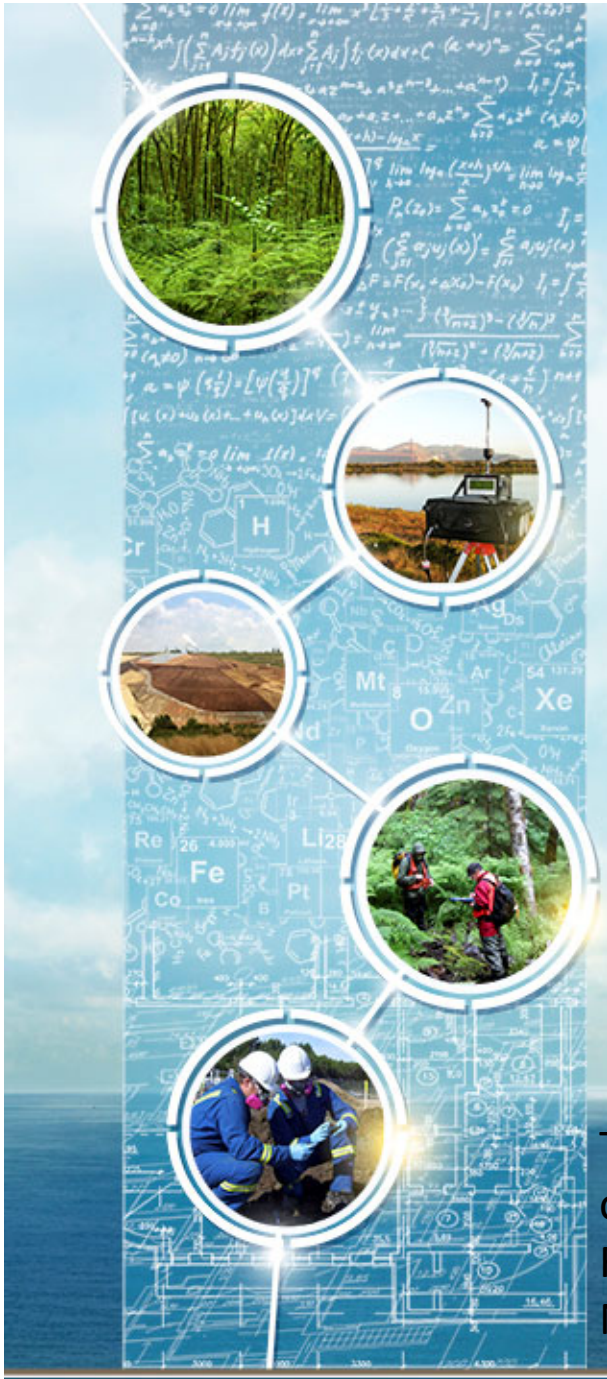


TETRA TECH

Construction Management Challenges of Combined Sediment Remedy

02/12/2019

Steve McGee, Gary Braun, Senda Ozkan (Tetra Tech Inc)

Ernest Ashley, Katie Young (CDM Smith)

Tenth International Conference on Remediation and Management of Contaminated Sediments
February 11 – 14, 2019
New Orleans, Louisiana

Presentation Outline

TETRA TECH

- Site Characteristics
- Remedial Design
- Combined Sediment Remedy
- Site Preparation and BMPs
- Outfall and Storm Drainage Lines Repairs and Cleanouts
- Bulkhead Construction
- Sediment Dredging
- In Situ Treatment
- Dewatering and Excavation in Creek
- Creek Reconstruction and Restoration
- Upland Operations
- Summary

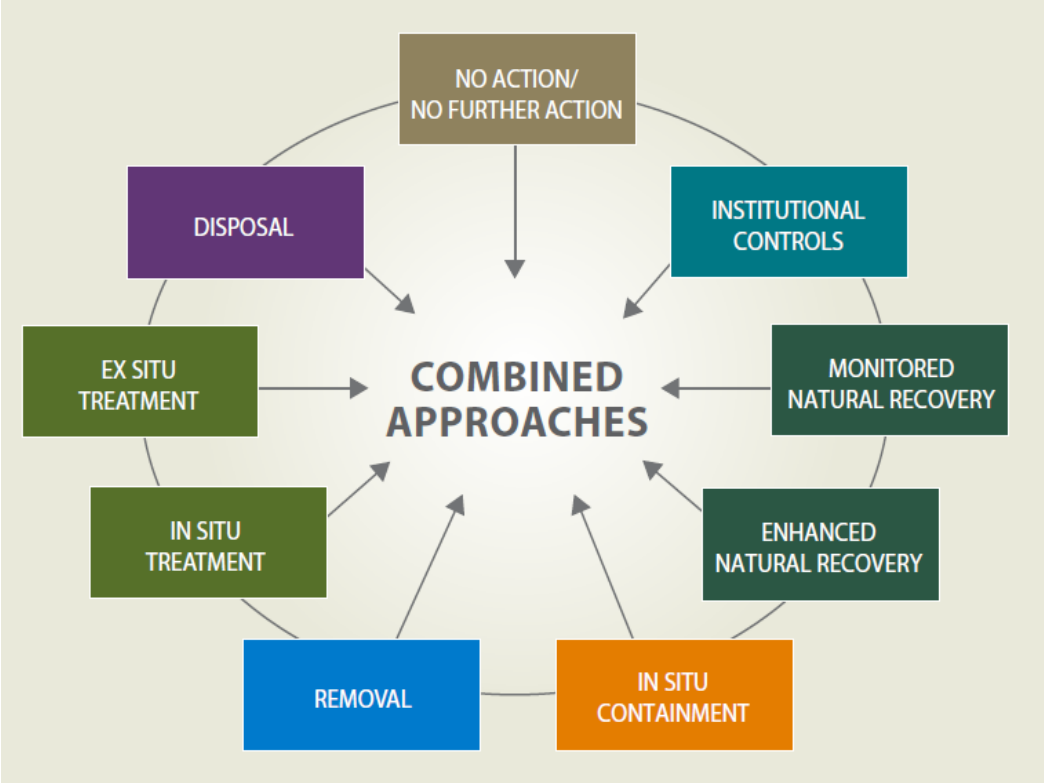
Site characteristics

- Tidal creek and estuary
- Industrial and residential area
- Partial navigation channel

- Recreational use: boating, swimming, fishing
- 8 to 10 feet water depth
- Elastic silt (80%-90% fines)

Remedial design

- Community workshops
- Meeting with agencies and stakeholders



Combined Remedy:

Cove:

- Bulkhead construction
- Dredging + RML
- In situ treatment with PAC
- Outfalls and storm drainage lines repairs and cleanouts

Creek:

- Dredging + RML
- Excavation + streambed mix
- Streambank stabilization
- Floodplain reconstruction
- Wetland restoration
- Revegetation

Involved agencies, coordination, permits

TETRA TECH

- U.S. Environmental Protection Agency
- U.S. Army Corp of Engineers
- National Oceanic and Atmospheric Administration
- U.S. Fish and Wildlife Service
- State Department of the Environment
- State Department of Natural Resources
- Board of Public Works
- Aviation Administration
- National Guard
- Heritage Trust
- County- Stormwater and Soil Conservation District

Combined Sediment Remedy

2- Seasons

- Season 1:
  - 36,000 cy of dredging
  - 4,600 tons of debris
  - 8,700 tons of RML placement
  - 700 feet bulkhead construction
  - 3,350 feet of storm drain cleaning
  - 167,000 gallons of water treatment
- Season 2:
  - 14,000 cy of excavation
  - 2,000 tons of debris
  - 2,500 tons of PAC placed over 13.6 acre
  - 1,600 tons of streambed mix and RML
  - 12.2M gallons of water treatment
  - 1.2 acre floodplain reconstruction
  - 2.5 acre wetland restoration
  - 4 acre revegetation

Challenges:

- Permits
- Consent from stakeholders
- Community outreach
- Procurement
- Construction sequence
- Field and weather surprises!

Site Preparation and BMPs

Site preparation and BMPs

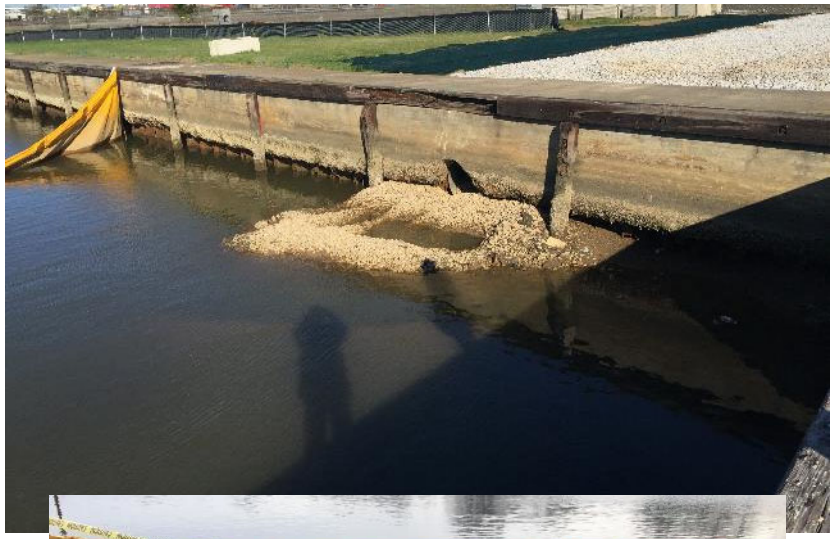
Site preparation and BMPs

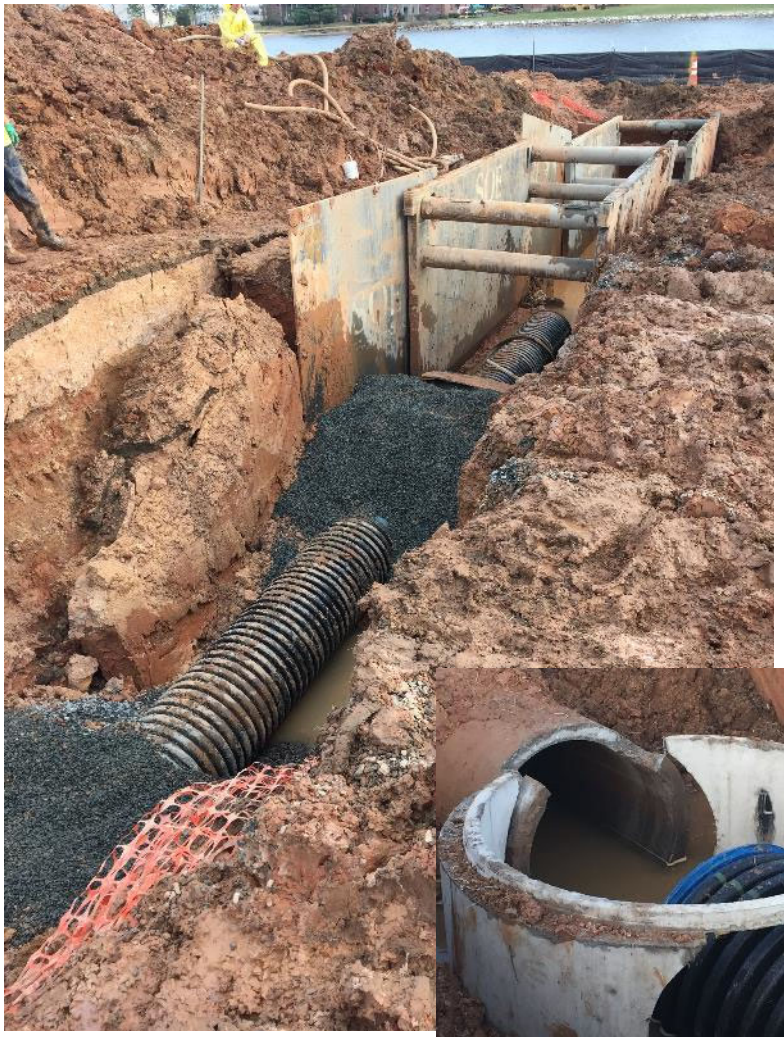
Challenges:

- Permits, inspections
- Community outreach: addressing community concerns, questions, curiosity

Outfall repairs and storm drainage lines repairs cleanouts

TETRA TECH





Bulkhead upgrades and reconstruction

Issues:

- Dredging in front of bulkhead
- Source control

Bulkhead upgrades and reconstruction

TETRA TECH

Challenges:

- Soft soil - reduced driving resistance
- Settlement of sheet pile pairs, concrete cap

Dredging in cove

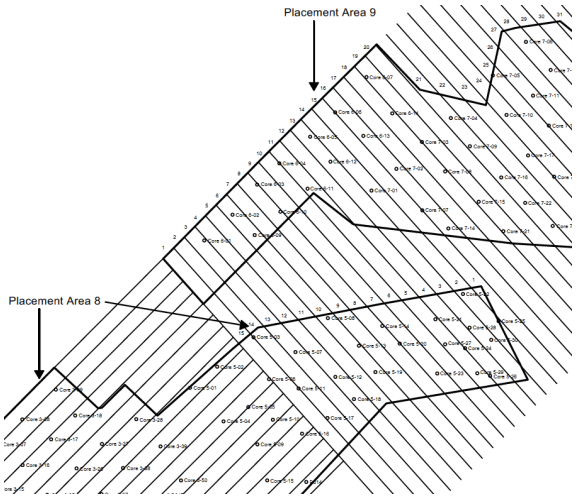
Met production, schedule turbidity goals!

Challenges:

- Contingency removal
- Discussions with regulatory agencies – thick RML, additional monitoring requirements

In situ treatment

- 13.7 Acres of *in situ* treatment
- 2,500 tons of Aquablok + PAC (10%)
- Cable Barge Spreader to place material

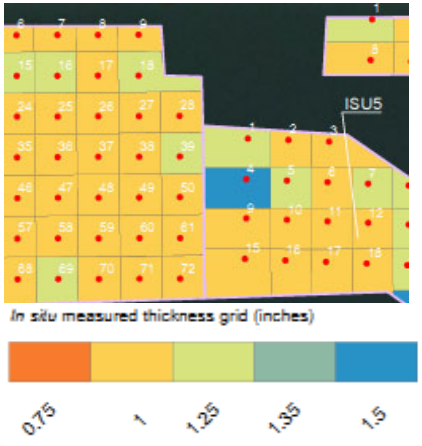


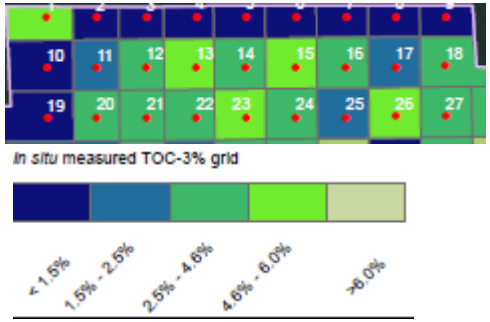
In Situ Treatment

- Upland demonstrations
- Field test runs to establish barge and spreader operation rates
- Target thickness of 1.36 inches – (tolerance of 1 inch to 1.75 inches)

In Situ Treatment

- Verification of PAC placement
  - Tracked daily by usage and covered area
  - Aggregate thickness measurements
  - Total organic carbon and black carbon analysis
  - Sample buckets collected for material





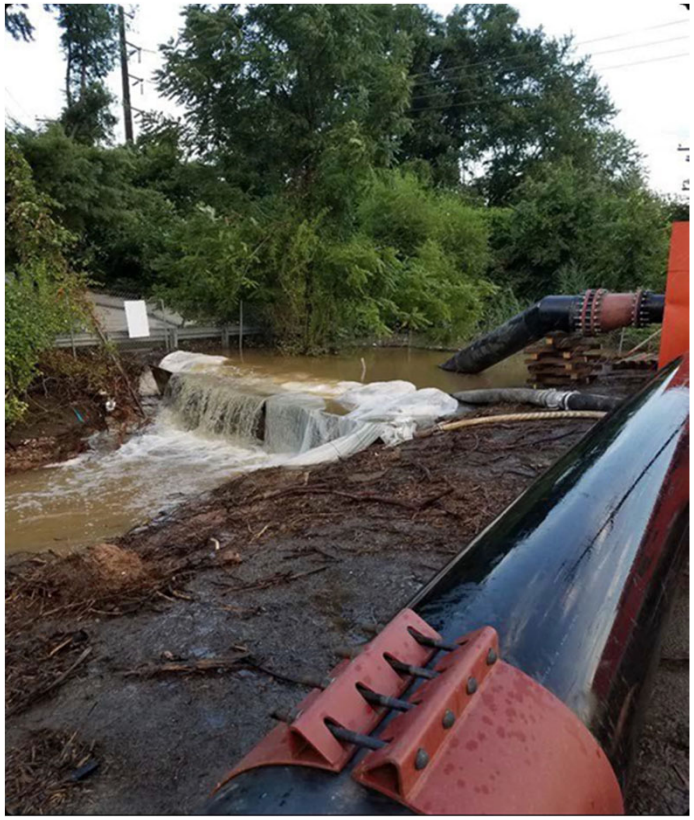
Dewatering the creek


Sandbag cofferdam


24-inch HDPE bypass pipe


AquaDam

Dewatering challenges



- 25- to 50-yr storm!
- Overtopping and breach of sandbag cofferdams
- Construction dewatering BMPs planned for 2- to 10-year storm per the state guidelines

Dewatering challenges

- Leak/piping under the AquaDam

- Flooding of excavation area

Excavation in creek

Excavation in creek

- Dewatering
- Fish take
- Excavation

Reconstruction of creek

Rootwads used for bank stabilization

Habitat logs over bank slopes

Habitat restoration

TETRA TECH

Upland dewatering operations

Challenges:

- Meeting paint filter test and strength requirements
- Waste profiling
- Potential hazardous waste

Water treatment and discharge operations

TETRA TECH

Sand filter, bag filter, GAC filters
300 gpm capacity

- Discharge to POTW
- Discharge to the creek through NPDES
- Challenges during storm
- Met discharge permit requirements

Summary

- Season 1:
  - 36,000 cy of dredging
  - 4,600 tons of debris
  - 8,700 tons of RML placement
  - 700 feet bulkhead construction
  - 3,350 feet of storm drain cleaning
  - 167,000 gallons of water treatment
- Season 2:
  - 14,000 cy of excavation
  - 2,000 tons of debris
  - 2,500 tons of PAC over 13.6 acre
  - 1,600 tons of streambed mix and RML
  - 12.2M gallons of water treatment
  - 1.2 acre floodplain reconstruction
  - 2.5 acre wetland restoration
  - 4 acre revegetation