USACE, New York District, Harbor Deepening Project Overview. Downloaded from http://www.nan.usace.army.mil/Portals/37/docs/harbor/Harbor%20Program%20Images/2Harbor%20Deepening%20Overview.pdf

Harbor Deepening Project Overview

U.S. Army Corps of Engineers
New York District

US Army Corps of Engineers
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Port of New York & New Jersey

- Largest Port on the East Coast (59% share)
- 3rd in US (13% share); 15th in World
- $114.5 B in cargo (over 5 million TEUs per year)
- 852,000 automobiles
- 269,900 full time jobs
- $11.2B in personal income
- $2.2 B in NY/NJ state and local tax revenue
- 35 percent of US population served

The leading North American port for automobile imports and exports.

Vehicle terminals are located at the Auto Marine Terminal in Jersey City and at the Port Newark/Elizabeth Marine Terminal complex.

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Why water Transportation?

Economic Theory of Adam Smith, Water Transportation, and the Potential to Grow

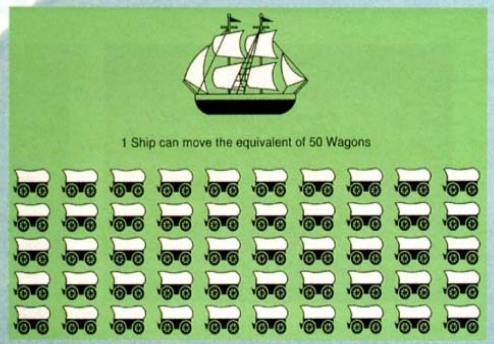
The classical economist Adam Smith recognized the efficiency of water transportation in 1776, when he published his revolutionary book, *An Inquiry into the Nature and Causes of the Wealth of Nations*. Smith championed water over ground transportation when he analyzed why some nations are better off than others.

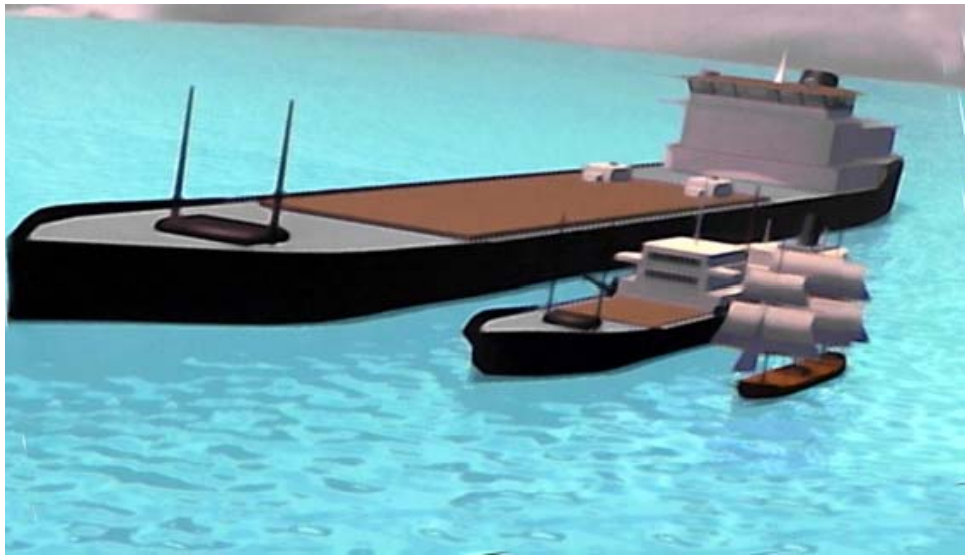
Smith stated:

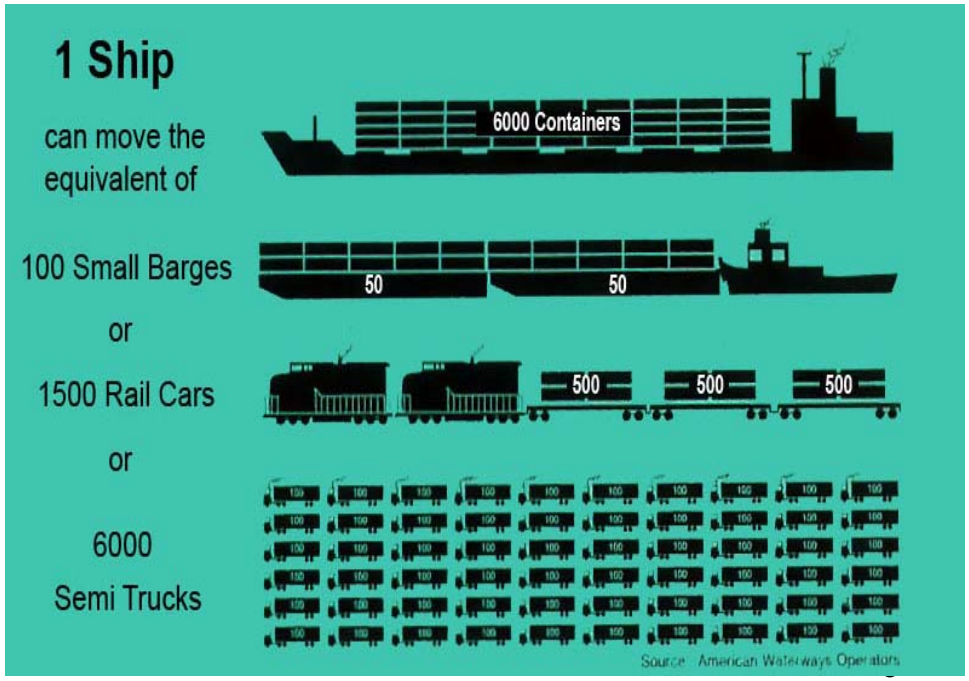
"*A broad wheeled wagon, attended by two men and drawn by eight horses, in about six weeks time carries and brings back between London and Edinburgh near four ton weight of goods. In about the same time, a ship navigated by six to eight men, and sailing between the ports of London and Leith, frequently carries and brings back two hundred ton weight of goods.*

"*Six or eight men, therefore, by the help of water-carriage, can carry and bring back in the same time the same quantity of goods between London and Edinburgh as fifty broad-wheeled wagons, attended by a hundred men, drawn by four hundred horses.*"

As a result of this comparison, Adam Smith came to a simple but important conclusion: "*Countries are only wealthy when they have growth potential.*" This unprecedented concept was echoed in our Constitution, which empowered the United States government to form economic incentives. These incentives stimulated commerce, building the basis for the nation's economic development.







Through the Port's four major container terminals waterborne cargo moves to all parts of the United States and throughout the world.

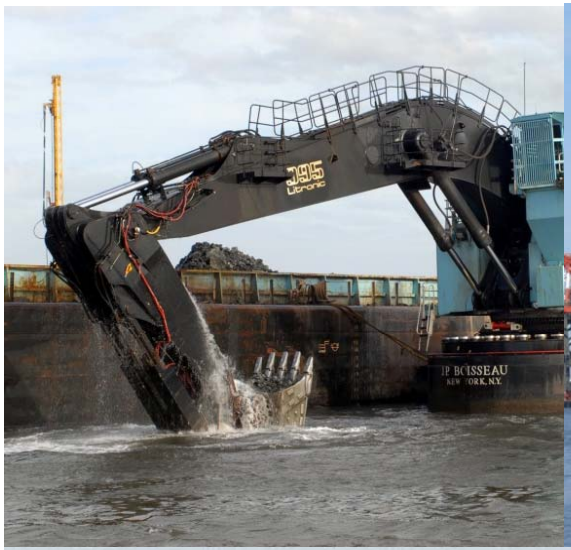
"Deepening the harbor channels is a critical part of our strategy to grow the port business, which now supports 269,900 full-time jobs and $11.2 billion in personal income," said Port Authority Port Commerce Director Richard Larrabee. "Deeper channels, a state-of-the-art on-dock rail system, and a modern port road network will give us the tools we need to continue to compete for international business."

The Port's four major container terminals where waterborne cargo moves to all parts of the United States and throughout the world.


. . . over 269,900 direct and indirect jobs in port related activities.

Goods arrive every day on container ships (basically everything we buy on a daily basis) most of it is consumed in the immediate area. *(source: Port Authority of NY and NJ)*

Deepening the Channels



The harbor deepening creates safe and efficient channels for ships that will be calling at the Port of New York and New Jersey.

The Harbor Deepening Project is a crucial component in providing 50 foot channel access for container ships to safely navigate.

New York/New Jersey Harbor Deepening
Project Oversight

U.S. Army Corps of Engineers New York District in partnership with
The Port Authority of New York and New Jersey

NY & NJ Harbor Deepening Contracts

Types of dredges Used

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Arthur Kill Channel

US Army Corps of Engineers
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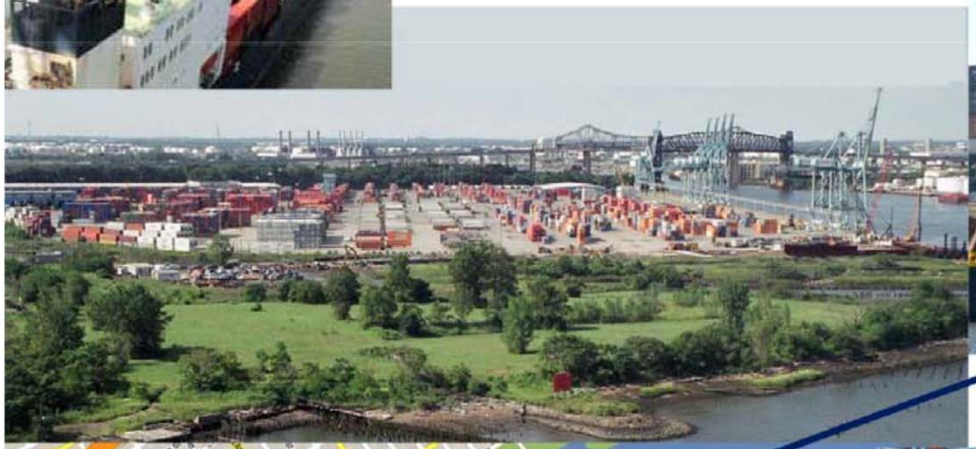
The Arthur Kill Channel deepening effort is part of a more extensive harbor-dredging project to create safe and efficient channels for a larger class of ships that call at the Port of New York and New Jersey.

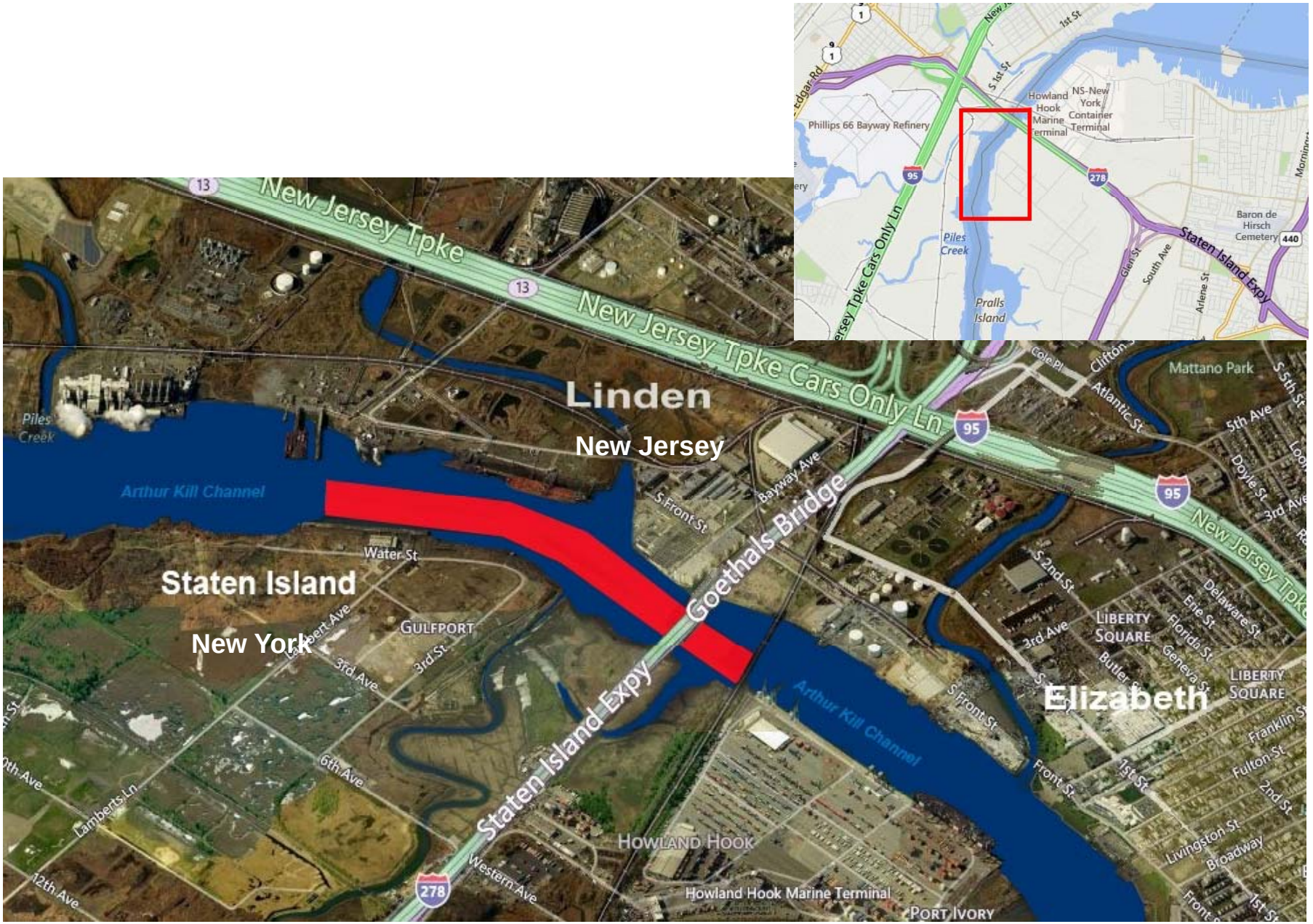
S-AK-3 Contract



Deepening the
Arthur Kill Channel

A container ship docked at the NY Container Terminal Staten Island, NY

Arthur Kill (AK-4) Deepening



Drilling and Underwater Blasting

Certain areas on the channel floor contain solid bedrock that necessitates precision controlled, safe and staggered detonations underwater to fracture the rock for removal. Areas of the Kill Van Kull and Arthur Kill Channels contain solid bedrock of various types such as sandstone, shale and an igneous rock called diabase. Diabase is the same rock that makes up the cliffs of the Palisades in New Jersey.

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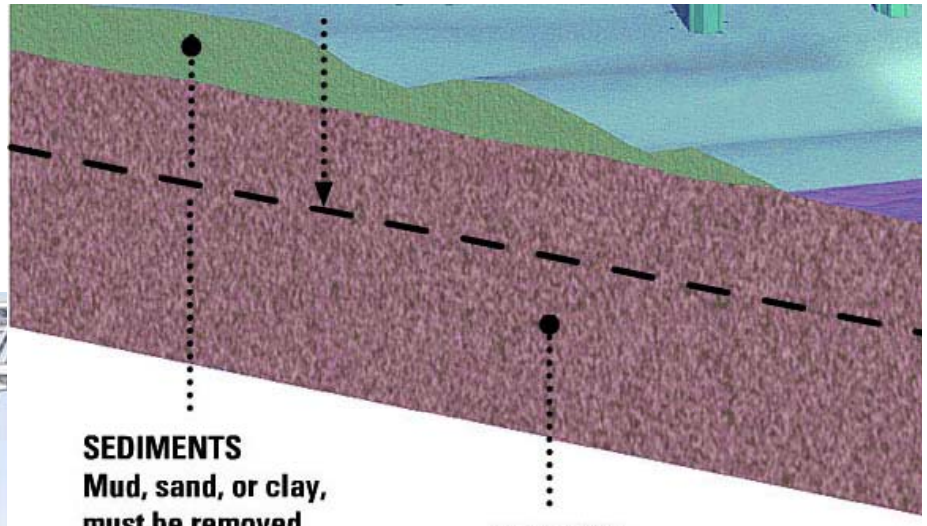
Why Blasting is Needed

- **To remove underlying bedrock . . .**



. . . for ships to safely navigate

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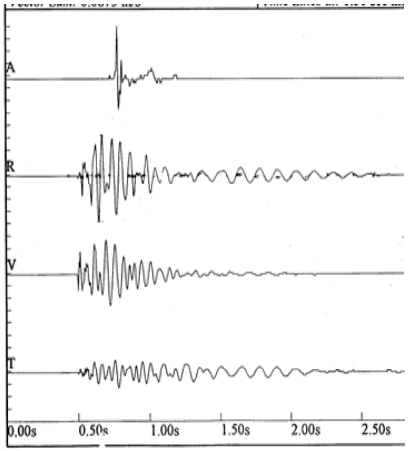
All drilling and blasting work throughout each contract was safely accomplished and closely monitored. The drilling and underwater blasting was crucial to navigation safety, allowing ships to safely maneuver."

Blast vibrations

- Similar to ripples in a pond.
- They dissipate as they travel from the blast.

Vibration and Noise Monitoring

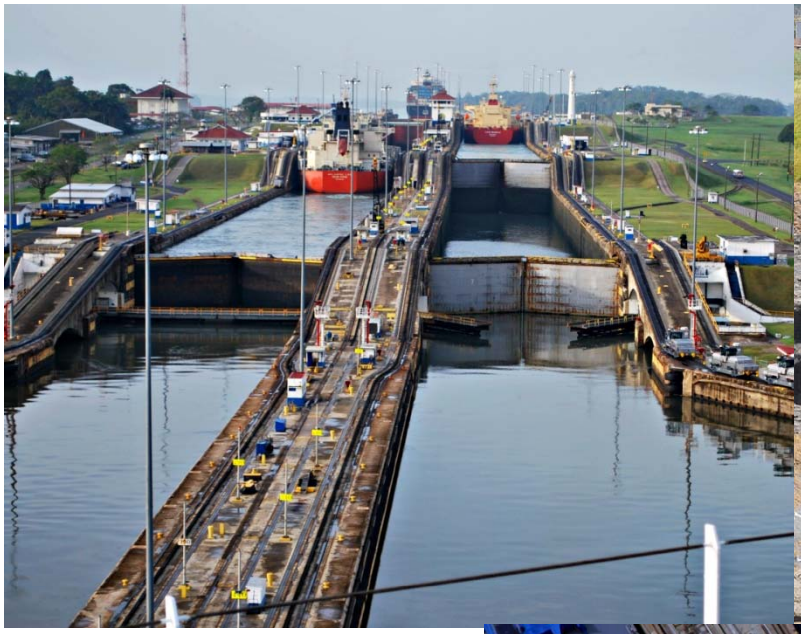
- Using Blasting Seismographs
- For compliance with the project limits

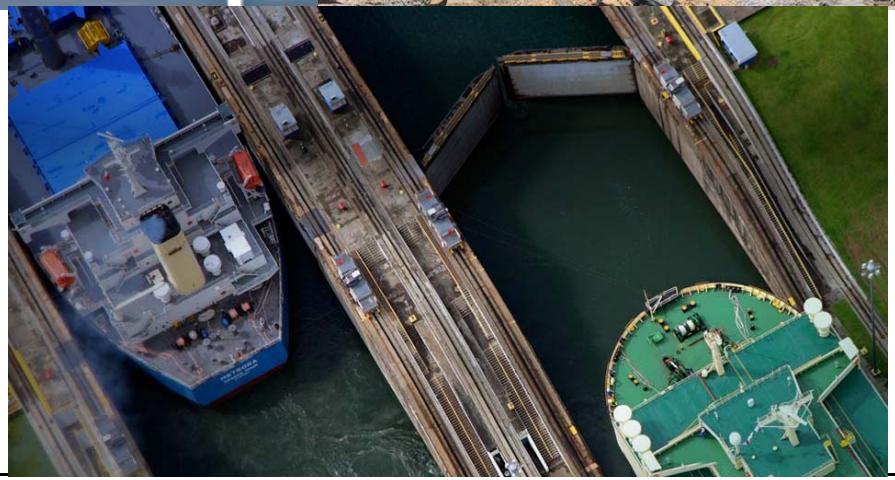


The U.S. Army Corps of Engineers and other agencies involved perform various monitoring activities during this construction to ensure that the work conforms to all applicable federal, state and local requirements and ordinances.

Portable seismographs are used to measure and record the ground vibrations and air overpressure. The specialist conducting this work will analyze the recordings and keep updated information available at all times. Vibration and noise monitoring reports are posted on the Army Corps' New York District web site.

The Harbor Deepening Project will be completed the same year that the Panama Canal's expansion is completed.





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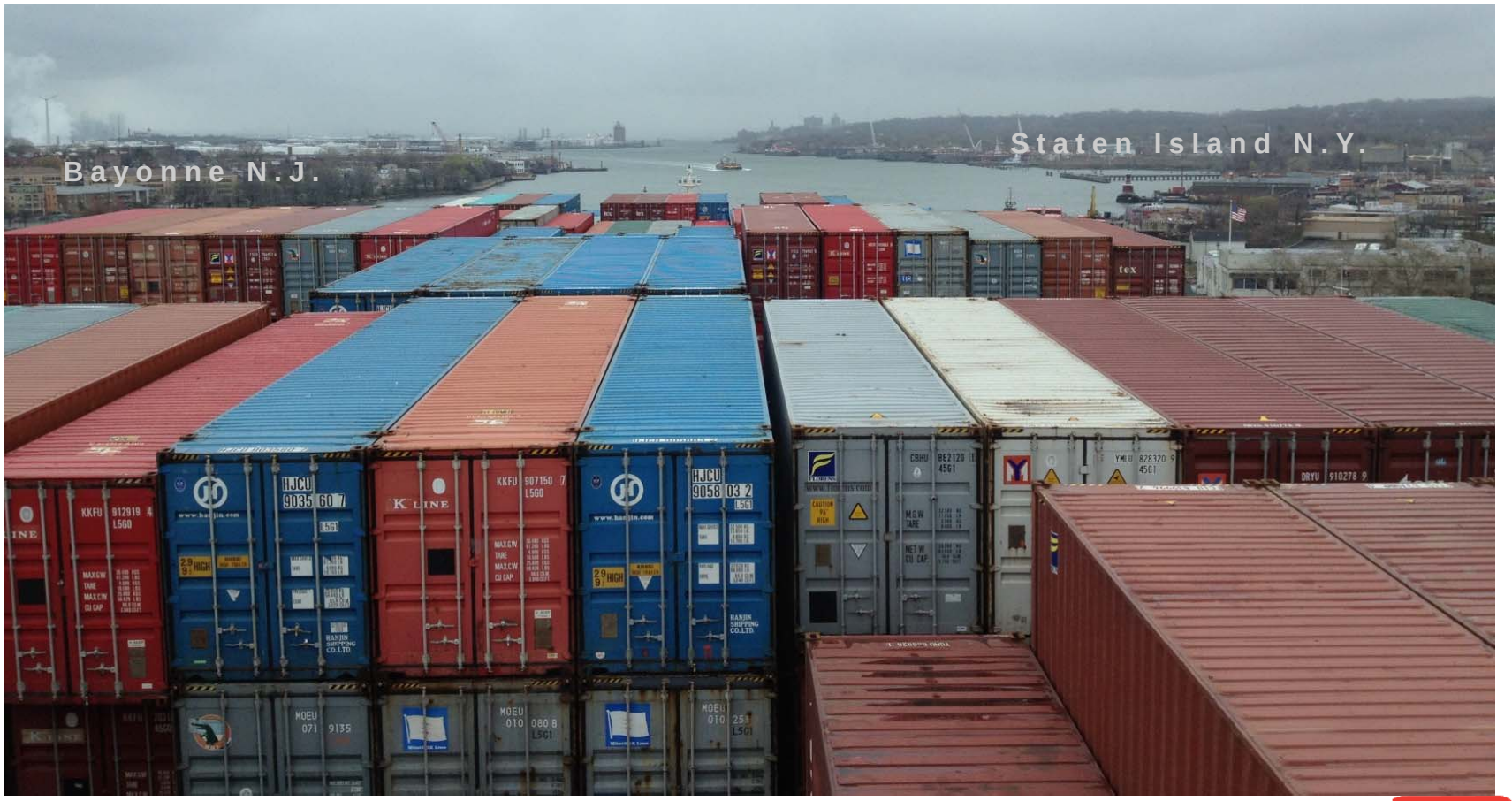
View from the pilot house aboard a container ship as it transits the Kill Van Kull Channel

The Kill Van Kull is a tidal strait between Staten Island, New York and Bayonne, New Jersey that connects Newark Bay with Upper New York Bay. It is one of the most heavily travelled waterways in the Port.

In September 2011, the US Army Corps of Engineers completed the last major contract in the Kill Van Kull deepening project.



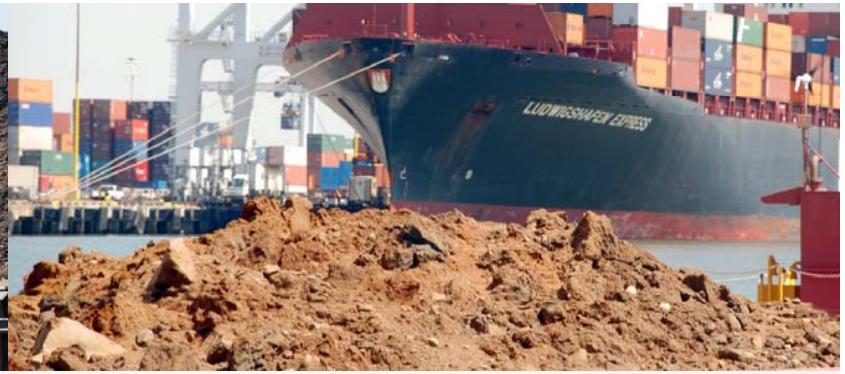
This particular container Ship is 934’ long by 131’ wide

Photo courtesy of S. Zorovich, McAllister Pilots

Dredged Material Management

Goal : To beneficially utilize all material

What is done with the Dredged Material?



- **Depends on the type of material**
  - **Sand – island creation or closure of the**
  - **HARS (Historic Area Remediation Site)**
  - **Soft mud – Same as sand or upland**
  - **Glacial Till - HARS**
  - **Clay - HARS**
  - **Bedrock – Artificial Fish Reef Creation**

Placement depends on soil type and contamination levels

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Beneficial Uses of Dredged Material

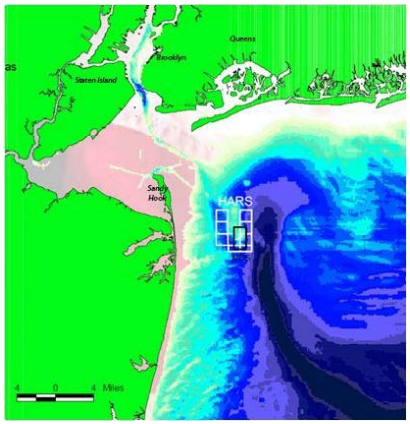
Brownfield Remediation

Beach Nourishment/Shoreline Stabilization

Fish Reefs

Ecosystem Restoration

Remediation



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Community Outreach Sessions
During the Harbor Deepening Project
Bayonne and Elizabeth N.J. and Staten Island N.Y.
New York and New Jersey Harbor
Channels and Terminals

CRADLE OF THE CORPS