Bayside – A1/A2

Detailed Design

September 26, 2018

Project Description & Background

Bayside A1/A2

Proponent: Hines / Tridel

Design Team: 3XN (Base Building) Perkins +Will (Community Centre)

Review Stage: Detailed Design (Base Building) Issues Identification (Community Centre)

- Hines and Tridel as co-developers of Bayside's market residential buildings. A1/A2 is the fourth building to be developed in Bayside, and the last market residential building
- The building program will be primarily residential with animation uses at grade including retail and a community recreation centre
- The remaining developments in Bayside are:
  - R6 is an affordable rental housing building with approximately 260 units
  - C1 and C2 are commercial uses, such as office or academic space
- Key Milestones for other buildings in Bayside:
  - R1/R2 (Aqualina) first occupancy in September 2017 (first residential occupancy in East Bayfront)
  - R3/R4 (Aquavista) is under construction; begins occupancy January 2019
  - R5 (Aquabella) started construction January 2018, estimated occupancy in Fall 2020
  - These buildings are on track to achieve LEED platinum

- This is A1/A2 third time presenting at the DRP
- The team is presenting Detailed Design on the base building

Key Dates for Bayside A1/A2:

- The Site Developer (Hines and Tridel) is targeting to close on the land and start construction in June, 2019

Project Description & Background

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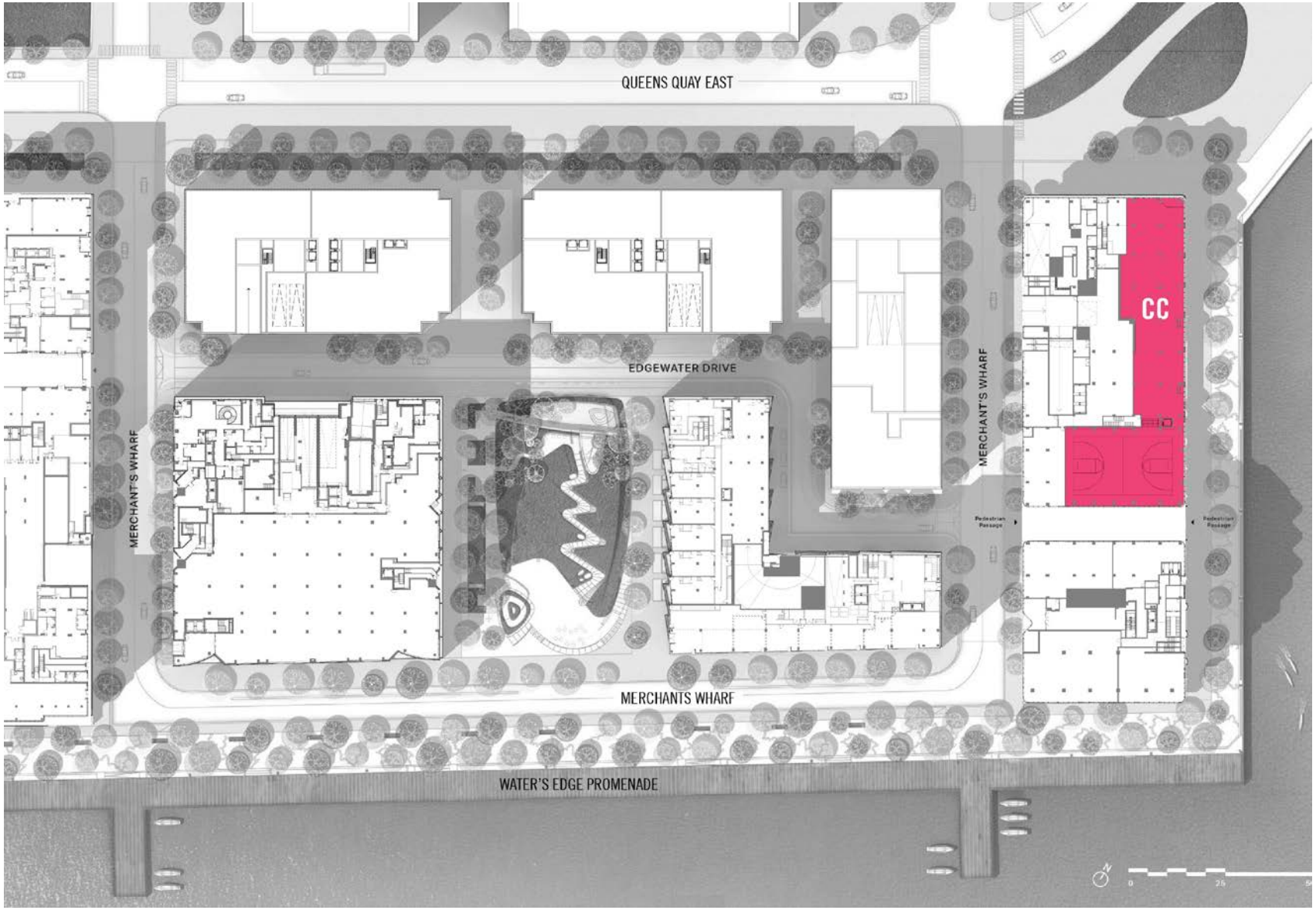


- Perkins + Will, the fit out architect for the community centre will present Issues Identification for the community centre space

Sustainability

Required:

- WT Minimum Green Building Requirements (MGBR) Version 1
- LEED Gold 2009

Targeting:

- LEED v4 Gold, Multifamily Midrise

Site Context

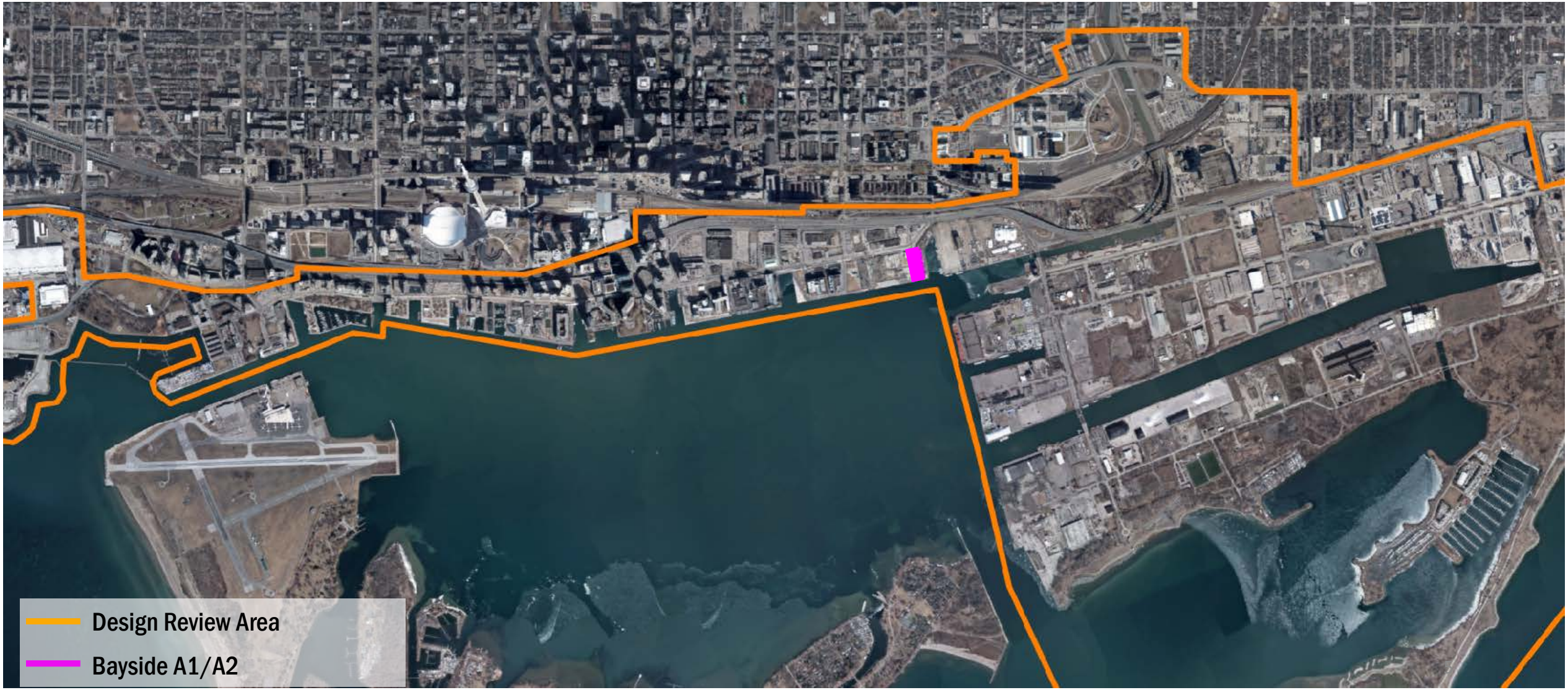
Bayside A1/A2

Proponent: Hines / Tridel

Design Team: 3XN

Presenters: Audun Opdal, 3XN

Review Stage: Detailed Design



Site Context

Bayside A1/A2

Proponent: Hines / Tridel

Design Team: 3XN (Base Building) Perkins +Will (Community Centre)

Review Stage: Detailed Design (Base Building) Issues Identification (Community Centre)

Site Context

Original East Bayfront Precinct Plan

Bayside A1/A2

Proponent: Hines / Tridel

Design Team: 3XN (Base Building) Perkins +Will (Community Centre)

Review Stage: Detailed Design (Base Building) Issues Identification (Community Centre)

Policy Context – Central Waterfront Secondary Plan

D24 - THE EAST BAYFRONT, A PROMINENT NEW NEIGHBOURHOOD
The East Bayfront will become a prominent waterfront address for working and living amid the energy and abundance of waterfront activities, including a new water's edge promenade and other public activities in the series of new East Bayfront public spaces. Development adjacent to the water's edge promenade shall consist of low and medium scale buildings that will reinforce the safety and usability of the public spaces.

(P31) **Excellence in the design of public and private buildings**, infrastructure (streets, bridges, promenades, etc.) **parks and public spaces** will be promoted to achieve **quality, beauty and worldwide recognition.**

(P32) New development will be **located, organized and massed to protect view corridors**, **frame and support the adjacent public realm** and discourage privatization of public spaces. Built form will result in comfortable micro-climates on streets, plazas and other parts of the public realm.

(P34) Schools and other **community services** and facilities will be **integral components of new waterfront communities** and will be provided in conjunction with new development.

(P10) The design of the public realm will be of a standard of excellence characteristic of the great city waterfronts of the world.

(P11) The public realm will be defined by a coherent framework of streets, parks, plazas, buildings, viewing areas, walkways, boardwalks, promenades, piers, bridges and other public infrastructure and open space elements.

Bayside A1/A2

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Review Stage: Detailed Design (Base Building) Issues Identification (Community Centre)

Recap

Panel Comments from October 2017:

- The height of the south tower should be lowered given the current 9-meter difference between this tower and Aqualina's south tower (47 meters)
- Committing to thermal breaks is a precedent-setting move for the city
- The Queens Quay elevation is an important interface. Elevation drawings should be included to show this condition.
- The community centre is a pivotal piece of the building and needs to be designed to integrate well with the rest of the building.
- The design of the mid-block connection is critical.
- Explore the possibility of making the top floors of the towers accessible to the public.
- Further analysis is needed on the sun/shadow conditions and wind studies

Rendering from October 2017

Areas for Panel Consideration

- The materiality of the building
- The details of the balconies
- Relationship of the community centre space to the passageway

Aqualuna

at Bayside

DRAFT

September 26th 2018

A1/A2 – DESIGN REVIEW PANEL – STAGE III

—

Phase IV Bayside Development

3XN


DRAFT

DRP II - October 18, 2017
Key Issues

Part 1.5 Consensus Comments

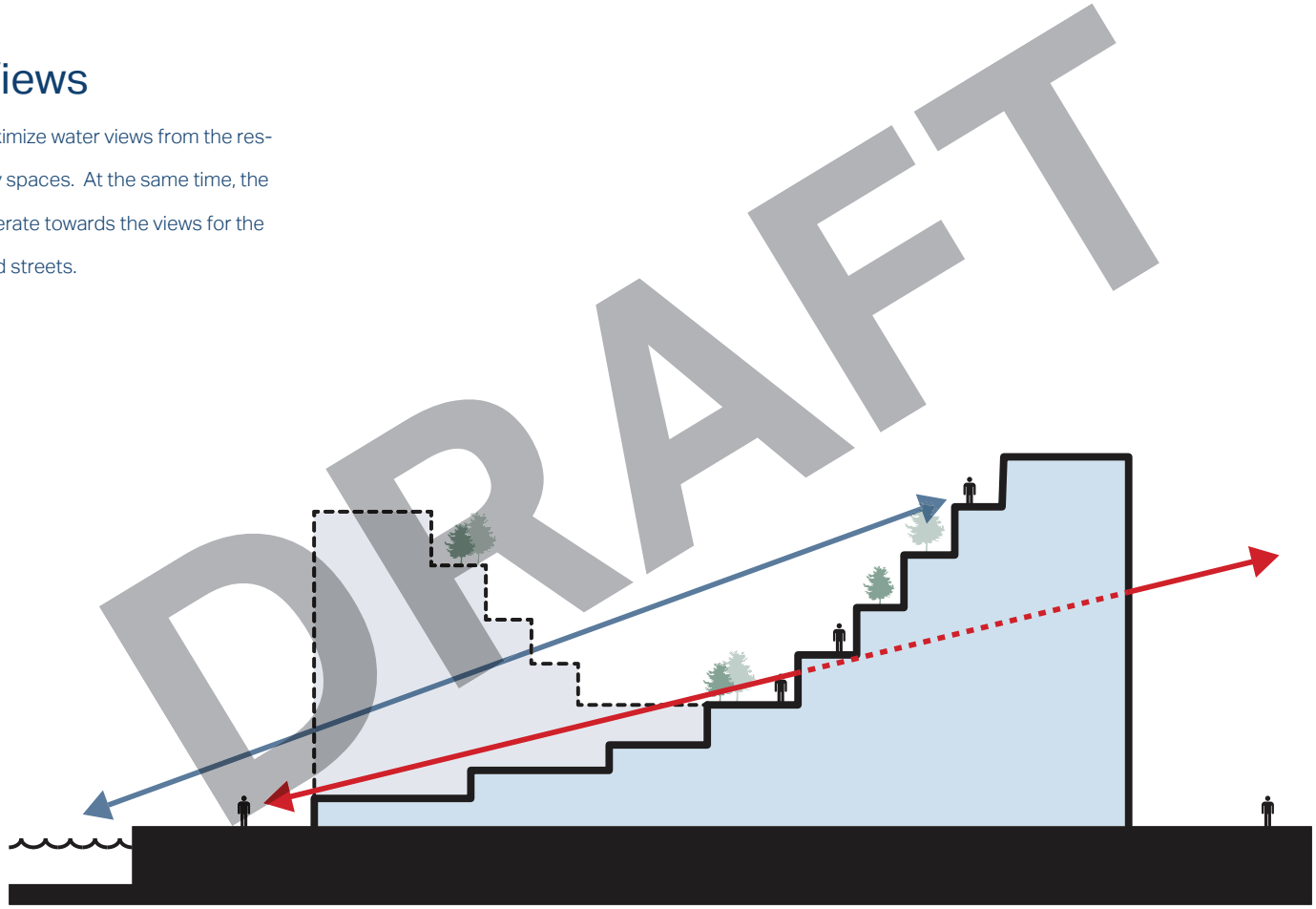
1. Overall building has evolved nicely.
2. Consider lower height on south tower.
3. Supportive of commitment to thermally broken balconies.
4. Further illustrate the Queens Quay elevation as an important interface.
5. The community centre design is a pivotal piece to integrate well with the rest of the building.
6. Mid-block connection design is critical.
7. Suggested to make top floors of the towers publicly accessible.
8. Further analysis on sun/shadow and wind conditions.

Table of Contents

Introduction

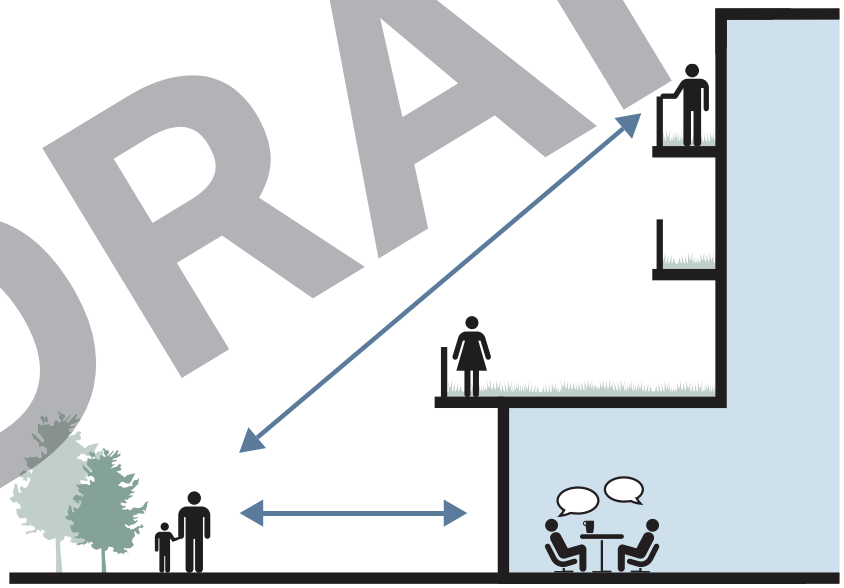
Maximize Views

The project seeks to maximize water views from the residential units and amenity spaces. At the same time, the project volume is considerate towards the views for the neighboring buildings and streets.

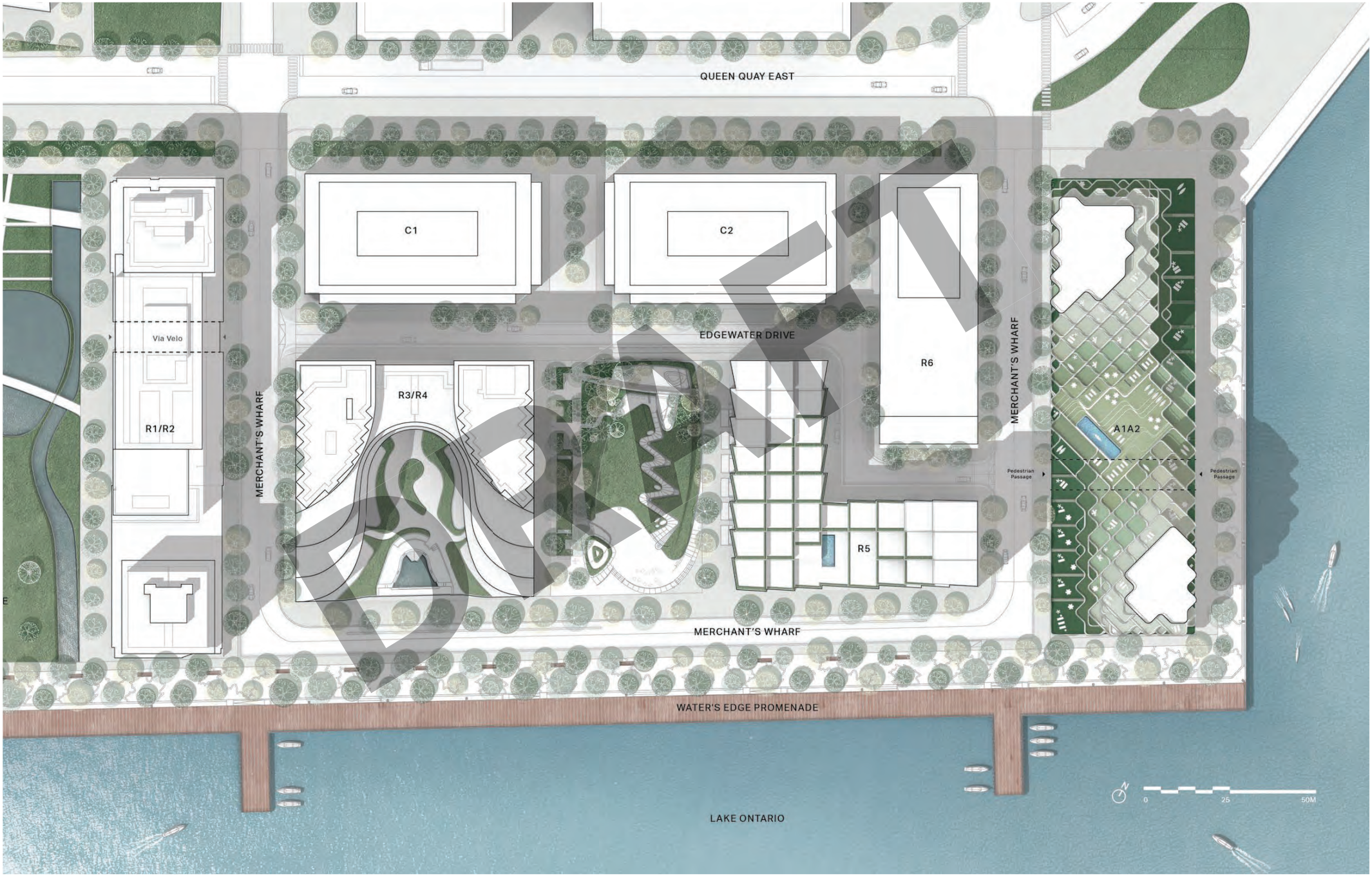


Creating a lively urban environment

Creating urban spaces that are active, safe and relate to the human scale is important to the project. Outdoor living spaces, setbacks and active ground floor facades contribute to the streets and promenade.




Aqualuna
at Bayside
DRAFT


QUEEN QUAY EAST
C1
C2
Via Velo
EDGEWATER DRIVE
R6
MERCHANT'S WHARF
R1/R2
R3/R4
A1A2
Pedestrian Passage
Pedestrian Passage
R5
MERCHANT'S WHARF
WATER'S EDGE PROMENADE
LAKE ONTARIO
0
25
50M
DRAFT

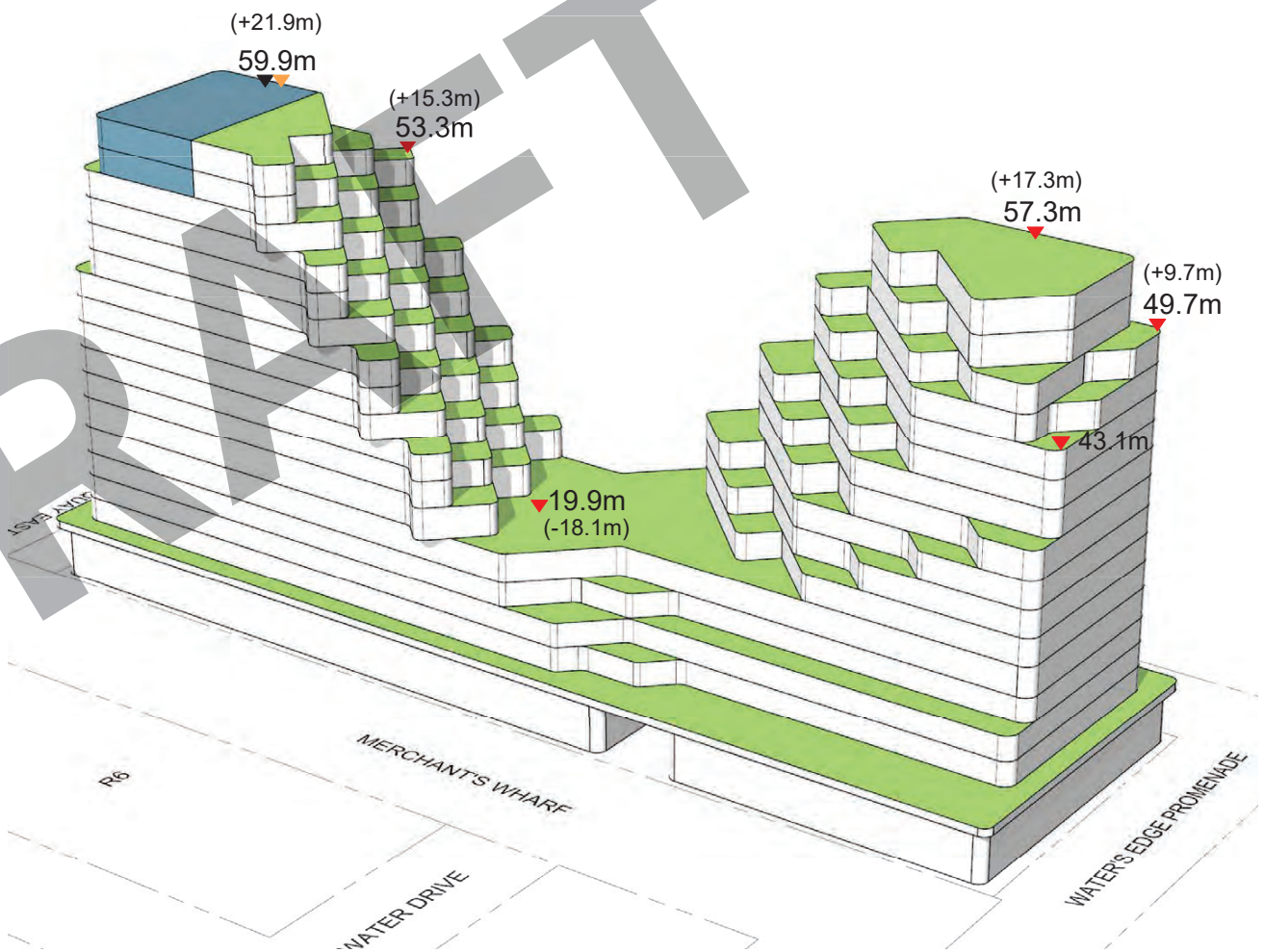
The Waves at Bayside view from the lake.

Zoning / Massing

Current Massing

GFA 38.900 sqm / 418.715 sqft

N peak 17 floors (6 above Zoning) (equal to DRP2)
S peak 16 floors (5 above Zoning) (equal to DRP2)
Podium 5 floors (6 below Zoning)

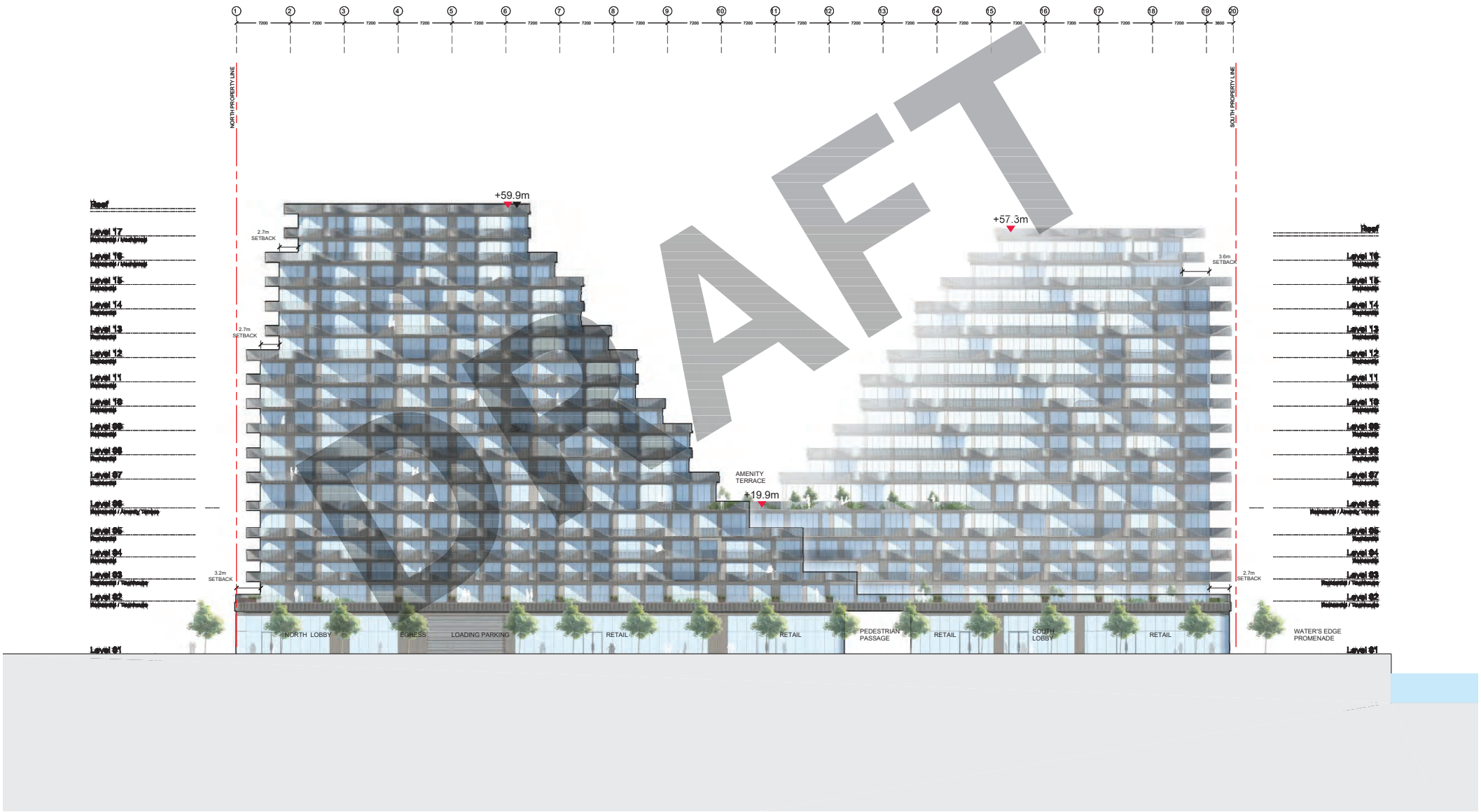


Elevations & Sections

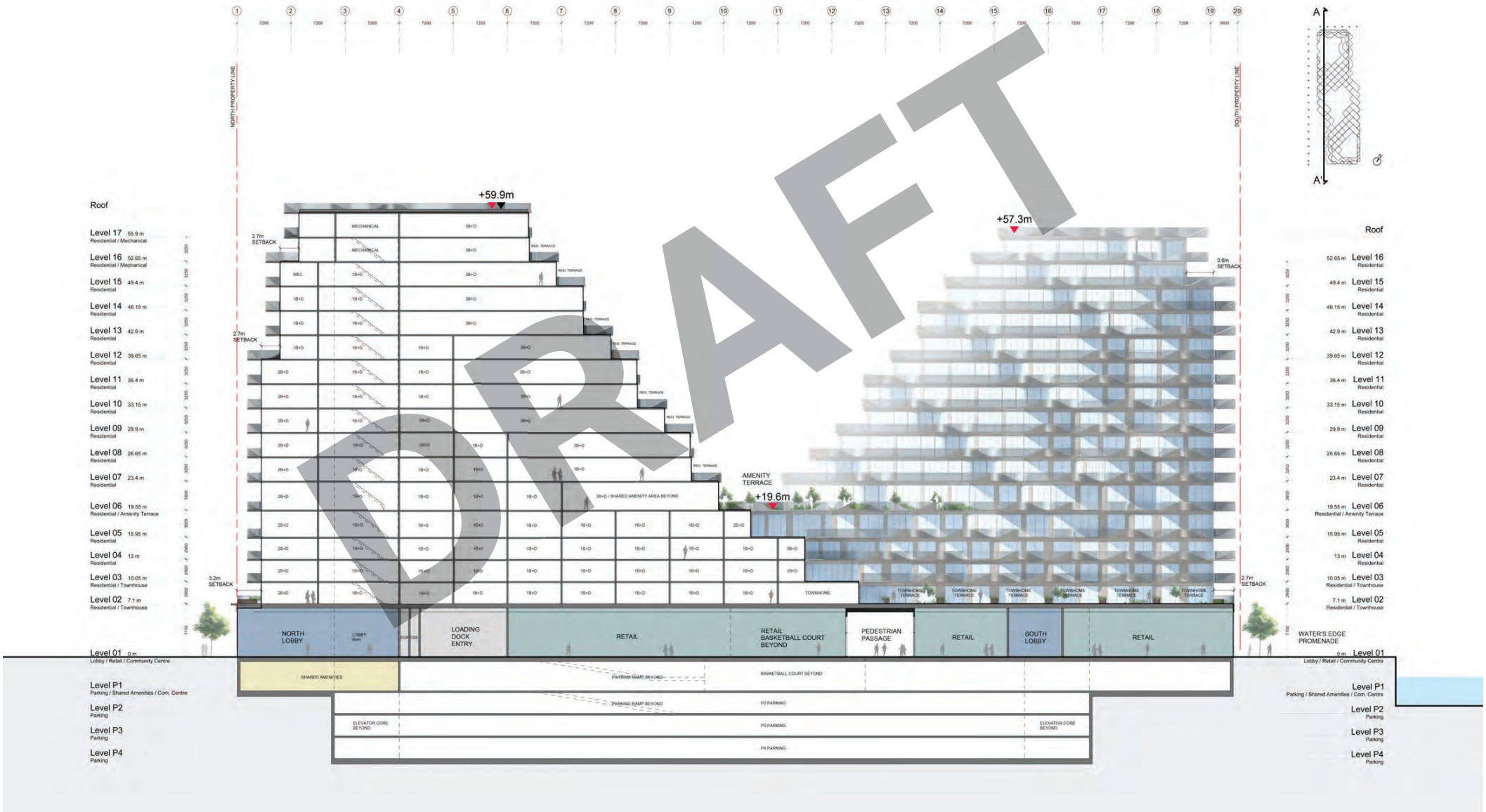
South Elevation

1:500

West Elevation

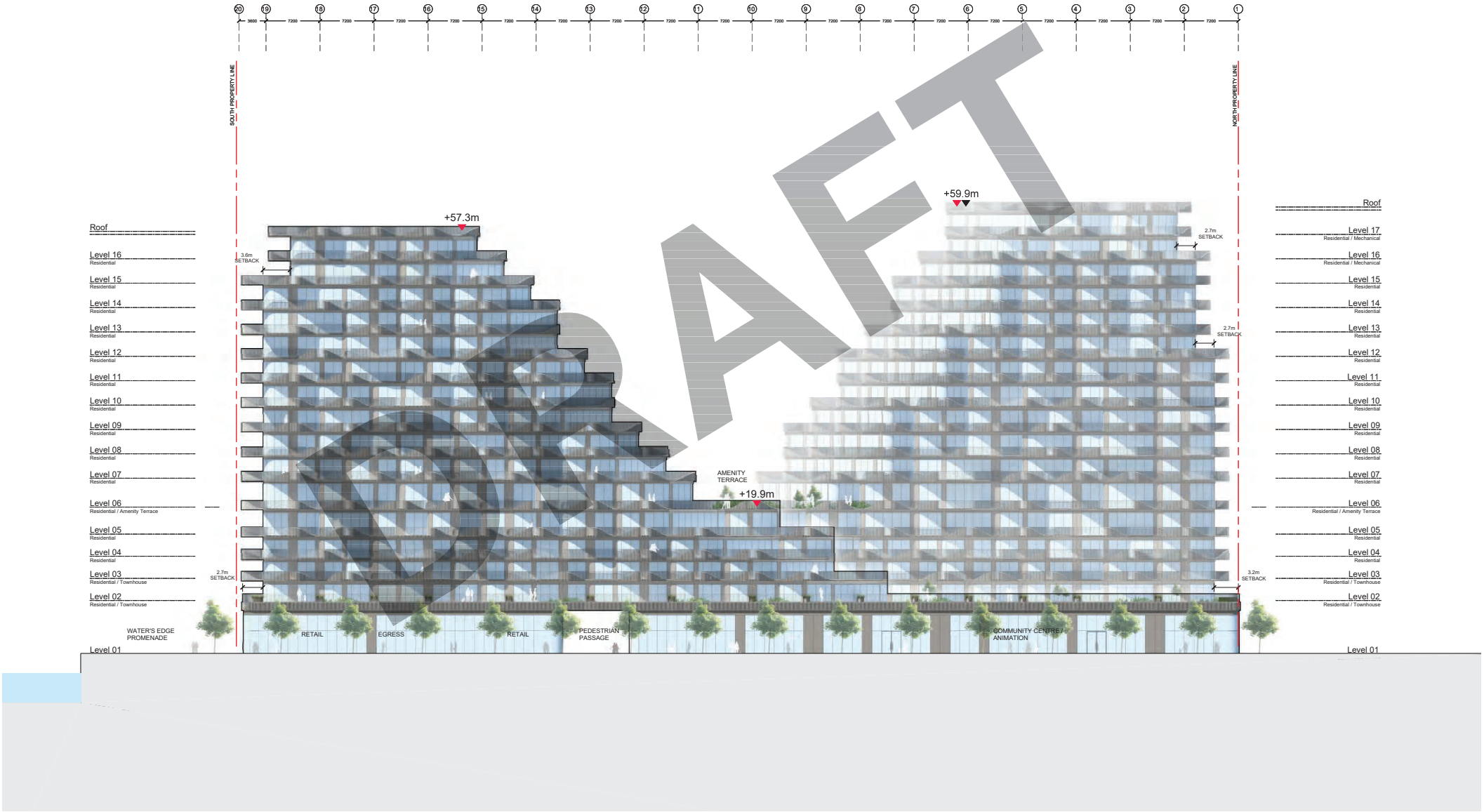


Long Section



East Elevation

1:500



North Elevation

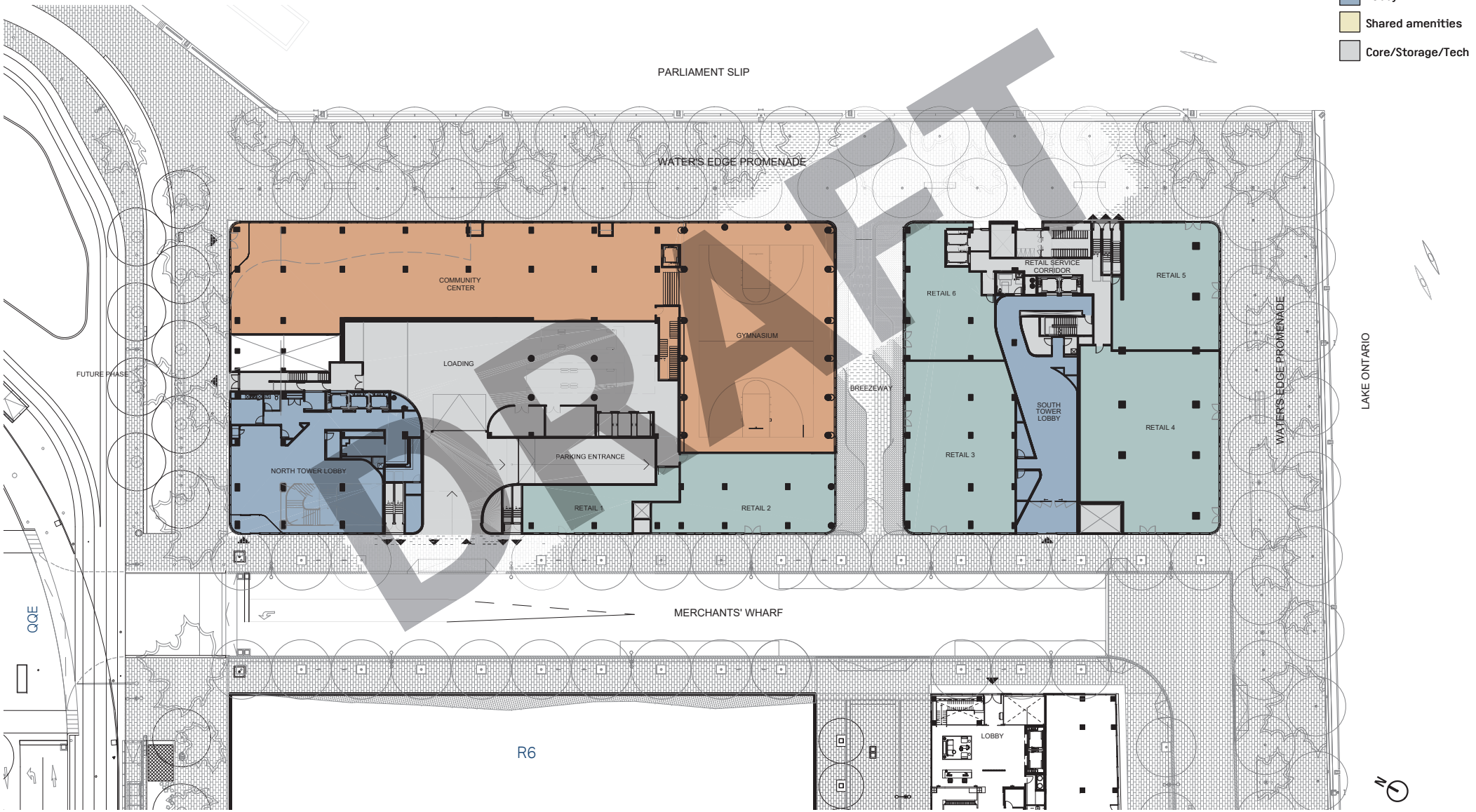
1:500


DRAFT

Ground Floor Plan

Ground Floor Plan

Level 01

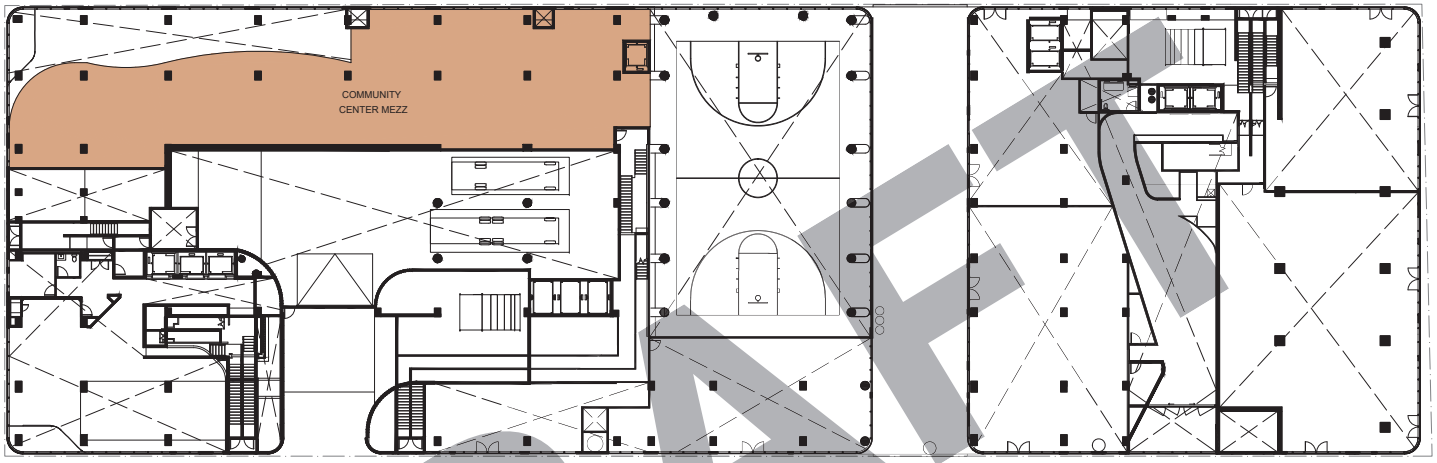


Plans

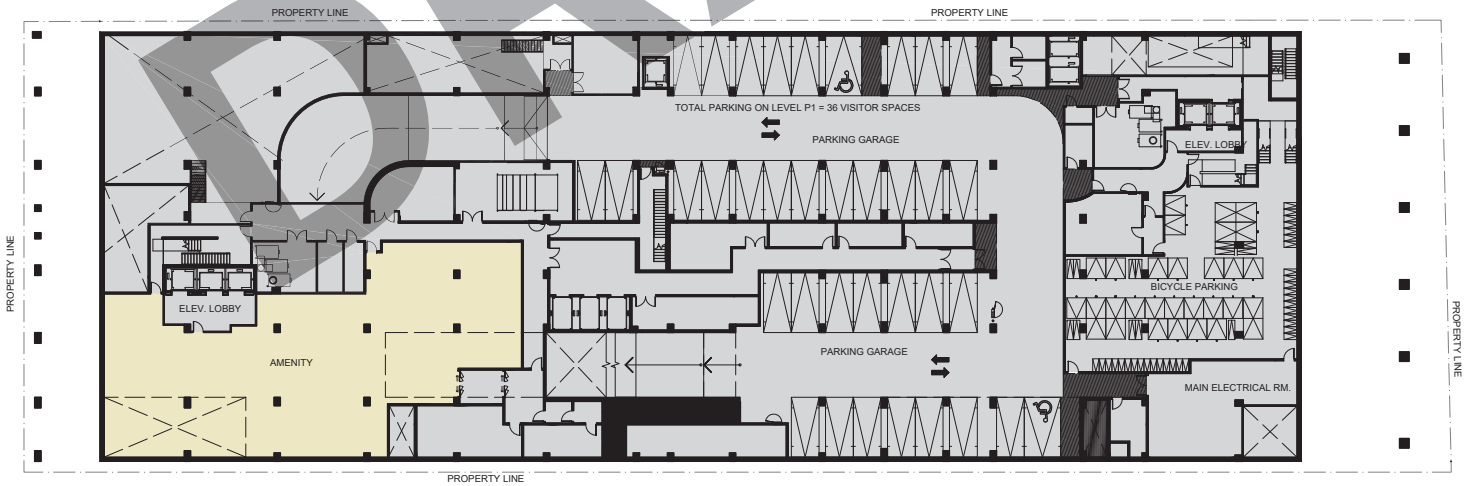
Legend

- Community Centre
- Retail
- Lobby
- Shared amenities
- Core/Storage/Tech

Level 01 - Mezzanine

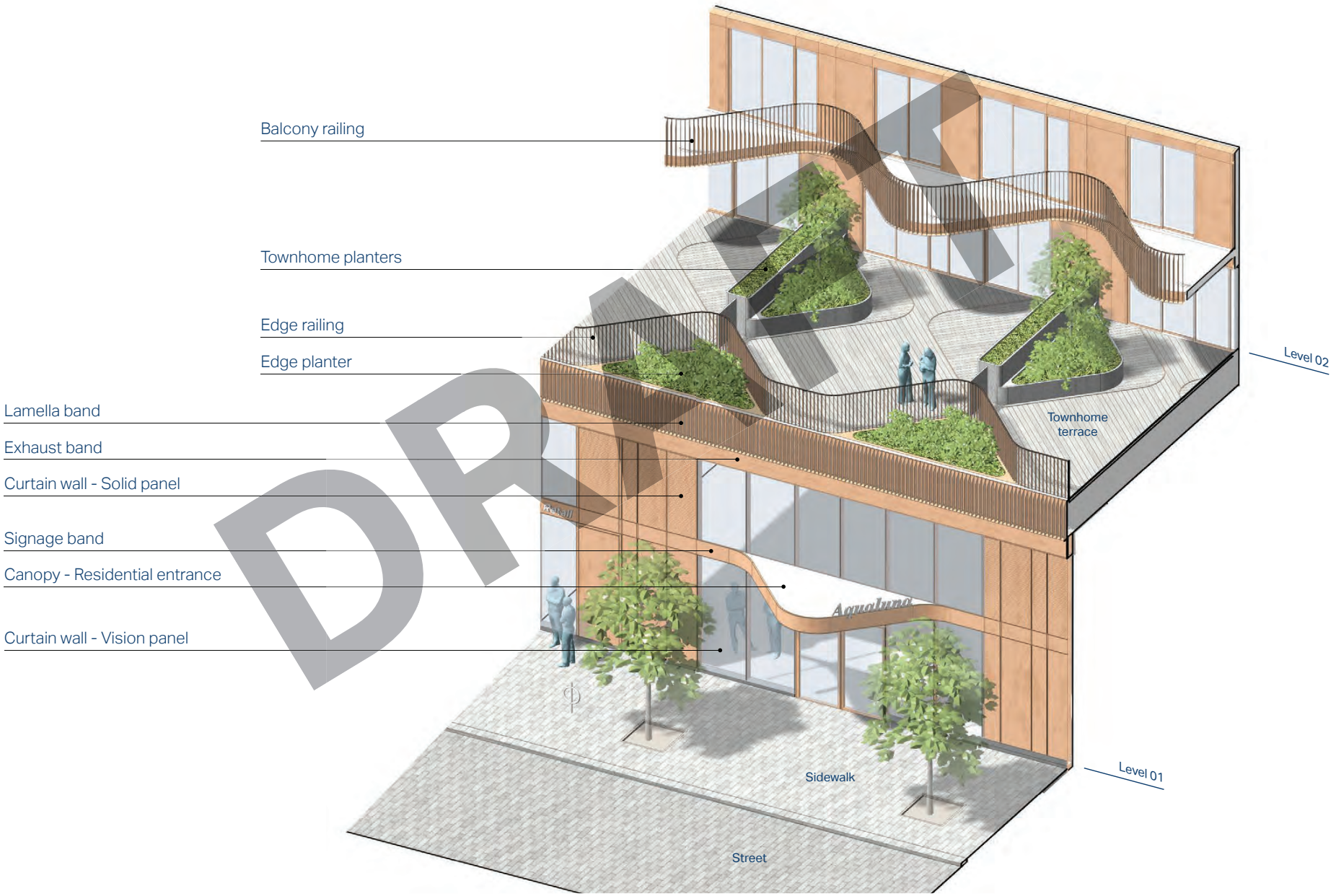


Level P1



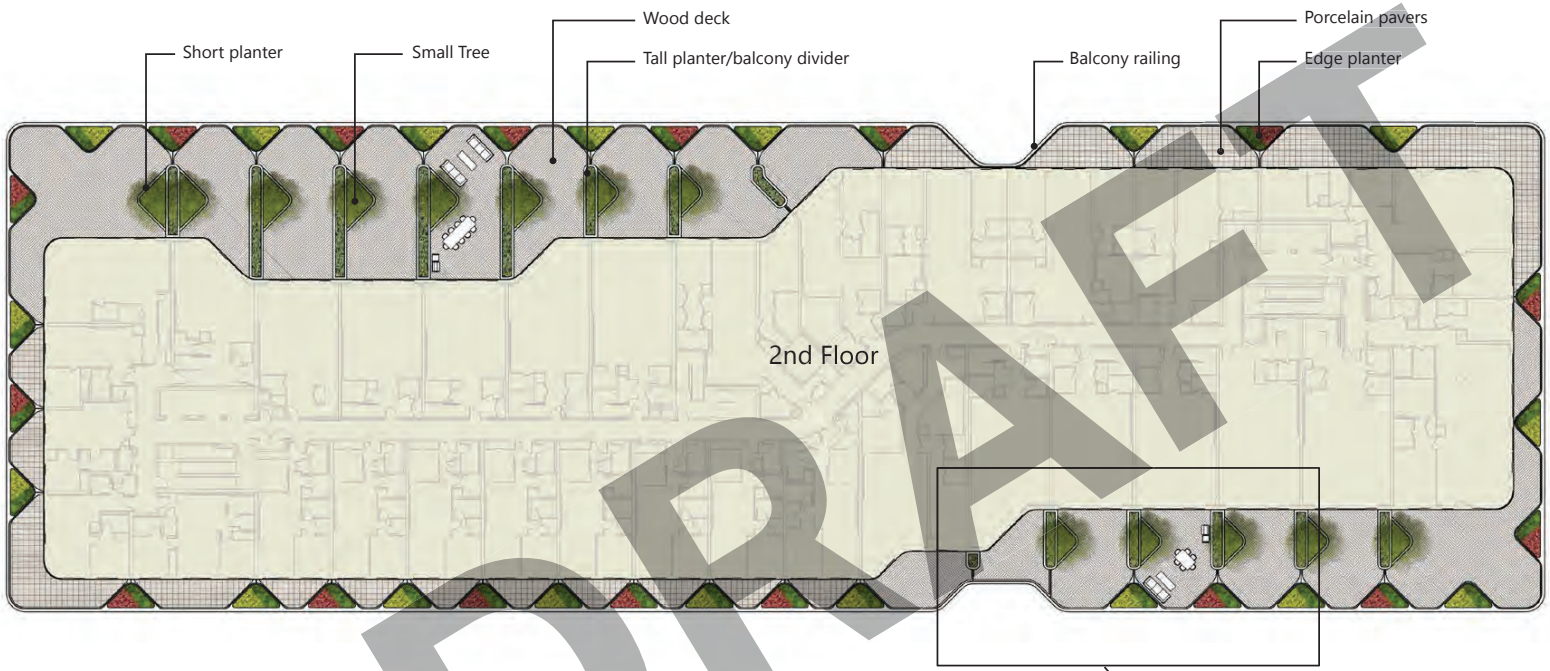
Ground Floor Overview

Ground Floor Overview

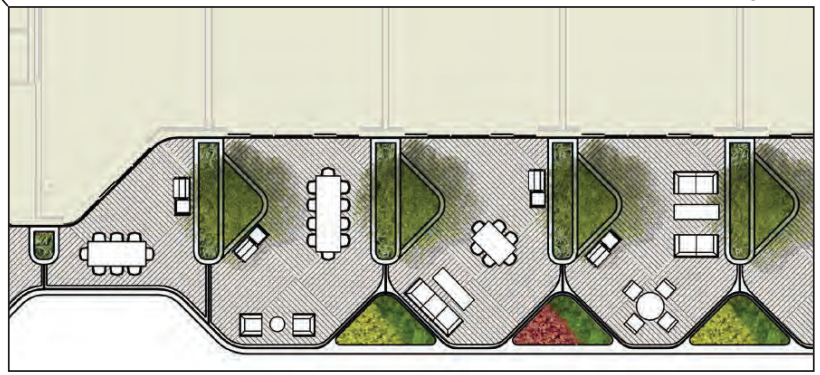


Townhome Terraces

Plan - Level 02



Private Terrace Enlargement



Townhome Terraces

Planting & finishes - Level 02

1. Juniperus x pfitzeriana (Chinese Juniper)

2. Pinus mugo (Mugo Pine)

3. Berberis thunbergii 'Aurea' (Dwarf Golden Barberry)

4. Berberis thunbergii 'Gentry' (Royal Burgundy Barberry)

5. Taxus x media 'Densiformis' (Dense Yew)

6. Hydrangea panlculata 'Grandiflora' (Peegee Hydrangea)

7. Euonymus fortunei 'Sarcoxie' (Wintercreeper)

8. Juniperus horizontalis 'Prince of Wales' (Creeping Juniper)

9. Buddleia 'Lo and Behold Blue Chip' (Blue Chip Dwarf Butterfly Bush)

10. Amelanchier canadensis (Serviceberry)

Materiality

Facade Components

Concrete slab

Balustrade Posts

Podium Edge Planter

Podium Edge Lamella

Exhaust Band

Curtain Wall - Mullion

Canopies & Signage Band

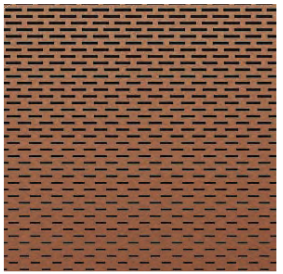
Curtain Wall - Spandrel Panel

Curtain Wall - Vision Panel

Material Palette

Concrete slab	White - Painted
Balustrade Posts	Aluminum
Podium Edge Planter	Greenery
Podium Edge Lamella	Aluminum
Exhaust Band	Textured Aluminum
Curtain Wall - Mullion	Aluminum
Canopies & Signage Band	Aluminum
Curtain Wall - Spandrel Panel	Textured Aluminum
Curtain Wall - Vision Panel	Clear Glass

Material Palette

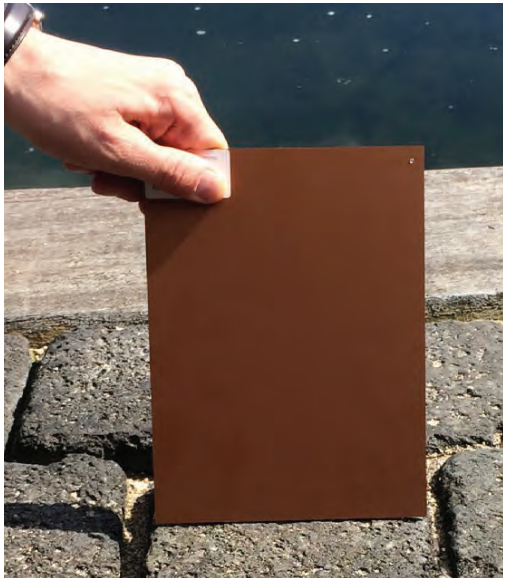
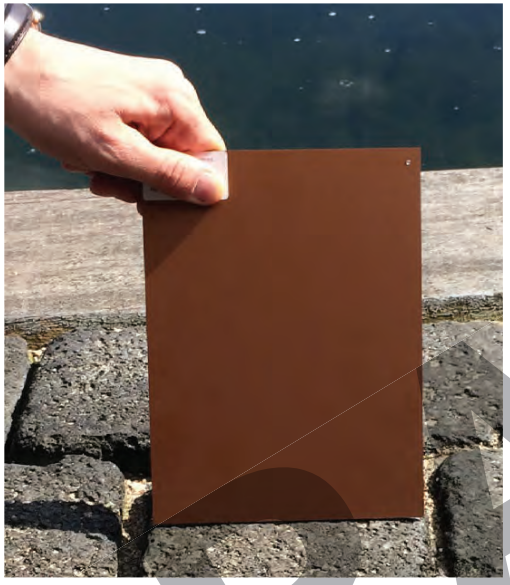
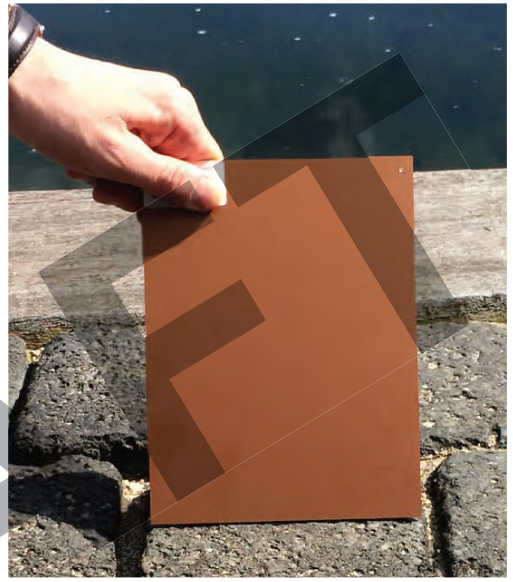


Textured Aluminum
Copper/Bronze colour.

Aluminum
Copper/Bronze colour.

Aluminum Sample

View angle - Image series



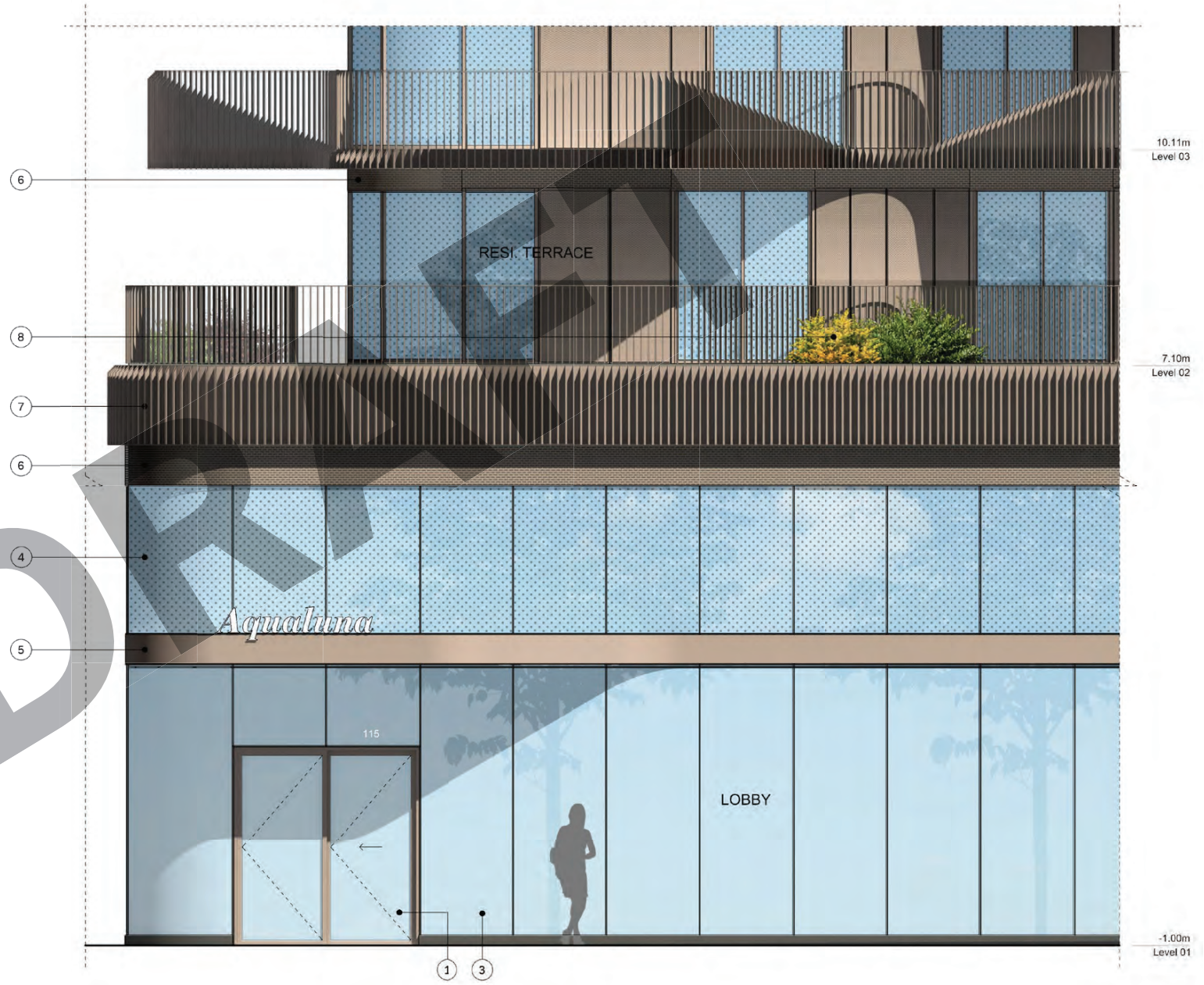

Elevations & Views

North Residential Lobby

North Residential Lobby

Elevation

1. Lobby Entry
2. Vertical panel - Textured Aluminum
3. Curtainwall - Vision
4. Curtainwall - Vision - Fritted
5. Lobby Canopy / Signage Band
6. Exhaust Band
7. Aluminum Lamella
8. Edge Planter

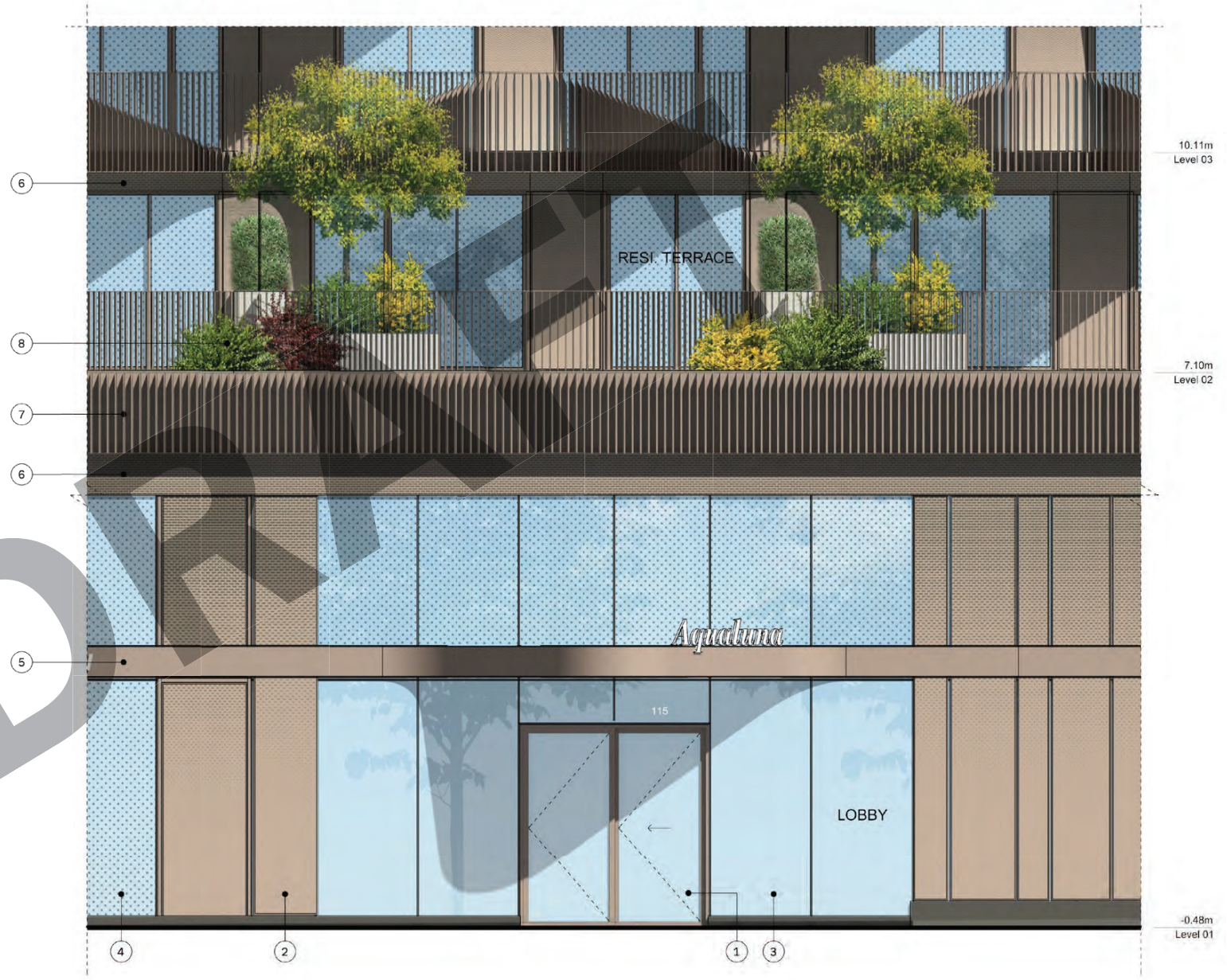


South Residential Lobby

South Residential Lobby

Elevation

1. Lobby Entry
2. Vertical panel - Textured Aluminum
3. Curtainwall - Vision
4. Curtainwall - Vision - Fritted
5. Lobby Canopy / Signage Band
6. Exhaust Band
7. Aluminum Lamella
8. Edge Planter



Community Center on QQE and WEP

Community Center

Elevation

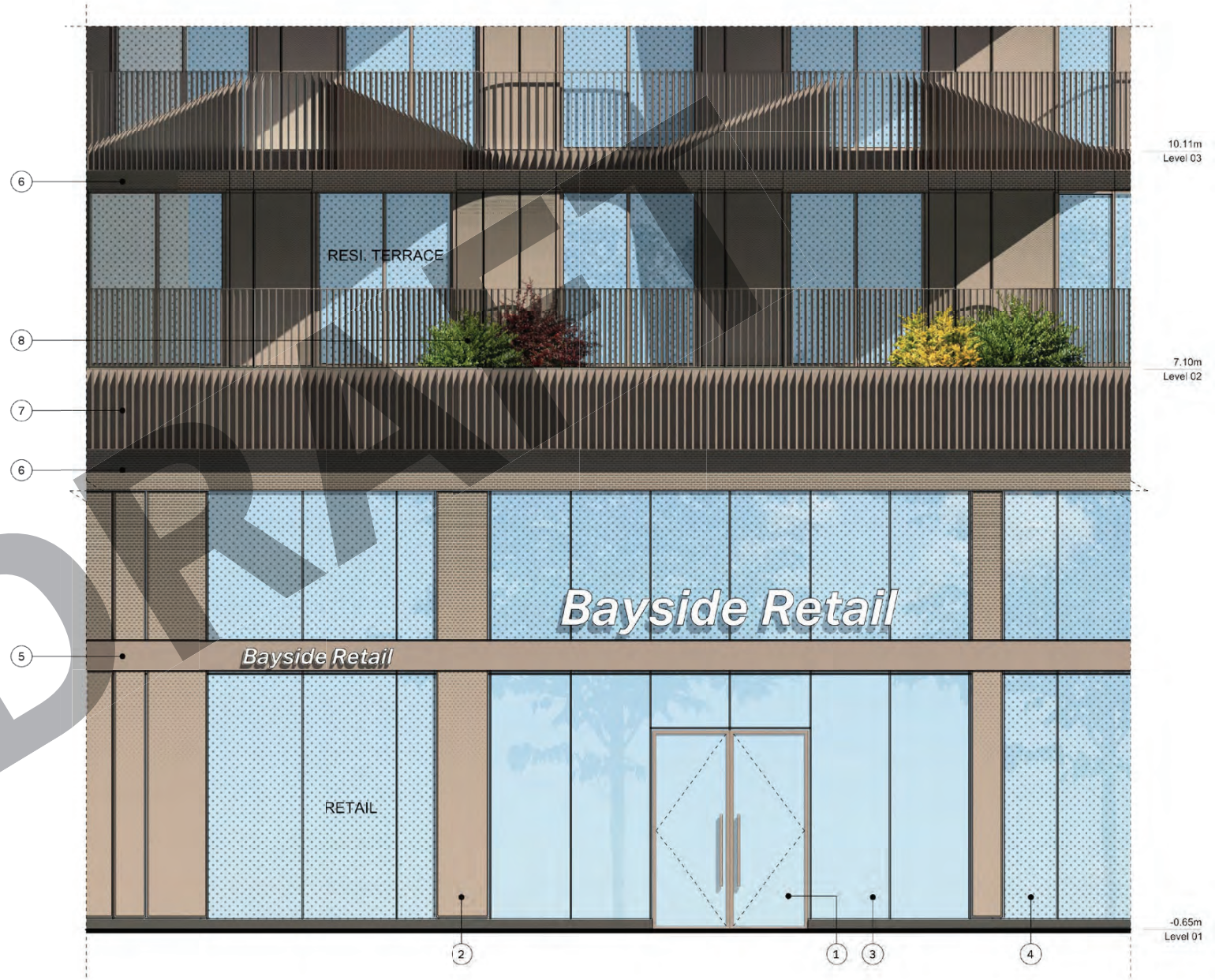
1. Community Center Entry
2. Vertical panel - Textured Aluminum
3. Curtainwall - Vision
4. Curtainwall - Vision - Fritted
5. Commun. Center Canopy / Signage Band
6. Exhaust Band
7. Aluminum Lamella
8. Edge Planter

Retail on Merchants' Wharf

Typical Retail Entrance

Elevation

1. Retail Entry
2. Vertical panel - Textured Aluminum
3. Curtainwall - Vision
4. Curtainwall - Vision - Fritted
5. Signage Band
6. Exhaust Band
7. Aluminum Lamella
8. Edge Planter

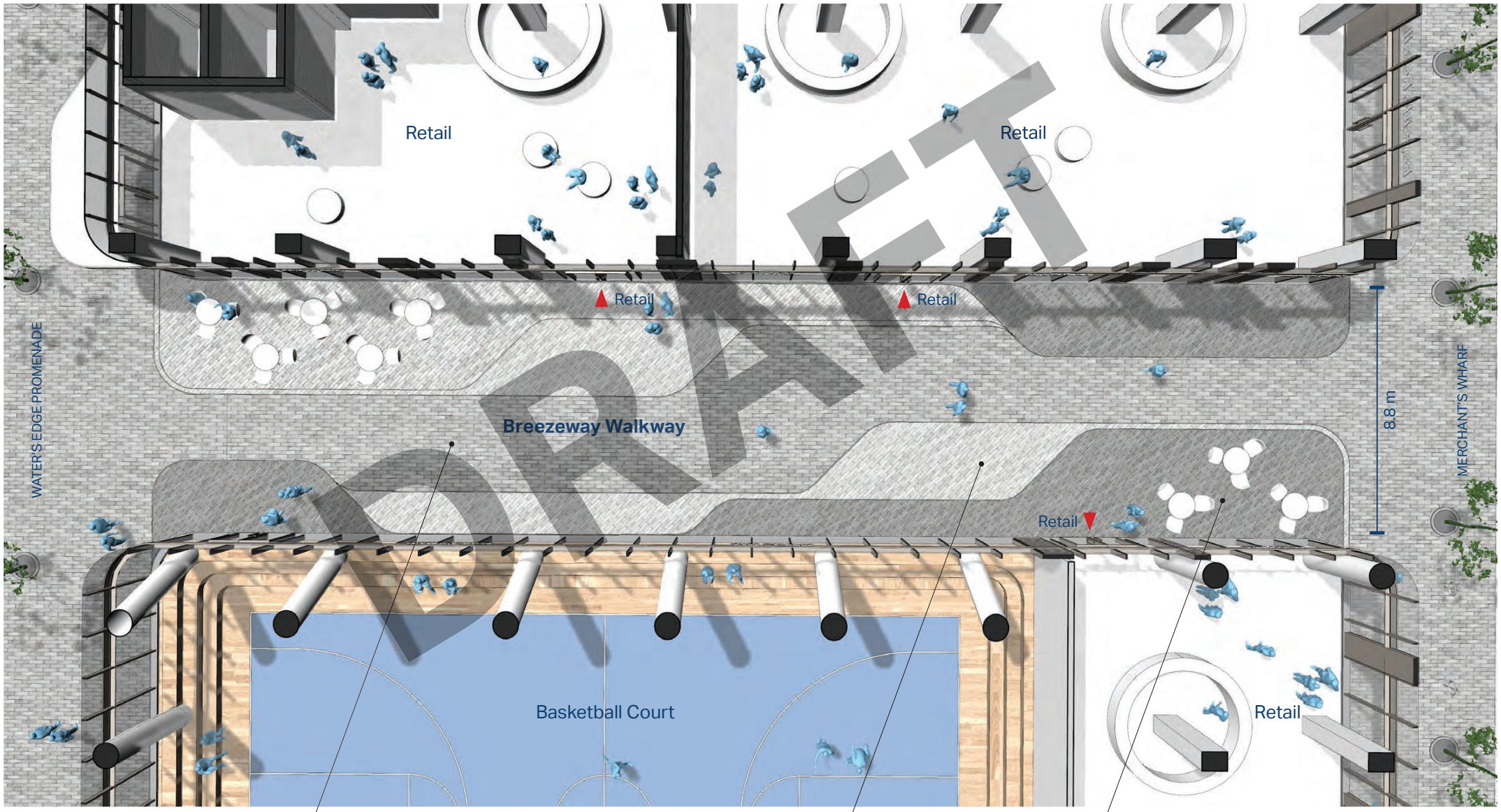


Retail on Water's Edge Promenade

Breezeway on Water's Edge Promenade

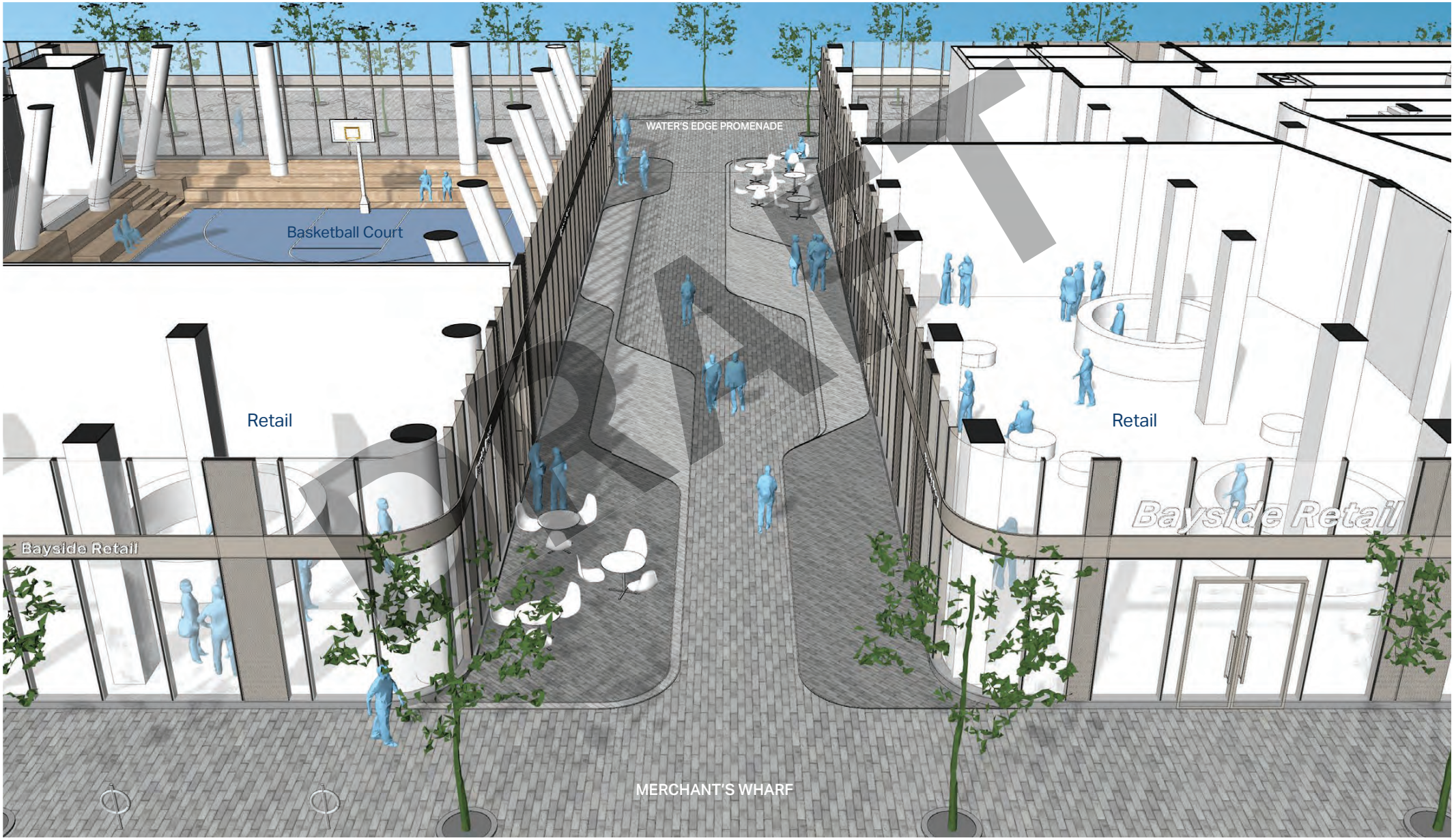
Breezeway

Plan View - Flexible Zoning Strategy



Breezeway

Aerial Overview



Breezeway

Retail

Flexible outdoor retail zone

WEP's continuity with pavement finish

Breezeway

Elevation

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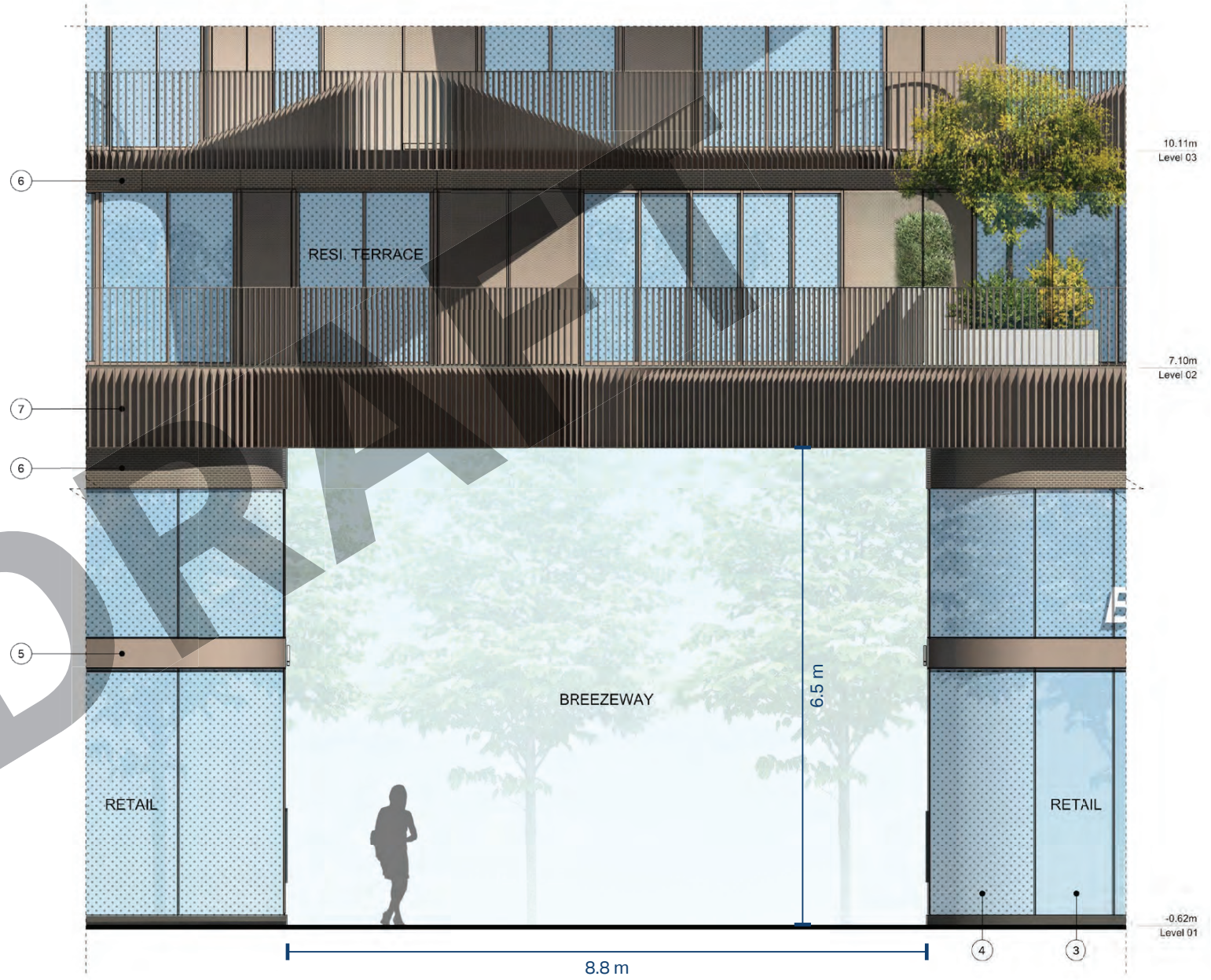
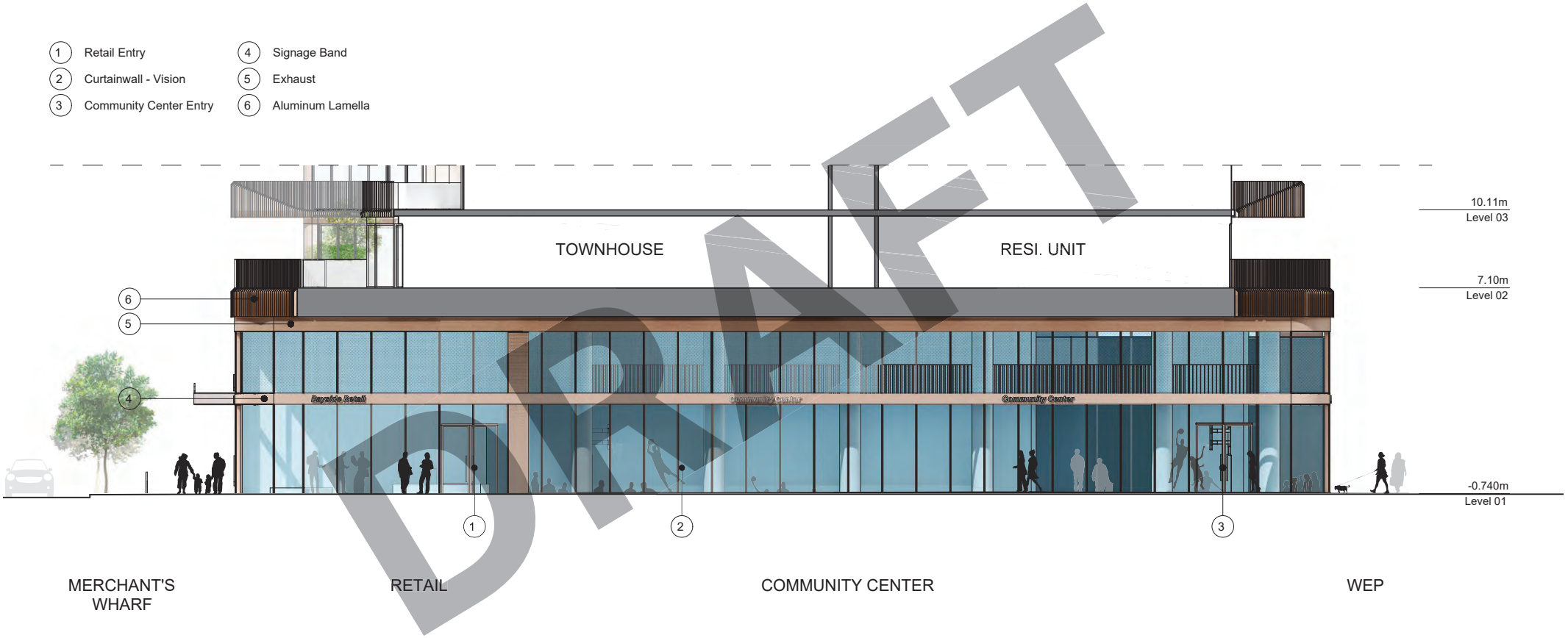
2. Vertical panel - Textured Aluminum
3. Curtainwall - Vision
4. Curtainwall - Vision - Fritted
5. Lobby Canopy / Signage Band
6. Exhaust Band
7. Aluminum Lamella



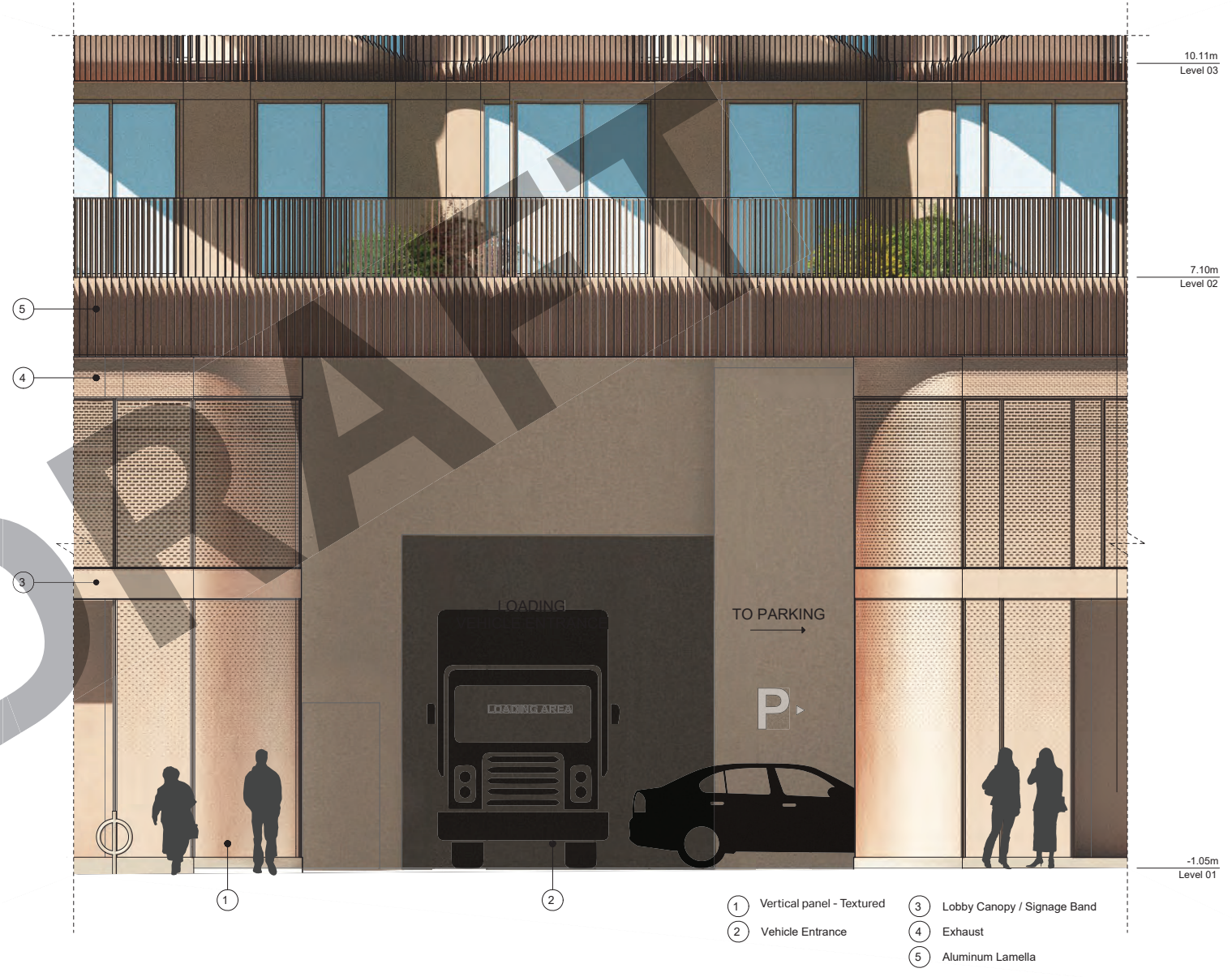
Breezeway

Interior Elevation - Community Center side



Loading/Parking Entrance

Elevation




Bayside Retail

Sustainability & MGBR

Bayside Stage III – A1A2

Waterfront Toronto DRP – Stage 3
Sustainability & MGBR

Presented by:

EQ BUILDING PERFORMANCE

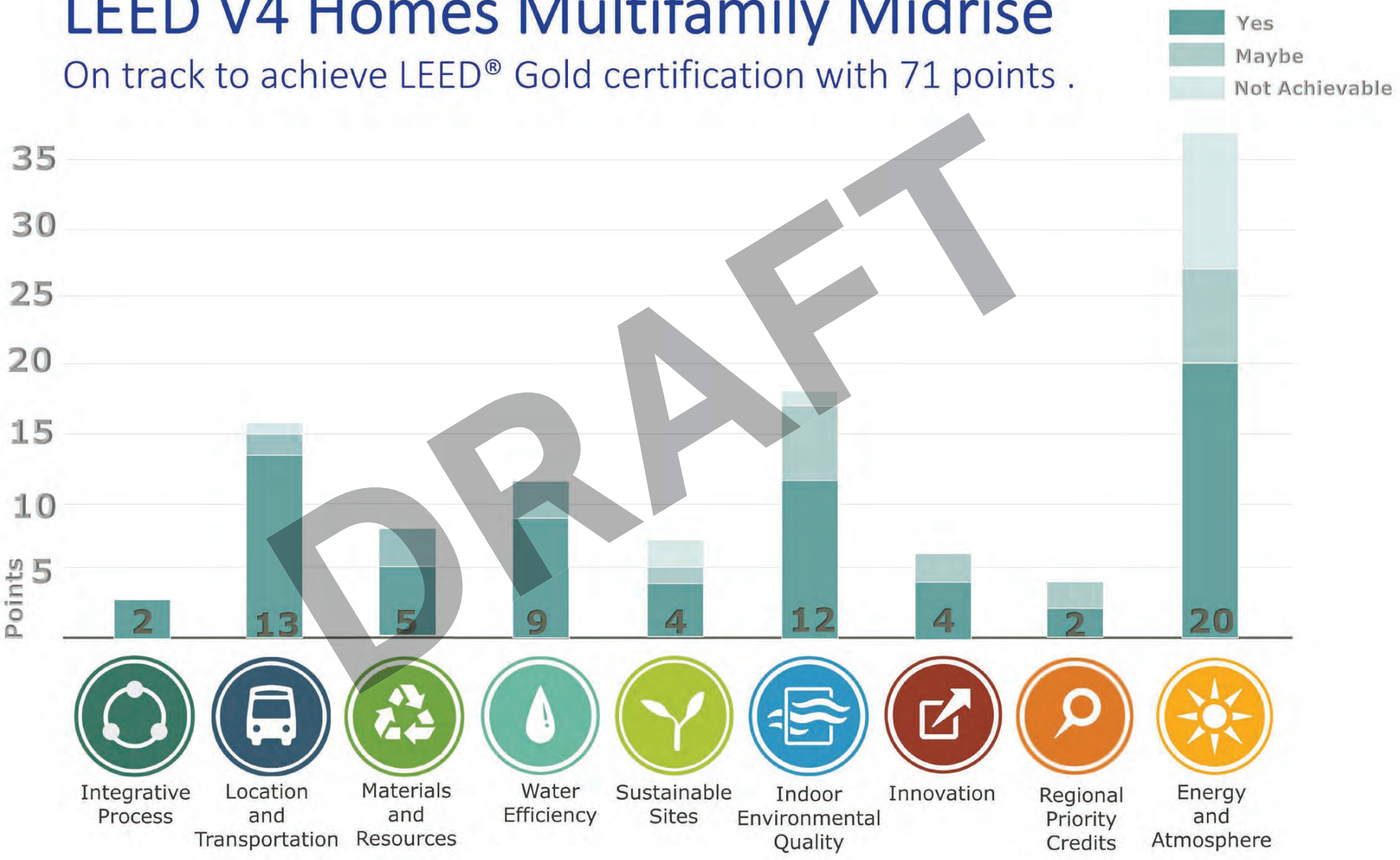
Key Discussion Items

- LEED V4 Homes MultiFamily Midrise
- Energy modeling results
- MGBR Design
- Key Sustainability Features

EQ BUILDING PERFORMANCE

LEED V4 Homes Multifamily Midrise

On track to achieve LEED® Gold certification with 71 points .



LEED V4 Homes Multifamily Midrise - Scorecard

Y	?	N			
2			Credit	Integrated Process	2

13	2	0	**Location and Transportation**		**15**
Y			Prereq	Floodplain Avoidance	Required
			PERFORMANCE PATH		
			Credit	LEED for Neighborhood Development Location	15
			PRESCRIPTIVE PATH		
8			Credit	Site Selection	8
3			Credit	Compact Development	3
2			Credit	Community Resources	2
	2		Credit	Access to Transit	2

4	1	2	**Sustainable Sites**		**7**
Y			Prereq	Construction Activity Pollution Prevention	Required
Y			Prereq	No Invasive Plants	Required
		2	Credit	Heat Island Reduction	2
3			Credit	Rainwater Management	3
1	1		Credit	Non-Toxic Pest Control	2

Y	?	N			
9	**3**	**0**	**Water Efficiency**		**12**
Y			Prereq	Water Metering	Required
			PERFORMANCE PATH		
9	3		Credit	Total Water Use	12
			PRESCRIPTIVE PATH		
			Credit	Indoor Water Use	6
			Credit	Outdoor Water Use	4

20	7	10	**Energy and Atmosphere**		**37**
Y			Prereq	Minimum Energy Performance	Required
Y			Prereq	Energy Metering	Required
Y			Prereq	Education of the Homeowner, Tenant or Building Manager	Required
16	4	10	Credit	Heat Island Reduction	30
2	3		Credit	Rainwater Management	5
2			Credit	Non-Toxic Pest Control	2

5	3	1	Materials and Resources		9
Y			Prereq	Certified Tropical Wood	Required
Y			Prereq	Durability Management	Required
		1	Credit	Durability Management Verification	1
2	3		Credit	Environmentally Preferable Products	5
3			Credit	Construction Waste Management	3

12	5	1	Indoor Environmental Quality		15
Y			Prereq	Ventilation	Required
Y			Prereq	Combustion Venting	Required
Y			Prereq	Garage Pollutant Protection	Required
Y			Prereq	Radon-Resistant Construction	Required
Y			Prereq	Air Filtering	Required
Y			Prereq	Environmental Tobacco Smoke	Required
Y			Prereq	Compartmentalization	Required
3			Credit	Enhanced Ventilation	3
1	1		Credit	Contaminant Control	2
1	2		Credit	Balancing of Heating and Cooling Distribution Systems	3
3			Credit	Enhanced Compartmentalization	3
2			Credit	Enhanced Combustion Venting	2
	1		Credit	Enhanced Garage Pollutant Protection	1
2	1		Credit	Low Emitting Products	3
		1	Credit	No Environmental Tobacco Smoke	1

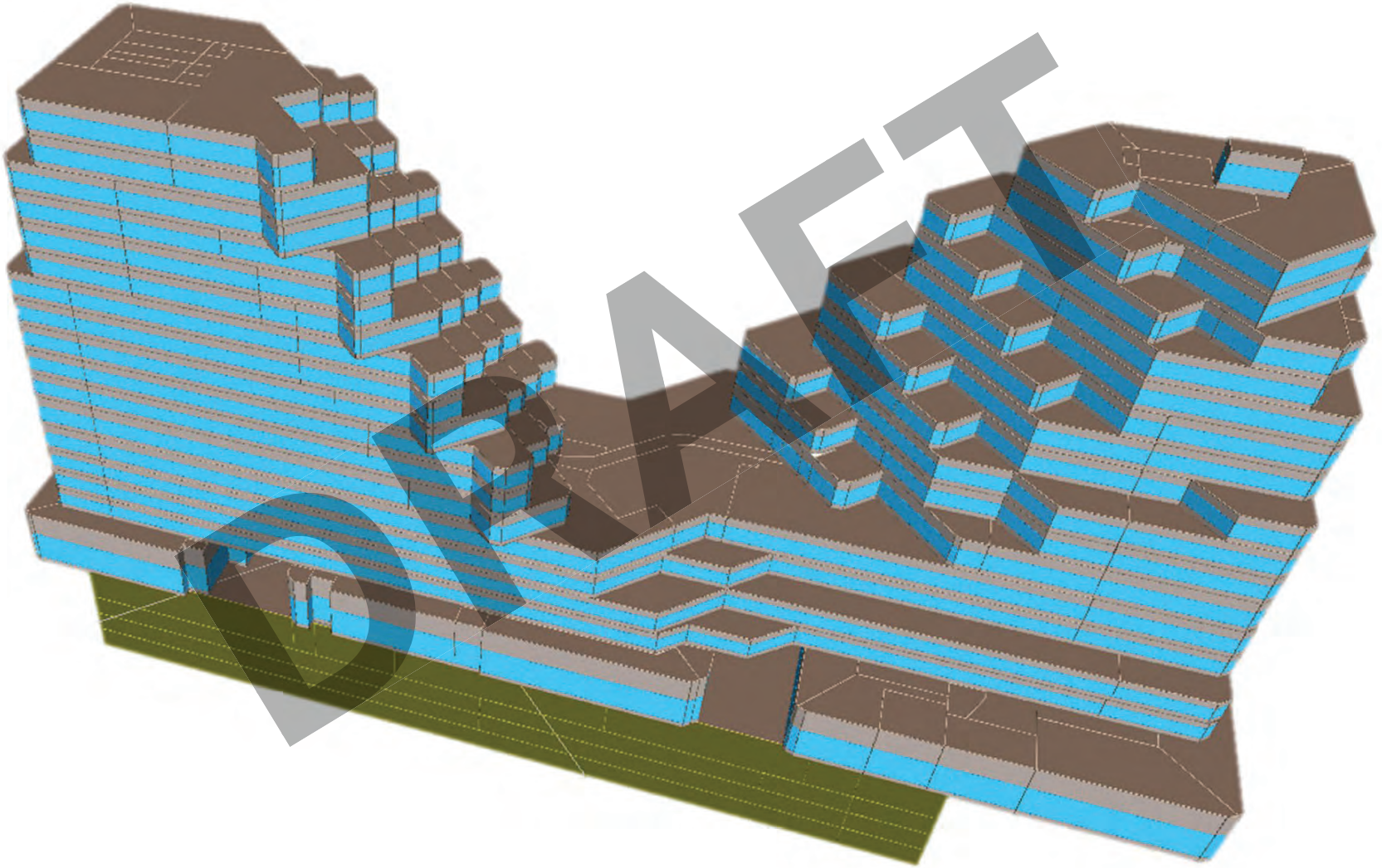
4	2	0	Innovation		6
Y			Prereq	Preliminarily Rating	Required
3	2		Credit	Innovation	5
1			Credit	LEED AP Homes	1

2	2	0	Regional Priority		4
1			Credit	Regional Priority: Specific Credit	1
1			Credit	Regional Priority: Specific Credit	1
	1		Credit	Regional Priority: Specific Credit	1
	1		Credit	Regional Priority: Specific Credit	1

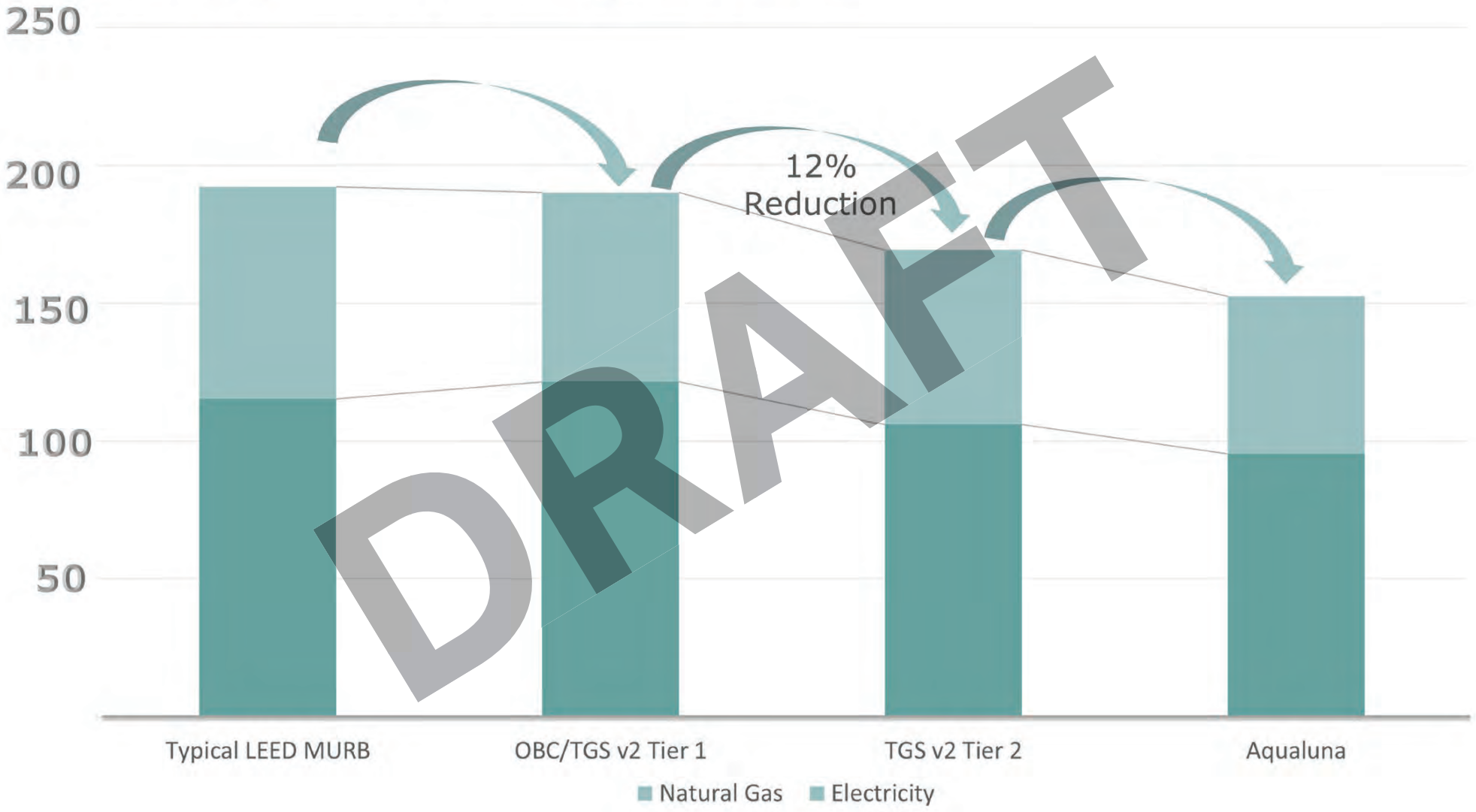
Y	?	N	Total Points
71	25	14	LEED Multifamily Midrise - Gold

Certified: 40 to 49 points, Silver: 50 to 59 points, Gold: 60 to 79 points, Platinum: 80 to 110 points

Energy Model



Energy Modeling Results



MGBR Design

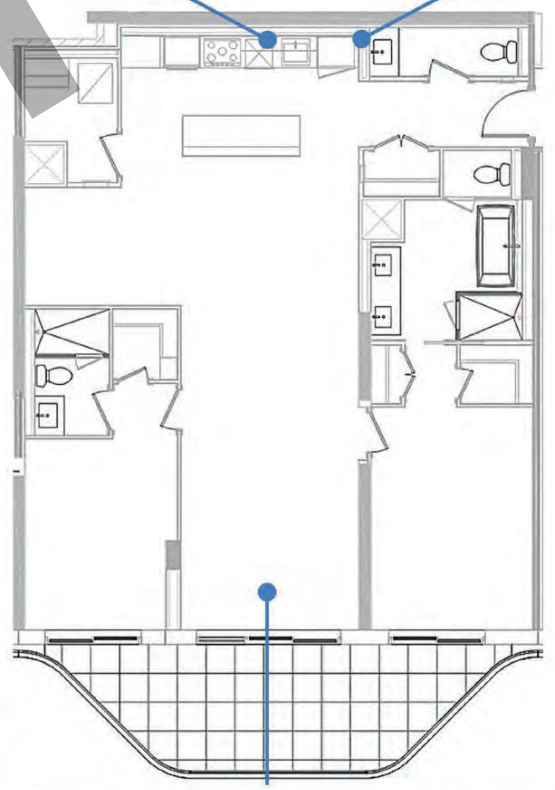
MGBR #7: Roof is designed to carry 8.2 kPa deadload, enough to support an intensive green roof. 60% green roof coverage of available roof area provided

MGBR#6: Slab-to-slab heights of 2.95m (Regular Suites) and 3.25m (Terrace Suites); ground floor 6.9m

MGBR #8: Segregated cabinet space for 3-stream waste collection built into kitchen storage

MGBR#4: Energy Star® appliances throughout improve energy and water savings

MGBR #9: Bicycle parking and storage to be provided in p1 and level 1. A total of 283 long and short term bicycle parking provided.



MGBR#5b: Heating, cooling, hot water, cold water, and electricity will be submetered

Key Sustainability Features

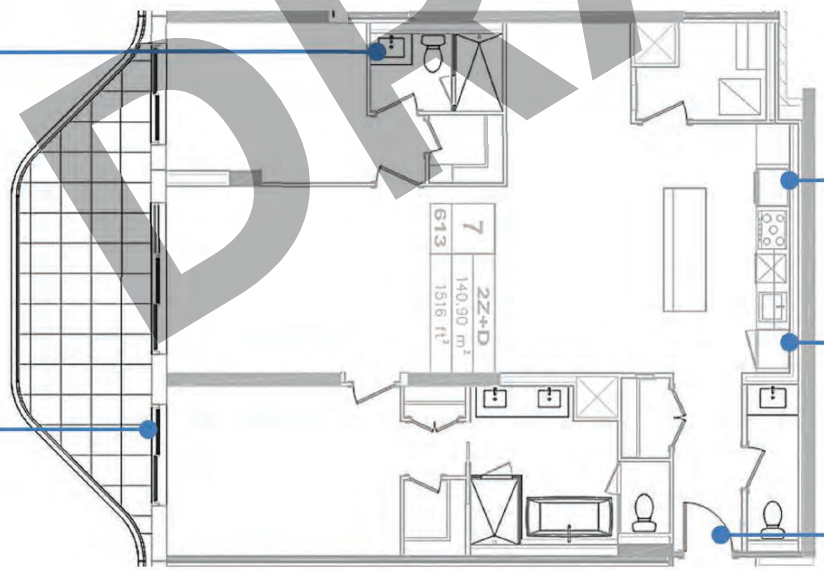
Local materials used for drywall, floor covering, insulation, and roofing. Recycled content of at least 25% post consumer and 50% pre consumer.

LED lighting in common areas, including amenity space and lobby

Ultra-Low Emitting Flooring

Low-VOC finishes

ERV with a delay timer installed in the bathrooms.



Reduced air-heating energy with the use of in-suite ERVs

High performance envelope with low-E glazing, argon gas, warm-edge spacers, and casement windows

50% indoor and outdoor water use reduction

Weather-stripping on suite entrance doors

Community Centre

ISSUES IDENTIFICATION STAGE

PERKINS+WILL

Introduction

Who are we?

Where are we in the process?

- Programming Stage : Sept-Oct 2018
- Schematic Design Stage : Oct-Dec 2018
- Design Development Stage : Dec-March 2019
- Contract Documentation Stage : March-July 2019
- Fit-up Construction Stage : Commences Sept 2020

Design Objectives

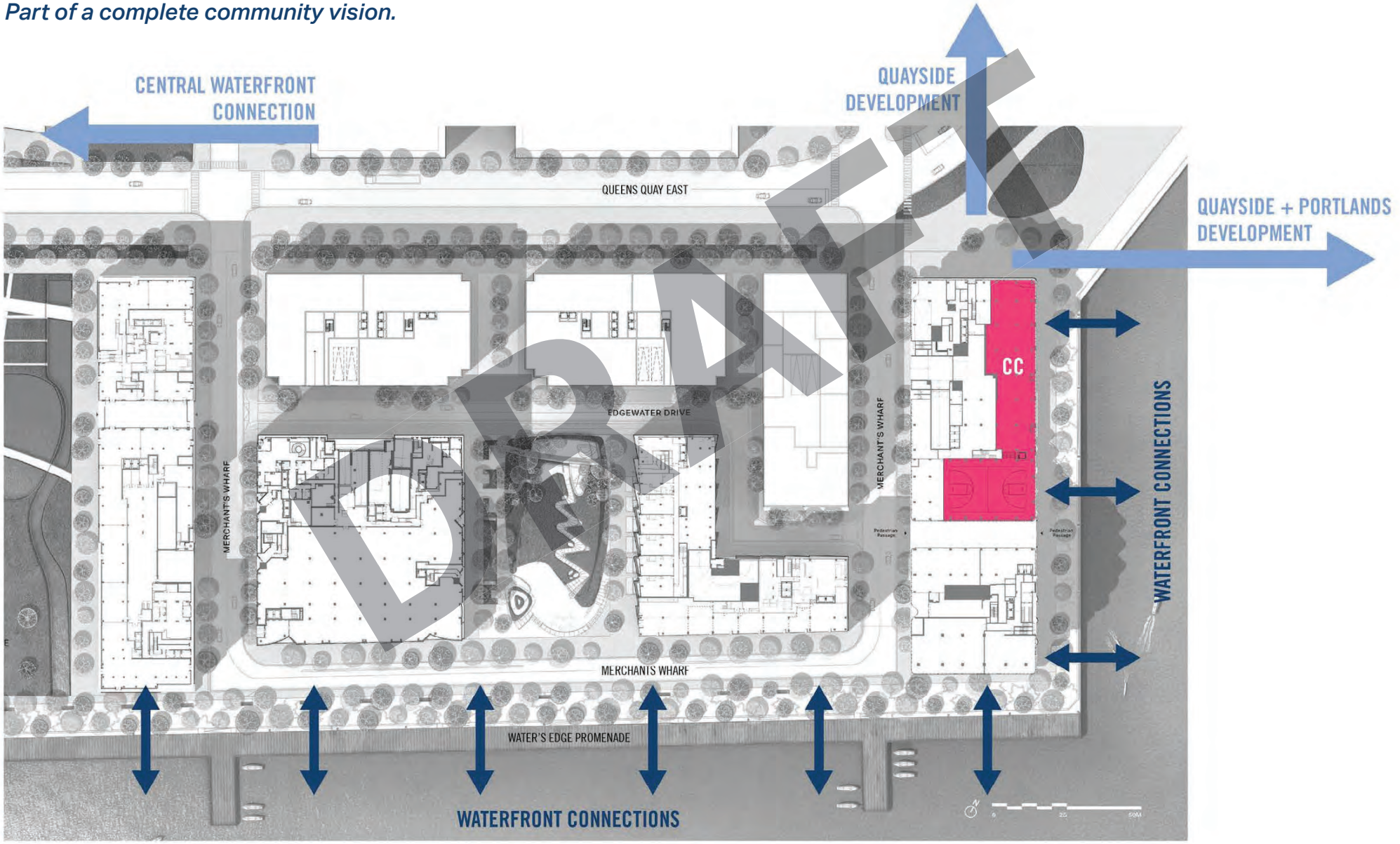
Supporting a broad set of community focused, city building and environmental objectives.

- Support and enhance the liveability of the East Bayfront precinct through the injection of community function
- Contribute to the vitality of the public realm and activation of the water's edge
- Assert a distinct public identity while blending with the larger development context
- Focus on program and site specific sustainable strategies that enhance active communities and community well-being
- Design for inclusivity and accessibility to invite a broader demographic of use

3XN Architects | *Aqualuna* at Bayside

Urban Analysis - Connections

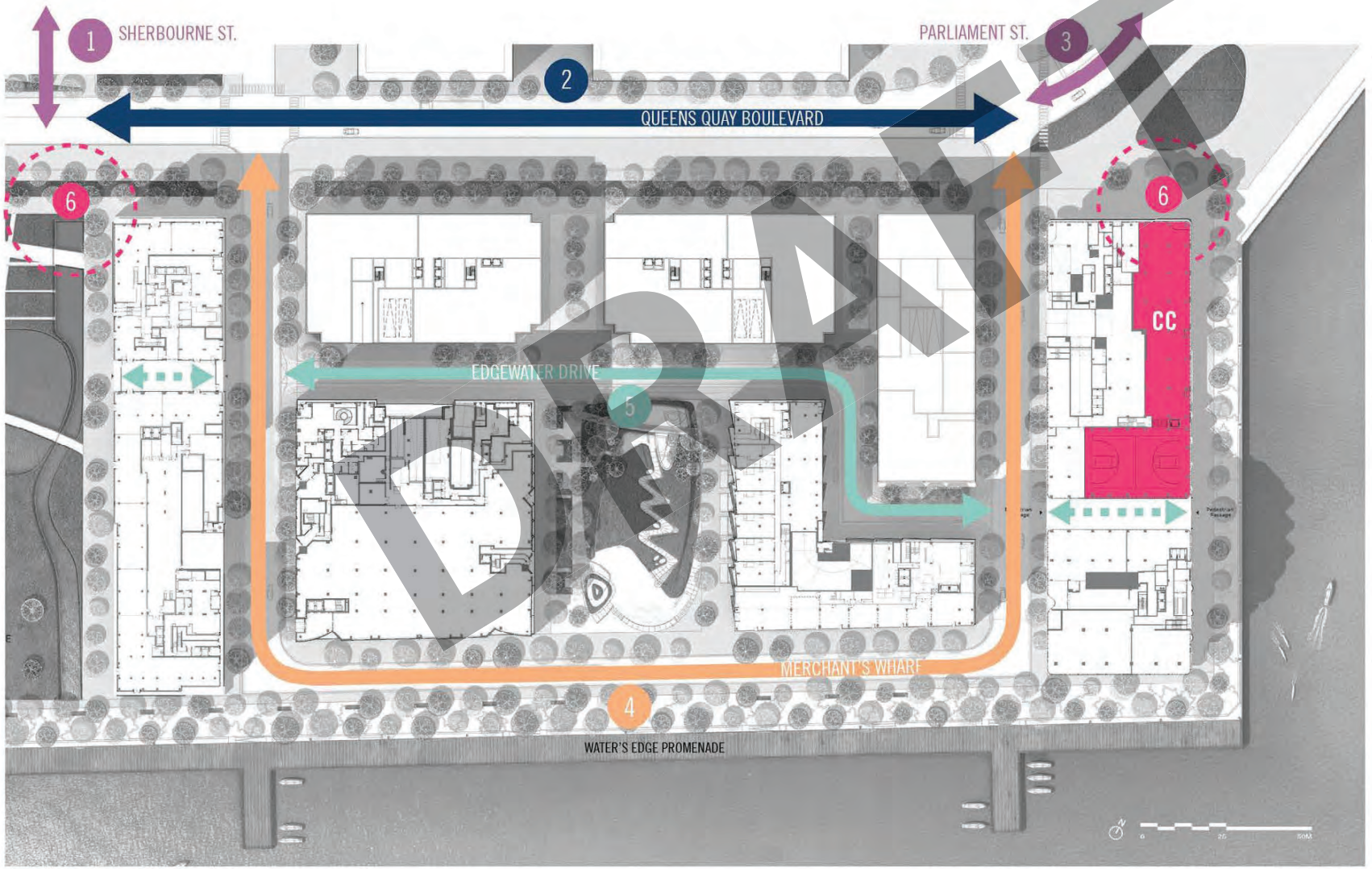
Part of a complete community vision.



3XN Architects | *Aqualuna* at Bayside

Urban Analysis - Street Hierarchy

A rich hierarchy of streets and pathways:
The community centre will establish an important gateway to the precinct along its eastern boundary at the foot of Parliament Street.



1/3 SECONDARY ARTERIALS:
- Primary north-south precinct entry points
- Reinforced with public realm features

2 PRIMARY THOROUGHFARE:
- Main Street
- Transit Corridor
- Civic Realm

4 LOCAL STREET:
- U-shaped street internal to development to enhance pedestrian and vehicular access
- Facilitates mid-block locations
- Accommodates service access

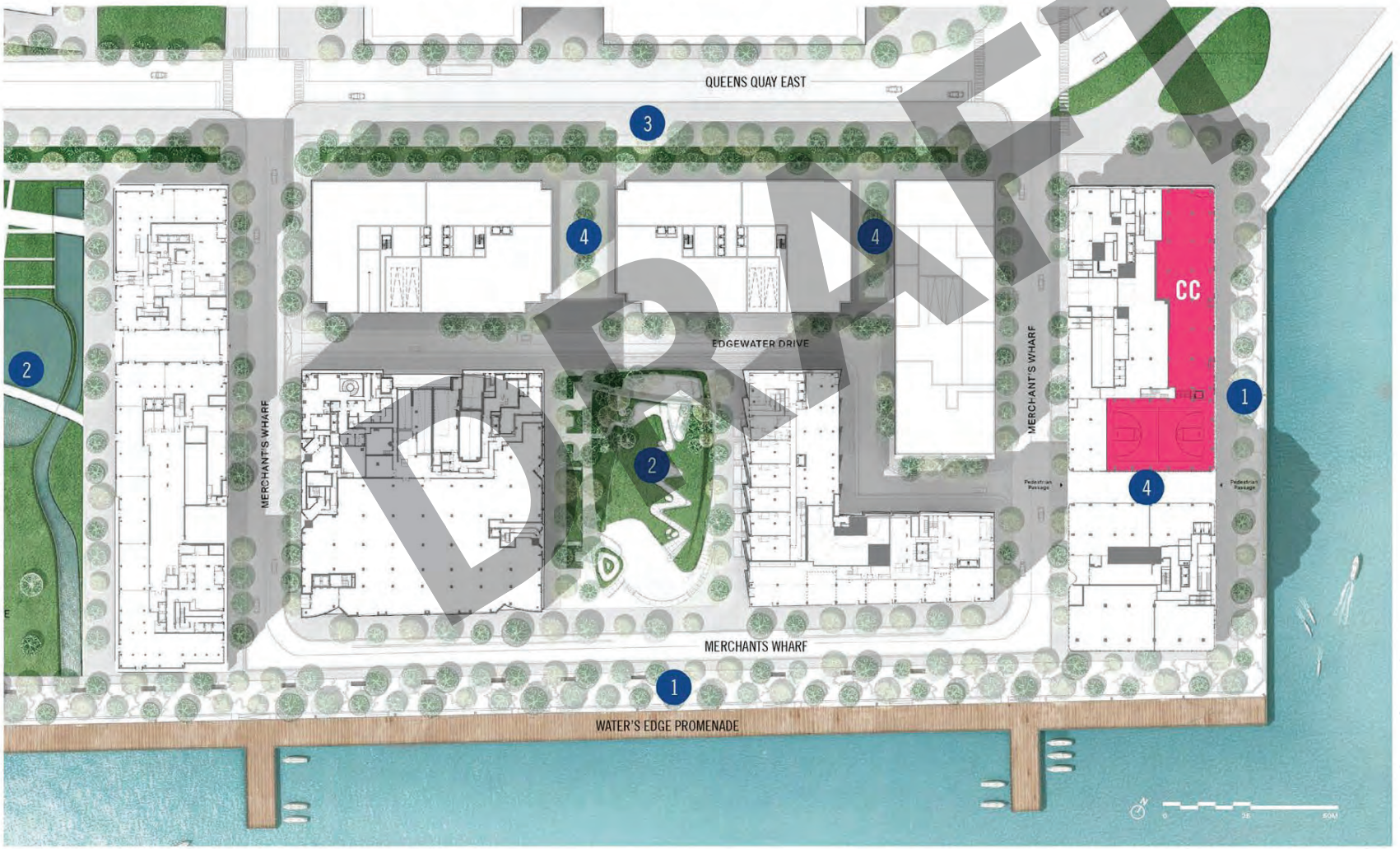
5 THROUGH BLOCK CONNECTION:
- Increases porosity of urban blocks
- Extends access and view corridors

6 PRECINCT GATEWAY

3XN Architects | *Aqualuna* at Bayside

Urban Analysis - Greenspace / Public Realm

An integrated system of parks and green space:
The community centre has the opportunity to generate new partnerships and new program synergies with the adjacent park functions.



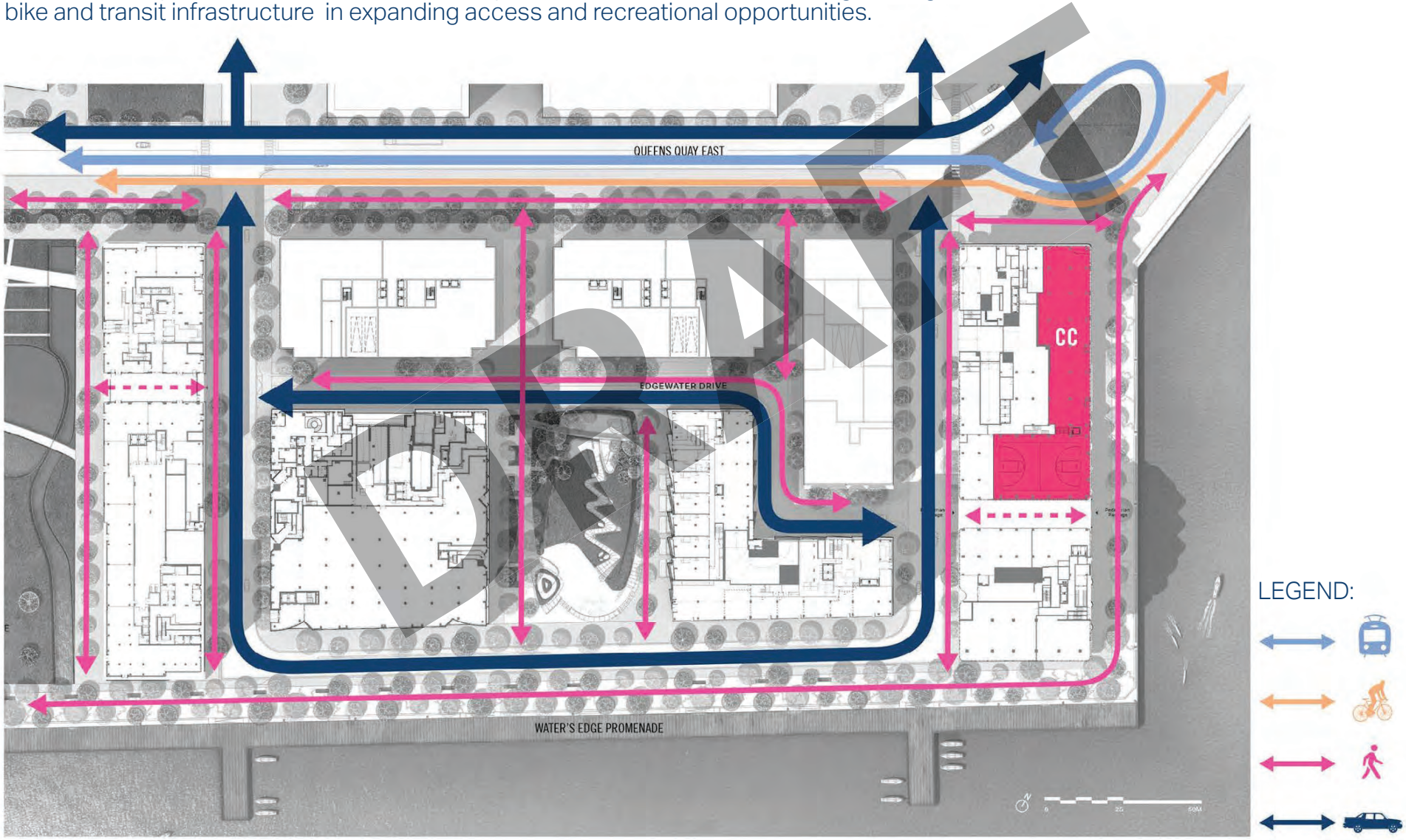
LEGEND:

1. Water's Edge Promenade
2. Precinct Parks
3. Boulevard Treatment
4. Courtyards / Breezeways

3XN Architects | *Aqualuna* at Bayside

Urban Analysis - Movement

A clear network of movement:
The community centre will benefit from its unique connection to the surrounding walking, bike and transit infrastructure in expanding access and recreational opportunities.



Program Opportunities

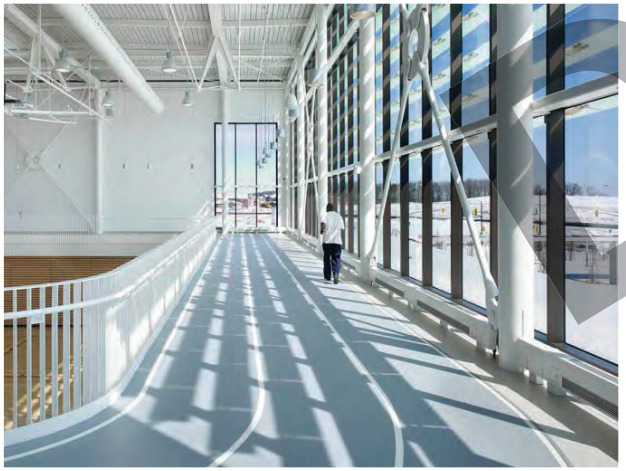
Program areas to be verified by city staff and public consultation

- A diverse combination of programs and users
- A commitment to inclusive programming and design
- A commitment to responsive stakeholder and community engagement

A	**Gymnasium Component**		
	Gymnasium	6,000	
	Gymnasium Mezzanine Walking Track	3,000	
	Gym Storage	400	
	Change Rooms / Washrooms (2 @ 400sf)	800	
	Subtotal Gymnasium	**10,200**	**10,200**
B	**Multi-Purpose**		
	General Multi-Purpose	1,500	
	Activity Rooms (3 @ 500 sf)	1,500	
	Flex Fitness (Dance)	1,000	
	Storage	400	
	Subtotal Multi-Purpose	**4,400**	**4,400**
C	**Public / Admin. Support**		
	Kitchen / Teaching Area	500	
	Public Washrooms (2 @ 300 sf)	600	
	Universal Washroom	80	
	Lobby / Reception	1,000	
	Admin Area / Meeting / Staff Lounge	1,000	
	Maintenance Office	100	
	Subtotal Public / Admin. Support	**3,280**	**3,280**
	TOTAL NET AREA (A through		**17,880 sf**
	TOTAL GROOS FLOOR AREA (gross up -		**25,032 sf**

Program Opportunities

A diverse + inclusive range of users and spaces

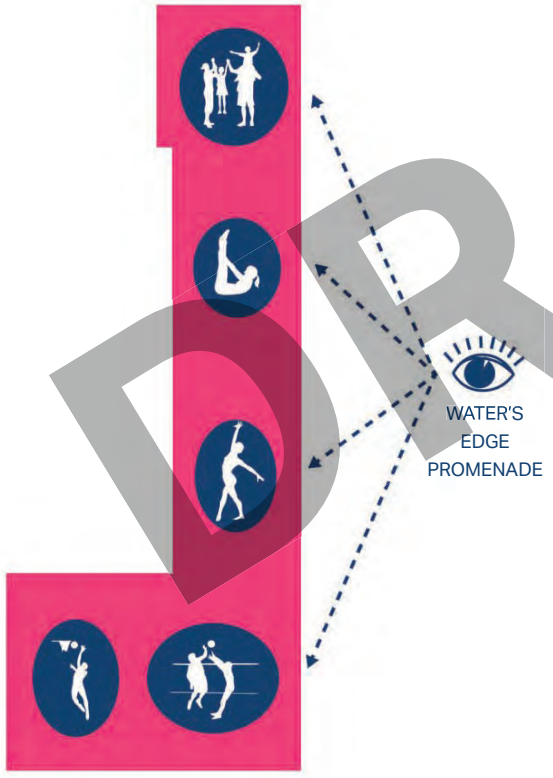


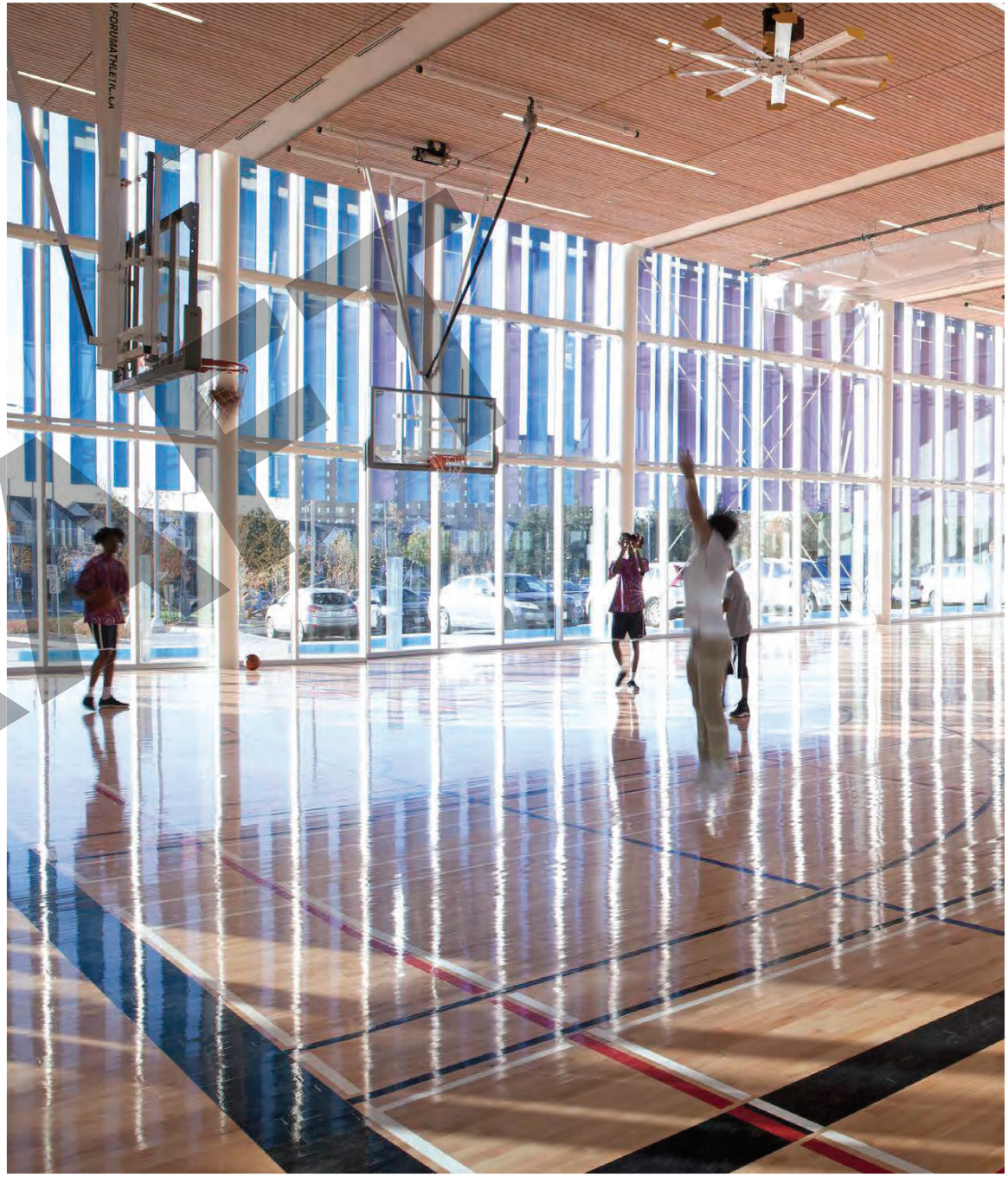
Program Opportunities

Program Visibility

The program offers a dynamic window into community life. The desire for program visibility must be balanced against the need for privacy and proper daylight control.

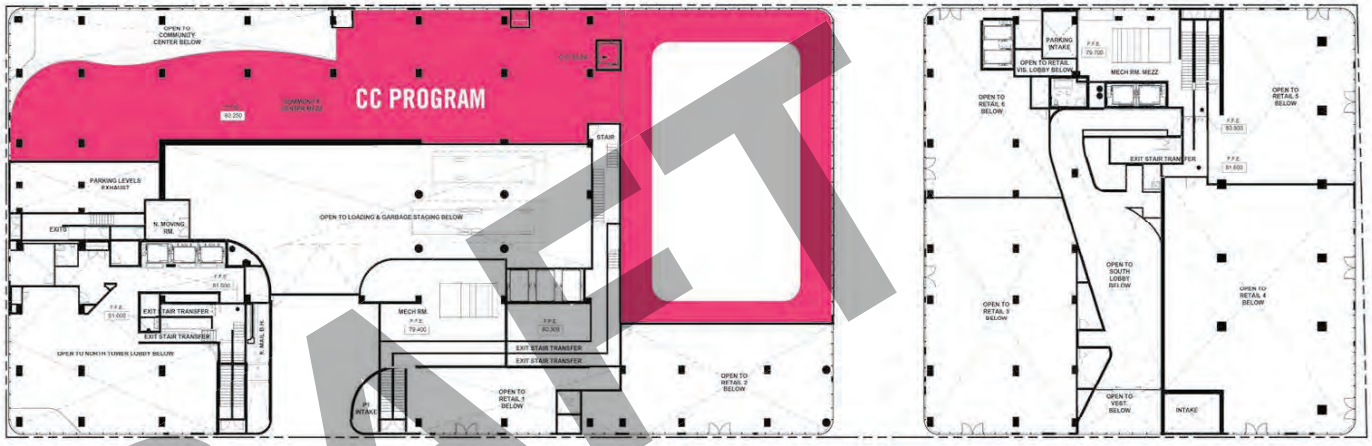
- A dynamic program expression
- Modulating daylight and visibility
- Expanding to the outdoors
- Improved marketability



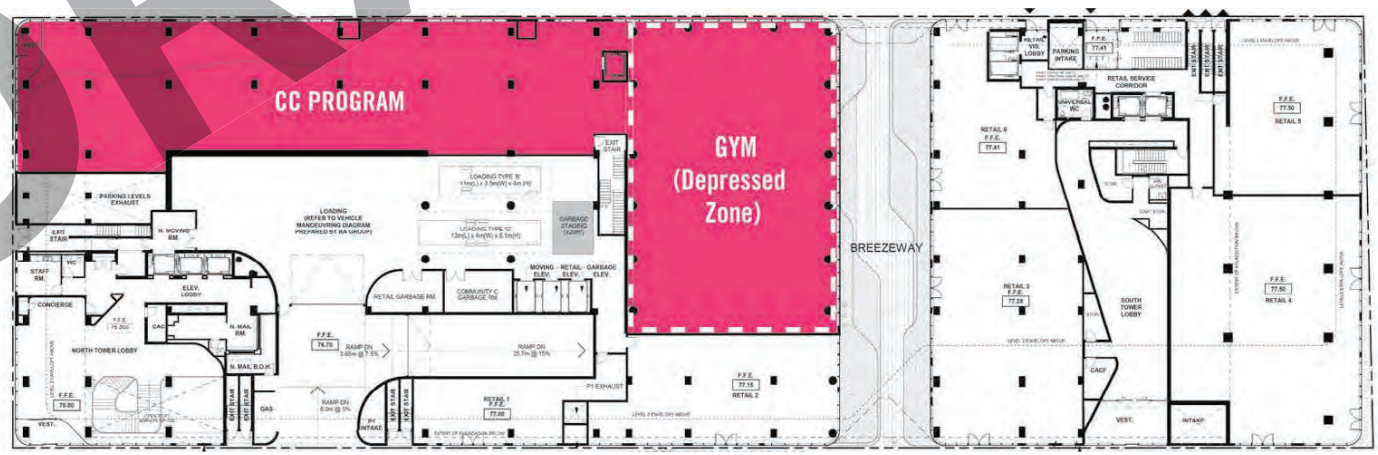


Proposed Footprint

- Level 01 Area = 1442.5 m² / 15,527 sf
- Mezzanine Area = 832.6 m² / 8,962 sf
- TOTAL = 2,275.1 m² / 24,489 sf



MEZZANINE



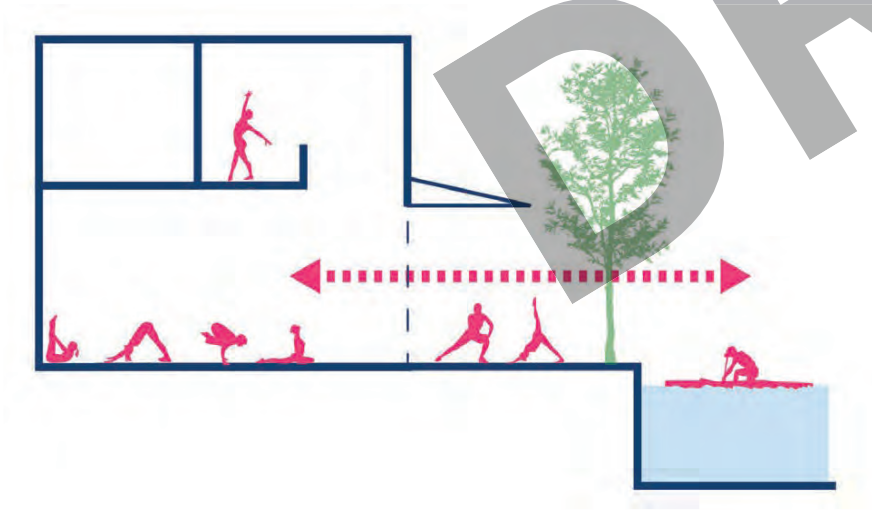
GROUND LEVEL

Site Opportunities

A bigger concept of public space

The community centre has the opportunity to create a dynamic interface to the water's edge in accommodating a broader range of public use and marine functions

- Operability- a dynamic facade
- Indoor/ outdoor community event space- 'living room concept'
- Program synergies and partnerships (marine function)
- A more flexible concept of control + space utilization



Site Opportunities

A prominent + distinct entrance

The community centre must register a strong presence along Queen's Quay Blvd in reinforcing its important civic function

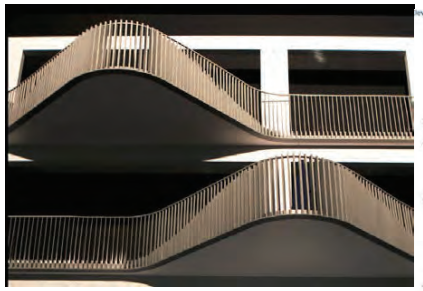
- Civic identity/ scale
- Entry expression (canopy/signage)
- Street/transit proximity

Site Opportunities

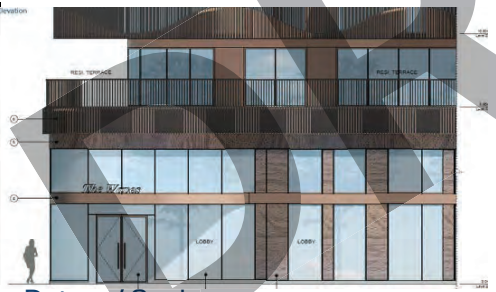
Blending within the larger Aqualuna development

The community centre should explore a balance between asserting a distinct public image while at the same time picking up on the larger themes and architectural vocabulary of the Aqualuna development

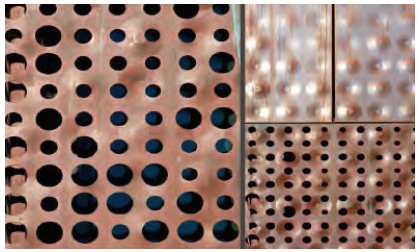
- Podium context
- Materiality
- Modularity
- Signature architectural elements



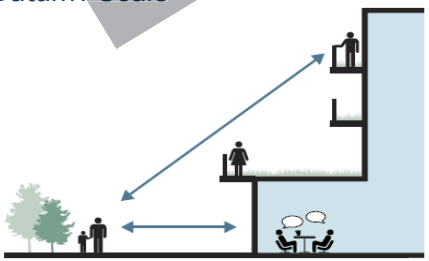
Lamellas / Rhythm



Datum / Scale



Materiality / Identity



Visibility / Indoor-Outdoor

Site Analysis

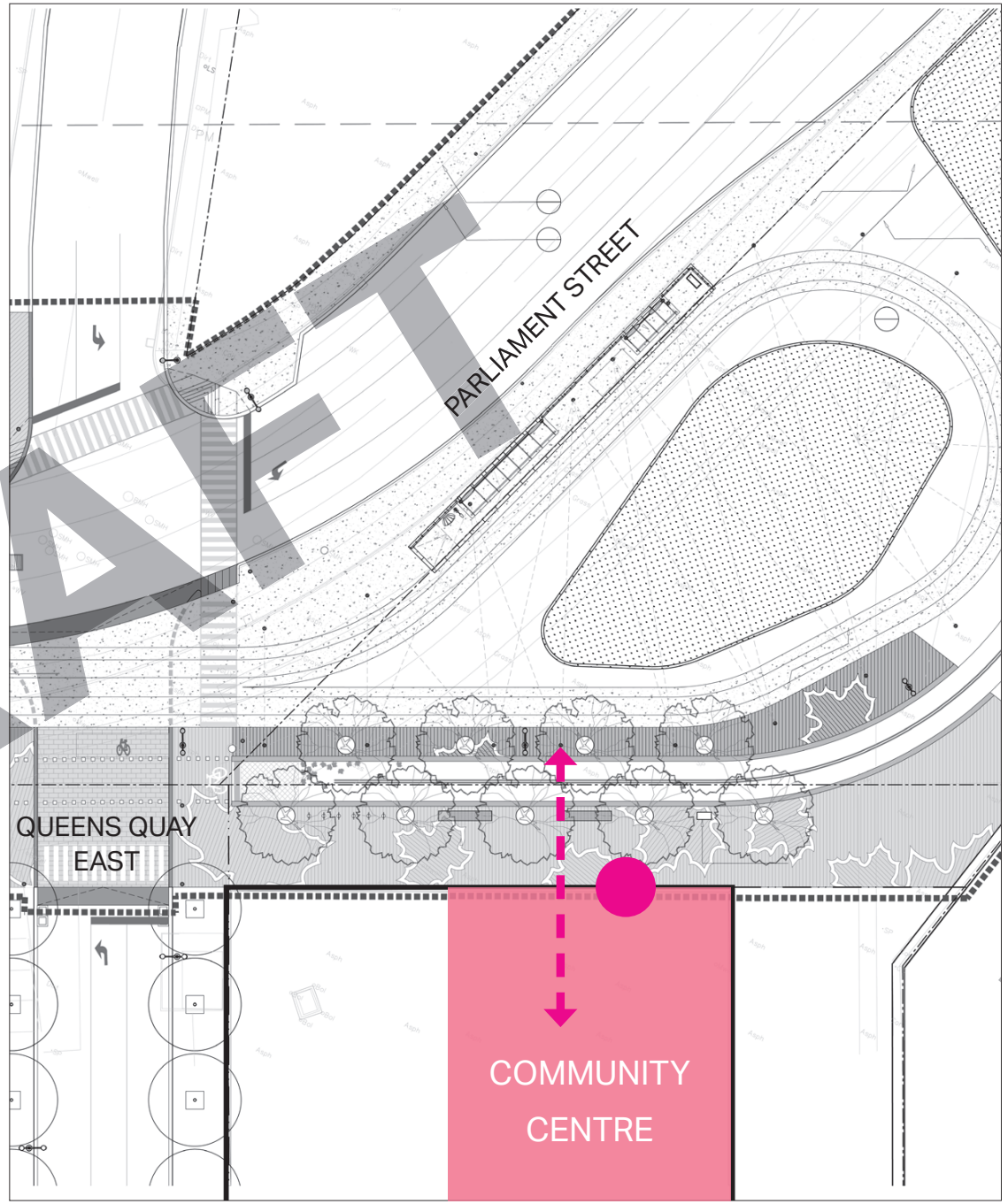
Queen's Quay Boulevard Edge

Opportunities

- Identify entry at appropriate civic scale
- Maximize visibility of entrance + program from street
- Maximize weather protection (wind and rain)
- Maximize proximity to drop off and transit stop
- Integrate bicycle parking
- Integrate signage + wayfinding in a complementary way

Constraints

- Limited frontage
- Zero lot line/limitation on projections and canopy design`



Site Analysis

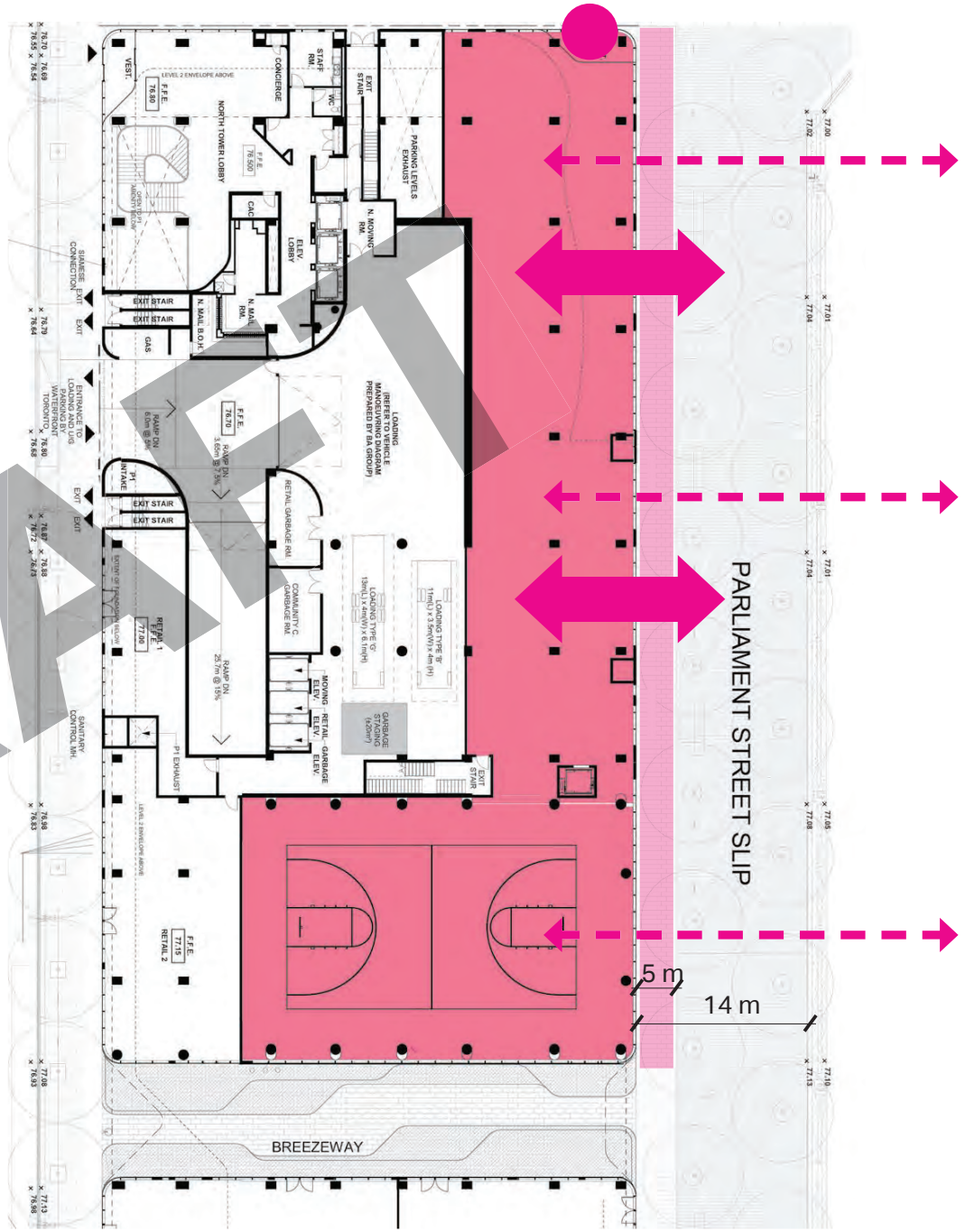
Parliament Steet Slip Edge

Opportunities

- Explore indoor/outdoor relationship/operability of façade
- Explore use of 5m paved zone for programming
- Capitalize on façade visibility from promenade and from across the Parliament slip
- Articulate façade in keeping with scale of spaces (i.e. at gym)

Constraints

- Zero lot line limiting distance and possible requirement for sprinklered façade
- Sectional relationship of depressed gym to waterfront



Site Analysis

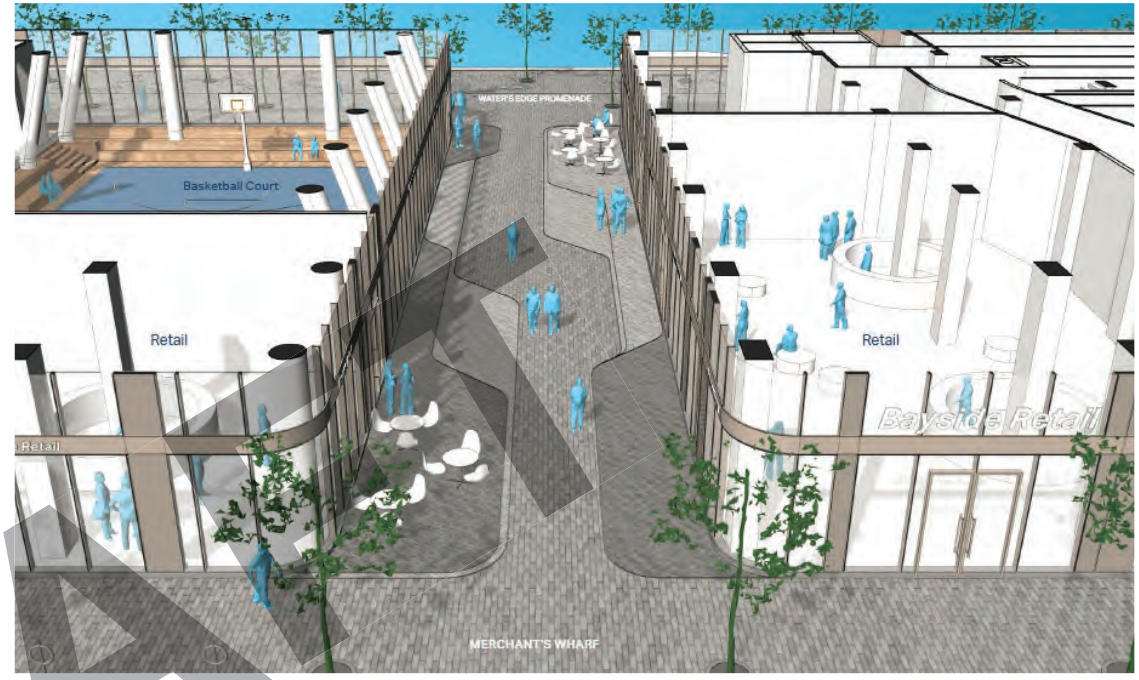
The Breezeway

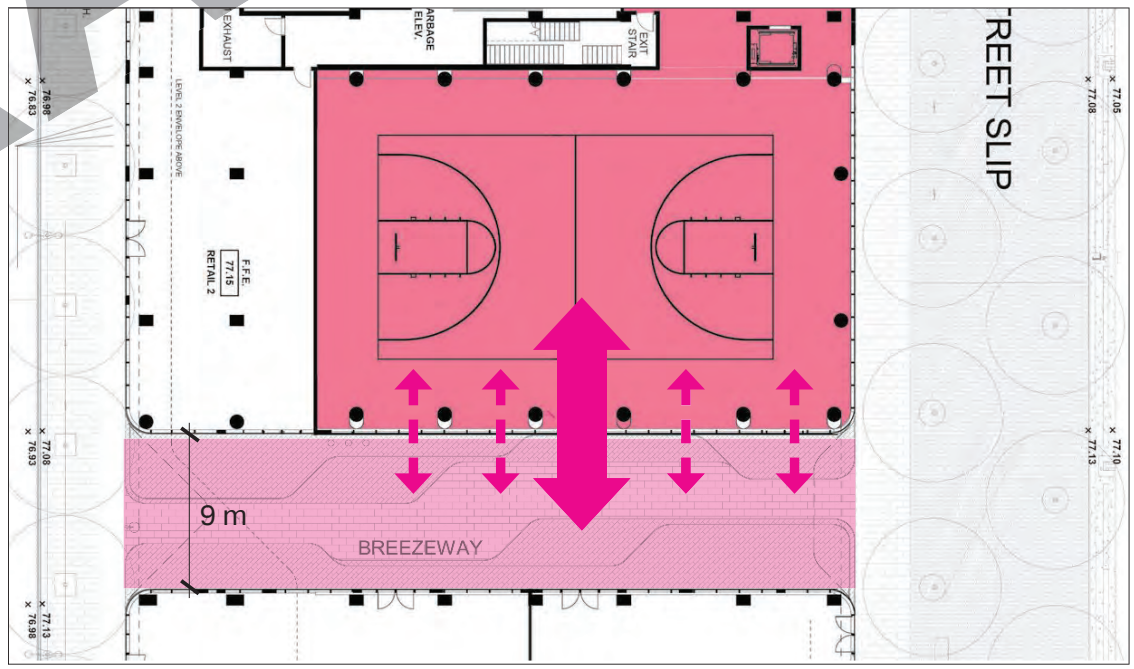
Opportunities

- Explore ability to program/animate breezeway
- Explore indoor/outdoor function
- Maximize transparency into gymnasium
- Integrate with breezeway soffit and ceiling expression

Constraints

- Sectional relationship of depressed gym to breezeway





Environmental Opportunities

Exemplifying a higher level of sustainability and well-being

- Create a minimum LEED Gold facility
- Conform with Toronto Green Standards Tier 2
- Address the challenges of this building type
    - Water efficiency
    - Energy efficiency
    - Indoor air quality
    - Durability
- Promote active living


DRAFT

Appendix A: Project Statistics

Project Statistics

3.2 Residential GFA

3.2.1 Condominium Residential GFA

3.2.1.1 Condominium Residential GFA Proposed (excluding condominium amenity area)

	floors	*sq.m.*	*sq.m.*	*sq.ft.*
Level P4	1 x	163.00	163.00	1,755
Level P3	1 x	163.00	163.00	1,755
Level P2	1 x	165.00	409.00	4,402
Level P1	1 x	615.00	260.00	2,799
Level 1	1 x	835.00	835.00	8,988
Level 1 Mezz	1 x	25.00	25.00	269
Level 2	1 x	3,673.00	3,673.00	39,536
Level 3	1 x	3,622.00	3,622.00	38,987
Level 4	1 x	3,340.00	3,340.00	35,951
Level 5	1 x	3,294.00	3,294.00	35,456
Level 6	1 x	2,305.00	2,305.00	24,811
Level 7	1 x	2,452.00	2,452.00	26,393
Level 8	1 x	2,347.00	2,347.00	25,263
Level 9	1 x	2,144.00	2,144.00	23,078
Level 10	1 x	2,021.00	2,021.00	21,754
Level 11	1 x	1,925.00	1,925.00	20,721
Level 12	1 x	1,677.00	1,677.00	18,051
Level 13	1 x	1,562.00	1,562.00	16,813
Level 14	1 x	1,441.00	1,441.00	15,511
Level 15	1 x	1,220.00	1,220.00	13,132
Level 16	1 x	728.00	728.00	7,836
Level 17	1 x	234.00	234.00	2,519
Total Condominium Residential GFA Proposed (excluding condominium amenity area)			**35,840.00**	**385,780**

4.0 Condominum Units

4.1 Condominium Residential Unit Breakdown

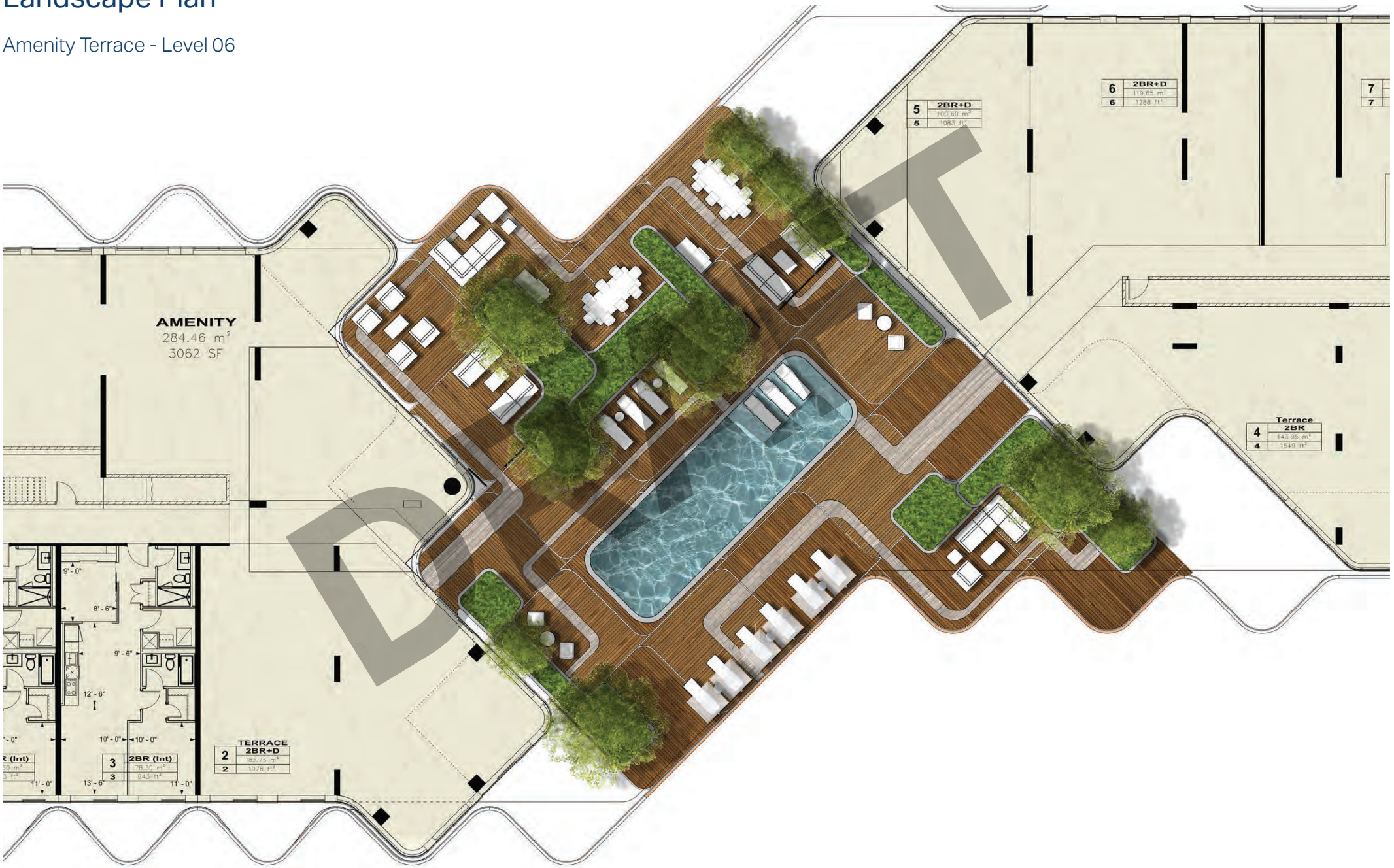
4.1.1 Condominium Residential Unit Breakdown Proposed

	1 Bedroom		2 Bedroom		3 Bedroom		2 Bedroom TH		Total
	<60.4	> 60.4m²	< 79 m²	> 79 m²	< 93m²	>93m²	< 120m²	>120m²	
L2	2	1	8	8	0	1	0	12	32
L3	2	1	8	8	0	1	0	0	20
L4	2	3	8	13	0	1	0	0	27
L5	2	3	7	12	0	1	0	0	25
L6	1	3	4	9	0	1	0	0	18
L7	1	2	1	11	0	2	0	0	17
L8	1	1	1	12	0	1	0	0	16
L9	1	1	1	11	0	1	0	0	15
L10	1	1	1	7	0	3	0	0	13
L11	1	1	1	9	0	1	0	0	13
L12	0	0	0	7	0	1	0	0	8
L13	0	0	0	7	0	1	0	0	8
L14	0	0	0	7	0	0	0	0	7
L15	0	0	0	6	0	0	0	0	6
L16	0	0	0	1	0	0	0	0	1
Total Condo Units	**14**	**17**	**40**	**128**	**0**	**15**	**0**	**12**	**226**
Proposed	**31**		**168**		**15**		**12**		

Appendix B: Landscape Plan

Landscape Plan

Amenity Terrace - Level 06

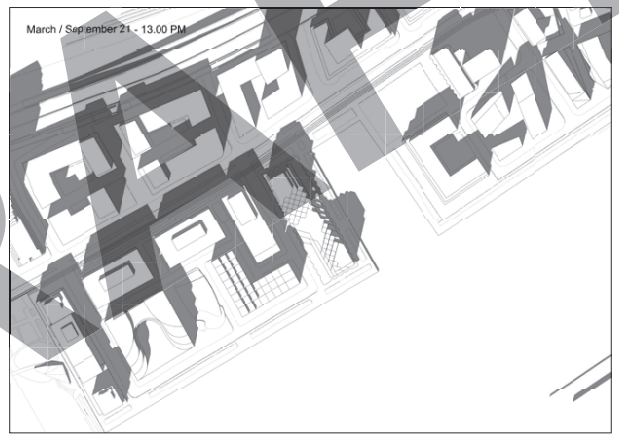


Appendix C: Sun/Shadow & Wind Analysis

Sun Shadow Analysis

March/September 21st

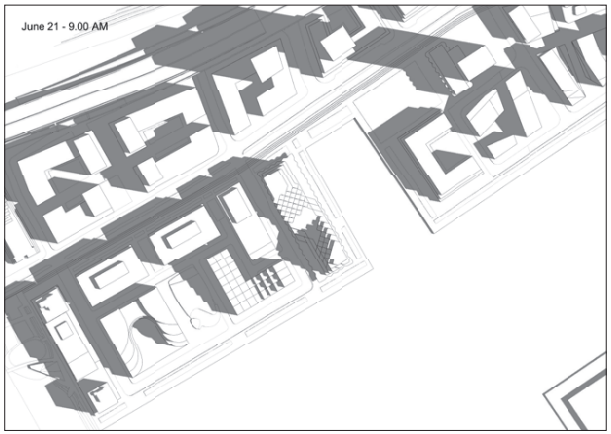
9AM - 5PM

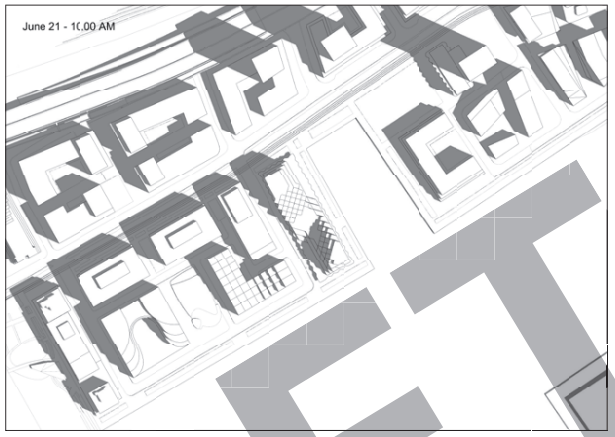


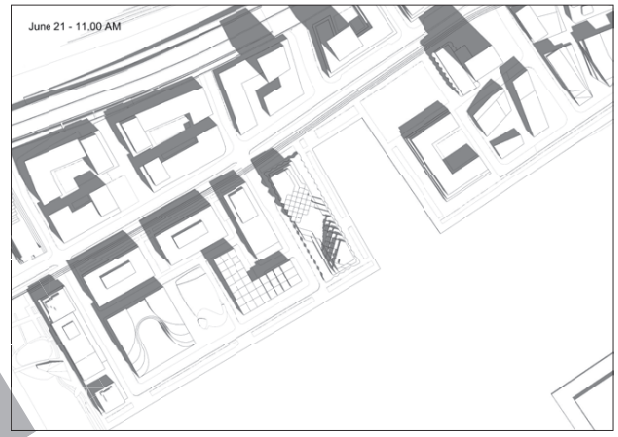
Sun Shadow Analysis

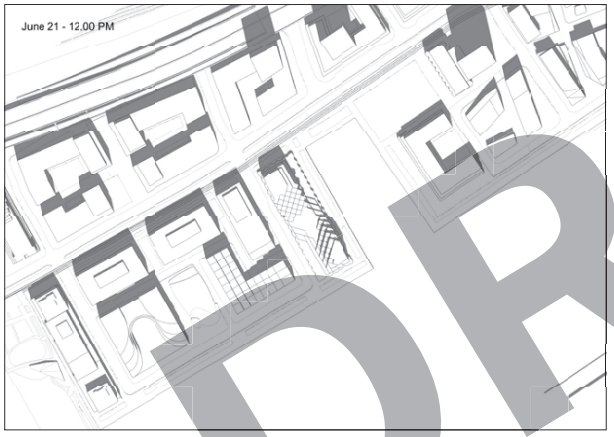
June 21st

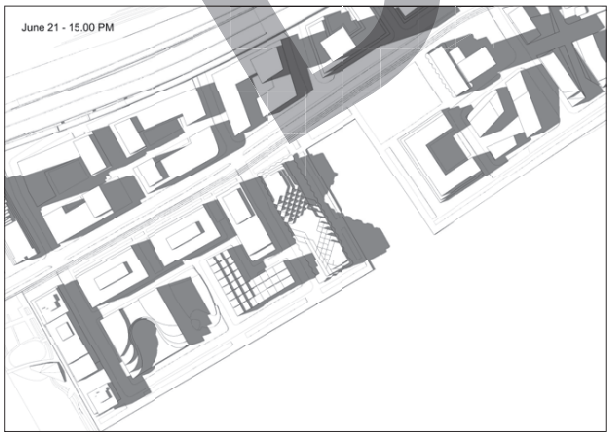
9AM - 5PM

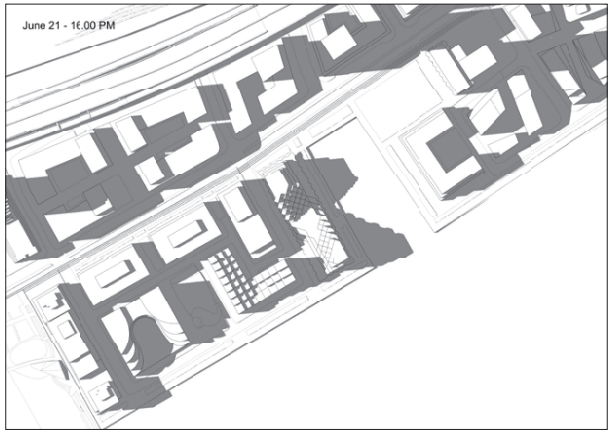


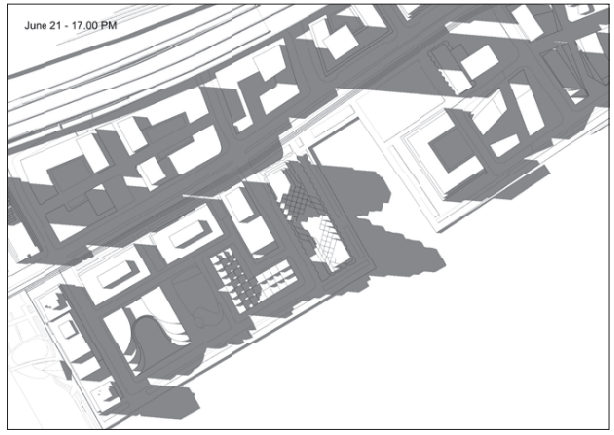












Wind Analysis

Pedestrian level wind study - March 2018

4.4 Pedestrian Wind Comfort and Safety Guidelines

Pedestrian comfort guidelines are based on mechanical wind effects without consideration of other meteorological conditions (i.e. temperature, relative humidity). The guidelines provide an assessment of comfort, assuming that pedestrians are appropriately dressed for a specified outdoor activity during any given season. Five pedestrian comfort classes and corresponding gust wind speed ranges are used to assess pedestrian comfort, which include: (i) Sitting; (ii) Standing; (iii) Walking; (iv) Uncomfortable; and (v) Dangerous. More specifically, the comfort classes, associated wind speed ranges, and limiting guidelines are summarized as follows:

(i) **Sitting** – Wind speeds no greater than 14 km/h occurring at least 70% of the time would be considered acceptable for sedentary activities, including sitting.

(ii) **Standing** – Wind speeds no greater than 22 km/h occurring at least 80% of the time of the time are acceptable for activities such as standing, strolling or more vigorous activities.

(iii) **Walking** – Wind speeds no greater than 30 km/h occurring at least 80% of the time of the time are acceptable for walking or more vigorous activities.

(iv) **Uncomfortable** – Uncomfortable conditions are characterized by predicted values that fall below the 80% target for walking. Brisk walking and exercise, such as jogging, would be acceptable for moderate excesses of this comfort level.

(v) **Dangerous** – Wind speeds greater than 90 km/h, occurring more than 0.1% of the time, are classified as dangerous. From calculations of stability, it can be shown that gust wind speeds of 90 km/h would be the approximate threshold wind speed that would cause an average elderly person in good health to fall.

The wind speeds associated with the above categories are gust wind speeds. Corresponding mean wind speeds are approximately calculated as gust wind speed divided by 1.5. Gust speeds are used in the guidelines because people tend to be more sensitive to wind gusts than to steady winds for lower wind speed ranges. For strong winds approaching dangerous levels, this effect is less important, because the mean wind can also cause problems for pedestrians. The gust speed ranges are selected based on 'The Beaufort Scale', presented on the following page, which describes the effects of forces produced by varying wind speed levels on objects.

DESIRED PEDESTRIAN COMFORT CLASSES FOR VARIOUS LOCATION TYPES

Location Types	Desired Comfort Classes
Primary Building Entrances	Standing
Secondary Building Access Points	Standing / Walking
Public Sidewalks / Pedestrian Walkways	Walking
Outdoor Amenity Spaces	Sitting / Standing
Cafés / Patios / Benches / Gardens	Sitting / Standing
Plazas	Sitting / Standing / Walking
Transit Stops	Standing
Public Parks	Sitting / Standing / Walking
Garage / Service Entrances	Walking
Vehicular Drop-Off Zones	Standing / Walking
Laneways / Loading Zones	Walking

Following the comparison, the location is assigned a descriptor that indicates the suitability of the location for its intended use. The suitability descriptors are summarized as follows:

- **Acceptable**: The predicted wind conditions are suitable for the intended uses of the associated outdoor spaces without the need for mitigation.
- **Acceptable with Mitigation**: The predicted wind conditions are not acceptable for the intended use of a space; however, following the implementation of typical mitigation measures, the wind conditions are expected to satisfy the required comfort guidelines.
- **Mitigation Testing Recommended**: The effectiveness of typical mitigation measures is uncertain, and additional wind tunnel testing is recommended to explore other options and to ensure compliance with the comfort guidelines.
- **Incompatible**: The predicted wind conditions will interfere with the comfortable and/or safe use of a space, and cannot be feasibly mitigated to acceptable levels.

Wind Analysis

Pedestrian comfort prediction

Spring

Summer

Wind Analysis

Pedestrian comfort prediction

Autumn

Winter

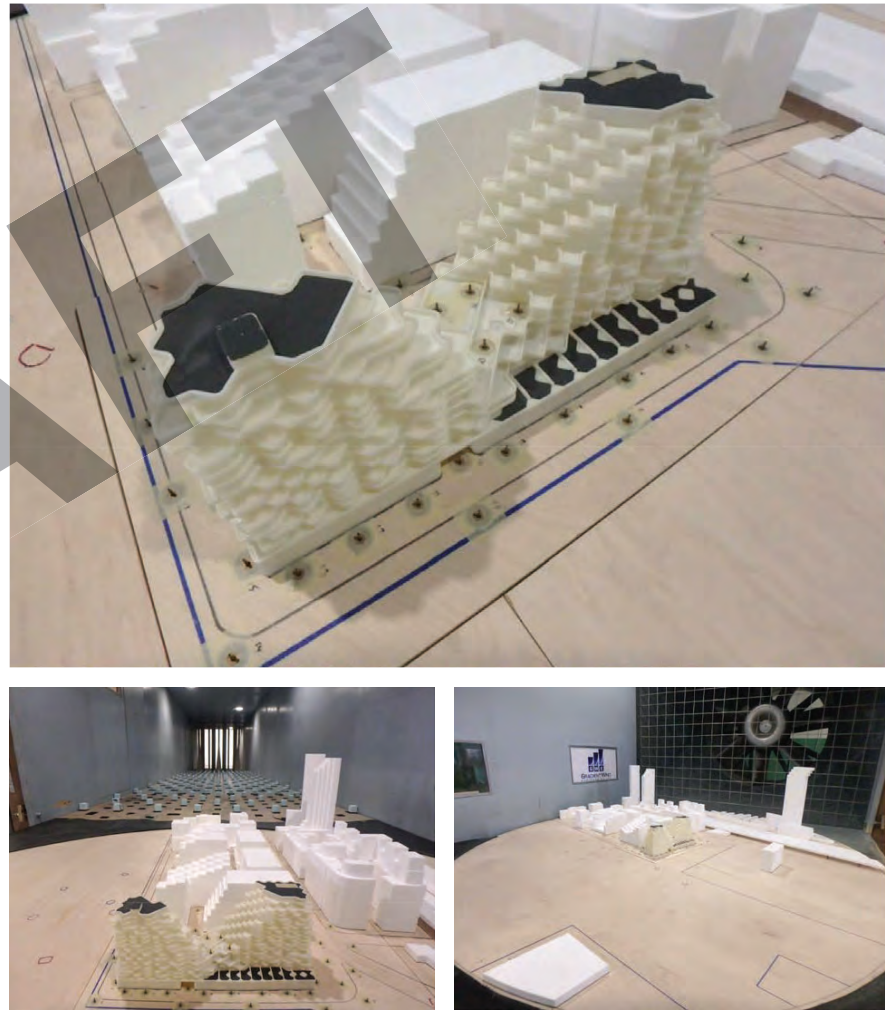
Wind Analysis

Conclusion

5.2 Pedestrian Comfort Summary

Based on the analysis of the measured data, consideration of local climate data, and the suitability descriptors provided in Tables 1 through 15 in Section 5.1, this section summarizes the most significant findings of the PLW assessment, as follows:

1. All surrounding public sidewalks and promenades within and surrounding the development site will be mostly suitable for standing, or better, during all seasonal periods, which is acceptable.
2. The planned landscaped areas, building access points, and pedestrian passage will experience wind conditions comfortable for standing or better throughout the year, which is considered appropriate for the intended uses of the spaces.
3. The Level 6 podium roof amenity area, represented by sensors 51-56 (Tables 14 and 15), will be calm throughout the year. Conditions suitable for sitting are predicted during the summer season, while a mix of sitting and standing is predicted for the shoulder seasons of spring and autumn. Although not required, the introduction of 1.6-m tall wind barriers around planned seating areas, comprising high-solidity wind screens and/or raised planters with dense coniferous plantings, will increase comfort levels during the colder months.
4. Within the context of typical weather patterns, which exclude anomalous localized storm events such as tornadoes and downbursts, no areas over the study site were found to experience wind conditions that are considered unsafe.



Study model inside the GWE wind tunnel.