



CITY OF ALEXANDRIA **Project Implementation**

Waterfront Flood Mitigation Project Discussion

September 10, 2025

Draft, Deliberative, Pre-Decisional



Why are we here?

- ▶ Outreach Update
- ▶ Project Goals & Objectives
- ▶ Project Design Updates & Response to Feedback to Date
- ▶ Constructive Feedback Requested:
 - ▶ Specific Landscape Features
 - ▶ Pump Station Design & Materials
- ▶ Consideration During Construction
 - ▶ Avoidance, Minimization, and Mitigation
- ▶ Share your Questions and Concerns!



Outreach Opportunities

▶ Outreach Events – September

- ▶ Old Dominion Boat Club
- ▶ Alexandria Waterfront Alliance
- ▶ Old Town Civic
- ▶ Waterfront/Parks and Recreation Commissions
- ▶ Individual Stakeholders

▶ Outreach Events – October

- ▶ Waterfront/Parks and Recreation Commissions
- ▶ Stakeholder Groups
- ▶ Individual Stakeholders

▶ Door-to-Door Outreach and Survey (Business/Residential)

▶ Business/General Stakeholder Newsletters

▶ Public Event Pop-Ups – Fall

- ▶ Old Town Farmers Markets
- ▶ Arts Festival

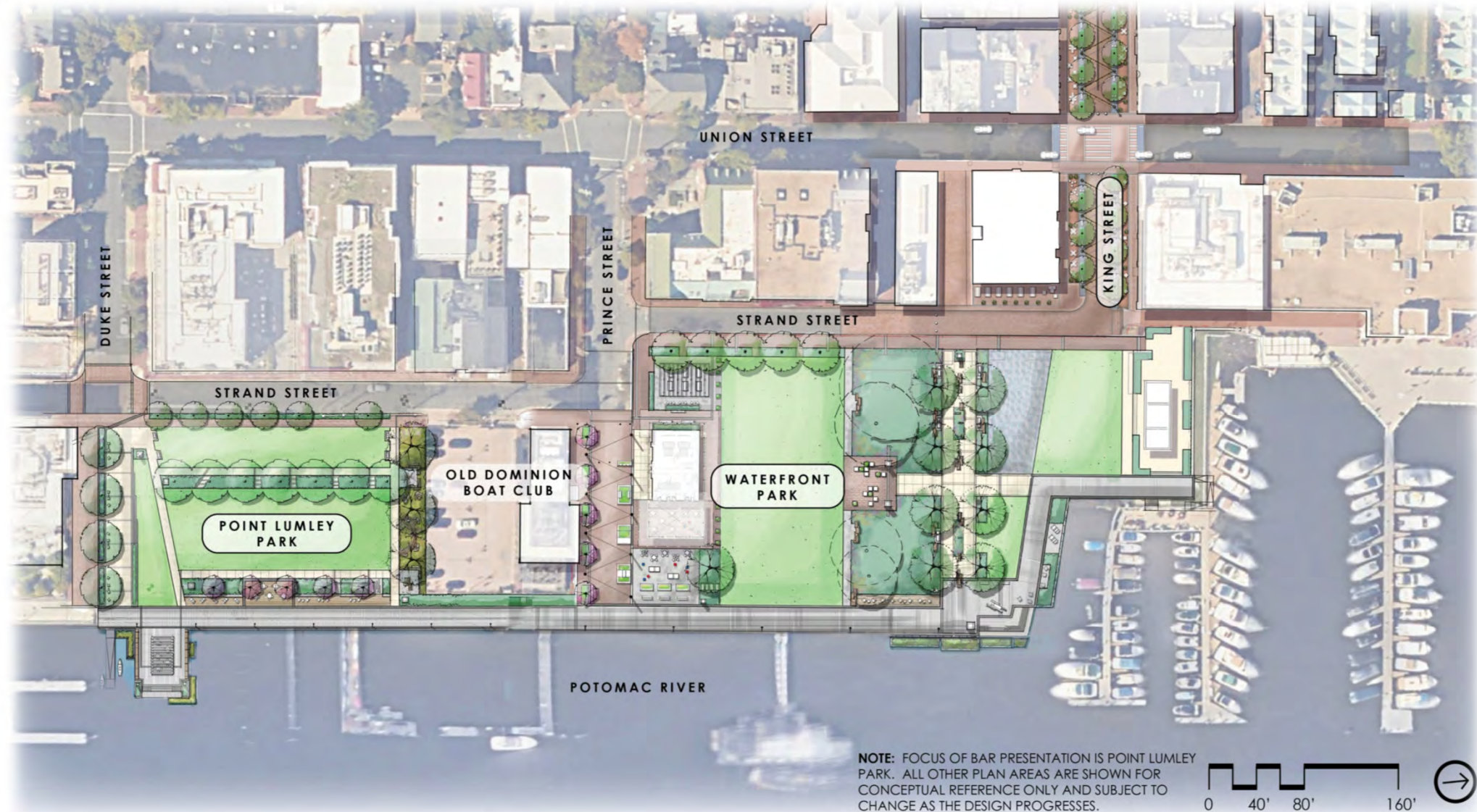
▶ Construction Impact Mitigation Meetings – October/November

- ▶ Average Duration of Construction Phases / Closures
- ▶ Maintenance of Access
- ▶ Potential for Trolley and Bus Routing to Strand Street / Businesses
- ▶ Activation of Spaces

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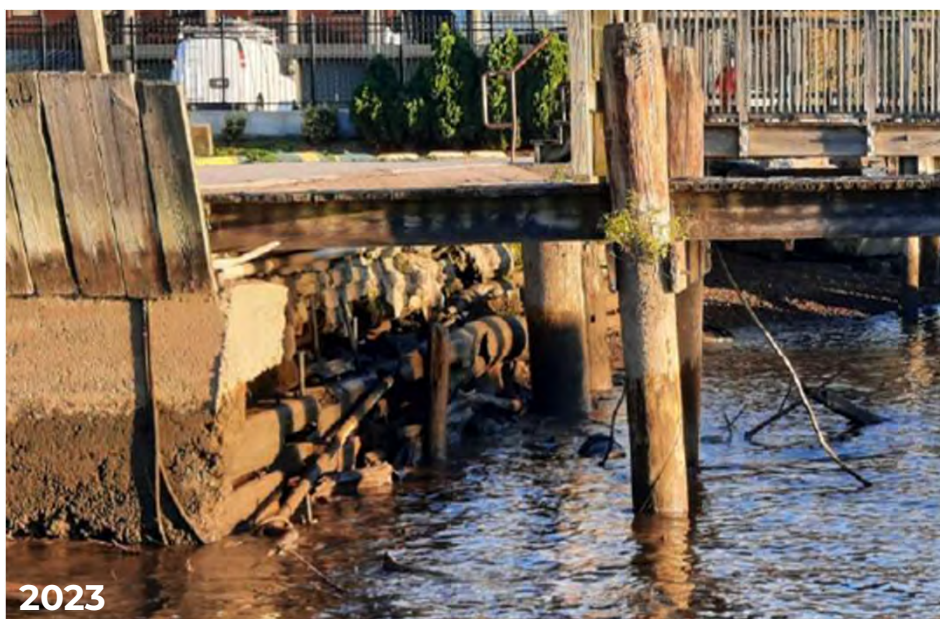
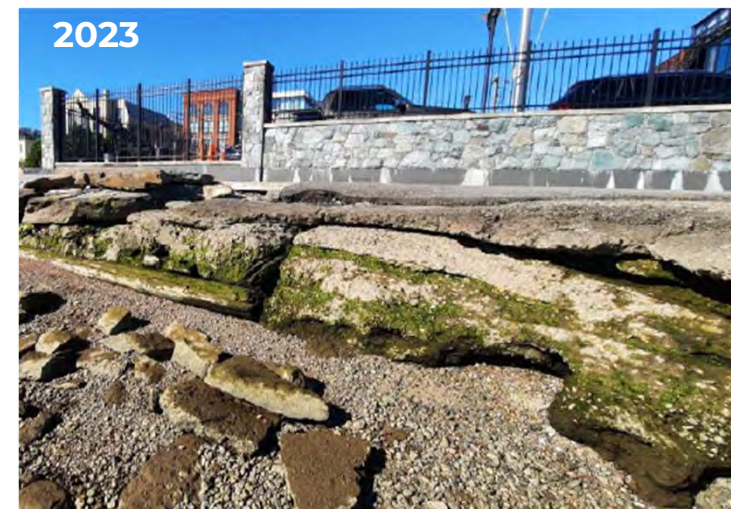


Public Space and Amenities





Aging & Failing Infrastructure





Flooding Sources & City Impacts

OVERTOPPING

of Bulkhead

Ranges of Cost*/City Impacts:

*\$20,000 - \$50,000 annually for major debris

*~\$300k-500k – sandbag mobilization (annual)

*\$500k-\$1M – Inlet & Street Cleanup (annual)

*Events and Festivals Impacted = Lost Revenue

*Tourism Impacted

Solution:

Raised bulkhead/flood barrier(s)
& pump station.

BACKFLOW

into River Outfalls

Ranges of Cost*/City Impacts:

*Increased sewer inspection required

*\$500k-\$1M/yr river sediments removal

*Street Closures

*Pedestrian safety/closed crosswalks

*Businesses impacted = lost revenue

Solution:

New outfall structure and
pump station.

INUNDATION

of Storm Sewers

Ranges of Cost*/City Impacts:

*~\$300k-\$500k – sandbag mobilization (annual)

*\$100K-\$250K– Street Cleanup (annual)

Solution:

Replace aging (50+ years old)
and undersized storm pipes.

Riverine Overtopping & Flooding

Draft, Deliberative, Pre-Decisional



The Number of Overtopping Events Continues to Increase

<u>Potomac River Surface Elevation</u> Flooding Analysis Over Time At Prince Street/Waterfront	<u>Prince Street-End</u> (<u>Elev. 2.4</u>)	<u>Bulkhead at Waterfront</u> (<u>Elev. 3.0</u>)
In the Last 20 Years, we've seen an average of	145 events/yr	37 events/yr
In the Last 5 Years, we've seen an average of	185 events/yr	48 events/yr
In the Last 2 Years, we've seen an average of	194 events/yr	54 events/yr
In the Last 1 Year, we've seen...	227 events/yr	93 events/yr
By Year 2100, we anticipate...	353 events/yr	341 events/yr

Pump Station Design Progression:

Initial Concept of Single Station: (Presented in summary/fall 2024)



Revised Concept: (Presented spring 2025):

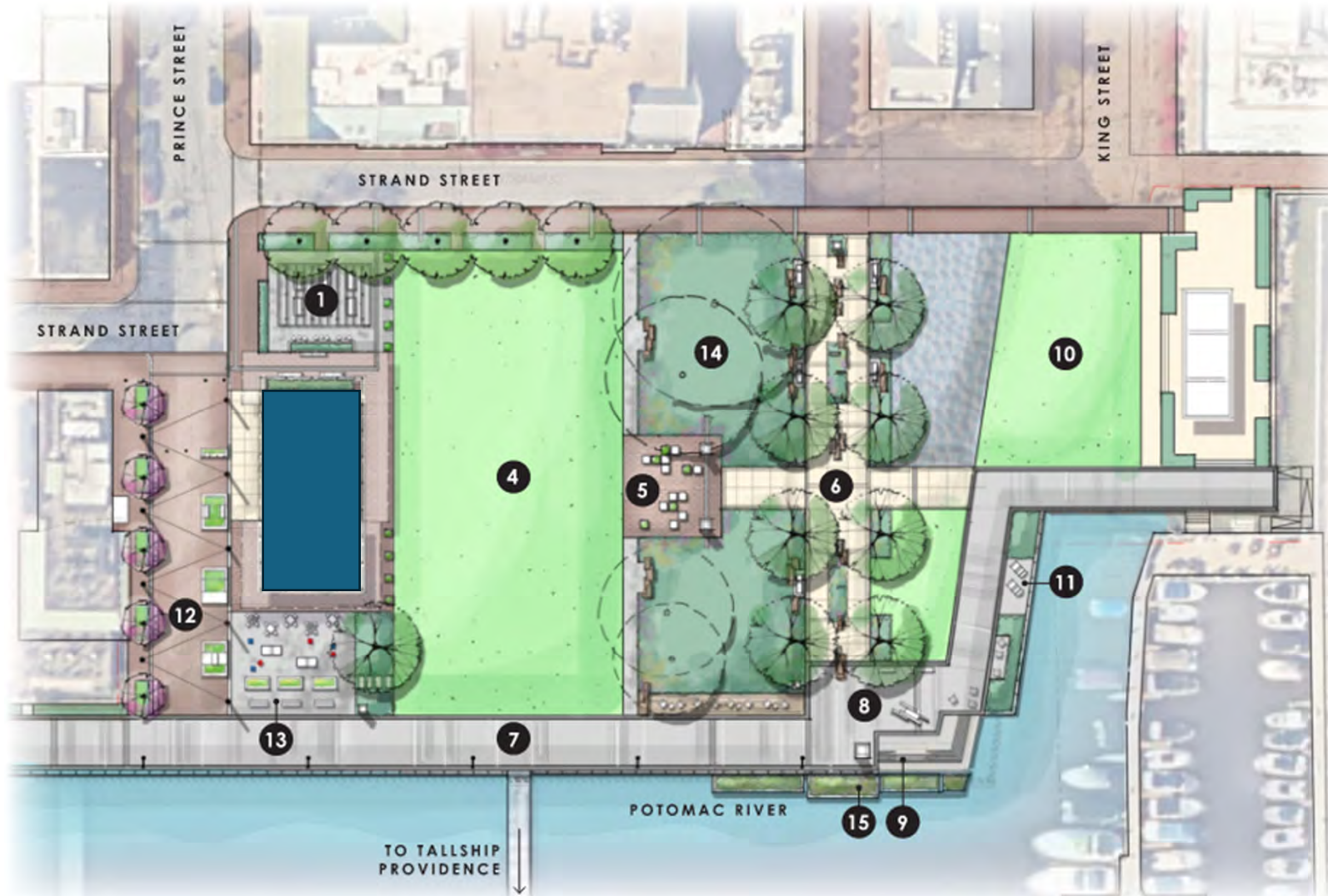


- Smaller footprint, elevated design & increased public amenities

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Site Plan: Prior Building Footprint



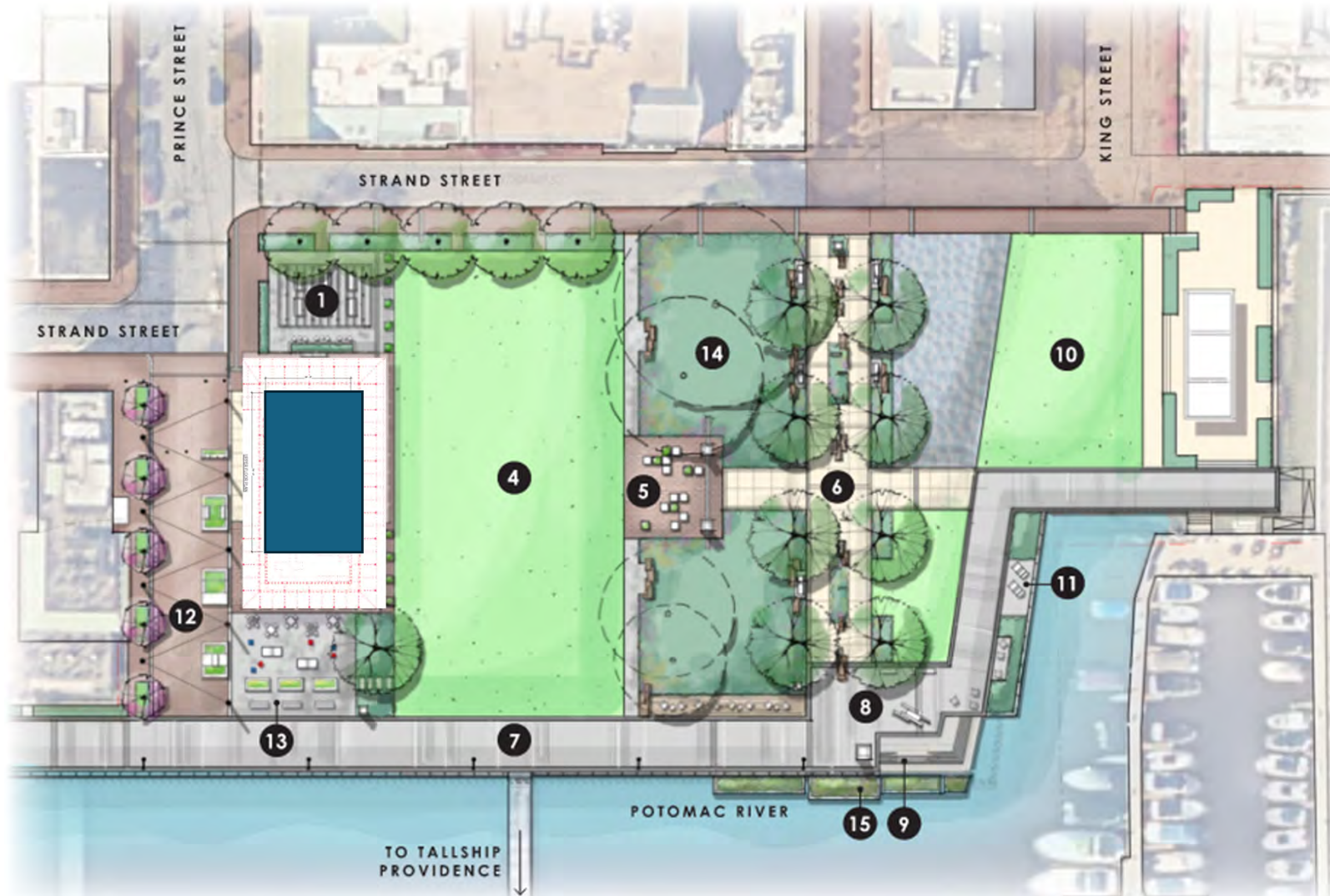
The proposed site plan uses a rectilinear framework as an homage to the historic wharfs and 1845 shoreline layout. This simple framework also aims to maximize programmable space, integrate the existing context, and create direct connections to the Potomac River that engage the waterfront and reinforce views.

LEGEND:

- 1 Trellis structure with picnic tables and catenary lighting
- 2 Pump station
- 3 Covered plaza / venue space
- 4 Multi-use lawn
- 5 Arrival plaza with crate-inspired seating
- 6 Wales Alley River Gateway
- 7 Promenade
- 8 Promenade plaza with seating / art / signage
- 9 Waterfront steps / seat wall
- 10 N. Waterfront area - to be replaced in kind
- 11 Boatyard overlook
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- 13 Flexible game / waterfront seating space
- 14 Preserved existing trees (understory to be determined with arborist)
- 15 Floating wetlands attached to bulkhead



Site Plan: Reduced Station Size



The proposed site plan uses a rectilinear framework as an homage to the historic wharfs and 1845 shoreline layout. This simple framework also aims to maximize programmable space, integrate the existing context, and create direct connections to the Potomac River that engage the waterfront and reinforce views.

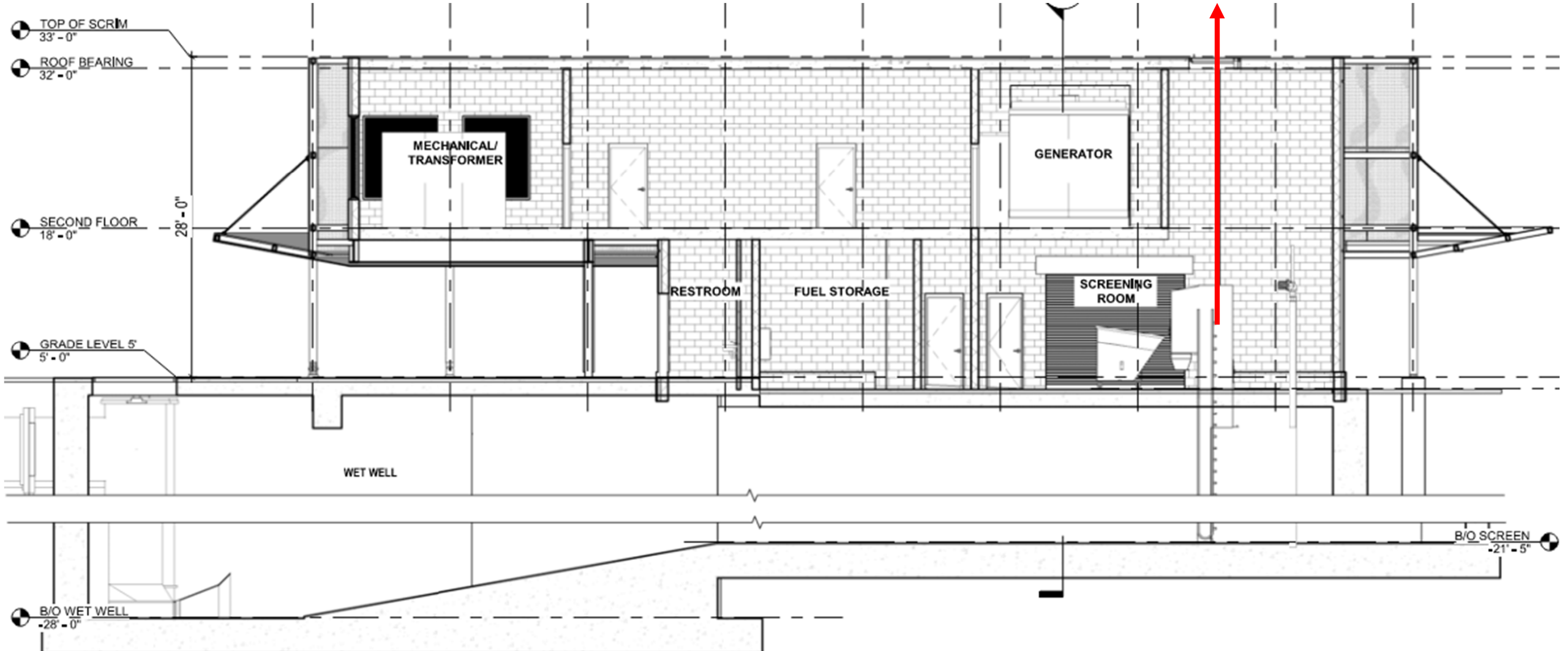
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(Building length reduced 18-22' (55' total if canopy eliminated))

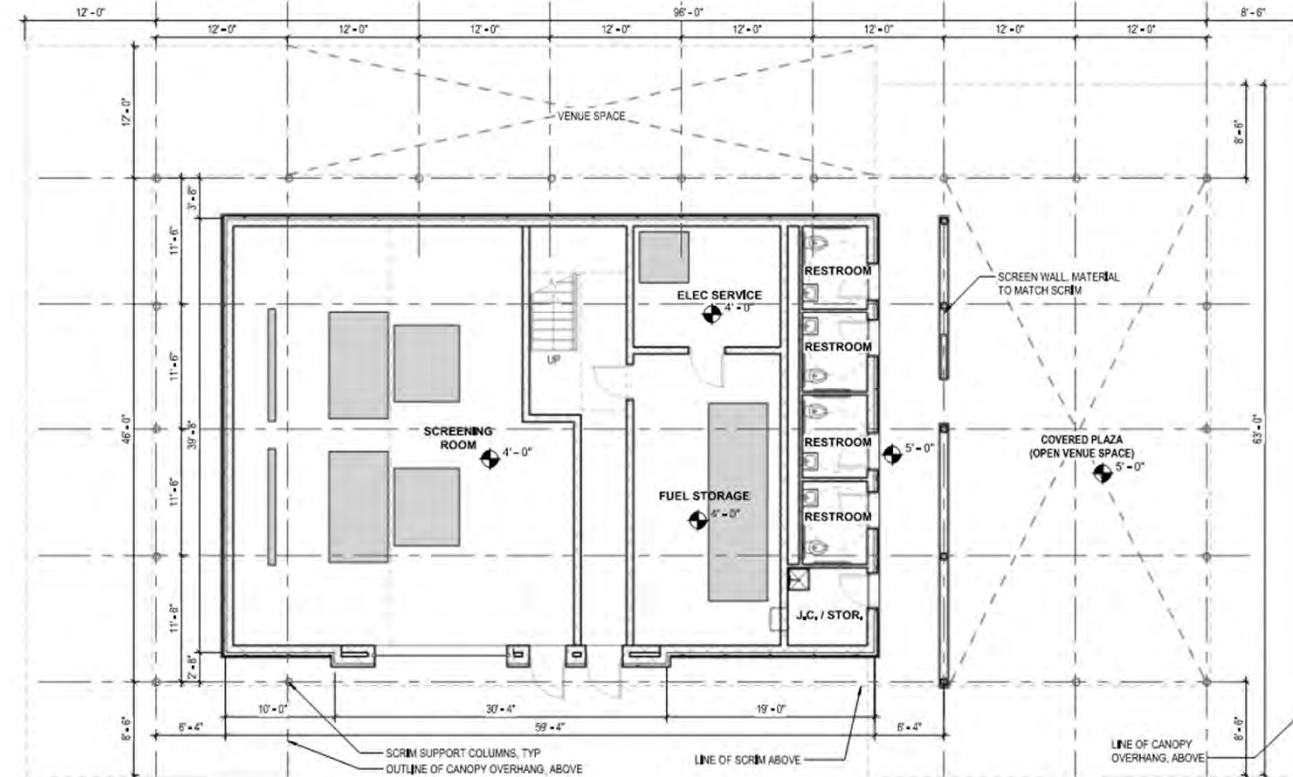
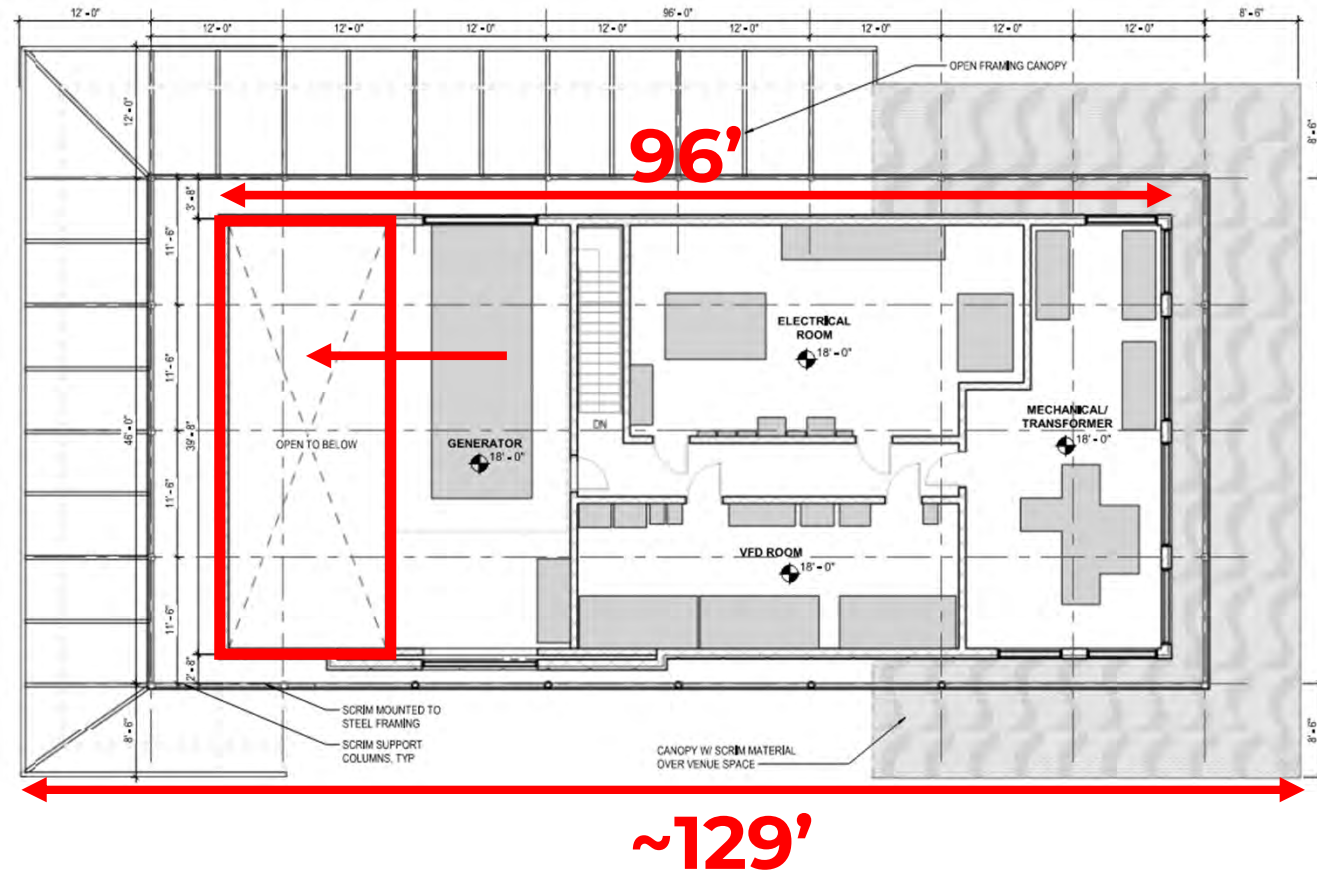


Prior Pump Station Cross Section



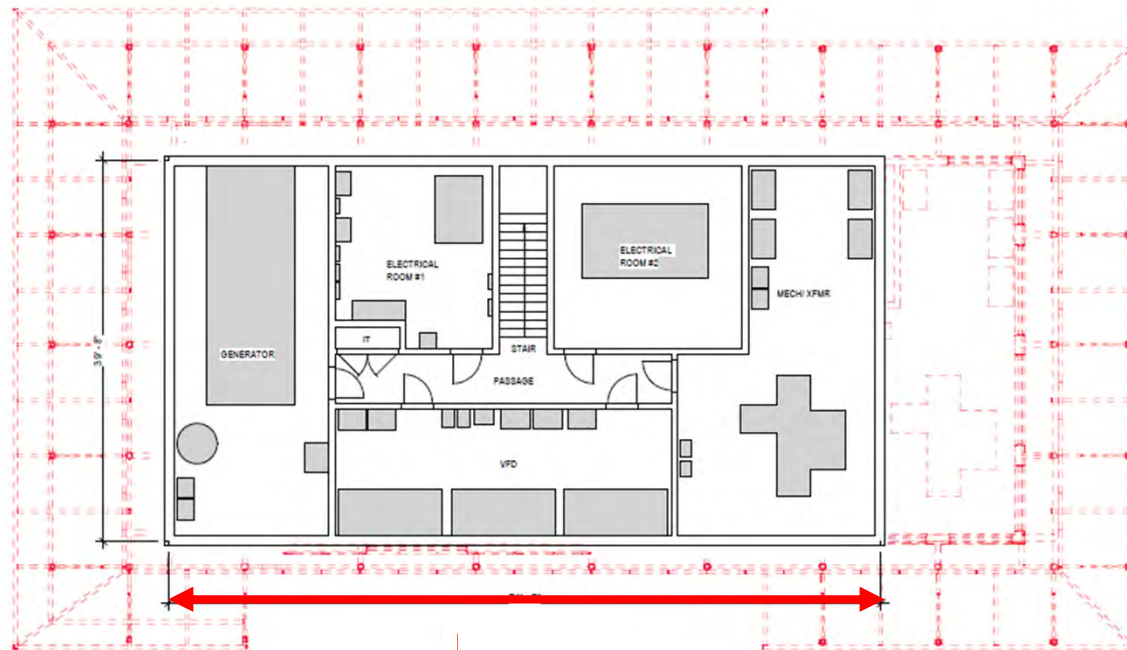


Prior Pump Station Floor Plan



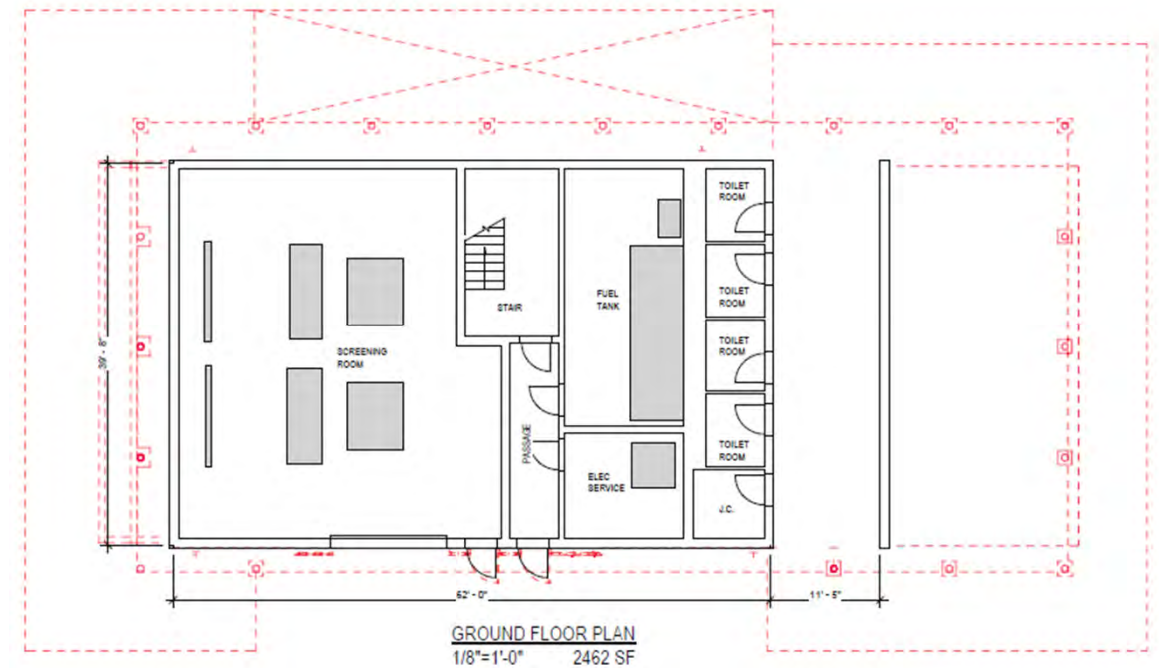


Pump Station Floorplan Reduced



74'

Building length reduced ~18-22'
(~55' total if canopy eliminated)





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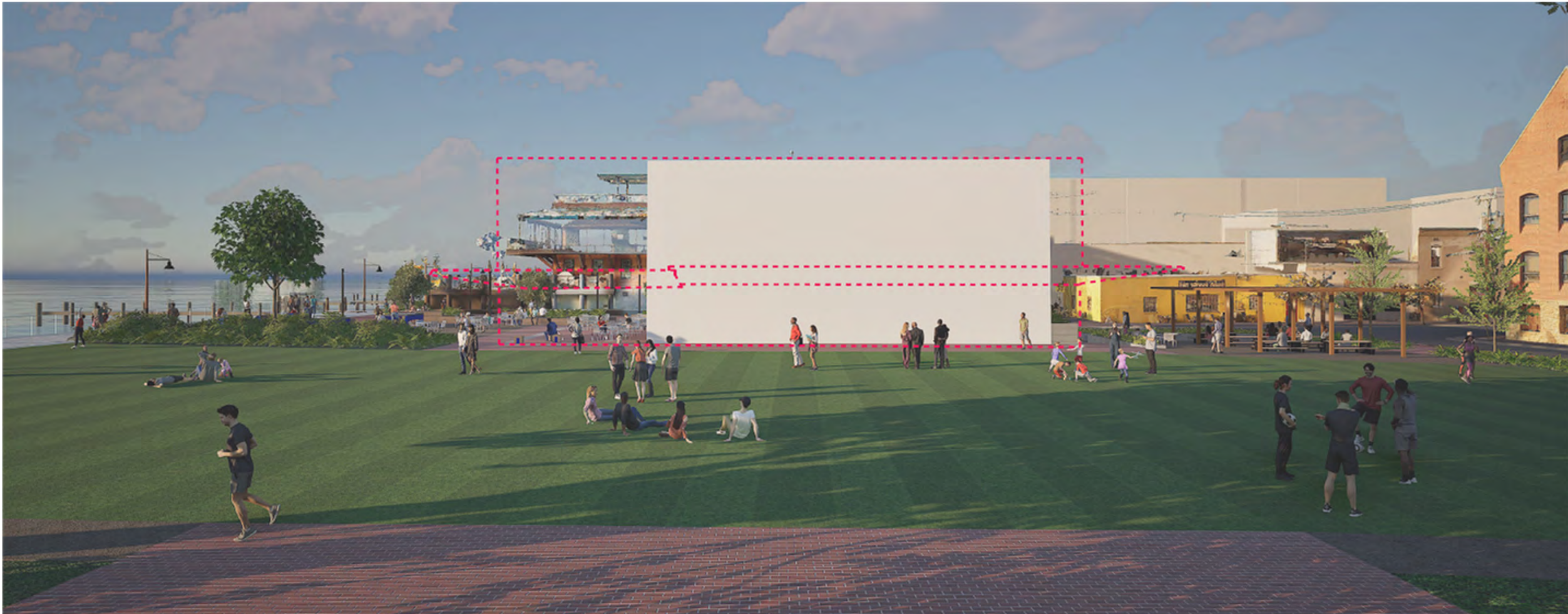
Pump Station Prior Design





Draft, Deliberative, Pre-Decisional

Pump Station Reduced





Draft, Deliberative, Pre-Decisional

Pump Station Prior Design





Pump Station Reduced





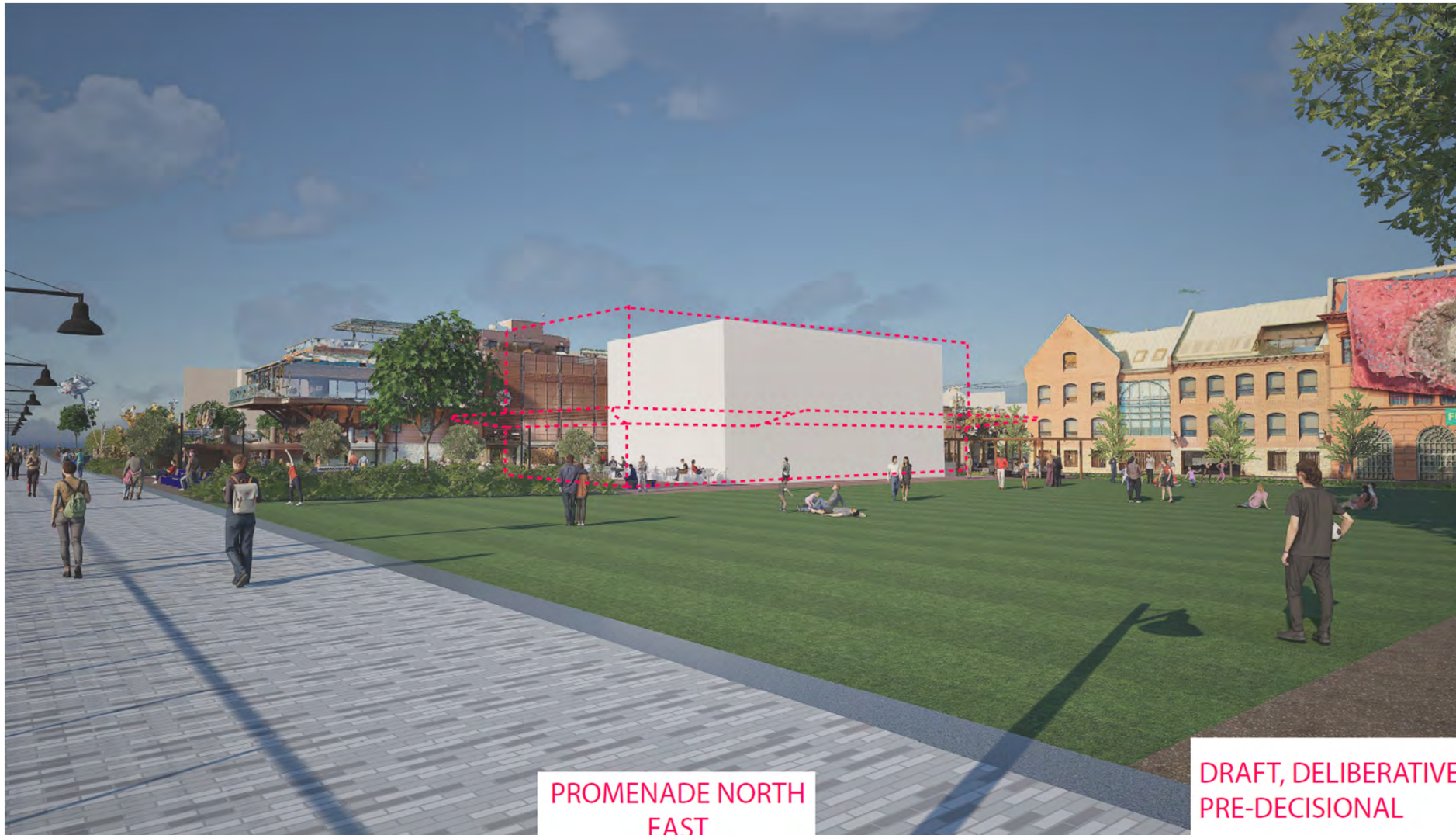
Draft, Deliberative, Pre-Decisional

Pump Station Prior Design





Pump Station Reduced



PROMENADE NORTH
EAST

DRAFT, DELIBERATIVE,
PRE-DECISIONAL



Current Pump Station Materials



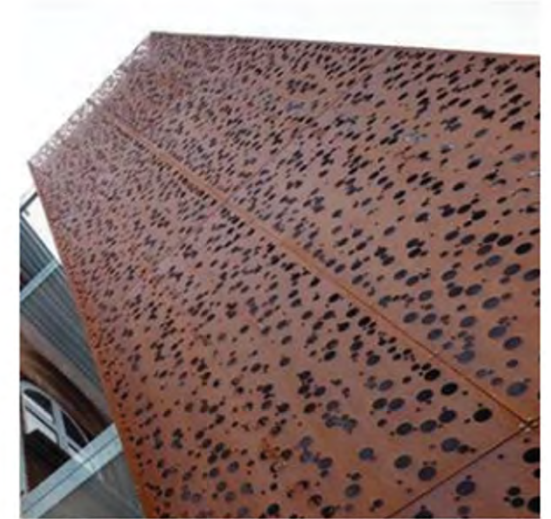
COLUMNS AS A DEVICE TO REPRESENT NAUTICAL SURROUNDS



STRUCTURAL TECHTONICS AND RELATIONSHIP TO SAIL BOATS



VIEW FROM BASE OF KING STREET



SCRIM MATERIAL INSPIRATION



BOARD-FORMED CONCRETE PANEL TO REFERENCE HISTORIC CRIBBING

Architecture: Feedback Requested!



Open to Revisit
Architecture



Draft, Deliberative, Pre-Decisional

WATERFRONT FLOOD MITIGATION PROJECT

Alternative Architectural Concepts

**Maintain Current Approach:
Modern Architecture /
References to History**



**Classical Architecture /
Direct Reference to Old
Town**



**Landscape & Park
Integration to
Architecture
(Planters, Green
Walls, etc.)**

Green Walls



Adjacent trees and sky are reflected in the scrim to blend building and environment.



Green walls integrate planting into the facade, softening building massing while offering environmental benefits such as insulation, air filtration, and stormwater management. They can be adapted to complement both modern and historic architectural contexts.

Alternative to planter walls, a reflective material can be used to create a 'green' facade reflecting the adjacent canopy trees. (Image #2)

- 1 **Vertical Living Gallery** | Bangkok, Thailand
- 2 **Hayes Primary School** | Kenley, UK
- 3 **17 Glen Avenue** | Cape Town, South Africa
- 4 **Musée du Quai Branly** | Paris, France
- 5 **Park Plaza** | Santa Fe, Mexico City
- 6 **New Street Square** | London, UK
- 7 **Ion Orchard Residences** | Singapore

Vines



Vine-covered trellises add texture and seasonal interest to building walls, reducing visual impact and increasing air filtration and shade as a flexible, low-profile green infrastructure strategy.

- 1 MFO Park | Zürich, Switzerland
- 2 Swiss RE Headquarters | Munich, Germany
- 3 Tan's Garden Villa | Singapore
- 4 The Base | Bangkok, Thailand
- 5 Biomedical Research Center | Granada, Spain
- 6 Freiburg Office Complex | Munich, Germany

Integral Planters

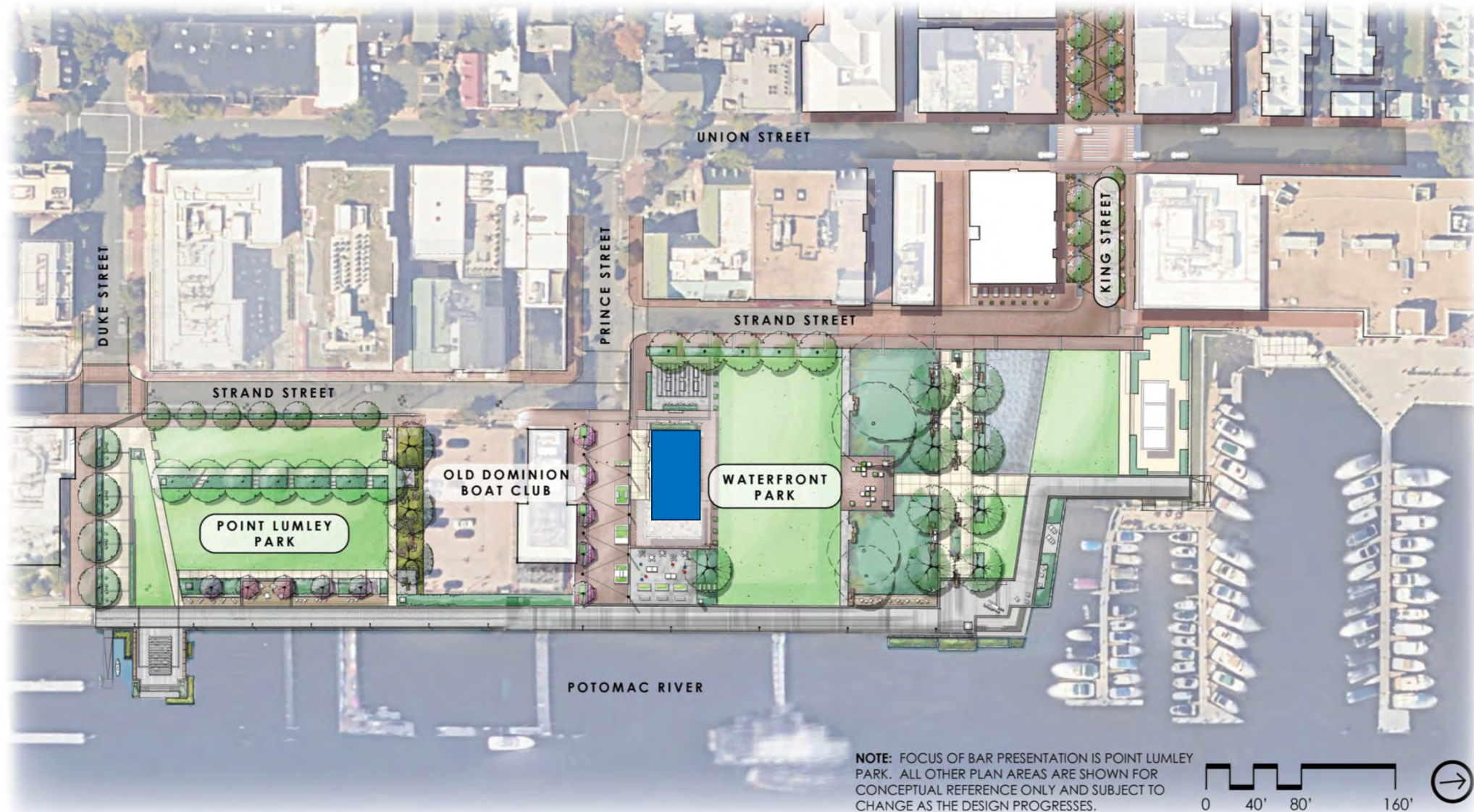


Integral planters can enhance architectural storytelling, incorporate seating, and offer environmental benefits such as rainwater collection, conveyance, and filtration opportunities.

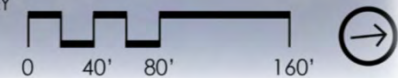
- 1 **Coulée verte René-Dumont** | Paris, France
- 2 **The Highline Spur** | New York, NY
- 3 **Ecological Living Module** | New York City
- 4 **Hooper Street** | San Francisco, CA
- 5 **Hilgard Garden** | Berkley, CA
- 6 **Townhouse** | West London, UK



Site Plan: Feedback Requested

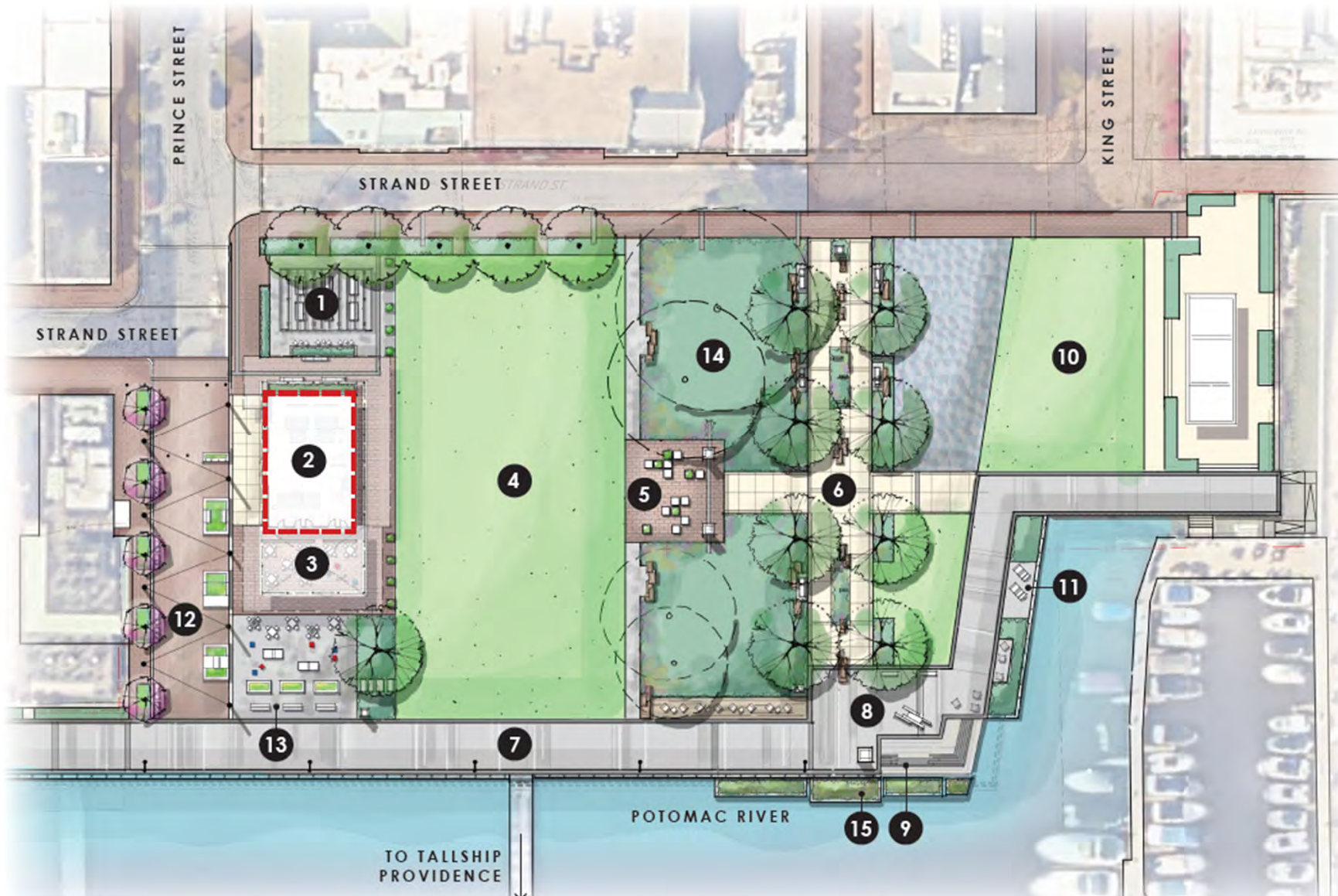


NOTE: FOCUS OF BAR PRESENTATION IS POINT LUMLEY PARK. ALL OTHER PLAN AREAS ARE SHOWN FOR CONCEPTUAL REFERENCE ONLY AND SUBJECT TO CHANGE AS THE DESIGN PROGRESSES.





Revisit Concept Plan?



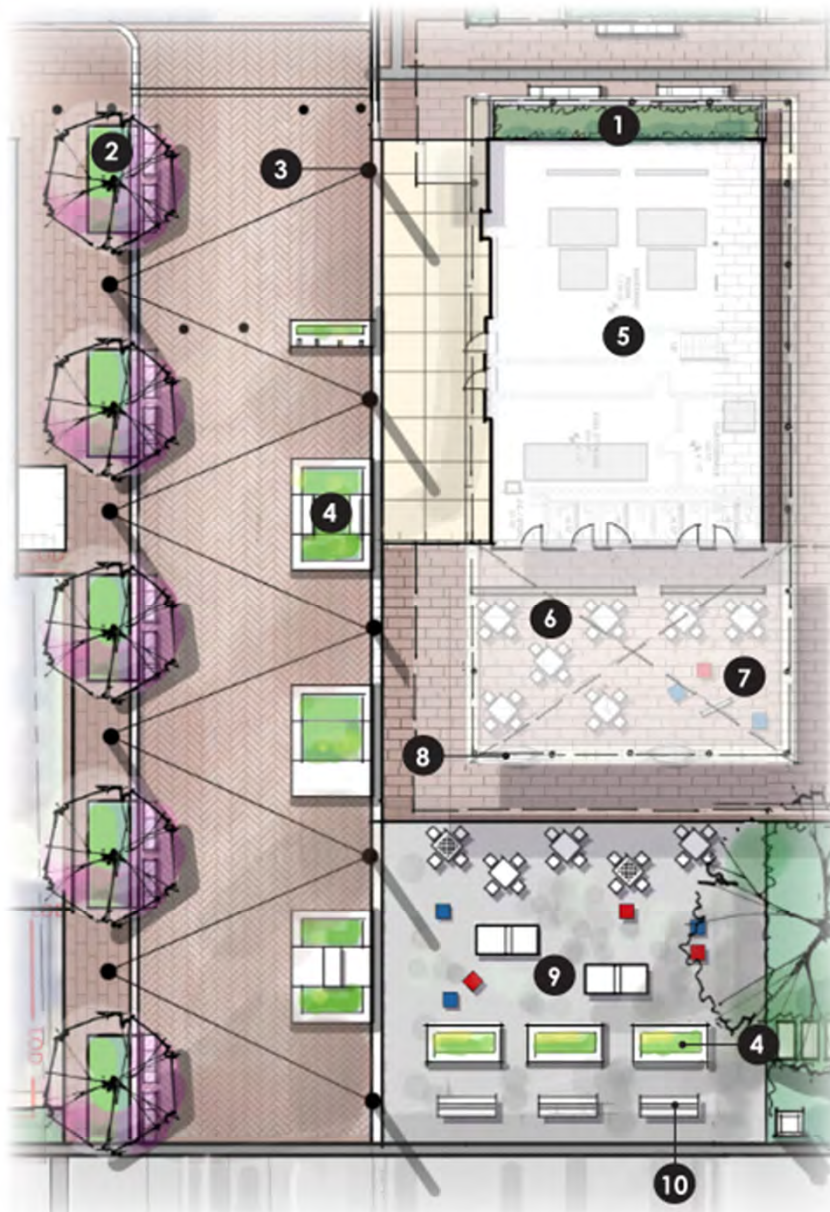
The plan on the left shows the revised pump station footprint boundary in dashed red overlaid on the current site plan.

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- 1 Trellis structure with picnic tables and catenary lighting
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Prince Street and East Plaza



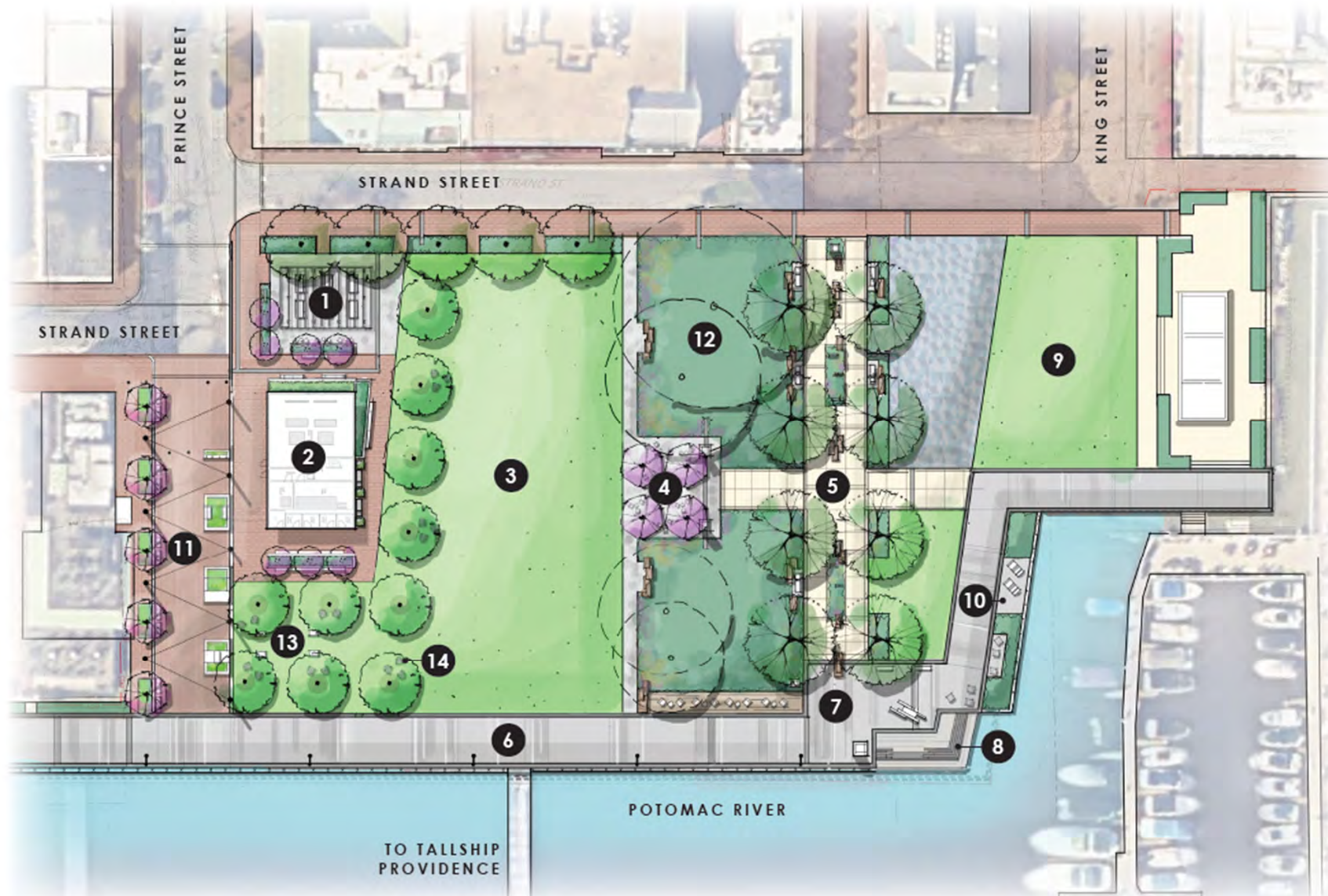
LEGEND:

- 1 Raised bioretention planter
- 2 In-ground planters + benches
- 3 Poles with catenary lighting
- 4 Movable planters with seating
- 5 Pump Station
- 6 Covered plaza / venue space with movable tables and chairs
- 7 Movable Connect Four game or similar with movable cube seating
- 8 Hammocks / swing attached to canopy (removable for events)
- 9 Ping pong tables
- 10 Specialty double-sided promenade seating





Alternate 1 – Remove East Plaza



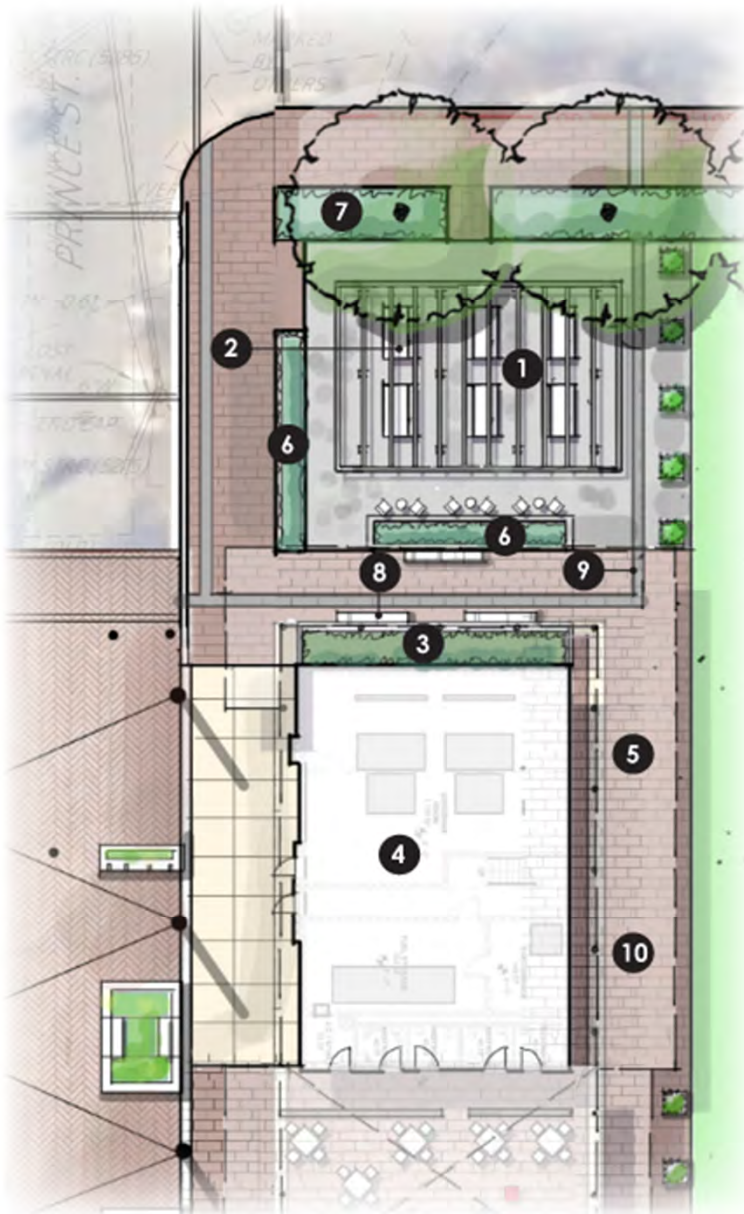
The new site plan leverages the pump station's smaller footprint to maximize landscape, lawn, and canopy. The pump station recedes to the background behind a grid of trees. Adirondack chairs, cornholes, and other movable games can be integrated under the tree canopy if desired.

LEGEND:

- 1 Trellis structure with picnic tables and catenary lighting
- 2 Pump station
- 3 Multi-use lawn
- 4 Arrival plaza with movable seating
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- 13 Optional cornholes and/or other movable games
- 14 Optional Adirondack chairs

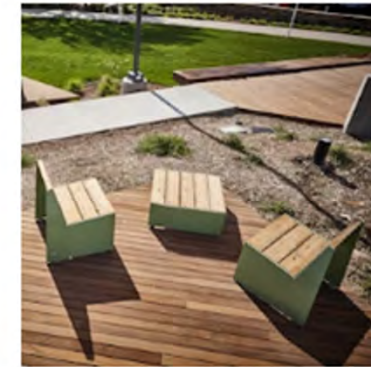


Strand Street West Plaza



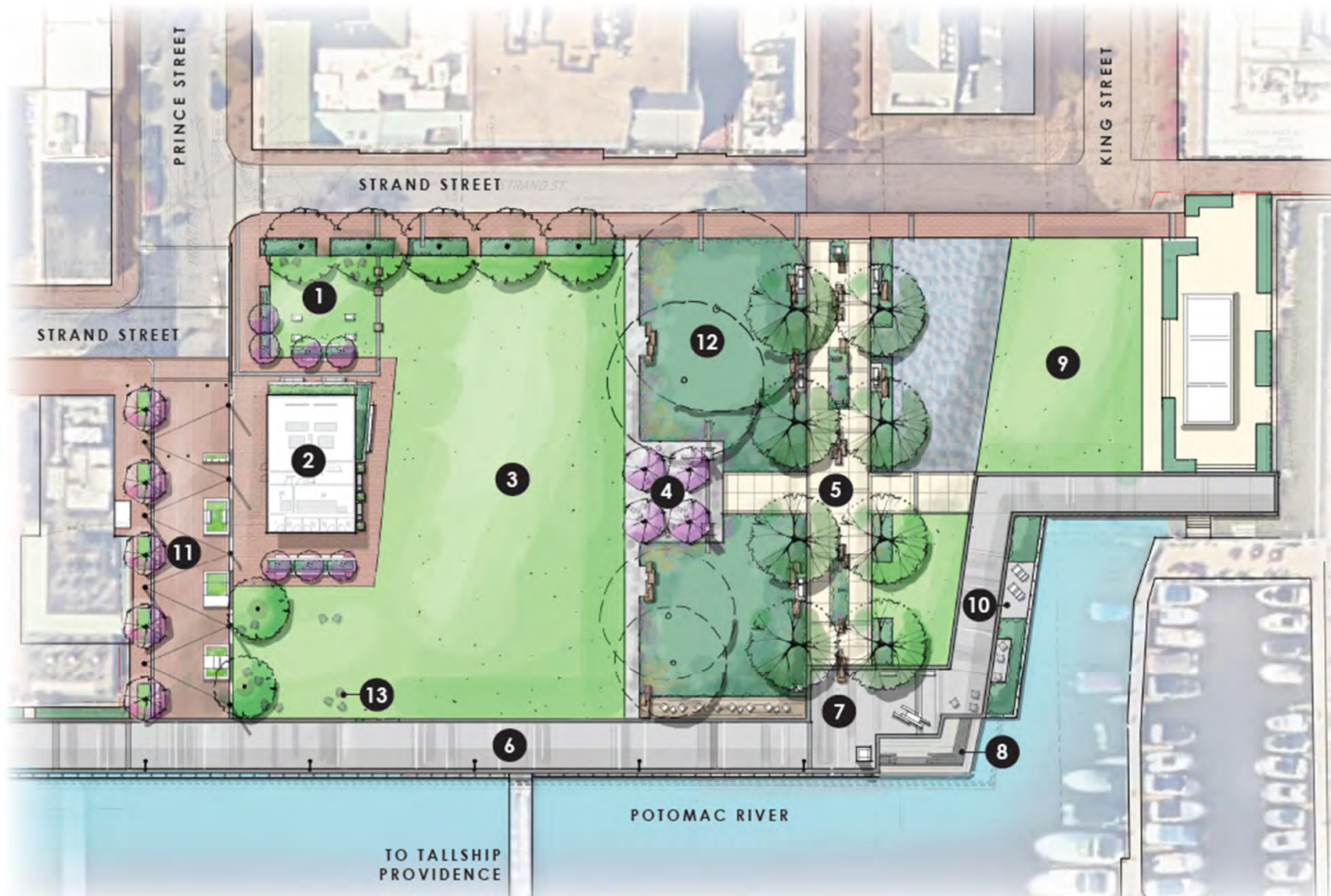
LEGEND:

- 1 Trellis with catenary lighting; columns to align with pump station building canopy grid
- 2 Picnic tables
- 3 Raised bioretention planter
- 4 Pump station
- 5 Pump station canopy
- 6 Raised planting areas
- 7 Planting areas at grade
- 8 Seating along planter walls
- 9 Historic 1845 shoreline banding
- 10 Stage / performance area





Alternate 2 – Remove West Plaza Max Lawn Space



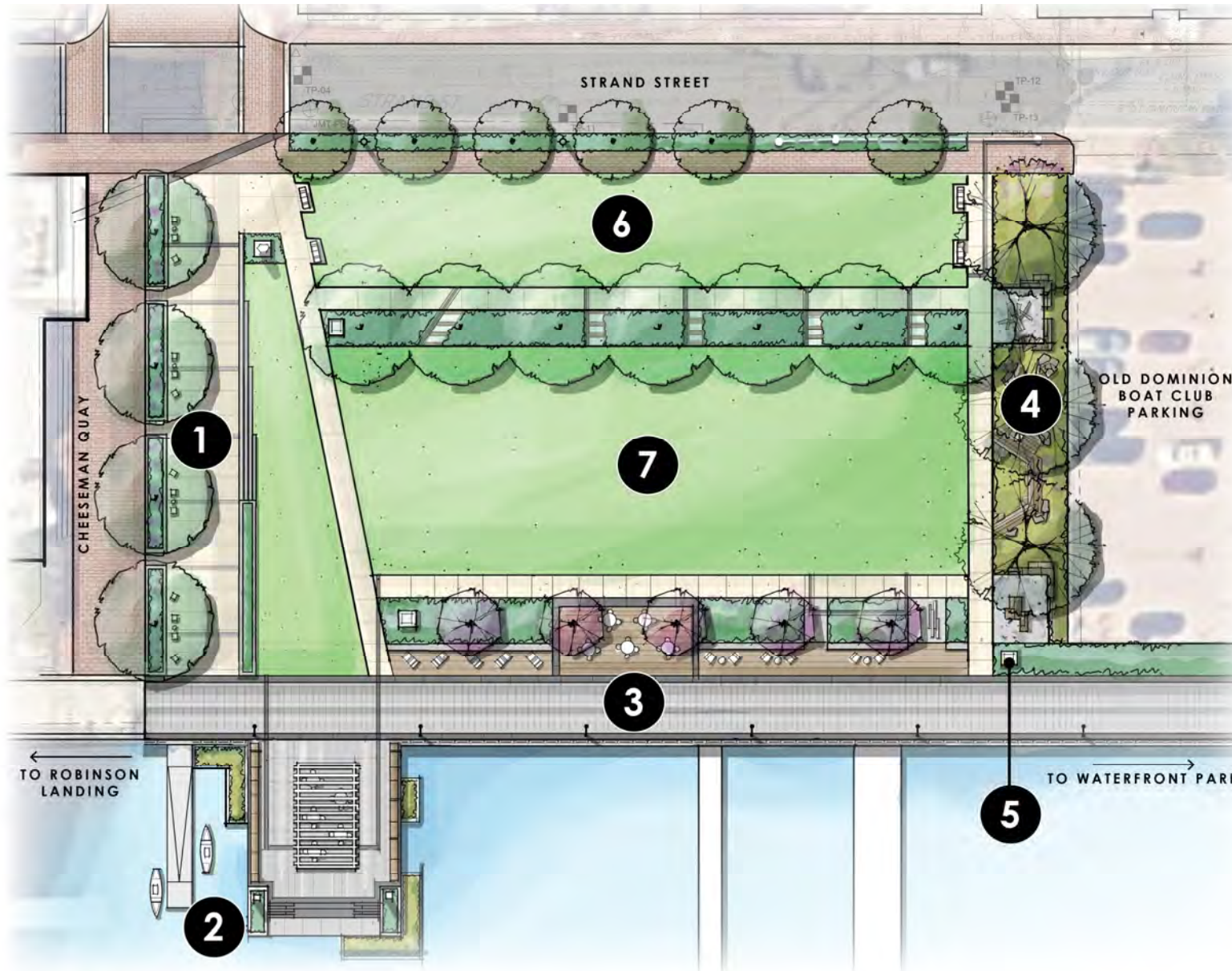
Option 28 removes the shade structure and picnic area west of the pump station to provide maximum programmable green space.

LEGEND:

- 1 Passive green space or programmable game lawn with cornholes, seat walls, and sliding wood crate seating
- 2 Pump station
- 3 Multi-use lawn
- 4 Arrival plaza with movable seating
- 5 Wales Alley River Gateway
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- 13 Optional Adirondack chairs



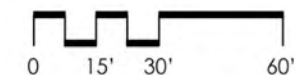
Site Plan: Feedback Requested



In keeping with the **Alexandria Small Area Waterfront Plan**, art, history, and storytelling will be woven throughout the park's function zones to create **unique and memorable experiences** unique to Alexandria, Virginia.

LEGEND:

- 1 Shipbuilding/River Gateway** walk and lawn with feature stairs and relocated Shipbuilder statue
- 2 Wharf** with signature shade structure, waterfront steps, floating wetlands, and kayak launch
- 3 20' Promenade** with seating and plaza
- 4 Bioretention** with boardwalk and children's play/learning nodes
- 5 African American Heritage Trail** signage
- 6 Future Rosenbaum bequest garden** location
- 7 Grand event lawn**





Construction Considerations and Planning

- ▶ Avoid & Minimize Impacts (where feasible)
 - ▶ Sidewalks remain open
 - ▶ Thoughtful phasing of work
 - ▶ Maximum Pedestrian & Delivery Access
 - ▶ Parking Mitigation
 - ▶ Reduce construction duration (multi-shift work)
- ▶ Direct Collaboration & Communication:
 - ▶ Business-Focused Stakeholder Group
 - ▶ Business Survey and Data Collection
 - ▶ Direct outreach to individual businesses
 - ▶ Clear communication as planning continues
- ▶ Options for potential phased park closure/opening
- ▶ Transit Planning/Rerouting Options



Other ideas considered?

- ▶ Green Infrastructure
- ▶ Pervious Pavement (brick pavers – streets and sidewalks)
- ▶ Bioretention & Raingardens
- ▶ Stormwater Ponds in Parks
- ▶ Underground Storage (stormwater)
- ▶ Multiple pump stations
- ▶ Allow parks & streets to flood / Floodproof Buildings
- ▶ Deep dredging of Potomac River
- ▶ Flood barriers without a pump station
- ▶ Levee system (Army Corps)





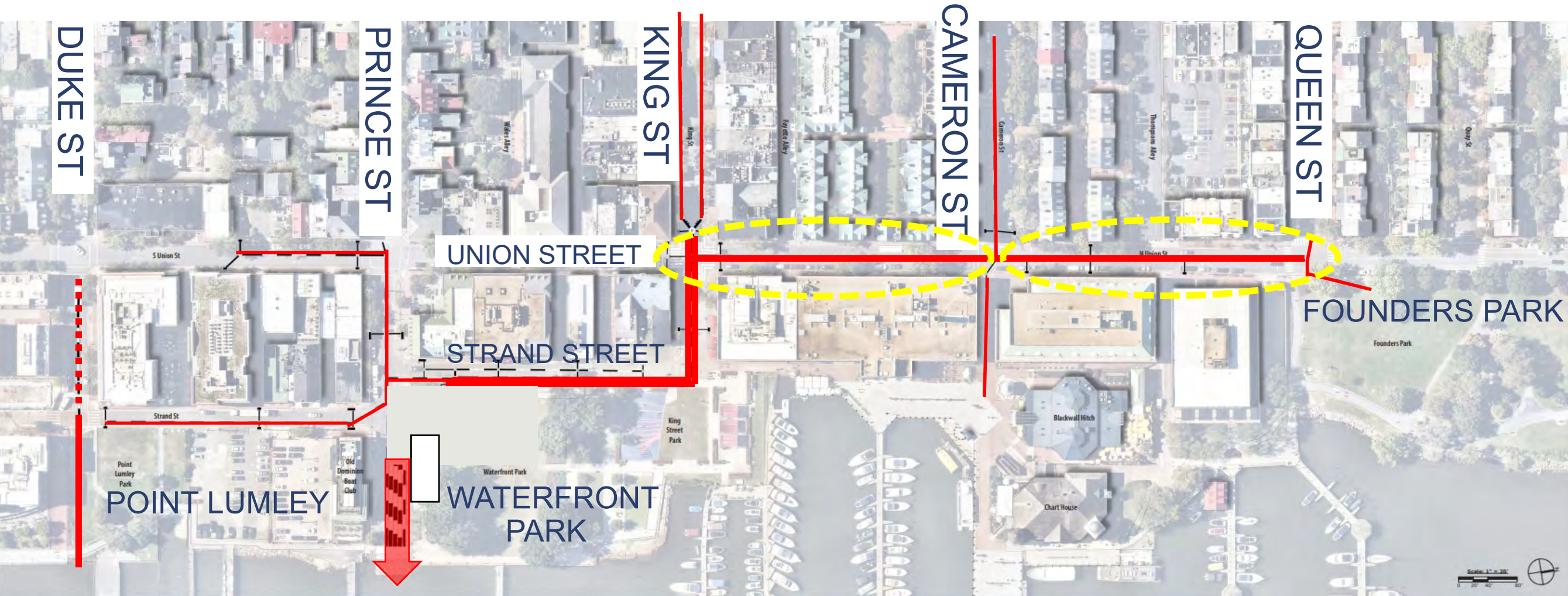
Alternative Pump Station Location Evaluation

- 1 110 S Union
- 2 1 Prince Street
- 3 2&6 Prince Street
- 4 Point Lumley Park
- 5 Foot of Prince Street

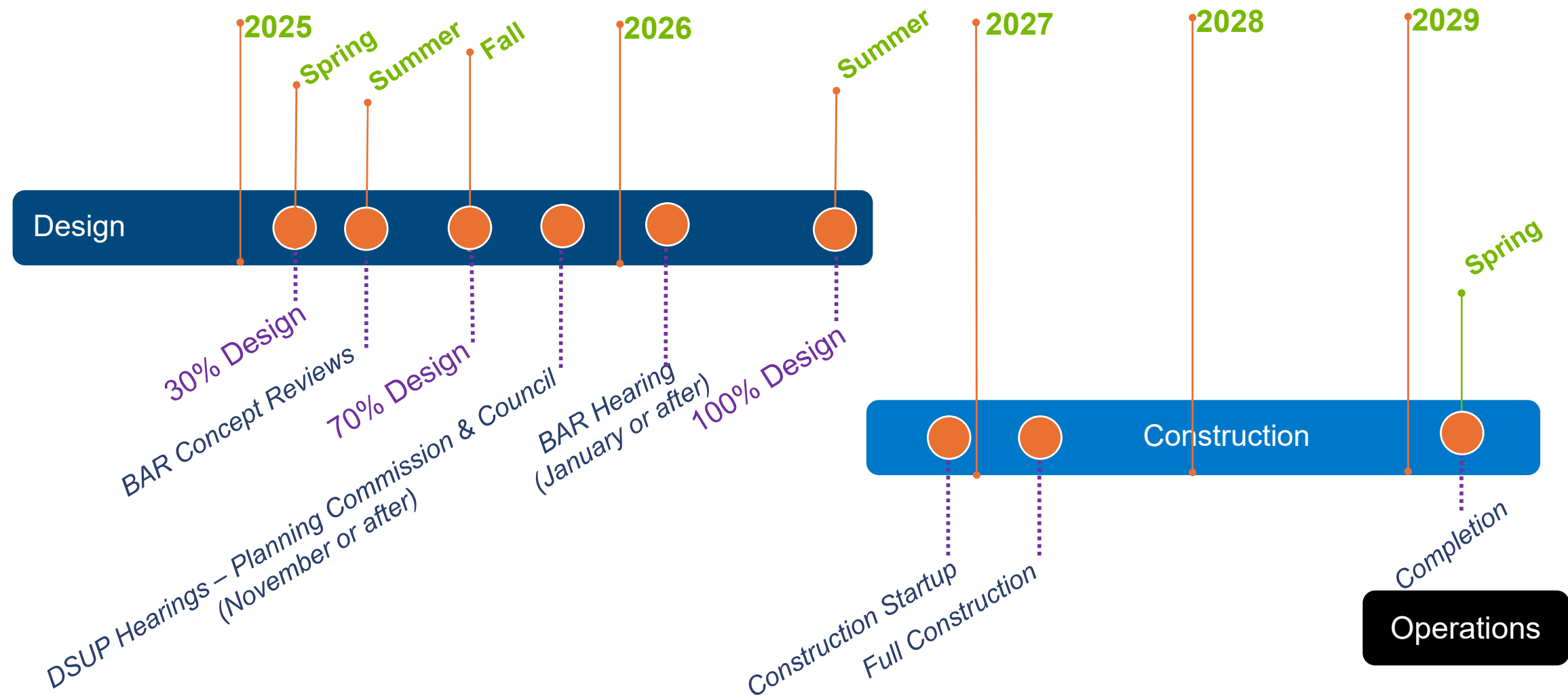


(locations suggested for evaluation by stakeholders)

Stormwater Infrastructure Plan



Anticipated Schedule





CITY OF ALEXANDRIA

Discussion:

- ▶ How can we be successful together?
- ▶ What ways can we best communicate, collaborate, and share info?
- ▶ What concerns haven't we heard or addressed yet?



Project Information & Updates

▶ Participate in upcoming Business-Owner Stakeholder Meetings

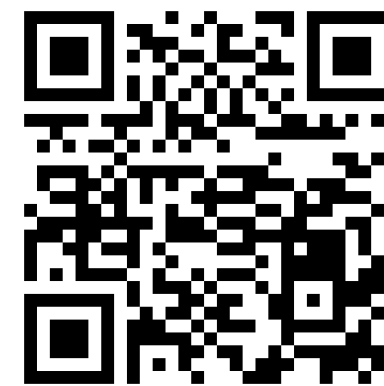
▶ <https://www.alexandriava.gov/Waterfront>

▶ Email Project Manager: Matthew.Landes@AlexandriaVA.gov

▶ Signup for Updates and Newsletter:



▶ Signup for Alexandria eNews:



▶ Go To Planning & Zoning category

▶ Select "Waterfront Planning"