



Downtown Waterfront

Design Meeting for
Marine Infrastructure – Preliminary Engineering
January 10th, 2023

**PINNACLE HILL
ENGINEERING**

LANDMARK CORPORATION
SURVEYORS & ENGINEERS



RS LEONARD
Landscape Architecture



Planning & Economic Development · Permitting · Project Management

Agenda

- Recap of December 20th meeting
- What a storm!
- Electrical Summary
- Design and Materials Review

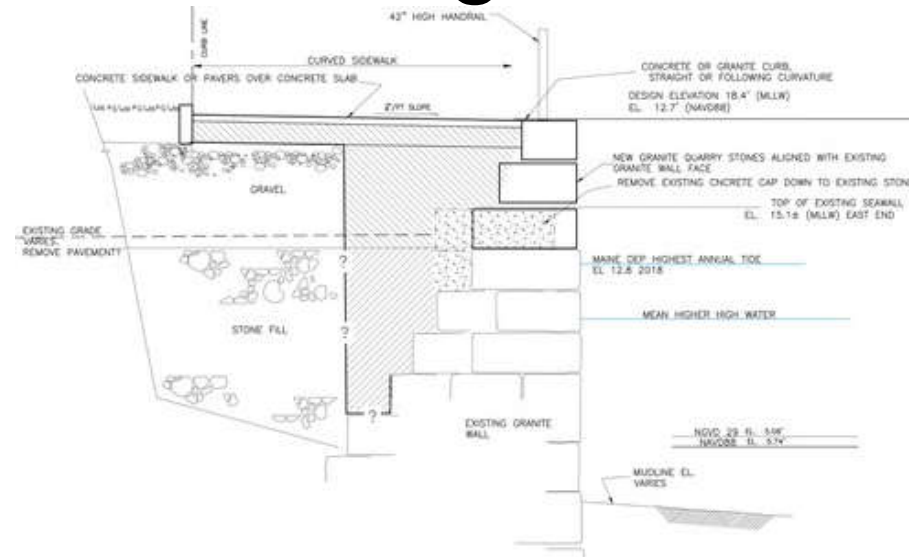




Recap

Recap from December 20, 2022 meeting

- “At Grade” walks to be concrete and pavers pending more detail on paver patterns, maintenance, and service life...discussion on going.
- Wave damage a concern for boardwalk.
- Use wood on piers but consider concrete/pavers for the harbor park overlook, if possible.
- Paver patterns should reinforce curvature of the boardwalk and distinguish areas.
- Liked rustic timber benches on the piers because it reflected the working waterfront
- Preference for a variety of furnishings that vary with location
- Like the idea of comfortable seating and backed benches
- Need a buffer between parked cars and seating without blocking views





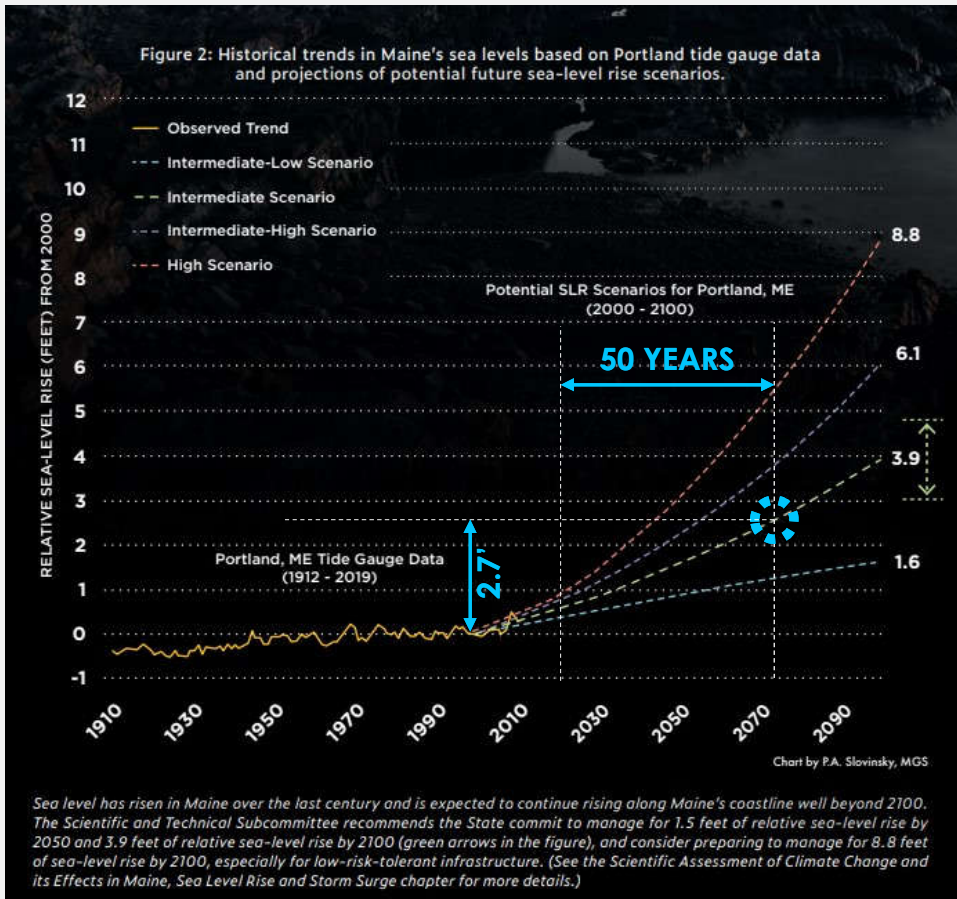
What a Storm!

Statistics

- 12.1 Tide
- 2' Storm Surge
- 2'-4' waves
- Existing seawall height 14.6-16.0



Projected Sea Level Rise

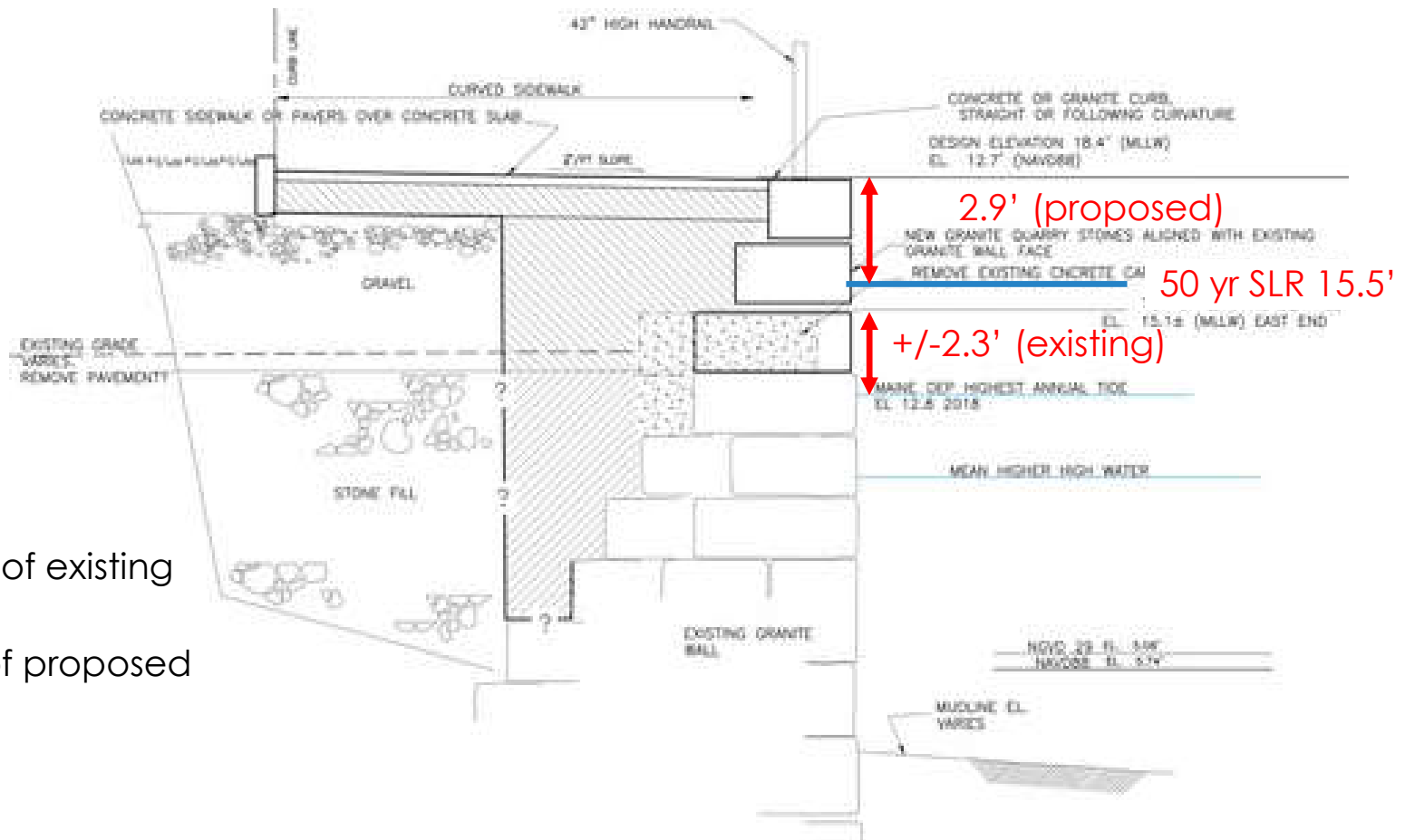


50-Year Resiliency Planning:

- Plan waterfront infrastructure for projected sea level increase of 2.7'

Source: https://www.maine.gov/future/sites/maine.gov.future/files/inline-files/MaineWontWait_December2020

Improve Resiliency



- Current HAT to top of existing seawall +/-2.3'
- Future HAT to top of proposed seawall +/-2.9'

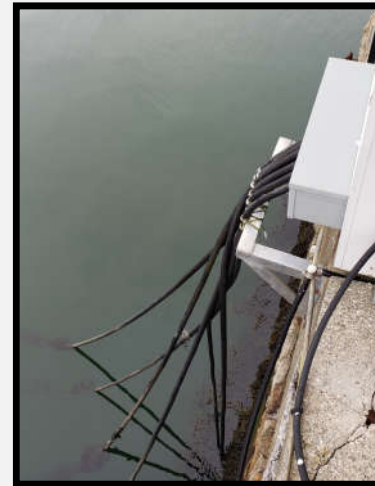
Electrical Summary

- Met with Electrician Rod Penney and Harbor Master, Molly Eddy
- Public Landing – 400 amp, single phase (approx. 8 years old) and worth re-using.
- Middle Pier – shared 200 amp, single phase service, sub-panel outdated. New 400 amp service required.



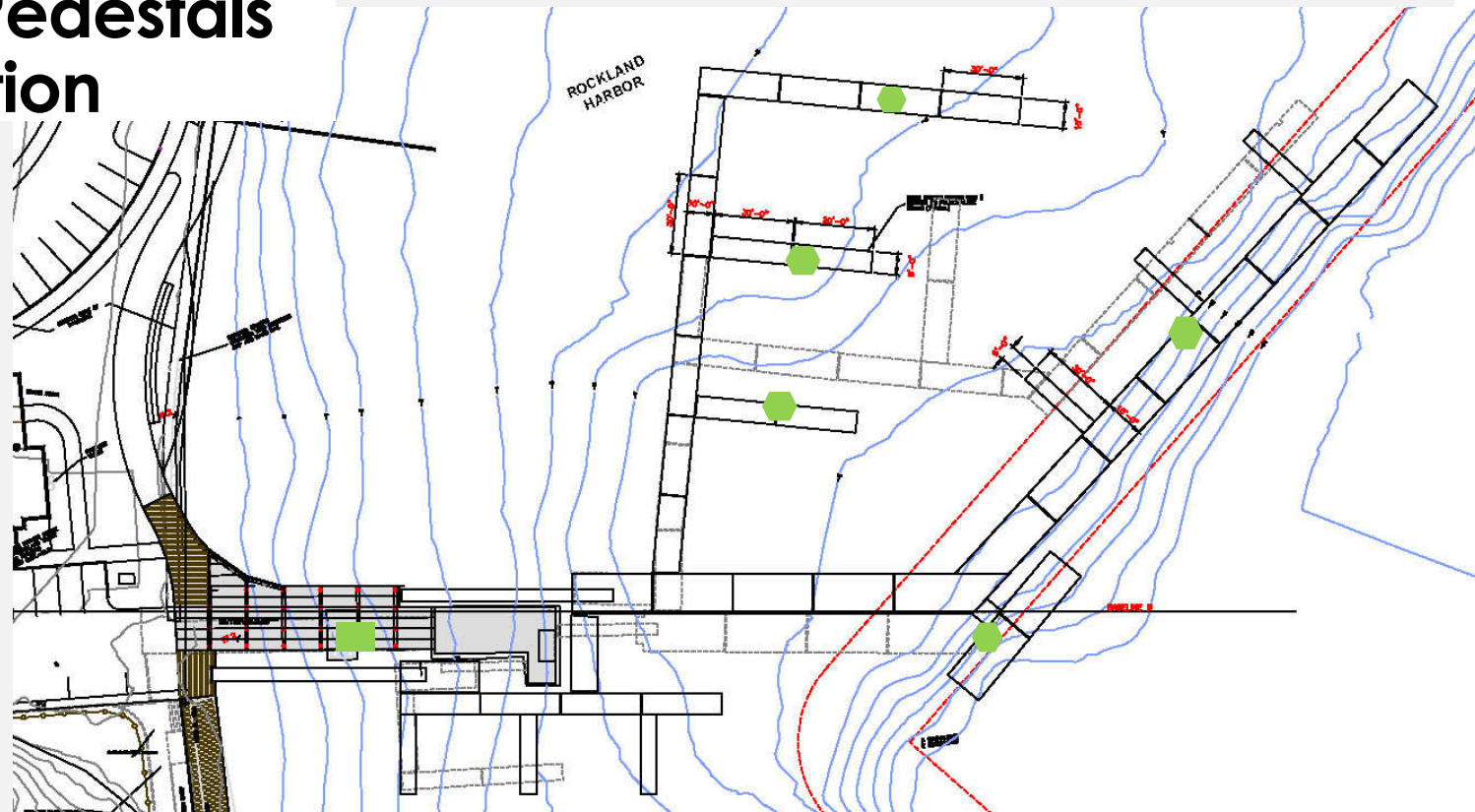
Public Landing

- Public Landing – 400 amp, single phase (approx. 8 years old)
- Pole mounted transformer behind Harbor Master building
- Secondary power aerial and transitions to concrete encased conduit at pier
- Meter and Panel at shack at end of pier
- Mining grade cable from the panel to each pedestal
- Of the 5 existing pedestals, 3 will be functioning next year



Public Landing Pedestals and Panel Location

- New underground service to conduits mounted on pier
- Panel to be placed in relocated Harbor Master shack. Re-use 400-amp equipment ■
- New mining cable, homeruns from panel location to 5 new pedestals.
- New pedestals to be flexible and include 50-, 30-, and 20-amp options ◆



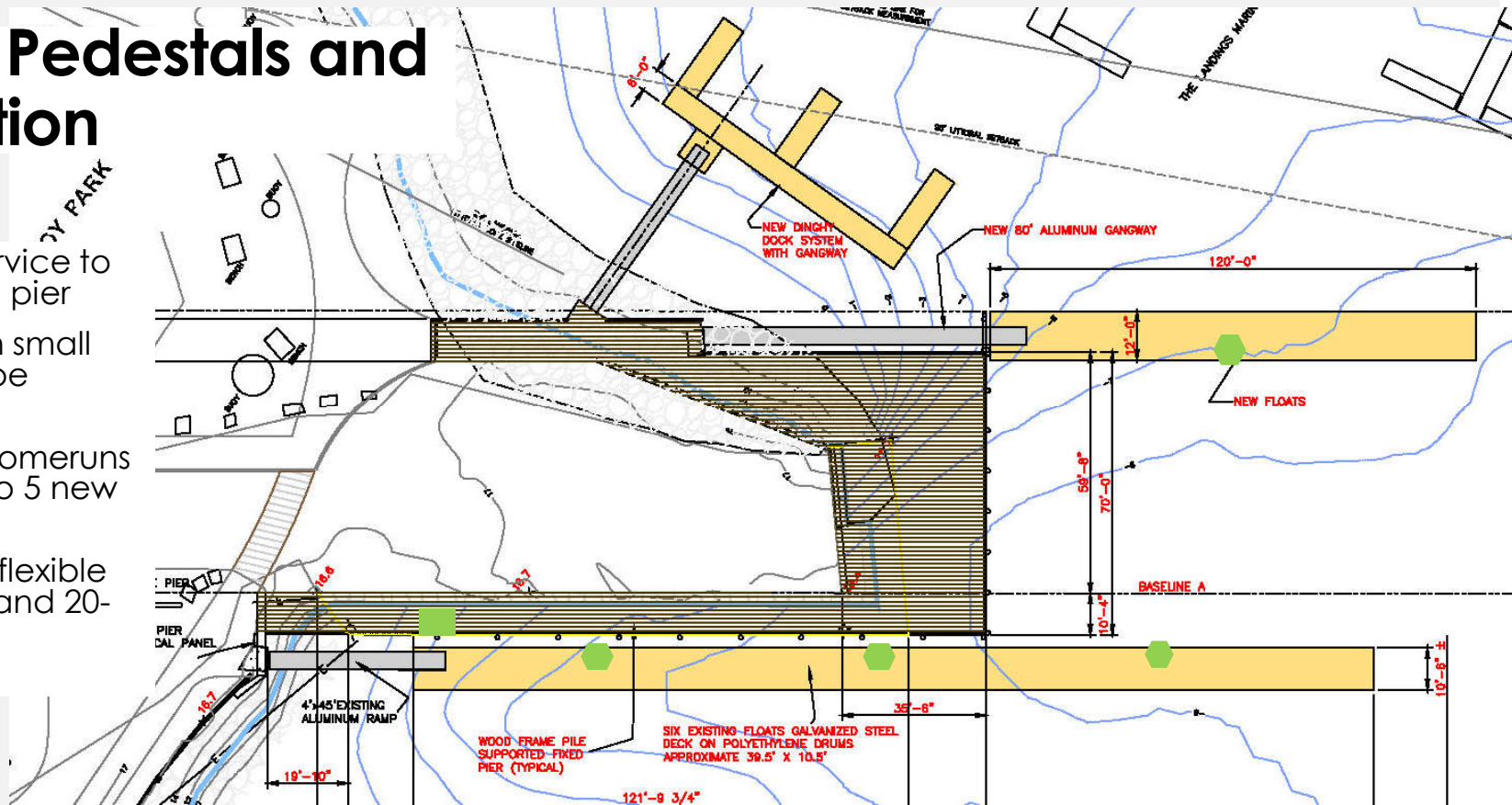
Middle Pier

- Middle Pier – shared 200 amp, single phase service, sub-panel outdated.
- Existing power at pier level, no dockside service
- New 400-amp service recommended. Coordination with CMP required.
- New panel location needed, preferably in a building



Middle Pier Pedestals and Panel Location

- New underground service to conduits mounted on pier
- Panel to be placed in small building, location to be determined
- New mining cable, homeruns from panel location to 5 new pedestals.
- New pedestals to be flexible and include 50-, 30-, and 20-amp options



Public Landing / Harbor Park Boardwalk

Schematic Design Alternative C

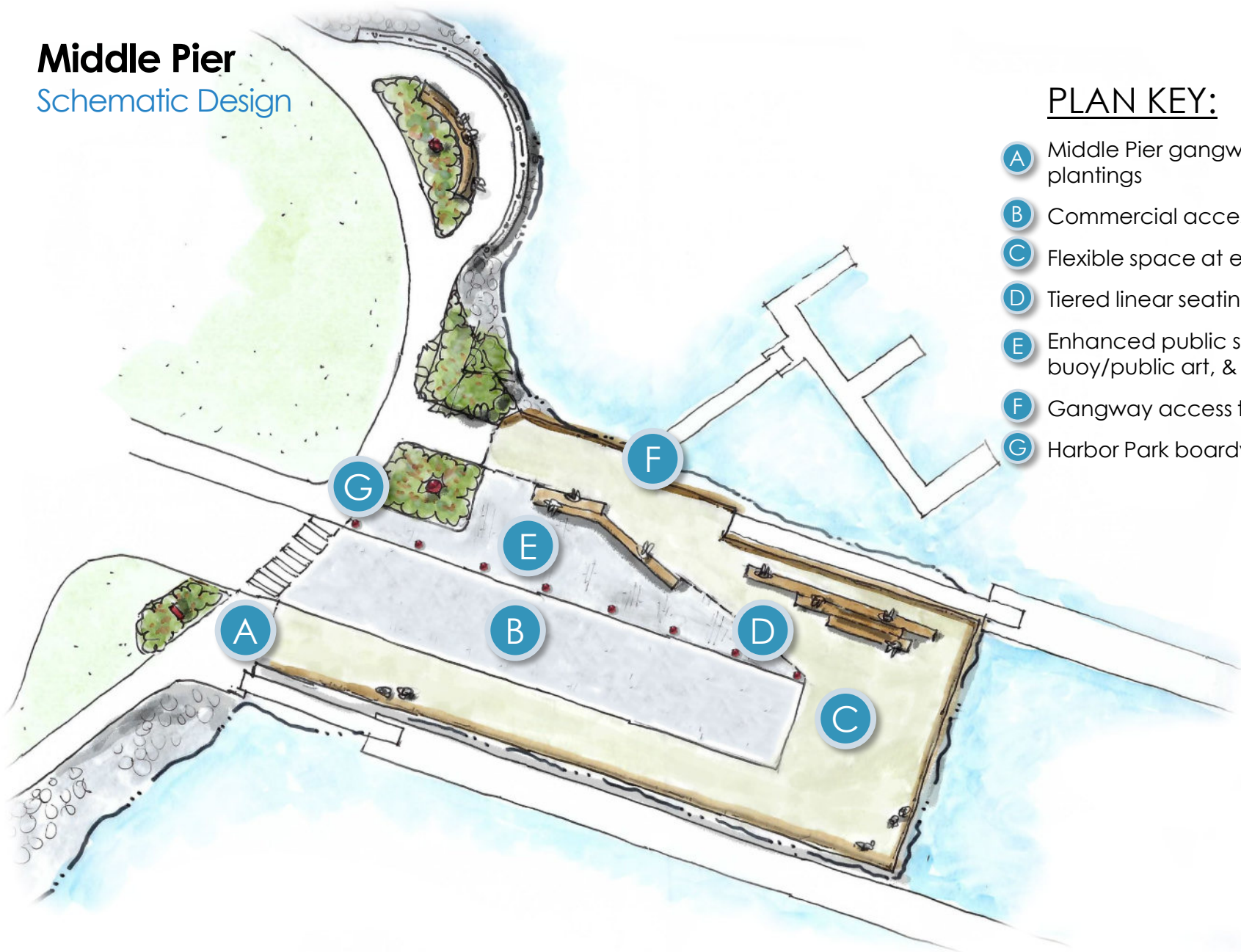


PLAN KEY:

- A Covered section /end of pier viewing area with seating
- B Public Landing & Boardwalk with ticket booth and linear seating
- C Gateway with kiosk and bicycle racks
- D Group picnic tables and seating areas
- E Sculptural / linear seating (custom fabricated) & lounge chairs
- F Central overlook with linear seating with buoys/public art & plantings along boardwalk
- G Tiered seating with plantings and connections to park & restaurant
- H Boardwalk & expanded Pearl Pier with outdoor dining and overlook with seating
- I Gangway bridge / connection to Buoy Park

Middle Pier

Schematic Design

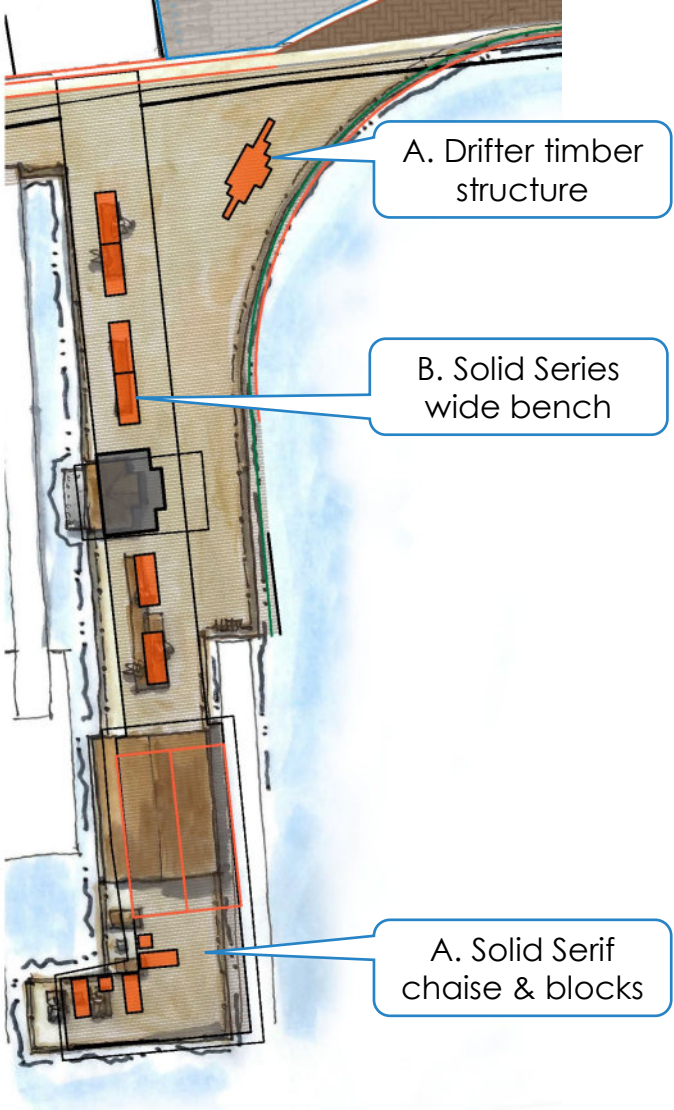


PLAN KEY:

- A Middle Pier gangway to commercial floats / entrance sign with plantings
- B Commercial access (loading/unloading) separated by bollards
- C Flexible space at end of pier for working waterfront uses
- D Tiered linear seating at end of pier
- E Enhanced public space with specialty paving, linear seating, buoy/public art, & plantings; Separated by bollards
- F Gangway access to dinghy docks
- G Harbor Park boardwalk access with plantings

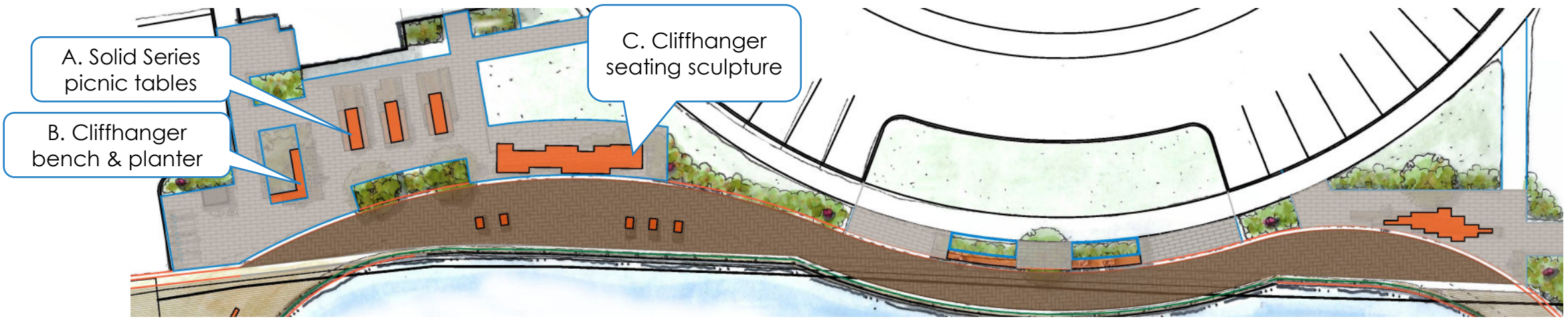
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Furnishings Discussion – Public Landing Pier



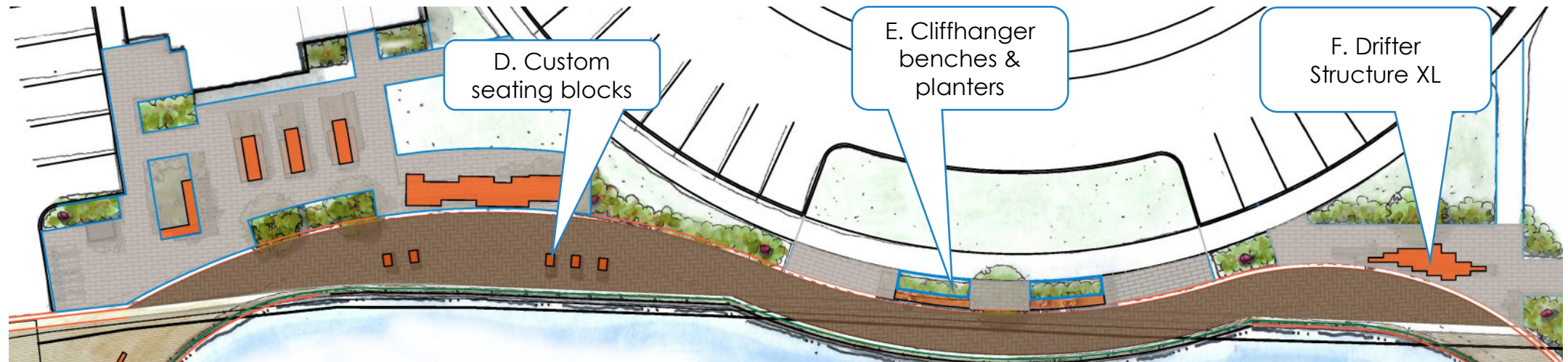
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Proposed Guardrails & Site Lighting



- Local fabrication of guardrails by Lyman Morse or similar company
 - Wood top rail for viewing / leaning
 - Tubular horizontal rails spaced to code requirements
 - Aluminum and/or stainless steel
- Lighting for safety and nighttime year-round use of boardwalk / park
 - Styles coordinated through downtown waterfront areas
 - Combination of lighting types, including post lights and accent lighting (shown)

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Considerations for surfaces

Vehicular Paver Aspect Ratio

The aspect ratio is calculated
overall length ÷ thickness

Lower ratio = a thicker paver



Greater than **4:1**

Should **NOT** be used in vehicular applications.

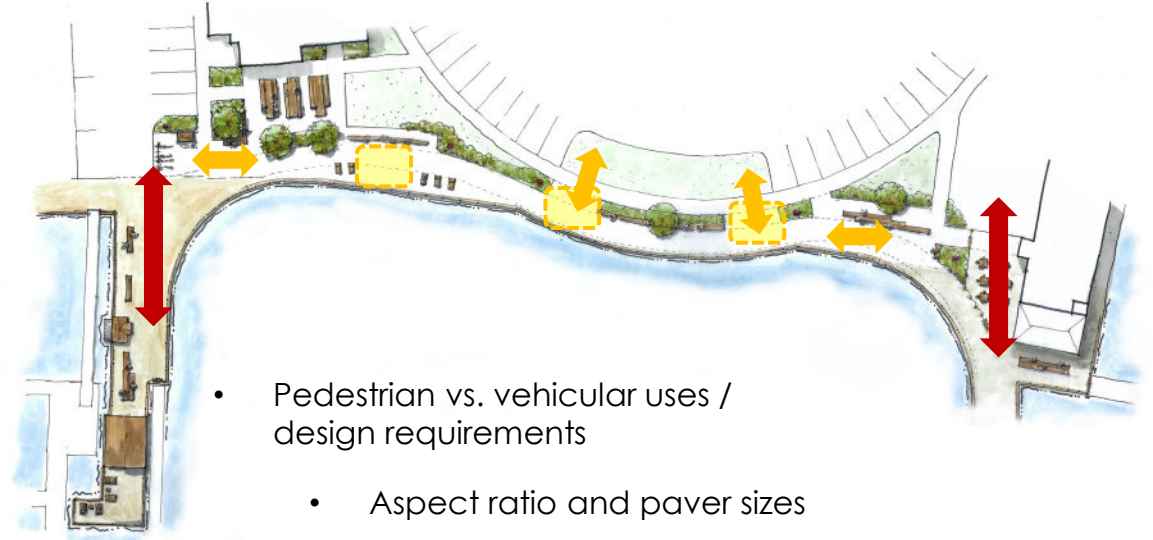
4:1 to **3:1**

May be used in areas with **limited** automobile use such as residential driveways.

3:1 or Less

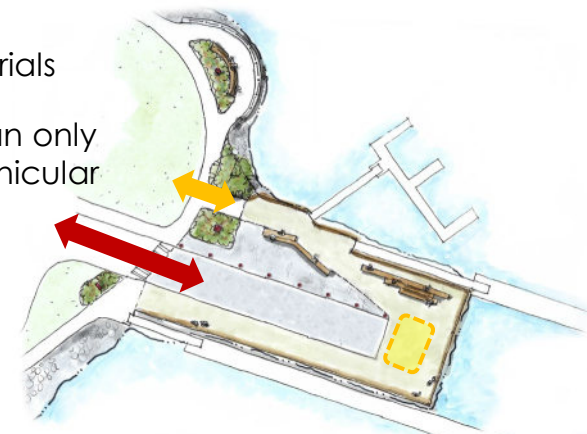
Suitable for **all** vehicular applications.

Courtesy of Stepstone, Inc.



- Pedestrian vs. vehicular uses / design requirements
 - Aspect ratio and paver sizes
- ↔ Maintenance vehicle access
- ↔ Commercial loading zones and vehicle access to piers
- ▭ Special uses such as festival displays, stage setup, etc.

- Durability and resilience / safety
- Herringbone pattern
- Design continuity / materials
- Segregation of pedestrian only areas / restrictions for vehicular access

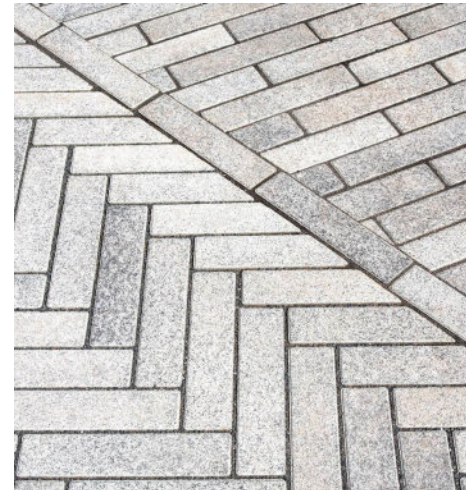
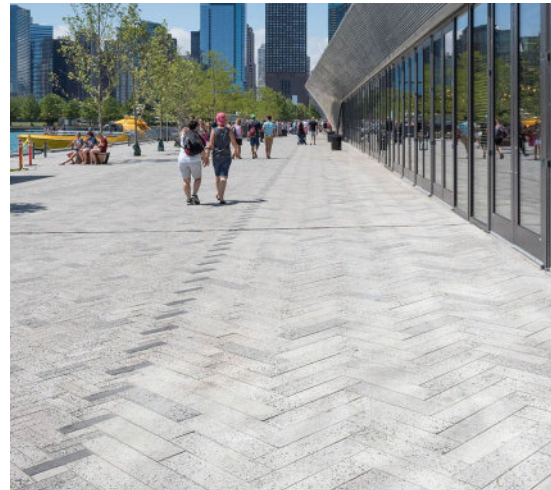


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Surfaces Discussion



- Curves accentuated with borders
- Areas distinguished by different paving patterns / sizes / colors
- Textures & finishes to refine visual appearance and improve wearability
- Plank style pavers in colors to coordinate with waterfront piers



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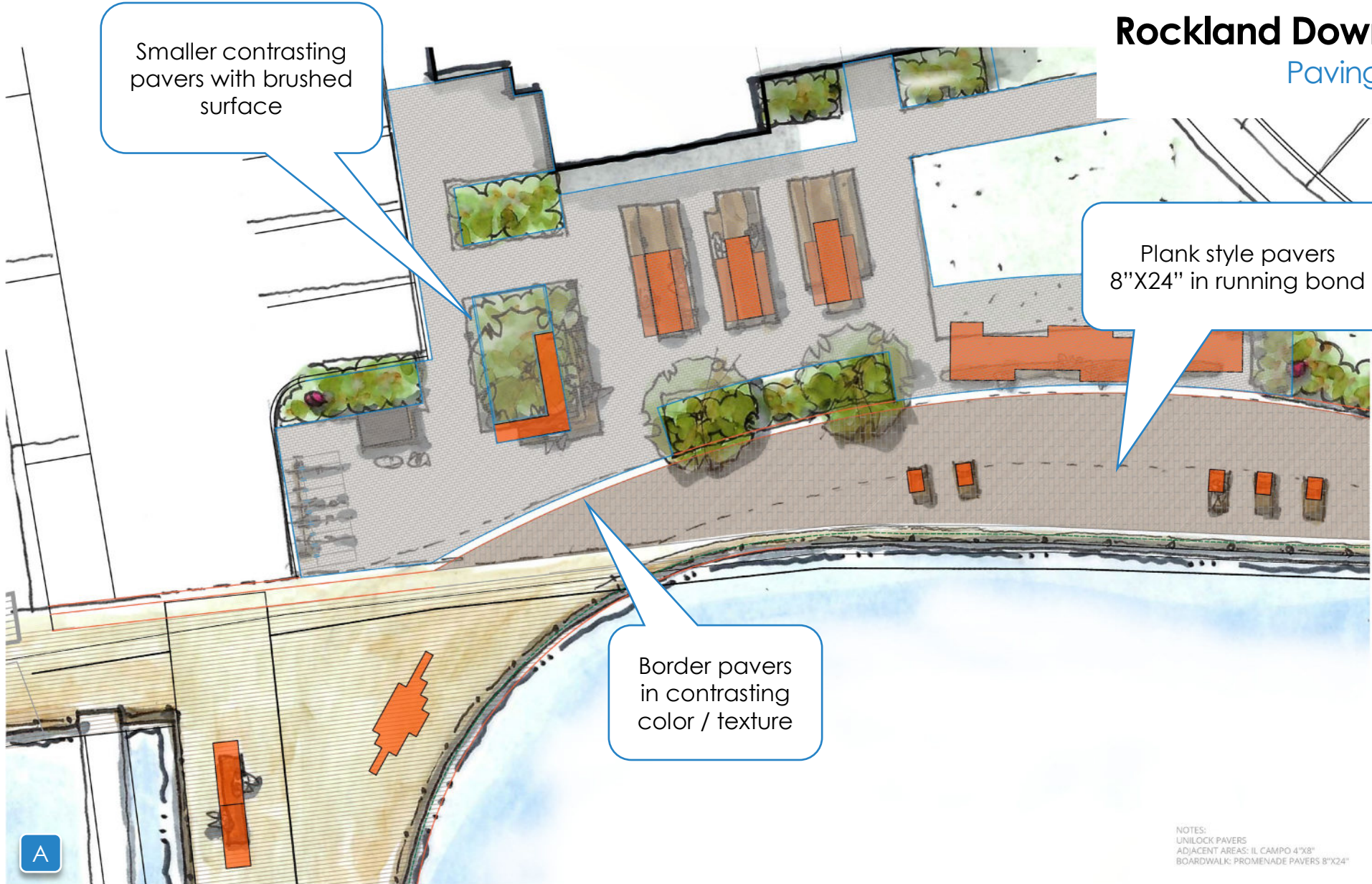
Paving Styles – Approaches (Version A)



- Colors in range of earth tones and natural stone gradations
- Boardwalk surface finish for slip resistance and durability
- Adjacent area surface finishes coordinated with boardwalk

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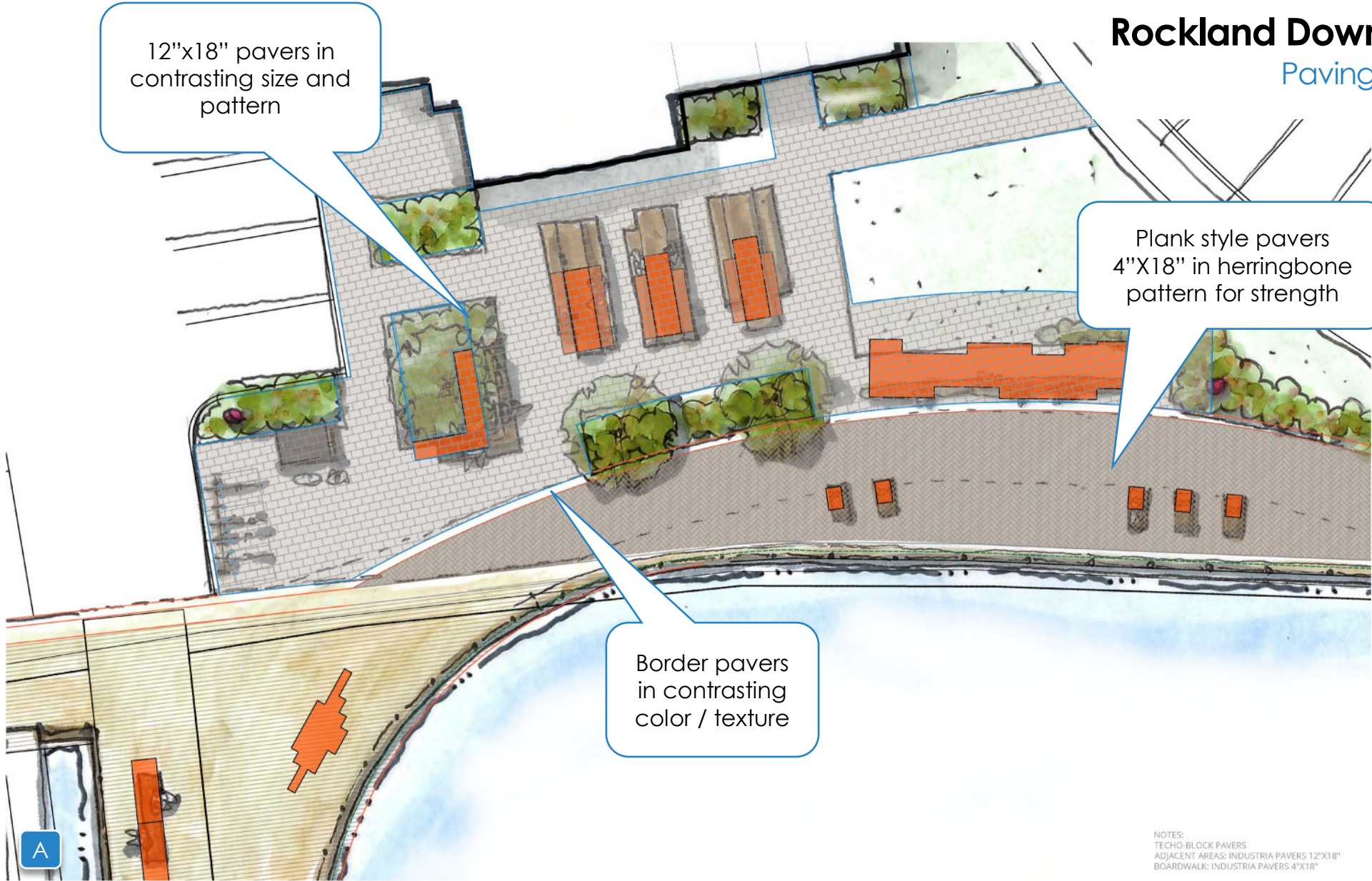
Paving Styles – Approaches (Version B)



- Colors in range of earth tones and natural stone gradations
- Boardwalk surface finish for slip resistance and durability
- Adjacent area surface finishes coordinated with boardwalk

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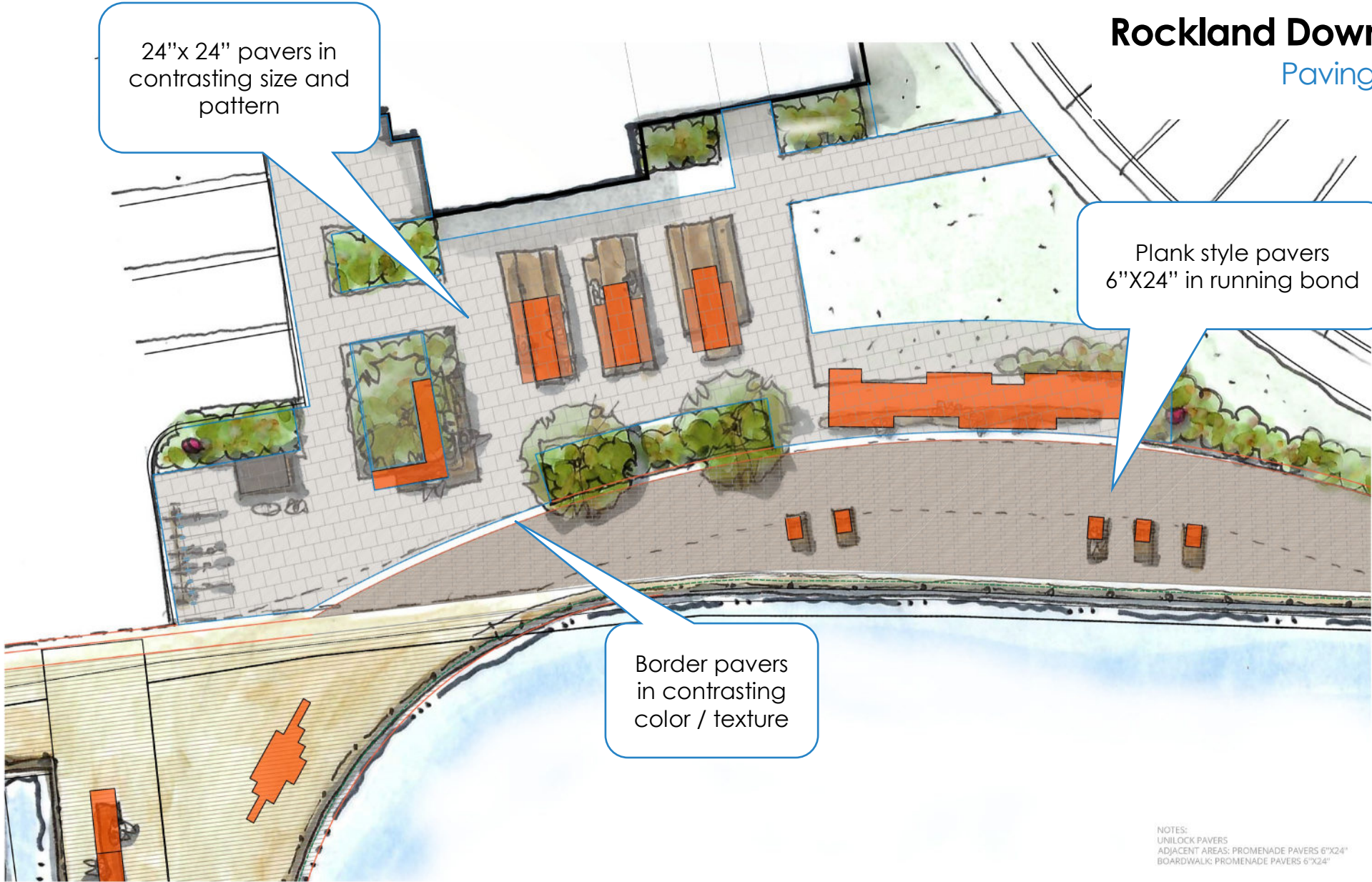
Paving Styles – Approaches (Version C)



- Colors in range of earth tones and natural stone gradations
- Boardwalk surface finish for slip resistance and durability
- Adjacent area surface finishes coordinated with boardwalk

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Paving Styles – Approaches (Version D)



- Colors in range of earth tones and natural stone gradations
- Boardwalk surface finish for slip resistance and durability
- Adjacent area surface finishes coordinated with boardwalk