Resilient NJ: Municipal Assistance Program

Stafford Township - Resilience Action Plan Implementation

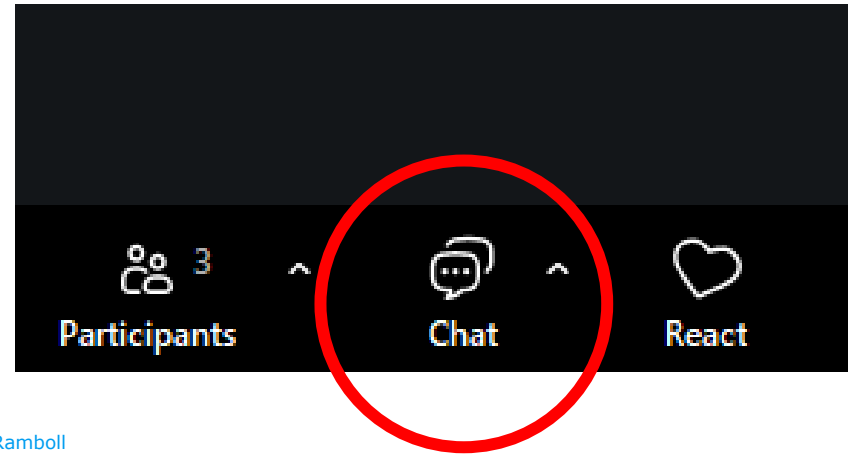
Public Workshop

December 9, 2025

Meeting Info & Community Guidelines

Zoom Webinar Information

- This meeting will be recorded to allow other community members to view it at a later date.
- Questions can be submitted throughout the presentation via the Chat box and will be answered at the end during the Q&A.



Community Guidelines

- Please write your name and affiliation in the chat upon entering the meeting.
- Participants on Zoom will be muted upon entry and throughout the session.
- You may turn your video on if you would like.
- Please be courteous and respectful of your fellow community members.

- *If you have technical difficulties, send a chat in Zoom to Julia Laine.*

Agenda

1. Introduction & Meeting Objectives
2. Project Overview
3. Existing Conditions of Forsythe National Wildlife Refuge
4. Marsh Restoration Precedents
5. Conceptual Design & Logistics
6. Q&A Discussion

Introductions

Meeting Objectives

01

Raise awareness about the Resilient NJ program, Resilient Stafford, and similar projects

02

Discuss conceptual designs for Forsythe project area

03

Answer questions from the public about the Forsythe Marsh Restoration concept design project

Context

Project Timeline

Lagoon Study (2021)

- Determine the amount and composition of dredge material in Township waterways

Resilient Stafford Action Plan (2023)

- Evaluate current and future risks and provide recommended actions to mitigate risks

Forsythe Restoration Conceptual Plan (2025)

- Provide initial plan for restoration activities to mitigate storm surge and erosion and enhance habitat

Lagoon Dredging *(Planned 2026)*

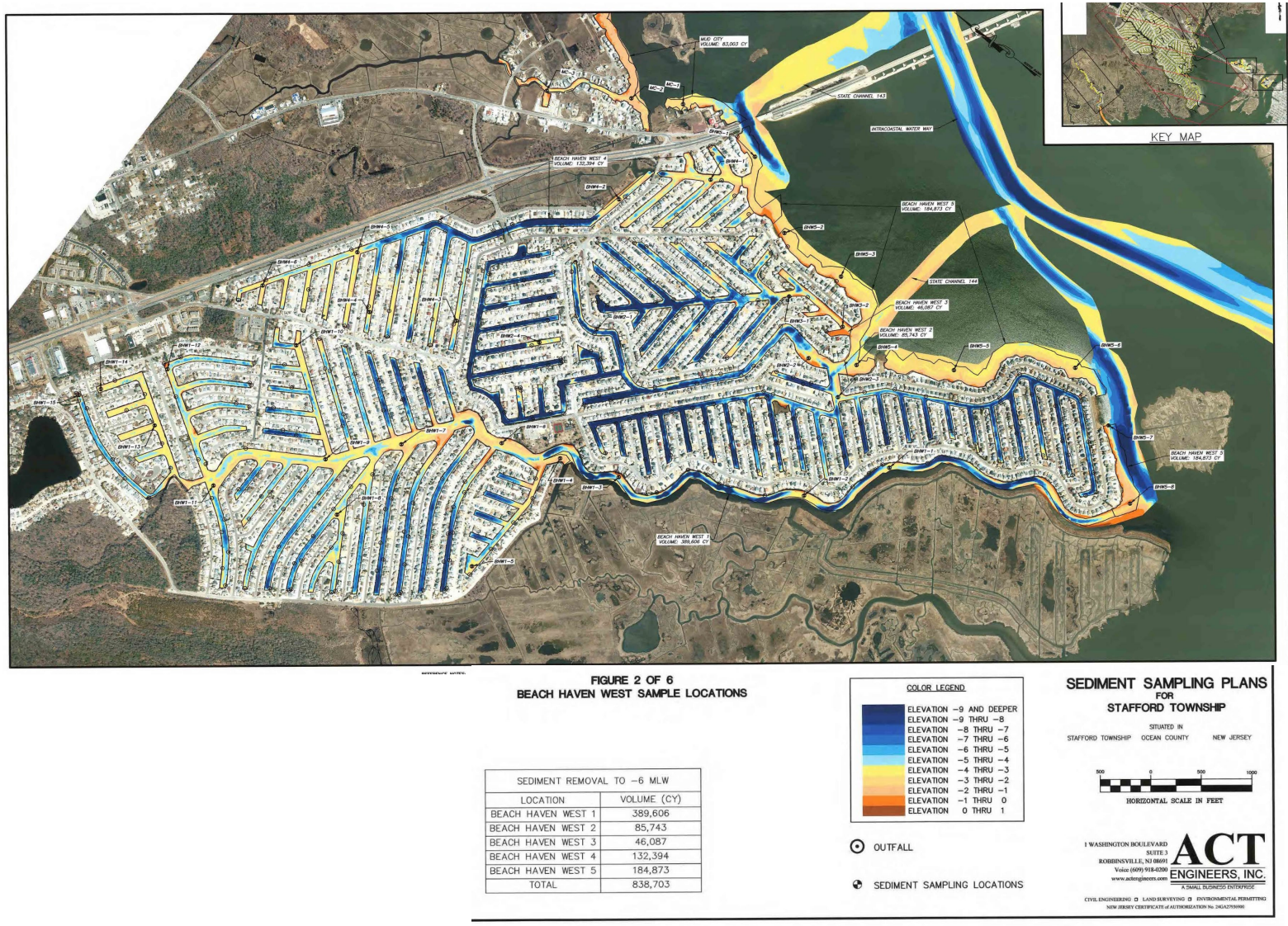
- Improve navigation by removing accumulated sediment

Popular Point Restoration *(Planned 2026)*

- Establish and restore marsh along the southern shoreline of Popular Point using dredged materials from select channels around Beach Haven West

Sediment Sampling

- Sediment sampling in fall 2020 analyzed total organic carbon, grain size, size distribution, and percent moisture
- Sampling characterizes the material physically and chemically
- Necessary for determining cost-efficient disposal methods or potential beneficial reuse of the dredged material
- Site characteristics and dredged material characteristics must be compatible



Resilient NJ Program

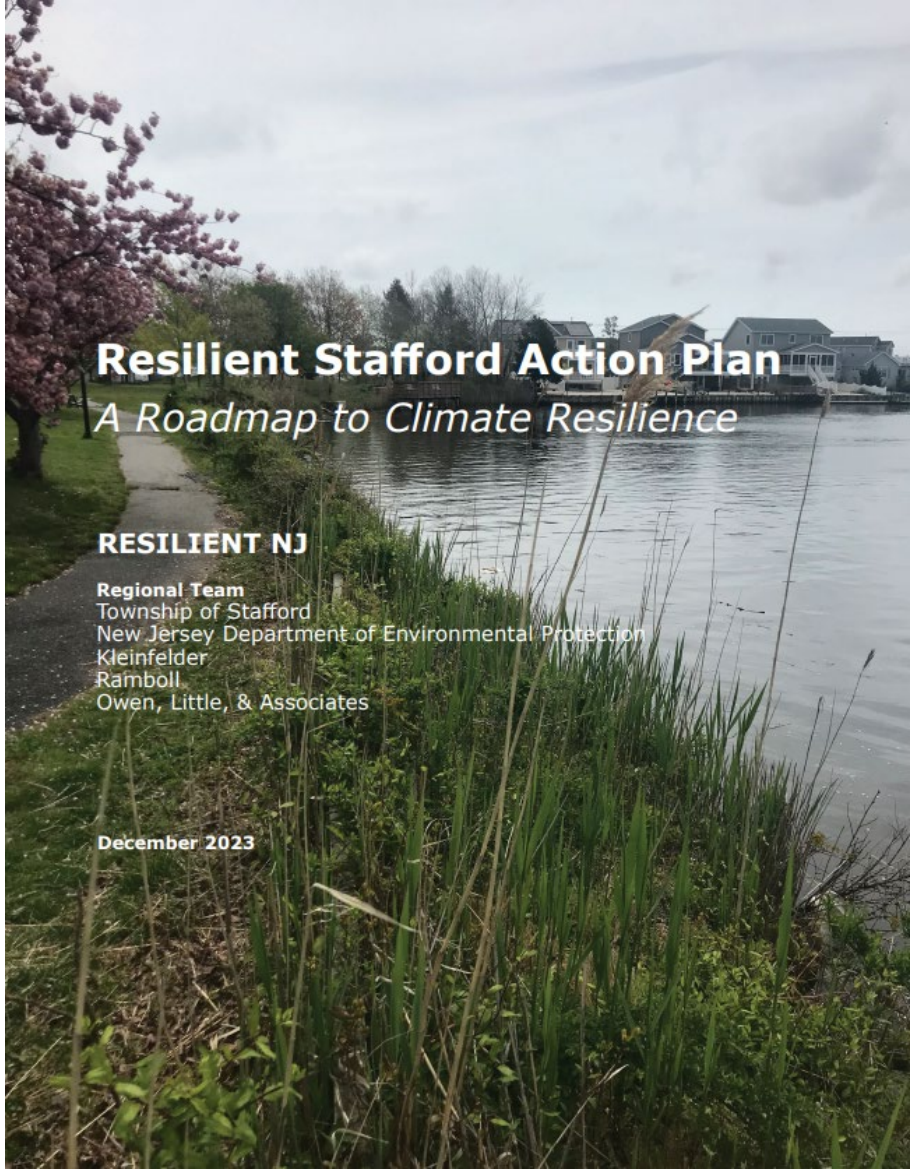
What is Resilient NJ?

Resilient NJ uses funding from US HUD, HUD CDBG-DR, State of New Jersey Corporate Business Tax, Coastal Zone Management Act, and National Fish and Wildlife Foundation Coastal Resilience Fund to support local governments to create and implement resilience planning solutions to address current and future climate related hazards, environmental resource protection, and promotion of sustainable/smart growth development in coastal and inland communities.

What is Resilient NJ Municipal Assistance Program (MAP)?

The MAP is a technical assistance program directed at providing municipalities with support to develop municipal resilience action plans and climate change-related hazard vulnerability assessments (CCRHVA).

Stafford Township participated in the MAP and developed the Resilient Stafford Action Plan in 2023.



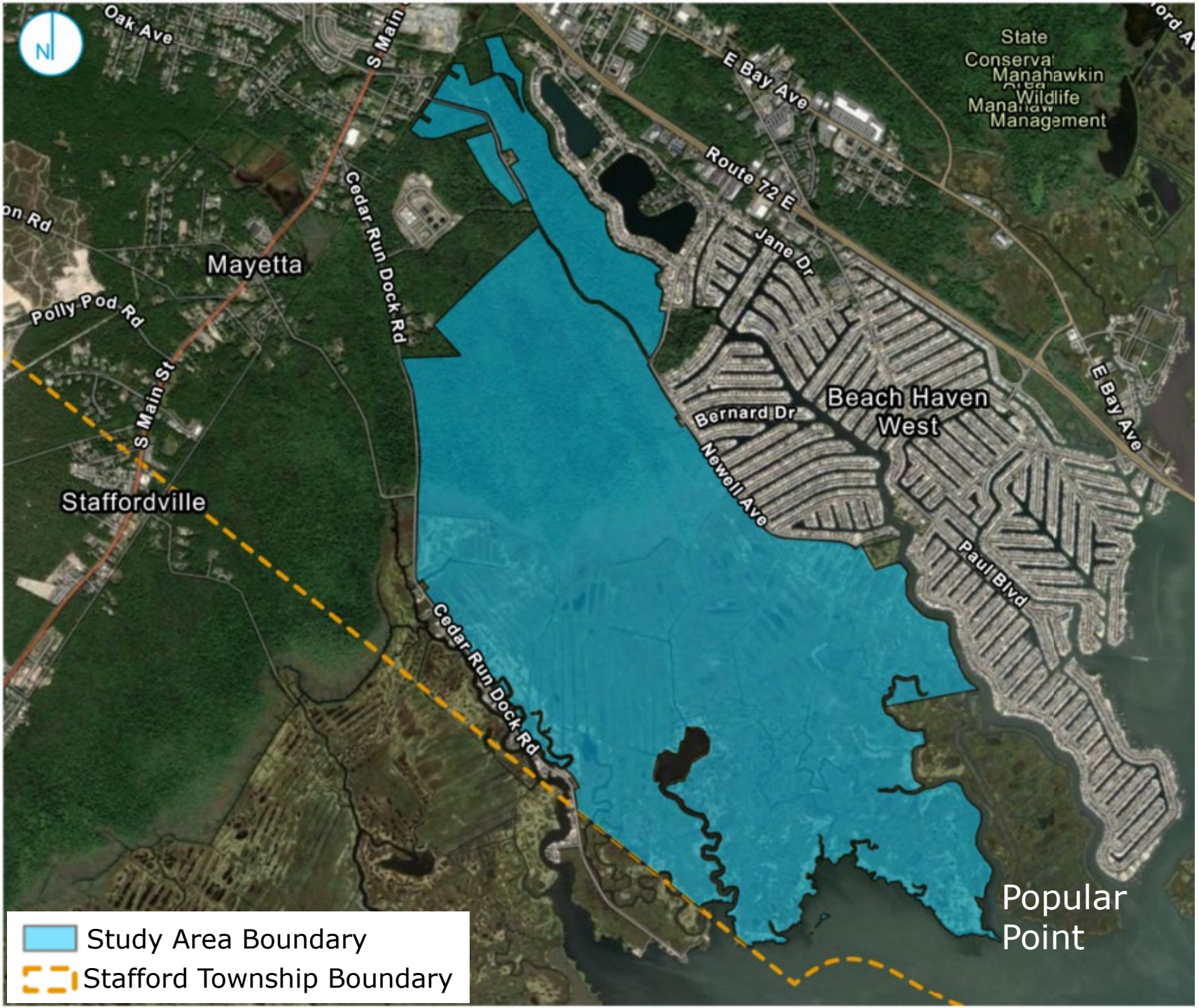
RESILIENT NJ

Resilient NJ Program Municipal Assistance Grant - Stafford Township

Project Goals

- Provide location for dredged material
- Restore degraded marsh
- Enhance ecosystem
- Mitigate storm surge
- Improve erosion control

Existing Conditions



Project Area

- ~1,700 acres of coastal wetlands
- Southwest/West of Beach Haven West
- Northwest/West of Popular Point

Refuge History

U.S. Fish and Wildlife Service owns and manages the Forsythe Refuge

Established as two distinct refuges

- Brigantine (1939)
- Barnegat (1967)

Combined in 1984 and renamed for Edwin B. Forsythe

Variety of partnerships across organizations contribute to protection and research

Historic Marsh Conditions

NJ Time Machine

1930 (black and white) and 2020 (transparent color) imagery

Source: NJ Office of Information Technology
https://newjersey.maps.arcgis.com/apps/instant/media/index.html?appid=fcad50ae41634cd1aa293e3e47ce1c00

Historic Marsh Conditions

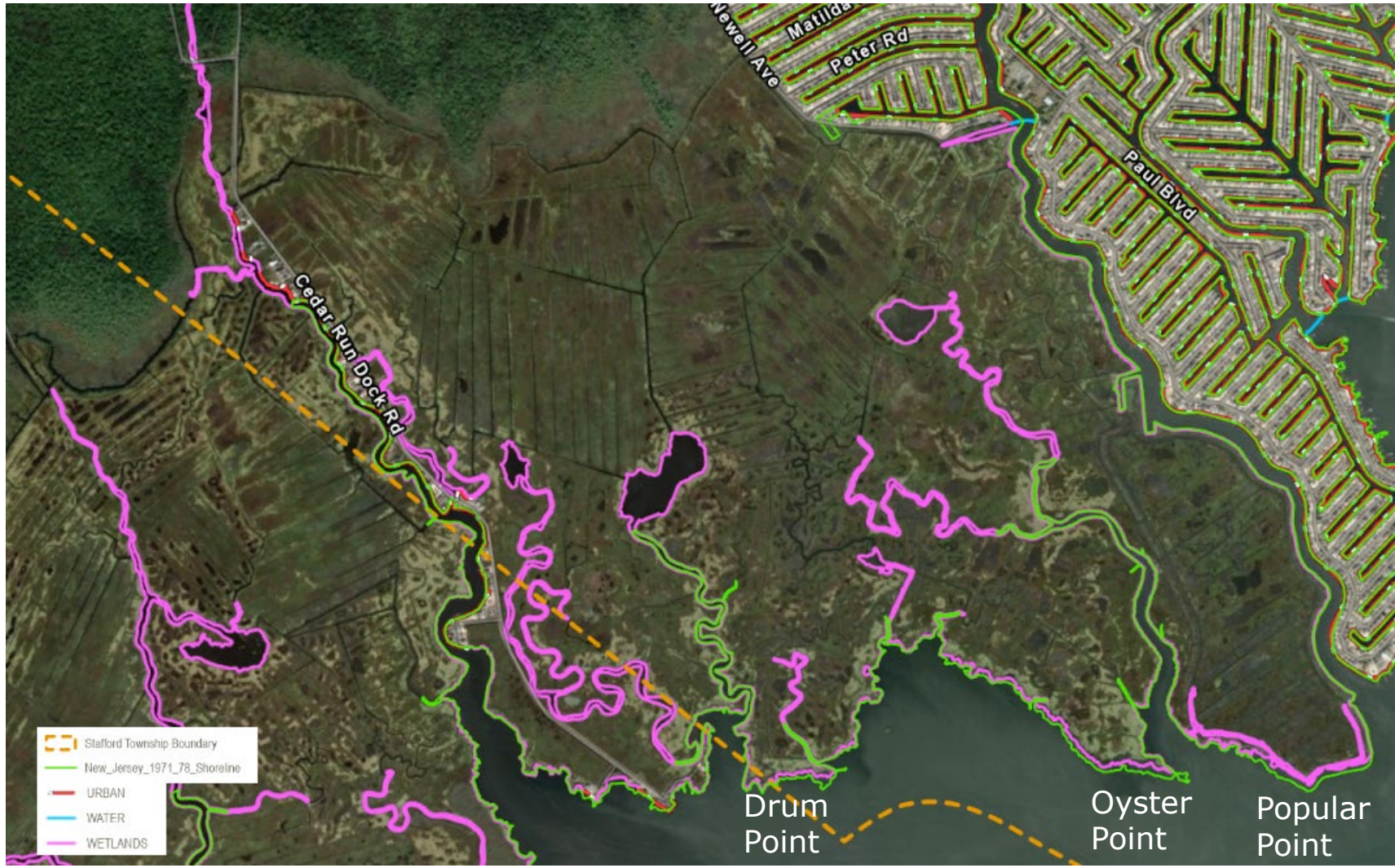
1930

2020

Shoreline Change

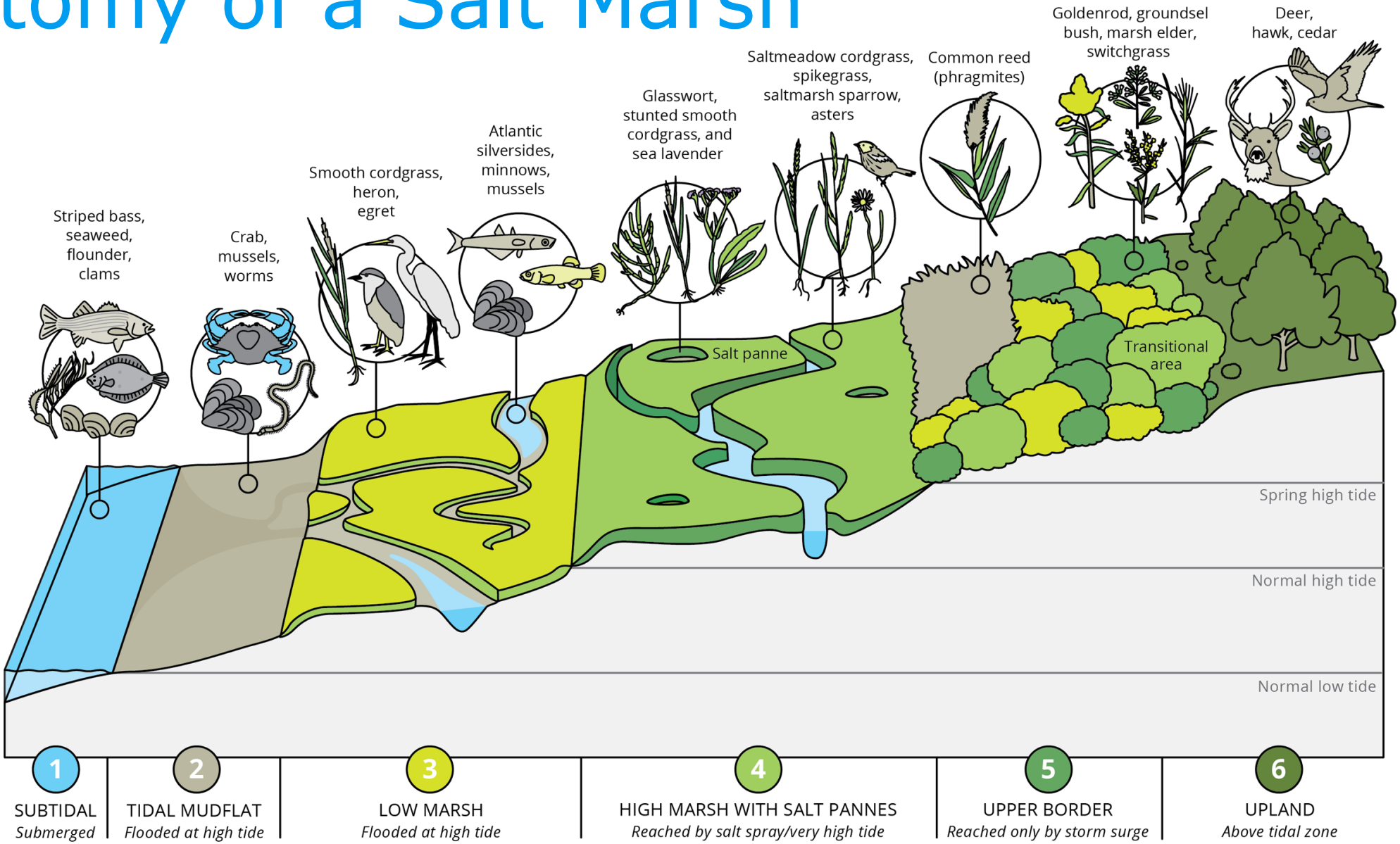
1971 – 1978 shoreline (**green**)

2012 wetland limit (**pink**)



Source: USGS https://doi.org/10.5066/F76T0JR7

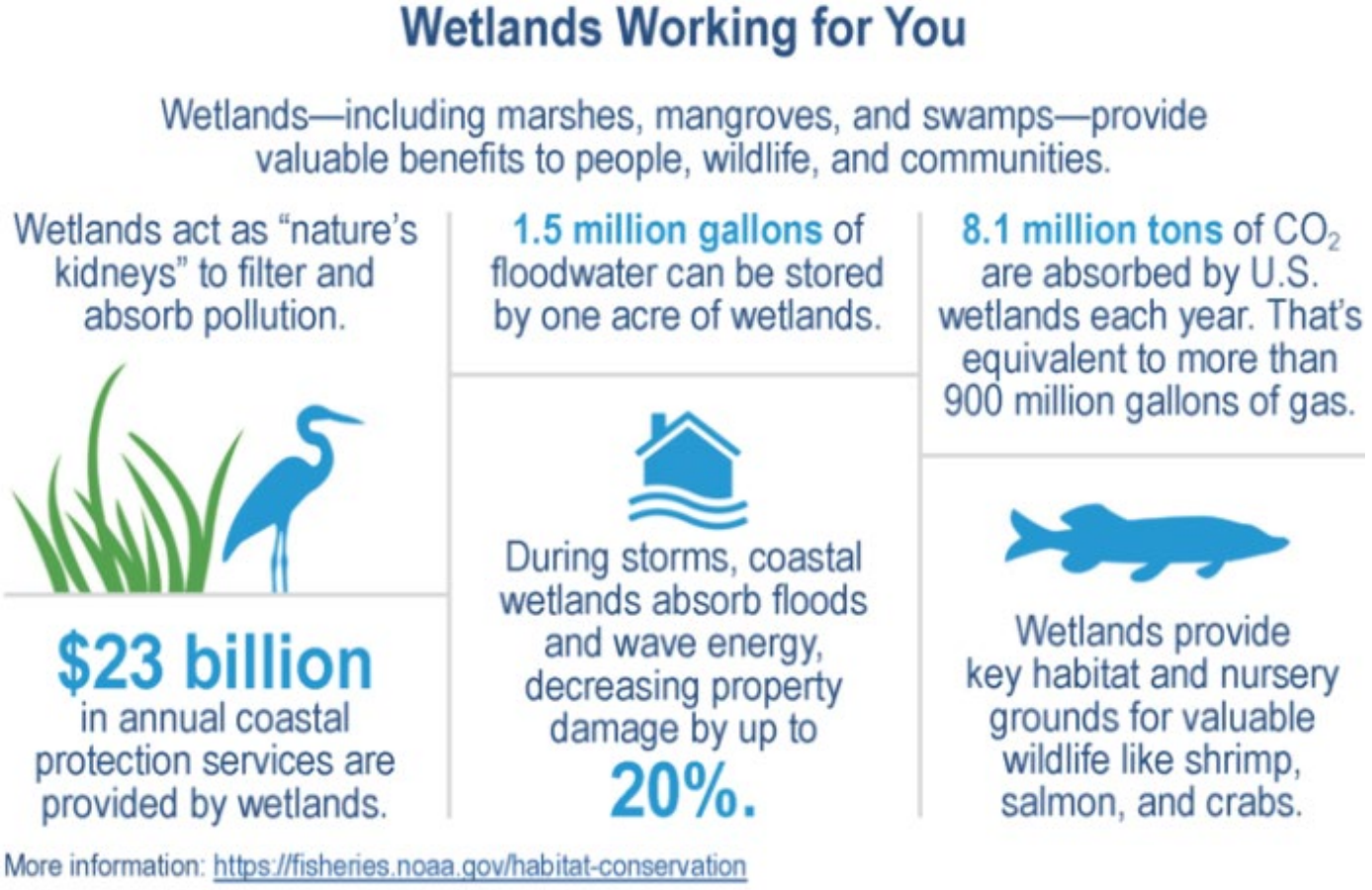
Anatomy of a Salt Marsh



Source: *http://longislandsoundstudy.net/*

Why Marsh Restoration

- Coastal marshes (aka wetlands) perform many important functions for the environment and neighboring communities.
- Conversion of salt marsh habitat to mudflat or open water can happen in two ways:
  - Gradually due to relative sea level rise, or
  - Due to human activities such as mosquito ditching.



Threatened & Endangered Species

A banded piping plover (*Charadrius melodus*) on Holgate unit at Edwin B. Forsythe National Wildlife Refuge.

Conserve Wildlife Foundation of New Jersey/Conserve Wildlife Foundation of New Jersey, Public Domain, https://www.fws.gov/media/banded-piping-plover-charadrius-melodus-holgate-unit-edwin-b-forsythe-national-wildlife

Red knot at Edwin B. Forsythe National Wildlife Refuge.

MJ Kilpatrick/USFWS, Public Domain, https://www.fws.gov/media/red-knot-edwin-b-forsythe-nwr

Eastern black rail at Edwin B. Forsythe National Wildlife Refuge.

Tom Johnson, Copyrighted, All Rights Reserved - Used by Permission, https://www.fws.gov/media/eastern-black-rail

Marsh Restoration Precedents

Shooting Island, NJ

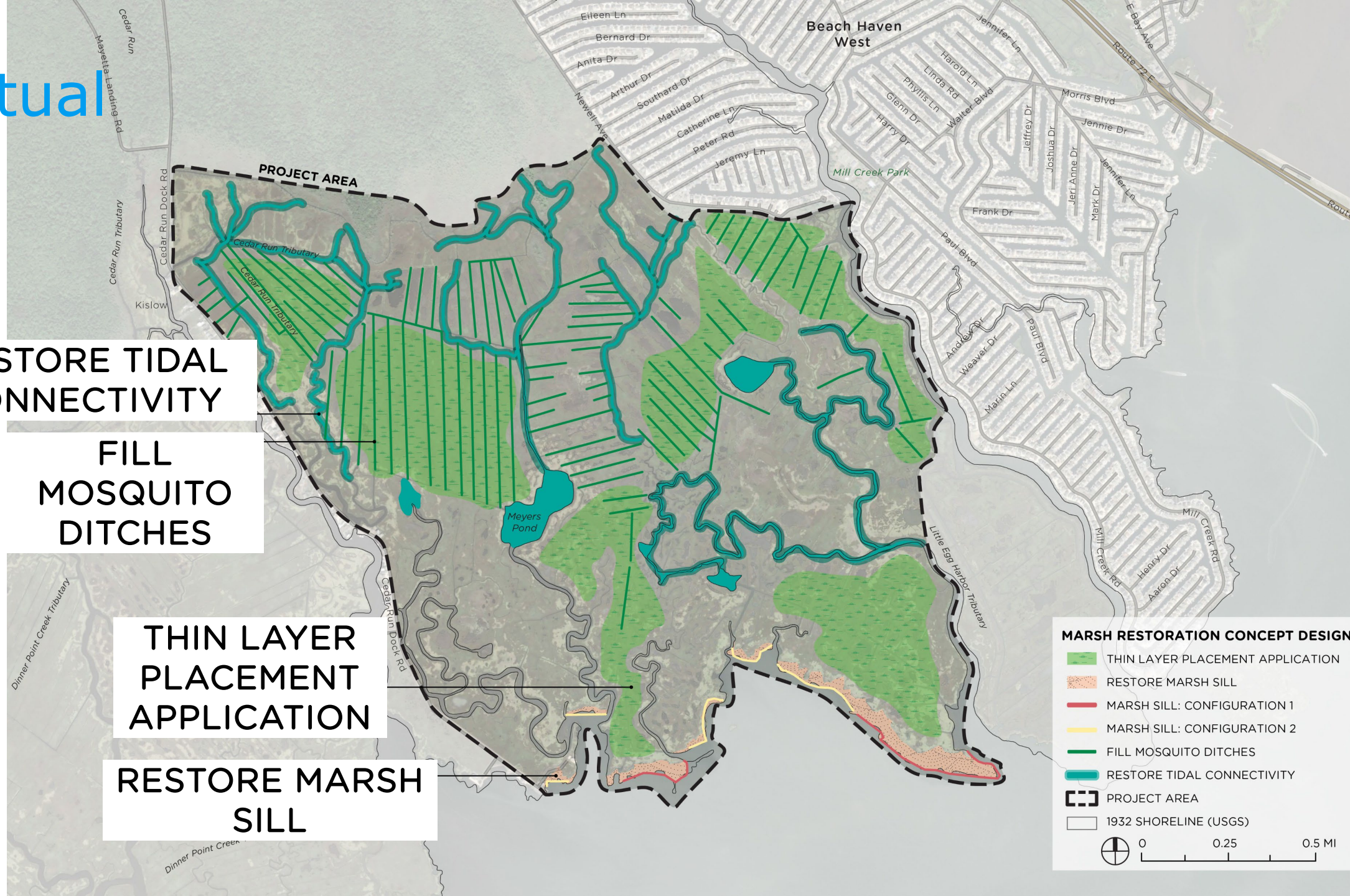
(Source: https://actengineers.com/projects/shooting-island-shoreline-restoration/)

Ring Island, NJ

(Source: https://www.greenvestus.com/project/ring-island-salt-marsh-resiliency-project/)

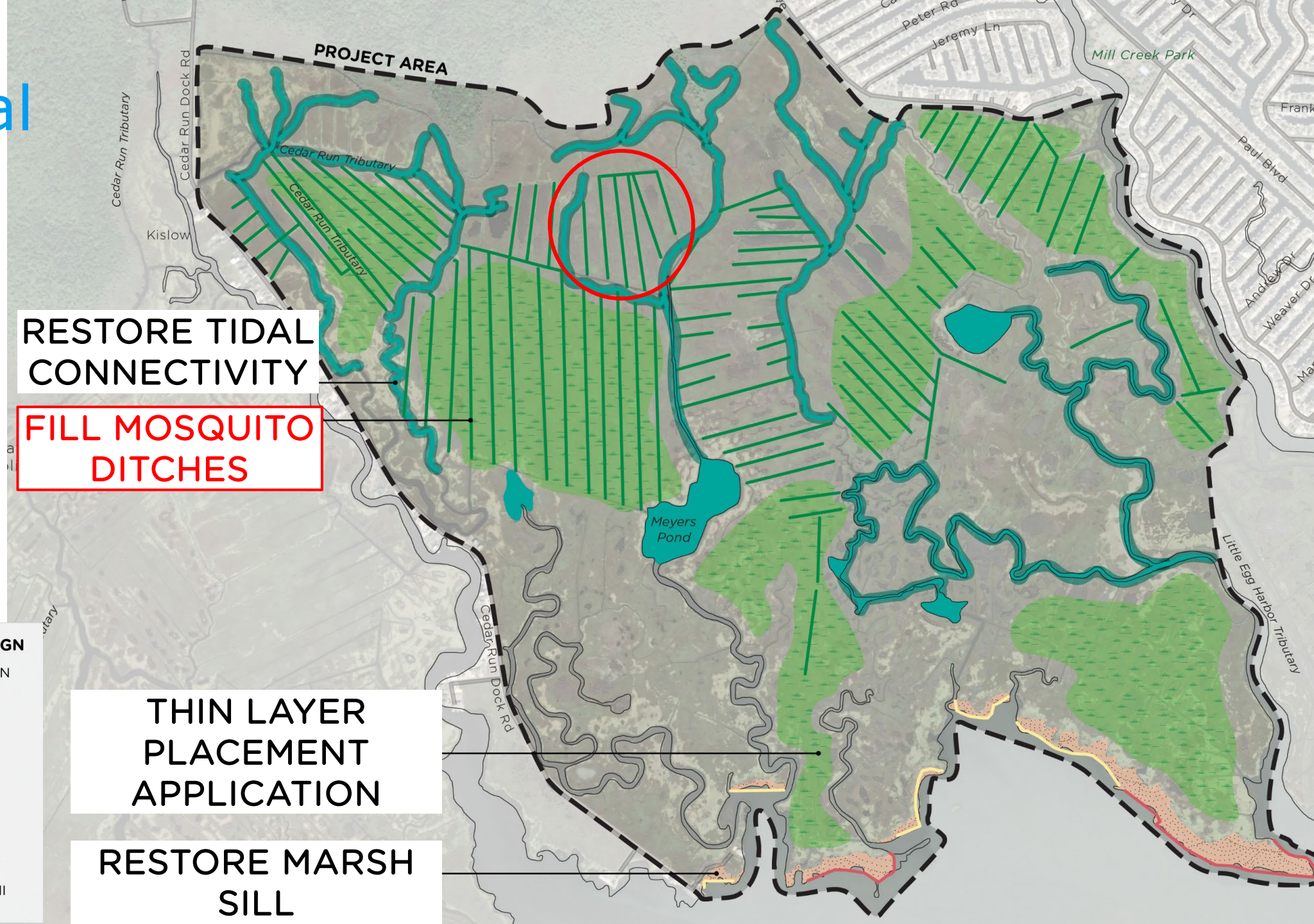
Conceptual Design

Conceptual Design

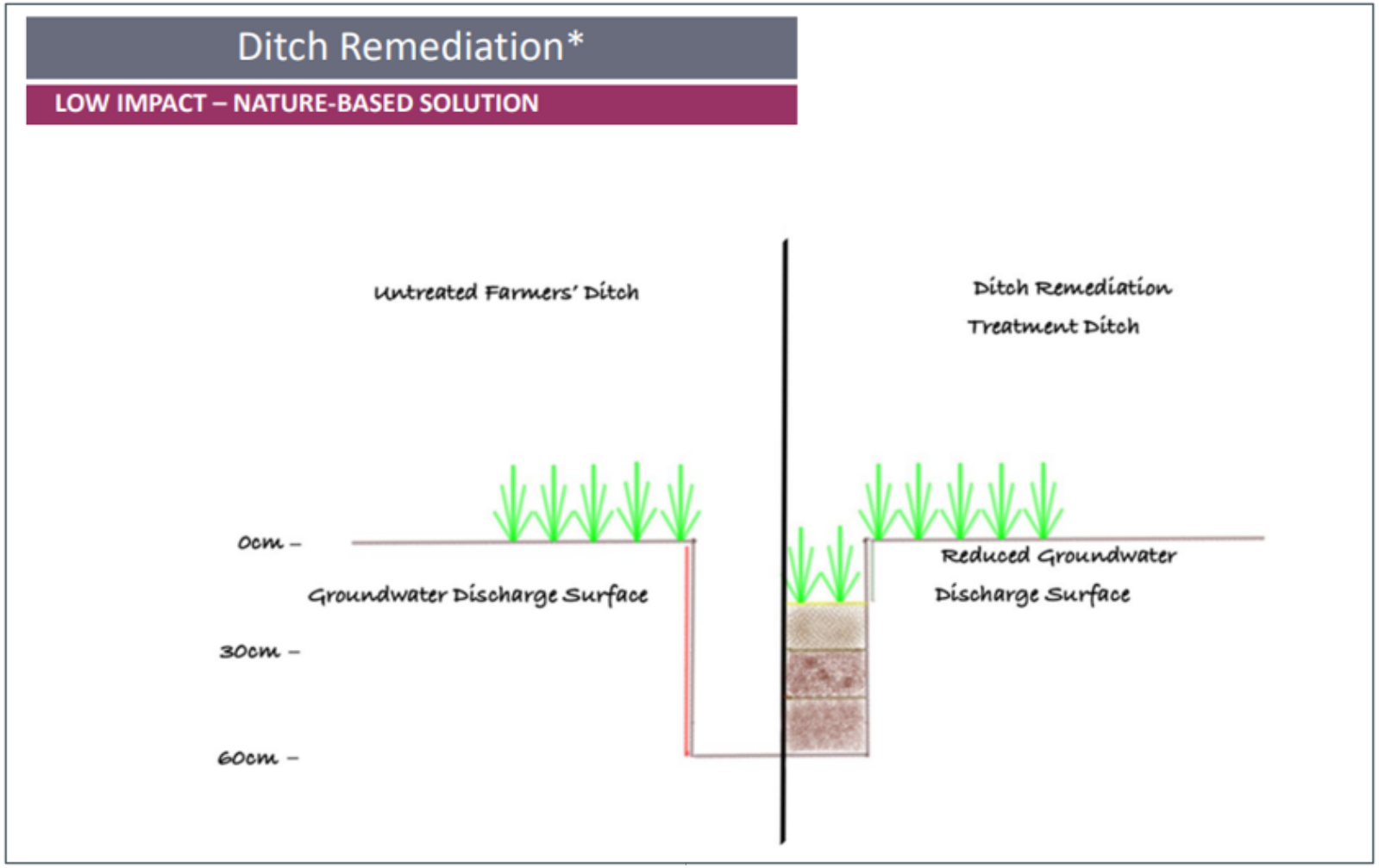


Conceptual Design

Interior marsh restoration



Fill Mosquito Ditches



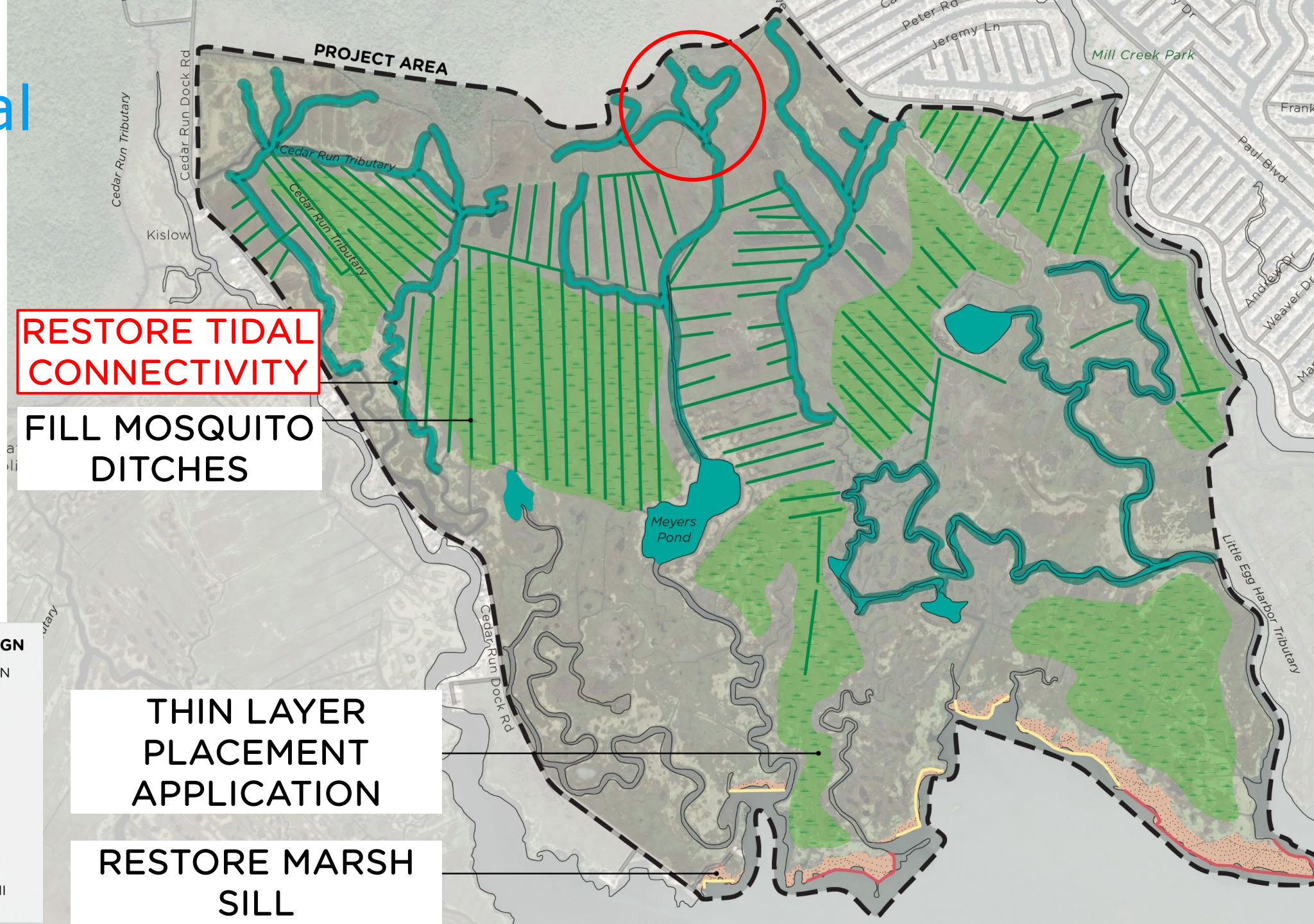
Burdick, D. M. et.al., 2019 Mitigating the Legacy Effects of Ditching in a New England Salt Marsh. Estuaries and Coasts, SPECIAL ISSUE: HURRICANE SANDY IMPACTS AND RESPONSE

Benefits:

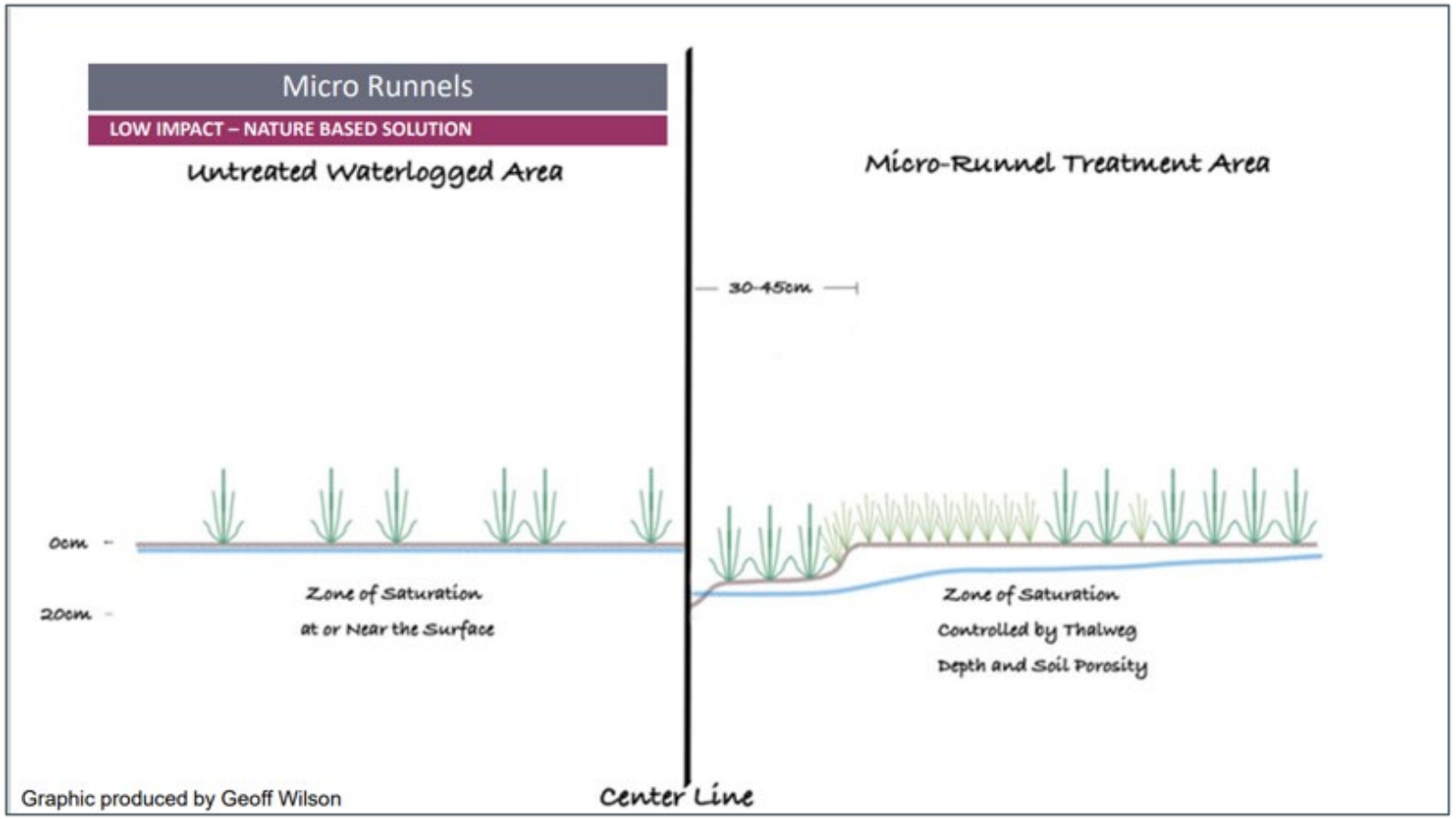
- Increases water residence times
- Supports natural sedimentation
- Promotes recovery of native vegetation

Conceptual Design

Interior marsh restoration



Restore Tidal Connectivity



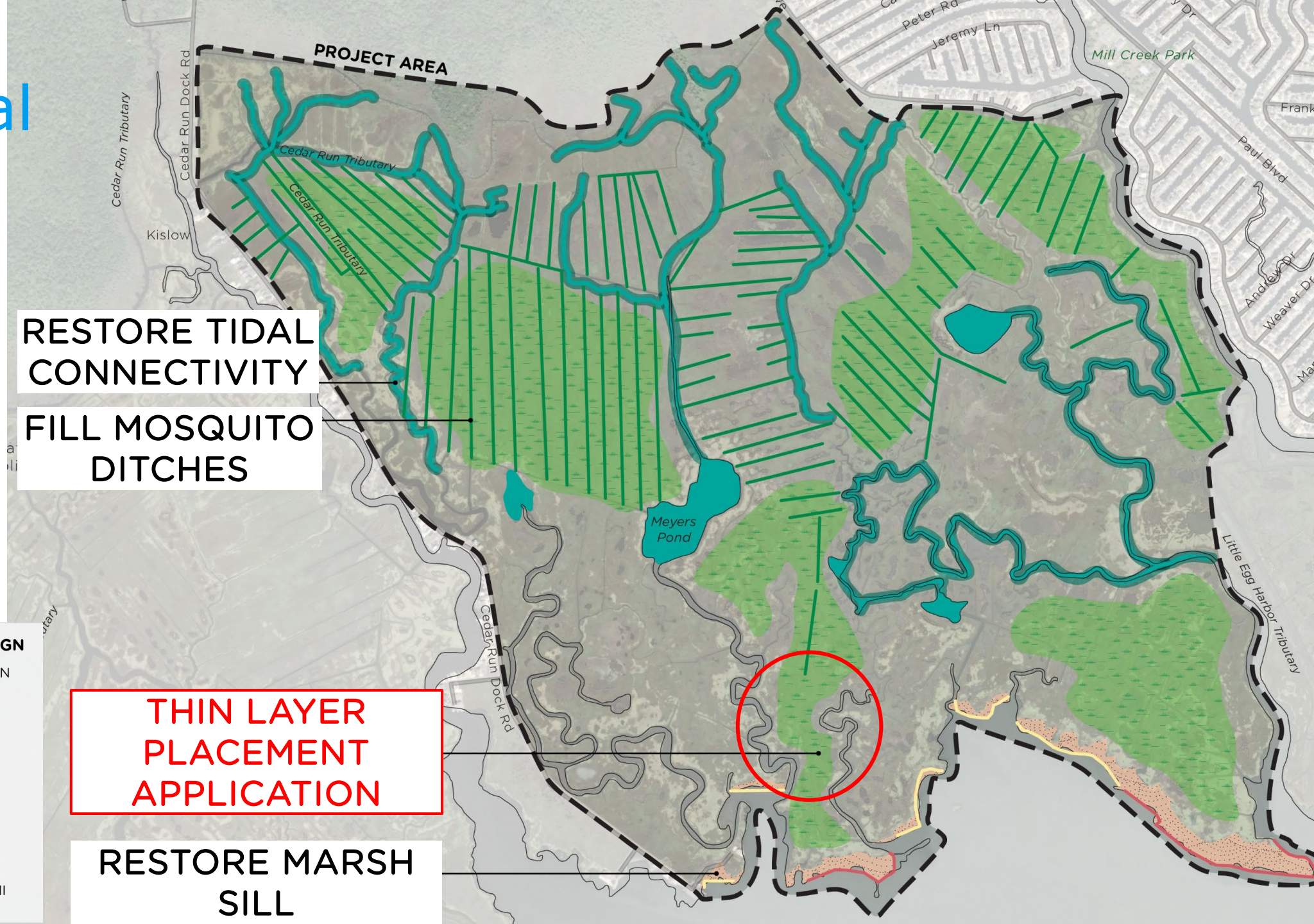
Burdick, D. M. et.al., 2019 Mitigating the Legacy Effects of Ditching in a New England Salt Marsh. Estuaries and Coasts, SPECIAL ISSUE: HURRICANE SANDY IMPACTS AND RESPONSE

Benefits:

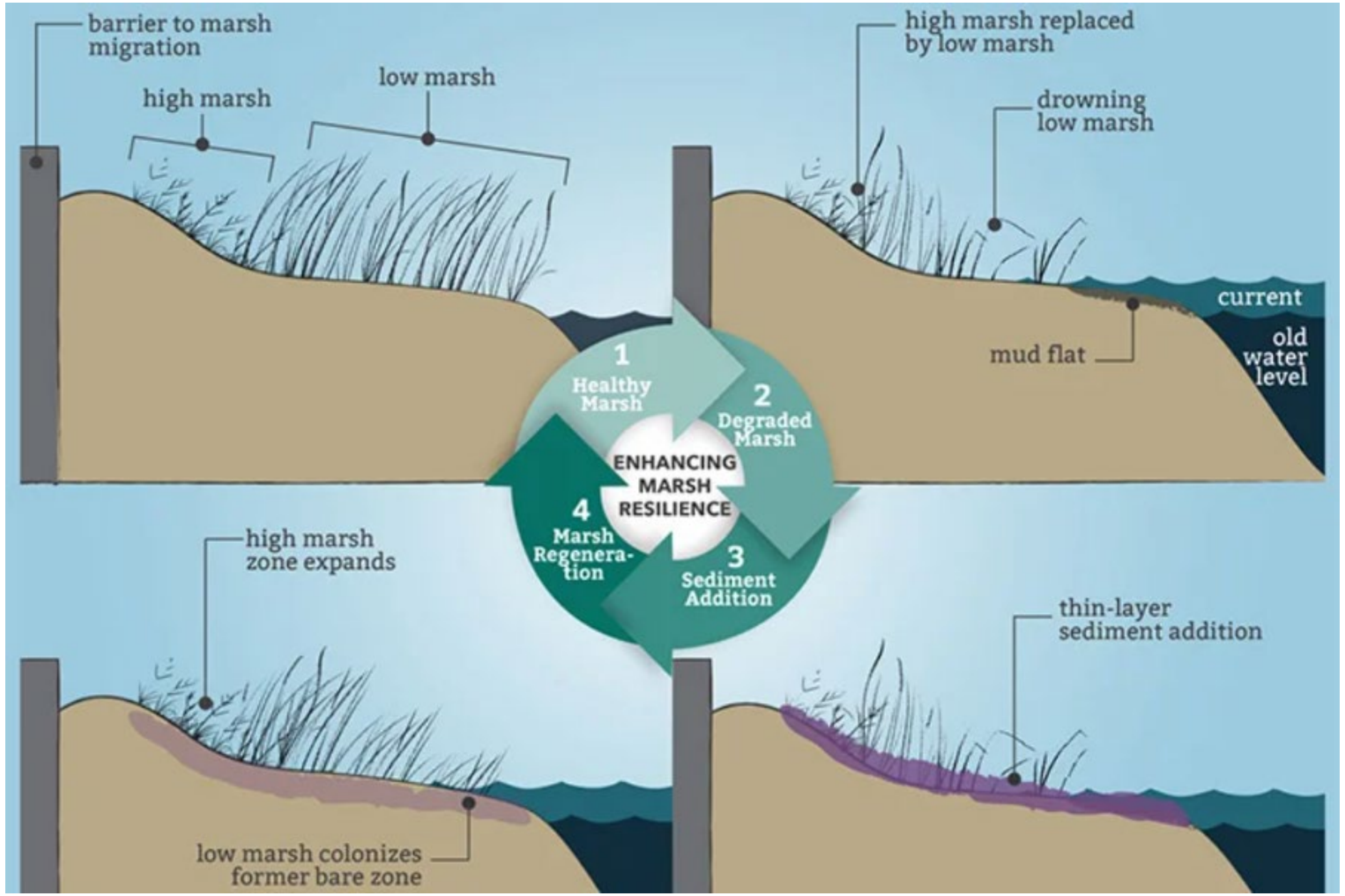
- Restores hydrologic function
- Improves high marsh habitat
- Promotes natural marsh accretion to keep pace with sea level rise

Conceptual Design

Interior marsh restoration



Thin Layer Placement (TLP)



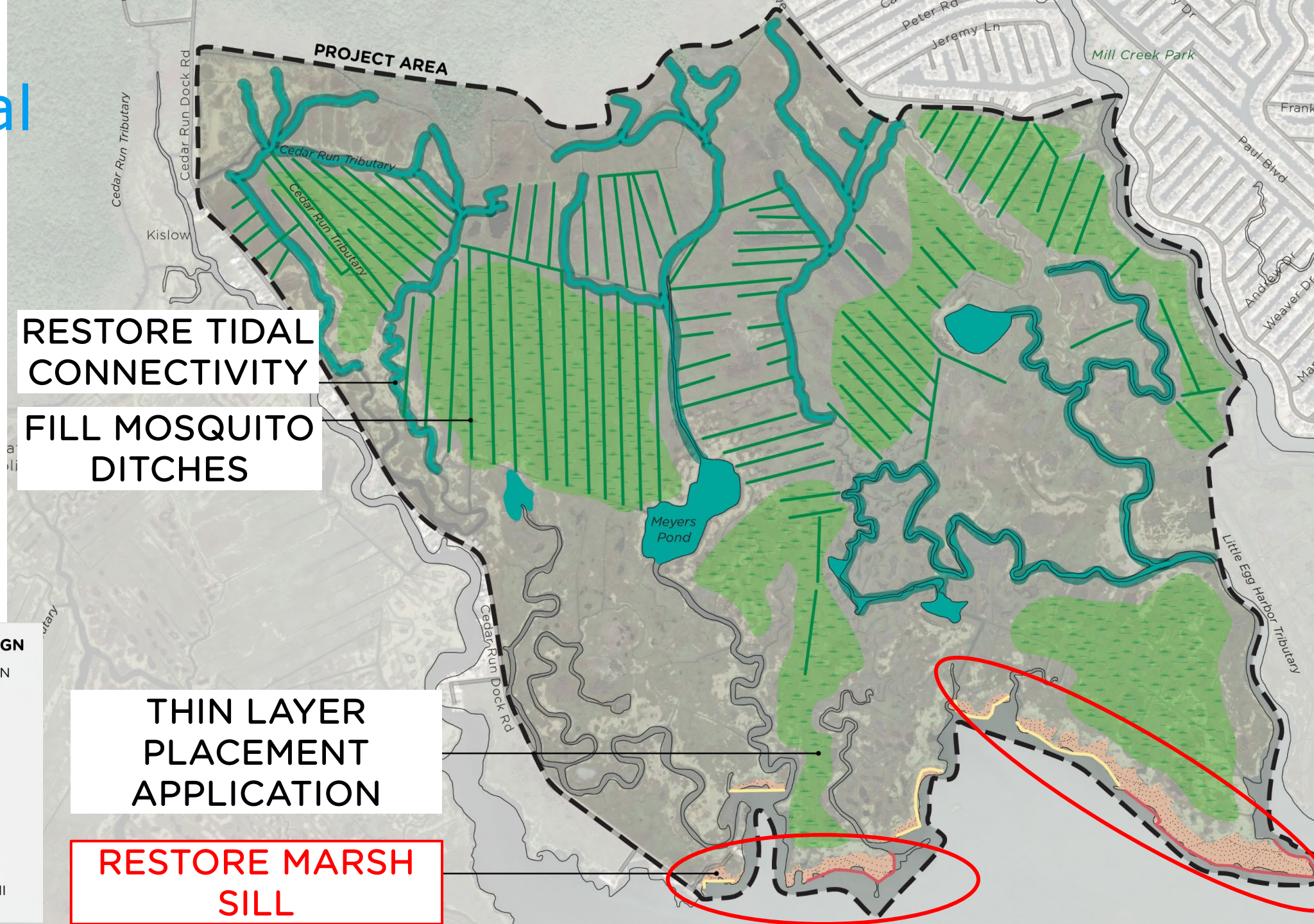
NERRS Science Collaborative TLP Project

Benefits:

- Increases marsh elevation
- Provides a beneficial use of locally dredged material
- Supports habitat and ecosystem restoration

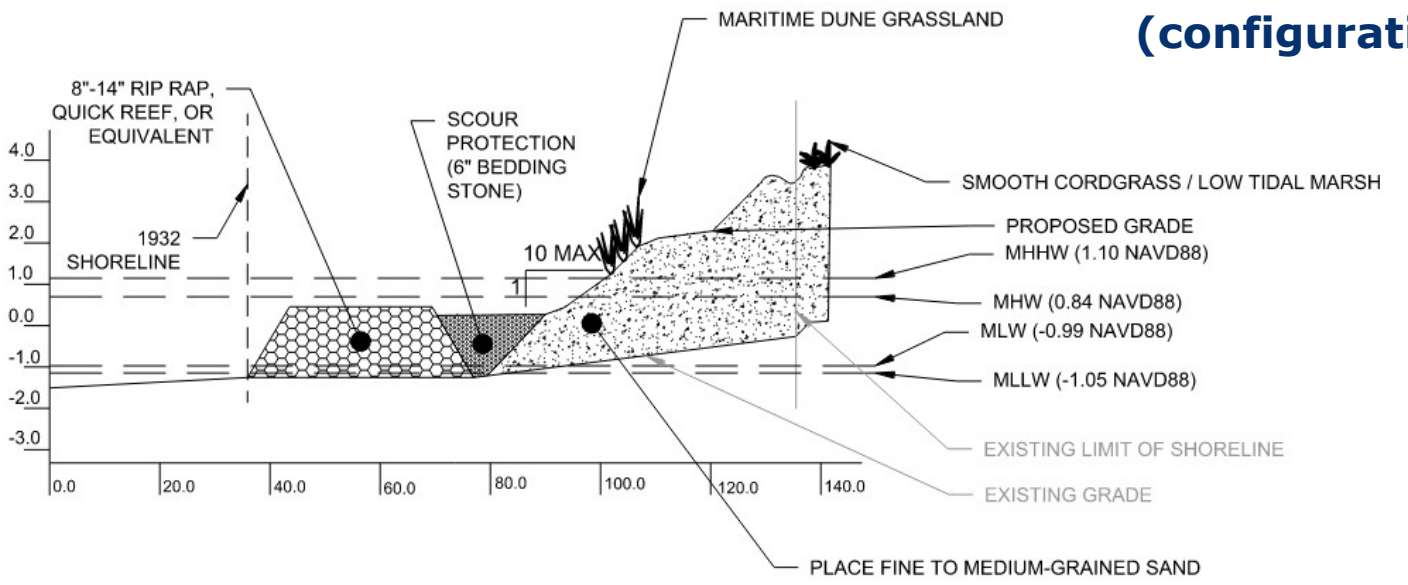
Conceptual Design

Marsh sill restoration

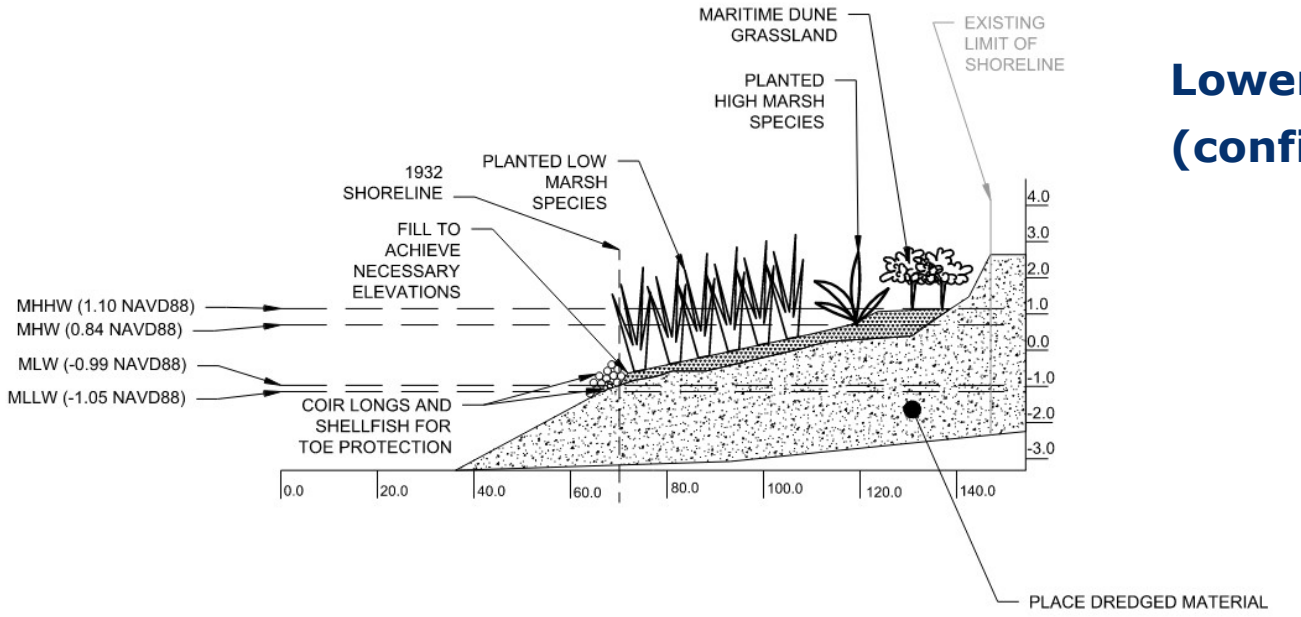


Restore Marsh Sill

Higher wave energy (configuration 1)



Lower wave energy (configuration 2)



Benefits:

- Creates sustainable sediment buffer for long-term shoreline stability
- Promotes habitat and ecosystem function
- Provides a beneficial use of locally dredged material

Logistics

Components

1. Hydraulic Dredging
2. Marsh Planting
3. Mosquito Ditch Filling
4. Tidal Creek Restoration
5. Thin Layer Placement

Hydraulic Dredging

- Hydraulic dredging of Township-owned slips and channels
  - Finer-grained sediments > thin layer placement
  - Sandy material > engineered marsh and marsh sill
- Coordination with state and local managers

Direct placement of fine-grained dredged material for an engineered marsh (USACE)

Marsh Planting & Mosquito Ditch Filling

- Marsh planted with *Spartina alterniflora*
- Ditches lined with hay and staked in intervals to contain material and promote sedimentation
- Dredged material discharged through low-pressure outlet at the head of each ditch to allow gradual filling

Mosquito ditch in Scituate, MA

Tidal Creek Restoration

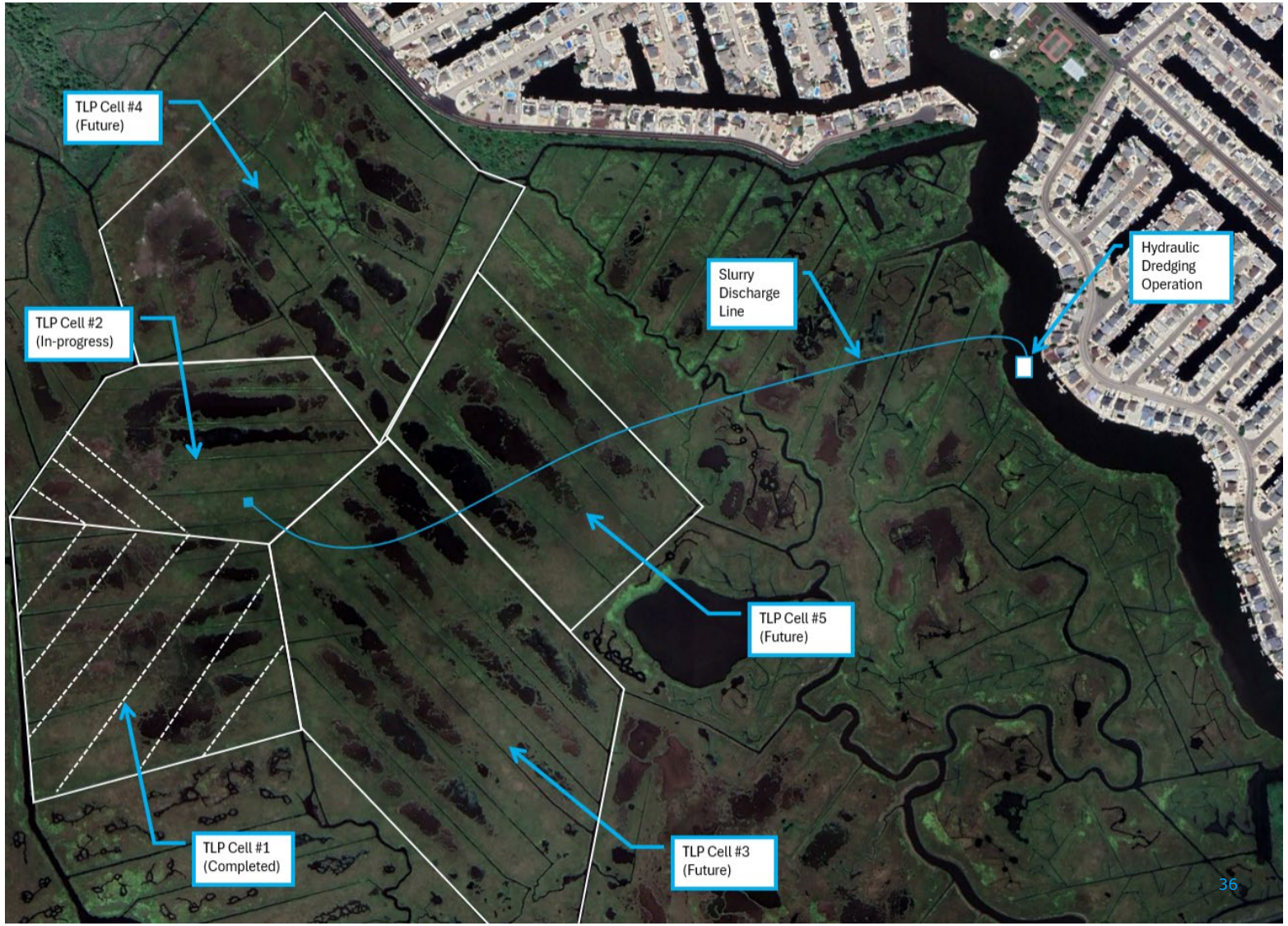
- Create tidal creek levee using excavated marsh sediment material
- Creek restoration sequenced with logistics supporting thin layer placement and mosquito ditch filling

Suffolk County, NY

Thin Layer Placement

- Slurry discharged into placement cells located away from major wetland channels and edges

- Hydraulically dredged sediment pumped through low-pressure or high-pressure discharge outlets



Next Steps

1. Consultants to finalize report by end of year – report will include scope and budget for full design and permitting
2. Stafford Township seeks funding through state and federal sources for full design
3. Conceptual design will evolve to full design and permitting

Q&A Discussion