

LAKE GEORGE CANAL – MIDDLE SECTION RESTORATION

US Army Corps of Engineers
Chicago District
April 2022



US Army Corps
of Engineers®

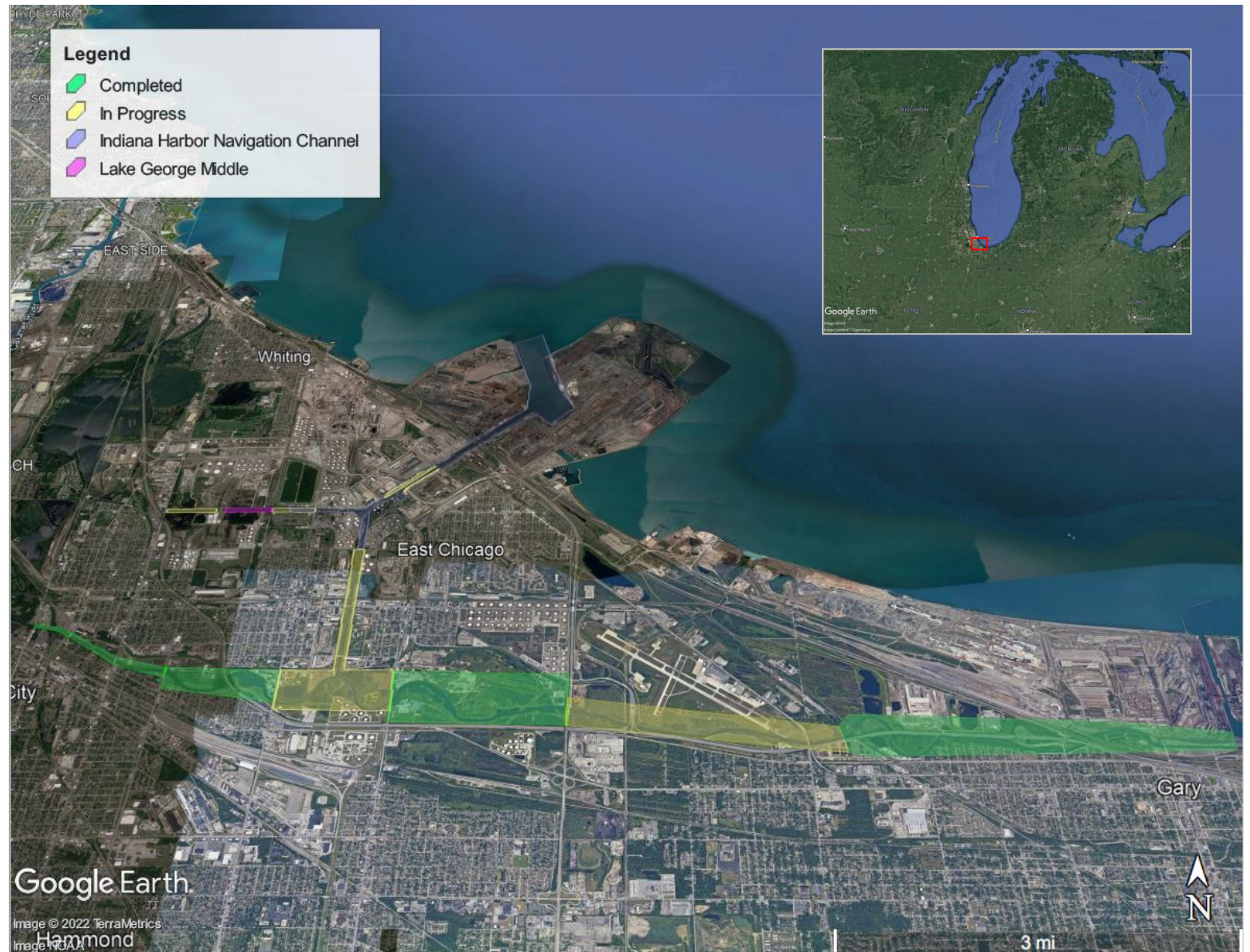


LAKE GEORGE CANAL – MIDDLE RESTORATION



Grand Calumet Area of Concern

- Overall effort is to remove the Beneficial Use Impairments (BUIs) and ‘delist’ the Grand Cal area from the AOC list.
- Significant Progress made since initiation. Several projects complete or underway.
- Collaborative stakeholder approach. Projects primarily led by USEPA and IDEM.
- USACE provides investigation, design, and construction support for the Grand Calumet AOC projects.





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Grand Calumet AOC

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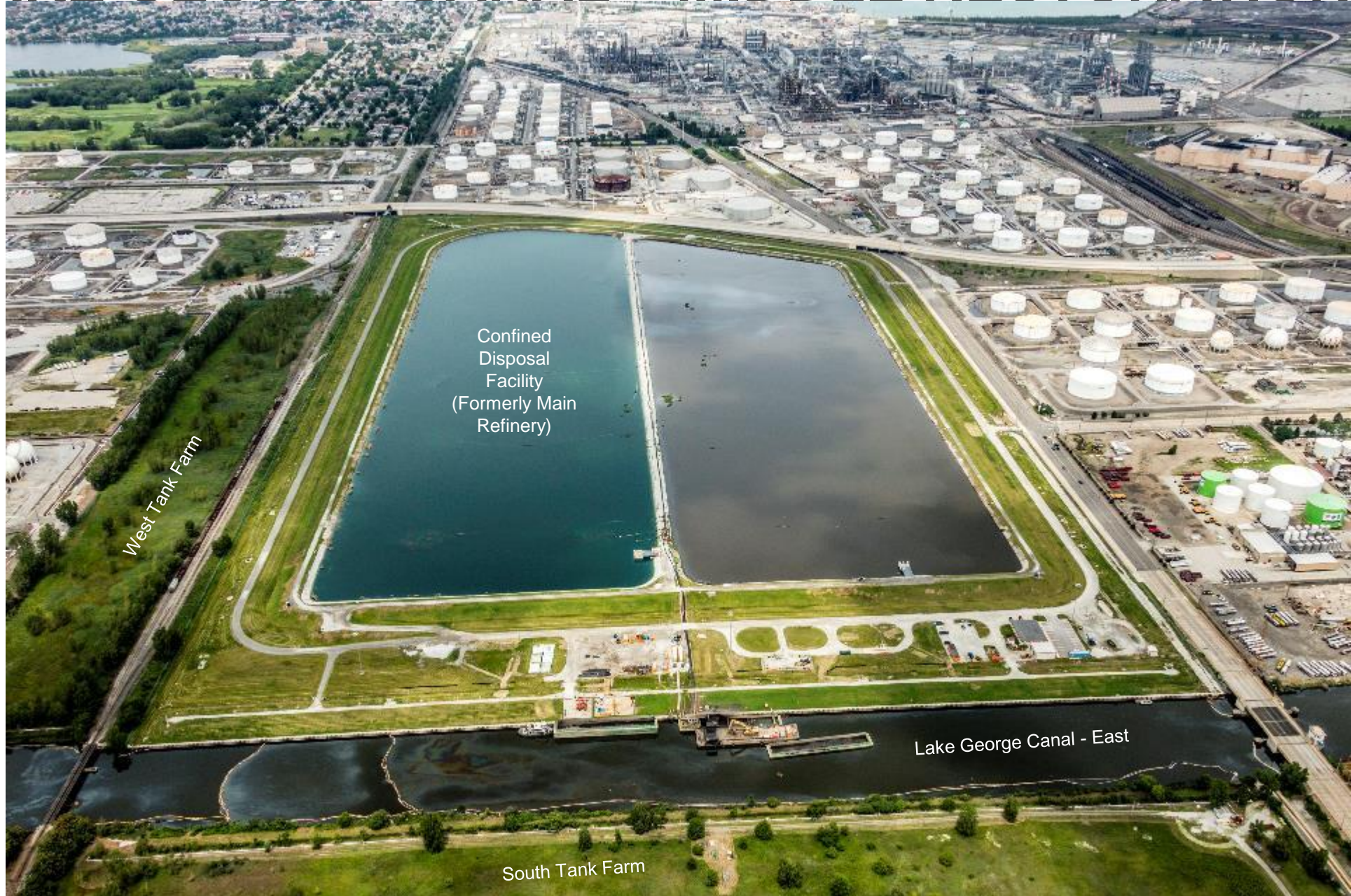


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Confined
Disposal
Facility
(Formerly Main
Refinery)

West Tank Farm

Lake George Canal - East

South Tank Farm



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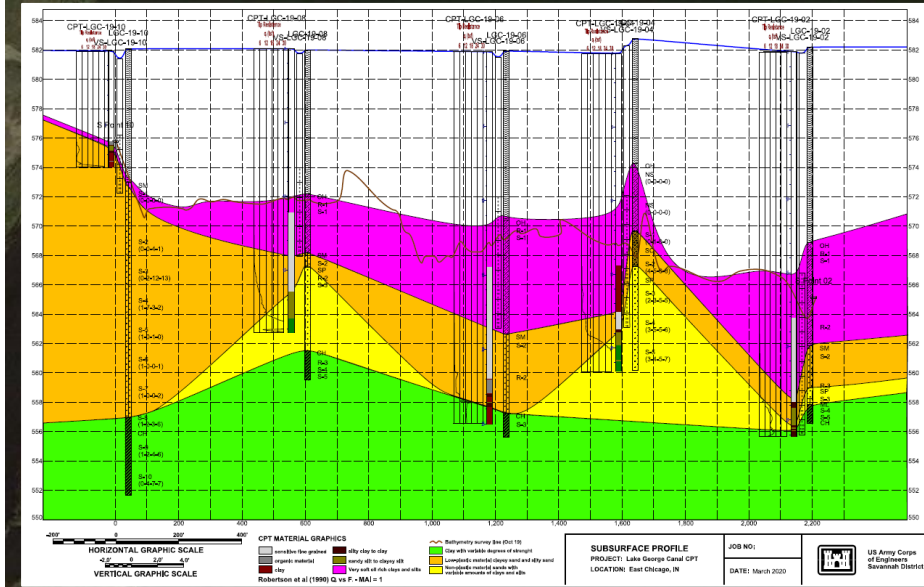
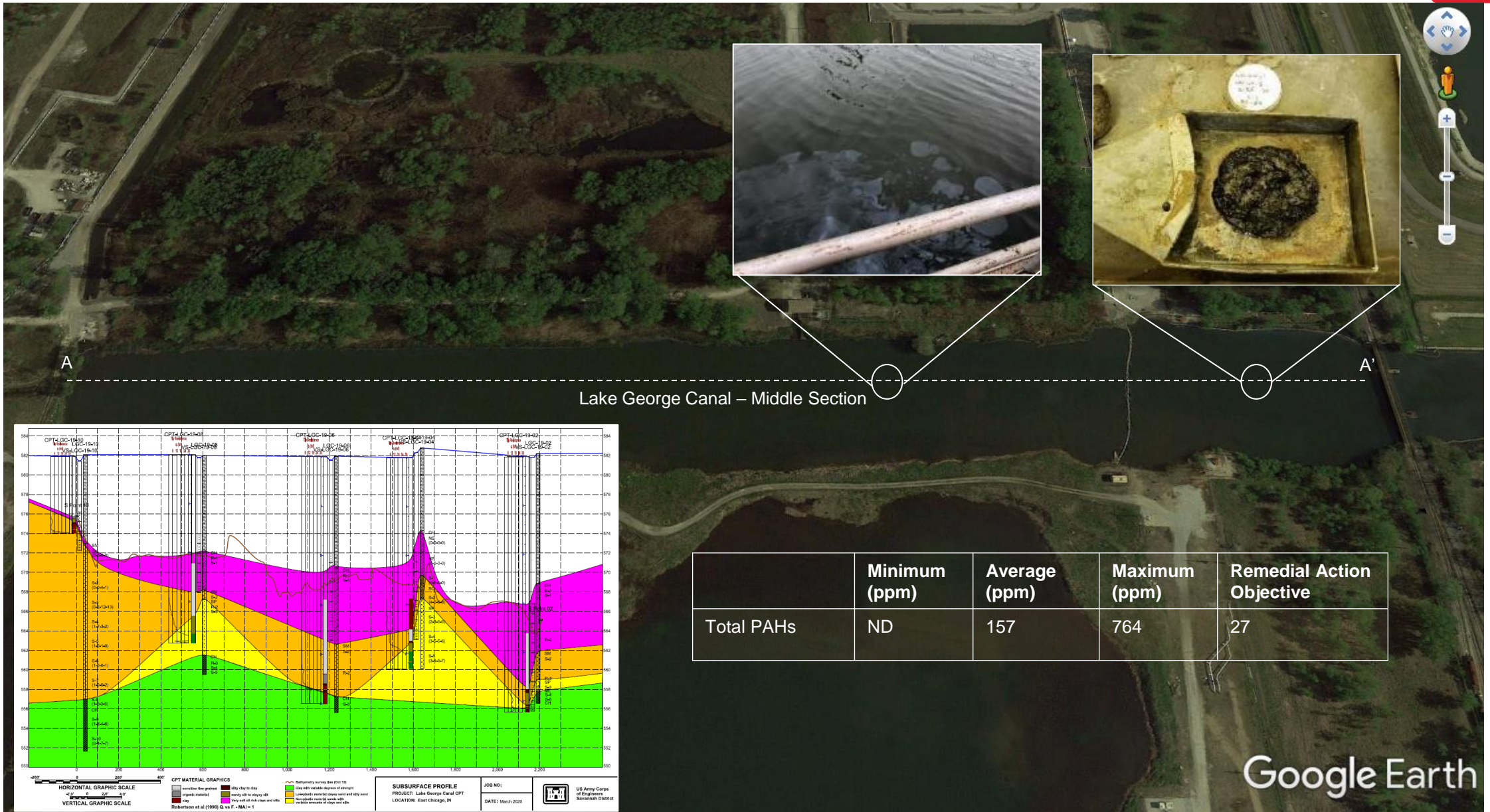




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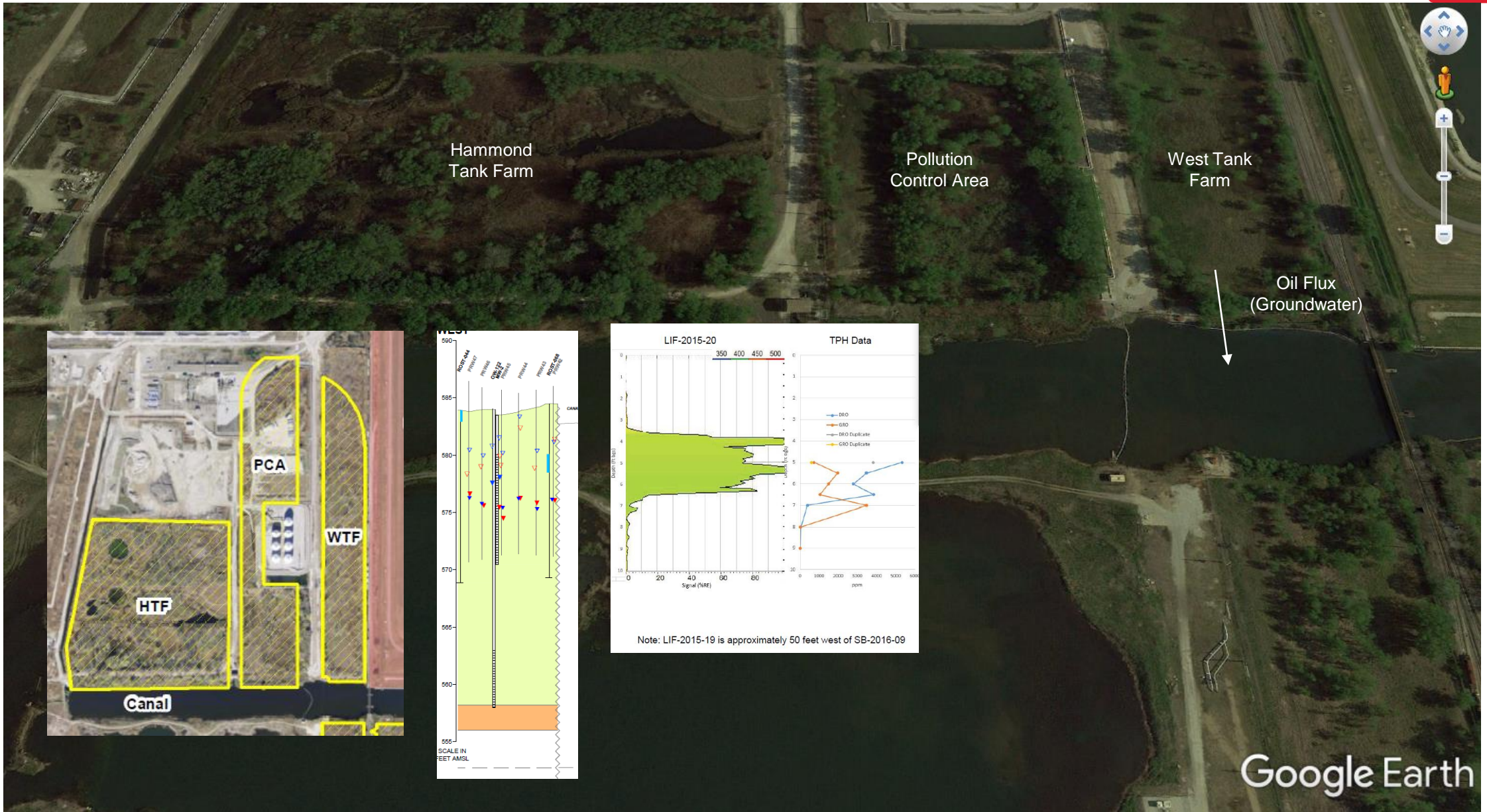
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	Minimum (ppm)	Average (ppm)	Maximum (ppm)	Remedial Action Objective
Total PAHs	ND	157	764	27

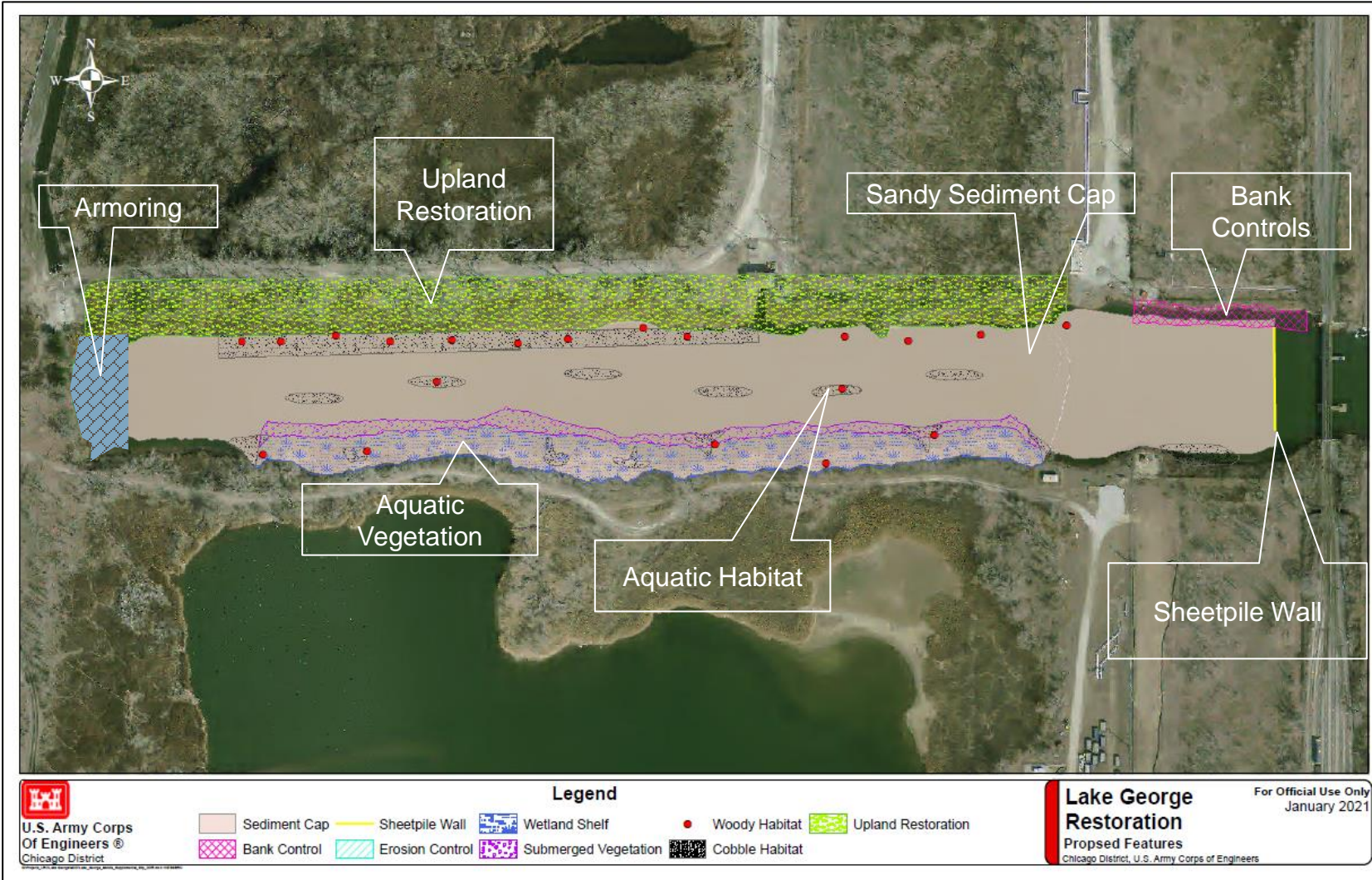


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LAKE GEORGE MIDDLE: DESIGN FEATURES



Project Objective:

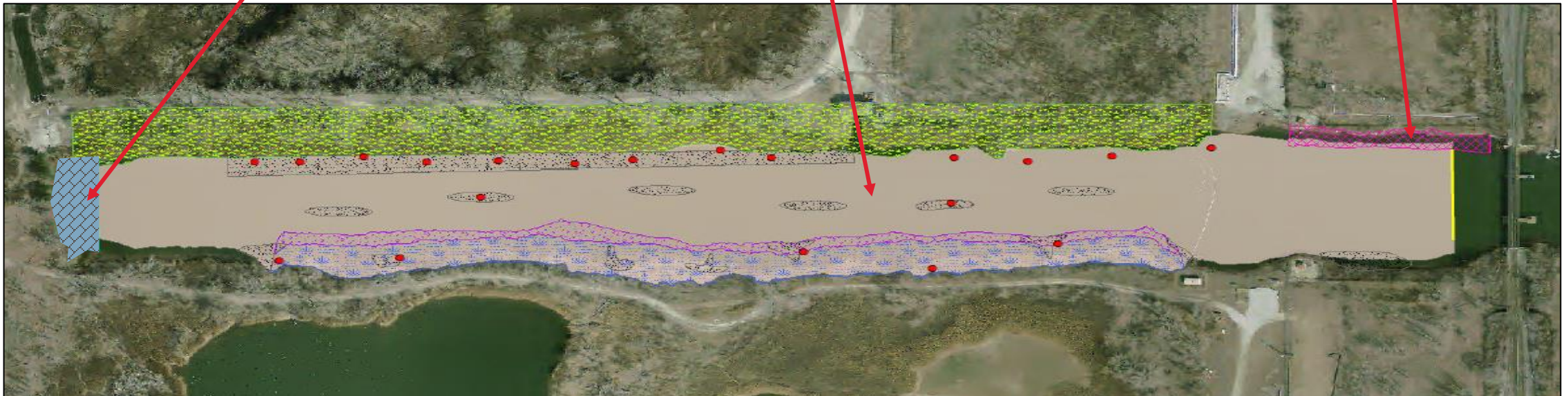
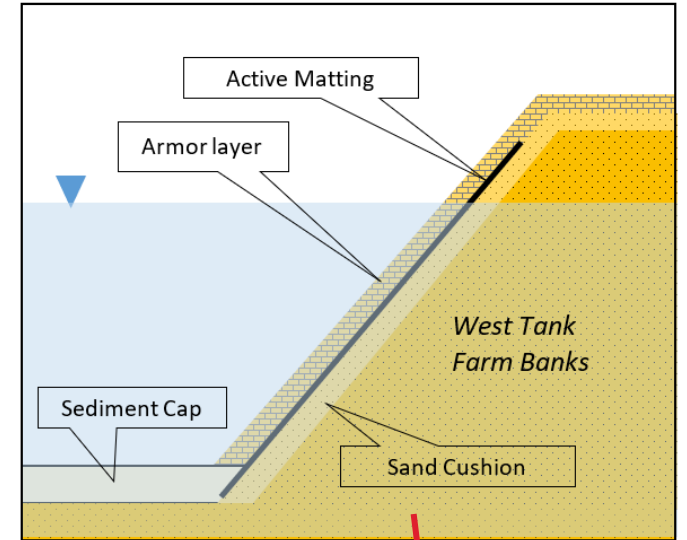
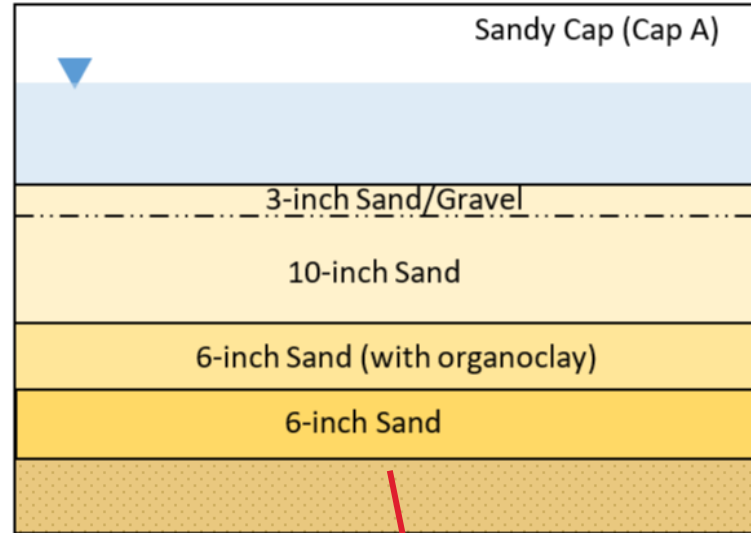
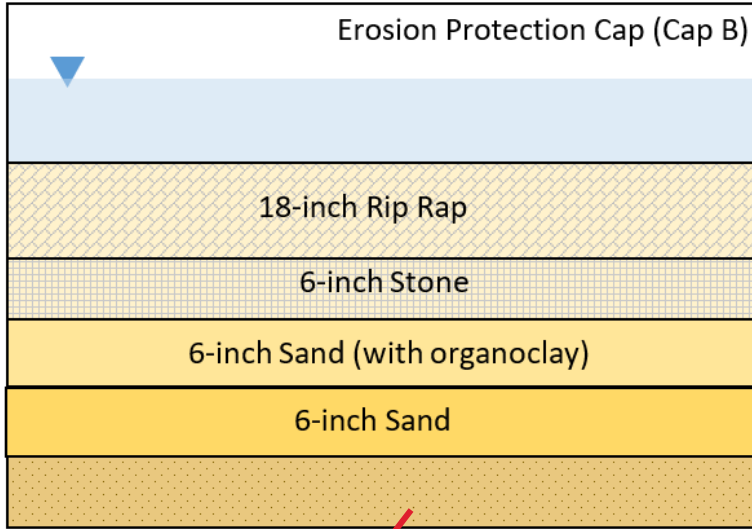
- Sediment Remedy (27 ppm TPAH bulk sediment)
- Mitigate Oil Sheen Seeps from West Tank Farm
- Improve Ecological Habitat

Project Features:

- Organoclay Amended Sediment Cap
- West Tank Farm Bank Controls
- Habitat Restoration
 - Upland Invasive Removal
 - Upland Native Planting
 - Emergent/Submerged Wetland Shelf Plantings
 - Aquatic Structures

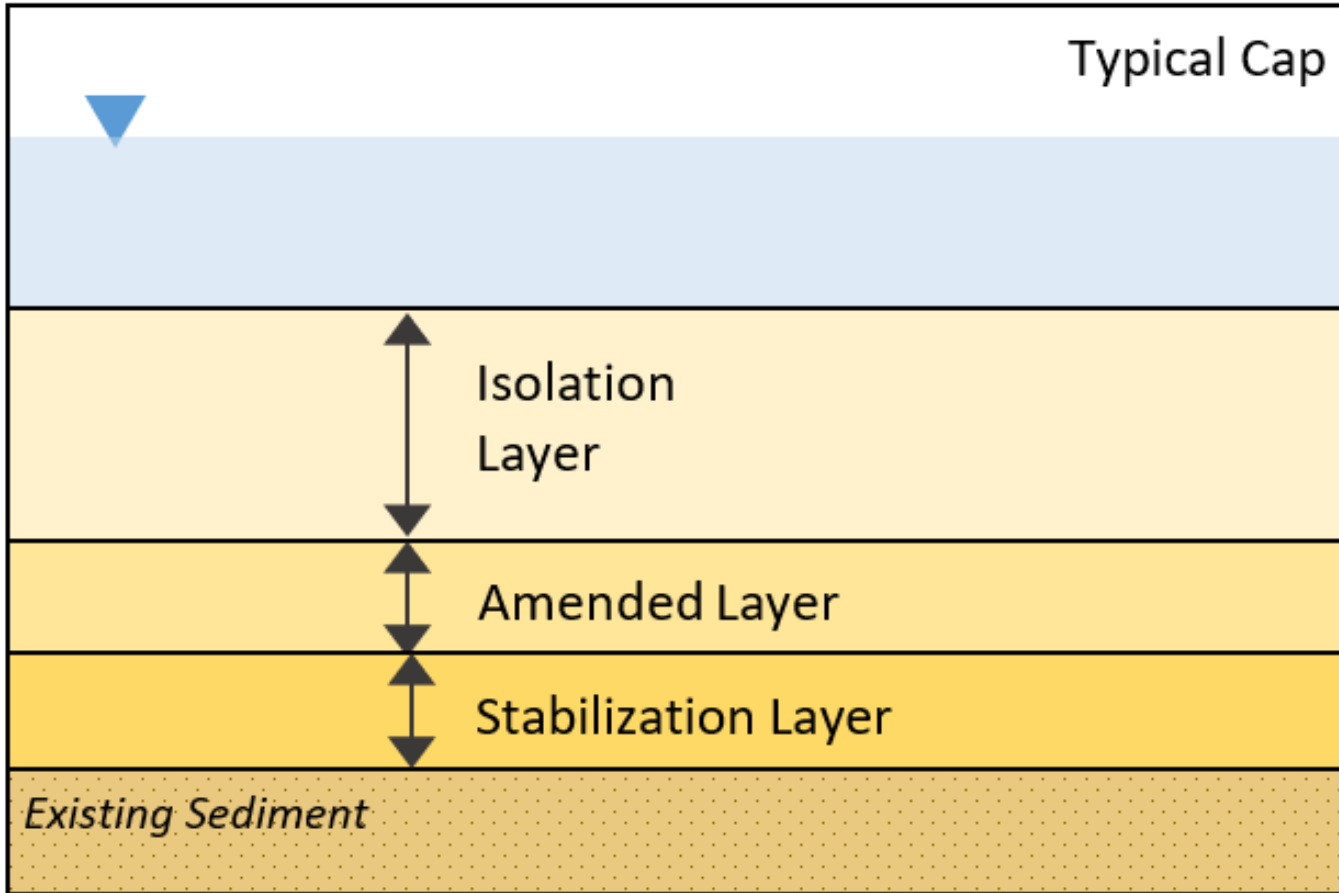


LAKE GEORGE MIDDLE: CAP COMPONENTS





LAKE GEORGE MIDDLE: SEDIMENT REMEDY



Sediment Remedy:

Preliminary Remediation Goal:

27 mg/kg Total PAHs (bulk sediment)
100-year timeframe

Remedy:

Amended Sediment Cap

- Organoclay Amendment
(4.3 lb/sf, option for more based on field observation)
- 13" Benthic Isolation Layer

Similar Projects:

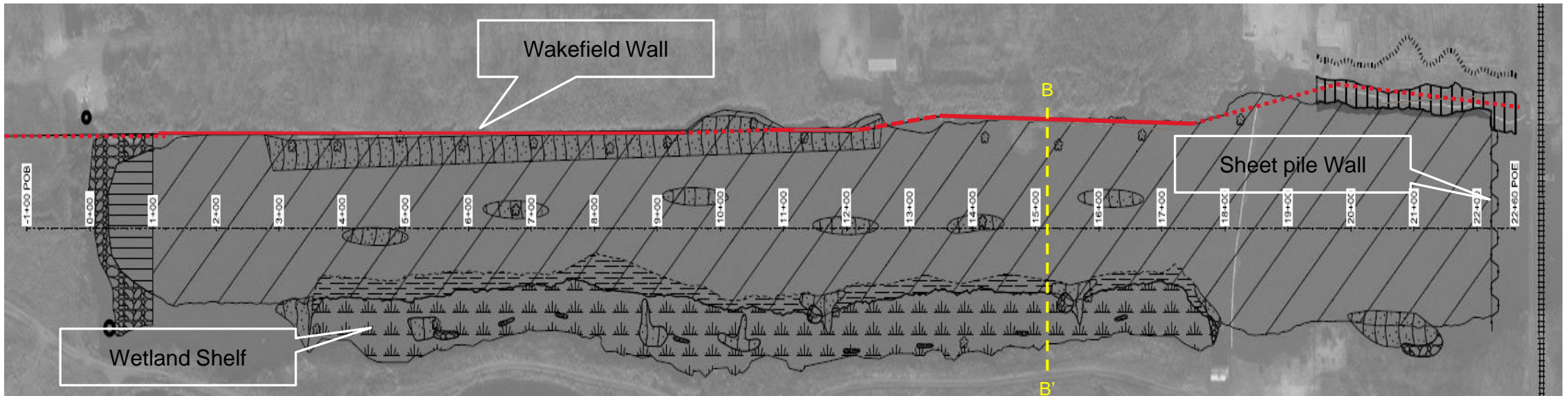
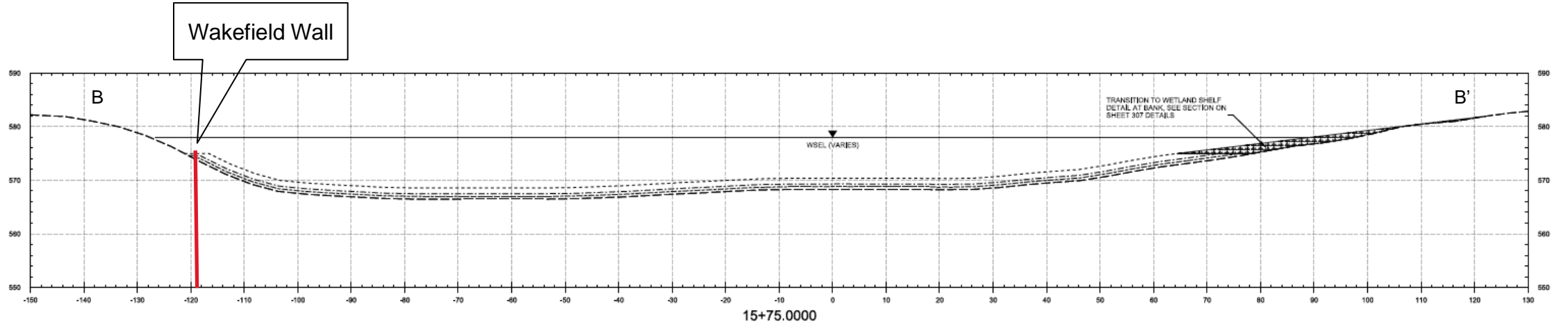
- Reaches 1 & 2 Grand Calumet River
- River Raisin
- McCormick & Baxter

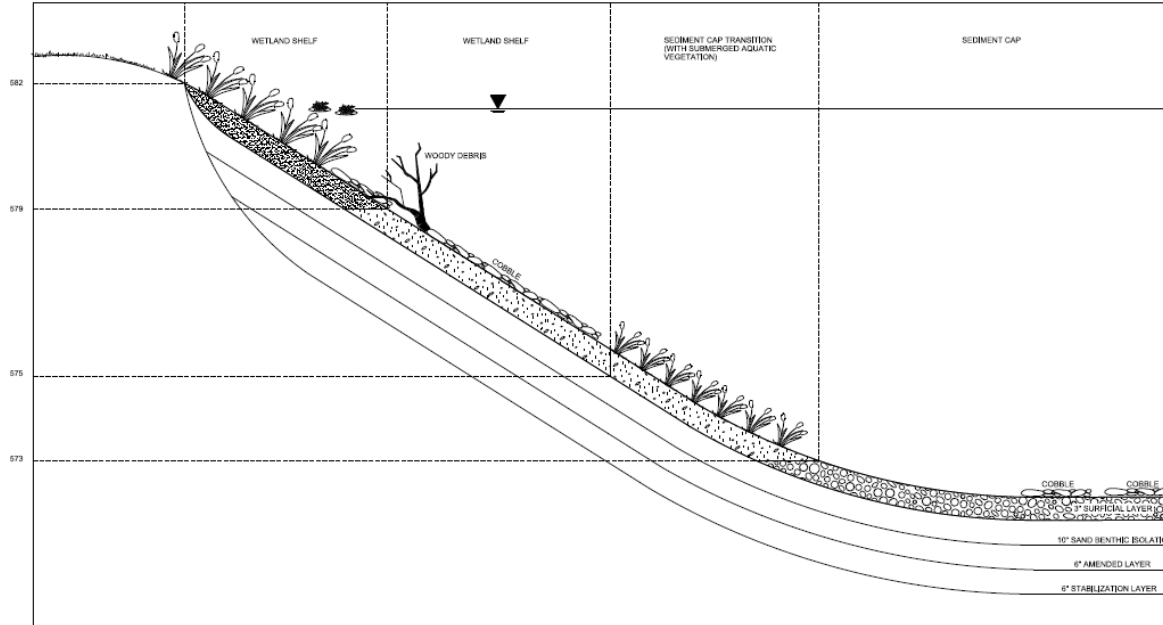
Approach

- Iterative Modeling (Capsim)
- Sediment TPAH <27 ppm at base of isolation layer (from porewater equilibrium)



LAKE GEORGE MIDDLE: CAP EXTENTS





Wetland Shelf:

- Conservatively controls potential dissolved flux into Lake Mary. Plantings mitigate fluctuating water levels and ecosystem restoration.
- Native planting of eelgrass

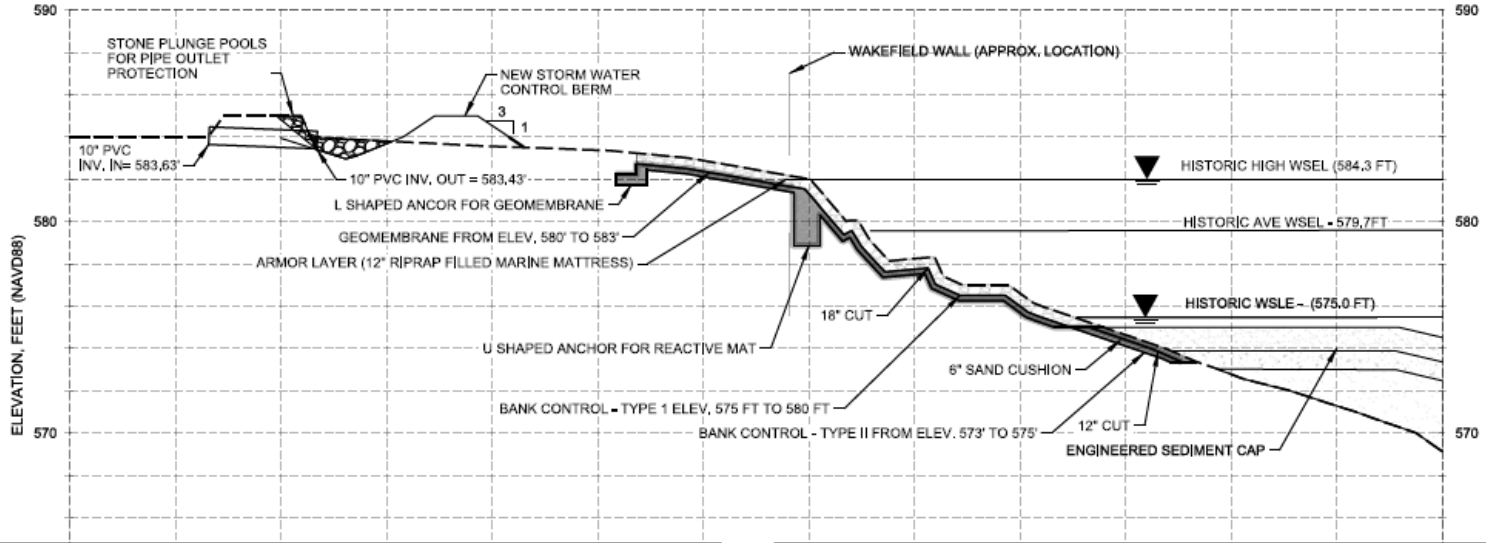
Upland Restoration:

- Improves ecosystem restoration element by tying to DNR's Lake Mary restoration project along south side.



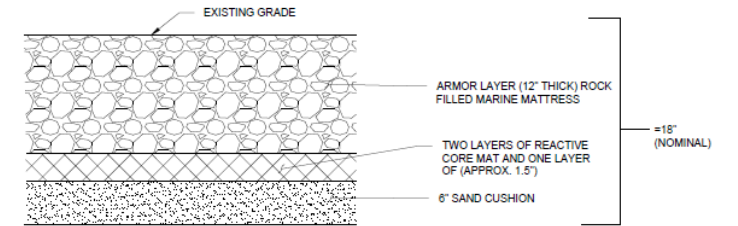
Aquatic Habitat:

- Clean woody debris
- Single layer of cobble/stone in select locations

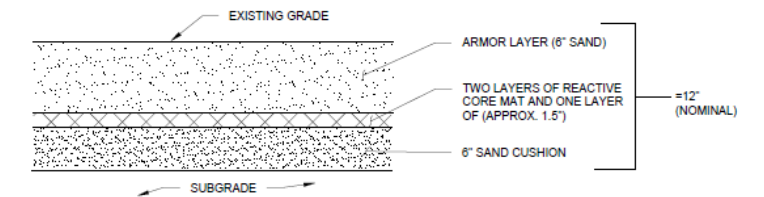


West Tank Farm Banks:

- Reactive Matting
 - Organoclay Mat
 - Oleophilic Mat
- Marine Mattress
- Stormwater Control Berm



E1 TYPE I BANK CONTROL
NOT TO SCALE



D1 TYPE II BANK CONTROL
NOT TO SCALE



LAKE GEORGE MIDDLE: SCHEDULE



Task	Date
Mobilization	March 2022 (complete)
Site Preparation	March 2022 (complete)
Sheet Pile Wall	April 2022 (complete)
West Tank Farm Banks	March – May 2022 (in progress)
Sediment Stabilization Capping Layer	June – September 2022
Sediment Capping	September – December 2022
Habitat Restoration	December – March 2023
Construction Complete	June 2023
Habitat Establishment and Maintenance	June 2023 – June 2026





LAKE GEORGE MIDDLE



Comments / Questions?