

TOWN OF CALEDON  
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# Environmental Noise Feasibility Study

## Columbia Square

### Proposed Mixed-Use Development

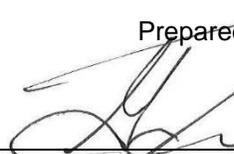
14245 Highway 50  
Bolton, Town of Caledon

November 9, 2021  
Project: 121-0047

Prepared for

### Columbia Square Inc

Prepared by

  
\_\_\_\_\_  
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**VALCOUSTICS**

*Canada Ltd.*

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# Environmental Noise Feasibility Study

## Columbia Square

### Proposed Mixed-Use Development

14245 Highway 50  
Bolton, Town of Caledon

#### **EXECUTIVE SUMMARY**

VCL was retained to prepare an Environmental Noise Feasibility Study for the proposed mixed-use development to support the Official Plan Amendment (OPA) and Zoning By-law Amendment (ZBA) application submission to the Town of Caledon and Regional Municipality of Peel.

The proposed development is located at the northwest corner of Highway 50 and Columbia Way in Bolton and will include 4 phases (Phases 1A, 1B, 2 and 3):

- Phase 1A includes three 3-storey traditional townhouse blocks (Blocks 1 to 3);
- Phase 1B includes six 3-storey stacked townhouse blocks (Blocks 4 to 9);
- Phase 2 includes a mixed-use building consisting of a 3-storey podium with two 8-storey residential towers (Building A); and
- Phase 3 includes an 8-storey residential building (Building B).

The on-site sound levels have been determined and compared with the applicable Ministry of the Environment, Conservation and Parks (MECP) noise guideline limits to determine the need for noise mitigation.

The significant transportation noise sources in the project vicinity include road traffic along Highway 50 and Columbia Way.

To meet the applicable transportation noise source guideline limits:

- Buildings A and B require mandatory air conditioning for noise control purposes.
- Blocks 1 and 2 require the provision for adding air conditioning at a later date.
- Sound barriers are required at the rear yard of the most westerly unit in Block 1 and at the grade level common amenity area east of Building B. See Figure 2.

- Accounting for exterior wall construction meeting STC 37, the following exterior window construction is required:
  - STC 31 at Building A; and
  - STC 28 at Building B and Blocks 1 and 2.
- Final wall and window STC requirements should be reviewed when detailed building plans and architectural drawings are available. This is usually done as a condition for obtaining a building permit.

The stationary noise source with the potential for impact at the subject site is the Town of Caledon Yard #3 located at 14220 Highway 50, on the west side of Highway 50 to the proposed development. The applicable stationary noise source guideline limits are expected to be met at the subject site without mitigation measures.

## 1.0 INTRODUCTION

VCL was retained to prepare an Environmental Noise Feasibility Study for the proposed mixed-use development to support the OPA and ZBA application submission to the Town of Caledon and Regional Municipality of Peel.

The sound levels and noise mitigation measures required for the proposed development to comply with the applicable MECP noise guideline limits are outlined herein.

### 1.1 DESCRIPTION OF SITE AND SURROUNDING AREA

The subject site is located at 14245 Highway 50, at the northeast corner of Highway 50 and Columbia Way in Bolton, Town of Caledon. The site is bounded by:

- Highway 50, with the Town of Caledon Yard #3 and agricultural land beyond, to the west;
- Columbia Way, with residential townhouses beyond, to the south;
- St. Michael Catholic Secondary School to the east, and
- Agricultural land, with the Albion Auto Centre and John's Nursery beyond, to the north.

A Key Plan is included as Figure 1.

This study is based on the architectural drawings prepared by KFA Architects and Planners Inc., dated July 20, 2021. The architectural drawings are included as Appendix A. The Combined Site Plan from the drawing set is included in reduced form as Figure 2. Block/Building numbers have been added by VCL for descriptive purposes.

### 1.2 THE PROPOSED DEVELOPMENT

The proposed development will include 4 phases (Phase 1A, 1B, 2 and 3):

- Phase 1A is located at the northwest corner of the site and will include three 3-storey traditional townhouse blocks (Blocks 1, 2 and 3). Each unit will include a rear yard amenity area.

- Phase 1B is located at the northeast corner of the site and will include six 3-storey stacked townhouse blocks (Blocks 4 to 9). The stacked townhouse blocks will share one level of underground parking.
- Phase 2 is located at the southwest corner of the site and includes a mixed-use building (Building A) consisting of a 3-storey podium with two 8-storey residential towers above (Towers A1 and A2). The building will include one level of underground parking and at-grade parking at the rear of the building. The ground floor of the podium will include retail uses in addition to a commercial unit allocated for retail, restaurant or daycare use. A small patio fronting onto Columbia Way will be provided for this commercial unit. The residential units will be provided with a common outdoor amenity area at grade towards the centre of the overall development, in addition to common indoor/outdoor amenity spaces on the second floor of the podium.
- Phase 3 is located at the southeast corner of the site and includes an 8-storey residential building (Building B) with 2 levels of underground parking. Common indoor and outdoor amenity spaces will be provided on the ground floor.

Most units within the development will include small (less than 4 m in depth) private balconies/terraces.

## 2.0 NOISE SOURCES

### 2.1 TRANSPORTATION NOISE SOURCES

The transportation noise sources with potential to impact the proposed development include road traffic on Highway 50 and Columbia Way. Traffic volumes or noise from other roadways are anticipated to be minor and no significant impacts are expected at the subject site. Thus, these roadways have not been considered further in the assessment.

Road traffic data used in the assessment is summarized in Table 1 and provided in Appendix B.

#### 2.1.1 Road Traffic Sources

Ultimate road traffic data for Highway 50 was obtained from the Region of Peel. The posted speed limit of Highway 50 in the vicinity of the site is 60 km/hr. In accordance with Town of Caledon requirements, a vehicle travel speed of 70 km/hr was used in the assessment.

Average daily traffic volume for Columbia Way, applicable to the year 2019, was obtained from the Town of Caledon Engineering Services Department. A growth rate of 2%, compounded annually, was used to obtain future year (2042) traffic volumes. A 20-year design condition was used as is required by the Town of Caledon (See Section 3.1.3). The percentage of medium trucks and heavy trucks was assumed to be 3% and 2% of the total traffic volume, respectively. A day/night split of 90%/10% was used, as is typical for well-travelled roadways. The posted speed limit of Columbia Way in the vicinity of the site is 40 km/hr. In accordance with Town of Caledon requirements, a vehicle travel speed of 50 km/hr was used in the assessment.

## 2.2 STATIONARY NOISE SOURCES

### 2.2.1 Existing Sources

The Town of Caledon Yard #3 is located at 14220 Highway 50, on the west side of Highway 50 to the proposed development. There are two departments from the Town of Caledon that operate at this property. To the north is the operations centre for the park's maintenance services, and to the south is a road maintenance facility. VCL staff visited the yard to complete sound measurements and observations on June 25, 2021. A detailed assessment of the noise impact from the facility onto the subject site is included in Section 4.2.

Albion Auto Centre is located at 14289 Highway 50, approximately 65 m north of the proposed development. Noise sources at facility are expected to be noise emitted through open overhead bay doors, which face west towards Highway 50, away from the subject site. Based on the distance setback, orientation of the overhead doors and presence of Highway 50 (which contributes to a higher ambient sound level in the area), significant noise impact from this facility is not expected. This was confirmed during a site visit by VCL staff on June 25, 2021, where noise from the facility was not audible at the subject site.

John's Nursery Garden is located at 14337 Highway 50, approximately 180 m north of the proposed development. Noise sources at facility are expected to be the occasional truck delivery. Based on the distance setback and presence of Highway 50, significant noise impact from this facility is not expected. This was confirmed during a site visit by VCL staff, where noise from the facility was not audible at the subject site.

St. Michael Catholic Secondary School is located at 9130 Columbia Way, directly east of the proposed development. The parking lot and field are located on the west side of the property, nearest to the subject site. The school building is located approximately 170 m east of the proposed development. Noise sources at the school are expected to be the rooftop HVAC equipment. Due to the setback distance, significant noise impact from the facility is not expected. This was confirmed during a site visit to the area by VCL staff, where noise from the facility was not audible at the subject site.

James Dick Construction is located at 14442 Highway 50, greater than 430 m northwest of the proposed development. Noise sources at the facility are expected to include truck traffic to and from the yard, front end loaders loading aggregate material into dump trucks, crushing of raw aggregate materials, etc. Due to the setback distance and presence of the intervening Highway 50 (which contributes to a higher ambient sound level in the area), significant noise impact from this facility is not expected. This was confirmed during a site visit to the area by VCL staff, where noise from the facility was not audible at the subject site.

Motor Home RV Travel is located at 14124 Highway 50, approximately 140 m southwest of the proposed development. The only noise source associated with the facility is expected to be vehicle movements around the site. Due to the setback distance and presence of the intervening Highway 50, significant noise impact from this facility is not expected. This was confirmed during a site visit to the area by VCL staff, where noise from the facility was not audible at the subject site.

The Caledon Centre of Recreation and Wellness is located at 14111 Highway 50, with the nearest building approximately 160 m south of the subject site. The only noise sources associated with

the facility are expected to be the rooftop HVAC equipment. Based on the setback distance, significant noise impact from this facility is not expected. This was confirmed during a site visit to the area by VCL staff, where noise from the facility was not audible at the subject site.

There are no other stationary noise sources in the vicinity of the site that are expected to create a significant noise impact at the subject site.

## 2.2.2 Future Sources

The future stationary noise sources with potential to impact the residential dwellings in the proposed development is the rooftop mechanical equipment associated with Buildings A and B, the ventilation systems for the underground parking levels and emergency generator systems (if applicable). Detailed plans for the buildings are not yet available. However, the buildings will need to be designed such that the noise emissions meet the stationary noise source limits in MECP Publication NPC-300, recognizing the adjacent residential uses. This is normally addressed during the detailed design of the building once floor plans and mechanical systems have been developed and mechanical equipment selections have been made.

## 3.0 ENVIRONMENTAL NOISE GUIDELINES

### 3.1 TRANSPORTATION NOISE SOURCES

#### 3.1.1 MECP Publication NPC-300

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

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

##### 3.1.1.1 Architectural Elements

In the daytime, the indoor criterion for road traffic noise is  $L_{eq\ Day}^{(1)}$  of 45 dBA for sensitive spaces such as living/dining rooms, dens and bedrooms. At night, the indoor criterion for road traffic noise is  $L_{eq\ Night}^{(2)}$  of 45 dBA for sensitive spaces such as living/dining rooms and dens and 40 dBA for bedrooms.

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

##### 3.1.1.2 Ventilation

In accordance with the MECP noise guideline for road traffic sources, if the daytime sound level,  $L_{eq\ Day}$ , at the exterior face of a noise sensitive window is greater than 65 dBA, means must be provided so that windows can be kept closed for noise control purposes and central air

(1) 16-hour energy equivalent sound level (0700-2300 hours).

(2) 8-hour energy equivalent sound level (2300-0700 hours).

conditioning is required. For daytime sound levels between 56 dBA and 65 dBA inclusive, there need only be the provision for adding air conditioning at a later date. A warning clause advising the occupant of the potential interference with some activities is also required. At nighttime, air conditioning would be required when the sound level exceeds 60 dBA ( $L_{eq\ Night}$ ) at a noise sensitive window (provision for adding air conditioning is required when greater than 50 dBA).

### 3.1.1.3 Outdoors

For outdoor amenity areas (“Outdoor Living Areas” - OLA’s), the guideline sound level is 55 dBA  $L_{eq\ Day}$  (0700 to 2300 hours), with an excess not exceeding 5 dBA considered acceptable if it is technically not practicable to achieve the 55 dBA objective, provided warning clauses are registered on title. Note that for road and rail traffic sources, a balcony is not considered an OLA unless it is:

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

### 3.1.2 Region of Peel

The Region of Peel guidelines are essentially the same as the MECP guidelines except that the nighttime level for triggering the air conditioning requirement is 1 dBA more stringent (i.e., lower) than the levels specified by the MECP – i.e., mandatory air conditioning for nighttime sound levels of 60 dBA or greater, and the provision for adding air conditioning for levels between 51 to 59 dBA inclusive.

A maximum desirable sound barrier height of 4 m (relative to roadway centreline elevation) is indicated with a maximum acoustic fence component height of 2.4 m, although a height of no more than 2.0 m is preferred.

### 3.1.3 Town of Caledon

For transportation noise sources, the Town of Caledon’s general policy is not to accept the 5 dBA excess above the 55 dBA MECP objective for OLA’s. However, an excess may be acceptable if unreasonably high sound barriers are needed to meet the 55 dBA objective.

The Town’s maximum acoustic fence height is 2.4 m. Higher barriers can be achieved using a combination of an acoustic fence and a berm.

Also, traffic noise impacts are to be assessed based on a 20-year traffic forecast for the adjacent roadways, using a traffic speed 10 km/hr above the posted speed limit.

## 3.2 STATIONARY NOISE SOURCES

### 3.2.1 MECP Noise Guideline Publication NPC-300

Stationary sources are treated differently by the MECP guideline than transportation sources of noise. Stationary source noise criteria used for noise impact assessment are dependent on the type of area and the ambient sound environment.

The site and area are considered Class 1; i.e., an area where the ambient sound environment is dominated by “urban hum”, primarily traffic noise. This is due to the proximity to the area road network, including Highway 50 and Columbia Way in particular.

MECP Publication NPC-300 states that the guideline limits for stationary sources shall be defined by the higher of the ambient sound level, due to road traffic noise, or the minimum exclusion limits for a Class 1 area of 50 dBA daytime (0700 to 1900 hours), 50 dBA evening (1900 to 2300 hours) and 45 dBA nighttime (2300 to 0700 hours). The limits apply at a noise sensitive plane of window (POW) at all times or at an outdoor point of reception (OPOR) in the daytime and evening only. There are no sound level limits for OPORs at night.

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

The guideline limits apply to habitable spaces such as living/dining/family rooms and sleep areas. No indoor sound level guidelines are provided for stationary sources. There are also no requirements for stationary source noise impacts onto commercial/retail units.

## **4.0 NOISE IMPACT ASSESSMENT**

### **4.1 TRANSPORTATION NOISE SOURCES**

#### **4.1.1 Assessment Method**

Using the road traffic data in Tables 1, outdoor sound levels, in terms of equivalent sound pressure levels during the daytime and nighttime periods ( $L_{eq \text{ Day}}$  and  $L_{eq \text{ Night}}$ ), were determined using STAMSON V5.04 – ORNAMENT, the computerized road noise prediction model of the MECP.

The daytime and nighttime sound levels at the building facades were calculated at heights of 25.2 m above grade for Buildings A and B, 7.5 m above grade for the traditional townhouse blocks (Blocks 1 to 3) and 8.5 m above grade for the stacked townhouse blocks (Blocks 4 to 9). The building heights represent the top storey worst-case locations. The rear yard OLAs were taken at a height a 1.5 m above grade, 3 m from the mid-point of the building facade. For the common OLAs, the receptors were taken at the centre of the amenity space at a height of 1.5 m above the ground or floor slab.

Inherent screening of each building face due to its orientation to the noise source was taken into account. Screening from Buildings A and B was not included in the assessment of the sound levels at the townhouse block facades.

#### **4.1.2 Predicted Sound Levels**

The highest unmitigated daytime/nighttime facade sound levels are:

- 66 dBA/59 dBA are predicted to occur on the west facade of the Building A, siding onto Highway 50.
- 64 dBA/57 dBA are predicted to occur on the west facade of Block 1, siding onto Highway 50.

The predicted daytime OLA sounds levels are:

- 62 dBA at the rear yard of the most westerly unit in Block 1.
- 64 dBA at the common OLA on Level 2 of Building A.
- 44 dBA at the common OLA at the centre of the development; and
- 58 dBA at the common OLA to the east of Building B.

Table 2 summarizes the unmitigated daytime and nighttime sound level predictions for several locations within in the proposed development. Sample calculations are included in Appendix D.

#### **4.1.3 Noise Control Requirements**

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

- a) Architectural elements to achieve acceptable indoor noise guidelines;
- b) Design features to protect the OLA's.

Noise abatement requirements are summarized on Figure 2 and in Table 3 along with the notes to Table 3.

##### **4.1.3.1 Indoors**

###### **4.1.3.1.1 *Architectural Elements***

The indoor sound level guidelines for the transportation sources can be achieved by using appropriate construction for exterior walls, windows and doors. In determining the worst-case architectural requirements, the following wall and window areas (respectively, of the associated floor areas) were assumed, at a corner room with both facades directly exposed to and at an angle to the noise sources, for both living/dining rooms and bedrooms:

- 20% (wall) and 80% (window) for Buildings A and B; and
- 80% (wall) and 30% (window) for the townhouse blocks.

Accounting for exterior wall construction meeting STC 37, the following window construction is required:

- STC 31 for all residential units in Building A; and
- STC 28 for all residential units in Building B and Blocks 1 and 2.

For all remaining residential dwellings in this development, exterior walls and windows meeting the minimum non-acoustical requirements of the Ontario Building Code (OBC) will be sufficient to achieve the indoor noise guideline criteria of the MECP.

For walls, a typical exterior facade construction which meets the minimum non-acoustical requirements of the OBC would be expected to achieve STC 37. For windows, double-glazing

configurations meeting the minimum non-acoustical requirements of the OBC would be expected to achieve STC rating of 28.

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

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

#### 4.1.3.1.2 *Ventilation Requirements*

Based on the predicted sound levels, Building A requires mandatory air conditioning for noise control purposes.

Building B and Blocks 1 and 2 require the provision for adding air conditioning at a later date. This typically takes the form of a ducted, forced air heating system, suitably sized to accommodate air conditioning.

Provision for adding air conditioning is typically not practical to implement in mid-rise construction. As such, the ventilation requirements for Building B have been upgraded to mandatory air conditioning.

#### 4.1.3.2 Outdoors

The predicted daytime outdoor sound level at the central common amenity area meets the 55 dBA objective of the MECP. Thus, sound barriers are not required at this location for noise control purposes.

The predicted daytime sound level at the common grade level outdoor amenity area at the east side of Building B is 58 dBA. To meet the 55 dBA objective, a 1.8 m high sound barrier will be required around the south and east sides of the amenity area. See Figure 2.

The sound level at the common amenity areas on Level 2 of Building A is predicted to be up to 64 dBA. To meet the 55 dBA design objective, a sound barrier parapet wall up to 1.8 m in height would be required. This is not considered feasible, as it would essentially enclose the amenity area. To meet 60 dBA, a 1.1 m high parapet wall would be required around the west and south sides of the amenity terrace. However, as there is a common amenity area available for the occupants that meets the noise guideline limits (grade level amenity space at the centre of the site), sound barriers are not considered mandatory at this location.

The predicted daytime sound level at the rear yards of the 5 most westerly units in Block 1 are predicted to exceed the 55 dBA design objective. The highest sound level of 62 dBA is predicted at the most westerly unit, closest to Highway 50. To meet the 55 dBA objective, a 2.0 m high sound barrier will be required at the most westerly unit. See Figure 2. This barrier will mitigate the sound levels at the remaining units to below the 55 dBA objective. Thus, sound barriers will not be required at these lots.

Note, the patio associated with the retail/restaurant/daycare unit in Building A would be intended for active use and is not expected to be used for the quiet enjoyment of the outdoor environment.

Regardless, the predicted sound level at the centre of the patio is 60 dBA. As this meets the upper allowable limit of the MECP, sound barriers are not considered warranted at this location.

All other balconies/terraces in the development are less than 4 m in depth and therefore would not be considered OLAs under the MECP definitions.

The analysis is based on flat topography and should be updated once specific grading information is available.

The sound barriers/acoustic fences must be of solid construction with no gaps, cracks or holes (except for small openings required for water drainage) and must have a minimum surface weight of 20 kg/m<sup>2</sup>. A variety of materials are available, including concrete, masonry, glass, wood, specialty composite materials, or a combination of the above.

#### 4.1.3.3 Warning Clauses

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

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

## 4.2 STATIONARY NOISE SOURCE ASSESSMENT

### 4.2.1 Noise Sources and Operating Scenarios

The Town of Caledon Yard #3 is located at 14220 Highway 50, on the west side of Highway 50 to the subject site. VCL staff visited the site on June 25, 2021 to complete sound measurements and observations at the facility.

There are two departments from the Town of Caledon that operate at this property. To the north is the operations centre for park's maintenance services, and to the south is a road maintenance facility. Both facilities operate during the daytime only, between 0700 and 1700 hours.

Figure 3 shows the location of the noise sources considered in the assessment. Sound source data is included in Appendix E.

#### 4.2.1.1 Park Facility

The park facility includes a garage/office building with 4 overhead doors facing east towards Highway 50. During the summer months the garage is used to store lawnmowers and other landscaping/maintenance equipment. At the northeast corner of the property there is a shed housing a single snow plow used for sidewalk clearing. The snow plow is swapped with the summer maintenance equipment in the garage during the winter months. The rear of the property is used for general storage and parking flatbed trailers used for transporting lawnmowers.

The busiest hour at the park facility is between 0700 and 0800 hour, when a fleet of up to 10 landscape trucks are loaded with lawnmowers before departing for the day. Each truck can

carry up to 2 lawnmowers. In the afternoon, the trucks have staggered returns between 1400 and 1700 hours.

Sound data for the lawn mowers driving onto/off of the flatbed trucks was based on a VCL measurements at the facility (Source ID: LwnMwr\_Mvt01). A 5 dBA tonal penalty was added to the sound level in accordance with MECP practices.

Sound data for the medium truck movements and trucks idling were based on VCL measurements completed at similar facilities (Source ID: MdTrk\_Mvt01 and MdTrk\_Idle01).

During the winter months, the only noise associated with the facility is the loading/unloading of a single small snow plow onto a flatbed truck. The winter maintenance operations at the yard include non-emergency daytime services only, as the primary snow removal operations for the Town occur at a different facility. The noise associated with the winter months is expected to be less than the summer months, as there is only a single snow plow stored at the facility and the hours of operation are also daytime only. As such, the noise associated with the winter maintenance activities has not been considered further in the assessment.

#### 4.2.1.2 Road Maintenance Facility

The road maintenance facility contains bulk aggregate material used for road repair/construction work within the Town of Caledon. It is understood the yard is not the primary maintenance yard for the Town and is only used for non-emergency daytime construction activities. The noise sources at the facility are a front end loader (FEL) loading aggregate material into dump trucks. During the busiest hour, the yard can expect to receive 6 dump trucks at the facility while an FEL operates continuously to load aggregate material into the trucks.

Sound data for the dump truck movements/idling and the FEL working were based on VCL measurements completed at similar facilities (Source ID: DmpTrk\_Mvt01/DmpTrk\_Idle01 and FEL01).

#### 4.2.2 **Noise Sensitive Receptors**

Six (6) noise sensitive receptor locations were used to assess the noise impact on the subject site. The receptors are described as:

- POW01 – representing a 8<sup>th</sup> floor window on the west facade of the Tower A1;
- POW02 – representing an 8<sup>th</sup> floor window on the west facade of Tower A2, towards the south end of the building;
- POW03 – representing an 8<sup>th</sup> floor window on the west facade of Tower A2, towards the north end of the building;
- POW04 - representing an 3<sup>rd</sup> floor window on the south facade of the most westerly unit in Block 1;
- OPOR01 – representing rear yard of the most westerly unit in Block 1;
- OPOR02– representing the Building A Level 2 common amenity area.

Receptors representing the planes of windows (POW) for the 3<sup>rd</sup> and 8<sup>th</sup> storey windows were assessed at heights of 7.5 m and 25.2 m above grade, respectively. The outdoor point of reception (OPOR) was assessed at a standing height of 1.5 m above grade or the height of the floor slab.

The plane of window assessment receptors represent the worst-case locations as determined using the building evaluation feature in CadnaA, where the highest sound level at any storey, at multiple points on the facade is assessed.

The locations of the assessment receptors are shown on Figure 3.

#### 4.2.2.1 Applicable Sound Level Limits

The guideline limits for most receptors are defined by the ambient road traffic noise, due to the proximity of Highway 50.

Existing traffic volumes were used to calculate the applicable guideline limits. Volume counts for 15-minute segments over a 3-day period, applicable to the year 2019 for Highway 50, was provided by the Region of Peel. The truck breakdown was included in the data.

Using the minimum hourly volumes from the above data, the minimum hourly sound levels due to road traffic was predicted at the receptor locations using the CadnaA implementation of the RLS-90 road traffic noise model.

The traffic data is included in Appendix B. Table 4 shows the applicable guideline limits at each receptor.

#### 4.2.3 Analysis Method

A 3-D acoustic model of the proposed development and surrounding area was developed using CadnaA V2020 MR1 environmental noise modeling software, which follows the protocol of ISO Standard 9613-2, “Acoustics – Attenuation of Sound During Propagation Outdoors”, to predict sound levels at each of the receptor locations. Accounting for distance, atmospheric absorption and ground attenuation, the sound level from all the relevant noise sources (hourly  $L_{eq}$ ) was determined at the worst-case plane of window and outdoor points of reception associated with the proposed development

Hard ground ( $G = 0$ ) was used for the paved areas and soft ground ( $G = 1$ ) was used elsewhere. Two orders of sound reflection from the building facades were included in the model.

#### 4.2.4 Assessment Results

Table 4 and Figure 4 show the predicted sound levels at the assessment receptors, together with the applicable guideline limits.

The assessment indicates that the sound levels at the subject site are predicted to meet the noise guideline limits. Therefore, mitigation measures for the Town of Caledon Yard #3 are not required.

## 5.0 CONCLUSIONS

With appropriate acoustical design of the development, a suitable acoustical environment can be provided and the applicable MECP noise guideline requirements met.

## 6.0 REFERENCES

1. PC STAMSON 5.04, “Computer Program for Road Traffic Noise Assessment”, Ontario Ministry of the Environment and Climate Change.
2. Building Practice Note No. 56: “Controlling Sound Transmission into Buildings”, by J. D. Quirt, Division of Building Research, National Council of Canada, September 1985.
3. “Environmental Noise Assessment in Land-Use Planning 1987”, Ontario Ministry of the Environment, February 1987, ISBN 0-7729-2804-5.
4. “Road and Rail Noise: Effects on Housing”, Canada Mortgage and Housing Corporation, Publication NHA 5156, 81/10.
5. “Environmental Noise Guideline, Stationary and Transportation Sources – Approval and Planning”, Ontario Ministry of the Environment, Publication NPC-300, October 2013.
6. “General Guidelines for the Preparation of Acoustical Reports in the Region of Peel”, Region of Peel, November 2012.
7. “Development Standards Manual Version 5.0”, Town of Caledon, 2019.

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**TABLE 1 ROAD TRAFFIC DATA**

Roadway	Year	AADT <sup>(4)</sup>	% Trucks		Day/Night Split (%)	Speed (kph)
			Medium	Heavy		
Highway 50 <sup>(1)</sup>	Ultimate	16 200	1.85 (Day) 1.75 (Night)	0.68 (Day) 0.31 (Night)	90 / 10	60
Columbia Way <sup>(2),(3)</sup>	2016 (2042)	5 760 (9083)	3	2	90 / 10	40

**Notes:**

- (1) Ultimate traffic data was obtained from the Region of Peel. The posted speed limit of Highway 50 in the project vicinity is 60 km/hr. A travel speed of 70 km/hr was used in the assessment, in accordance with requirements from the Town of Caledon.
- (2) Average daily traffic data for 2019 was obtained from the Town of Caledon. Future (year 2042) volumes were calculated by projecting the 2019 counts at a rate of 2% compounded annually. The posted speed limit is 40 km/hr. A travel speed of 50 km/hr was used in the assessment, in accordance with requirements from the Town of Caledon.
- (3) Assumed truck percentages of 3% medium trucks and 2% heavy trucks were used in the assessment.
- (4) Annual Average Daily Traffic.

**TABLE 2 PREDICTED UNMITIGATED OUTDOOR SOUND LEVELS**

Location <sup>(1)</sup>	Source	Distance (m) <sup>(2)</sup>	L <sub>eq</sub> Day (dBA)	L <sub>eq</sub> Night (dBA)
Building A (Tower A2) Southwest Corner West Facade	Highway 50	22	66	59
	Columbia Way	51	52	45
	<b>TOTAL</b>	-	<b>66</b>	<b>59</b>
Building A (Tower A1) Southwest Corner West Facade	Highway 50	52	62	55
	Columbia Way	20	58	52
	<b>TOTAL</b>	-	<b>64</b>	<b>57</b>
Building A Podium West Facade	Highway 50	22	64	52
	Columbia Way	36	52	46
	<b>TOTAL</b>	-	<b>64</b>	<b>53</b>
Building B Southwest Corner South Facade	Highway 50	155	54	47
	Columbia Way	24	61	55
	<b>TOTAL</b>	-	<b>62</b>	<b>55</b>
Block 1 Southwest Corner West Facade	Highway 50	22	64	57
	Columbia Way	147	38	31
	<b>TOTAL</b>	-	<b>64</b>	<b>57</b>
Block 2 North West Corner North Facade	Highway 50	61	54	47
Block 7 Southeast Corner South Facade	Columbia Way	78	52	45
Block 9 Southwest Corner West Facade	Highway 50	151	52	45
	Columbia Way	91	48	41
	<b>TOTAL</b>	-	<b>53</b>	<b>46</b>
Building A Central Amenity Area	Highway 50	114	42	-
	Columbia Way	106	38	-
	<b>TOTAL</b>	-	<b>43</b>	-
Building A L2 Common Amenity Area	Highway 50	24	64	-
	Columbia Way	43	52	-
	<b>TOTAL</b>	-	<b>43</b>	-
Building B Amenity Area	Columbia Way	26	58	-
Block 1 Most Westerly Unit Rear Yard OLA	Hwy 50	25	61	-
Block 1 6th Most Westerly Unit Rear Yard OLA	Hwy 50	47	55	-

**Notes:**

- (1) See Figure 2.
- (2) Distance indicated is taken from the centreline of the noise source to the point of reception.
- (3) Sound levels during nighttime hours are not applicable for outdoor living areas.

**TABLE 3 NOISE ABATEMENT MEASURES**

Location	Air Conditioning <sup>(1)</sup>	Exterior Wall <sup>(2)</sup>	Exterior Window <sup>(3)</sup>	Sound Barrier <sup>(4)</sup>	Warning Clauses <sup>(5)</sup>
Building A	Mandatory	STC 37	STC 31	-	A + B + E
Building B	Mandatory	STC 37	STC 28	1.8 m high sound barrier at grade level common amenity area east of the building	A + B + D
Block 1	Provision for Installation	STC 37	STC 28	2.0 m high sound barrier at most westly unit	A + C + E
Block 2	Provision for Installation	STC 37	STC 28	-	A + C
Blocks 6 and 7	No special acoustic requirements				D
All remaining dwellings	No special acoustic requirements				

**Notes:**

- (1) Central air conditioning allows windows to remain closed for noise control purposes. Provision for adding air conditioning typically takes the form of a ducted ventilation system suitably sized to permit the addition of central air conditioning by the occupant.
- (2) STC - Sound Transmission Class Rating (Reference ASTM-E413).  
STC values are based upon assumed percentages of wall and window area to associated floor area and should be reviewed once building plans are finalized.
- (3) STC - Sound Transmission Class Rating (Reference ASTM-E413). A sliding glass walkout door should be considered as a window and be included in the percentage of glazing.  
STC values are based upon assumed percentages of wall and window area to associated floor area and should be reviewed once building plans are finalized.
- (4) Earthen berms, solid fences or combinations of berms/fences are acceptable. Sound barriers must be of solid construction having a minimum face density of 20 kg/m<sup>2</sup> with no gaps, cracks or holes.
- (5) Warning clauses to be registered on title and be included in Offers of Purchase and Sale for designated lots:
  - 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 may occasionally interfere with some activities of the dwelling occupants as the sound level may exceed the noise criteria of the Ministry of the Environment, Conservation and Parks and/or the municipality."
  - B. "This dwelling unit has been supplied with an air conditioning system which will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the noise criteria of the Ministry of the Environment, Conservation and Park and/or the municipality."
  - C. "This dwelling unit has been designed with the provision for adding central air conditioning at the occupant's discretion. Installation of central air conditioning by the occupant will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the sound level limits of the Ministry of the Environment, Conservation and Parks and/or the municipality."
  - D. "Purchasers/tenants are advised that due to the proximity of the St. Michael Catholic Secondary School, noise from this facility may at times be audible."
  - E. "Purchasers/tenants are advised that due to the proximity of the Town of Caledon Yard #3, noise from this facility may at times be audible."
- (6) All exterior doors shall be fully weather-stripped.

**TABLE 4 UNMITIGATED PREDICTED SOUND LEVELS DUE TO TOWN OF CALEDON YARD #3**

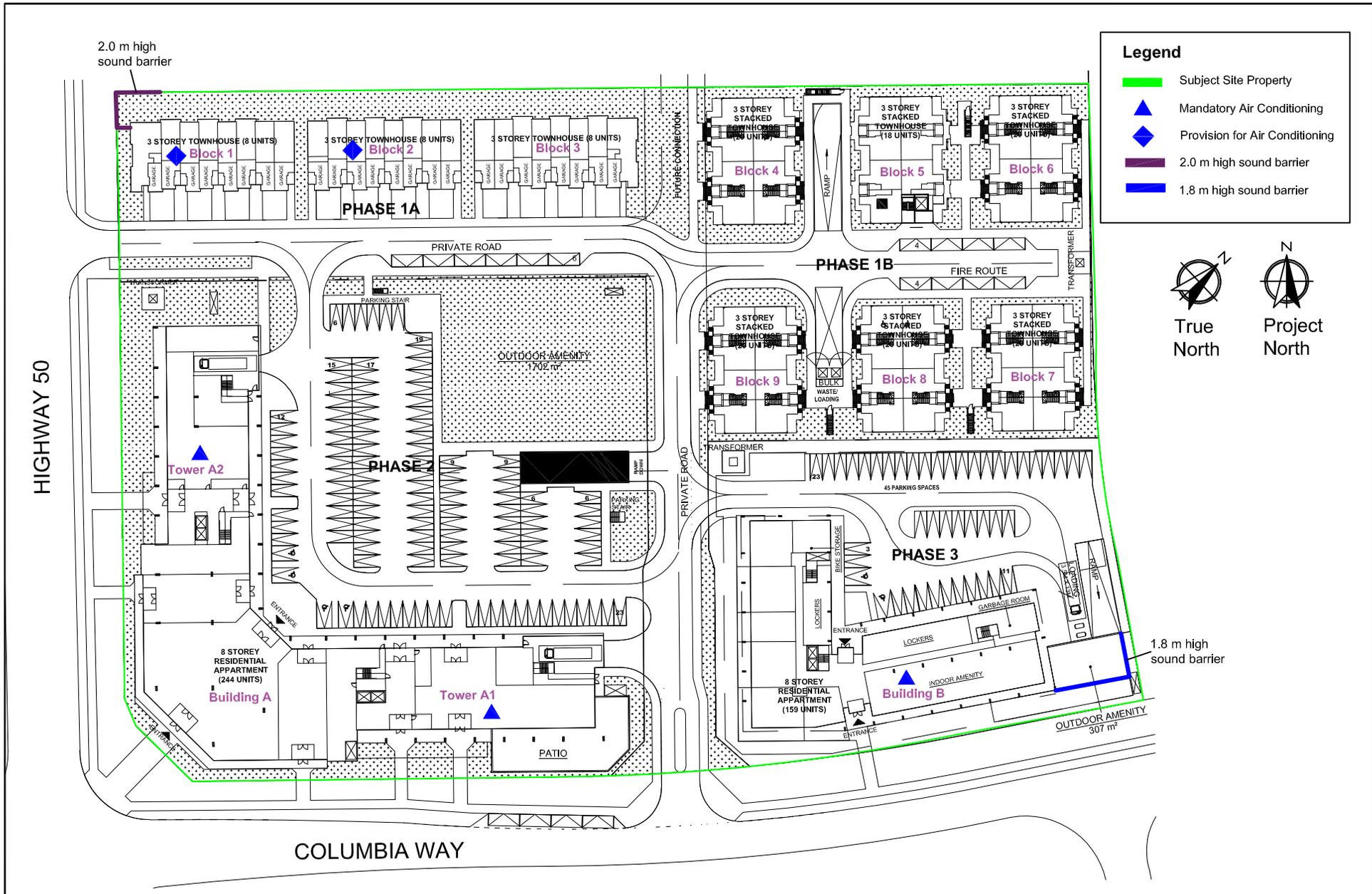
Receptor ID <sup>(1)</sup>	Receptor Description	Predicted Hourly Sound Level (dBA) <sup>(3)</sup>	Guideline Limit (dBA) <sup>(2)(3)</sup>
POW01	8 <sup>th</sup> floor window on the west facade of the Tower A1	52	58
POW02	8 <sup>th</sup> floor window on the west facade of Tower A2, towards the south end of the building	54	62
POW03	8 <sup>th</sup> floor window on the west facade of Tower A2, towards the north end of the building	53	62
POW04	3 <sup>rd</sup> floor window on the south facade of the most westerly unit in Block 1	52	60
OPOR01	Rear yard of the most westerly unit in Block 1	50	61
OPOR02	Building A Level 2 Common Amenity Area	54	63

Notes:

- (1) See Figure 3 for receptor locations.
- (2) Defined by the ambient road traffic noise.
- (3) Daytime only (0700 to 1900 hours).

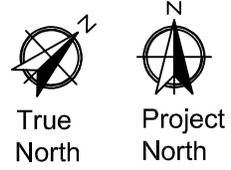


	Title	Date	Figure
	Project Name		
	<b>Key Plan</b>	<b>2021-11-02</b>	<b>1</b>
	<b>Columbia Square, Caledon</b>	<b>121-0047.000</b>	



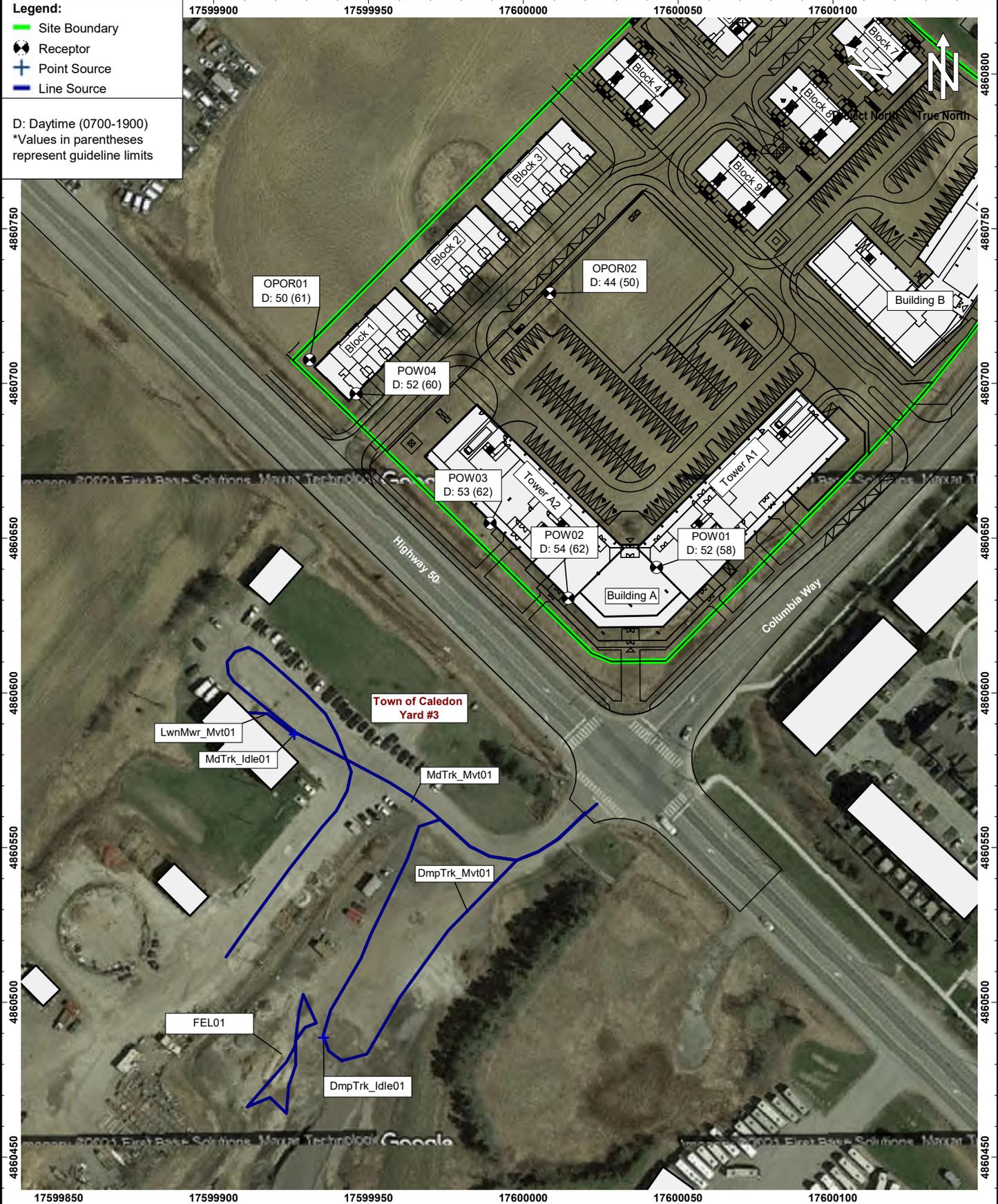
**Legend**

- █ Subject Site Property
- ▲ Mandatory Air Conditioning
- ◆ Provision for Air Conditioning
- █ 2.0 m high sound barrier
- █ 1.8 m high sound barrier



Base drawing prepared by KFA Architects & Planners Inc.

	Title	<b>Combined Site Plan</b>	Date	<b>2021-11-02</b>	<b>2</b>
	Project Name	<b>Columbia Square, Caledon - Noise</b>	Project No.	<b>121-0047</b>	



	Title	Date	Figure
	<b>Predicted Sound Levels (dBA) - Town of Caledon Yard #3</b> Project Name <b>Columbia Square, Caledon</b>	<b>2021-11-02</b> Project No. <b>121-0047.000</b>	<b>3</b>

# **APPENDIX A**

## **ARCHITECTURAL DRAWINGS**

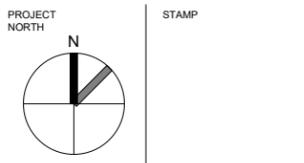
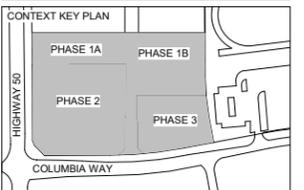
# COLUMBIA SQUARE

BOLTON, ONTARIO

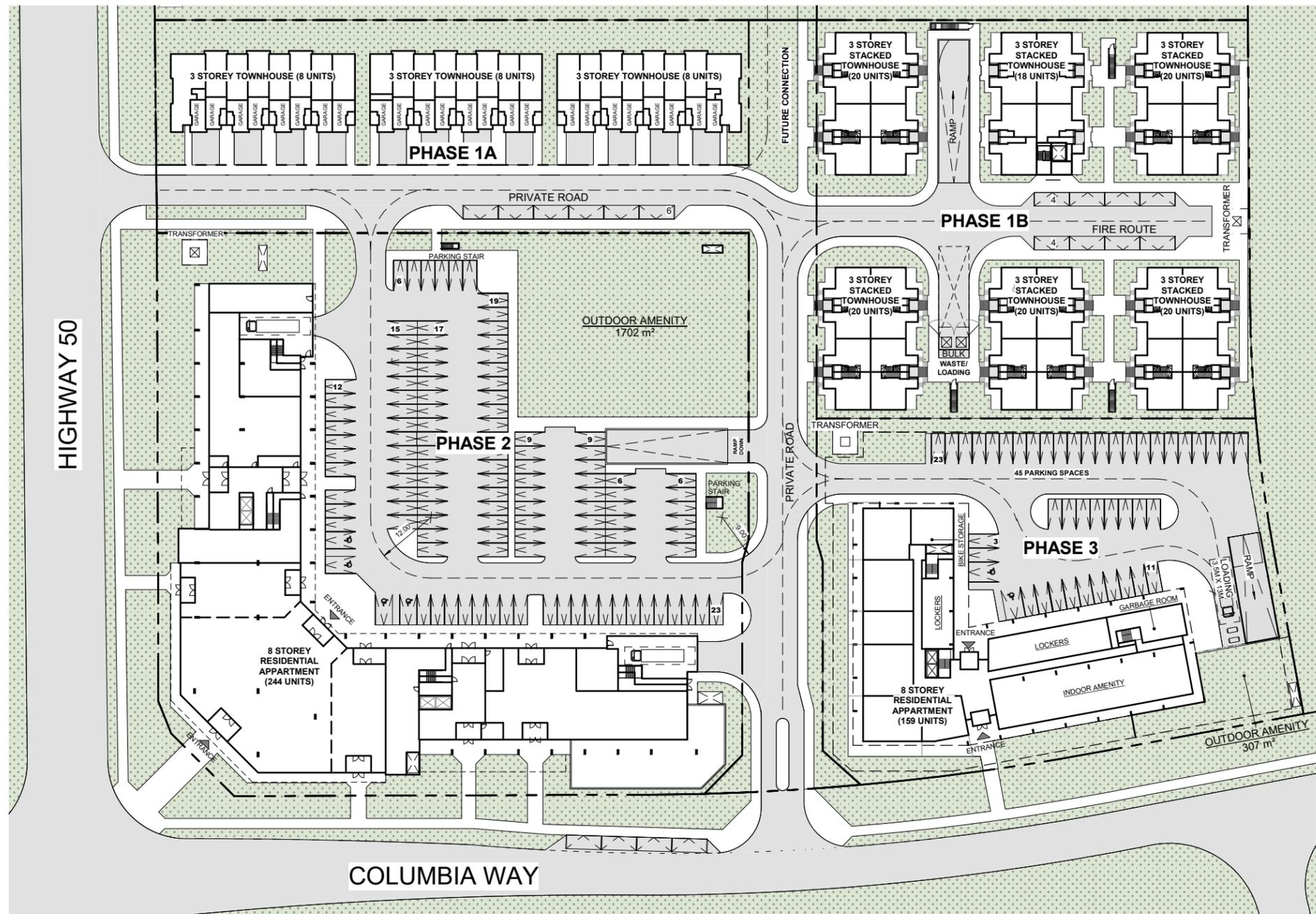
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No.	Description	Date
1	ISSUED FOR REVIEW	2021/07/12
A	ISSUED FOR REVIEW	2021/07/20

## HALF SCALE DRAFT



CLIENTS:  
**WYNDCLIFFE DEVELOPMENTS INC.**



PHASES 1-3 - SITE AREA						
m2	sq.ft	FSI	ha	Units/ha	acre	Units/acre
33013.27	355,352	1.67	3.30	165.1	8.16	66.8

TOTAL PHASE 1 - SITE AREA						
m2	sq.ft	FSI	ha	Units/ha	acre	Units/acre
13728.14	147,788	1.14	1.37	51.0	3.39	41.9

PHASE 2 - SITE AREA						
m2	sq.ft	FSI	ha	Units/ha	acre	Units/acre
13183.3	141,904	1.84	1.32	185.1	3.26	74.9

PHASE 3 - SITE AREA						
m2	sq.ft	FSI	ha	Units/ha	acre	Units/Acre
6101.79	65,679.06	2.52	0.61	114.7	1.51	46.4

SITE GROSS FLOOR AREA		
Phase 1	GFA	15586.0 m²
	Units	142
	Required Parking	261
	Provided Parking	259
Phase 2	GFA	24312.0 m²
	Units	244
	Required Parking	519
	Provided Parking	471
Phase 3	GFA	15365.0 m²
	Units	159
	Required Parking	278
	Provided Parking	288
Combined	Total GFA	55263.0 m²
	Total Unit Count	545
	Total Required Parking	1057
	Total Provided Parking	1018

GENERAL SITE STATISTICS	
Gross Construction Area (m²)	23,814
Exclusions (m²)	8,228
Gross Floor Area (m²)	15,586
UNIT STATISTICS	
Total Number of Units	142
Average Unit GFA (m2)	109.8
Average Unit GFA (Sq.ft)	1,181.5
PARKING	
Required Parking	261
Underground Parking	197
Private Garage Parking	48
Surface Parking	14
Total Parking	259

GENERAL SITE STATISTICS	
Construction Area Total (m²)	37,755
Parking Level GCA (m²)	11,838
Condo Unit GCA (m²)	19,301
Condo Amenity/Service GCA (m²)	4,782
Retail GCA (m²)	1,834
Exclusions	13,443
Gross Floor Area (m2)	24,312
UNIT STATISTICS	
Total Number of Units	244
Average Unit GFA (m2)	79.1
Average Unit GFA (Sq.ft)	851.5
PARKING	
Required Retail Parking	1 Space/ 20 m² 92
Required Residential Parking	1.5 Spaces/Unit 366
Required Visitor Parking	0.25 Spaces/Unit 61
Total Parking Required	519
Underground Parking	349
Surface Level Parking	122
Total Parking Provided	471

GENERAL SITE STATISTICS	
Gross Construction Area Total (m²)	26,075
Parking Level GCA (m²)	10,157
Residential Unit GCA (m²)	12,716
Residential Amenity/Service GCA (m²)	3,202
Retail GCA (m²)	-
Exclusions	10,710
Gross Floor Area (m²)	15,365
UNIT STATISTICS	
Total Number of Units	159
Average Unit GFA (m2)	80.0
Average Unit GFA (Sq.ft)	860.8
PARKING	
Required Resident Parking	1.5 Spaces/Unit 239
Required Visitor Parking	0.25 Spaces/Unit 40
Total Required Parking	278
Underground Parking	243
Above grade Parking	45
Total Parking Provided	288

PROJECT NO: 20065

SCALE: 1 : 500

DATE: Issue Date

DRAWN BY: RVW

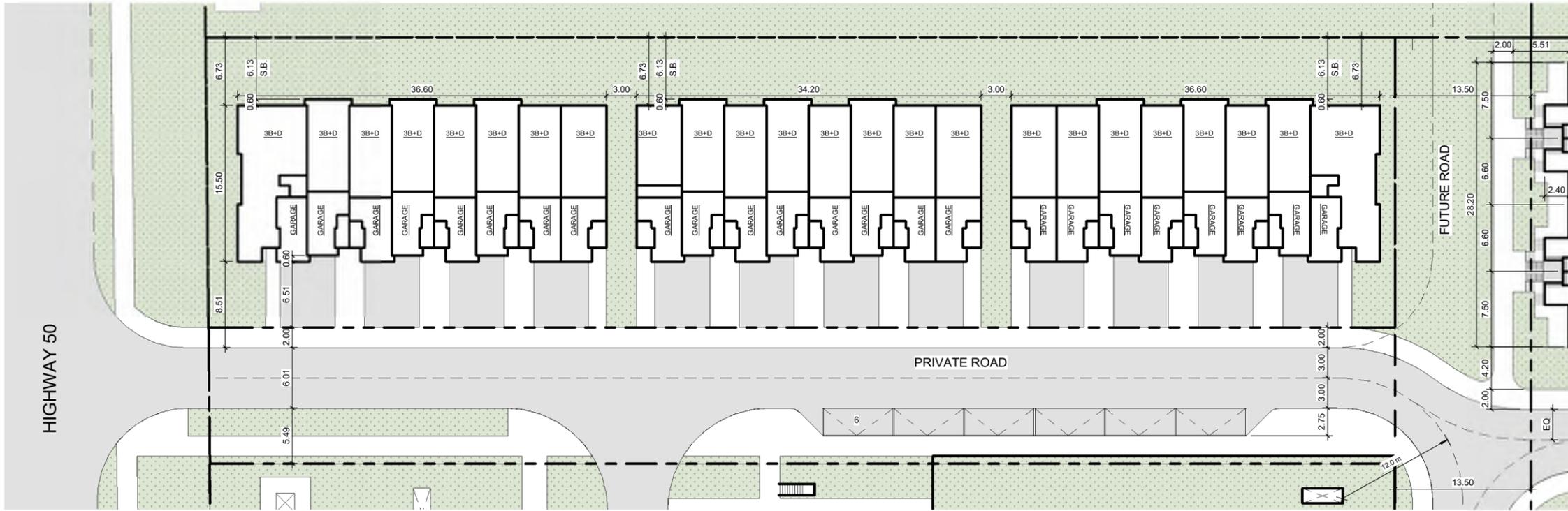
DRAWING TITLE:

**PHASE 1-3  
COMBINED SITE PLAN**

DRAWING NO

# SD002





# COLUMBIA SQUARE

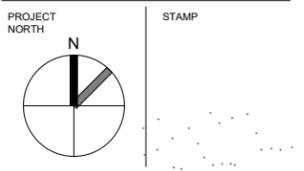
BOLTON, ONTARIO

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No.	Description	Date

## HALF SCALE DRAFT

CONTEXT KEY PLAN



CLIENTS:  
**WYNDCLIFFE DEVELOPMENTS INC.**



PROJECT NO: 0001  
 SCALE: 1:250  
 DATE: Issue Date  
 DRAWN BY: RVW

### PHASE 1A SITE PLAN

DRAWING NO  
**SD002a**

TOTAL PHASE 1 - SITE AREA						
m <sup>2</sup>	sq.ft	FSI	.ha	Units/ha	.acre	Units/acre
13728.14	147,768	1.14	1.37	51.0	3.39	41.9

GENERAL SITE STATISTICS	
Gross Construction Area (m <sup>2</sup> )	23,814
Exclusions (m <sup>2</sup> )	8,228
Gross Floor Area (m <sup>2</sup> )	15,586
UNIT STATISTICS	
Total Number of Units	142
Average Unit GFA (m <sup>2</sup> )	109.8
Average Unit GFA (Sq.ft)	1,181.5

PARKING	
Required Parking	261
Underground Parking	197
Private Garage Parking	48
Surface Parking	14
<b>Total Parking</b>	<b>261</b>

PHASE 1A - GENERAL SITE STATISTICS	
Gross Construction Area (m <sup>2</sup> )	4,963
Exclusions (m <sup>2</sup> )	632
Gross Floor Area (m <sup>2</sup> )	4,331
UNIT STATISTICS	
Total Number of Units	24
Average Unit GFA (m <sup>2</sup> )	180.5
Average Unit GFA (Sq.ft)	1,942.4

PARKING	
Required Parking (Including Visitor)	54
Underground Parking	-
Private Garage Parking	48
Surface Parking (Visitor)	6
<b>Total Parking</b>	<b>54</b>

PHASE 1B - GENERAL SITE STATISTICS	
Gross Construction Area (m <sup>2</sup> )	18,851
Exclusions (m <sup>2</sup> )	7,596
Gross Floor Area (m <sup>2</sup> )	11,255
UNIT STATISTICS	
Total Number of Units	118
Average Unit GFA (m <sup>2</sup> )	95.4
Average Unit GFA (Sq.ft)	1,026.7

PARKING	
Required Parking (Including Visitor)	207
Underground Parking (Residential & Visitor)	197
Private Garage Parking	-
Surface Parking (Visitor)	10
<b>Total Parking</b>	<b>207</b>

MATERIALS KEY	
1	RED BRICK, RUNNING BOND
3	LIMESTONE, ROUGH, COURSED ASHLAR
4	PRECAST CONCRETE
5	SITE-CAST CONCRETE
6	SITE-CAST CONCRETE
6	METALS (VARIOUS) - BLACK FINISH
7	ASPHALT SHINGLE

# COLUMBIA SQUARE

BOLTON, ONTARIO

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No.	Description	Date

## HALF SCALE DRAFT



PROJECT NORTH  
STAMP

CLIENTS:

**WYNDCLIFFE DEVELOPMENTS INC.**



PROJECT NO: 20065  
SCALE: 1 : 100  
DATE: Issue Date  
DRAWN BY: RVW  
DRAWING TITLE: T.H. TYPE B

### PHASE 1A ELEVATIONS

DRAWING NO

# SD500



3 East  
1 : 100



1 North  
1 : 100



4 West  
1 : 100



2 South  
1 : 100

# COLUMBIA SQUARE

BOLTON, ONTARIO

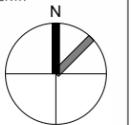
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No.	Description	Date

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CONTEXT KEY PLAN

PROJECT NORTH



STAMP

CLIENTS:

WYNDCLIFFE DEVELOPMENTS INC.



PROJECT NO: 0001

SCALE: 1:250

DATE: Issue Date

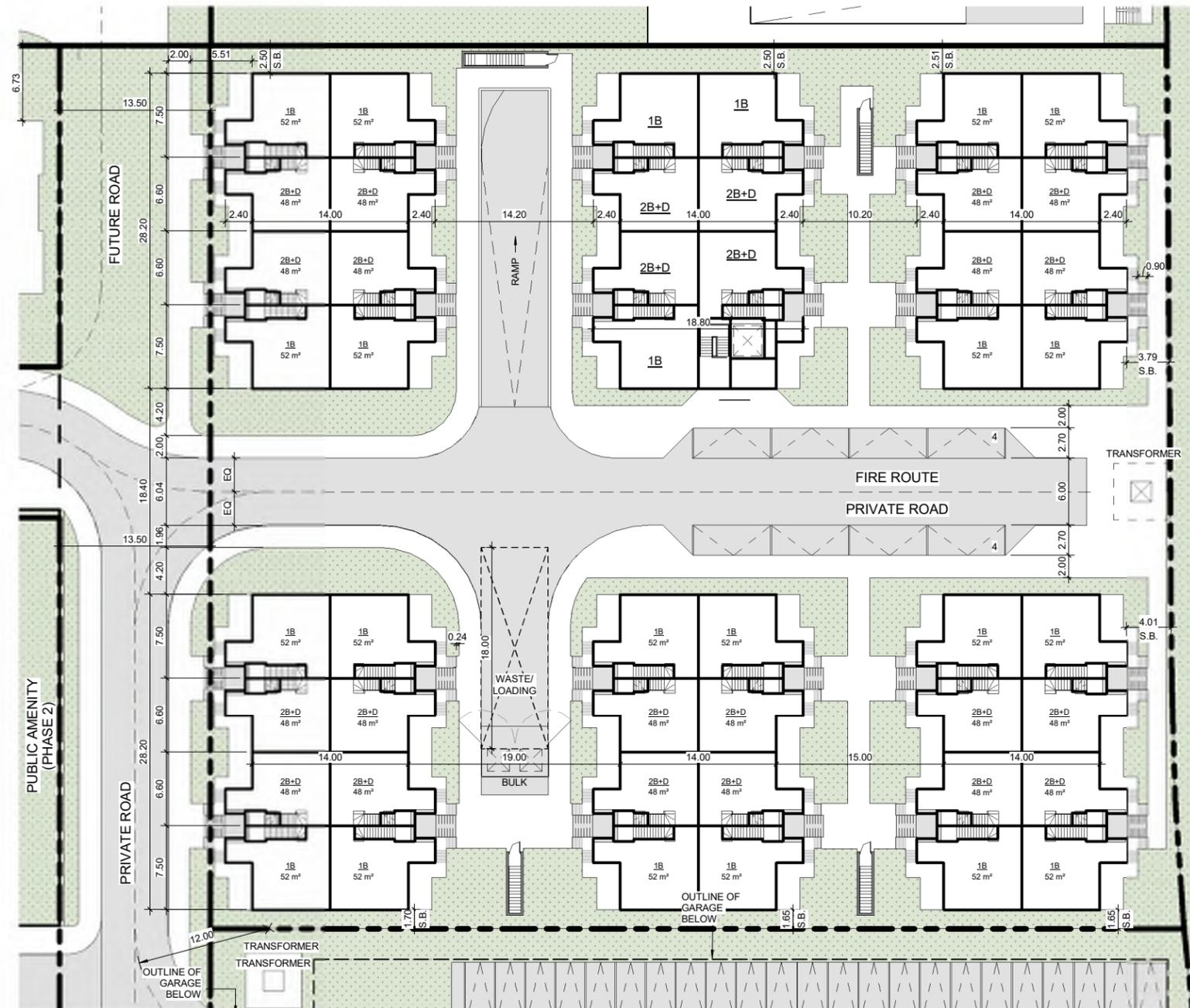
DRAWN BY: RVW

DRAWING TITLE:

### PHASE 1B SITE PLAN

DRAWING NO

# SD002b



TOTAL PHASE 1 - SITE AREA						
m <sup>2</sup>	sq.ft	FSI	-ha	Units/ha	-acre	Units/acre
13728.14	147,768	1.14	1.37	51.0	3.39	41.9

GENERAL SITE STATISTICS	
Gross Construction Area (m <sup>2</sup> )	23,814
Exclusions (m <sup>2</sup> )	8,228
Gross Floor Area (m <sup>2</sup> )	15,586
UNIT STATISTICS	
Total Number of Units	142
Average Unit GFA (m <sup>2</sup> )	109.8
Average Unit GFA (Sq.ft)	1,181.5

PARKING	
Required Parking	261
Underground Parking	197
Private Garage Parking	48
Surface Parking	14
Total Parking	261

PHASE 1A - GENERAL SITE STATISTICS	
Gross Construction Area (m <sup>2</sup> )	4,963
Exclusions (m <sup>2</sup> )	632
Gross Floor Area (m <sup>2</sup> )	4,331
UNIT STATISTICS	
Total Number of Units	24
Average Unit GFA (m <sup>2</sup> )	180.5
Average Unit GFA (Sq.ft)	1,942.4

PARKING	
Required Parking (Including Visitor)	54
Underground Parking	-
Private Garage Parking	48
Surface Parking (Visitor)	6
Total Parking	54

PHASE 1B - GENERAL SITE STATISTICS	
Gross Construction Area (m <sup>2</sup> )	18,851
Exclusions (m <sup>2</sup> )	7,596
Gross Floor Area (m <sup>2</sup> )	11,255
UNIT STATISTICS	
Total Number of Units	118
Average Unit GFA (m <sup>2</sup> )	95.4
Average Unit GFA (Sq.ft)	1,026.7

PARKING	
Required Parking (Including Visitor)	207
Underground Parking (Residential & Visitor)	197
Private Garage Parking	-
Surface Parking (Visitor)	10
Total Parking	207

MATERIALS KEY	
1	RED BRICK, RUNNING BOND
2	BUFF BRICK, RUNNING BOND
3	LIMESTONE, ROUGH, COURSED ASHLAR
4	PRECAST CONCRETE
5	SITE-CAST CONCRETE
6	METALS (VARIOUS) - BLACK FINISH
7	EFIS - BLACK STUCCO FINISH
8	FIBER CEMENT PANEL, BLACK
9	GLAZING

# COLUMBIA SQUARE

BOLTON, ONTARIO

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PROJECT NORTH  
STAMP

CLIENTS:  
**WYNDCLIFFE DEVELOPMENTS INC.**



PROJECT NO: 0001  
SCALE: 1:50  
DATE: Issue Date  
DRAWN BY: RVW  
DRAWING TITLE: TOWNHOUSE TYPE A

### PHASE 1B TYPICAL WEST ELEVATION

DRAWING NO

# SD500



EAST ELEVATION SIMILAR

MATERIALS KEY	
1	RED BRICK, RUNNING BOND
2	BUFF BRICK, RUNNING BOND
3	LIMESTONE, ROUGH, COURSED ASHLAR
4	PRECAST CONCRETE
5	SITE-CAST CONCRETE
6	METALS (VARIOUS) - BLACK FINISH
7	EFIS - BLACK STUCCO FINISH
8	FIBER CEMENT PANEL, BLACK
9	GLAZING

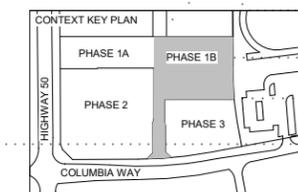
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No.	Description	Date

## HALF SCALE DRAFT



PROJECT NORTH

STAMP

CLIENTS:

**WYNDCLIFFE DEVELOPMENTS INC.**



PROJECT NO: 0001

SCALE: 1:50

DATE: Issue Date

DRAWN BY: RVW

DRAWING TITLE: TOWNHOUSE TYPE A

### PHASE 1B ELEVATION

DRAWING NO

# SD501



NORTH ELEVATION SIMILAR

MATERIALS KEY	
1	RED BRICK, RUNNING BOND
2	BUFF BRICK, RUNNING BOND
3	LIMESTONE, ROUGH, COURSED ASHLAR
4	PRECAST CONCRETE
5	SITE-CAST CONCRETE
6	METALS (VARIOUS) - BLACK FINISH
7	EFIS - BLACK STUCCO FINISH
8	FIBER CEMENT PANEL, BLACK
9	GLAZING

# COLUMBIA SQUARE

BOLTON, ONTARIO

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No.	Description	Date

## HALF SCALE DRAFT



PROJECT NORTH  
STAMP

CLIENTS:  
**WYNDCLIFFE DEVELOPMENTS INC.**



PROJECT NO: 0001  
SCALE: 1:50  
DATE: Issue Date  
DRAWN BY: RVW  
DRAWING TITLE: TOWNHOUSE TYPE A1

### PHASE 1B WEST ELEVATION

DRAWING NO

# SD500



SIMILAR TO EAST ELEVATION

MATERIALS KEY	
1	RED BRICK, RUNNING BOND
2	BUFF BRICK, RUNNING BOND
3	LIMESTONE, ROUGH, COURSED ASHLAR
4	PRECAST CONCRETE
5	SITE-CAST CONCRETE
6	METALS (VARIOUS) - BLACK FINISH
7	EFIS - BLACK STUCCO FINISH
8	FIBER CEMENT PANEL, BLACK
9	GLAZING

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BOLTON, ONTARIO

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## HALF SCALE DRAFT



PROJECT NORTH

STAMP

CLIENTS:

**WYNDCLIFFE DEVELOPMENTS INC.**



PROJECT NO: 0001

SCALE: 1:50

DATE: Issue Date

DRAWN BY: RVW

DRAWING TITLE:

### PHASE 1B ELEVATION

DRAWING NO

# SD501



# COLUMBIA SQUARE

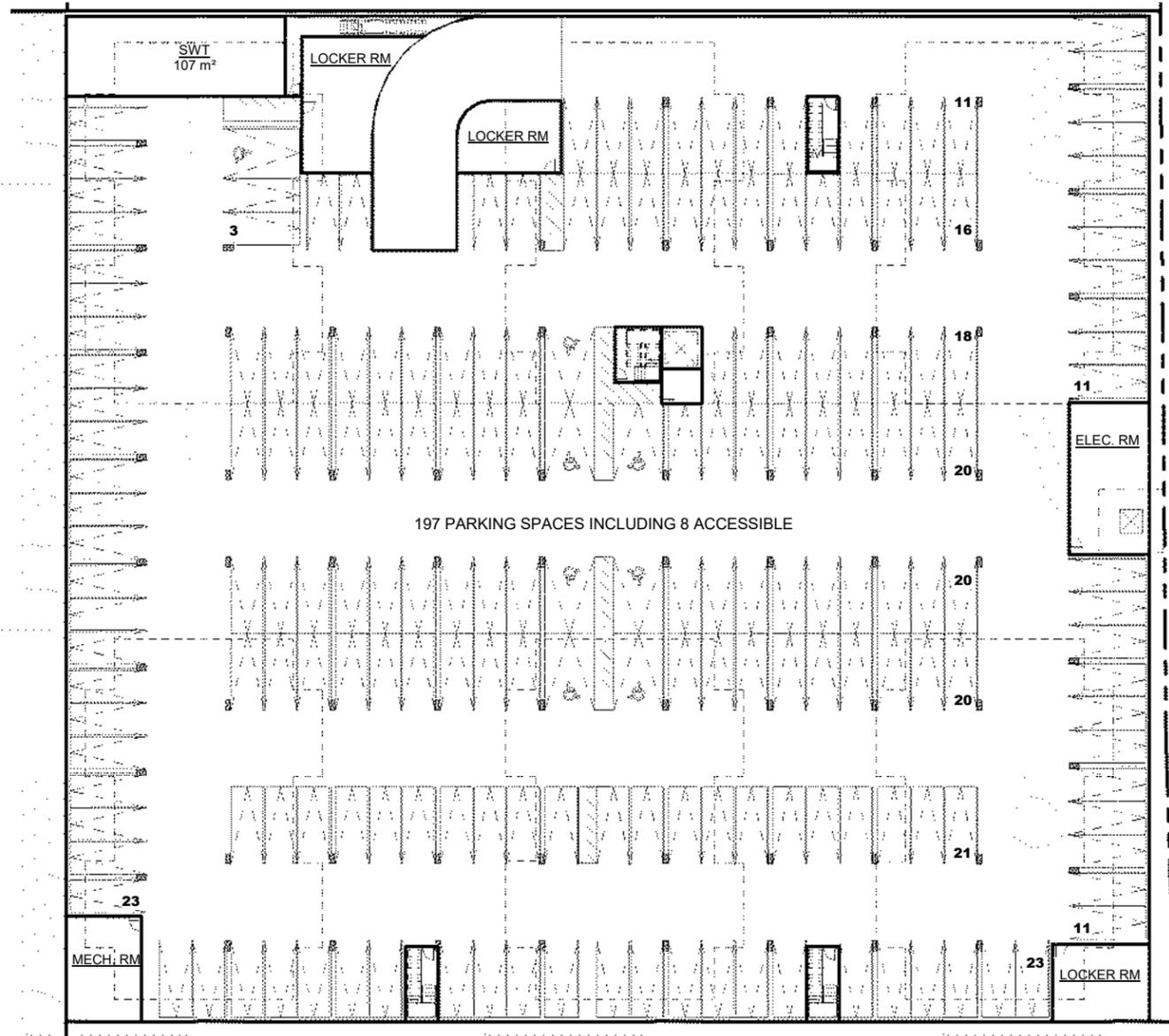
BOLTON, ONTARIO

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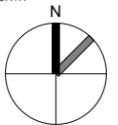
No.	Description	Date

HALF SCALE  
DRAFT

CONTEXT KEY PLAN



PROJECT NORTH



STAMP

CLIENTS:

**WYNDCLIFFE DEVELOPMENTS INC.**



PROJECT NO: 0001  
SCALE: 1:250  
DATE: Issue Date  
DRAWN BY: RVW  
DRAWING TITLE:

PHASE 1B  
P1 PARKING GARAGE

DRAWING NO

**SD100**

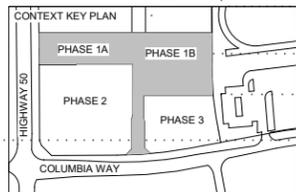
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BOLTON, ONTARIO

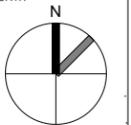
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No.	Description	Date

## DRAFT



PROJECT NORTH



STAMP

CLIENTS:

**WYNDCLIFFE DEVELOPMENTS INC.**



PROJECT NO: 0001

SCALE: 1:200

DATE: Issue Date

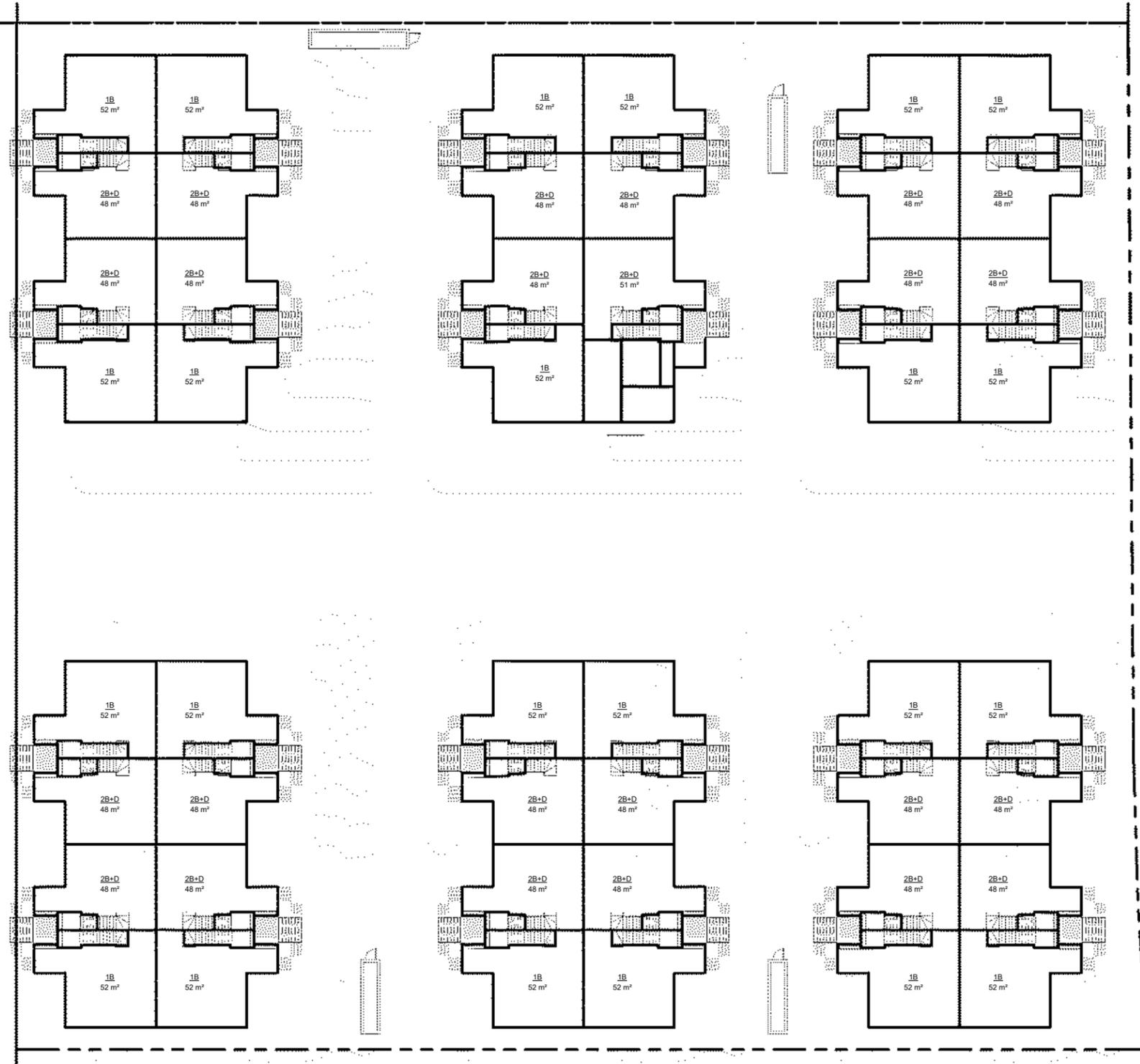
DRAWN BY: RVW

DRAWING TITLE:

**PHASE 1B  
GROUND FLOOR PLAN**

DRAWING NO

# SD101



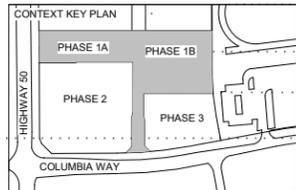
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BOLTON, ONTARIO

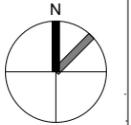
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No.	Description	Date

HALF SCALE  
DRAFT



PROJECT NORTH



STAMP

CLIENTS:

**WYNDCLIFFE DEVELOPMENTS INC.**



PROJECT NO: 0001

SCALE: 1:200

DATE: Issue Date

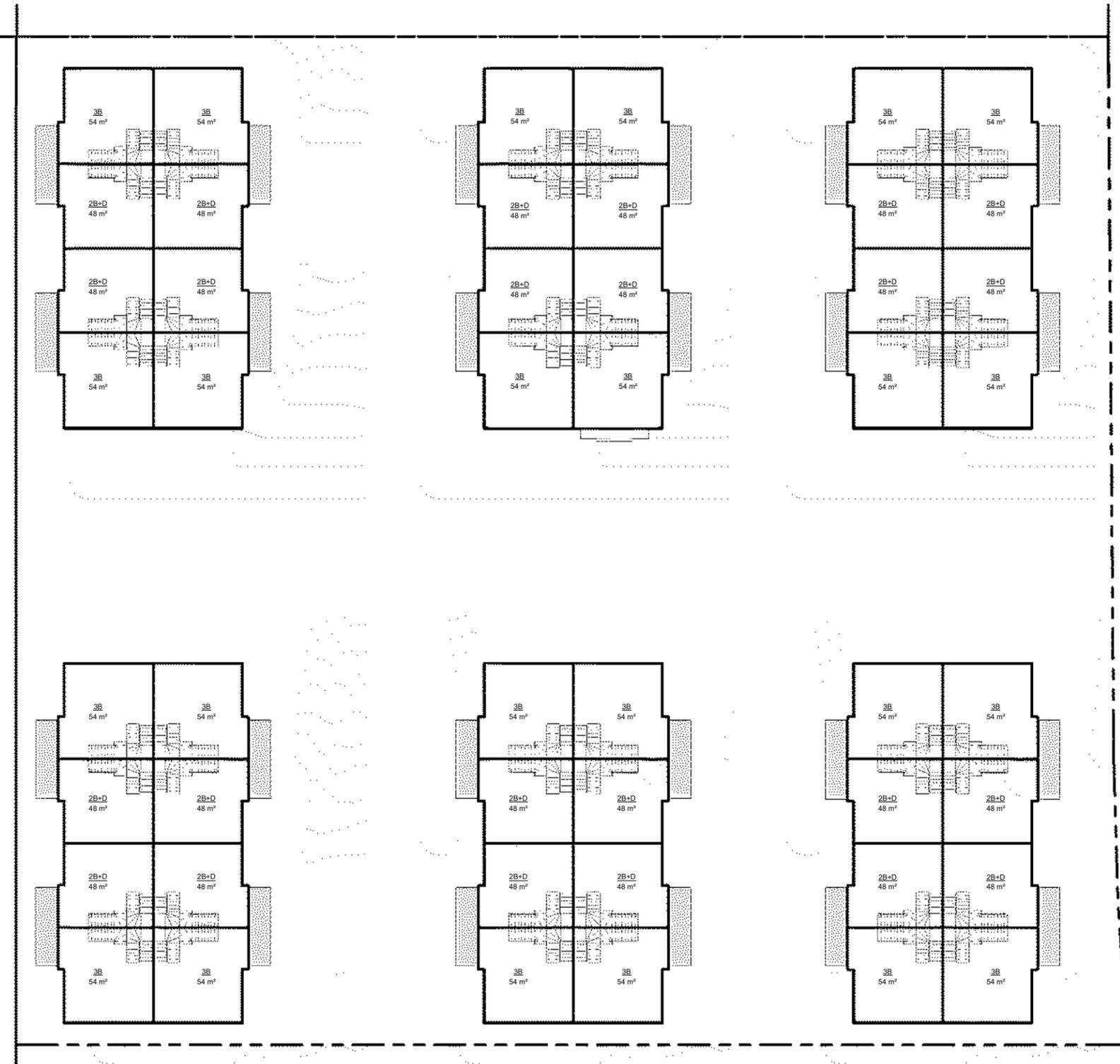
DRAWN BY: RVW

DRAWING TITLE:

PHASE 1B  
SECOND FLOOR PLAN

DRAWING NO

SD102



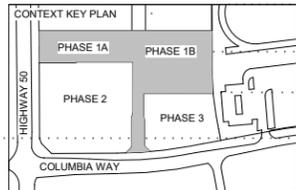
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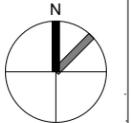
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No.	Description	Date

HALF SCALE  
DRAFT



PROJECT NORTH



STAMP

CLIENTS:

**WYNDCLIFFE DEVELOPMENTS INC.**



PROJECT NO: 0001

SCALE: 1:200

DATE: Issue Date

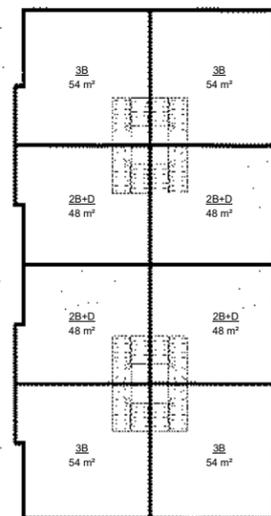
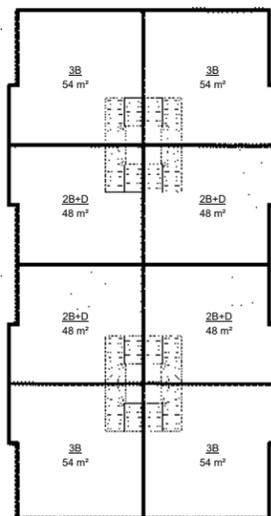
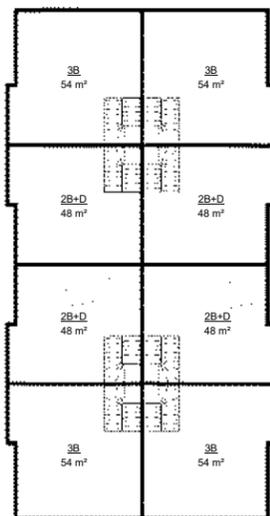
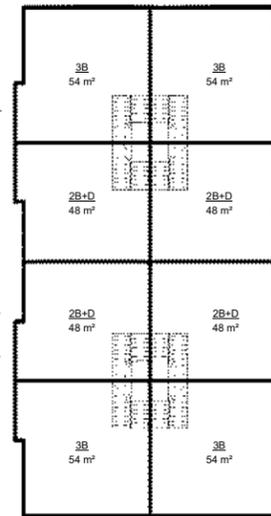
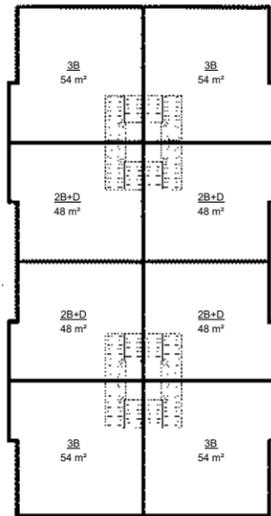
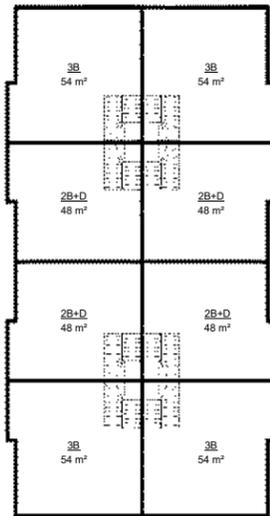
DRAWN BY: RVW

DRAWING TITLE:

PHASE 1B  
THIRD FLOOR PLAN

DRAWING NO

SD103



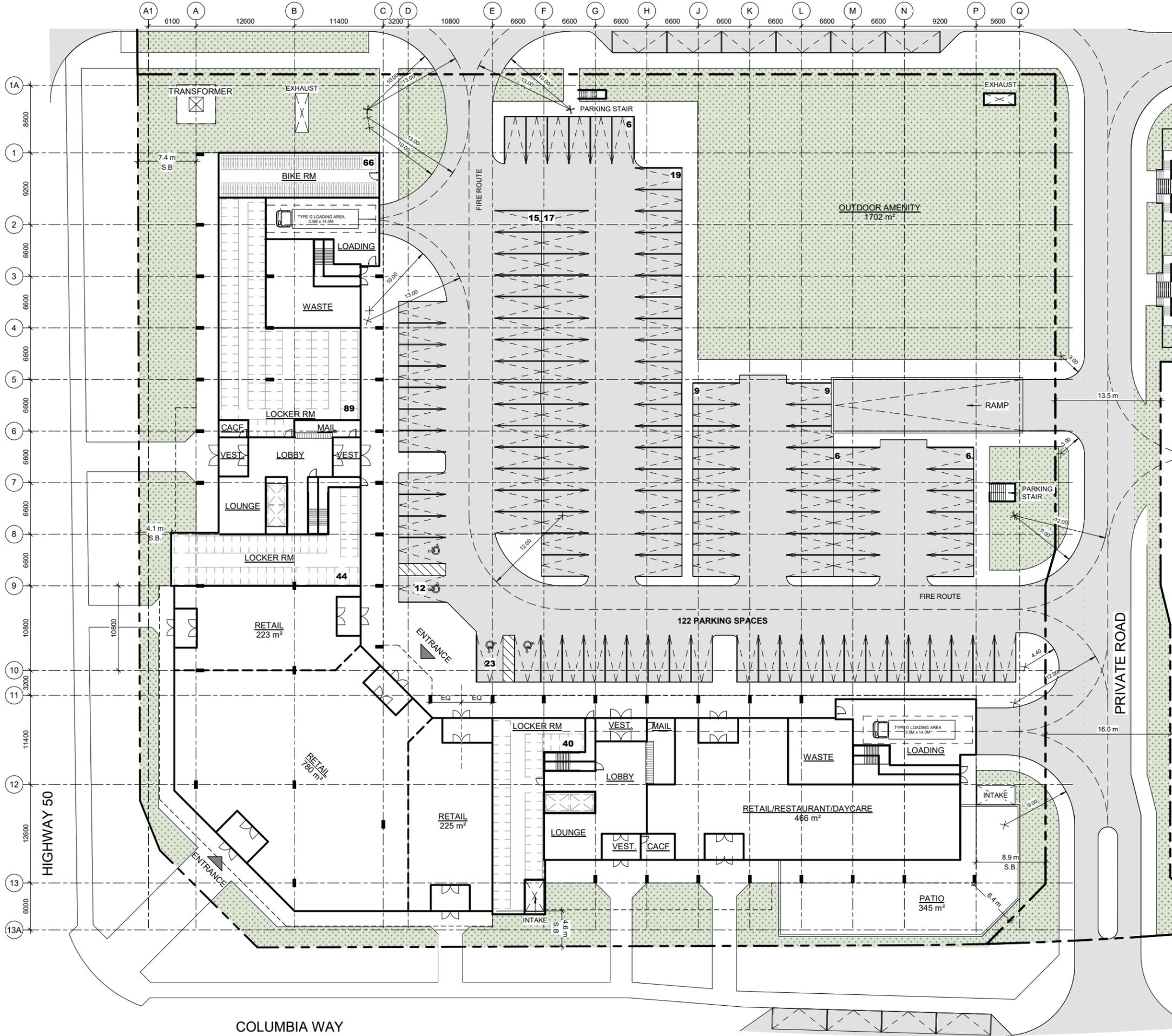


PHASE 2 - SITE AREA						
m2	sq.ft	FSI	ha	Units/ha	arce	Units/acre
13183.3	141,904	1.84	1.32	185.1	3.26	74.9

GENERAL SITE STATISTICS	
Construction Area Total (m <sup>2</sup> )	37,755
Parking Level GCA (m <sup>2</sup> )	11,838
Condo Unit GCA (m <sup>2</sup> )	19,301
Condo Amenity/Service GCA (m <sup>2</sup> )	4,782
Retail GCA (m <sup>2</sup> )	1,834
Exclusions	13,443
Gross Floor Area (m <sup>2</sup> )	24,312

UNIT STATISTICS	
Total Number of Units	244
Average Unit GFA (m <sup>2</sup> )	79.1
Average Unit GFA (Sq.ft)	851.5

PARKING		
Required Retail Parking	1 Space/ 20 m <sup>2</sup>	92
Required Residential Parking	1.5 Spaces/Unit	366
Required Visitor Parking	0.25 Spaces/Unit	61
Total Parking Required		519
Underground Parking		349
Surface Level Parking		122
Total Parking Provided		471



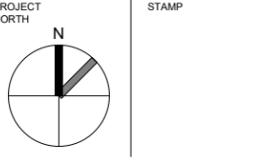
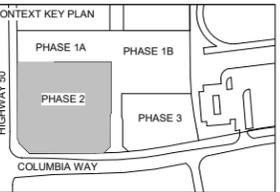
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BOLTON, ONTARIO

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No.	Description	Date
A	ISSUED FOR REVIEW	2021/07/20

HALF SCALE



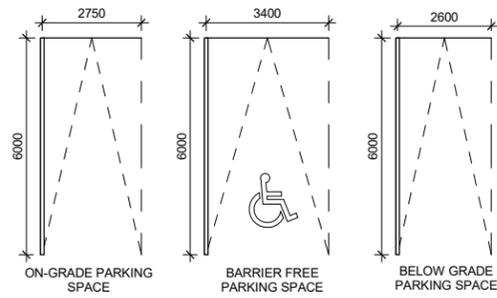
CLIENTS:  
**WYNDCLIFFE DEVELOPMENTS INC.**



PROJECT NO: 20065  
SCALE: 1:250  
DATE: Issue Date  
DRAWN BY: RVW  
DRAWING TITLE: BLOCK 2

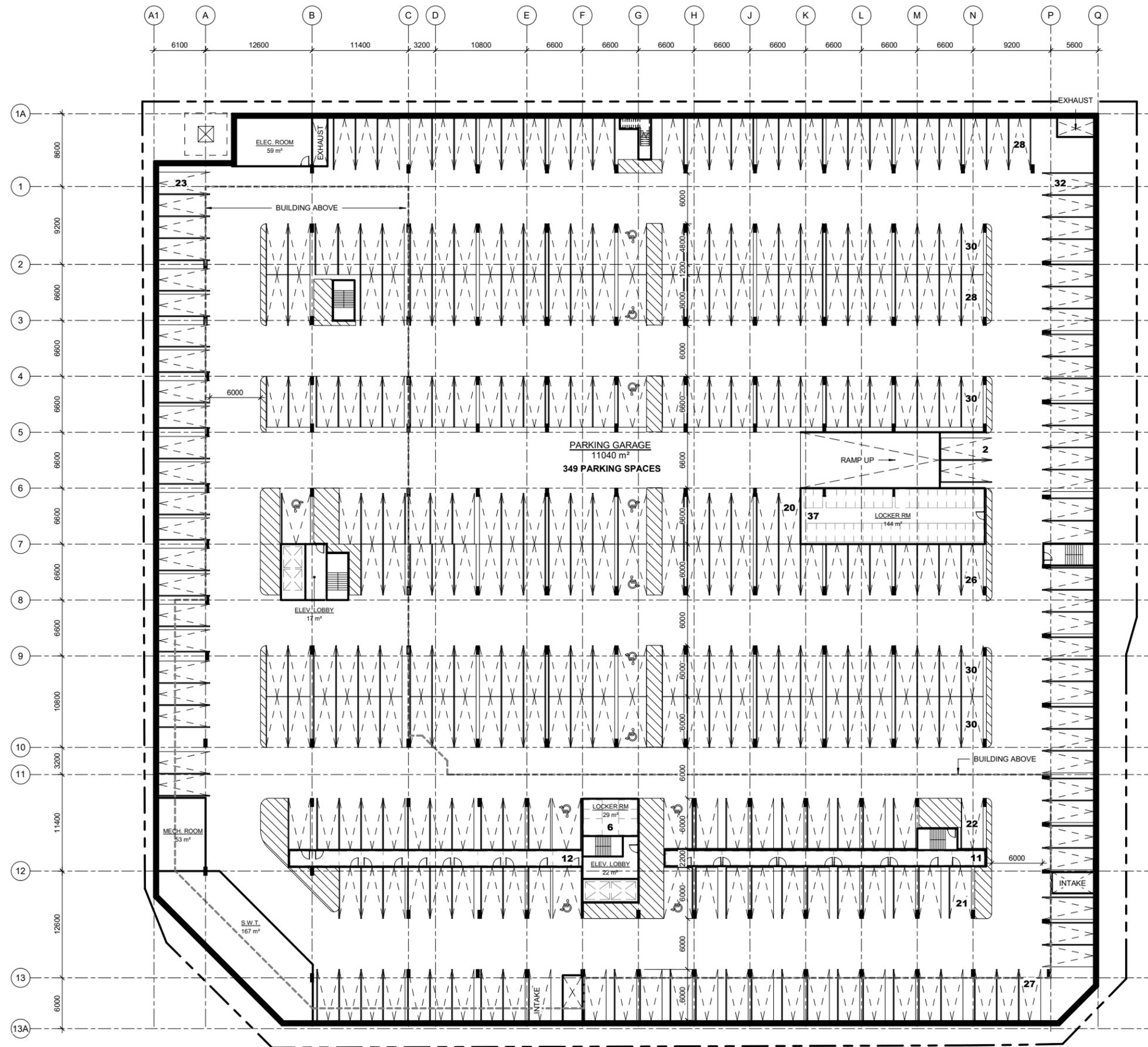
## PHASE 2 SITE PLAN

DRAWING NO  
**SD002**



LEVEL	TYPE	SIZE	BARRIER FREE	COUNT
LEVEL P1	RES.	2.6 x 6.0m		337
LEVEL P1	RES.	3.4 x 6.0m	BARRIER FREE	12
LEVEL P1				349
LEVEL 1	RES.	2.75 x 6.0m		118
LEVEL 1	RES.	3.4 x 6.0m	BARRIER FREE	4
LEVEL 1				122
PHASE 2 TOTAL PARKING				471

TYPE	LEVEL	COUNT
STORAGE LOCKER	LEVEL P1	66
STORAGE LOCKER	LEVEL 1	173
TOTAL:		239

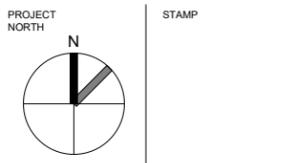
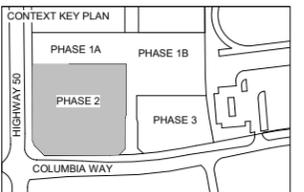


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CLIENTS:  
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PROJECT NO: 20065  
SCALE: As indicated  
DATE: Issue Date  
DRAWN BY: RVW  
DRAWING TITLE: BLOCK 2

## PHASE 2 P1 PARKING PLAN

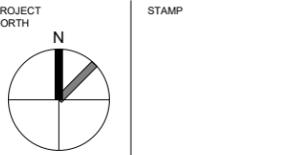
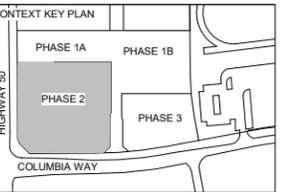
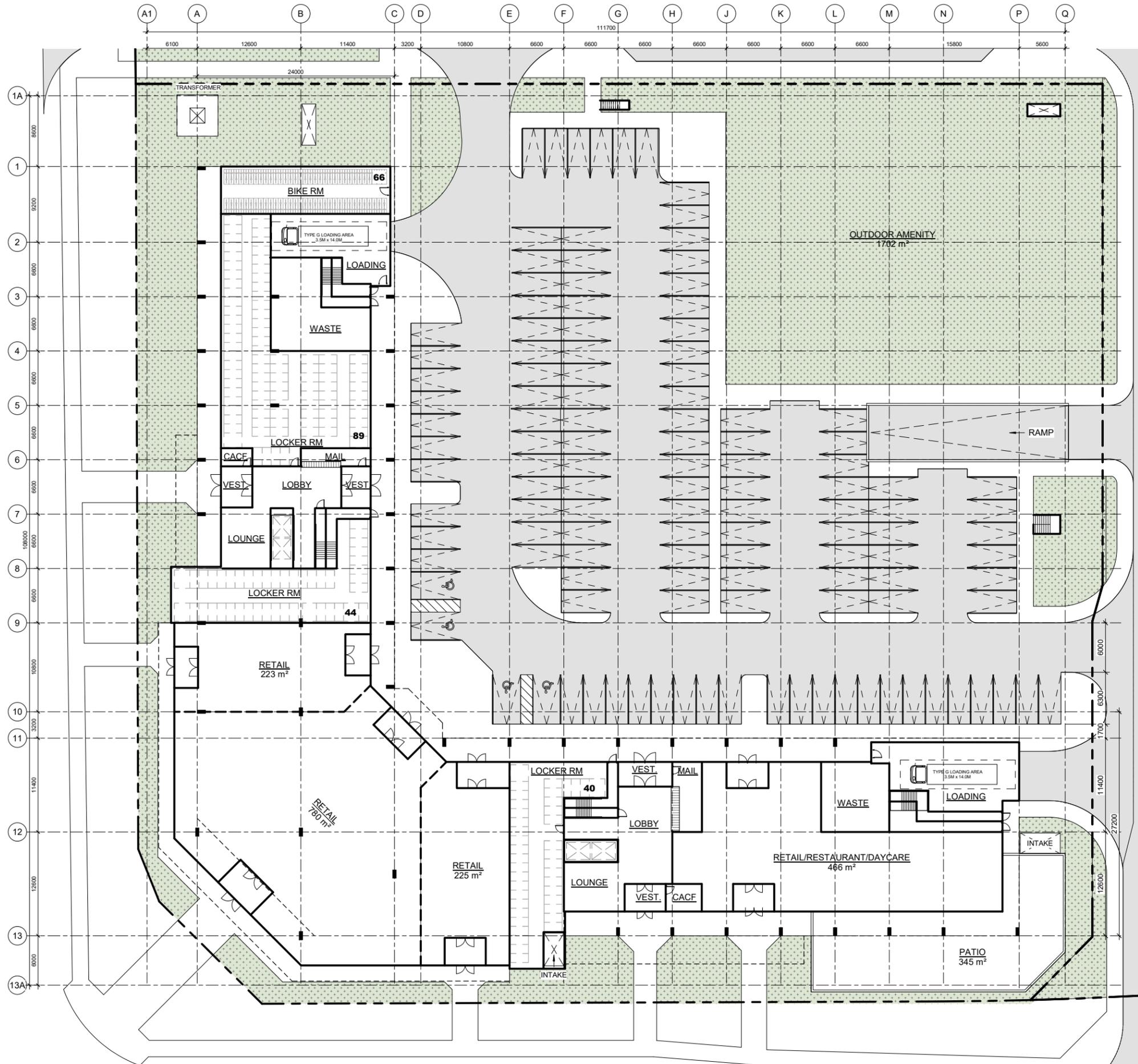
DRAWING NO  
**SD100**

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PROJECT NO: 20065  
SCALE: 1 : 250  
DATE: Issue Date  
DRAWN BY: RVW  
DRAWING TITLE: BLOCK 2

## PHASE 2 GROUND FLOOR PLAN

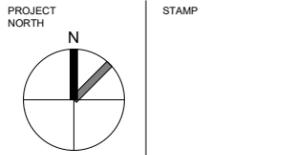
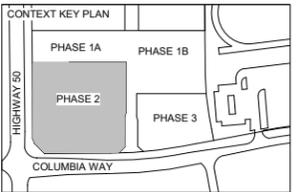
DRAWING NO  
**SD101**

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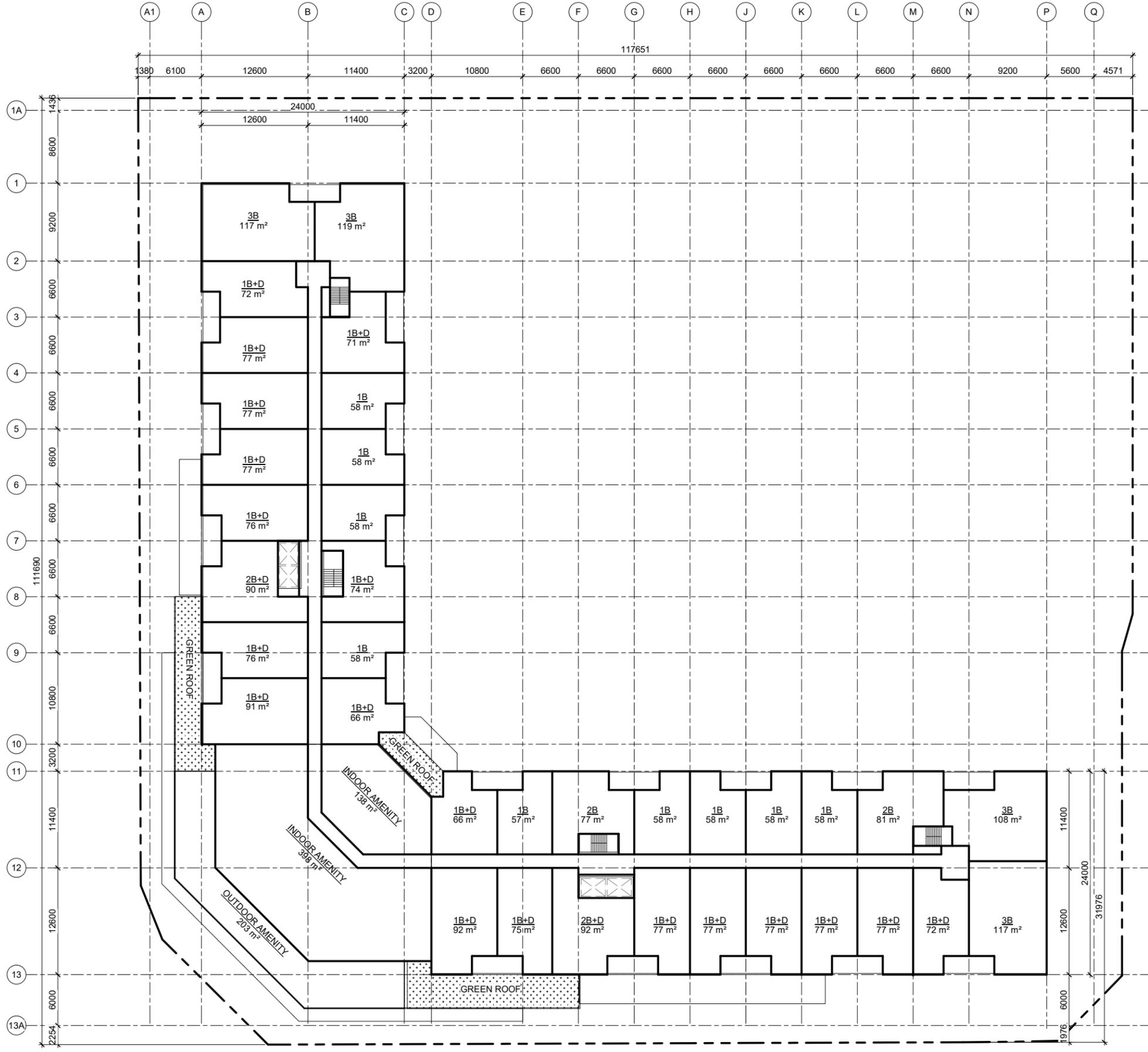
CLIENTS:  
**WYNDCLIFFE DEVELOPMENTS INC.**



PROJECT NO: 20065  
SCALE: 1 : 250  
DATE: Issue Date  
DRAWN BY: RVW  
DRAWING TITLE: BLOCK 2

## PHASE 2 LEVEL 2 FLOOR PLAN

DRAWING NO  
**SD102**

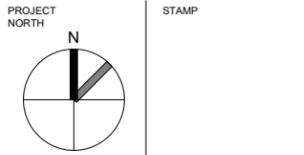
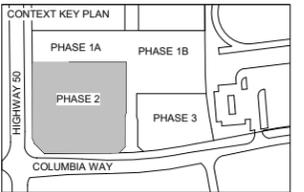


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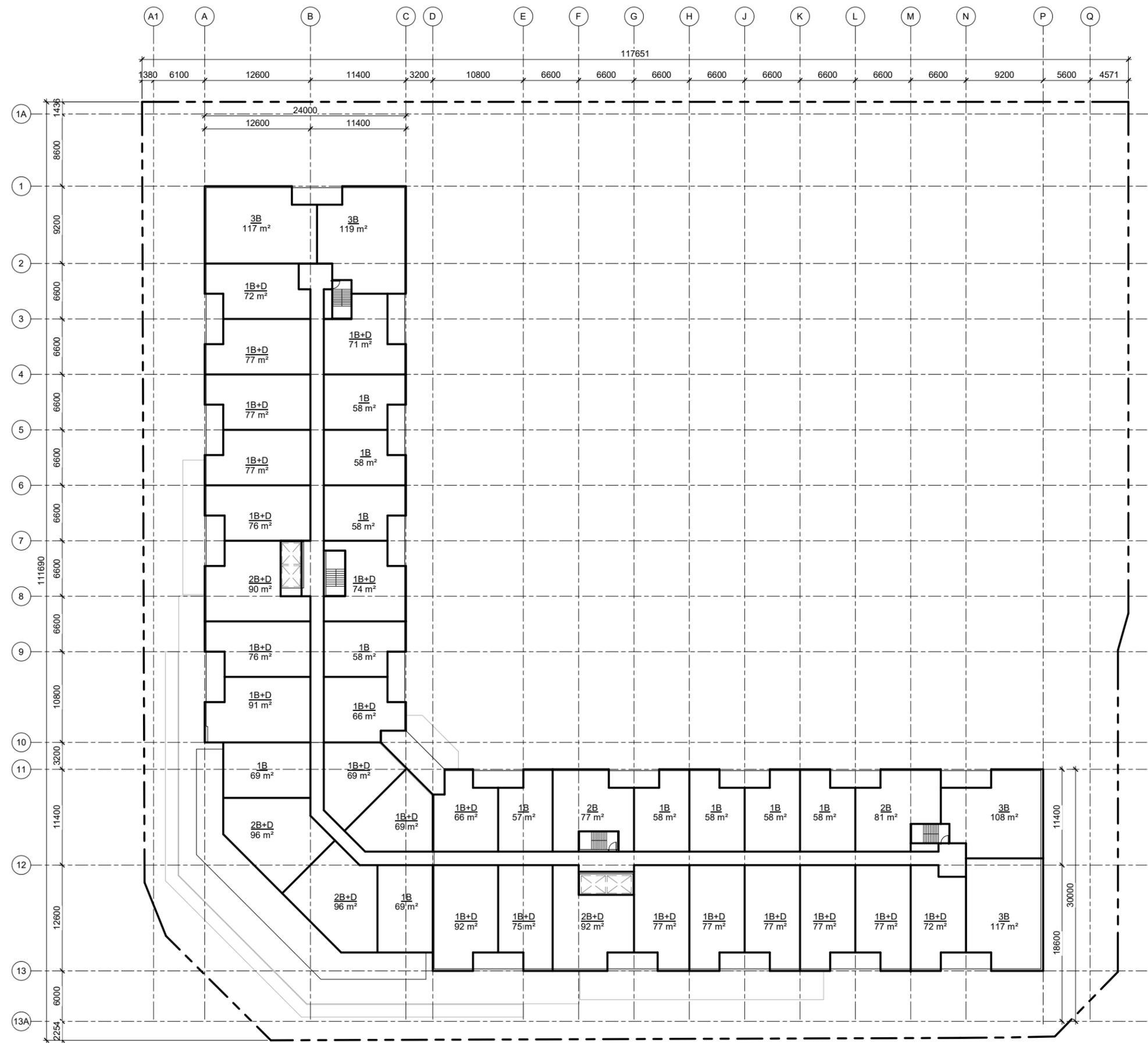
CLIENTS:  
**WYNDCLIFFE DEVELOPMENTS INC.**



PROJECT NO: 20065  
SCALE: 1 : 250  
DATE: Issue Date  
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DRAWING TITLE: BLOCK 2

## PHASE 2 LEVEL 3 FLOOR PLAN

DRAWING NO  
**SD103**

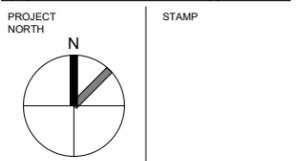
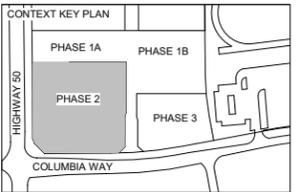
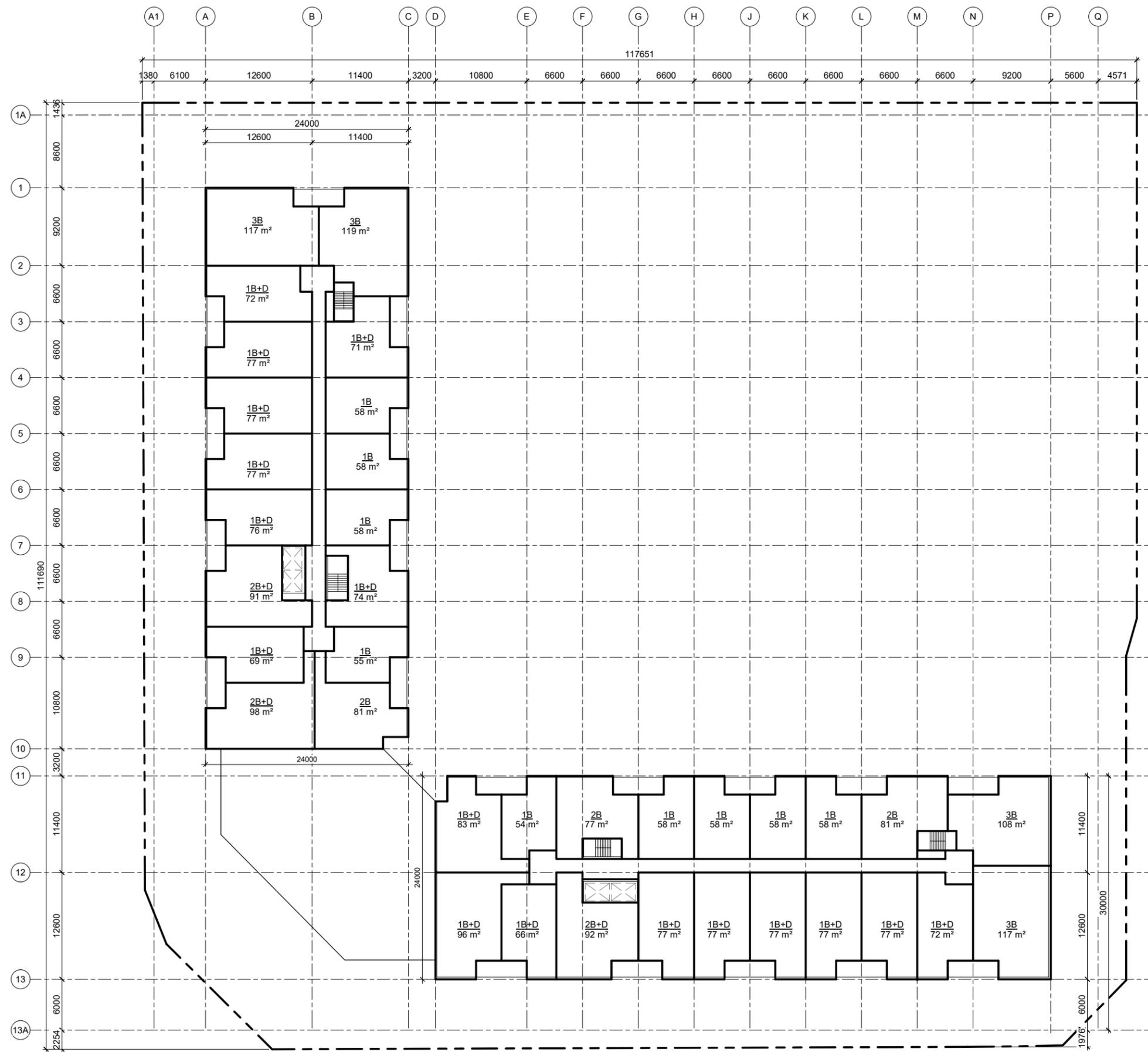


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PROJECT NO: 20065  
SCALE: 1 : 250  
DATE: Issue Date  
DRAWN BY: RVW  
DRAWING TITLE: BLOCK 2

## PHASE 2 LEVEL 4-6 FLOOR PLAN

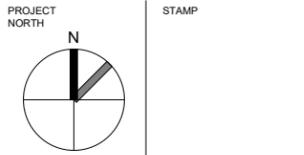
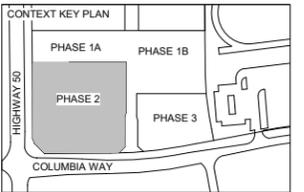
DRAWING NO  
**SD104**

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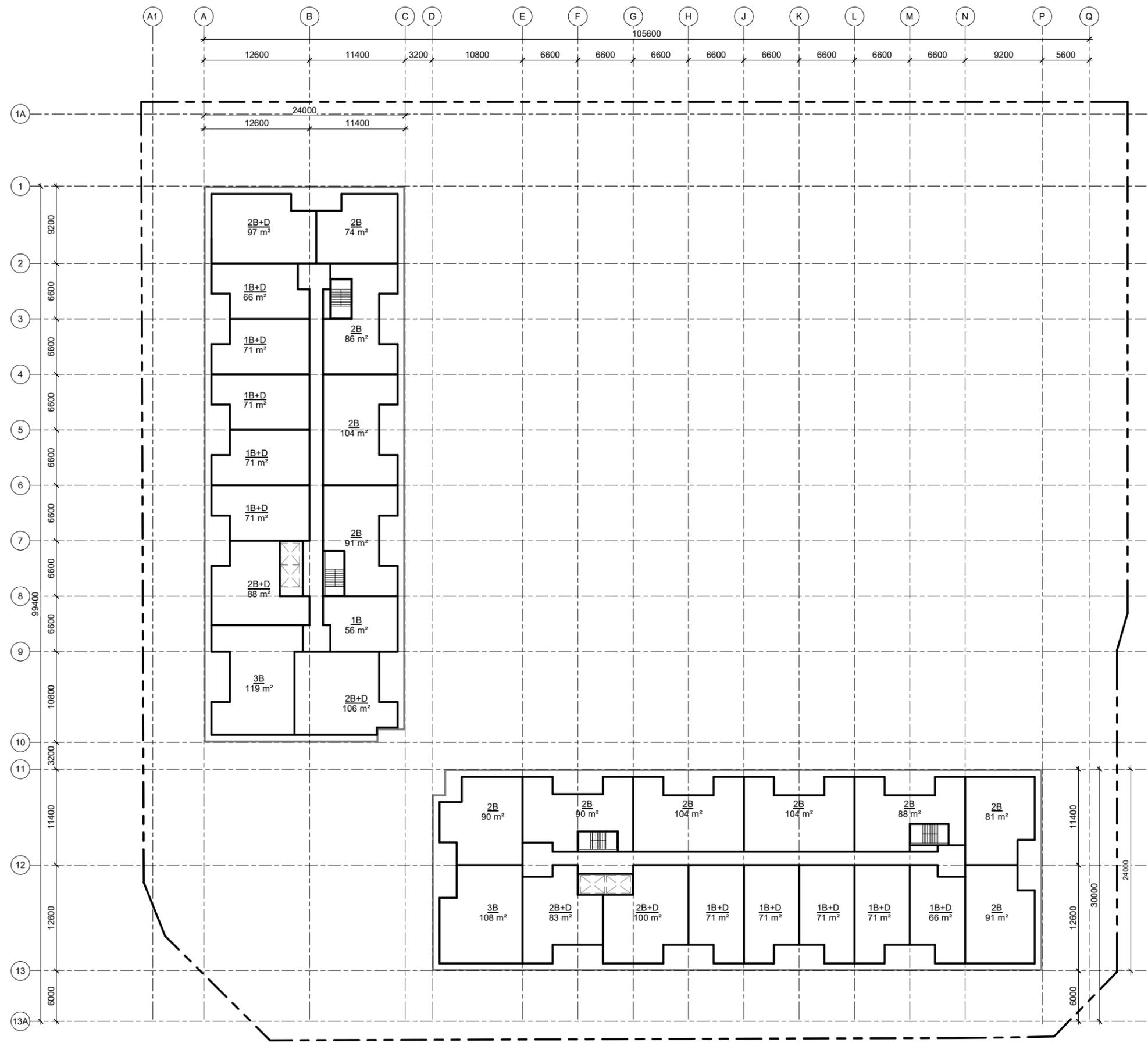
CLIENTS:  
**WYNDCLIFFE DEVELOPMENTS INC.**



PROJECT NO: 20065  
SCALE: 1 : 250  
DATE: Issue Date  
DRAWN BY: RVW  
DRAWING TITLE: BLOCK 2

## PHASE 2 LEVEL 7-8 FLOOR PLAN

DRAWING NO  
**SD105**



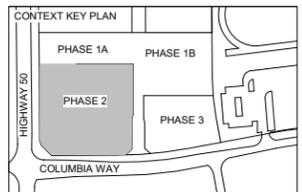
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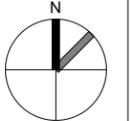
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No.	Description	Date

HALF SCALE



PROJECT NORTH



STAMP

CLIENTS:

**WYNDCLIFFE DEVELOPMENTS INC.**



PROJECT NO: 20065

SCALE: 1 : 250

DATE: Issue Date

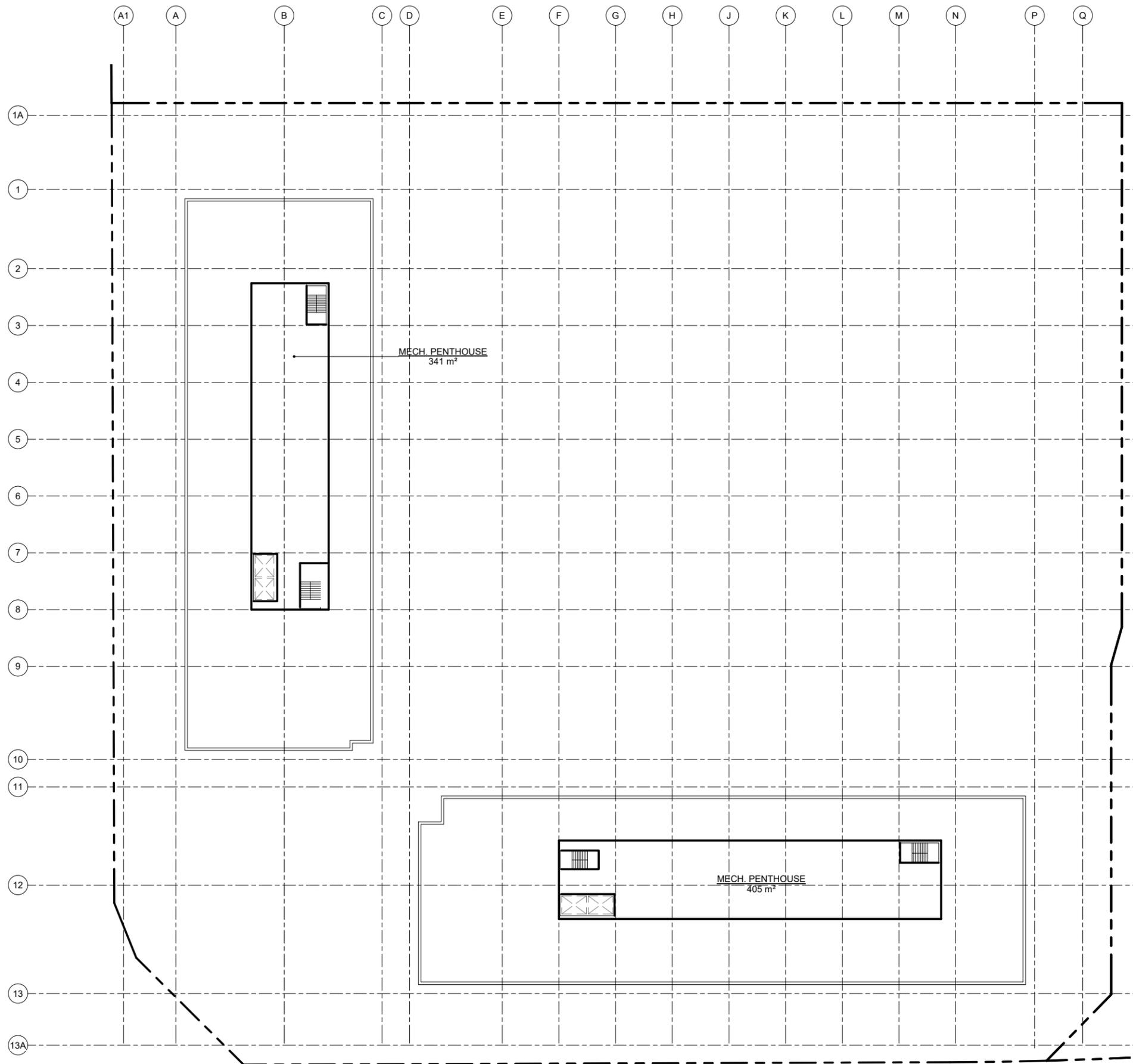
DRAWN BY: RVW

DRAWING TITLE: BLOCK 2

PHASE 2  
MECHANICAL P.H.  
LEVEL

DRAWING NO

**SD106**

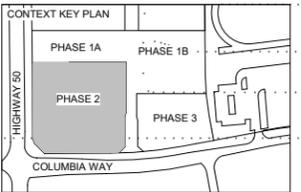


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BOLTON, ONTARIO

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A	ISSUED FOR REVIEW	2021/07/20



PROJECT NORTH      STAMP

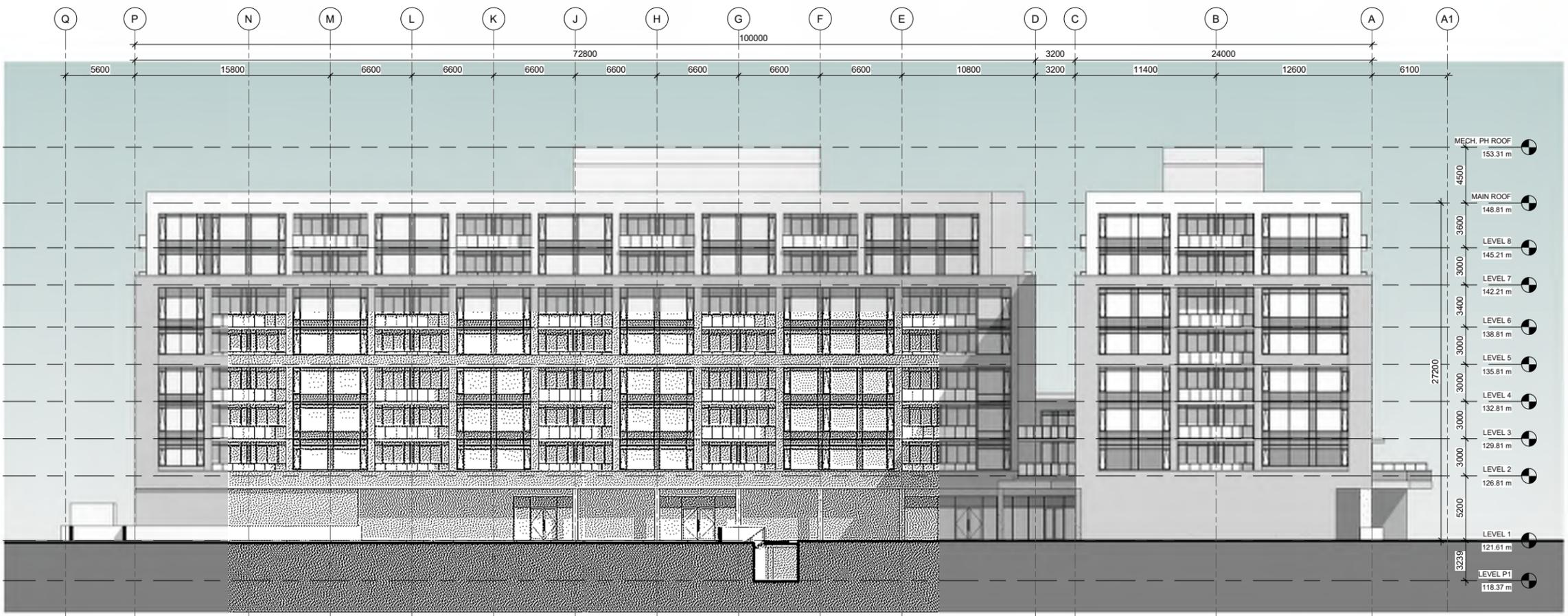
CLIENTS:  
**WYNDCLIFFE DEVELOPMENTS INC.**



PROJECT NO: 20065  
SCALE: 1:200  
DATE: Issue Date  
DRAWN BY: RVW  
DRAWING TITLE: BLOCK 2

**PHASE 2  
NORTH ELEVATION**

DRAWING NO  
**SD501**



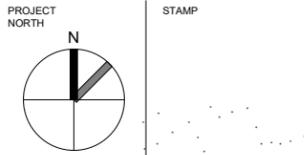
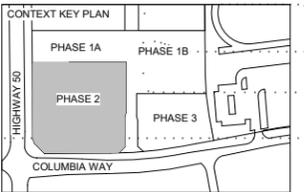
**1 NORTH ELEVATION**  
1:200

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**WYNDCLIFFE DEVELOPMENTS INC.**



PROJECT NO.: 20065  
SCALE: As indicated  
DATE: Issue Date  
DRAWN BY: RVW  
DRAWING TITLE: BLOCK 2

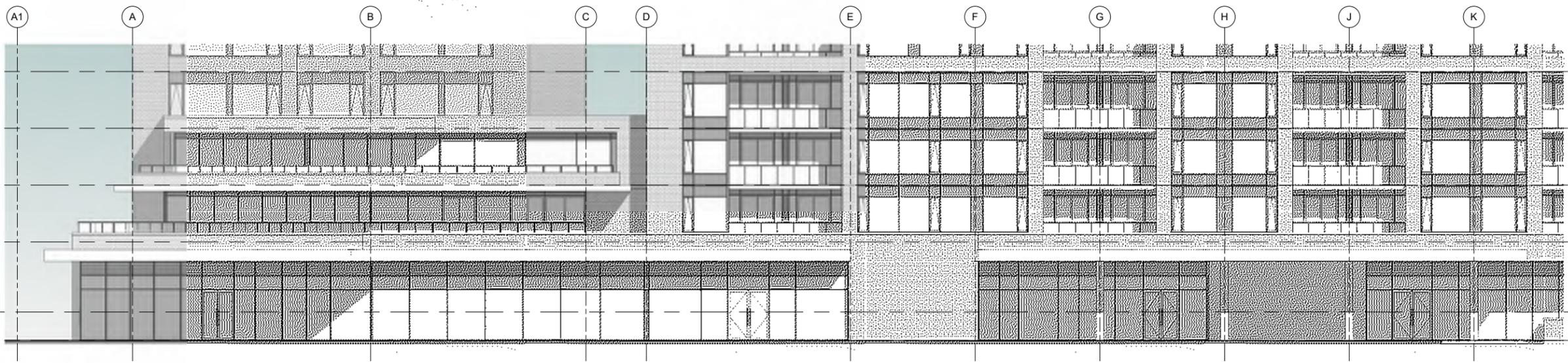
## PHASE 2 SOUTH ELEVATION

DRAWING NO.

# SD502



1 SOUTH ELEVATION  
1 : 200



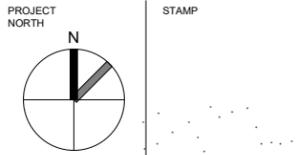
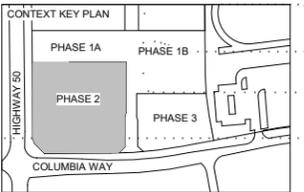
2 SOUTH ELEVATION CALLOUT  
1 : 125

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PROJECT NO: 20065  
SCALE: 1:200  
DATE: Issue Date  
DRAWN BY: RVW  
DRAWING TITLE: BLOCK 2

## PHASE 2 EAST ELEVATION

DRAWING NO  
**SD503**



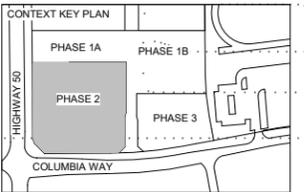
**1 EAST ELEVATION**  
1:200

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PROJECT NORTH

STAMP

CLIENTS:

**WYNDCLIFFE DEVELOPMENTS INC.**



PROJECT NO: 20065

SCALE: 1:200

DATE: Issue Date

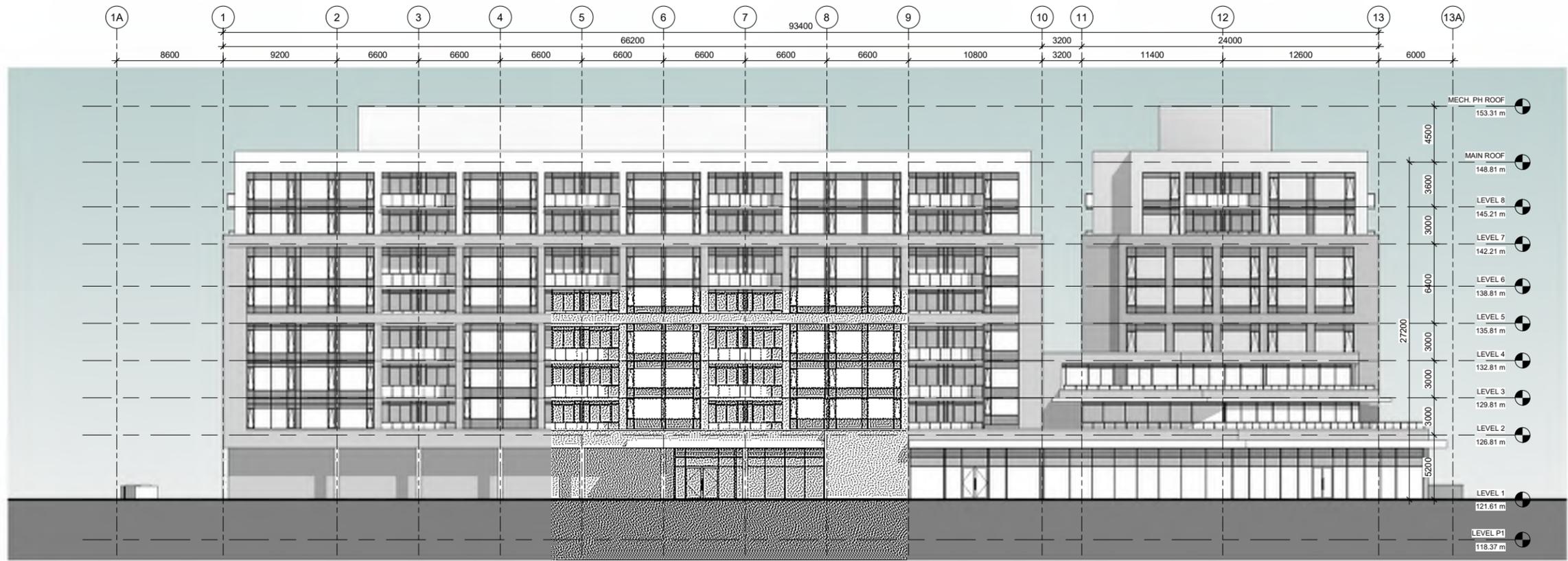
DRAWN BY: RVW

DRAWING TITLE: BLOCK 2

**PHASE 2  
WEST ELEVATION**

DRAWING NO

# SD504



**1 WEST ELEVATION**  
1:200

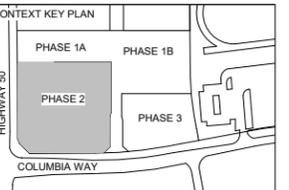
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No.	Description	Date

HALF SCALE



PROJECT NORTH	STAMP
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CLIENTS:

**WYNDCLIFFE DEVELOPMENTS INC.**



PROJECT NO: 20065

SCALE:

DATE: Issue Date

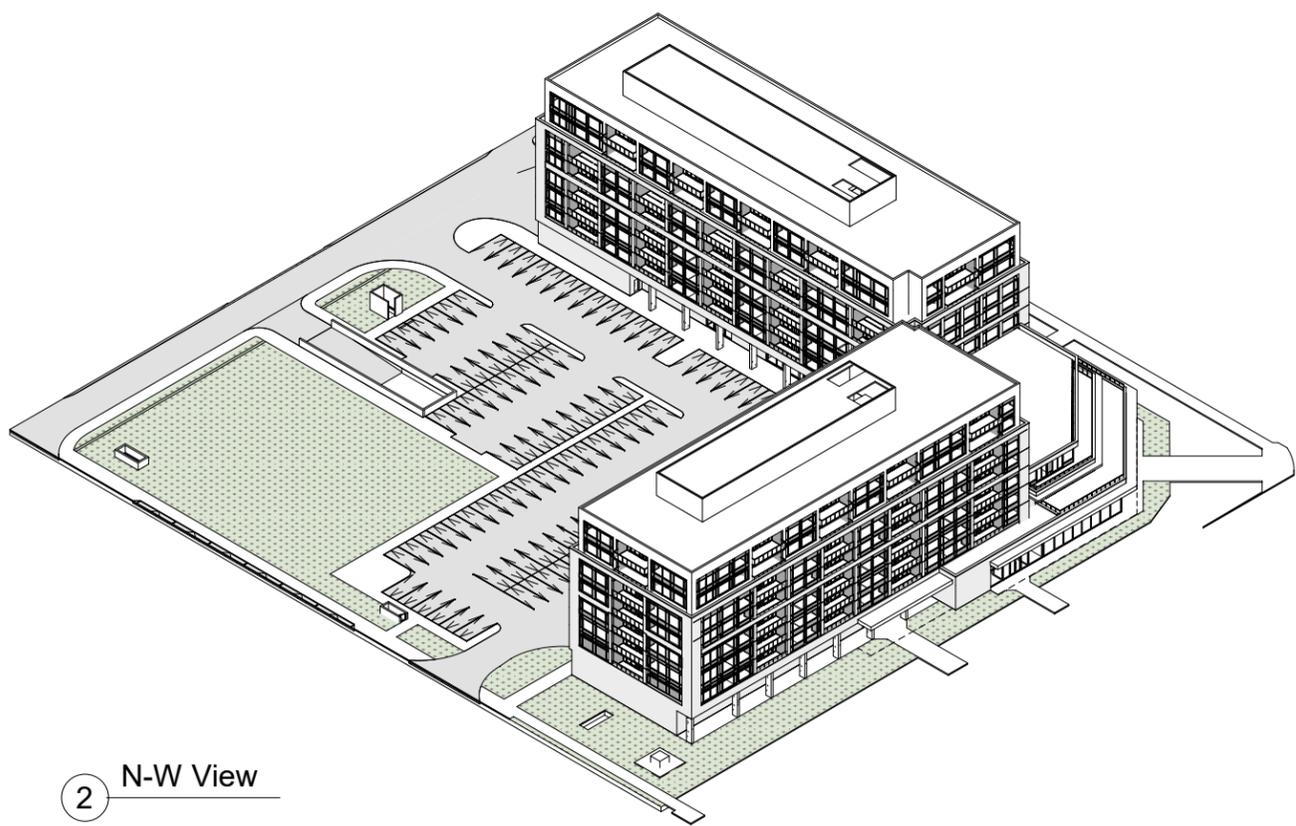
DRAWN BY: RVW

DRAWING TITLE: BLOCK 2

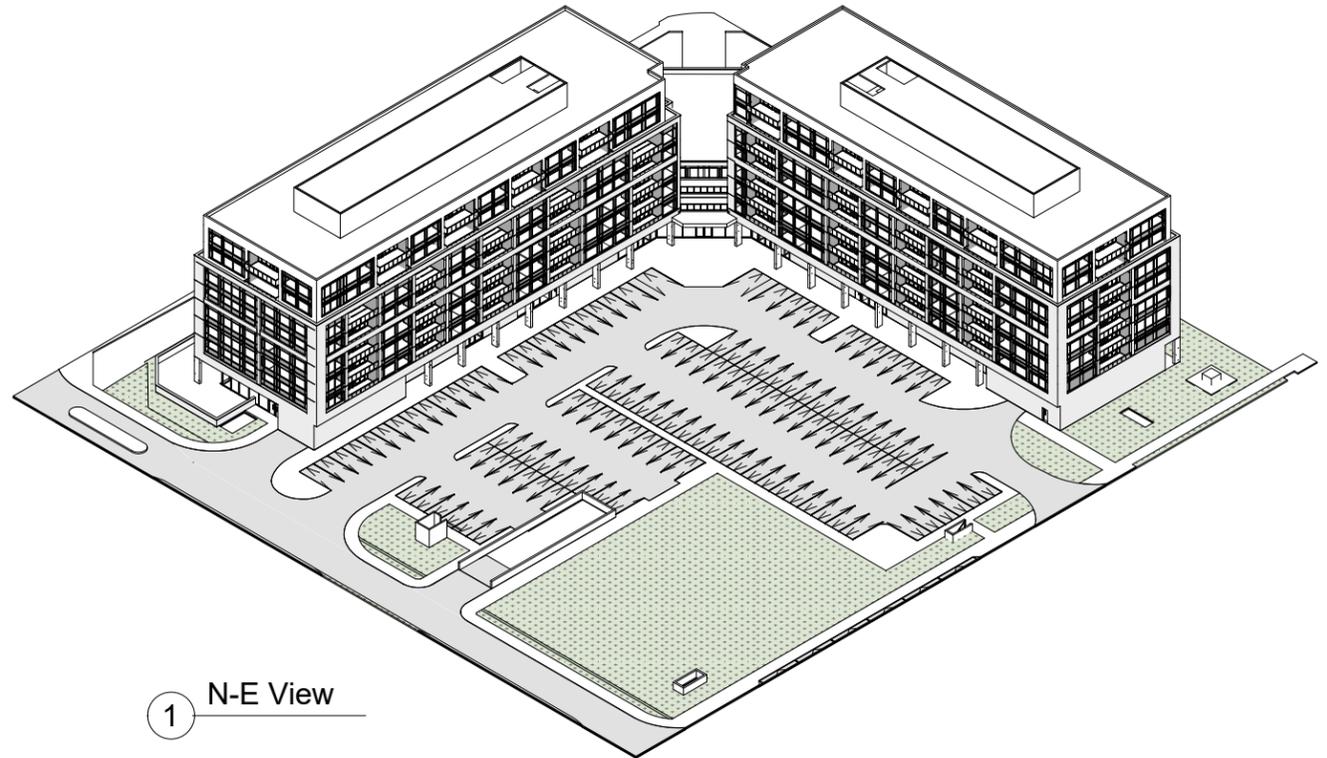
PHASE 2  
ISOMETRIC VIEWS

DRAWING NO

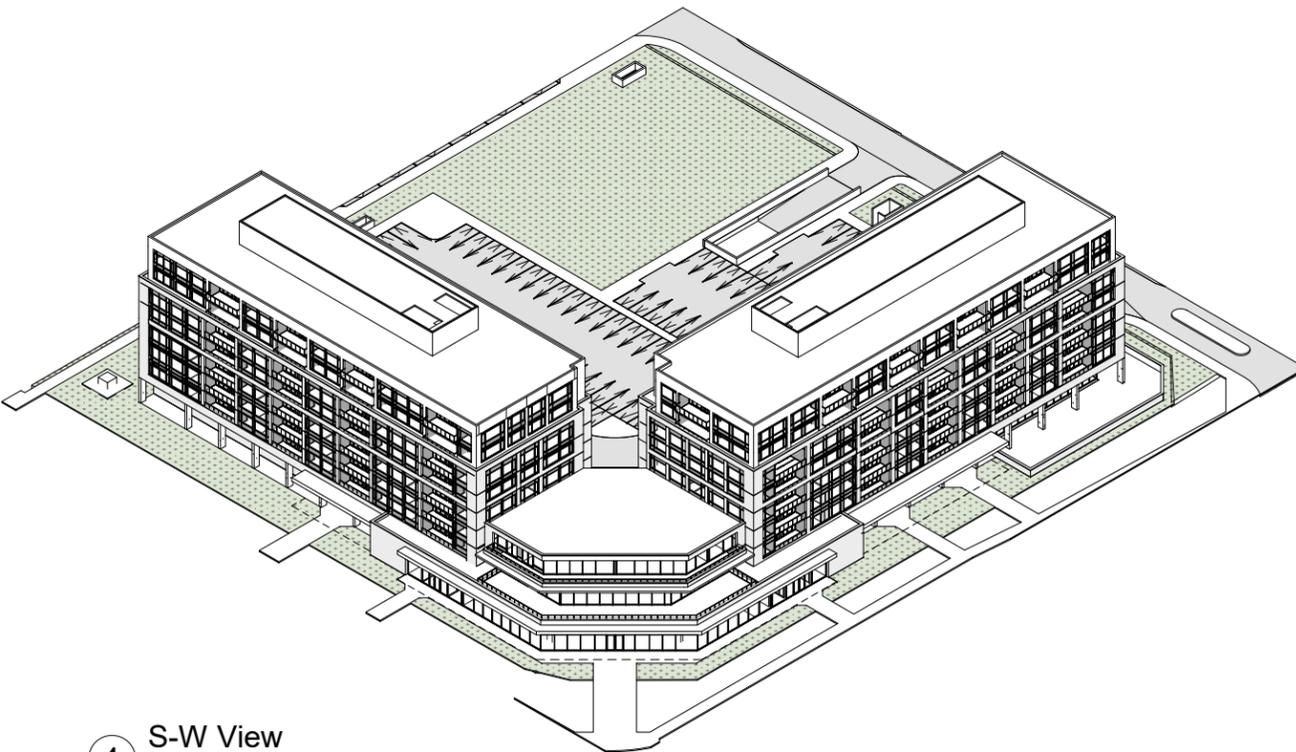
**SD900**



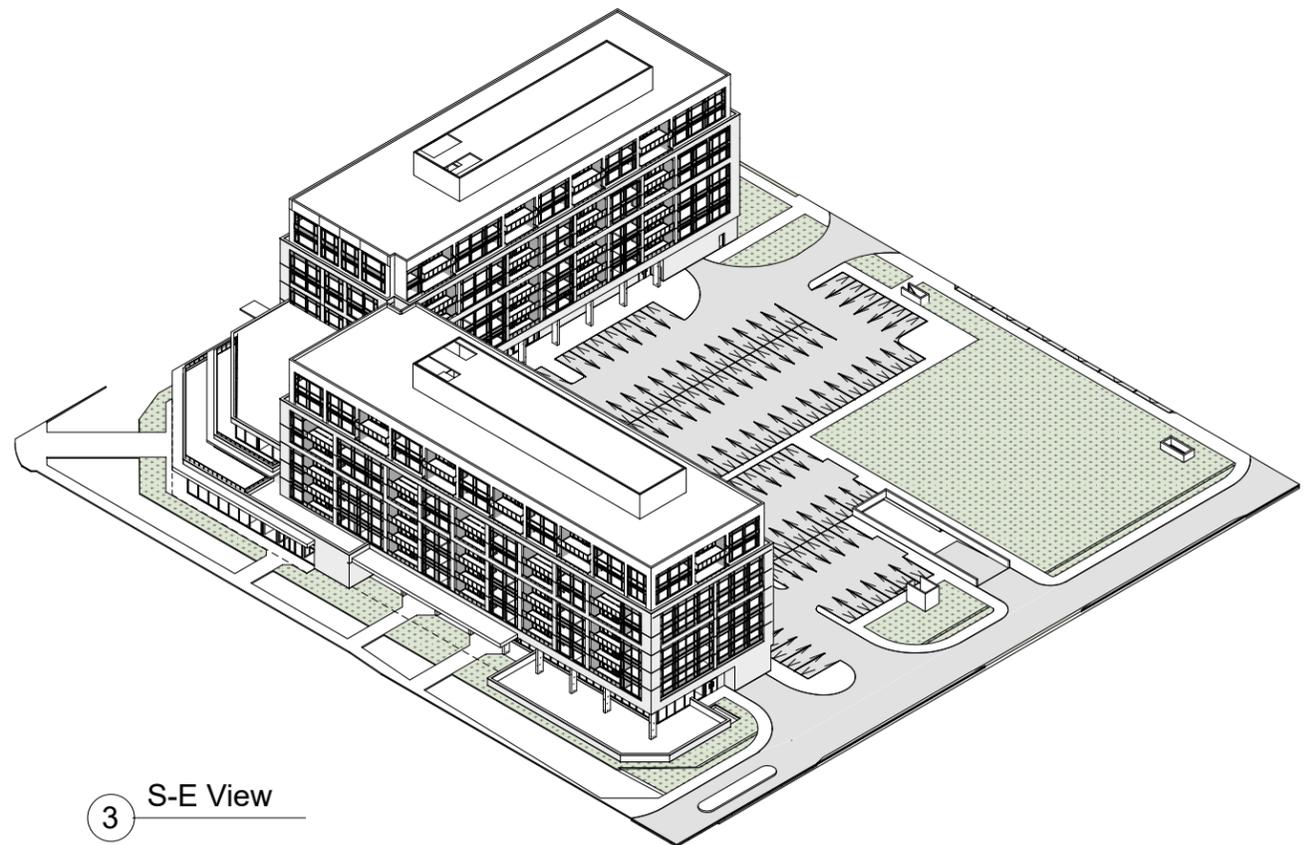
2 N-W View



1 N-E View



4 S-W View



3 S-E View

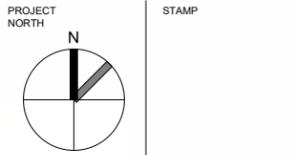
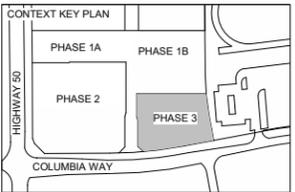
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No.	Description	Date

## HALF SCALE DRAFT



CLIENTS:  
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PROJECT NO.: 20065  
SCALE: 1:200  
DATE: Issue Date  
DRAWN BY: Author  
DRAWING TITLE: Block A

### PHASE 3 SITE PLAN

DRAWING NO.

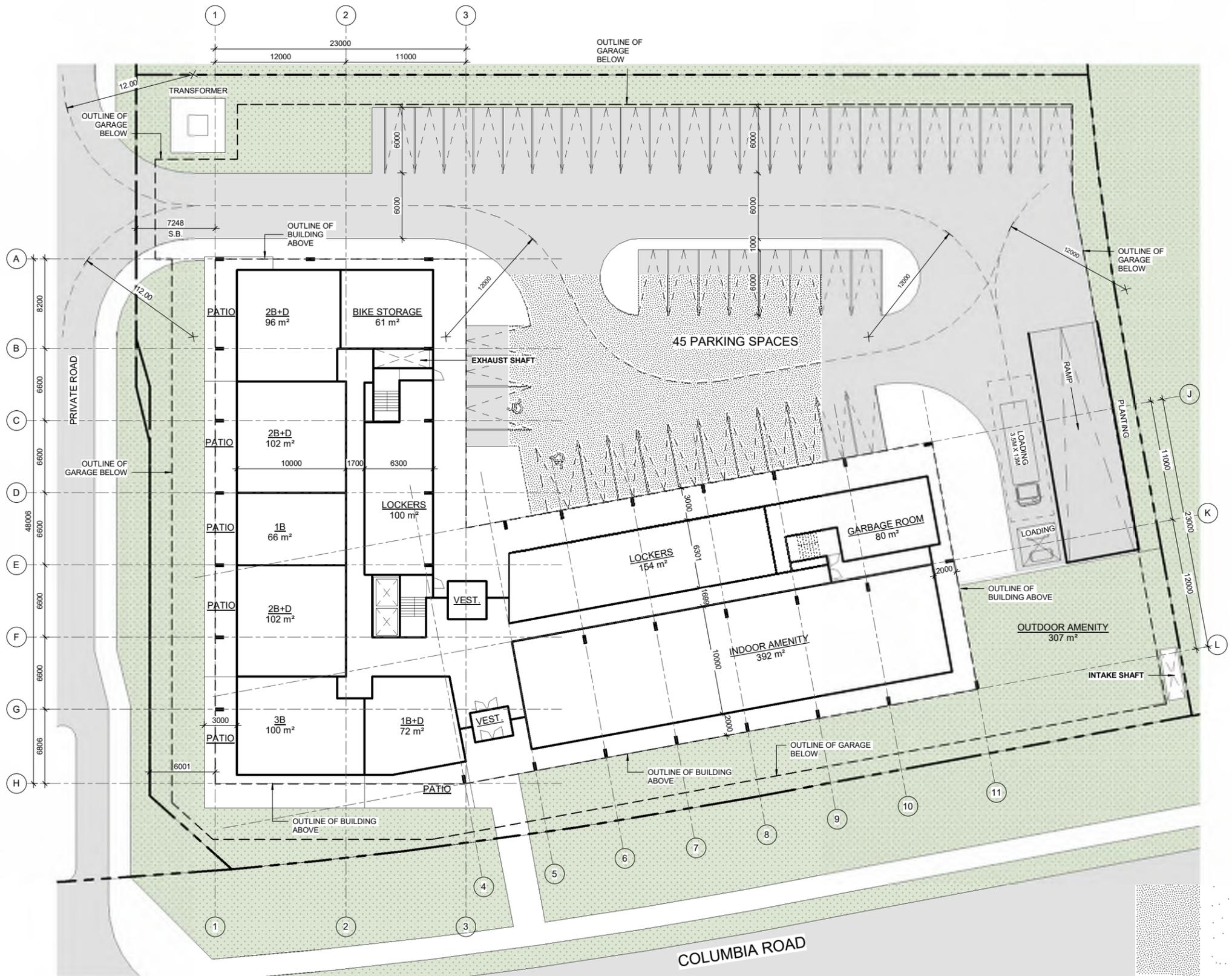
# SD002

PHASE 3 - SITE AREA						
m2	sq.ft.	FSI	ha	Units/ha	arce	Units/Acre
6101.79	65,679.06	2.52	0.61	114.7	1.51	46.4

GENERAL SITE STATISTICS	
Gross Construction Area Total (m <sup>2</sup> )	26,075
Parking Level GCA (m <sup>2</sup> )	10,157
Residential Unit GCA (m <sup>2</sup> )	12,716
Residential Amenity/Service GCA (m <sup>2</sup> )	3,202
Retail GCA (m <sup>2</sup> )	-
Exclusions	10,710
Gross Floor Area (m <sup>2</sup> )	15,365

UNIT STATISTICS	
Total Number of Units	159
Average Unit GFA (m <sup>2</sup> )	80.0
Average Unit GFA (Sq.ft)	860.8

PARKING		
Required Resident Parking	1.5 Spaces/Unit	239
Required Visitor Parking	0.25 Spaces/Unit	40
Total Required Parking		278
Underground Parking		243
Above grade Parking		45
Total Parking Provided		288



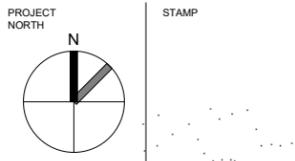
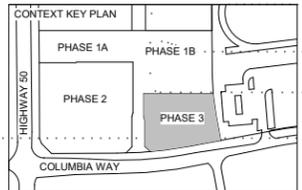
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CLIENTS:

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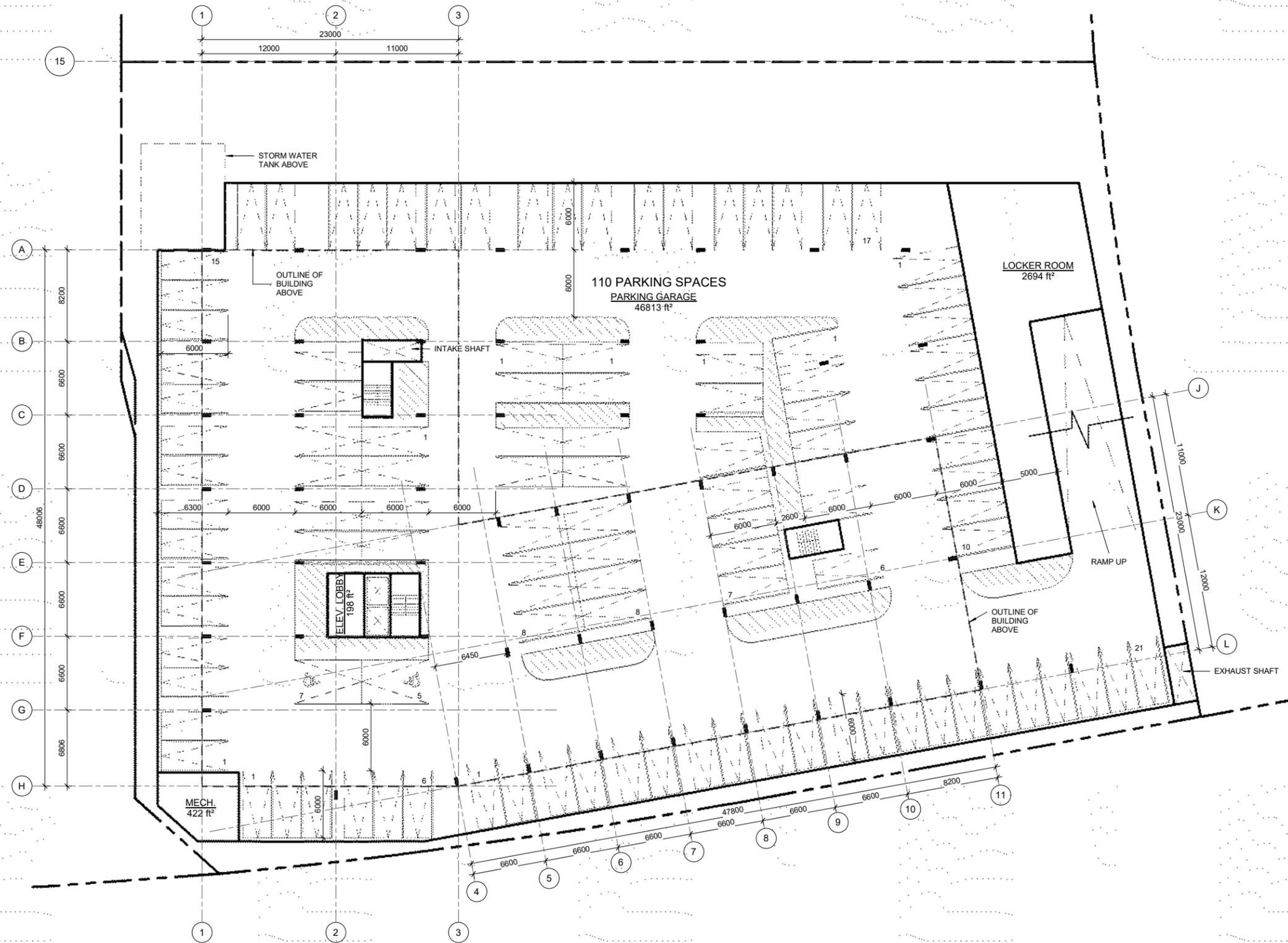


PROJECT NO: 20065  
 SCALE: 1:200  
 DATE: Issue Date  
 DRAWN BY: Author  
 DRAWING TITLE: Block A

### PHASE 3 P2 PARKING PLAN

DRAWING NO

# SD100



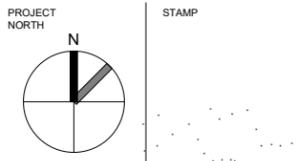
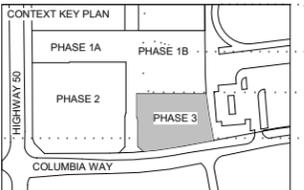
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## HALF SCALE DRAFT



CLIENTS:

**WYNDCLIFFE DEVELOPMENTS INC.**



PROJECT NO.: 20065

SCALE: As indicated

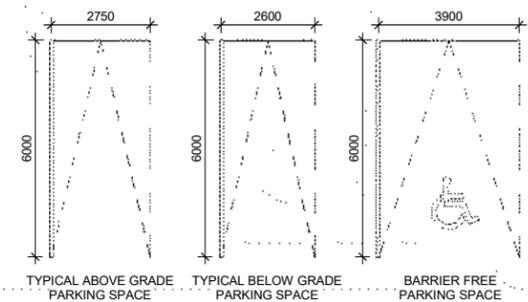
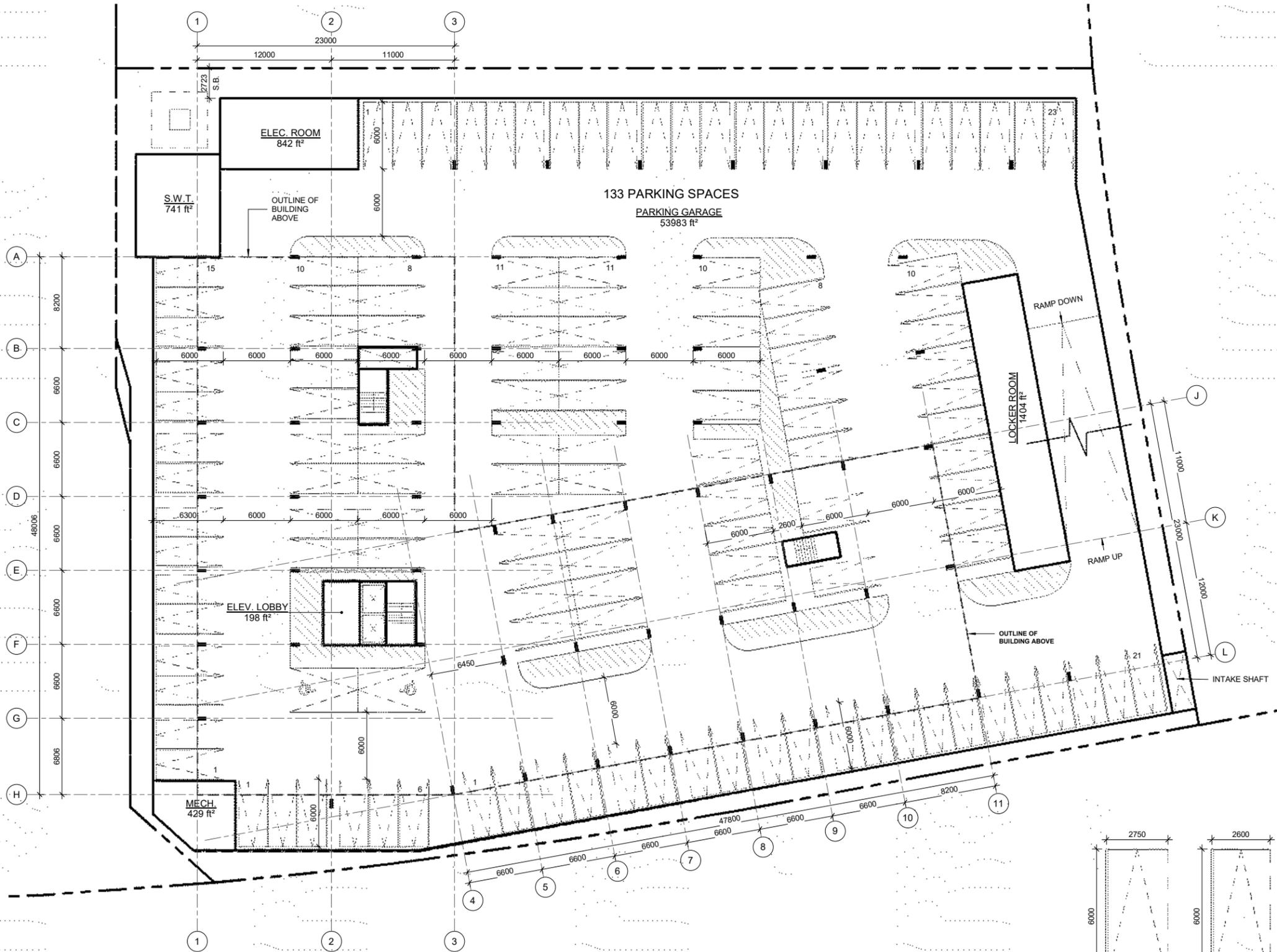
DATE: Issue Date

DRAWN BY: Author

DRAWING TITLE: Block A

### PHASE 3 P1 PARKING PLAN

DRAWING NO.



#### PARKING LEGEND

1:100

# SD101

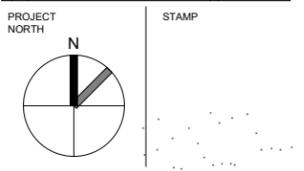
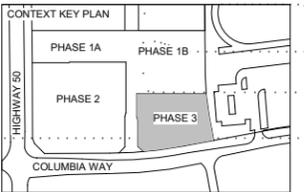
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## DRAFT



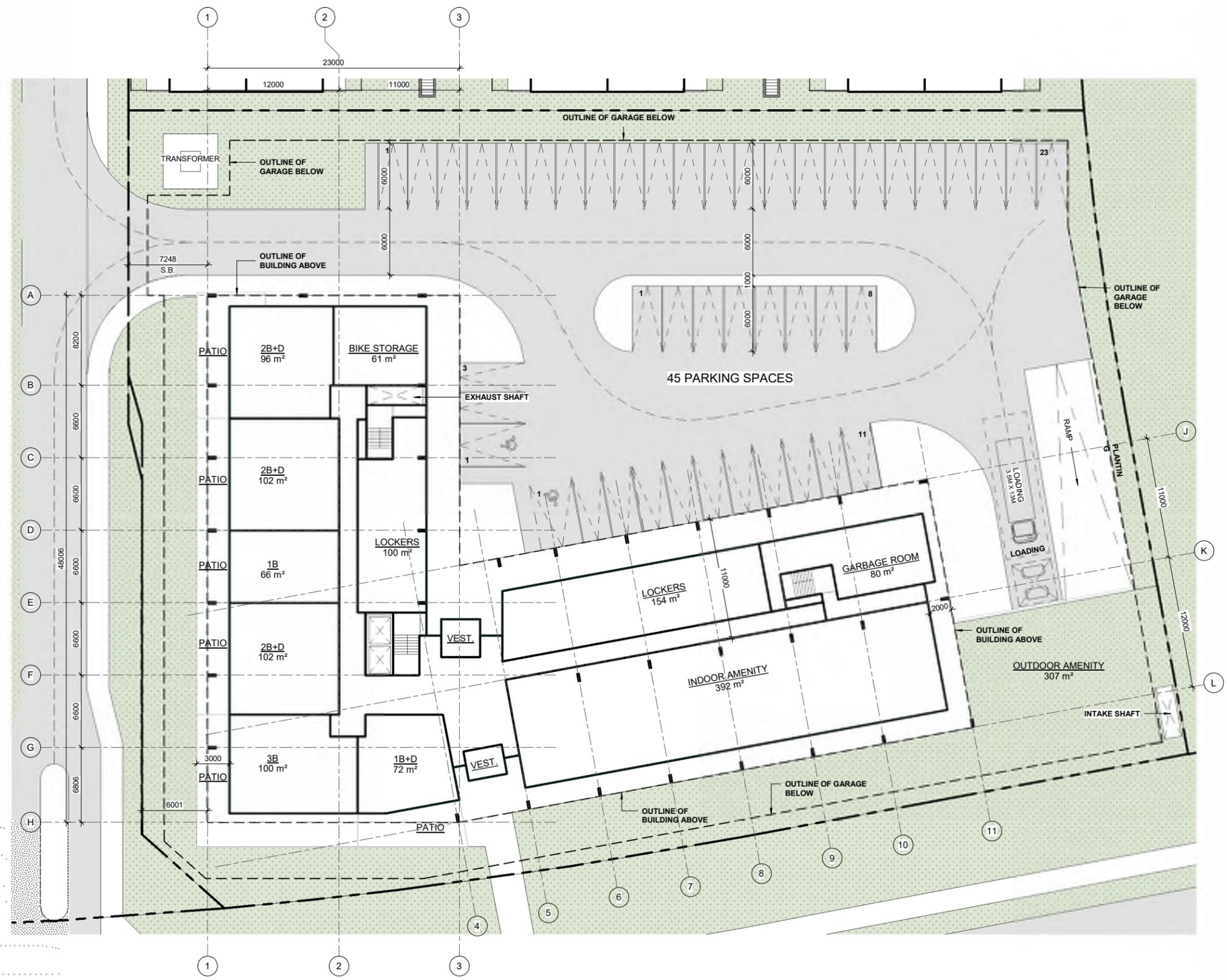
CLIENTS:  
**WYNDCLIFFE DEVELOPMENTS INC.**



PROJECT NO.: 20065  
SCALE: 1:200  
DATE: Issue Date  
DRAWN BY: RVW  
DRAWING TITLE: Block A

### PHASE 3 GROUND FLOOR PLAN

DRAWING NO.  
**SD102**



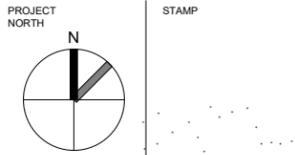
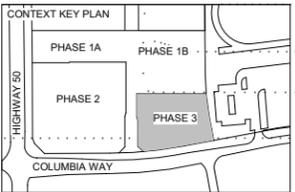
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PROJECT NO: 20065  
SCALE: 1:200  
DATE: Issue Date  
DRAWN BY: RVW  
DRAWING TITLE: Block A

**PHASE 3  
2ND TO 6TH FLOOR  
PLAN**

DRAWING NO

# SD103



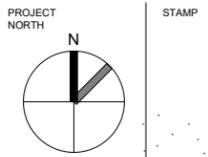
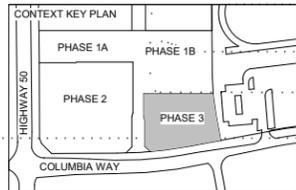
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No.	Description	Date

HALF SCALE  
DRAFT



CLIENTS:

**WYNDCLIFFE DEVELOPMENTS INC.**



PROJECT NO.: 20065  
SCALE: 1:200  
DATE: Issue Date  
DRAWN BY: Author  
DRAWING TITLE: Block A

PHASE 3  
7TH&8TH FLOOR PLAN

DRAWING NO.

**SD104**



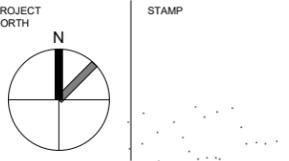
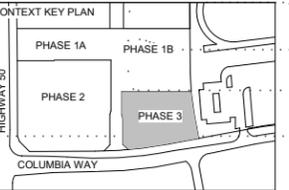
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## HALF SCALE DRAFT



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**WYNDCLIFFE DEVELOPMENTS INC.**

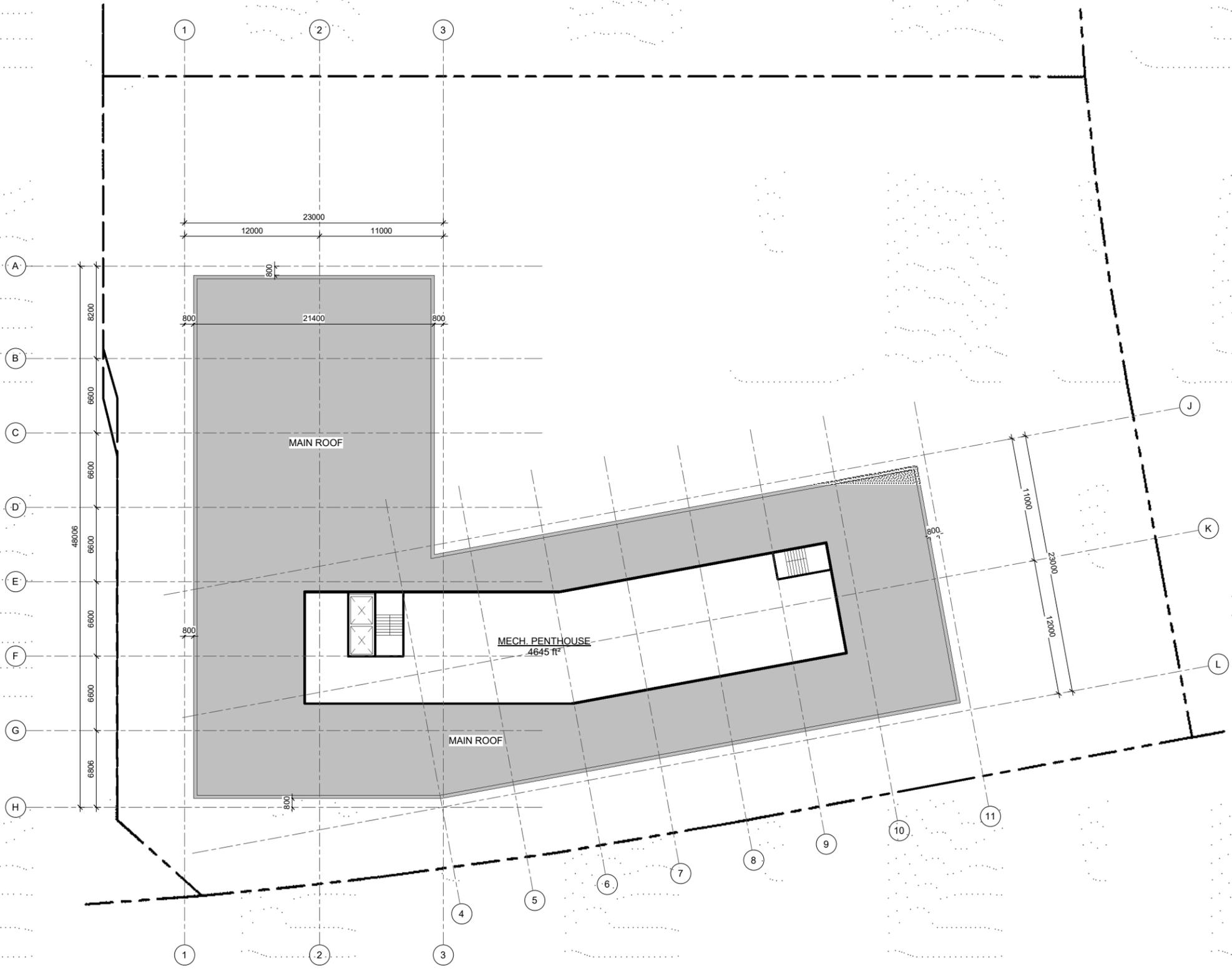


PROJECT NO.: 20065  
SCALE: 1:200  
DATE: Issue Date  
DRAWN BY: Author  
DRAWING TITLE: Block A

### PHASE 3 MECH PH FLOOR PLAN

DRAWING NO.

# SD105



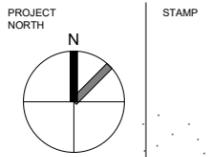
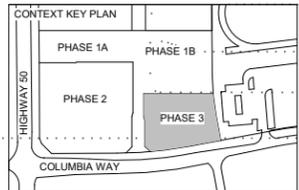
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HALF SCALE  
DRAFT



CLIENTS:

**WYNDCLIFFE DEVELOPMENTS INC.**

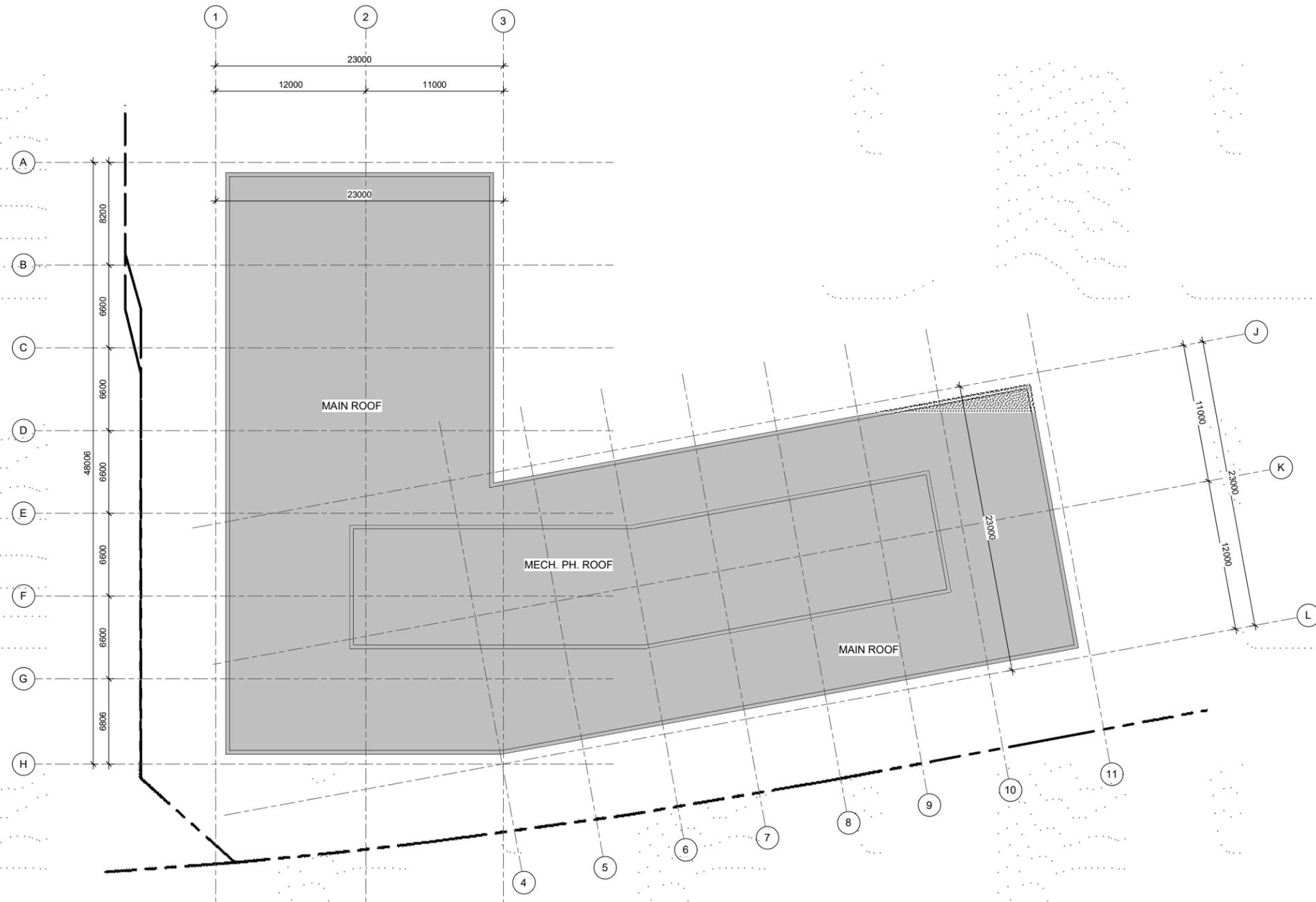


PROJECT NO: 20065  
 SCALE: 1:200  
 DATE: Issue Date  
 DRAWN BY: Author  
 DRAWING TITLE: Block A

PHASE 3  
ROOF PLAN

DRAWING NO

**SD106**



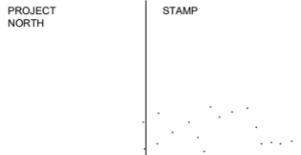
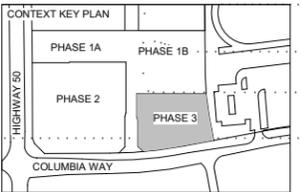
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CLIENTS:  
**WYNDCLIFFE DEVELOPMENTS INC.**



PROJECT NO: 20065  
SCALE: 1 : 100  
DATE: Issue Date  
DRAWN BY: RVW  
DRAWING TITLE: Block A

**PHASE 3  
EAST ELEVATION -  
BLOCK A**

DRAWING NO  
**SD500**



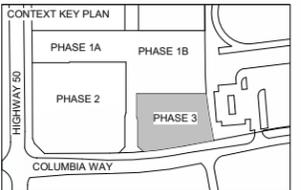
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## DRAFT



PROJECT NORTH

STAMP

CLIENTS:

**WYNDCLIFFE DEVELOPMENTS INC.**



PROJECT NO: 20065  
 SCALE: 1 : 100  
 DATE: Issue Date  
 DRAWN BY: RVW  
 DRAWING TITLE: Block A

PHASE 3  
 SOUTH ELEVATION -  
 BLOCK A

DRAWING NO

# SD501



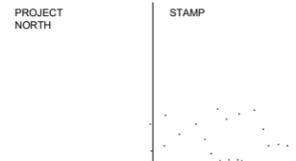
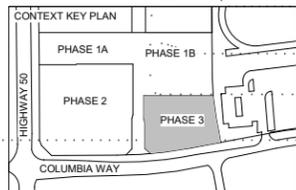
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PROJECT NO: 20065

SCALE: 1 : 100

DATE: Issue Date

DRAWN BY: RVW

DRAWING TITLE: Block A

PHASE 3  
WEST ELEVATION -  
BLOCK A

DRAWING NO

# SD502



# COLUMBIA SQUARE

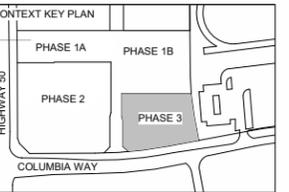
BOLTON, ONTARIO

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All dimensions to be checked on site by the contractor. Drawings are not to be scaled, any discrepancies are to be reported to the Architect before proceeding with the work.

No.	Description	Date
A	ISSUED FOR REVIEW	2021/07/20



**DRAFT**



PROJECT NORTH  
STAMP

CLIENTS:  
**WYNDCLIFFE DEVELOPMENTS INC.**



PROJECT NO: 20065  
SCALE: 1:100  
DATE: Issue Date  
DRAWN BY: RVW  
DRAWING TITLE: Block A

**PHASE 3  
NORTH ELEVATION -  
BLOCK A**

DRAWING NO  
**SD503**

# **APPENDIX B**

## **ROAD TRAFFIC DATA**

<b>Report-1.1</b>		Location : <b>5019053NS Hwy 50 - 600m South of Emil Kolb Parkway</b>														
		Direction : <b>North</b> Road :														
		Dates : 1 5/7/2019														
Classes ----->		Class-1	Class-2	Class-3	Class-4	Class-5	Class-6	Class-7	Class-8	Class-9	Class-10	Class-11	Class-12	Class-13	Total	
00:00	0:15		12	2											14	0.2%
0:15	0:30		5						2						7	0.1%
0:30	0:45		13												13	0.2%
0:45	1:00			1											1	0.0%
00:00	1:00		30	3					2						35	0.5%
1:00	1:15		7	1											8	0.1%
1:15	1:30		2	1											3	0.0%
1:30	1:45		4	1											5	0.1%
1:45	2:00		6												6	0.1%
1:00	2:00		19	3											22	0.3%
2:00	2:15		7	1											8	0.1%
2:15	2:30		3												3	0.0%
2:30	2:45		4												4	0.1%
2:45	3:00		3	2											5	0.1%
2:00	3:00		17	3											20	0.3%
3:00	3:15		2	1											3	0.0%
3:15	3:30		1	2											3	0.0%
3:30	3:45		1												1	0.0%
3:45	4:00		2												2	0.0%
3:00	4:00		6	3											9	0.1%
4:00	4:15		4												4	0.1%
4:15	4:30		5	1											6	0.1%
4:30	4:45		3	2											5	0.1%
4:45	5:00		6	1											7	0.1%
4:00	5:00		18	4											22	0.3%
5:00	5:15		4	1	1										6	0.1%
5:15	5:30	1	9	3		1									14	0.2%
5:30	5:45		13	3											16	0.2%
5:45	6:00		22	4		1									27	0.4%
5:00	6:00	1	48	11	1	2									63	1.0%
6:00	6:15		15	7											22	0.3%
6:15	6:30		25	3											28	0.4%
6:30	6:45		31	8	1	3									43	0.7%
6:45	7:00		47	11	2	2									62	0.9%
6:00	7:00		118	29	3	5									155	2.4%
7:00	7:15		44	11	1	2									58	0.9%
7:15	7:30		57	15											72	1.1%
7:30	7:45		71	8	2	1									82	1.3%
7:45	8:00	1	66	15	4	1	1		2						90	1.4%
7:00	8:00	1	238	49	7	4	1		2						302	4.6%
8:00	8:15		71	13	2	1									87	1.3%
8:15	8:30		59	14	7	3	1								84	1.3%
8:30	8:45		77	20	3	4			1						105	1.6%
8:45	9:00		69	8	3	2									82	1.3%
8:00	9:00		276	55	15	10	1		1						358	5.5%
9:00	9:15		45	12	1	2									60	0.9%
9:15	9:30		44	7											51	0.8%
9:30	9:45	1	52	14		2				1					70	1.1%
9:45	10:00		60	16	1	2	1								80	1.2%
9:00	10:00	1	201	49	2	6	1			1					261	4.0%
10:00	10:15		41	17	1	4									63	1.0%
10:15	10:30		45	14		2	1								62	0.9%
10:30	10:45		43	13		2	2								60	0.9%
10:45	11:00		57	10	1	2									70	1.1%
10:00	11:00		186	54	2	10	3								255	3.9%
11:00	11:15		36	13	2	3			4						58	0.9%
11:15	11:30	1	55	14	1	3				1					75	1.1%
11:30	11:45	1	59	9	1	4	1		2						77	1.2%
11:45	12:00	1	74	12	1		1								89	1.4%
11:00	12:00	3	224	48	5	10	2		6	1					299	4.6%

12:00	12:15	58	22	2	3					85	1.3%
12:15	12:30	70	11	1	4					86	1.3%
12:30	12:45	73	14	1	3					91	1.4%
12:45	13:00	69	13	1	3					86	1.3%
12:00	13:00	270	60	5	13					348	5.3%
13:00	13:15	79	16	1	6	1			1	104	1.6%
13:15	13:30	61	15	2	1					79	1.2%
13:30	13:45	89	14	2				1		106	1.6%
13:45	14:00	81	20	1	1	1				104	1.6%
13:00	14:00	310	65	6	8	2		1	1	393	6.0%
14:00	14:15	62	14	2	3					81	1.2%
14:15	14:30	1	87	14	4				1	107	1.6%
14:30	14:45		96	18	1	2	1			118	1.8%
14:45	15:00	1	85	29		2			2	119	1.8%
14:00	15:00	2	330	75	7	7	1		3	425	6.5%
15:00	15:15		87	22	2	5	2			118	1.8%
15:15	15:30	3	115	29	11	1	1			160	2.4%
15:30	15:45	1	133	33	1	1				169	2.6%
15:45	16:00		121	23	1	3				148	2.3%
15:00	16:00	4	456	107	15	10	3			595	9.1%
16:00	16:15		114	25	2	3			1	145	2.2%
16:15	16:30		124	26	2	3				155	2.4%
16:30	16:45		121	26		2				149	2.3%
16:45	17:00	1	117	29		1	1		1	150	2.3%
16:00	17:00	1	476	106	4	9	1		1	599	9.2%
17:00	17:15	1	139	38	1	1	2			182	2.8%
17:15	17:30		112	20		1			1	134	2.1%
17:30	17:45		110	35	1		1			147	2.3%
17:45	18:00		114	15		3			1	133	2.0%
17:00	18:00	1	475	108	2	5	3		2	596	9.1%
18:00	18:15		99	22	1					122	1.9%
18:15	18:30	1	140	25		3				169	2.6%
18:30	18:45		93	17		1				111	1.7%
18:45	19:00		94	28	1	1				124	1.9%
18:00	19:00	1	426	92	2	5				526	8.1%
19:00	19:15		91	16		2			1	110	1.7%
19:15	19:30	1	92	15		1			1	110	1.7%
19:30	19:45		92	23		1				116	1.8%
19:45	20:00		94	15		2				111	1.7%
19:00	20:00	1	369	69		6			2	447	6.8%
20:00	20:15	1	75	11						87	1.3%
20:15	20:30		76	10						86	1.3%
20:30	20:45		72	13	2					87	1.3%
20:45	21:00		71	14		1				86	1.3%
20:00	21:00	1	294	48	2	1				346	5.3%
21:00	21:15		52	8		2				62	0.9%
21:15	21:30		53	6		1			1	62	0.9%
21:30	21:45	1	40	6						47	0.7%
21:45	22:00		46	8						54	0.8%
21:00	22:00	1	191	28		3			1	225	3.4%
22:00	22:15		37	6		1				44	0.7%
22:15	22:30		40	3		2				45	0.7%
22:30	22:45		17	3						20	0.3%
22:45	23:00		26	4						30	0.5%
22:00	23:00		120	16		3				139	2.1%
23:00	23:15		17	2						19	0.3%
23:15	23:30		30	4						34	0.5%
23:30	23:45		20	4		1				25	0.4%
23:45	00:00		10	3						13	0.2%
23:00	00:00		77	13		1				91	1.4%
<b>Total</b>		<b>18</b>	<b>5175</b>	<b>1098</b>	<b>78</b>	<b>118</b>	<b>18</b>		<b>21</b>	<b>5</b>	<b>6531</b>
		0.3%	79.2%	16.8%	1.2%	1.8%	0.3%		0.3%	0.1%	
<b>AM PEAK</b>		<b>1</b>	<b>77</b>	<b>20</b>	<b>7</b>	<b>4</b>	<b>2</b>		<b>4</b>	<b>1</b>	<b>105</b>
period		5:15	8:30	8:30	8:15	8:30	10:30		11:00	9:30	8:30
% of class		5.6%	1.5%	1.8%	9.0%	3.4%	11.1%		19.0%	20.0%	1.6%
<b>PM PEAK</b>		<b>3</b>	<b>140</b>	<b>38</b>	<b>11</b>	<b>6</b>	<b>2</b>		<b>2</b>	<b>1</b>	<b>182</b>
period		15:15	18:15	17:00	15:15	13:00	15:00		14:45	13:00	17:00
% of class		16.7%	2.7%	3.5%	14.1%	5.1%	11.1%		9.5%	20.0%	2.8%

Report-1.2 Classes ----->	Location : 5019053NS Hwy 50 - 600m South of Emil Kolb Parkway													Total	
	Direction : North Road :														
Dates : 1 5/8/2019															
	Class-1	Class-2	Class-3	Class-4	Class-5	Class-6	Class-7	Class-8	Class-9	Class-10	Class-11	Class-12	Class-13		
00:00 0:15		13	1											14	0.2%
0:15 0:30		9												9	0.1%
0:30 0:45		11												11	0.2%
0:45 1:00		9												9	0.1%
00:00 1:00		42	1											43	0.6%
1:00 1:15		8												8	0.1%
1:15 1:30		6	1											7	0.1%
1:30 1:45		5												5	0.1%
1:45 2:00		5			1			1						7	0.1%
1:00 2:00		24	1		1			1						27	0.4%
2:00 2:15		4	1											5	0.1%
2:15 2:30		1	1											2	0.0%
2:30 2:45		5												5	0.1%
2:45 3:00		3												3	0.0%
2:00 3:00		13	2											15	0.2%
3:00 3:15	1	1	2	1										5	0.1%
3:15 3:30		2	1											3	0.0%
3:30 3:45			2											2	0.0%
3:45 4:00		4			1									5	0.1%
3:00 4:00	1	7	5	1	1									15	0.2%
4:00 4:15		1							1					2	0.0%
4:15 4:30		2												2	0.0%
4:30 4:45		5												5	0.1%
4:45 5:00		6	1											7	0.1%
4:00 5:00		14	1						1					16	0.2%
5:00 5:15		6	1											7	0.1%
5:15 5:30	1	8	2	1										12	0.2%
5:30 5:45		18	1		1									20	0.3%
5:45 6:00		24	4											28	0.4%
5:00 6:00	1	56	8	1	1									67	1.0%
6:00 6:15		17	5		2									24	0.4%
6:15 6:30		32	8		3									43	0.6%
6:30 6:45		39	9	1	2									51	0.8%
6:45 7:00		43	9	1	3									56	0.8%
6:00 7:00		131	31	2	10									174	2.6%
7:00 7:15		51	10	3	1	1								66	1.0%
7:15 7:30		47	15		1		1							64	1.0%
7:30 7:45		64	17		3			2						86	1.3%
7:45 8:00		75	12	4	2	1								94	1.4%
7:00 8:00		237	54	7	7	2	1	2						310	4.7%
8:00 8:15		63	13	3	3	1								83	1.2%
8:15 8:30		83	17	4	2	1								107	1.6%
8:30 8:45		79	17	2	2									100	1.5%
8:45 9:00		73	15	4	1				1					94	1.4%
8:00 9:00		298	62	13	8	2			1					384	5.8%
9:00 9:15		56	17	2		1		1						77	1.2%
9:15 9:30	1	45	10		1	1								58	0.9%
9:30 9:45		47	12		1	2								62	0.9%
9:45 10:00		51	10		2	1		1						65	1.0%
9:00 10:00	1	199	49	2	4	5		2						262	3.9%
10:00 10:15		55	11		2			1						69	1.0%
10:15 10:30		51	16	2	1									70	1.1%
10:30 10:45	1	52	7	1	3									64	1.0%
10:45 11:00		56	11	2	3				1					73	1.1%
10:00 11:00	1	214	45	5	9			1	1					276	4.1%
11:00 11:15		54	17	1	1									73	1.1%
11:15 11:30		47	13											60	0.9%
11:30 11:45		58	14		2	1								75	1.1%
11:45 12:00		54	18	1	4				1					78	1.2%
11:00 12:00		213	62	2	7	1			1					286	4.3%



Report-1.3 Classes ----->	Location : 5019053NS Hwy 50 - 600m South of Emil Kolb Parkway														
	Direction : North Road :														
Dates : 1 5/9/2019															
	Class-1	Class-2	Class-3	Class-4	Class-5	Class-6	Class-7	Class-8	Class-9	Class-10	Class-11	Class-12	Class-13	Total	
OO:00 0:15		13	2		1									16	0.2%
0:15 0:30		7	1											8	0.1%
0:30 0:45		4	2											6	0.1%
0:45 1:00		8												8	0.1%
OO:00 1:00		32	5		1									38	0.6%
1:00 1:15		6	2											8	0.1%
1:15 1:30		5	3											8	0.1%
1:30 1:45		7	1											8	0.1%
1:45 2:00		4												4	0.1%
1:00 2:00		22	6											28	0.4%
2:00 2:15		3	2											5	0.1%
2:15 2:30		4												4	0.1%
2:30 2:45		2												2	0.0%
2:45 3:00		4	1											5	0.1%
2:00 3:00		13	3											16	0.2%
3:00 3:15		2	1											3	0.0%
3:15 3:30		1	4											5	0.1%
3:30 3:45															
3:45 4:00		2												2	0.0%
3:00 4:00		5	5											10	0.2%
4:00 4:15		1												1	0.0%
4:15 4:30		3				1								4	0.1%
4:30 4:45		1	2		1									4	0.1%
4:45 5:00		8	3											11	0.2%
4:00 5:00		13	5		1	1								20	0.3%
5:00 5:15		9	3	1	2									15	0.2%
5:15 5:30	1	9	2											12	0.2%
5:30 5:45		15												15	0.2%
5:45 6:00		15	2		1									18	0.3%
5:00 6:00	1	48	7	1	3									60	0.9%
6:00 6:15		18	2											20	0.3%
6:15 6:30		27	6		2									35	0.5%
6:30 6:45		32	9	1	1									43	0.7%
6:45 7:00		39	7	2	1									49	0.8%
6:00 7:00		116	24	3	4									147	2.3%
7:00 7:15		48	15		2	1				1				67	1.0%
7:15 7:30		49	11											60	0.9%
7:30 7:45		71	18	2		1								92	1.4%
7:45 8:00		70	10	4	4									88	1.4%
7:00 8:00		238	54	6	6	2				1				307	4.8%
8:00 8:15		59	12	2	1									74	1.2%
8:15 8:30		77	14	7	2				1					101	1.6%
8:30 8:45		73	25	2	1	3								104	1.6%
8:45 9:00		59	12	1		2								74	1.2%
8:00 9:00		268	63	12	4	5		1						353	5.5%
9:00 9:15		45	16	2	2	2								67	1.0%
9:15 9:30		40	12	2	1									55	0.9%
9:30 9:45	1	51	15		2			1						70	1.1%
9:45 10:00	1	46	15	1	4									67	1.0%
9:00 10:00	2	182	58	5	9	2		1						259	4.0%
10:00 10:15		45	14		2	2		1		1				65	1.0%
10:15 10:30		46	10	1	3			1						61	1.0%
10:30 10:45		49	18		3	1		1						72	1.1%
10:45 11:00		51	12	1	2	1		2						69	1.1%
10:00 11:00		191	54	2	10	4		5		1				267	4.2%
11:00 11:15		49	14	2	3	1								69	1.1%
11:15 11:30		53	6	1	2	1	1							64	1.0%
11:30 11:45	1	74	8	2	2	1		1						89	1.4%
11:45 12:00		71	7		3									81	1.3%
11:00 12:00	1	247	35	5	10	3	1	1						303	4.7%



Report-1.4	Location : 5019053NS Hwy 50 - 600m South of Emil Kolb Parkway														
	Direction : South Road :														
Dates : 1 5/7/2019															
Classes ----->	Class-1	Class-2	Class-3	Class-4	Class-5	Class-6	Class-7	Class-8	Class-9	Class-10	Class-11	Class-12	Class-13	Total	
00:00 0:15		6	1											7	0.1%
0:15 0:30															
0:30 0:45		6												6	0.1%
0:45 1:00		2	1						1					4	0.1%
00:00 1:00		14	2						1					17	0.3%
1:00 1:15		3												3	0.0%
1:15 1:30		1	1											2	0.0%
1:30 1:45		2	2											4	0.1%
1:45 2:00		3	1											4	0.1%
1:00 2:00		9	4											13	0.2%
2:00 2:15		2												2	0.0%
2:15 2:30		3	1											4	0.1%
2:30 2:45		2												2	0.0%
2:45 3:00		1												1	0.0%
2:00 3:00		8	1											9	0.1%
3:00 3:15		5	2											7	0.1%
3:15 3:30		4												4	0.1%
3:30 3:45		3	5											8	0.1%
3:45 4:00		2	2											4	0.1%
3:00 4:00		14	9											23	0.4%
4:00 4:15		9	2											11	0.2%
4:15 4:30		15	4											19	0.3%
4:30 4:45		20	9		1									30	0.5%
4:45 5:00		20	9											29	0.5%
4:00 5:00		64	24		1									89	1.5%
5:00 5:15		29	9											38	0.6%
5:15 5:30		37	16	1	1									55	0.9%
5:30 5:45		40	21		2									63	1.0%
5:45 6:00		71	34											105	1.7%
5:00 6:00		177	80	1	3									261	4.3%
6:00 6:15		60	31	1	2									94	1.5%
6:15 6:30		63	36											99	1.6%
6:30 6:45		83	39	2				1						125	2.0%
6:45 7:00		86	27		1									114	1.9%
6:00 7:00		292	133	3	3			1						432	7.1%
7:00 7:15		75	31		1									107	1.7%
7:15 7:30		87	25		1			1						114	1.9%
7:30 7:45	1	95	30	6	1	1		1						135	2.2%
7:45 8:00		119	24	2	2									147	2.4%
7:00 8:00	1	376	110	8	5	1		2						503	8.2%
8:00 8:15		135	19	3	2			1						160	2.6%
8:15 8:30		118	24	2	1	1								146	2.4%
8:30 8:45		96	16	1	1									114	1.9%
8:45 9:00	1	98	21		4									124	2.0%
8:00 9:00	1	447	80	6	8	1		1						544	8.9%
9:00 9:15	1	79	18	1										99	1.6%
9:15 9:30		100	13		2									115	1.9%
9:30 9:45		77	18	1	6									102	1.7%
9:45 10:00		71	14	1	1	2								89	1.5%
9:00 10:00	1	327	63	3	9	2								405	6.6%
10:00 10:15	1	88	11		3									103	1.7%
10:15 10:30		68	19		3	1		1						92	1.5%
10:30 10:45		73	16	1	2			1						93	1.5%
10:45 11:00		65	22		1									88	1.4%
10:00 11:00	1	294	68	1	9	1		2						376	6.1%
11:00 11:15		50	12		2									64	1.0%
11:15 11:30		69	12	2	2									85	1.4%
11:30 11:45		53	15	3	3									74	1.2%
11:45 12:00		67	9		2			1						79	1.3%
11:00 12:00		239	48	5	9			1						302	4.9%



Report-1.5	Location : 5019053NS Hwy 50 - 600m South of Emil Kolb Parkway														
	Direction : South Road :														
Dates : 1 5/8/2019															
Classes ----->	Class-1	Class-2	Class-3	Class-4	Class-5	Class-6	Class-7	Class-8	Class-9	Class-10	Class-11	Class-12	Class-13	Total	
00:00 0:15		5	1											6	0.1%
0:15 0:30		5												5	0.1%
0:30 0:45		5	1		2									8	0.1%
0:45 1:00		4												4	0.1%
00:00 1:00		19	2		2									23	0.4%
1:00 1:15		2												2	0.0%
1:15 1:30		5												5	0.1%
1:30 1:45		1												1	0.0%
1:45 2:00		1	1					1						3	0.0%
1:00 2:00		9	1					1						11	0.2%
2:00 2:15			1											1	0.0%
2:15 2:30		1			1									2	0.0%
2:30 2:45		1	1											2	0.0%
2:45 3:00		3	1											4	0.1%
2:00 3:00		5	3		1									9	0.1%
3:00 3:15		2	2											4	0.1%
3:15 3:30		2	2											4	0.1%
3:30 3:45		2	2											4	0.1%
3:45 4:00		2	3											5	0.1%
3:00 4:00		8	9											17	0.3%
4:00 4:15		8	5											13	0.2%
4:15 4:30		16	5											21	0.3%
4:30 4:45		19	7											26	0.4%
4:45 5:00		16	13											29	0.5%
4:00 5:00		59	30											89	1.4%
5:00 5:15		27	9											36	0.6%
5:15 5:30		20	23		1			1						45	0.7%
5:30 5:45		49	21	1	1									72	1.1%
5:45 6:00		58	26	1	4									89	1.4%
5:00 6:00		154	79	2	6			1						242	3.8%
6:00 6:15		59	35		1									95	1.5%
6:15 6:30		83	20											103	1.6%
6:30 6:45		73	32	1										106	1.7%
6:45 7:00		88	21	1	2									112	1.8%
6:00 7:00		303	108	2	3									416	6.5%
7:00 7:15		69	25		2									96	1.5%
7:15 7:30		72	28		4			1						105	1.6%
7:30 7:45	1	98	29	7	3									138	2.2%
7:45 8:00		132	23	3	3			1						162	2.5%
7:00 8:00	1	371	105	10	12			2						501	7.9%
8:00 8:15		122	33	3	3									161	2.5%
8:15 8:30		107	18	3	3	2								133	2.1%
8:30 8:45		113	16	1	6			1						137	2.2%
8:45 9:00		87	17	2				1						107	1.7%
8:00 9:00		429	84	9	12	2		2						538	8.4%
9:00 9:15		86	18	2	4				1					111	1.7%
9:15 9:30		74	18	1	2									95	1.5%
9:30 9:45	1	71	17		1	1								91	1.4%
9:45 10:00	1	90	12	1	2	1								107	1.7%
9:00 10:00	2	321	65	4	9	2			1					404	6.3%
10:00 10:15	1	69	19		2		1			1				93	1.5%
10:15 10:30		60	15		1				1					77	1.2%
10:30 10:45		60	12		2			2						76	1.2%
10:45 11:00		60	8	1	2	1	1							73	1.1%
10:00 11:00	1	249	54	1	7	1	2	2	1	1				319	5.0%
11:00 11:15	1	53	18	1	2									75	1.2%
11:15 11:30	1	67	16	1	1									86	1.4%
11:30 11:45		52	13		4	2								71	1.1%
11:45 12:00		60	14		5		1	1						81	1.3%
11:00 12:00	2	232	61	2	12	2	1	1						313	4.9%



Report-1.6	Location : 5019053NS Hwy 50 - 600m South of Emil Kolb Parkway														
	Direction : South Road :														
Dates : 1 5/9/2019															
Classes ----->	Class-1	Class-2	Class-3	Class-4	Class-5	Class-6	Class-7	Class-8	Class-9	Class-10	Class-11	Class-12	Class-13	Total	
00:00 0:15		4	2		1									7	0.1%
0:15 0:30		4			1									5	0.1%
0:30 0:45		4												4	0.1%
0:45 1:00		3												3	0.1%
00:00 1:00		15	2		2									19	0.3%
1:00 1:15		4												4	0.1%
1:15 1:30		2	2											4	0.1%
1:30 1:45		2	2		1									5	0.1%
1:45 2:00		3												3	0.1%
1:00 2:00		11	4		1									16	0.3%
2:00 2:15		2	1											3	0.1%
2:15 2:30		1												1	0.0%
2:30 2:45		3												3	0.1%
2:45 3:00															
2:00 3:00		6	1											7	0.1%
3:00 3:15		2	1											3	0.1%
3:15 3:30		4	2											6	0.1%
3:30 3:45		4	3											7	0.1%
3:45 4:00		4	2											6	0.1%
3:00 4:00		14	8											22	0.4%
4:00 4:15		6	3											9	0.2%
4:15 4:30		11	5											16	0.3%
4:30 4:45		14	6											20	0.3%
4:45 5:00		26	6											32	0.5%
4:00 5:00		57	20											77	1.3%
5:00 5:15		29	10		1									40	0.7%
5:15 5:30		27	20	1		1								49	0.8%
5:30 5:45		39	18											57	1.0%
5:45 6:00		58	20		2									80	1.4%
5:00 6:00		153	68	1	3	1								226	3.9%
6:00 6:15		68	35	1	1									105	1.8%
6:15 6:30		75	31	1	2			1						110	1.9%
6:30 6:45		71	28	1	2									102	1.7%
6:45 7:00		101	27		2									130	2.2%
6:00 7:00		315	121	3	7			1						447	7.7%
7:00 7:15		69	25		4	1				1				100	1.7%
7:15 7:30		99	28		1			1						129	2.2%
7:30 7:45	1	84	23	7	4	1								120	2.1%
7:45 8:00		129	22	3	2									156	2.7%
7:00 8:00	1	381	98	10	11	2		1		1				505	8.6%
8:00 8:15		126	26	4	1									157	2.7%
8:15 8:30		111	23	1	3	2								140	2.4%
8:30 8:45		91	20	3	1	1								116	2.0%
8:45 9:00		79	13		2									94	1.6%
8:00 9:00		407	82	8	7	3								507	8.7%
9:00 9:15		79	18	2	2			1						102	1.7%
9:15 9:30		76	20	2	2									100	1.7%
9:30 9:45		65	21	1	2			1						90	1.5%
9:45 10:00	1	81	19	1	4									106	1.8%
9:00 10:00	1	301	78	6	10			2						398	6.8%
10:00 10:15		63	13	2	4	1		1						84	1.4%
10:15 10:30		78	9		3	1		1						92	1.6%
10:30 10:45		58	6		2									66	1.1%
10:45 11:00		69	7		2	1								79	1.4%
10:00 11:00		268	35	2	11	3		2						321	5.5%
11:00 11:15		67	15		2									84	1.4%
11:15 11:30		58	14	2	1			2						77	1.3%
11:30 11:45		57	10	1	3					1				72	1.2%
11:45 12:00		64	13			1								78	1.3%
11:00 12:00		246	52	3	6	1		2		1				311	5.3%



<b>Report-1.7</b>		Location : <b>5019053NS Hwy 50 - 600m South of Emil Kolb Parkway</b>														
		Direction : <b>North + South</b> Road :														
		Dates : 1 5/7/2019														
Classes ----->		Class-1	Class-2	Class-3	Class-4	Class-5	Class-6	Class-7	Class-8	Class-9	Class-10	Class-11	Class-12	Class-13	Total	
00:00	0:15		18	3											21	0.2%
0:15	0:30		5					2							7	0.1%
0:30	0:45		19												19	0.2%
0:45	1:00		2	2						1					5	0.0%
00:00	1:00		44	5				2	1						52	0.4%
1:00	1:15		10	1											11	0.1%
1:15	1:30		3	2											5	0.0%
1:30	1:45		6	3											9	0.1%
1:45	2:00		9	1											10	0.1%
1:00	2:00		28	7											35	0.3%
2:00	2:15		9	1											10	0.1%
2:15	2:30		6	1											7	0.1%
2:30	2:45		6												6	0.0%
2:45	3:00		4	2											6	0.0%
2:00	3:00		25	4											29	0.2%
3:00	3:15		7	3											10	0.1%
3:15	3:30		5	2											7	0.1%
3:30	3:45		4	5											9	0.1%
3:45	4:00		4	2											6	0.0%
3:00	4:00		20	12											32	0.3%
4:00	4:15		13	2											15	0.1%
4:15	4:30		20	5											25	0.2%
4:30	4:45		23	11	1										35	0.3%
4:45	5:00		26	10											36	0.3%
4:00	5:00		82	28	1										111	0.9%
5:00	5:15		33	10	1										44	0.3%
5:15	5:30	1	46	19	1	2									69	0.5%
5:30	5:45		53	24		2									79	0.6%
5:45	6:00		93	38		1									132	1.0%
5:00	6:00	1	225	91	2	5									324	2.6%
6:00	6:15		75	38	1	2									116	0.9%
6:15	6:30		88	39											127	1.0%
6:30	6:45		114	47	3	3		1							168	1.3%
6:45	7:00		133	38	2	3									176	1.4%
6:00	7:00		410	162	6	8		1							587	4.6%
7:00	7:15		119	42	1	3									165	1.3%
7:15	7:30		144	40		1		1							186	1.5%
7:30	7:45	1	166	38	8	2	1	1							217	1.7%
7:45	8:00	1	185	39	6	3	1	2							237	1.9%
7:00	8:00	2	614	159	15	9	2	4							805	6.4%
8:00	8:15		206	32	5	3		1							247	2.0%
8:15	8:30		177	38	9	4	2								230	1.8%
8:30	8:45		173	36	4	5		1							219	1.7%
8:45	9:00	1	167	29	3	6									206	1.6%
8:00	9:00	1	723	135	21	18	2	2							902	7.1%
9:00	9:15	1	124	30	2	2									159	1.3%
9:15	9:30		144	20		2									166	1.3%
9:30	9:45	1	129	32	1	8			1						172	1.4%
9:45	10:00		131	30	2	3	3								169	1.3%
9:00	10:00	2	528	112	5	15	3		1						666	5.3%
10:00	10:15	1	129	28	1	7									166	1.3%
10:15	10:30		113	33		5	2	1							154	1.2%
10:30	10:45		116	29	1	4	2	1							153	1.2%
10:45	11:00		122	32	1	3									158	1.2%
10:00	11:00	1	480	122	3	19	4	2							631	5.0%
11:00	11:15		86	25	2	5		4							122	1.0%
11:15	11:30	1	124	26	3	5			1						160	1.3%
11:30	11:45	1	112	24	4	7	1	2							151	1.2%
11:45	12:00	1	141	21	1	2	1	1							168	1.3%
11:00	12:00	3	463	96	10	19	2	7	1						601	4.8%



Report-1.8	Location : 5019053NS Hwy 50 - 600m South of Emil Kolb Parkway													Total	
	Direction : North + South Road :														
Dates : 1 5/8/2019													Total		
Classes ----->	Class-1	Class-2	Class-3	Class-4	Class-5	Class-6	Class-7	Class-8	Class-9	Class-10	Class-11	Class-12			Class-13
00:00 0:15		18	2											20	0.2%
0:15 0:30		14												14	0.1%
0:30 0:45		16	1		2									19	0.1%
0:45 1:00		13												13	0.1%
00:00 1:00		61	3		2									66	0.5%
1:00 1:15		10												10	0.1%
1:15 1:30		11	1											12	0.1%
1:30 1:45		6												6	0.0%
1:45 2:00		6	1		1			2						10	0.1%
1:00 2:00		33	2		1			2						38	0.3%
2:00 2:15		4	2											6	0.0%
2:15 2:30		2	1		1									4	0.0%
2:30 2:45		6	1											7	0.1%
2:45 3:00		6	1											7	0.1%
2:00 3:00		18	5		1									24	0.2%
3:00 3:15	1	3	4	1										9	0.1%
3:15 3:30		4	3											7	0.1%
3:30 3:45		2	4											6	0.0%
3:45 4:00		6	3		1									10	0.1%
3:00 4:00	1	15	14	1	1									32	0.2%
4:00 4:15		9	5						1					15	0.1%
4:15 4:30		18	5											23	0.2%
4:30 4:45		24	7											31	0.2%
4:45 5:00		22	14											36	0.3%
4:00 5:00		73	31						1					105	0.8%
5:00 5:15		33	10											43	0.3%
5:15 5:30	1	28	25	1	1			1						57	0.4%
5:30 5:45		67	22	1	2									92	0.7%
5:45 6:00		82	30	1	4									117	0.9%
5:00 6:00	1	210	87	3	7			1						309	2.4%
6:00 6:15		76	40		3									119	0.9%
6:15 6:30		115	28		3									146	1.1%
6:30 6:45		112	41	2	2									157	1.2%
6:45 7:00		131	30	2	5									168	1.3%
6:00 7:00		434	139	4	13									590	4.5%
7:00 7:15		120	35	3	3	1								162	1.2%
7:15 7:30		119	43		5		1	1						169	1.3%
7:30 7:45	1	162	46	7	6			2						224	1.7%
7:45 8:00		207	35	7	5	1		1						256	2.0%
7:00 8:00	1	608	159	17	19	2	1	4						811	6.2%
8:00 8:15		185	46	6	6	1								244	1.9%
8:15 8:30		190	35	7	5	3								240	1.8%
8:30 8:45		192	33	3	8			1						237	1.8%
8:45 9:00		160	32	6	1			1	1					201	1.5%
8:00 9:00		727	146	22	20	4		2	1					922	7.1%
9:00 9:15		142	35	4	4	1		1	1					188	1.4%
9:15 9:30	1	119	28	1	3	1								153	1.2%
9:30 9:45	1	118	29		2	3								153	1.2%
9:45 10:00	1	141	22	1	4	2		1						172	1.3%
9:00 10:00	3	520	114	6	13	7		2	1					666	5.1%
10:00 10:15	1	124	30		4		1	1		1				162	1.2%
10:15 10:30		111	31	2	2					1				147	1.1%
10:30 10:45	1	112	19	1	5			2						140	1.1%
10:45 11:00		116	19	3	5	1	1		1					146	1.1%
10:00 11:00	2	463	99	6	16	1	2	3	2	1				595	4.6%
11:00 11:15	1	107	35	2	3									148	1.1%
11:15 11:30	1	114	29	1	1									146	1.1%
11:30 11:45		110	27		6	3								146	1.1%
11:45 12:00		114	32	1	9		1	1	1					159	1.2%
11:00 12:00	2	445	123	4	19	3	1	1	1					599	4.6%



Report-1.9	Location : 5019053NS Hwy 50 - 600m South of Emil Kolb Parkway													Total	
	Direction : North + South Road :														
Dates : 1 5/9/2019													Total		
Classes ----->	Class-1	Class-2	Class-3	Class-4	Class-5	Class-6	Class-7	Class-8	Class-9	Class-10	Class-11	Class-12			Class-13
00:00 0:15		17	4		2									23	0.2%
0:15 0:30		11	1		1									13	0.1%
0:30 0:45		8	2											10	0.1%
0:45 1:00		11												11	0.1%
00:00 1:00		47	7		3									57	0.5%
1:00 1:15		10	2											12	0.1%
1:15 1:30		7	5											12	0.1%
1:30 1:45		9	3		1									13	0.1%
1:45 2:00		7												7	0.1%
1:00 2:00		33	10		1									44	0.4%
2:00 2:15		5	3											8	0.1%
2:15 2:30		5												5	0.0%
2:30 2:45		5												5	0.0%
2:45 3:00		4	1											5	0.0%
2:00 3:00		19	4											23	0.2%
3:00 3:15		4	2											6	0.0%
3:15 3:30		5	6											11	0.1%
3:30 3:45		4	3											7	0.1%
3:45 4:00		6	2											8	0.1%
3:00 4:00		19	13											32	0.3%
4:00 4:15		7	3											10	0.1%
4:15 4:30		14	5			1								20	0.2%
4:30 4:45		15	8		1									24	0.2%
4:45 5:00		34	9											43	0.4%
4:00 5:00		70	25		1	1								97	0.8%
5:00 5:15		38	13	1	3									55	0.4%
5:15 5:30	1	36	22	1		1								61	0.5%
5:30 5:45		54	18											72	0.6%
5:45 6:00		73	22		3									98	0.8%
5:00 6:00	1	201	75	2	6	1								286	2.3%
6:00 6:15		86	37	1	1									125	1.0%
6:15 6:30		102	37	1	4			1						145	1.2%
6:30 6:45		103	37	2	3									145	1.2%
6:45 7:00		140	34	2	3									179	1.5%
6:00 7:00		431	145	6	11			1						594	4.8%
7:00 7:15		117	40		6	2				2				167	1.4%
7:15 7:30		148	39		1			1						189	1.5%
7:30 7:45	1	155	41	9	4	2								212	1.7%
7:45 8:00		199	32	7	6									244	2.0%
7:00 8:00	1	619	152	16	17	4		1		2				812	6.6%
8:00 8:15		185	38	6	2									231	1.9%
8:15 8:30		188	37	8	5	2		1						241	2.0%
8:30 8:45		164	45	5	2	4								220	1.8%
8:45 9:00		138	25	1	2	2								168	1.4%
8:00 9:00		675	145	20	11	8		1						860	7.0%
9:00 9:15		124	34	4	4	2		1						169	1.4%
9:15 9:30		116	32	4	3									155	1.3%
9:30 9:45	1	116	36	1	4			2						160	1.3%
9:45 10:00	2	127	34	2	8									173	1.4%
9:00 10:00	3	483	136	11	19	2		3						657	5.4%
10:00 10:15		108	27	2	6	3		2		1				149	1.2%
10:15 10:30		124	19	1	6	1		2						153	1.2%
10:30 10:45		107	24		5	1		1						138	1.1%
10:45 11:00		120	19	1	4	2		2						148	1.2%
10:00 11:00		459	89	4	21	7		7		1				588	4.8%
11:00 11:15		116	29	2	5	1								153	1.2%
11:15 11:30		111	20	3	3	1	1	2						141	1.2%
11:30 11:45	1	131	18	3	5	1		1		1				161	1.3%
11:45 12:00		135	20		3	1								159	1.3%
11:00 12:00	1	493	87	8	16	4	1	3		1				614	5.0%



Report-2.1	Location : 5019053NS Hwy 50 - 600m South of Emil Kolb Parkway														Pace	Number	
	Direction : North Road :																
Speeds,km/h ----->	Dates : 5/7/2019														Total	Speed	in Pace
	41	51	61	71	81	91	101	111	121	131	141	151	160				
00:00 0:15				7	6	1								14	62.6-77.6	12	
0:15 0:30			1	3	2	1								7	60.4-75.4	5	
0:30 0:45			1	5	7									13	63.9-78.9	12	
0:45 1:00					1									1	59.5-74.5	1	
00:00 1:00			2	15	16	2								35	62.6-77.6	12	
1:00 1:15				1	6	1								8	68.3-83.3	8	
1:15 1:30			1	1	1									3	57.8-72.8	3	
1:30 1:45			1	3	1									5	53.5-68.5	4	
1:45 2:00					4	2								6	70.3-85.3	6	
1:00 2:00			2	5	12	3								22	68.3-83.3	8	
2:00 2:15				2	4	2								8	62.1-77.1	6	
2:15 2:30				1	1	1								3	63.3-78.3	2	
2:30 2:45				1	3									4	63.6-78.6	4	
2:45 3:00				3	2									5	56.1-71.1	4	
2:00 3:00				7	10	3								20	62.1-77.1	6	
3:00 3:15				3										3	55.1-70.1	3	
3:15 3:30					1	1	1							3	69.0-84.0	2	
3:30 3:45					1									1	62.3-77.3	1	
3:45 4:00				1		1								2	52.5-67.5	1	
3:00 4:00				4	2	2	1							9	55.1-70.1	3	
4:00 4:15				2	1	1								4	57.4-72.4	3	
4:15 4:30			1		3	2								6	70.6-85.6	5	
4:30 4:45				1	4									5	62.8-77.8	5	
4:45 5:00			1	4	2									7	50.2-65.2	5	
4:00 5:00			2	7	10	3								22	70.6-85.6	5	
5:00 5:15				3	2	1								6	59.7-74.7	5	
5:15 5:30			1	3	2	6	2							14	74.9-89.9	8	
5:30 5:45			4	6	4	1	1							16	54.8-69.8	10	
5:45 6:00			1	8	16	2								27	66.5-81.5	23	
5:00 6:00			6	20	24	10	3							63	66.5-81.5	23	
6:00 6:15			2	4	11	5								22	67.4-82.4	14	
6:15 6:30				14	11	2	1							28	61.0-76.0	22	
6:30 6:45			2	19	19	3								43	65.4-80.4	35	
6:45 7:00			10	26	20	5	1							62	63.7-78.7	42	
6:00 7:00			14	63	61	15	2							155	63.7-78.7	42	
7:00 7:15			5	17	27	8	1							58	64.6-79.6	39	
7:15 7:30			3	24	34	10	1							72	64.9-79.9	51	
7:30 7:45			2	44	24	11	1							82	62.1-77.1	64	
7:45 8:00			15	38	31	6								90	61.7-76.7	60	
7:00 8:00			25	123	116	35	3							302	62.1-77.1	64	
8:00 8:15			5	39	34	8	1							87	64.2-79.2	68	
8:15 8:30			14	29	35	5	1							84	64.2-79.2	59	
8:30 8:45			20	61	22	2								105	59.1-74.1	80	
8:45 9:00		1	9	49	22	1								82	59.9-74.9	65	
8:00 9:00		1	48	178	113	16	2							358	59.1-74.1	80	
9:00 9:15			4	36	15	4	1							60	62.1-77.1	46	
9:15 9:30			1	28	16	6								51	61.8-76.8	41	
9:30 9:45	1	2	7	32	20	8								70	62.9-77.9	49	
9:45 10:00			2	43	29	6								80	61.2-76.2	61	
9:00 10:00	1	2	14	139	80	24	1							261	61.2-76.2	61	
10:00 10:15			7	20	29	5	2							63	63.9-78.9	45	
10:15 10:30			6	21	32	3								62	62.5-77.5	51	
10:30 10:45			4	23	26	6	1							60	62.2-77.2	41	
10:45 11:00			1	24	34	10	1							70	61.8-76.8	47	
10:00 11:00			18	88	121	24	4							255	62.5-77.5	51	
11:00 11:15			2	26	24	5		1						58	63.7-78.7	47	
11:15 11:30	2		6	33	31	3								75	62.4-77.4	56	
11:30 11:45		1	10	29	29	7	1							77	64.2-79.2	49	
11:45 12:00			6	39	35	8	1							89	65.2-80.2	62	
11:00 12:00	2	1	24	127	119	23	2	1						299	65.2-80.2	62	



Report-2.2	Location : 5019053NS Hwy 50 - 600m South of Emil Kolb Parkway														Total	Pace Speed	Number in Pace
	Direction : North Road :																
	Dates : 5/8/2019																
Speeds,km/h ----->	41	51	61	71	81	91	101	111	121	131	141	151	160				
00:00 0:15				4	5	4	1								14	69.2-84.2	9
0:15 0:30				5	2	1		1							9	61.1-76.1	7
0:30 0:45			2	3	4	2									11	66.8-81.8	8
0:45 1:00				2	3	3	1								9	72.3-87.3	6
00:00 1:00			2	14	14	10	2	1							43	69.2-84.2	9
1:00 1:15				2	6										8	63.6-78.6	7
1:15 1:30				2	2	1	2								7	61.4-76.4	4
1:30 1:45			1	3	1										5	55.1-70.1	4
1:45 2:00			1	3	2	1									7	56.6-71.6	5
1:00 2:00			2	10	11	2	2								27	63.6-78.6	7
2:00 2:15				1	2		2								5	64.6-79.6	3
2:15 2:30			1	1											2	55.0-70.0	2
2:30 2:45				1	3	1									5	63.3-78.3	4
2:45 3:00					2		1								3	64.5-79.5	2
2:00 3:00			1	3	7	1	3								15	63.3-78.3	4
3:00 3:15				1	2	2									5	72.7-87.7	4
3:15 3:30				1	1		1								3	62.4-77.4	2
3:30 3:45				1	1										2	59.1-74.1	2
3:45 4:00				1	3		1								5	57.8-72.8	4
3:00 4:00				4	7	2	2								15	72.7-87.7	4
4:00 4:15				2											2	54.8-69.8	2
4:15 4:30				1	1										2	59.6-74.6	2
4:30 4:45					2	3									5	69.2-84.2	5
4:45 5:00			1	2	3	1									7	60.7-75.7	4
4:00 5:00			1	5	6	4									16	69.2-84.2	5
5:00 5:15				3	3	1									7	62.2-77.2	6
5:15 5:30				5	3	4									12	62.4-77.4	8
5:30 5:45			1	7	9	3									20	65.9-80.9	16
5:45 6:00				6	15	6	1								28	62.0-77.0	19
5:00 6:00			1	21	30	14	1								67	62.0-77.0	19
6:00 6:15			1	12	6	2	3								24	62.8-77.8	17
6:15 6:30				13	25	4	1								43	64.1-79.1	36
6:30 6:45			2	15	19	11	3	1							51	68.1-83.1	33
6:45 7:00			3	14	31	6	2								56	63.4-78.4	44
6:00 7:00			6	54	81	23	7	3							174	63.4-78.4	44
7:00 7:15			2	23	35	6									66	65.8-80.8	51
7:15 7:30				27	28	9									64	61.2-76.2	53
7:30 7:45			1	23	56	6									86	66.7-81.7	73
7:45 8:00			2	41	42	8	1								94	62.7-77.7	69
7:00 8:00			5	114	161	29	1								310	66.7-81.7	73
8:00 8:15			4	37	33	9									83	63.5-78.5	62
8:15 8:30			10	41	50	4	2								107	63.4-78.4	80
8:30 8:45			7	49	38	6									100	60.3-75.3	73
8:45 9:00			8	38	38	7	3								94	64.1-79.1	70
8:00 9:00			29	165	159	26	5								384	63.4-78.4	80
9:00 9:15			4	37	32	3	1								77	64.3-79.3	60
9:15 9:30	4		5	20	21	6	2								58	64.0-79.0	35
9:30 9:45			2	24	30	6									62	66.2-81.2	49
9:45 10:00			1	25	33	6									65	63.7-78.7	54
9:00 10:00	4		12	106	116	21	3								262	64.3-79.3	60
10:00 10:15			4	30	27	7	1								69	61.6-76.6	51
10:15 10:30			3	21	43	3									70	65.0-80.0	59
10:30 10:45			1	24	32	7									64	63.2-78.2	52
10:45 11:00			6	35	22	10									73	61.6-76.6	51
10:00 11:00			14	110	124	27	1								276	65.0-80.0	59
11:00 11:15				5	34	26	7	1							73	62.4-77.4	56
11:15 11:30				2	19	34	4	1							60	63.7-78.7	53
11:30 11:45		1		7	38	23	6								75	63.0-78.0	56
11:45 12:00				1	26	37	14								78	63.0-78.0	54
11:00 12:00		1	15	117	120	31	2								286	62.4-77.4	56



Report-2.3	Location : 5019053NS Hwy 50 - 600m South of Emil Kolb Parkway																	
	Direction : North															Road :		
	Dates : 5/9/2019																	
Speeds,km/h ----->	41	51	61	71	81	91	101	111	121	131	141	151	160	Total	Pace Speed	Number in Pace		
00:00 0:15			10	4	2									16	59.8-74.8	12		
0:15 0:30			1	1	3	2	1							8	71.8-86.8	5		
0:30 0:45				1	5									6	63.0-78.0	6		
0:45 1:00				5	2		1							8	57.5-72.5	6		
00:00 1:00			1	17	14	4	2							38	59.8-74.8	12		
1:00 1:15				2	3	3								8	68.7-83.7	7		
1:15 1:30				2	4	2								8	69.9-84.9	7		
1:30 1:45		1	1	5			1							8	53.5-68.5	6		
1:45 2:00				2		2								4	53.5-68.5	2		
1:00 2:00		1	1	11	7	7	1							28	68.7-83.7	7		
2:00 2:15					3	1	1							5	62.5-77.5	3		
2:15 2:30					1	2	1							4	71.1-86.1	3		
2:30 2:45				2										2	55.1-70.1	2		
2:45 3:00				1	1	2	1							5	67.0-82.0	3		
2:00 3:00				3	5	5	3							16	62.5-77.5	3		
3:00 3:15					3									3	65.1-80.1	3		
3:15 3:30				3		1	1							5	54.5-69.5	3		
3:30 3:45																		
3:45 4:00				1		1								2	52.6-67.6	1		
3:00 4:00				4	3	2	1							10	65.1-80.1	3		
4:00 4:15						1								1	70.8-85.8	1		
4:15 4:30				3		1								4	56.0-71.0	3		
4:30 4:45				1	2	1								4	66.7-81.7	4		
4:45 5:00				1	5	5								11	72.2-87.2	10		
4:00 5:00				5	7	8								20	72.2-87.2	10		
5:00 5:15			1	5	3	6								15	74.6-89.6	8		
5:15 5:30				2	5	2	1		2					12	67.3-82.3	8		
5:30 5:45			1	5	9									15	65.5-80.5	13		
5:45 6:00				4	8	2	2	2						18	64.3-79.3	12		
5:00 6:00			2	16	25	10	3	2	2					60	65.5-80.5	13		
6:00 6:15				1	12	6	1							20	69.8-84.8	17		
6:15 6:30			1	10	13	8	2	1						35	63.5-78.5	22		
6:30 6:45				10	21	10	2							43	67.1-82.1	29		
6:45 7:00			4	9	32	3	1							49	65.3-80.3	40		
6:00 7:00			5	30	78	27	6	1						147	65.3-80.3	40		
7:00 7:15			11	24	25	5	2							67	65.1-80.1	43		
7:15 7:30			5	21	25	9								60	64.3-79.3	41		
7:30 7:45			6	23	49	11	3							92	66.5-81.5	64		
7:45 8:00			5	25	42	15	1							88	65.5-80.5	59		
7:00 8:00			27	93	141	40	6							307	66.5-81.5	64		
8:00 8:15			3	26	38	6	1							74	63.7-78.7	59		
8:15 8:30			9	30	53	9								101	66.5-81.5	78		
8:30 8:45			9	51	38	6								104	61.8-76.8	78		
8:45 9:00			2	36	30	5	1							74	61.6-76.6	60		
8:00 9:00				23	143	159	26	2						353	66.5-81.5	78		
9:00 9:15		6	7	11	25	16	2							67	62.2-77.2	39		
9:15 9:30				1	18	29	6	1						55	62.6-77.6	42		
9:30 9:45		2	5	5	16	30	9	2		1				70	64.3-79.3	43		
9:45 10:00				6	19	34	8							67	61.6-76.6	47		
9:00 10:00		8	12	23	78	109	25	3		1				259	61.6-76.6	47		
10:00 10:15			1	8	31	17	8							65	61.1-76.1	41		
10:15 10:30				6	26	24	5							61	61.3-76.3	43		
10:30 10:45				4	23	37	7	1						72	67.6-82.6	55		
10:45 11:00				9	32	24	4							69	62.5-77.5	51		
10:00 11:00			1	27	112	102	24	1						267	67.6-82.6	55		
11:00 11:15				7	34	21	7							69	59.7-74.7	49		
11:15 11:30				11	23	25	4	1						64	62.3-77.3	41		
11:30 11:45		1	5	14	36	25	8							89	61.6-76.6	57		
11:45 12:00				3	32	42	3	1						81	62.6-77.6	66		
11:00 12:00		1	5	35	125	113	22	2						303	62.6-77.6	66		



Report-2.4	Location : 5019053NS Hwy 50 - 600m South of Emil Kolb Parkway														Total	Pace Speed	Number in Pace
	Direction : South Road :																
Speeds,km/h ----->	41	51	61	71	81	91	101	111	121	131	141	151	160				
00:00 0:15			3	3	1									7	66.6-81.6	7	
0:15 0:30																	
0:30 0:45			2	1	1	2								6	67.8-82.8	4	
0:45 1:00				4										4	61.9-76.9	4	
00:00 1:00			5	8	2	2								17	66.6-81.6	7	
1:00 1:15				2	1									3	56.2-71.2	3	
1:15 1:30		1		1										2	34.3-49.3	1	
1:30 1:45			1	1	2									4	64.3-79.3	3	
1:45 2:00				1	2	1								4	63.3-78.3	3	
1:00 2:00		1	1	5	5	1								13	56.2-71.2	3	
2:00 2:15					1			1						2	65.4-80.4	1	
2:15 2:30				1	2			1						4	58.4-73.4	3	
2:30 2:45					2									2	63.8-78.8	2	
2:45 3:00				1										1	52.0-67.0	1	
2:00 3:00				2	5			2						9	58.4-73.4	3	
3:00 3:15			3	1	2	1								7	50.8-65.8	4	
3:15 3:30				1	1	2								4	56.7-71.7	2	
3:30 3:45				1	7									8	64.3-79.3	7	
3:45 4:00				1	2			1						4	64.3-79.3	3	
3:00 4:00			3	4	12	3		1						23	64.3-79.3	7	
4:00 4:15			1	3	6	1								11	68.8-83.8	8	
4:15 4:30			1	9	6	3								19	62.1-77.1	14	
4:30 4:45				11	16	2	1							30	63.7-78.7	24	
4:45 5:00			3	5	10	8	3							29	67.6-82.6	16	
4:00 5:00			5	28	38	14	4							89	63.7-78.7	24	
5:00 5:15				5	19	12	2							38	68.0-83.0	28	
5:15 5:30			1	15	24	13	2							55	67.7-82.7	37	
5:30 5:45				14	34	11	4							63	68.6-83.6	51	
5:45 6:00			6	36	47	14	2							105	65.3-80.3	72	
5:00 6:00			7	70	124	50	10							261	65.3-80.3	72	
6:00 6:15				38	49	6	1							94	65.3-80.3	80	
6:15 6:30			1	22	50	24	2							99	67.6-82.6	71	
6:30 6:45			5	40	60	20								125	64.1-79.1	91	
6:45 7:00			6	51	44	12	1							114	62.0-77.0	79	
6:00 7:00			12	151	203	62	4							432	64.1-79.1	91	
7:00 7:15			1	35	53	18								107	67.0-82.0	80	
7:15 7:30			1	35	54	24								114	65.5-80.5	82	
7:30 7:45			8	53	64	10								135	64.0-79.0	99	
7:45 8:00			6	63	64	14								147	62.2-77.2	118	
7:00 8:00			16	186	235	66								503	62.2-77.2	118	
8:00 8:15			18	74	57	10	1							160	61.7-76.7	114	
8:15 8:30			5	82	50	9								146	61.0-76.0	112	
8:30 8:45		1	5	42	51	15								114	61.6-76.6	79	
8:45 9:00			7	56	56	5								124	62.7-77.7	102	
8:00 9:00		1	35	254	214	39	1							544	61.7-76.7	114	
9:00 9:15	10	2	3	47	32	5								99	61.8-76.8	72	
9:15 9:30			7	57	43	6	2							115	60.6-75.6	85	
9:30 9:45			11	36	45	9	1							102	62.8-77.8	73	
9:45 10:00			13	35	30	11								89	61.8-76.8	59	
9:00 10:00	10	2	34	175	150	31	3							405	60.6-75.6	85	
10:00 10:15	11	1	4	37	45	5								103	62.0-77.0	75	
10:15 10:30		1	7	38	41	4	1							92	64.0-79.0	73	
10:30 10:45			3	36	47	7								93	65.6-80.6	80	
10:45 11:00			2	22	56	7	1							88	66.4-81.4	76	
10:00 11:00	11	2	16	133	189	23	2							376	65.6-80.6	80	
11:00 11:15			1	28	26	6	3							64	64.7-79.7	49	
11:15 11:30		1	4	47	26	6	1							85	62.0-77.0	67	
11:30 11:45			4	31	28	9	1	1						74	64.3-79.3	56	
11:45 12:00			5	28	35	10	1							79	60.2-75.2	54	
11:00 12:00		1	14	134	115	31	6	1						302	62.0-77.0	67	



Report-2.5	Location : 5019053NS Hwy 50 - 600m South of Emil Kolb Parkway														Total	Pace Speed	Number in Pace
	Direction : South Road :																
Speeds,km/h ----->	41	51	61	71	81	91	101	111	121	131	141	151	160				
00:00 0:15				4	2									6	72.4-87.4	6	
0:15 0:30				2	2	1								5	58.1-73.1	4	
0:30 0:45				5	2	1								8	66.1-81.1	8	
0:45 1:00				3	1									4	60.0-75.0	4	
00:00 1:00				10	9	4								23	66.1-81.1	8	
1:00 1:15				1	1									2	60.2-75.2	2	
1:15 1:30				2	2	1								5	63.5-78.5	4	
1:30 1:45				1										1	53.9-68.9	1	
1:45 2:00				1	2									3	64.8-79.8	3	
1:00 2:00				5	5	1								11	63.5-78.5	4	
2:00 2:15			1											1	41.0-56.0	1	
2:15 2:30						1	1							2	77.5-92.5	2	
2:30 2:45				1	1									2	62.8-77.8	2	
2:45 3:00				2		2								4	68.2-83.2	3	
2:00 3:00			1	3	1	3	1							9	68.2-83.2	3	
3:00 3:15			1	1		1	1							4	67.6-82.6	2	
3:15 3:30				1	3									4	62.3-77.3	3	
3:30 3:45					1	2	1							4	73.9-88.9	3	
3:45 4:00					2	2	1							5	67.6-82.6	4	
3:00 4:00			1	2	6	5	3							17	67.6-82.6	4	
4:00 4:15				4	7	2								13	60.1-75.1	10	
4:15 4:30			1	8	8	4								21	60.4-75.4	14	
4:30 4:45			1	8	9	5	3							26	69.5-84.5	14	
4:45 5:00				5	17	6	1							29	65.0-80.0	22	
4:00 5:00			2	25	41	17	4							89	65.0-80.0	22	
5:00 5:15			2	11	15	7	1							36	64.5-79.5	25	
5:15 5:30			3	6	21	14	1							45	68.8-83.8	33	
5:30 5:45			1	24	38	6	3							72	65.0-80.0	60	
5:45 6:00			11	23	45	10								89	67.9-82.9	61	
5:00 6:00			17	64	119	37	5							242	67.9-82.9	61	
6:00 6:15			3	36	42	14								95	65.0-80.0	66	
6:15 6:30				26	51	23	2		1					103	69.6-84.6	79	
6:30 6:45				35	57	13	1							106	66.6-81.6	82	
6:45 7:00				25	59	25	3							112	68.2-83.2	84	
6:00 7:00			3	122	209	75	6		1					416	68.2-83.2	84	
7:00 7:15			5	9	61	20	1							96	70.2-85.2	78	
7:15 7:30			1	24	54	25	1							105	69.9-84.9	81	
7:30 7:45	5	2	10	55	52	13	1							138	66.0-81.0	89	
7:45 8:00			13	54	73	19	1	1	1					162	62.3-77.3	105	
7:00 8:00	5	2	29	142	240	77	4	1	1	1				501	62.3-77.3	105	
8:00 8:15			21	68	56	15	1							161	62.5-77.5	97	
8:15 8:30			2	52	63	14	2							133	62.3-77.3	102	
8:30 8:45			7	67	56	7								137	63.4-78.4	111	
8:45 9:00			4	45	47	11								107	65.9-80.9	82	
8:00 9:00			34	232	222	47	3							538	63.4-78.4	111	
9:00 9:15			6	43	49	13								111	62.9-77.9	79	
9:15 9:30			4	42	42	7								95	63.6-78.6	74	
9:30 9:45			4	36	45	4	2							91	64.5-79.5	73	
9:45 10:00	1	1	9	50	40	6								107	62.7-77.7	82	
9:00 10:00	1	1	23	171	176	30	2							404	62.7-77.7	82	
10:00 10:15			3	22	34	24	7	3						93	54.1-69.1	51	
10:15 10:30			1	6	38	24	7	1						77	59.9-74.9	60	
10:30 10:45				4	31	33	7	1						76	64.7-79.7	58	
10:45 11:00			1	6	30	31	5							73	60.8-75.8	49	
10:00 11:00			5	38	133	112	26	5						319	59.9-74.9	60	
11:00 11:15			1	6	39	19	9	1						75	60.5-75.5	52	
11:15 11:30				8	40	31	4	2	1					86	62.4-77.4	65	
11:30 11:45			3	5	30	28	5							71	63.5-78.5	52	
11:45 12:00			2	11	32	28	6	2						81	62.0-77.0	53	
11:00 12:00			6	30	141	106	24	5	1					313	62.4-77.4	65	



Report-2.6	Location : 5019053NS Hwy 50 - 600m South of Emil Kolb Parkway														Total	Pace Speed	Number in Pace
	Direction : South Road :																
Speeds,km/h ----->	Dates : 5/9/2019																
	41	51	61	71	81	91	101	111	121	131	141	151	160				
00:00 0:15				2	2	2	1							7	67.1-82.1	5	
0:15 0:30				2	3									5	63.0-78.0	5	
0:30 0:45			1	1	1	1								4	66.8-81.8	3	
0:45 1:00				2	1									3	57.3-72.3	3	
00:00 1:00			1	7	7	3	1							19	67.1-82.1	5	
1:00 1:15					3	1								4	66.5-81.5	4	
1:15 1:30					4									4	63.9-78.9	4	
1:30 1:45			2	2	1									5	49.0-64.0	4	
1:45 2:00			1		2									3	57.3-72.3	2	
1:00 2:00			3	2	10	1								16	66.5-81.5	4	
2:00 2:15					2	1								3	63.6-78.6	2	
2:15 2:30							1							1	84.9-99.9	1	
2:30 2:45			1	1	1									3	55.3-70.3	2	
2:45 3:00																	
2:00 3:00			1	1	3	1	1							7	63.6-78.6	2	
3:00 3:15	1			1	1	1								3	15.5-30.5	1	
3:15 3:30			1	1	3	1								6	65.0-80.0	4	
3:30 3:45					5	2								7	70.8-85.8	7	
3:45 4:00			1	2	2			1						6	63.5-78.5	4	
3:00 4:00	1		2	4	10	4		1						22	70.8-85.8	7	
4:00 4:15				3	4		2							9	58.3-73.3	5	
4:15 4:30				4	8	4								16	63.2-78.2	12	
4:30 4:45			1	5	9	5								20	63.3-78.3	13	
4:45 5:00				4	19	6	3							32	65.6-80.6	22	
4:00 5:00			1	16	40	15	5							77	65.6-80.6	22	
5:00 5:15		1		4	20	13	2							40	68.8-83.8	32	
5:15 5:30			1	18	25	4	1							49	62.0-77.0	38	
5:30 5:45			5	23	23	3	3							57	63.8-78.8	39	
5:45 6:00			1	29	39	11								80	65.1-80.1	65	
5:00 6:00		1	7	74	107	31	6							226	65.1-80.1	65	
6:00 6:15				24	67	13	1							105	68.7-83.7	91	
6:15 6:30			1	31	64	13	1							110	66.3-81.3	92	
6:30 6:45			2	31	47	21	1							102	66.5-81.5	74	
6:45 7:00			5	40	66	18	1							130	66.7-81.7	98	
6:00 7:00			8	126	244	65	4							447	66.7-81.7	98	
7:00 7:15				8	33	48	11							100	65.0-80.0	71	
7:15 7:30	4	7	5	45	59	9								129	64.8-79.8	94	
7:30 7:45	2	3	16	48	42	9								120	60.9-75.9	78	
7:45 8:00		1	21	75	46	13								156	59.2-74.2	111	
7:00 8:00	6	11	50	201	195	42								505	59.2-74.2	111	
8:00 8:15			22	68	56	11								157	60.6-75.6	107	
8:15 8:30	1	2	15	52	62	8								140	62.9-77.9	101	
8:30 8:45			13	58	40	5								116	61.0-76.0	86	
8:45 9:00			4	32	48	10								94	62.0-77.0	73	
8:00 9:00	1	2	54	210	206	34								507	60.6-75.6	107	
9:00 9:15		1	7	54	34	6								102	62.2-77.2	83	
9:15 9:30			1	16	27	55	1							100	61.6-76.6	75	
9:30 9:45			1	3	30	45	9	2						90	61.8-76.8	64	
9:45 10:00		2	1	9	49	38	6	1						106	63.5-78.5	78	
9:00 10:00		3	3	35	160	172	22	3						398	62.2-77.2	83	
10:00 10:15			2	3	28	47	4							84	66.1-81.1	69	
10:15 10:30			1	5	56	24	6							92	59.5-74.5	76	
10:30 10:45				3	37	21	4	1						66	59.7-74.7	51	
10:45 11:00				8	27	38	5	1						79	64.3-79.3	55	
10:00 11:00			3	19	148	130	19	2						321	59.5-74.5	76	
11:00 11:15			1	10	42	27	4							84	61.6-76.6	61	
11:15 11:30			1	8	32	30	6							77	62.2-77.2	57	
11:30 11:45		2	11	8	26	22	3							72	61.2-76.2	45	
11:45 12:00				8	37	26	7							78	63.5-78.5	55	
11:00 12:00		2	13	34	137	105	20							311	61.6-76.6	61	



Report-2.7	Location : 5019053NS Hwy 50 - 600m South of Emil Kolb Parkway																
	Direction : North + South														Road :		
	Dates : 5/7/2019																
Speeds,km/h ----->	41	51	61	71	81	91	101	111	121	131	141	151	160	Total	Pace Speed	Number in Pace	
00:00 0:15				10	9	2								21	66.0-81.0	18	
0:15 0:30			1	3	2	1								7	60.4-75.4	5	
0:30 0:45			1	7	8	1	2							19	63.9-78.9	15	
0:45 1:00					5									5	61.9-76.9	5	
00:00 1:00			2	20	24	4	2							52	66.0-81.0	18	
1:00 1:15				3	7	1								11	63.0-78.0	10	
1:15 1:30		1	1	2	1									5	57.8-72.8	4	
1:30 1:45			2	4	3									9	54.1-69.1	6	
1:45 2:00				1	6	3								10	71.6-86.6	9	
1:00 2:00		1	3	10	17	4								35	63.0-78.0	10	
2:00 2:15				2	5	2		1						10	65.4-80.4	7	
2:15 2:30				2	3	1		1						7	63.3-78.3	5	
2:30 2:45				1	5									6	63.8-78.8	6	
2:45 3:00				4	2									6	56.1-71.1	5	
2:00 3:00				9	15	3		2						29	65.4-80.4	7	
3:00 3:15			3	4	2	1								10	55.1-70.1	7	
3:15 3:30				1	2	3	1							7	70.6-85.6	4	
3:30 3:45				1	8									9	64.3-79.3	8	
3:45 4:00				2	2	1		1						6	64.3-79.3	4	
3:00 4:00			3	8	14	5	1	1						32	64.3-79.3	8	
4:00 4:15			1	5	7	2								15	58.2-73.2	10	
4:15 4:30			2	9	9	5								25	62.1-77.1	16	
4:30 4:45				12	20	2	1							35	63.7-78.7	29	
4:45 5:00			4	9	12	8	3							36	67.6-82.6	18	
4:00 5:00			7	35	48	17	4							111	63.7-78.7	29	
5:00 5:15				8	21	13	2							44	68.0-83.0	31	
5:15 5:30			2	18	26	19	4							69	67.7-82.7	42	
5:30 5:45			4	20	38	12	5							79	67.3-82.3	57	
5:45 6:00			7	44	63	16	2							132	65.3-80.3	94	
5:00 6:00			13	90	148	60	13							324	65.3-80.3	94	
6:00 6:15			2	42	60	11	1							116	67.4-82.4	93	
6:15 6:30			1	36	61	26	3							127	67.6-82.6	93	
6:30 6:45			7	59	79	23								168	66.1-81.1	126	
6:45 7:00			16	77	64	17	2							176	63.7-78.7	120	
6:00 7:00			26	214	264	77	6							587	66.1-81.1	126	
7:00 7:15			6	52	80	26	1							165	66.7-81.7	116	
7:15 7:30			4	59	88	34	1							186	64.9-79.9	130	
7:30 7:45			10	97	88	21	1							217	61.7-76.7	158	
7:45 8:00			21	101	95	20								237	62.2-77.2	178	
7:00 8:00			41	309	351	101	3							805	62.2-77.2	178	
8:00 8:15			23	113	91	18	2							247	64.2-79.2	180	
8:15 8:30			19	111	85	14	1							230	64.5-79.5	170	
8:30 8:45		1	25	103	73	17								219	61.4-76.4	157	
8:45 9:00		1	16	105	78	6								206	62.5-77.5	162	
8:00 9:00		2	83	432	327	55	3							902	64.2-79.2	180	
9:00 9:15	10	2	7	83	47	9	1							159	62.2-77.2	118	
9:15 9:30			8	85	59	12	2							166	62.2-77.2	124	
9:30 9:45	1	2	18	68	65	17	1							172	62.8-77.8	121	
9:45 10:00			15	78	59	17								169	61.8-76.8	119	
9:00 10:00	11	4	48	314	230	55	4							666	62.2-77.2	124	
10:00 10:15	11	1	11	57	74	10	2							166	62.4-77.4	118	
10:15 10:30		1	13	59	73	7	1							154	64.0-79.0	122	
10:30 10:45			7	59	73	13	1							153	64.0-79.0	119	
10:45 11:00			3	46	90	17	2							158	64.5-79.5	121	
10:00 11:00	11	2	34	221	310	47	6							631	64.0-79.0	122	
11:00 11:15			3	54	50	11	3	1						122	64.3-79.3	95	
11:15 11:30	2	1	10	80	57	9	1							160	62.0-77.0	122	
11:30 11:45		1	14	60	57	16	2	1						151	64.2-79.2	104	
11:45 12:00			11	67	70	18	2							168	65.3-80.3	114	
11:00 12:00	2	2	38	261	234	54	8	2						601	62.0-77.0	122	



Report-2.8	Location : 5019053NS Hwy 50 - 600m South of Emil Kolb Parkway																
	Direction : North + South														Road :		
	Dates : 5/8/2019																
Speeds,km/h ----->	41	51	61	71	81	91	101	111	121	131	141	151	160	Total	Pace Speed	Number in Pace	
00:00 0:15			4	9	6	1								20	72.4-87.4	15	
0:15 0:30			7	4	2		1							14	61.1-76.1	11	
0:30 0:45		2	8	6	3									19	66.1-81.1	15	
0:45 1:00			5	4	3	1								13	60.8-75.8	7	
00:00 1:00		2	24	23	14	2	1							66	72.4-87.4	15	
1:00 1:15			3	7										10	63.6-78.6	9	
1:15 1:30			4	4	2	2								12	63.5-78.5	8	
1:30 1:45		1	4	1										6	55.1-70.1	5	
1:45 2:00		1	4	4	1									10	59.3-74.3	7	
1:00 2:00		2	15	16	3	2								38	63.6-78.6	9	
2:00 2:15		1	1	2		2								6	64.6-79.6	3	
2:15 2:30		1	1		1	1								4	55.0-70.0	2	
2:30 2:45			2	4	1									7	63.3-78.3	6	
2:45 3:00			2	2	2	1								7	68.2-83.2	5	
2:00 3:00		2	6	8	4	4								24	63.3-78.3	6	
3:00 3:15		1	2	2	3	1								9	68.6-83.6	5	
3:15 3:30			2	4		1								7	62.4-77.4	5	
3:30 3:45			1	2	2	1								6	73.9-88.9	4	
3:45 4:00			1	5	2	2								10	67.6-82.6	8	
3:00 4:00		1	6	13	7	5								32	67.6-82.6	8	
4:00 4:15			6	7	2									15	60.1-75.1	12	
4:15 4:30		1	9	9	4									23	60.4-75.4	16	
4:30 4:45		1	8	11	8	3								31	69.5-84.5	19	
4:45 5:00		1	7	20	7	1								36	65.0-80.0	26	
4:00 5:00		3	30	47	21	4								105	65.0-80.0	26	
5:00 5:15		2	14	18	8	1								43	64.5-79.5	31	
5:15 5:30		3	11	24	18	1								57	68.8-83.8	40	
5:30 5:45		2	31	47	9	3								92	65.0-80.0	75	
5:45 6:00		11	29	60	16	1								117	67.9-82.9	80	
5:00 6:00		18	85	149	51	6								309	67.9-82.9	80	
6:00 6:15		4	48	48	16	3								119	65.0-80.0	82	
6:15 6:30			39	76	27	3		1						146	67.6-82.6	109	
6:30 6:45		2	50	76	24	4	1							157	67.0-82.0	112	
6:45 7:00		3	39	90	31	3	2							168	68.2-83.2	125	
6:00 7:00		9	176	290	98	13	3	1						590	68.2-83.2	125	
7:00 7:15		7	32	96	26	1								162	68.2-83.2	121	
7:15 7:30		1	51	82	34	1								169	65.7-80.7	120	
7:30 7:45	5	2	11	78	108	19	1							224	66.0-81.0	161	
7:45 8:00			15	95	115	27	2	1	1					256	63.8-78.8	174	
7:00 8:00	5	2	34	256	401	106	5	1	1					811	63.8-78.8	174	
8:00 8:15			25	105	89	24	1							244	63.6-78.6	156	
8:15 8:30			12	93	113	18	4							240	62.7-77.7	181	
8:30 8:45			14	116	94	13								237	63.4-78.4	182	
8:45 9:00			12	83	85	18	3							201	64.5-79.5	149	
8:00 9:00			63	397	381	73	8							922	63.4-78.4	182	
9:00 9:15			10	80	81	16	1							188	62.9-77.9	137	
9:15 9:30	4		9	62	63	13	2							153	64.3-79.3	108	
9:30 9:45			6	60	75	10	2							153	65.8-80.8	121	
9:45 10:00	1	1	10	75	73	12								172	63.0-78.0	134	
9:00 10:00	5	1	35	277	292	51	5							666	62.9-77.9	137	
10:00 10:15		3	26	64	51	14	4							162	61.6-76.6	98	
10:15 10:30		1	9	59	67	10	1							147	65.0-80.0	114	
10:30 10:45			5	55	65	14	1							140	65.2-80.2	108	
10:45 11:00		1	12	65	53	15								146	60.8-75.8	99	
10:00 11:00		5	52	243	236	53	6							595	65.0-80.0	114	
11:00 11:15		1	11	73	45	16	2							148	62.4-77.4	104	
11:15 11:30			10	59	65	8	3	1						146	63.7-78.7	116	
11:30 11:45		4	12	68	51	11								146	63.5-78.5	108	
11:45 12:00		2	12	58	65	20	2							159	63.0-78.0	106	
11:00 12:00		7	45	258	226	55	7	1						599	63.7-78.7	116	



Report-2.9	Location : 5019053NS Hwy 50 - 600m South of Emil Kolb Parkway																	
	Direction : North + South															Road :		
	Dates : 5/9/2019																	
Speeds,km/h ----->	41	51	61	71	81	91	101	111	121	131	141	151	160	Total	Pace Speed	Number in Pace		
00:00 0:15				12	6	4	1							23	67.1-82.1	16		
0:15 0:30			1	3	6	2	1							13	66.8-81.8	9		
0:30 0:45			1	2	6	1								10	63.0-78.0	8		
0:45 1:00				7	3		1							11	57.5-72.5	9		
00:00 1:00			2	24	21	7	3							57	67.1-82.1	16		
1:00 1:15				2	6	4								12	68.7-83.7	11		
1:15 1:30				2	8	2								12	69.9-84.9	11		
1:30 1:45		1	3	7	1		1							13	53.5-68.5	10		
1:45 2:00			1	2	2	2								7	57.3-72.3	4		
1:00 2:00		1	4	13	17	8	1							44	68.7-83.7	11		
2:00 2:15					5	2	1							8	63.6-78.6	5		
2:15 2:30					1	2	2							5	71.1-86.1	3		
2:30 2:45			1	3	1									5	55.3-70.3	4		
2:45 3:00				1	1	2	1							5	67.0-82.0	3		
2:00 3:00			1	4	8	6	4							23	63.6-78.6	5		
3:00 3:15	1			1	3	1								6	65.1-80.1	4		
3:15 3:30			1	4	3	2	1							11	59.7-74.7	6		
3:30 3:45					5	2								7	70.8-85.8	7		
3:45 4:00			1	3	2	1		1						8	63.5-78.5	5		
3:00 4:00	1		2	8	13	6	1	1						32	70.8-85.8	7		
4:00 4:15				3	4	1	2							10	58.3-73.3	5		
4:15 4:30				7	8	5								20	63.2-78.2	14		
4:30 4:45			1	6	11	6								24	67.5-82.5	16		
4:45 5:00				5	24	11	3							43	71.0-86.0	31		
4:00 5:00			1	21	47	23	5							97	71.0-86.0	31		
5:00 5:15	1		1	9	23	19	2							55	70.5-85.5	38		
5:15 5:30			1	20	30	6	2		2					61	66.4-81.4	45		
5:30 5:45			6	28	32	3	3							72	66.0-81.0	51		
5:45 6:00			1	33	47	13	2	2						98	65.1-80.1	77		
5:00 6:00	1		9	90	132	41	9	2	2					286	65.1-80.1	77		
6:00 6:15				25	79	19	2							125	68.7-83.7	107		
6:15 6:30			2	41	77	21	3	1						145	65.0-80.0	110		
6:30 6:45			2	41	68	31	3							145	67.1-82.1	102		
6:45 7:00			9	49	98	21	2							179	66.7-81.7	138		
6:00 7:00			13	156	322	92	10	1						594	66.7-81.7	138		
7:00 7:15				19	57	73	16	2						167	65.1-80.1	114		
7:15 7:30	4	7	10	66	84	18								189	64.8-79.8	134		
7:30 7:45	2	3	22	71	91	20	3							212	63.2-78.2	135		
7:45 8:00		1	26	100	88	28	1							244	61.9-76.9	159		
7:00 8:00	6	11	77	294	336	82	6							812	61.9-76.9	159		
8:00 8:15			25	94	94	17	1							231	60.6-75.6	158		
8:15 8:30	1	2	24	82	115	17								241	64.6-79.6	174		
8:30 8:45			22	109	78	11								220	61.1-76.1	163		
8:45 9:00			6	68	78	15	1							168	61.6-76.6	132		
8:00 9:00	1	2	77	353	365	60	2							860	64.6-79.6	174		
9:00 9:15	7	7	18	79	50	8								169	62.2-77.2	122		
9:15 9:30		1	17	45	84	7	1							155	62.6-77.6	117		
9:30 9:45	2	6	8	46	75	18	4		1					160	64.3-79.3	107		
9:45 10:00	2	1	15	68	72	14	1							173	63.5-78.5	125		
9:00 10:00	11	15	58	238	281	47	6		1					657	63.5-78.5	125		
10:00 10:15		3	11	59	64	12								149	62.3-77.3	105		
10:15 10:30		1	11	82	48	11								153	60.5-75.5	115		
10:30 10:45			7	60	58	11	2							138	63.9-78.9	100		
10:45 11:00			17	59	62	9	1							148	62.6-77.6	102		
10:00 11:00		4	46	260	232	43	3							588	60.5-75.5	115		
11:00 11:15		1	17	76	48	11								153	60.0-75.0	108		
11:15 11:30		1	19	55	55	10	1							141	62.3-77.3	98		
11:30 11:45	3	16	22	62	47	11								161	61.4-76.4	101		
11:45 12:00			11	69	68	10	1							159	63.5-78.5	121		
11:00 12:00	3	18	69	262	218	42	2							614	63.5-78.5	121		















Date: May 5, 2021  
 From: Greg Dennis, Valcoustics Canada Ltd.  
 Re: Traffic Data Request – Highway 50 (0.6 km South of Emil Kolb Parkway)

Greg,  
 As per your request, we are providing the following 2019 traffic data:

	Existing	Ultimate
24 Hour Traffic Volume	12,843	16,200
# of Lanes	2	2
Day/Night Split	90/10	90/10
Day Trucks (% of Total Volume)	1.85% Medium 0.68% Heavy	1.85% Medium 0.68% Heavy
Night Trucks (% of Total Volume)	1.75% Medium 0.31% Heavy	1.75% Medium 0.31% Heavy
Right-of-Way Width	36 metres	
Posted Speed Limit	60 km/h	

Please note:

1. The current volume is not the Annual Average Daily Traffic, but the averaged raw volumes over three data collection days. If you need the Annual Average Traffic Volume, please visit the Peel Open Data website below:  
<http://opendata.peelregion.ca/data-categories/transportation/traffic-count-stations.aspx>
2. The ultimate volume is the planned volume during a level of service 'D' where a 2 second vehicle headway and a volume to capacity ratio of 0.9 is assumed. Traffic signals and hourly variations in traffic are also incorporated into the ultimate volume.

If you require further assistance, please contact me at [robert.jay@peelregion.ca](mailto:robert.jay@peelregion.ca).

Regards,

Robbie Jay  
 Transportation Planner, Transportation System Planning  
 Transportation Division, Public Works Services, Region of Peel  
 10 Peel Centre Drive, Suite B, 4<sup>th</sup> Floor  
 Brampton, ON L6T 4B9  
 W: (905) 791-7800 x6456  
 E: [robert.jay@peelregion.ca](mailto:robert.jay@peelregion.ca)

## Keni Mallinen

---

**From:** Arash Olia <Arash.Olia@caledon.ca>  
**Sent:** May 5, 2021 1:03 PM  
**To:** Greg Dennis (VCL)  
**Subject:** RE: Traffic Data Request - Hwy 50 & Columbia Way, Caledon-Noise (VCL File: 1210047.000)

The ADT data in 2019 shows 5760 vpd on that section of Columbia Way.

**Arash Olia, Ph.D., P.Eng.**  
Manager, Transportation Engineering  
Engineering Services Department

Office: 905.584.2272 x.4073  
Cell: 416.452.7091  
Email: [arash.olia@caledon.ca](mailto:arash.olia@caledon.ca)

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**From:** Greg Dennis (VCL) <greg@valcoustics.com>  
**Sent:** Wednesday, May 5, 2021 12:09 PM  
**To:** Arash Olia <Arash.Olia@caledon.ca>  
**Subject:** RE: Traffic Data Request - Hwy 50 & Columbia Way, Caledon-Noise (VCL File: 1210047.000)

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the contents to be safe.

Hi Arash,

Ultimate traffic data is preferred. However if you have current counts or a TMC study I can make that work.

Thanks,

Greg Dennis, P.Eng.  
Acoustical Engineer



30 Wertheim Court, Unit 25  
Richmond Hill, Ontario  
Canada L4B 1B9  
Tel: 905-764-5223 ext. 236  
Fax: 905-764-6813  
[greg@valcoustics.com](mailto:greg@valcoustics.com)

---

**From:** Arash Olia <[Arash.Olia@caledon.ca](mailto:Arash.Olia@caledon.ca)>  
**Sent:** May 5, 2021 11:51 AM  
**To:** Greg Dennis (VCL) <[greg@valcoustics.com](mailto:greg@valcoustics.com)>  
**Subject:** RE: Traffic Data Request - Hwy 50 & Columbia Way, Caledon-Noise (VCL File: 1210047.000)

Hi Greg – what type of traffic data?

**Arash Olia, Ph.D., P.Eng.**

Manager, Transportation Engineering  
Engineering Services Department

Office: 905.584.2272 x.4073

Cell: 416.452.7091

Email: [arash.olia@caledon.ca](mailto:arash.olia@caledon.ca)

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**From:** Greg Dennis (VCL) <[greg@valcoustics.com](mailto:greg@valcoustics.com)>

**Sent:** Wednesday, May 5, 2021 10:40 AM

**To:** Arash Olia <[Arash.Olia@caledon.ca](mailto:Arash.Olia@caledon.ca)>

**Subject:** Traffic Data Request - Hwy 50 & Columbia Way, Caledon-Noise (VCL File: 1210047.000)

**CAUTION:** This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the contents to be safe.

Hi Arash,

I am working on a noise study for a proposed mixed-use development at the northeast corner of Hwy 50 and Columbia Way, Caledon.



Can you please provide traffic data for Columbia Way in the vicinity of the site?

Thank you,

Greg Dennis, P.Eng.  
Acoustical Engineer



30 Wertheim Court, Unit 25

Richmond Hill, Ontario  
Canada L4B 1B9  
Tel: 905-764-5223 ext. 236  
Fax: 905-764-6813  
[greg@valcoustics.com](mailto:greg@valcoustics.com)

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# **APPENDIX C**

## **ENVIRONMENTAL NOISE GUIDELINES**

**APPENDIX C**  
**ENVIRONMENTAL NOISE GUIDELINES**  
**MINISTRY OF THE ENVIRONMENT, CONSERVATION AND PAKRS (MECP)**

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

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

..../cont'd

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

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

Reference: MOE Publication ISBN 0-7729-2804-5, 1987: "Environmental Noise Assessment in Land-Use Planning".

EXCESS ABOVE RECOMMENDED SOUND LEVEL LIMITS (dBA)	CHANGE IN SUBJECTIVE LOUDNESS ABOVE	MAGNITUDE OF THE NOISE PROBLEM	NOISE CONTROL MEASURES (OR ACTION TO BE TAKEN)
No excess (<55 dBA)	—	No expected noise problem	None
1 to 5 inclusive (56 to 60 dBA)	Noticeably louder	Slight noise impact	If no physical measures are taken, then prospective purchasers or tenants should be made aware by suitable warning clauses.
6 to 10 inclusive (61 - 65 dBA)	Almost twice as loud	Definite noise impact	Recommended.
11 to 15 inclusive (66 - 70 dBA)	Almost three times as loud	Serious noise impact	Strongly Recommended.
16 and over (>70 dBA)	Almost four times as loud	Very serious noise impact	Strongly Recommended (may be mandatory).

# **APPENDIX D**

## **SAMPLE CALCULATIONS –**

### **TRANSPORTATION NOISE SOURCES**

STAMSON 5.04            NORMAL REPORT            Date: 02-11-2021 09:59:40  
MINISTRY OF ENVIRONMENT, CONSERVATION AND PARKS / NOISE ASSESSMENT

Filename: a2\_wf.te            Time Period: Day/Night 16/8 hours  
Description: **Tower A2 West Facade**

Road data, segment # 1: Highway 50 (day/night)

-----  
Car traffic volume : 14211/1587 veh/TimePeriod  
Medium truck volume : 270/28 veh/TimePeriod  
Heavy truck volume : 99/5 veh/TimePeriod  
Posted speed limit : 70 km/h  
Road gradient : 0 %  
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Highway 50 (day/night)

-----  
Angle1 Angle2 : -90.00 deg 90.00 deg  
Wood depth : 0 (No woods.)  
No of house rows : 0 / 0  
Surface : 1 (Absorptive ground surface)  
Receiver source distance : 22.00 / 22.00 m  
Receiver height : 25.20 / 25.20 m  
Topography : 1 (Flat/gentle slope; no barrier)  
Reference angle : 0.00

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

-----  
Car traffic volume : 7766/863 veh/TimePeriod \*  
Medium truck volume : 245/27 veh/TimePeriod \*  
Heavy truck volume : 163/18 veh/TimePeriod \*  
Posted speed limit : 50 km/h  
Road gradient : 0 %  
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 5760  
Percentage of Annual Growth : 2.00  
Number of Years of Growth : 23.00  
Medium Truck % of Total Volume : 3.00  
Heavy Truck % of Total Volume : 2.00  
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 2: Columbia Way (day/night)

-----  
Angle1 Angle2 : 0.00 deg 40.00 deg  
Wood depth : 0 (No woods.)  
No of house rows : 0 / 0  
Surface : 1 (Absorptive ground surface)  
Receiver source distance : 51.00 / 51.00 m  
Receiver height : 25.20 / 25.20 m  
Topography : 1 (Flat/gentle slope; no barrier)  
Reference angle : 0.00

Results segment # 1: Highway 50 (day)  
-----

Source height = 0.91 m

ROAD (0.00 + 65.84 + 0.00) = 65.84 dBA  
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq  
-----  
-90 90 0.00 67.51 0.00 -1.66 0.00 0.00 0.00 0.00 65.84  
-----

Segment Leq : 65.84 dBA

Results segment # 2: Columbia Way (day)  
-----

Source height = 1.19 m

ROAD (0.00 + 51.55 + 0.00) = 51.55 dBA  
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq  
-----  
0 40 0.00 63.40 0.00 -5.31 -6.53 0.00 0.00 0.00 51.55  
-----

Segment Leq : 51.55 dBA

Total Leq All Segments: 66.00 dBA

Results segment # 1: Highway 50 (night)  
-----

Source height = 0.75 m

ROAD (0.00 + 58.82 + 0.00) = 58.82 dBA  
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq  
-----  
-90 90 0.00 60.49 0.00 -1.66 0.00 0.00 0.00 0.00 58.82  
-----

Segment Leq : 58.82 dBA

Results segment # 2: Columbia Way (night)  
-----

Source height = 1.19 m

ROAD (0.00 + 45.00 + 0.00) = 45.00 dBA  
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq  
-----  
0 40 0.00 56.85 0.00 -5.31 -6.53 0.00 0.00 0.00 45.00  
-----

Segment Leq : 45.00 dBA

Total Leq All Segments: 59.00 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 66.00  
(NIGHT): 59.00

# **APPENDIX E**

## **SAMPLE CALCULATIONS – STATIONARY NOISE SOURCES**

## Point Sources

Name	M.	ID	Result. PWL			Lw / Li		Correction			Sound Reduction		Attenuation	Operating Time			K0	Freq.	Direct.	Height	Coordinates						
			Day	Evening	Night	Type	Value	norm.	Day	Evening	Night	R		Area	Day	Special					Night	(dB)	(Hz)	(m)	X	Y	Z
			(dBA)	(dBA)	(dBA)		(dBA)		dB(A)	dB(A)	dB(A)			(m <sup>2</sup> )	(min)	(min)					(min)				(m)	(m)	(m)
Truck Idling		MdTrk_Idle01	92.0	92.0	92.0	Lw	MdTrk_Idle		0.0	0.0	0.0							(none)	1.80	r17599926.07	4860586.57	1.80					
Truck Idling		DmpTrk_Idle01	100.6	100.6	100.6	Lw	Hvy_Trk_Idling		0.0	0.0	0.0							(none)	2.50	r17599935.50	4860488.60	2.50					

## Line Sources

Name	M.	ID	Result. PWL			Result. PWL'			Lw / Li		Correction			Sound Reduction		Attenuation	Operating Time			K0	Freq.	Direct.	Moving Pt. Src							
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Evening	Night	R		Area	Day	Special				Night	(dB)	(Hz)		Number			Speed
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)		(dBA)		dB(A)	dB(A)	dB(A)	dB(A)		(m <sup>2</sup> )	(min)	(min)				(min)				(none)	Day	Evening	Night
Medium Truck Movements		MdTrk_Mvt01	91.4	-18.6	-18.6	66.9	-43.1	-43.1	PWL-Pt	Med_20kph		0.0	0.0	0.0				60.00	0.00	0.00	0.0		(none)	10.0	0.0	0.0	20.0			
Lawnmower Movement to Trailer		LwnMwr_Mvt01	96.8	-16.2	-16.2	84.7	-28.3	-28.3	PWL-Pt	LM_01		0.0	0.0	0.0			-5	60.00	0.00	0.00	0.0		(none)	20.0	0.0	0.0	5.0			
FEL loading aggregate		FEL01	106.0	106.0	106.0	85.9	85.9	85.9	Lw	FEL		0.0	0.0	0.0				60.00	0.00	0.00	0.0		(none)							
Dump Truck movement		DmpTrk_Mvt01	95.1	-12.7	-12.7	70.9	-36.9	-36.9	PWL-Pt	Hvy_Trk		0.0	0.0	0.0				60.00	0.00	0.00	0.0		(none)	6.0	0.0	0.0	20.0			

## Sound Level Library

Name	ID	Type	Oktave Spectrum (dB)											Source		
			Weight.	31.5	63	125	250	500	1000	2000	4000	8000	A	lin		
Medium truck movement - 20 kph	Med_20kph	Lw		0.0	111.3	105.2	99.6	96.4	94.3	91.5	87.2	82.5	99.9	112.7	VCL Database	
Medium Truck Idling	MdTrk_Idle	Lw		0.0	93.9	93.6	89.0	88.8	88.1	84.0	76.6	70.5	92.0	98.6	VCL Database	
Lawnmower Movement to Trailer	LM_01	Lw		84.8	112.2	105.9	95.7	95.9	97.4	97.7	96.2	91.0	103.7	113.6	VCL Measurement - 2021-06-25	
FEL	FEL	Lw		106.7	113.7	108.5	106.1	99.5	100.7	99.7	92.6	91.4	106.0	116.3	ML Measurements	
Heavy Truck Idling	Hvy_Trk_Idling	Lw		0.0	101.2	96.6	96.4	95.7	91.6	84.2	78.1	99.6	100.6	105.6	VCL database Heavy Truck Idle	
Heavy truck movement - 20 kph	Hvy_Trk	Lw		0.0	111.8	110.3	106.4	102.6	99.7	97.7	95.6	92.1	106.1	115.3	VCL Database	

Receiver

Name: Plane of Window

ID: POW01

X: 17600043.00 m

Y: 4860640.57 m

Z: 22.50 m

Point Source, ISO 9613, Name: "Truck Idling", ID: "DmpTrk\_Idle01"

Table with 20 columns: Nr, X, Y, Z, Refl., DEN, Freq., Lw, l/a, Optime, K0, Di, Adiv, Aatm, Agr, Afol, Ahous, Abar, Cmet, RL, Lr. It contains 3 data rows for truck idling.

Line Source, ISO 9613, Name: "FEL loading aggregate", ID: "FEL01"

Large table with 20 columns: Nr, X, Y, Z, Refl., DEN, Freq., Lw, l/a, Optime, K0, Di, Adiv, Aatm, Agr, Afol, Ahous, Abar, Cmet, RL, Lr. It contains 43 data rows for FEL loading aggregate.

Line Source, ISO 9613, Name: "Lawnmower Movement to Trailer", ID: "LwnMwr\_Mvt01"

Table with 20 columns: Nr, X, Y, Z, Refl., DEN, Freq., Lw, l/a, Optime, K0, Di, Adiv, Aatm, Agr, Afol, Ahous, Abar, Cmet, RL, Lr. It contains 3 data rows for lawnmower movement.











