Special Joint Workshop of Council with the Waterfront Advisory Committee
Meeting Minutes – Planning Conference Room – 1st Floor

September 24, 2025

I. CALL TO ORDER 9:00 AM

Philip Cromer, Mayor.

Members of Council in attendance -Phil Cromer, Neil Lipsitz, Michael McFee, Josh Scallate.

Absent - Mitch Mitchell.

Members of the Waterfront Advisory Committee in Attendance - David Bartholomew, Ben Coppage, Scott Marshall, Joseph Oliver, David Russell, Josh Scallate, Mike Sutton.

Absent - Josh Schott, Bill Suter.

II. PLEDGE OF ALLEGIANCE

Philip Cromer, Mayor.

III. ENGINEER'S PRESENTATION AND ROUNDTABLE DISCUSSION

Bill Barna, with McSweeney Engineers, Project Manager for the Waterfront Park Relieving Platform Consulting Services provided an overview of today's meeting. He answered Council's and the Committee's questions and addressed their concerns.

Chris Mack, Director of Resilience and Coastal Solutions with Johnson, Mirmiran, and Thompson (JMT) started off by defining resilience and sustainability. He spoke about the preliminary list of alternatives and provided illustrations that went with each one. He addressed Council's and the Committee's questions and concerns.

There was a discussion about whether or not shrimp boats and cruise ships should be allowed to tie up on the seawall. Must there be a Relieving Platform in order to accomplish this. What would the economic impact be if they were not allowed back.

Councilman Scallate stated regardless if you favor cruise ships today or not, if financially feasible, we should rebuild the park to accommodate the option. This allows future residents and council flexibility.

The marina parking lot issues should also be taken into consideration and be addressed at the same time. The marina itself also needs to be included because its existing footprint might need to change.

Mr. Barna mentioned the independent stormwater projects getting ready to be worked on downtown will also need to play a role in the calculations.

There was a discussion about reopening the day-dock and what that might involve. Should this undertaking be included in Phase 1B to allow for permitting and design. **City Manager, Scott Marshall**, stated City procurement rules would need to apply.

A public charette could possibly take place after the first of the year. It will take time to gather all the information needed with the various alternatives and provide illustrations.

Councilman Scallate stated that with the understanding that the critical line is at the face of the relieving platform he favors a park that is within the same footprint (size and shape), and the establishment of a seawall to accommodate backfilling. There should be enough flexibility in this process to allow for creative feedback from the community and the engineers to provide a design that maximizes the user's experience. Essentially this would be combining alternatives 4,6 and 8.

McSweeney Engineers will work on providing deliverables to include cost estimates for alternatives 4, 6 and 8 using 7, 8 and 9 feet elevations. They will also include and exclude the ability to dock a single larger commercial vessel. **Raul Dominquez, Capital Projects Director**, stated short term and long term maintenance needs to be factored in, along with any additional operational needs which would be required.

A copy of the presentation is attached.

IV. CITY COUNCIL COMMENTS

No additional comments outside of the discussions.

V. WATERFRONT ADVISORY COMMITTEE COMMENTS

No additional comments outside of the discussions.

VI. PUBLIC COMMENT

Graham Trask, 1211 Bay Street.

VII. ADJOURN 12:36 PM

Disclaimer: This document is a summary. All City Council Worksessions and Regular Meetings are recorded. Live stream can be found on the City's website at www.cityofbeaufort.org (Agenda section). Any questions, please contact the City Clerk, Traci Guldner at 843-525-7024 or by email at tguldner@cityofbeaufort.org.

In accordance with South Carolina Code of Laws, 1976, Section 30-4-80 (a)(d)(e), as amended, notification of regular meetings was given at the beginning of the calendar year. A copy of the agenda was posted on the City's bulletin board and website www.cityofbeaufort.org twenty-four hours prior to the meeting. A copy of the agenda was given to the local news media and requested public on file.

approved: October 14, 2025
Traci Guldner

McSweeney Engineers

CITY OF BEAUFORT SOUTH CAROLINA
FOUNDED 1711

JMT

ALTERNATIVES FOR THE
BEAUFORT WATERFRONT PLATFORM

SEPTEMBER 24, 2025

PRESENTED TO: BEAUFORT COUNTY COUNCIL / WATER COMMITTEE

DEFINING RESILIENCE & SUSTAINABILITY

DEFINING RESILIENCE

USACE - "the ability to anticipate, prepare for and adapt to changing conditions and withstand and recover from disruptions….[through] four principles - prepare, absorb, recover, and adapt."

FEMA - "Instead of repeated damage and continual demands for federal disaster assistance, resilient communities proactively protect themselves against hazards, build self-sufficiency, and become more sustainable."

NOAA – "Coastal resilience means building the ability of a community to "bounce back" after hazardous events such as hurricanes, coastal storms, and flooding – rather than simply reacting to impact."

NIST – "Resilience is the ability to adapt to changing conditions and prepare for, withstand, and rapidly recover from disruption caused by a hazard."

In essence, resilience is the Capacity to Recover…how'bout….,

"Resilient communities proactively build self-sufficiency for rapid recovery."

DEFINING SUSTAINABILITY

USACE - "The capacity to endure; i.e. the ability to sustain. When applied to a community infrastructure project, it refers to the ability to sustain not just itself, but its users, its community, and the ecology of its environment."

FEMA - "Meeting the needs of the present without compromising the ability of future generations to meet their own needs…Social, economic, environmental, recreational, and other community goals can be achieved during recovery, resulting in a community that is a better place to live, work, and play than it was before the disaster."

NOAA – "A vision of the future where ecosystems and societies are healthy and resilient in the face of change."

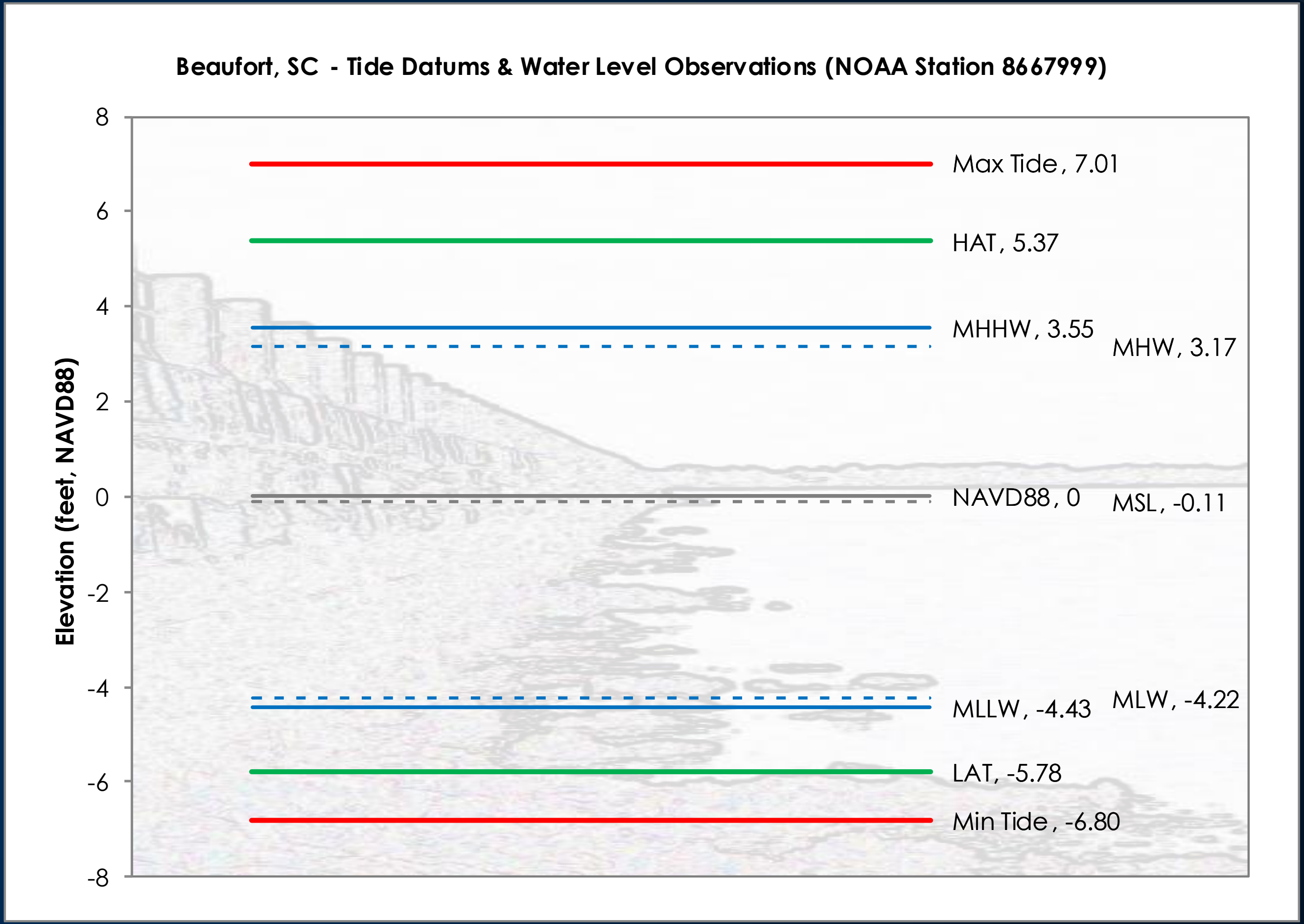
NIST – "To achieve sustainability, products, processes, and services should meet the challenges not only related to their functions and performance but also to environment, economy, and social issues."

In essence, sustainability is the Capacity to Preserve…how'bout….,

"Sustainable communities achieve long-term resilience goals socially, environmentally, and economically."

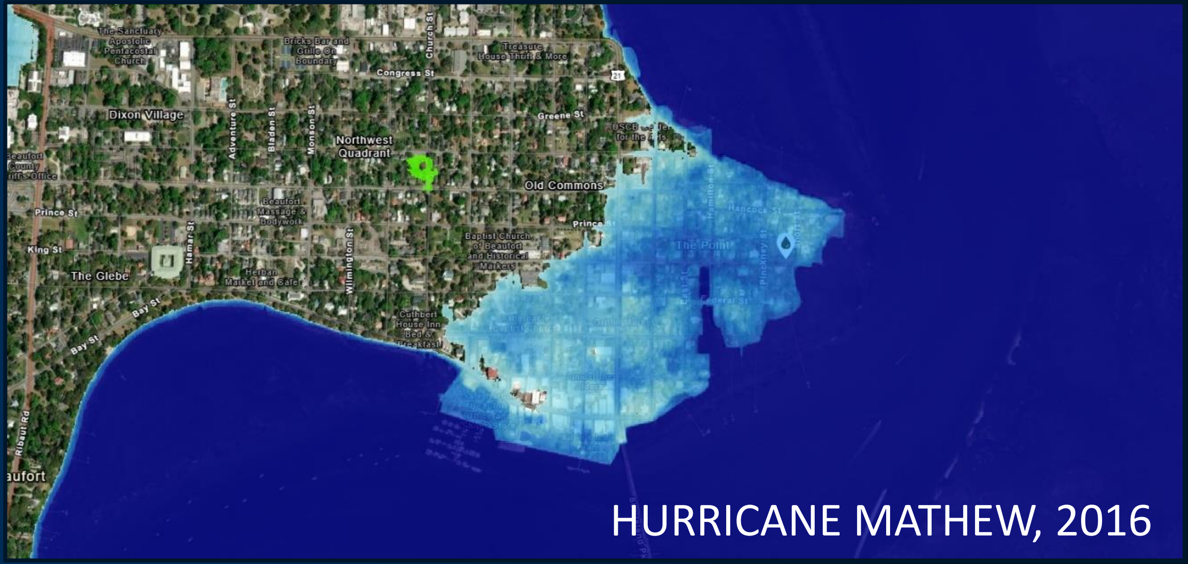
BACKGROUND DATA

Beaufort, SC - Tide Datums & Water Level Observations (NOAA Station 8667999)		
Datum / Observation	Elevation (feet, NAVD88)	Description
Max Tide	7.01	Highest Observed Tide (9/3/1979 12:00:00 AM)
HAT	5.37	Highest Astronomical Tide (10/16/1993 1:00:00 PM)
MHHW	3.55	Mean Higher-High Water
MHW	3.17	Mean High Water
NAVD88	0.00	North American Vertical Datum of 1988
MSL	-0.11	Mean Sea Level
MLW	-4.22	Mean Low Water
MLLW	-4.43	Mean Lower-Low Water
LAT	-5.78	Lowest Astronomical Tide (2/8/1997 6:48:00 AM)
Min Tide	-6.80	Lowest Observed Tide (1/9/1978 12:00:00 AM)



TIDE WATER LEVELS / DATUMS

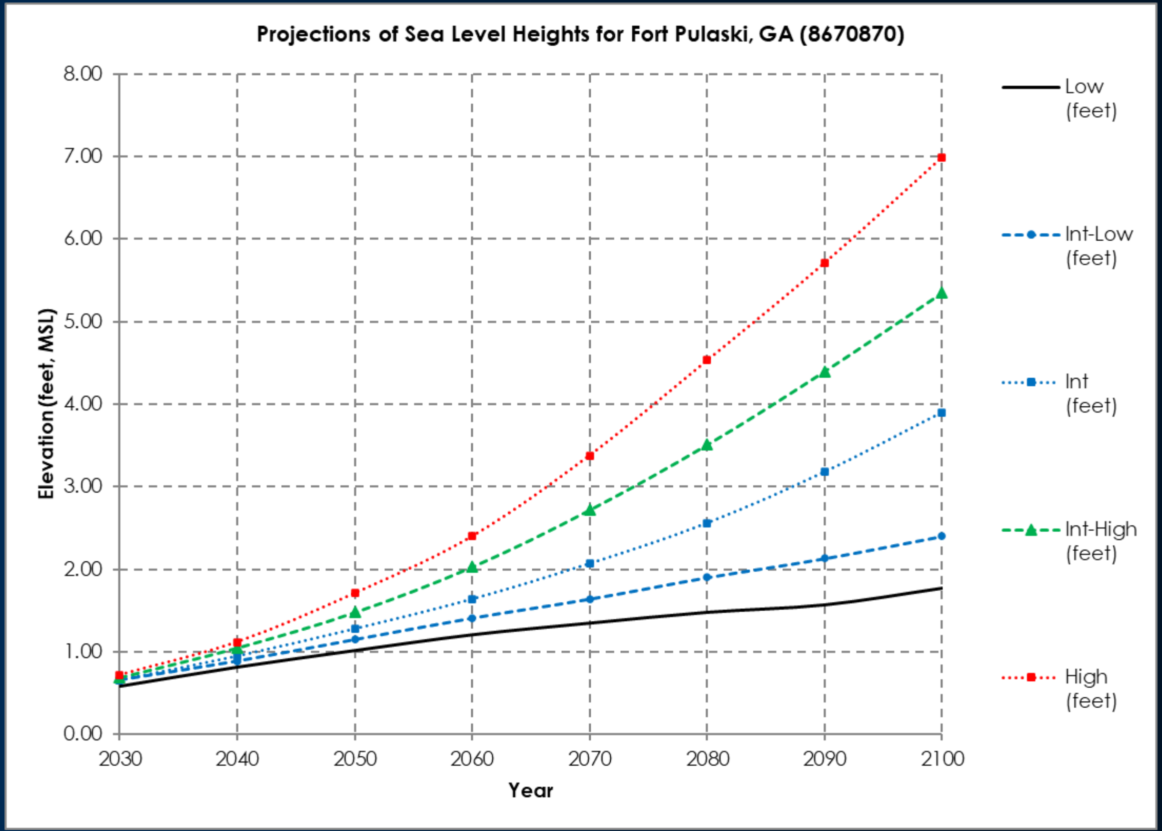
Date	Event	Ranking	Elevation (feet, MHHW)	Total Storm Tide (feet)	NOAA V-Datum Transformation at Beaufort, SC (feet, NAVD88)
10/8/2016	Hurricane Matthew	1	5.06	12.56	8.63
09/11/2017	Tropical Storm Irma	2	4.74	12.24	8.31
10/15/1947	Cape Sable Hurricane	3	3.36	10.86	6.93
11/07/2021	November 2021 King Tide	4	2.95	10.45	6.52
10/27/2015	October 2015 King Tide	5	2.93	10.43	6.50
11/10/2021	November 2021 King Tide	6	2.91	10.41	6.48
11/23/2018	November 2018 King Tide	8	2.75	10.25	6.32
06/04/2023	June 2023 King Tide	10	2.70	10.20	6.27



HURRICANE MATHEW, 2016

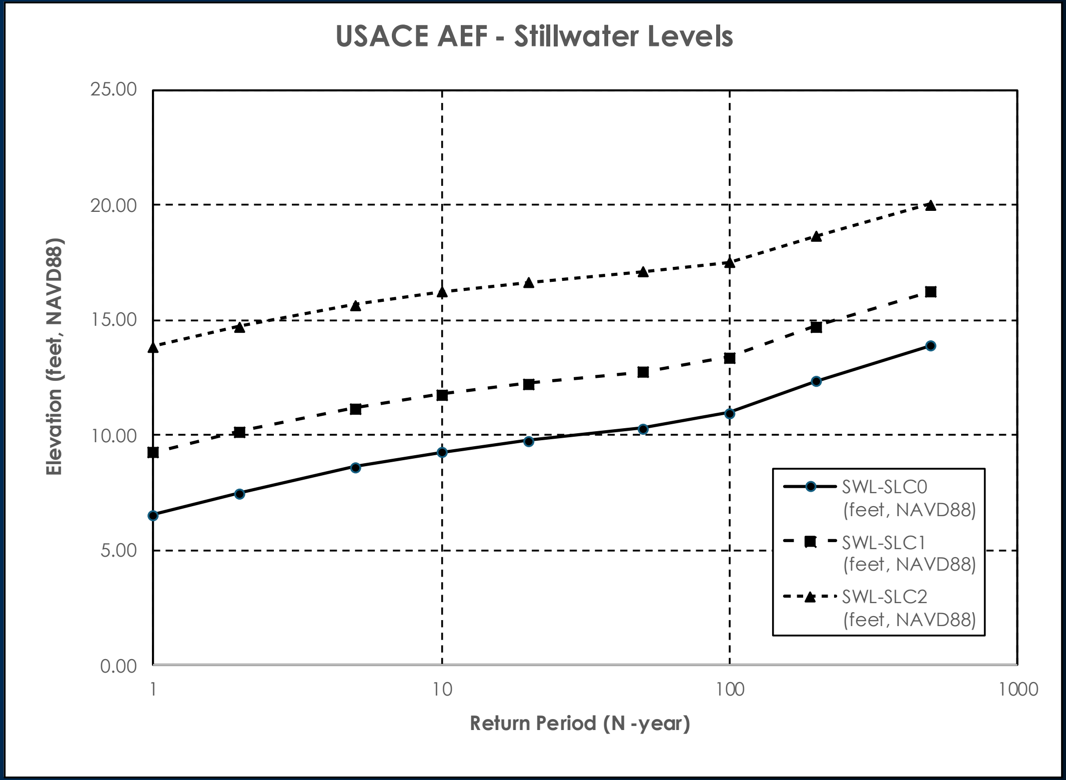
HISTORIC FLOODING

Projections of Sea Level Heights for Fort Pulaski, GA (8670870)					
Year	Low (feet)	Int-Low (feet)	Int (feet)	Int-High (feet)	High (feet)
2030	0.59	0.66	0.66	0.69	0.72
2040	0.82	0.89	0.95	1.05	1.12
2050	1.02	1.15	1.28	1.48	1.71
2060	1.21	1.41	1.64	2.03	2.40
2070	1.35	1.64	2.07	2.72	3.38
2080	1.48	1.90	2.56	3.51	4.53
2090	1.57	2.13	3.18	4.40	5.71
2100	1.77	2.40	3.90	5.35	6.99



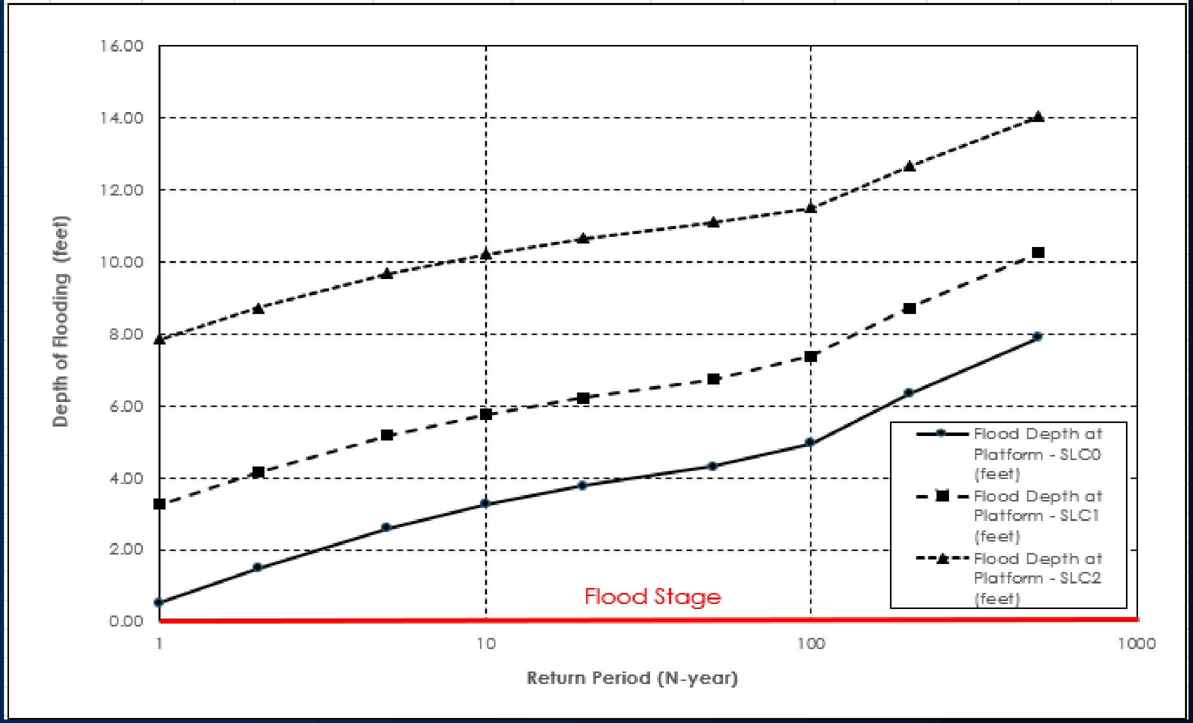
SEA LEVEL RISE PROJECTIONS

Return Period (N-year)	SWL-SLC0 (feet, NAVD88)	SWL-SLC1 (feet, NAVD88)	SWL-SLC2 (feet, NAVD88)
0.5	5.18	7.85	12.41
1	6.52	9.25	13.85
2	7.48	10.15	14.71
5	8.59	11.17	15.66
10	9.25	11.76	16.21
20	9.76	12.23	16.64
50	10.30	12.73	17.09
100	10.95	13.39	17.49
200	12.34	14.72	18.65
500	13.88	16.24	20.02

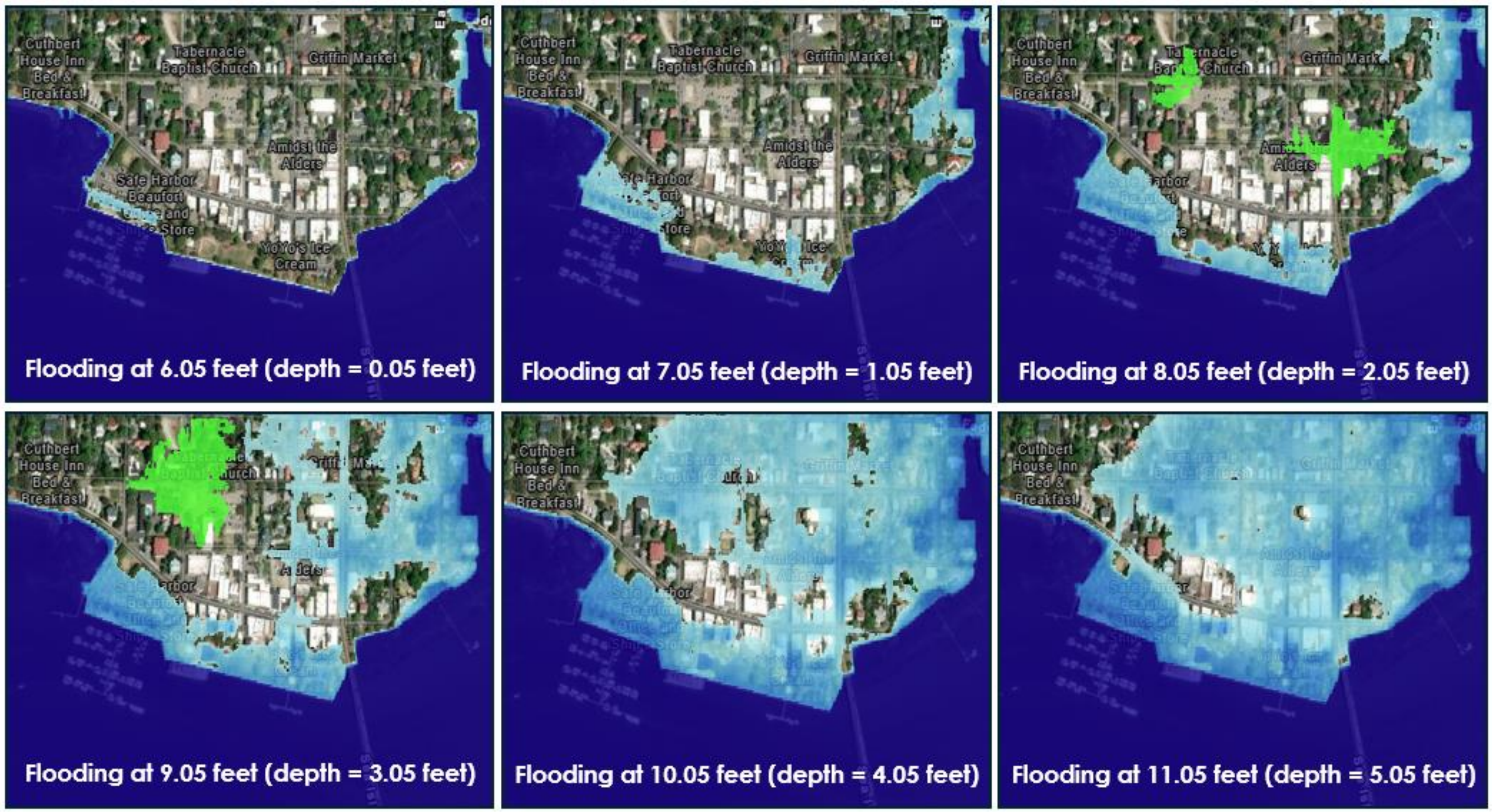


FLOOD FREQUENCY ELEVATIONS (USACE)

Return Period (N-year)	USACE SLC0 Scenario		USACE SLC1 Scenario		USACE SLC2 Scenario	
	Stillwater Elevation (feet, NAVD88)	Flood Depth at Platform (feet)	Stillwater Elevation (feet, NAVD88)	Flood Depth at Platform (feet)	Stillwater Elevation (feet, NAVD88)	Flood Depth at Platform (feet)
0.5	5.18	0.00	7.85	1.85	12.41	6.41
1	6.52	0.52	9.25	3.25	13.85	7.85
2	7.48	1.48	10.15	4.15	14.71	8.71
5	8.59	2.59	11.17	5.17	15.66	9.66
10	9.25	3.25	11.76	5.76	16.21	10.21
20	9.76	3.76	12.23	6.23	16.64	10.64
50	10.30	4.30	12.73	6.73	17.09	11.09
100	10.95	4.95	13.39	7.39	17.49	11.49
200	12.34	6.34	14.72	8.72	18.65	12.65
500	13.88	7.88	16.24	10.24	20.02	14.02



DESIGN WATER LEVEL CONSIDERATIONS



FLOODING PATHWAYS

- Overtopping of the platform begins on the west end of the platform near Safe Harbor Marina at an elevation of approximately 6.00 feet, NAVD88 (see Figure 9, top left image). This will happen during extreme King Tide events as demonstrated in Table 4. For example, five of the eight extreme flood events that overtopped the platform since 2015 were due to King Tides.

- A perimeter protection approach or future platform elevation approach could be feasible up to an elevation of approximately 9.05 feet, NAVD88 (see bottom left image of Figure 9) at which point increasing water levels would begin flanking the platform (and require additional measures to mitigate flanking).

- At increasing levels of flooding above 9.05 feet, NAVD88, flanking of the platform area would occur via several roadway corridors on the east side such as Cartel Street and Scott Street and would require additional measures to mitigate this flanking (see bottom right image, Figure 9).

- Regarding the footprint of areas to protect against future flooding such as for benefit-cost analyses of alternatives, considering the eventual enormity of flanking about the platform, the physical scope for feasible flood alternatives for the platform appears to be bound by the platform and upland to Bay Street. Attempts to mitigate flooding above levels of approximately 11 feet (NAVD88) may become infeasible given measures required to prevent flanking from The Point, connected roadway corridors, and widespread flooding of the City.

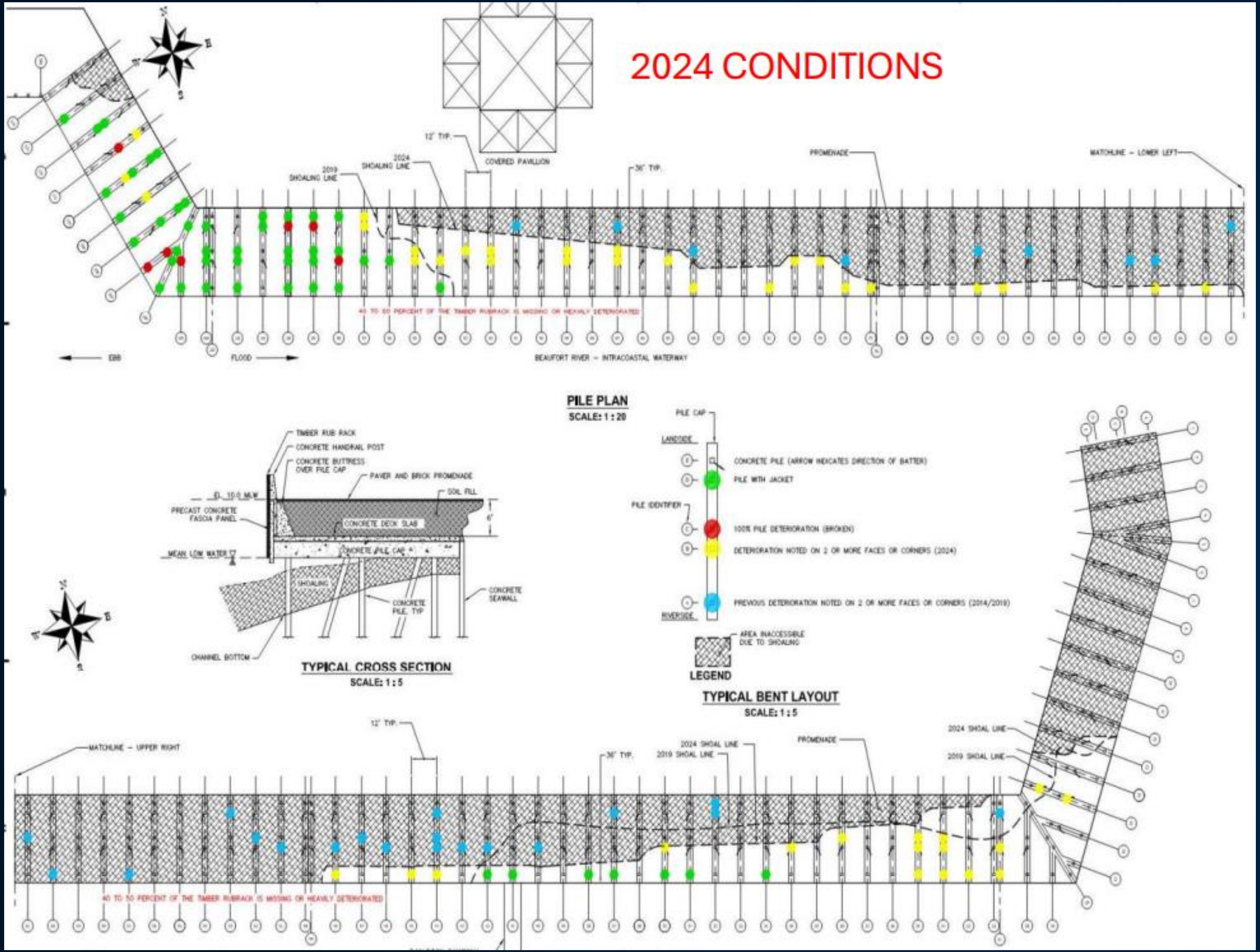
- Above these extreme flood levels (11 feet, NAVD88), a much larger boundary beyond the platform for flood mitigation measures would be considered for alternatives. As an example, solutions for City-wide flood protection would be the type proposed in a USACE Coastal Storm Risk Management study involving a City-wide integrated flood defense system such as the proposed peninsula seawall system for the City of Charleston. Such a study for Beaufort, SC has been identified by the USACE in the SACS – South Carolina Engineering Appendix, which recommends a Beaufort Peninsula Coastal Storm/Flood Risk Management Study (3 x 3 x 3) funded by a USACE General Investigation (if appropriated).

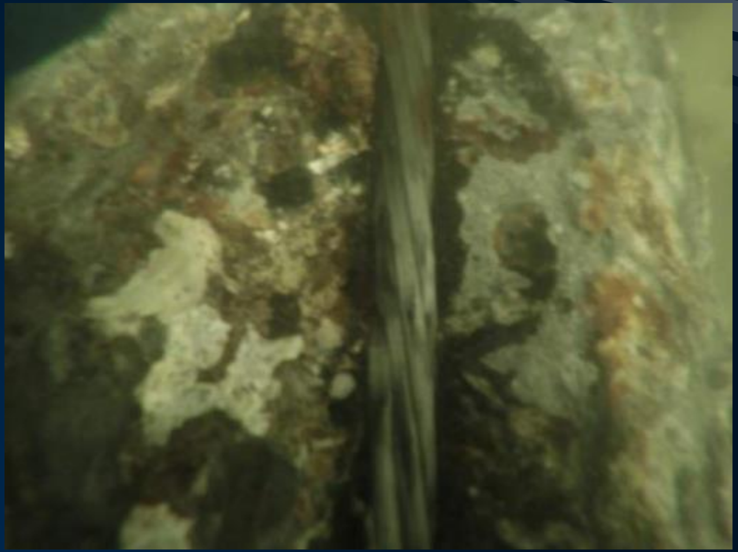
DESIGN CONSIDERATIONS

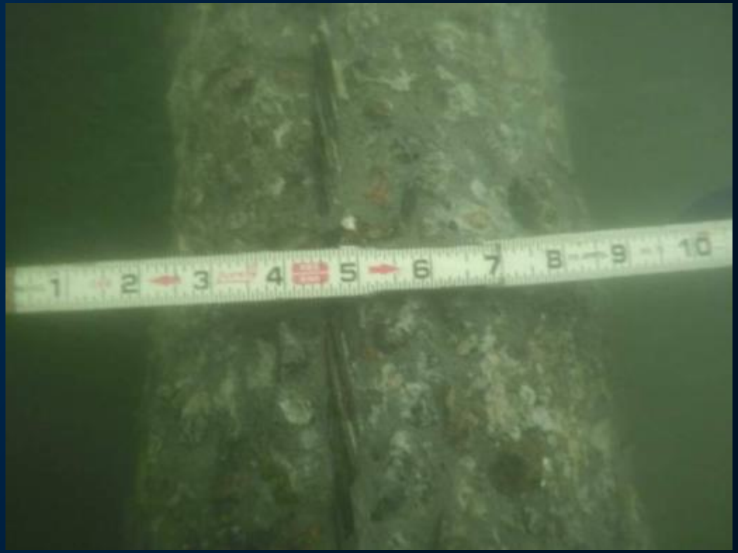
ALTERNATIVES CONSIDERED

PHASE 2 – PRELIMINARY LIST OF ALTERNATIVES

1. DO NOTHING
2. REPAIR STRUCTURE
3. REPLACE THE BACKFILL WITH LIGHTER MATERIAL
4. REBUILD A SAME SIZE AND SHAPE PLATFORM
    - EVALUATE VARIOUS WATER LEVELS (D.A.P.P.)
5. REBUILD TO A SMALLER SIZE (WIDTH)
6. REPLACE WITH SEAWALL AND BACKFILL
    - EVALUATE VARIOUS WATER LEVELS (D.A.P.P.)
7. REPLACE WITH FLOATING STRUCTURES
8. HYBRID STRUCTURE
    - FIXED AND FLOATING STRUCTURES TO MAXIMIZE USE AND ACCESS

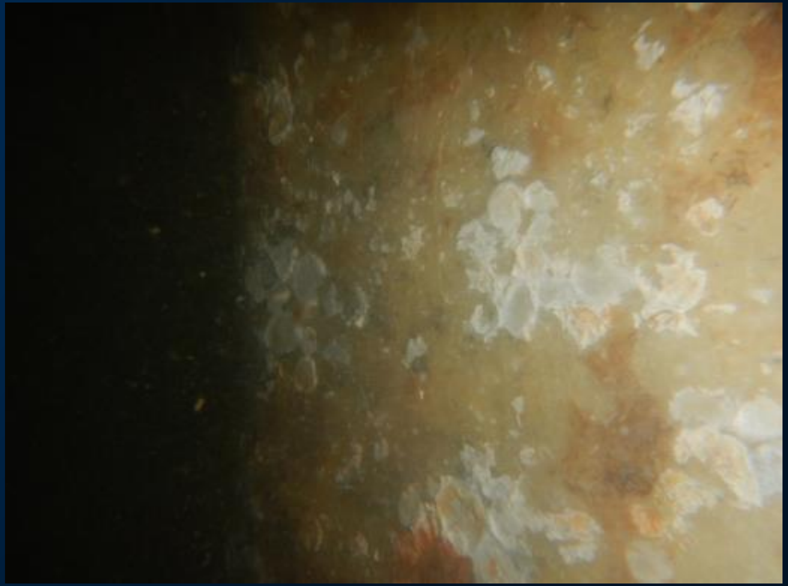

2024 CONDITIONS
COVERED PAVILLION
PROMENADE
MATCHLINE – LOWER LEFT
2019 SHOALING LINE
2024 SHOALING LINE
12' TYP.
36" TYP.
40 TO 50 PERCENT OF THE TIMBER RUBRACK IS MISSING OR HEAVILY DETERIORATED
EBB
FLOOD
BEAUFORT RIVER – INTRACOASTAL WATERWAY
PILE PLAN
SCALE: 1 : 20
TIMBER RUB RACK
CONCRETE HANDRAIL POST
CONCRETE BUTTRESS OVER PILE CAP
PAVER AND BRICK PROMENADE
SOIL FILL
EL 10.0 MLW
PRECAST CONCRETE FASCIA PANEL
CONCRETE DECK SLAB
CONCRETE PILE CAP
MEAN LOW WATER
SHOALING
CONCRETE PILE, TYP
CONCRETE SEAWALL
CHANNEL BOTTOM
TYPICAL CROSS SECTION
SCALE: 1 : 5
PILE CAP
LANDSIDE
CONCRETE PILE (ARROW INDICATES DIRECTION OF BATTER)
PILE WITH JACKET
PILE IDENTIFIER
100% PILE DETERIORATION (BROKEN)
DETERIORATION NOTED ON 2 OR MORE FACES OR CORNERS (2024)
PREVIOUS DETERIORATION NOTED ON 2 OR MORE FACES OR CORNERS (2014/2019)
RIVERSIDE
AREA INACCESSIBLE DUE TO SHOALING
LEGEND
TYPICAL BENT LAYOUT
SCALE: 1 : 5
MATCHLINE – UPPER RIGHT
2024 SHOAL LINE
2019 SHOAL LINE



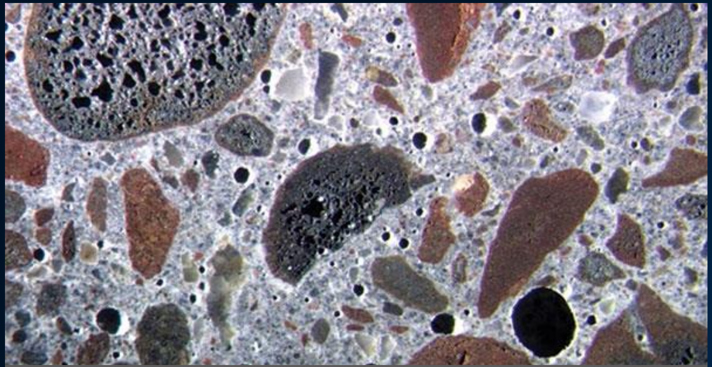


1. DO NOTHING

43	98	B	Deterioration	100% Loss of Section
44	98	C	Deterioration	(4) Rounded Corners, 20-30% Loss of Section
45	99	D	Deterioration	100% Loss of Section
46	100	D	Deterioration	100% Loss of Section
47	100	B	Spall	Pile/Cap Interface
48	104	A	Pile Jacket	Undermined Bottom Seal
49	105	B	Deterioration	100% Loss of Section



2. STRUCTURAL REPAIRS



USES OF STRUCTURAL LIGHTWEIGHT CONCRETE

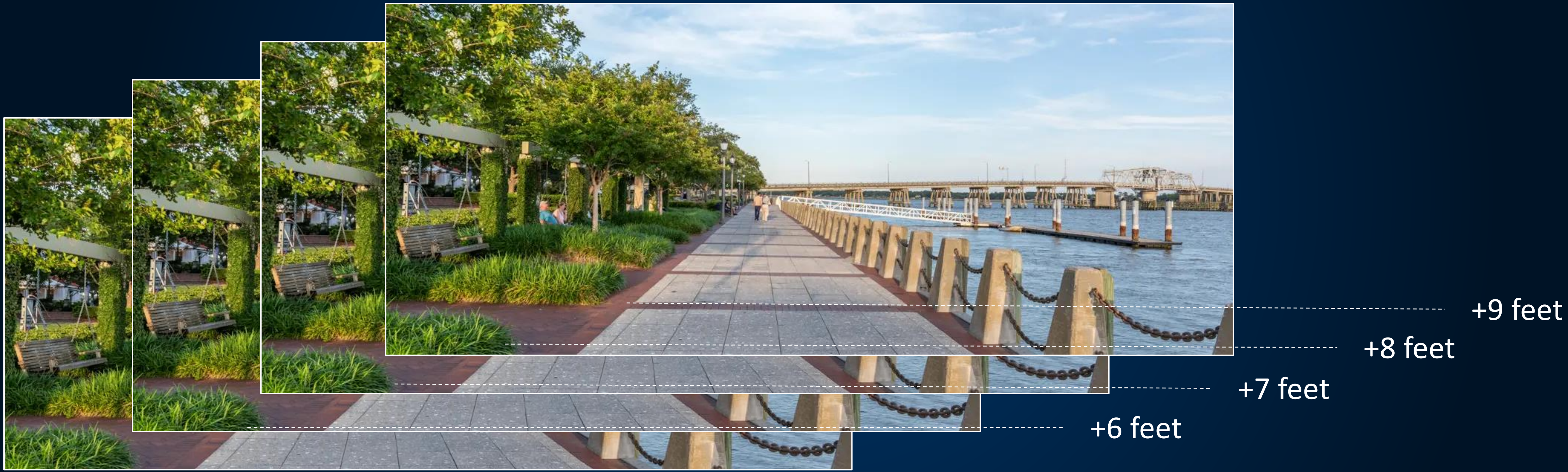
- Floors in steel frame buildings (lightweight concrete on fire-rated steel deck assemblies)
- Concrete frame buildings & parking structures (all types, including post-tensioned floor systems)
- Bridge decks, piers & AASHTO girders
- Specified density concrete
- Lightweight concrete precast & prestressed elements (beams, double-tees, tilt-up walls, raised access floor panel planks, hog slats, utility vaults, pipes, ornamentals, etc.)
- Marine structures, floating docks, ships & offshore oil platforms
- Fill concrete and insulating concrete

Material	System A (Normal-Weight Concrete)	System B (Lightweight Concrete)
Structural Steel Framing	6.2 psf	4.77 psf
Concrete Volume	0.458 ft³/sq ft	0.354 ft³/sq ft
4,000 psi Composite Slab (including deck weight)	68 psf	43 psf
Headed Stud Shear Connectors	0.09 studs/sq ft	0.12 studs/sq ft

Material (and Unit Cost)	System A (Normal-Weight Concrete)	System B (Lightweight Concrete)	Cost Ratio (A/B)
Structural Steel Framing (assume $4,000/ton)	$12.40/sq ft	$9.53/sq ft	1.30
4,000 psi Composite Slab (assume $105/CY NWC and $135/CY LWC)	$1.78/sq ft	$1.77/sq ft	1.01
Headed Stud Shear Connectors (assume $2/stud)	$0.17/sq ft	$0.23/sq ft	0.74
Total	$14.35/sq ft	$11.53/sq ft	1.24

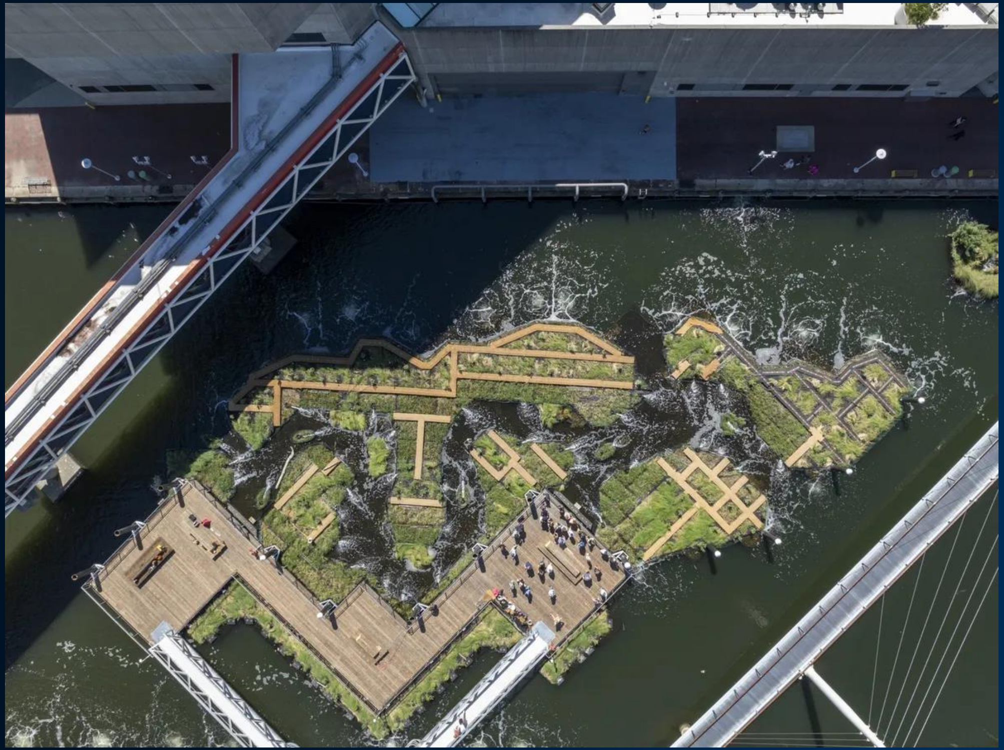
3. REPLACE THE BACKFILL WITH LIGHTER MATERIAL

4. REBUILD A SAME SIZE AND SHAPE PLATFORM (VARY ELEVATIONS)

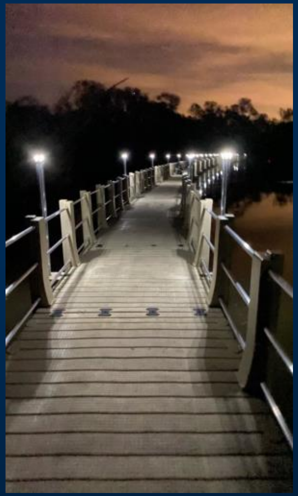


5. REBUILD TO A SMALLER SIZE (WIDTH)

6. REPLACE WITH SEAWALL AND BACKFILL







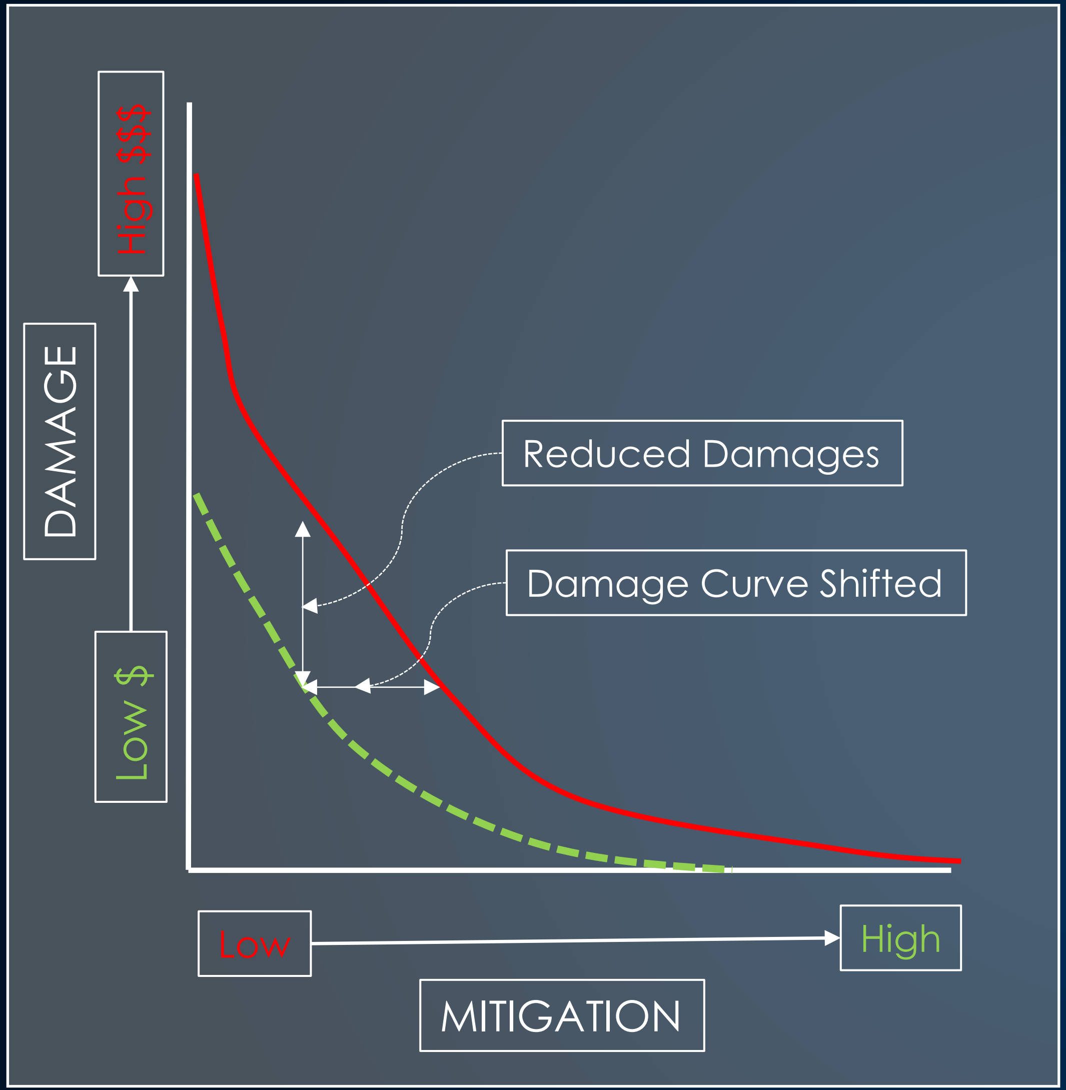

7. REPLACE WITH FLOATING STRUCTURES

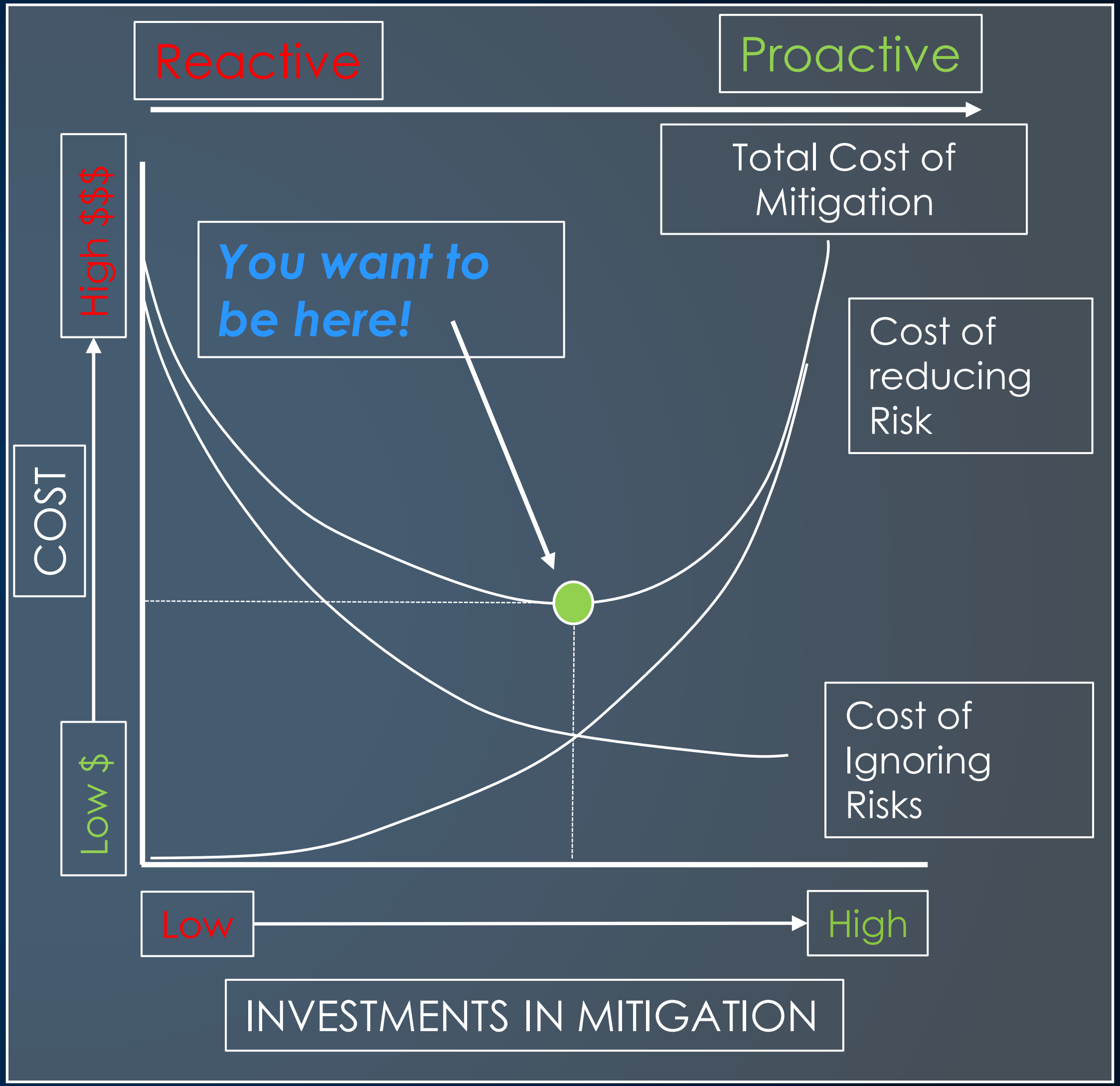
UNION PIER WATERFRONT

LOWER MANHATTAN

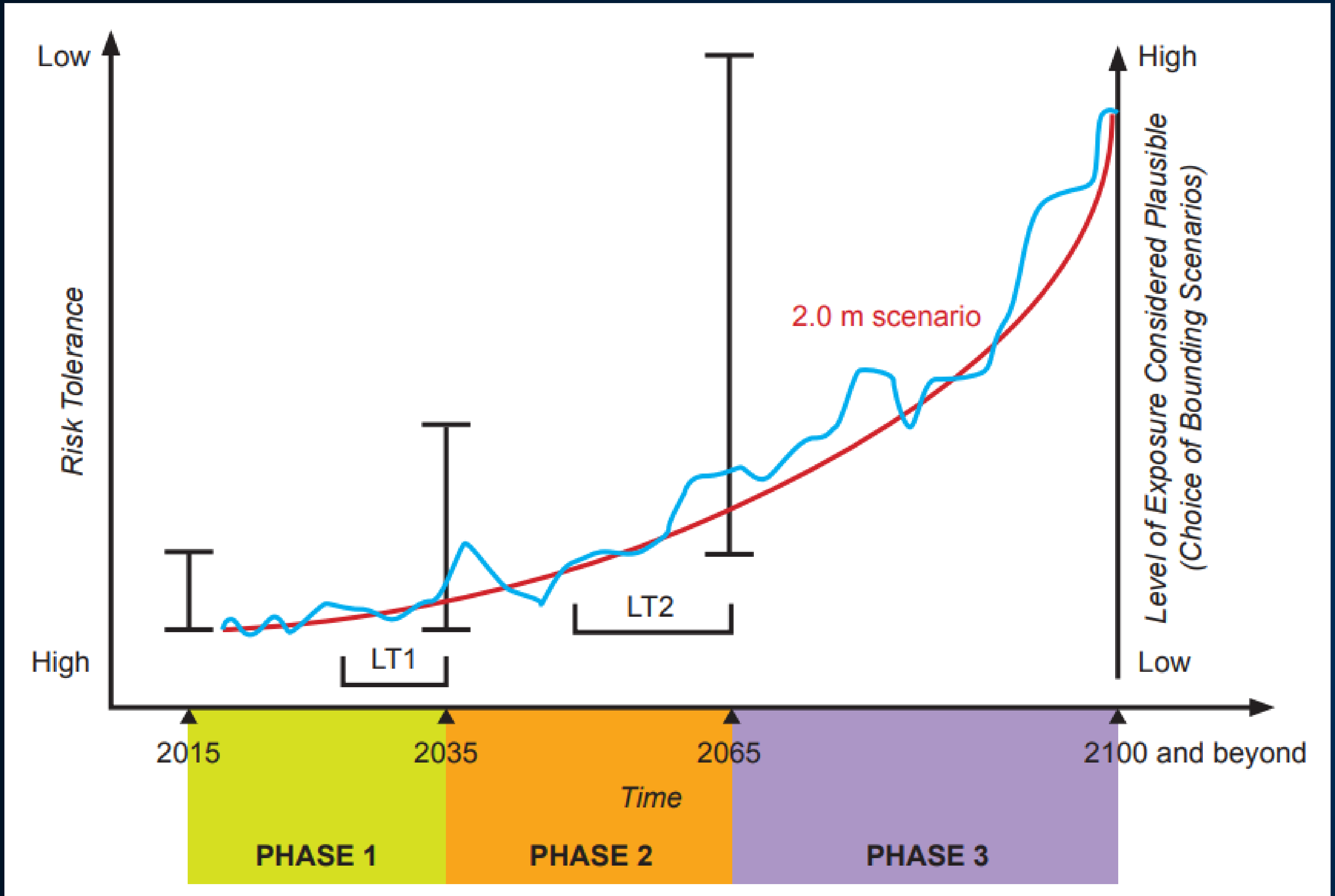
8. HYBRID STRUCTURE - FIXED & FLOATING STRUCTURES

RESILIENCE PLANNING APPROACHES





Investing in Resilience



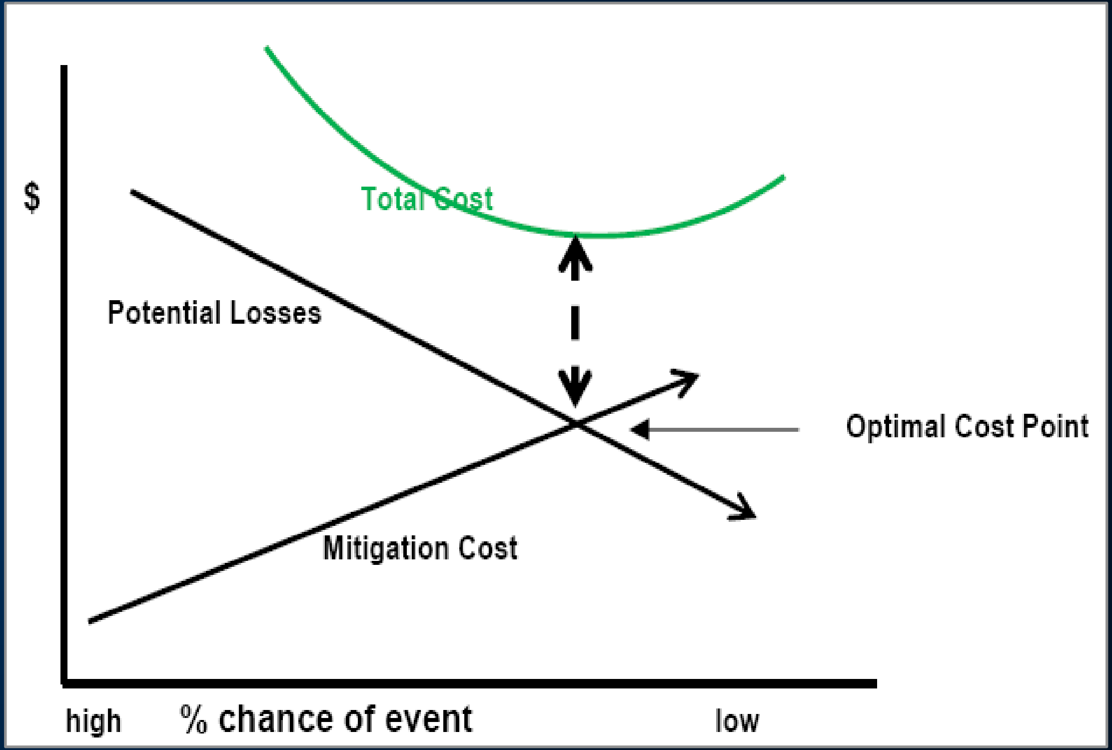
- Phased Approach - decision process and points are iterative,
- Plausible Scenarios - choice of bounding scenarios should be robust for the desired timeframe,
- Decision Points - should support future response options, and
- Lead Times - facilitate the appropriate timing of the next decision.

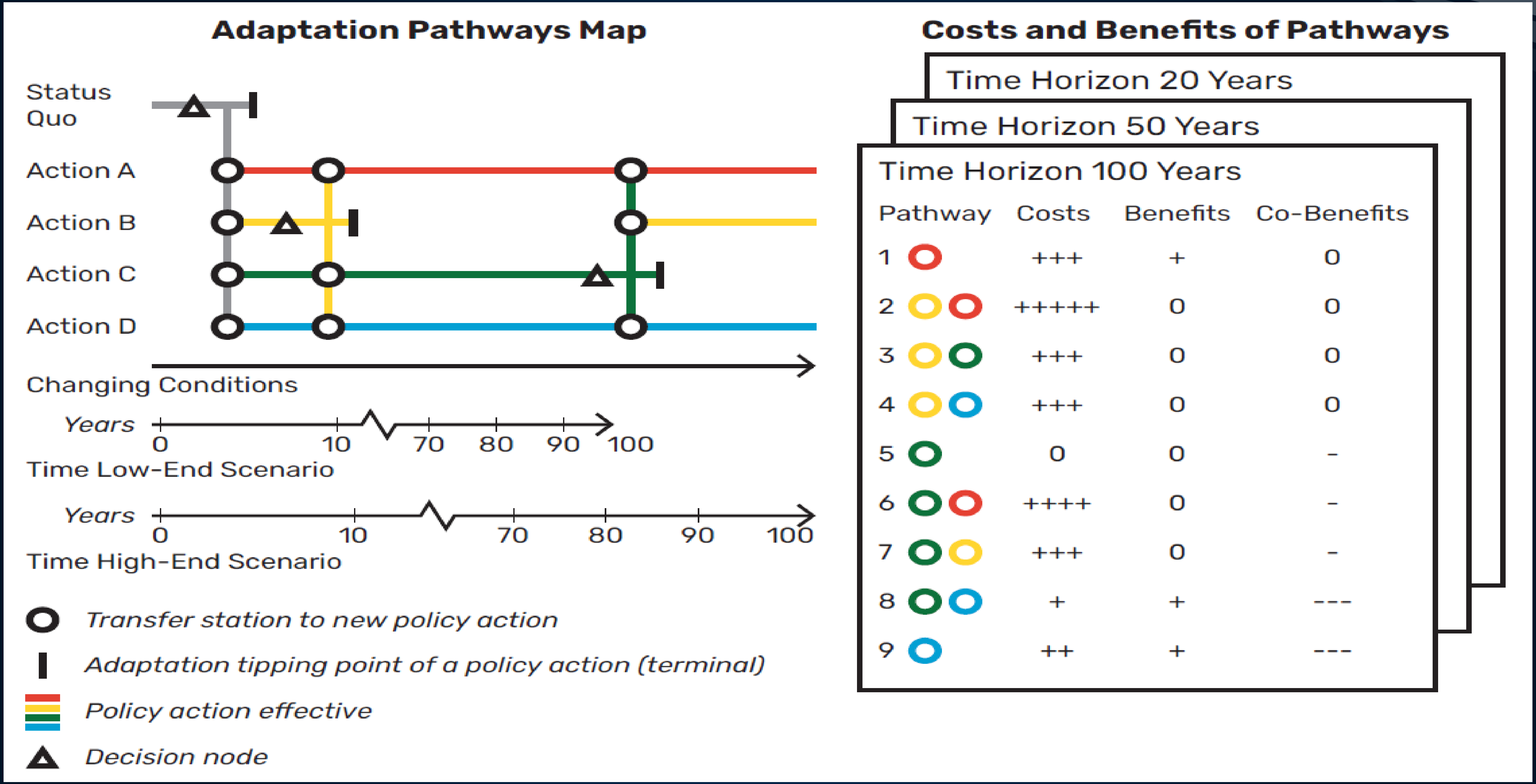
Adaptive Risk Design/Management for Resilience

Defining What Matters Most

- High Risk Tolerance:
  - Use lower scenarios (low-moderate proj’ns).
  - Projects with a short lifespan.
  - Planning areas with flexibility to make alternative choices within the near-term.
  - Low criticality (e.g., a recreational field)

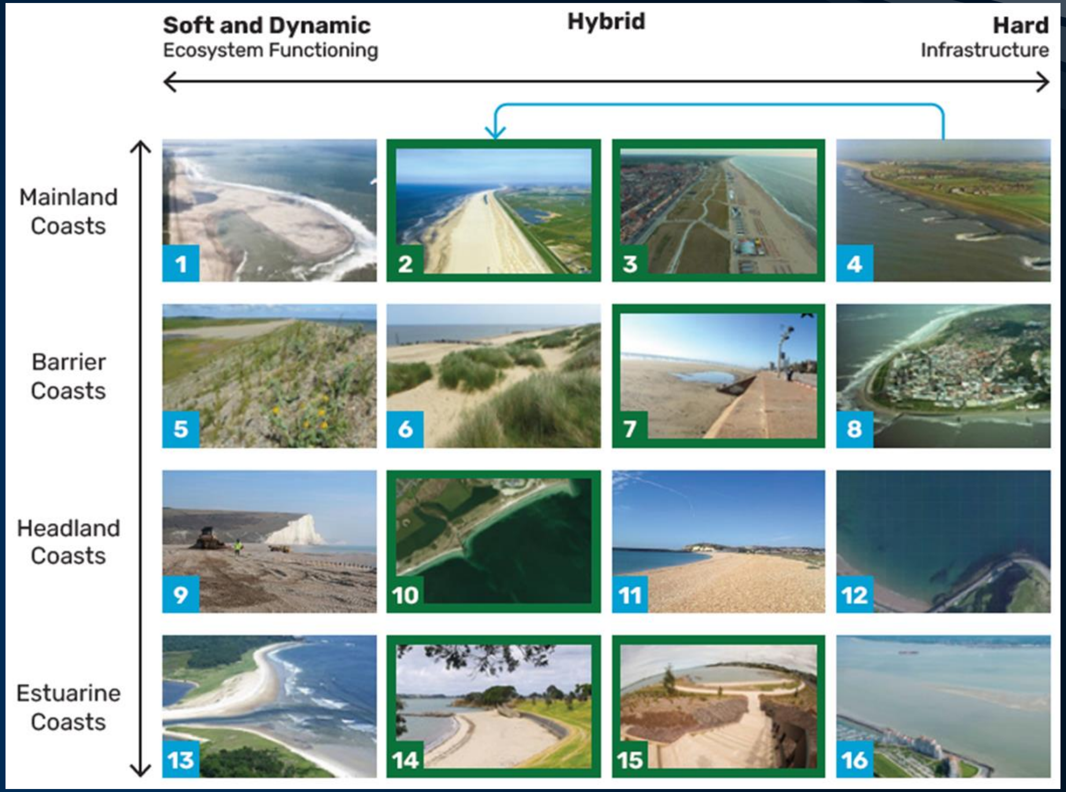
- Low Risk Tolerance:
  - Use higher scenarios (moderate-high proj’ns).
  - Projects or assets with a long lifespan, in which losses would be catastrophic.
  - Planning areas with limited flexibility to adapt in the near or long term.
  - Assets that serve critical functions (e.g., ports, roads, bridges, hospitals and associated infrastructure).





Dynamic Adaptive Policy Pathway (DAPP)

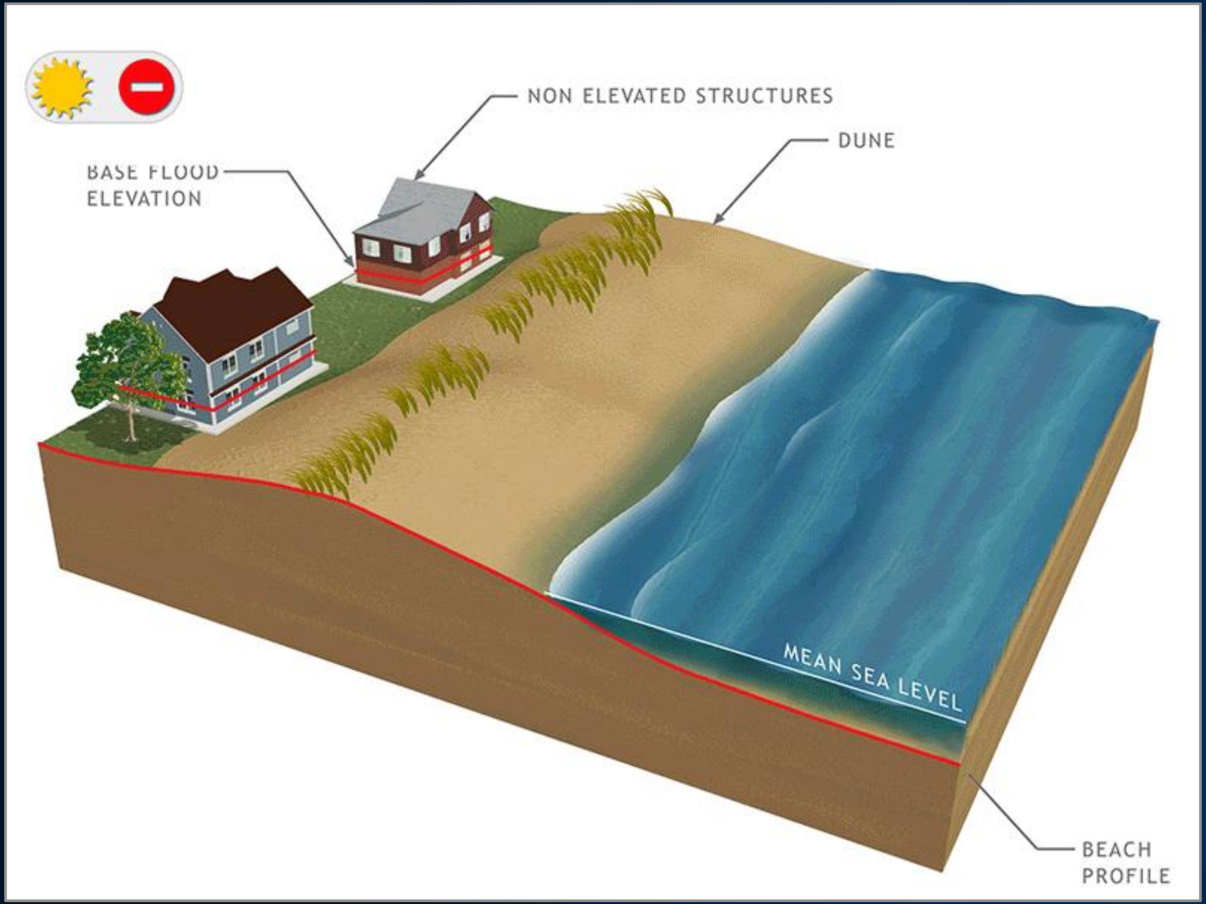
RESILIENCE SOLUTIONS TOOLBOX



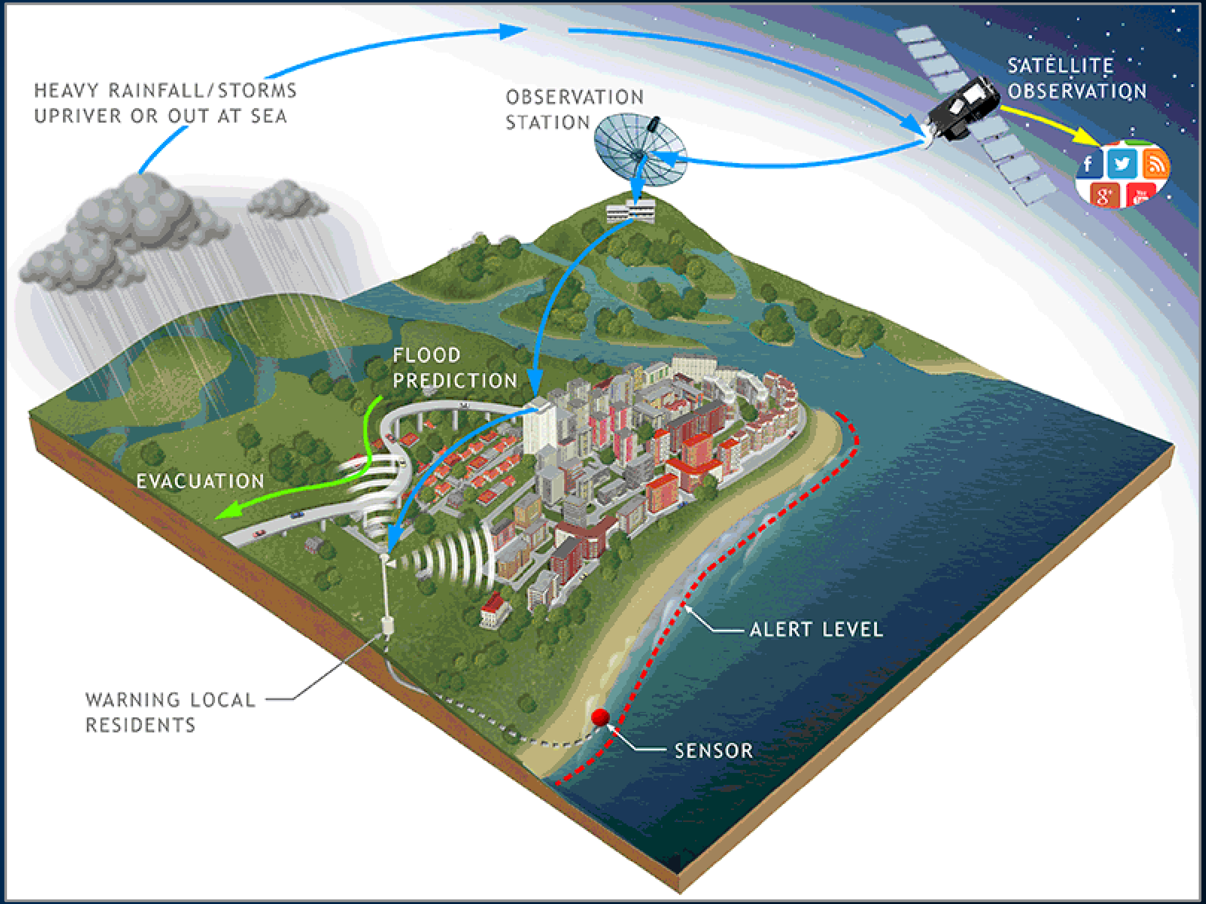
- Site Specific – offshore vs inshore (geology, winds, waves, water levels vary).
- Regulatory – state/federal permits, building codes, municipal ordinances.
- Cost Drivers – a function of risks, funding, and timelines.
- Resilience & Sustainability – material adequacy, operation, & maintenance.

Green to Grey

Elevation/Relocation

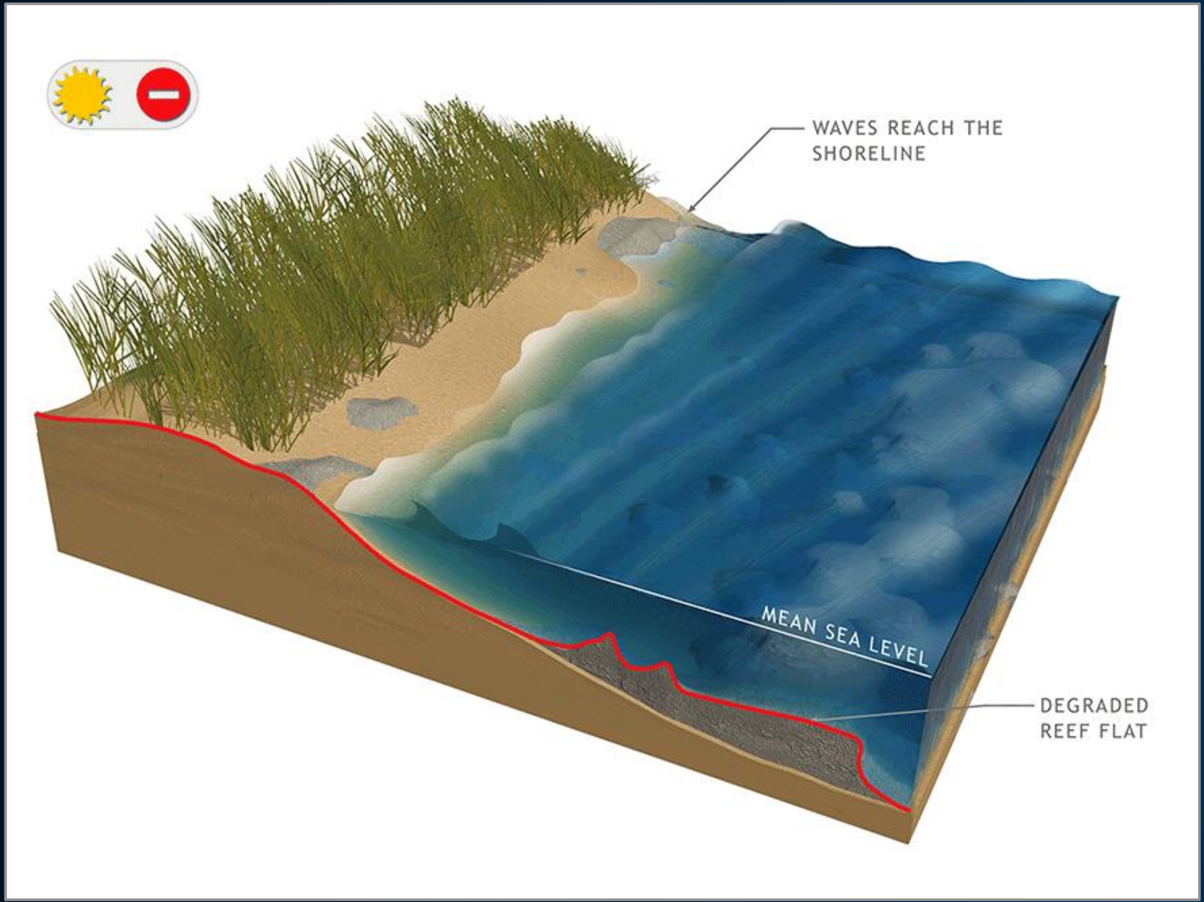


Flood Warning System

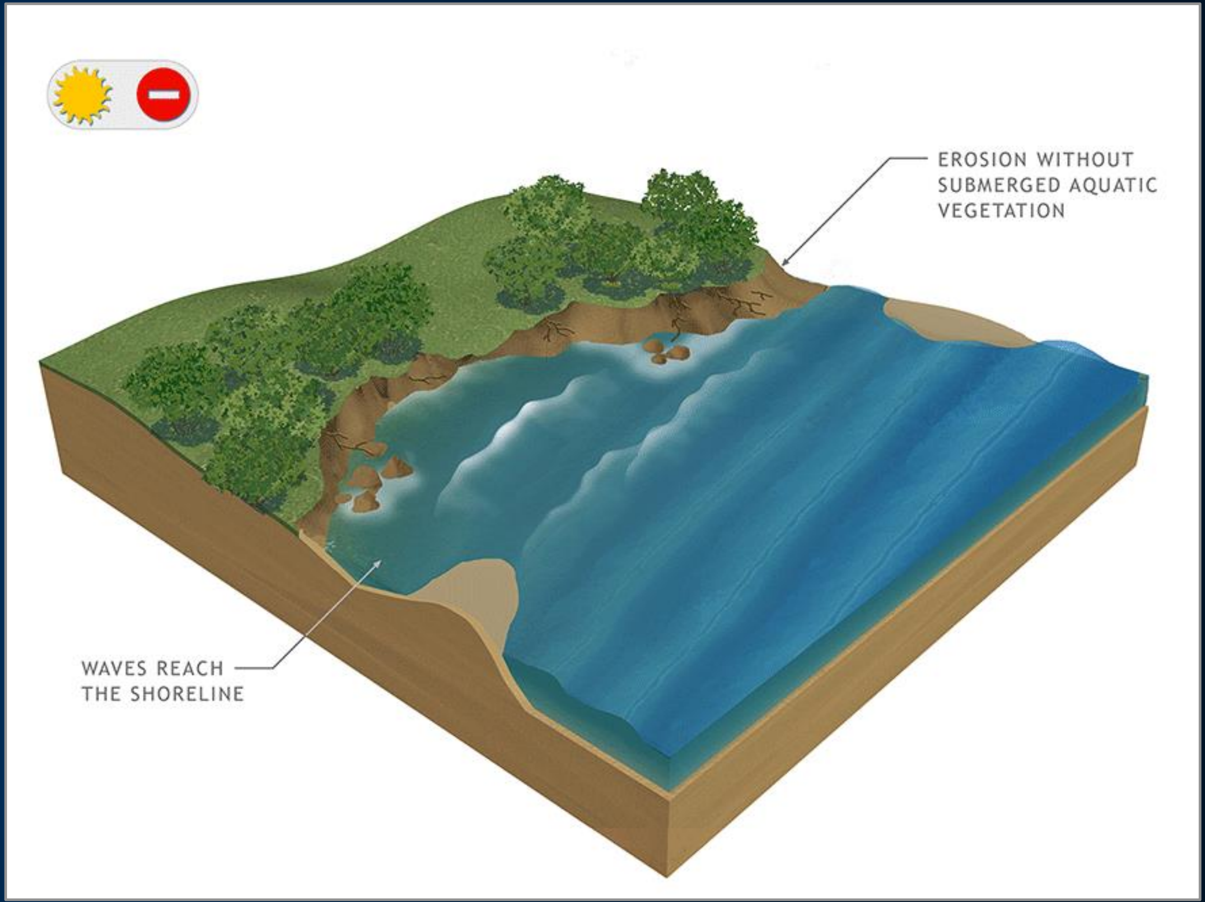


Nonstructural Examples

Hybrid

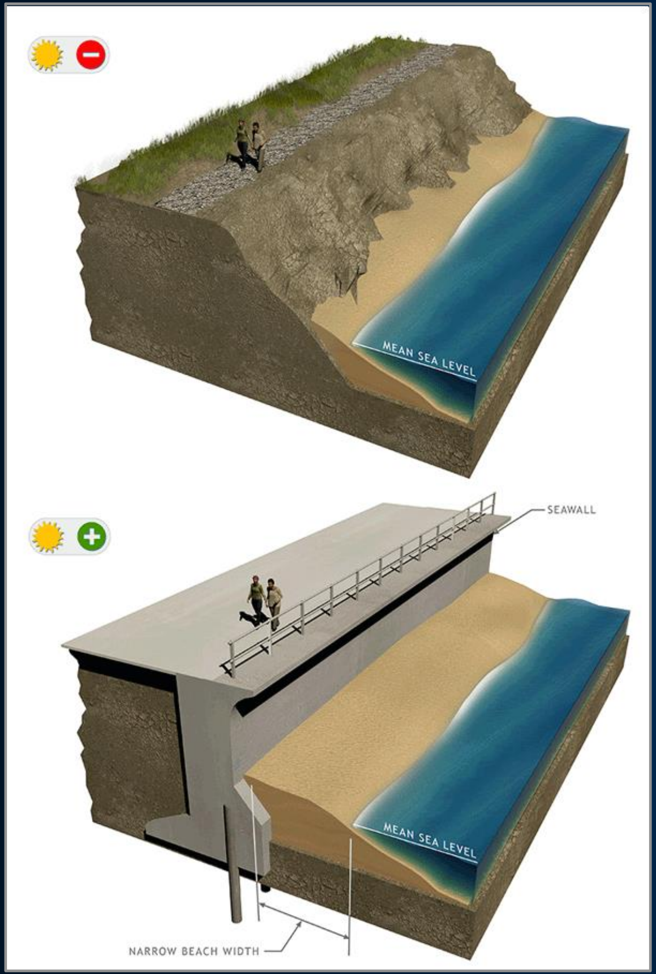


Engineering with Nature

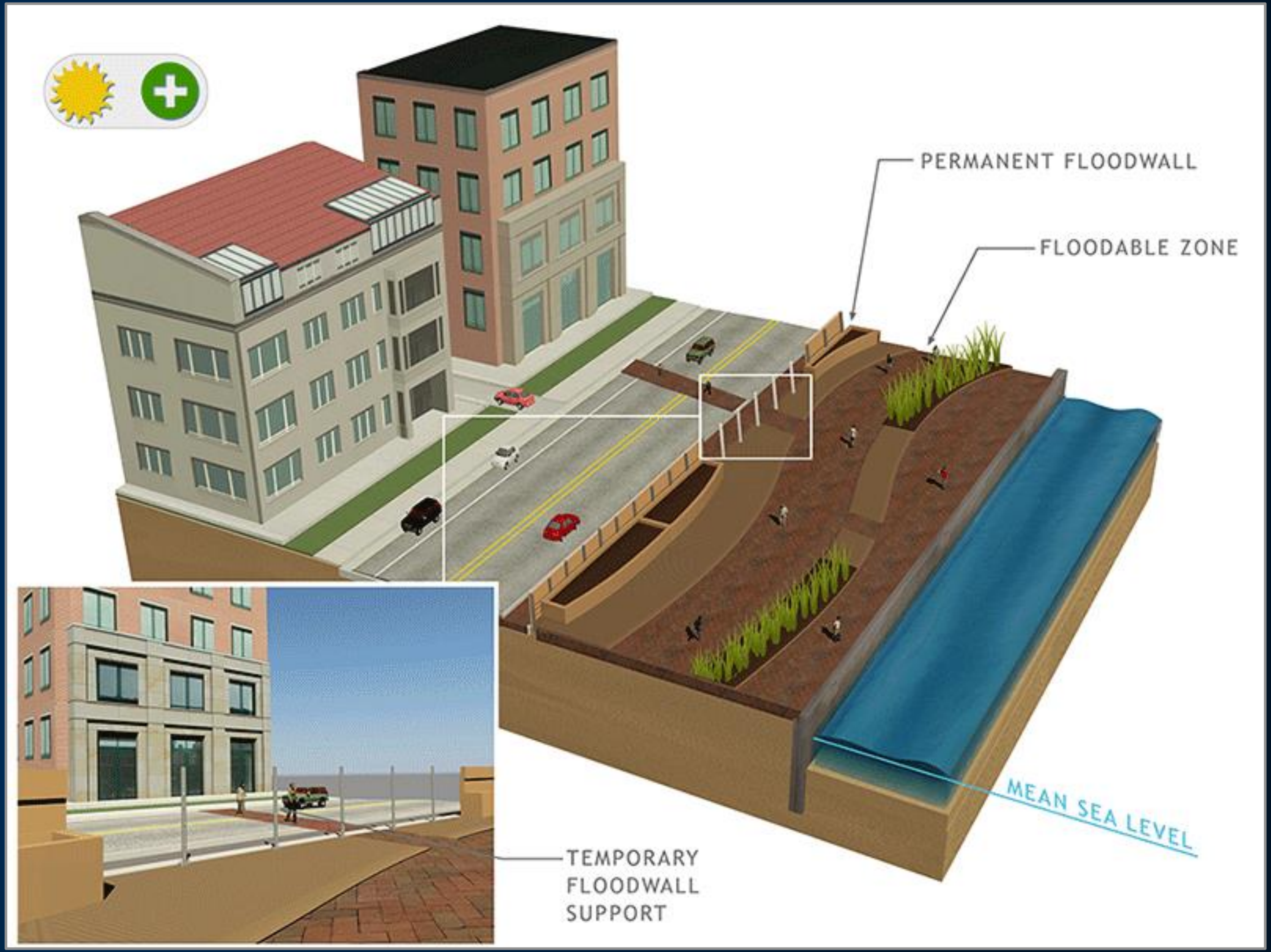


Hybrid Nature-based Examples

Seawall w/Wave Deflector

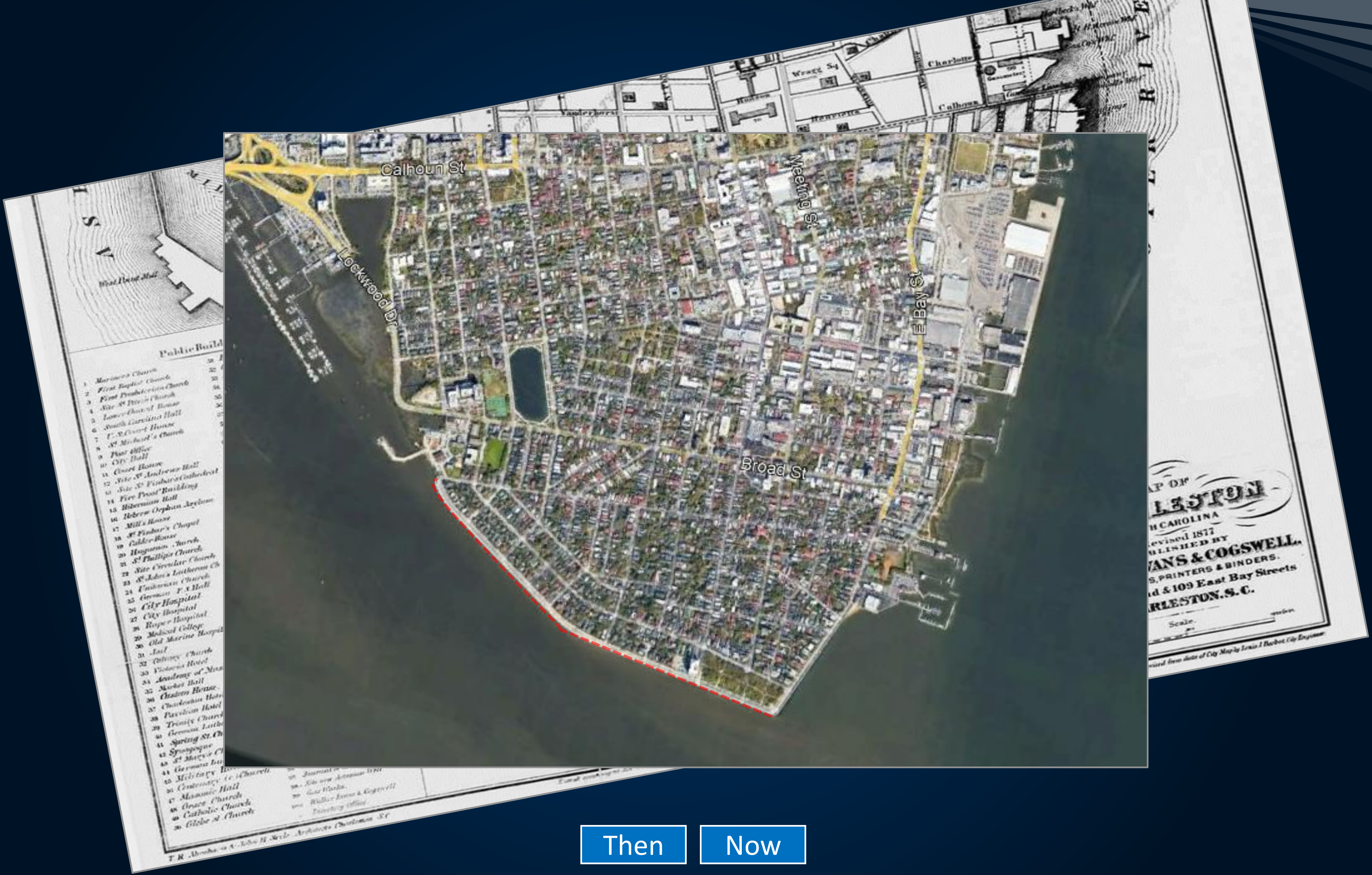


Mixed Active/Passive



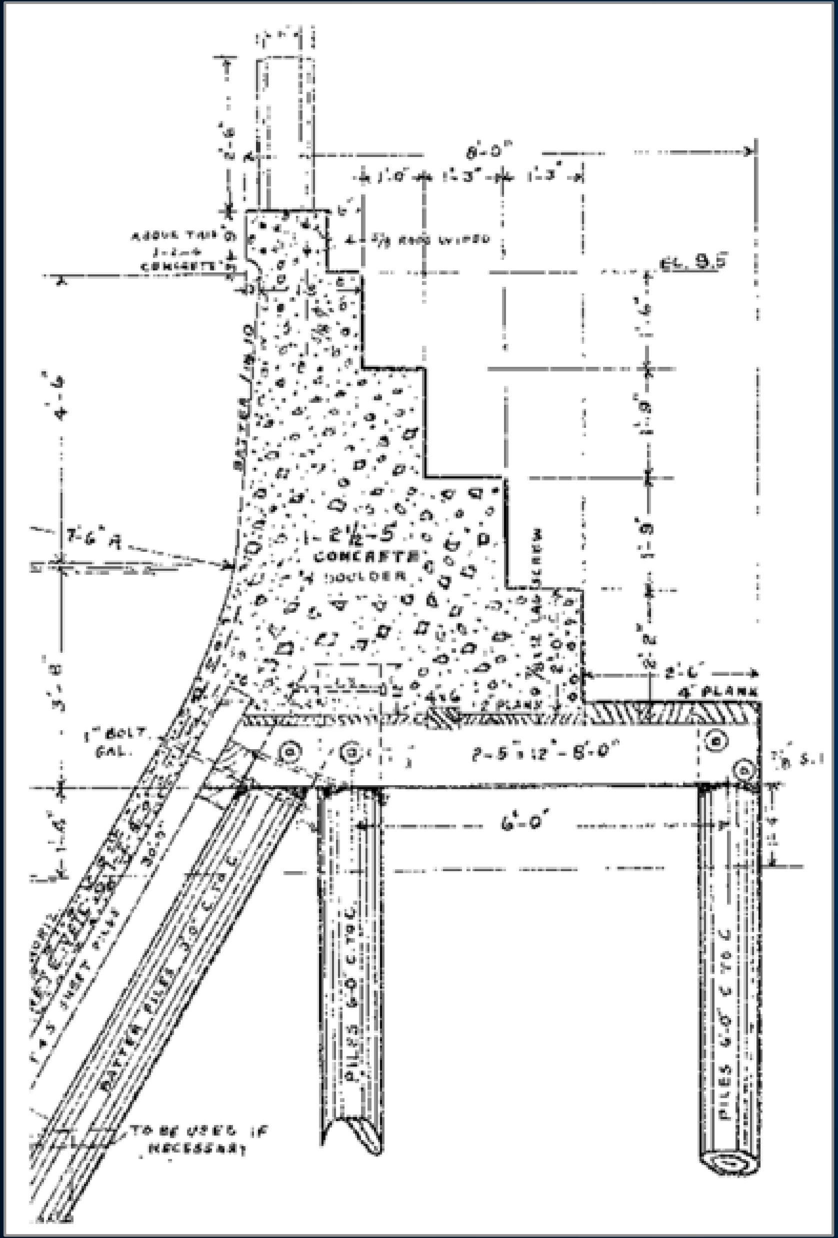
Hard Engineered Examples

LOW BATTERY SEAWALL PROJECT



Then Now

Historical Background - 1909



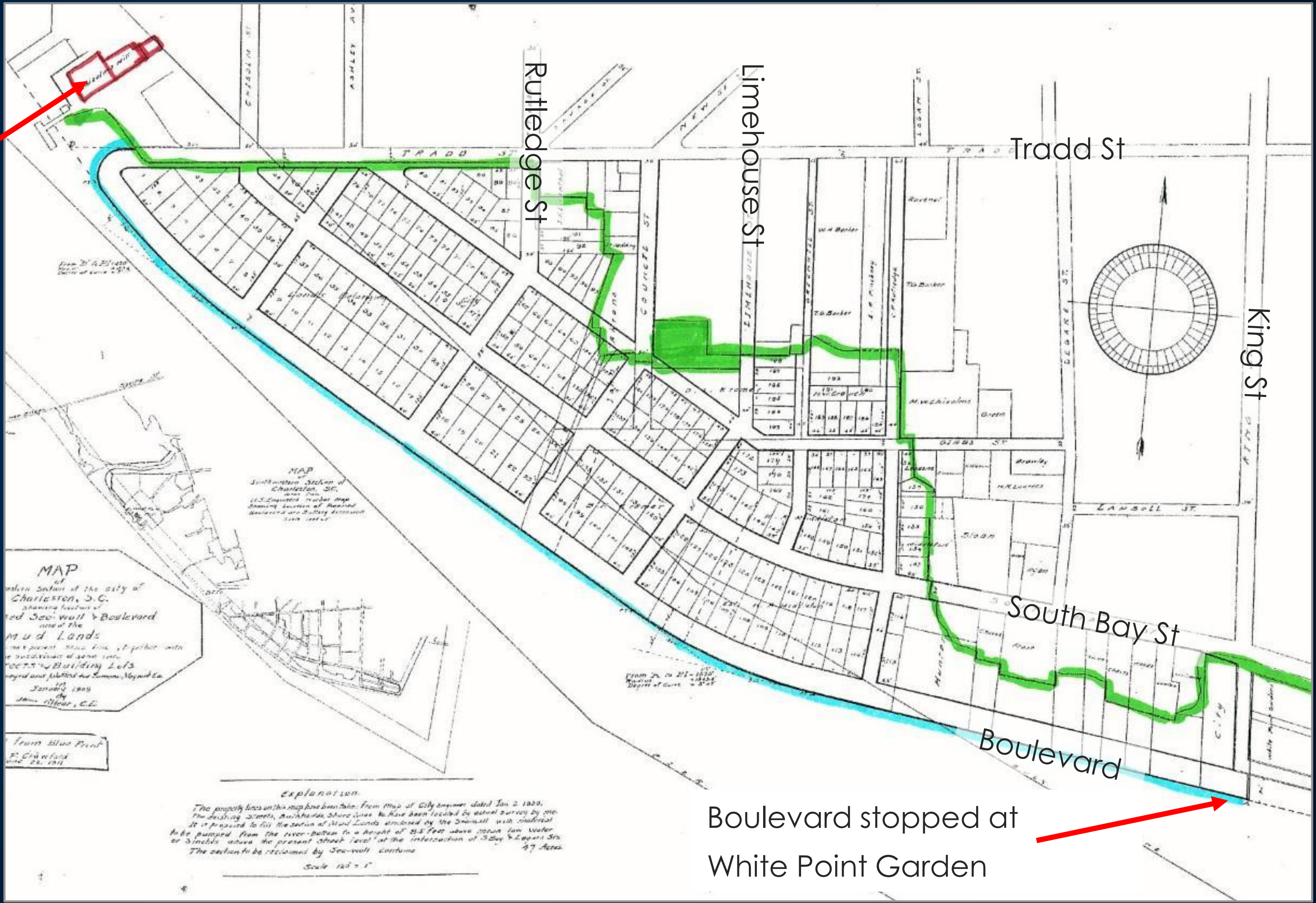
Picture from the Evening Post

- 30-70 foot long wooden pile supporting timber deck foundation.
- Cobble stones, oyster shells, and granite rubble laid at toe of the wall.
- Started construction 1909.
- Approximately 667,000 cubic yards of dredged fill to create 47 acres of developable land 8.5 feet above MLW

Historical Background - 1911

- Ashley River Water Front Corporation sold 191 residential building lots by end of 1911.

- Promenade was built along with oyster shell roadways; the southern peninsula was tied to White Point Gardens and the East Battery



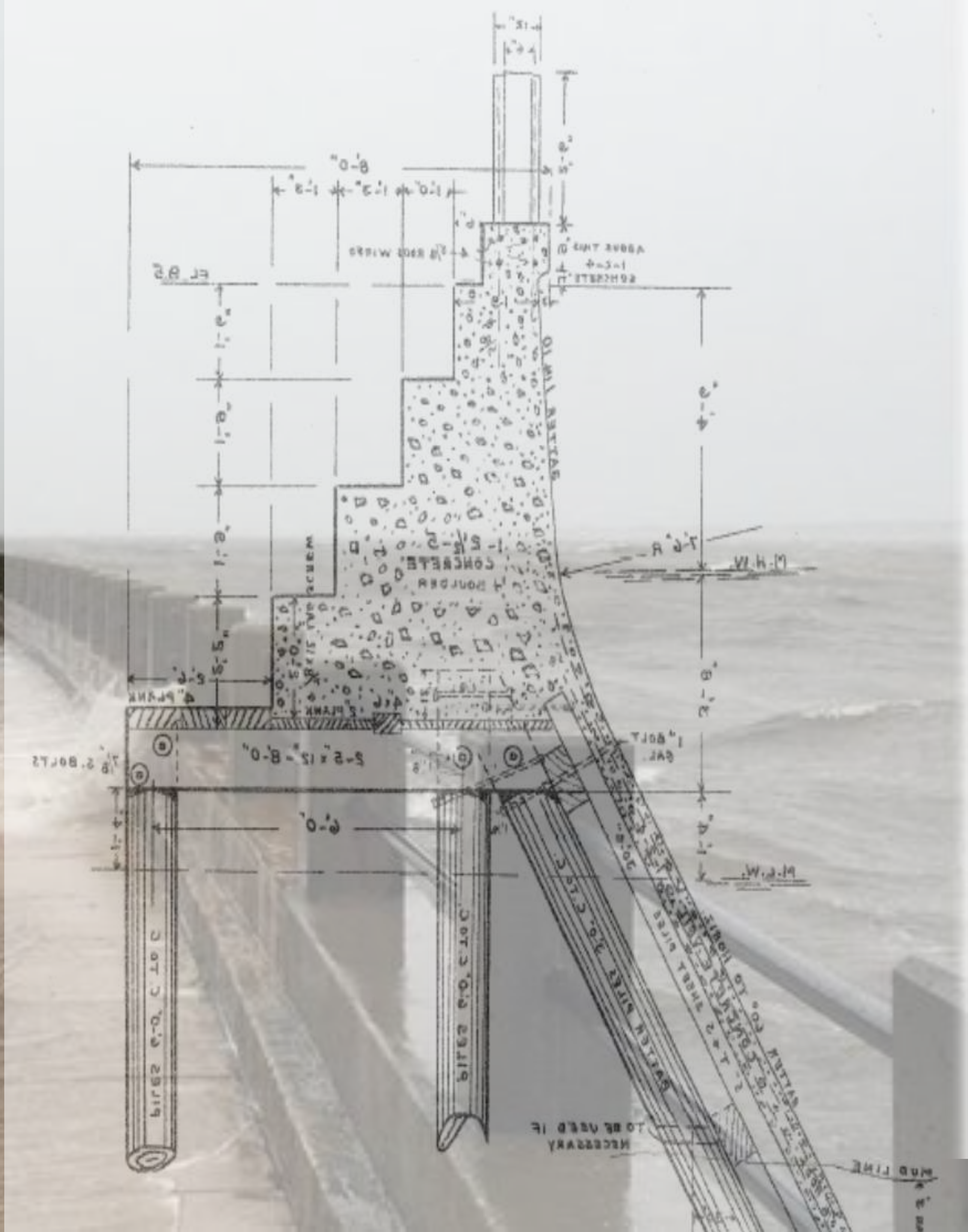
Raising the seawall to combat rising sea levels

Low Battery Seawall Height

7 ft Existing

US Army Corp Study

12 ft Preferred Alternative

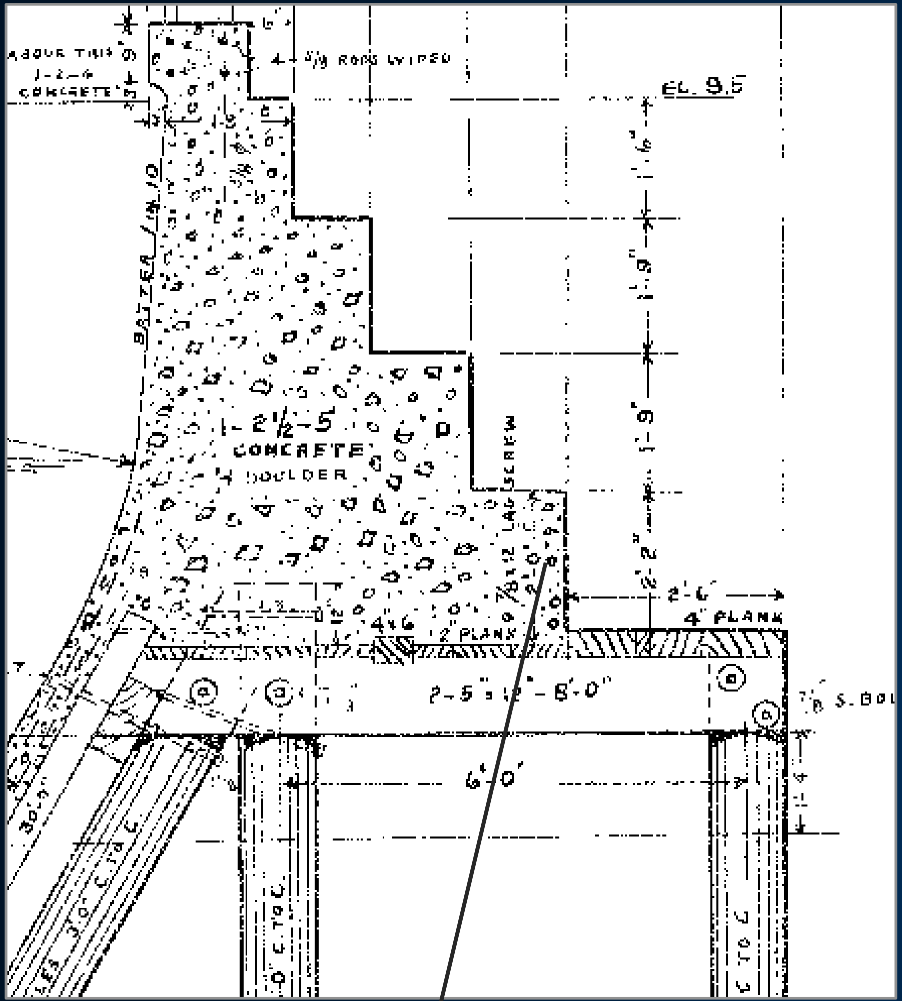


How did the Low Battery Seawall project develop…."The Turn"?

Nov 2013 - July 2014 / $2.6 Million / 121 LF

~ 6 ft per month / $22,500/foot

Lasted longer than intended…



LOW BATTERY – CONDITION

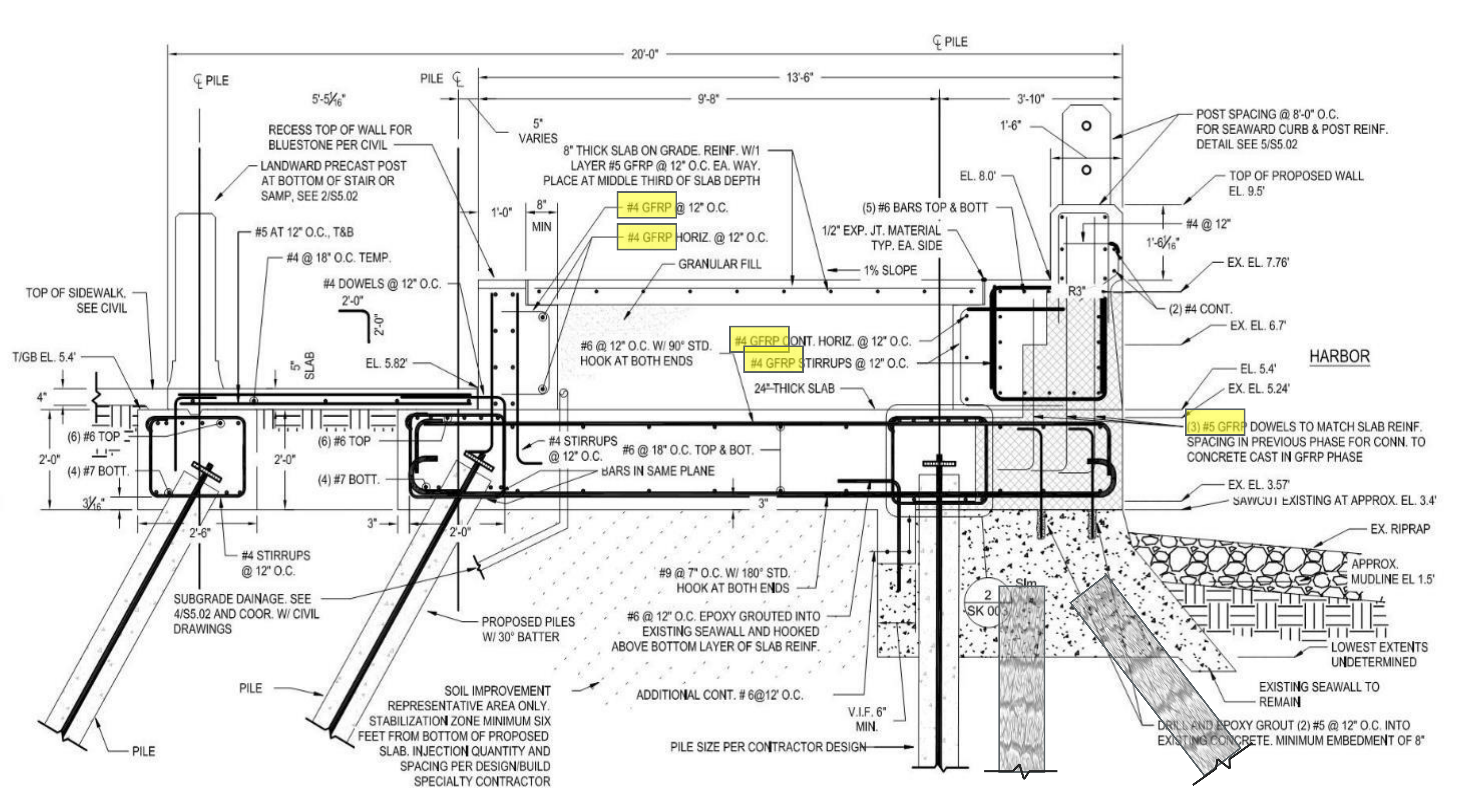
- Deterioration behind concrete veil (seaward wall)
- Timber support piles subjected to marine borers

- Timber beams and platform have collapsed in places
- Supporting hardware is severely corroded
- Platform and support beams were saturated (landside wall)

Challenges

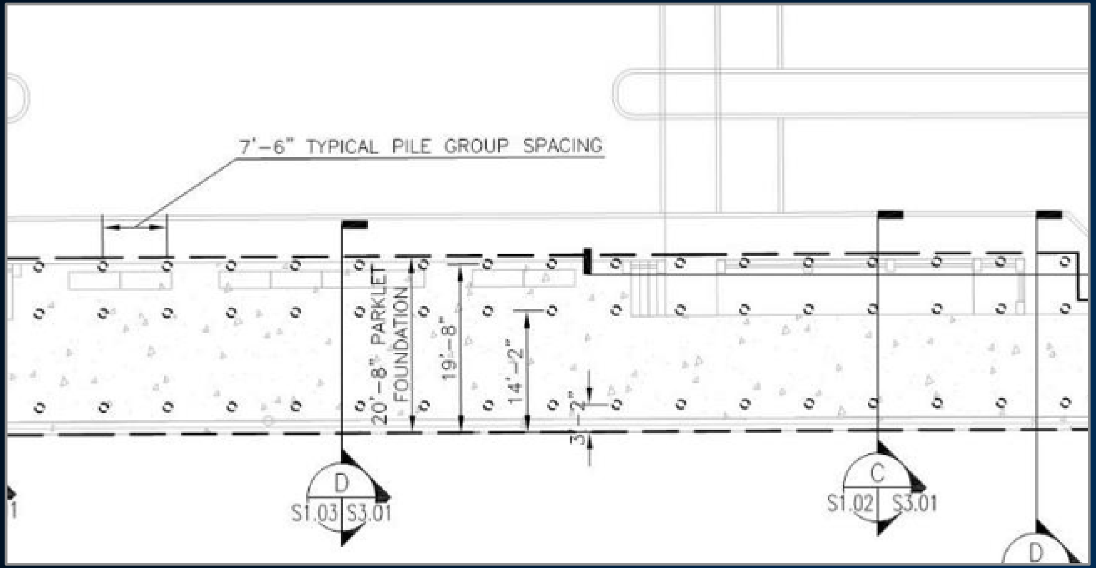
- Cracking
- Spaulding
- Voids
- Settlement
- Public Health & Safety
- Frequent Wave Runup & Overtopping (King Tides)

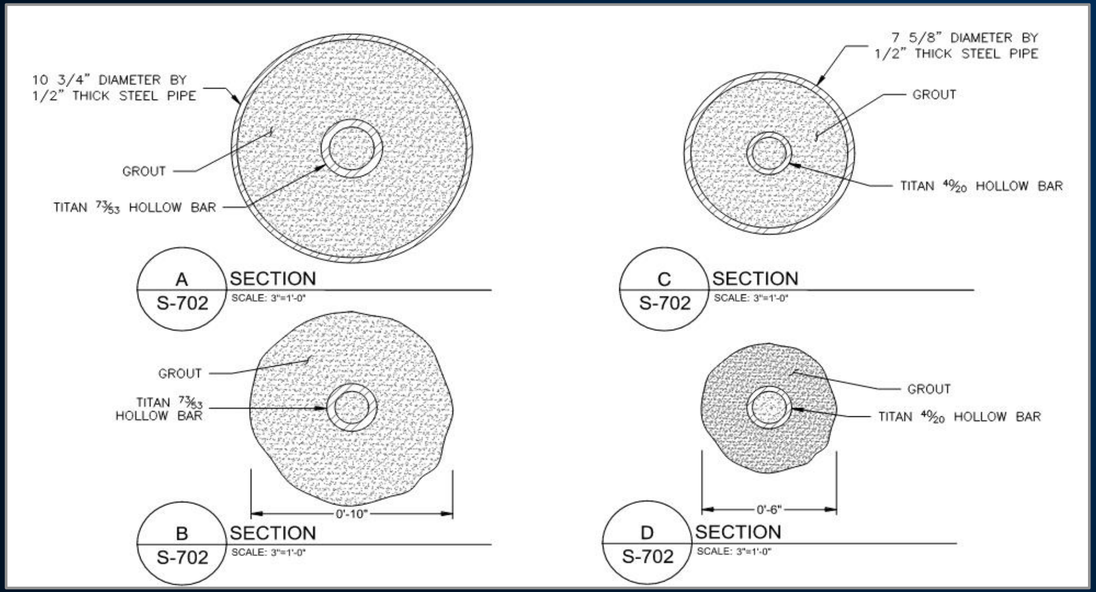
The Solution

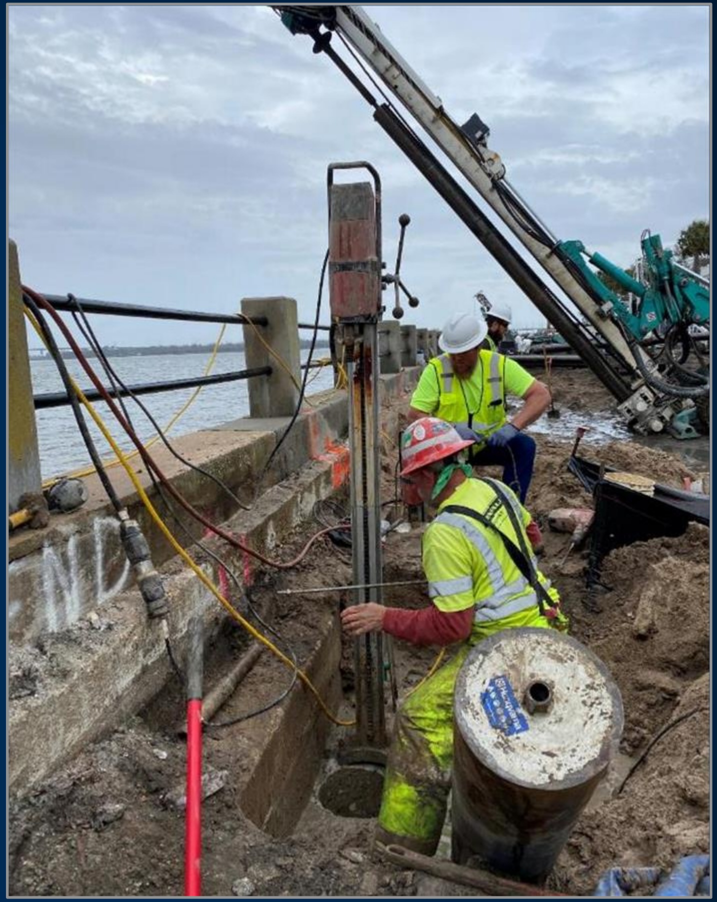


Micropile Design

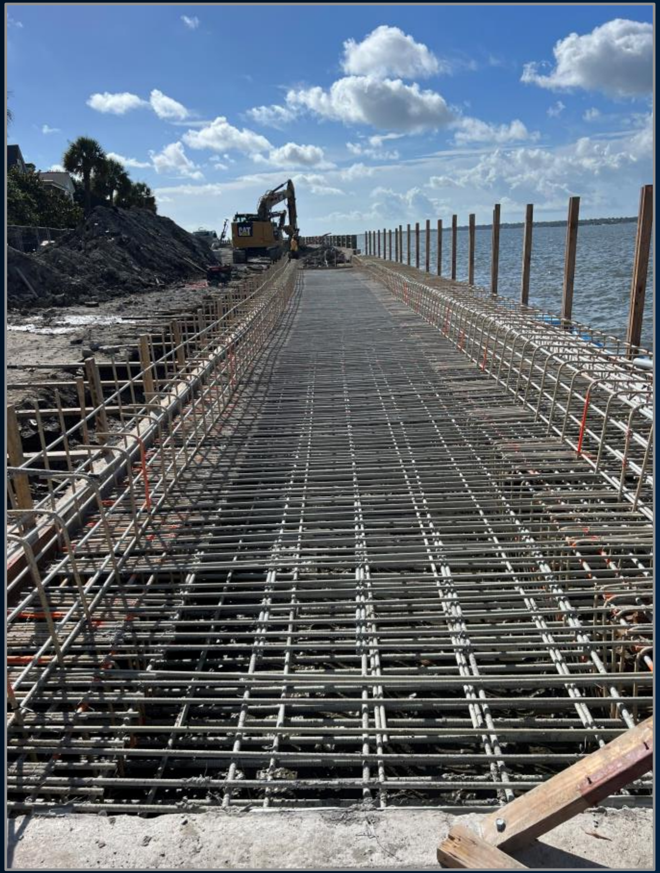
Micropiles

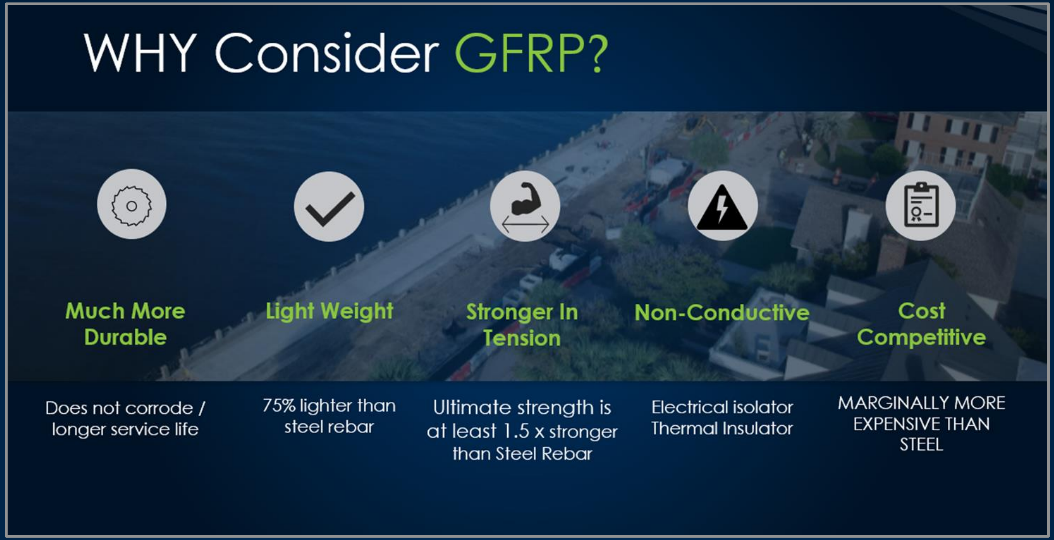


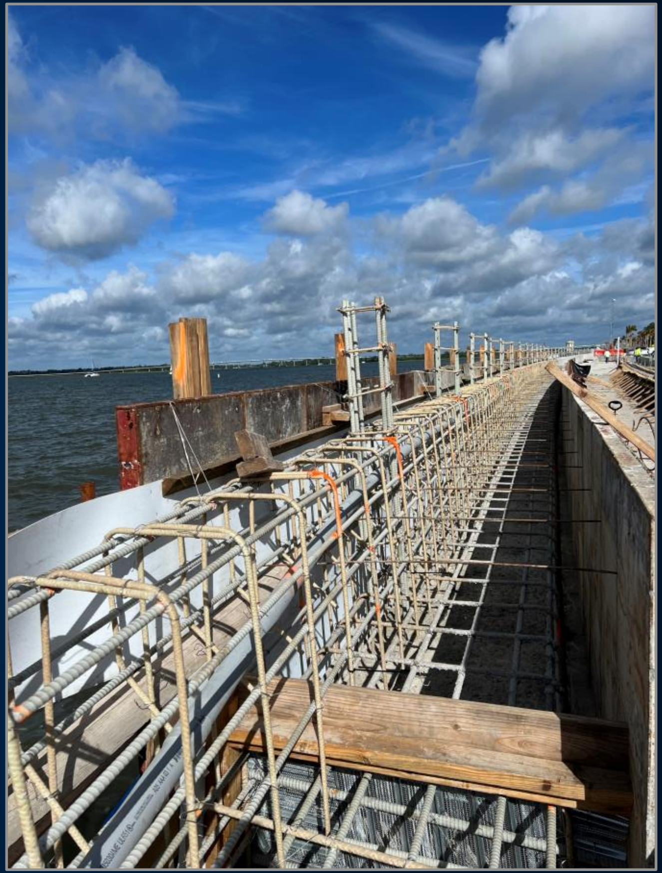




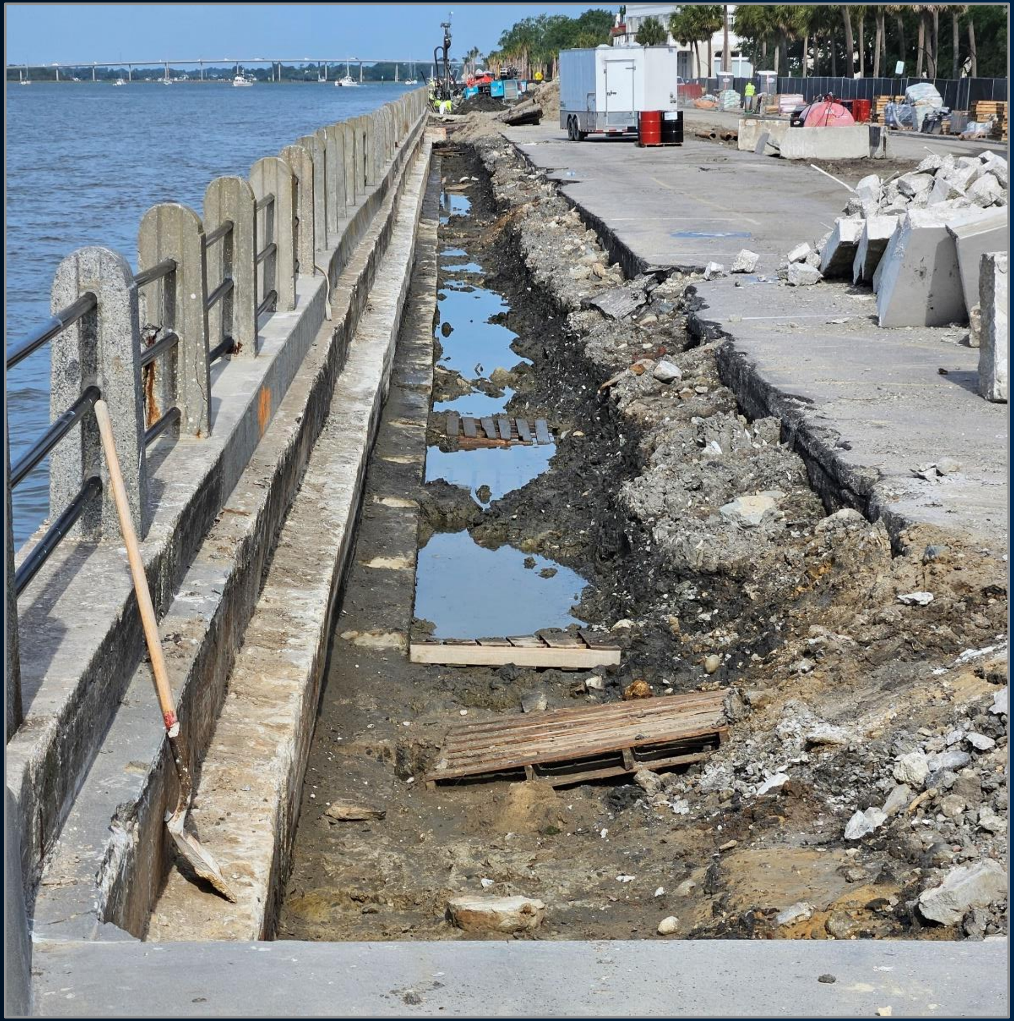
- 1,620 piles
- 75 to 90 ft long / 6 to 10 inches in diameter
- 5% of piles load tested (compression or tension)



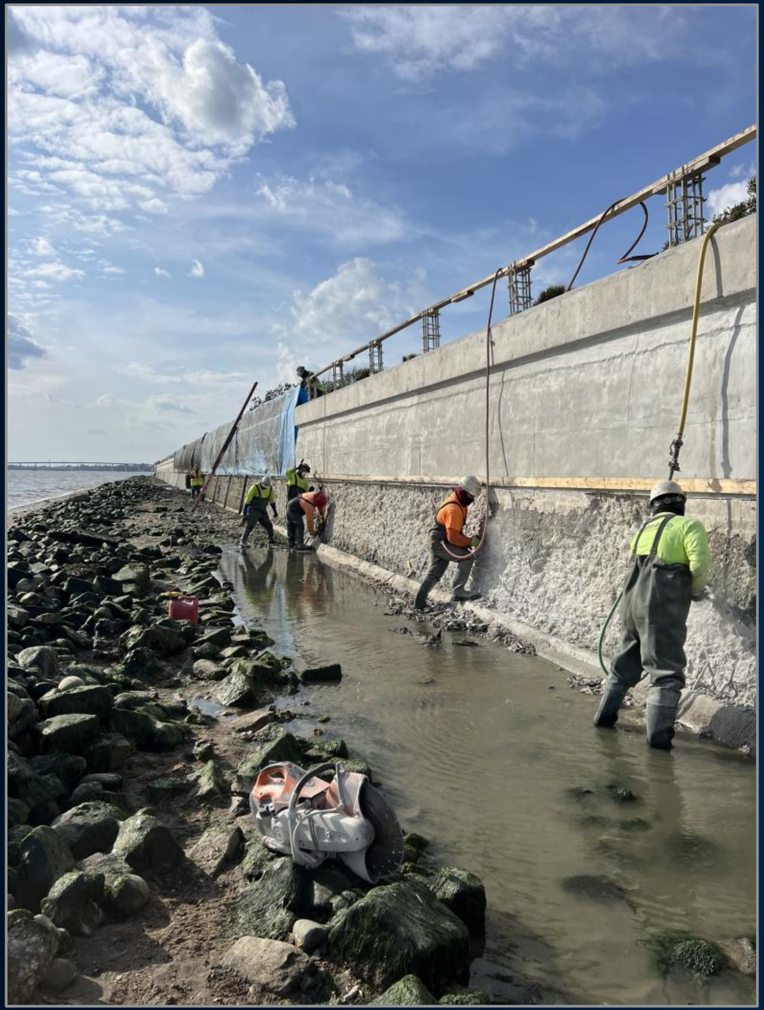


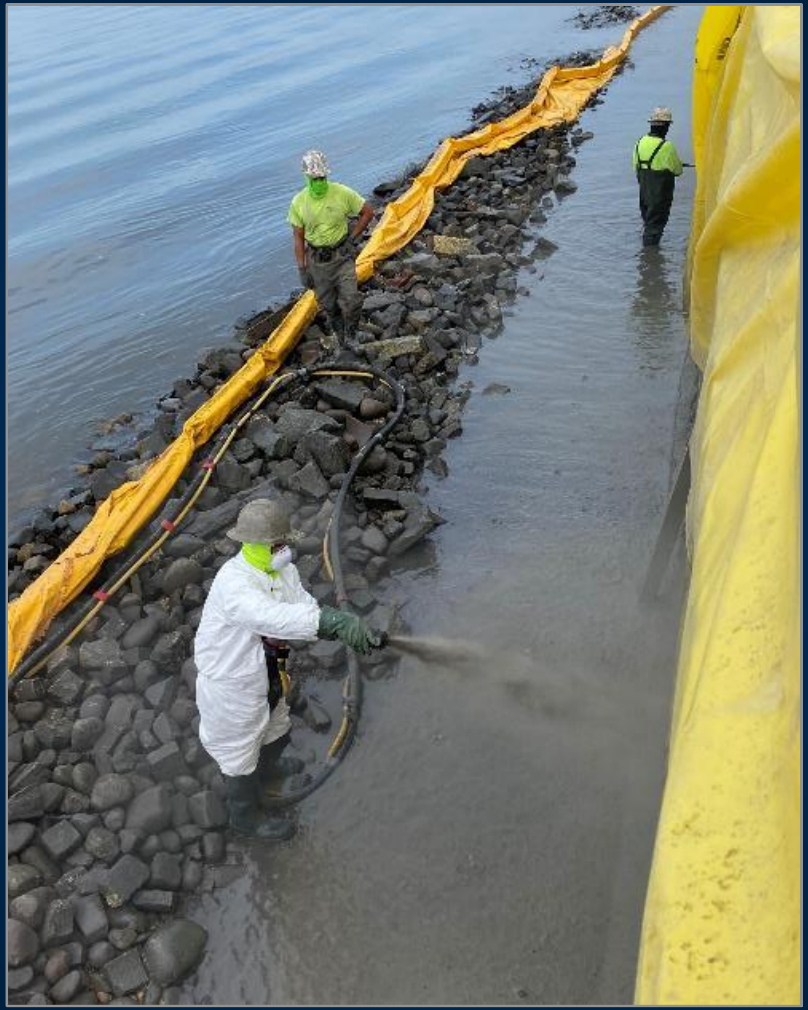


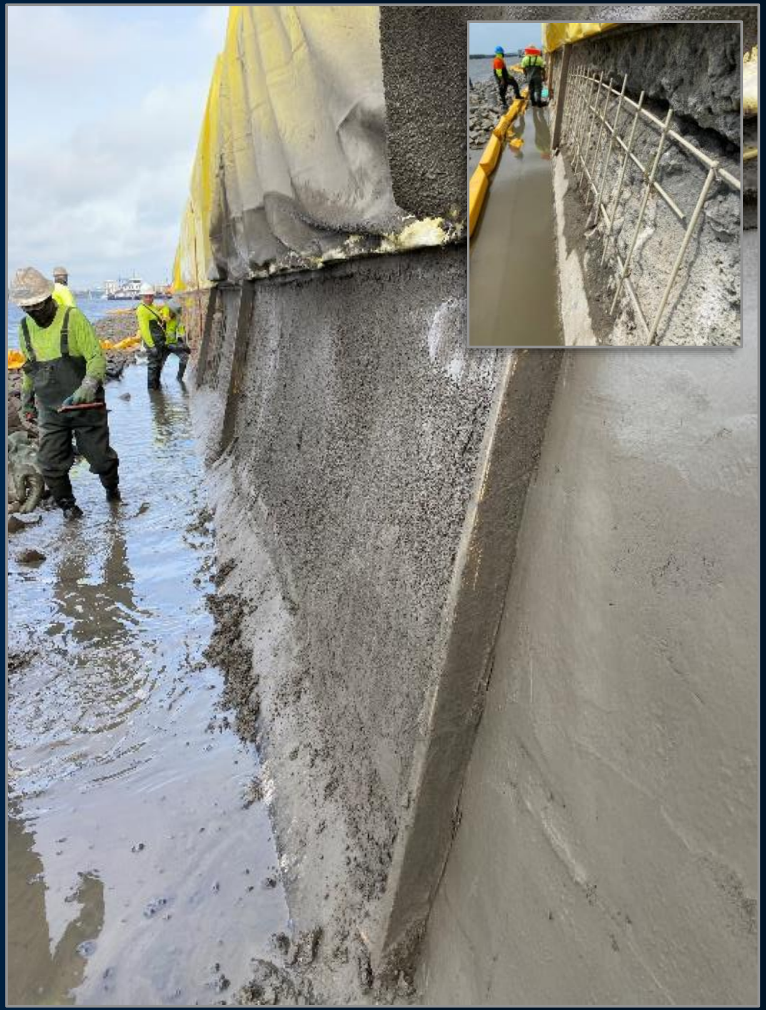
Glass Fiber Reinforced Polymer (GFRP)



One Section at a Time

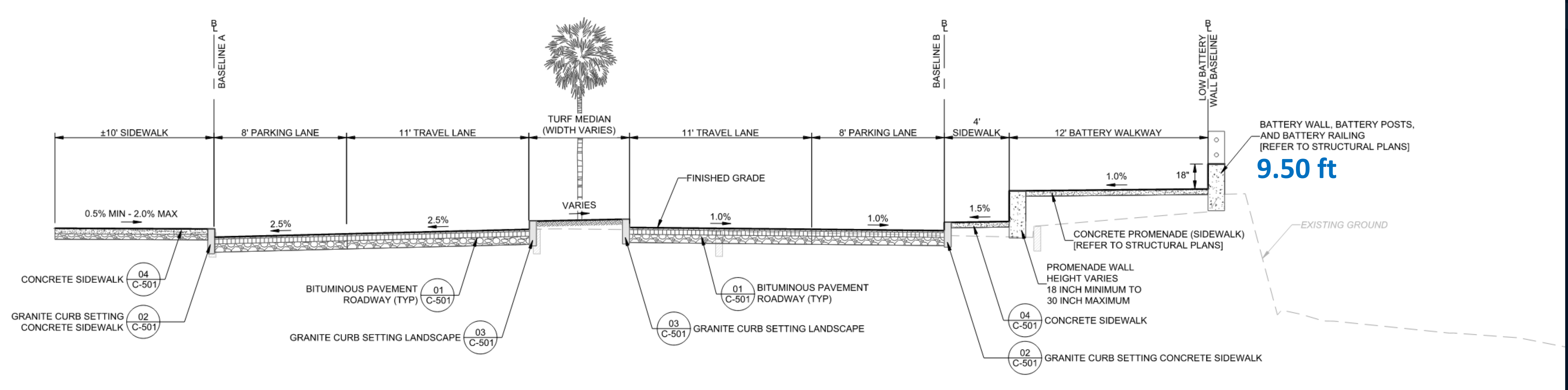




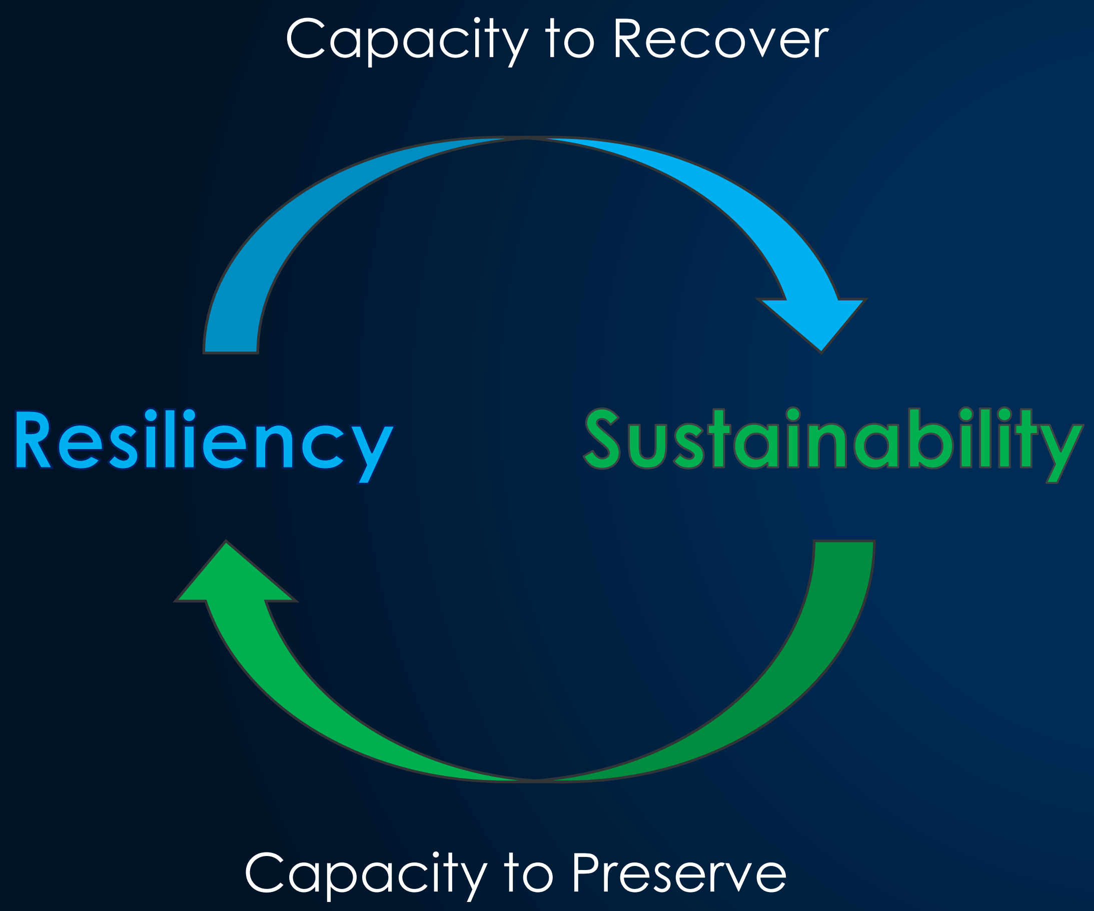


Shotcrete Seawall Repair

Raising the Low Battery Seawall



Adaptive Capacity



Resiliency is the ability to anticipate, prepare for, and adapt to changing conditions and withstand, respond to, and recover rapidly from disruptions

Sustainability involves developing infrastructure with consideration to economic, social and environmental implications

Resilient Outcomes

Reduce Flooding Risk

Adapt to Future Sea Level Rise

Built-in Capacity
for 42" Higher Wall

Social Impact

Social Endurance

Connecting
People with Water

Material Resilience

Material Longevity

Here Today....
Here Tomorrow

Hold the Line

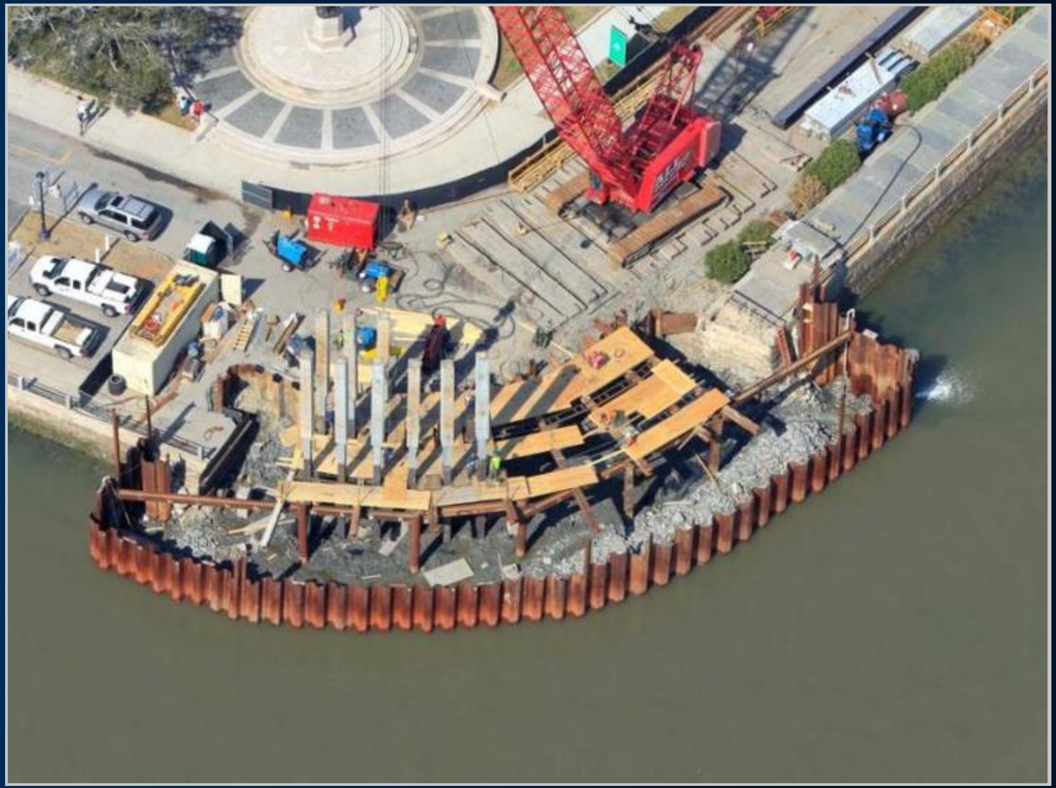
Adaptable Reuse & Innovation

Retain & Repurpose
"Leave No Waste Behind"

Sustainable Outcomes

2020 - 2024 / $65M Million / 1 mile

~ 110 ft per month / $12,300/foot



Nov 2013 - July 2014 / $2.6 Million / 121 LF

~ 6 ft per month / $22,500/foot

Resilient & Sustainable - People-Planet-Profit

QUESTIONS & ANSWERS

"The Low Battery Seawall's innovative built-in adaptive capacity is audacious! It sets the resilience bar for Charleston that is dynamically prepared for future flood risks such as sea level rise!"

Chris Mack, P.E., D.CE
Director of Climate Resilience & Coastal Solutions, JMT

Scan to learn more!