Dredging of the Delaware and Raritan Canal from Kingston to Amwell Road

Project Objective

- Remove an estimated 270,000 cubic yards of sediment from the Canal in order to restore its flow capacity
- Remove and dispose of 45,000 cubic yards of sediment from the Authority's stockpile site in Delaware Township, Hunterdon County, NJ

Project Goals

- Protect the historical integrity of the Canal
- Minimize environmental and social impacts
- Maintain technical quality
- Maintain water supply

Critical Project Elements

- Develop dredging plan acceptable to stakeholders
- Focused outreach to public officials and stakeholders

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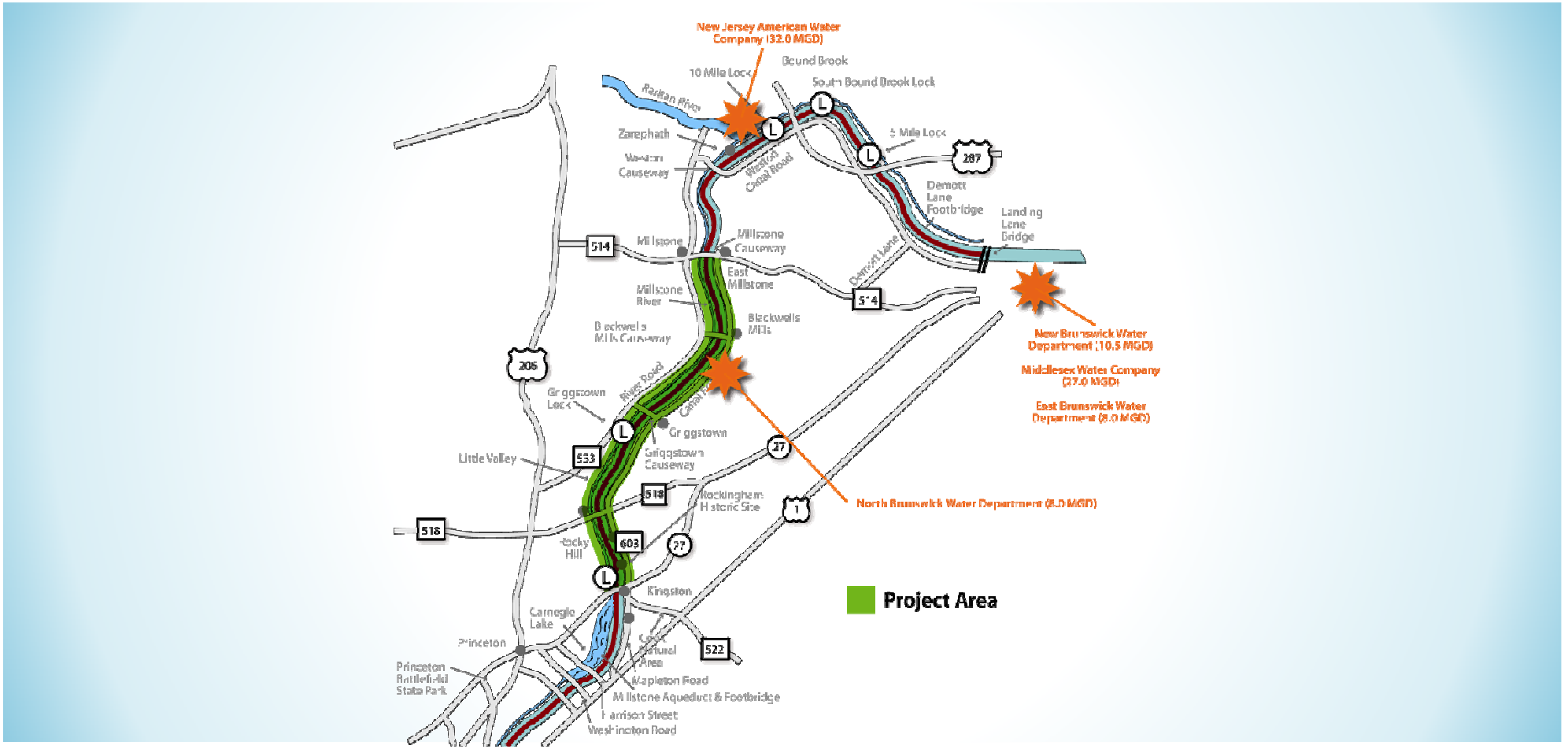
Project Area



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Hydraulic Dredging with Geobags

- Conducted in the wet using hydraulic cutterhead dredge
- Requires separate SAV and debris removal operations prior to dredging to prevent clogging
- Dredge maneuvering with non-penetrative methods
- Booster pumps required to transport of dredged sediment through plastic pipeline to dewatering area for geobag dewatering
- High comparative production rate
- Water generation significantly more than other investigated removal methods
- Requires extensive water treatment / water management operations
- Potential impacts on water treatment plant operations due to use of polymers for sediment dewatering
- Minimizes impacts to recreational users (boating/cycling/hiking)
- Reduced operational risk
- Projected construction cost: $26.1 to $29.3 million

Dredging of the Delaware and Raritan Canal from Kingston to Amwell Road

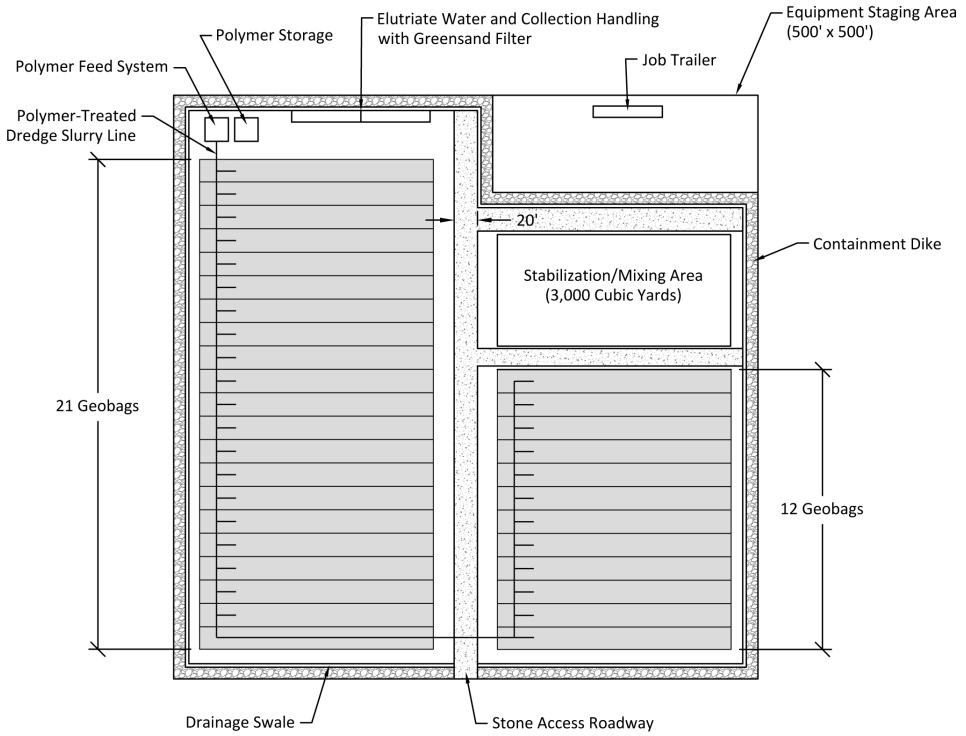
Dredging Support Equipment

- Silt Curtains
  - Control suspended solids and turbidity in the water column
  - Fabricated of flexible, vinyl fabric and provided with anchors to secure curtain bottom
  - Skirt to extend to bottom surface of the Canal
- Booster Pumps
  - Required to convey dredged sediment through plastic pipeline to dewatering area
  - Located along the western shoreline to facilitate refueling and maintenance operations
  - Equipped with double wall fuel storage tanks
  - Provided with oil containment booms to provide envelope around each booster pump

Dredging of the Delaware and Raritan Canal from Kingston to Amwell Road

Geobag Staging Area

- Approximately 6 acres in total area
- Includes:
  - Geobag laydown area
  - Drainage swale/containment dike
  - Return water/stormwater treatment
  - Polymer metering equipment
  - Contractor office
  - Truck loading area
  - Stabilization/mixing area



Not to Scale

Dredging of the Delaware and Raritan Canal from Kingston to Amwell Road

Potentially Required Permits

- U.S. Army Corps of Engineers
- Delaware and Raritan Canal Commission
- NJ Department of Environmental Protection
  - Freshwater wetlands
  - Flood hazard area
  - No net loss reforestation
  - Water lowering
  - Fish stocking
  - NJPDES Water Quality Certification
  - Section 106 consultation
- Somerset-Union County Soil Conservation District
  - NJPDES Construction
  - Soil erosion and sediment control

		Dredge Methodology		
		Mechanical Dredging (in the wet)	Mechanical Excavation (in the dry)	Hydraulic Dredging
Aesthetic Concerns	Canal Draining	○	●	○
	Staging Areas	▨	▨	▨
	Access Areas	▨	●	○
	Tree Clearing	▨	●	○
	Tree Trimming	▨	▨	▨
	Wetland and Wetland Transition Area Impacts	▨	●	○
	Species Relocation/ Restocking	○	●	○
	Flood Hazard Area Disturbance	▨	●	○
	Traffic	●	●	○
	Cultural Resources	▨	○	▨
	Trail Closures/Recreational Impacts	○	●	○

● Major ▨ Moderate ○ Minor

Dredging of the Delaware and Raritan Canal from Kingston to Amwell Road

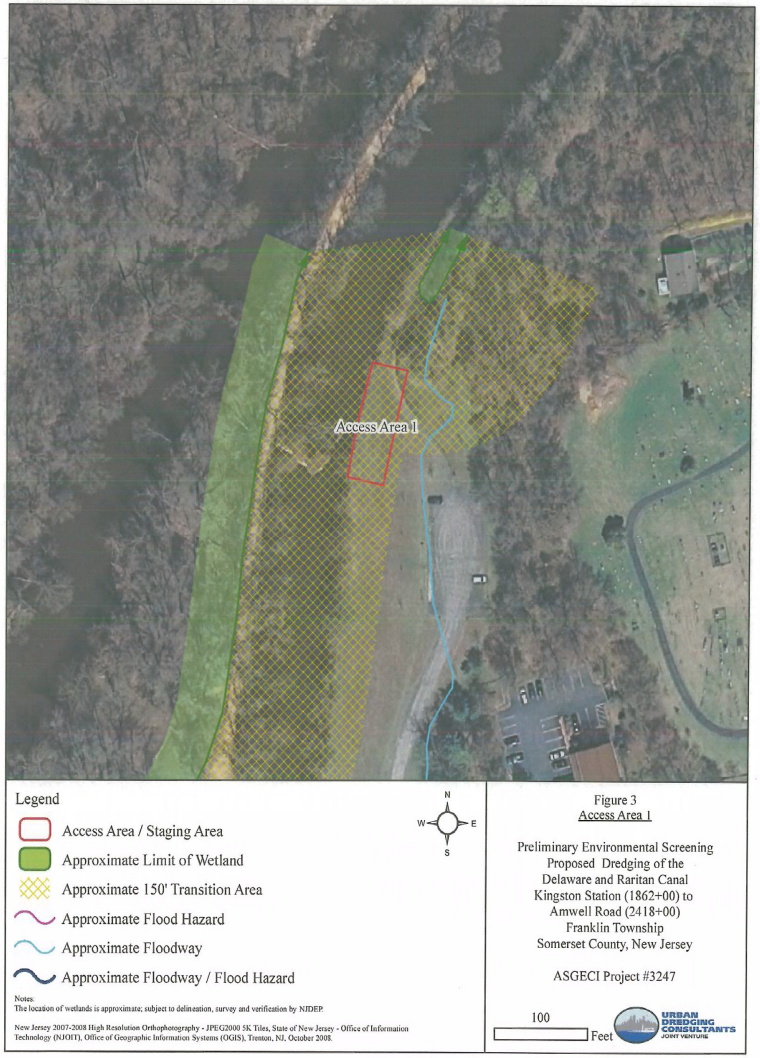
Level II Environmental Information Document

- Key Environmental Issues
  - Public use
  - Surface water
  - Floodplains and riparian zones
  - Biotic (plant and animal communities)
  - Forest
  - Wetlands
  - Threatened and endangered species
  - Cultural resources
  - Impacts on water users

Dredging of the Delaware and Raritan Canal from Kingston to Amwell Road

Staging Area and Site Access Selection Process
Environmental Constraints

- Wetlands and Transition Area
- Flood Hazard Area
- Riparian Zone
- Threatened and Endangered Species Habitat



Dredging of the Delaware and Raritan Canal from Kingston to Amwell Road

Sediment Characteristics and Beneficial Reuse

- 32 Individual samples
- Represent vertical average at each location