

RECLAMATION OF THE COASTAL EDGE

THROUGH OFFSHORE CONSTRUCTION

BRIAN COOK, PLA



The National Conference On
Beach Preservation Technology





FORT MYERS AIRPORT

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SEA



LAND



SEA



LAND



Resilient Ready

Tampa Bay

July 2022



Resilient Ready

Tampa Bay

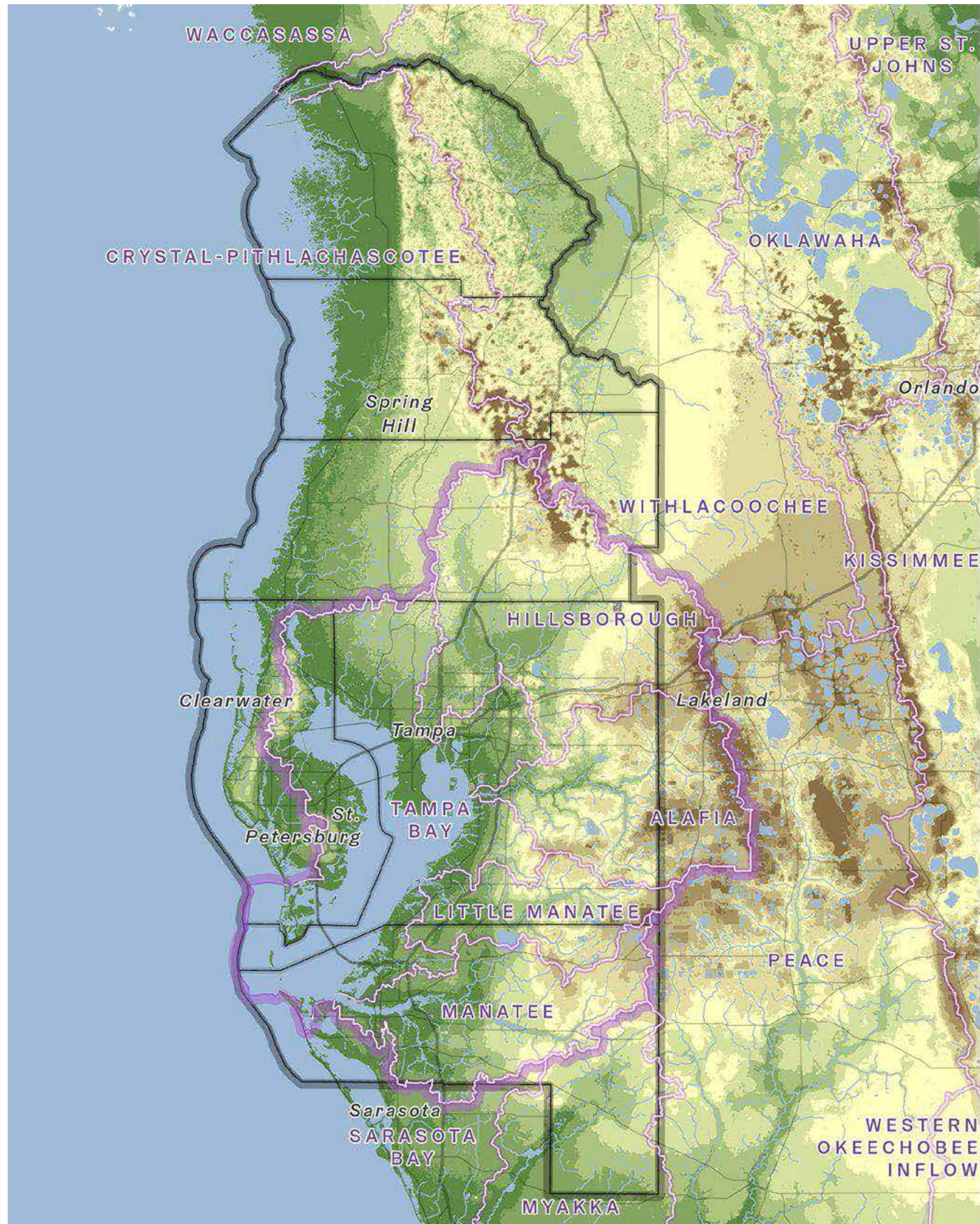
July 2022



JANUARY 2022 – JULY 2022

RESILIENT READY TAMPA BAY IS A REGIONAL TECHNICAL ASSISTANCE PROJECT THAT WILL ENHANCE THE CAPACITY OF TAMPA BAY COMMUNITIES TO ASSESS, PLAN FOR, AND ADAPT TO FLOOD IMPACTS THROUGH THE EXPANDED USE OF MULTI-FUNCTIONAL GREEN INFRASTRUCTURE SYSTEMS AND RESILIENT LANDSCAPE DESIGN AND CONSTRUCTION PRACTICES.

TBRPC COUNTIES



Drawing by Waggoner and Ball



WORKSHOP PROCESS

**DAY 1: WALKING TOURS
AND SITE VISITS**

**DAY 2: PROBLEM
IDENTIFICATION,
COMMUNITY DISCUSSIONS,
DESIGN SKETCHING**

**DAY 3: SYNTHESIS AND
PRESENTATION OF RESULTS**



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PASS-A-GRILL, AT ST. PETE BEACH



Google Earth



PASS-A-GRILL, AT ST. PETE BEACH

Pass-A-Grille Sea Wall Repair Report

Pass-A-Grille



Figure 2-2 Summary of Condition Ratings for Each Section

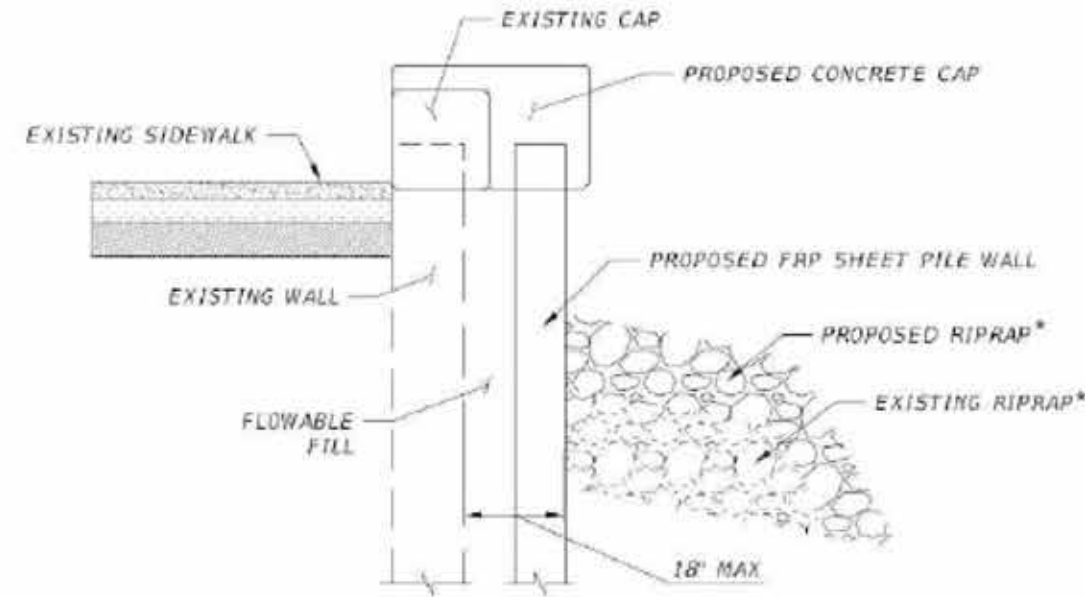


Figure 3-1 Alternative 1 Section



Figure 3-6 Loss of Shotcrete Exposing Mesh







PASS-A-GRILL, AT ST. PETE BEACH

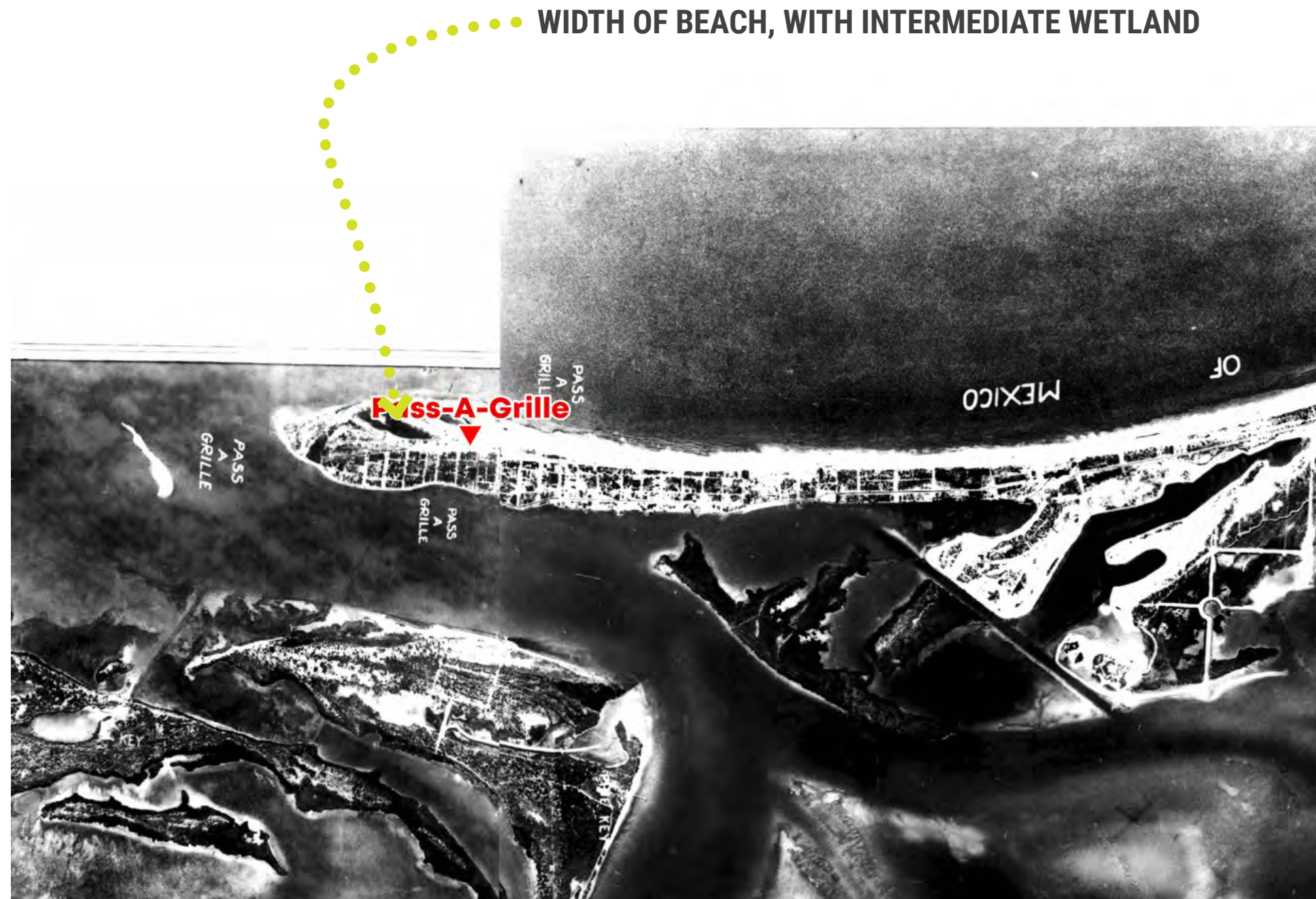


1921 Aerial

Pass-A-Grille

Legend

-  Project Locations
-  Watersheds



PASS-A-GRILL, AT ST. PETE BEACH

..... BUILDING ON THE BEACH



..... WIDTH OF BEACH, WITH INTERMEDIATE WETLAND



..... BUILDING ON THE BEACH



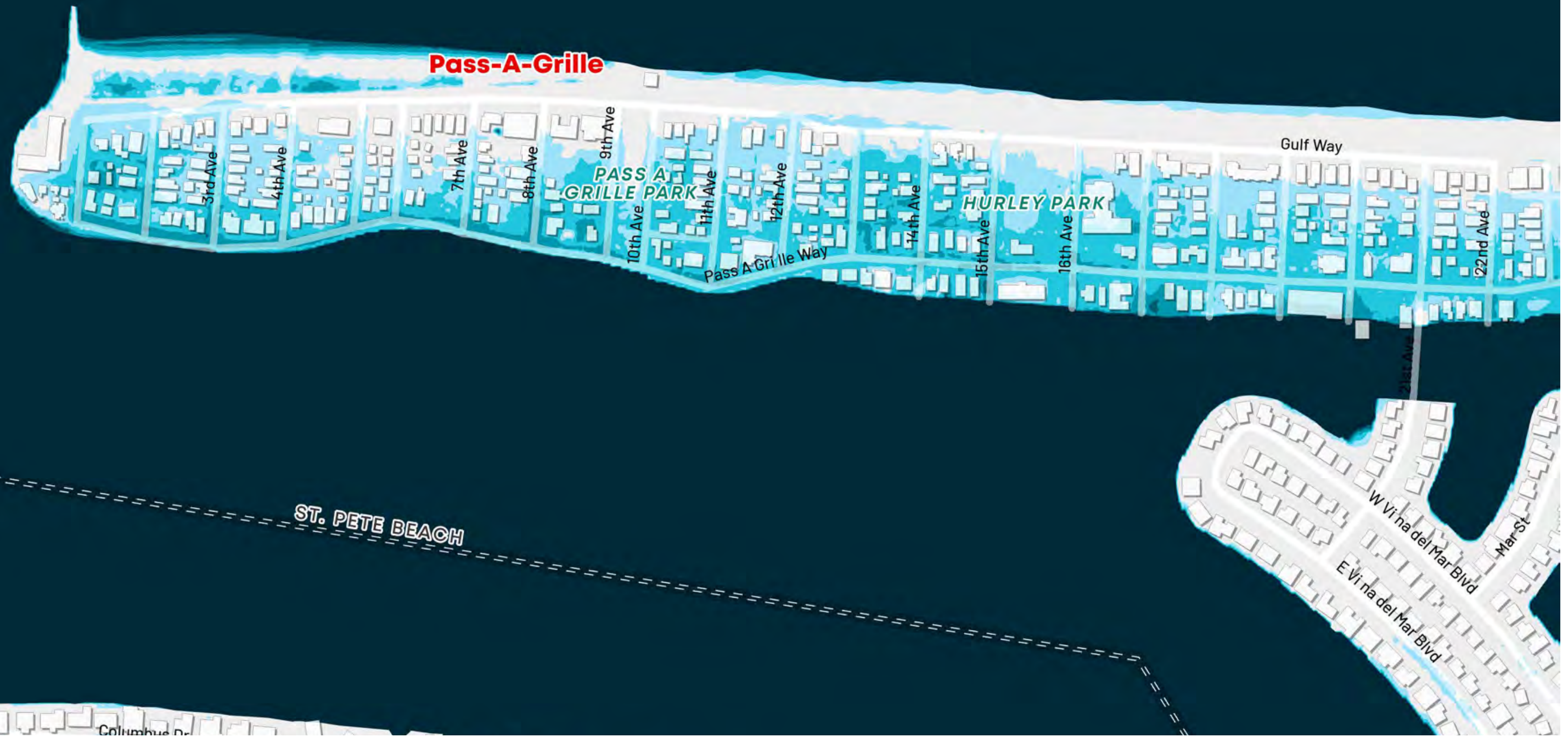
..... BUILDING ON THE BEACH



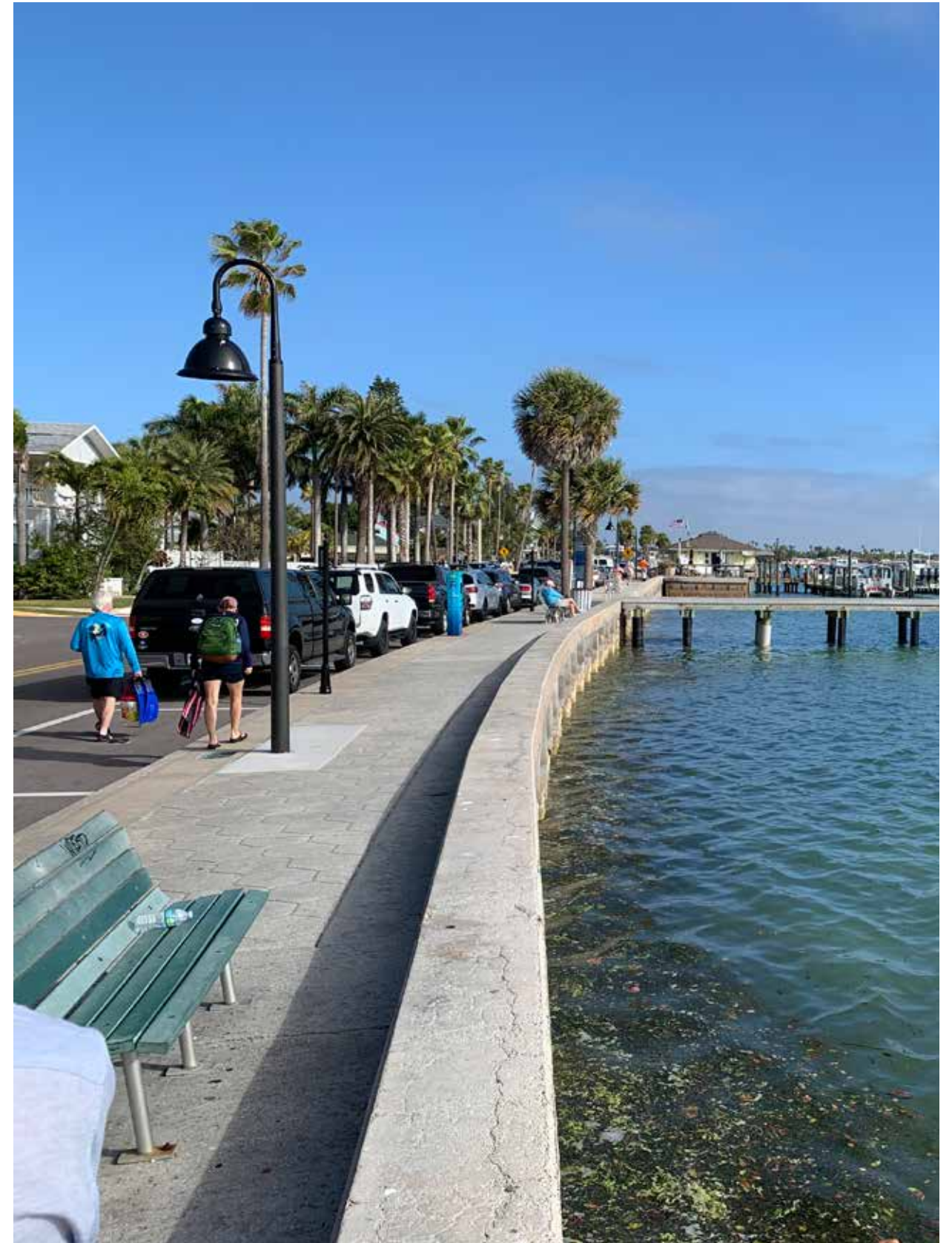
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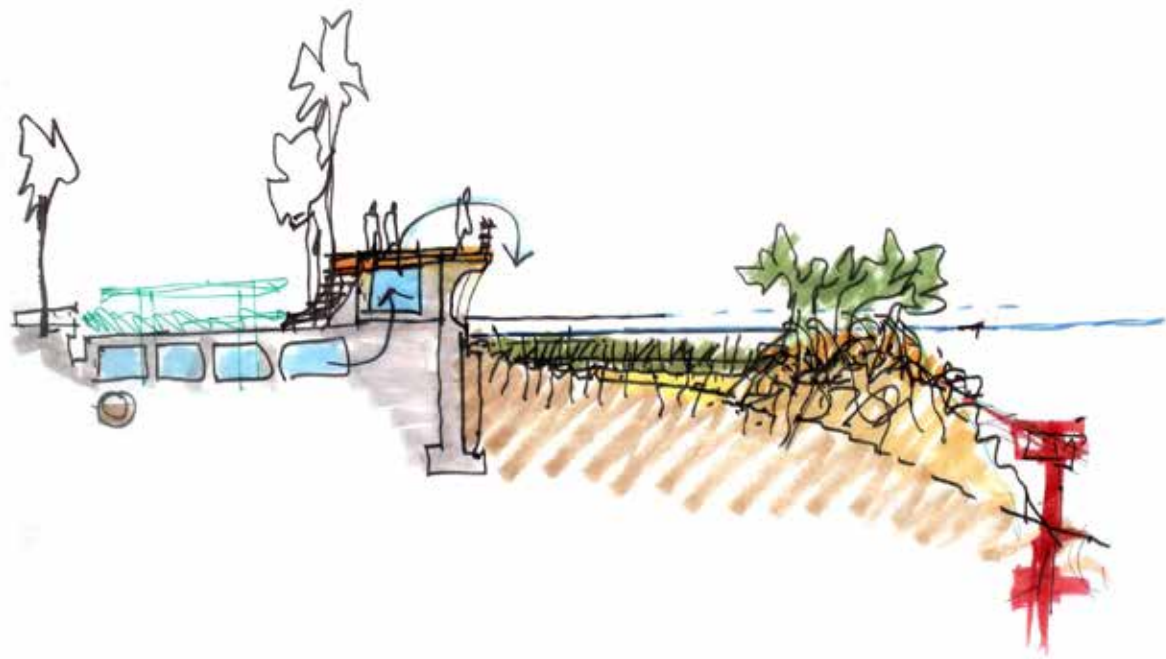
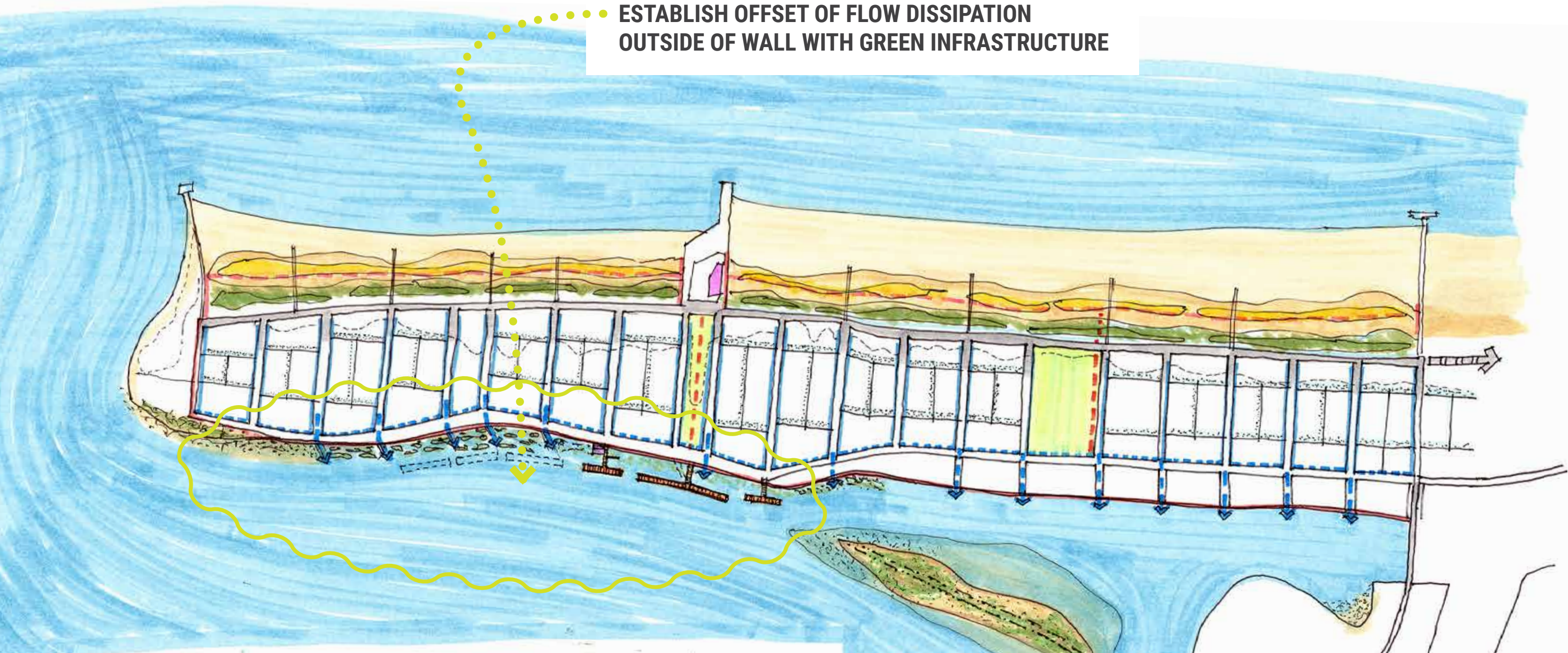
PASS-A-GRILL, AT ST. PETE BEACH



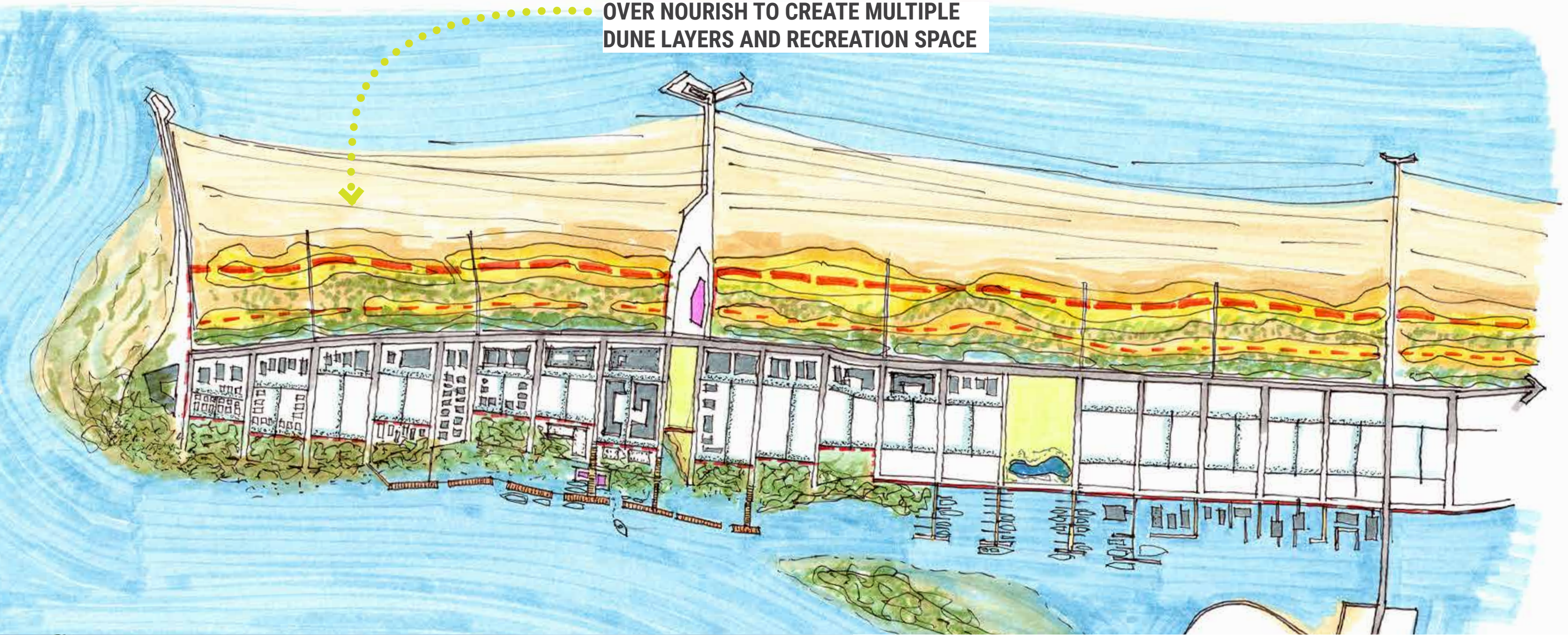
PASS-A-GRILL, AT ST. PETE BEACH



**ESTABLISH OFFSET OF FLOW DISSIPATION
OUTSIDE OF WALL WITH GREEN INFRASTRUCTURE**



OVER NOURISH TO CREATE MULTIPLE
DUNE LAYERS AND RECREATION SPACE

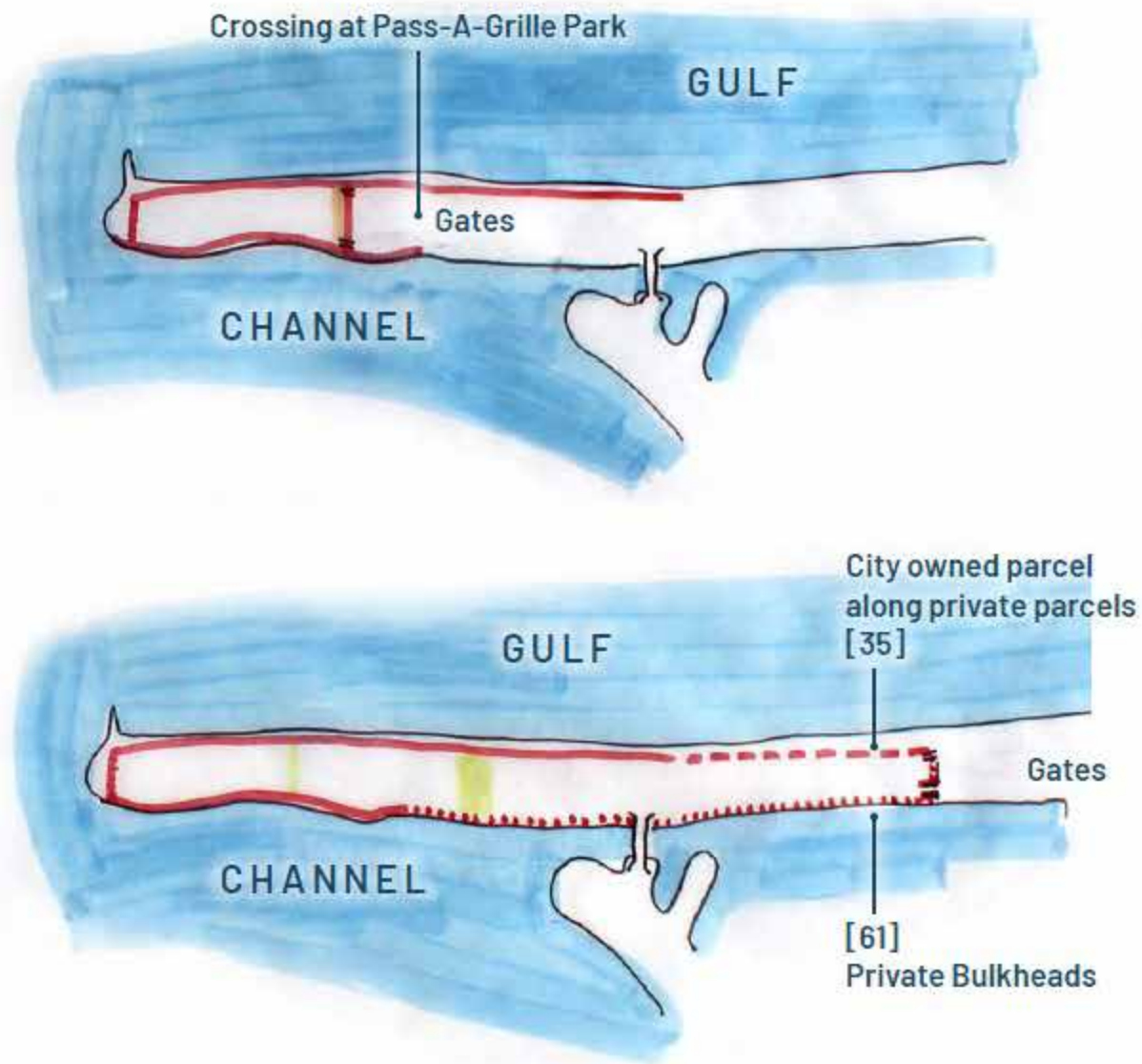




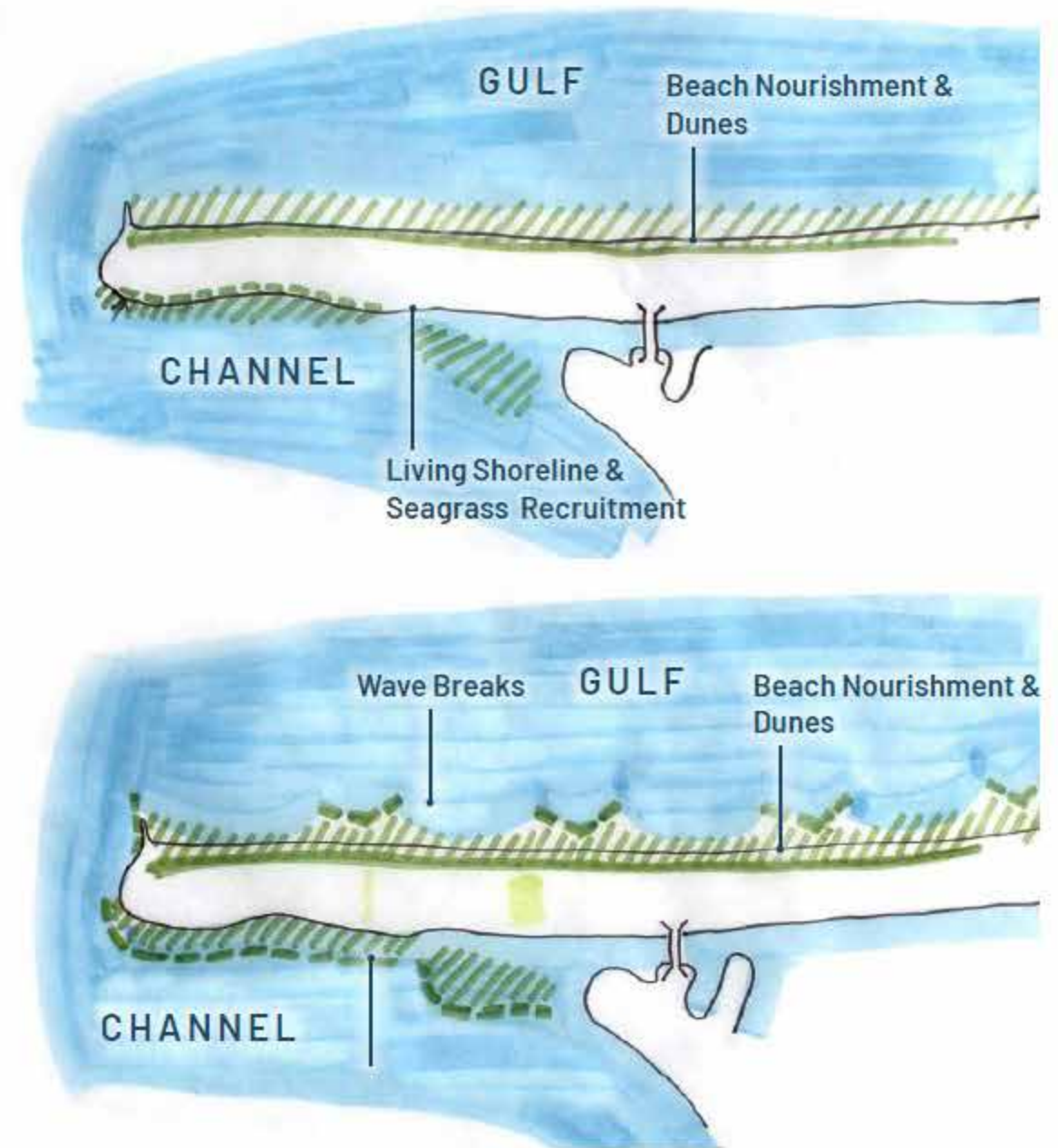
- Older, typically timber pilings, can likely be reused.
- new pilings will be @ +12 (FEMA)
- could they be four +3?

OFFSHORE HARDENED LEDGE

DEFENSIVE ALIGNMENTS



ADAPTIVE ALIGNMENTS



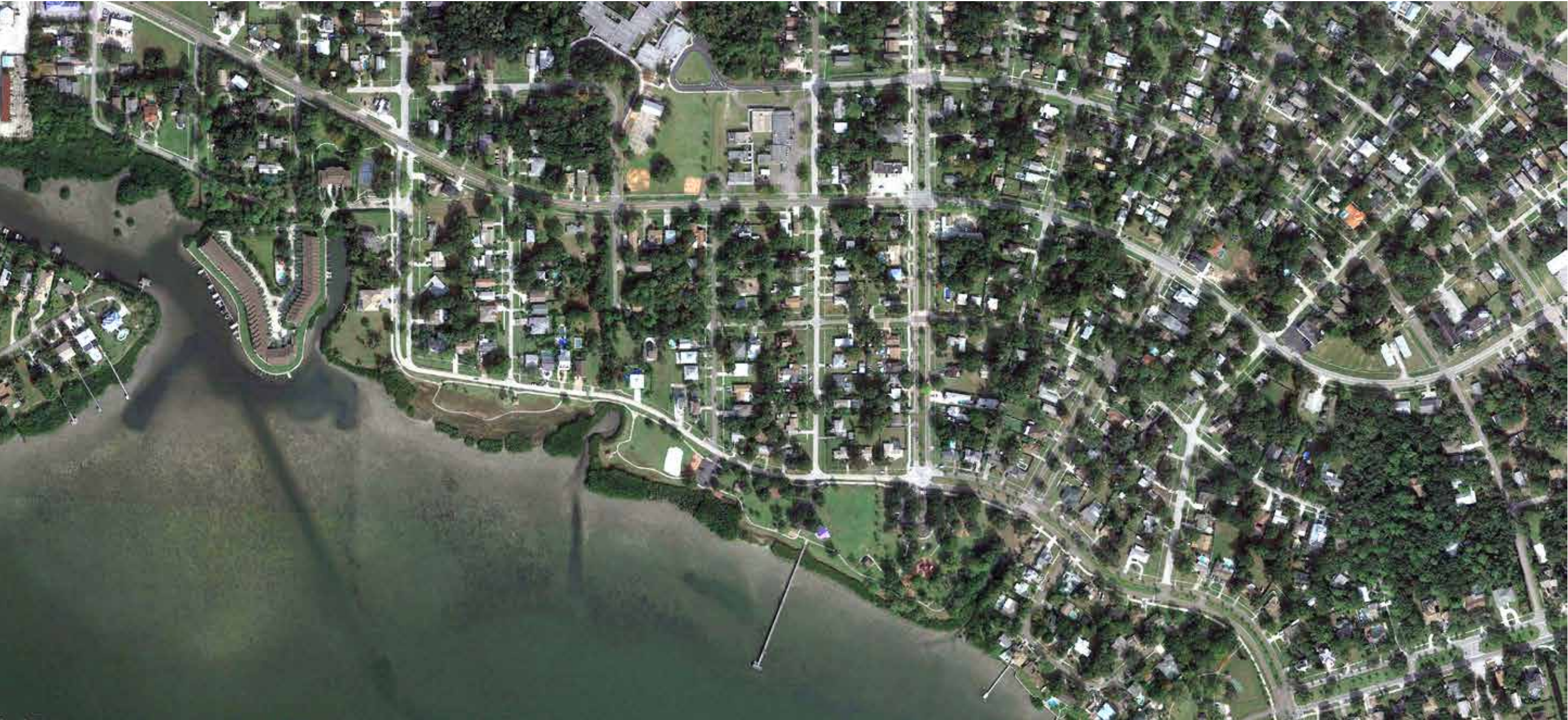
Drawing by Waggoner and Ball



OLDSMAR



OLDSMAR



OLDSMAR



Drawing by Waggoner and Ball





Long Term (≈ 50 Years) 13.2 ft

Near Term (≈ 20 Years) 11.2 ft

Base Flood Elevation 9 ft

Long Term (≈ 50 Years) 5.6 ft

MHHW Long Term (≈ 50 Years) 4 ft

Near Term (≈ 20 Years) 3.6 ft

King Tide 2.4 ft

Near Term (≈ 20 Years) 2 ft

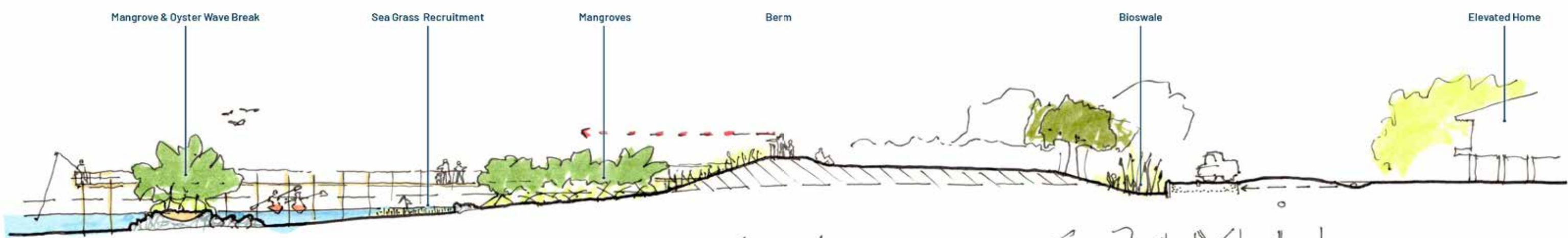
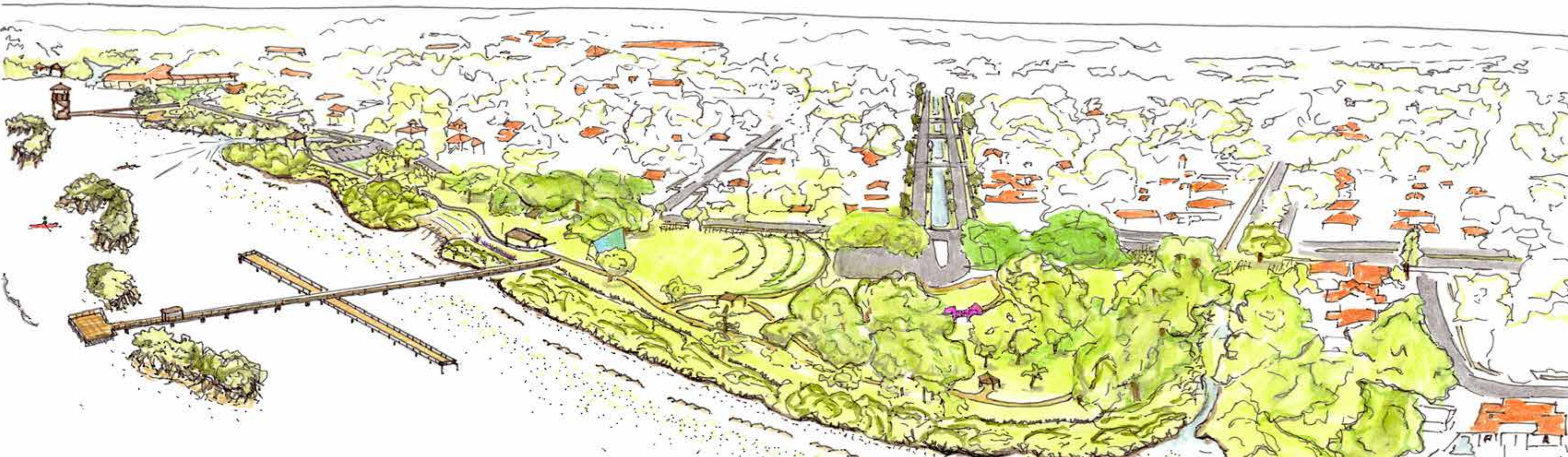
MHHW 0.78 ft

MLLW -1.48 ft

Shore Dr at Park Blvd ≈ 7 ft

Shore Dr at Pine Ave ≈ 3.5 ft





OFFSHORE HARDENED LEDGE

MOUNDED PARK SPACE





Drawing by Robbert de Koning



ISSUES / CONCERNS

**PERMITTING /
ARMY CORP**

**EXISTING HABITATS
PRECLUDING ROBUST
FUTURE HABITATS**

**CHANGE OF
COASTAL
DYNAMICS**

SCALE OF PROJECT

EFFECTIVENESS

LACK OF PILOT DATA



ALAFIA BANKS

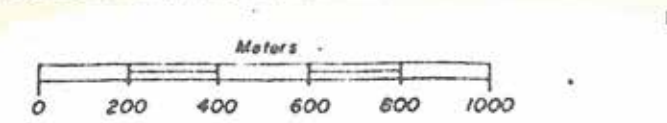
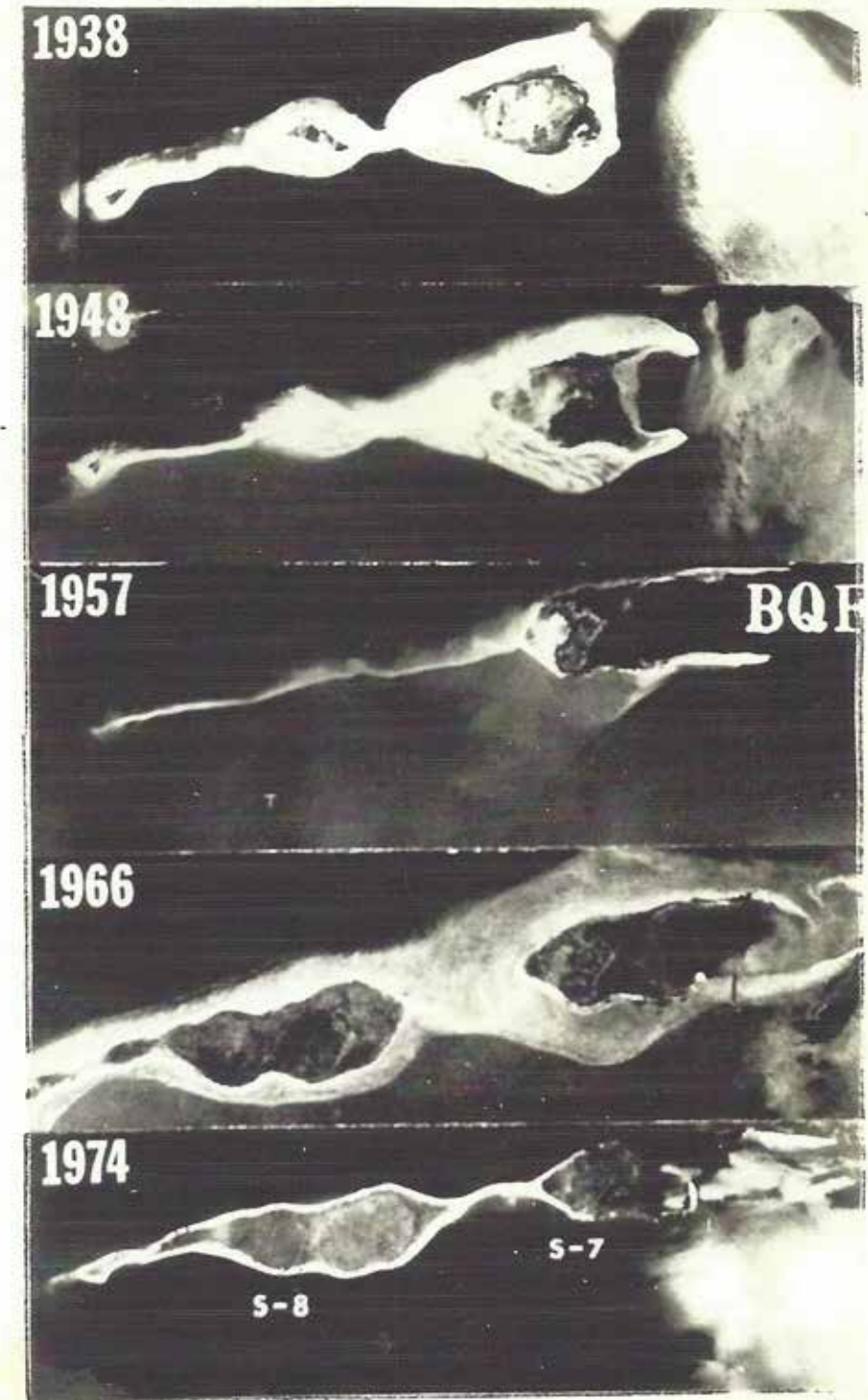
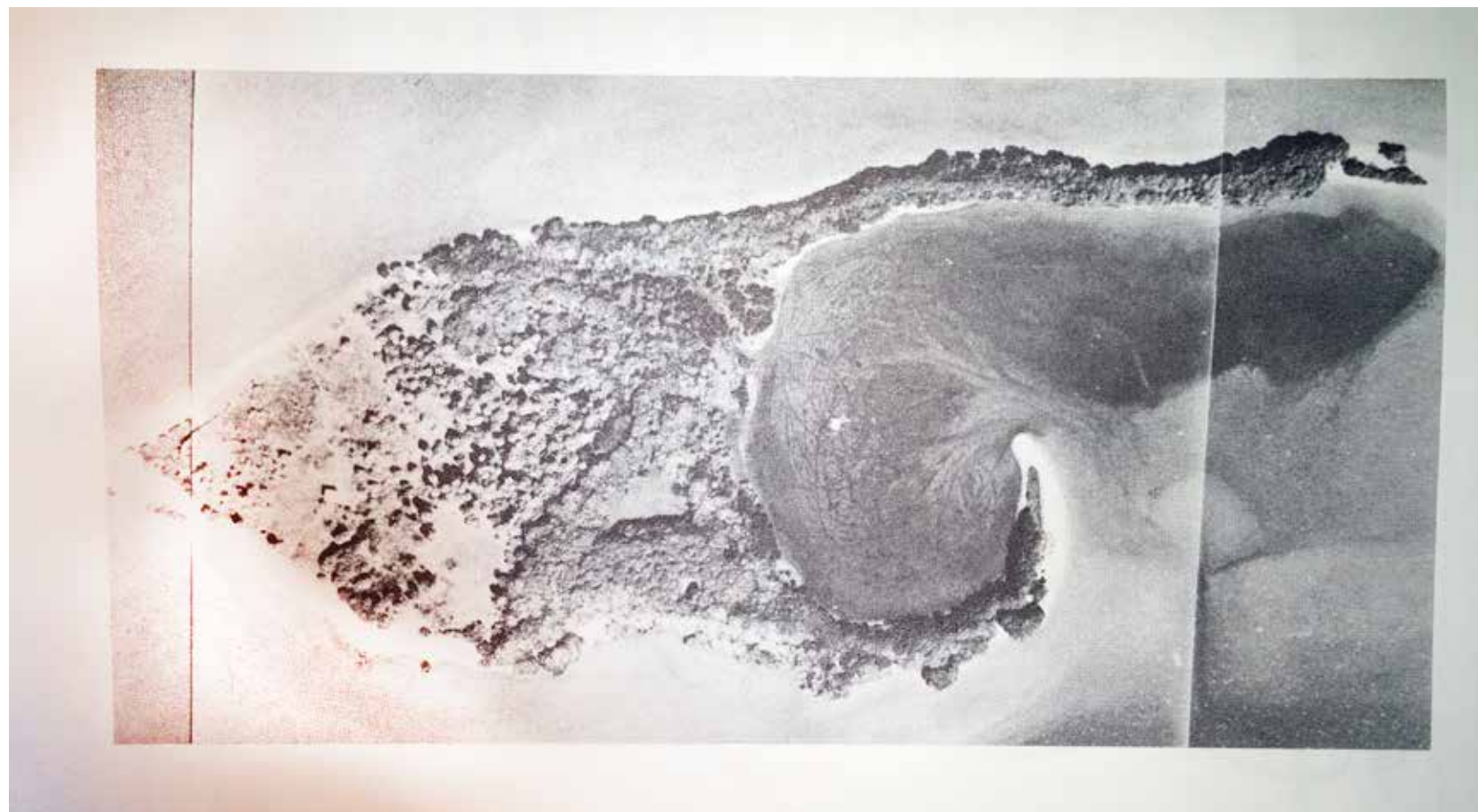
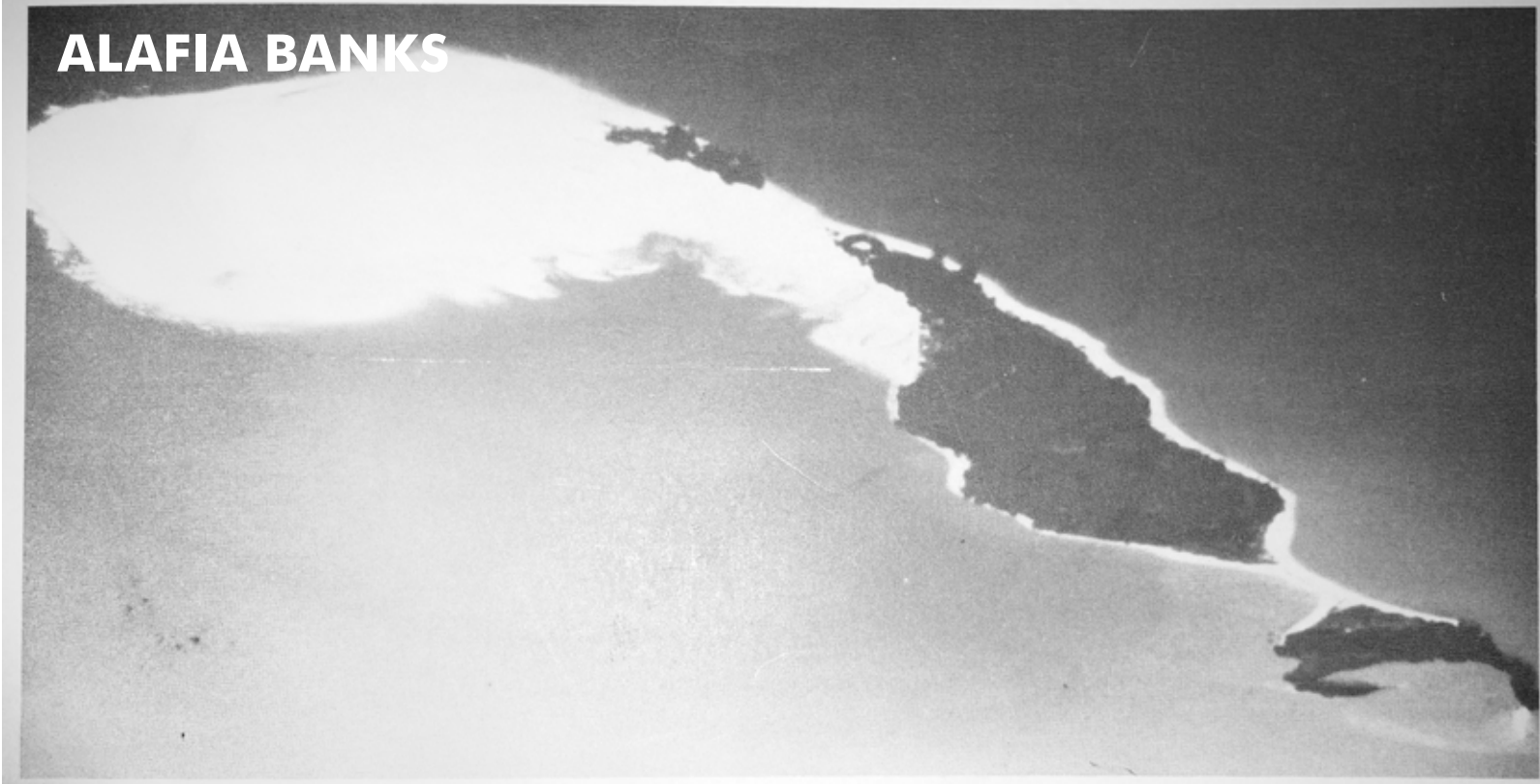


Figure 3. Historical vertical aerial photographs of S-7 and S-8.



ALAFIA BANKS



ALAFIA BANKS



Photo by Audubon Society



MARKER WAADEN





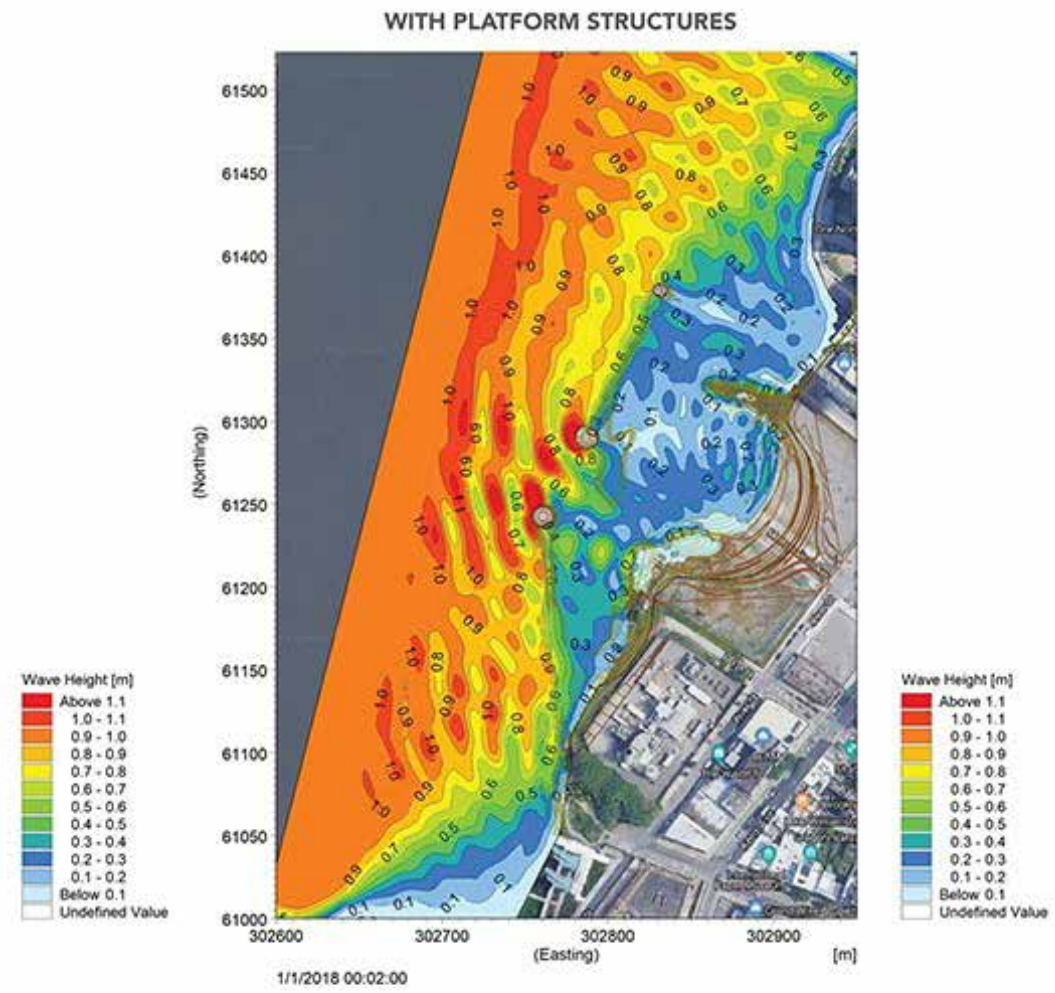
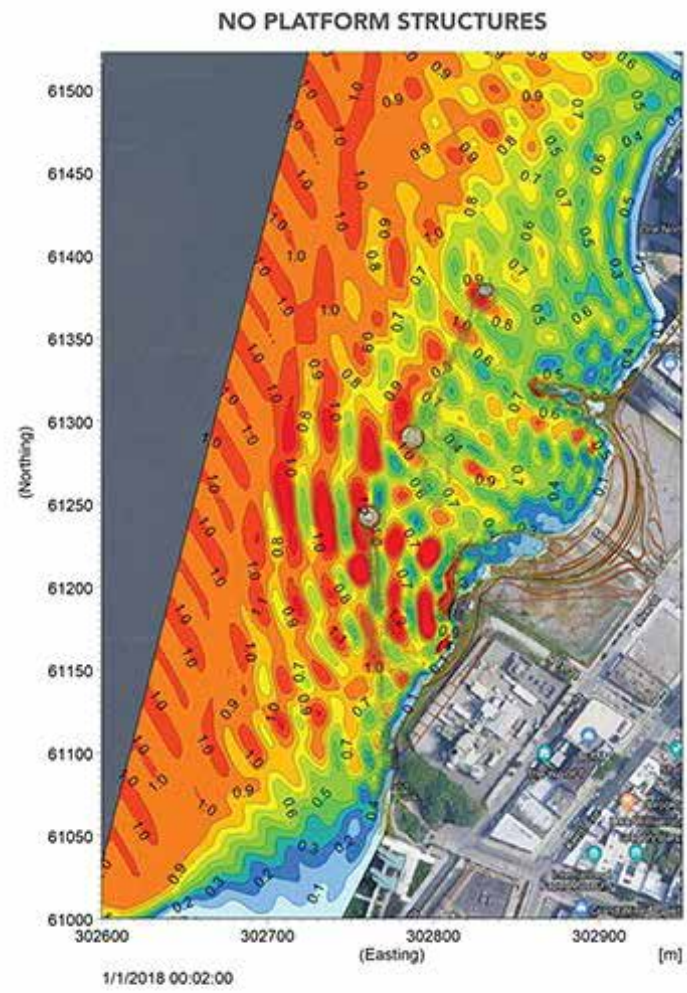
WORK BY FIELD OPERATIONS



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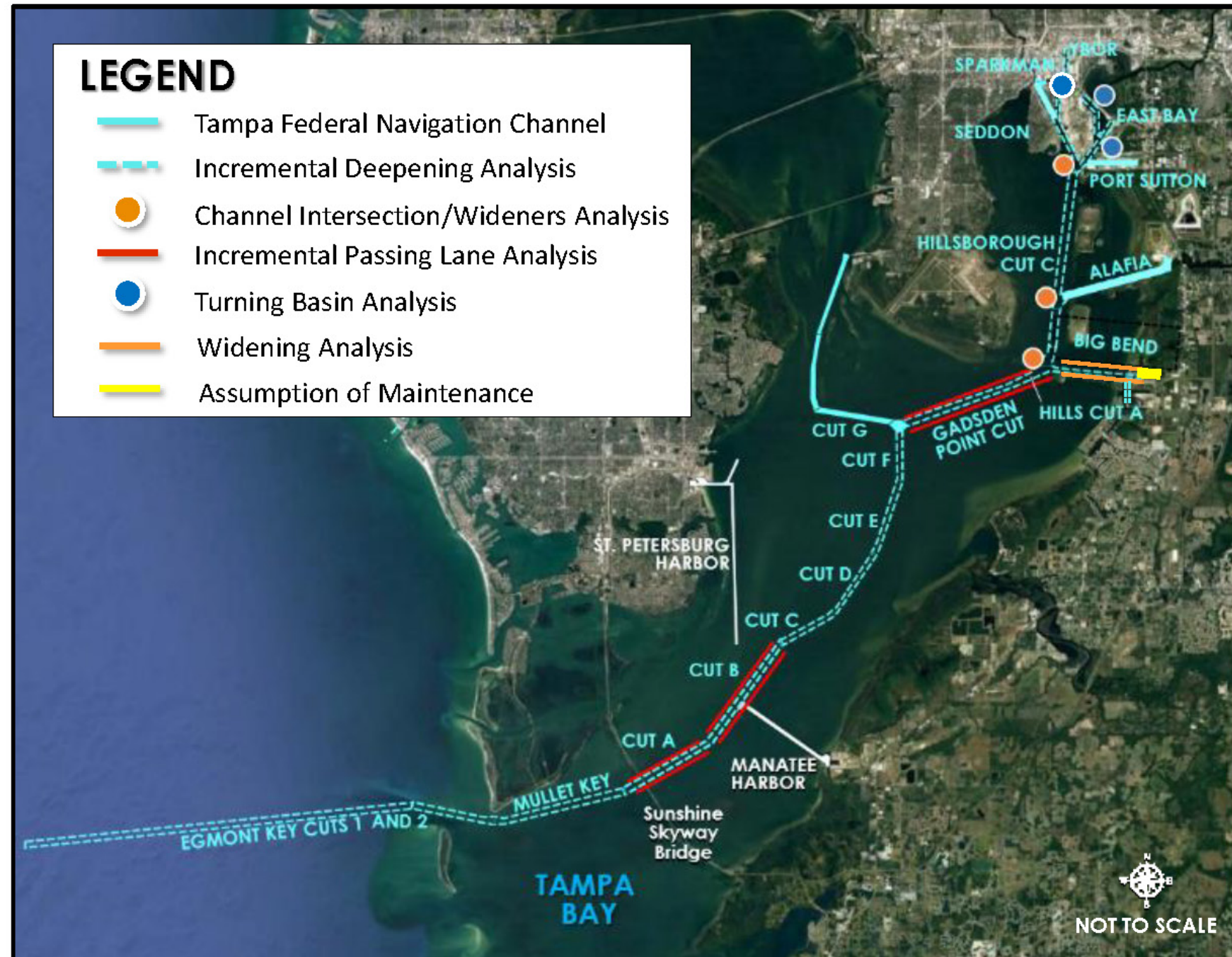


STUDY SCOPE

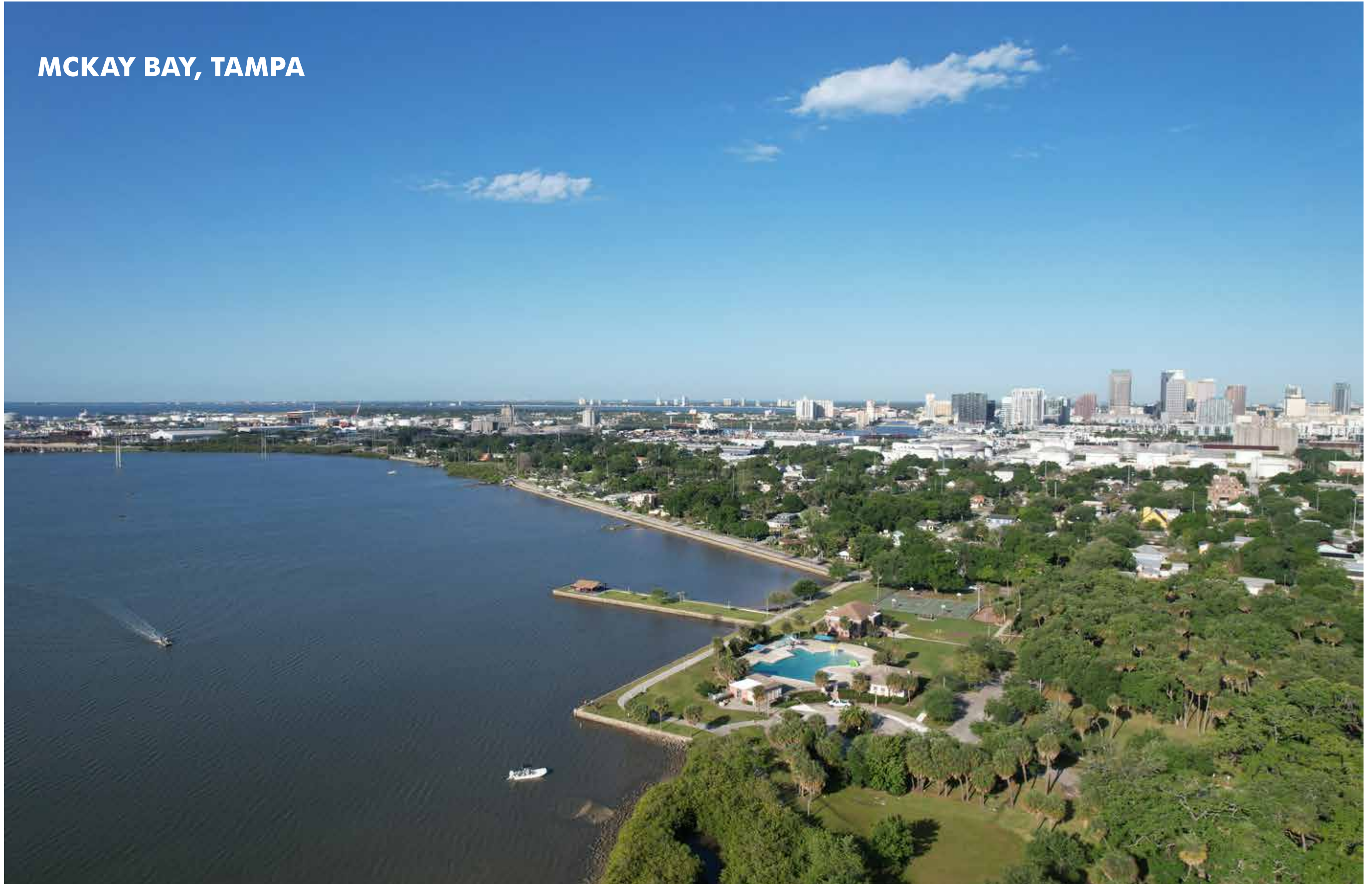
Tampa Harbor Navigation Improvements Study



- Incremental deepening and resulting widening 44'-54' (approx.)
- Incremental passing lanes in Cut A, Cut B, and Gadsden
- Adjustments to improve maneuverability in turning basins
- Widening and assume maintenance of extension to Big Bend Channel
- Channel intersection/turn widener improvements
- 3 years, estimated at \$4.5M

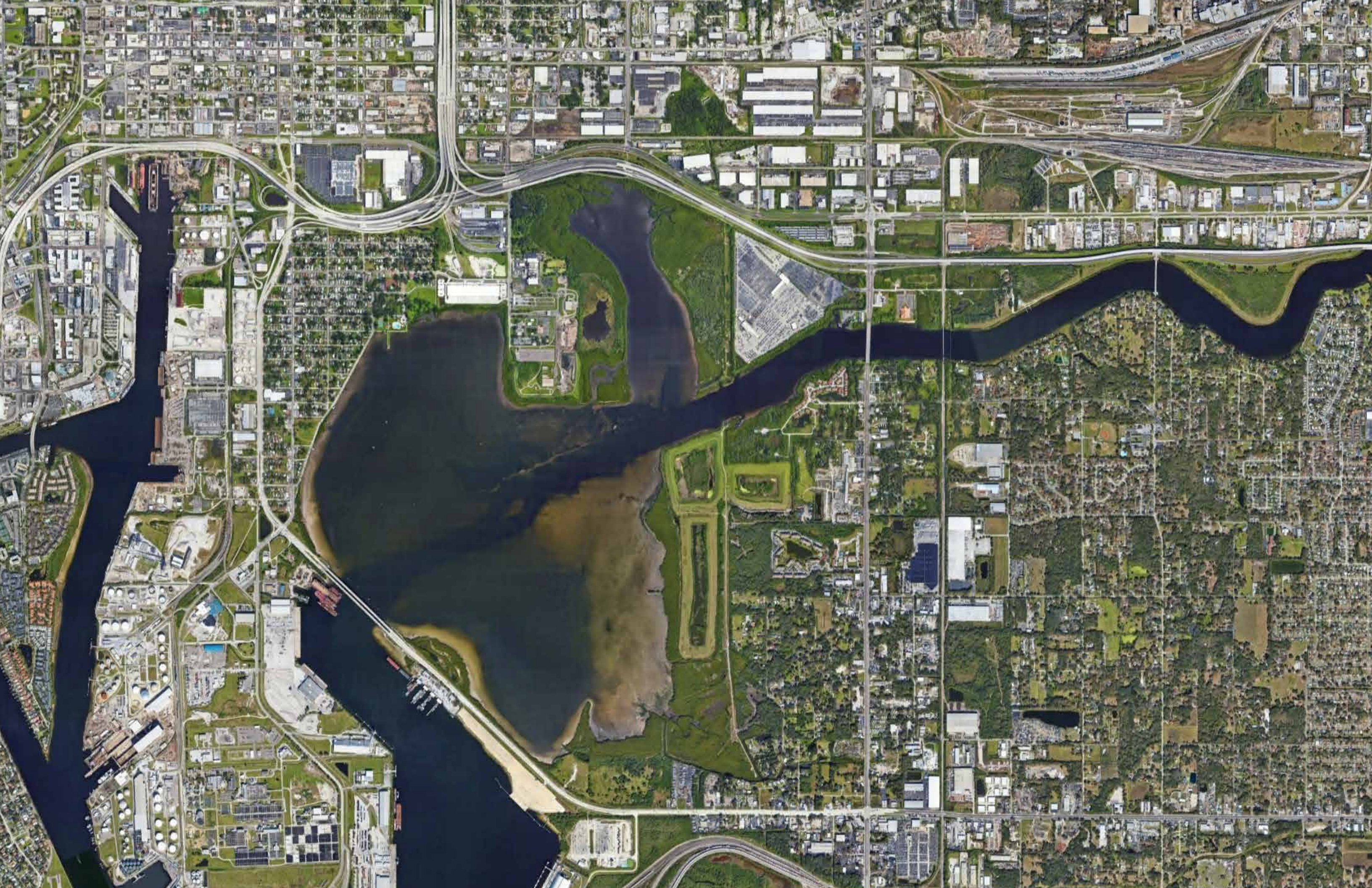


MCKAY BAY, TAMPA

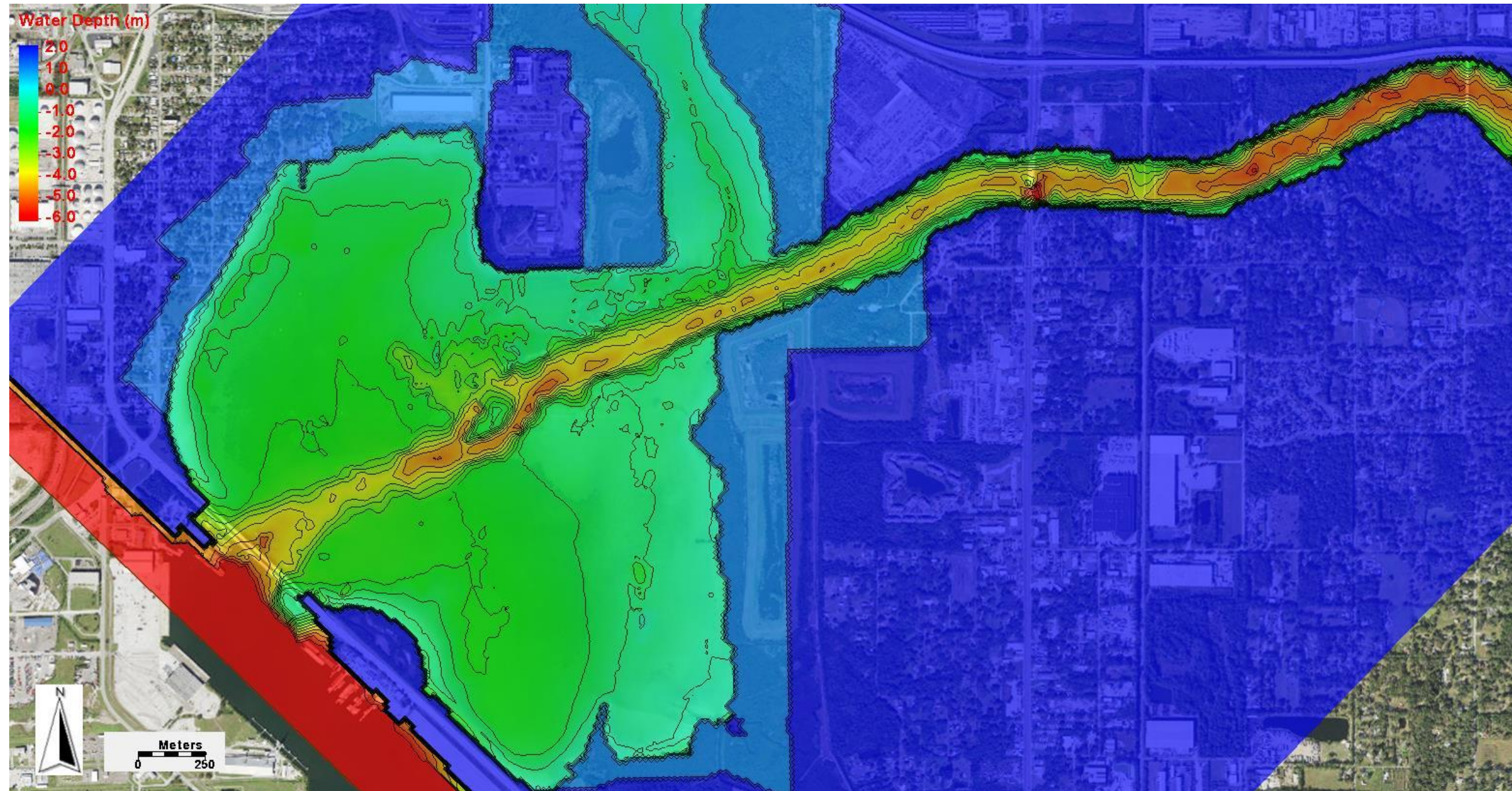


MCKAY BAY, TAMPA





Bathymetry under existing conditions

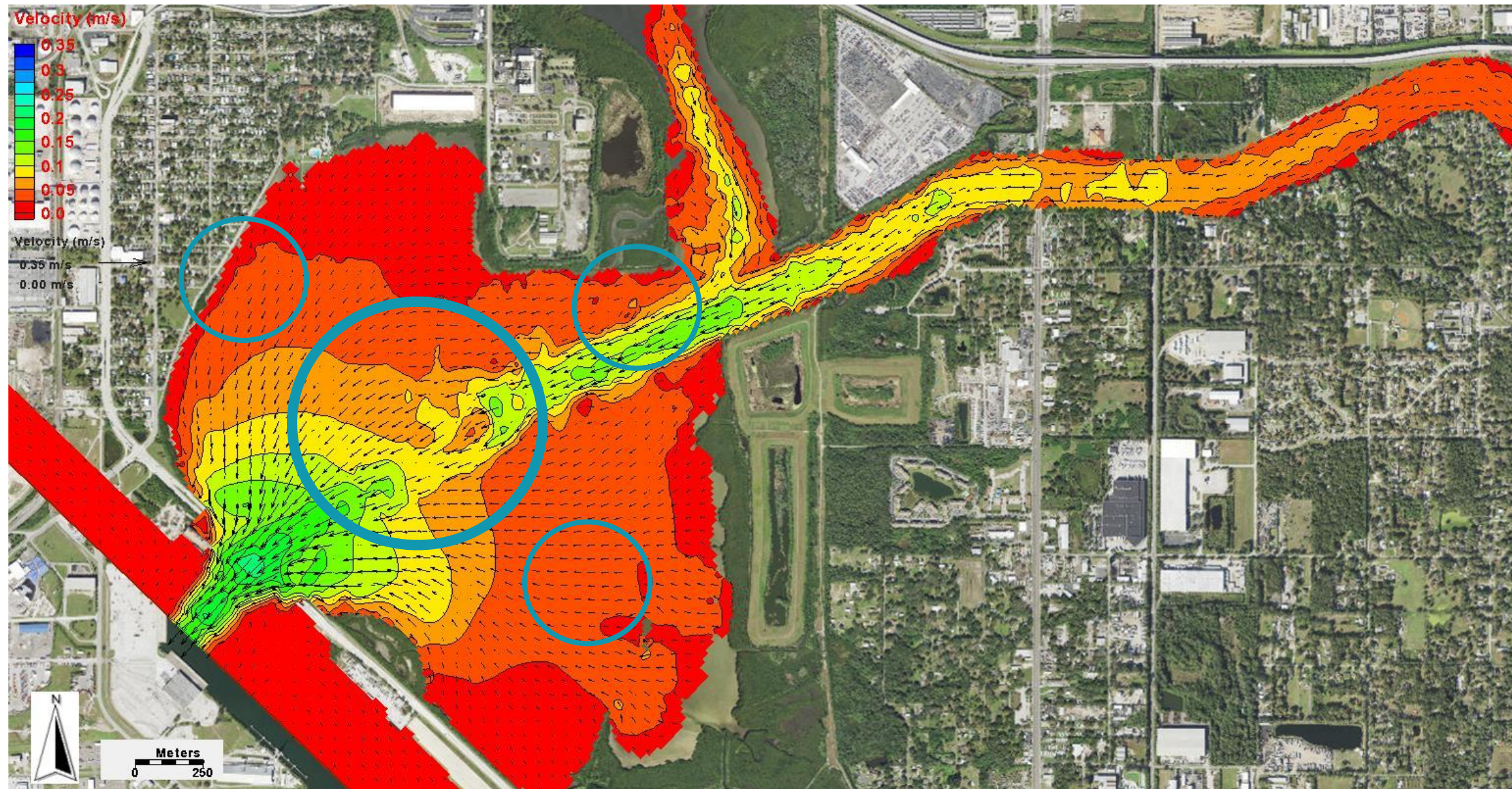


Modeling Performed by Dr. Ping Wang



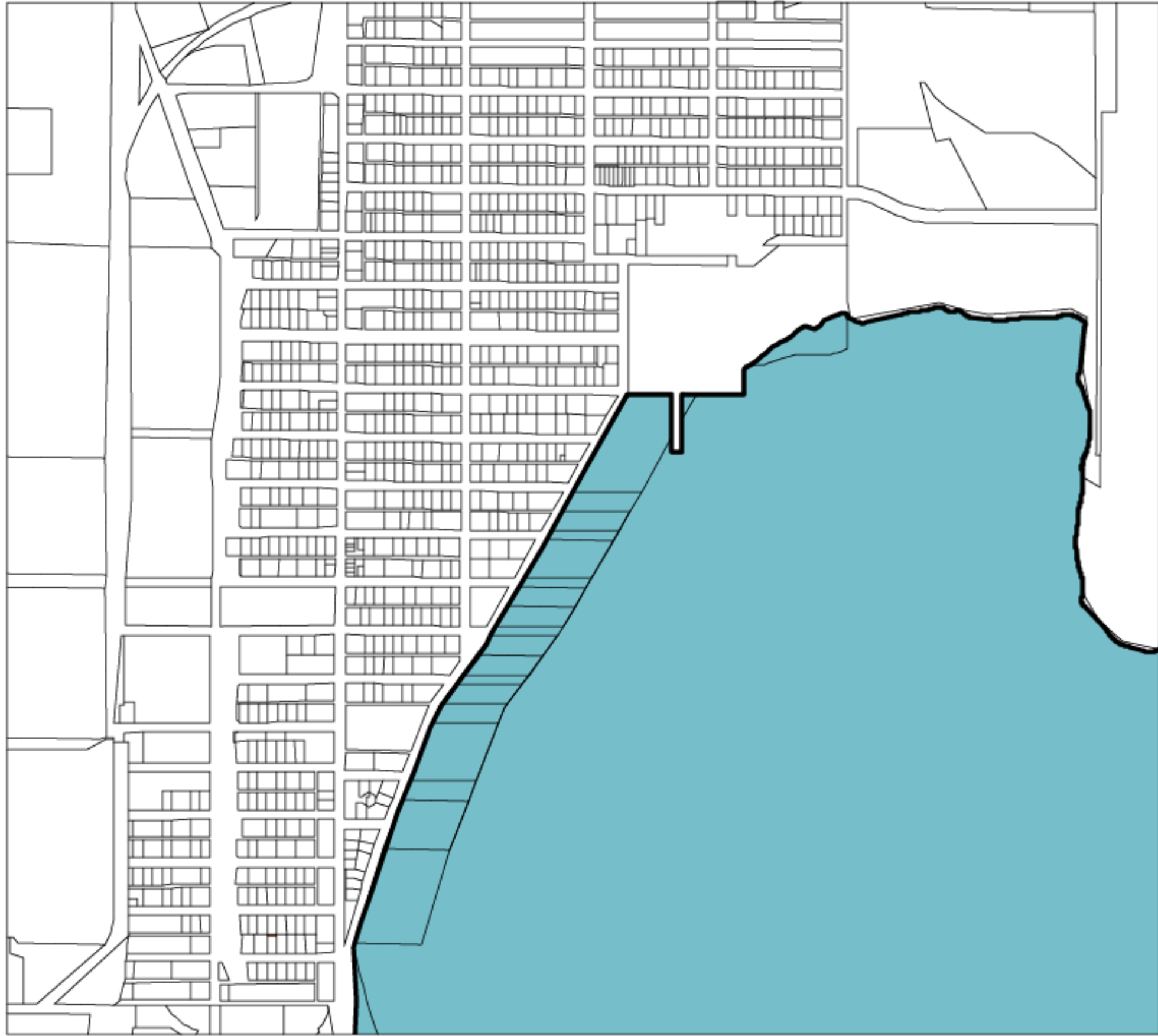
Computed flow field under existing conditions: peak ebbing tide

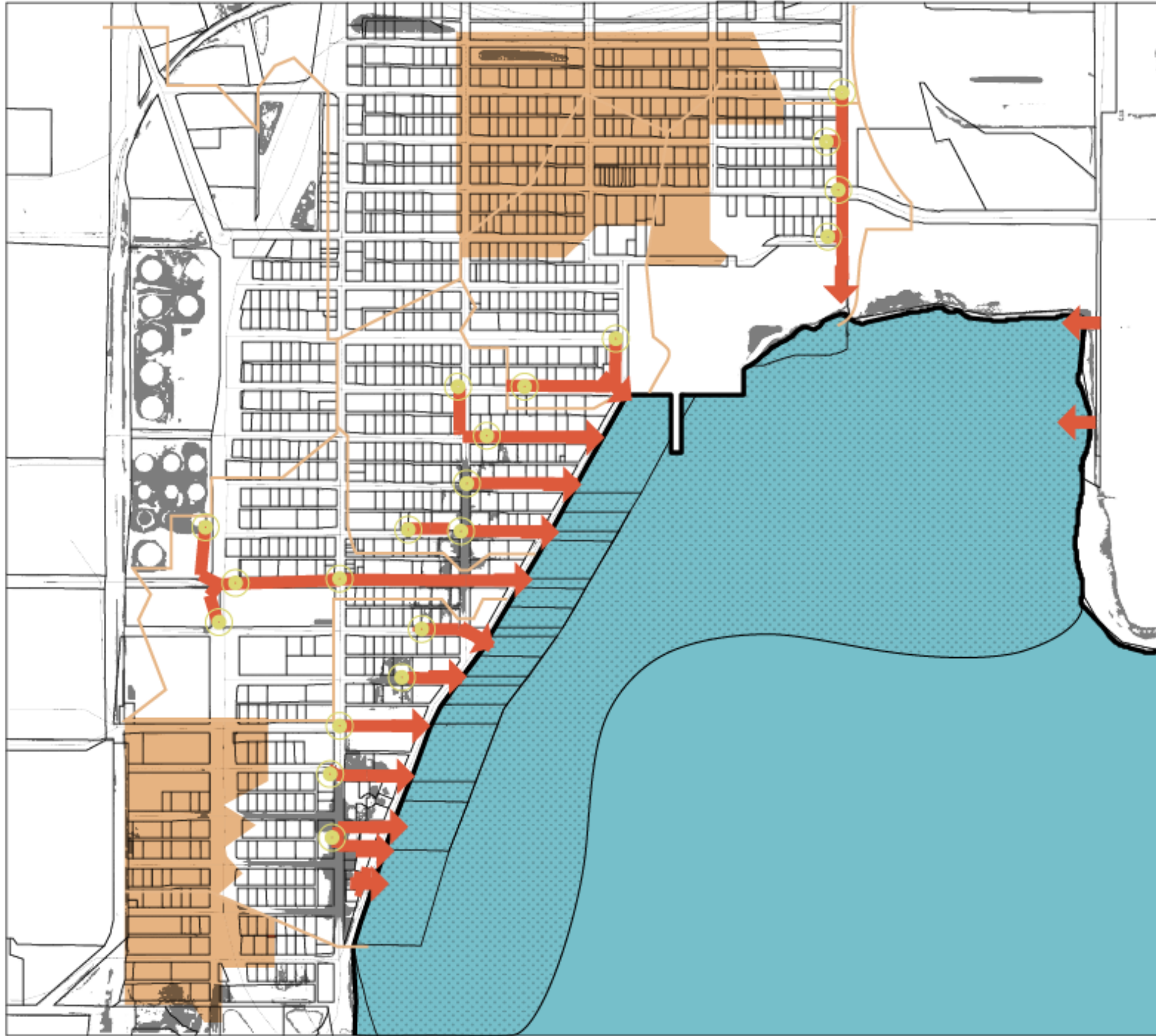
Flow concentrates in the dredged channels

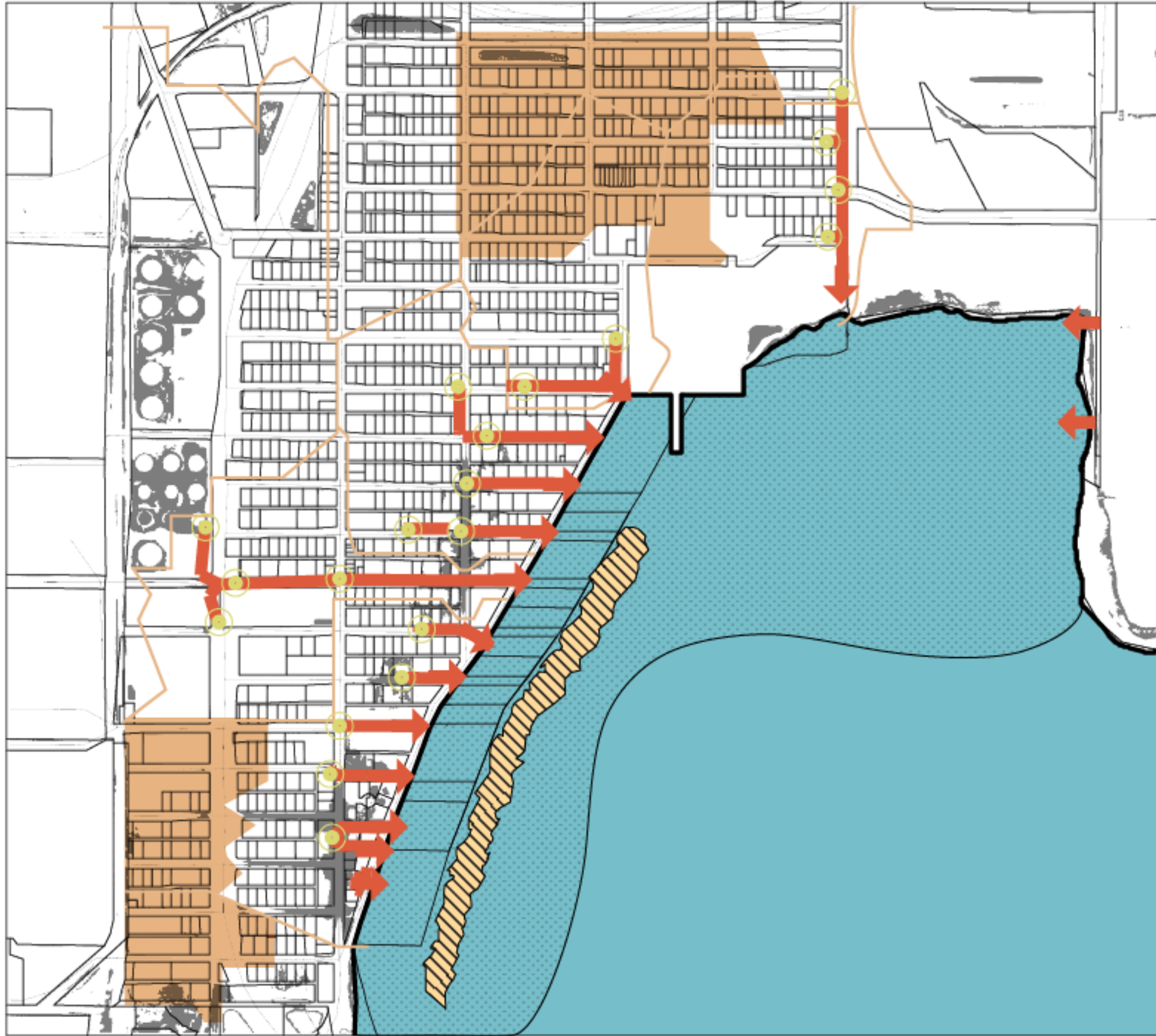


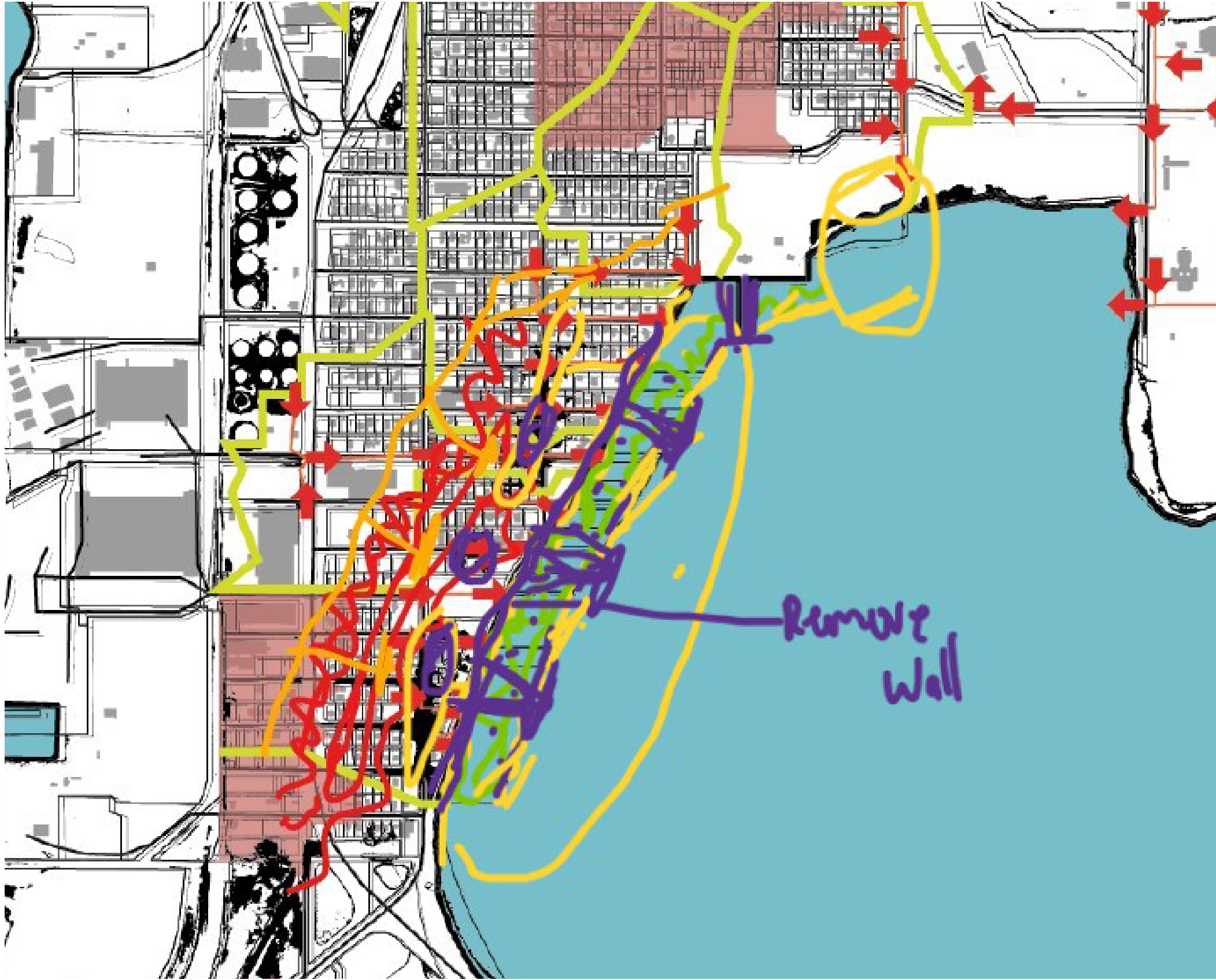
Modeling Performed by Dr. Ping Wang





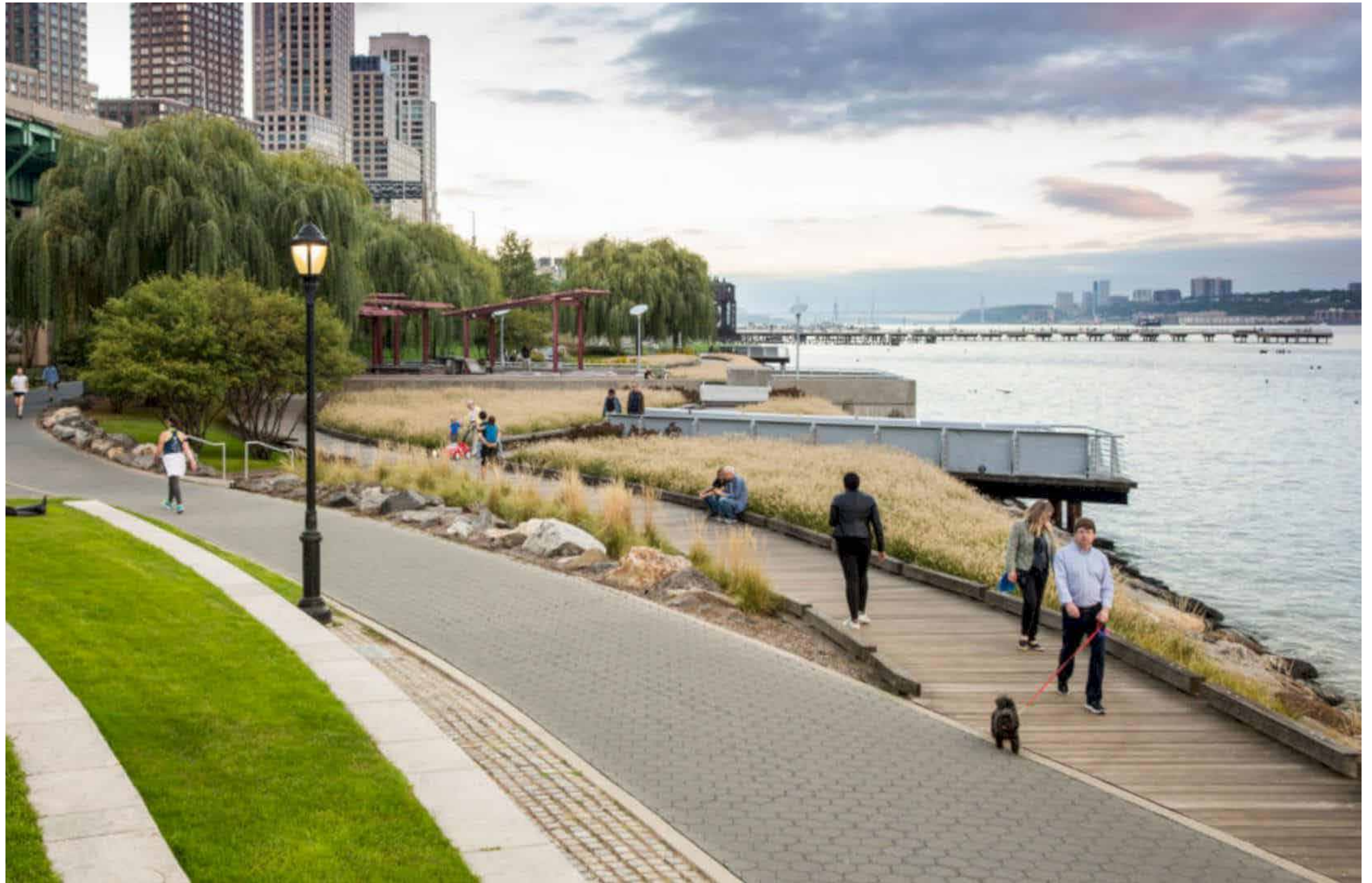






MCKAY BAY, TAMPA



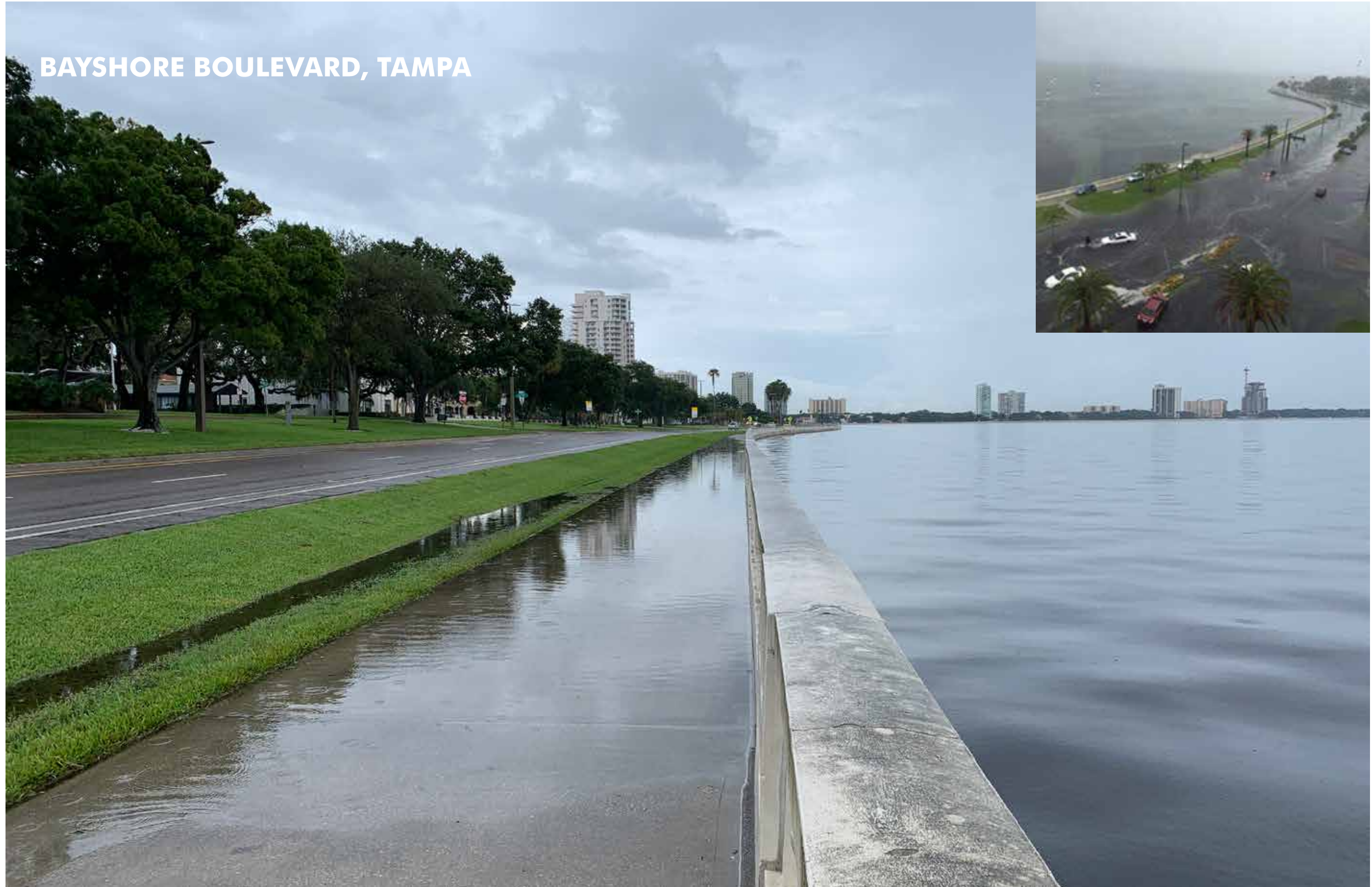


Reference Project - Riverside Park South, New York City

BAYSHORE BOULEVARD, TAMPA



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THANK YOU!

BCOOK@APPLIEDFL.COM

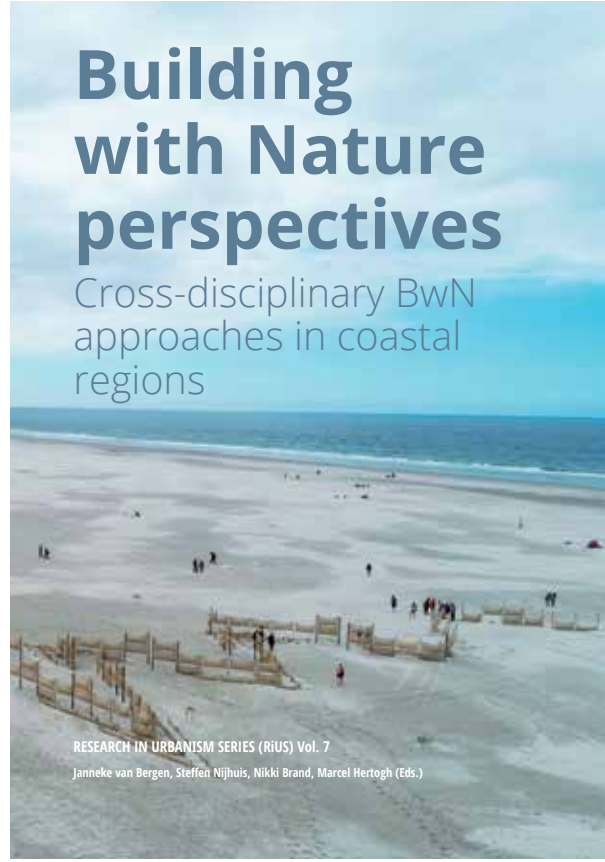
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**APPLIED
SCIENCES**



**ODUM'S DARK BOTTLE
AND AN ECOSYSTEM APPROACH**

