

NY & NJ Harbor Deepening Project

PROJECT SCOPE:

- **Description:** Deepens 35 miles of navigation channels to 50 - 53 ft (mean low water)
- **Key features of 50 ft. project include:**
 - 19 large dredging contracts, 18 complete, 1 advertised
 - Beneficial use of dredged material (>154 acres of marsh islands, > 40 acres of sublittoral habitat, multiple artificial reefs, remediating multiple landfills/brownfields, etc.)
- **Port Stats (as of 2012):**
 - Largest Container Port on East Coast (3rd in USA)
 - Largest Auto Import/Export Port in USA
 - Largest Refined Petroleum Product Port in USA
 - 16% of US Containerized Imports
 - 296,060 total jobs in NY/NJ Region

DREDGING REQUIREMENTS:

- Excavators, Clamshells, Hoppers, Drill/Blast Barges, Cutterheads
- 50 MCY of Holocene sands & silts, Pleistocene glacial tills and clay, many types of bedrock (diabase, sandstone, schist, serpentinite, pegmatite, shale, etc.)
- Env. Windows, primarily for winter flounder, but also avian nesting, and ESA (sturgeon)
- Immediate maintenance needs which will increase over time

MILESTONES:

- Issue Controlling Depth Reports for 50 ft. Channel Construction (all except Anchorage & Port Jersey Channels utility areas) – September 2014–June 2015
- Complete Anchorage & Port Jersey Channel (delayed due to Sandy) & Issue CDR – Summer 2016
- Complete 40 ft. Arthur Kill Channel Deepening – December 2015

ISSUES/REMARKS:

- Environmental issues – no-dredge windows, multiple lawsuits, air conformity
- Concerns – Channels already utilized by container ships larger than 50 ft. design ship (riding high tide to pass water siphon berms in Anchorage then low tide to pass under Bayonne Bridge)
- Challenges: Keeping regional/budgetary support to maintain channels



NY & NJ Harbor Deepening Project Contracts



Non-Federal Sponsors: Port Authority of New York & New Jersey, New Jersey Department of Transportation Office of Maritime Resources



Types of Dredged Material

- ▶ Sand
- ▶ Soft mud (e.g. silts)
- ▶ Glacial Till
- ▶ Clay
- ▶ Bedrock



NY/NJ Harbor Beneficial Use of Dredged Material Examples

Brownfield Remediation



Bayonne Lighthouse: 4MCY
(+ many other landfills & Brownfields remediated)



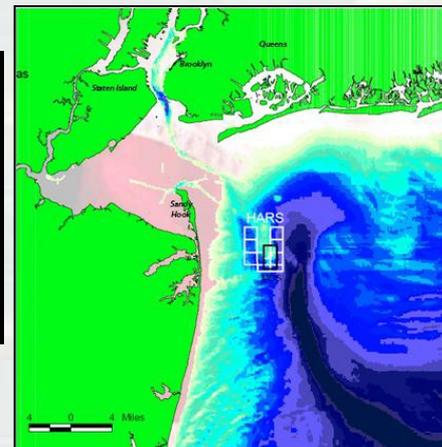
Lincoln Park: 339,000 CY

Beach Nourishment/Shoreline Stabilization



Plumb Beach: 155,000 CY

Remediation



Capping HARS (+O&M): ~56 MCY



Harbor Deepening Project:
~50 M CY



Fish Reefs: ~11 MCY rock



Capping NBCDF: 235,000 CY

Ecosystem Restoration: Jamaica Bay Marsh Islands



Elders East: 249,000 CY
40 acres



Elders West: 302,000 CY
40 acres



Yellow Bar: 375,000 CY
45 acres



Black Wall: 155,000 CY
20 acres



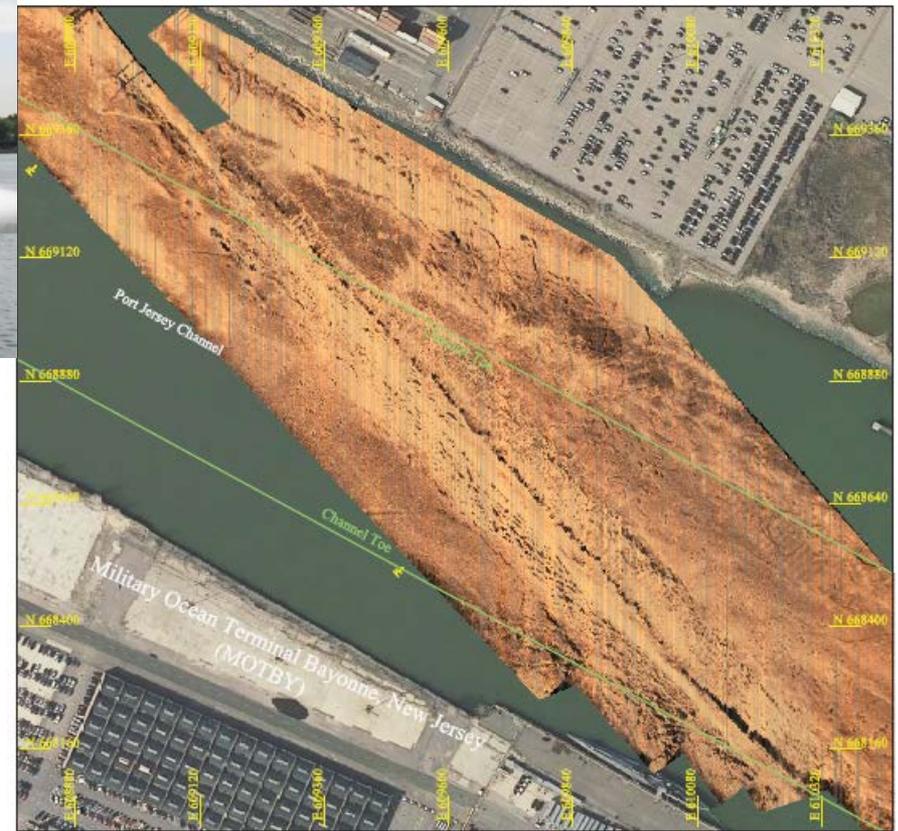
Rulers Bar: 92,000 CY
10 acres

Other Notable Project Construction Features

**Drilling & Blasting of Bedrock
(diabase, sandstone, shale, etc.)**



**Channel Deepening Incorporating Utility
Protection-in-Place Measures**



- Seven contracts involved bedrock drilling & blasting

- 430 Steel plates installed during dredging over PVSC effluent outfall tunnel (each plate 30'x4'x5" weighing 13 tons)



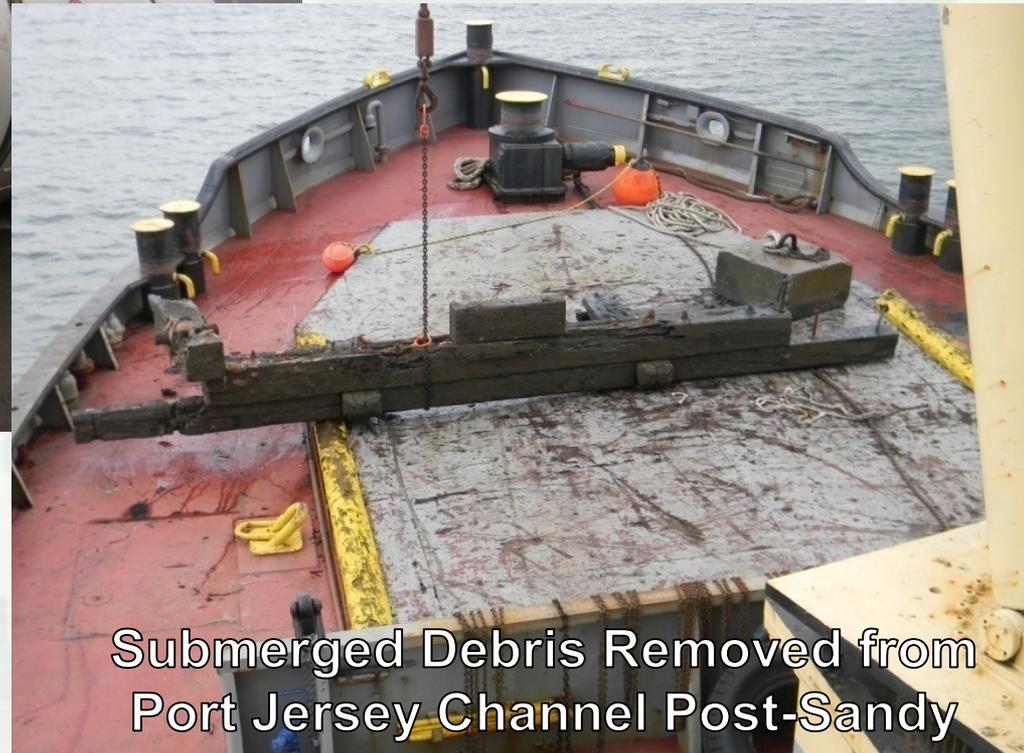
Drawn by: [Name]
Approved by: [Name]
Date: [Date]

Superstorm Sandy Impacts to the HDP

- Increased sedimentation
- Debris in channels



Water Siphon Tunnel Boring Machine Flooded by Sandy



Submerged Debris Removed from Port Jersey Channel Post-Sandy

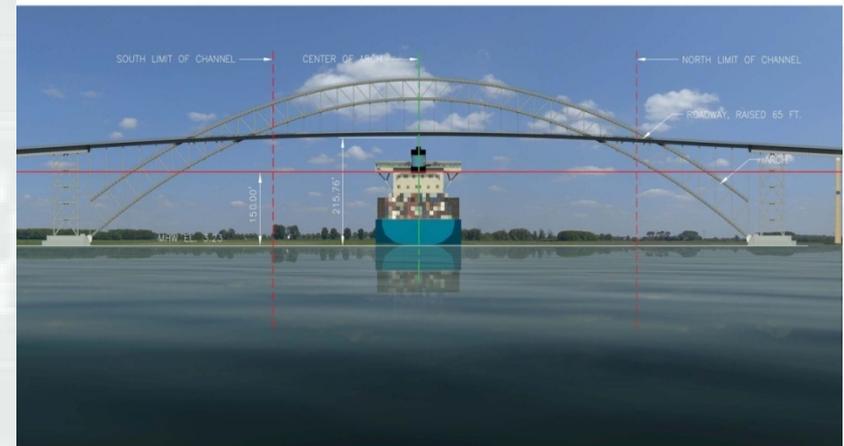
- Multiple Contracts – Ongoing delay in completing project (due to substantial delays in water siphon relocation)

Bayonne Bridge

The Port Authority of NY&NJ constructing preferred solution to resolve Bayonne Bridge Navigational Clearance Issue



- \$1.3B Construction Project
- Construction underway
- Navigational clearance - late 2017
- Overall completion - mid 2019
- Raising roadbed 64 feet from 151 ft. air draft clearance to 215 ft.



BAYONNE BRIDGE

SECTION - BAYONNE BRIDGE CLEARANCE
RAISE ROADWAY (215' CLEARANCE) LOOKING WEST

THE PORT AUTHORITY OF NY & NJ

BUILDING STRONG®