ADVANCING BENEFICIAL USE OF DREDGED MATERIAL IN THE DISTRICT OF COLUMBIA: A RISK-BASED FRAMEWORK FOR SUSTAINABLE REUSE

SMWG 2025 FALL SPONSOR FORUM

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Presentation Overview

- DOEE Beneficial Use Guidance Overview
- Risk Based Framework
- Process for Beneficial Use of Dredged Material
- Evaluation of Dredged Material
- Statutory and Regulatory Requirements and Permits
- Dredged Material Uses & Conceptual Design
- Application of BU to the Anacostia River Sediment Project Early Action Area Remediation
- Potential Areas for Beneficial Use of Dredged Material
- Challenges and Next Steps

District Department of Energy and Environment Beneficial Use Guidance for Dredged Material

Based on Maryland Department of Environment's 2019 Innovative Reuse and Beneficial Use of Dredged Material Guidance, USACE and EPA Guidance

- Adopts safe and environmentally sound practices
- Complies with District and federal laws and guidance
- Aligns with concept of USACE Engineering With Nature (EWN)
- Follows risk-based human health and ecological screening, sampling and testing
- Promotes consistent characterization and assessment
- Presents permit processes, approvals for end use

Dredged Material Classification Based on Human Health & Ecological Criteria

Category 1- Unrestricted Use/Residential Use/Open Space

Category 2- Restricted Use/Industrial Use/No Cap

Category 3- Cap Required

Aquatic placement

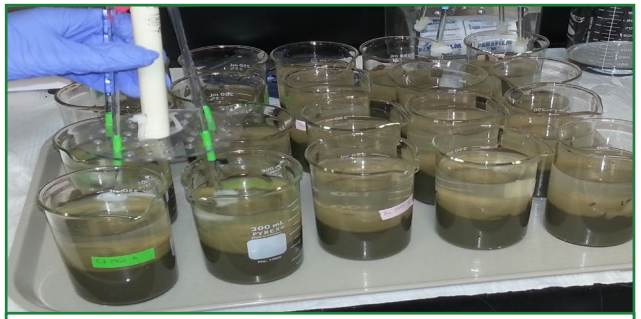
Category 4- Not Appropriate for Placement; Off-site Disposal

Note: Sediments can be treated/amended with carbon for dredged material to be amenable for beneficial use with treatability demonstration

Process for Beneficial Use of Dredged Material

DREDGING

- Remediation of contaminated sediments
- Restoration activities
- Maintenance of channels for navigation



EVALUATION

- Analyze physical and chemical properties of dredged material
- Compare with BU category criteria
- Evaluate placement area

PREPARATION

- Dewatering
- Amendments
- Temporary storage
- Transportation, if needed

BENEFICIAL REUSE

- Create wetlands
- Stabilize shoreline
- Create submerged aquatic vegetation (SAV) beds

Evaluation of Dredged Material

Physical Analysis

- Geotechnical Engineering and Physical Parameters
  - Grain size, percent moisture, Atterberg Limits, shear strength, consolidation

Chemical Analysis

- Chemical and Nutrient Analysis
  - Volatile and Semi-Volatile Organics, Polychlorinated biphenyls, Total Petroleum Hydrocarbon, Total Organic Carbon, Toxic Characteristic Leaching Procedure, Total sulfides/sulfates, and hydrogen sulfide, nutrient content (phosphorus, ammonia-nitrogen and total kjeldahl nitrogen (TKN)

Statutory and Regulatory Requirements and Permits

Federal

- US Army Corps of Engineers, EPA, NPS and other Federal Authorities
- Clean Water Act, Army Corps Regulations, River and Harbors Act (RHA) of 1899, Marine Protection Research and Sanctuaries Act of 1972

State

- District of Columbia, Maryland and Virginia
- DC Water Quality Standards, DC Environmental Policy Act, DC Flood Hazard Control, Code of Maryland Regulations, Code of Virginia

Permits

- Clean Water Act 404 permit (USACE)
- DOEE CWA Section 401 Water Quality Certification Review
- USACE permit and Section 401 WQC authorization letter
- NPS Special Use Permit
- DOEE Fisheries and Wildlife Division

Dredged Material Uses

Landslide Placement

- Construction fill
- Fill for industrial, agricultural, and residential sites
- Topsoil for landscaping
- Landfill Cover

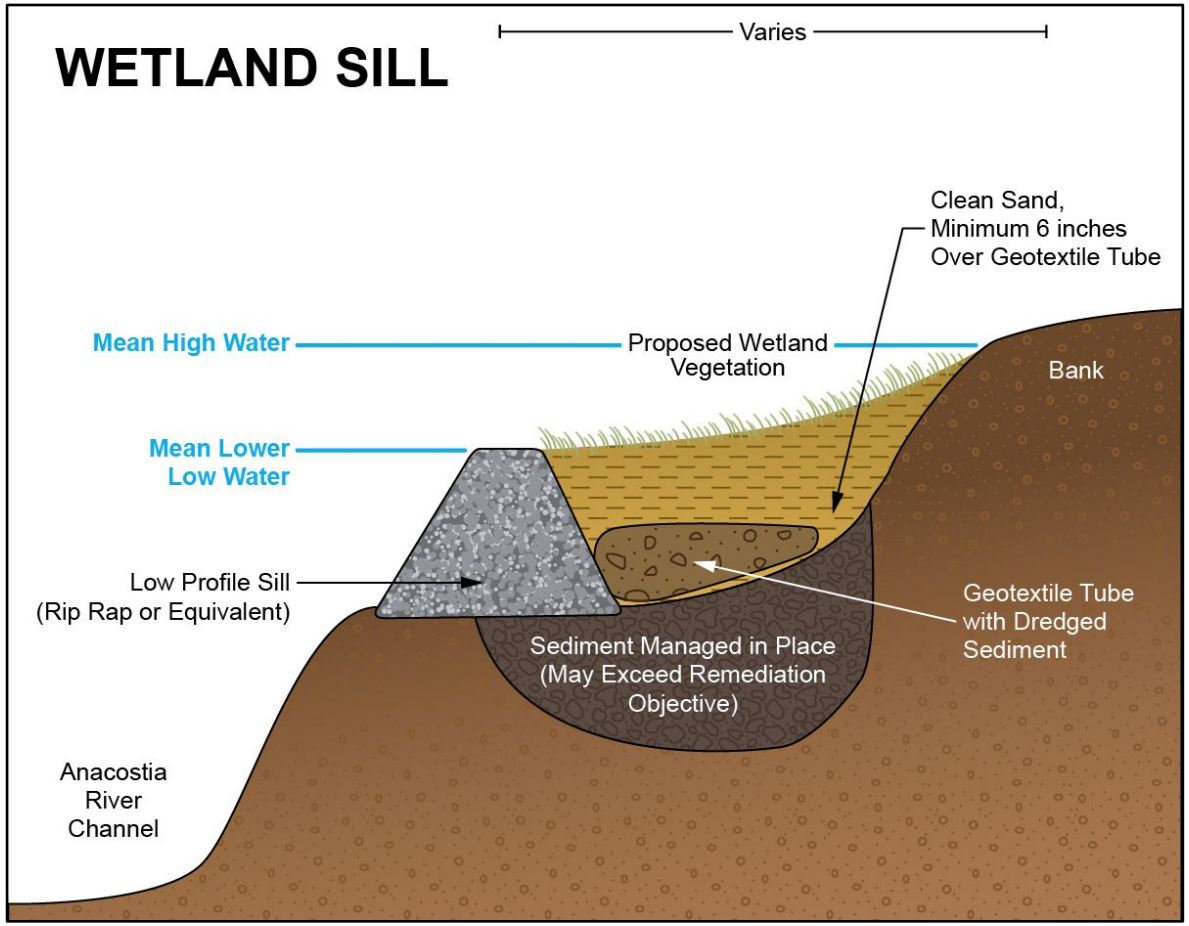
Aquatic Placement

- Wetland creation and enhancement
- Living shoreline enhancement
- Beach nourishment
- Aquatic habitat creation

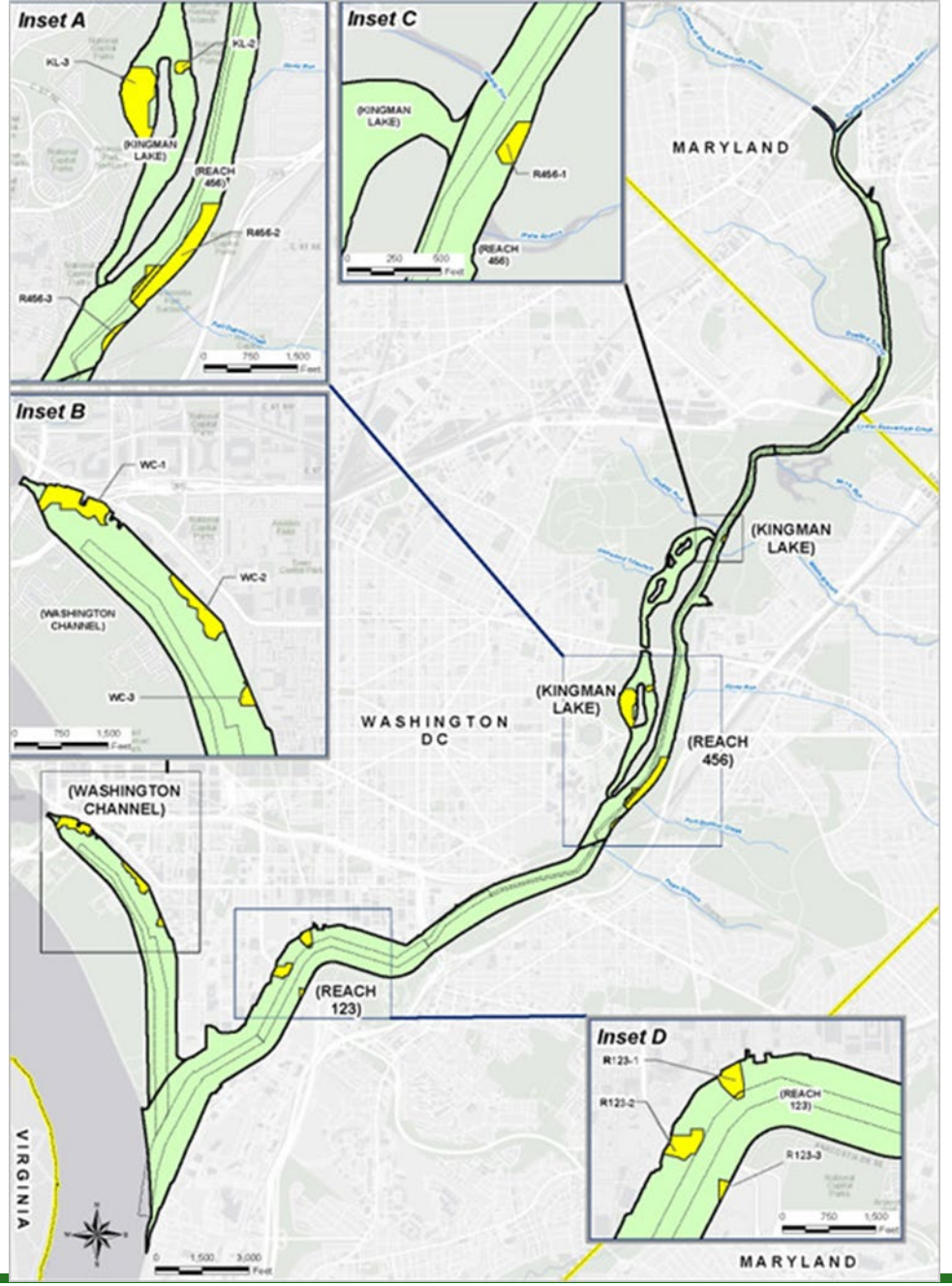
Off Site Disposal

- Landfill

Conceptual Design



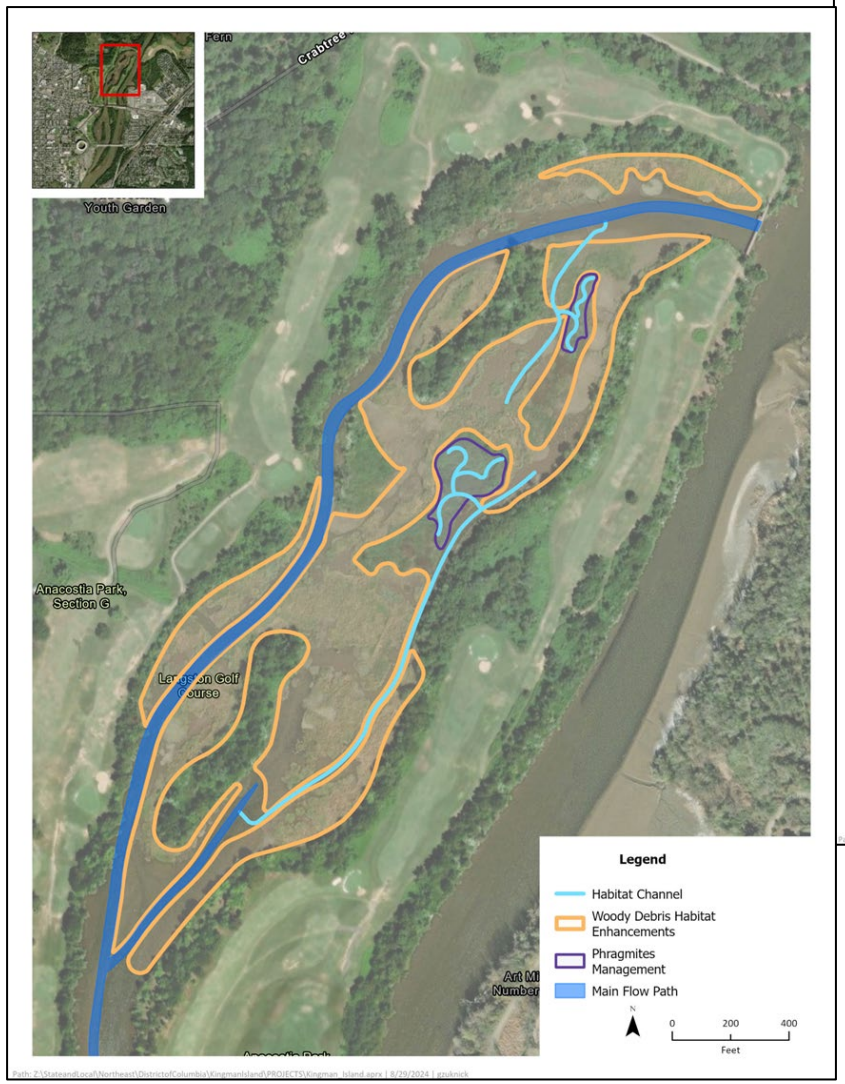
Application of BU to the Anacostia River Sediment Project Early Action Area Remediation

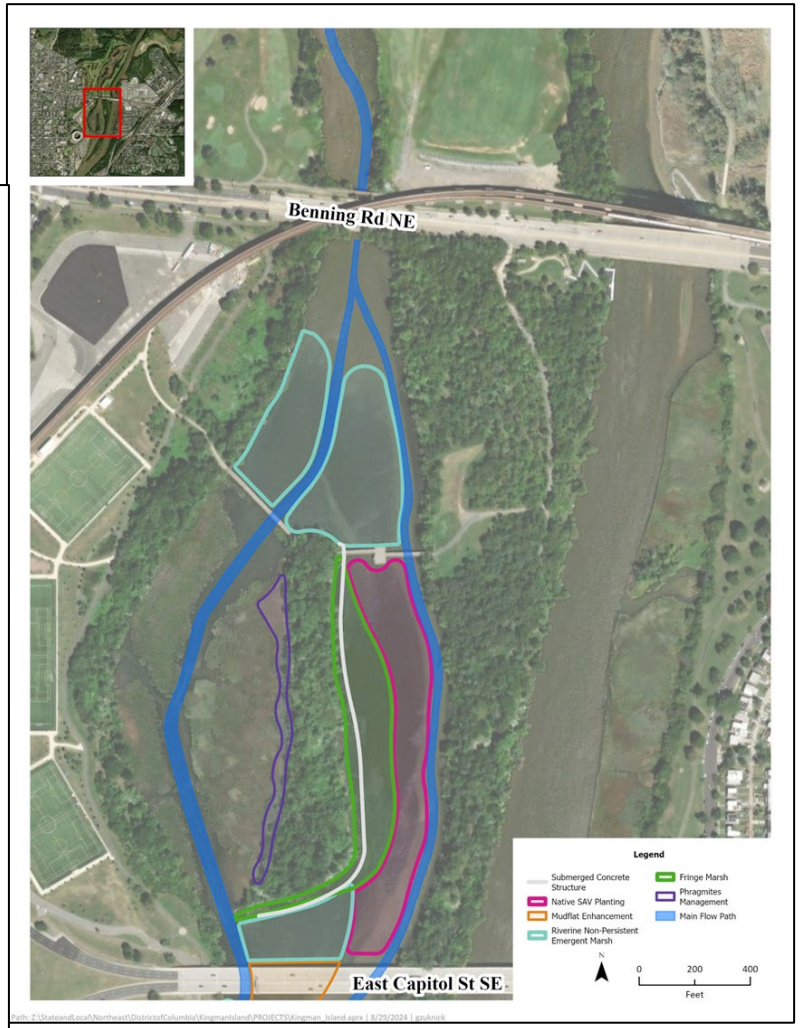


Available Material Estimated Remediation Areas and Dredge Volumes

Operable Unit	Remediation Activity	Remediation Area (acres)	Estimated Volume of Dredged Material (cubic yards)
Kingman Lake	Capping/In situ treatment – EAAs	**12.5**	---
	Dredging/Capping – Channel	**7.1**	**25,719**
Main Stem	Dredging/Capping – EAAs	**25.4**	**9,175**
Washington Channel	Capping – EAAs	**15.0**	---
	Total	**60.0**	**34,894**

Potential Restoration Areas for Beneficial Use of Dredged Material





Potential Restoration Areas for Beneficial Use of Dredged Material

Restoration Type	Proposed Restoration Area (acres)
Wetland	14.76
SAV	7.04
Perennial Stream Habitat	35.1
Total	56.9

Challenges and Next Steps

Demonstrate that dredged sediments are a resource-not a waste through active public engagement

Overcome negative perception of risk and public image

Obtain regulatory consensus from federal agencies

Address future liabilities

Evaluate reuse cost versus benefits

Implement long-term monitoring to define reuse success

Questions?

Thank you!

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https://restoretheanacostiariver.com/

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