

HDR

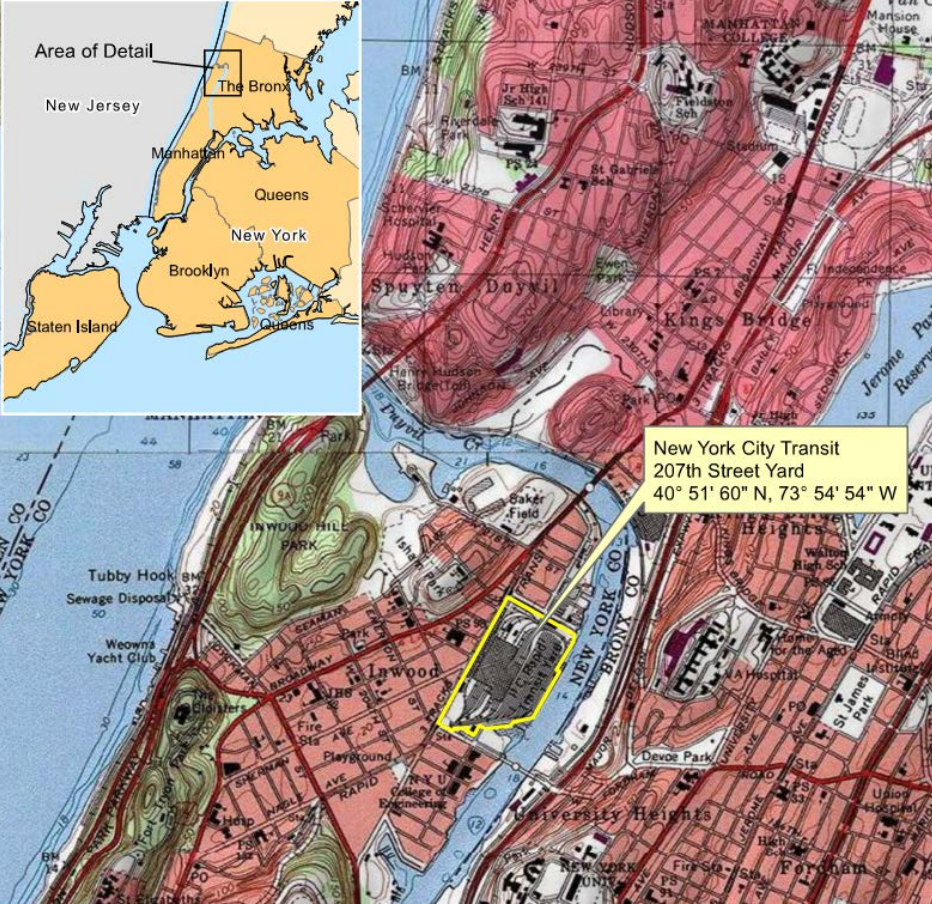


**Sandy Raises the Yards –
Permitting Raises the NEPA Bar**
**MTA-NYCT 207th St Yard Flood
Mitigation / Resiliency Project**

Environmental Railroad Conference

November 1-2, 2016





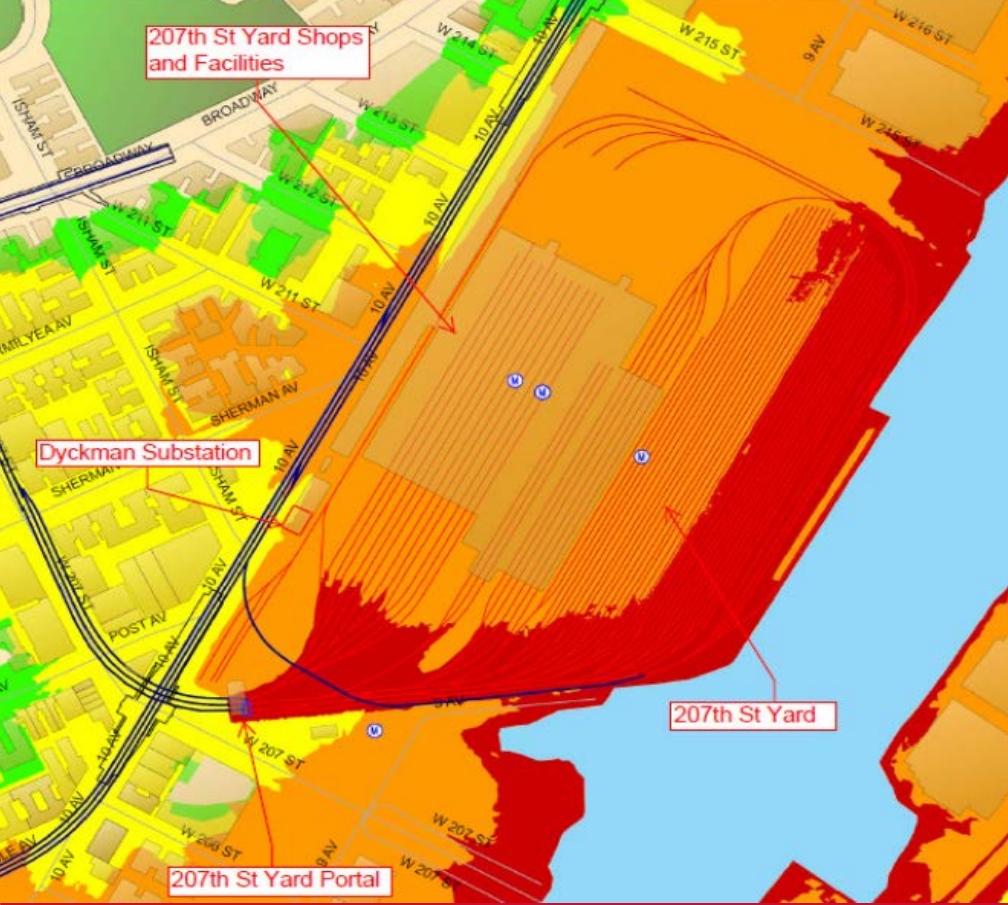
Project Site

- Inwood Neighborhood, Manhattan, NY
- 207th St. – 215th St. along Harlem River
- 43-acre rail yard with 10 miles of storage tracks, various shop buildings, and a **tunnel portal** to main system.



MTA NYCT 207th St Yard



207th St Yard



Storm Surge:

-  Category 1
-  Category 2
-  Category 3
-  Category 4

2012 Superstorm Sandy Surge

▪ 9-foot High Storm Surge

- Flooded the 45-acre 207th St. Yard with over 4 feet of water
- Flowed like a funnel through Portal to 8th Avenue Tunnel
- Shorted out third rail power, electrical, mechanical, signals and communications systems

▪ 207th St. Yard Operations Halted

- NYCT Subway System's primary car maintenance shop
- 10 miles of storage track for several service lines
- Garbage processing for all of Manhattan and the Bronx.

Superstorm Sandy Damages

Purpose and Need

- Protect 207th Street Yard's assets from flood damage;
- Protect their associated tunnel portals from flooding; and
- Minimize disruption to NYCT subway operations from a Category 2 hurricane's storm surge.

Project Purpose and Need

- **Project Funding**
 - FEMA Funding Administered By FTA
 - State Funding From MTA NYCT

- **Flood Mitigation and Resiliency Measures**
 - Contiguous perimeter floodwall surrounding the yards;
 - flood gates at yard entrances; flood barriers at the tunnel portal;
 - stormwater drainage improvements and lightweight concrete fill below existing timber platform to prevent secondary (backup) flooding.

Project Sponsorship and Description

- Perimeter wall design crest elevation was established at +18.8 foot (NAVD88)
- Used the Sea, Lake and Overland Surges from Hurricanes (SLOSH) model for a Category 2 storm
- Plus Additional 3 ft.
 - 1 ft. for wave run-up,
 - 1 ft. for future sea level rise, and
 - 1 ft. for freeboard

Project Design Criteria



Proposed Mitigation Methods

- Flood Walls
- Cut-Off Walls
- Driveway Gates



Existing Waterfront

Eastern Boundary with Harlem River – Existing



Proposed Waterfront Protection

Eastern Boundary with Harlem River – Proposed



Perimeter Protection

Southern Boundary along 207th St & 9 Ave - Existing



Perimeter Protection

Southern Boundary along 207th St & 9 Ave - Proposed

- Concrete wall reface
- 8 feet temporary partial sidewalk closure



Perimeter Protection

Western Boundary along 10th Ave – No Change

- Existing buildings



Perimeter Protection

Typical Driveway Entrance on 10th Ave – Existing



Perimeter Protection

Typical Driveway Entrance on 10th Ave – Proposed

- Stop log gate
- 5 feet temporary partial sidewalk closure



Perimeter Protection

Western Boundary along 10th Ave and Northern Boundary 215 Street Portion – Existing



Perimeter Protection

Western Boundary along 10th Ave and Northern Boundary 215 Street Portion – Proposed

- Concrete wall reface
- 8 feet temporary partial sidewalk closure



Perimeter Protection

Northern Boundary with 215th Street – Existing



Perimeter Protection

Northern Boundary with 215th Street – Existing



Perimeter Protection

Driveway Entrance #1 on 215th Street – Existing

- ±12' to 8' high reinforced concrete floodwall
- 12 feet temporary partial sidewalk closure



Perimeter Protection

Driveway Entrance #1 on 215th Street – Proposed

- ±10' high floodwall swing gate
- 12 feet temporary partial sidewalk closure

- Accelerated Project Schedule
 - Emergency Project with FEMA Funding Milestones

- Accelerated Environmental Review Process Solutions
 - Developed a **concurrent NEPA and Section 404 Permitting process.**
 - Prepared universal materials meeting NEPA and Permit Applications
 - alternatives analysis, figures, photographs, resource assessments and design plans
 - Concurrent Agency Reviews
 - **Approach saved approximately 9 months to 1 year off the schedule.**

Accelerated Environmental Review Approach

- **Concurrent Process Issues**
 - Simultaneous NEPA and pre-construction permitting applications submittals
 - NEPA analyses and mitigation not as detailed as permitting
 - Permitting and mitigation details were developed conservatively in advance of preliminary project designs
- **Concurrent Process Result**
 - **Improved NEPA document**, more comprehensive and detailed, incorporating additional design and mitigation details required by the permitting process.
 - **USACE adoption** of NEPA document for their Federal action.

Concurrent NEPA and Section 404 Process

Unexpected Hurdles

- Section 106 Issues

- Potential JFK PT Boat site
- Former cemetery
- Potential Native American occupation

- Section 404 Issues

- Extensive wetlands impacts requiring mitigation and a local wildlife enthusiast, "The Birdman"

- EJ Issues

- Vocal EJ community opposed to the floodwall

NEPA Issues

Section 106

- Potential JFK PT Boat site – Burned and Destroyed in 1970s
- Former cemetery – Removed in 1920s to the Bronx
- Potential Native American occupation – Outside Project Area



CENTURY OLD GRAVES DUG UP FOR CAR YARD

200 Bodies, Some Believed to Be of Revolutionary Soldiers, Are Moved From Nagle Cemetery.

More than 200 human bodies, some believed to have been of soldiers of the Revolutionary War, have been disinterred in the last two weeks at Nagle Cemetery, 212th Street, between Ninth and Tenth Avenues, to clear the way for a vast car yard made necessary by the new Eighth Avenue subway. Remnants of headstones and coffin plates show that some of the bodies were buried there more than a century ago. Time, however, has re-

duced them in most cases to skulls and a few scattered bones, making exact identification impossible. The remnants of brass buttons such as were on the uniforms of Revolutionary soldiers give rise to the belief that old soldiers were among the persons buried there.

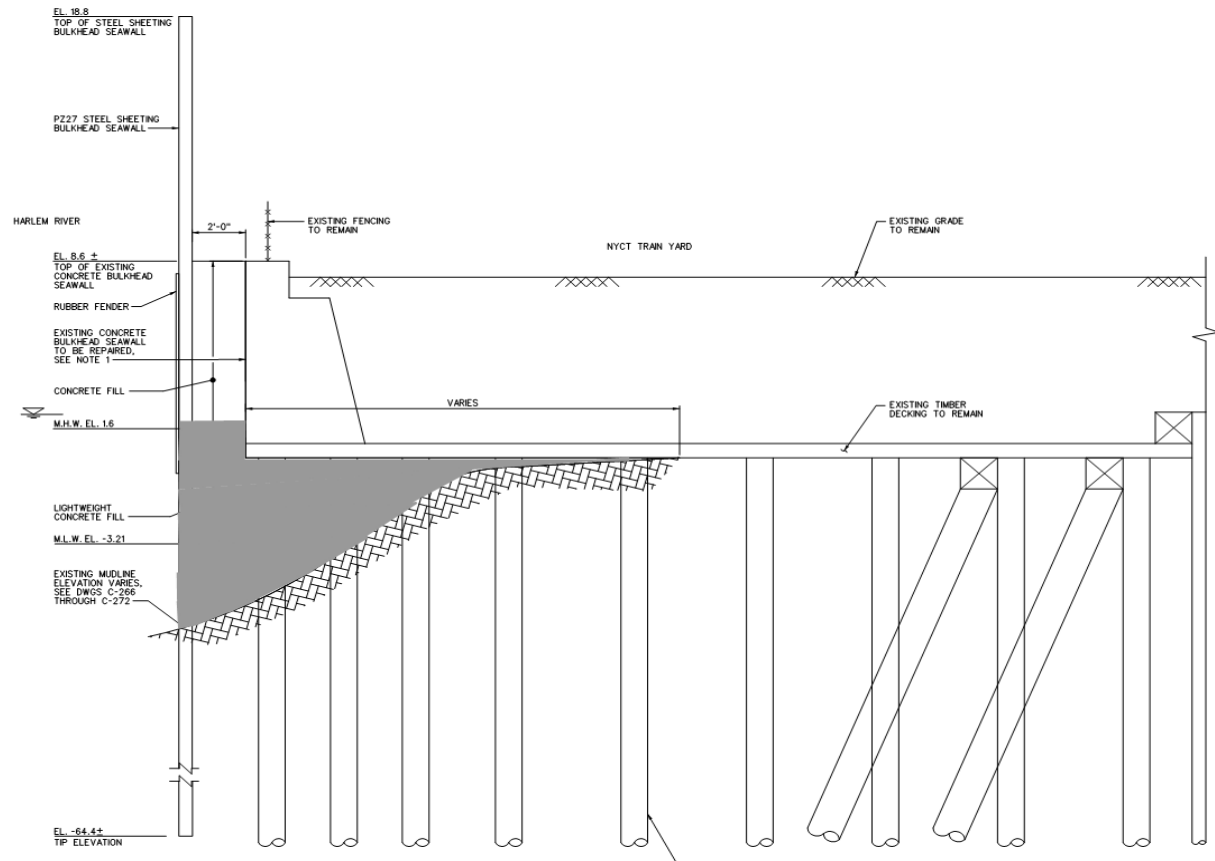
Utmost care is taken to insure proper respect for the human ashes. Excavation by machinery is forbidden, although steam shovels are in operation in other parts of the site. Workmen have been instructed to excavate by shovel wherever a grave is believed to be located, and where any part of a body is found it is carefully removed, placed in a wooden box and removed to a city-owned plot at Woodlawn Cemetery. Relatives of many persons known to have been buried there have visited the cemetery since the work was started and have given approval to the method employed, according to E. G. Haines, Assistant District Engineer of the Board of Transportation, who is directing the work.

NEPA Issues

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Section 404

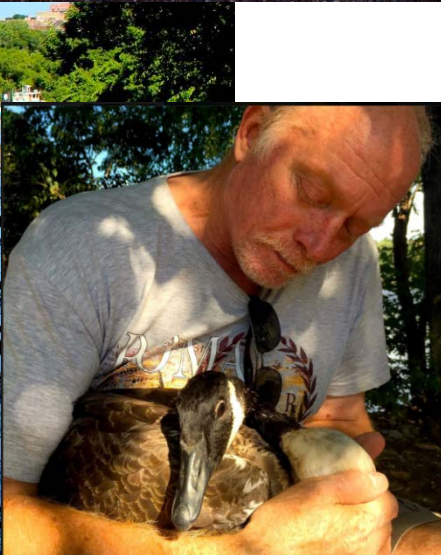
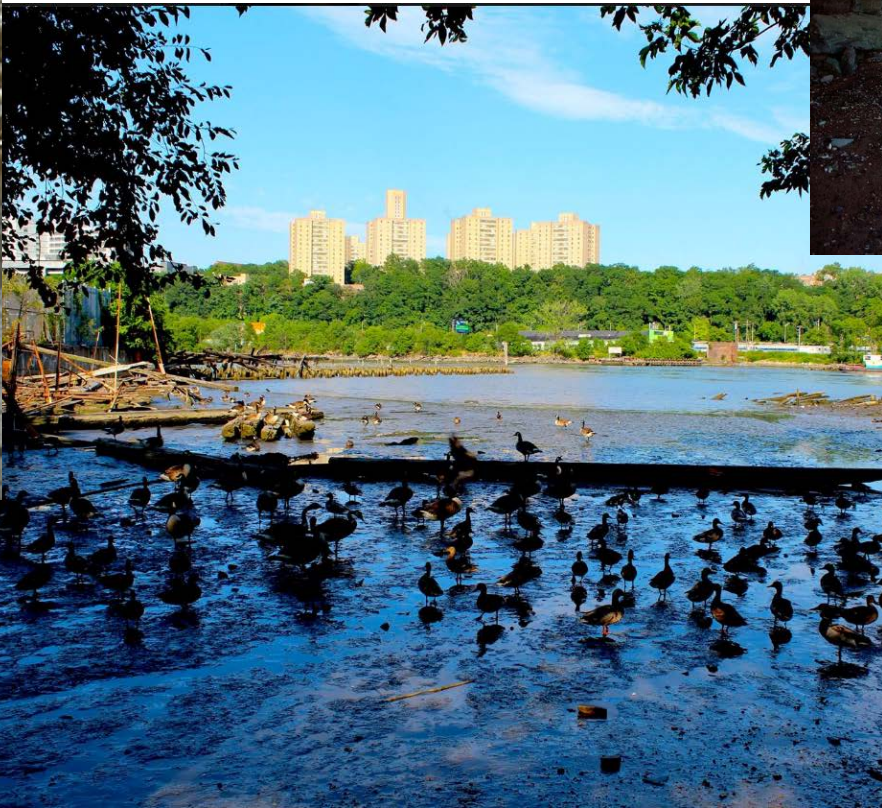
- 1/3 Acre of Open Water Fill
- 1:1 Mitigation Ratio for On-site Mitigation
- Mitigation Required for Both U.S. Army Corps of Engineers and N.Y. State Dept. of Environmental Conservation



Section 404 Issues



North Cove Salt Marsh Mudflat – Southern Boundary



Meet The “BIRDMAN”



Manhattan Wetlands & Wildlife Association

Manhattan Wetland and Wildlife Association



The BIRDMAN's Preferred Habitat



NYCT 207th St. Yard

Field #1

Field #2

North Cove

Proposed Debris Removal

Field #3

North Cove – Proposed Mitigation



Debris Field #1



Debris Field #2



Debris Field #2



Debris Field #3

▪ Health and Safety

- Remove Floatable Hazards to Boaters and Habitat
- Prevent Remobilization During Storms

▪ Timber Piles

- Perch Habitat for Fish Predation
- Migratory Bird Attraction
- Mudflat Sediment Retention

▪ Restored Mudflat Areas

- Recovered Mollusk/Aquatic Life Habitat
- Increased Waterfowl Forage Habitat

▪ Restored Tidal Water Column

- Increased Fish Habitat Vertical Water Column
- Increased Waterfowl Forage Habitat

Restoration Benefits



Timber Pier Perch Habitat



Restored Habitat



- **“WIN-WIN” Situation Realized**

- Wetland Mitigation Meets Community Goal and Permitting Goal

- Presented to Community Board (CB)

- Revised Floodwall Architectural Façade
 - Proposed Wetland Mitigation Plan

- CB and The Birdman endorsed of the mitigation plan

- CB Endorsement encouraged the NYSDEC decision to accept mitigation

- Satisfied EJ, Public Outreach and Wetland Permitting Requirements

Community Outreach Pays Off

- **FTA Endorsement**

- *“very comprehensive and thoughtfully put together to the extent that it was easy to follow and understand”*
- ultimately allowing for a streamlined NEPA review.

- **MTA NYCT Endorsement**

- *“HDR has definitely raised the NEPA bar.”*

Success – Project Endorsements



Questions

