WESGROUP

August 21, 2019

City of Vancouver
453 West 12th Ave,
Vancouver, BC V5Y 1V4
Attn: Urban Design Panel Members

RE: Urban Design Panel for 3220 Cambie Street, Vancouver

On behalf of Wesgroup Properties, we are pleased to submit for the Urban Design Panel's review, our proposal for 3220 Cambie Street, Vancouver. This significant corner marks the North entrance to the well-established Cambie Corridor, and as such our proposal presents a unique opportunity to embrace the revitalization of a former gas station by investing in strategies toward an architecturally distinct and high-performance building, challenging the building industry in Vancouver. This vision encouraged our team to hire an architect who would bring something unique to Vancouver. Olson Kundig, who are based out of Seattle, have a reputation for world-class, innovative and sustainable design and we are excited to have them work with us on this project.

The property is located on the South East Corner of Cambie and West 16th Ave, with a 43m (142ft) frontage along Cambie Street and 32m (105 ft) frontage along West 16th Ave. The site currently supports a community garden and has an area of 14,811 sf and has an approximate 2m (6.5ft) cross fall.

The application proposes to rezone 3220 Cambie St from C-2 (Commercial District) to CD-1 (Comprehensive District) to permit the development of a 6-storey mixed-use *concrete* building with commercial uses at grade and 49 residential market strata units, consisting of 26 one-bedrooms (55%), 18 two-bedrooms (37%) and 5 three-bedrooms (11%). The total percentage of Family Housing Units exceeds the minimum requirement of 35%, by providing 47% family units. Parking is proposed to be located in two levels below grade, with vehicle and loading access provided off the lane. Two Class B loading stalls are provided and are intended to be shared between the Residential and Commercial groups.

The proposal conforms to the Cambie Corridor Phase 3 Plan (adopted by Council in May 2018) with the exception to the prescribed envelope, notably the 4-storey shoulder. To achieve a high level of design and articulated building form that challenges the notion that high performance and articulated building forms cannot go hand in hand, the proposal deviates from the envelope guidelines within the Cambie Corridor Plan.

Two primary policies form the umbrella for our design: the Cambie Corridor Plan and the Zero Emissions Building Plan. Through the demonstration that strict sustainability goals and high-performance building design can be achieved by balancing articulation, movement, scale and light, this rezoning application sets a precedent that reflects the core goals and driving principles of both of these policies. We also feel that this project will create a distinct visual landscape to mark this prominent location.

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Cambie Corridor Plan

Building Form and Massing

The Cambie Corridor Plan is prescriptive in its requirement for a four-storey street wall with storeys above the 4th floor set back along Cambie Street. In light of this project's design excellence and innovation, staff have agreed through the LOE process to consider a deviation from the policy on the basis that a high level of excellence is maintained throughout any design changes (and subject to the UDP's approval).

Building Height

The height of the proposed building is 77'-5", which is approximately 3' – 4' taller than what is often seen along Cambie. A typical 6-storey *wood-frame* mixed-used building with retail at grade ranges between 65' - 74'. It is well understood in the industry that there are challenges which come with designing a highly articulated and unique building while simultaneously achieving a high-performance building. As the form becomes more complex, every exposed soffit and balcony is required to be wrapped with insulation in order to meet performance targets. This additional "wrapping" creates pinched outdoor living spaces, thus putting pressure on the building height. This is more clearly defined and explained throughout our presentation materials. We believe that this deviation from the norm is approvable on the basis of challenging the notion that high performance and articulated design cannot go hand in hand.

FSR

The Cambie Corridor Phase 3 Plan suggests an estimated FSR range (2.5 – 3.0 FSR) based on intended urban design performance, but the FSR can range below or above this. The proposed form and unique design of this project results in an FSR of 3.76. We believe this FSR should be supportable given its gateway location, architectural and high-performance achievements, and recently staff-supported and council-approved projects on the Cambie Corridor.

It should be noted that during preliminary design, Wesgroup conducted a yield study fully compliant to the envelope guidelines of the Cambie Corridor Plan. This fully compliant study yielded an FSR of 3.74, exceeding that of the Cambie Corridor Plan suggested range.

Green Buildings Policy – Sustainability

This proposal aims to meet the highest energy standards under the Low Emissions Green Buildings pathway. The residential portion of the project will meet a TEDI (Thermal Energy Demand Intensity) of 15 (kWh/m2/year) and a blended project target will take into account the ground floor retail. The goal is to create a high-performance building that maximizes passive strategies while creating comfortable and inviting environments for its occupants. These strategies include:

- **High performance windows** using triple glazed system
- **High performance envelope and continuous exterior insultation** using R40-R50 insulation at all soffits and balconies, and R30 insulated walls

- **Efficient HRV system** providing individualized comfort control, energy savings, and simultaneous heating and cooling for all residential areas
- **Optimized corridor pressurization** to reduce energy consumption
- **Highly insulated thermally efficient balconies and slab edges** to minimize heat loss
- **Storm water retention** within planters to reduce heat island effect and reduce impact to post development storm water flows
- **Improved air barrier system** to minimize air leakage rate
- **Natural ventilation** deep into the floorplate through a modulated façade
- **Passive solar shading** through balcony overhands on east and west facades
- **Minimized thermal bridge** through improved details around windows

These strategies are further explained and detailed in our presentation materials, under Sustainability Strategies.

In summary, this project strives to be a leader in both architecture and sustainability measures not only within the Cambie Corridor, but City-wide. Our team is very excited about this project and we look forward to hearing Design Panel's comments with respect to this prominent gateway site.

We look forward to presenting to you on August 21, 2019.

Sincerely,

Kaylen Blomkamp

Wesgroup Properties

connect
LANDSCAPE ARCHITECTURE

BC BUILDING SCIENCE

InterCAD
CONSULTING ENGINEERS

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1.0 INTRODUCTION

1.1 EXECUTIVE SUMMARY

View from W 16th Ave & Cambie Street

View from W 16th Ave & Lane

BRIDGING ENERGY EFFICIENCY WITH ARCHITECTURAL EXCELLENCE

16th & Cambie is a new 6-storey mixed-use project for Wesgroup located at the intersection of West 16th Avenue and Cambie Street in the revitalizing Cambie Corridor of Vancouver.

Setting a precedent in the Cambie Corridor for this project type, our team is invested in **innovative strategies toward a high-performance building**. We intend to demonstrate that strict sustainability goals can be achieved in a strong urban form that **balances articulation, movement, scale and light**.

Two primary policies form the umbrella for our design: the **Cambie Corridor Plan** and the **Zero Emissions Building Plan**. The latter sets high standards for energy targets which would typically result in a prescriptive and simple building form. The former encourages a dynamic urban experience, mix of scales and variety. Our team is committed to challenging the building industry in Vancouver by investing in excellent design that aligns with leading edge sustainability principles set out by the City. Meeting the goals of these two policies, 16th &Cambie will achieve the mutual benefits of **architectural excellence and sustainable design. It need not be one or the other.** We look forward to working with the City of Vancouver and request your support in realizing this vision.

GATEWAY TO THE CAMBIE CORRIDOR

Our team is excited to work with the City of Vancouver to achieve the Cambie Corridor Plan's progressive goals of **sustainability, urban vitality and quality of living** for this important mixed-use arterial district. 16th & Cambie sits at the **gateway to the Cambie Corridor** and will be one of the first revitalization sites in Cambie Village, turning a former gas station site into a new mixed-use 6-storey building. As a gateway, the project will welcome people to the neighborhood with a design that reflects the core driving principles of the Cambie Corridor Plan.

RAISING THE BAR FOR SUSTAINABLE DESIGN

16th & Cambie will be **a leader in its class by achieving the highest envelope performance target in an articulated concrete construction type.** While the project is electing to meet the Low Emissions Green Buildings pathway under the Green Buildings Policy for Rezoning, it exceeds the intent by not building in conventional wood framed construction to counter the thermal inefficiencies inherent in concrete construction. Furthermore, this has inspired our team to explore new methods of detailing. The residential portion of this project will meet a TEDI (Thermal Energy Demand Intensity) of 15 [kWh/m2/year].

Low emission buildings typically lend themselves well to non-articulated box-like urban forms, the predominant form that has been seen in Vancouver, to date, at this energy performance level. **16th & Cambie seeks to raise the bar by challenging this notion that high performance and high design cannot go hand in hand.**

BRIDGING SCALES - RESIDENTIAL TO COMMERCIAL

The design of 16th & Cambie **bridges the scale gap** between the mid-rise commercial corridor along Cambie Street and the low-rise single and multi-family residential neighbors to the east. The massing is separated into vertical modules that **break up what would otherwise be a long continuous facade**, providing more **variation along Cambie street.** This facade "shift" breaks down the mass of the building further and provides integrated outdoor living spaces for residents. The expression and scale of the shifted facade relates to the scale of the residential neighborhood adjacent, while the overall urban expression makes a strong composition on this prominent corner.

ACTIVATED STREETSCAPE & KINETIC DESIGN

This five-over-one building typology creates an engaging public street condition, highly engaged with outdoor spaces. By adding large kinetic window walls at the corner of West 16th Avenue and Cambie Street, we are providing a welcoming and active public interface. Design architect, Olson Kundig, is a leader in kinetic design in architecture, frequently using interactive mechanical components to blur the line between indoor and outdoor space; integrating buildings with their environments.

WORKING TOGETHER

Our team is excited to work with the City of Vancouver to achieve the Cambie Corridor's progressive goals. We will demonstrate **alignment with the ideals of the Cambie Corridor Plan** and describe how we intend to meet those ideals in this letter of enquiry. We outline the project's goals and strategies in the following content:

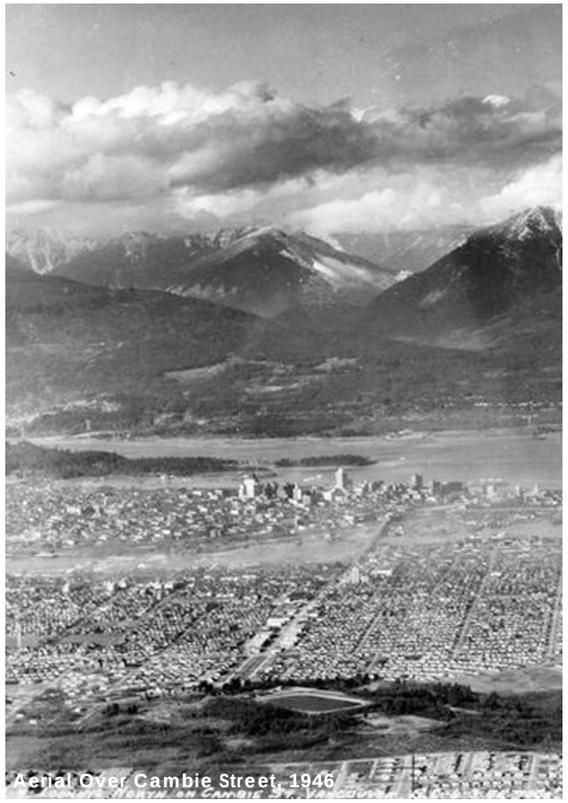
- Our Team
- Site Observations
  Design Intent
- Understanding Policies and Zoning
- Sustainable Strategies
- Kinetics & Neighborhood Engagement
- Design Drawings, Materials and Renderings
- Project Statistics
- Appendices: Site Survey & Tree Report

1.2 SITE HISTORY

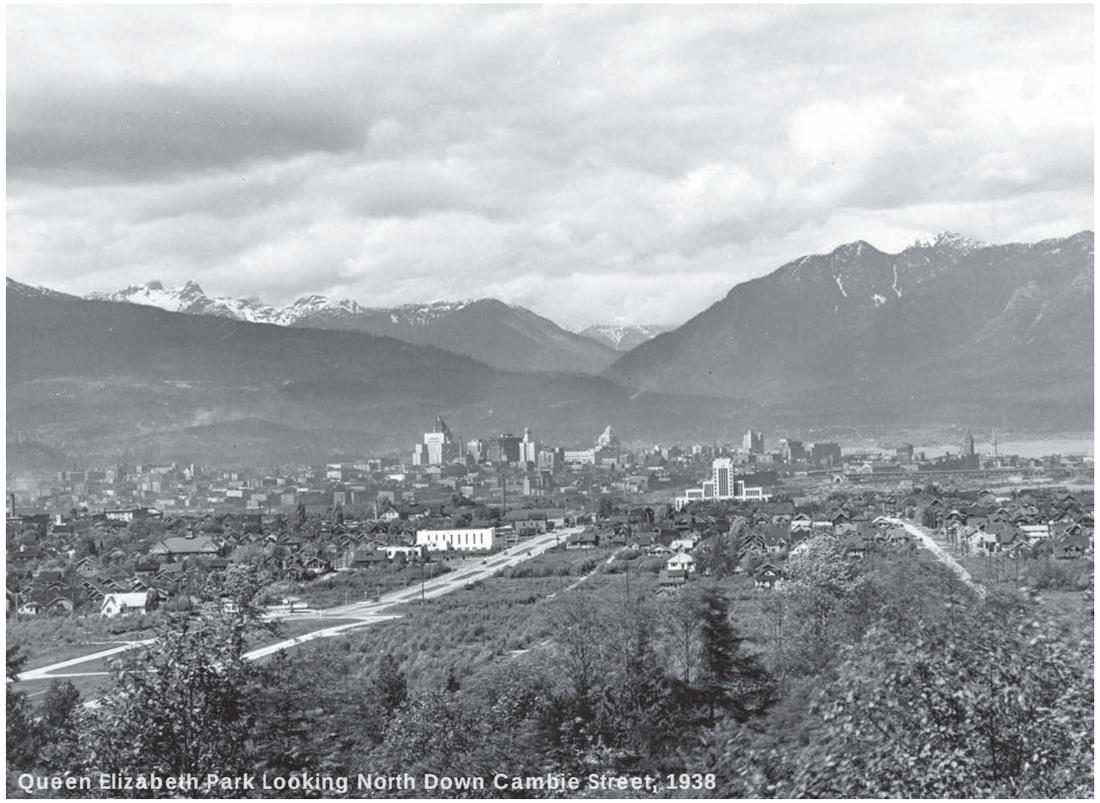
HISTORY OF CAMBIE STREET

Cambie Street was named after Henry John Cambie, chief surveyor of the Canadian Pacific Railway's (CPR) western division. The section of the Cambie Street south of False Creek was originally named Bridge Street and was connected to the downtown segment of Cambie Street via the original Cambie Bridge built in 1891. It was renamed Cambie Street after the second Cambie Bridge was opened in its current location, physically disconnected from the portion of Cambie Street downtown.

SOURCE: CITY OF VANCOUVER WEBSITE



Aerial Over Cambie Street, 1946



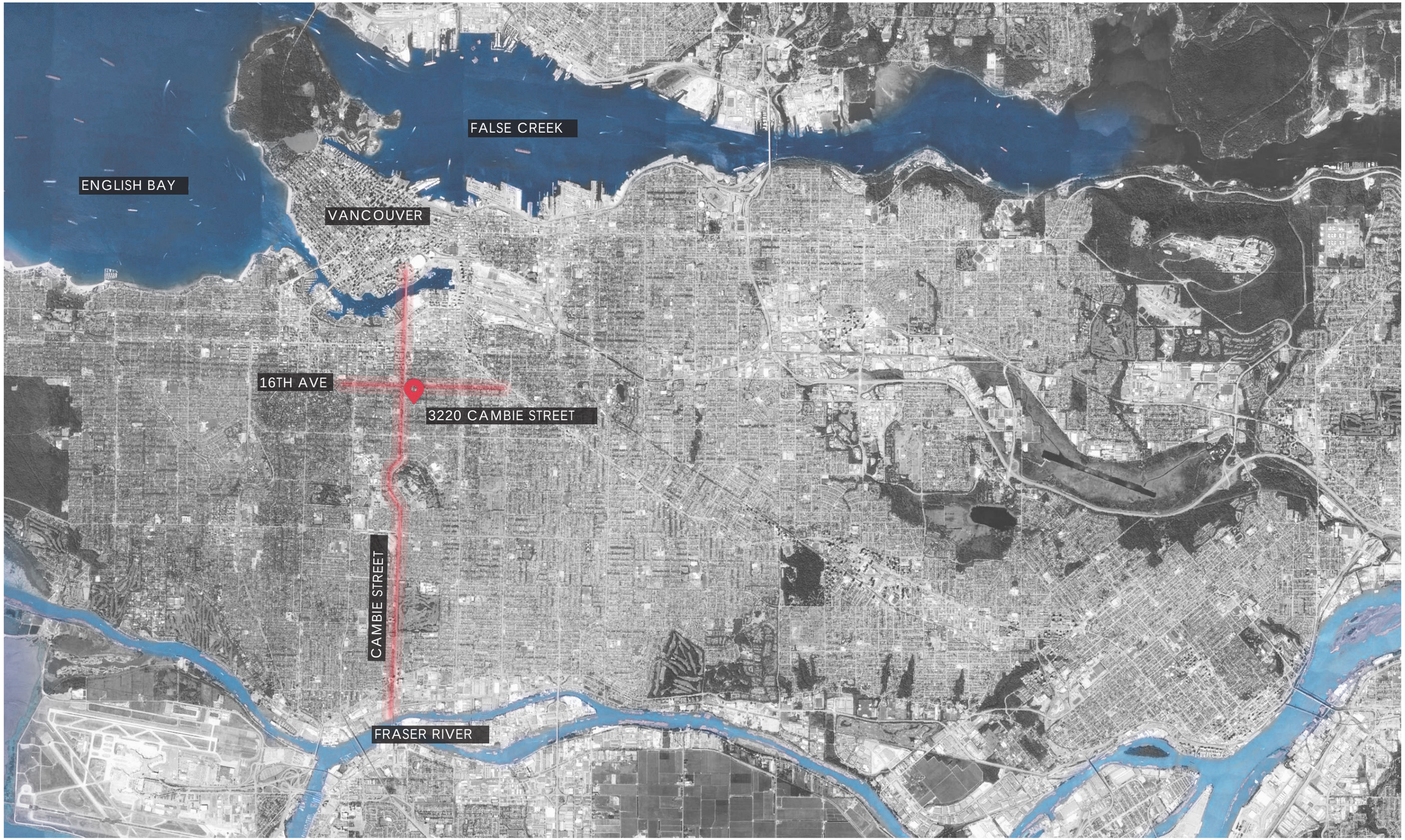
Queen Elizabeth Park Looking North Down Cambie Street, 1938

Cambie Street & Broadway Southwest

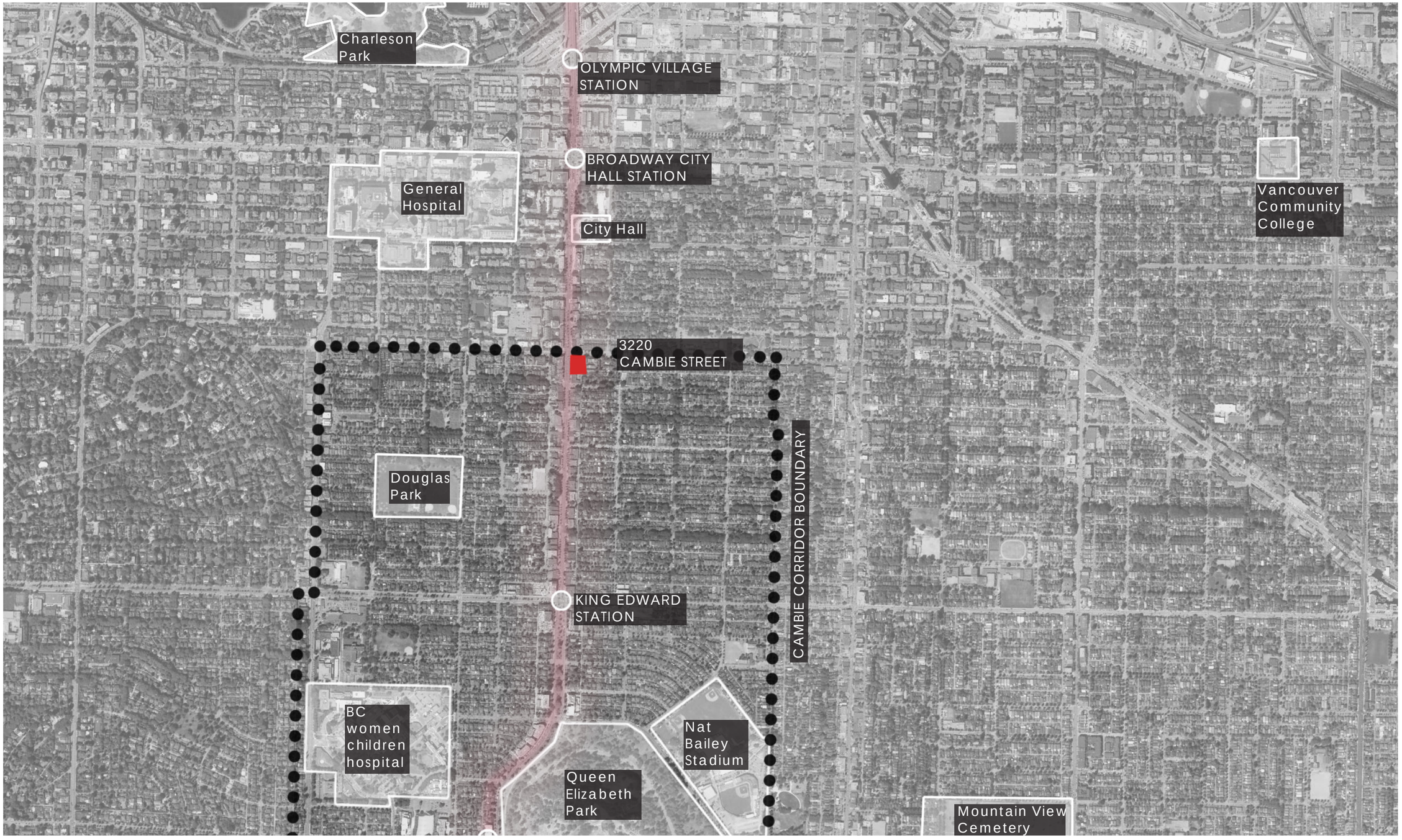
Cambie Bridge

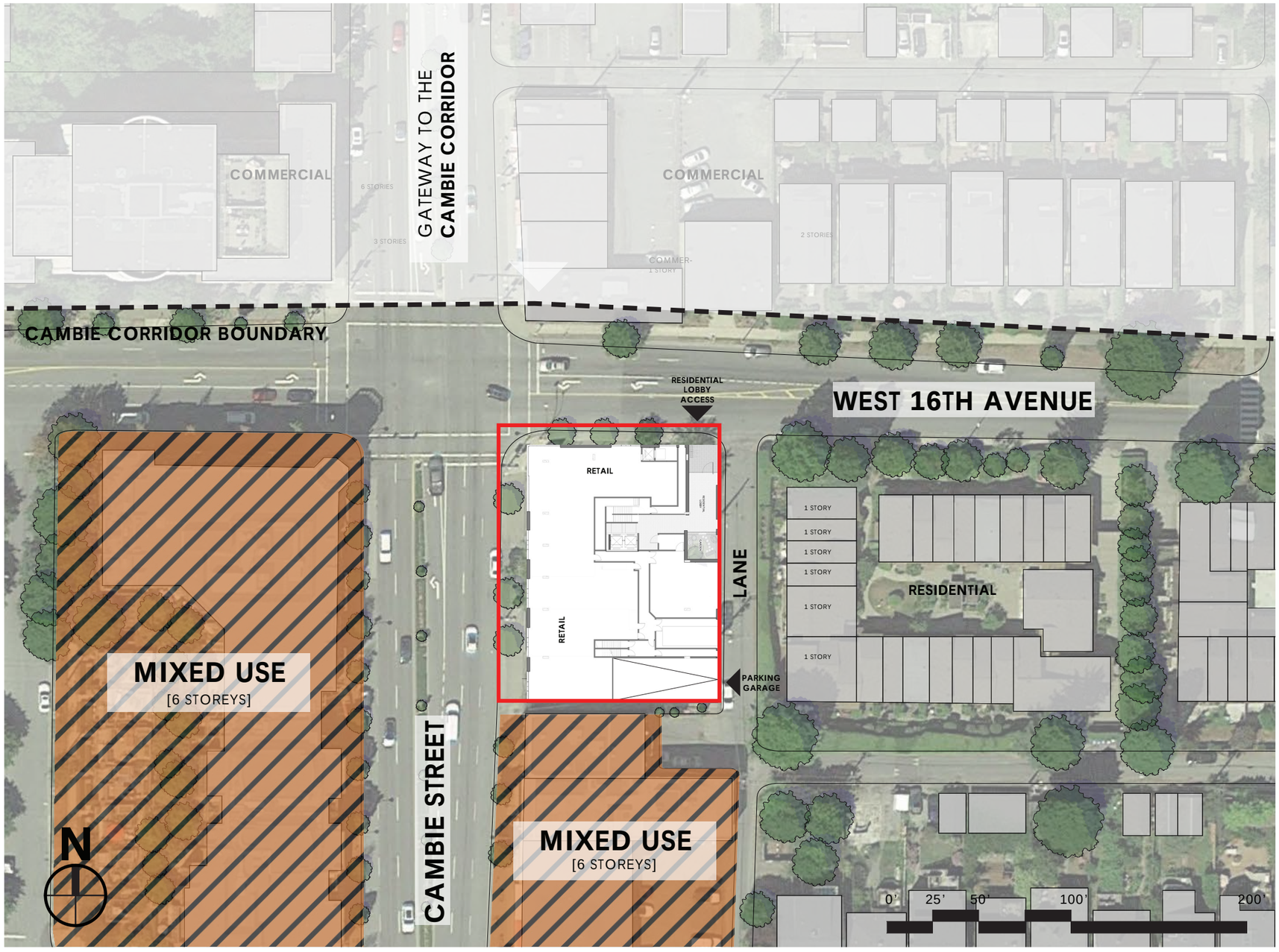
Cambie Street & 5th Avenue Southwest

IMAGE SOURCE: CITY OF VANCOUVER ARCHIVES


FALSE CREEK
ENGLISH BAY
VANCOUVER
16TH AVE
3220 CAMBIE STREET
CAMBIE STREET
FRASER RIVER

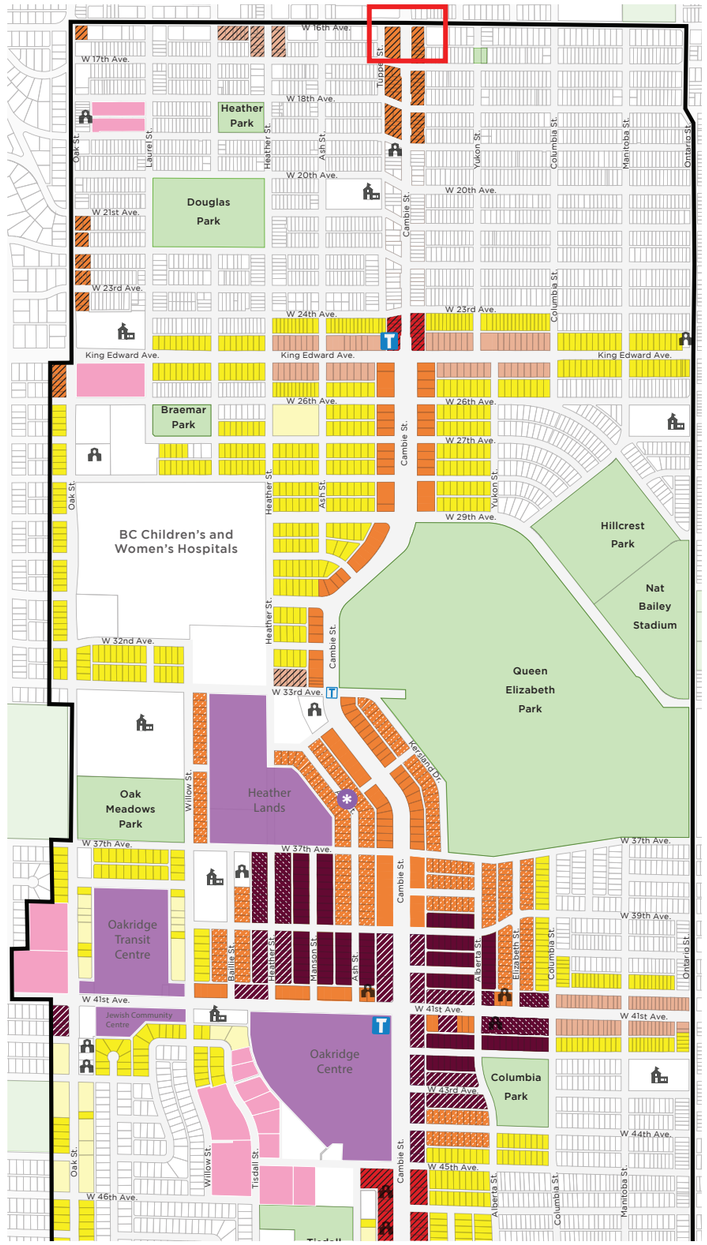
1.3 PROJECT CONTEXT





Cambie Corridor Land Use Map

Gateway to the North Entrance of the Cambie Corridor



1.4 SITE PHOTOS

Looking South on West 16th Ave

Looking East on Cambie Street

Looking North/West From Back Lane

Looking East

Looking North Towards Downtown Vancouver

Cambie Corridor Looking South

2.0 DESIGN RATIONALE

2.1 DESIGN RATIONALE

DESIGN RATIONALE

16th and Cambie provides an opportunity for prominent architecture within the remarkable Cambie Village in Vancouver BC. Architectural Excellence is the core of our inspiration, a goal of creating one-of-a-kind, world-class architecture. We believe that buildings can serve as a bridge between people, nature, culture and histories, and that inspiring surroundings have a positive effect on people's lives. Careful attention to detail on both a macro and micro level has resulted in a striking, distinctive building – one that is experimental yet elegant. A "living building" that unites architecture, individual and nature, leading to an innovative, high performing sustainable project.

Our design has been informed by this context along with an attention towards maximizing livability for the individuals who will live in and use the building, and the City's Green Buildings Policy for rezoning.

ARCHITECTURAL EXCELLENCE AND LIVABILITY

Placing the experience of the individual as central to driving the building's form and expression is a focus of Architectural Excellence. This means shaping the building to provide maximum access to daylight, natural ventilation, strong exterior connectivity, adaptability and thermal comfort for the user. A sum of factors that enhance Livability. Architectural Excellence also means providing a building that aims to enhance the quality of the neighborhood, the pedestrian experience, and the city of Vancouver.

PROJECT CONTEXT

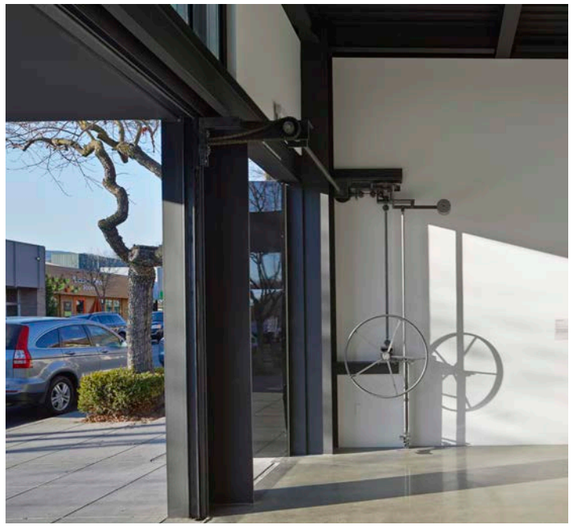
Responding to the City's and Neighborhood's vibrant context at various scales, covering both internal and external environments:

- **REGIONAL,** Vancouver BC. | We recognize that a very high level of design is mandatory for new projects in forward-thinking Vancouver. Our goal is to provide a design that the city can be proud of, one that sets a precedent for design excellence as a thoughtful solution.
- **NEIGHBORHOOD** | Being a good neighbor and av positive addition to the Cambie neighborhood by providing a building with a mass and scale that integrates with the existing context.
- **STREET AND BUILDING** | Provide an intimate scale at the street level which is inviting and pedestrian friendly.
- **INDIVIDUAL** | A focus on providing enhanced livability for the residents and patrons of the building. Access to daylight, adaptable spaces, connection to surroundings.

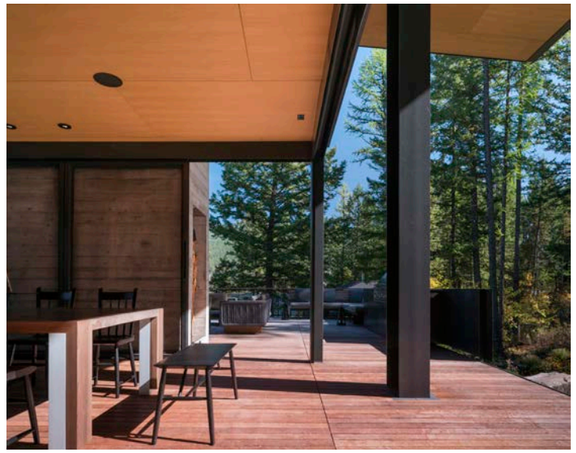
SUSTAINABILITY

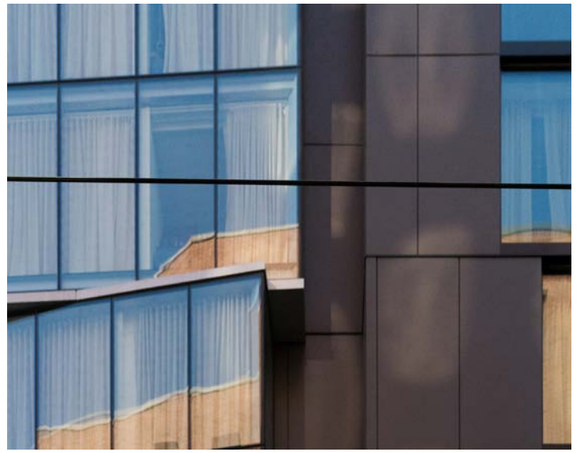
Raising the bar for sustainable design by providing an innovative, high-performance building that embraces the City's Green Buildings Policy for Rezoning.

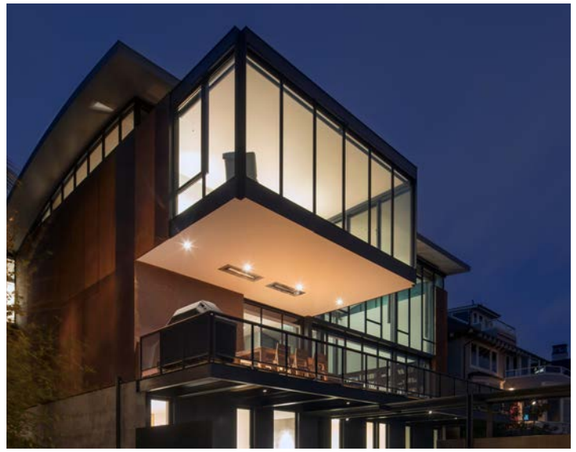
- Passive Design - highest energy standards under the Low Emissions Green Building Pathway
- Maximize Natural Light
- Reducing Overall Building Heating Load

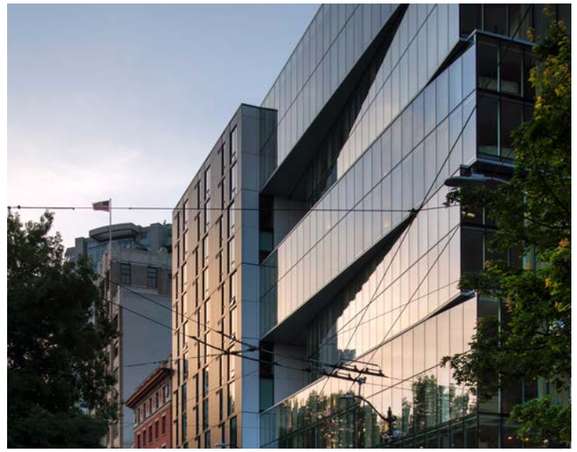


CAMBIE STREET









LIVABILITY & ACCESS TO DAYLIGHT

+ Vertical Setbacks in the building massing allows for corner windows for every unit.

+ Corner windows maximize **access to daylight** for each residential unit and increases the livability for residents.

+ All residential units are design to have operable doors to private balconies.

PROTECTED OUTDOOR LIVING

+ Horizontal shifts in the building facade create covered outdoor living spaces for residents to inhabit year round.

+ Access to outdoor living is a vital design tool to ensure livability and **healthy environments** .

+ Shifting and setting back the building mass seeks to break down the overall form and scale of a typical building.

MODULATION & ARTICULATION

+ The modulation of the building facade along Cambie Street and 16th Street provides a **legibility and human scale** which is appropriate for the Cambie Corridor.

+ Shifting and recessing the primary building facade minimizes shadow impact on adjacent properties within the Cambie neighborhood.

ACTIVATING THE PUBLIC REALM

+ As a **Gateway to the Cambie Corridor**, the project seeks to activate the retail level and enhance the **public realm** at the pedestrian scale.

+ Integration of kinetic doors at the ground level enhances the interconnectedness between interior and exterior spaces.

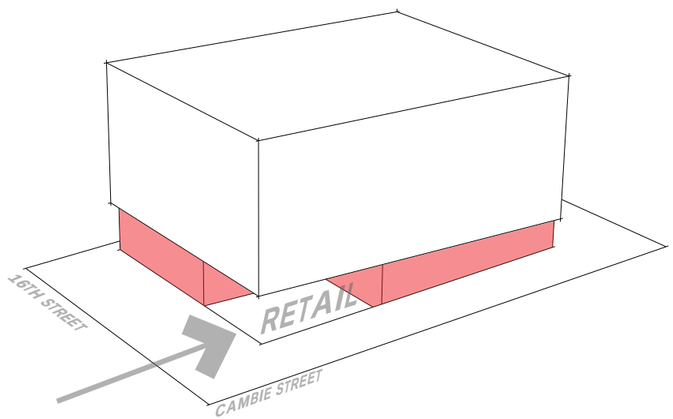
+ Covered walkways work to protect pedestrians from the elements, while reinforcing the human scale at the street level.

2.3 POLICY OVERVIEW

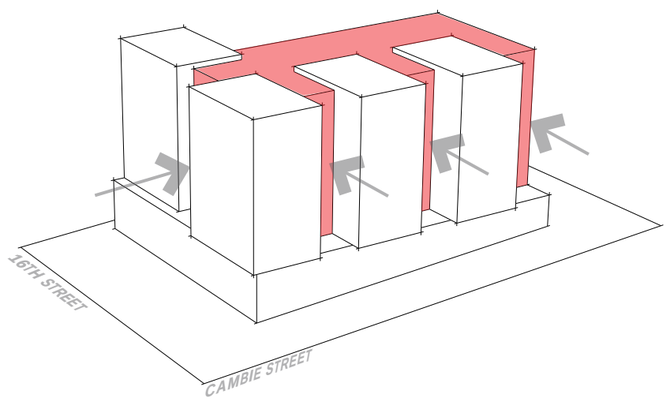
C.C.P. Phase 3 Reference	The 16th and Cambie Project...
5.2.1 The plan supports commercial activity in many locations, and building design can assist in viability of retail space by providing generous interior heights. A minimum of 4.6 m (15 ft) from floor-to-floor is recommended.	Catering to market demand, the **retail level** is designed to achieve a **15' clear height, exceeding the minimum requirements**. A floor-to-floor height of 17'-6" is assumed based on an adequate structural transfer slab.
5.2.4 For each of the mixed-use areas in the Corridor, a notable stepback should be provided above the following heights: • Cambie Village: above 4th storey	Has **rotated the horizontal setbacks vertically** so that **36-40% of all residential levels are set back 10' - 13'**. The vertical setbacks and variation seeks to break down the scale of the site. See the **site section** and **shadow study** on pages 26-27 to see the strategies for addressing relationships between commercial and residential adjacencies.
5.2.7/8 Building setbacks should be able to accommodate the desired streetscape condition including space for seating, cafe space, signage and clear unobstructed space for walking	Setback at the street level to achieve a 5.5m sidewalk on Cambie Street and 4.5m sidewalk on W 16th Ave. **A large kinetic window wall is planned for the prominent 16th & Cambie corner at the retail level, opening up a welcome environment for the public.**
5.2.12 Where laneway buildings cannot be accommodated, the ground floor use should "open up" onto the lane and provide usable outdoor space whenever possible, thus creating a unique way to enliven the lane.	Includes a **courtyard garden activating the lane**, screening the loading area and showcasing green space and foliage for neighbors and passersby.
5.2.13 To optimize the viability of retail uses, a minimum 4.6 m (15 ft) floor-to-floor height for the first floor is desired.	See above comment for 5.2.1.
5.2.14 Retail fronts should be transparent in order to strengthen the connection between public and private space.	Exhibits generous glazing area as well as a large kinetic window wall is planned for the prominent 16th & Cambie corridor at the retail level, opening up **a welcome environment for the public**. Retail spaces will be designed with **retail continuity** in mind, to ensure frontages are broken up and to enable a higher-quality pedestrian-oriented retail experience.
5.2.16 In mixed-use areas, continuous weather protection should be integrated with the building design and should be part of a building's overall architecture and composition. Weather protection should be appropriate in scale and consistent with the building typology. A minimum 1.8 m (6 ft) at 2.7 m (9 ft) above grade with depth increasing proportionally to a maximum height of 12 ft above grade.	Includes a continuous canopy cover, 6 feet deep along the extent of the Cambie and 16th Avenue facades. Continued design development will occur to ensure **weather protection is appropriate in scale and finishes with the building's typology and expression.**

C.C.P. Phase 3 Reference	The 16th and Cambie Project...
5.2.17 Mixed-use buildings should express a unified architectural concept that incorporates both variation and consistency in facade treatment. Authentic and high-quality design details are expected to be part of every project.	Façade exemplifies variation and consistency by using **carefully selected, high quality, materials paired with unique geometry to create an iconic gateway** that fits nicely into the existing Cambie Corridor Plan typology.
5.2.19 Within a single, strong architectural concept, variety is encouraged between buildings to avoid repetition and to create an interesting streetscape environment.	• Façade design uses variation in geometry to **bridge the scale gap** between the commercial building along Cambie Street and the low rise residential blocks adjacent to it. • A **large kinetic window wall** welcomes people into the building's restaurant program at street level and becomes a highlight of what will be the gateway to the new Cambie Corridor. • The massing is separated into 28' vertical modules that **break up what would otherwise be a 132' continuous facade**, providing more **variation along Cambie street.** • As a **gateway to the Cambie Corridor,** this project seeks to **activate this important corner** and threshold into this revitalizing part of the city.
5.2.20 Blank walls, created in the interim, should consider architectural detailing that helps to soften their visual impact on the street and on adjacent properties.	The interim blank wall created on the South facade will be detailed. See Neighborhood Engagement, page 31.
5.2.21 Parking should be accessed from the lane, in a location that minimizes disruption to the lane environment. Parking should not be visible from the street.	**Parking will be accessed off the lane**, placed away from other intersections (E-W lane/W 16th) in order to **minimize conflicts and maximize screening**.
5.2.22 A class A loading space should be accommodated in the lane of all new development to provide accessible short term parking, pick-up and drop-off space. Additional parking and loading will be required in accordance with the Parking By-law.	As a mixed-use development, two Class B loading spaces will be provided off the lane in order to meet Parking By-law requirements. In order to **maximize usable space to achieve lane activation** as per 5.2.24., the project is requesting the Class B spaces act as space meeting the intent of the Class A space off the lane.
5.2.24 Commercial lanes should provide visual interest by creating engaging facades that soften the utility functions performed in the lanes.	Includes **a screened garden courtyard amenity** and a textured brick wall **adding a green factor and visual interest**.
14.1.1 Privately-initiated rezonings / Community Amenity Contributions (CACs)	See page 31, under Neighborhood Engagement

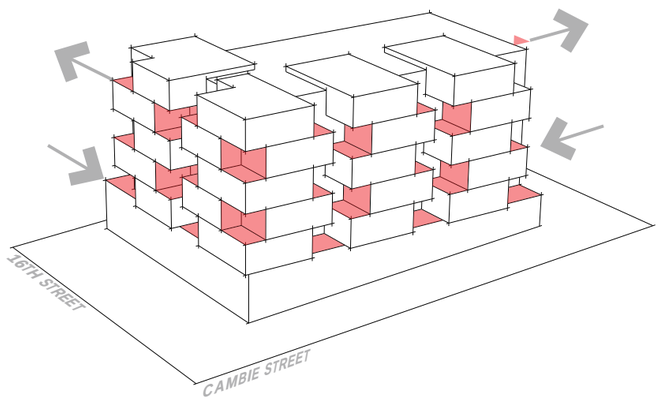
ACTIVATING THE PUBLIC REALM



LIVABILITY AND DAYLIGHT



PROTECTED OUTDOOR LIVING



CONNECTION + TRANSPARENCY

1.] As a **Gateway to the Cambie Corridor**, the project seeks to activate the retail level and enhance the **public realm** at the pedestrian scale.

2.] Integration of kinetic doors at the ground level enhances the interconnectedness between interior and exterior spaces.

3.] Covered walkways work to protect pedestrians from the elements, while reinforcing the human scale at the street level.

MODULATION + ARTICUALTION

1.] The modulation of the building facade along Cambie Street and 16th Street provides a **legibility and human scale** which is appropriate for the Cambie Corridor.

2.] Shifting and recessing the primary building facade minimizes shadow impact on adjacent properties within the Cambie neighborhood.

3.] Vertical Setbacks in the building massing allows for corner windows for every unit.

DYNAMIC SHIFTING

1.] Horizontal shifts in the building facade create covered outdoor living spaces for residents to inhabit year round.

2.] Access to outdoor living is a vital design tool to ensure livability and **healthy environments** .

3.] Shifting and setting back the building mass seeks to break down the overall form and scale of a typical building.

2.4a RATIONALE FOR CCP SETBACK VARIANCE

VERTICAL BUILDING SETBACKS

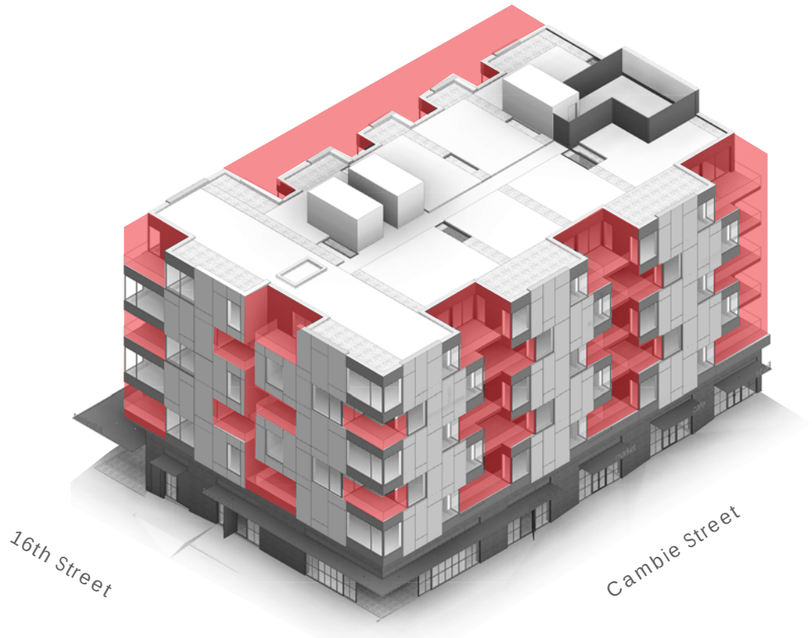
The 16th & Cambie project reinterprets the typical setback at levels 4-6 and integrates them vertically as a strategy to formulate a modular scale down Cambie Street and as a stategy to mitigate shadow impact on adjacent properties.

+ Cambie Street and W 16th Avenue facades are setback between Levels 2-6.
+ Vertical Setbacks modulate the building facade, creating a more pedestrian scaled experience along Cambie Street and W 16th Ave.
+ Façade design uses variation in geometry to bridge the scale gap between the commercial building along Cambie Street and the low rise residential blocks behind it.
+ As a gateway to the Cambie Corridor, this project seeks to activate this important corner and threshold into this revitalizing part of the city.
+ A large kinetic window wall welcomes people into the building's restaurant program at street level and becomes a highlight of what will be the gateway to the new Cambie Corridor.

MODULATION & ARTICULATION

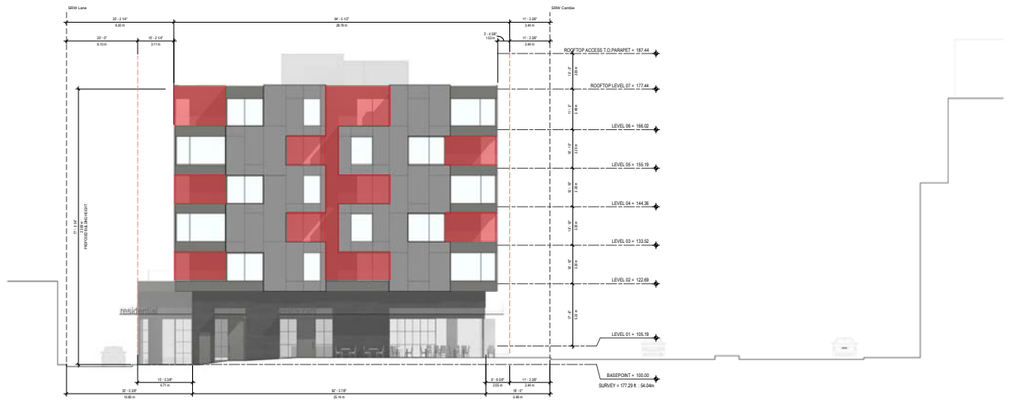
The facade "shift" **breaks down the mass of the building**; the expression and scale of the shifted units relates to the residential neighborhood to the east, while the overall height and the dynamic and open retail spaces on the ground level engage the lively rhythms of Cambie Street.

The modulated facade helps **light and air** reach further into the buildings interior and provides a **corner window for every unit.** Balconies are visually quiet and serene spaces, allowing the expression of the residential scale "boxes" of the facade to be articulated from the street.



Vertical Setback Area

Cambie Street Setbacks



16th Street Setbacks

GATEWAY TO THE CAMBIE CORRIDOR

The project seeks to set a precedent for architectural excellence in the revitalized Cambie Corridor.

MODULATION + ARTICULATION

The facade “shift” **breaks down the mass of the building**; the expression and scale of the shifted units relates to the residential neighborhood to the east, while the overall height and the dynamic and open retail spaces on the ground level engage the lively rhythms of Cambie Street.

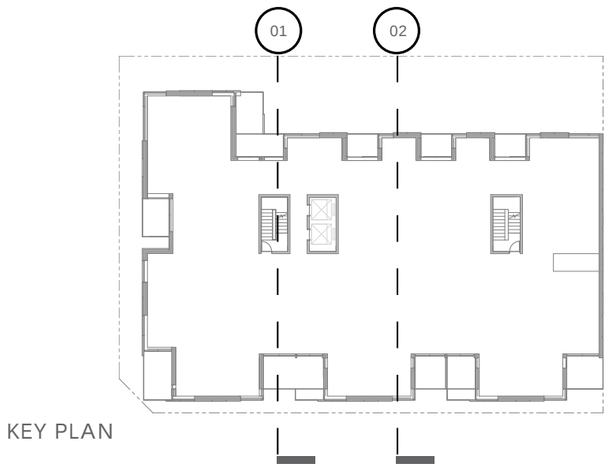
The modulated facade helps **light and air** reach further into the buildings interior and provides a **corner window for every unit.** Balconies are visually quiet and serene spaces, allowing the expression of the residential scale “boxes” of the facade to be articulated from the street.

protected outdoor living

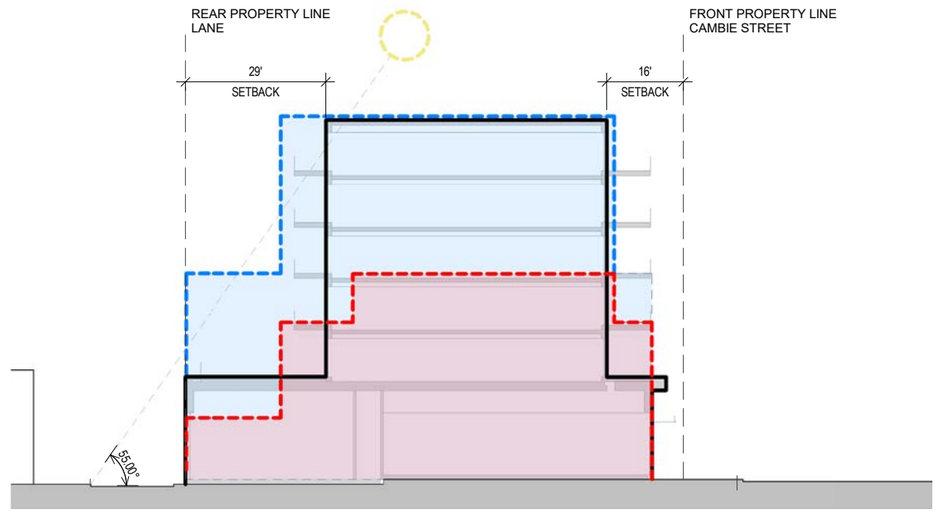
+ Horizontal shifts in the building facade create covered outdoor living spaces for residents to inhabit year round.

+ Access to outdoor living is a vital design tool to ensure livability and **healthy environments**.

+ Shifting and setting back the building mass seeks to break down the overall form and scale of a typical building.



KEY PLAN

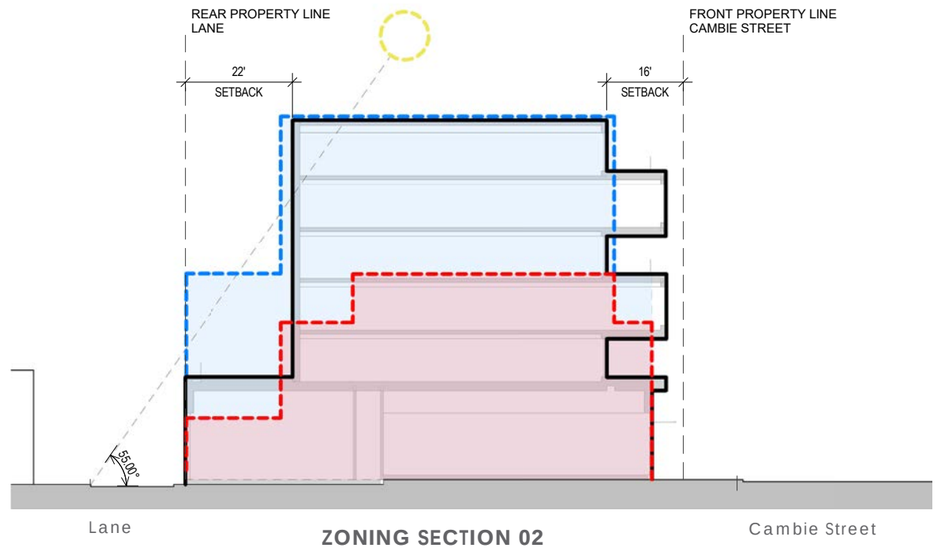


ZONING SECTION 01

C-2 DISTRICT REGULATION

CAMBIE CORRIDOR PLAN

PROPOSED



ZONING SECTION 02

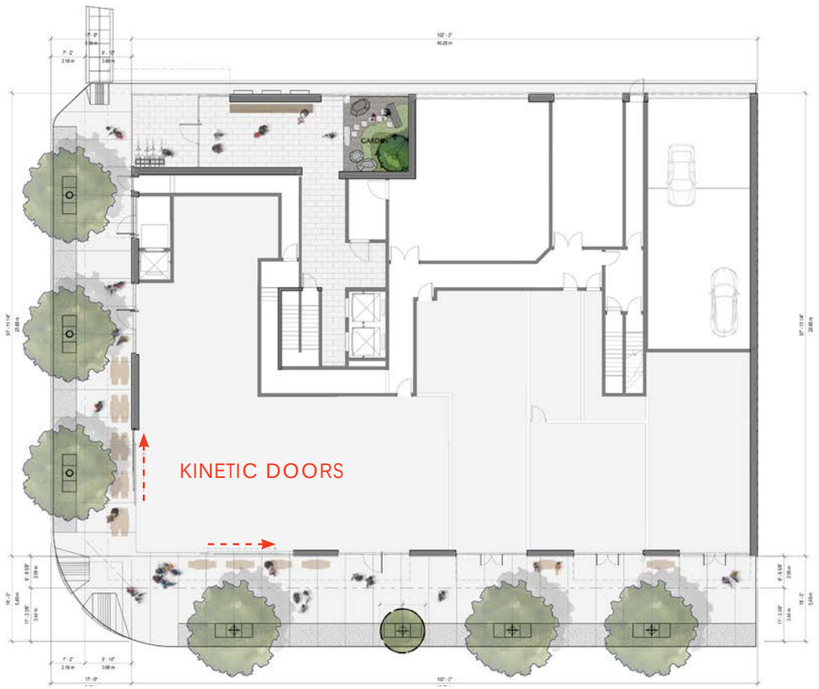
2.4b PUBLIC REALM

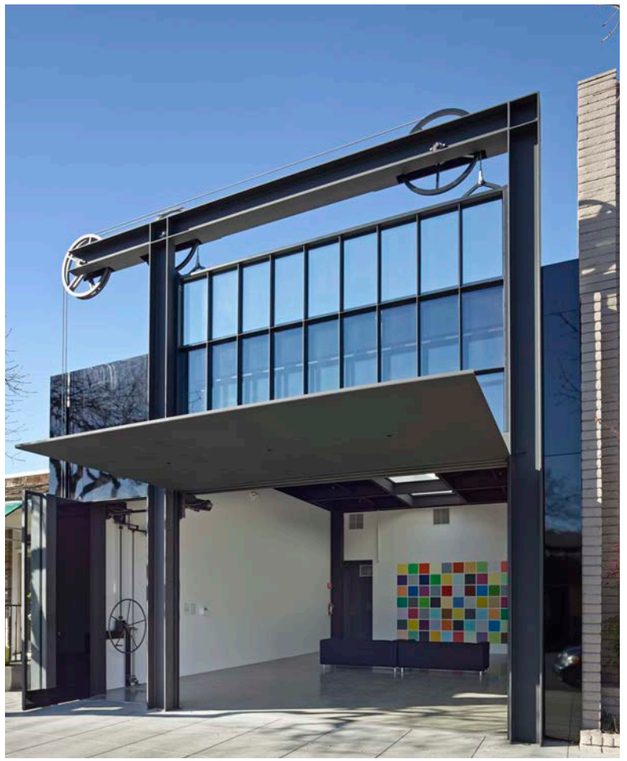
NEIGHBORHOOD ENGAGEMENT | KINETIC DESIGN

A large kinetic element at the corner of Cambie Street and West 16th Ave creates a dynamic and open public space that blurs the boundary between inside and outside.

The large corner doors slide open to create a large indoor/outdoor hybrid patio space that reaches out to the community.

A continuous steel canopy protects pedestrians from the weather and creates opportunities for exterior patio space.





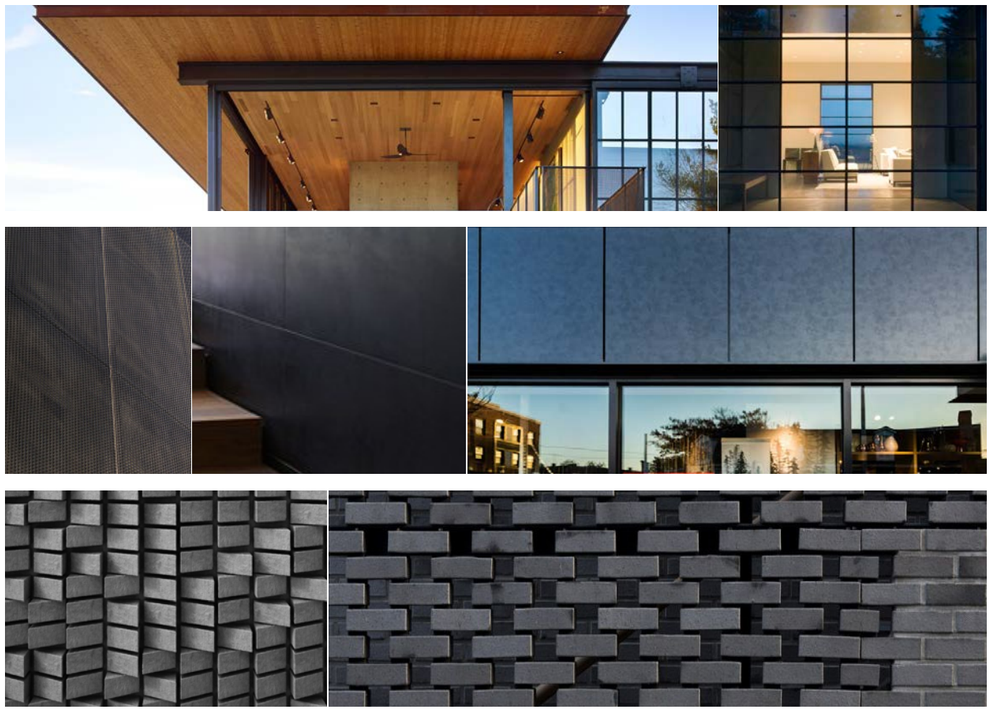
BUILDING MATERIALS

This project proposes a simple material palette of **metal, brick, wood, and glass** to respond to the character of the neighborhood. The project uses carefully considered materials - selected for their durability, ease of maintenance, and minimal environmental impacts. The building materials, proportion and layout all seek to reinforce the design concept of shifting, reessing and breaking down the overall scale of the building.

+ Dark metal shell expresses the facade shift.

+ Wood soffits and decks provide a warm and inviting glow at the covered deck spaces.

+ Textured brick walls at the street level create a dynamic and varied effect as the light changes throughout the day. The masonry grounds the cantilevered geometry above, responding to the shifted gesture above, as well as, the rhythm of the sidewalk.



2.6 SUSTAINABILITY STRATEGIES

BRIDGING ENERGY EFFICIENCY & ARCHITECTURE EXCELLENCE: A FOCUS ON TWO POLICIES

1.] Context: The Cambie Corridor

The City of Vancouver approved the Cambie Corridor Plan in 2011. The new Phase 3 Plan has been approved by City Council. The plan demonstrates a revitalization, densification and development strategy for the corridor bookended by West 16th Avenue to the north and Fraser River to the south. The 16th and Cambie site sits at the **Gateway to the Cambie Corridor**. The Cambie Corridor Plan will be an important document in the design process for this project.

"Sustainable, livable city of neighborhoods, connected to convenient, viable transportation alternatives. The Corridor meets residents' needs with places to live, work, shop, play, and feel part of a community."

- Cambie Corridor Plan.

2.] Sustainability: Zero Emissions Building Plan

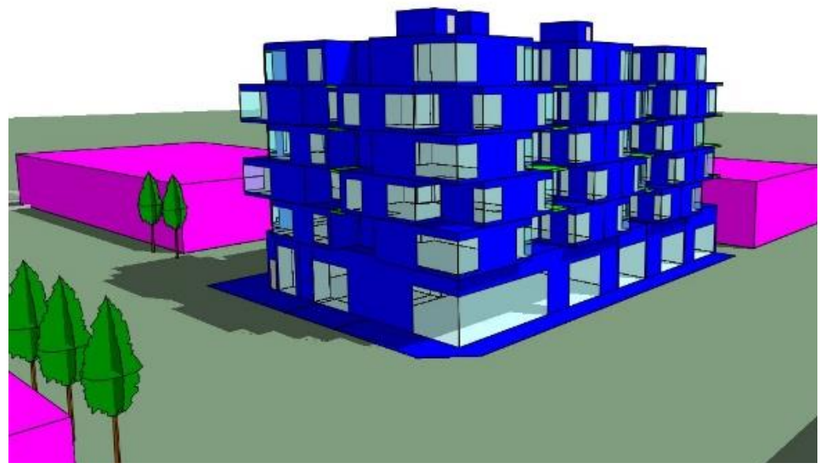
The project is designed to meet the Green Buildings Policy for Rezoning. The envelope is designed to meet the most stringent targets for TEDI (Thermal Energy Demand Intensity), TEUI (Total Energy Use Intensity) and GHGI (Green House Gas Intensity).

The façade is carefully modulated to scale down the proportions of the building, but also to provide **daylight** and **natural ventilation** deeper into the building floorplate. The fenestration in the project will be **ultra-high-performance** triple pane, argon-filled low-e glass set in thermally broken frames. This will allow for **good daylight** and ventilation without the thermal penalty associated with it – maximizing comfort in the summer and the winter months.

The opaque envelope (walls, floors and roof) will be highly insulated as well – with most of the insulation running continuous outside the weather barrier. This will ensure **a wall assembly that is efficient, comfortable, and minimizes the risk of vapor condensation** and mold. In addition, balconies will be designed to **minimize thermal bridging from the structure**. Most of the balconies are inset, allowing the east and west facing glass to have **solar protection**.

The project will use **heat recovery ventilators** to minimize the thermal demand from ventilation air in the building. Furthermore, the project will use heat recovery systems such as variable refrigerant flow (VRF) – that allow for **high-efficiency heating and cooling**, as well as simultaneous heating and cooling in different zones if needed.

Reference	**Specification**
CoV-GBPR	Performance Limits of Residential Units: - TEDI: 15 [kWh/y/m^2] - TEUI: 100 [kWh/y/m^2] - GHGI: 5 [kgCO_2/y/m^2] Performance Limits of Retail Units: - TEDI: 21 [kWh/y/m^2] - TEUI: 170 [kWh/y/m^2] - GHGI: 3 [kgCO_2/y/m^2] Performance Limits of Restaurant: - EUI 35% below NECB 2011
1. Building and Location	
Location	Vancouver, BC
Weather File	CAN_BC_VANCOUVER-INTL-A_1108395_CWEC.epw
Modeling Software	IES-VE 2018



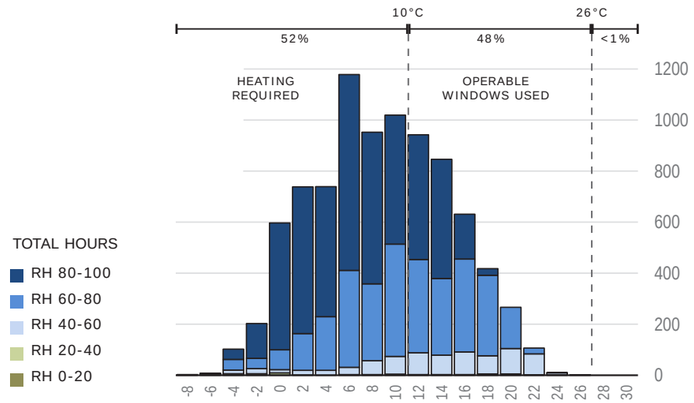
CLIMATE ANALYSIS

The design of the project started with an examination of the climate, looking for key opportunities and potential areas of concern.

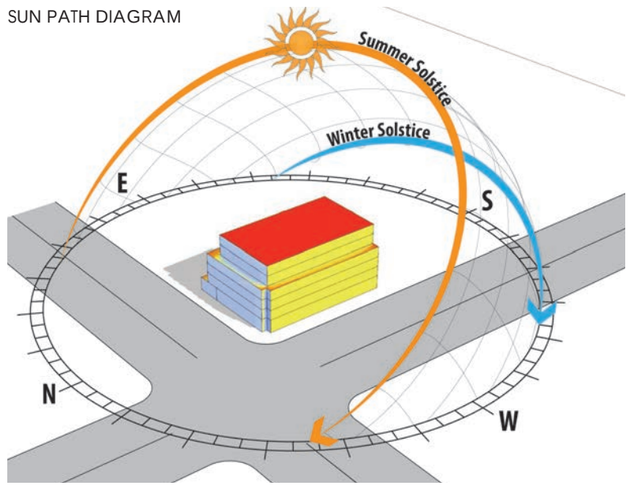
The climate is temperate with mild summers (less than 1% of hours in the year are above 26°C, and 44% of the year it is between 10°C and 26°C), ideal for natural ventilation. Heating will be a heavy energy load as 56% of the hours in the year drop below 10°C. A robust envelope will be required to meet the Zero Emissions Building Plan standards.

Solar radiation can be high in the summer months, so sun shade considerations are important, especially on the East, South, and West facades. No shading is needed on the North.

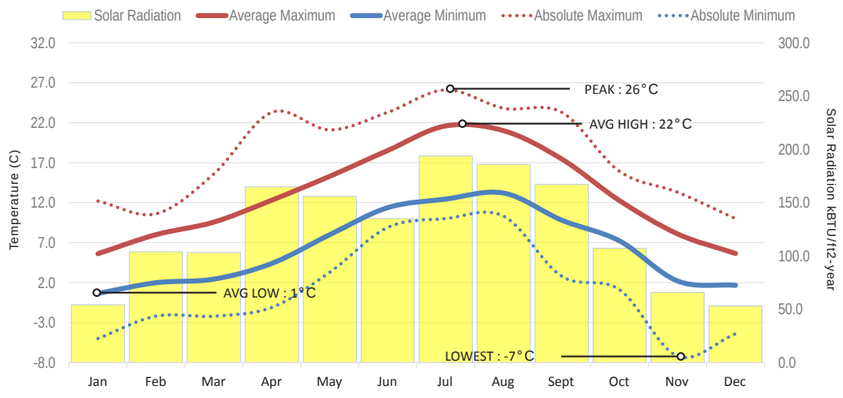
TEMPERATURE AND HUMIDITY BINS: HOURS 0-24



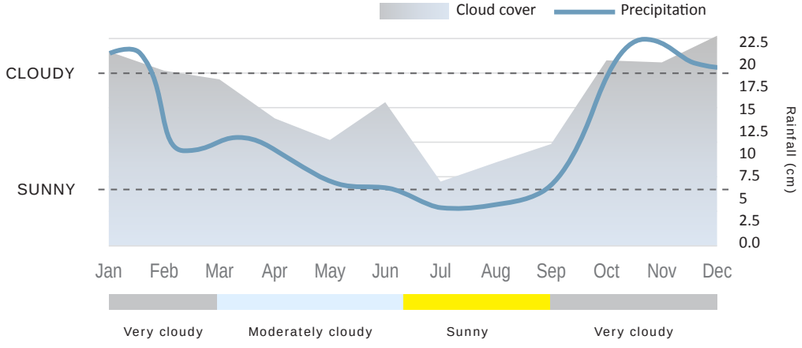
SUN PATH DIAGRAM



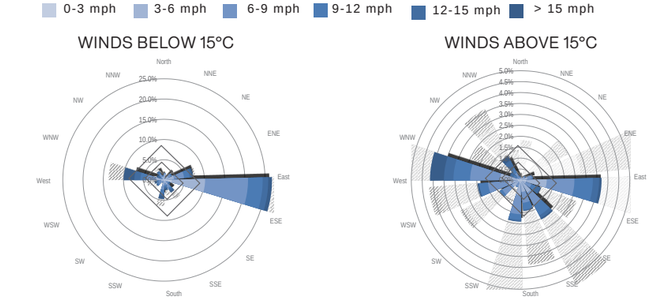
PEAK AND AVERAGE TEMPERATURES + SOLAR RADIATION



AVERAGE MONTHLY CLOUD COVER



WIND ROSES



- Winter winds come from East or West
- Eastern winds tend to be gusty
- Warmer sea breezes from East and West allows for natural ventilation

THERMALLY EFFICIENT ENVELOPE

Through building envelope research and energy modeling, we have defined a ratio of building surface area to envelope thickness that allows **an articulated building form that challenges the notion that high performance and high design cannot go hand in hand**.

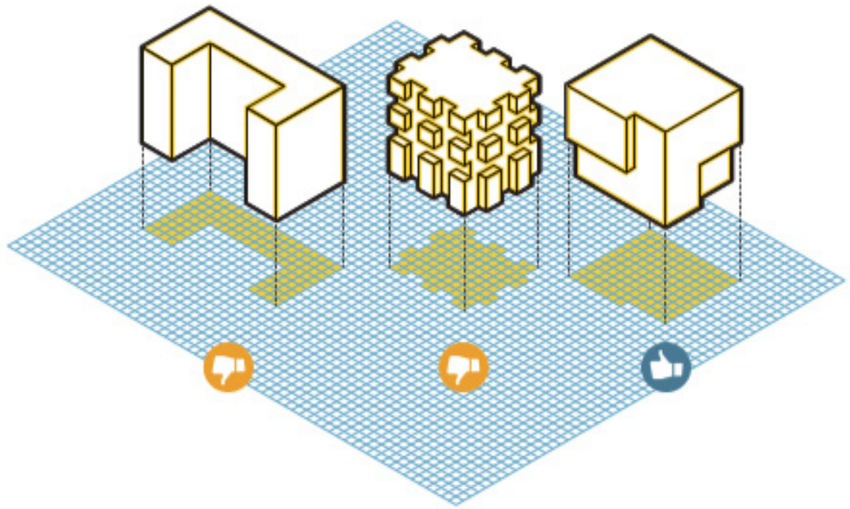
We believe that **we can change the narrative surrounding sustainable construction** and thermal targets by investing in the envelope thermal quality and articulation.

BC Energy Step Code

The following diagram is an exerpt from the BC Energy Step Code Design Guide showing that the easiest way to achieve thermal targets is a simple mass. **Our project seeks to invest more into the urban design expression while meeting energy targets.**

03.41 Minimize Heat Loss through Simplified Massing and Orientation

Two key factors that should be considered early in the design process are the proposed building's massing and its orientation. Massing refers to a building's overall shape, form, and size. Orientation refers to the alignment of a building's principal axis. (See page 16 for Orientation).



Simpler Form

A building's massing can influence the achievement of TEDI performance targets: the more complex a building shape, the greater the number of opportunities for heat loss through the envelope. A building with several complex junctions and corners will lose far more heat through the envelope than a building that has been designed as a simple, solid form, such as a cube or rectangle. Compact buildings also reduce the total number of exterior walls — where heat is lost — as well as the number of ledges and other horizontal surfaces where accumulations of moisture can degrade the building envelope.

Lower VFAR

Massing can also be thought of in terms of a building's vertical surface area to floor area ratio (VFAR). A lower VFAR decreases overall heat loss potential, because vertical surfaces (walls) tend to have lower R-values than horizontal ones (floors and roofs). Higher VFAR values are often a function of the building's floor plate size, as well as the level of articulation, or the complexity its overall form.

Larger Floor Plate

In general, smaller and narrower floor plates make TEDI performance targets harder to achieve. Increasing a building's floor plate size and simplifying its external shape and form both help improve a building project's ability to meet the BC Energy Step Code targets.

Excerpt from the BC Energy Step Code: Design Guide

RAISING THE BAR FOR THE ZERO EMISSIONS BUILDING PLAN

This project will meet the highest energy standards under the Low Emissions Green Buildings pathway. The residential portion of this project will meet a TEDI (Thermal Energy Demand Intensity) of 15 [kWh/m2/year]. A blended project target will take into account the ground floor retail.

Sustainability starts with creating a high-performance building. Building performance has been a key driver for the form of this project from the earliest stages. The goal is to create a high-performance building that maximizes passive strategies while creating comfortable and inviting environments for occupants. Substantial floor and wall assemblies are required to achieve these goals including triple glazed windows, thermally broken window frames, R40 - R50 insulation at all roof and balconies, and R-30 walls.

The façade is carefully modulated to scale down the proportions of the building and to provide daylight and natural ventilation deeper into the building floorplate.

Protection against solar exposure. Most of the balconies are inset, allowing the east and west facing glass to have solar protection.

The fenestration in the project will be ultra-high-performance triple pane, argon-filled low-e glass set in thermally broken frames. This will allow for good daylight and ventilation without the thermal penalty associated with it – maximizing comfort in the summer and the winter months.

The envelope (walls, floors and roof) will be highly insulated. This will ensure a wall assembly that is efficient, and comfortable.

Balconies will be designed to minimize thermal bridging from the structure.

The project will use heat recovery ventilators and heat recovery systems such as variable refrigerant flow (VRF) – that allow for high-efficiency heating and cooling, as well as simultaneous heating and cooling in different zones if needed.

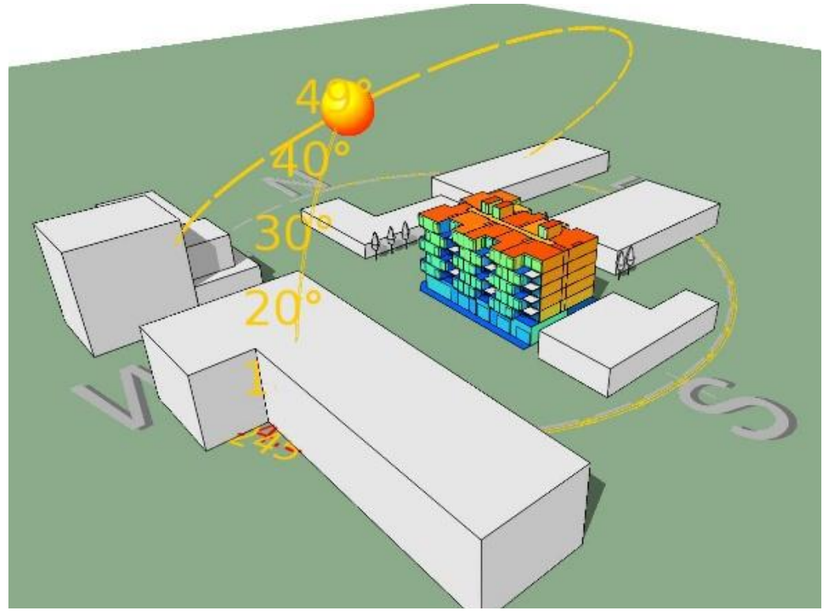
Storm Water run-off within planters to reduce heat island effect and reduce impact to post development storm water flows.

Air Source Heat Pump will be used to preheat service hot water, which will significantly contribute to energy and green house gas reduction.

Enhanced overall building air tightness with air barrier commissioning plan throughout design and construction.

Compliance Results (Residential & Retail) – Building Not Connected to NEU/LCES			BCBS
Metric	**Requirement (CoV-GBPR)**	**Proposed Design**	**Results**
Thermal Energy Demand Intensity (TEDI)	15.5* [kWh/y/m^2]	15.2 [kWh/y/m^2]	**Complies**
Total Energy Use Intensity (TEUI)	105.3* [kWh/y/m^2]	98.38 [kWh/y/m^2]	**Complies**
Greenhouse Gas Intensity (GHGI)	4.84* [kgCO_2/y/m^2]	4.38 [kgCO_2/y/m^2]	**Complies**
Compliance Results (Restaurant)			
EUI Better than VBBL 2014 - 10.2, NECB 2011	35%	40.76%	**Complies**

Notes (*)
1. All three metrics (TEDI, TEUI, GHGI) are area-averaged based on the following:
   – Residential Limits (MFA Residential: 5,286 m^2):
      - TEDI: 15
      - TEUI: 100
      - GHGI: 5
   – Retail Limits (MFA Retail: 434 m^2):
      - TEDI: 21
      - TEUI: 170
      - GHGI: 3



VARIABLE REFRIGERANT FLOW SYSTEM WITH ENERGY RECOVERY
85%+ efficient HRV system provides individualized comfort control, energy savings, and simultaneous heating and cooling for all residential and commercial areas.

OPTIMIZED CORRIDOR
Optimized corridor pressurization to reduce energy consumption

INSULATED DECKS
Highly insulated thermally efficient balconies and slab edges to minimize heat loss

STORM WATER RUNOFF
Planters reduce storm water run off and heat island effect

AIR BARRIER SYSTEM
Improved air barrier system to minimize air leakage rate

NATURAL VENTILATION
Modulated facade allows natural ventilation deep into the floorplate

EAST AND WEST SUN
Balcony overhangs protect east and west glass from excess solar exposure

EFFICIENT ENVELOPE
High performance envelope with highly-insulated framing wall system and continuous exterior insulation improves energy efficiency and comfort

MINIMIZE THERMAL BRIDGE
Improved detail around window to minimize thermal bridges

HIGH PERFORMANCE WINDOWS
Triple-glazed high performance residential windows and triple-glazed high performance storefront windows

2.6c THERMAL ENVELOPE AND HEIGHT

THERMAL ENVELOPE

Intergrated Covered Balconies allow protected and private spaces that can be accessed year round. The thermally insualated balconies manage thermal bridging to interior spaces, which enhances overall building efficiency and sustainability.

Required insulation at both floor and soffit surfaces, decreases the overall clear height at covered balconies.

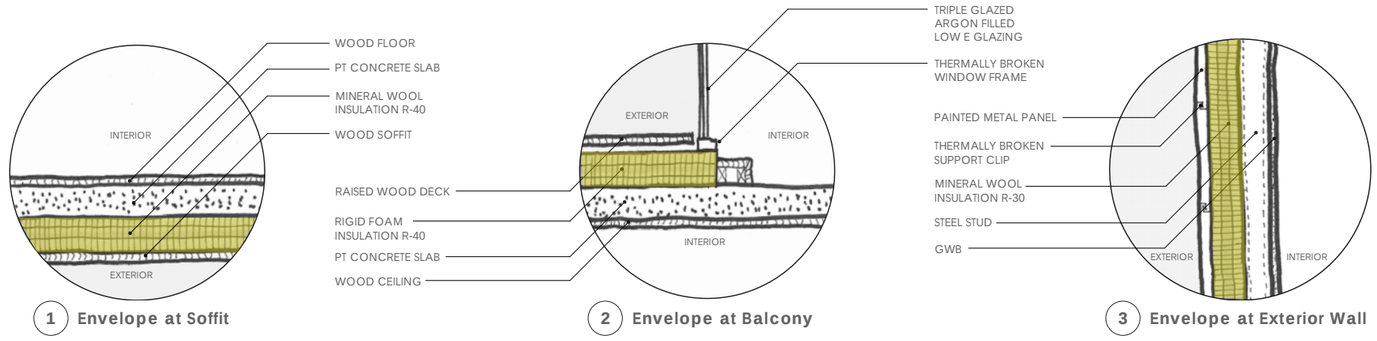
The integrated balconies require additional insulation at the floor and soffit, consequently increasing the overall height of the building.

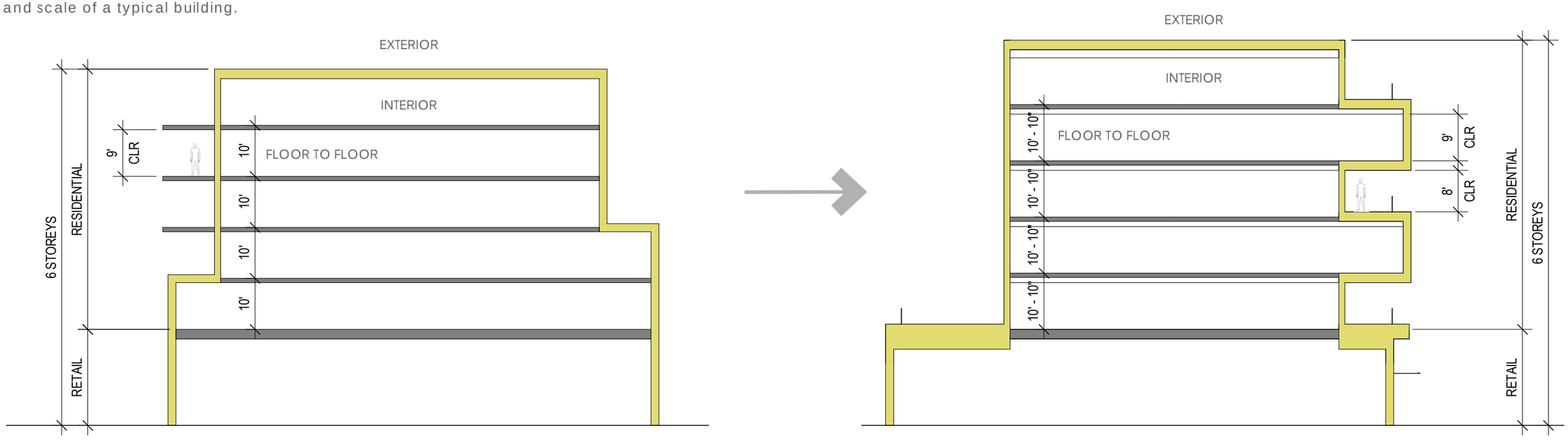
PROTECTED OUTDOOR LIVING

+ Horizontal shifts in the building facade create covered outdoor living spaces for residents to inhabit year round.

+ Access to outdoor living is a vital design tool to ensure livability and **healthy environments**.

+ Shifting and setting back the building mass seeks to break down the overall form and scale of a typical building.





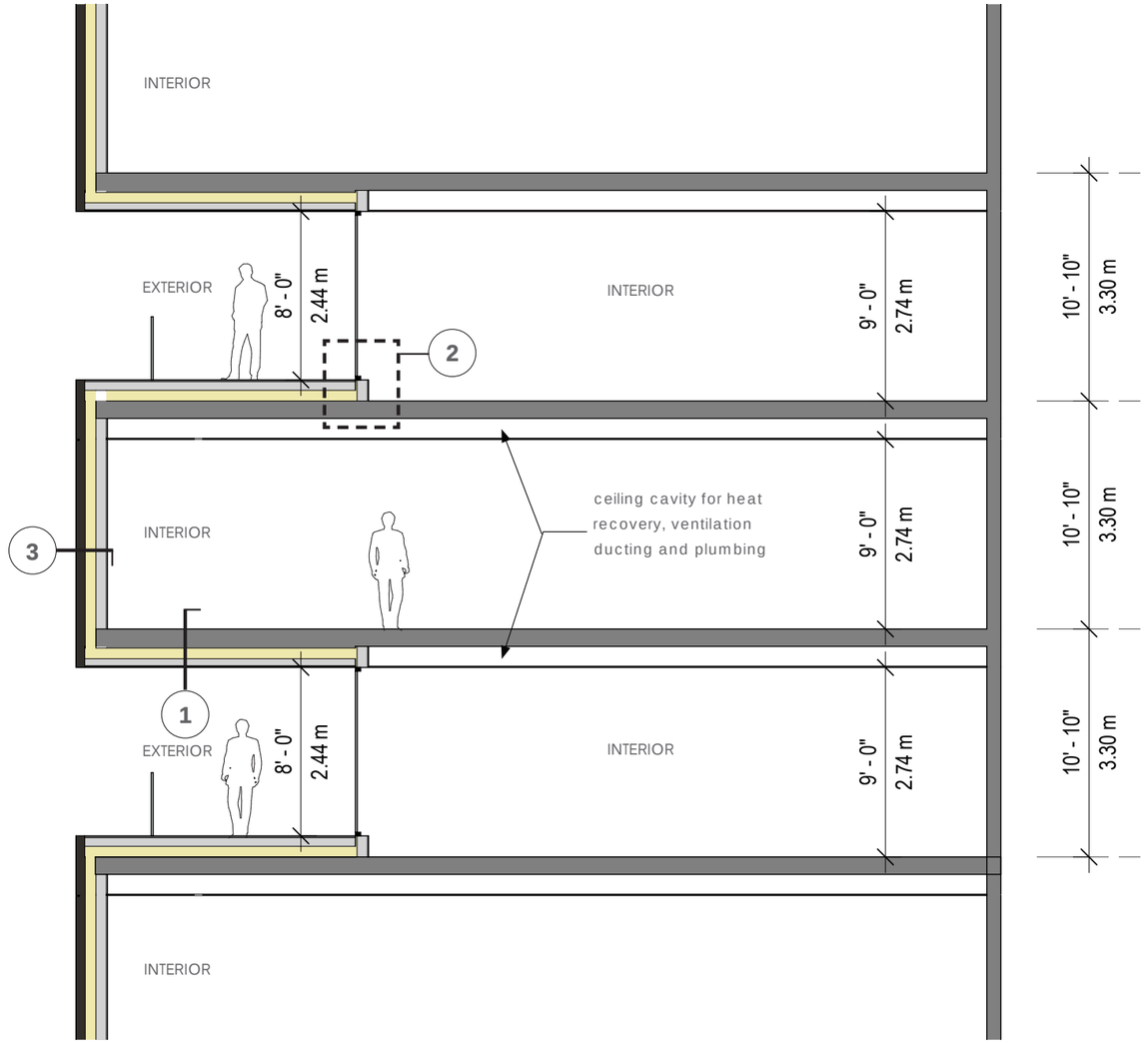
FLOOR TO FLOOR HEIGHTS

To adhere to a high performance thermal envelope with an articulated building form, all soffit and deck conditions will have additional insulation, thus building up the decks and requiring additional ceiling height to maintain liveable and comfortable units.

The Building is designed for a **10’-10” floor to floor dimension** at all residential levels. This will provide:

+ Highly insulated thermally efficient balconies and slab edges to minimize heat loss
+ Minimized thermal bridging
+ Dynamic and engaging facade articulation
+ Livable (and more typical) interior clear height for units and appropriate mechanical and electrical runs
+ Livable exterior balcony clear heights

PROTECTED OUTDOOR LIVING



Thermal Envelope Sections

3.0 RENDERINGS

3.1 NW RENDERING

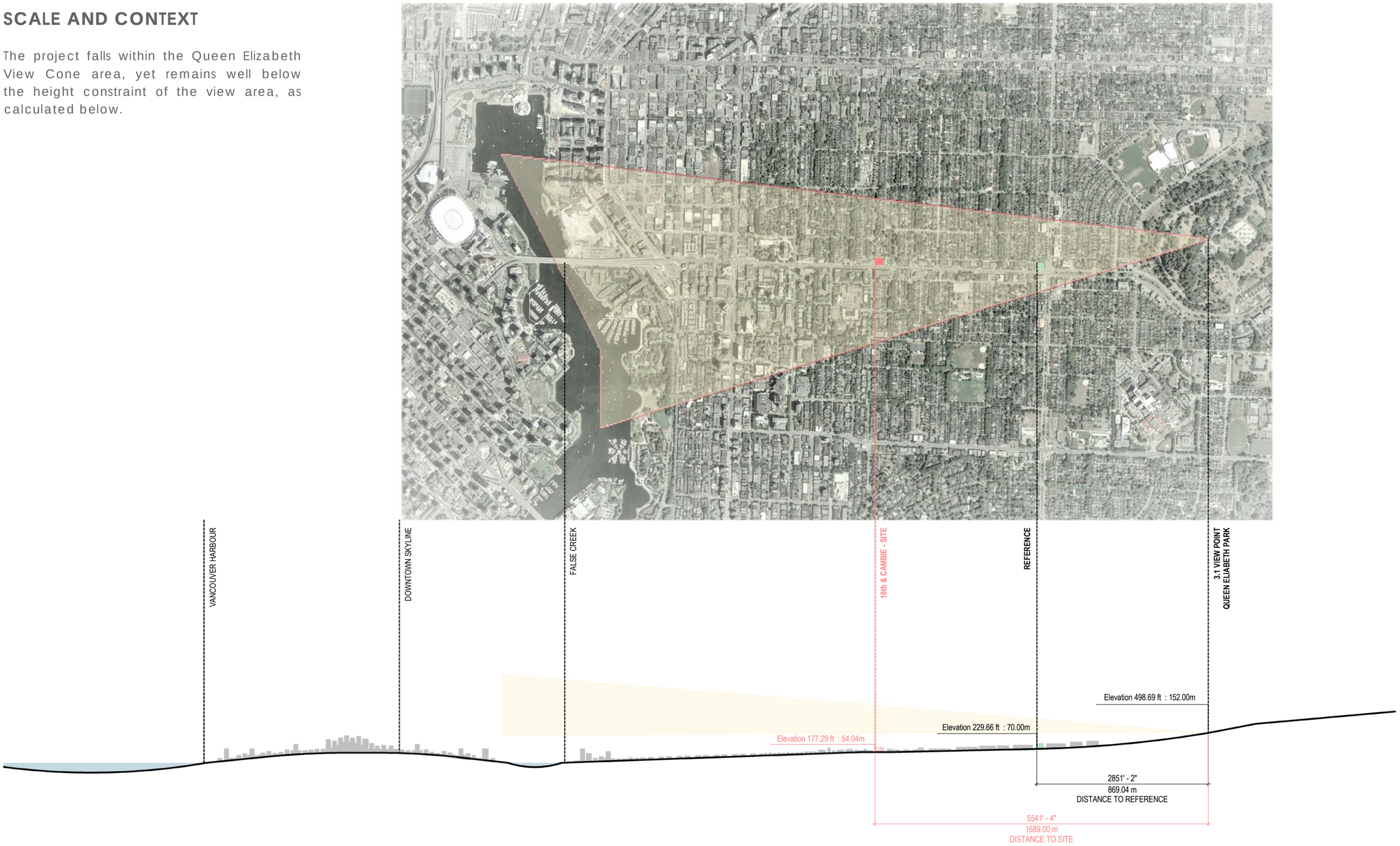
View from 16th & Cambie

View from 16th & Lane

4.0 VIEW ANALYSIS

SCALE AND CONTEXT

The project falls within the Queen Elizabeth View Cone area, yet remains well below the height constraint of the view area, as calculated below.

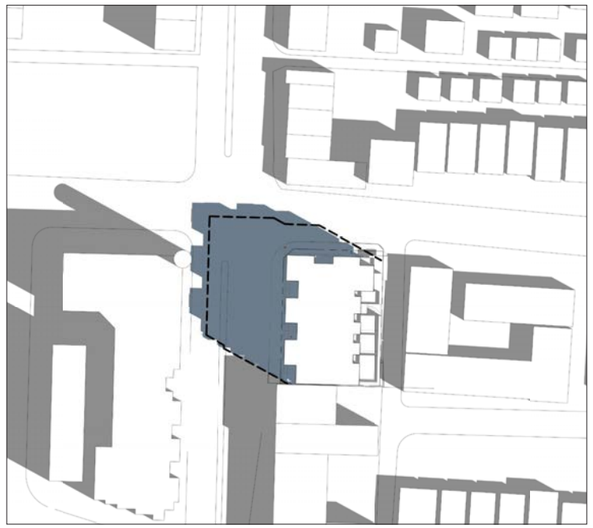


4.2 STREETSCAPE ELEVATIONS


CAMBIE STREET
W 16TH AVE

5. SHADOW STUDIES

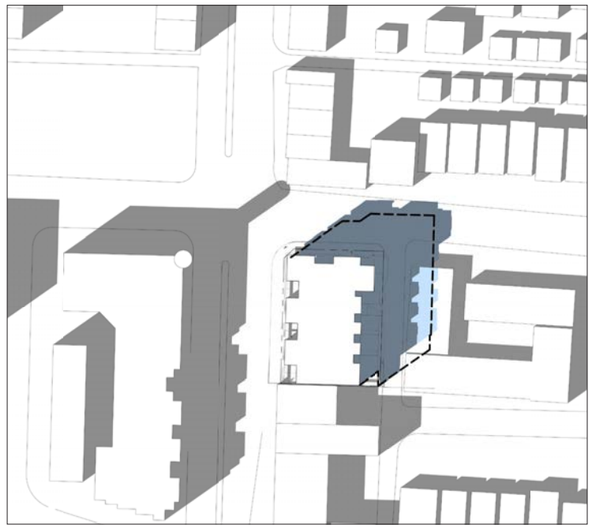
5.1 SHADOW STUDY_SEPTEMBER



SEPTEMBER | 10AM

SEPTEMBER | 12PM

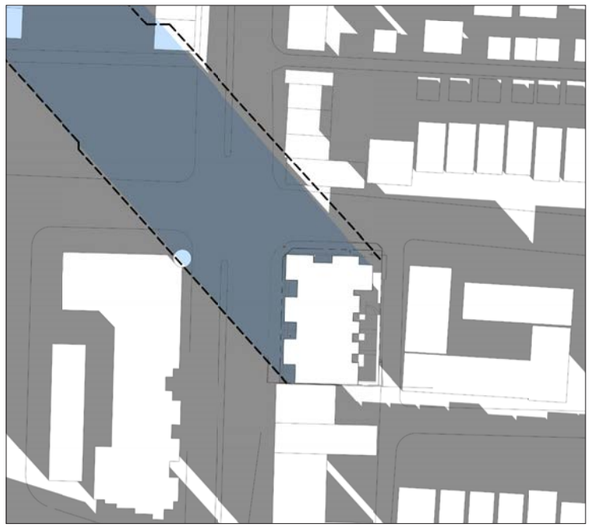
SEPTEMBER | 2PM



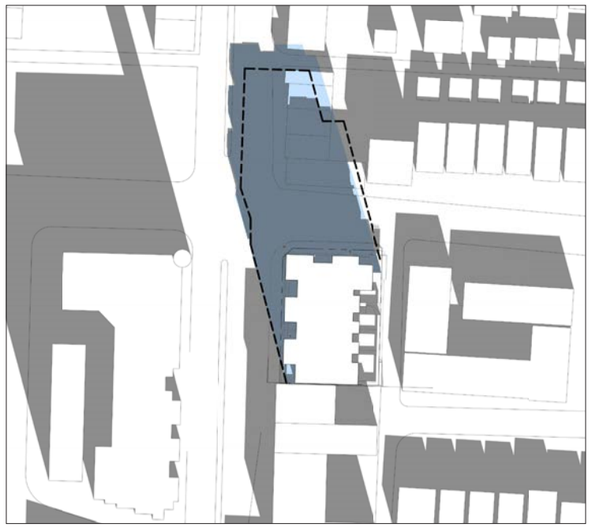
SEPTEMBER | 4PM

PROPOSED BUILDING

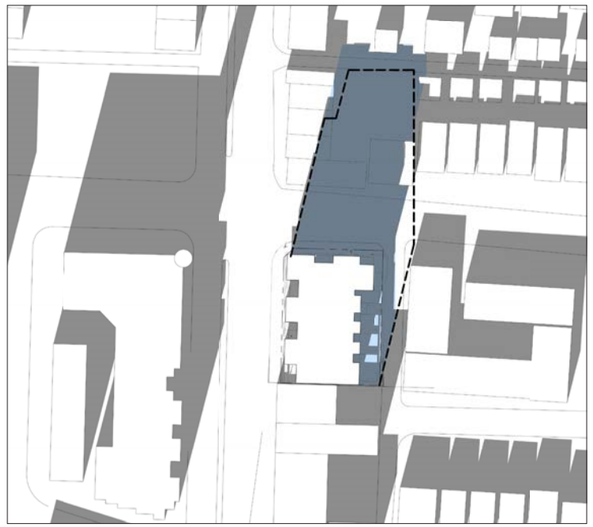
CAMBIE CORRIDOR GUIDELINE



DECEMBER | 10AM



DECEMBER | 12PM



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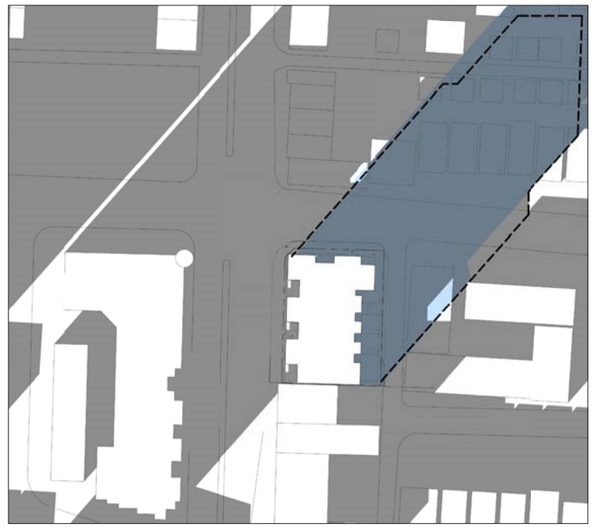
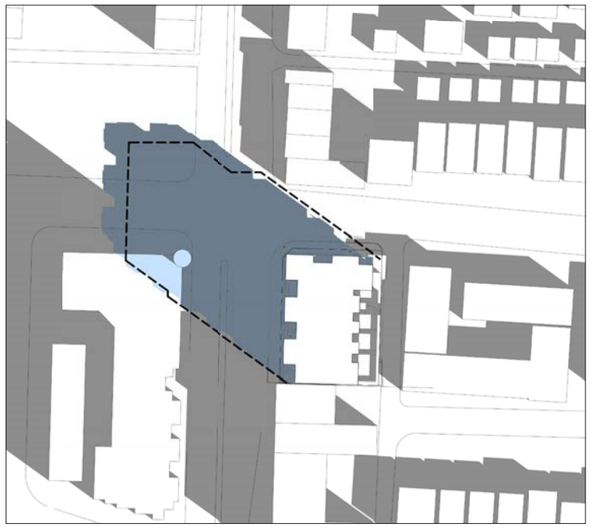


DECEMBER | 4PM

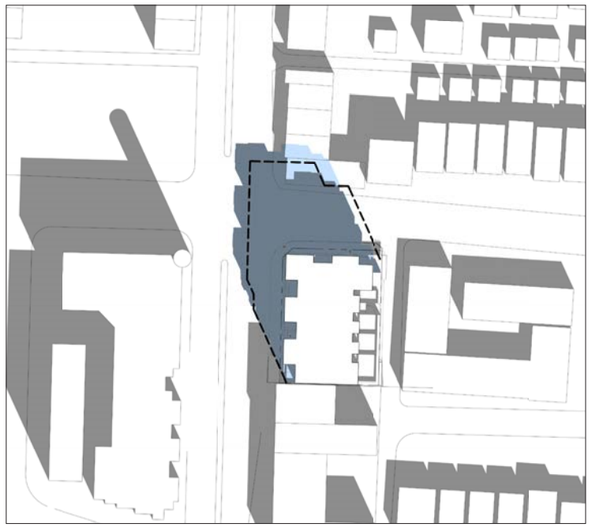
PROPOSED BUILDING

CAMBIE CORRIDOR GUIDELINE

5.3 SHADOW STUDY_MARCH

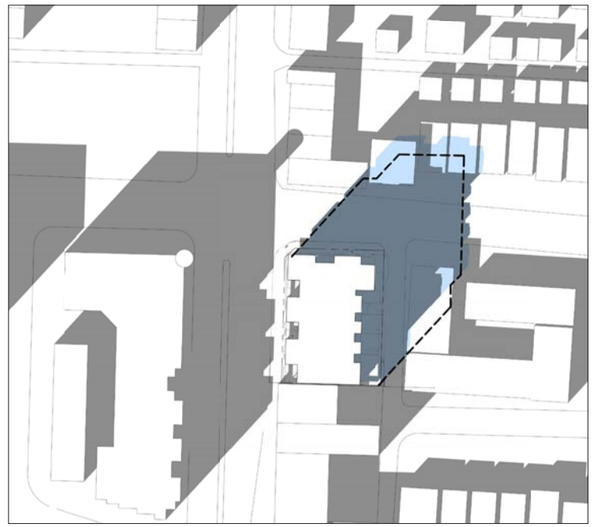


MARCH | 10AM



MARCH | 12PM

MARCH | 2PM



MARCH | 4PM

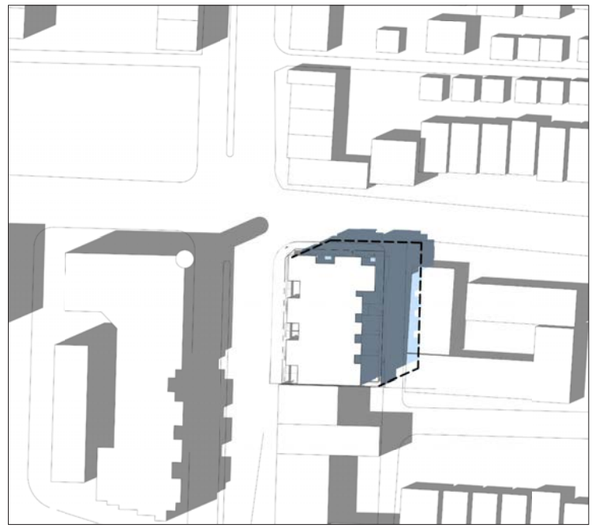
PROPOSED BUILDING

CAMBIE CORRIDOR GUIDELINE

JUNE | 10AM

JUNE | 12PM

JUNE | 2PM



JUNE | 4PM

PROPOSED BUILDING

CAMBIE CORRIDOR GUIDELINE

6. DRAWINGS

6.1 PROJECT STATISTICS

Statistics

Site Address:	3220 Cambie Street
Legal Description:	
Site Dimensions:	43 m (142ft) X 32 m (105ft)
Site Area:	14,811
Current Zoning:	C-2 (Commercial District)
Proposed Zoning:	CD-1
Max Height (CCP):	6 Storey
Proposed Height:	6 Storey 77'-5" (23.06 m)

	FSR	Area
Permitted Density:		
Proposed Density:	3.76	55706

Min. Set Backs		Proposed
	Front (Cambie)	2.05m
	Rear	0
North	Side Yard (16th)	3.0m
South	Side Yard	0

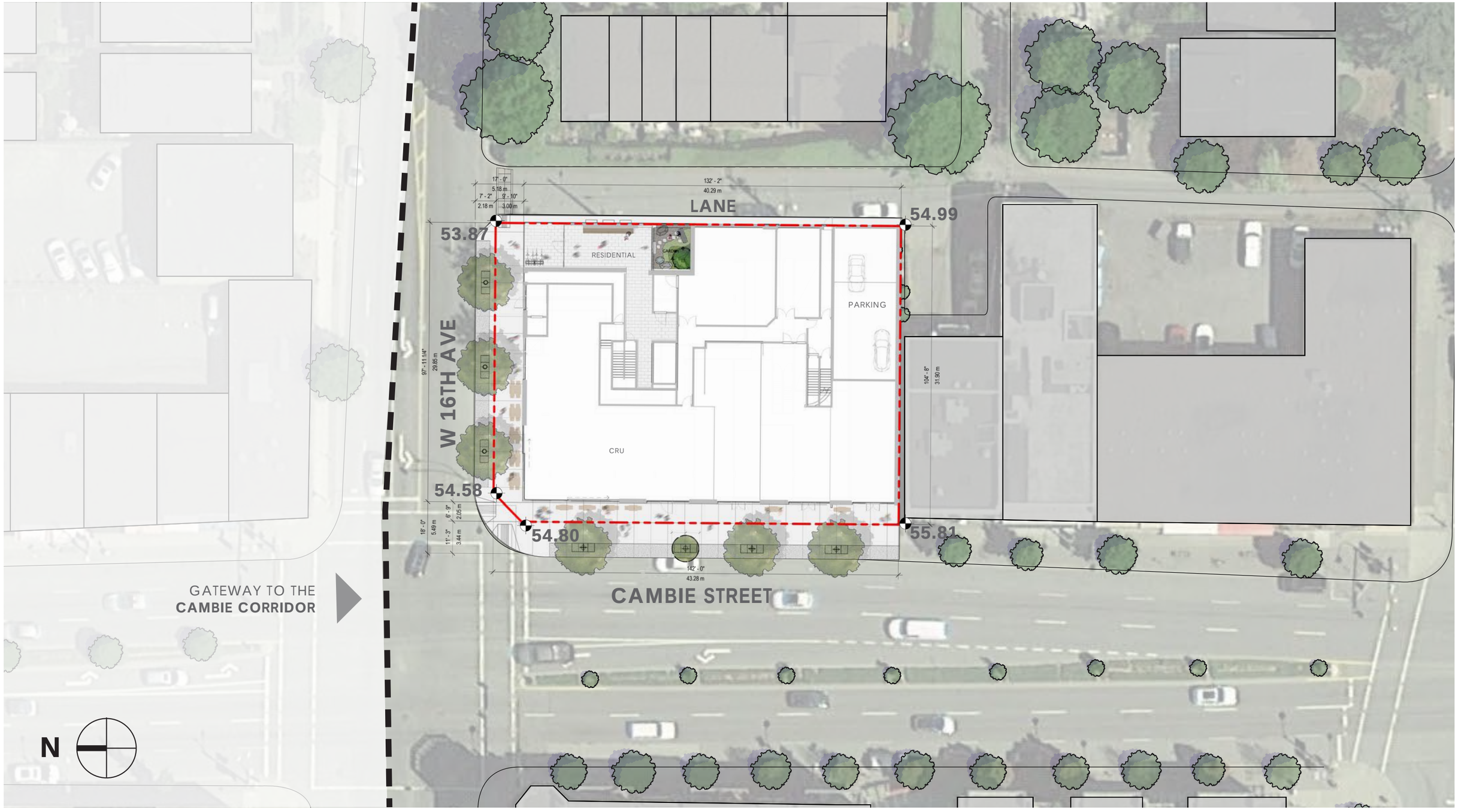
Unit Mix Summary	Studio	1 Bed	2 Bed	3 Bed	TOTAL
Level 1	0	0	0	0	0
Level 2	0	4	4	1	9
Level 3	0	6	3	1	10
Level 4	0	5	4	1	10
Level 5	0	6	3	1	10
Level 6	0	5	4	1	10
TOTAL	**0**	**26**	**18**	**5**	**49**
Mix	0	53%	37%	10%	
Family Unit %			47%		

Bicycle Space Calculation	**No. of Units**	**Required**	**Provided**
RESIDENTIAL (Per 6.2.1.2)			
Class A			
1.5 per unit under 65m2	26	39	
2.5 per unit over 65m2 and under 105m2	23	57.5	
3 per dewelling over 105	-	-	
		97	97
Class B: 2 for first 20 units and 1 for each additional 20 units		4	4
RETAIL (per 6.2.5.1)			
Class A: 1 per 340 m2	712	2	2
Class B: Min 6 for 1000m2 of gross floor area	712	0	6

Parking Calculation	**Units/Gross area**	**Required**	**Provided**
Res. STALLS PER 4.2.1.3			
Units less than 50m2 → 0.5 stall	-	0	
Units more than 50m2 → 0.6 stalls per unit	49	29	
TOTAL RESIDENTIAL		**29**	**49**
RESIDENTIAL VISITOR PER 4.1.16			
0.05 for every dwelling unit	49	2	
TOTAL VISITOR		**2**	**2**
RETAIL STALLS PER 4.2.5.1			
1 per 100m2 upto 300m2 and 1 per additional 50m2			
	712	3	
		8	
TOTAL RETAIL		**11**	**11**

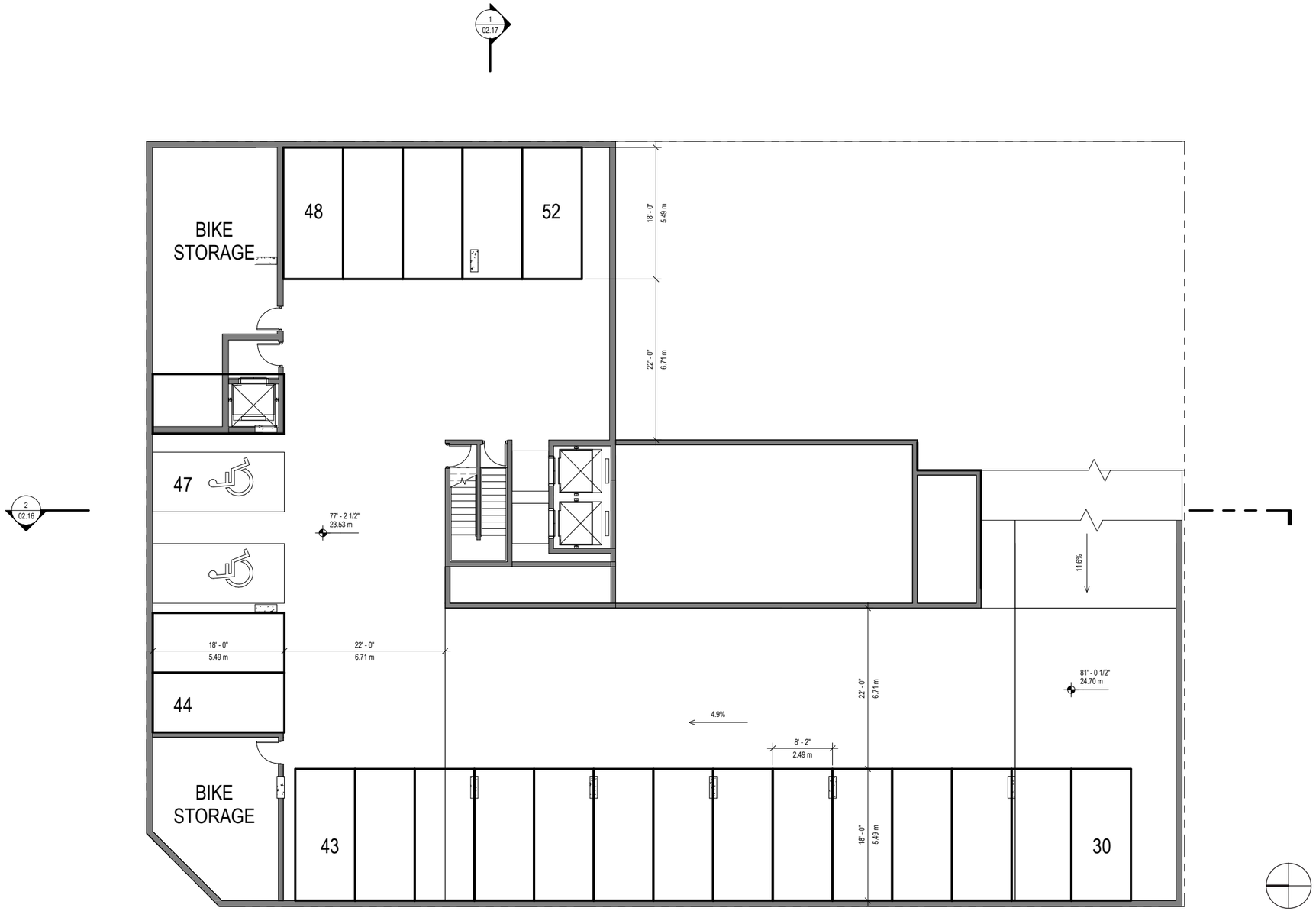
Loading Calculation	**Required**	**Provided**
RESIDENTIAL (Per 5.2.1)		
Class A	0	0
Class B	0	0
RETAIL (Per 5.2.5)		
Class A	0	0
Class B	2	2
Class C	0	0
Total	**2**	**2**

Use 1 Residential	**Gross Floor Area**						**Deductions**					**FSR**	**Efficiency**
Level	A # Units	B Saleable/Leasable Unit Area	C Circulation/Service	D Amenity	E Balcony	F (B+C+D) Gross Buildable	G Storage	H Services	I Amenity	J Wall	K (G+H+I+J) Total Deductions	L (F-K) Net FSR	B/F
1	0		1402	0	0	1402			0		0	1402	
2	9	8137	1279	495	0	9911	360	0	495	100	955	8956	
3	10	8607	1267		310	9874	400	0		100	500	9374	
4	10	8643	1268		496	9911	400	0		100	500	9411	
5	10	8611	1267		310	9878	400	0		100	500	9378	
6	10	8613	1288		496	9901	400	0		100	500	9401	
Roof	0		321			321						321	
Use 1 Total	49	42611	8092	495	1612	51198	1960	0	495	500	2955	48243	83.2%
Use 2 Commercial	**Gross Floor Area**						**Deductions**					**FSR**	**Efficiency**
Level	A # Units	B Saleable/Leasable Unit Area	C Circulation/Service	D Amenity	E Balcony	F (B+C+D) Gross Buildable	G Storage	H Services	I Amenity	J Wall	K (G+H+I+J) Total Deductions	L (F-K) Net FSR	
1	4	6700	963			7663		0		200	200	7463	
						0					0	0	
Use 2 Total	4	6700	963	0	0	7663	0	0	0	200	200	7463	87.4%
	Gross Floor Area						**Deductions**					**FSR**	**Efficiency**
Project Total	53	49311	9055	495	1612	58861	1960			700	3155	55706	83.8%

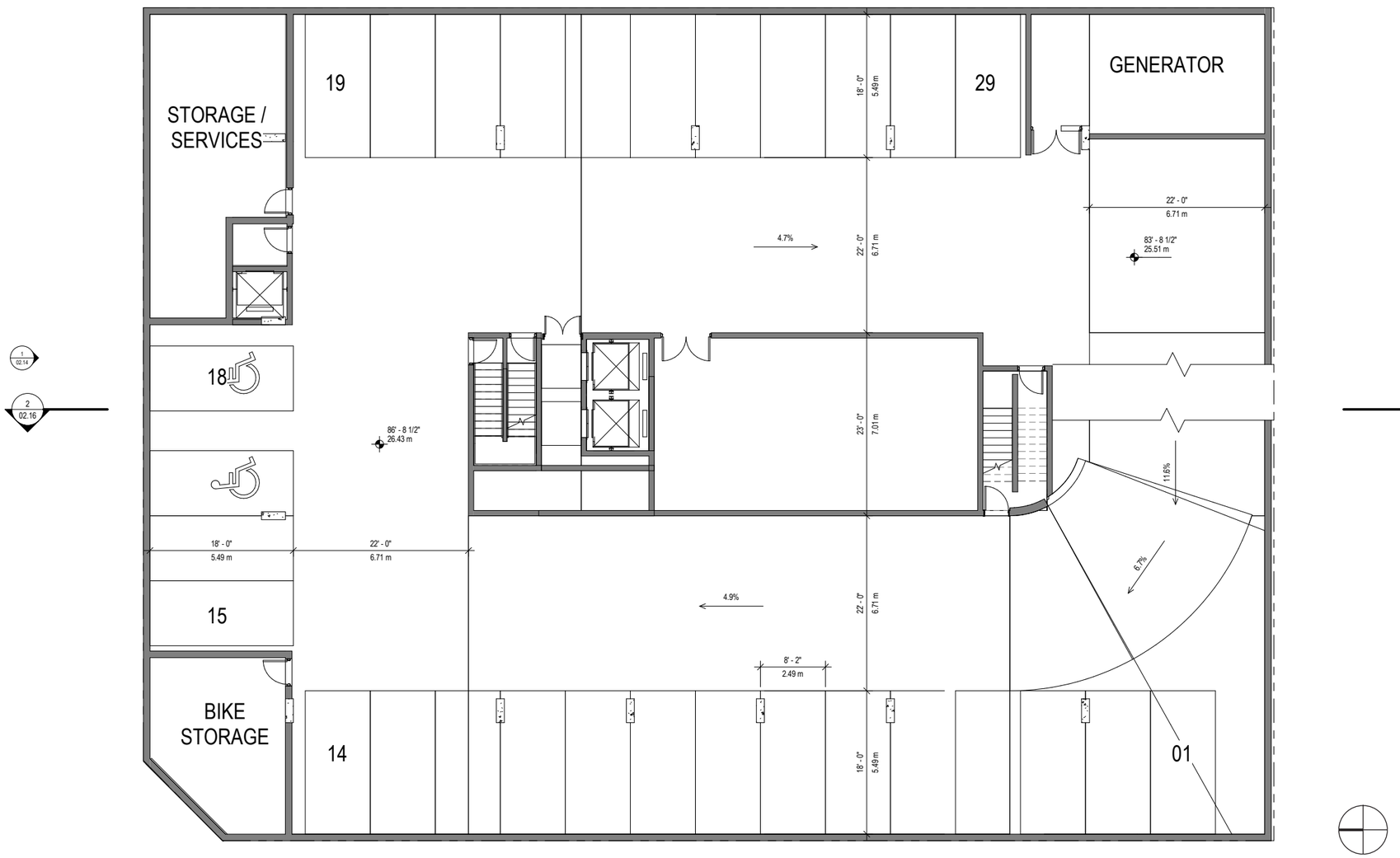

LANE
132' - 2"
40.29 m
17' - 0"
5.18 m
7' - 2"
2.18 m
9' - 10"
3.00 m
53.87
54.99
RESIDENTIAL
CANOPY
PARKING
CRU
W 16TH AVE
97' - 11 1/4"
29.85 m
104' - 8"
31.90 m
54.58
54.80
55.81
18' - 0"
5.49 m
6' - 9"
2.05 m
11' - 3"
3.44 m
142' - 0"
43.28 m
CAMBIE STREET
GATEWAY TO THE
CAMBIE CORRIDOR
N

Site Plan

6.2 ARCHITECTURAL DRAWINGS

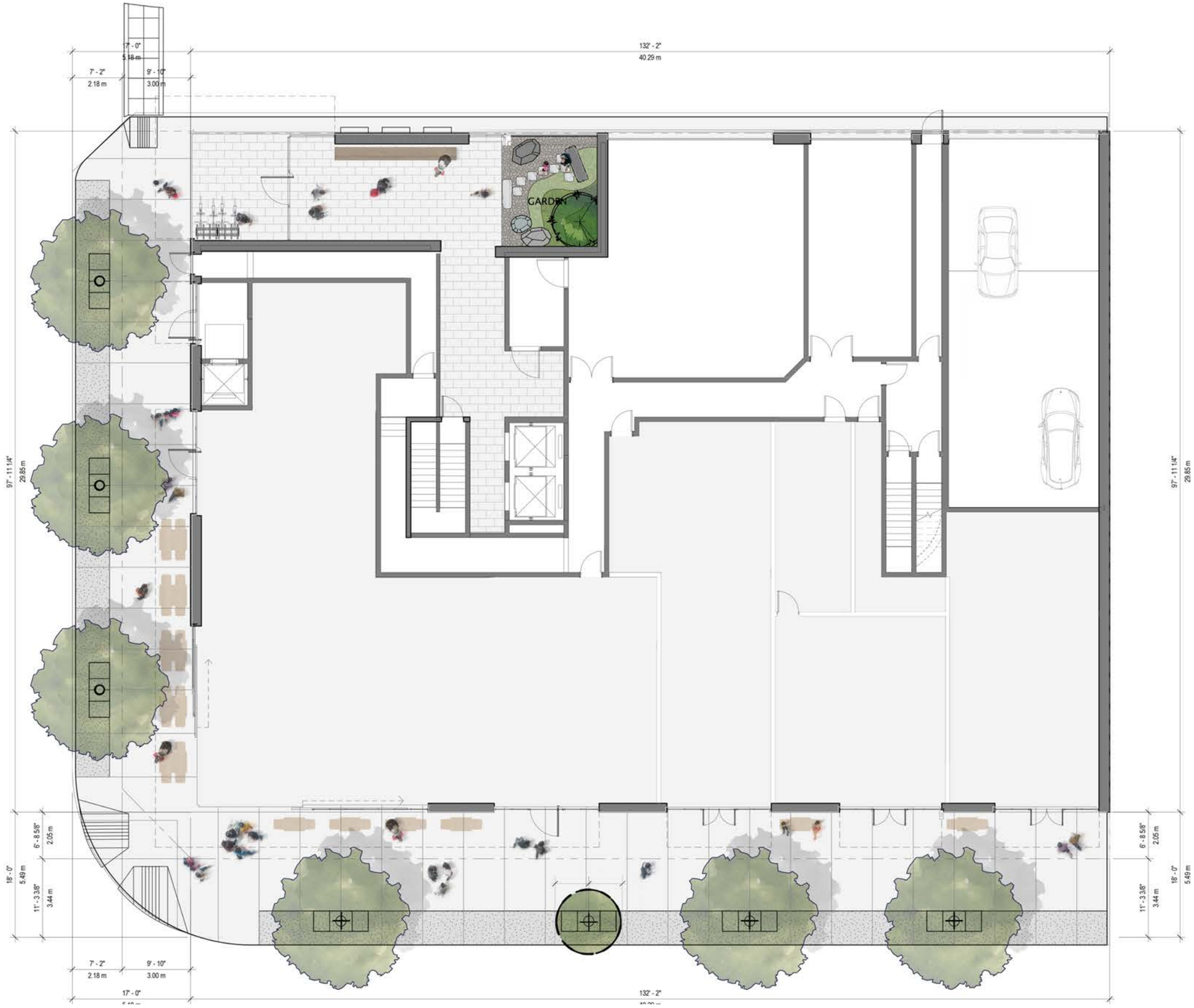


Level P2


STORAGE / SERVICES
19
29
GENERATOR
18
15
BIKE STORAGE
14
01
4.7%
4.9%
6.7%
11.6%
18' - 0"
5.49 m
22' - 0"
6.71 m
23' - 0"
7.01 m
8' - 2"
2.49 m
83' - 8 1/2"
25.51 m
86' - 8 1/2"
26.43 m
1
02.14
2
02.16

Level P1

6.2 ARCHITECTURAL DRAWINGS



Level 1


BALCONY
THREE BEDROOM 1115 SF
AMENITY 421 SF
ONE BEDROOM 612 SF
ONE BEDROOM 590 SF
TWO BEDROOM 780 SF
BALCONY
BALCONY
BALCONY
199' - 11 3/4" 60.95 m
CORRIDOR
SHAFT
BALCONY
TWO BEDROOM 892 SF
TWO BEDROOM 845 SF
ONE BEDROOM 616 SF
ONE BEDROOM 613 SF
TWO BEDROOM 844 SF
BALCONY
BALCONY
BALCONY
BALCONY
135' - 2" 41.20 m
6' - 10" 2.08 m
8' - 7 7/8" 2.64 m
27' - 2 1/8" 8.28 m
5' - 6 1/2" 1.69 m
18' - 8 3/4" 5.71 m
9' - 0" 2.74 m
12' - 8" 3.86 m
9' - 0" 2.74 m
12' - 8" 3.86 m
9' - 0" 2.74 m
22' - 8 7/8" 6.93 m
22' - 5 3/4" 6.85 m
66' - 0 1/2" 20.13 m
78' - 9 3/8" 24.01 m
12' - 8 7/8" 3.88 m
3' - 4 5/8" 1.03 m
10' - 2 1/4" 3.11 m
14' - 8 1/8" 4.47 m
28' - 1 7/8" 8.58 m
91' - 0 7/8" 27.76 m
3' - 5" 1.04 m
14' - 5 3/8" 4.40 m
30' - 4 5/8" 9.26 m
3' - 4 5/8" 1.03 m
27' - 2 1/8" 8.28 m
17' - 8" 5.38 m
26' - 10 1/8" 8.18 m
17' - 8" 5.38 m
26' - 10 1/8" 8.18 m
18' - 11 5/8" 5.78 m
6' - 10" 2.08 m
135' - 2" 41.20 m

Level 2

6.2 ARCHITECTURAL DRAWINGS

Level 3


6' - 10"
2.08 m
135' - 2"
41.20 m
35' - 10"
10.92 m
5' - 6 1/2"
1.69 m
18' - 8 3/4"
5.71 m
9' - 0"
2.74 m
12' - 8"
3.86 m
9' - 0"
2.74 m
12' - 8"
3.86 m
9' - 0"
2.74 m
22' - 8 7/8"
6.93 m
10' - 2 1/4"
3.11 m
14' - 8 1/8"
4.47 m
28' - 1 7/8"
8.58 m
91' - 0 7/8"
27.76 m
3' - 5"
1.04 m
14' - 5 3/8"
4.40 m
30' - 4 5/8"
9.26 m
3' - 4 5/8"
1.03 m
22' - 9 3/4"
6.95 m
7'5 - 2 3/8"
22.92 m
78' - 5 3/8"
23.91 m
3' - 7"
1.09 m
3' - 4 5/8"
1.03 m
BALCONY
THREE BEDROOM
1136 SF
BALCONY
ONE BEDROOM
381 SF
BALCONY
ONE BEDROOM
612 SF
BALCONY
ONE BEDROOM
590 SF
BALCONY
TWO BEDROOM
780 SF
22'1' - 7 3/4"
67.56 m
CORRIDOR
SHAFT
BALCONY
TWO BEDROOM
884 SF
TWO BEDROOM
845 SF
ONE BEDROOM
616 SF
ONE BEDROOM
613 SF
TWO BEDROOM
844 SF
BALCONY
BALCONY
BALCONY
BALCONY
27' - 2 1/8"
8.28 m
17' - 8"
5.38 m
27' - 2 1/8"
8.28 m
17' - 4"
5.28 m
26' - 10 1/8"
8.18 m
18' - 11 5/8"
5.78 m
6' - 10"
2.08 m
135' - 2"
41.20 m

Level 4

6.2 ARCHITECTURAL DRAWINGS

Level 5


6' - 10"
2.08 m
135' - 2"
41.20 m
8' - 7 7/8"
2.64 m
27' - 2 1/8"
8.28 m
5' - 6 1/2"
1.69 m
18' - 8 3/4"
5.71 m
9' - 0"
2.74 m
12' - 8"
3.86 m
9' - 0"
2.74 m
12' - 8"
3.86 m
9' - 0"
2.74 m
22' - 8 7/8"
6.93 m
10' - 2 1/4"
3.11 m
14' - 8 1/8"
4.47 m
28' - 1 7/8"
8.58 m
91' - 0 7/8"
27.76 m
3' - 5"
1.04 m
16' - 1 3/4"
4.92 m
28' - 8 1/4"
8.74 m
3' - 4 5/8"
1.03 m
22' - 5 3/4"
6.85 m
66' - 0 1/2"
20.13 m
12' - 8 7/8"
3.88 m
3' - 4 5/8"
1.03 m
BALCONY
THREE BEDROOM
1105 SF
BALCONY
ONE BEDROOM
380 SF
BALCONY
ONE BEDROOM
613 SF
BALCONY
ONE BEDROOM
590 SF
BALCONY
TWO BEDROOM
767 SF
243' - 3 3/4"
74.16 m
CORRIDOR
SHAFT
BALCONY
TWO BEDROOM
895 SF
TWO BEDROOM
846 SF
ONE BEDROOM
617 SF
ONE BEDROOM
614 SF
TWO BEDROOM
853 SF
BALCONY
BALCONY
BALCONY
BALCONY
27' - 2 1/8"
8.28 m
17' - 4"
5.28 m
27' - 6 1/8"
8.39 m
17' - 4"
5.28 m
45' - 9 3/4"
13.96 m
6' - 10"
2.08 m
135' - 2"
41.20 m

Level 6

6.2 ARCHITECTURAL DRAWINGS

Roof Plan

6.2 ARCHITECTURAL DRAWINGS

— — SRW

— — PROPERTY LINE

West Elevation

SRW

PROPERTY LINE

North Elevation

6.2 ARCHITECTURAL DRAWINGS

SRW

PROPERTY LINE

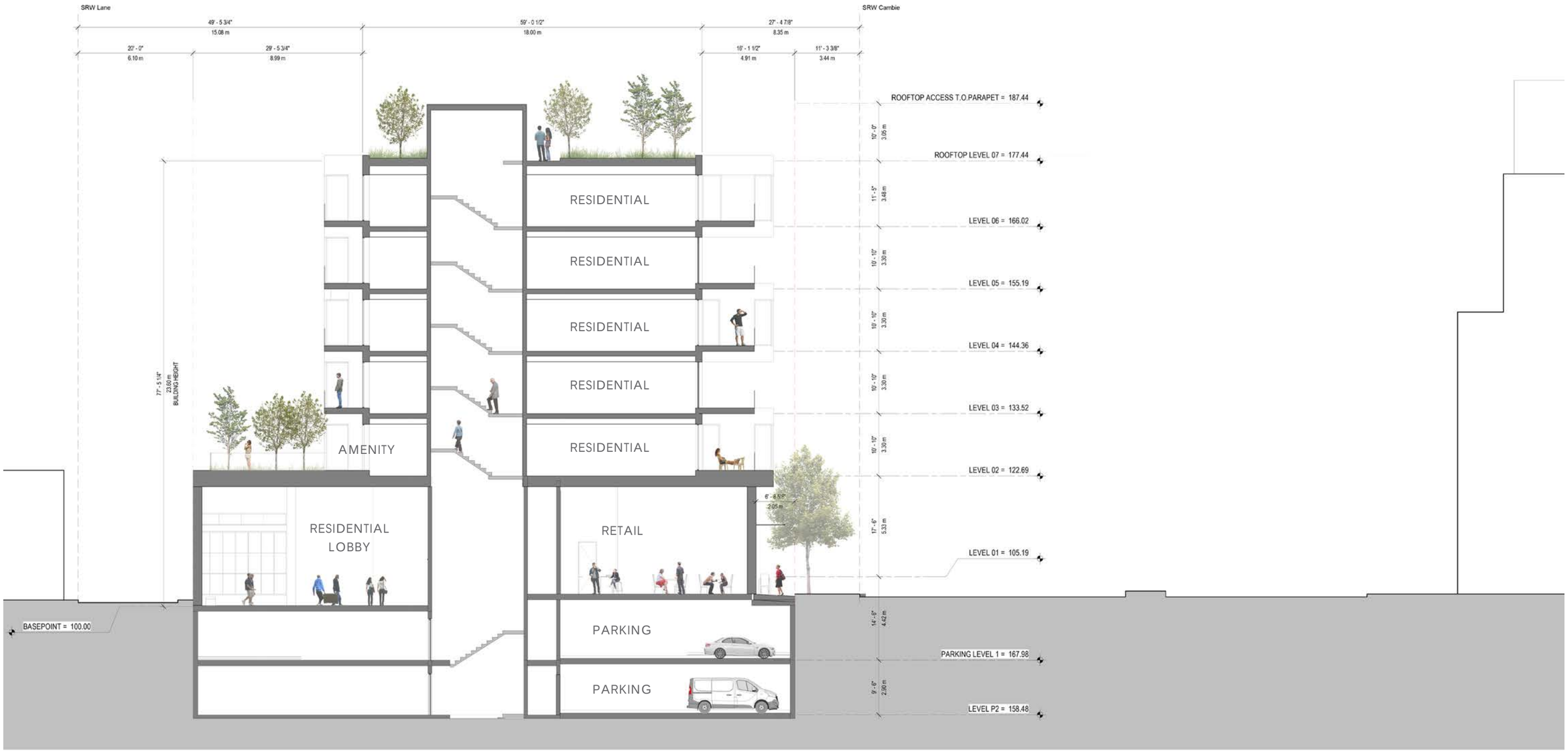
East Elevation

SRW

PROPERTY LINE

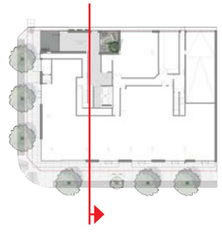
South Elevation

6.2 ARCHITECTURAL DRAWINGS

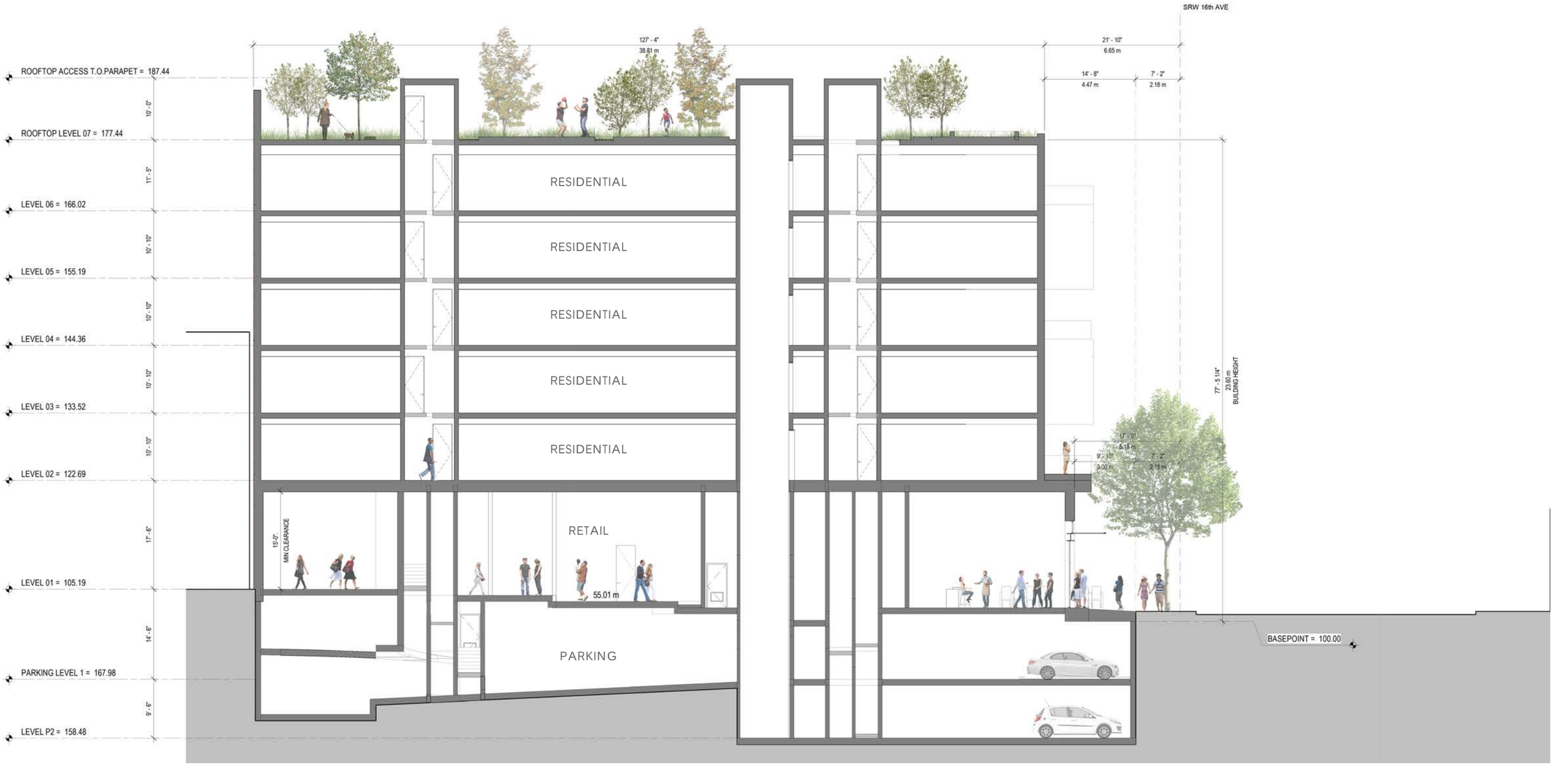


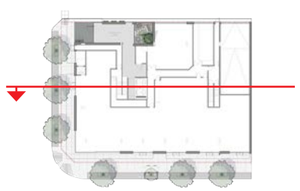
— — SRW

— — PROPERTY LINE



Transverse Section





SRW

PROPERTY LINE

Longitudinal Section

16TH & CAMBIE PROPOSED DEVELOPMENT

LANDSCAPE SET: RE-ISSUED FOR REZONING
MARCH 29, 2018

LANDSCAPE DRAWING INDEX

GENERAL NOTES

ALL LANDSCAPE ARCHITECTURAL DRAWINGS IN THIS PACKAGE SHALL BE READ IN CONJUNCTION WITH ALL OTHER DRAWINGS, DETAILS, SPECIFICATIONS, AND/OR OTHER CORRESPONDANCE THAT MAY BE ISSUED DURING THE COURSE OF THE CONTRACT.

IF A DISCREPANCY OCCURS BETWEEN THE DRAWINGS AND THE SPECIFICATIONS OR ANY OTHER DOCUMENT ASSOCIATED WITH THE PROJECT, THE CONFLICT SHALL BE REPORTED IN WRITING TO THE LANDSCAPE ARCHITECT TO OBTAIN CLARIFICATION AND APPROVAL BEFORE PROCEEDING WITH WORKS.

ALL EXISTING INFORMATION IS BASED ON AVAILABLE RECORDS AND SHALL NOT BE CONSTRUED TO BE COMPLETE OR ACCURATE. THE CONTRACTOR SHALL VISIT THE SITE TO VERIFY THE TRUE EXISTING CONDITIONS. ANY UNCLEAR ISSUES SHALL BE CLARIFIED WITH THE CONSULTANT TEAM. NO CLAIM SHALL BE ALLOWED FOR EXTRAS WHICH MAY ARISE THROUGH NEGLECT OF THIS ADVICE.

THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE EXISTENCE, LOCATION, AND ELEVATION OF ALL UTILITIES AND CONCEALED STRUCTURES, AND IS RESPONSIBLE FOR NOTIFYING THE APPROPRIATE COMPANY, DEPARTMENT OR PERSON(S) OF ITS INTENTION TO CARRY OUT ITS OPERATIONS.

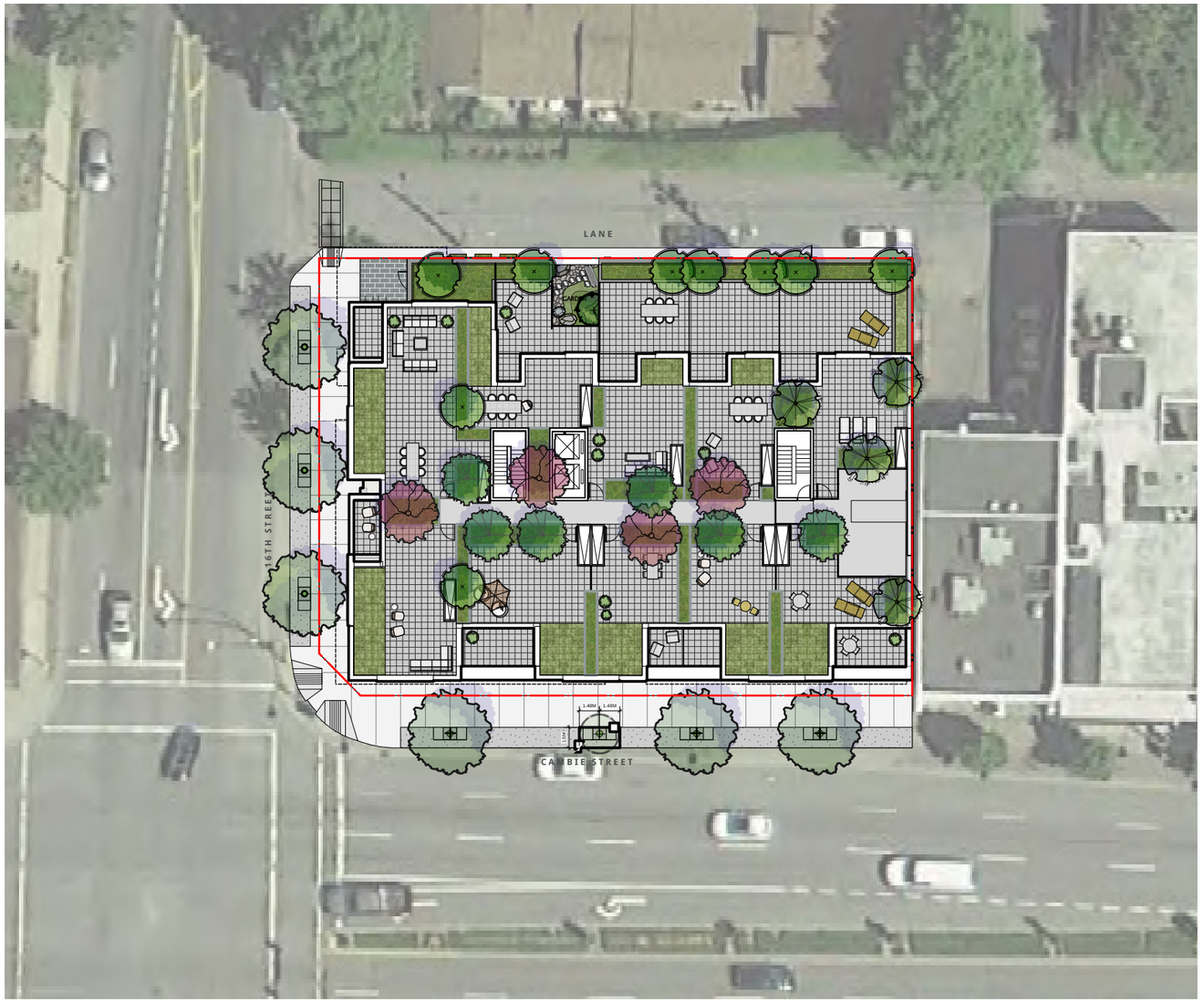
ALL PLANTING SHALL BE IN ACCORDANCE WITH THE CANADIAN LANDSCAPE STANDARD, LATEST EDITION.

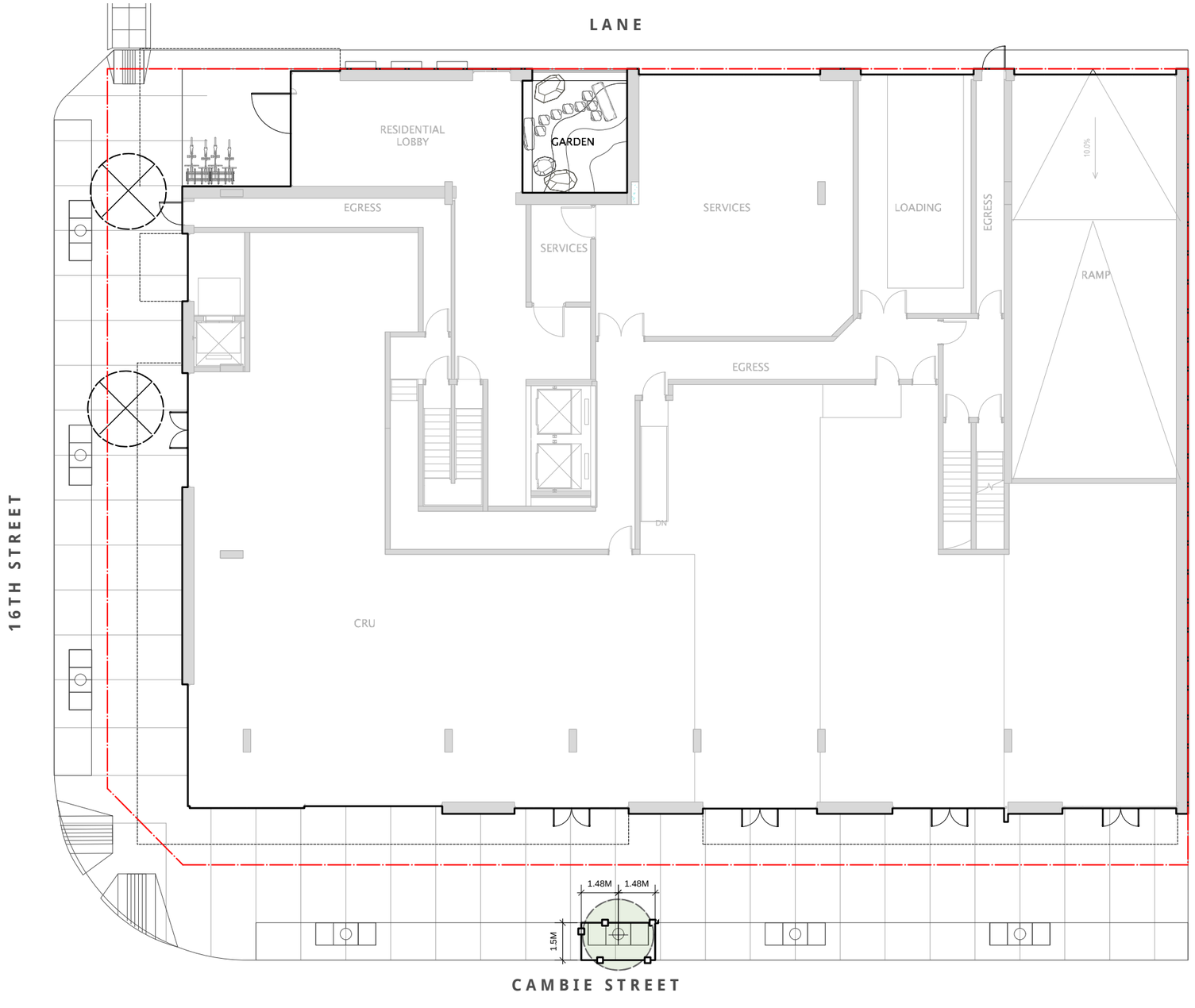
LAYOUT OF HARDSCAPE, SITE FURNITURE, SOIL, PLANTING, AND ALL OTHER MATERIALS IS TO BE STAKED OUT FOR APPROVAL BY THE LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.

FINAL SELECTION AND LAYOUT OF ALL SITE WORKS (INCLUDING, BUT NOT LIMITED TO: HARDSCAPES, SITE FURNITURE, GROWING MEDIA, TREES, AND PLANTING) IS TO BE APPROVED BY THE CITY OF VANCOUVER PRIOR TO MATERIAL ACQUISITION AND STAKED OUT AND APPROVED BY THE LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.

FINAL SIDEWALK LOCATION AND BOULEVARD DESIGN TO BE DETERMINED BY THE GENERAL MANAGER OF ENGINEERING SERVICES PRIOR TO BUILDING OCCUPANCY.

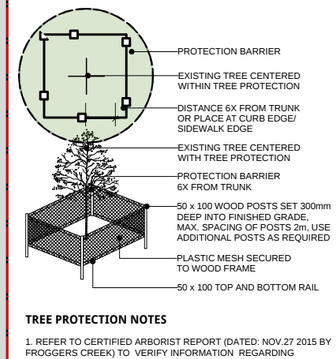
THIS PLAN IS NOT FOR CONSTRUCTION OF ANY PUBLIC PROPERTY FACILITIES. PRIOR TO THE START OF ANY CONSTRUCTION ON PUBLIC PROPERTY A LANDSCAPE PLAN MUST BE SUBMITTED TO ENGINEERING SERVICES AND BE ISSUED AS "FOR CONSTRUCTION". EIGHT WEEKS NOTICE IS REQUESTED. NO WORK ON PUBLIC PROPERTY MAY BEGIN UNTIL PLANS RECEIVE "FOR CONSTRUCTION" APPROPVAL AND RELATED PERMITS ARE ISSUED. PLEASE CONTACT KEVIN CAVELL AT 604-873-7773 FOR DETAILS.





TREE RETENTION / REMOVAL LEGEND

DESCRIPTION	SYMBOL
EXISTING TREE TO BE REMOVED TO BE CONFIRMED PER ARBORIST ON-SITE WITH CITY OF VANCOUVER ARBORIST PRIOR TO REMOVAL	
EXISTING TREE TO BE RETAINED	
TREE PROTECTION FENCING TREE PROTECTION FENCING TO BE INSTALLED PER CITY OF VANCOUVER STANDARDS AND INSPECTED BY ARBORIST PRIOR TO CONSTRUCTION ACTIVITY	



TREE PROTECTION NOTES

1. REFER TO CERTIFIED ARBORIST REPORT (DATED: NOV.27 2015 BY FROGGERS CREEK) TO VERIFY INFORMATION REGARDING EXISTING TREES TO BE RETAINED/REMOVED AND TREE RETENTION VIABILITY

2. INSTALL TREE PROTECTION BARRIER AROUND ALL TREES TO BE PRESERVED TO CITY OF VANCOUVER STANDARDS AND SPECIFICATIONS, SUBJECT TO REVIEW BY PROJECT ARBORIST.

3. INFORM ARBORIST WHEN ALL TREE BARRIERS HAVE BEEN INSTALLED. ARBORIST TO PROVIDE WRITTEN INSPECTION AND APPROVAL OF ALL BARRIERS AND SUBMIT INSPECTION REPORT TO CITY OF VANCOUVER STAFF FOR REVIEW AND APPROVAL PRIOR TO DEMOLITION / MOBILIZATION CONSTRUCTION ACTIVITY.

4. DO NOT REMOVE OR RELOCATE ANY TREE, EXCEPT AS INDICATED ON PLANS.

5. DO NOT ALTER EXISTING GRADE OR STORE MATERIALS UNDER THE DRIP LINE OR WITHIN TREE PROTECTION ZONE. EXCAVATION WITHIN DRIP LINES OF TREES ONLY WHERE INDICATED ON PLANS.

6. ALL RETAINED TREES ARE TO BE PRUNED AND PROTECTED BY CITY OF VANCOUVER TREE PROTECTION BY-LAWS.

7. FOR CARE AND PROTECTION OF EXPOSED ROOTS AND ROOT CURTAIN SYSTEM CONSULT PROJECT ARBORIST.

8. TUNNEL UNDER AND AROUND ALL SIGNIFICANT ROOTS BY HAND DIGGING. DO NOT CUT MAIN LATERAL ROOTS.

9. TRENCHING FOR UTILITY CONNECTIONS TO BE COORDINATED WITH ENGINEERING DEPARTMENT TO ENSURE SAFE ROOT ZONES OF RETAINEDTREES. METHODS OF TREE PROTECTION FOR STREET TREES TO BE APPROVED BY CITY OF VANCOUVER.

10. CONTRACTOR TO CONTACT PROJECT ARBORIST, CITY ARBORIST AND/OR LANDSCAPE ARCHITECT 48 HOURS PRIOR TO ANY CONSTRUCTION WORK AFFECTING THE DRIP LINE OF TREES.

11. THIS PLAN IS NOT FOR CONSTRUCTION OF ANY PUBLIC PROPERTY FACILITIES. PRIOR TO THE START OF ANY CONSTRUCTION ON PUBLIC PROPERTY A LANDSCAPE PLAN MUST BE SUBMITTED TO ENGINEERING SERVICES AND BE ISSUED AS "FOR CONSTRUCTION". EIGHT WEEKS NOTICE IS REQUESTED. NO WORK ON PUBLIC PROPERTY MAY BEGIN UNTIL PLANS RECEIVE "FOR CONSTRUCTION" APPROPVAL AND RELATED PERMITS ARE ISSUED. PLEASE CONTACT KEVIN CAVELL AT 604-873-7773 FOR DETAILS.

12. PROTECTION OF CITY STREET TREES IS REQUIRED. NO WORK MAY BE DONE WITHIN 1.0 METER OF THE CRITICAL ROOT ZONE OF THIS TREE UNLESS AN ISA CERTIFIED ARBORIST IS IN ATTENDANCE TO SUPERVISE. WORK INCLUDES DEMOLITION, EXCAVATION, CONSTRUCTION AND FINAL LANDSCAPING. ALL SITE WORK SUPERVISED BY THE ARBORIST SHALL BE DOCUMENTED IN A POST-CONSTRUCTION ARBORIST REPORT AND SUBMITTED TO THE DIRECTOR OF PLANNING IN A TIMELY MANNER. CALL 311 TO REQUEST THE PARK BOARD ARBORIST (CONTACT CABOT LYFORD) TO PRUNE, LIMB-UP AND OR COORDINATE SPECIAL TREE PROTECTION MEASURES AS REQUIRED BY THE ARBORIST.

13. ALL SIDEWALKS BETWEEN THE CURB AND PROPERTY LINE ARE TO BE RECONSTRUCTED FULLY AT THE APPLICANT'S EXPENSE.

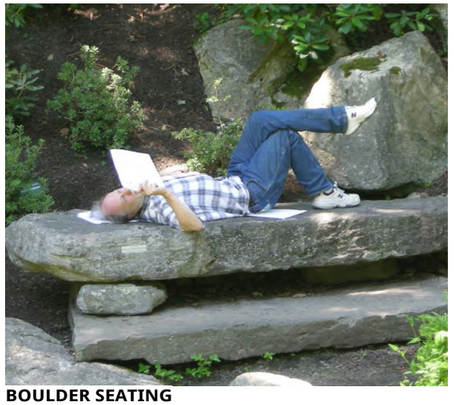
6.3 LANDSCAPE DRAWINGS


LANE
GARDEN
16TH STREET
CAMBIE STREET
1.48M
1.48M
1.5M
MATERIALS LEGEND
PATIO SLAB PAVER
PER PLAN & DETAILS
PROPOSED CONTAINER PLANTING
PER PLAN & DETAILS
EXTENSIVE GREEN ROOF
PER PLAN & DETAILS
GUARD/SCREEN
PER PLAN & DETAILS

6.3 LANDSCAPE DRAWINGS

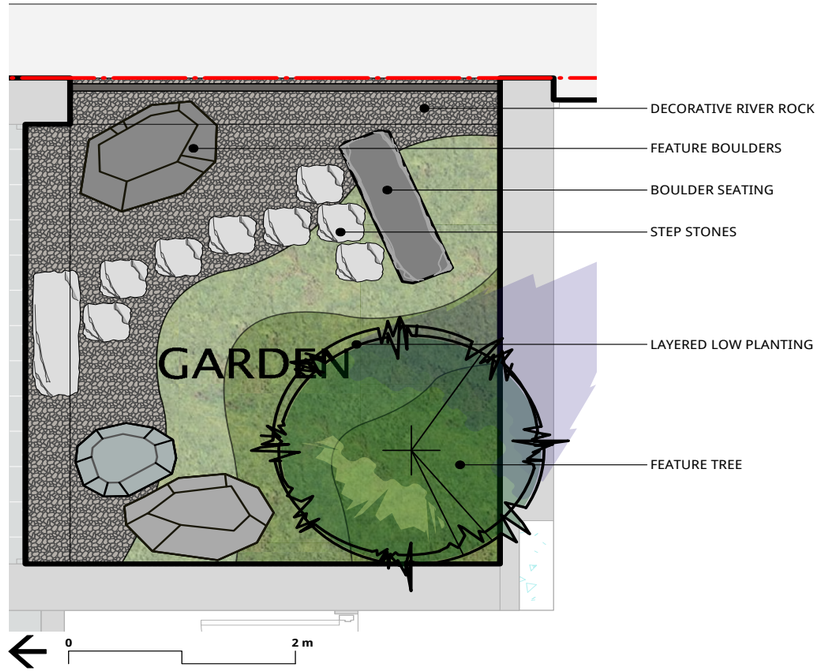
ROCK GARDEN

JAPANESE INFLUENCE



BOULDER SEATING

INTERIOR/EXTERIOR CONNECTION

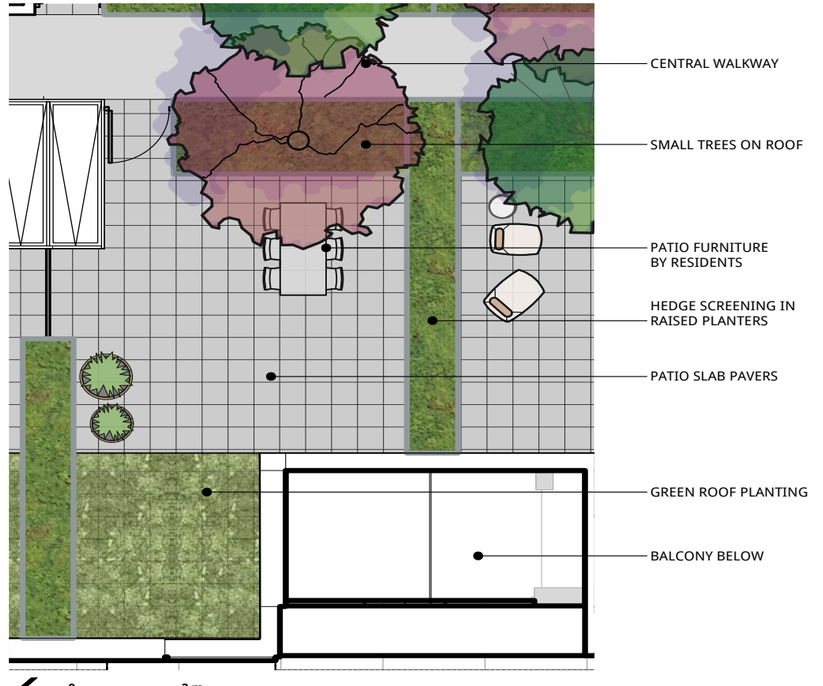


PRIVATE PATIOS

HEDGE SCREENING

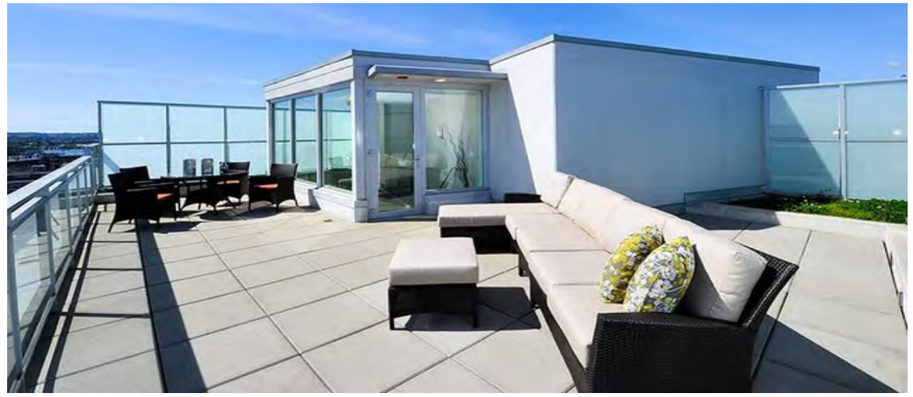
CONTAINER TREES

SOCIAL SPACES



6.3 LANDSCAPE DRAWINGS

PRIVATE PATIOS

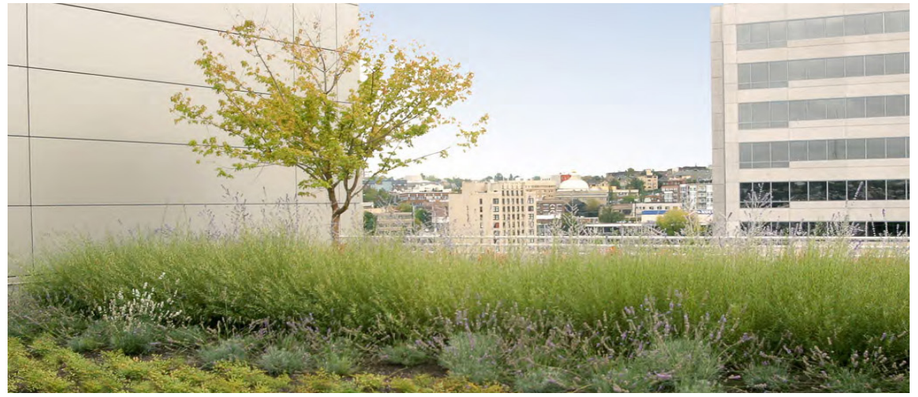


SLAB PAVERS

PRIVACY SCREENING

PATIO FURNITURE

ROOFTOP PLANTING



SMALL TREES

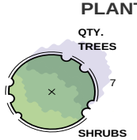
HEDGE SCREENING

POPS OF COLOUR

PLANT LIST - GROUND LEVEL

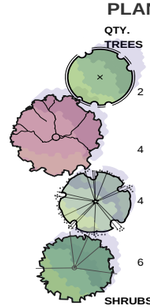
QTY.	BOTANICAL NAME	COMMON NAME	SIZE	SPACING	NOTES
TREES					
3	16th Street Street Tree *Street tree species and spacing to be confirmed by the city* *All street trees are to meet the minimum size and form requirements by the City of Vancouver*		7cm cal. Wire Basket	As shown	
3	Cambie Street Street Tree *Street tree species and spacing to be confirmed by the city* *All street trees are to meet the minimum size and form requirements by the City of Vancouver*		7cm cal. Wire Basket	As shown	
SHRUBS					
	Ceanothus impressus 'Victoria'	California Lilac	No. 5 Pot	24" o.c.	Attracts pollinators
	Cornus sericea 'Kelseyi'	Dwarf Red Osier Dogwood	No. 2 Pot	24" o.c.	Attracts pollinators
	Polystichum munitum	Western Sword Fern	No. 1 Pot	24" o.c.	Native plant
	Sarcoccocca hookerana humilis	Japanese Skimmia	No. 2 Pot	24" o.c.	Evergreen Fragrant flowers
	Skimmia japonica	Japanese Skimmia	No. 2 Pot	24" o.c.	Berries provide food for birds food for birds
GROUNDCOVERS					
	Ceanothus griseus horizontalis	Creeping Ceanothus	4" (10cm) Pot	18" o.c.	Attracts pollinators
PERENNIALS					
	Hosta 'Blue Angel'	Blue Angel Hosta	4" (10cm) Pot	24" o.c.	Showy flowers and foliage
	Dicentra formosa	Bleeding Heart	4" (10cm) Pot	18" o.c.	Showy flowers

PLANT LIST - LEVEL 2

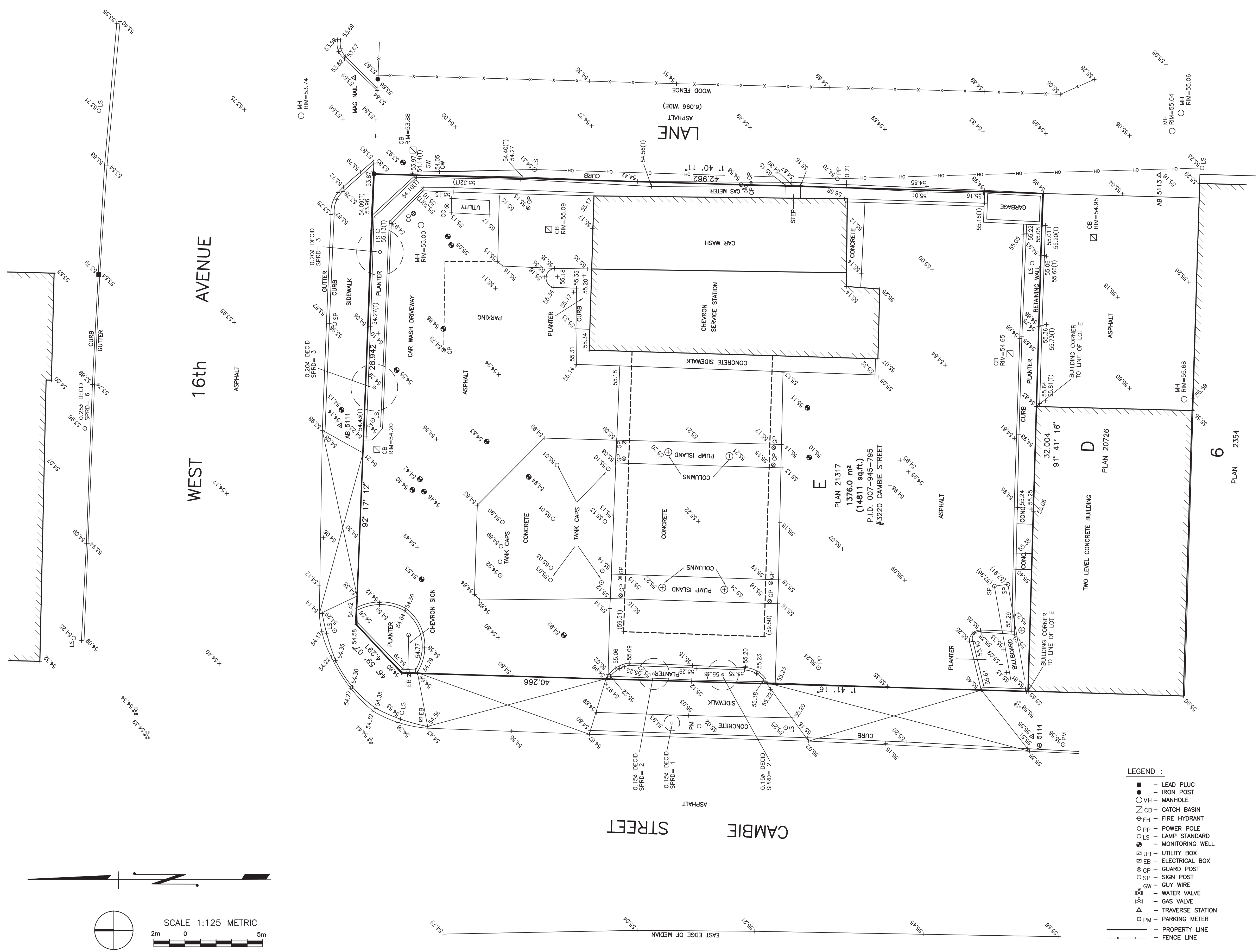


QTY.	BOTANICAL NAME	COMMON NAME	SIZE	SPACING	NOTES
TREES					
7	Acer shirasawanum 'Moonrise'	Moonrise Shirasawa Maple	5cm cal. Wire Basket	As shown	Showy Spring and Fall colour, great tree in containers
SHRUBS					
	Ceanothus impressus 'Victoria'	California Lilac	No. 5 Pot	24" o.c.	Attracts pollinators
	Cornus sericea 'Kelseyi'	Dwarf Red Osier Dogwood	No. 2 Pot	24" o.c.	Attracts pollinators
	Polystichum munitum	Western Sword Fern	No. 1 Pot	24" o.c.	Native plant
	Sarcoccocca hookerana humilis	Japanese Skimmia	No. 2 Pot	24" o.c.	Evergreen Fragrant flowers
	Skimmia japonica	Japanese Skimmia	No. 2 Pot	24" o.c.	Berries provide food for birds food for birds
GROUNDCOVERS					
	Ceanothus griseus horizontalis	Creeping Ceanothus	4" (10cm) Pot	18" o.c.	Attracts pollinators
PERENNIALS					
	Hosta 'Blue Angel'	Blue Angel Hosta	4" (10cm) Pot	24" o.c.	Showy flowers and foliage
	Dicentra formosa	Bleeding Heart	4" (10cm) Pot	18" o.c.	Showy flowers

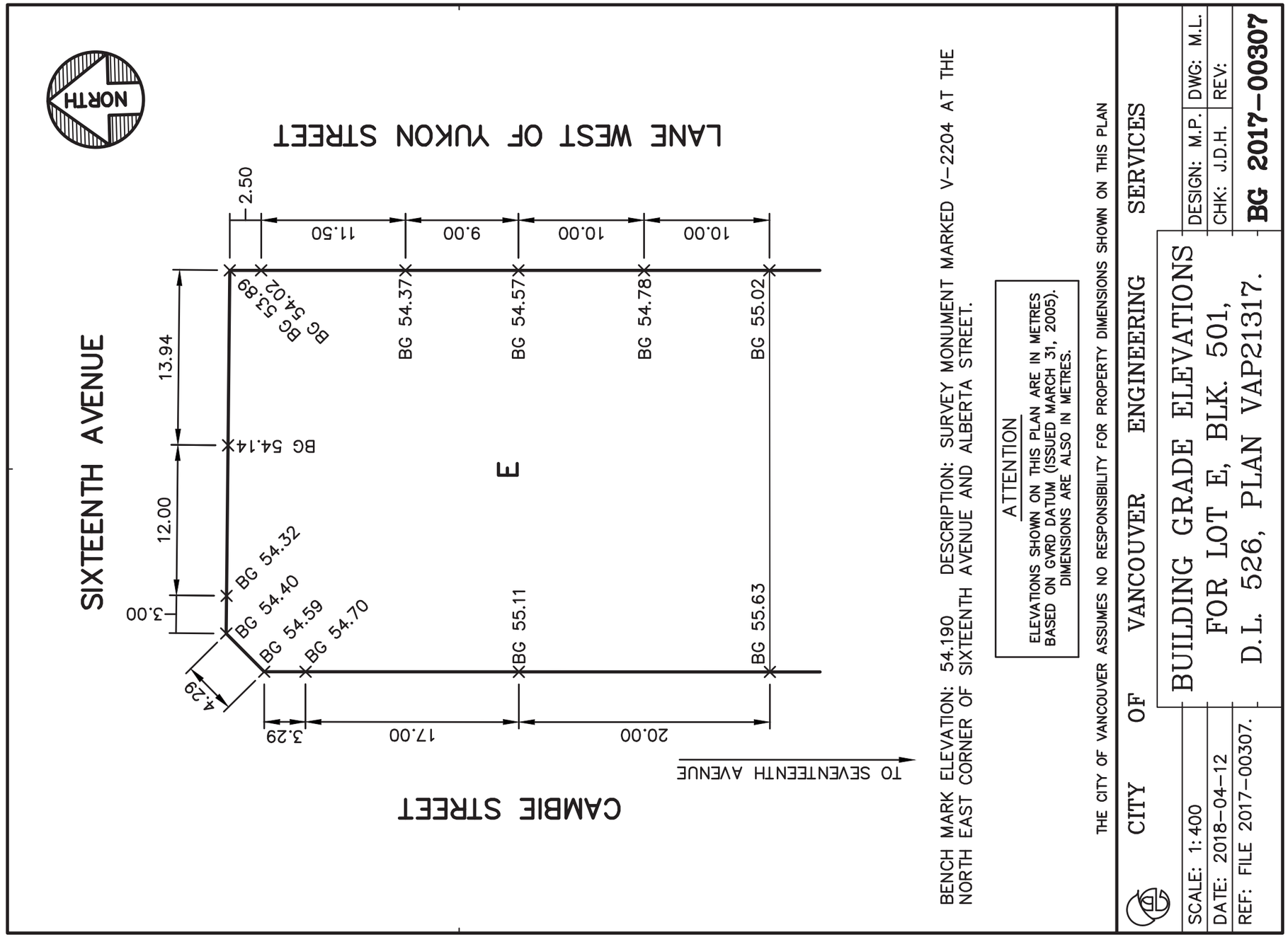
PLANT LIST - ROOF LEVELS



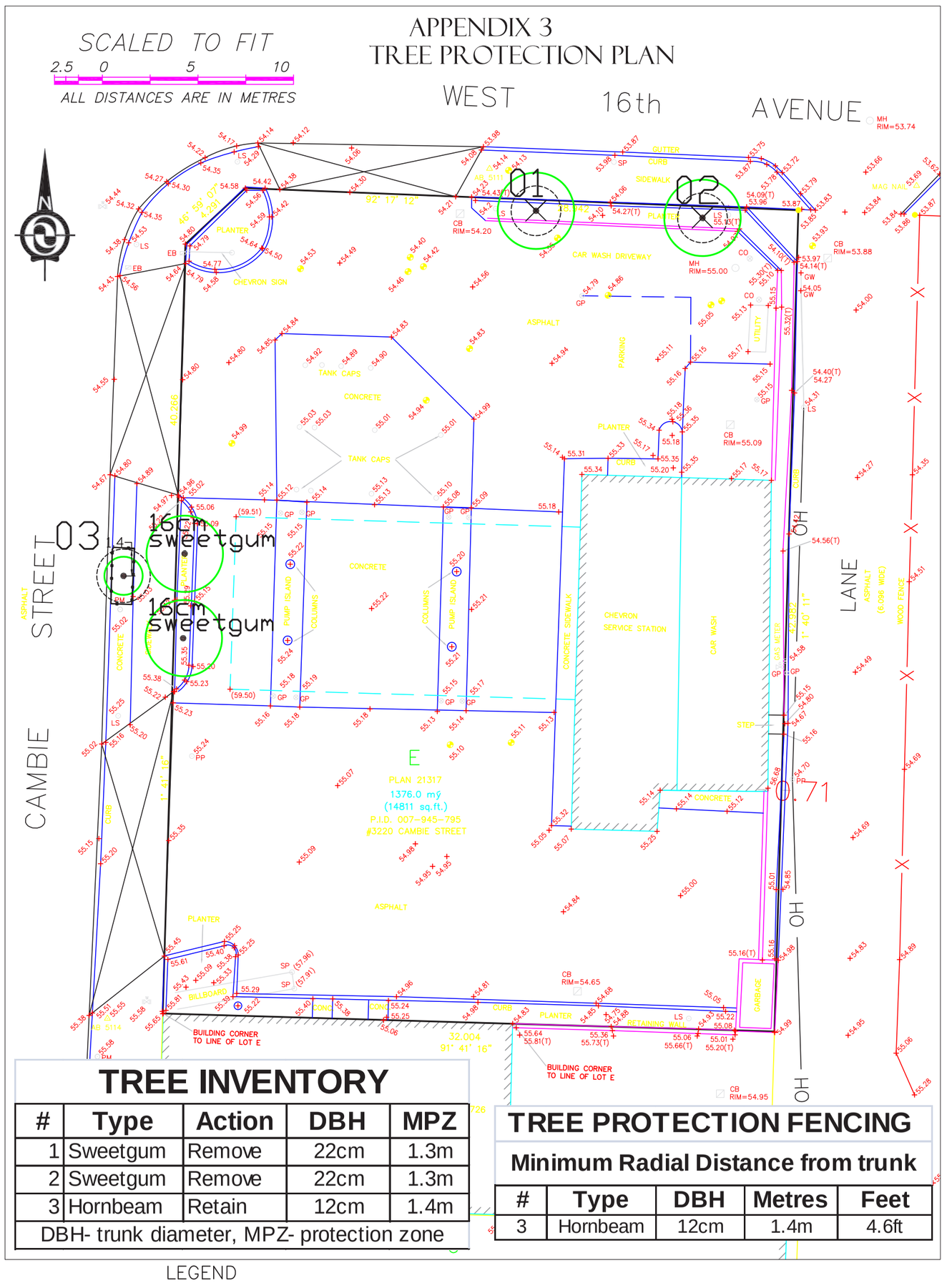
QTY.	BOTANICAL NAME	COMMON NAME	SIZE	SPACING	NOTES
TREES					
2	Acer shirasawanum 'Moonrise'	Moonrise Shirasawa Maple	5cm cal. Wire Basket	As shown	Showy Spring and Fall colour, great tree in containers
4	Cercis canadensis 'Forest Pansy'	Forest Pansy Redbud	5cm cal. Wire Basket	As shown	Excellent tree for containers
4	Malus x floribunda	Japanese Crabapple	5cm cal. Wire Basket	As shown	Excellent flowers Food source for birds and pollinators
6	Stewartia pseudocamellia	Japanese Stewartia	5cm cal. Wire Basket	As shown	Showy flowers attractive bark for winter interest
SHRUBS					
	Calluna vulgaris 'Firefly'	Red Heather	No. 2 Pot	18" o.c.	Showy Flowers
	Ceanothus impressus 'Victoria'	California Lilac	No. 5 Pot	24" o.c.	Attracts pollinators
	Cornus sericea 'Kelseyi'	Dwarf Red Osier Dogwood	No. 2 Pot	24" o.c.	Attracts pollinators
	Lavandula angustifolia 'Hidcote'	English Lavender	No. 2 Pot	24" o.c.	Attracts pollinators Food value
	Rosmarinus officinalis 'Blue Spires'	Blue Spires Rosemary	No. 2 Pot	24" o.c.	Attracts pollinators Food value
	Spiraea japonica 'Bumalda'	Japanese Spirea	No. 2 Pot	24" o.c.	Attracts pollinators
	Skimmia japonica	Japanese Skimmia	No. 2 Pot	24" o.c.	Berries provide food for birds
	Thymus vulgaris	English Thyme	No. 2 Pot	18" o.c.	Attracts pollinators Food value
GROUNDCOVERS					
	Ceanothus griseus horizontalis	Creeping Ceanothus	4" (10cm) Pot	18" o.c.	Attracts pollinators
	Etera Sedum Tile Type 1	Tuff Stuff	Pregrown sedum mat		Attracts pollinators small bird habitat
	Fragaria chiloensis	Beach Strawberry	4" (10cm) Pot	15" o.c.	Food value Native plant
PERENNIALS					
	Hosta 'Blue Angel'	Blue Angel Hosta	4" (10cm) Pot	24" o.c.	Showy flowers and foliage
	Dicentra formosa	Bleeding Heart	4" (10cm) Pot	18" o.c.	Showy flowers


LANE
WEST 16th AVENUE
CAMBIE STREET
E
PLAN 21317
1376.0 m²
(14811 sq.ft.)
P.I.D. 007-945-795
#3220 CAMBIE STREET
CHEVRON SERVICE STATION
CAR WASH
D
PLAN 20726
TWO LEVEL CONCRETE BUILDING
6
PLAN 2354
SCALE 1:125 METRIC
LEGEND :
LEAD PLUG
IRON POST
MH – MANHOLE
CB – CATCH BASIN
FH – FIRE HYDRANT
PP – POWER POLE
LS – LAMP STANDARD
MONITORING WELL
UB – UTILITY BOX
EB – ELECTRICAL BOX
GP – GUARD POST
SP – SIGN POST
GW – GUY WIRE
WATER VALVE
GAS VALVE
TRAVERSE STATION
PM – PARKING METER
PROPERTY LINE
FENCE LINE

Survey


NORTH
LANE WEST OF YUKON STREET
SIXTEENTH AVENUE
CAMBIE STREET
TO SEVENTEENTH AVENUE
2.50
11.50
9.00
10.00
10.00
13.94
12.00
3.00
4.29
3.29
17.00
20.00
BG 53.89
BG 54.02
BG 54.37
BG 54.57
BG 54.78
BG 55.02
BG 54.14
BG 54.32
BG 54.40
BG 54.59
BG 54.70
BG 55.11
BG 55.63
E
BENCH MARK ELEVATION: 54.190 DESCRIPTION: SURVEY MONUMENT MARKED V-2204 AT THE NORTH EAST CORNER OF SIXTEENTH AVENUE AND ALBERTA STREET.
ATTENTION
ELEVATIONS SHOWN ON THIS PLAN ARE IN METRES BASED ON GVRD DATUM (ISSUED MARCH 31, 2005). DIMENSIONS ARE ALSO IN METRES.
THE CITY OF VANCOUVER ASSUMES NO RESPONSIBILITY FOR PROPERTY DIMENSIONS SHOWN ON THIS PLAN
CITY OF VANCOUVER
ENGINEERING SERVICES
BUILDING GRADE ELEVATIONS
FOR LOT E, BLK. 501,
D.L. 526, PLAN VAP21317.
SCALE: 1:400
DATE: 2018-04-12
REF: FILE 2017-00307.
DESIGN: M.P.
DWG: M.L.
CHK: J.D.H.
REV:
BG 2017-00307

APPENDIX 3
TREE PROTECTION PLAN



TREE INVENTORY

#	Type	Action	DBH	MPZ
1	Sweetgum	Remove	22cm	1.3m
2	Sweetgum	Remove	22cm	1.3m
3	Hornbeam	Retain	12cm	1.4m

DBH- trunk diameter, MPZ- protection zone

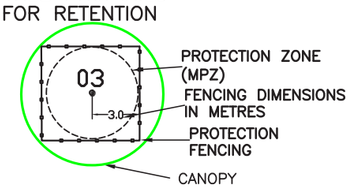
TREE PROTECTION FENCING

Minimum Radial Distance from trunk

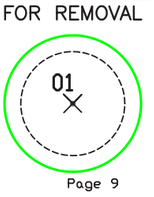
#	Type	DBH	Metres	Feet
3	Hornbeam	12cm	1.4m	4.6ft

LEGEND

TREE PROPOSED FOR RETENTION



TREE PROPOSED FOR REMOVAL



NOTES:
1. SITE LAYOUT INFORMATION AND TREE SURVEY DATA PER SUPPLIED DRAWING
2. REFER TO ATTACHED TREE PROTECTION REPORT FOR INFORMATION CONCERNING TREE SPECIES, STEM DIAMETER, HEIGHT, CANOPY SPREAD AND CONDITION.
3. ALL MEASUREMENTS ARE METRIC

Froggers Creek
Tree Consultants Ltd
7763 McGregor Avenue Burnaby BC V5J 4H4
Telephone: 604-721-6002 Fax: 604-437-0970

3220 Cambie Street Vancouver BC

TREE PROTECTION DRAWING
THE DRAWING PLOTS ALL TREES, PROPOSED FOR RETENTION, REMOVAL, THEIR CANOPIES, PROTECTION ZONES AND PROTECTION FENCING IN RELATION TO PROPOSED LAYOUT

June 30, 2017

Froggers Creek Tree Consultants Ltd.

Undersized trees along south PL

Froggers Creek Tree Consultants Ltd.

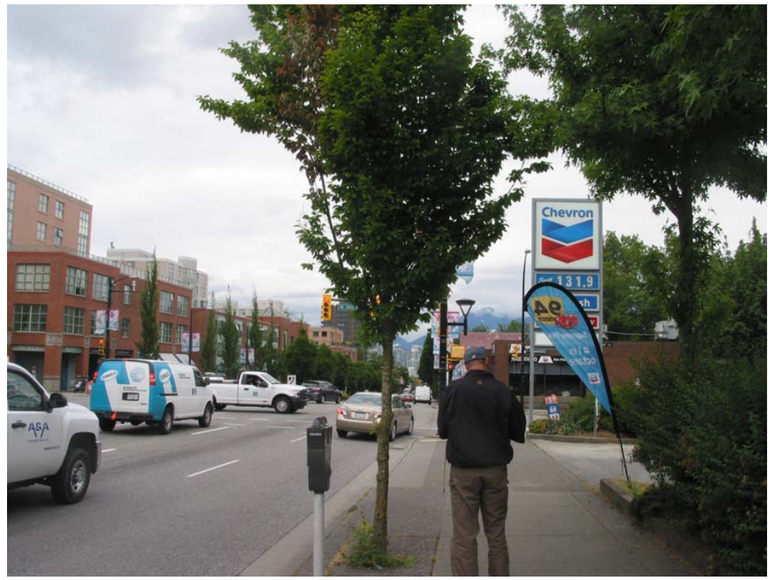
Undersized trees along lane

Froggers Creek Tree Consultants Ltd.

Tree # 1 and 2

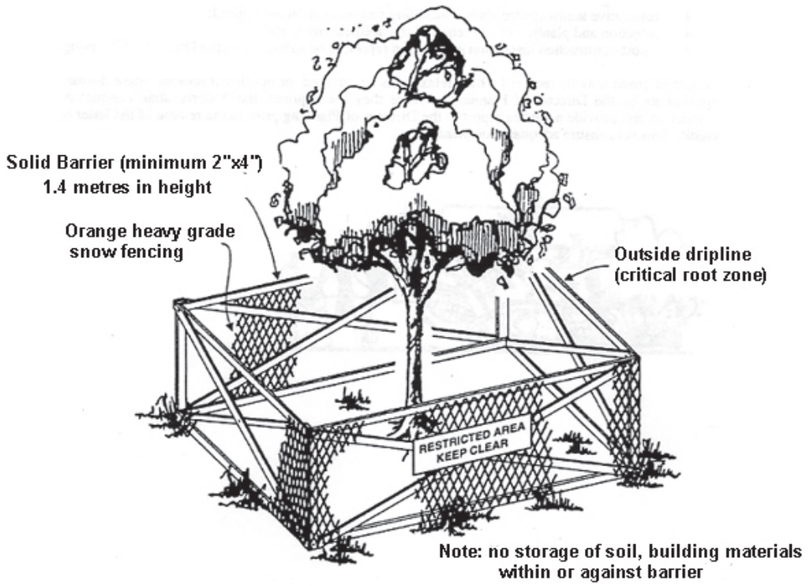
Froggers Creek Tree Consultants Ltd.

Tree #3



Appendix 1

Tree Protection Fencing Detail



APPENDIX 2

TREE INVENTORY

ON-SITE TREES

#	Type	Action	Reason	DBH	MPZ	Ht	CR	Health	Structural Condition
1	Sweetgum	Remove	Inside excavation	22cm	1.3m	7m	2m	Fair	Close to retaining wall
2	Sweetgum	Remove	Inside excavation	22cm	1.3m	7m	2m	Fair	Close to retaining wall

CITY TREES

3	Hornbeam	Retain		12cm	1.4m	5m	1m	Fair	

WESGROUP

Olson Kundig

IBI GROUP

BC BUILDING SCIENCE

connect
LANDSCAPE ARCHITECTURE

InterCAD
CONSULTING ENGINEERS