URBAN DESIGN BRIEF

69 & 117 JOHN STREET, MISSISSAUGA, ON

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THEAKSTON ENVIRONMENTAL

October 2024

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1. INTRODUCTION AND PROJECT BRIEF

This Urban Design Brief is a reflection of our design concepts and intentions to develop this site as part of the urban fabric of Mississauga's downtown core. These ideas have been fabricated in relation to the proposed development that is to be situated in the Cooksville neighborhood, just south of the Canadian Pacific Railway (C.P.R.) corridor, with fronting along John Street.

The subject property of 69 & 117 John Street is currently a vacant lot, previously used as a storage field for trucks and trailers. The following proposal aims to introduce the development of a series of three residential towers. In brief, the proposal illustrates a series of three residential buildings, interconnected by a podium, featuring a smaller pavilion like structure allocated for commercial use. The following programmatic components and organizational strategies will demonstrate the breakdown of the proposal:

•The proposal consists of three residential buildings, at 31 storeys, 30 storeys and 20 storeys, each connected by an 12 storey podium. An attached commercial structure is also proposed.

•The site has one primary access point – John Street will serve the main entryways and driveways to the building, both for on-site lay-by parking as well as for access to long-term underground parking and loading.

•A landscaped entryway and courtyard graces the building entrances, while providing an inviting atmosphere to the landscaped zones (dog run park, to the west and, playground to the east) allocated on site.

•Grade related commercial uses primarily consist of a centralized non-residential building along the frontage of John Street.

•Building frontage along John Street has a minimum setback of at least 3 meters from the front lot property line.

•Common areas are included throughout the ground floor and podium levels. From a variety of indoor and outdoor amenity spaces, to a series of cascading landscaped roof terraces.

•An extensive roof terrace sits atop the 12 storey podium. Providing landscaped outdoor amenity spaces. These outdoor spaces are seamlessly connected to additional indoor amenity spaces.

•The typical floor plate for the high-rise residential towers bares a floor plate of 1000 sq.m. (900 sq.m. net or 892 sq.m averaged across all floors of all towers above the podium).

•The proposed structure will consist of 1,342 residential units, with a structure of approximately 100,379 sq m. of GFA.

•Rental and affordable housing shall be provided in accordance with the City of Mississaugas Inclusionary Zoning (IZ) requirements for the Major Transit Station Areas (MTSA).

•Approximately 600 sq.m. of non-residential use can be observed at street levels with barrier-free access from the public sidewalks.

• 20% of all residential parking spaces provided shall be dedicated as electric vehicle ready parking.

This Urban Design Brief will describe the rationale and intentions of the above noted programmatic elements.

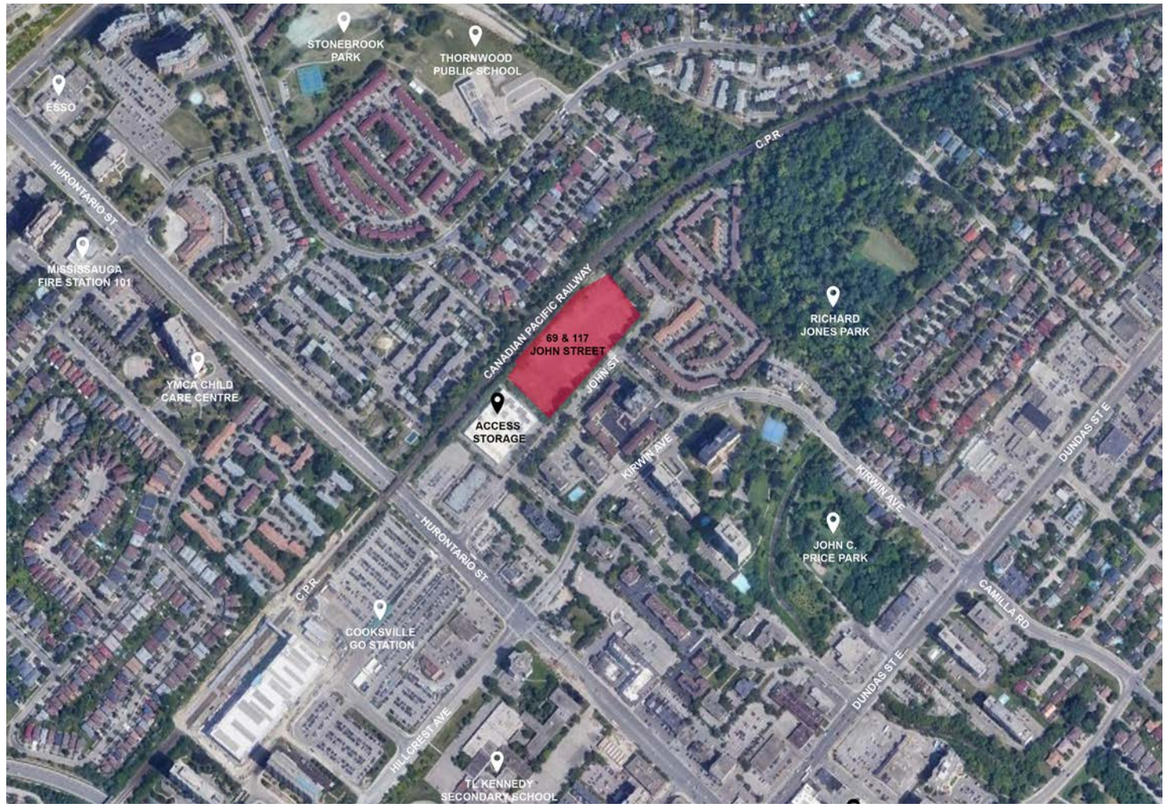


Figure 01: Proposed Development Location

2. PROJECT GOALS AND OBJECTIVES

Programme – Policy
Firstly, we wish to address the objectives of the City, Region, and the Province with a higher density development that will provide housing along the emerging Hurontario transportation corridor. The Official Plan and Policy statements acknowledge the critical need for housing. This prominent location is one where the Provincial, Regional and Municipal objectives are supported.

In support of the objectives laid out in the Official Plan and the Downtown Core our vision is for the proposal to contribute to the planned function of Downtown Cooksville.

This fragment of a growing downtown core will help reinforce its long term vibrancy by adding a reasonable number of residences to the predominately employment based environment present today.

Environment
We envision this building as part of the future. We are proposing to transform a vacant lot of 1.87hc. and revitalize it with the construction of an underground parking and servicing structure braced by an intricate podium structure and tower elements.

The proposal includes landscaped areas and green roof surfaces, that will result in most of the development lot being transformed from its current stagnant state to providing a lush and vibrant green landscaped surfaces.

Working with our transportation consultant, and objectives of the upcoming Hurontario Street LRT system, we are proposing a parking regime that will work within the future framework of auto travel and with the idea of making other modes of transportation easily accessible.

The site location allows for a short walk to the planned Cooksville LRT station, a short commute to Square One, a short distance to several office buildings and a short transition to the new bus terminal. In order to reinforce this, we are proposing to limit the extent of on-site parking for the residences.

Working with sophisticated, energy-efficient mechanical systems, and with high-level glass designs, we are able to offer suites with panoramic views, while lowering energy consumption as well as reducing embodied energy as glass is both light and the most recyclable of all building materials.

The sense of personal wellbeing and the freedom gained when living in a space that is not restrictive, but rather has floor to ceiling glazing can provide expansive views of the City and the landscape, as a comforting and inspiring aspect of living.

Urban Design
The residential portions of a City create the texture or urban fabric of the City, setting up the backdrop for its institutions. These residential building must bear the design strength to form a significant addition to the Mississauga skyline and in its own right, stand out.

Currently, in the City of Mississauga, a successful and on-going process of defining its own urban identity is underway as seen through a skyline of interesting forms and, sometimes iconic elements. Upon arrival to the GTA, via Pearson International Airport, Mississauga boasts an impressive sense of its vibrancy and complexity.

The proposed series of towers will contribute to the 'urban composition', and will help solidify the identity of Hurontario Street, of the Cooksville region, as a prominent figure of an urban mass. It is important that the project has adequate height, as it is part of the crescendo that will brace the urban form of the Hurontario corridor.

The New City
The scale of the proposed development aims to deliver the idea of the 'new city'. This concept pursues the idea of introducing new, rich and diverse neighborhoods to promote the emergent identity of Mississauga and its downtown core.

The scale of the aforementioned proposal provides the city with a reasonable population that will support the urbanization of Hurontario and will support a pedestrian based neighborhood. However despite sheer scale, the architectural composition of the project was carefully taken into consideration. From the outset, the design was positioned to deliver 'bite sized pieces' to the community. This was considered as to not introduce a structure that bear a monolithic expression, but rather one that was fragmented in nature. This allowed the architectural team to create a composition that features various masses that push, pull and shear along the building's façade reading as smaller, individual fragments. Thus creating a more relatable scale within the existing context. This moreover plays with the idea of phenomenal transparency to create the abstraction of space in and around the neighboring vicinity by articulating a building that is architecturally appealing, considerate and feasible.

Private Development
As designers of private residential condominium developments, we need to ensure a successful project with regard to many issues. The desire for a beautiful and meaningful work of Architecture certainly can support a successful business model.

First, we start with the social context and the issues of housing supply, affordability, and typology. The project has been designed to work within the current context for this part of the City in terms of development opportunities, development costs, social/cultural infrastructure, and servicing.

A key component of the business success and requisite financial model starts with the site conditions. We have worked with the hydrogeology and geotechnical studies in developing the proposed scenario.

Additionally, we have been working with the traffic patterns and their limitations in the design of the access points, servicing design and parking ratios. This translates into a substantial factor of the design programme which has long term implications on the environment, long term sustainability and cost.

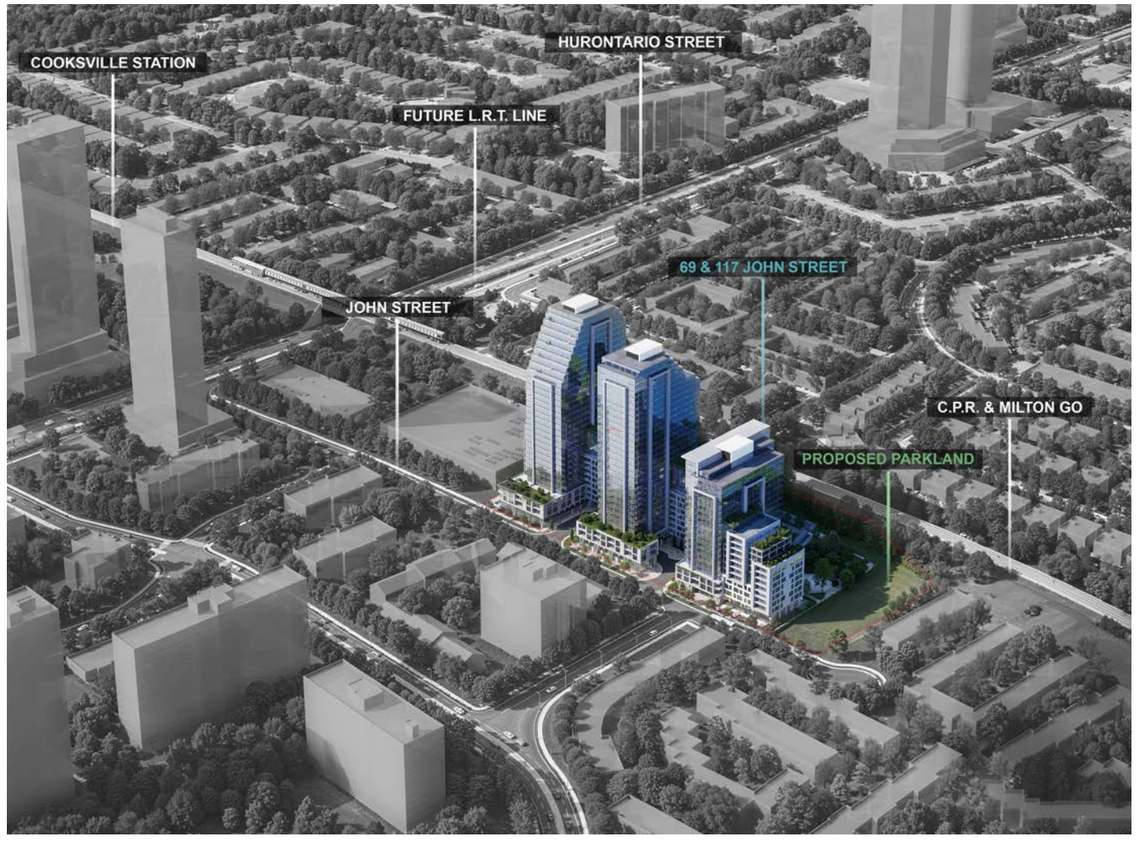


Figure 02: Proposed Development

Rational for Height and Density

The city of Mississauga has designated this site as per the City's Zoning bylaw to accommodate a structure bearing a height up to 18 and 16 storeys. This regulation serves to guide future development proposals in order to address concerns related to building massing, site density, site shading and servicing requirements at both a site wide level as well as at a community wide scale. The proposal set forth however embarks on extending the boundaries of what the city has previously prescribed, by increasing the buildings height and density whilst maintaining a respectful relationship to the surrounding context. In order to rationalize these design resolutions, it is important to understand them as a means of serving and supporting the vision of Mississauga's Downtown Growth Plan.

Mississauga's Downtown strategy encompasses a vast Urban Growth Centre that is inclusive of the proposed developments site, positioned within the Downtown Cooksville region. This district has been stipulated as an area of intensification as a means of bolstering the city's growing population by providing greater living opportunities. By adapting the stipulated building height allowances, our goal is to provide a means for more dwelling units to be built and address growing concerns surrounding housing availability and affordability. This shift will likely yield more beneficial results towards affordable dwelling unit creation, focusing on the city's objective of intensification.

Moreover, several proposals within the vicinity of the site and along the Hurontario Street corridor aim to meet a building height in excess of 34 storeys to 46 storeys. This reality, positions the proposal and its built form as a viable entry within the immediate urban fabric, as a structure that aims not only meets the needs of the municipalities future vision but also integrates itself into the trend of developing the image of a New City.

While proposing an increase to building massing beyond the suggested framework helps to address a deficit the city faces, it is also important to recognize the implications the development may have on the context and work to mitigate them through various design solutions. These mitigating factors were primarily addressed through setback features on the towers to minimize the shadow impact on the surrounding context. This can be visualized through the attached shadow study diagrams and report that defends a strong conformity with Mississauga's Standards for Shadow Studies. In brief, these studies identify that the proposal shall have a minimal impacting shadow on the neighboring lands as outlined by the municipality's guidelines. Additionally, concerns regarding angular planes and sight lines from the northern side of the development have also been addresses by stepping back the tower incrementally as to maintain a 45 degree angular plane. However, while it is important to mitigate the impact of the building based on environmental factors, it is also essential to provide an environment that can sustain the increased density. This is supported through the provision of ample outdoor amenity spaces that supports

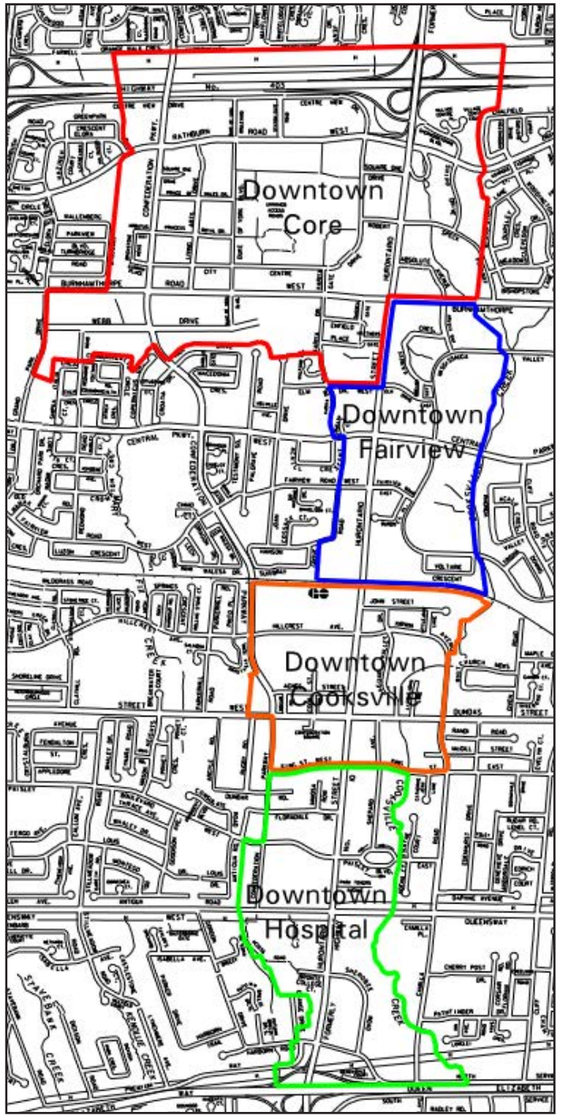


Figure 03: Mississauga's Urban Growth Centre

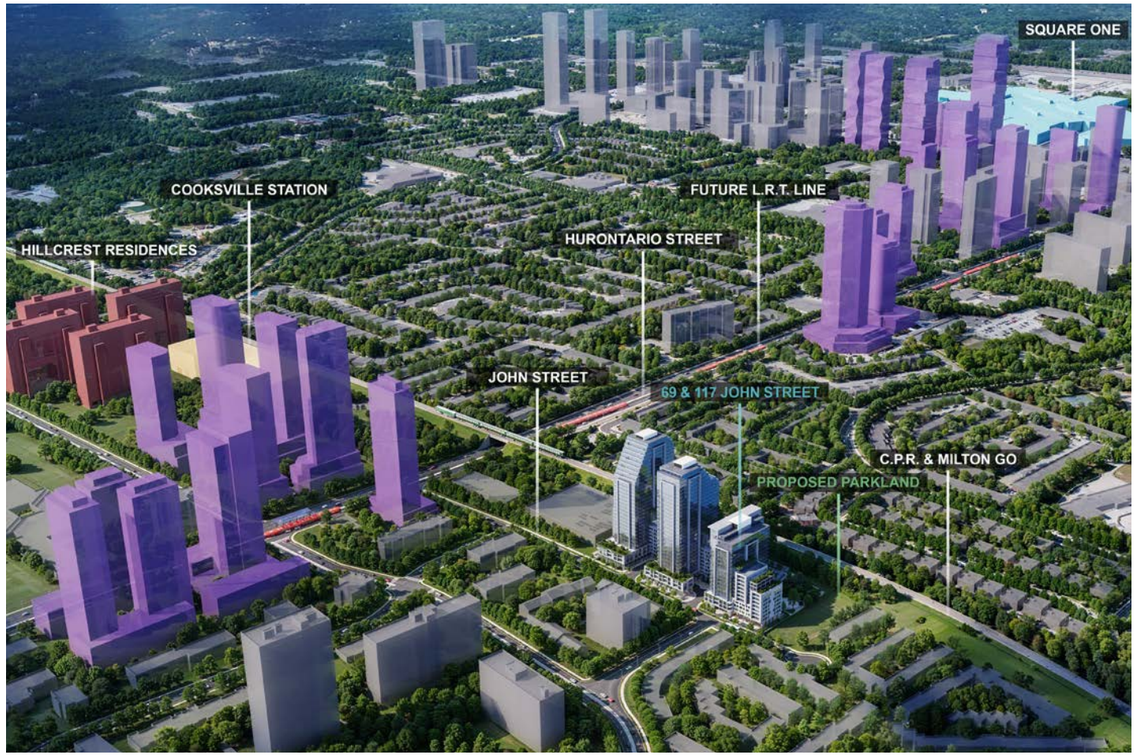


Figure 04: Future Context

the increased density whilst also introducing spaces that aim to serve the existing community. This is inclusive of large park spaces and allocated parklands to the east and an engaging streetscape along John Street.

The current development of the Hazel McCallion LRT also provides a higher order transit infrastructure to support the vision of a proposal with a greater building height and density. As per the Hurontario Corridor Master Plan, the integration of the transit system aims to support the city's growth plan by introducing a transit network that will support and connect the influx of future residence along several primary MTSA's. The proximity and accessibility of the LRT helps the city to fast-track its 2031 goals of gross population density, employment ratios and employment opportunities within the targeted Downtown regions. This interrelation between accessible transit systems, population growth and community nodes help to frame a city structure by connecting people to place, providing a more formidable Downtown core that aligns with the vision of Mississauga's image for intensification and it's Growth Plan. Thus, the subject lands and the proposed development serve as a catalyst that not only supports the city's plans of growth and ambition, but also helps rationalize the investments, efforts and utilization of the infrastructures set in motion.

In conclusion, the imperative to manage changes to current municipal regulations wisely and direct growth to key strategic locations is critical for Mississauga's continued success and prosperity. As a means of supporting these municipal goals, the aforementioned proposal seeks to broaden the margins of what has previously been prescribed, by increasing the buildings height and density whilst maintaining a respectful relationship to the surrounding context.

Responding to Feedback and Criticism

The following investigates several aspects of feedback and concerns that were highlighted in prior submissions of a concept design in relation to height and density.

As a result of the broader commentary provided, and in particular for comments of adhering to angular plane restrictions, City Planning and Management staff were engaged to specify what key transition considerations should apply between a neighbourhood (to the north) and a strategic growth area/MTSA such as the subject lands of the proposal. Direction was given to draw angular planes starting from a point 7.5 m back (where rear yards applied) from the homes on Voltaire Crescent. The westerly cross-section is drawn from the sidewall of the existing home. The revised drawings provided by the architectural team has illustrated this on drawings A 3.0 to A 3.3. The built form generally conforms with these angular planes as shown.

For further clarity, it should be noted that in Section 3.5 of the *Cooksville Built Form Standards*, the closest condition of the subject lands is represented by *Figure 28* indicates an approximating rear yard condition that could be applicable to the subject site. *In reality however, Figure 05 below* illustrates the variance to this condition by distinguishing the separation by the C.P.R. right of way at the rear yard. However, this example doesn't reflect the reality of the generous rear yard setback (30 meter railway safety buffer) required for both the subject lands and homes on Voltaire Crescent as well as the intervening CPR right of way that measures approximately 80 meters in width. Therefore applying this as shown is not appropriate to the existing context.

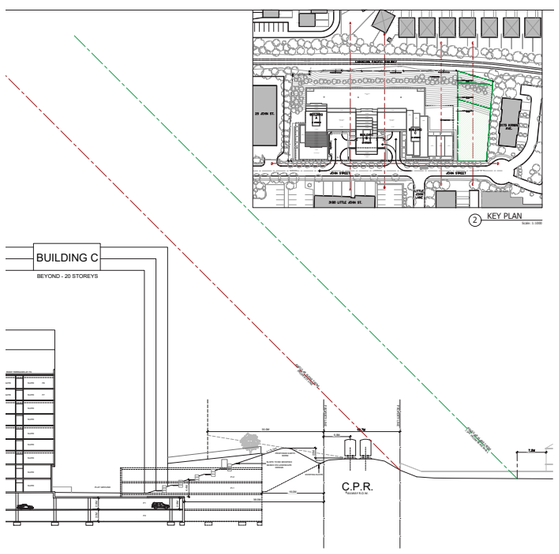


Figure 05: Transition From The Rear Property Line

The street conditions of the proposed buildings has been designed to accommodate non-residential uses, common lobby connections, and private units all facing the street. The front yard setbacks and conditions are appropriate and consider constraints on the site from the north (CPR tracks) and east (proposed park block which has enlarged).

The minimum podium height has been provided for all three towers. Two of the towers exceed the 6 meter stepback from tower to podium face. The buildings however have also undergone additional sculpting to its massing on higher levels to further minimize the mass of tower to the podium and providing a 6 meter separation (or greater). While some floors are larger than the desired 750 sq. m, the sun/shadow study demonstrates general compliance with City's terms of reference including when considering shadows from a potential building built under existing zoning permissions. These studies have been distinguished as the As of Right massing. Above the recessed podium element, the average tower floor plate size is 892 sq. m.

The city of Mississauga's built form standards suggests that the podium design for tall residential buildings in the downtown area should be at least 3 storeys tall. This standard also applies to the concept of a street wall. The proposal implements three distinct 3 storey podium section setback along the frontage of John street to maintain this standard. The podium sections between each tower at 12 storeys each is set back 30 meters from the south property line and helps mitigate some of the acoustic impacts from the CPR railway. Additionally the upper 3 storeys implements a stepback design with more transparent materiality to create a more comfortable, lighter scale even though it is +30 meters from the pedestrian realm. This has created a second recessed podium element which is not visible or not easily visible when walking along the streetscape. These podium structures were also sculpted to minimize the shadow impact on the surrounding context. A minimum 3 meter setback has also been use for the building, at the ground floor level along the frontage of John Street. There is additionally a 30 meter separation between each tower portion of the proposal. According to the design standards it is recommended that the tower floor plates be 750 sq. m for a building up to 30 storeys and 800 sq. m for a tower from 31 -49 storeys. This aspect of a 750 sq. m plate was previously proposed with towers in the 40 storey range but conflicted with the 45 angular plane. To maintain the number of housing units while meeting angular plane requirement a compromise was made with City Officials to permit up to a 1000 sq. m floor plate for the towers for reduced height and conformity to the angular plane. Further amendments to the building mass were provided to satisfy City Community Services staff looking to accommodate a large park presence along the street. Shadow study analysis were also conducted to sculpt these larger towers to mitigate a majority of the shadow impacts. There are no negative impacts for having the floor plates extended to a 1000 sq. m floor plate. This has been distinguished through the shadow study report, the shadow study diagrams and the drawings/sections provided.

Please also note that the 1000 sq. m typical floor plates (only lower levels of the towers) reduce in size as the towers continuously step back beginning above the 22 storey. This resulting sculpting of upper floors results in a lower actual tower floor plate size. Based on using the City's Zoning By-law definition of a 'Tower Floor Plate' it has been understood that the precise definition "... means the average floor area of all storeys within that portion of a building or a structure or part thereof located above the podium, measured to the exterior faces of exterior walls of each storey of a building or structure."

As per this definition the tower floor plate for the proposal above the 12th storey has been calculated to be approximately 892 sq. m. Due to the configuration of the tower blocks the shadows casted are predominantly casted on the buildings block/site lot itself. 750 sq. m is a general guideline set out with no regards for specific site or building programming considerations, however a 1000 sq. m floor plate is an ideal floor plate size to address and meet site specific conditions such as those presented on the subject site.

Figure 06: Resulting Massing Based on Mitigating Strategies

Figure 07: Aerial View With Surrounding Context

3. EXISTING SITE AND NEIGHBORHOOD

3.1 THE SITE

As illustrated in the context map, and aerial view above, the site is bounded by Hurontario Street to the far West, John Street to the immediate south and the Canadian Pacific Railway corridor to the north. Other immediate site contexts include a variety of single family housing such as townhouses, a series of mid-rise apartment building (south) as well as a storage facility and strip mall to the west of the site.

Current Conditions:
The lots of 69 and 117 John Street currently stand vacant. The current grading of the site consists of a relatively flat plot of land with approximately a 2 meters difference from west to east over a 200 meter wide lot. The north to south grading is far more drastic due to the elevated C.P.R tracks just north of the site. This results in an average grade change of approximately 6.5 meters, from John Street to the top of rail. However, this slope is predominantly to the rear of the site, an aspect of the rail corridors existing earth berm design/elevation.

3.2 SURROUNDING LAND USES AND BUILT FORM CHARACTERISTICS

John Street

Currently classified as a tertiary public road (‘C’ Street) and a GO Access Road (‘B’ Street), John Street is home to a variety of building typologies. Although primarily residential in nature, the west end of this road, intersecting Hurontario Street consists of smaller retail/commercial structures to the north and the south. A larger Access Storage facility is also present on the north side, followed by a vast area of townhouses and mid-rise apartments in the easterly direction. This street now extends westward towards Cooksville GO Station, another prominent aspect of the immediate built form.

Hurontario Street (Highway 10)

Although not a bordering roadway, the proximity of Hurontario Street serves as a significant pathway for access to the site via John Street. This main road is an important aspect of the neighborhood and surrounding context as it is expected to introduce the upcoming Hazel McCallion LRT system. This new transit route will make it more accessible for residence in this neighborhood to access the various nodes of Mississauga’s downtown core and beyond.

Moreover, Hurontario Street promotes the future of Mississauga’s identity and that of its downtown core as a ‘new city’. A city and street that boasts a rich and architecturally diverse set of buildings that have been proposed to meet the needs of the community.

Canadian Pacific Railway and Milton GO

Bordering to the north of the site is a two-track railway corridor owned by the Canadian Pacific Railway Company. These tracks while typically used for transportation of freight by rail are also shared with Metrolinx to provide service for it Milton GO corridor. This rail line is an elevated track, approximately 6.5 meters above the grading of John Street.

3.3 URBAN PATTERN – IMMEDIATE NEIGHBORHOOD

The immediate neighborhood is parceled into smaller residential blocks. This is favored for the walkability to and from the surrounding context, such as the Cooksville GO Station, retail centers, institutional services and outdoor park amenities. The 400 series highway to the north and south of the site provide convenient alternatives to the transit systems. The integration of the future LRT in union with the already established GO infrastructure will greatly support the current residential population and those that will inhabit this region following the development of future residential projects in the years to come. This Cooksville neighborhood, as part of the urban fabric of Mississauga’s downtown core bears a strong potential for residential development and ease of accessibility. Thus, illustrating a vision of clarity, identity and ambition of the city’s needs for years to come.

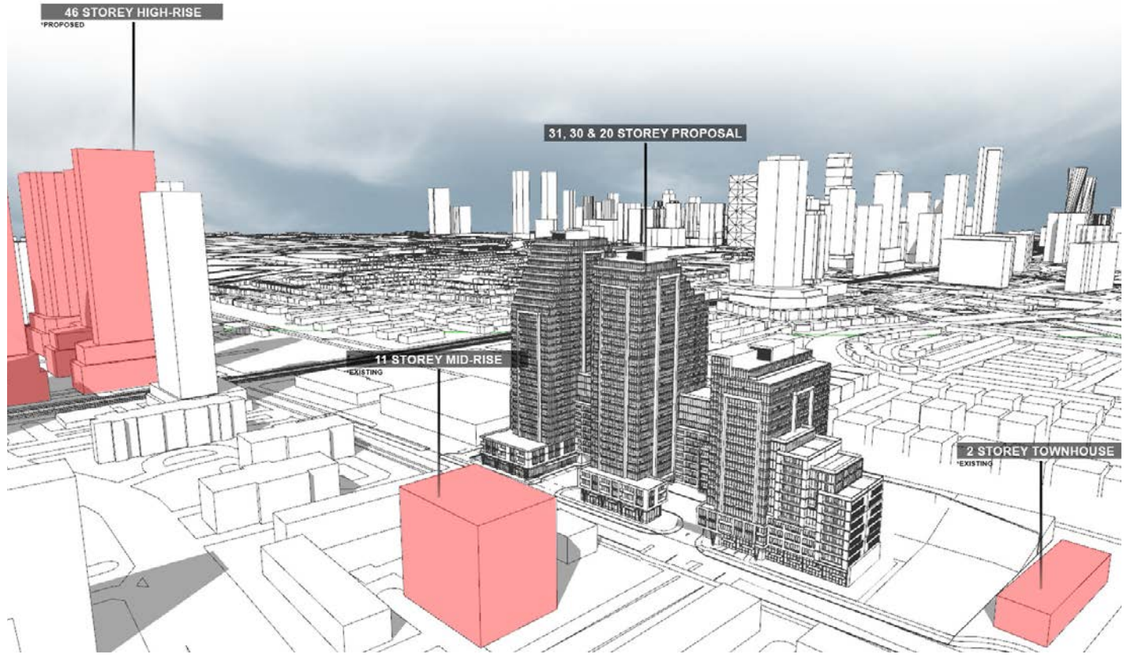


Figure 08: Proposed Development With Existing Context

Figure 09: Cooksville GO Station

Figure 10: John Street Commercial Plaza

Figure 11: Existing Residential Towers

Figure 12: Existing Residential Townhouses

3.4 EXISTING AND PLANNED TRANSPORTATION NETWORK

The transportation network is complex and is to a great extent determined by the depressed highway and bridged Hurontario Street design.

We are currently working with the schematic drawings prepared for the new Hazel McCallion LRT system.

The convenience to the LRT, to the Bus terminal and many shops, offices and cultural facilities with a few blocks of the site, essentially form the rationale for the parking and transportation design.

3.5 NATURAL HERITAGE

The site does not immediately border on any natural features. The closest natural feature may be considered to be the Cooksville Creek Trail to the east of the site, functioning as a means of erosion control.

3.6 LANDMARKS AND SKYLINE CHARACTER

A prominent aspect of the location of this site is its proximity to some of the most iconic and significant elements of Mississauga. These landmarks consist of structure such as the Absolute Condominiums and M City developments a few blocks to the north, as well as the Cooksville GO and upcoming LRT station to the west. As well as similar upcoming projects that will define the urban fabric. It is in the context that we have designed the building described herein.

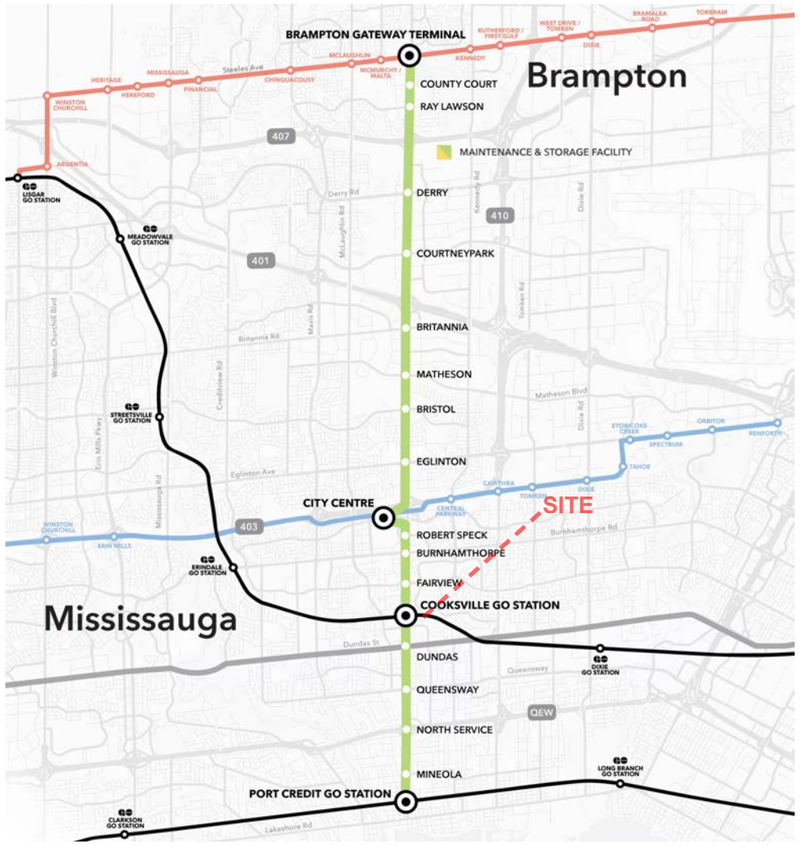


Figure 13: Hazel McCallion LRT Map

Figure 14: Cooksville LRT Station

Figure 15: Cooksville LRT Street View

4. DESCRIPTION OF THE PROPOSED DEVELOPMENT

4.1 SITE DESIGN AND SITE ORGANIZATION

The lay of the land for this site proposed a series of design challenges, from the requirements of meeting railway safety protocols, to shadow impacts, as well as an analysis of communities needs and requirements. For these reasons the building is composed of three distinct tower structures gradually rising westward upon a podium, nestled gently into the railway berm to optimize the safety and efficiency of the site.

Several key design decisions have served as the parameters of the site plan:

•A two storey parking structure serves as a means of creating a retaining wall and earth-berm to mitigate the risks outlined by railway safety protocols.

•The introductions of a variety of outdoor green space have been proposed at grade to serve both existing and future residence of this neighborhood. These consist of playgrounds, courtyards, dog run parks and pathways stretching around the building.

•Slender high-rise elements, in the north-east to south-west directions to minimize the casting of shadows.

•Focusing on the concept of the buildings massing as a collage, as a way of breaking up the form into smaller 'bite size' portions. Avoid the idea of monolithic expressions.

•The placement and the towers form, as not to encumber existing residence to the north and east by maintaining a 30 meter separation from tower to tower and 45˚ angular plane setbacks.

•The desire to invigorate the frontage of John Street with the introduction of commercial spaces as a means of providing a more vibrant and engaging community.

•Access to the underground parking will be from the central courtyard as well as directly off John Street to the east end.

•The implementation of a 12 storey podium interconnecting the high-rise towers to create a more cohesive composition.

•The desire to create a 'neutral courtyard' upon the roof of the parking structure – that does not emulate the existing barren landscape of the lot but rather establishes the 'courtyard' as an urban space separate from the residences. We are proposing a small promenade that uses the continuity of the space to establish "the sense of place", without having the 'courtyard' overly programmed or controlled.

Secondary site design decisions have included:

•Electrical Transformer is located within above grade parking structure, adjacent to the incoming electrical room.

•Commercial entries and pedestrian access to the courtyard are denoted by glass and steel canopies; these respond to potential wind downdraft conditions as well as provide a more human sense of scale.

•The larger approach to the commercial spaces is to provide simple geometric forms, identified by their unique ordinances for the commercial spaces that will have substantial architectural space. The clear and expansive glazing reaches beyond the volume of the space to suggest a greater architectural expression and experience.

•Garbage and recycling services have been located on the P1 level – with access from the courtyard off of the John Street driveways.

		PROPOSED
GROSS FLOOR AREA		100,379m^2
BUILDING HEIGHT		31|30|20 STOREYS
RESIDENTIAL SUITES APPROX.		1,342 *
COMMERCIAL AREA		600m^2
AMENITIES	INDOOR	1,531m^2
	OUTDOOR PODIUM	1,295m^2
	OUTDOOR GRADE	4,477m^2
	TOTAL	**7,303m^2**
	RATIO	5.4m^2/UNIT
PARKING	AT GRADE	7
	BELOW GRADE	815
	TOTAL	**822**
	RATIO	0.61/UNIT
BIKE PARKING	SHORT TERM	70
	LONG TERM	807
	TOTAL	**877**
	RATIO	0.65/UNIT

**Rental and affordable housing in compliance with City's IZ requirements for the MTSA.*

Figure 16: Proposed development statistics

Figure 17: Proposed development massing with surrounding context

Figure 18: Proposed development massing with surrounding context

4.2 BUILDING FORM AND MASS, BUILDING ARTICULATION

The attached plans, 3D model images and building sections have been provided to illustrate the intended built form.

In keeping with Downtown Core Design standards, we have created distinctive elements in the composition. However, I will suggest that the “Architecture” lives in the articulation, in this case, the conflicts and intersections of the elements. We have proposed deep architectural ‘reveals’ to denote the separation of the programmatic and formal elements. However, we have allowed some of the components to overlap. The towers, for example, do not strictly pose above the podium, but are brought down to the ‘courtyard’ through the podium.

4.3 PODIUM DESIGN

The podium starts out with a simple wrapping envelop that is broken by programmatic elements such as the centralized commercial block, the very high lobby space, as part of the towers coming down, and some secondary service elements such as the at grade level parking facility and electrical equipment facility. The various programs and functions along John Street define the conditions of its street wall continuity. For instance a variety of setback along the buildings frontage offers depth and variability in setbacks to offer the building proper orientation on the site, various access points, and ease of circulation. This may be observed, as programs such as the commercial areas are pushed an excess of 3 meters from the sidewalk offering a more vibrant and engaging street front. In contrast elements such as garage entries and loading bays are recessed to avoid imposing larger masses on the street font and provide a safer distinction between pedestrian and vehicular circulation. Other elements such as canopies and streetscape frontages provide a more intimate experience along John Street, highlighting storefronts, entryways and key features of the buildings design. These architectural considerations, along with an array of landscaped elements help diversify the podiums façade composition.

The horizontality of some portions is intended to reinforce the length of the site and strong landscape relationship between the podiums with its many landscaped terraces. The change of grade across the site is fairly level further distinguishing this design aspect. Moreover, the east end of the site presents ample setback for parkland space. This area has been designed to create visual interest in the rear outdoor amenity. This has been achieved by creating a more inviting, accessible and safe area that is not tucked away behind the building but rather one that act as a focal point to the neighborhood. The cascading terraces of the building gently peel away creating a more breathable space. Creating a visual que that guides the eye towards the parkland and surrounding amenity areas. This further emphasizes the buildings corner conditions from its streetscape to park side transition.

As mentioned, some pedestrian scaled canopies cut across and through the podium components to both link these disparate elements and to provide a sense of pedestrian continuity. The podium wrapper is intentionally broken as it shifts to accommodate some deeper programmed spaces. These splits are articulated by the overlap and reveals that have been created. The podium floors are deliberately deep to accommodate the dropped slabs and 1.2m planters. The high ground floor area accommodates two stairs encased in the scissor structure at a mezzanine level which enables exiting on the opposite sides of the two larger towers.

The podium design in this instance is interpreted as less of a podium structure that bares the tower structures resting above and more of a recessed bridging structure that connects the three distinct towers to each other. Rather that use sprawling floor plates, narrow connective structures a used to create a more harmonious gesture. This design strategy also helps mitigate some factors caused by the resulting noise and sound impacts of the nearby railway tracks.

Figure 19: Canopy design condition

Figure 20: Proposed development massing with surrounding context

4.4 TOWER DESIGN

The towers while simple in nature extend the design concept of the collage by using planes, masses and forms to create a more articulated design. Clad in a partially reflective silver and dark grey glass, the use of these glazing will allow for a rather abstract reading of the form, with less focus on the mullions and spandrels and greater emphasis on the planes and the sheared 3D form.

The blocks of balconies/juliettes are present, yet subtle, given their semi-transparent guards.

Some recesses at the podium intersections separate this sheared form from the banded podium levels. This allows for a clear distinction of the tower and podium levels while maintaining the concept of intersecting and colliding masses.

4.5 AMENITY SPACE

We have designed the project to accommodate the following amenities:

Floor 1

- An entrance lobby including:
  - -Concierge/security facilities
  - -Large parcel room with refrigeration
  - -Mailroom with direct exterior access for Canada Post delivery
  - -Waiting area overlooking courtyard drop-off facility

Floor 4

- A fitness centre accessed from the elevators

Floor 13

- Party room with bar and service facilities
- Washrooms
- Direct access to exterior amenities
- Sun Terrace with edge seating for enjoyment of the view
- A ‘sports’ lounge facility with large screen TV for communal enjoyment of sporting events.
- Sizable rooftop play area for children.
- A bookable BBQ pavilions with seating and tables
- Communal kitchenette near lounge pavilions
- Shade terrace with large lawn area
- Fire pits with built-in seating

Figure 21: Design Concepts

Figure 22: Proposed Outdoor Amenity

Figure 23: Tower Design Elements

4.6 STREETSCAPE AND AMENITY DESIGN

John Street Frontage

The streetscape design has been proposed in such a way as to integrate the proposed building frontages with the public realm. Through a combination of plantings, pavers, furniture and signage, the design attempts to elevate the pedestrian realm and animate the public sidewalk. A minimum setback of 3 meters has been implemented on grade, along John Street to provide a widened boulevard along the proposals frontage.

Additional measures have been taken to reduce the podium height at the street face to only 3 storeys. This initiative has been propose of achieving a more feasible and comfortable street presence.

Amenity Areas

There are three key on-site amenity areas that have been included to allow for a diversity of outdoor experiences and activities.

Playground Area

There is a large outdoor playground area proposed in the rear of the property, that is embedded into a large berm. This berm is meant to provide a buffer to the rail lands beyond the site but has been incorporated into the design as a feature. This area includes a play structure, tiered trail system, extensive seating, and outdoor gathering places.

Off-Leash Dog Run

An off-leash dog run has been proposed in a designated area, that is separate from the playground area. This is to allow for user experiences that are free from the potential conflicts between large dogs and small children.

Passive Landscape Area

A passive landscape area has been proposed in the rear property, separated from the rail lands by large berms and privacy screen. This area primarily consists of seating areas and areas of retreat for the users. Planting will be incorporated to provide shade and buffer from the neighboring lands.

Parkland Area

A portion of the lands to the east has been designated as space for parkland that may be developed by the municipality to serve the needs of the community and provide the neighbourhood with much needed parks and open spaces. This parcel of land shall aid in allowing the City of Mississauga to expand and enhance its existing Green System to provide passive and active recreation, entertainment and social interactions for the well-begin of its inhabitants.

Figure 25: Commercial Frontage East Side - John Street

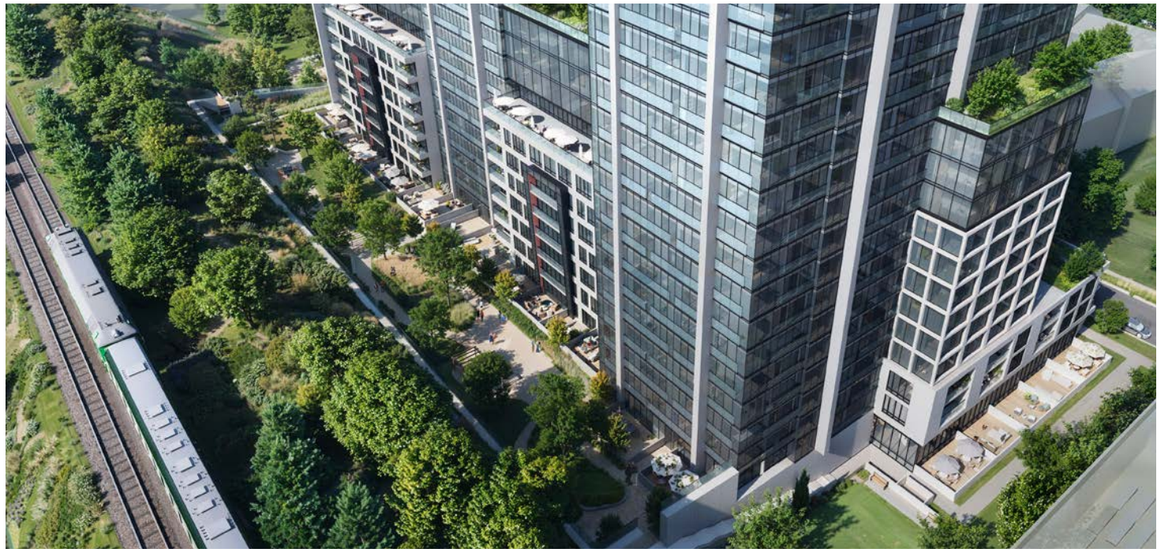


Figure 24: Rear Outdoor Amenity and Berm Design

Figure 26: Commercial Frontage West Side - John Street

4.7 ACCESS, CIRCULATION, PARKING AND SERVICING

Cars and Trucks

The attached grade level floor plans shows the two vehicular entrances along John Street. These entrances are approximately 62 meters apart. The first ramp entrance to the west is tucked away into the building, as is the loading entrance. These areas are located within the 'courtyard' region of the buildings main entry ways. The easterly driveway off John Street brings additional residence to the site. Both commercial building visitors as well as residential visitors are anticipated to access this site predominantly by utilizing public transit due to the immediate proximity and intersection of both the Milton GO transit and the Hazel McCallion LRT transit lines.

The driveway accesses proposed off John Street provides two access points for residential tenants with allocated parking as well as reserved EV spaces.

Bicycles

We have proposed bike storage facilities at grade and in the parking levels of the underground garage. The spaces at grade are primarily considered to be short term visitor spots, while the remainder underground has been allocated to serve as long term spots for the residential tenants.

Figure 27: Podium Design Language

4.8 HEIGHT, MASSING AND ANGULAR PLANE

The attached three dimensional images describe the proposed massing. We have explored the nature of the sites requirement for railway safety with a series of elaborate grade related open spaces, each with proposed activity appropriate to the location. We have established the programme to take advantage of these regions and use them to provide shaded areas that can be used for the enjoyment of the community members to generate a rich experience on this site. Without sacrificing the safety mitigating factors inherited due to the railway corridor. We have also designed a substantial podium with multiple roof terraces to accommodate additional outdoor amenities and entrance functions as well as some distinct residential suites. This form is contrasted with the towers above.

Given that this site is bounded by residential properties to the north, we have included angular plane projections for this proposal. These angular projections have been taken from the furthest boundary point at grade of the neighboring yards. This takes into account the most extreme condition, by ensuring that the development has a negligible visual impact on surrounding residences. We have also attached a March 21/Sept 21 and June 21 shadow projection to this report. The long and narrow shadow cast by these towers moves fairly quickly across the residential lands to the north, across C.P.R. corridor, and across the townhomes to the east. The first impact on residential properties occurs quite late in the afternoon, on the townhomes immediately to the east. However this shadow does not stay in the same region for more than two consecutive test times. Thus, meeting the criteria outlined in the cities standards for shadow studies.

Figure 28: Stepped Massing Design

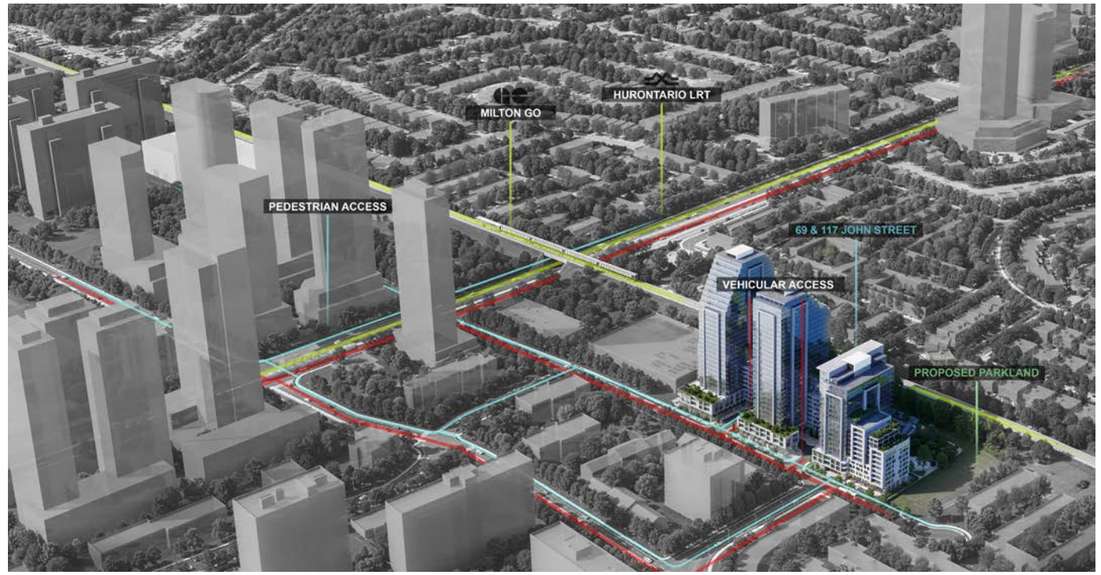


Figure 29: Site Circulation - Pedestrian, Vehicular and Public Transit

Figure 30: Rear Playground and Railway Berm

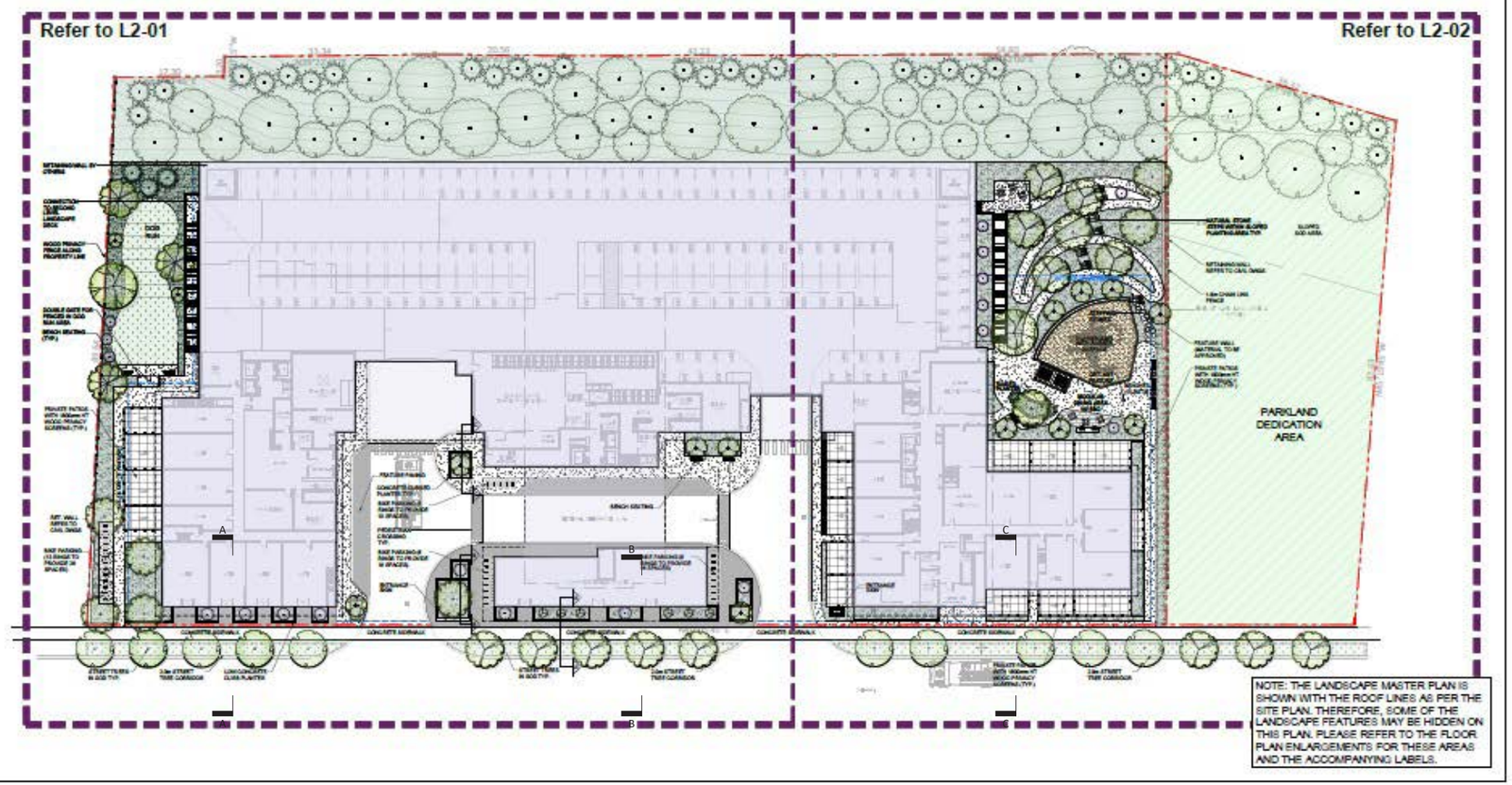
Proposed Plant Material List

KEY	QNTY	BOTANICAL NAME	COMMON NAME	HTICAL	SPREAD	ROOT	EXCLUSIVE TOLERANT	NATIVE	REMARKS
DECIDUOUS TREES									
ARS		Acer rubrum 'Autumn Spire'	Autumn Spire Maple	70 mm		B.&B.	High	Yes	Full Form
AFF		Acer x freemanii 'Jeffersred'	Jeffersred Freeman Maple	70 mm		B.&B.	High	Hybrid	Full Form
BSS		Gleditsia triacanthos var. inermis 'Shademaster'	Shademaster Honeylocust (Thornless)	60 mm		B.&B.	High	Cultivar	Tree Form, Multi Stem
PCC		Pyrus calleryana 'Chanticleer'	Chanticleer Pear	70 mm		B.&B.	High	No	Full Form
QRB		Quercus rubra	Red Oak	70 mm		B.&B.	Med.	Yes	Full Form
TAS		Tilia Americana 'Redmond'	Redmond Basswood	70 mm		B.&B.	High	Yes	Full Form
SPECIMEN MULTI STEM DECIDUOUS SHRUBS									
ACR		Amelanchier canadensis 'Rainbow'	Rainbow Serviceberry	200 cm		B.&B.	High	Yes	Multi Stem
CCA		Cercis canadensis 'Multi Stem'	Eastern Red Bud	150 cm	pink/pur	B.&B.	High	Yes	Multi Stem
CAL		Cornus alternifolia	Pagoda Dogwood	150 cm		B.&B.	High	Yes	Multi Stem
GRASSES									
CAC		Calamagrostis acutiflora 'Karl Foerster'	Karl Foerster Feather Reed Grass			3 Gal.	High	No	Full Form
EBS		Eragrostis spectabilis	Tufted Lovegrass			2 Gal.	High	Yes	Full Form
PAL		Pennisetum alopecuroides 'Hameln'	Hameln Dwarf Fountain Grass			2 Gal.	High	No	Full Form

NOTE: ALL QUANTITIES IN THE LIST OF PLANT MATERIALS ARE TO BE CHECKED BY THE LANDSCAPE CONTRACTOR. ANY DISCREPANCIES ARE TO BE REPORTED TO THE LANDSCAPE ARCHITECT. THE QUANTITIES INDICATED ON THE DRAWINGS SUPERCEDE THE TOTAL QUANTITIES

KEY	QNTY	BOTANICAL NAME	COMMON NAME	HTICAL	SPREAD	ROOT	EXCLUSIVE TOLERANT	NATIVE	REMARKS
CONIFEROUS SHRUBS									
JCG		Juniperus chinensis 'Gold Coast'	Gold Coast Juniper	50 cm		C.G.	Med.	No	Full Form
T.P		Taxus x media 'Hatfieldii'	Hatfield Yew		65 cm	C.G.	Med.	No	Full Form
DECIDUOUS SHRUBS									
DAS		Cornus sericea	Red Osier Dogwood	80 cm		C.G.	High	Yes	Full Form
HPB		Hydrangea paniculata 'Bombshell'	Dwarf Bombshell Hydrangea	80 cm		3 gal.	High	Yes	Full Form
POD		Physocarpus opulifolius 'Diabolo'	Diablo (Purpleleaf) Ninebark	80 cm		C.G.	High	Yes	Full Form
RNS		Rhus aromatica 'Gro-Low'	'Gro-Low' Fragrant Sumac	80 cm		C.G.	High	Yes	Full Form
SJL		Spiraea japonica 'Little Princess'	Dwarf Red Spirea	80 cm		C.G.	High	No	Full Form
SMP		Syringa meyeri 'Palibin'	Purple Dwarf Korean Lilac	80 cm		C.G.	High	No	Full Form
PERENNIALS									
HCH		Geranium 'Rozanne'	Hardy Cranesbill Geranium			2 Gal.	High	Yes	Full Form
ECH		Echinacea purpurea	Purple Cone Flower			2 Gal.	High	Yes	Full Form
RFG		Rudbeckia fulgida var. sullivantii 'Goldsturm'	Black Eyed Susan			2 Gal.	High	Cultivar	Full Form

Key Map



Legend

- Proposed Deciduous Tree
- Proposed Coniferous Tree
- Proposed Shrub/Perennial
- Property Line
- Prop. Wood Privacy Fence
- Detail Reference Key
- Prop. Planting Area
- Proposed Sodded Area
- Prop. Concrete Paving Typ.
- Prop. Unit Paving Type 1
- Prop. Chain Link Fence
- Proposed Bike Ring
- Plant Material Reference Key

Owner's Note

WE AGREE TO IMPLEMENT THE APPROVED SITE AND LANDSCAPE PLANS WITHIN 18 MONTHS AFTER THE EXECUTION OF THE SITE PLAN UNDERTAKING AND WILL RETAIN THE LANDSCAPE ARCHITECT TO MAKE PERIODIC SITE INSPECTIONS. UPON COMPLETION OF THE WORKS WE WILL FORWARD TO THE CITY OF MISSISSAUGA A COPY OF THE COMPLETION NOTIFICATION CERTIFICATE FROM THE LANDSCAPE ARCHITECT AND THE APPLICABLE INSPECTION FEE.

ANY REVISIONS TO THE SITE AND LANDSCAPE PLANS WILL BE SUBMITTED TO THE PLANNING AND BUILDING DEPARTMENT, CITY OF MISSISSAUGA FOR REVIEW AND APPROVAL, PRIOR TO COMMENCEMENT OF THE WORKS.

WE HEREBY AUTHORIZE THE CITY, ITS AUTHORIZED AGENTS, SERVANTS, OR EMPLOYEES TO ENTER UPON OUR LAND TO CARRY OUT INSPECTIONS FROM TIME TO TIME AND AGREE TO INDEMNIFY THE CITY AND ITS AUTHORIZED AGENTS AND SAVE THEM HARMLESS FROM ANY AND ALL ACTIONS ARISING OUT OF THE EXERCISE BY THE CITY, ITS AUTHORISED AGENTS, SERVANTS OR EMPLOYEES OF THE RIGHTS HEREBY GIVEN TO THEM. WE UNDERTAKE TO NOTIFY THE CITY FORTHWITH OF ANY CHANGE OF OWNERSHIP OF THE SAID LANDS.

Signature of Owner _____

Name of Owner _____

_____

Address _____

Existing Tree Preservation

The applicant is responsible for ensuring that tree protection hoarding is maintained throughout all phases of demolition and construction in the location and condition as approved by the Planning and Building Department. No materials (building materials, soil, etc.) May be stockpiled within the area of hoarding. Failure to maintain the hoarding as originally approved or the storage of materials within the hoarding will be cause for the tree preservation Letter of Credit to be held for two (2) years following completion of all site works.

Owner's Signature _____

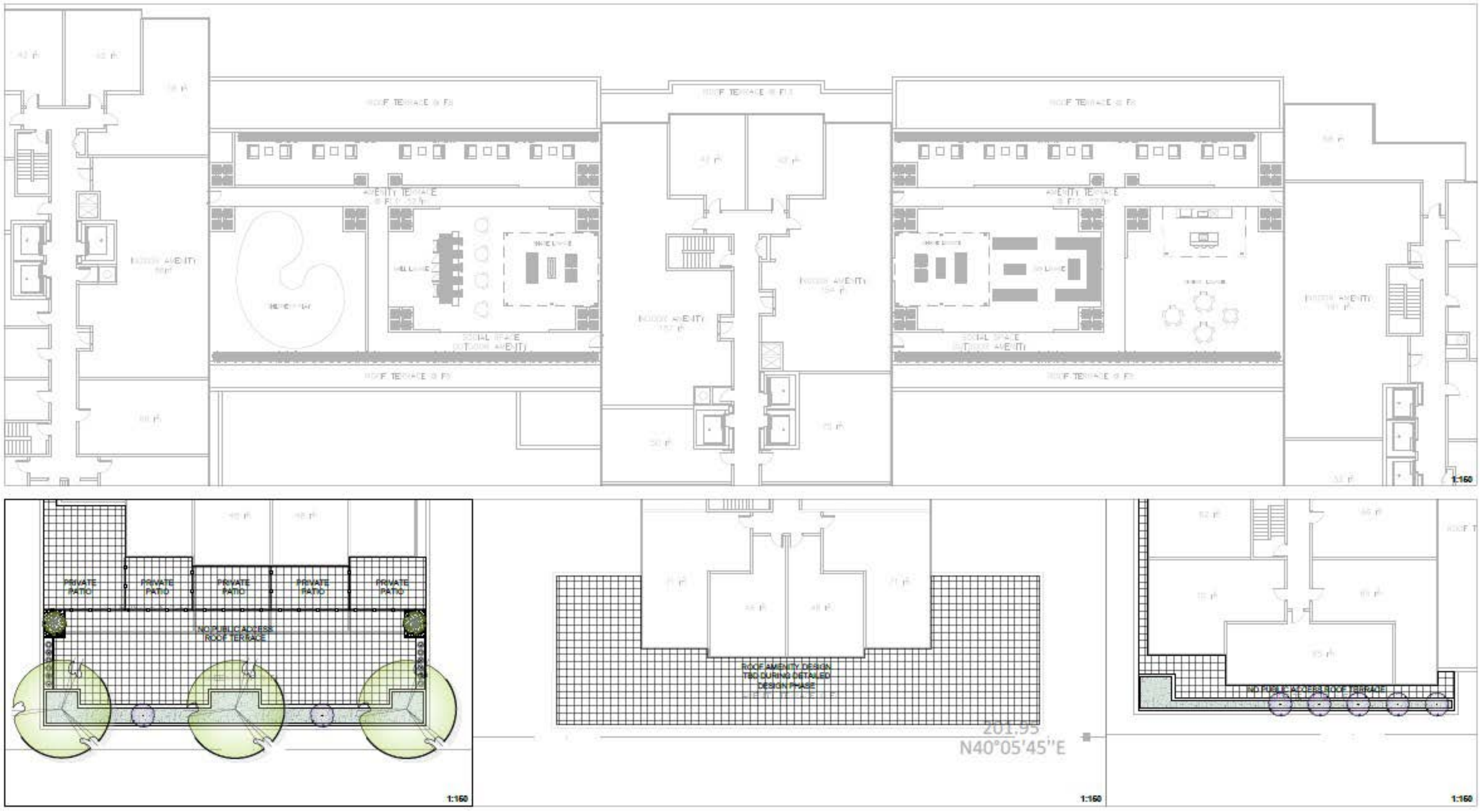
Sign By-Law

SIGNAGE SHOWN ON THE SITE DEVELOPMENT PLANS IS FOR INFORMATION PURPOSES ONLY. ALL SIGNS WILL BE SUBJECT TO THE PROVISIONS OF SIGN BY-LAW 0054-2002, AS AMENDED AND A SEPERATE SIGN APPLICATION WILL BE REQUIRED THROUGH THE BUILDING DIVISION.

Grading Note

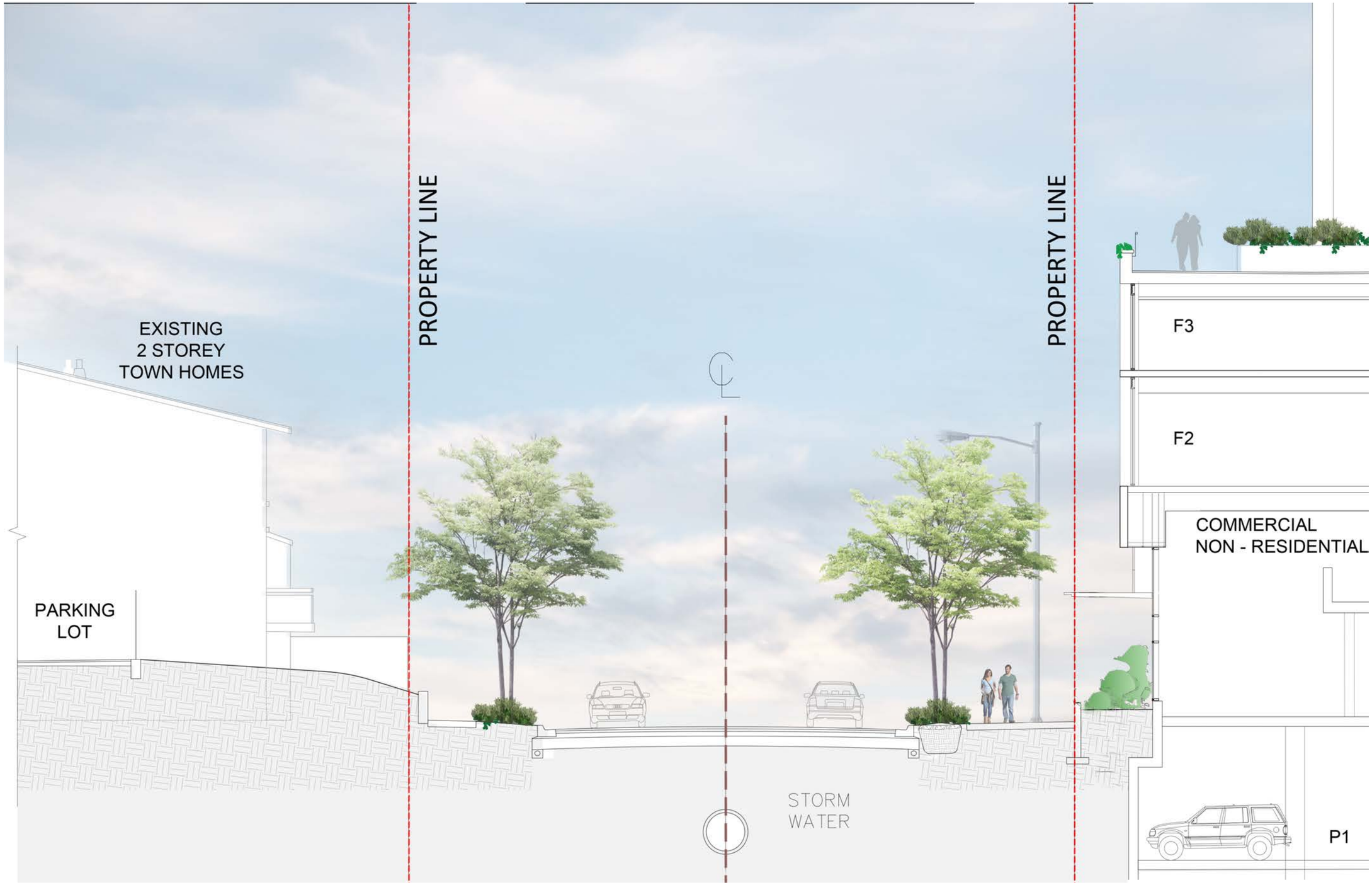
I HEREBY CERTIFY THAT THIS LANDSCAPE PLAN CONFORMS TO THE SITE GRADING AND DRAINAGE PLAN (BY OTHERS) FOR THIS APPLICATION

Landscape Plan at Grade

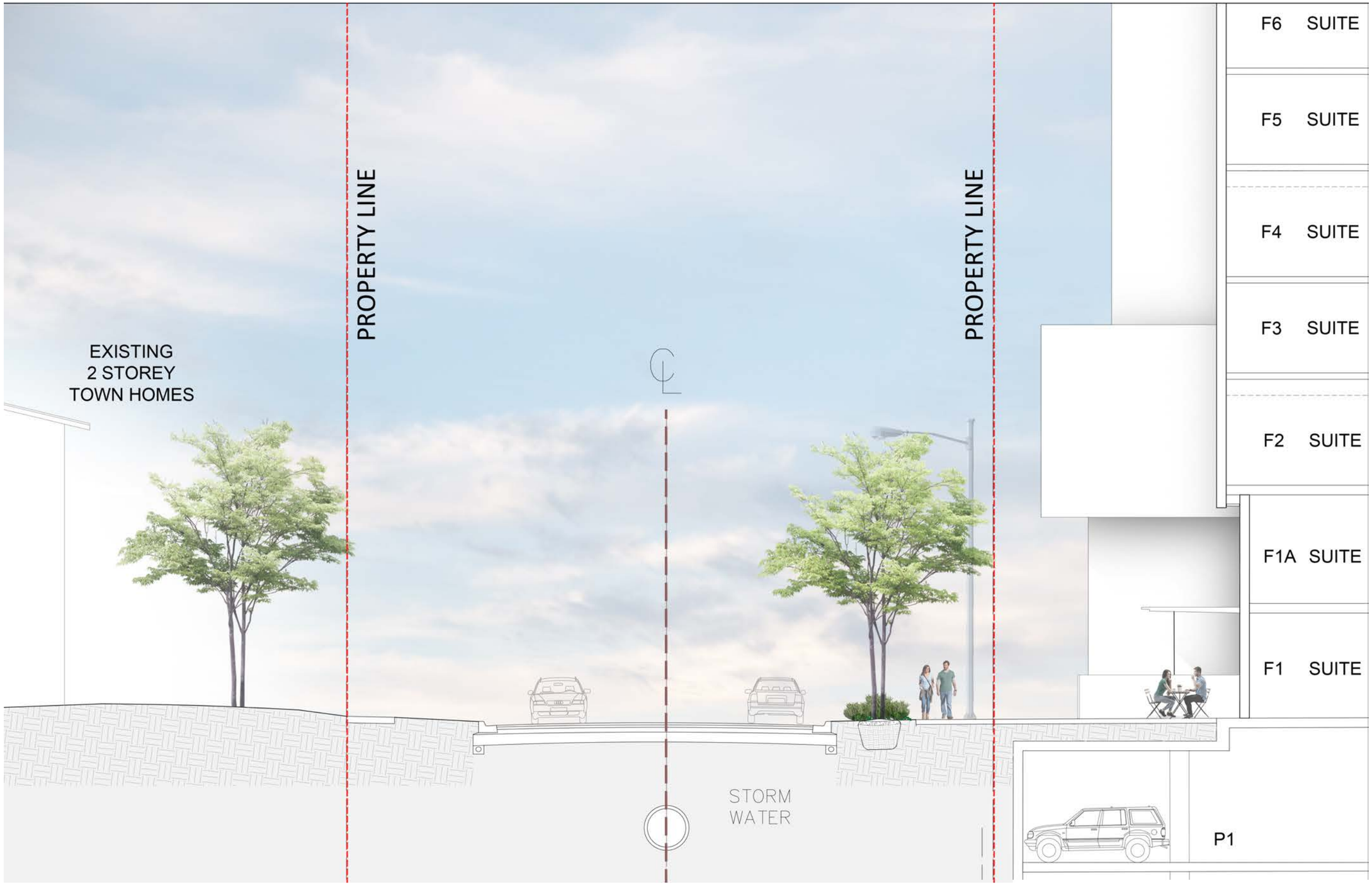


Landscape Plans at Floor 4 and Floor 13

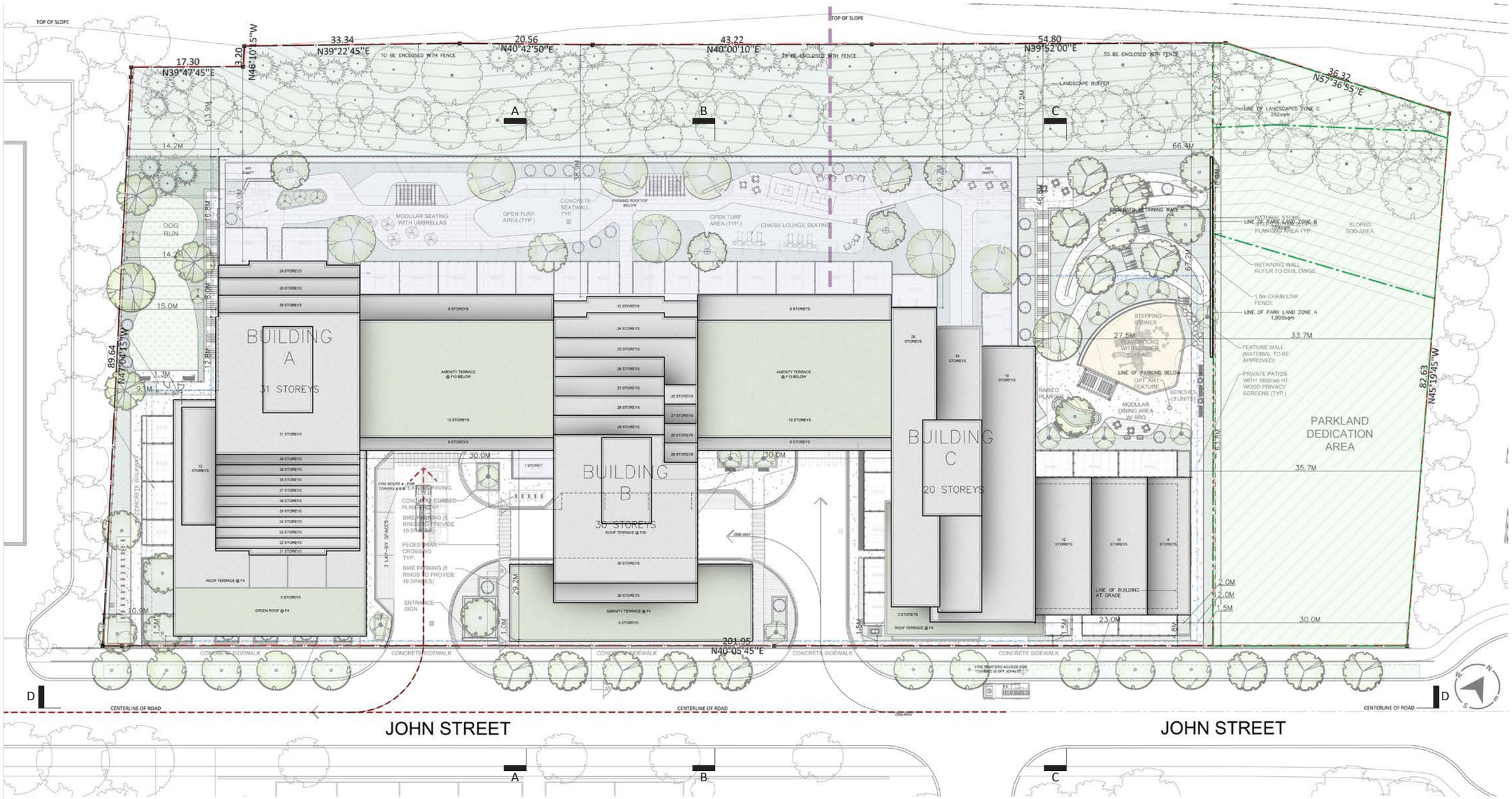
Street Section A-A - John Street at Proposed East Podiums and Towers



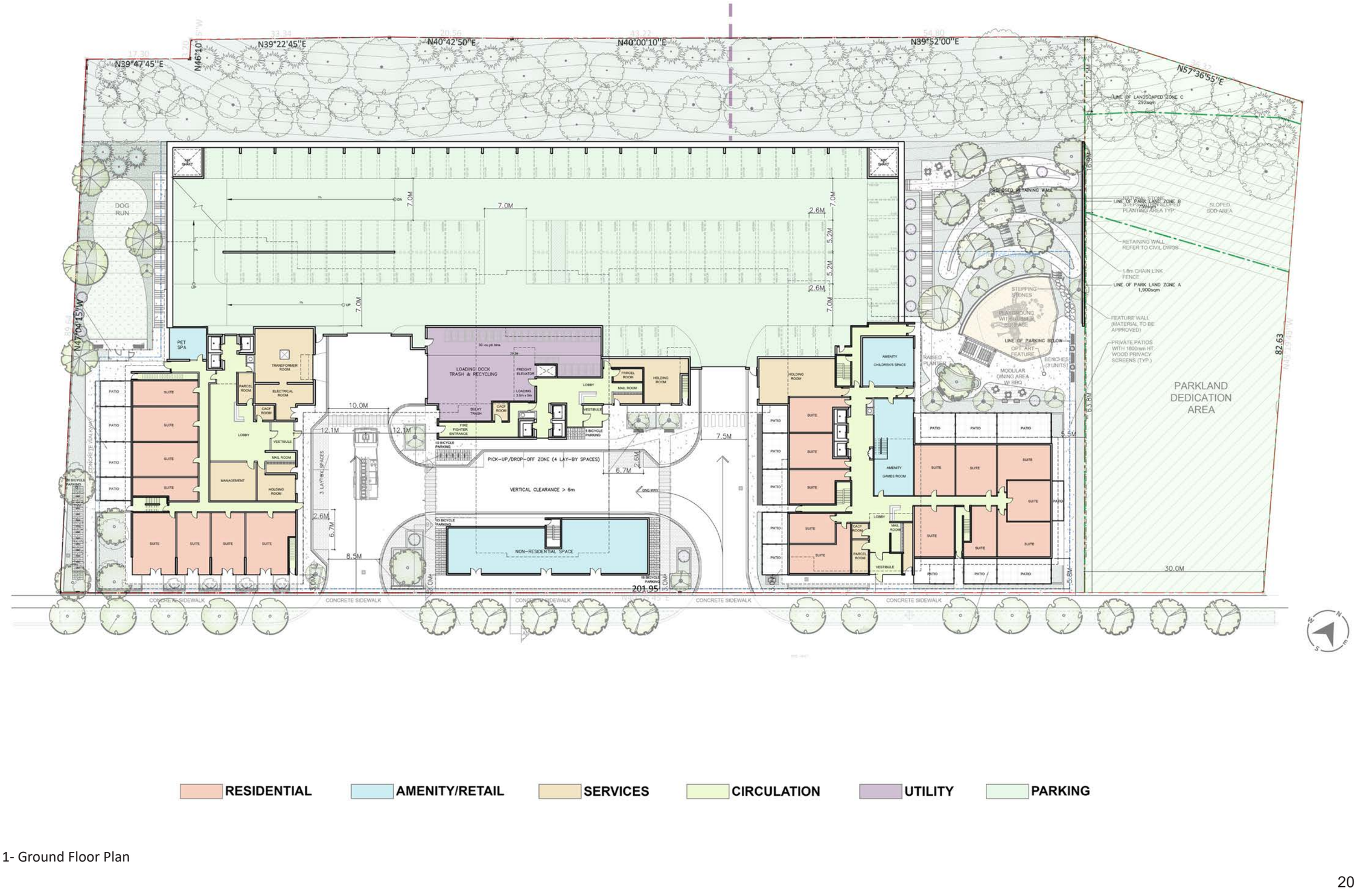
Street Section B-B - John Street at Proposed Commercial/Retail



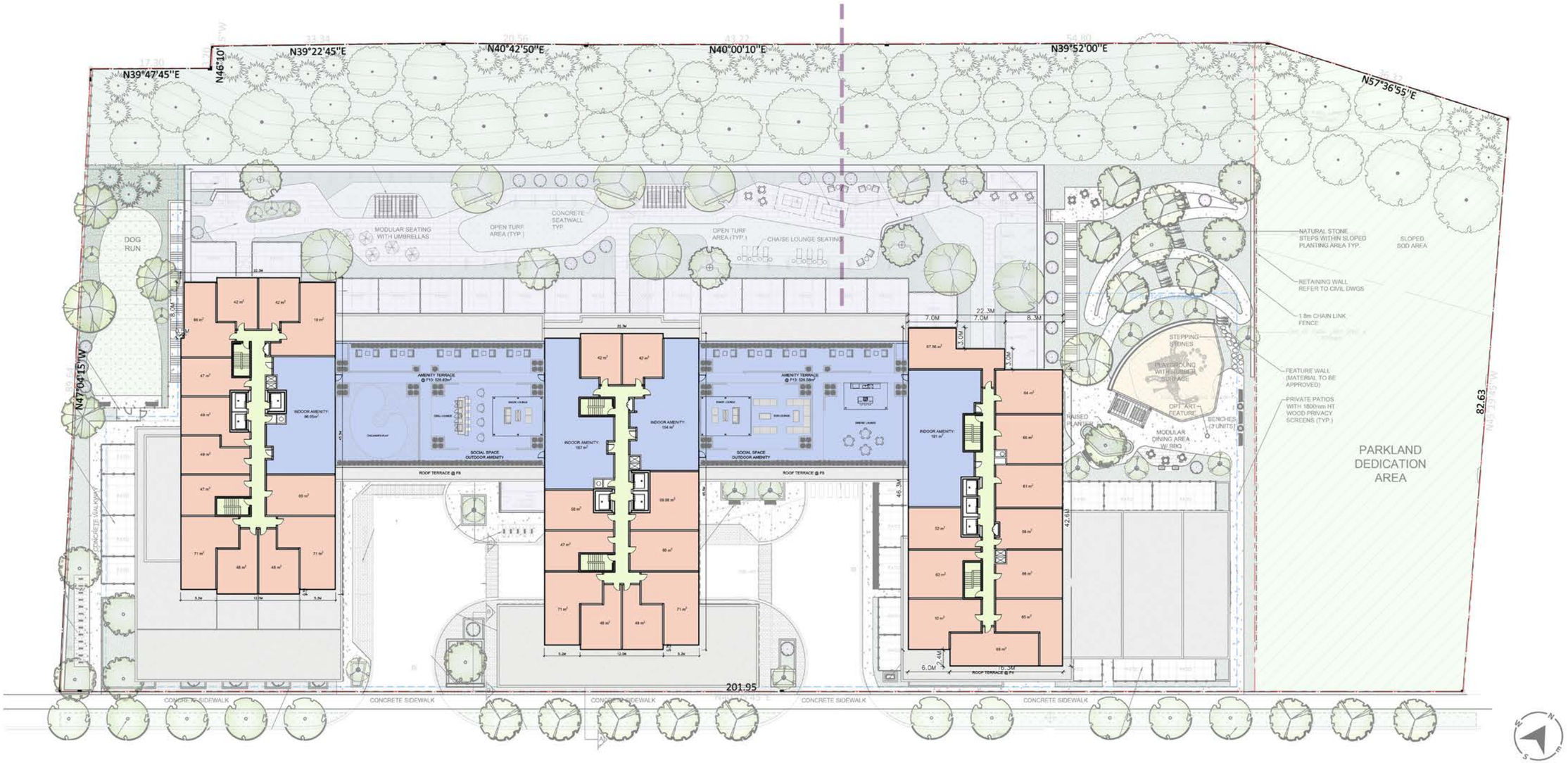
Street Section C-C - John Street at Proposed West Podiums and Towers


TOP OF SLOPE
17.30
N39°47'45"E
3.20
N46°10'15"W
33.34
N39°22'45"E
TO BE ENCLOSED WITH FENCE
20.56
N40°42'50"E
43.22
N40°00'10"E
54.80
N39°52'00"E
LANDSCAPE BUFFER
36.32
N57°36'55"E
LINE OF LANDSCAPED ZONE C
292sqm
A
B
C
MODULAR SEATING WITH UMBRELLAS
OPEN TURF AREA (TYP.)
CONCRETE SEATWALL TYP.
PARKING ROOFTOP BELOW
CHAISE LOUNGE SEATING
DOG RUN
BUILDING A
31 STOREYS
AMENITY TERRACE @ F13 BELOW
BUILDING B
30 STOREYS
ROOF TERRACE @ F30
BUILDING C
20 STOREYS
ROOF TERRACE @ F4
GREEN ROOF @ F4
AMENITY TERRACE @ F4
FIRE ROUTE A - FOR TOWERS A & B
CONCRETE CURBED PLANTER TYP.
BIKE PARKING (8 RINGS TO PROVIDE 16 SPACES)
PEDESTRIAN CROSSING TYP.
ENTRANCE SIGN
ONE-WAY
RETAINING WALL REFER TO CIVIL DWGS.
STEPPING STONES
27.5M
LINE OF PARKING BELOW
OPT. ART FEATURE
RAISED PLANTER
BENCHES (3 UNITS)
MODULAR DINING AREA W/ BBQ
LINE OF BUILDING AT GRADE
LINE OF PARK LAND ZONE B
SLOPED SOD AREA
RETAINING WALL REFER TO CIVIL DWGS.
1.8m CHAIN LINK FENCE
LINE OF PARK LAND ZONE A
1,900sqm
FEATURE WALL (MATERIAL TO BE APPROVED)
PRIVATE PATIOS WITH 1800mm HT. WOOD PRIVACY SCREENS (TYP.)
PARKLAND DEDICATION AREA
89.64
N47°04'15"W
82.63
N45°19'45"W
201.05
N40°05'45"E
CONCRETE SIDEWALK
CENTERLINE OF ROAD
JOHN STREET
D

Site Plan

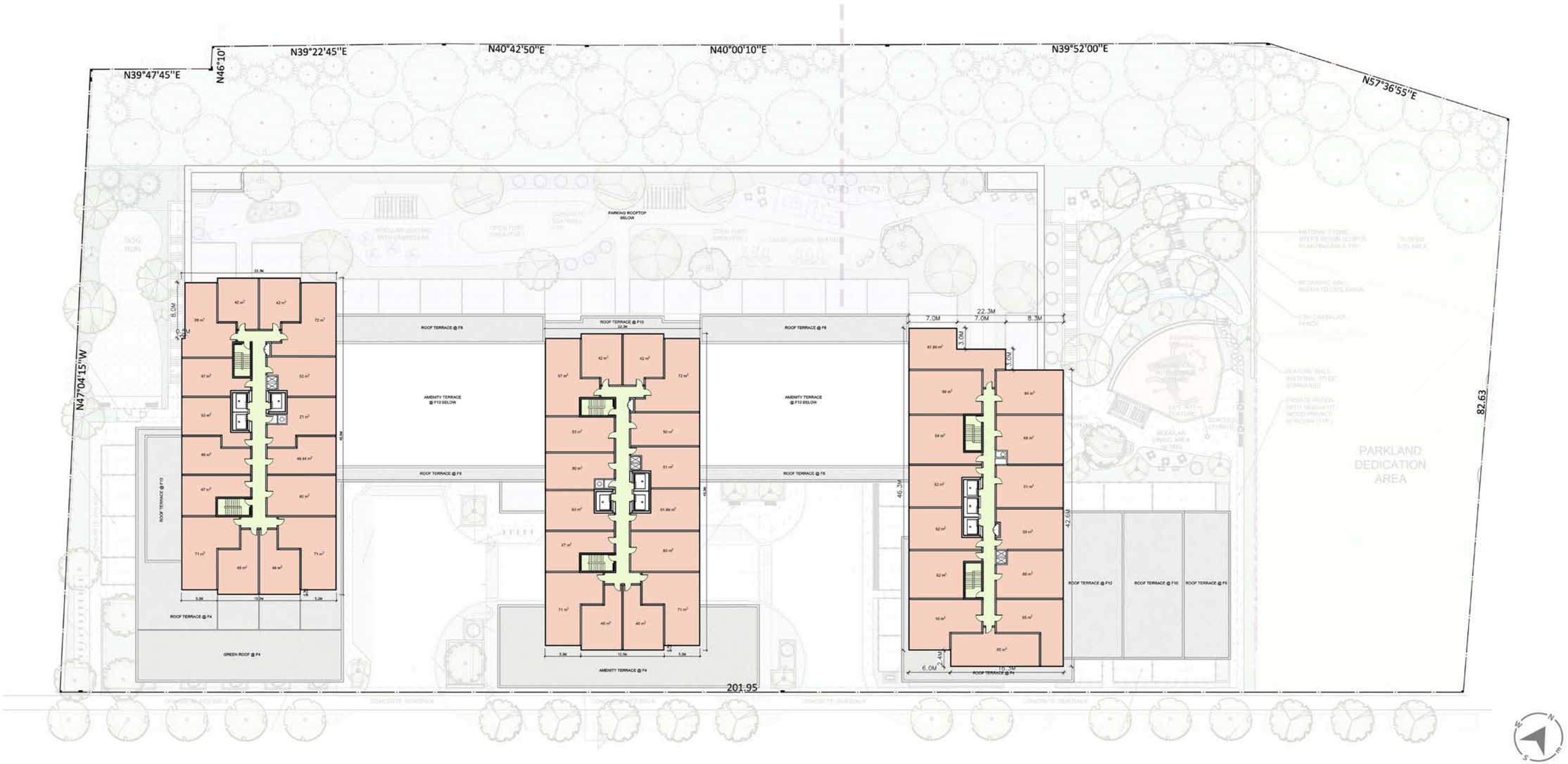


Floor 1- Ground Floor Plan

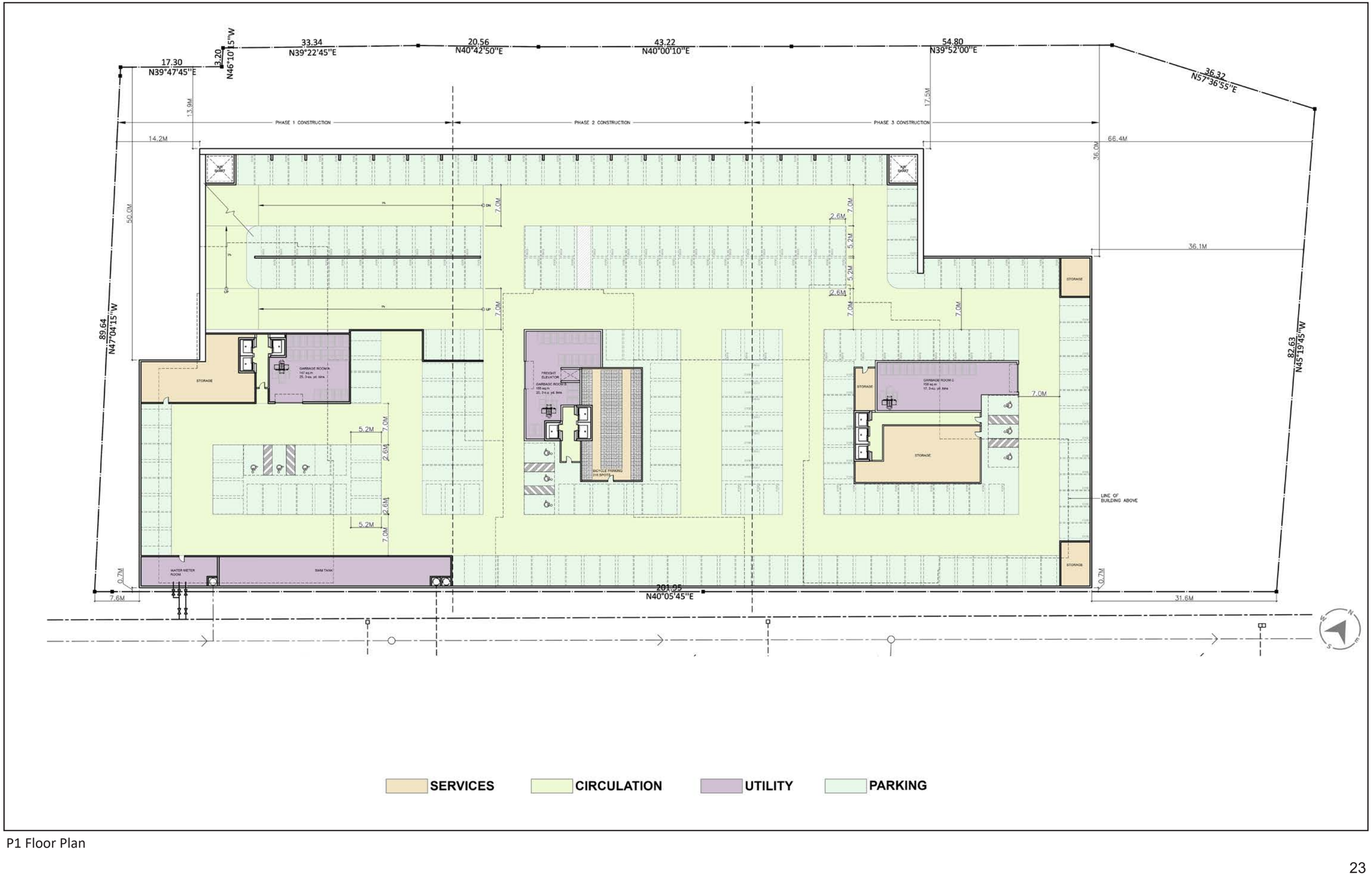


RESIDENTIAL AMENITY/RETAIL SERVICES CIRCULATION UTILITY

Floor 13- Outdoor Amenity

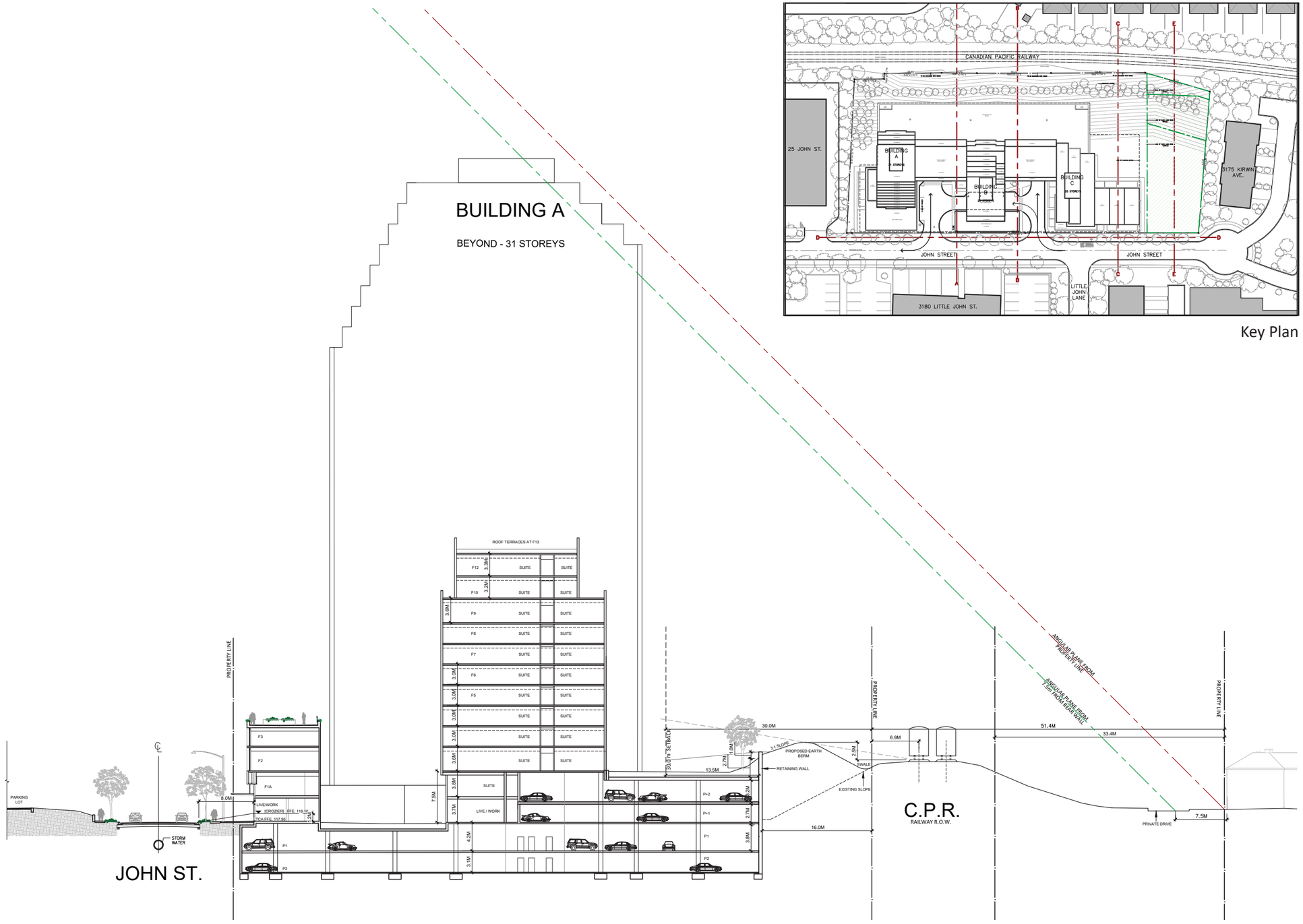


Typical Floors



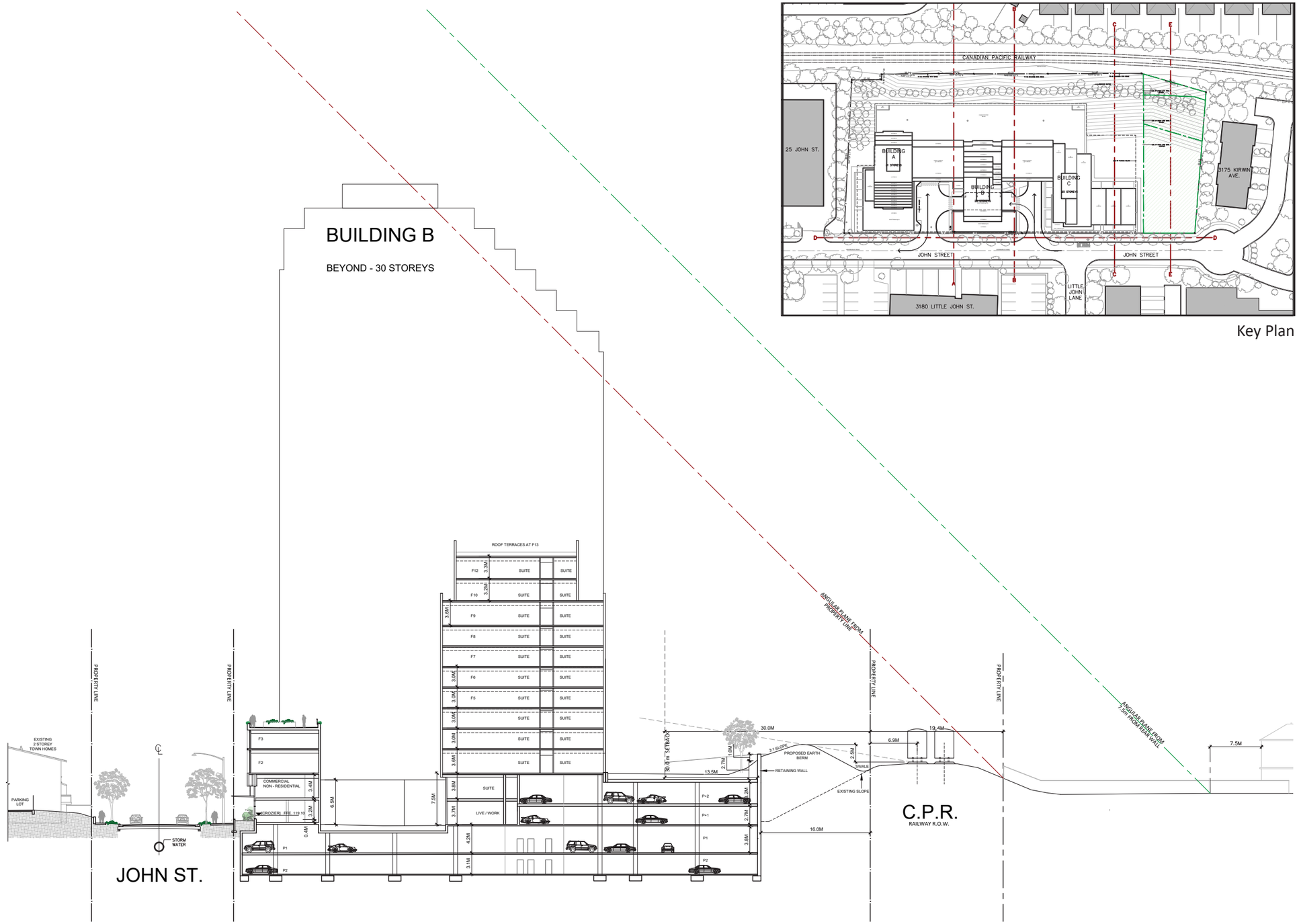
P1 Floor Plan

Key Plan

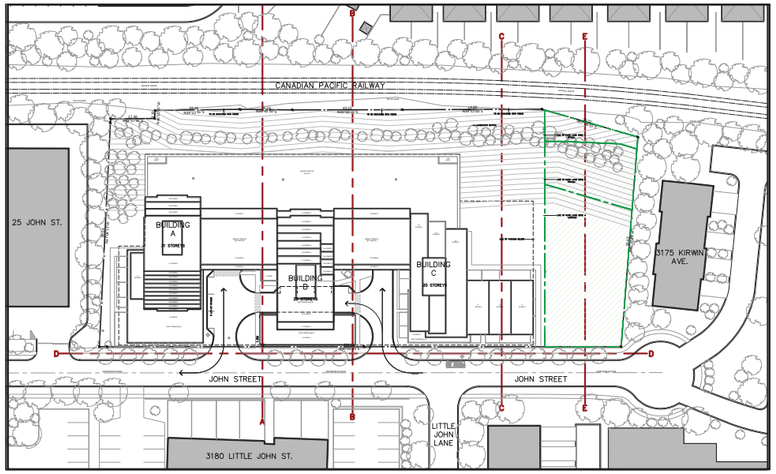


Building Section A-A - At 31 Storey Tower

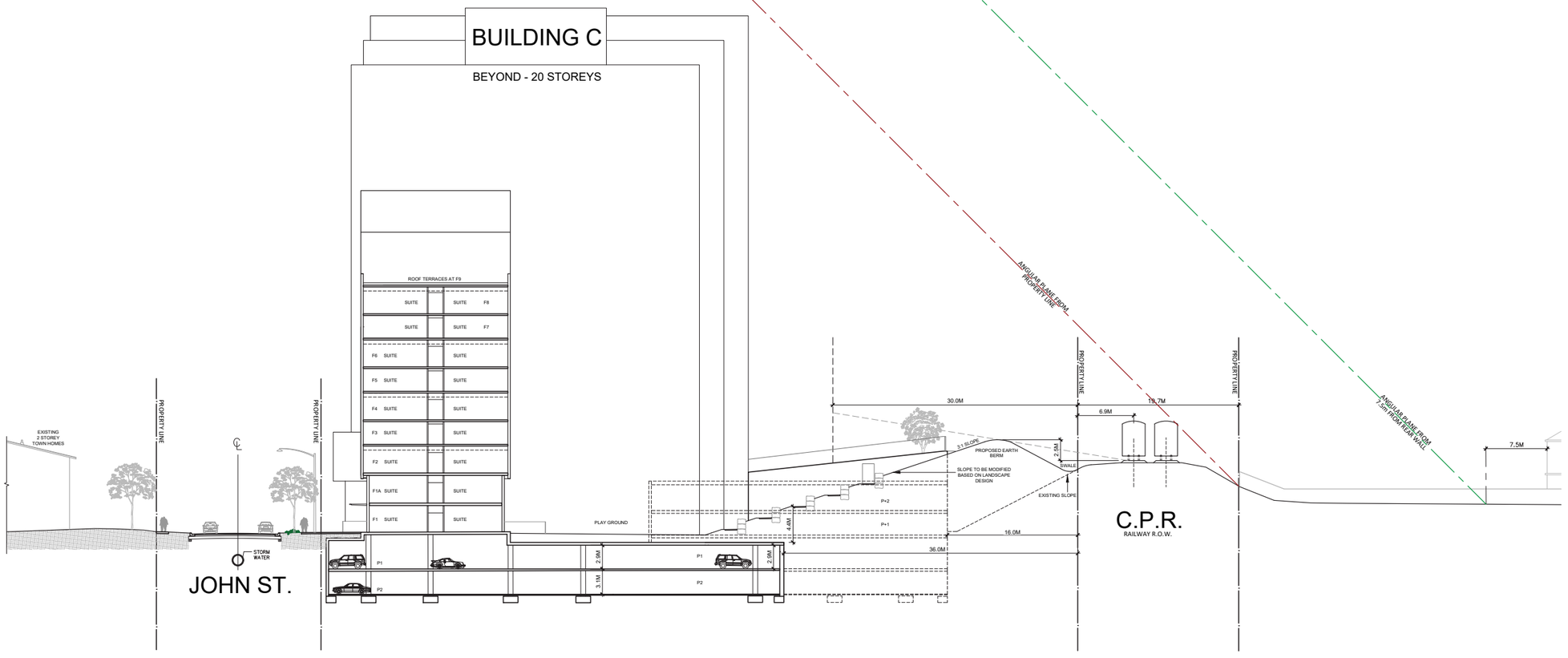
Key Plan



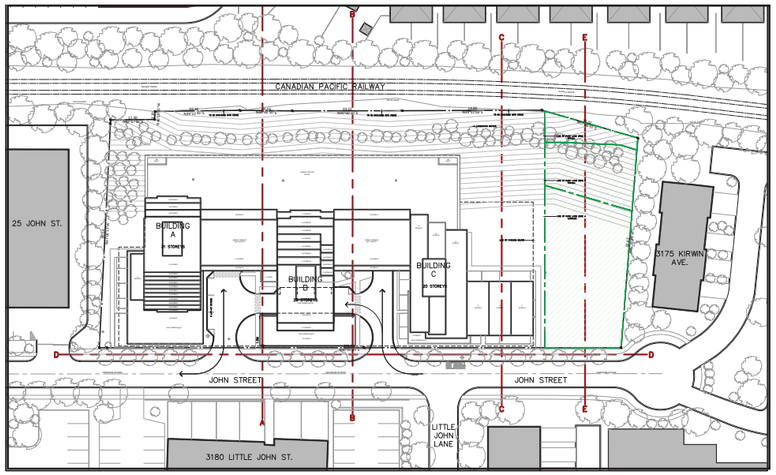
Building Section B-B - At 26 Storey Tower



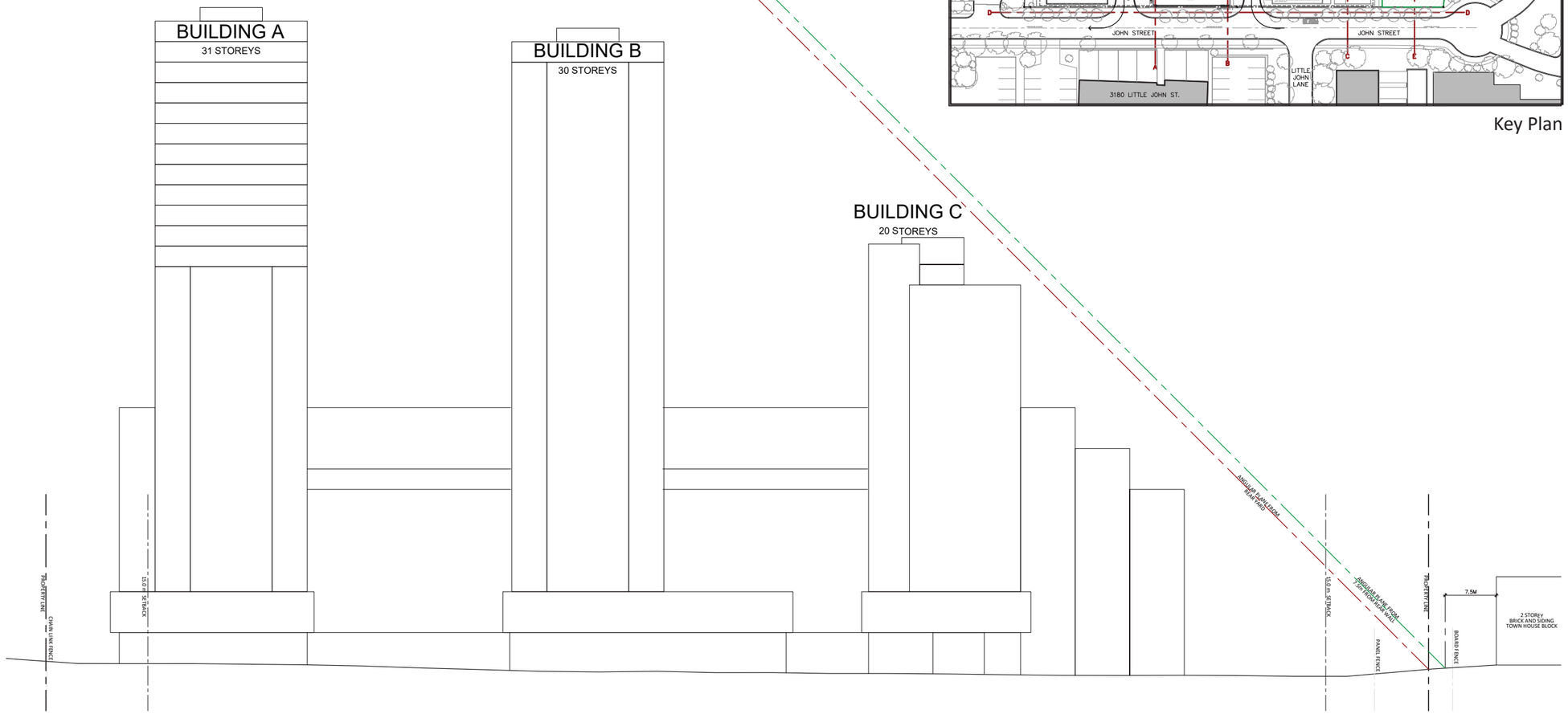
Key Plan



Building Section C-C - At 20 Storey Building



Key Plan

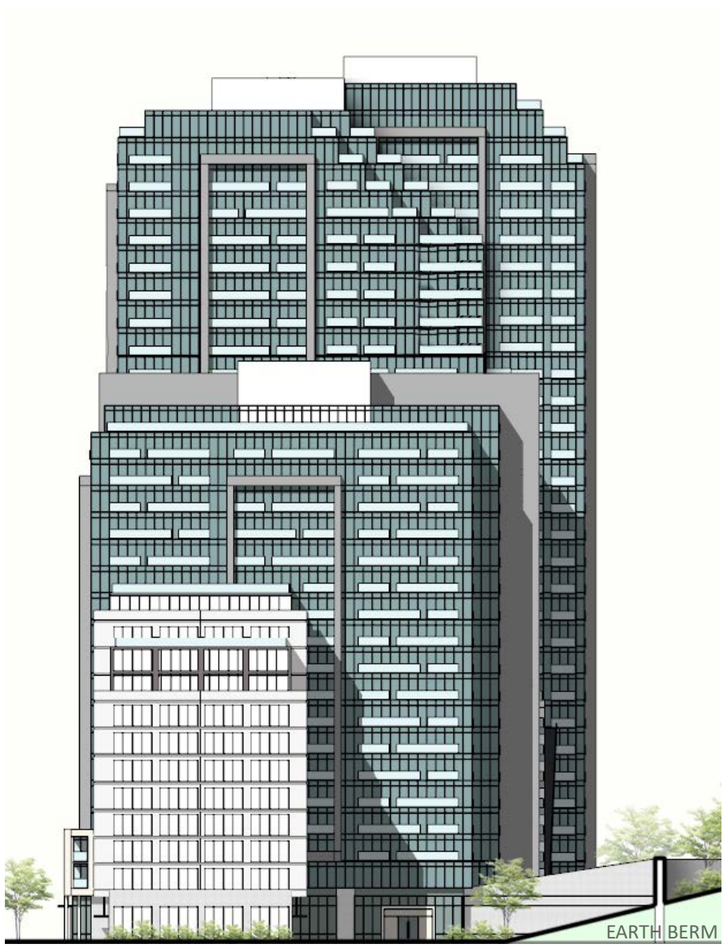


Building Section D-D - Along John Street

South Elevation

West Elevation

North Elevation



East Elevation

5. URBAN DESIGN AND PLANNING POLICIES: RESPONSE

5.1 OFFICIAL PLAN POLICY, PEEL REGION, MISSISSAUGA

The subject property is located within the Downtown Cooksville Character Area of the City Structure of the Mississauga Official Plan (the "MOP"), as identified on Schedule 9 (Character Areas).

The subject property is designated Residential High Density in the City of Mississauga Official Plan – Schedule 10 (General Land Use Designations). Residential High Density which permits apartment dwellings, as well as limited commercial uses at grade as per Section 11.2.5.6 of the MOP.

The MOP states that growth will be directed to key locations to support existing and planned transit and other infrastructure investments. One of the characteristics of these key locations are areas that will be supported by planned and higher order transit, higher density, pedestrian oriented development and community infrastructure, services and facilities. As the subject property is within a the Hurontario LRT Corridor/Cooksville GO MTSA and designated as Residential High Density it is considered that residential intensification is favorable and consistent with the policy objective of the MOP.

The subject property is located in the Downtown Cooksville area as per Schedule 9. Downtown areas will contain the highest densities and tallest buildings.

Section 12.4.1 of the MOP sets forth policies regarding the desired urban form of the Downtown Cooksville Character Area. These policies guide the general design of the future community. It encourages high level of activity along the street by incorporating grade related retail with residential above, the desired setbacks for specific key focus locations, the importance of making it a pedestrian friendly and inviting environment, and development which are generally consistent in its bulk, massing and scale within the Character Area.

Based on the description of the proposal provided above, we are confident that this proposal generally achieves the policies in section 12.4.1. Of relevance in our opinion, are the following policies:

12.4.1.1 A high level of urban design, pedestrian amenity, and intensity of development is encouraged along principal street frontages. A sense of entry to the Character Area should be articulated at these locations by prominent built form, landscaping and signage components.

The building treatment and façade, as well as pedestrian realm features will be refined through the detailed design process. That said, it is the intention of this team to create a vibrant, well-articulated pedestrian realm through the strategic use and programming of both hard and softscape and how those features interact with the public right of way and add to the function of the site and buildings.

12.4.1.3 Street Edge Uses - Development abutting the street should encourage a high level of activity along the street by incorporating grade related retail with residential and/or offices above. Retail units should be clearly oriented to, and accessed from, the public sidewalk.

The retail/commercial uses are located at grade, and where feasible, situated nearest the public right of way. In any case, there is direct, uninterrupted, clear and safe pedestrian or visitor access to these uses.

12.4.1.4 Street Scale and Enclosure - Development should be closely related to, and integrated with, the public sidewalk to focus activity on the street and provide a sense of spatial enclosure for the street. Development should address the following:

a. Limited building setback range of three to five metres from the street line…;

b. Minimum building height of two to four storeys and maximum of six storeys directly abutting the street line;

c. Maximum continuity of street walls with built form occupying a minimum of 80% of the street frontage

The proposed buildings have been strategically located and stepped so to address the John Street right of way. Limited building setbacks are proposed to the single 3 storey building located near the centre of the site, where there will be some uses for the public to engage with. The other "mixed use" building has portions of the building that are situated at the street frontage with limited setbacks and also heights of 3 storeys. Greater heights are generally pushed into the site more, creating an aesthetically pleasing and more fluid height transition from the existing character area where apartments and lower density uses exist (south).

12.4.1.5 Bulk and Massing - Development should be generally consistent in its bulk, massing and scale within the Character Area with use of taller more prominent buildings to highlight the Dundas and Hurontario Street intersection. A general height progression should be encouraged from this intersection to the Character Area edges and abutting the Downtown Hospital Character Area;

As mentioned, the tallest portion of the buildings are situated nearest to Hurontario Street. It is anticipated that at some point, the adjacent sites may be redeveloped to better realize the planned function of the Cooksville MTSA. We anticipate that these heights will appropriately transition to the west with the future and planned development and presents a logical height progression now and in the future. The bulk of the building is appropriate as it provides for an efficient use of space and strategically incorporates projections and recessions across the mass itself, breaking up the building to help soften the appearance and intensity of height and density. The most narrow floorplates are provided on the tallest buildings (A & B). The shorter sides of the Tower buildings are oriented toward the existing residential so to reduce the impact or perception of overlook on adjacent residential. Lastly, the building and towers have been designed so to minimize negative impacts on the right of way and private residences, as prescribed in the sun/shadow criterion with the City of Mississauga.

12.4.1.7 Streetscape (Open Space and Landscaping) - Development of private land abutting the sidewalk should closely coordinate with the public boulevard to create an integrated design character at the pedestrian level and to reinforce the sense of a community main street. Opportunities for the development of entry forecourts and plazas will be encouraged in order to create a varied streetscape.

12.4.1.8 Private Development Zone – Development should address the following:

a. front yard setback areas should be provided with site furnishings, landscaping and paving materials, coordinate with the public boulevard design, and extend the usability of the public sidewalk; and

b. opportunities for pedestrian spaces and circulation areas should be promoted at intersection corners, major building entrances and terminations of vistas.

Through detailed design, more focus will be provided on landscaping features (including benches, surface pavers, etc) and the programming internal to the site. That said, we do acknowledge and to that end, that this area is intended or planned to be walkable. We have provided a conceptual landscaping plan which shows that there are areas for informal congregation throughout the site and paved areas linking the development to the public right of way.

It is the intention of this team, throughout the detailed design process, to use these guiding principles to put forth a cohesive, complimentary design to enhance the character of the character area.

5.2 GREEN DEVELOPMENT STANDARDS, SUSTAINABILITY

All current building in Ontario must achieve a basic level of sustainability and environmental and energy efficiency. We intend to go beyond this level and look to a fast approaching future standards for sustainability.

Energy Efficiency
The owner of this project, in pursuit of designing these residential high rise towers in Peel Region has strived to adhere to a highly sustainable and efficient Geo-thermal energy system. These systems perform effectively as they are well engineered and built. We are experienced in working with curtail wall and window wall companies to develop energy efficient glazing specs that allow for substantial glazed opening with very reasonable A/C and Heating costs. Most of our projects make extensive use of energy efficient LED lighting combined with motion sensors to limit the waste of energy in those spaces that are to be lit 24 hours a day but not necessarily always occupied.

Rainwater
The proposal includes the capture and use of the rainwater (and to a lesser degree the snow) that falls on the property. The rainwater collected from the building roofs will be piped to a cistern. From the cistern the water will be used on site firstly for the irrigation of the several planters and planted areas. Water that exceeds this utility will then enter the SWM system. This rainwater will be available for charging the soil if needed. It is important to note that almost the entire site to be developed is essentially rooftop.

Groundwater
The proposed design is based on leaving the ground water in place. This is the water trapped within the layers of rock just 5-6m down from the surface. In most of our projects, in fact in almost all current projects, we find it best not to take water permanently and continuously from the site. Other than water issues during the months of the garage construction we would waterproof the underground garage. The design of the shoring and the approach to groundwater issues during excavation will be based on these principles.

Landscape & Sustainable Design
The proposed Green initiatives include:

- Maximized use of pervious surfacing where the finish grade is not on a concrete deck
- Non-invasive plant material selections
- Maximized tree canopy at grade and at planted roof terraces
- Maximized use of high albedo surfaces
- The design maintain the existing trees and the green areas on site are now "enhanced" with substantial additional plantings
- The extensive roof terraces have been designed with significant soil depth to support landscape growth.
- The existing site is 95%, soil composition; the new design will have about 80% of the lot area replaced with landscaped roof terraces, landscape at grade and "green" roof surfaces.

5.3 ZONING BY-LAW

The subject lands are currently zoned RA4-25 and H-RA4-30 in the City of Mississauga Zoning By-law (0225-2007). The RA4 zone permits apartments, long-term care, and retirement building uses. The zoning also permits heights up to 18 storeys and 16 storeys, respectively. Both zones prescribe site specific zoning regulations such as, but not limited to, setbacks, floor space index maximums and unit caps. We also note that there is currently a holding symbol on 117 John Street (H-RA4-30) which stipulates a number of conditions to be resolved prior to any land disturbing activities or other land use approvals. These conditions are items such as the provision of hydro-electric power services as well as other infrastructure such as sanitary sewer, storm sewer and water services as well as site access (amongst other matters).

The subject property will be rezoned to accommodate the development proposal under the RA5 - Special Section. Consideration will be given to setbacks, floor space index maximums, parking requirements and unit caps during the drafting of the zoning by-law.

Alan Tregebov OAA
M.Arch (Urban Design)

Prepared with Glen Schnarr Associates

SHADOW STUDY ANALYSIS

69 & 117 JOHN STREET, MISSISSAUGA, ON

Prepared for:
13545130 Canada Inc.

Prepared By:

TREGEBOV COGAN ARCHITECTURE

October 2024

1. INTRODUCTION

The neighborhood surrounding the vicinity of John Street is a diverse hub, consisting of a variation of medium to high density residential buildings, institutional facilities, outdoor amenities, commercial spaces and transit oriented services. The site of 69 and 117 John Street aims to add a rich and vibrant proposal to an already diverse neighborhood, by introducing a series of high-rise towers that gently crescendos to meet the ever-evolving skyline of Mississauga's Downtown Core.

The architectural composition of the building proposed consists primarily of three high-rise components that begin with a 20 storey building to the east, and two more towers of 30 storeys and 31 storeys set towards the west. The building also features a 12 storey podium that connects all three towers. This structure is drastically set back from John Street in order to gracefully frame the entryway to the site. A 30 meter setback to the north has also been implemented to allow for mitigating factors due the proximity of the Canadian Pacific Railway corridor. To the east, the building gently tapers down to allow ample access to a portion of the site that has been designated as a future parkland space.

The proposals design has taken several factors into consideration in achieving a composition that effectively serves its unique sites conditions as well as to respect and mitigate its impact on the surrounding context. Some of these design strategies include; meeting the specifications of the required angular planes stemming from the adjacent properties rear or side yards, adequate terracing of the building to better articulate it form, providing ample separation between the towers and adjusting the proportion of the floor plates.

While these aspects of the design have lent themselves to the buildings overall form and massing, these design intentions have also become critical factors in sculpting the building in order to mitigate the shadow impacts on the surrounding lands. These impacts shall be explored in great detail in this report to rationalize the form and massing of the proposed building.

Reference Appendix A and B for shadow test times.

Figure 01: Proposed Development Location

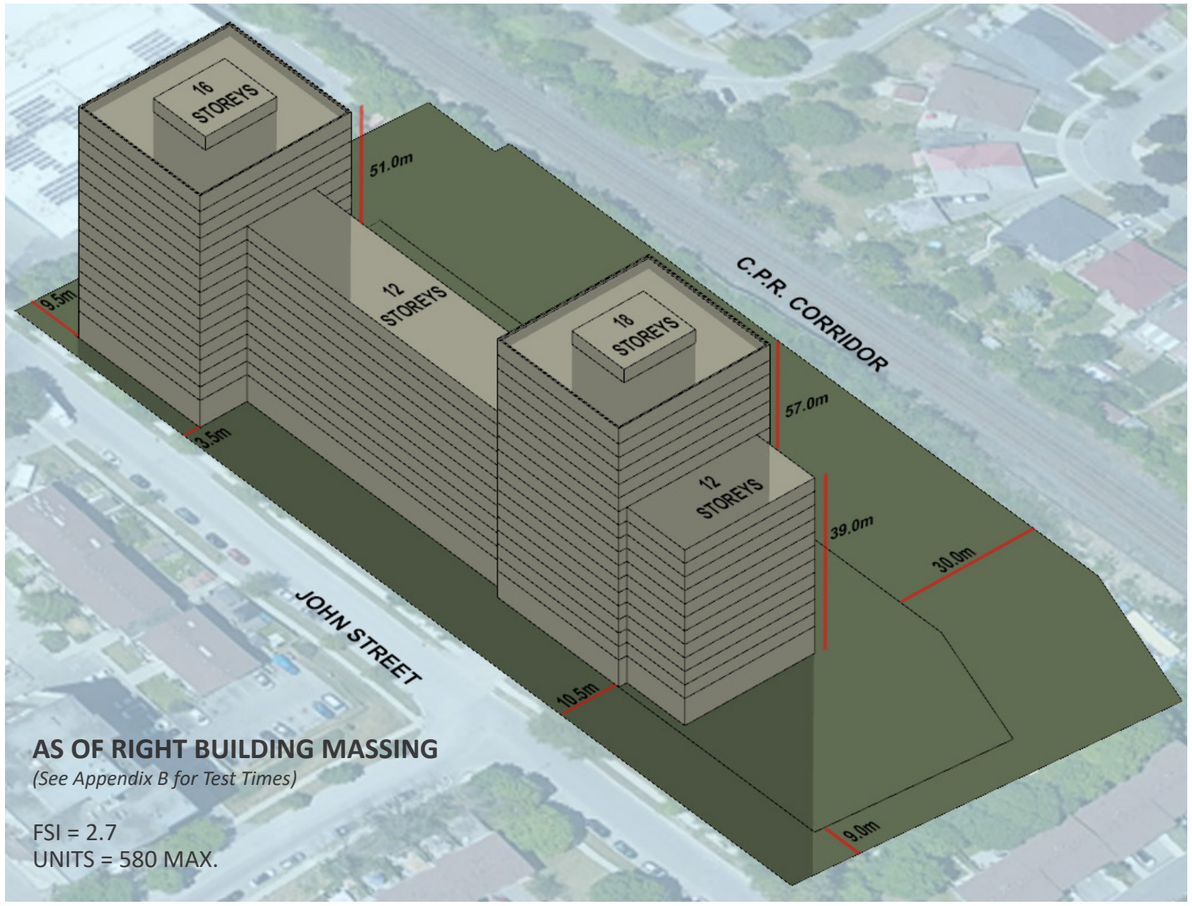


Figure 02: "As of Right" Massing Diagram

2. METHODOLOGY, STANDARDS AND DATA

The following shadow study examines two distinct sets of shadow studies to provide a comparative analysis of the proposal described previously to an "as of right" massing strategy. This shadow study report also takes into account a series of existing site conditions that merit the shadow impacts of the proposal.

These elements shall be presented and analyzed to demonstrate the design challenges that have been overcome to mitigate the shadows and validate its overall conformity to hiving a minimal shadow impact on the surrounding context.

Please take note that the following shadow study report and its accompanied shadow study documents have been prepared in reference to the City of Mississauga's Urban Design Terms of Reference: Standards for Shadow Studies (July 2024).

The latitude and longitude (43°35'10"N 79°37'10"W) used for the site in shadow drawings, and the astronomic north was determined by cross referencing Google Earth coordinates and Geolocation in SketchUp 2023. The base plan, building massing and terrain were referenced from Land Surveys and ArcGIS 3D Terrain data provided through The City of Mississauga's open data files to provide an accurate depiction of the site and its conditions.

3. CRITERIA

3.1 RESIDENTIAL PRIVATE OUTDOOR AMENITY SPACES

The proposed shadow must not exceed more than two consecutive hourly test times on areas such as private rear yards, decks, patios, and pools of surrounding residential dwellings on June 21 and Sept 21.

JUNE 21

When analyzing the shadow in conformity with Criteria 3.1 for the June 21 test times, the proposals shadow does impede some portions of the "No Impact Zones" to the south of the site for more than two consecutive hourly test times during this test period. This occurs between the span of 16:20 to 19:33. However, it is important to note that this impact is minimized as the yards in these regions are already in shadow, primarily casted by the fences enclosing these backyards in the later of these select times. This resulting shadow produced by the yard fences is due to the low sun angle conditions of the setting sun.

This aspect of yard coverage has been analyzed more carefully on the following page with a series of diagrams to illustrate that there is little to no shadow impact following the 18:20 test time in June. Moreover, some of the yards immediately adjacent (3180 Little John Lane) have sheds, gazebos and other structures that already shade or cover a majority of the yards. (Figure 03)

Therefore, the proposals shadow will not majorly contribute towards introducing any 'new' shadows to severely impact or impede these "No Impact Zones".

TIME	IMPACT
7:07	*No Impact*
7:20	*No Impact*
8:20	*No Impact*
9:20	*No Impact*
10:20	*No Impact*
11:20	*No Impact*
12:20	*No Impact*
13:20	*No Impact*
14:20	*No Impact*
15:20	*No Impact*
16:20	*Impact On Townhomes Across John Street, Directly To The South And South-East. With Partial Coverage On Little John Lane*
17:20	*Impact On Townhomes Across John Street, Directly To The South And South-East. With Partial Coverage On Little John Lane*
18:20	*Minimal Impact On Townhomes Across John Street, Directly To The South And South-East. With Coverage On Little John Lane*
19:20	*No Impact. Zones Shadowed Primarily By Own Yard Fences*
19:33	*No Impact. Zones Shadowed Primarily By Own Yard Fences*

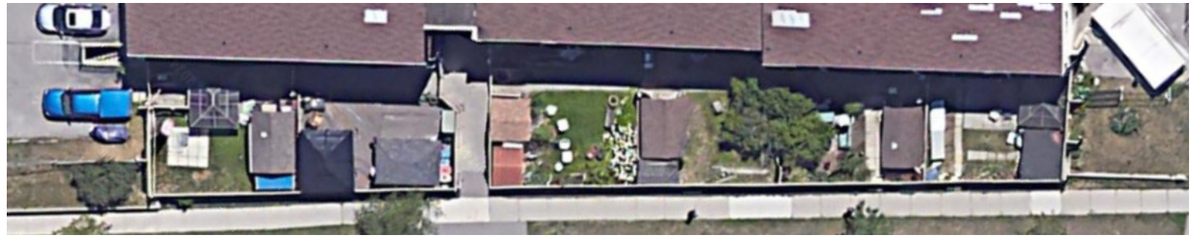


Figure 03: Existing Structures Impede Coverage of Yards

SEPTEMBER 21

Upon examining the shadow study analysis of the September 21 test times, it is apparent that there is a drastic contrast between existing shadows and the new shadows casted by the proposal. In the early hours of 8:35am it is apparent that the shadows casted by several of the existing townhomes and houses to the north of the tracks already bear a significant impact on their own yards. These conditions persist up to 11:12am. During these times there are no new shadows being casted on the townhome to the north for more than two consecutive test times. To the north-east, the semi-detached house of 94 Voltarie Cres. does receive a shadow for three consecutive test times. However it is important to note two conditions during the third hour of impact. Primarily, the area of impact on the specific yard at both 10:12am and 10:12am both cover less than 10% of the "no impact zone" in this area. Moreover, this portion of shadow, being the leading edge of the shadow represents a gradient effect or penumbra. That is to say, the shadow at these intervals are not a harsh or absolute line separating light from shadow, but is a soft, feathered shadow. To better understand the delineation of a shadows umbra and penumbra please refer to Figure 04. A more precise analysis of these key areas can also be examined on the following pages.

As for the later hours of impact, between 16:12 to 17:48 it is apparent that the new shadow does not impact the yards of the townhouses to the south-east for more than two consecutive test times. This is because the yards in question are shadowed by their own fences for the last test time (17:48). This indicates that the new shadows during the evening periods of September 21 does not impede any "no impact zones" beyond two- consecutive test times. This has also been evaluated further in the following equinox diagrams.

Thus, the proposal casts no 'new' shadows on these areas maintaining the criteria of not exceeding an impact of more than two consecutive hourly test times.

TIME	IMPACT
8:35	*Minimal Impact On Yards Of Town House To The North & Yards of Semi-Detached Houses Along Bend Of Voltare Cres.*
9:12	*Minimal Impact On Yards Of Town House To The North & One Yard of Semi-Detached Houses Along Bend Of Voltare Cres.*
10:12	*Impact On Yards Between Set Of Town House To The North & Yards of Semi-Detached Houses Along Bend Of Voltare Cres.*
11:12	*Impact On Single Yard of Town House To The North*
12:12	*No Impact*
13:12	*No Impact*
14:12	*No Impact*
15:12	*Impact On Townhomes To The East*
16:12	*Impact On Townhomes To The East & Across John Street To The South-East (Shadowed Primarily By Own Yard Fences).*
17:12	*Impact On Townhomes Across John Street To The South & South-East (Shadowed Primarily By Own Yard Fences).*
17:48	*Impact On Townhomes Across John Street To The South & South-East (Shadowed Primarily By Own Yard Fences).*

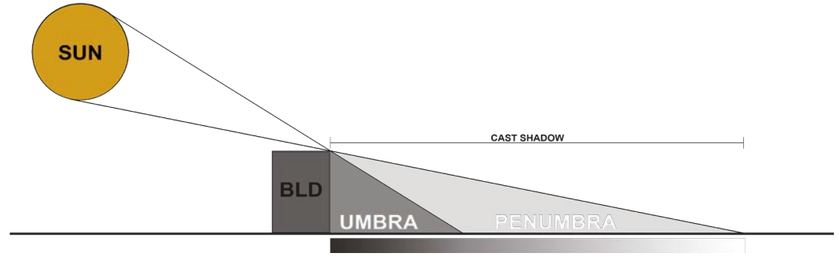


Figure 04: Umbra vs. Penumbra

06:20 PM JUNE

NOTE # 1:

Minimal impact of the proposed building on the yards at 3175 Kirwin Ave; yards begin to be impacted by shadows casted by the fence. There are only partial new shadow cast on these backyards at this time.

NOTE # 2:

Partial impact of the proposed building on the yards at 3180 Little John Ln; yards begin to be impacted by shadows casted by the fence. Yards also feature a variety of accessory structures that impede the “no impact zone”.

Communal Outdoor Area A is also partially shaded. Due to this leading edge of the impact at this time, there is shadow/ penumbra for 1 hour.

07:20 PM JUNE

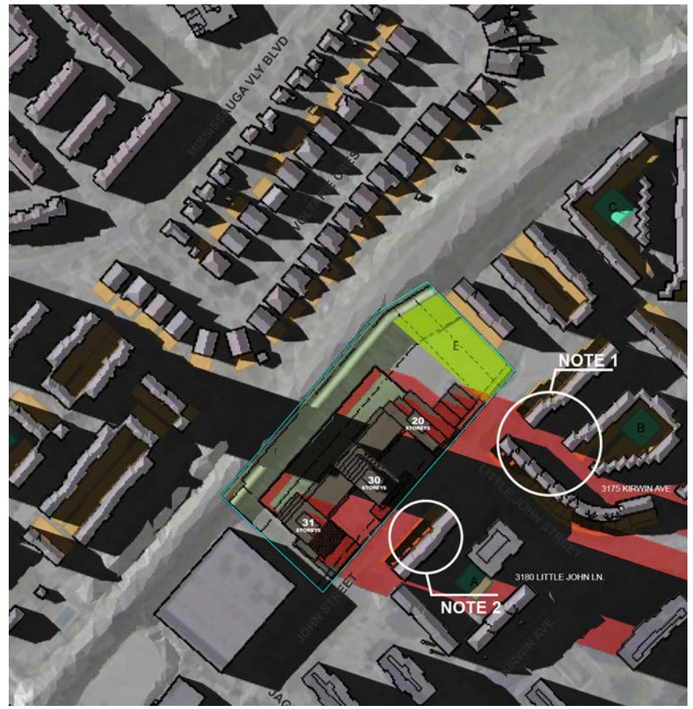
NOTE # 1:

Negligible impact of the proposed building on the yards at 3175 Kirwin Ave; low angle of setting sun cause yards to be impacted by shadows casted by the fence. This is in compliance with Mississauga’s criteria. At 3175 Kirwin Ave, there is no significant new shadow cast on these backyards at this time.

Also note that communal outdoor Area A is only partially impacted by the proposals shadow. Existing shadow contributes to shadowing the amenity space. Area B is not impacted in this hour or the next by any new shadows. Only existing shadows contribute.

NOTE # 2:

Negligible impact of the proposed building on the yards at 3180 Little John Ln; low angle of setting sun cause yards to be impacted by shadows casted by the fence. Yards also feature a variety of accessory structures that impede the “no impact zone”.



07:33 PM JUNE

NOTE # 1:

Negligible impact of the proposed building on the yards at 3175 Kirwin Ave; low angle of setting sun cause yards to be impacted by shadows casted by the fence. This is in compliance with Mississauga’s criteria. At 3175 Kirwin Ave, there is no new shadow cast on these backyards at this time.

NOTE # 2:

Negligible impact of the proposed building on the yards at 3180 Little John Ln; low angle of setting sun cause yards to be impacted by shadows casted by the fence. Yards also feature a variety of accessory structures that impede the “no impact zone”.

UMBRA:

Full Shadow, 100% Of The Complete Shadow On The Building

PENUMBRA:

Partial Shadow, A Gradient From 100% To 0% Shadow On The Building.

09:12 AM SEPTEMBER EQUINOX

NOTE # 1:

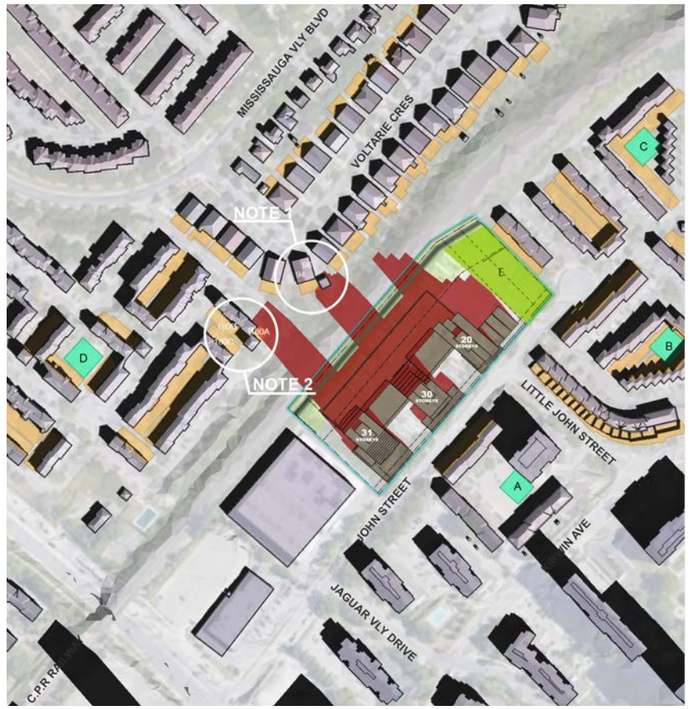
Impact of the proposed building on the yards at 94 and 100 Voltarie Cres; there is shadow/ penumbra for no more than 2 consecutive hours. This is in compliance with Mississauga's criteria. At 100 Voltarie Cres, the shadow cast is only a small percentage of the backyard.

Impact of the proposed building on the yards at 96 Voltarie Cres; there is shadow/ penumbra for 1 hour.

NOTE # 2:

Impact of the proposed building on the yard 180a; there is shadow/ penumbra for 1 Hour.

Impact of the proposed building on the yards 180b and 180c Voltarie Cres; there is shadow/ penumbra for no more than 2 consecutive hours. This is in compliance with Mississauga's criteria. During this time the majority of the shadow cast is from the existing houses, with only a small percentage the proposed building.



10:12 AM SEPTEMBER EQUINOX

NOTE # 1:

I impact of the proposed building on the yards at 88, 90 and 102 Voltarie Cres; there is shadow/ penumbra for 1 hour.

Impact of the proposed building on the yards at 94 and 100 Voltarie Cres; there is shadow/ penumbra for no more than 2 consecutive hours. This is in compliance with Mississauga's criteria. At 94 Voltarie Cres, the shadow cast is only a small percentage of the backyard at this time.

NOTE # 2:

Impact of the proposed building on the yards 180b and 180c; there is shadow/ penumbra for no more than 2 consecutive hours. This is in compliance with Mississauga's criteria. On the yard 180b a percentage of the shadow cast is from the exiting houses during this time of the day.

11:12 AM SEPTEMBER EQUINOX

NOTE # 1:

Minor impact of the proposed building on the yards at 96 Voltaire Cres; there is shadow/ penumbra for 1 hour.

NOTE # 2:

Impact of the proposed building on the yards 180a; there is shadow/ penumbra for 1 hour.

UMBRA:

Full Shadow, 100% Of The Complete Shadow On The Building

PENUMBRA:

Partial Shadow, A Gradient From 100% To 0% Shadow On The Building.

04:12 PM SEPTEMBER EQUINOX

NOTE # 1:

Impact of the proposed building on john street; there is shadow/ penumbra for no more than 2 consecutive hours. This is in compliance with Mississauga's criteria. A percentage of the shadow cast is from existing yard's fences.

UMBRA:

Full Shadow, 100% Of The Complete Shadow On The Building

PENUMBRA:

Partial Shadow, A Gradient From 100% To 0% Shadow On The Building.

05:12 PM SEPTEMBER EQUINOX

NOTE # 1:

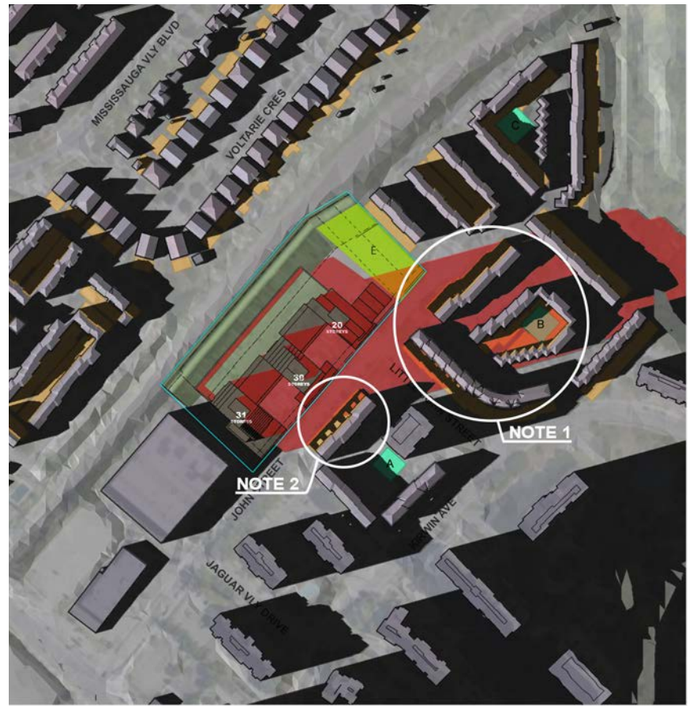
Minor impact of the proposed building on John Street; there is shadow/ penumbra for no more than 2 consecutive hours. This is in compliance with Mississauga's criteria. A percentage of the shadow cast is from existing yard's fences.

Minor impact of the proposed building on Little John Street; there is shadow/ penumbra for no more than 2 consecutive hours. This is in compliance with Mississauga's criteria. A percentage of the shadow cast is from existing yard's fences and other existing buildings.

No impact from proposed building on amenity Area B.

NOTE # 2:

Impact of the proposed building on John Street; there is shadow/ penumbra for no more than 2 consecutive hours. This is in compliance with Mississauga's criteria. A percentage of the shadow cast is from existing yard's fences.



05:48 PM SEPTEMBER EQUINOX

NOTE # 1:

No impact of the proposed building on the yards at John Street. All shadow cast are from existing yard's fences.

Minor impact of the proposed building on Little John Street; there is shadow/ penumbra for no more than 2 consecutive hours. This is in compliance with Mississauga's criteria. A percentage of the shadow cast is from existing yard's fences and other existing buildings.

Impact from proposed building on amenity Area B; there is shadow/ penumbra for less than an hour.

NOTE # 2:

Impact of the proposed building on John Street; there is shadow/ penumbra for no more than 2 consecutive hours. This is in compliance with Mississauga's criteria. A percentage of the shadow cast is from existing yard's fences.

05:12 PM SEPTEMBER EQUINOX

NOTE # 1:

Negligible impact of the proposed building on the yards at 3175 Kirwin Ave; low angle of setting sun cause yards to be impacted by shadows casted by the fence. This is in compliance with Mississauga's criteria. At 3175 Kirwin Ave, there is no new shadow cast on these backyards at this time and those following.

For this area of study, all fences have been modeled as 2 meter high fences placed on grade.

NOTE # 2:

Partial impact of the proposed building on the yards at 3175 Kirwin Ave; yards begin to be impacted by shadows casted by the fence. These yards also feature a variety of accessory structures such as patio umbrellas, gazebos, and sheds that impede the "no impact zone".

For this area of study, all fences have been modeled as 2 meter high fences placed on grade.

NOTE # 3:

Partial impact of the proposed building on the yards at 3180 Little John Ln; yards begin to be impacted by shadows casted by the fence. These yards also feature a variety of accessory structures such as patio umbrellas, gazebos, and sheds that impede the "no impact zone".

For this area of study, all fences have been modeled as 2 meter high fences placed on grade.

NOTE # 4:

Future Parkland Area E can be seen to be similarly partially shaded in this hour, the preceding hours and the following hours. However, due to this leading edge of the impact at this time, there is shadow/ penumbra for those hours.

UMBRA:

Full Shadow, 100% Of The Complete Shadow On The Building

PENUMBRA:

Partial Shadow, A Gradient From 100% To 0% Shadow On The Building.

Figure 05: 3175 Kirwin Ave. Accessory Structures Coverage

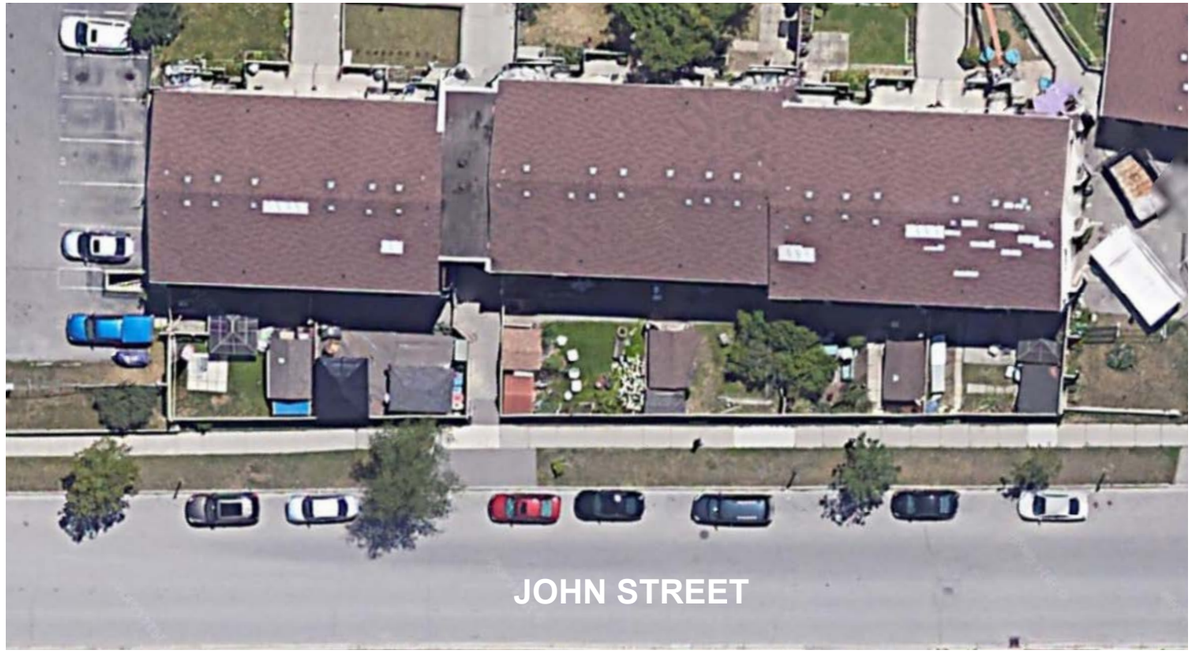


Figure 06: 3180 Little John Ln. Accessory Structures Coverage

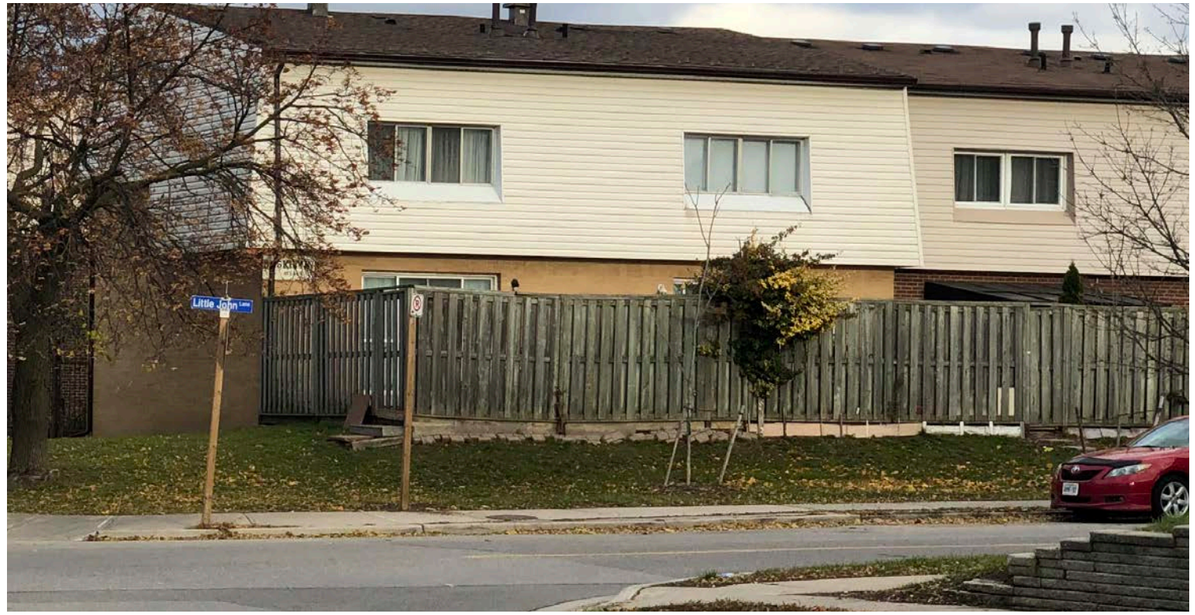


Figure 07: 2 Meter Yard Fences Along Little John Lane

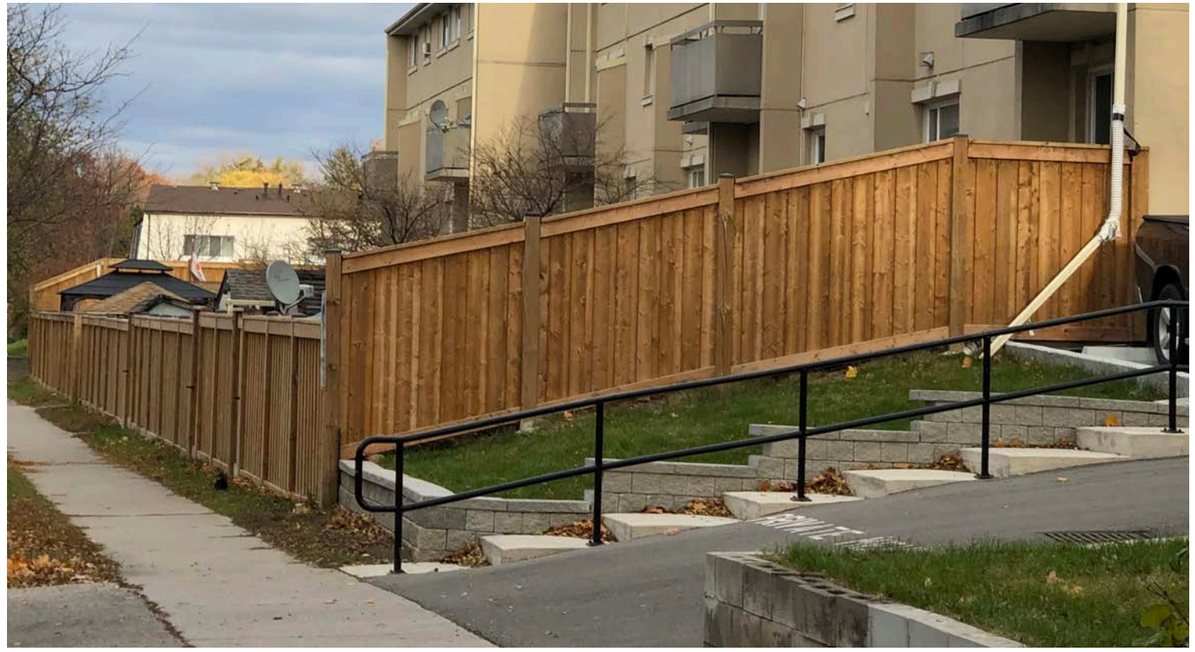


Figure 08: 2 Meter Yard Fences Along John Street

3.2 COMMUNAL OUTDOOR AMENITY AREAS

The proposed shadow must not exceed more than 50% of the test times covering areas such as children's play areas, school yards, tot lots, sandboxes, wading pools and other communal outdoor amenity areas on June 21, Sept 21 and Dec 21.

When analyzing the shadow in conformity with Criteria 3.2, the proposals shadow indicates that the shadows casted on these communal areas barely impede the conditions for the "Sun Access Factor" on each of the test dates. Thus, maintaining that the shadows casted cover at most, 10% to 20% of these spaces during the indicted test times. With the only exception being the impact on the proposed future parkland to the east during the Dec 21 test period. The key communal outdoor amenity spaces have been indicated (teal colour) in the attached shadow study diagrams and labeled 'A' through 'E' in the diagrams attached. 'A' is located at 3180 Kirwin Ave. 'B' is located at 3175 Kirwin Ave. south-side. 'C' is located at 3175 Kirwin Ave. north-side. 'D' is located at 180 Mississauga Valley Blvd. 'E' is the dedicated park space proposed to the east.

The method of calculation for the Sun Access Factors listed in the table below have been measured and calculated as per the method (3.2a) cited in the City of Mississauga's Urban Design Terms of Reference: Standards for Shadow Studies.

ZONES	SUN ACCESS FACTOR JUNE 21	SUN ACCESS FACTOR SEPTEMBER 21	SUN ACCESS FACTOR DECEMBER 21
Area A – 335 m2	*0.83*	*1.00*	*1.00*
Area B – 175 m2	*1.00*	*0.93*	*1.00*
Area C – 100 m2	*1.00*	*1.00*	*0.95*
Area D – 750 m2	*1.00*	*0.98*	*1.00*
Area E – 2,380 m2	*0.94*	*0.77*	*0.41*

JUNE 21

TIME	IMPACT
7:07	*No Impact*
7:20	*No Impact*
8:20	*No Impact*
9:20	*No Impact*
10:20	*No Impact*
11:20	*No Impact*
12:20	*No Impact*
13:20	*Less Than 5 % Impact On Area E (Future Parkland)*
14:20	*Less Than 10 % Impact On Area E (Future Parkland)*
15:20	*Less Than 15 % Impact On Area E (Future Parkland)*
16:20	*Reduction Of Impact On Area E (Future Parkland)*
17:20	*Reduction Of Impact On Area E (Future Parkland)*
18:20	*Reduction Of Impact On Area E (Future Parkland), Partial Impact On Zone A*
19:20	*Minor Impact On Area E (Future Parkland), 65% Impact On Zone A - 35% Covered By Existing Shadows*
19:33	*Minor Impact On Area E (Future Parkland), 35% Impact On Zone A - 65% Covered By Existing Shadows*

SEPTEMBER 21

TIME	IMPACT
8:35	*Minor Impact On Area D With 20% Impact Due To New Shadow & 80% Covered By Existing Shadows*
9:12	*Minor Impact On Area D With Less Than 10 % Impact Due To New Shadow & Partially Covered By Existing Shadows*
10:12	*No Impact*
11:12	*No Impact*
12:12	*Less Than 10 % Impact On Area E (Future Parkland)*
13:12	*Partial Impact On Area E (Future Parkland)*
14:12	*Partial Impact On Area E (Future Parkland)*
15:12	*Partial Impact On Area E (Future Parkland)*
16:12	*Partial Impact On Area E (Future Parkland)*
17:12	*Partial Impact On Area E (Future Parkland)*
17:48	*Partial Impact On Area E (Future Parkland), 80% Impact On Zone B - 20% Covered By Existing Shadows*

DECEMBER 21

TIME	IMPACT
9:19	*Less Than 10 % Impact On Area E (Future Parkland), Additional Shadow Cast On Area E By Existing Shadows*
10:17	*Partial Impact On Area E (Future Parkland)*
11:17	*Growing Impact On Area E (Future Parkland)*
12:17	*Growing Impact On Area E (Future Parkland)*
13:17	*Growing Impact On Area E (Future Parkland)*
14:17	*Growing Impact On Area E (Future Parkland)*
15:15	*Reducing Impact On Area E (Future Parkland)*

To aid in the analysis of the "Sun Access Factor" it is worthy to note that December shadow, due to the low angle of the sun produce long drawn out shadows. This means that even small/short buildings and objects cast very long shadows. Thus, the proposal creates long shadows that cover a larger swath of area. Moreover, the low angle also contributes to larger penumbra shadows dictating that the shadows during the December times, while lengthy, are not hard or harsh shadows. These shadows are rather softer and form a gradient over the future parkland to the east. Therefore, based on the analysis of the December shadow falling short of the recommended "Sun Access Factor" of 50% by a mere 9% which seems to be within a reasonable and acceptable range of impact. Note that even designs such as the "As of Right" would yield similar results during the December months despite its significant reduction in building height.

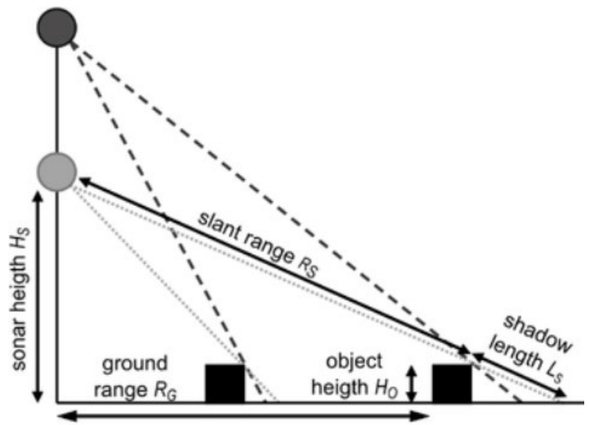


Figure 09: Sun Angle vs Shadow Length

3.3 COMMUNAL OUTDOOR AMENITY AREAS

(3b - Commercial, Employment and High Density Residential Streets)
The proposed shadow must allow for full sunlight on the opposite boulevard including the full width of the sidewalk on Sept 21, for a total of at least five hours between 12:12pm to 2:12pm and an additional two hours from either 9:12am to 11:12am or 3:12pm to 5:12 pm.

When analyzing the shadow in conformity with Criteria 3.2, the proposals shadow does not impede any portion of the public realm as per the city's terms of reference. Looking at the suggested times, the opposite boulevard and sidewalks are clear between the hours of 9:12am to 11:12am. It is also noted that the opposite boulevard and sidewalks are clear between the hours of 12:12pm to 2:12pm. These test periods in itself suggest that the proposal and its shadows meet the criteria set out by section 3.2. Not only does the proposal meet the set out criterial but also exceeds the recommendations by providing a clear boulevard through 3:12pm. Moving to the following test interval, it is noted that the initial 3:12pm test time is clear but the following two test times are impeded by a minor shadow. This occurs during the 4:12pm and 5:12pm test times. However this impact is negligible as it allows for full sun light for a total of five hours between the suggested interval times.

SEPTEMBER 21: 3b

TIME	IMPACT
9:12	*No Impact*
10:12	*No Impact*
11:12	*No Impact*
12:12	*No Impact*
13:12	*No Impact*
14:12	*No Impact*
15:12	*No Impact*
16:12	*Shadow occurs on the north and partially the south side of John Street/Sidewalks.*
17:12	*Shadow occurs on the north and partially the south side of John Street/Sidewalks.*

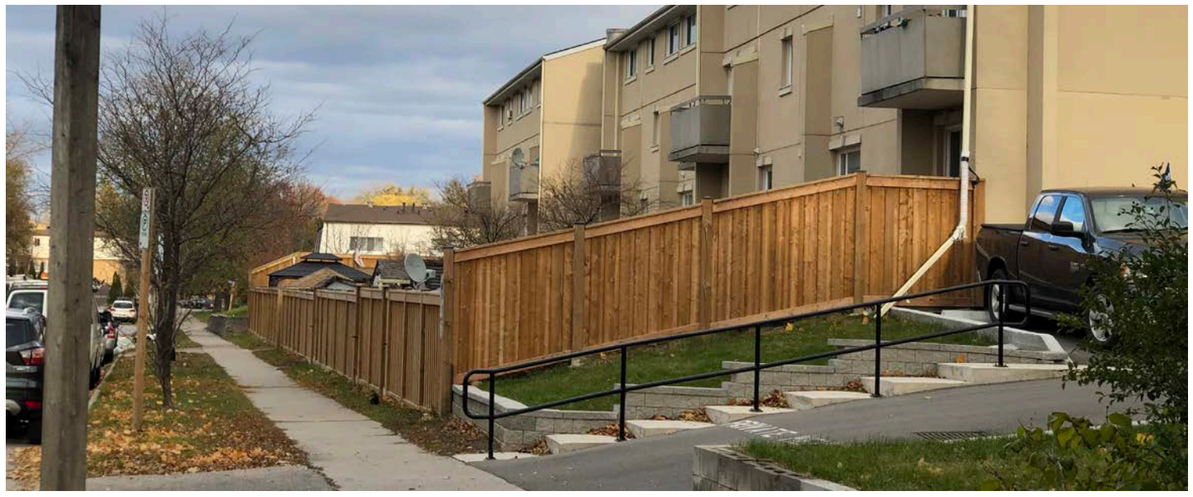


Figure 10: John Street Boulevard

3.4 TURF AND FLOWER GARDENS IN PUBLIC PARKS

Requires turf and flower gardens in public parks to have direct sunlight for 7 test times during the Sept 21 test period.

There are no distinguished Public Parks within the immediate vicinity that will be impacted by the shadow of the proposed development. The only zones of impact that could be considered yet are not Public Parks are the playground/park amenity spaces located at 3175 Kirwin Ave. and 180 Mississauga Vly Blvd. However these zones have access to adequate sunlight for at least 9 or 10 test times. 3175 Kirwin Ave. has direct sunlight between the hours of 8:35 to 17:12. Whereas 180 Mississauga Vly Blvd. has direct sunlight between the hours of 10:12 to 17:48. This exceeds the recommended terms of maintaining direct sunlight for at least 7 test times.

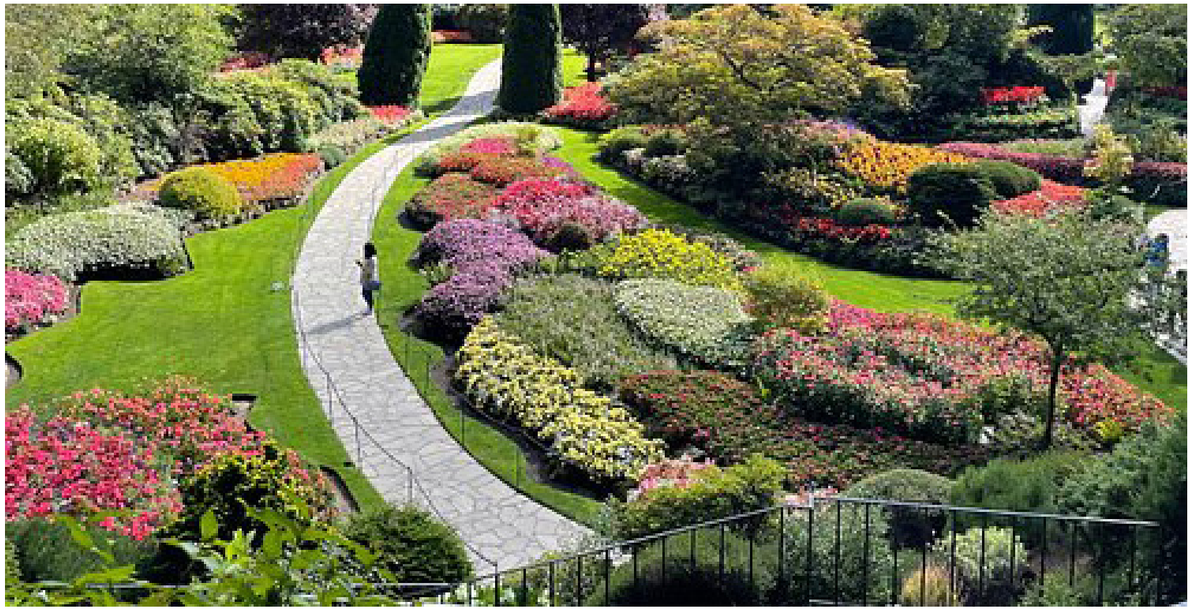


Figure 11: Turf and Flower Gardens

3.5 BUILDING FACES TO ALLOW FOR POSSIBILITY OF USING SOLAR ENERGY

Shadow impacts from proposed developments should not exceed 1hr in duration on the roofs, front, rear and exterior side walls of adjacent low rise (1-4 storeys) residential buildings on Sept 21 to allow for possibility of harvesting solar energy. The "no impact zone" shall be 3m offset from the exterior walls of said residential properties.

The North-Western Townhouse Complex (180 Mississauga Vly Blvd.) and Semi-Detached Homes (along Voltarie Crescent) will be impacted by the proposed developments shadows during September 21. These shadows however only span between the test times of 8:35 to 10:12 during which time the shadows move quickly. Thus not posing a major impairment towards the potential for harvesting solar energy. Most of these regions may already be shaded or impeded by shadows due to the proximity of trees, fences and other neighboring structures. Similar occurrences take place for the Easterly Townhouse Complex (3175 Kirwin Ave.) between the test times of 17:12 and 19:18. The Townhouse Complex to the immediate east is impacted as the initial shadow at 16:12 is within the 3 meter offset however this shadow passes over within the 1 hour duration.

CONCLUSION

For the purpose of fulfilling the application of this proposal, the Mississauga Official Plan necessitates a Shadow Study. The assessment above has followed the Urban Design Terms of Reference: Standards for Shadow Studies (July 2024) to analyze the proposed development's shadowing and its impact on the surrounding area.

This study assessed the 'new' shadow impacts on the recommended test periods of June 21, September 21 and December 21, conducted at Solar Noon, and at hourly intervals before and after Solar Noon, up to and including 1.5hrs after sunrise and 1.5hrs before sunset, as indicated.

The latitude and longitude (43°35'10"N 79°37'10"W) used for the site in shadow drawings, and the astronomic north was determined by cross referencing Google Earth coordinates and Geolocation in SketchUp 2023. The base plan, building massing and terrain were referenced from Land Surveys and ArcGIS 3D Terrain data provided through The City of Mississauga's open data files to provide an accurate depiction of the site and its conditions.

Upon reviewing the information above, the shadow impact of the proposed development has a minimal impact on the surrounding context primarily during the later test times of the June 21, on private outdoor amenity spaces. However as discussed previously, the orientation and configuration of some of these properties do not introduce any significant new shadow in addition to self-imposed shading or shadowing.

Mitigating these shadow impact factors has been a foremost concern to the design team in approaching the design of the structure. Sculpting the architectural massing of the building was primarily based on controlling and mitigating the shadow impact. It is with this forethought and consideration that the design team has come to the proposed design resolution.

It is also important to note that the "As of Right" building massing also contributes to a similar shadow impact over similar test times. This indicated that although the proposed building exceeds some of the zoning conditions, the shadows casted do not differ in terms of negatively impacting the surrounding context.

Further, as part of analyzing the community outdoor amenity areas, the shadow impact on the proposed park land to the east (Area E) does indicate a sun access factor less than 0.5 during the Dec 21 test times. However, it is important to note that the shadows in this area are casted by the first 6-8 storeys of the building due to the low sun angle. This causes longer shadows at the early hours between sunrise and shortly before solar noon, covering a greater area. The sun access factor during the June 21 and Sept 21 test times are far greater than 0.5. Providing greater sun access to the proposed park during the more functional and active periods/seasons of the year.

Moreover, if an "As of Right" building massing is held to the same criterial, the shadow impact would not only impact the "Sun Access Factor" in the June and September months more but also contribute to a lower December "Sun Access Factor".

Therefore, the proposal for 69 & 117 John Street has undergone a vigorous design process in order to tailor its form and massing it hopes of respecting the existing context and minimizing its implications on the surrounding areas.

The proposed heights of the towers on the lot are 31, 30 and 20 storeys, with the eastern portion of the site seeing a gradual stepping downward. In the scenario of the building design, height limitations were assessed to drastically mitigate shadowing of neighboring properties, therefore, various design studies with varying tower heights and cutbacks led the to the proposed massing being presented here.

These studies have allowed the design team to assess which shadowing criteria were affected and informed the design decision making process and dictated an appropriate resolution for the tower heights.

The proposed heights and massing respect the terms of reference set forth by adapting solutions and considerations to resolve or minimize any probable shadow impact. Gradual reduction in floor plate sizes was also evaluated, to strategically carve away corners and edges of the building to minimize the resulting shadows. These alterations to the initial built form have given the proposal its distinct shape. A structure that gently crescendos from east to west. Growing to meet the ever evolving skyline of Mississauga's Downtown core. While setbacks and notches respectfully grace the context, respecting the privacy of neighboring residential units without impeding their access to natural sunlight.

It is then the goal of this proposal to articulate its design in order to work alongside the city of Mississauga's vision of the downtown core and its growth plan to create a rich, diverse and vibrant community for living.

Figure 12: 69 & 117 John Street Proposal

URBAN DESIGN BRIEF

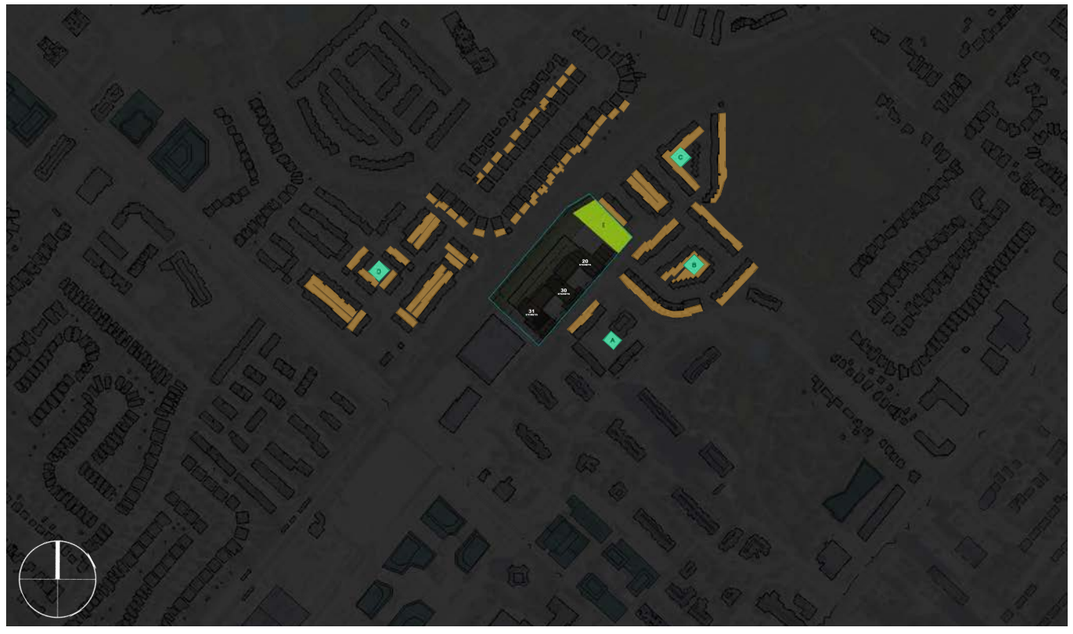
Appendix A:
Proposal Shadow Study Diagrams

69 & 117 John Street Mississauga, ON

Prepared for:
13545130 Canada Inc.

TREGEBOV COGAN ARCHITECTURE

October 2024



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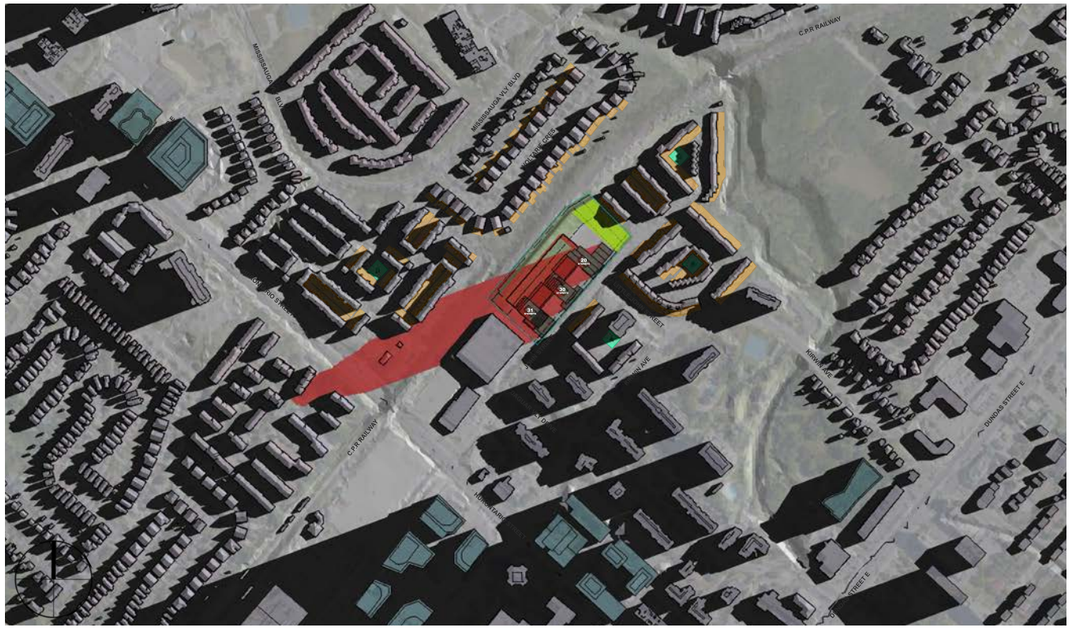

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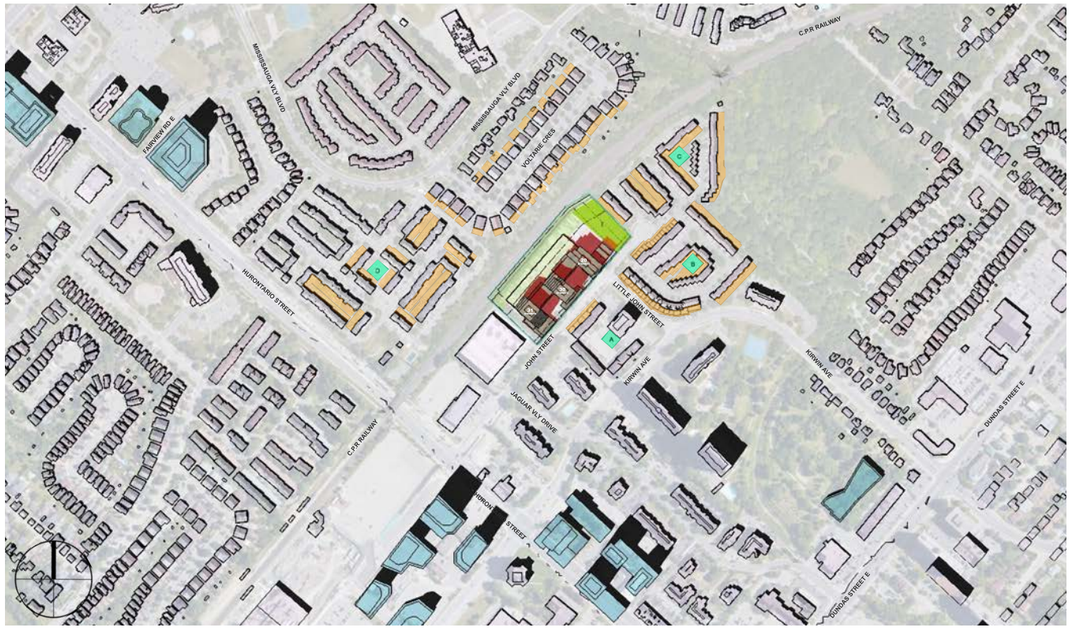

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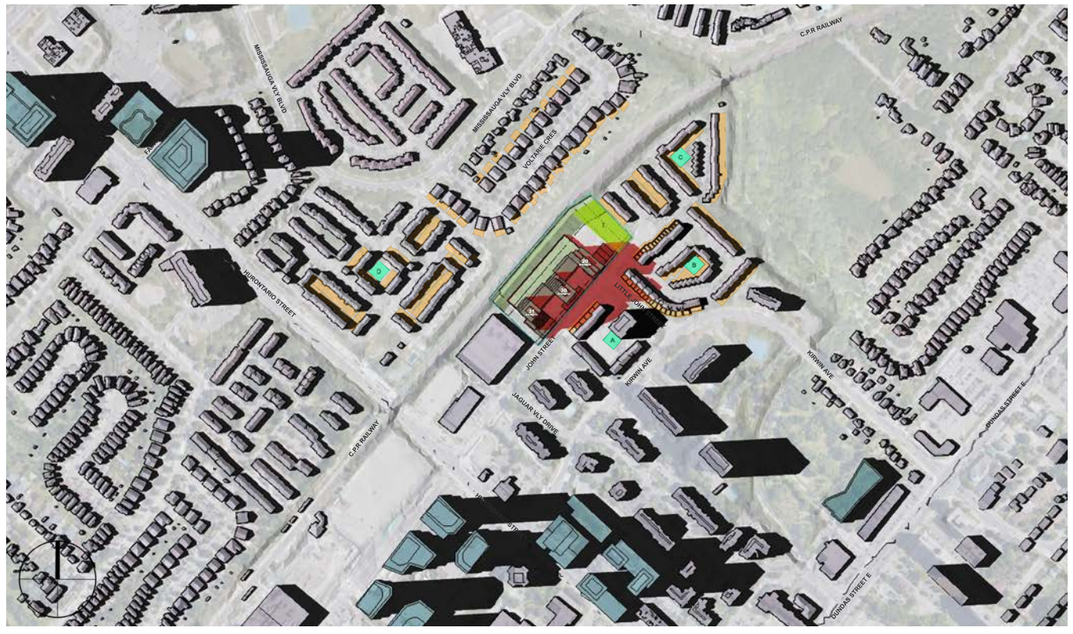

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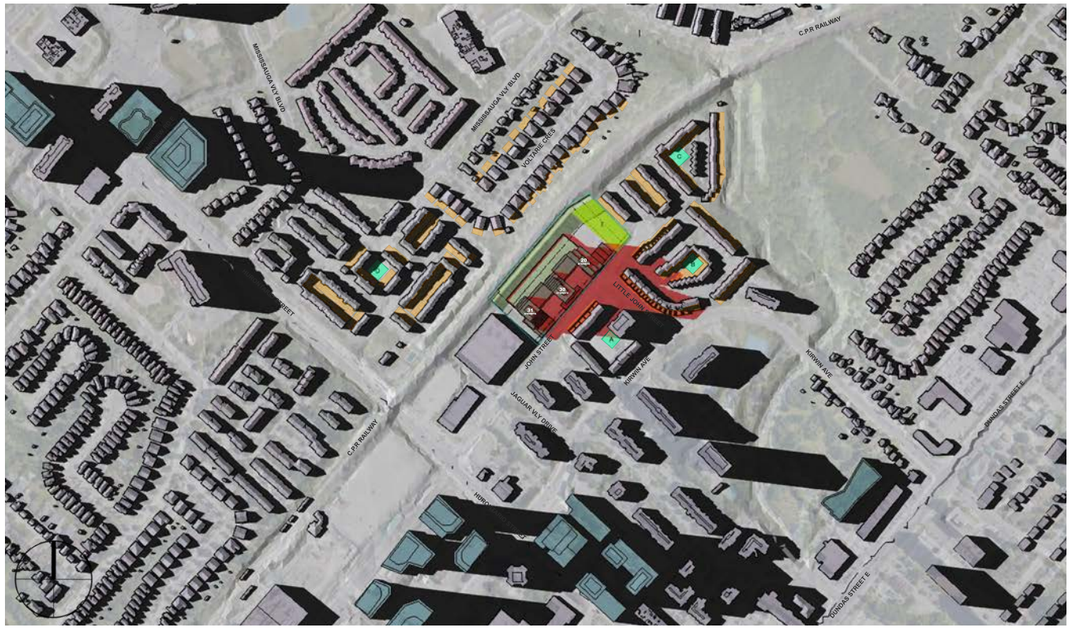

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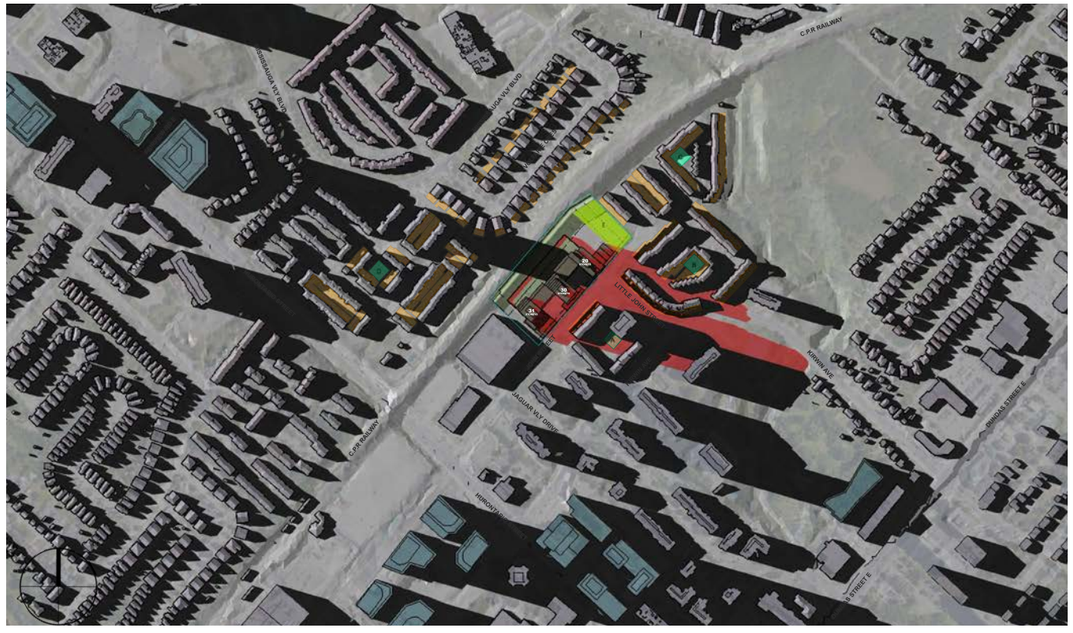

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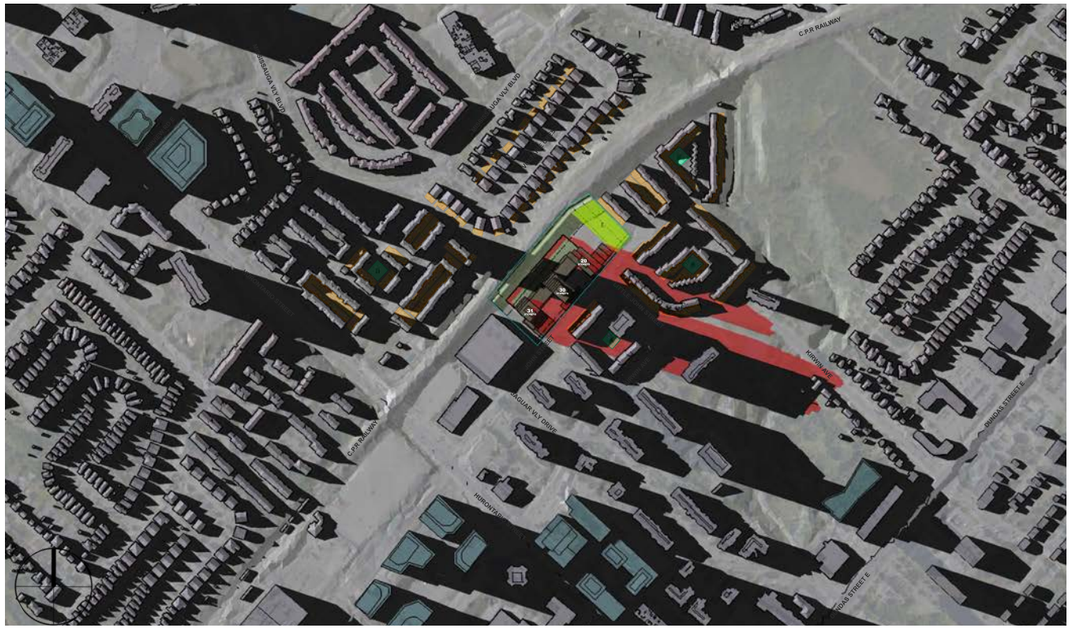

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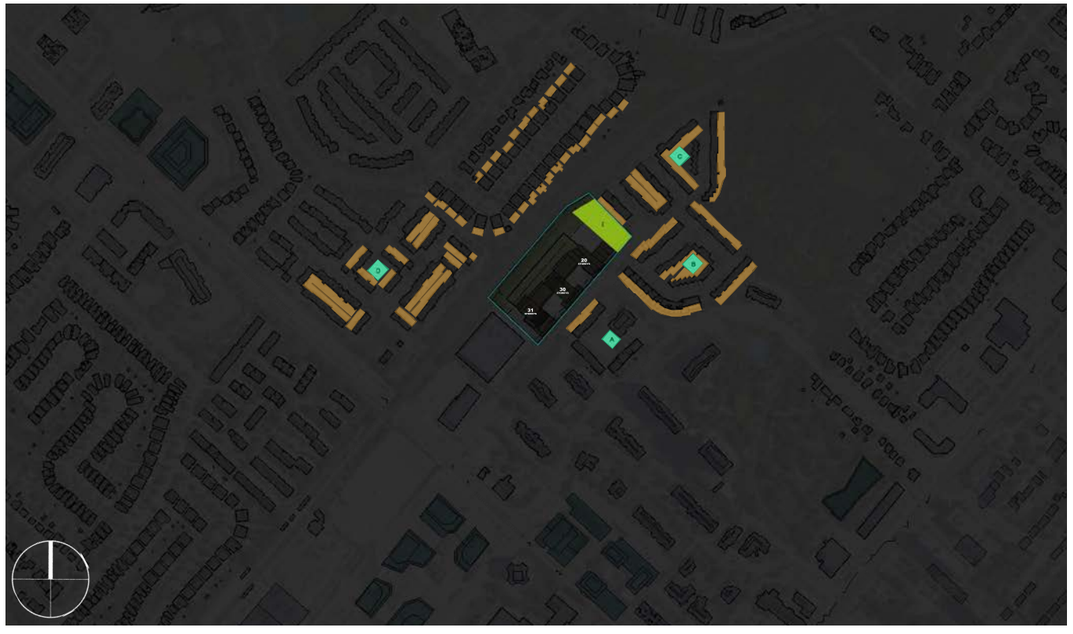

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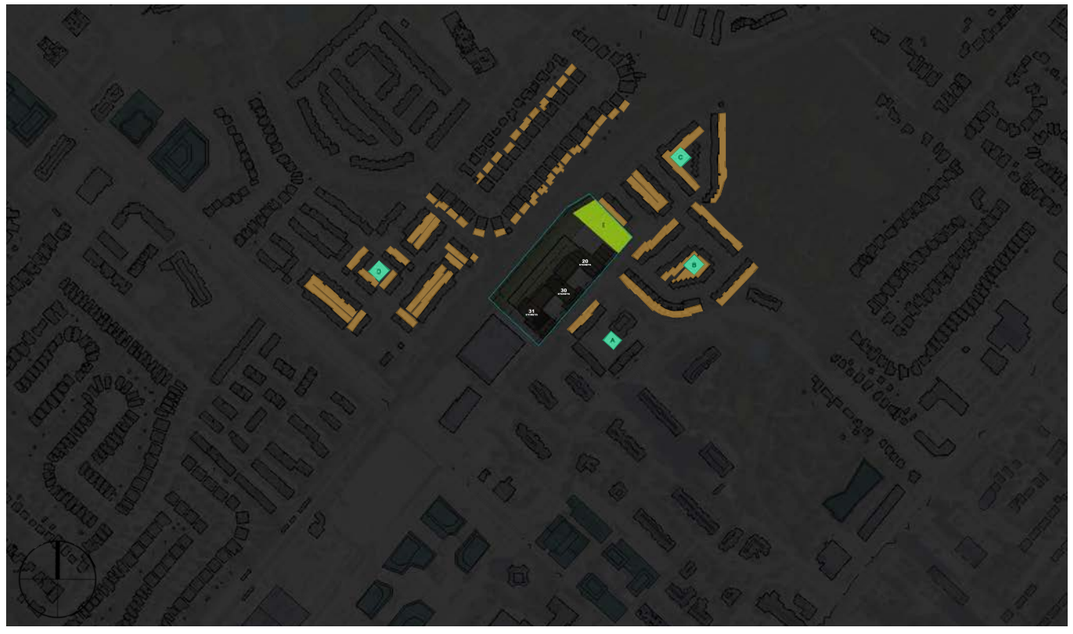

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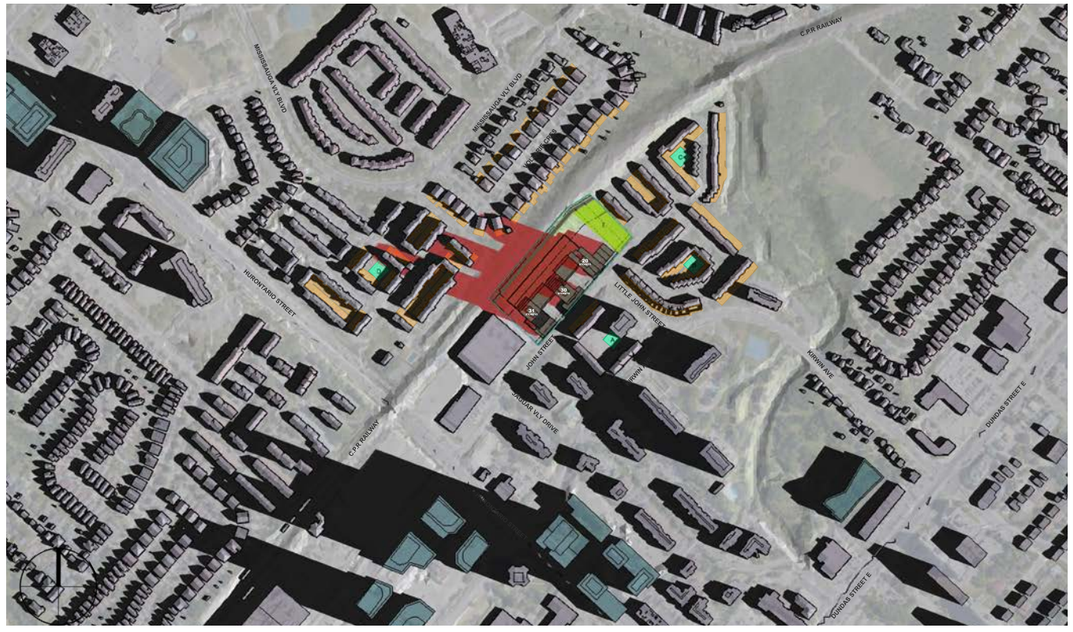

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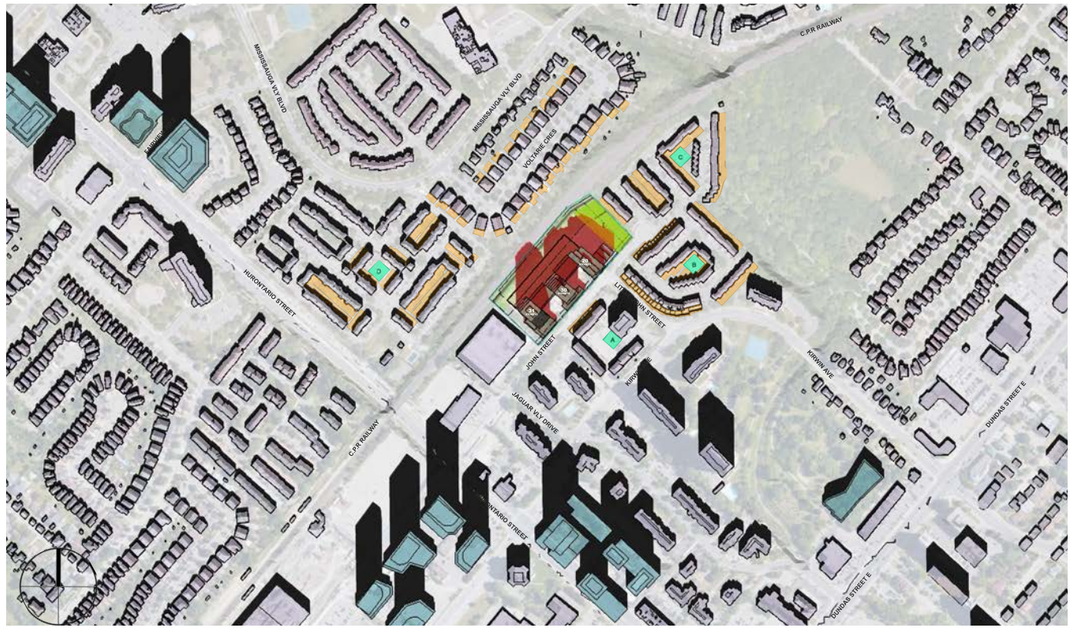

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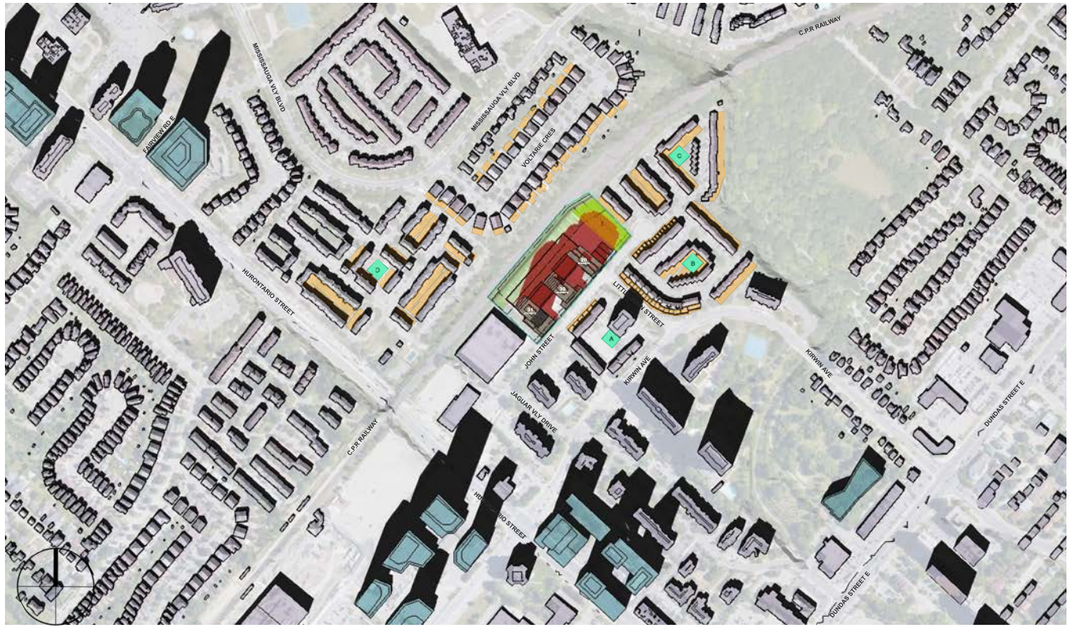

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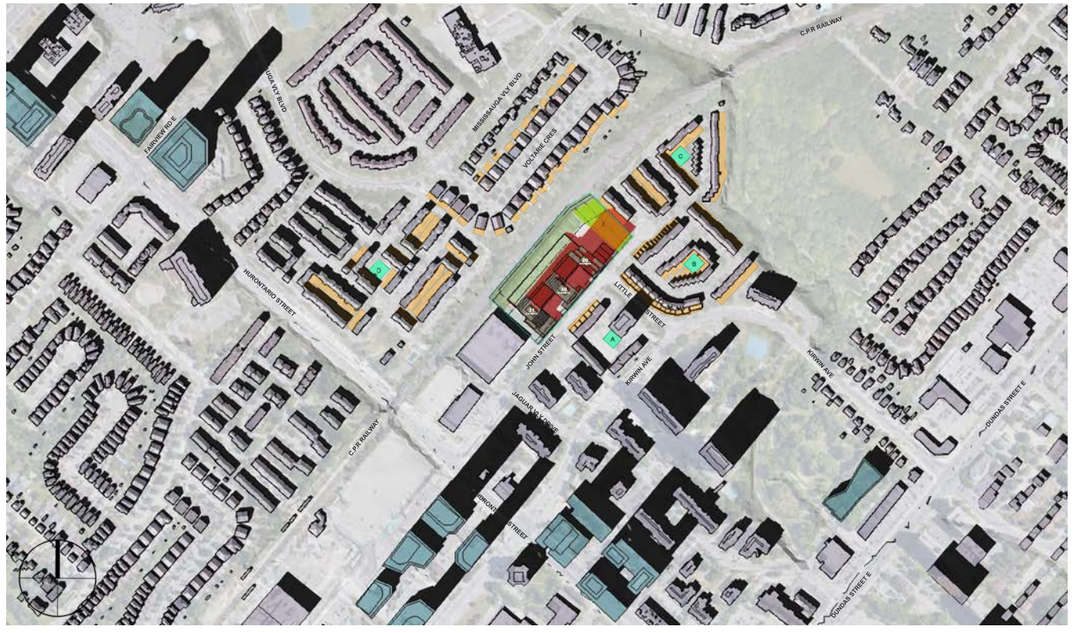

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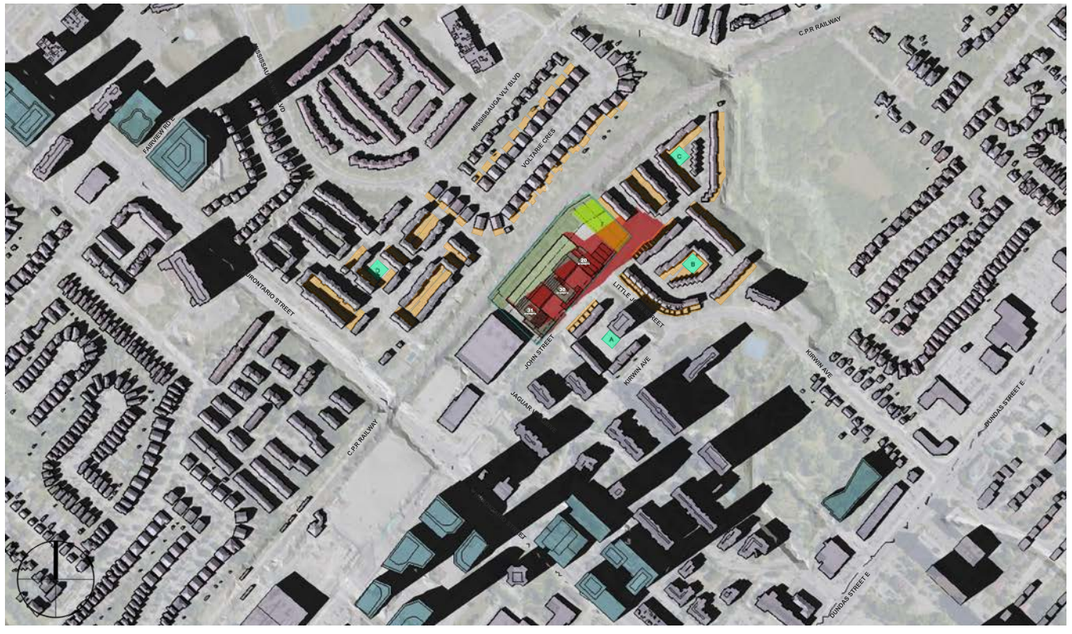

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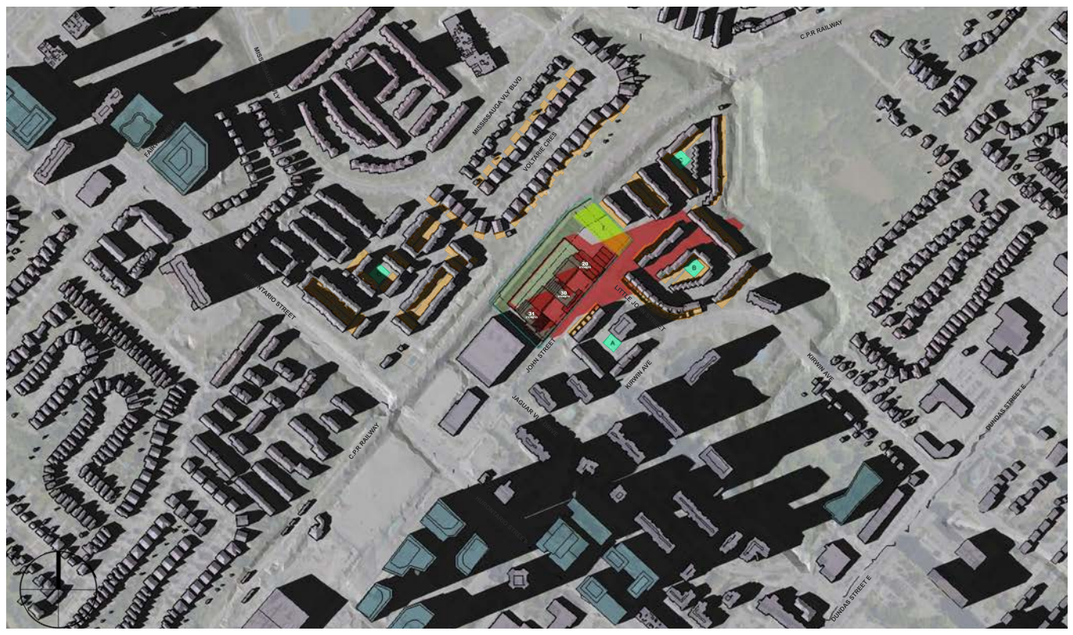

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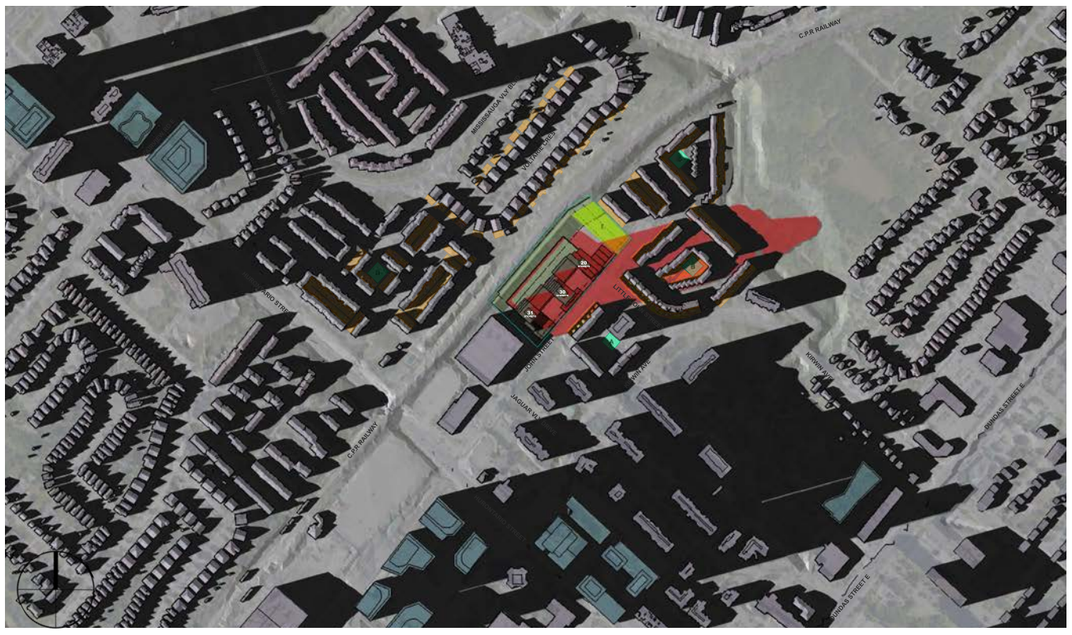

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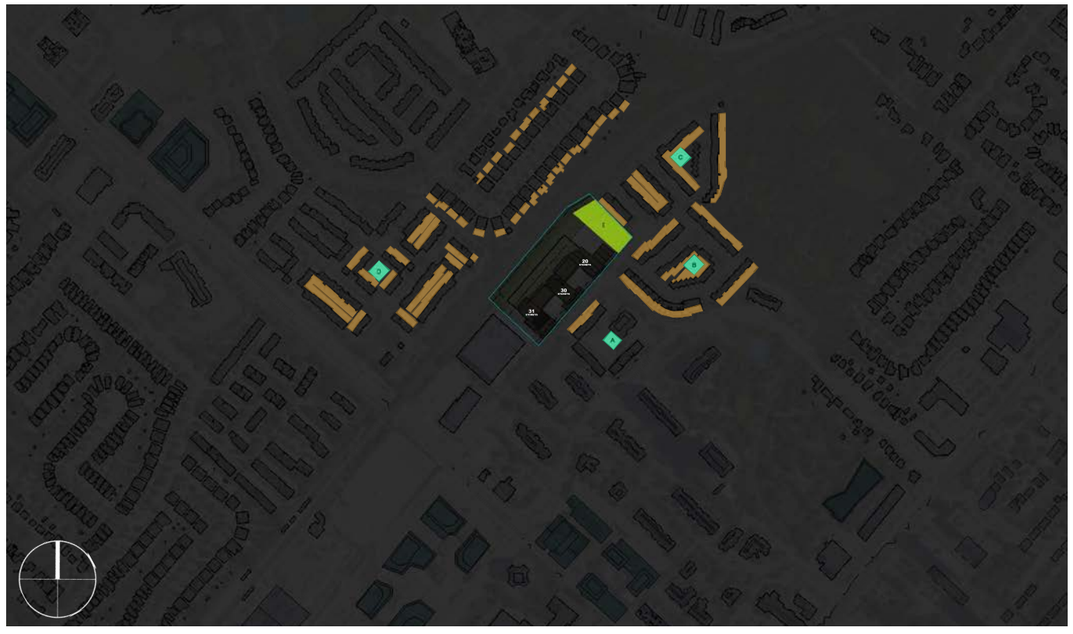

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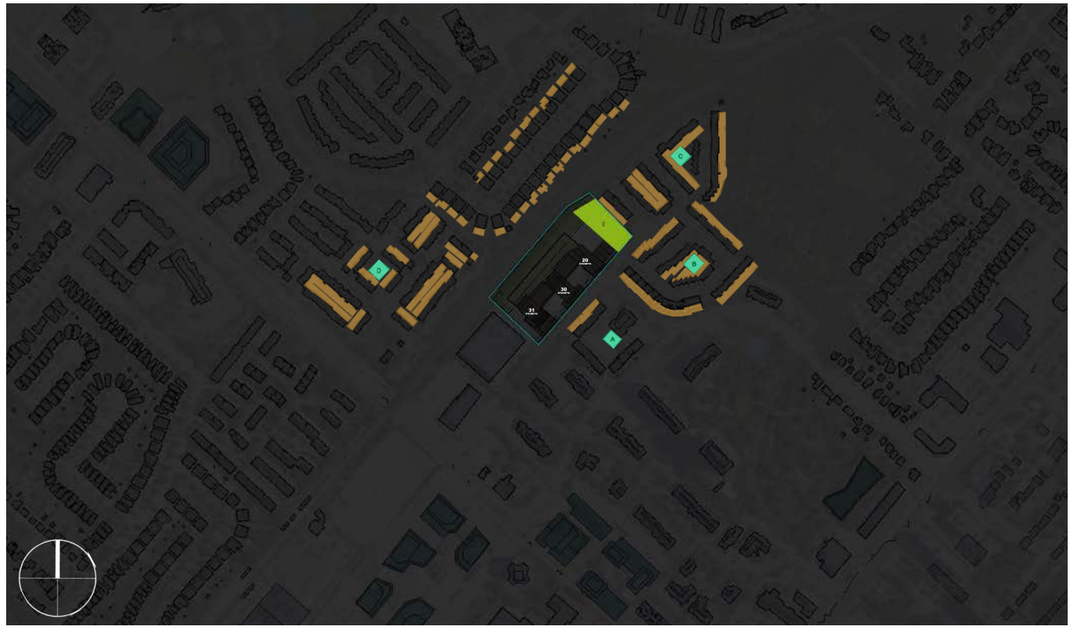

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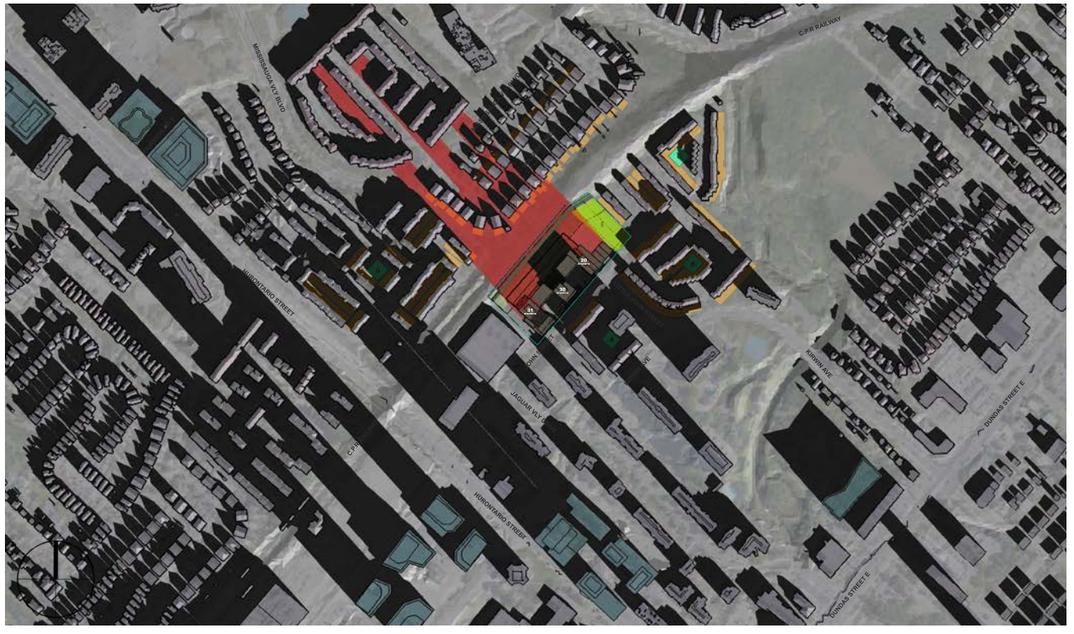

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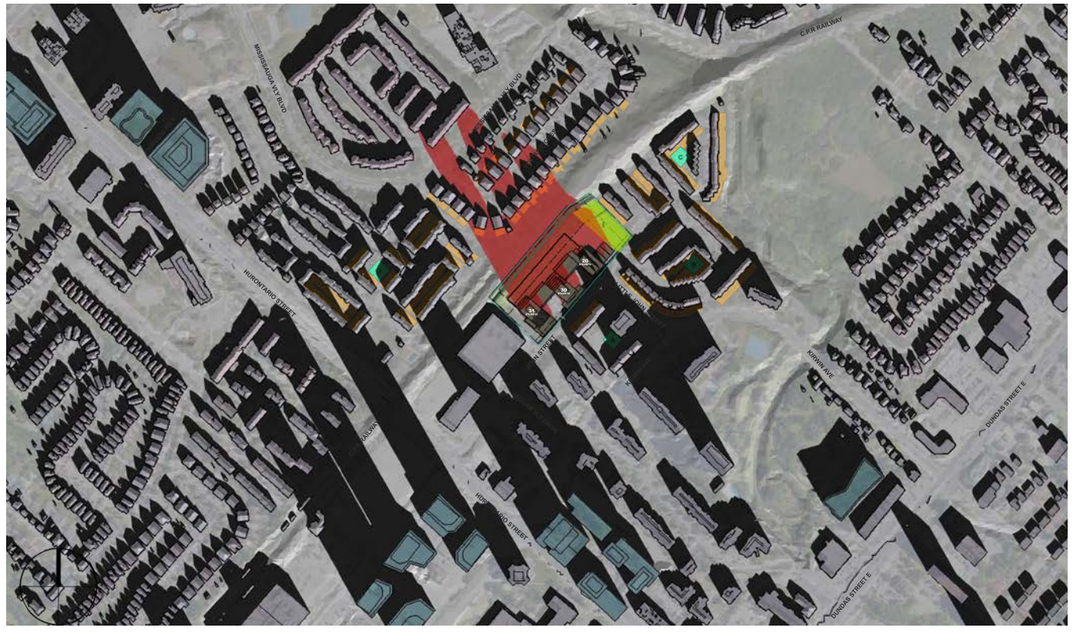

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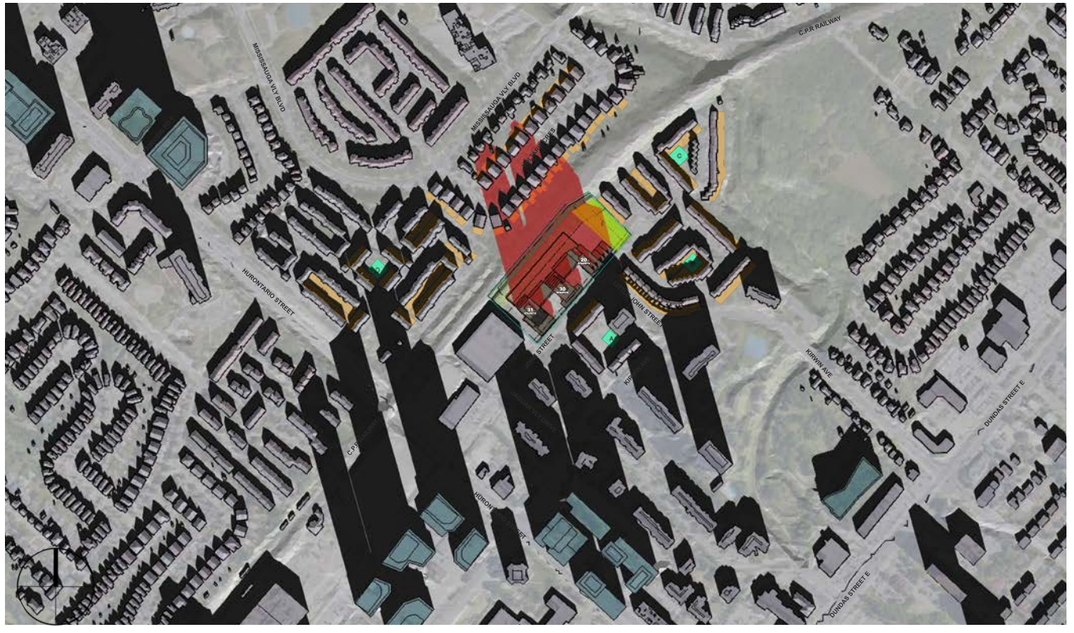

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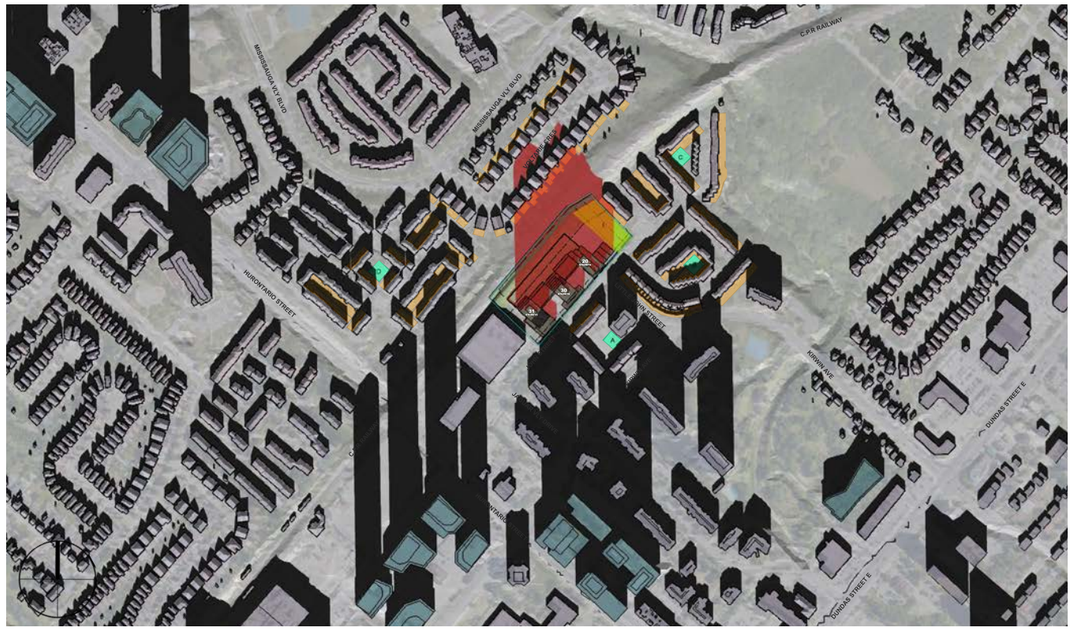

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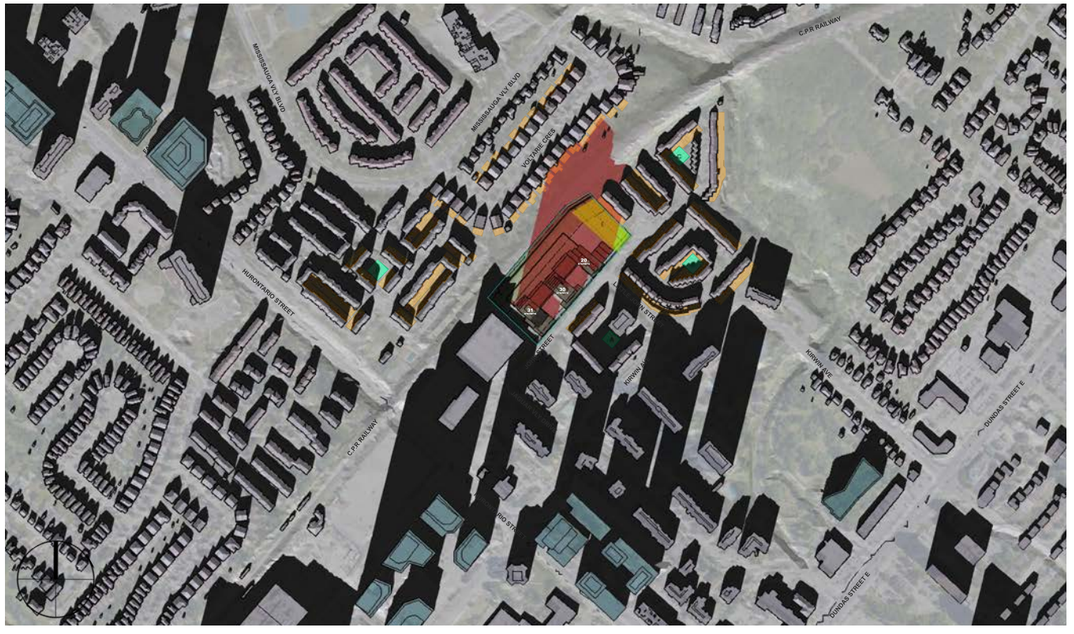

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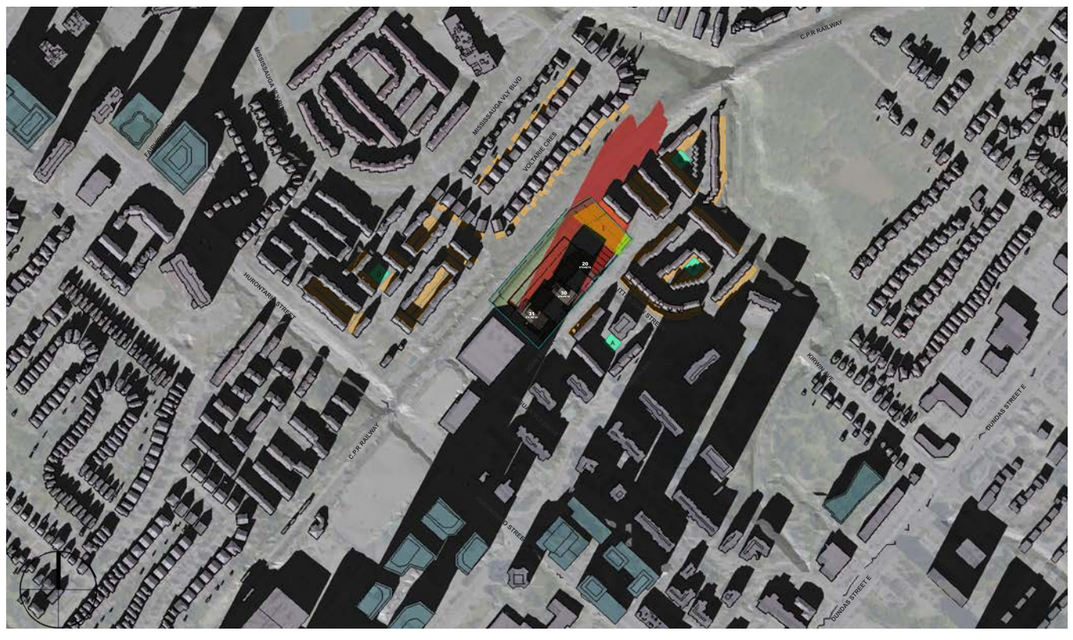

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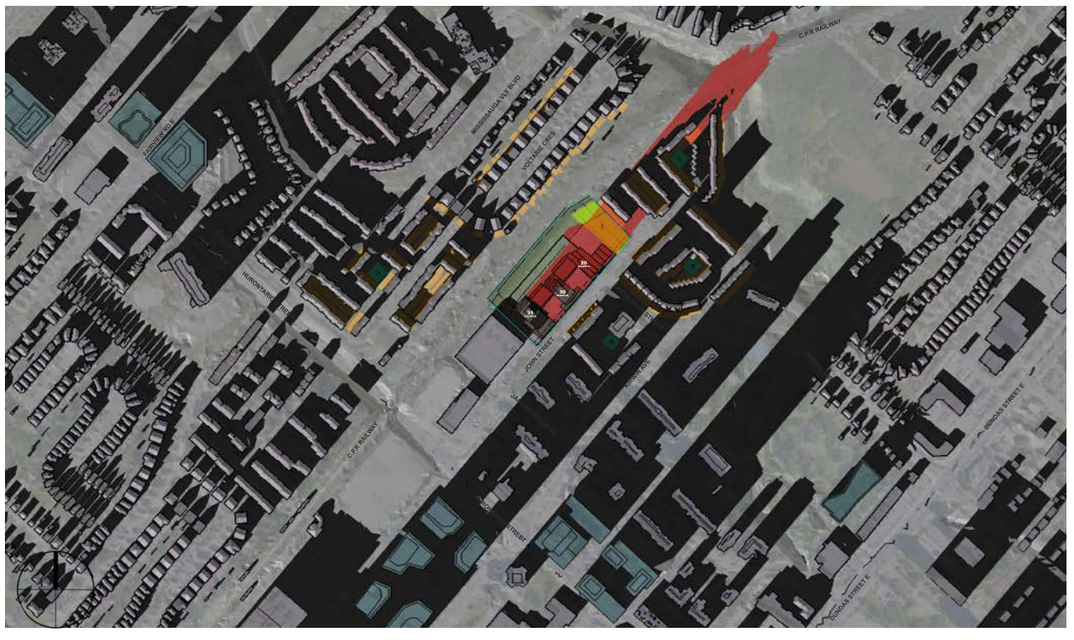

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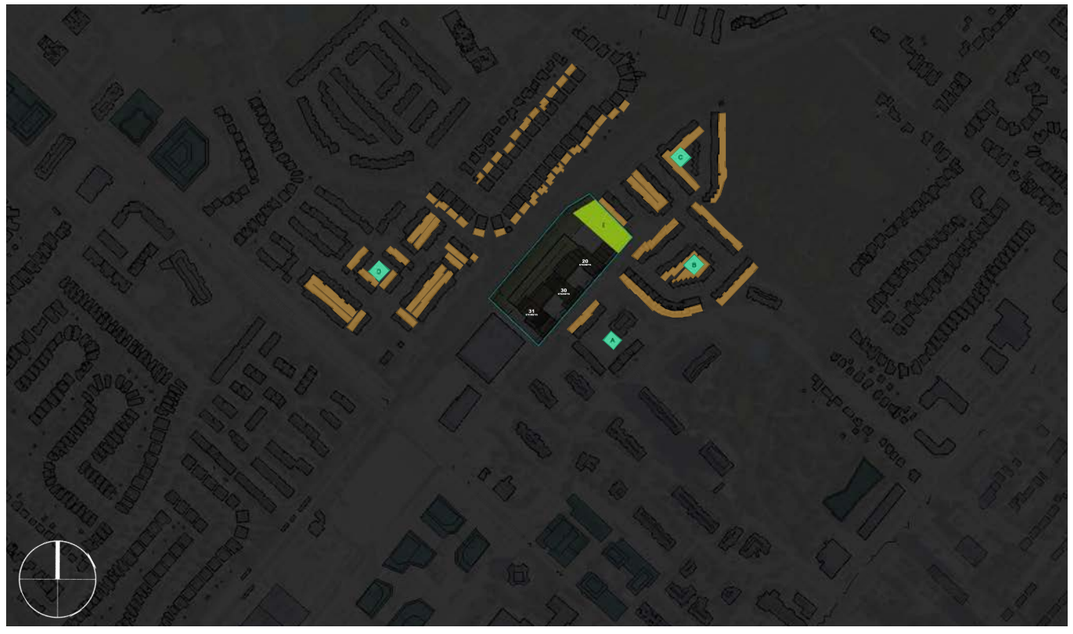

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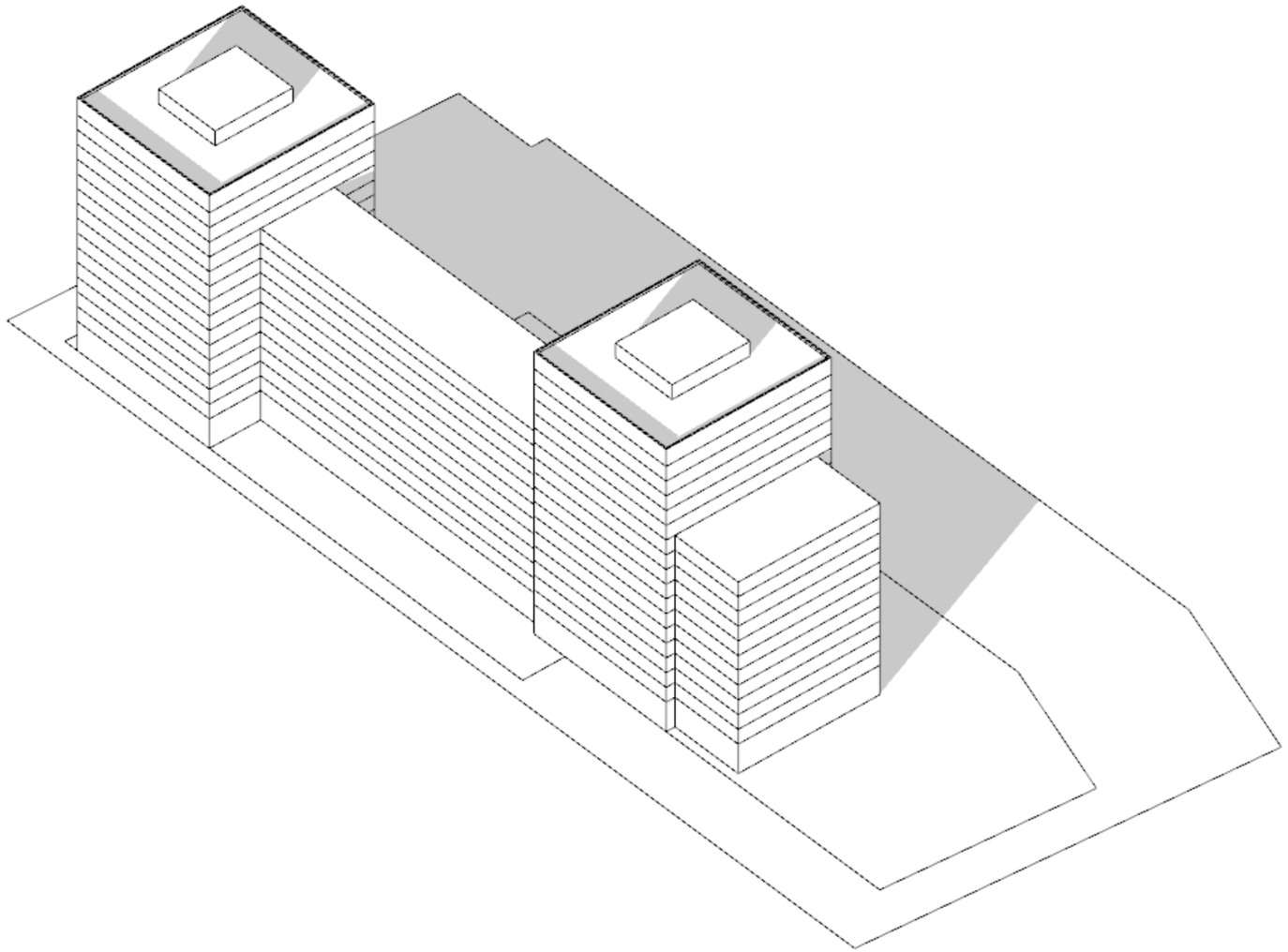
URBAN DESIGN BRIEF

Appendix B:
As of Right Shadow Study Diagrams

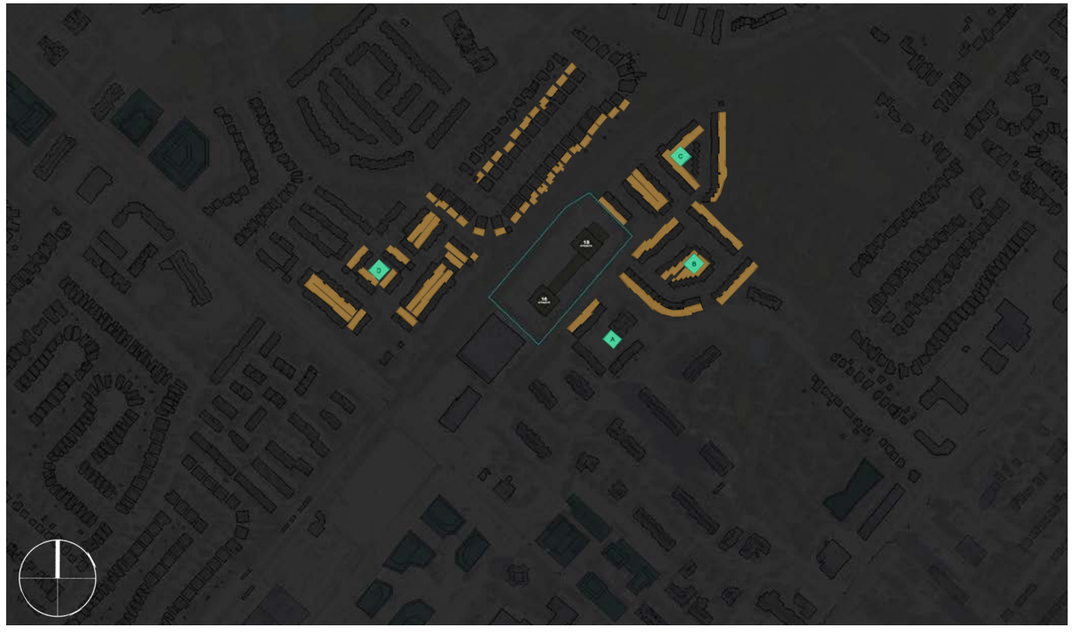


69 & 117 John Street Mississauga, ON

Prepared for:
13545130 Canada Inc.

TREGEBOV COGAN ARCHITECTURE

October 2024



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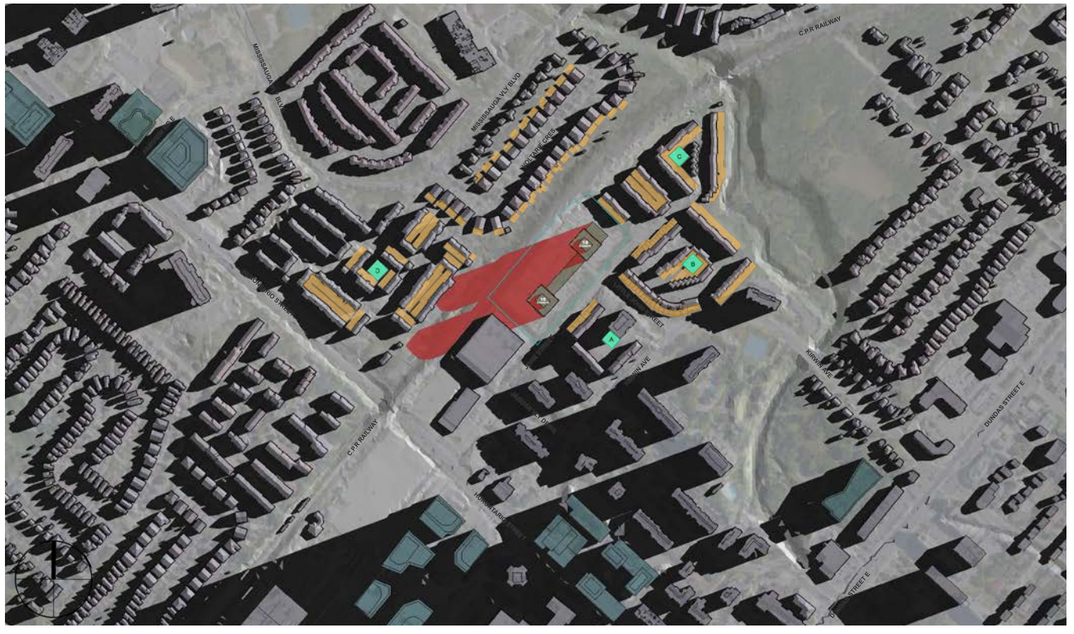

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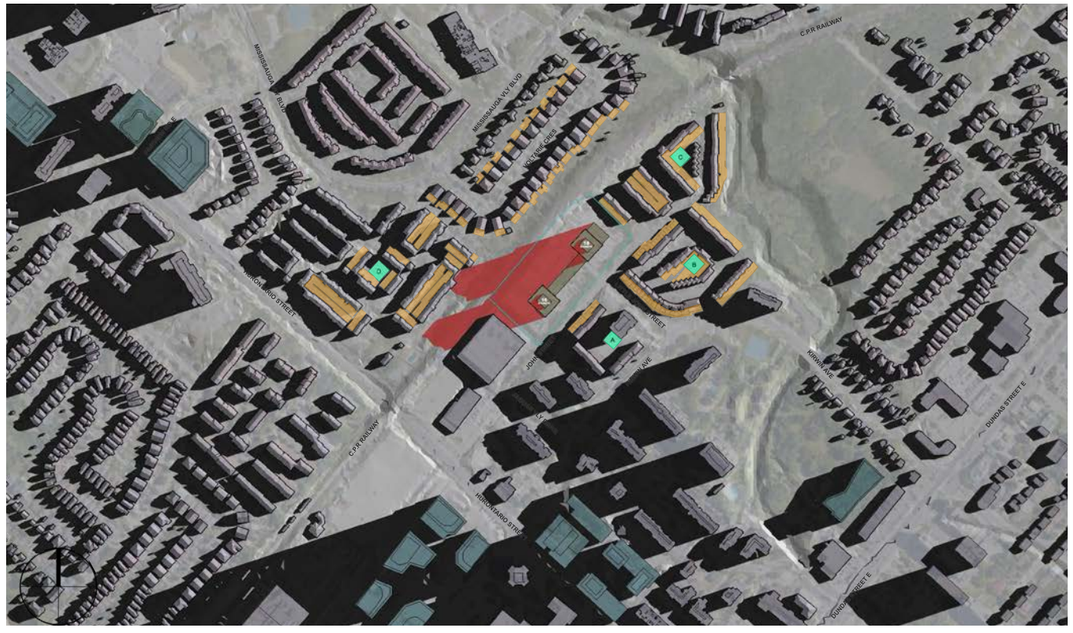

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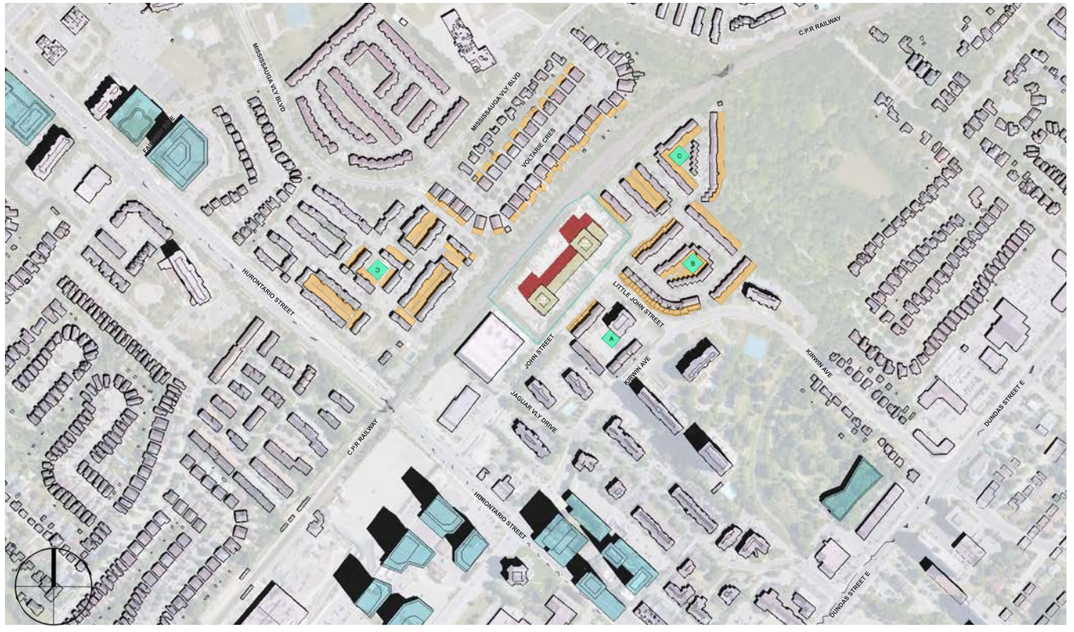

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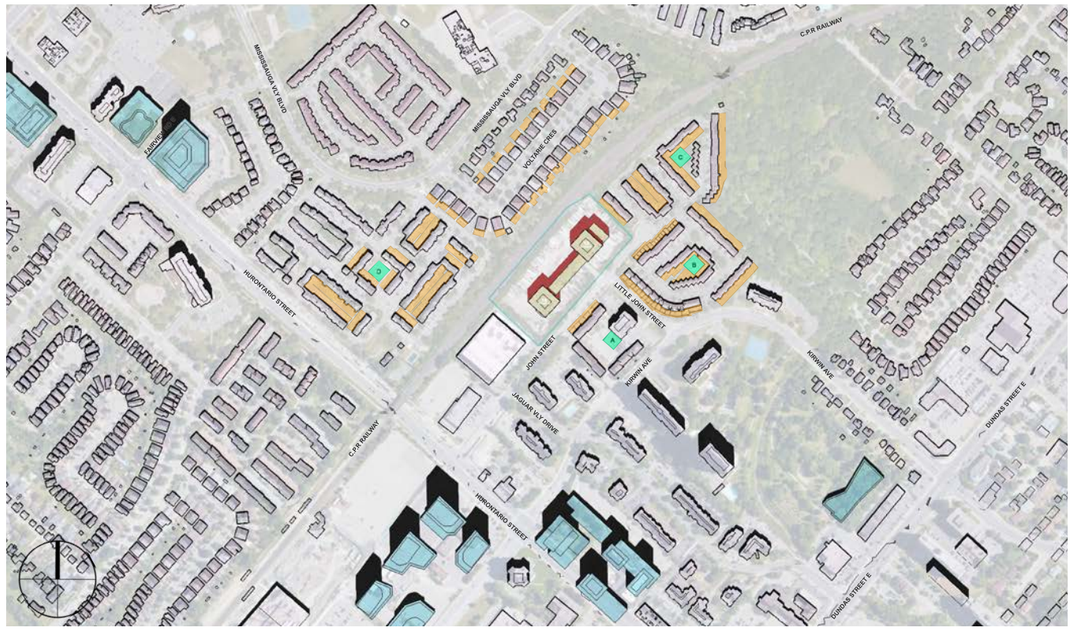

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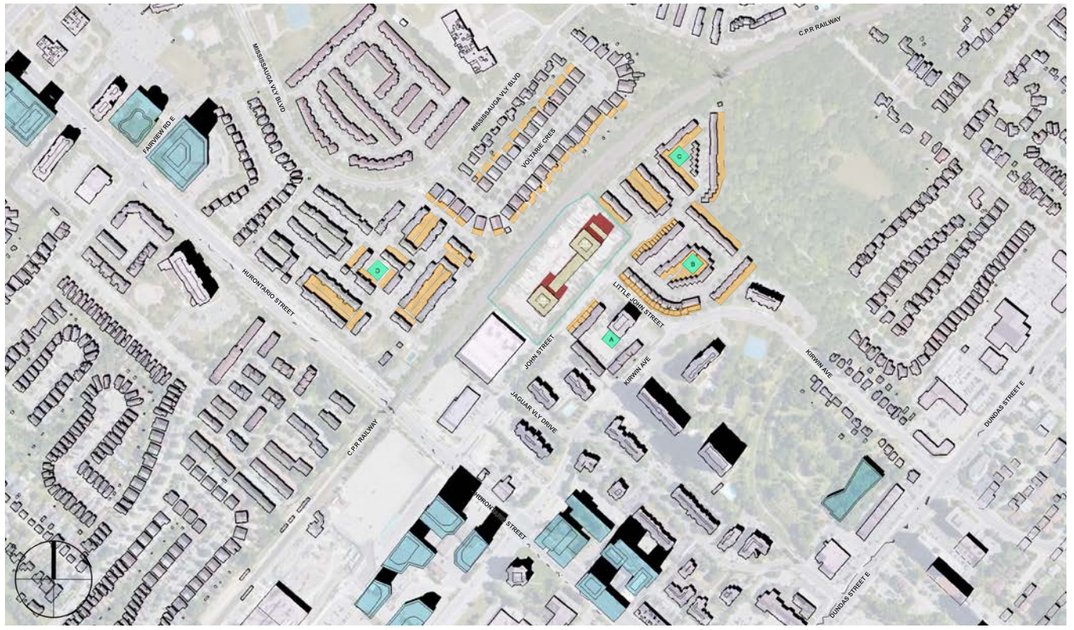

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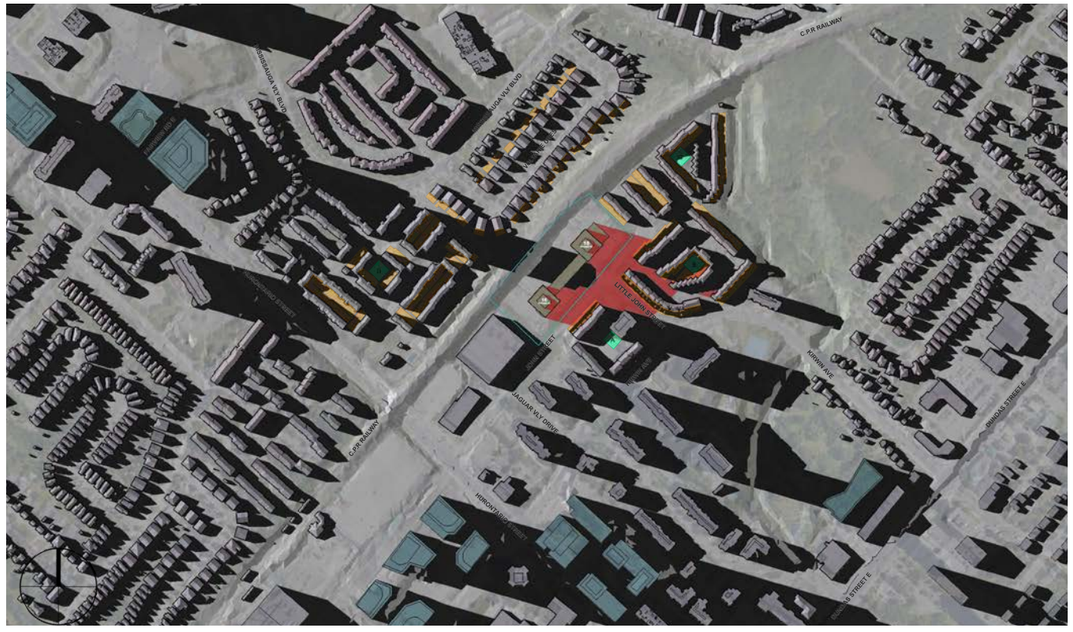
June 21 17:20

June 21 18:20



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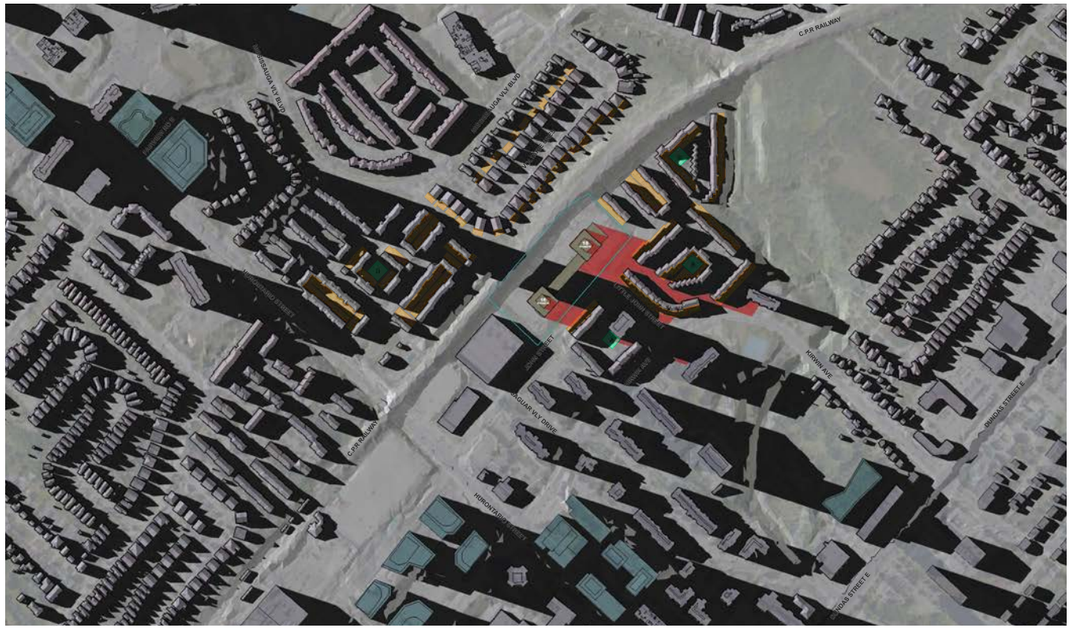

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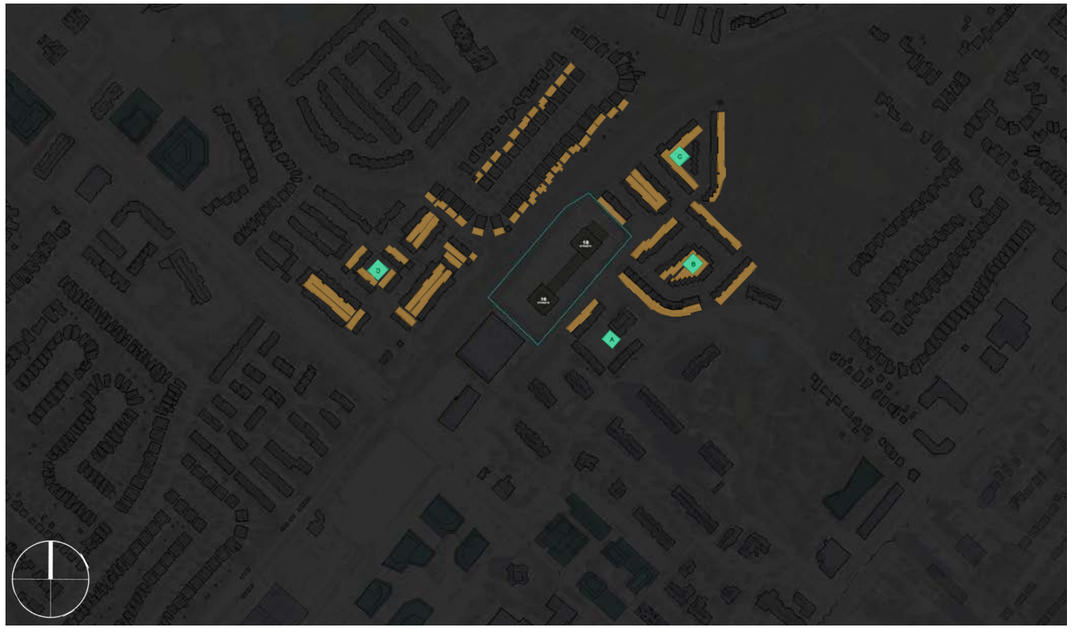

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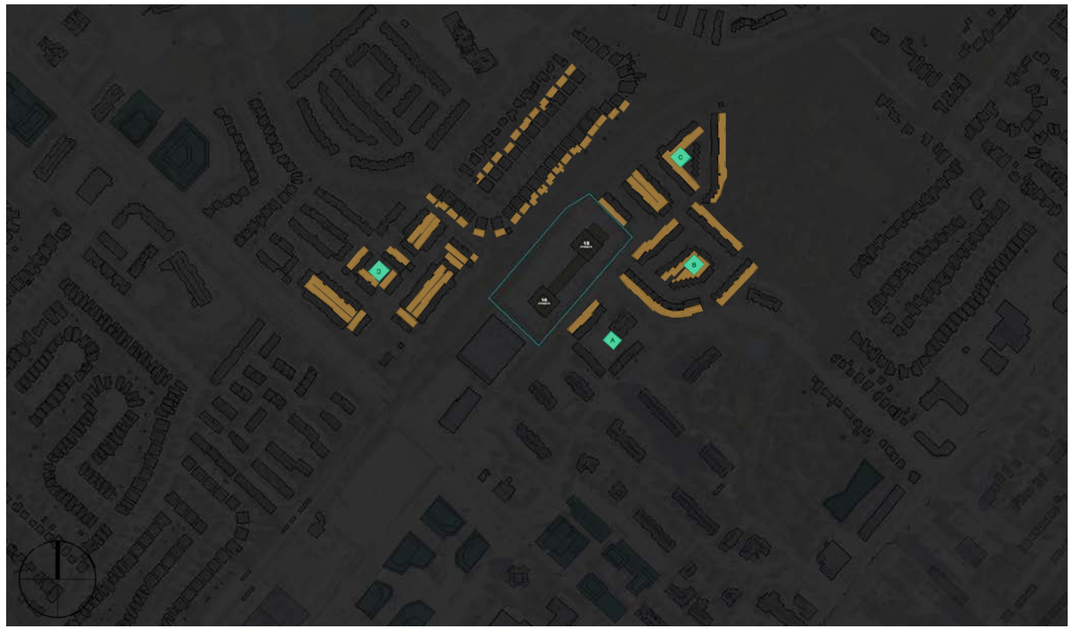

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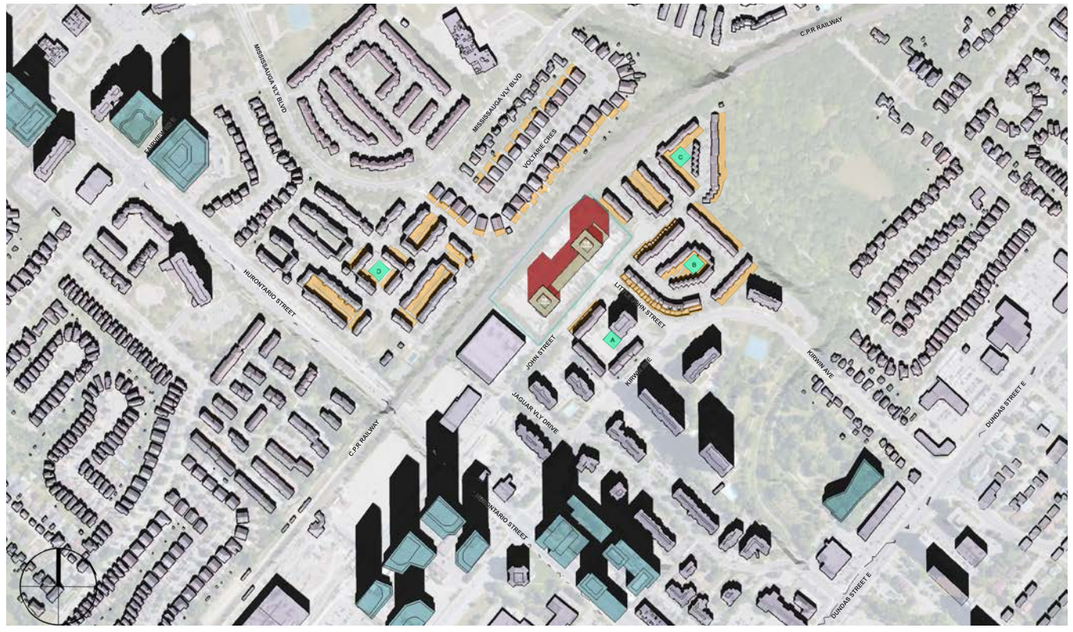

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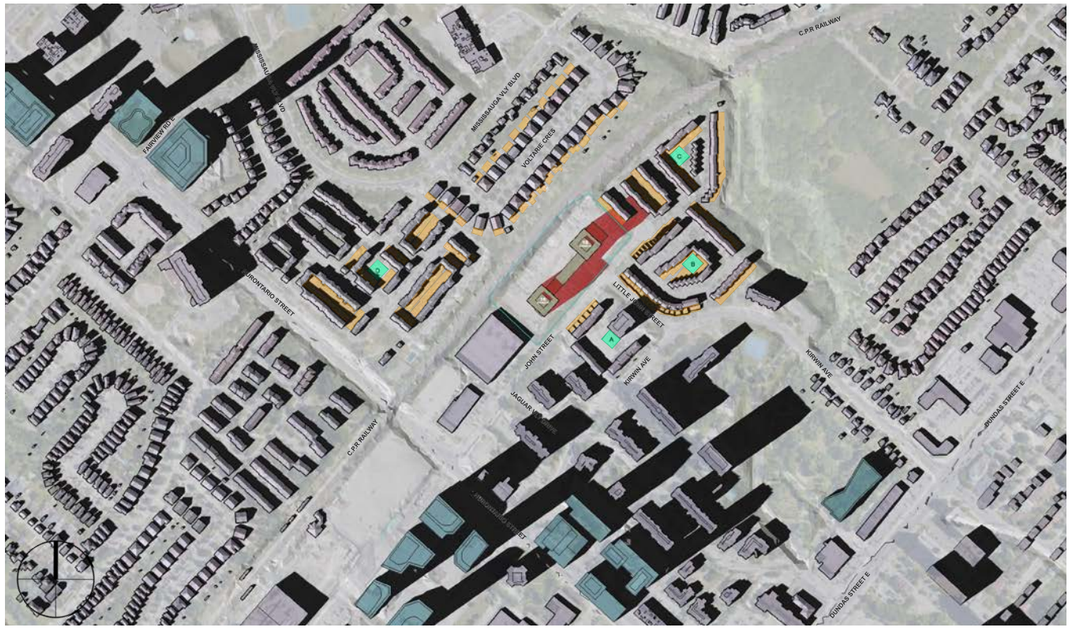

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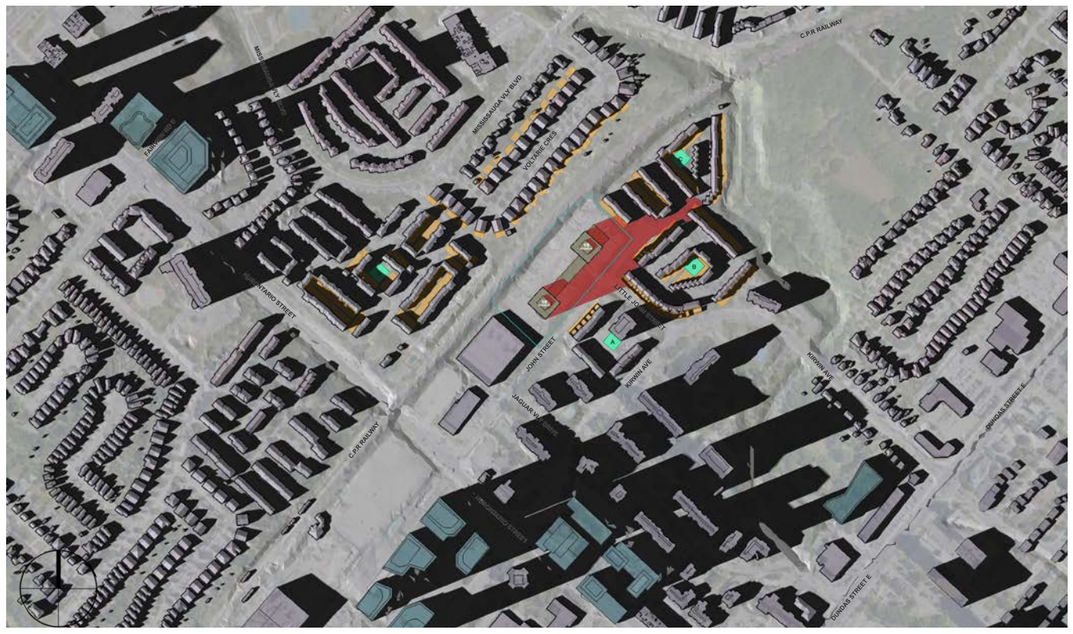

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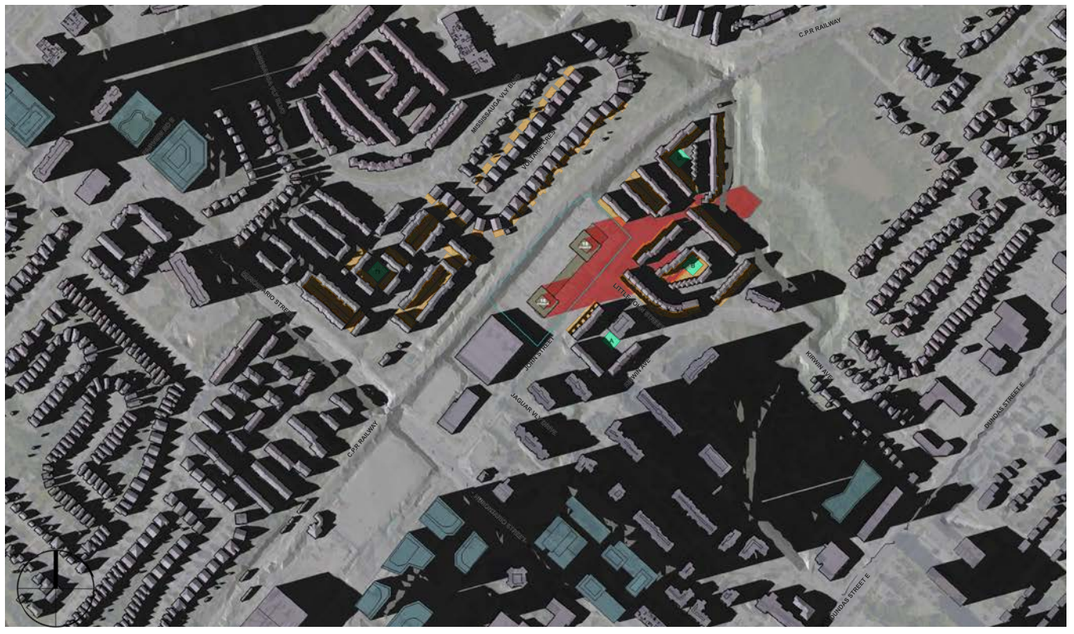

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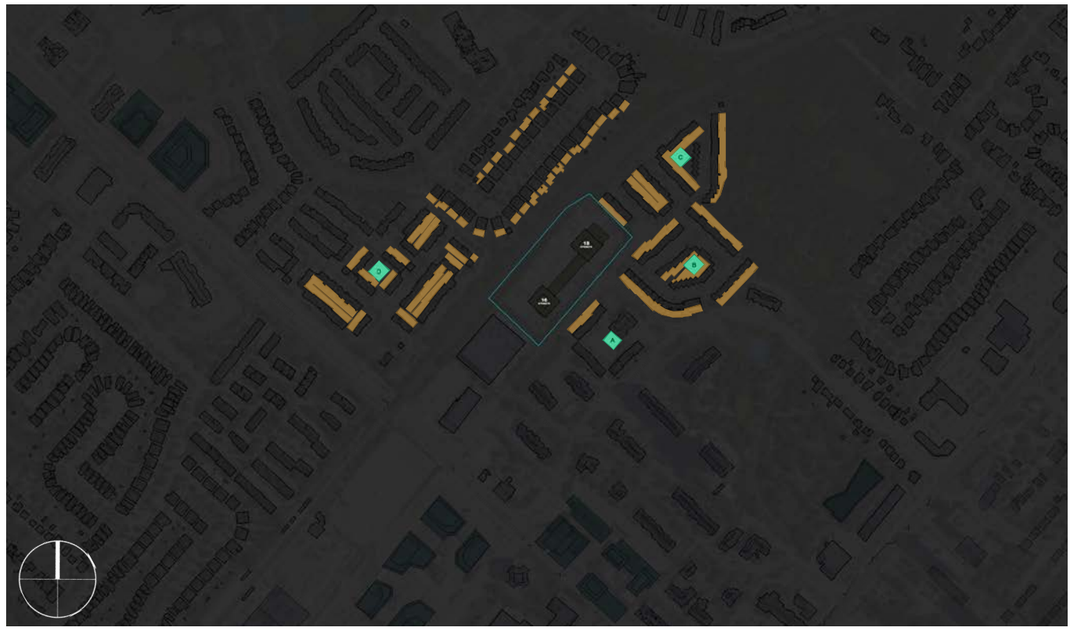

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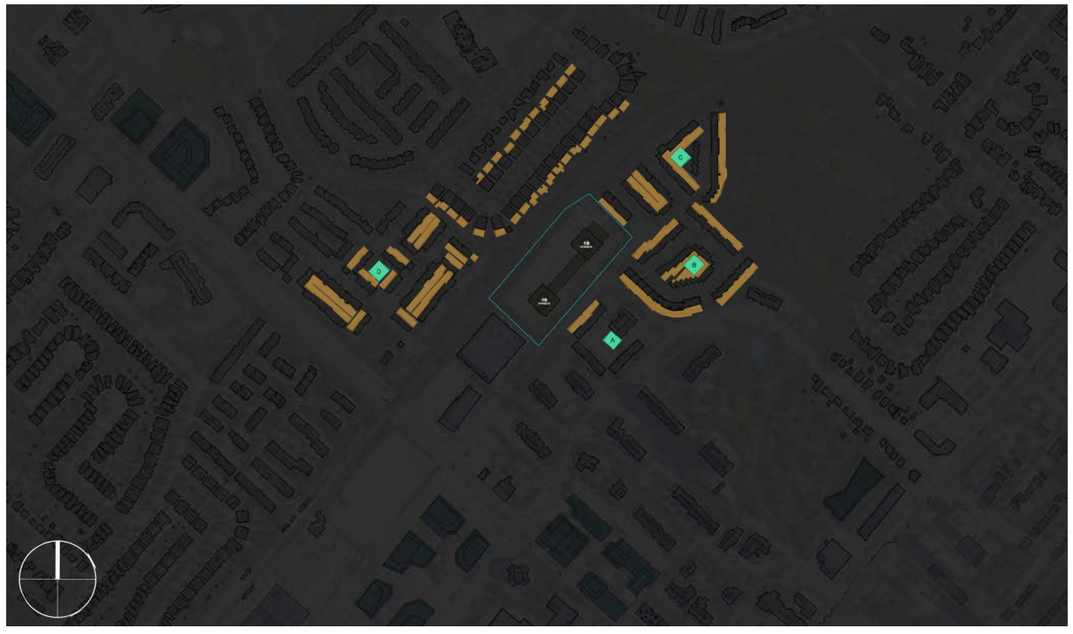

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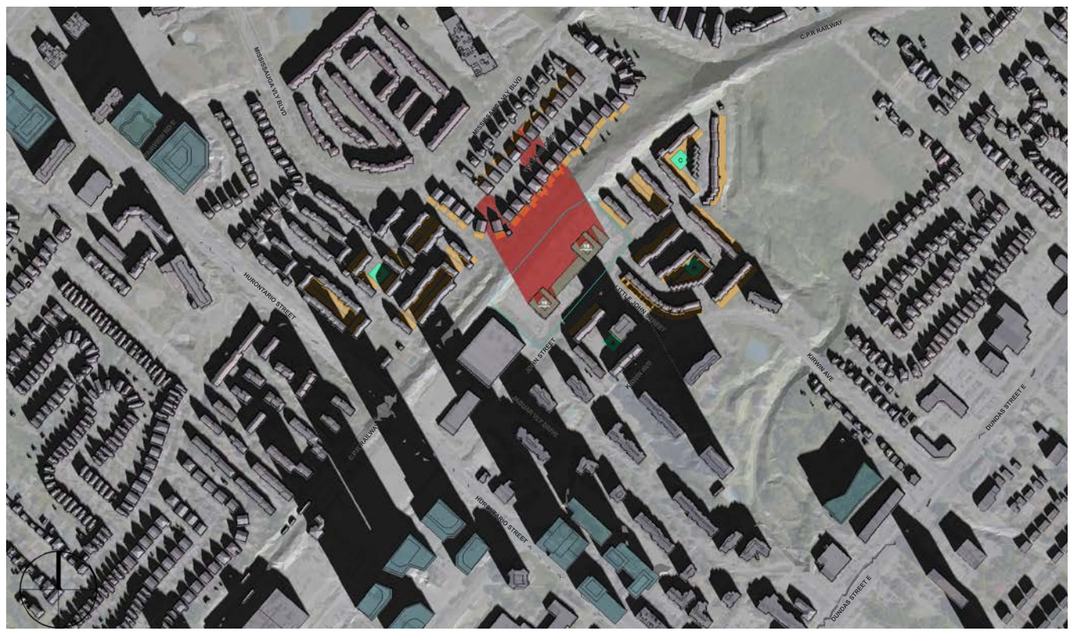
December 21 9:19



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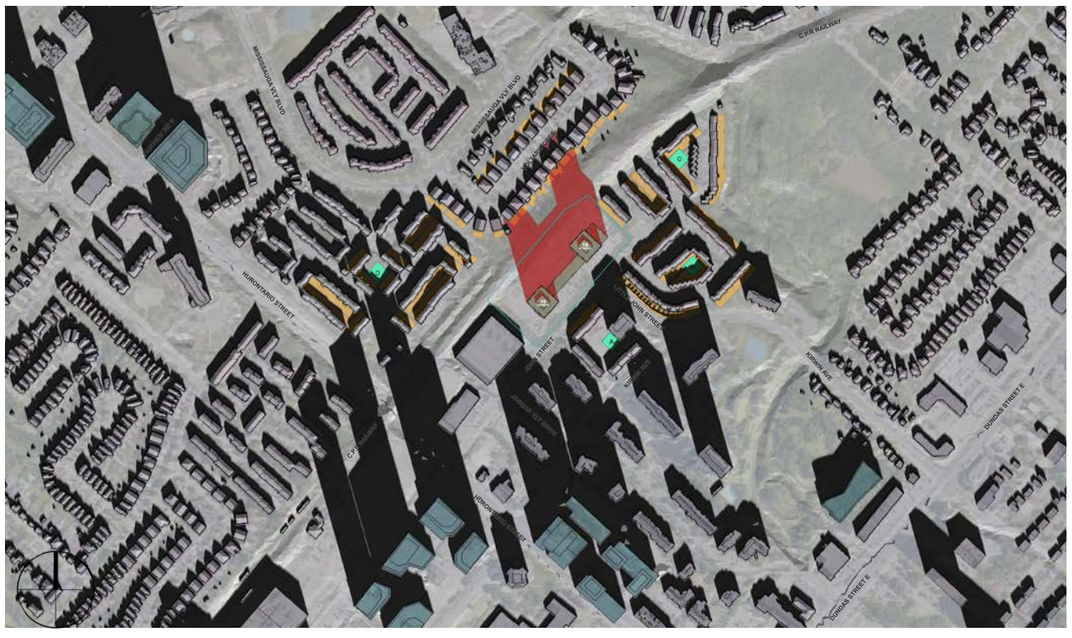

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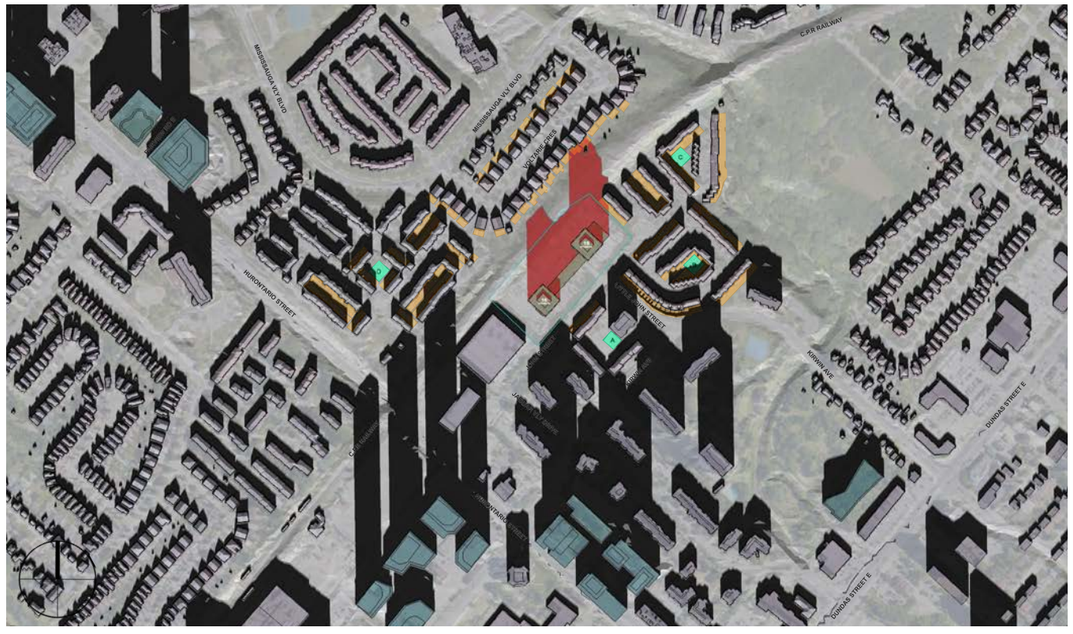

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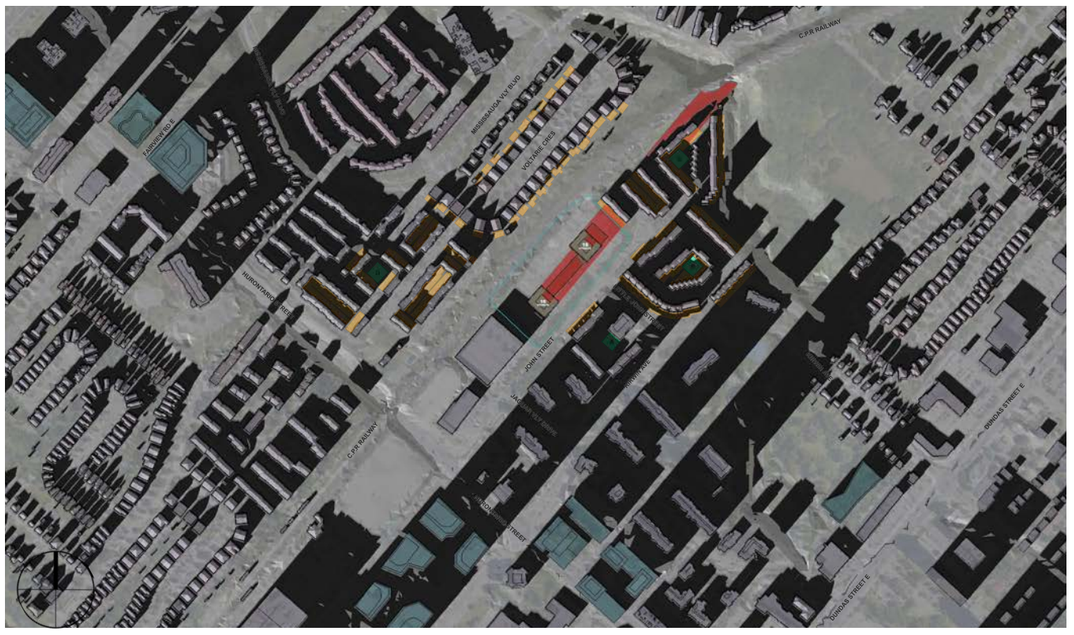
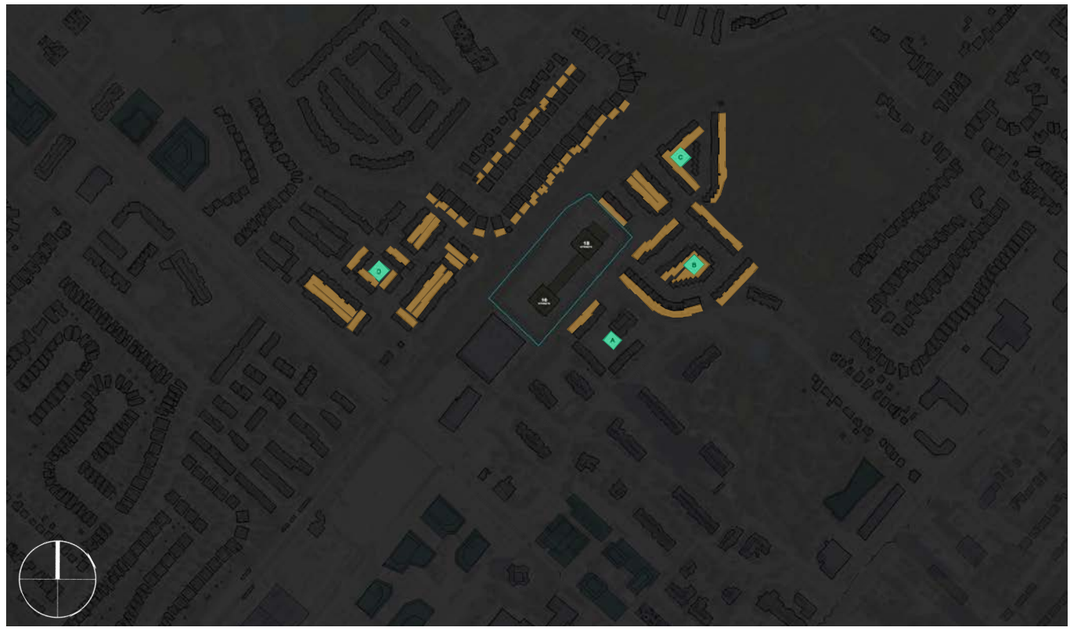


December 21 15:15



December 21 16:45 (SUNSET)

WIND STUDY ANALYSIS

69 & 117 JOHN STREET, MISSISSAUGA, ON

Prepared for:
13545130 Canada Inc.

Prepared By:

THEAKSTON ENVIRONMENTAL

October 2024

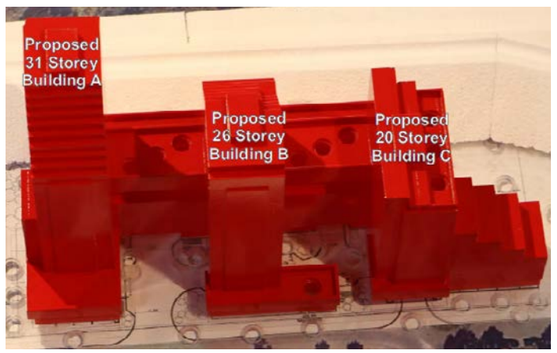
Theakston Environmental studied the pedestrian level wind environment through wind tunnel analysis for the proposed 69 & 117 John Street Development. The pedestrian level wind and gust velocities measured were within the safety criteria and most within the comfort criteria prescribed within the City of Mississauga's Terms of Reference.

The Development features wind friendly design components including podiums, stepped façades, textured façades, balconies, building overhangs, canopies and landscaping that, when considered in concert, contribute to an overall wind mitigative design. Winds that formerly flowed over the existing lands are redirected by the proposed buildings, tending to split with winds flowing over, around, or down the buildings' façades.

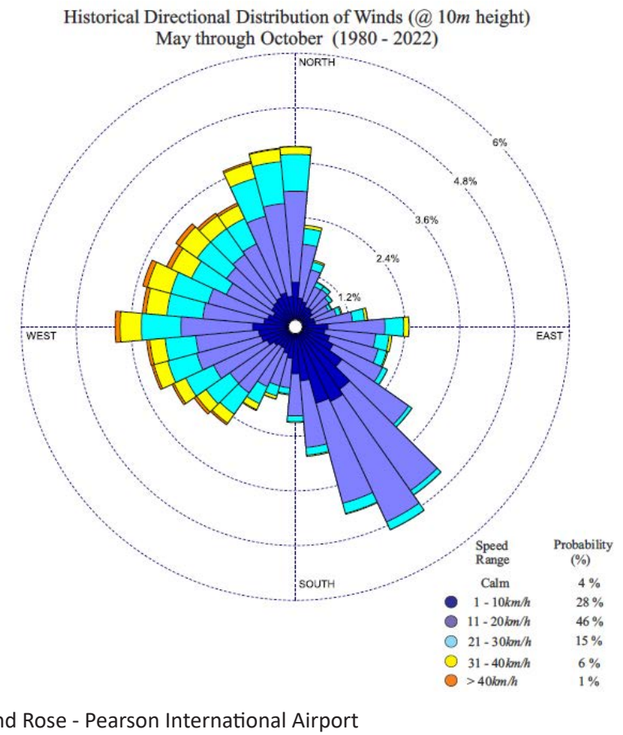
At the pedestrian level, the winds redirect to travel horizontally along the buildings, around the corners and beyond, creating minor windswept areas at or near the buildings' corners and gaps between. Additional mitigation was recommended for the potential amenity and ancillary commercial entrance as well as the 4th and 13th level Outdoor Amenity Spaces in order to create conditions more appropriate for the areas' intended uses. Comfort conditions on and around the site are generally considered comfortable and appropriate for their intended uses throughout the year.

Please note that the wind study illustrated here are based of a previous design scheme with a similar massing stratergy. We submit that with the proposed revisions, the result in comfort conditions at and within the vicinity of the proposed Development are expected to be similar to those discussed in the aforementioned Theakston Report. As such, our original results and conclusions remain valid.

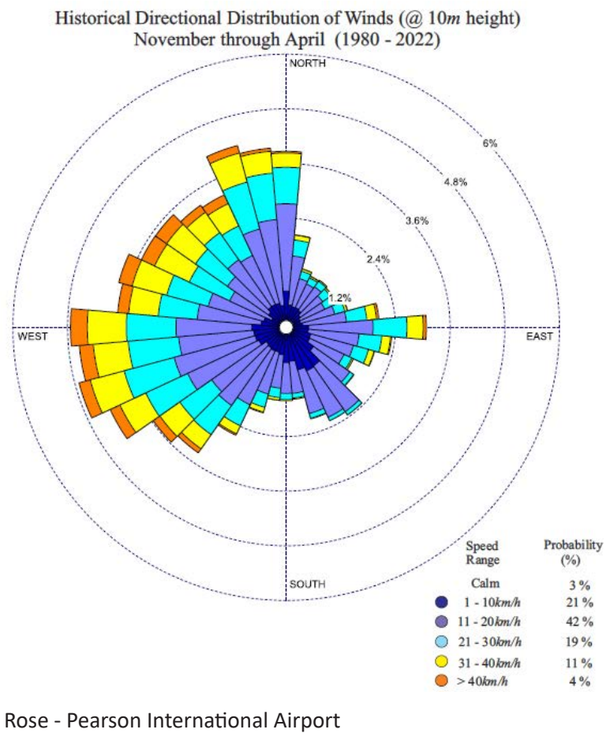
Please review addendum letter for more details.



Wind Study Physical Model - Proposed Site



SummerWind Rose - Pearson International Airport



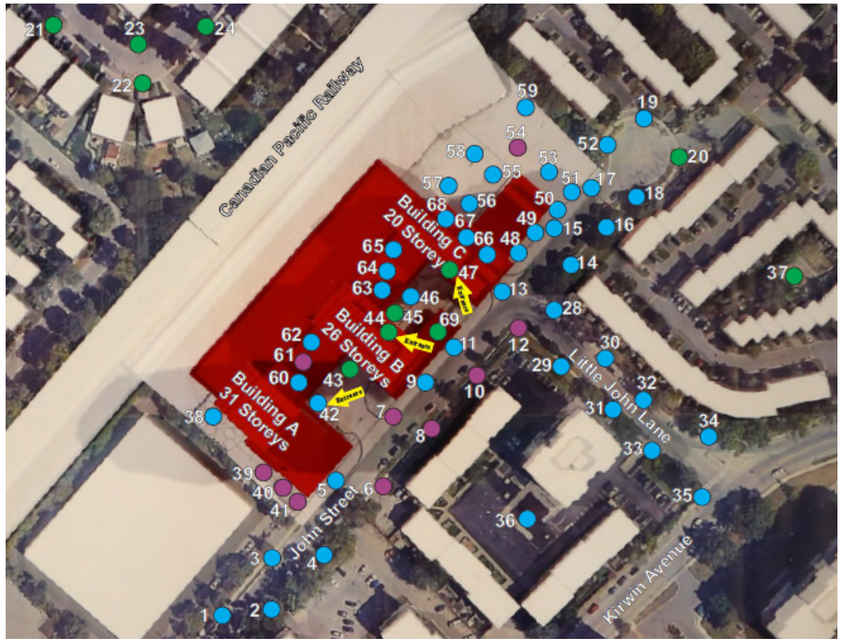
Winter Wind Rose - Pearson International Airport

Existing Wind Conditions

Wind Conditions With Proposal

Overall View of Wind Study Model (300 m Test Radius)

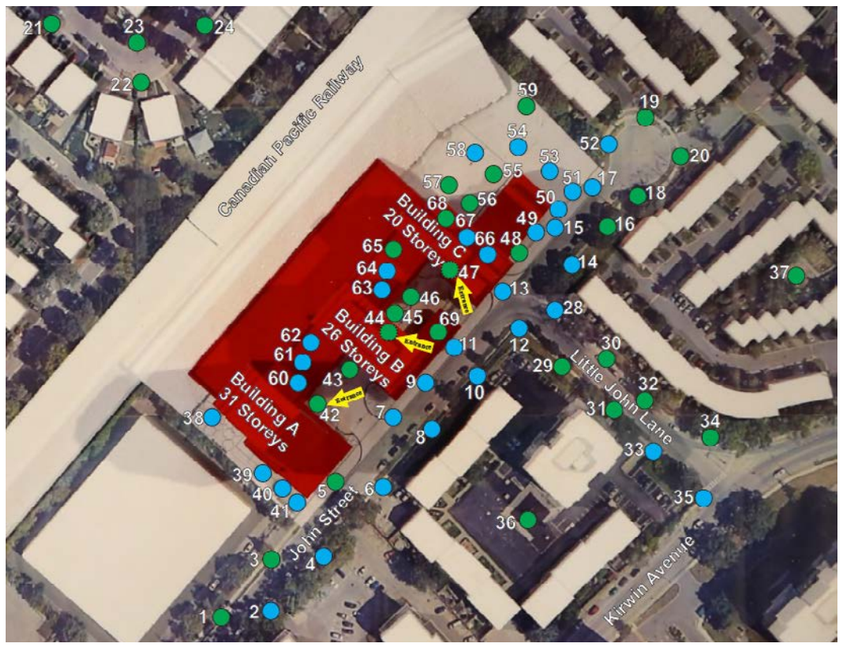
Existing Wind Comfort - Winter



Wind Comfort With Proposal - Winter

Wind Tunnel

Existing Wind Comfort - Summer



Wind Comfort With Proposal - Summer

7. CONCLUSION

The proposed development complies to a great extent with the official plan policies as described in this package and will continue to strive in maintaining the City's design standards.

Throughout the detailed design process, pursuant to the policies above, this team will work to recognize and incorporate the design guidelines where feasible. Our team has invested significant time and effort to create a design that not only aligns with the city's vision for sustainable and inclusive urban development but also complements the existing neighborhood and enhances the overall urban fabric. The development proposal ensures efficient land use and promoting pedestrian-friendly access to amenities and public transit with the proposed intensification of the site.

We trust that the information provided herein is helpful to the Panel. We firmly believe that community involvement is essential in shaping successful urban developments that reflect the values and aspirations of Mississauga's residents. We thank the Panel in advance for their review of the application materials and look forward to thoughtful and productive design related discussion during our scheduled meeting date.