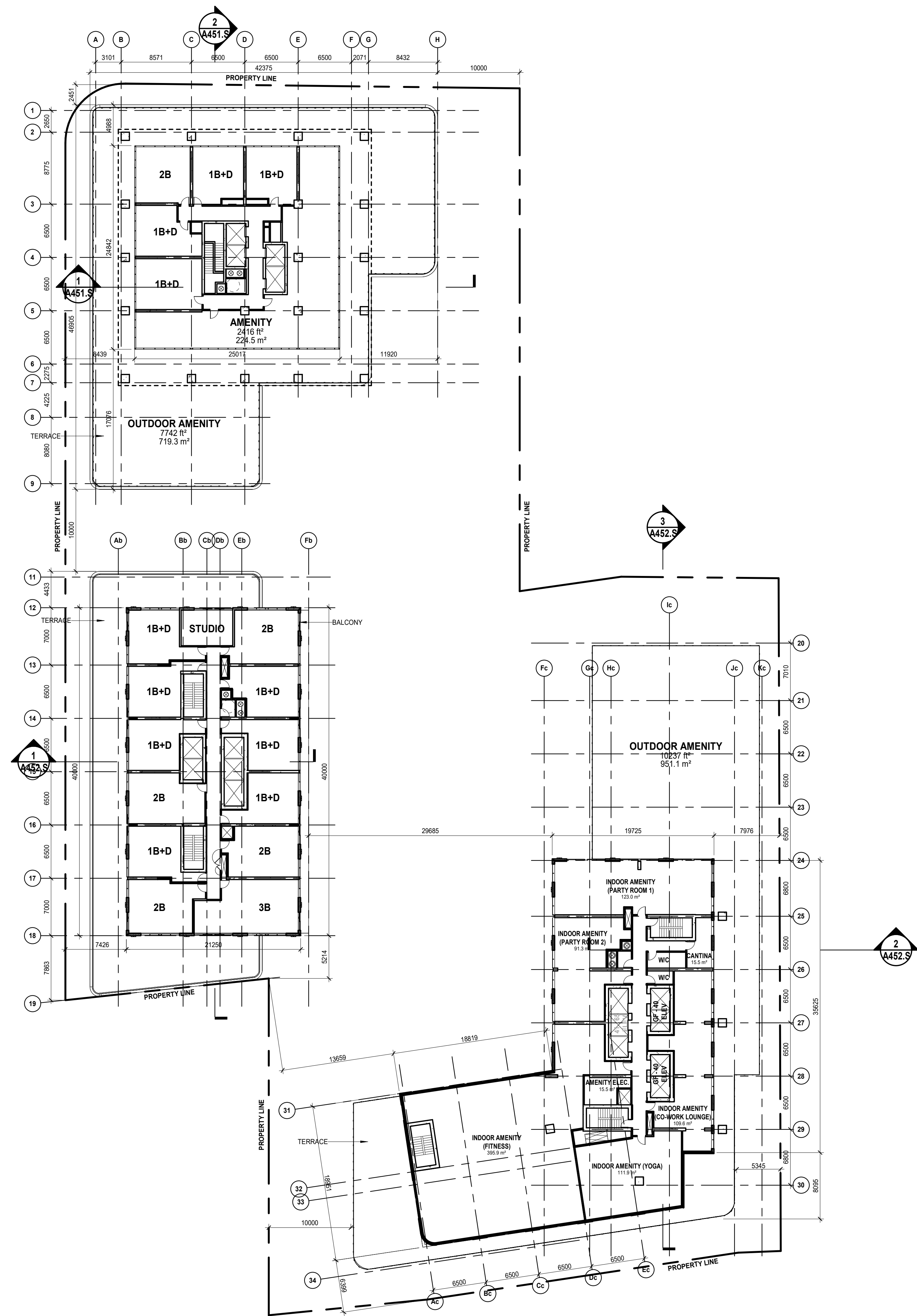
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Distrikt Developments

19072 1:300 DC KVE
PROJECT SCALE DRAWN REVIEWED

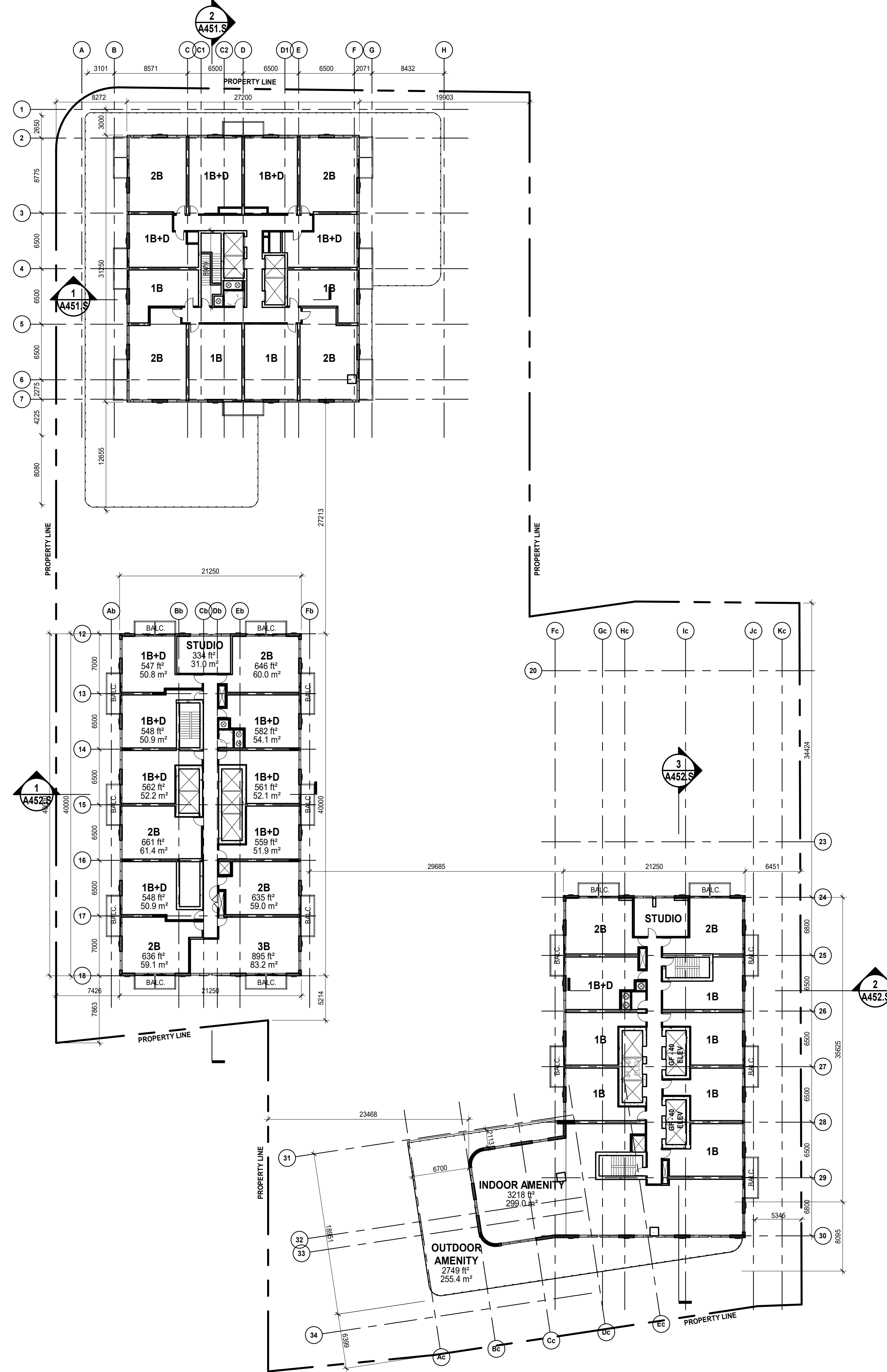
Second and Typical Third to Sixth
Floor Plans

A202.S

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1 SEVENTH FLOOR PLAN
SCALE: 1 : 300



2 EIGHTH FLOOR PLAN
SCALE: 1 : 300

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

REVISION RECORD

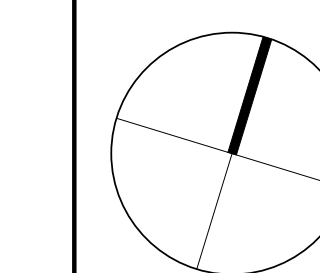
Date	No.	Description

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Date	No.	Description
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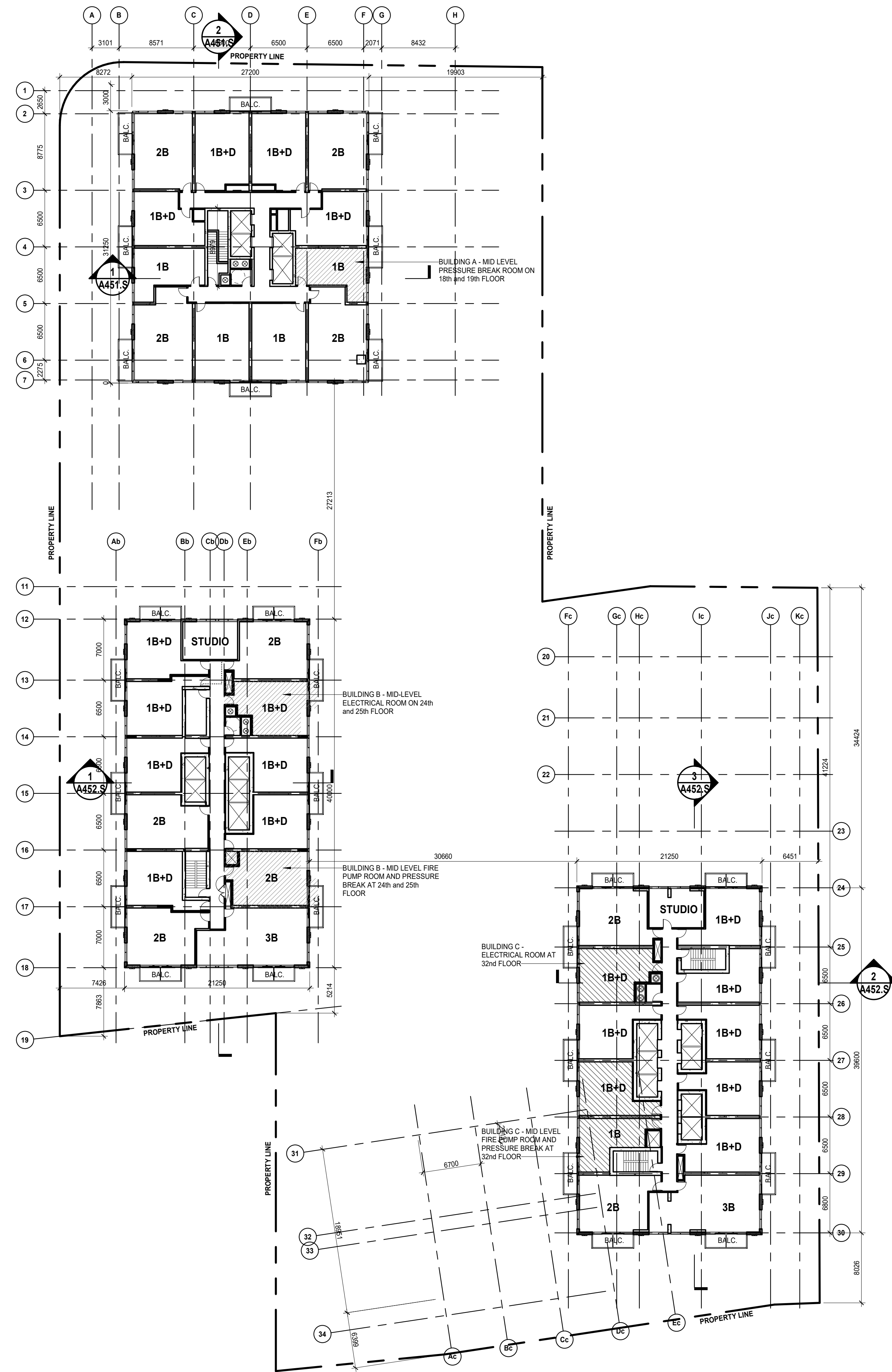
for
Distrikt Developments

19072 1 : 300 DC KVE
PROJECT SCALE DRAWN REVIEWED

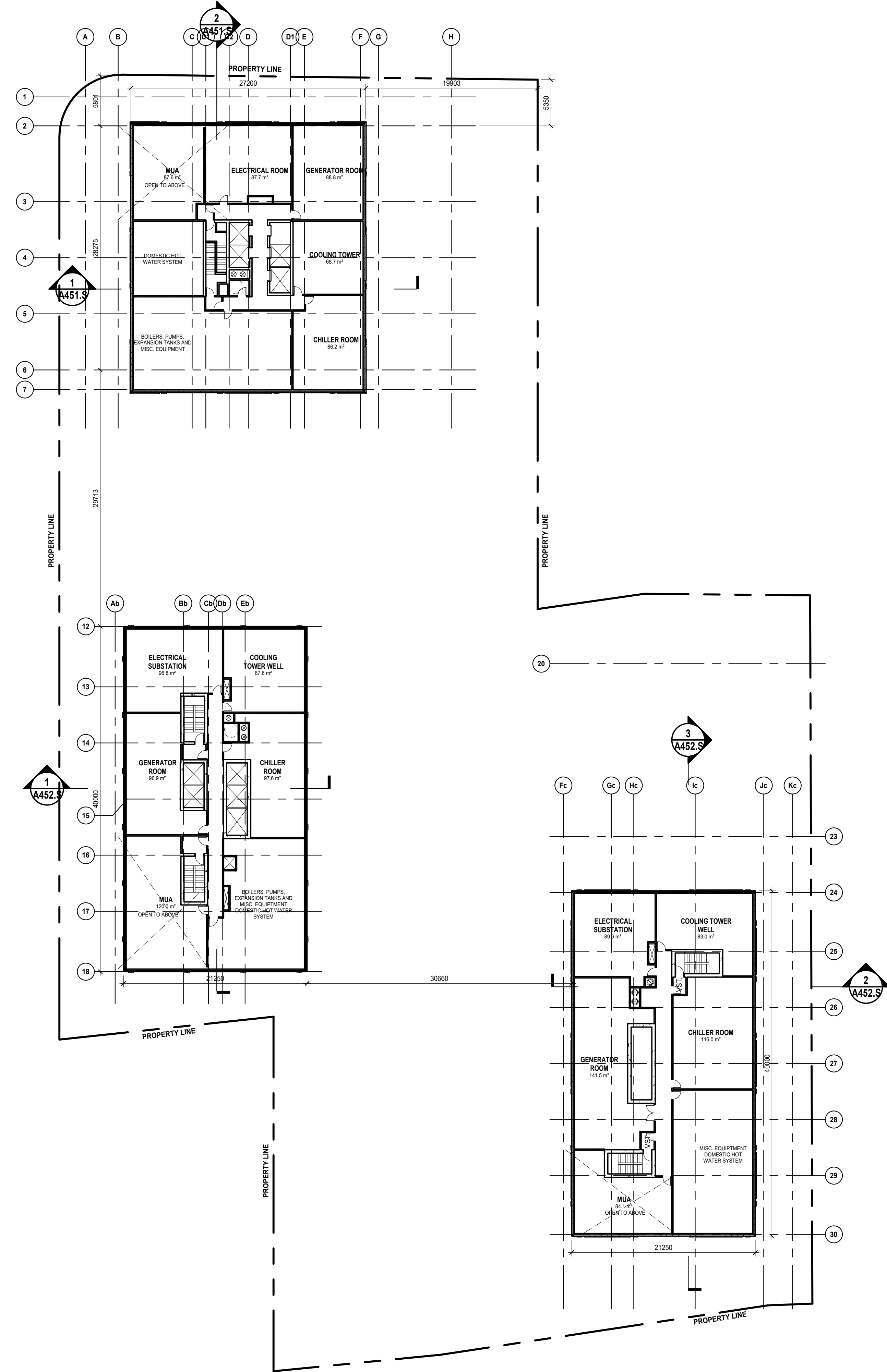
Seventh and Eighth Floor Plans

A203.S

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1 TYPICAL TOWER PLAN
SCALE: 1 : 300



2 MECHANICAL PENTHOUSE PLAN
SCALE: 1 : 300

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

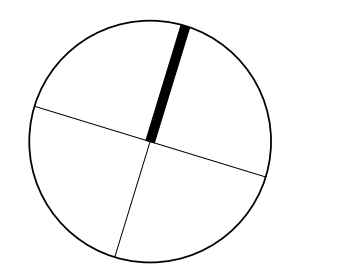
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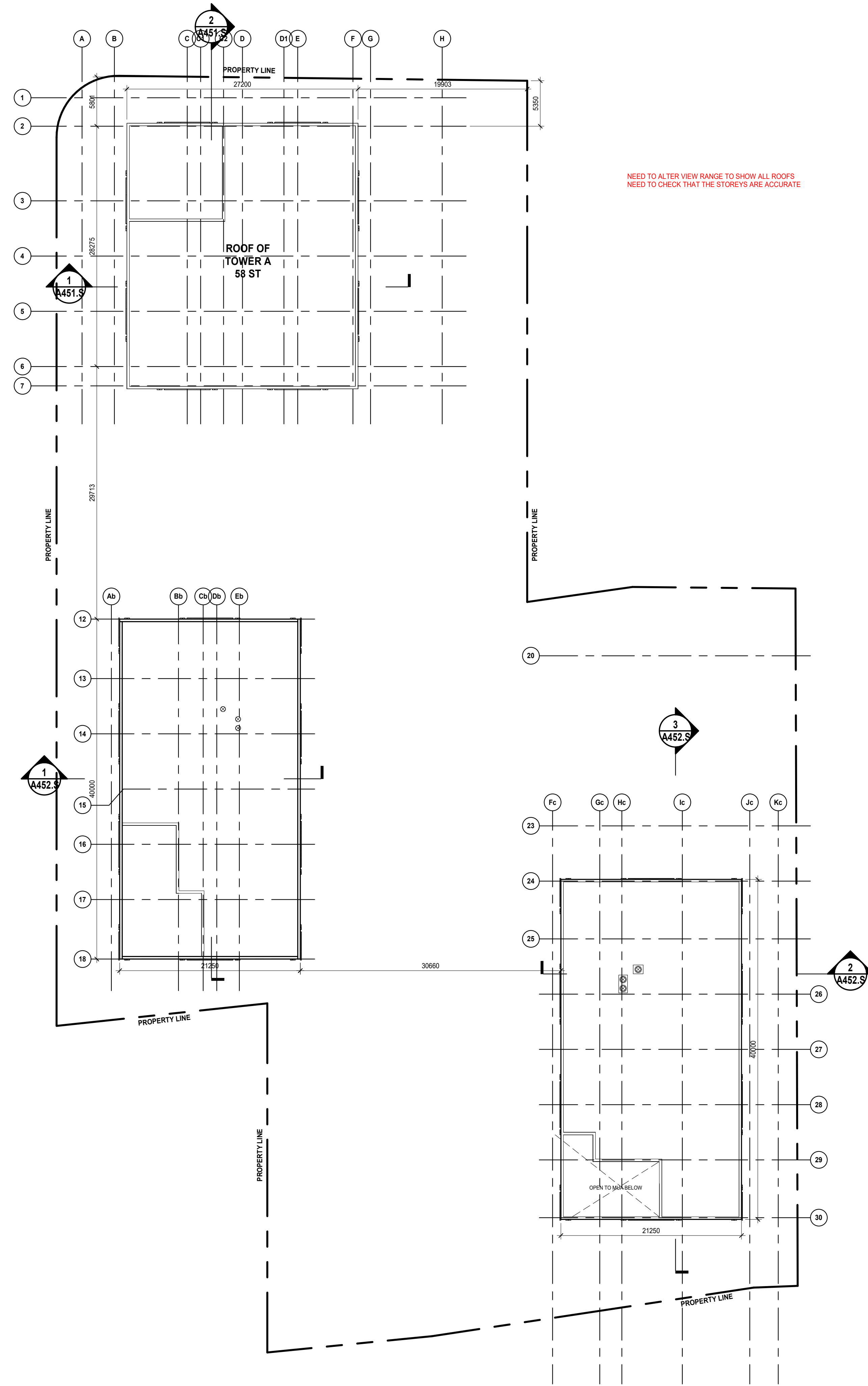
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PROJECT SCALE DRAWN REVIEWED

Typical Tower and Mechanical
Penthouse Plans

A204.S

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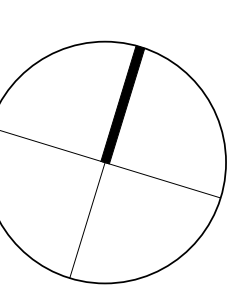
NEED TO ALTER VIEW RANGE TO SHOW ALL ROOFS.
NEED TO CHECK THAT THE STOREYS ARE ACCURATE.

1 ROOF PLAN
A205.S

Date	No.	Description
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Date	Description
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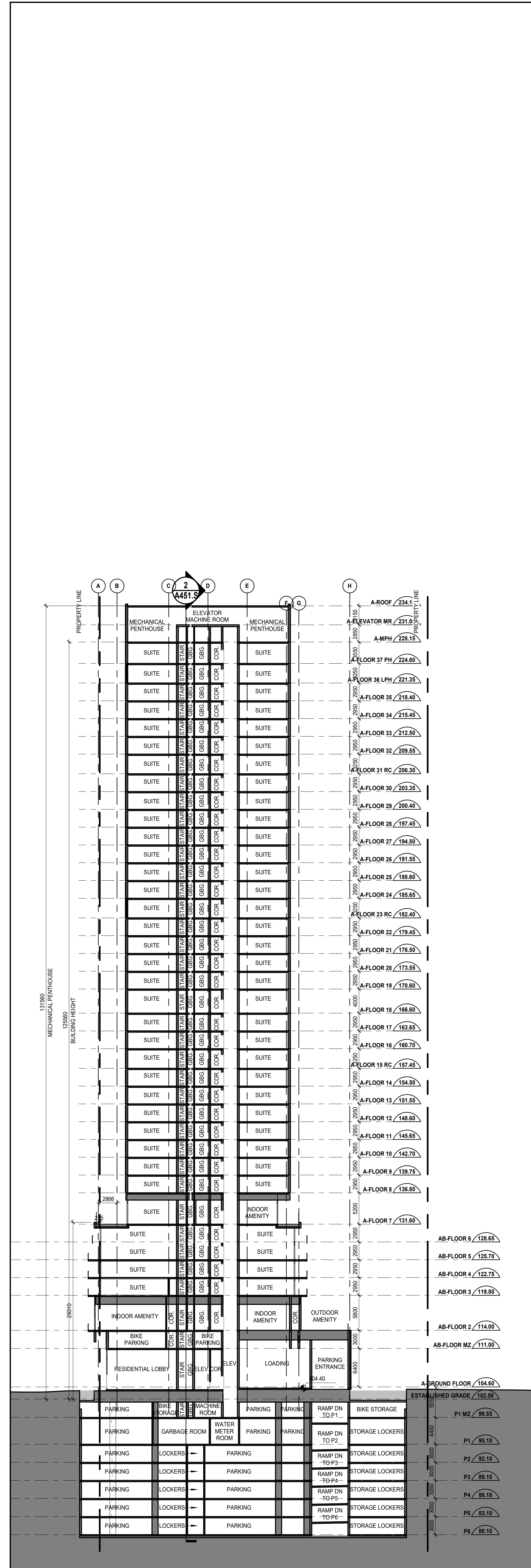
for
Distrikt Developments

19072 1 : 300 AutoChecker
PROJECT SCALE DRAWN REVIEWED

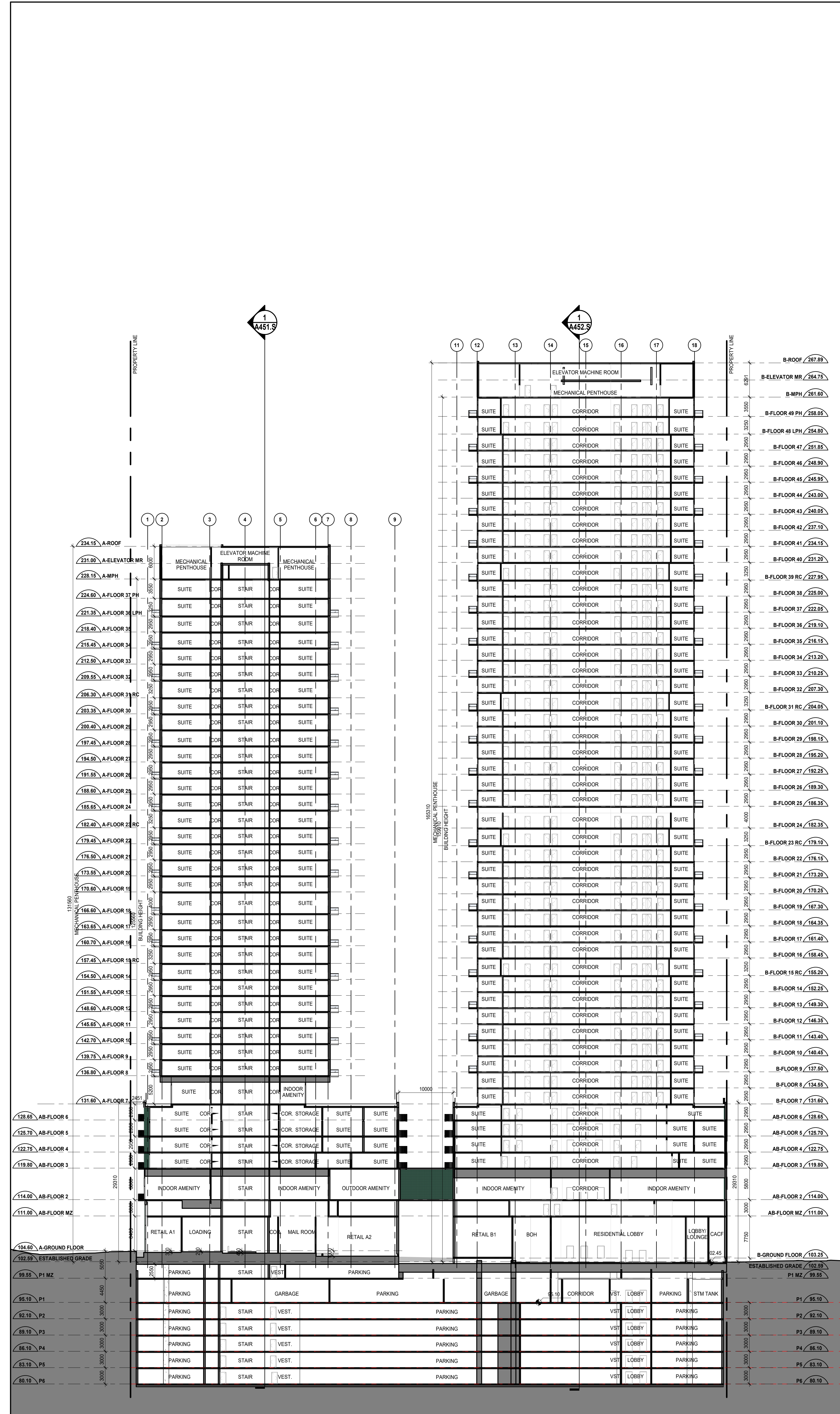
Roof Plan

A205.S

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1 BUILDING A - EAST WEST SECTION
SCALE: 1:350



2 BUILDING AB - NORTH SOUTH SECTION
SCALE: 1:350

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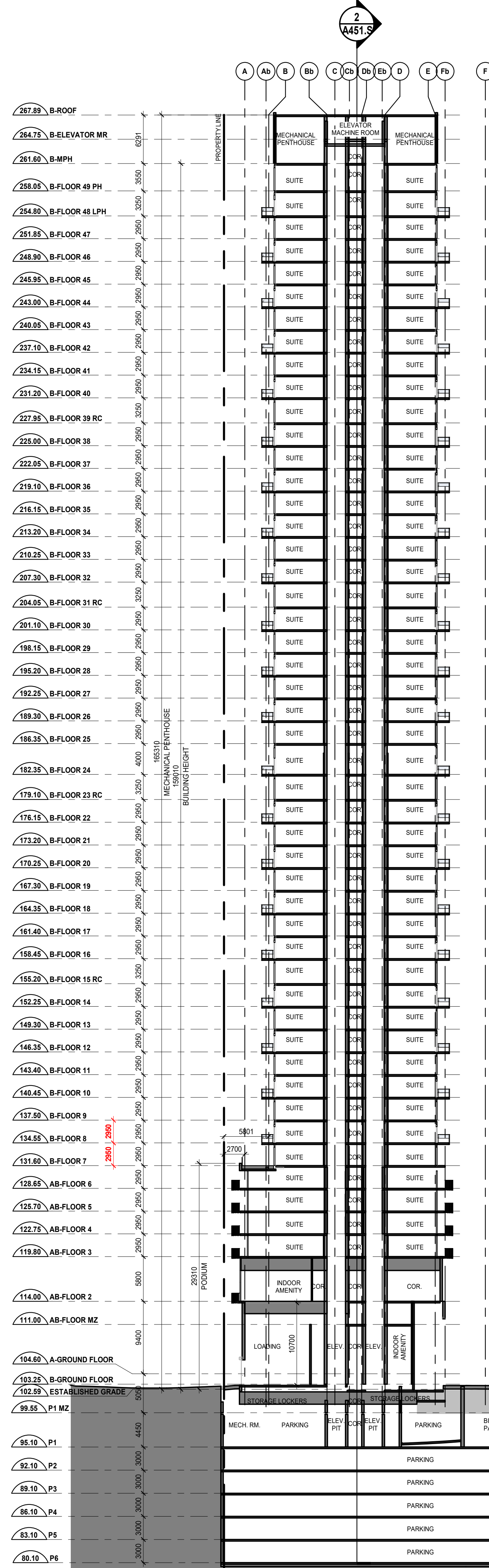
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19072 1:350 EG KVE
PROJECT SCALE DRAWN REVIEWED

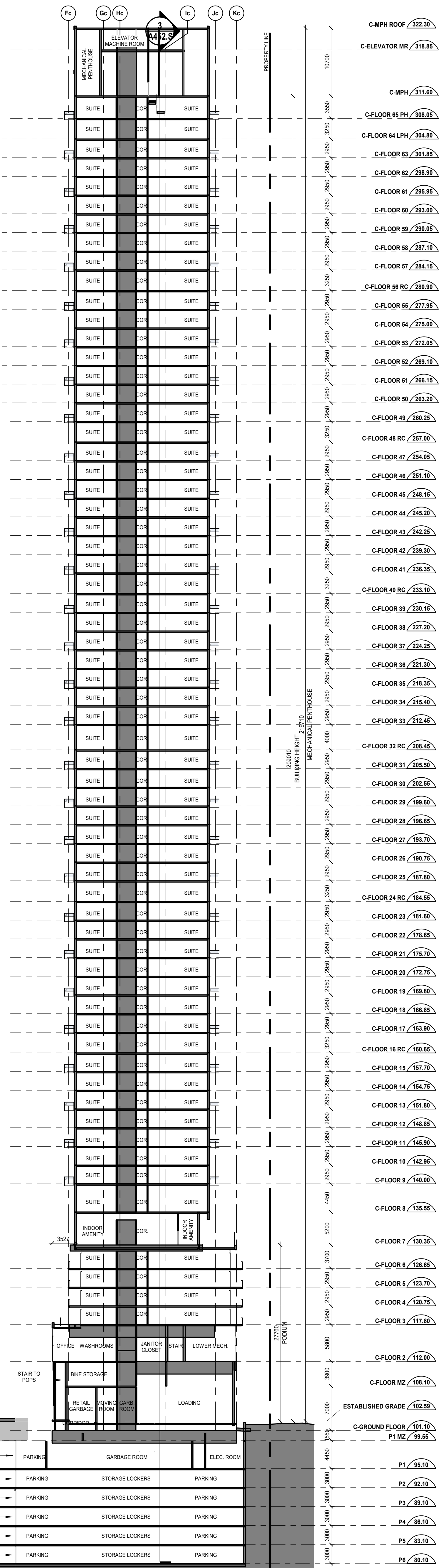
Building A and B Sections

A451.S

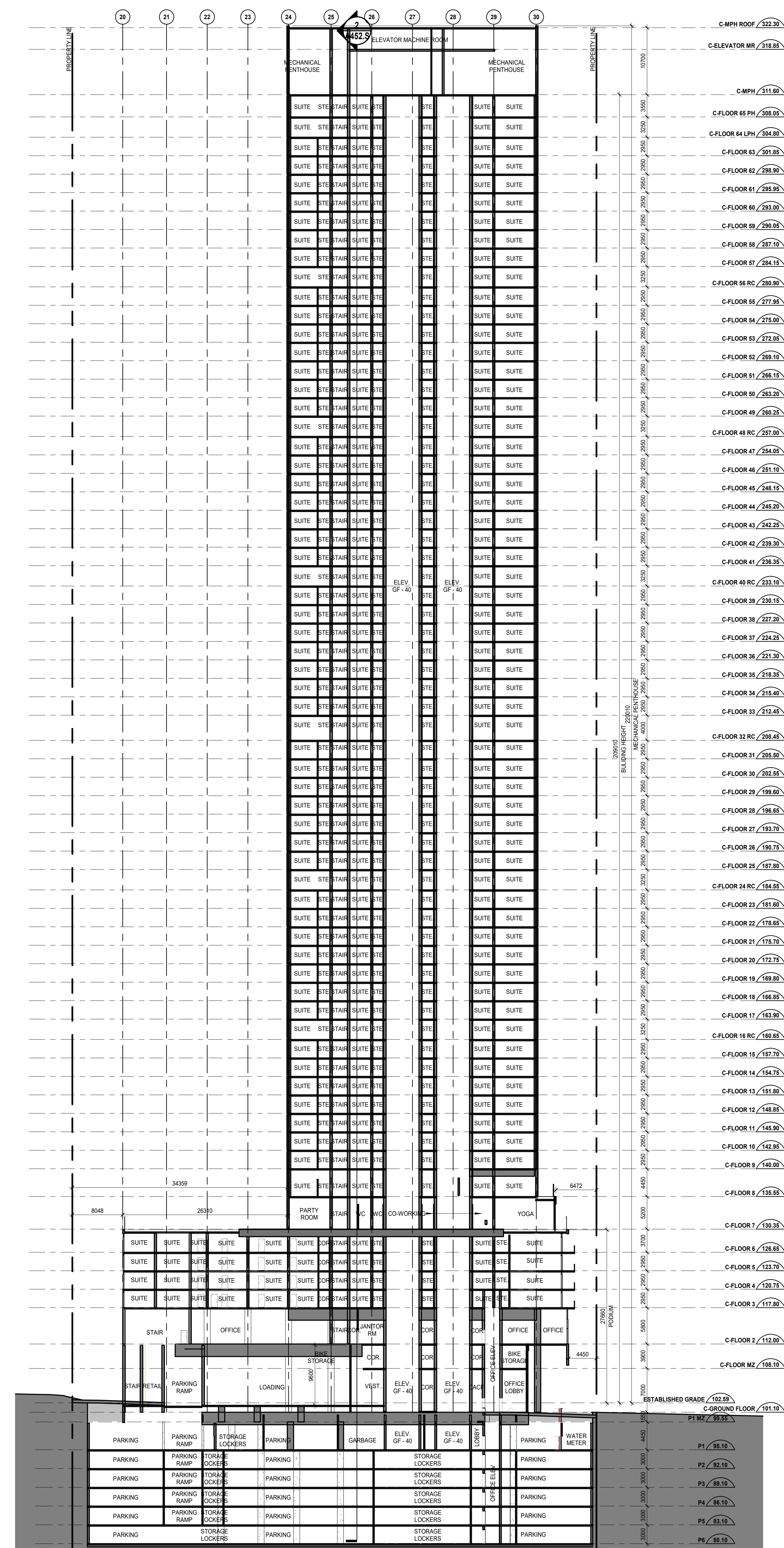
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1 BUILDING B - EAST WEST SECTION
SCALE: 1: 350



2 BUILDING C - EAST WEST SECTION
SCALE: 1: 350



3 BUILDING C - NORTH SOUTH SECTION
SCALE: 1: 350

Date	No.	Description
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Building B and C Sections

A452.S

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