



CRA DESIGN REVIEW – PARK AND OPEN SPACE REVIEW

AMENDMENT 2

MXD

CAMBRIDGE, MA

Design review
Nov 10 2021



Boston
Properties

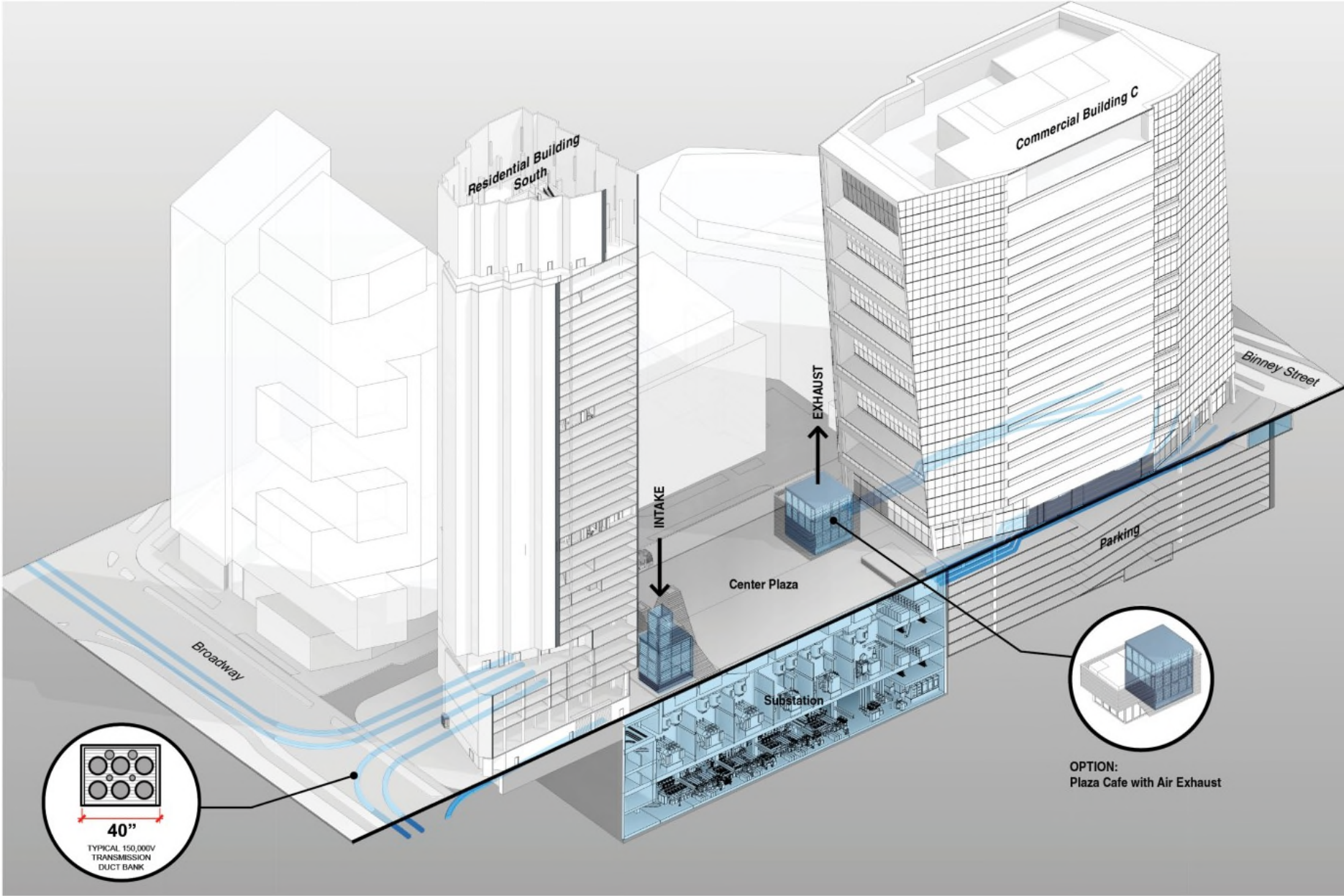
SASAKI



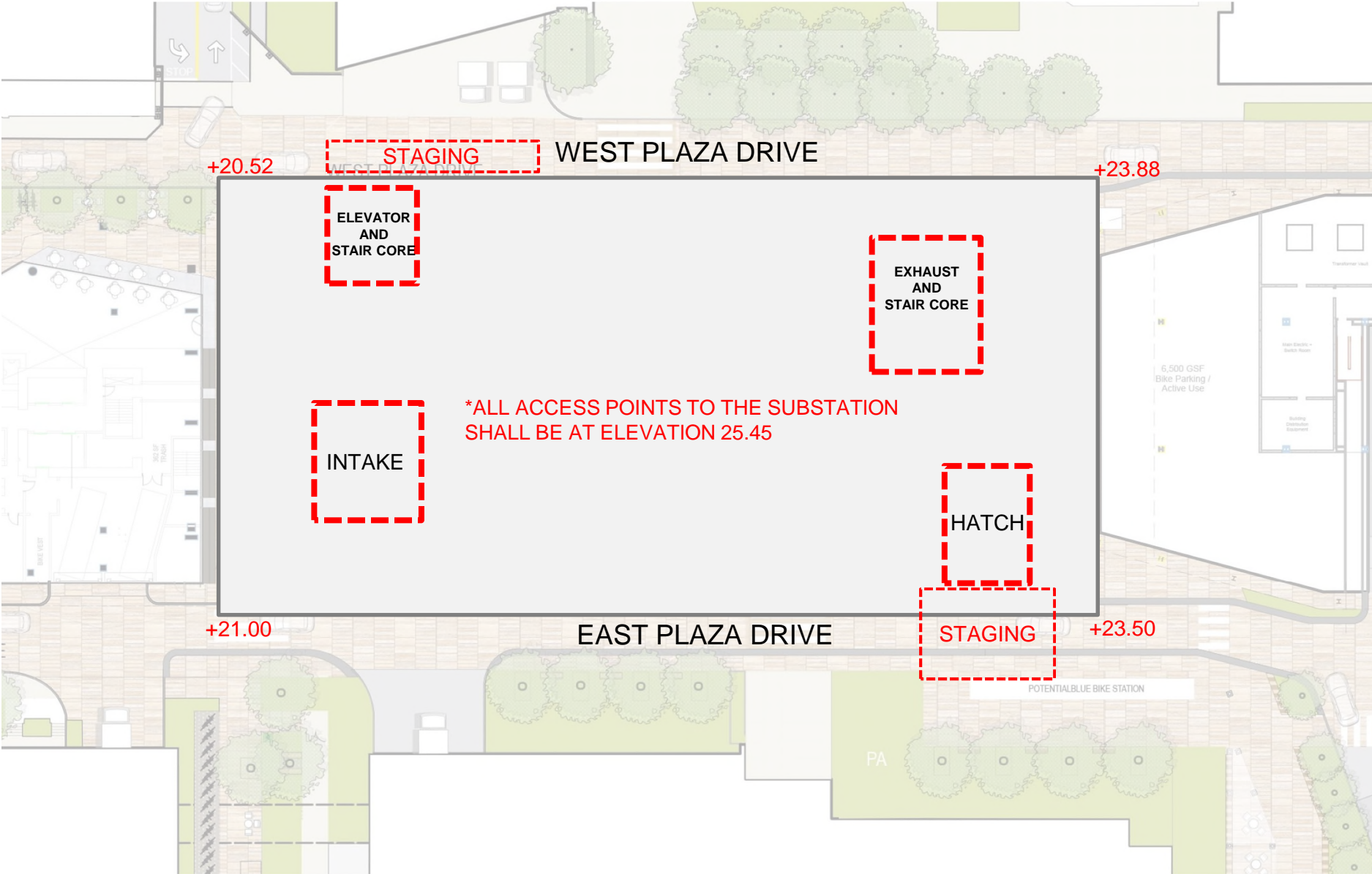
PARK + SUBSTATION INFRASTRUCTURE CONSTRAINTS & OPPORTUNITY

- 1. Infrastructure and what is an unmovable condition and why**
2. Detailed Sections of station and park/plaza
3. Plaza landscape plan with additional planting
4. Children's Play Area

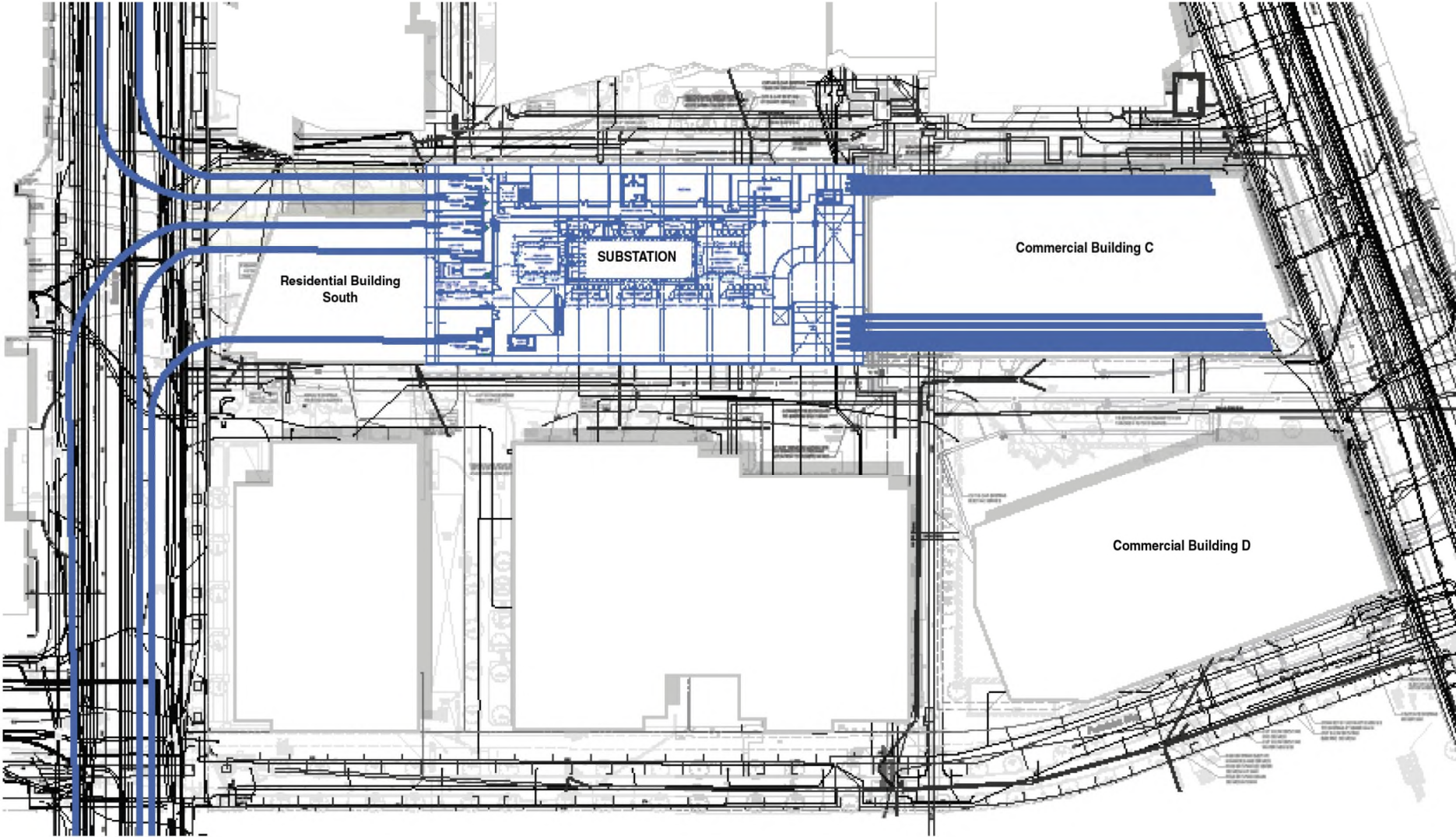
SUBSTATION VAULT – SECTION OVERVIEW



CENTER PLAZA SUBSTATION VERTICAL PENETRATIONS

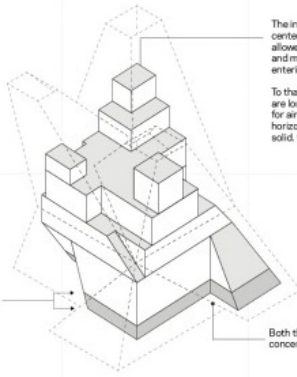


TRANSMISSION & DISTRIBUTION



VENTILATION STACKS – PERFORMANCE v SCULPTURE

Interior Ventilation Structure



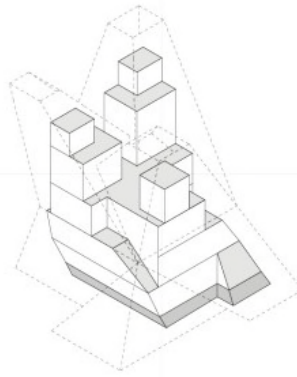
The interior skin calculations centered on ensuring surfaces allowed for the airflow requirements and minimized the risk of water entering the vent.

To that end, vertical surfaces are louvered at 50% open, allowing for air to pass through, and horizontal or slanted surfaces are solid, to keep water out.

At the base of each test was a 5' allowance to guard against water in the event of flooding.

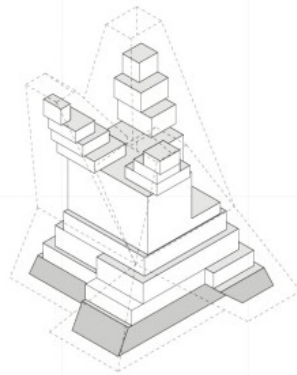
Both the interior and exterior skins work in concert to allow space for a structural system.

01. 4,230 SF of louvered area

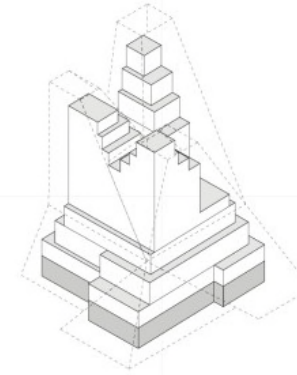


02. 4,065 SF of louvered area

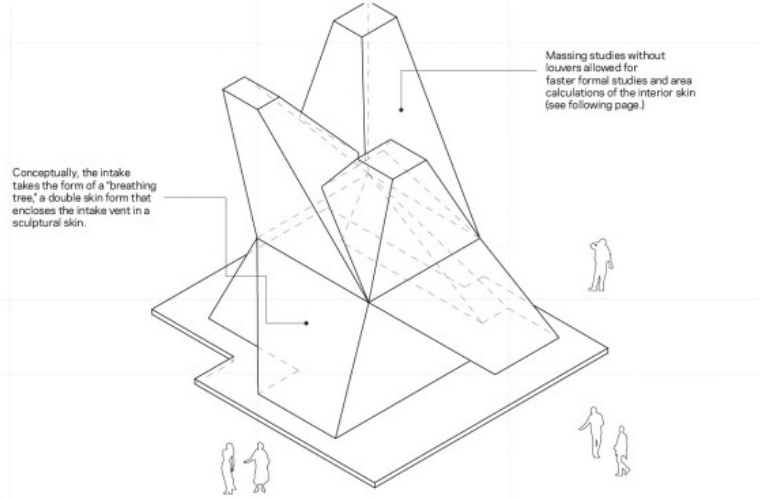
Interior Ventilation Structure



04. 5,150 SF of louvered area



05. 4,730 SF of louvered area



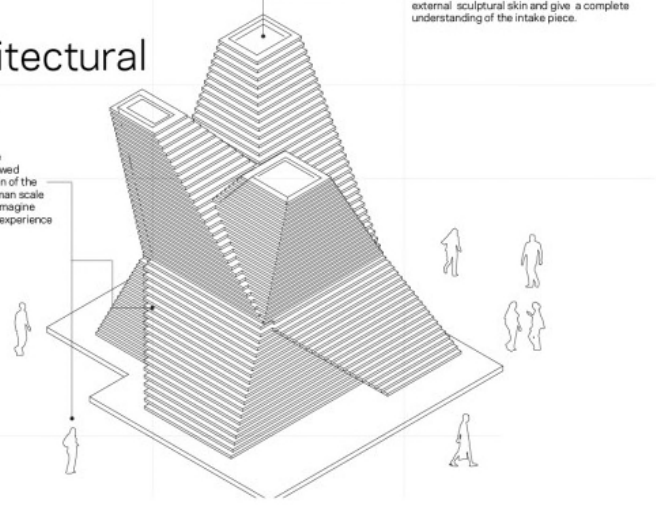
Conceptually, the intake takes the form of a "breathing tree," a double skin form that encloses the intake vent in a sculptural skin.

Massing studies without louvers allowed for faster formal studies and area calculations of the interior skin (see following page)

Architectural Skin

Additionally, these massing tests allowed for quick evaluation of the intake's size in human scale comparisons and imagine how it affects the experience of the park.

A design script was created to visualize the external sculptural skin and give a complete understanding of the intake piece.



VENTILATION STACKS – DETAILED PERFORMANCE

Operational Constraints

- Equipment loading and occasional large equipment repair or substitution
- Loading areas for substation
- No water penetration into substation vault (no storm drains or high-volume flow above vault)
- Prevent noise disruption from interfering with park or adjacent buildings experience
- Direct hot or cool air away from pedestrians and users of plaza and adjacent buildings

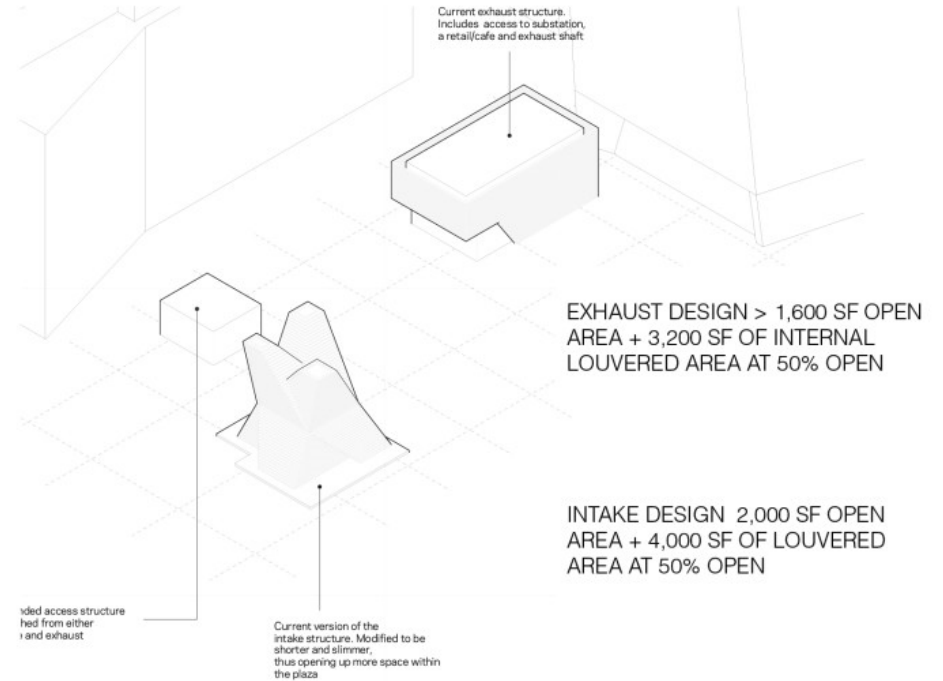
Vertical Penetrations

(Openings into the vault need to be above projected Flood Level of 21FT + 4FT of Storm Surge)

- Intake and Exhaust air shaft
- Large Equipment Hatch
- Human/freight elevator with hall area
- Emergency egress stairs and hatch

Uses integrated in the plaza

- Retail/Cafe
- Bike parking and valet (adjacent)



EXHAUST - AIRFLOW REQUIREMENTS

Air-Cooled System Assumptions

Required Substation airflow ¹	1.4MM cfm
Exhaust Air Velocity	900 fpm
Exhaust Open Area needed	1,555 SF
Exhaust Internal Louvered Area @ 50% open ²	3,110 SF ³

¹ Volume of air needed to cool the substation's equipments

² Typical waterproof louver systems allow for 50% open area for air flow

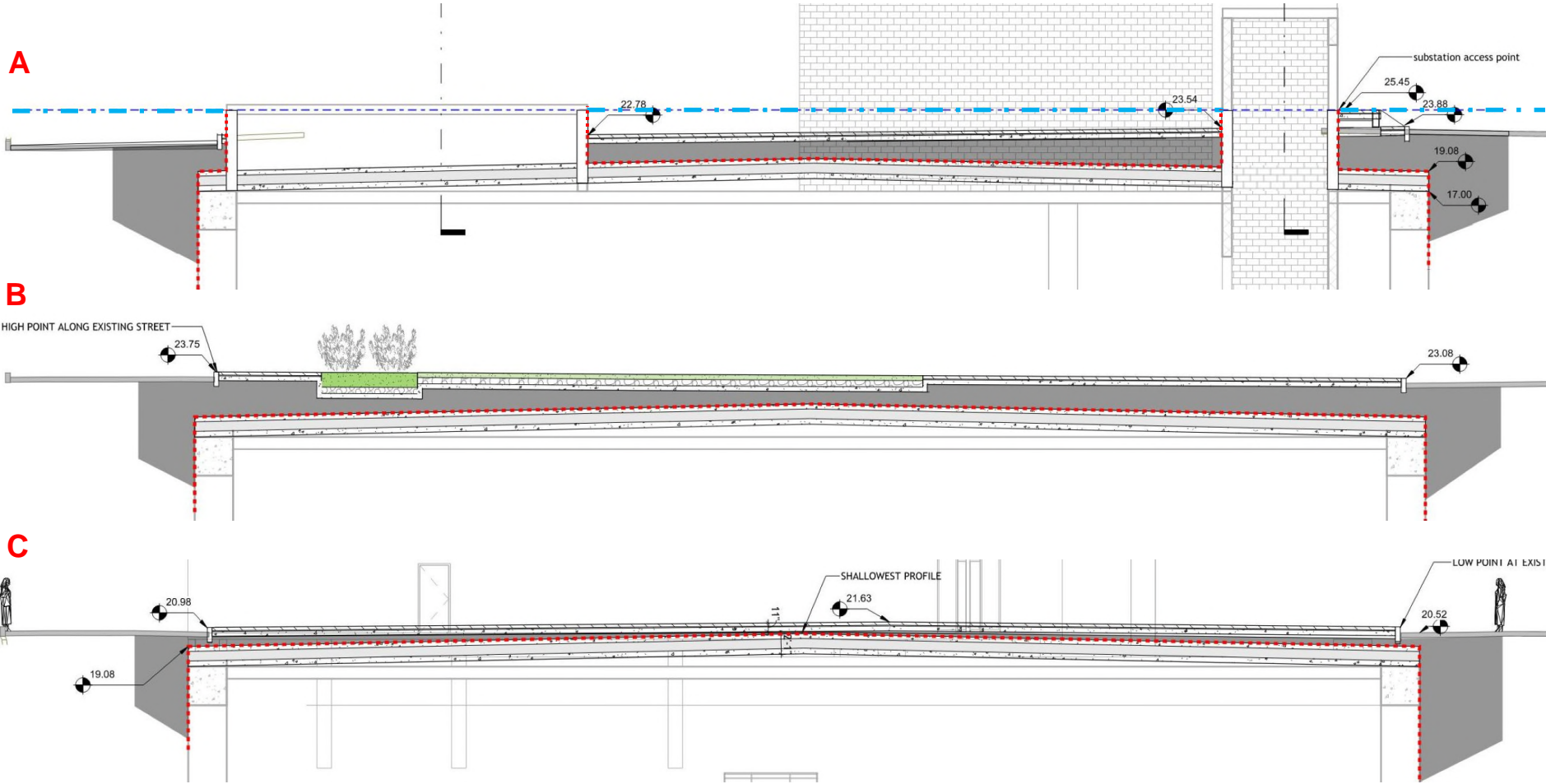
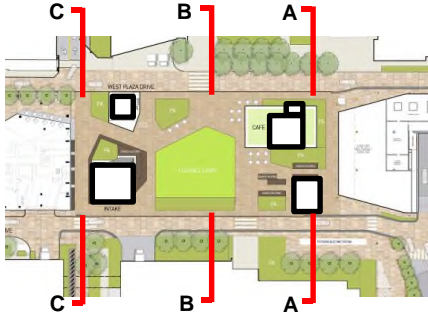
³ Minimum louvered area required for adequate substation ventilation

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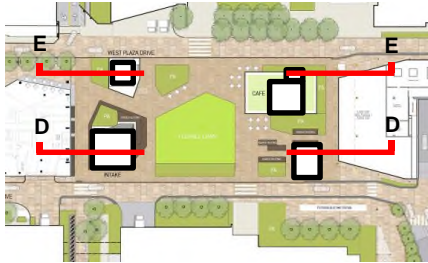
CENTER PLAZA – EAST WEST SECTIONS

- - - - - WATERPROOFING
- . - . - FLOOD ELEVATION 25.45 per draft modified DPW projections

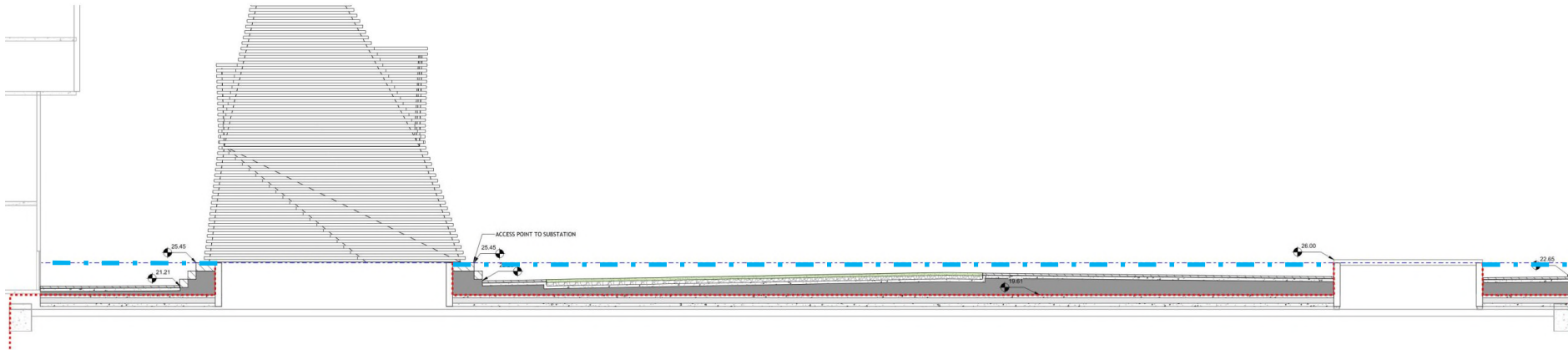


CENTER PLAZA FLOOD RESILIENCY PARAMETERS

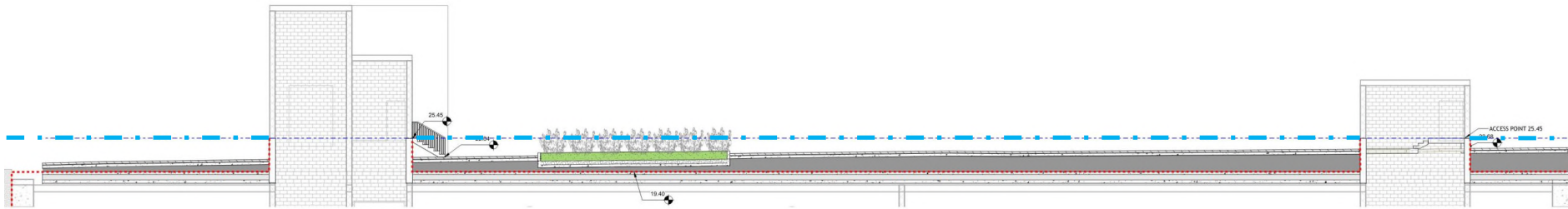
- - - - - WATERPROOFING
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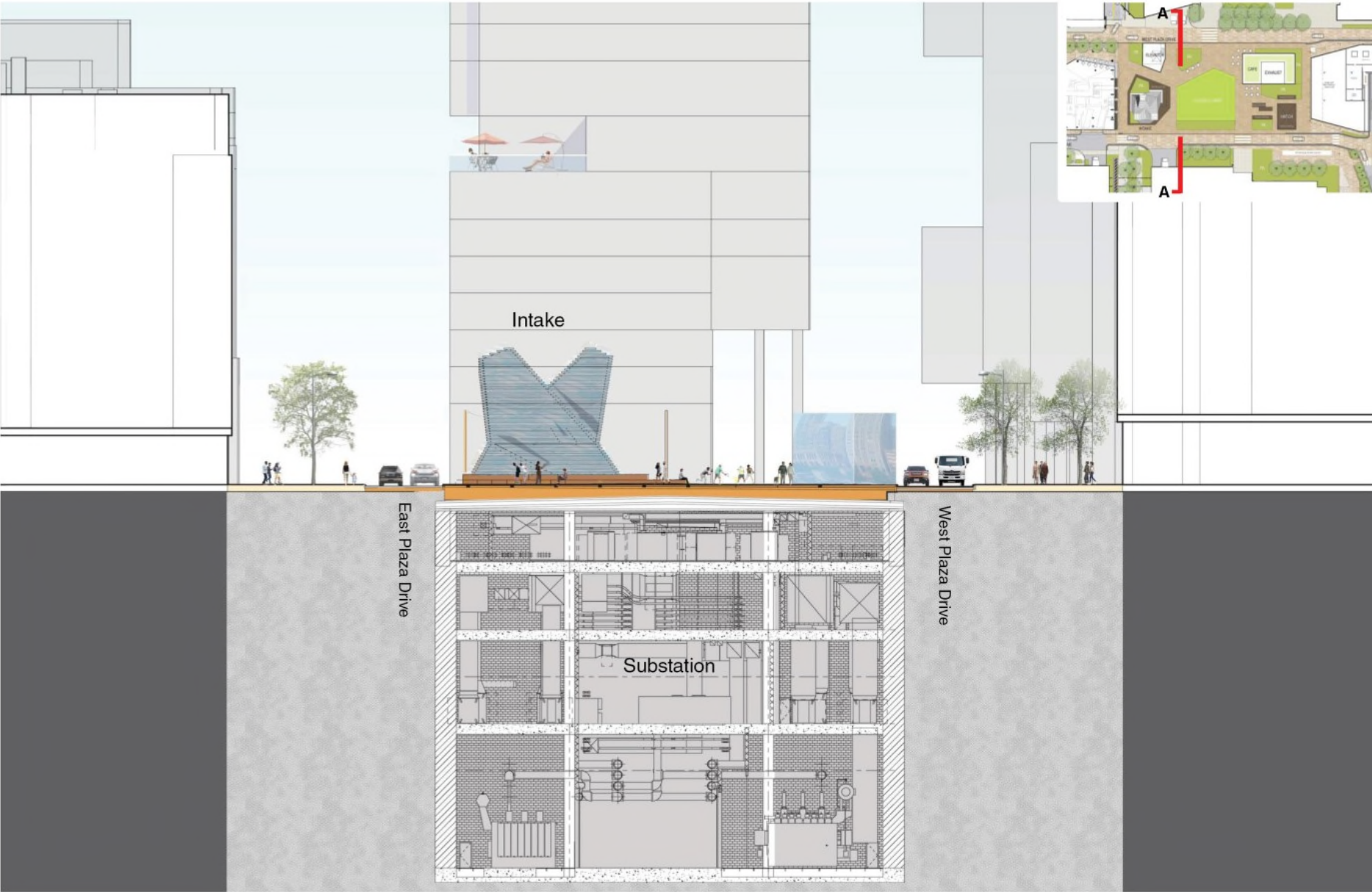
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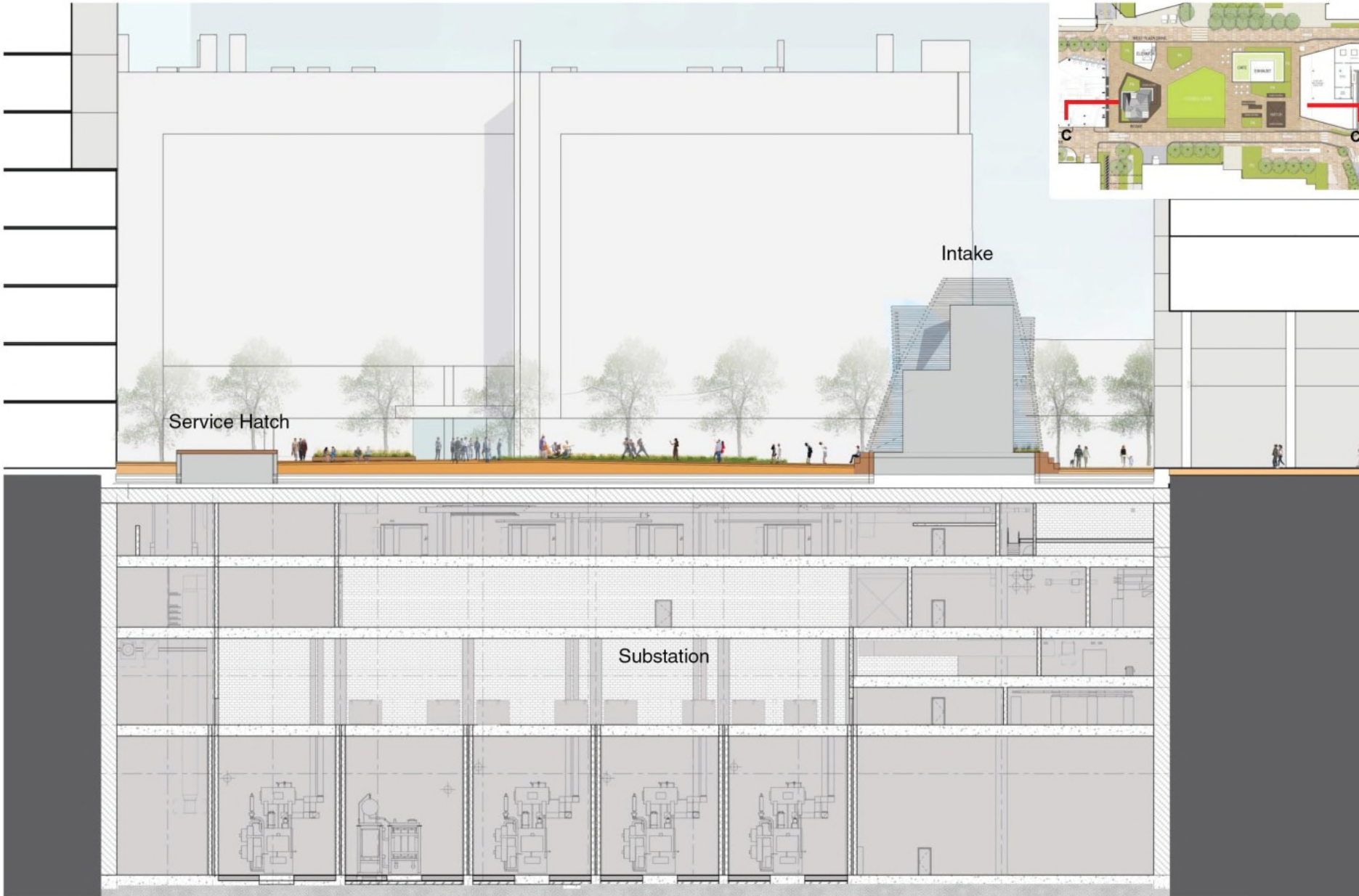
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CENTER PLAZA SECTIONS (EAST WEST)



CENTER PLAZA SECTIONS (NORTH SOUTH)



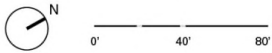
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CENTER PLAZA IDCP SITE PLAN



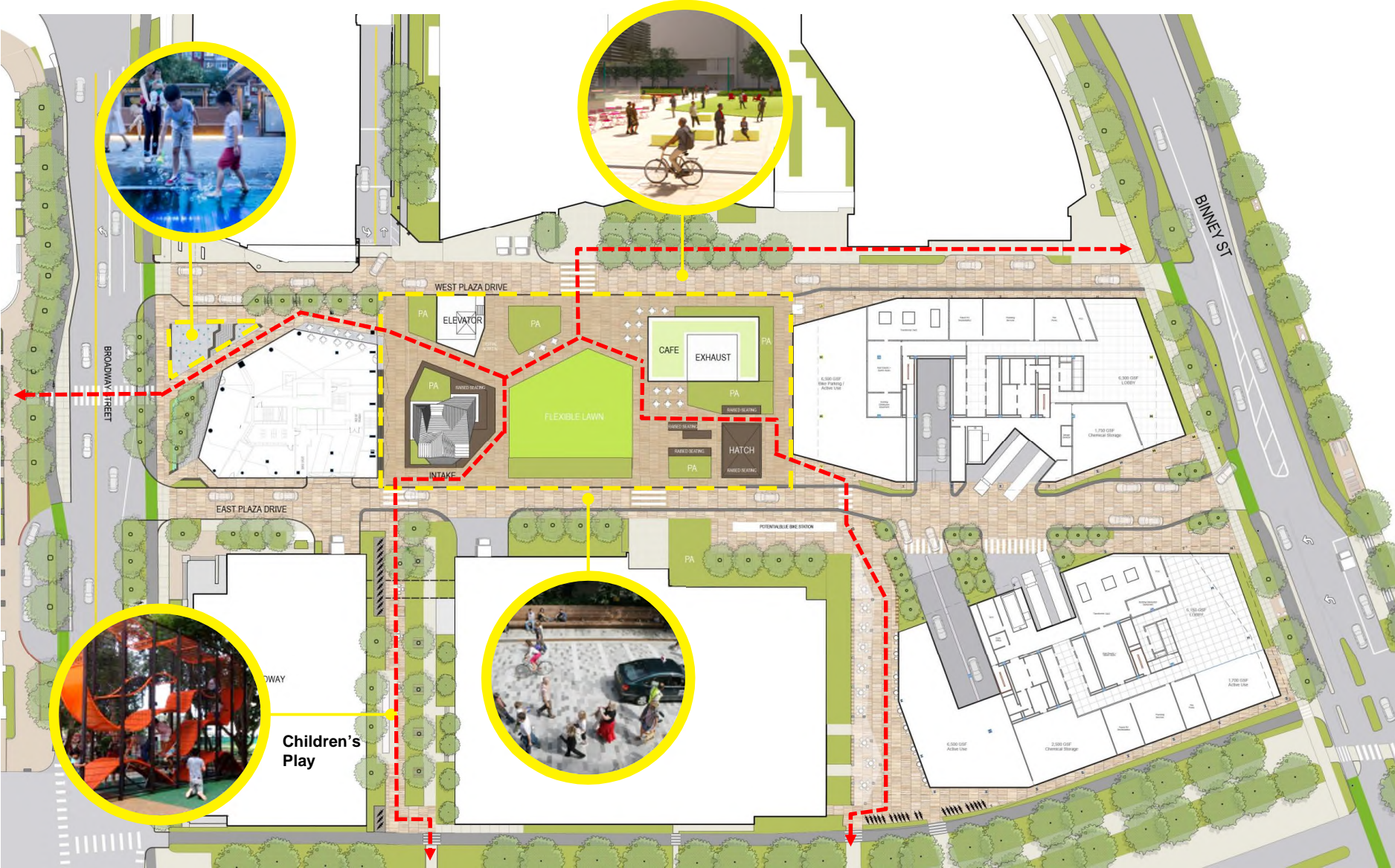
GROUND LEVEL



CENTER PLAZA SITE PLAN

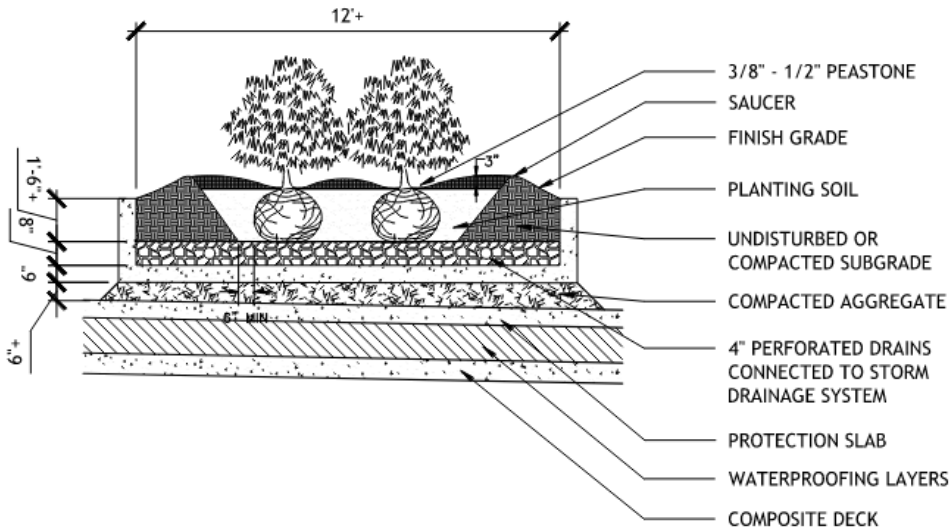


CENTER PLAZA SITE PLAN

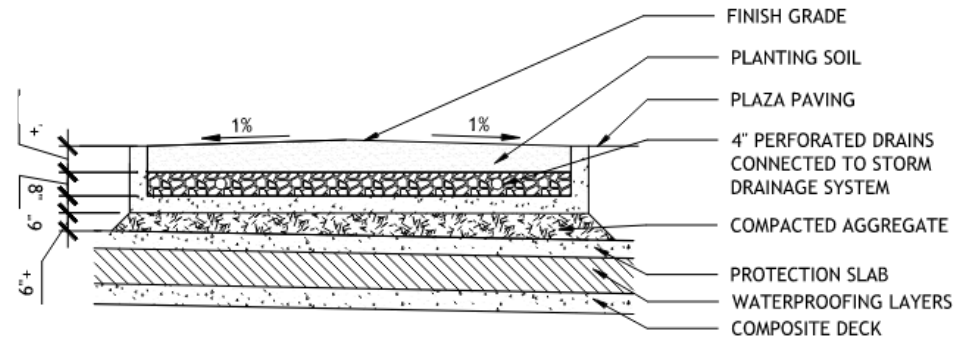


CENTER PLAZA PLANTING DEPTH REQUIREMENTS

3.5'+



2.5'+



SHRUB PLANTING ON STRUCTURE
1/4"=1'

LAWN PLANTING ON STRUCTURE
1/4"=1'

PRECEDENTS FLEXIBLE PLAZA PROGRAMMING PLANTING AND SEATING



PRECEDENTS EAST AND WEST PLAZA DRIVES (WOONERFS)



Reston Town Plaza - Reston, VA



DC Wharf, Washington, DC



Dordrecht, Netherlands

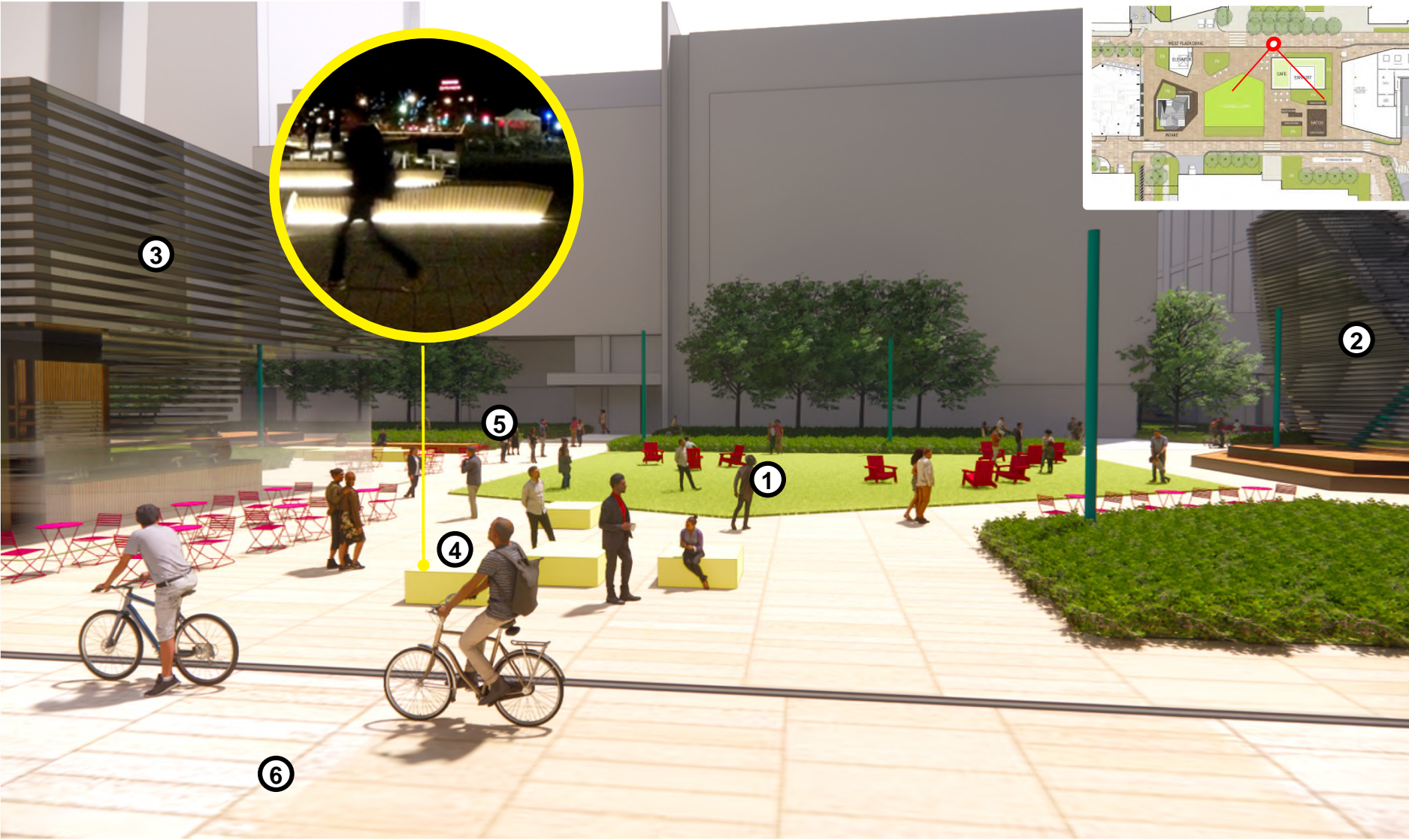


Brighton, UK



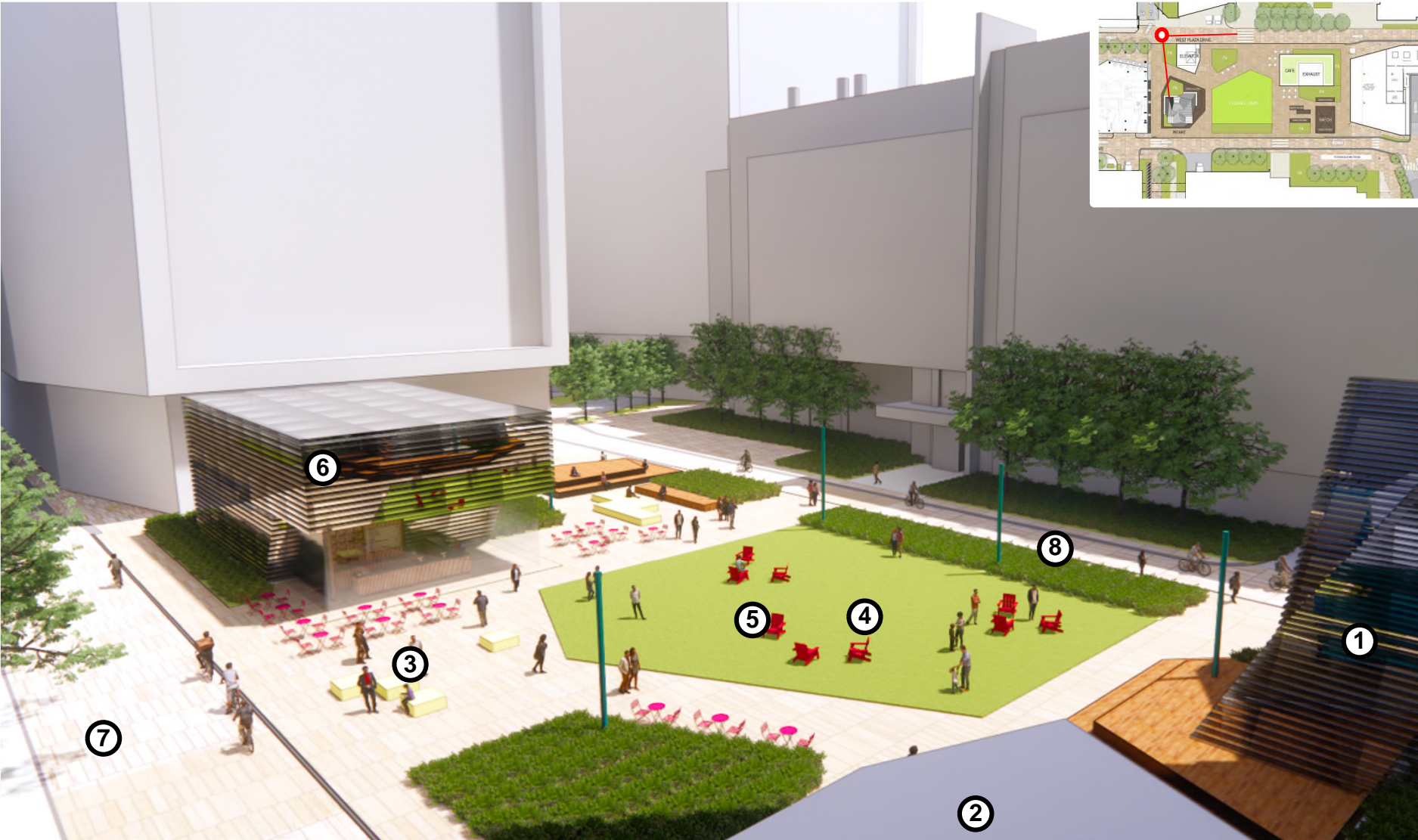
Wynwood One - Miami, FL

WEST PLAZA DRIVE (LOOKING EAST)



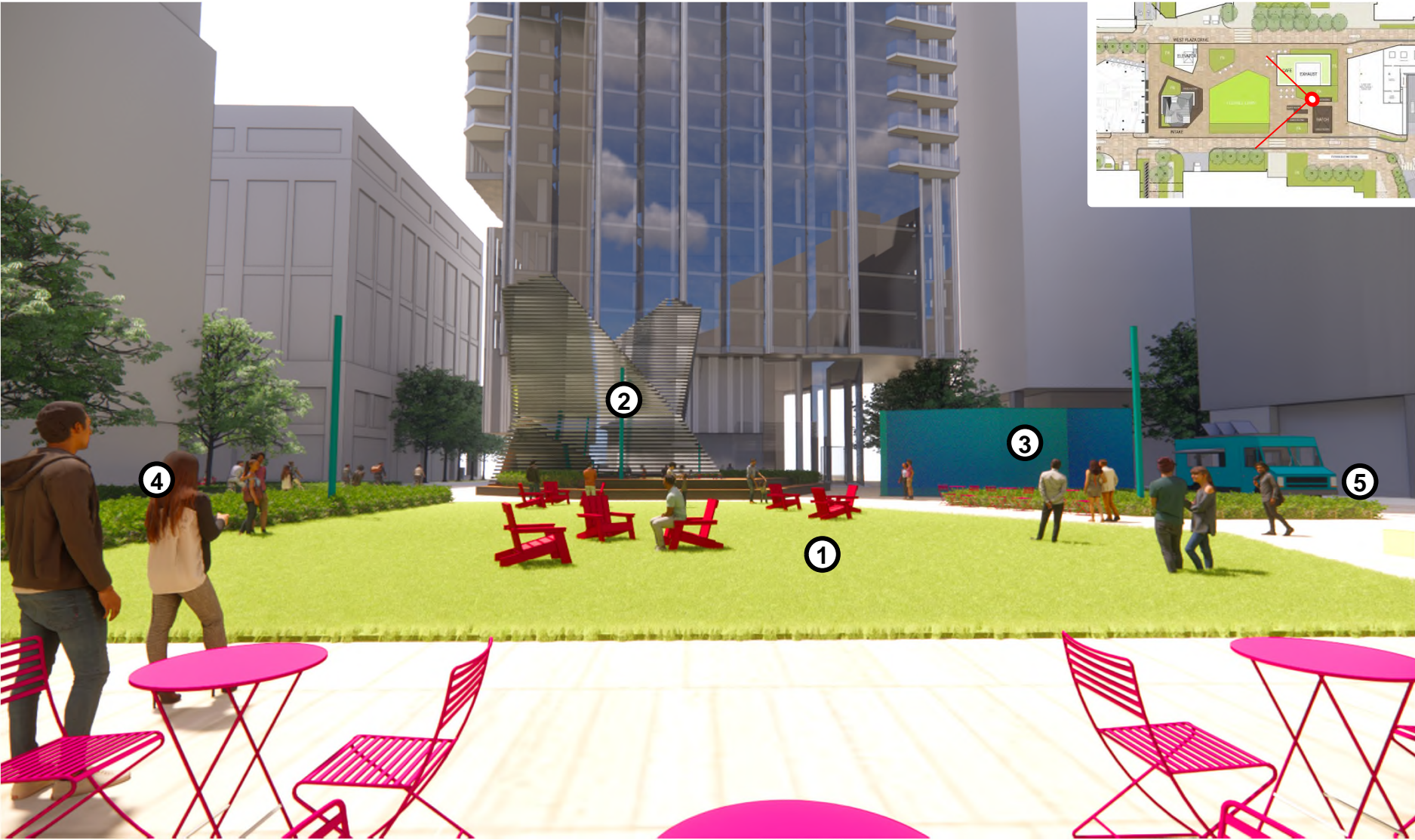
- 1. Flexible Programming Area and Lawn Area
- 2. Sculptural Element and Intake
- 3. Café (Exhaust)
- 4. Lighting Box Seating
- 5. Plaza Drive East
- 6. Plaza Drive West

CENTER PLAZA COMPONENTS



- 1. Intake “Breathing Tree”
- 2. Digital Screen
- 3. Movable Planters and Seating
- 4. Flexible Programming Area
- 5. Flexible Lawn
- 6. Exhaust
- 7. West Plaza Drive
- 8. East Plaza Drive

CENTER PLAZA LAWN AND SCULPTURAL ELEMENT (INTAKE)



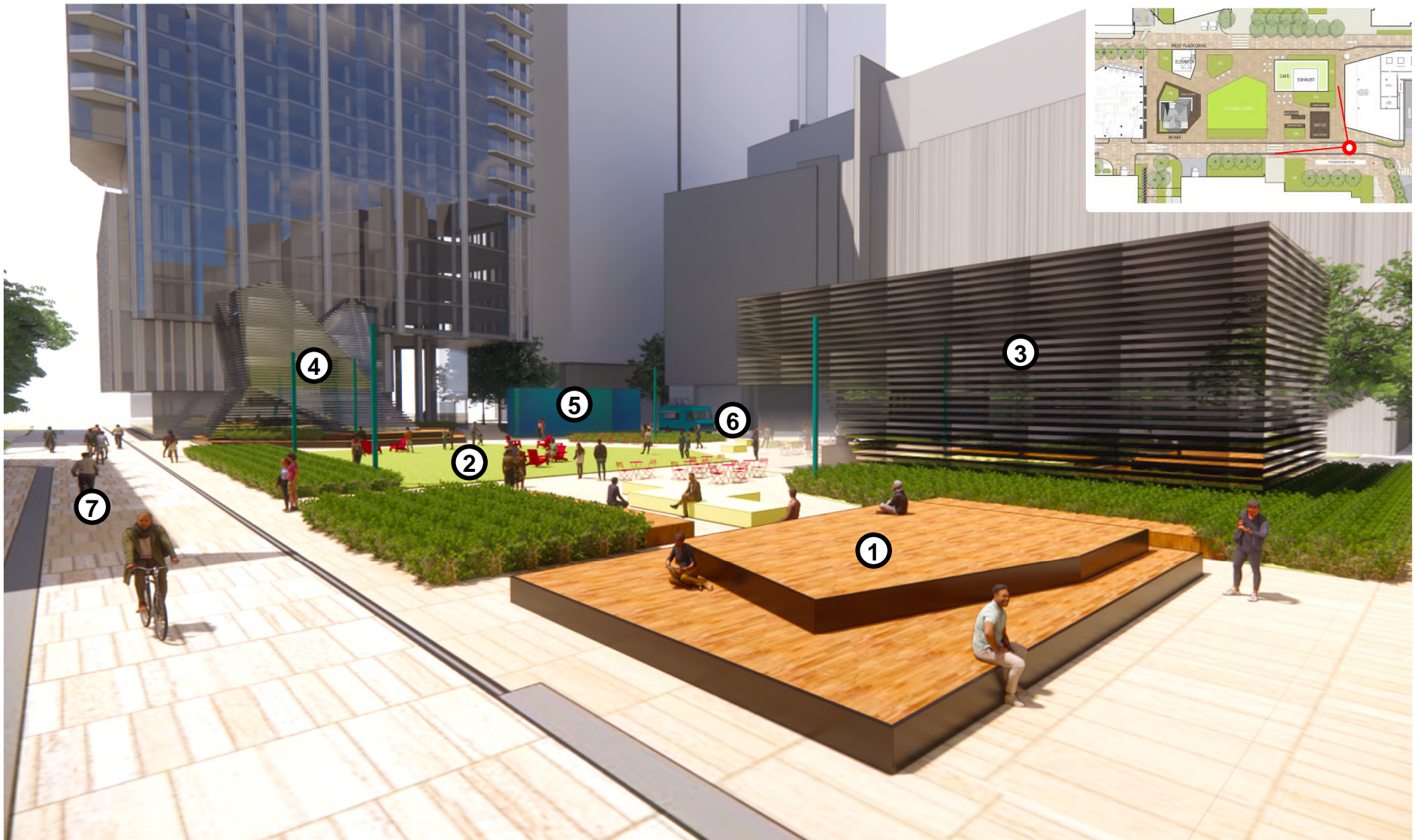
- 1. Flexible Programming Area and Lawn Area
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- 3. Digital Screen
- 4. Plaza Drive East
- 5. Plaza Drive West

CENTER PLAZA PAVILLION (EXHAUST)



- 1. Movable Planters and Seating
- 2. Flexible Programming Area
- 3. Café Pavilion (Exhaust)
- 4. Plaza Drive West
- 5. Plaza Drive East

CENTER PLAZA HATCH PLATFORM SEATING

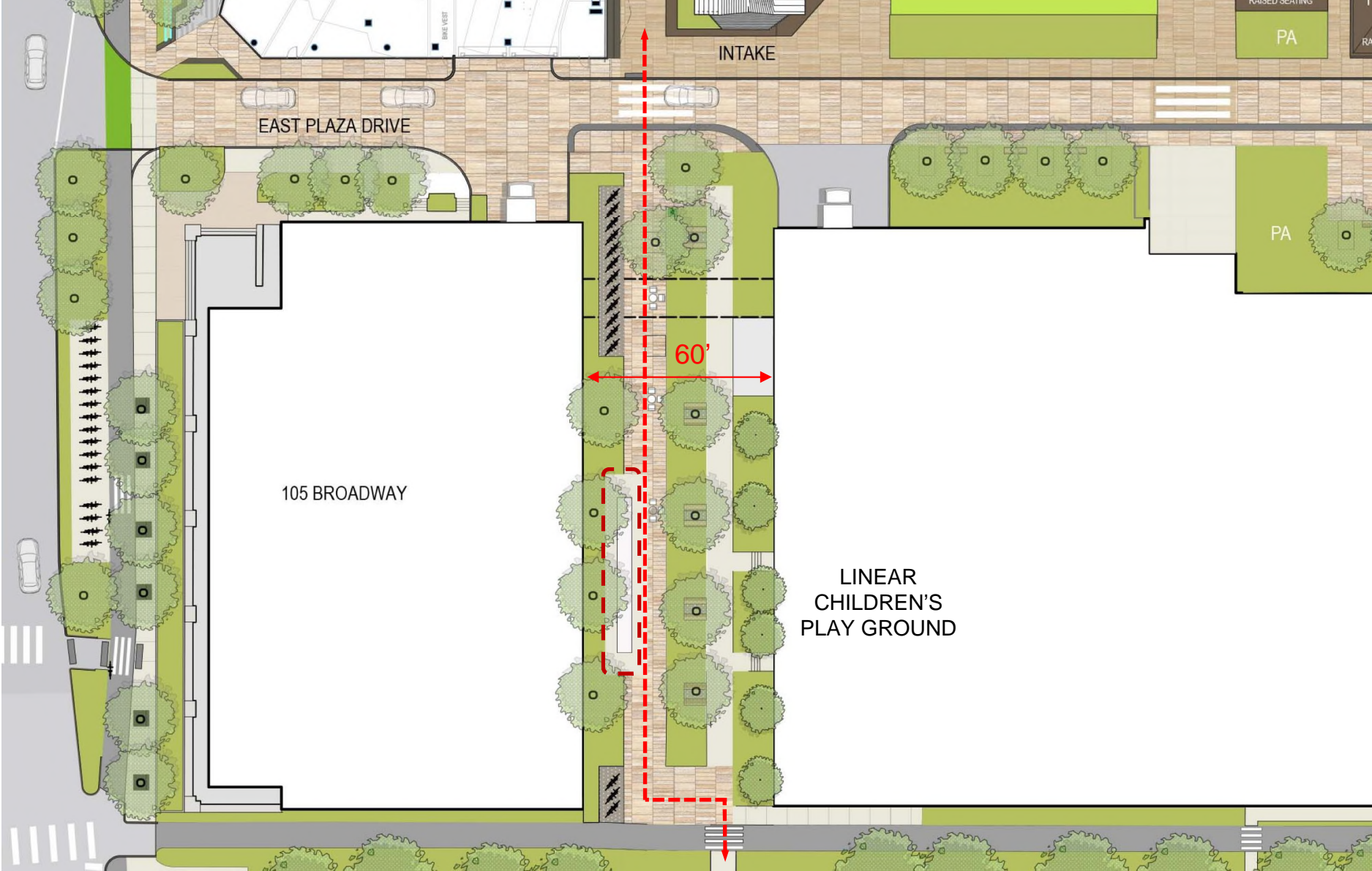


- 1. Hatch Platform Seating
- 2. Flexible Programming Area and Lawn
- 3. Café Pavilion (Exhaust)
- 4. Sculptural Element (Intake)
- 5. Digital Screen
- 6. Plaza Drive West
- 7. Plaza Drive East

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EAST WEST CONNECTOR SOUTH CHILDRENS PLAY



EAST WEST CONNECTOR SOUTH CHILDRENS PLAY



EAST WEST CONNECTOR SOUTH CHILDRENS PLAY

