

# Albany Park Stormwater Tunnel



BUILDING A NEW  
**CHICAGO**  
\*\*\*



Metropolitan Water  
Reclamation District  
of Greater Chicago

Illinois Association for  
Stormwater and  
Floodplain  
Management

2019 Conference

David Handwerk, PE, CFM  
[dhandwerk@spaantech.com](mailto:dhandwerk@spaantech.com)

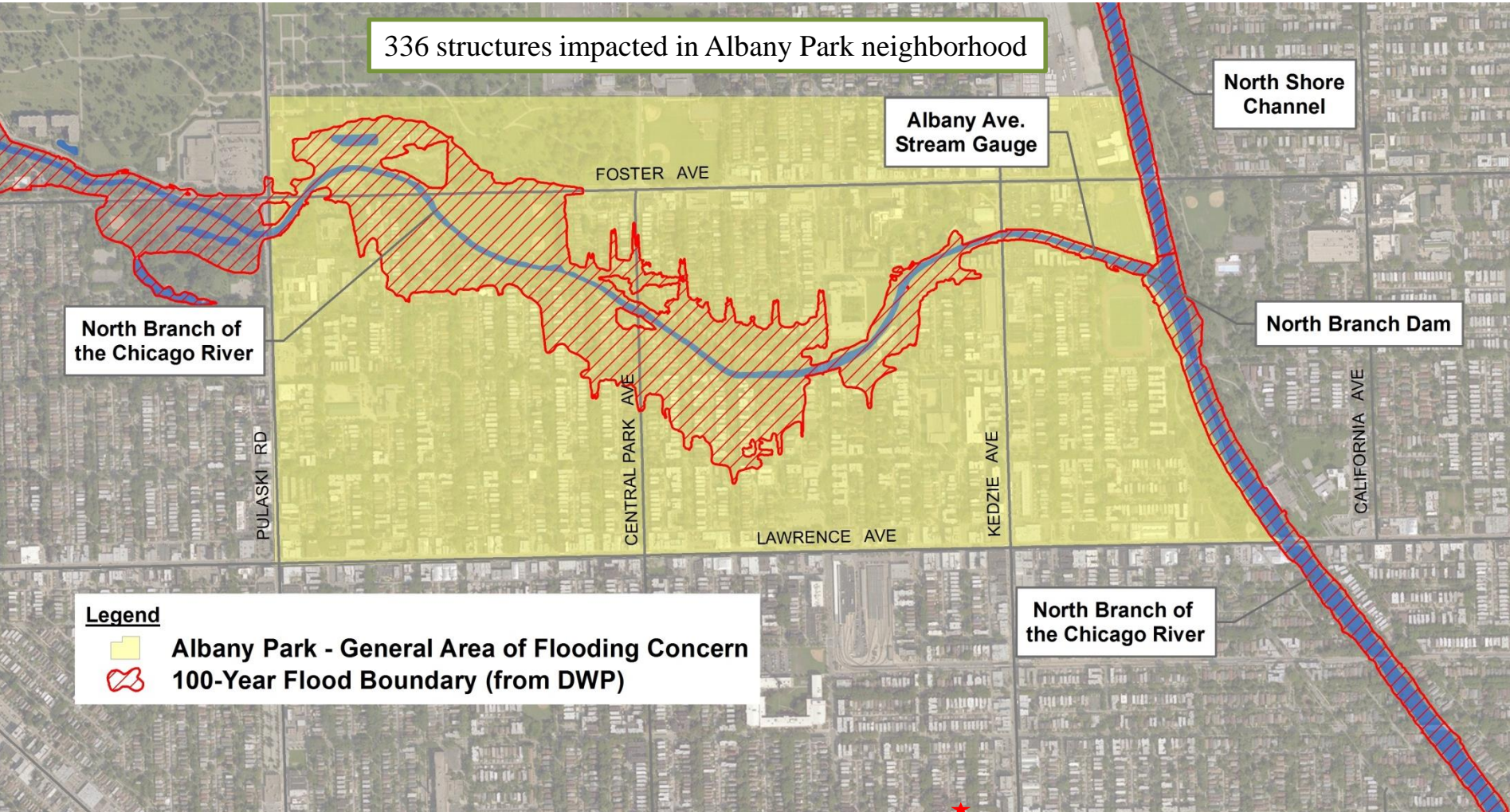


Thera Novotny, PE, CFM  
[Thera.novotny@stantec.com](mailto:Thera.novotny@stantec.com)





# Flood Area





# Overbank Flooding in Albany Park Neighborhood

Albany Park Stormwater Diversion Tunnel



BUILDING A NEW  
**CHICAGO**  
★ ★ ★ ★



Metropolitan Water  
Reclamation District  
of Greater Chicago

The purpose of this project is to alleviate overbank flooding along the North Branch Chicago River in Albany Park.





# Project Overview

## Plan View

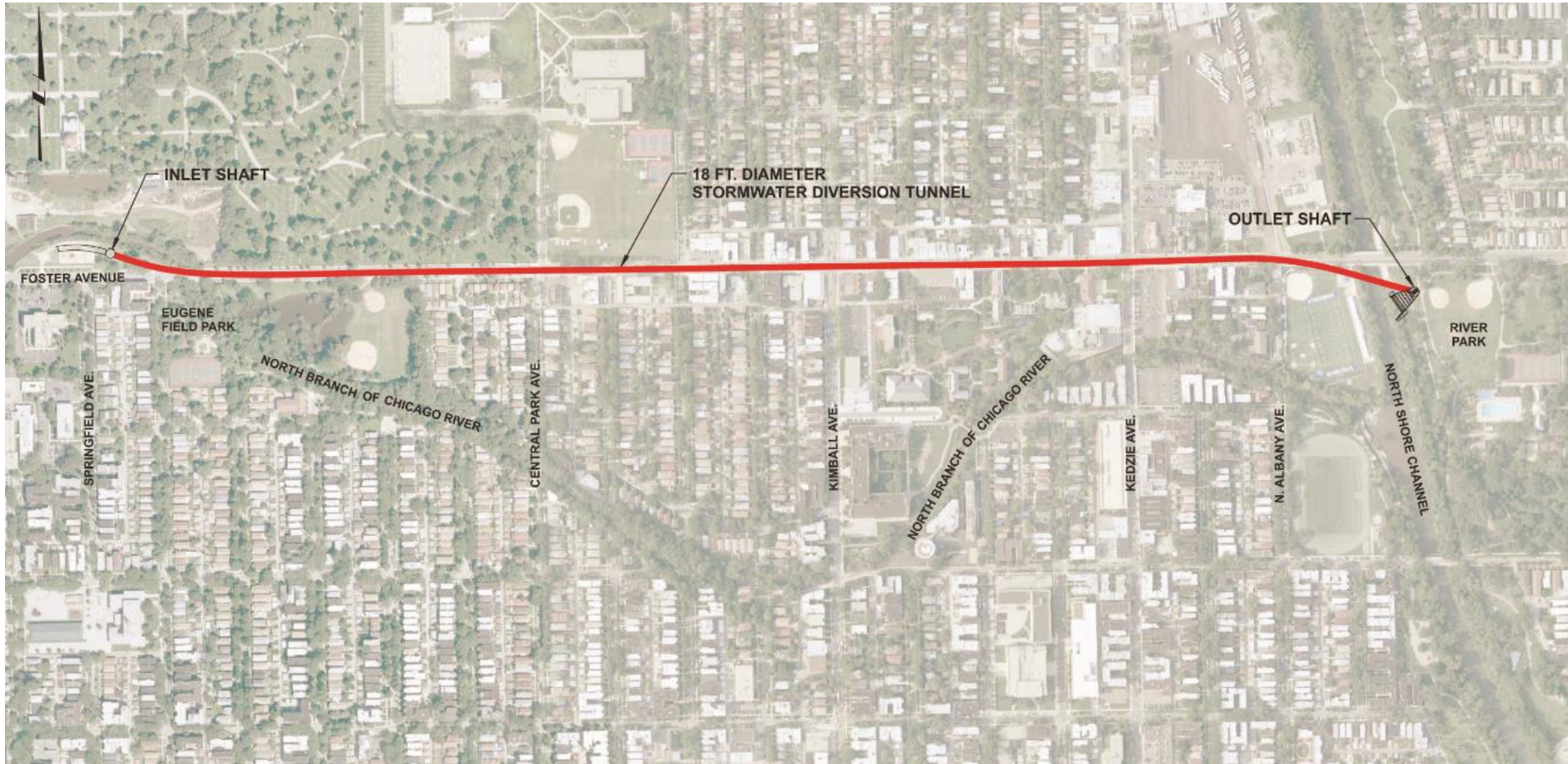
Albany Park Stormwater Diversion Tunnel



BUILDING A NEW  
**CHICAGO**  
★ ★ ★ ★



Metropolitan Water  
Reclamation District  
of Greater Chicago





# Project Overview

## Inlet Area Plan View

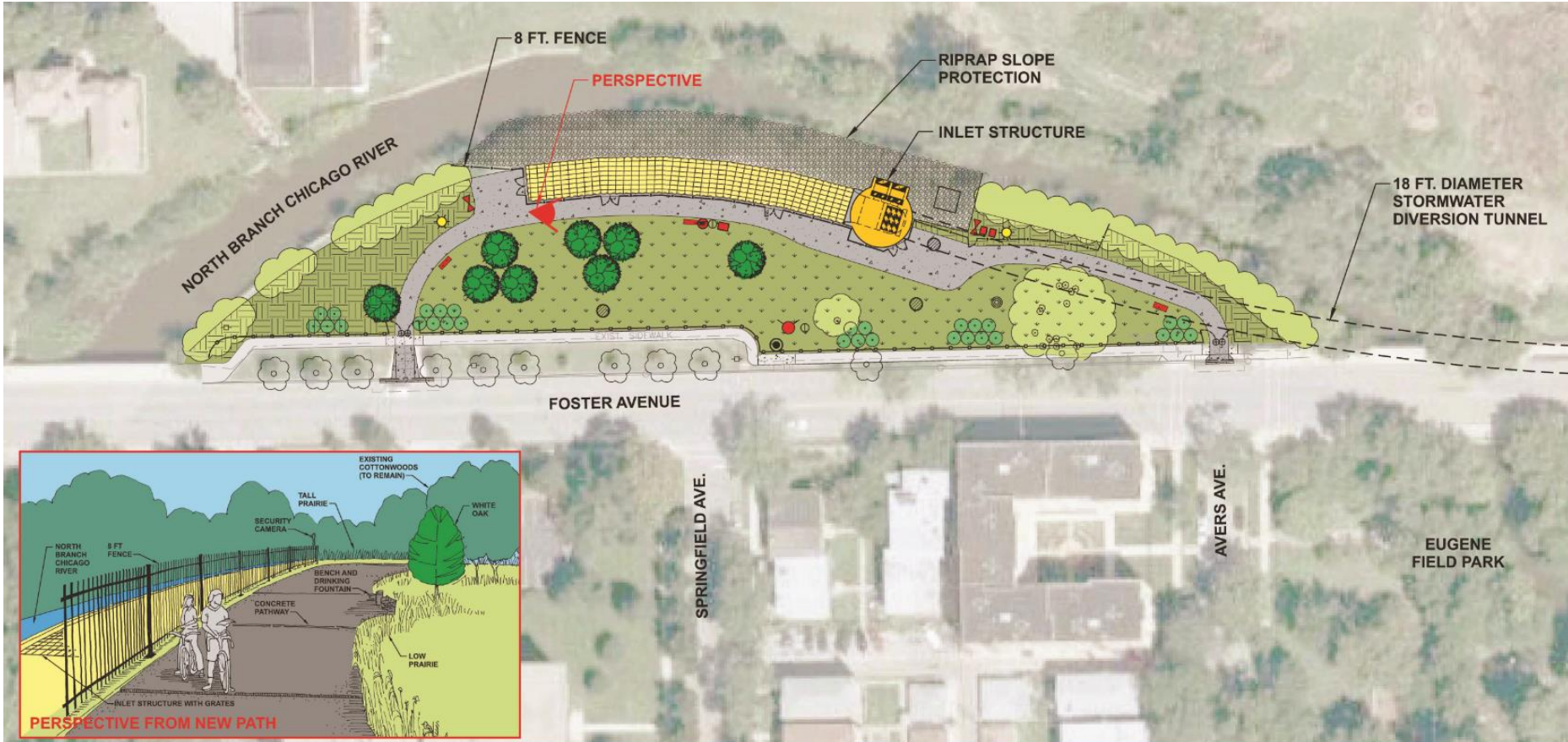
Albany Park Stormwater Diversion Tunnel



BUILDING A NEW  
**CHICAGO**  
★ ★ ★ ★



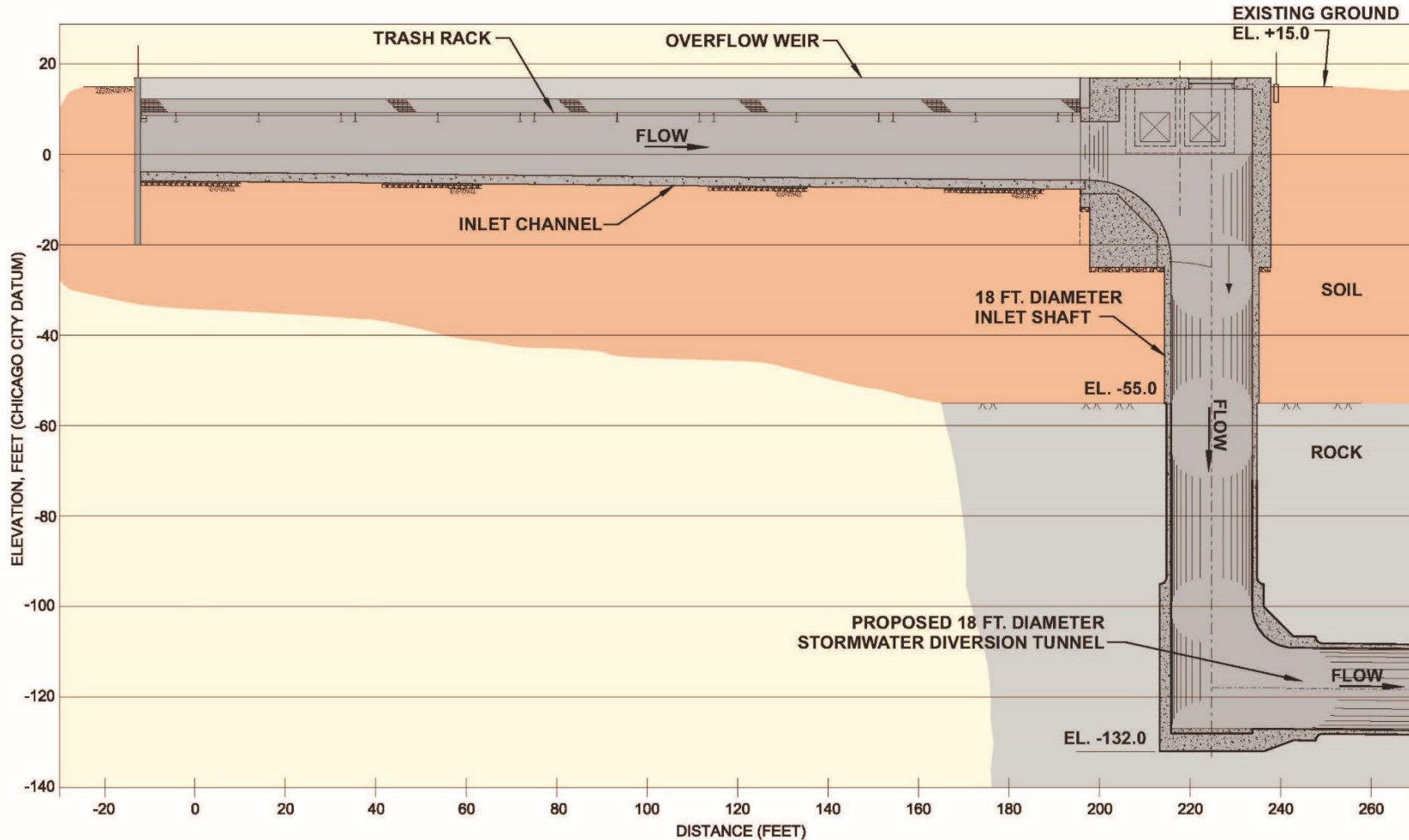
Metropolitan Water  
Reclamation District  
of Greater Chicago





# Project Overview

## Inlet Cross Section View





# Project Overview

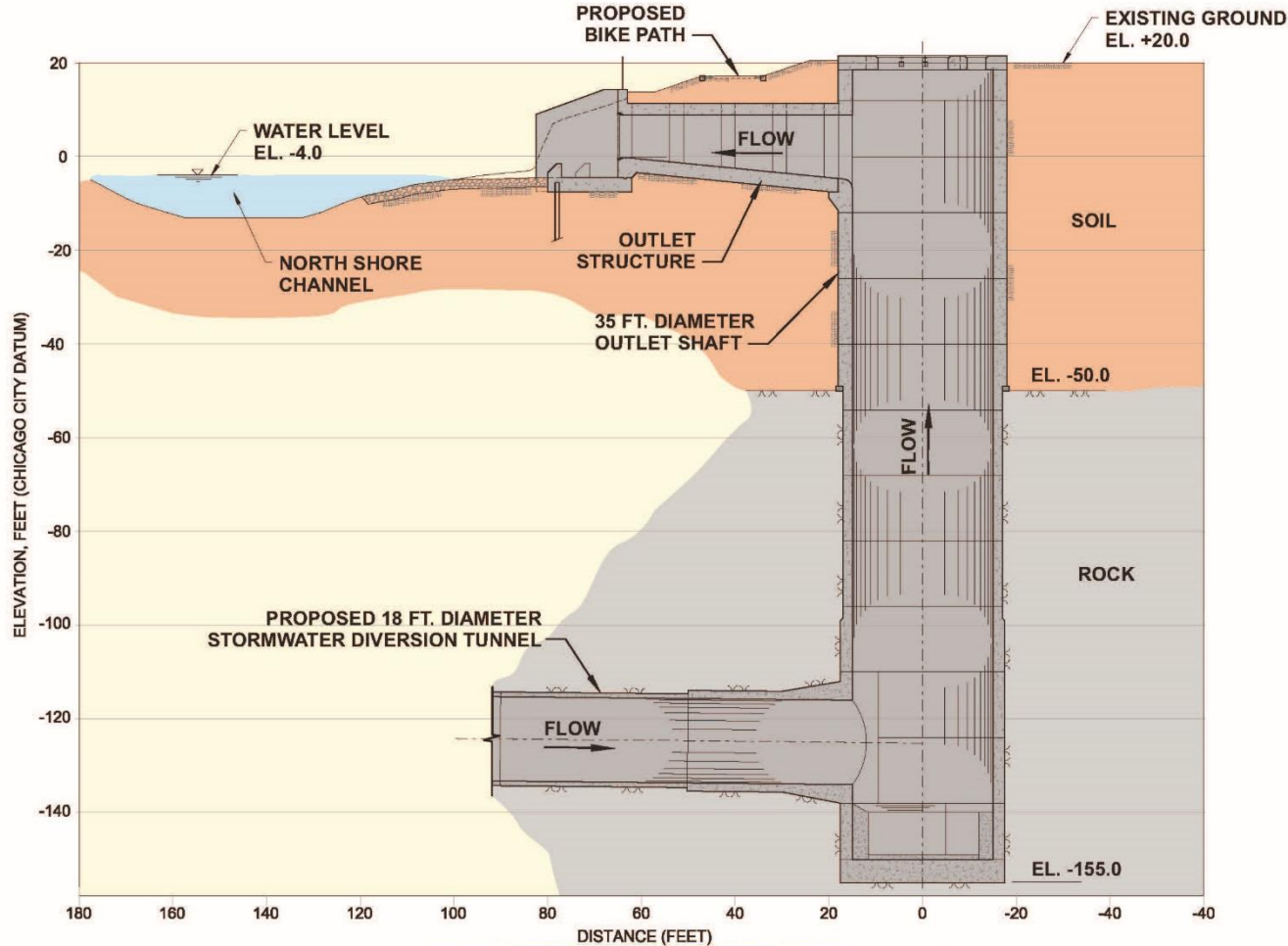
## Outlet Area Plan View





# Project Overview

## Outlet Cross Section View





# Project Team



- Chicago Department of Transportation (CDOT)
- Contractor (Kenny Construction)
- Construction Management (WSP)
- Designer (Stantec)

# External Coordination



- Chicago Department of Transportation (CDOT)
- MWRDGC – Funding
- IDNR - Funding
- US HUD Grant (CDBG) – Funding
- Three Aldermanic Wards - Laurino (39<sup>th</sup>), O'Connor (40<sup>th</sup>) & Mell (33<sup>rd</sup>)
- Swedish Covenant Hospital
- Chicago Park District – Three Parks
- IDOT
- People's Gas & Utilities
- Regulatory Agencies
- Police & Fire Departments
- Community



# Public Outreach



BUILDING A NEW  
**CHICAGO**  
\*\*\*



Metropolitan Water  
Reclamation District  
of Greater Chicago





# Shaft Construction

- Main Construction Shaft
- 35-foot Diameter, 150 Feet Deep
- Soldier Pile & Lagging in Overburden
- Drill & Blast in Rock





# Shaft Construction

Albany Park Stormwater Diversion Tunnel



BUILDING A NEW  
**CHICAGO**  
★ ★ ★ ★



Metropolitan Water  
Reclamation District  
of Greater Chicago





# Shaft Construction

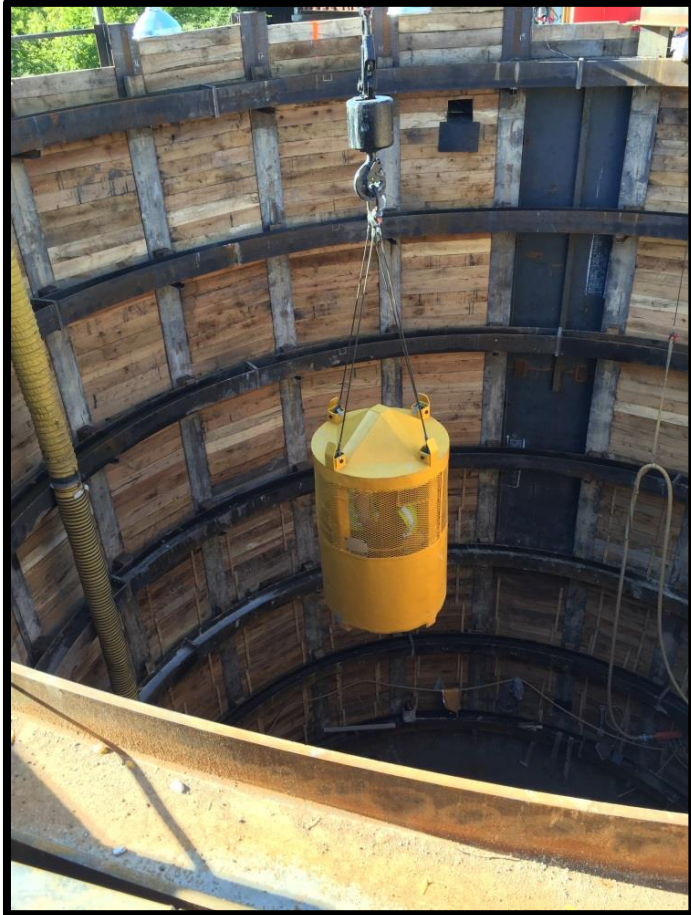
Albany Park Stormwater Diversion Tunnel



BUILDING A NEW  
**CHICAGO**  
★ ★ ★ ★



Metropolitan Water  
Reclamation District  
of Greater Chicago





# Controlled Blasting Overview



- Public Meetings
- Preconstruction Survey
- Resident Notifications
- Blast Planning
- Licensed Blaster
- Minimal Amount Of Explosives
- Safety & Security

# Shaft Blasting

Albany Park Stormwater Diversion Tunnel



BUILDING A NEW  
**CHICAGO**  
★ ★ ★ ★

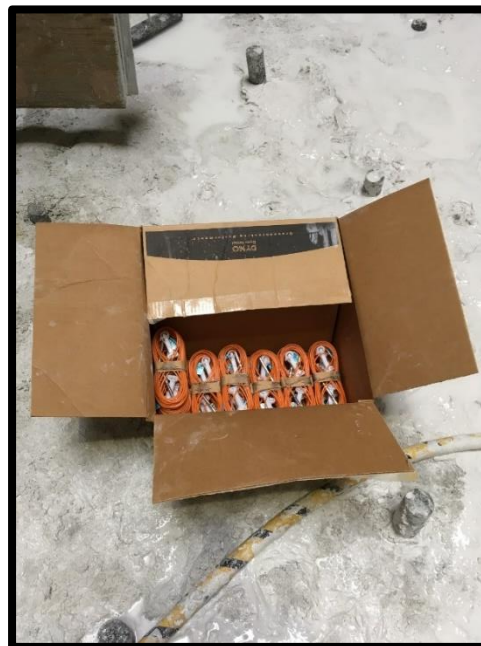


Metropolitan Water  
Reclamation District  
of Greater Chicago





# Shaft Blasting



# Monitoring & Safety for Blasting

Albany Park Stormwater Diversion Tunnel



Metropolitan Water  
Reclamation District  
of Greater Chicago

- Pre and Post Blast Emails
- Hospital Coordination
- Audible Signals
- Traffic Stoppage
- Monitoring









# Shaft Reinforcement

Albany Park Stormwater Diversion Tunnel



BUILDING A NEW  
**CHICAGO**  
★ ★ ★ ★



Metropolitan Water  
Reclamation District  
of Greater Chicago





# Shaft Concrete Lining

Albany Park Stormwater Diversion Tunnel



Metropolitan Water  
Reclamation District  
of Greater Chicago



# Shaft Concrete Lining

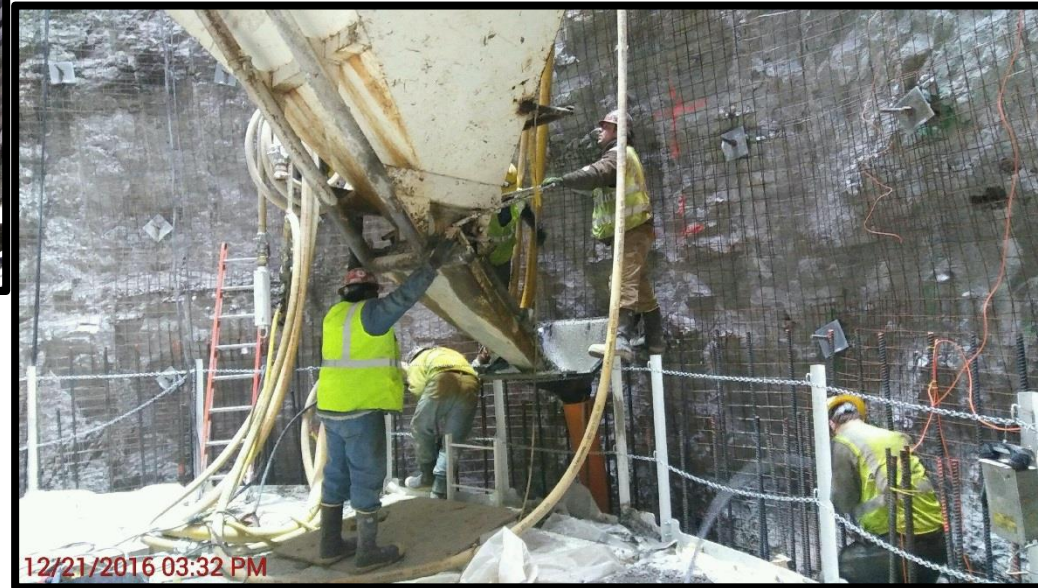
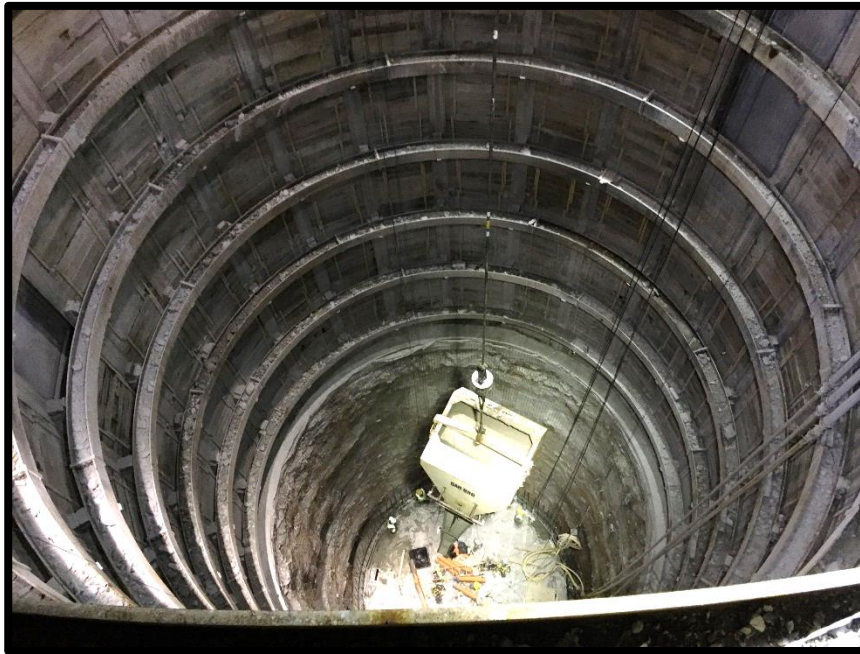
Albany Park Stormwater Diversion Tunnel



BUILDING A NEW  
**CHICAGO**  
★ ★ ★ ★



Metropolitan Water  
Reclamation District  
of Greater Chicago





# Shaft Concrete Lining

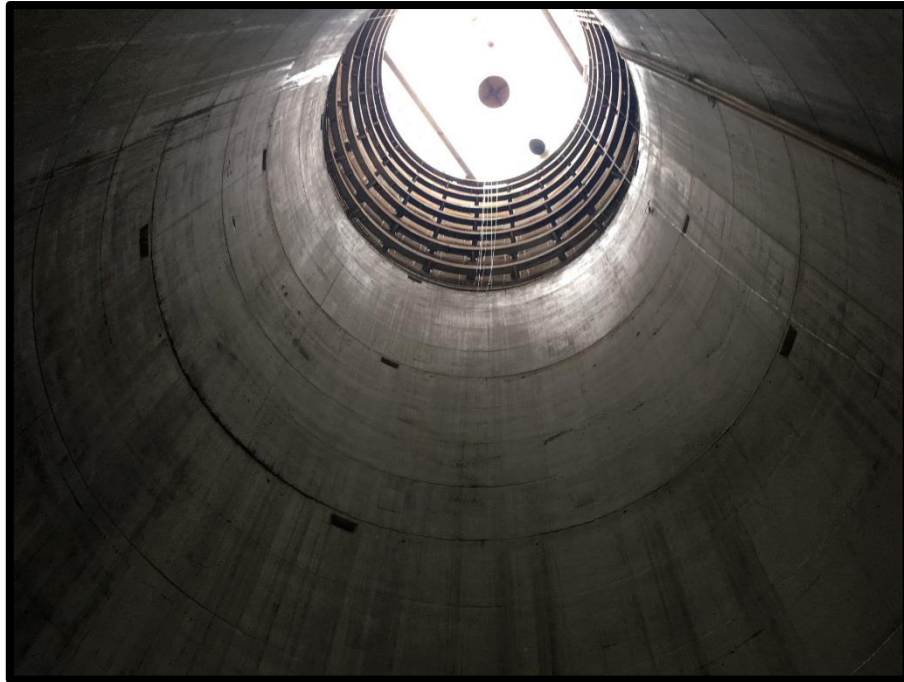
Albany Park Stormwater Diversion Tunnel



BUILDING A NEW  
**CHICAGO**  
★ ★ ★ ★



Metropolitan Water  
Reclamation District  
of Greater Chicago



# Starter & Tail Tunnel

Albany Park Stormwater Diversion Tunnel



BUILDING A NEW  
**CHICAGO**  
★ ★ ★ ★



Metropolitan Water  
Reclamation District  
of Greater Chicago

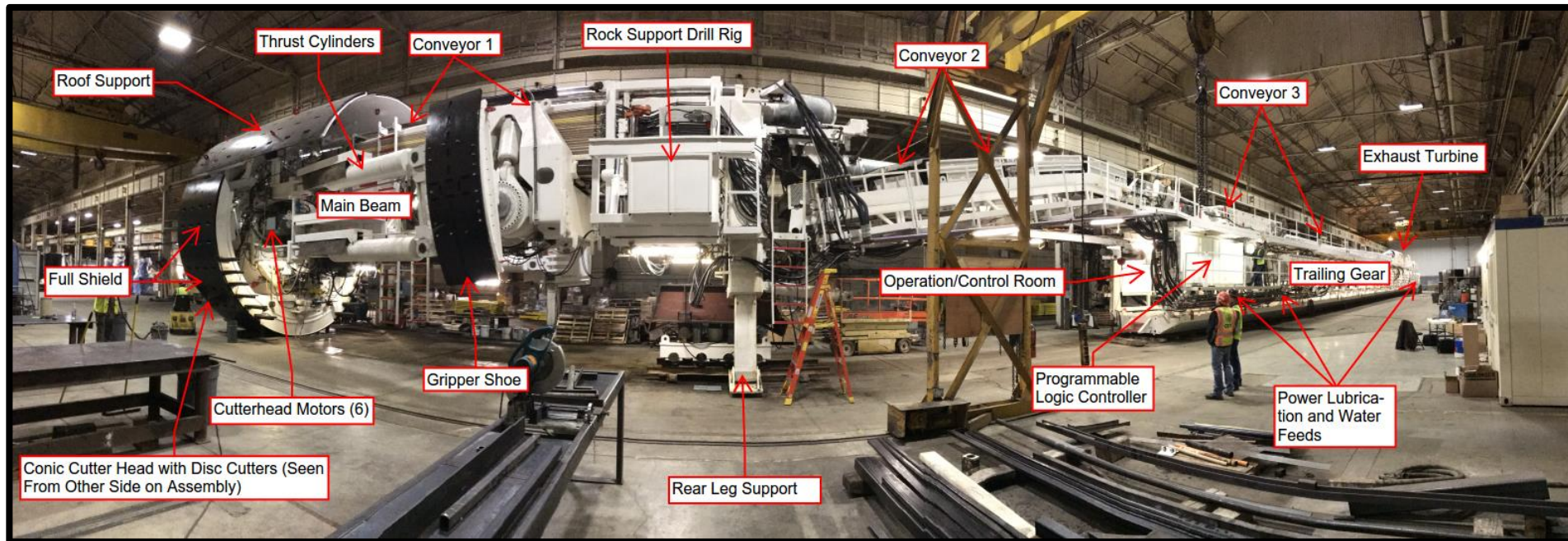






# Tunnel Boring Machine (TBM)

## At off-site shop assembly & testing



# Tunnel Boring Machine (TBM)

Albany Park Stormwater Diversion Tunnel



BUILDING A NEW  
**CHICAGO**  
★ ★ ★ ★



Metropolitan Water  
Reclamation District  
of Greater Chicago





# Rock Removal



BUILDING A NEW  
**CHICAGO**  
\*\*\*



Metropolitan Water  
Reclamation District  
of Greater Chicago



# Tunnel Lining

Albany Park Stormwater Diversion Tunnel



BUILDING A NEW  
**CHICAGO**  
★ ★ ★ ★



Metropolitan Water  
Reclamation District  
of Greater Chicago





# Tunnel Lining

**Albany Park Stormwater Diversion Tunnel**



BUILDING A NEW  
**CHICAGO**  
★ ★ ★ ★



**Metropolitan Water  
Reclamation District  
of Greater Chicago**



# Inlet Structure

Albany Park Stormwater Diversion Tunnel



Metropolitan Water  
Reclamation District  
of Greater Chicago





# Inlet Structure

Albany Park Stormwater Diversion Tunnel



Metropolitan Water  
Reclamation District  
of Greater Chicago



# Outlet Structure

Albany Park Stormwater Diversion Tunnel



BUILDING A NEW  
**CHICAGO**  
★ ★ ★ ★

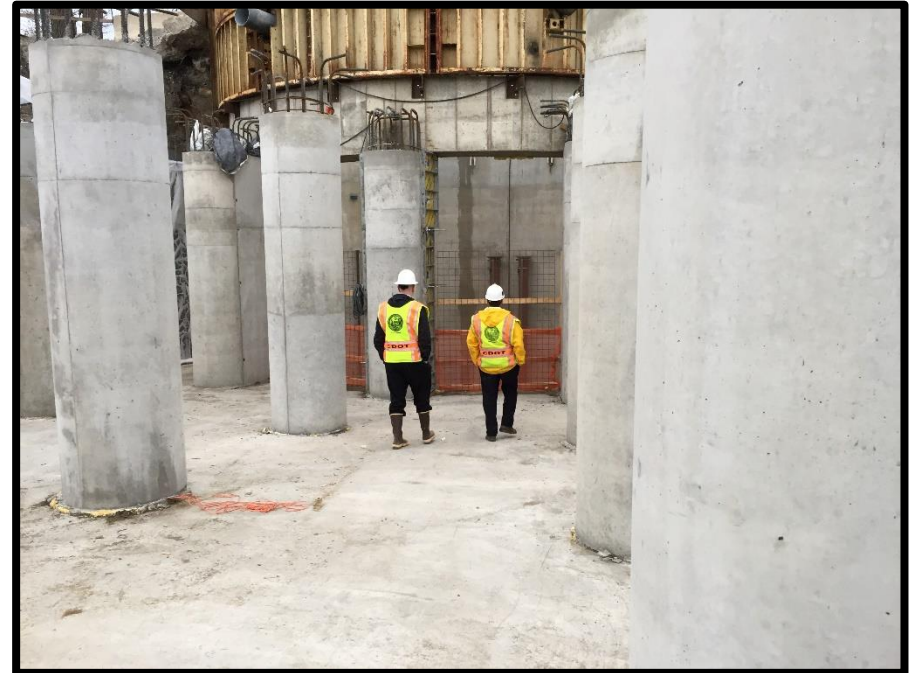


Metropolitan Water  
Reclamation District  
of Greater Chicago





# Outlet Structure



# Outlet Structure





# Flooding During Construction

Albany Park Stormwater Diversion Tunnel



Metropolitan Water  
Reclamation District  
of Greater Chicago



# Flooding During Construction

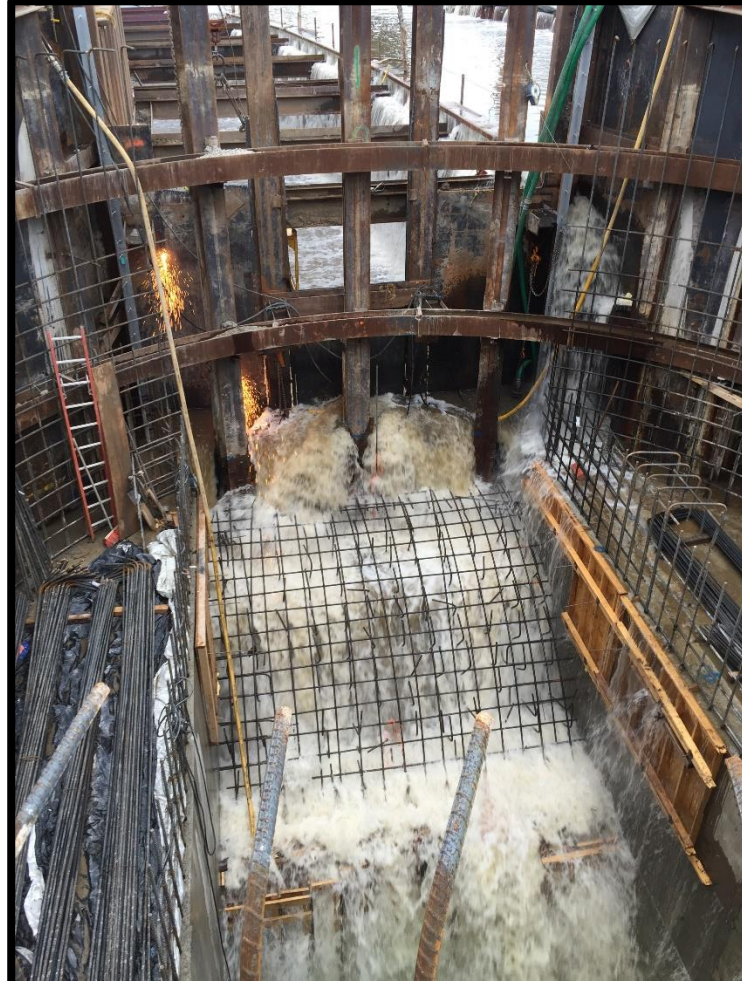
**Albany Park Stormwater Diversion Tunnel**



**BUILDING A NEW  
CHICAGO**  
★★★★



**Metropolitan Water  
Reclamation District  
of Greater Chicago**





# Key Lessons Learned

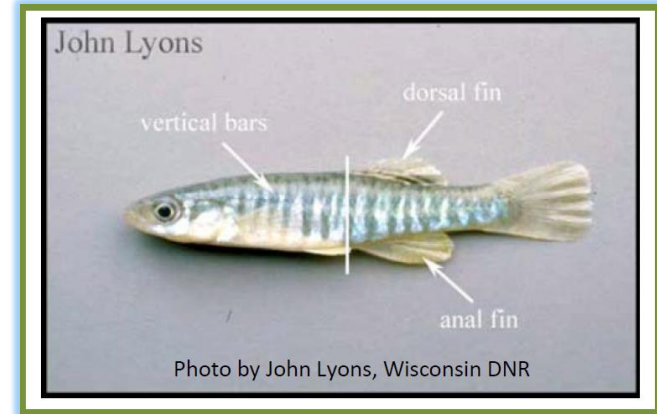


- Blasting Creates Unique Challenges
- Public Coordination During Construction Is Key
- Safety Challenges Require Constant Effort
- Anticipate Flooding During Construction
- Good Teams Find A Way to Succeed

# Permitting and Stakeholder Engagement



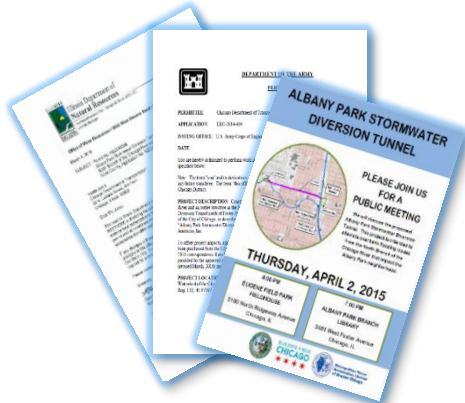
- **Permitting Challenges**
  - Fish Entrainment
  - State Threatened Fish Species
  - Water Quality Impacts
  - Recreation Impacts



*State Threatened Species - Banded Killifish*

- **Obtained Multiple Permits**

(USACE, IEPA, IDNR, MWRDGC, City of Chicago DOB & OUC, NCCSWCD, and more....)



- **Incidental Take Authorization**
- **In Stream Fish Habitat Mitigation**
- **Fish Restocking Program**

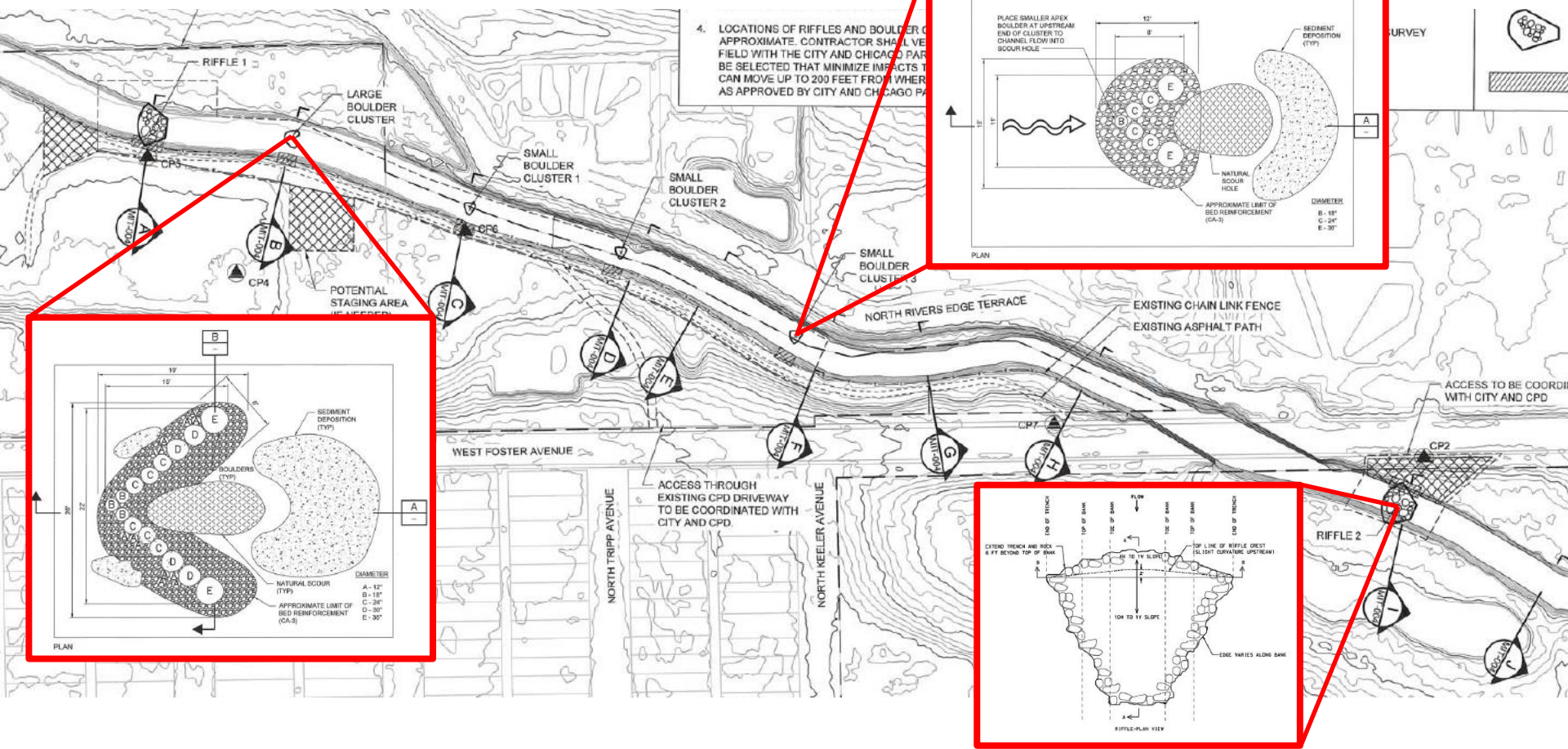


# In stream Fish Habitat Mitigation





**Metropolitan Water  
Reclamation District  
of Greater Chicago**





# In stream Fish Habitat Mitigation

Albany Park Stormwater Diversion Tunnel



BUILDING A NEW  
**CHICAGO**  
★ ★ ★ ★



Metropolitan Water  
Reclamation District  
of Greater Chicago

**Riffle 1**



**Riffle 2**



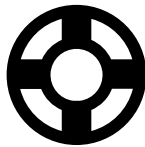
*Photos Taken July 2018*

# 2019 and Beyond... Post – Construction Permitting and Mitigation Compliance

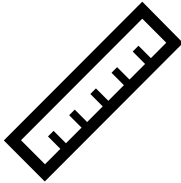


## Incidental Take Authorization Compliance

- Fish restocking
- Habitat inspections



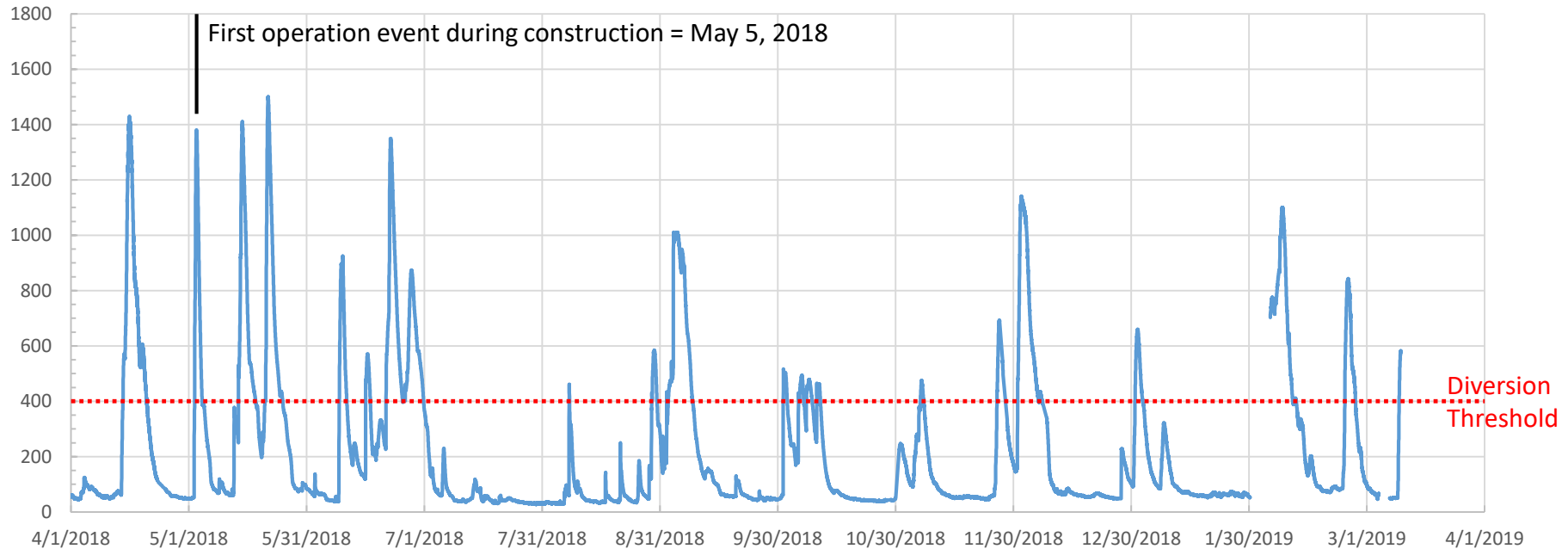
## Boater Safety Adaptive Management Plan



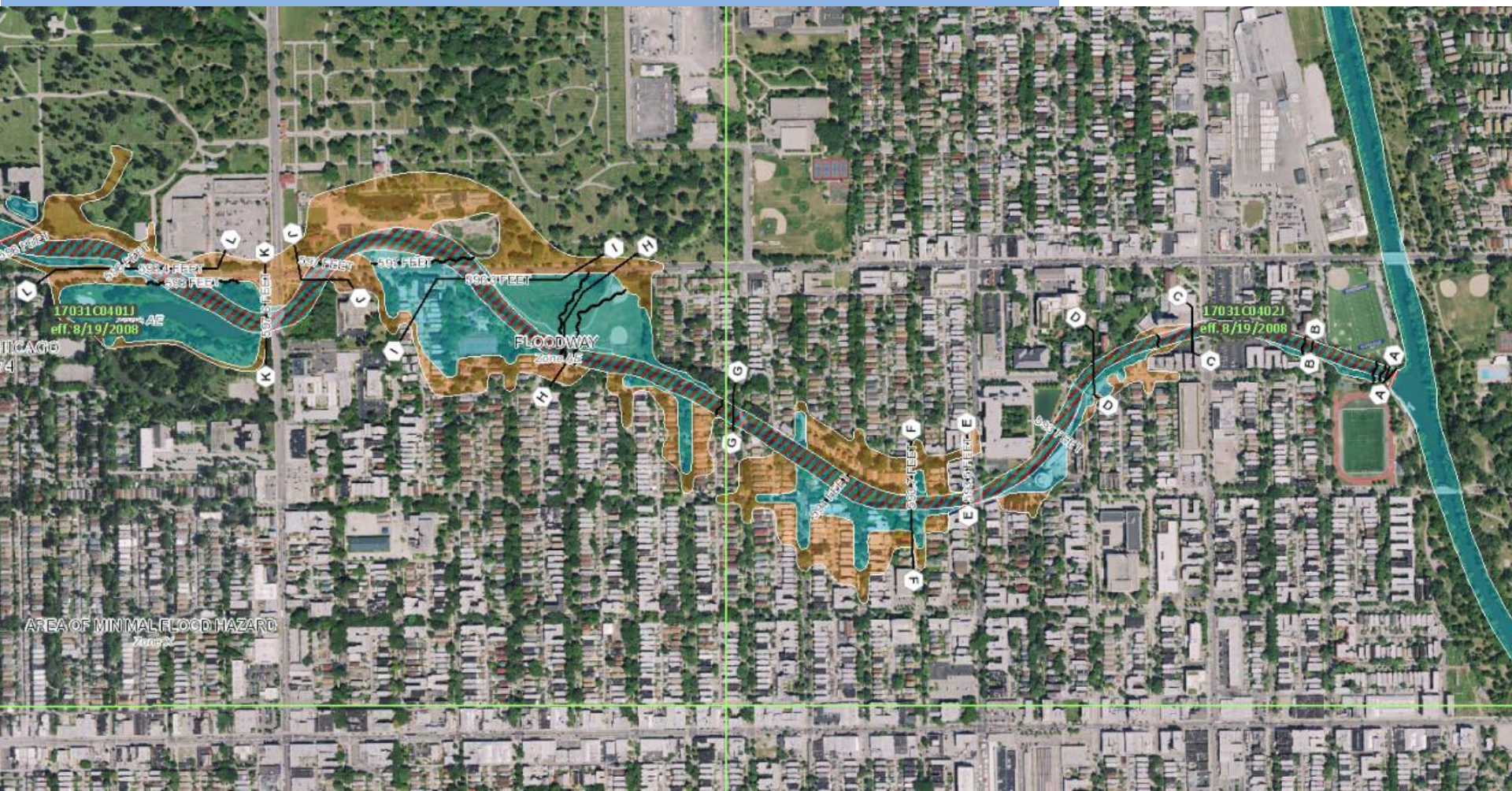
## Dissolved Oxygen Monitoring



# Project Performance



USGS 05536000 North Branch of the Chicago River at Niles, IL

Metropolitan Water  
Reclamation District  
of Greater Chicago



# Questions?



David Handwerk, PE, CFM  
[dhandwerk@spaantech.com](mailto:dhandwerk@spaantech.com)



Thera Novotny, PE, CFM  
[Thera.novotny@stantec.com](mailto:Thera.novotny@stantec.com)



# Introduction - Flooding



## Significant Flooding Events

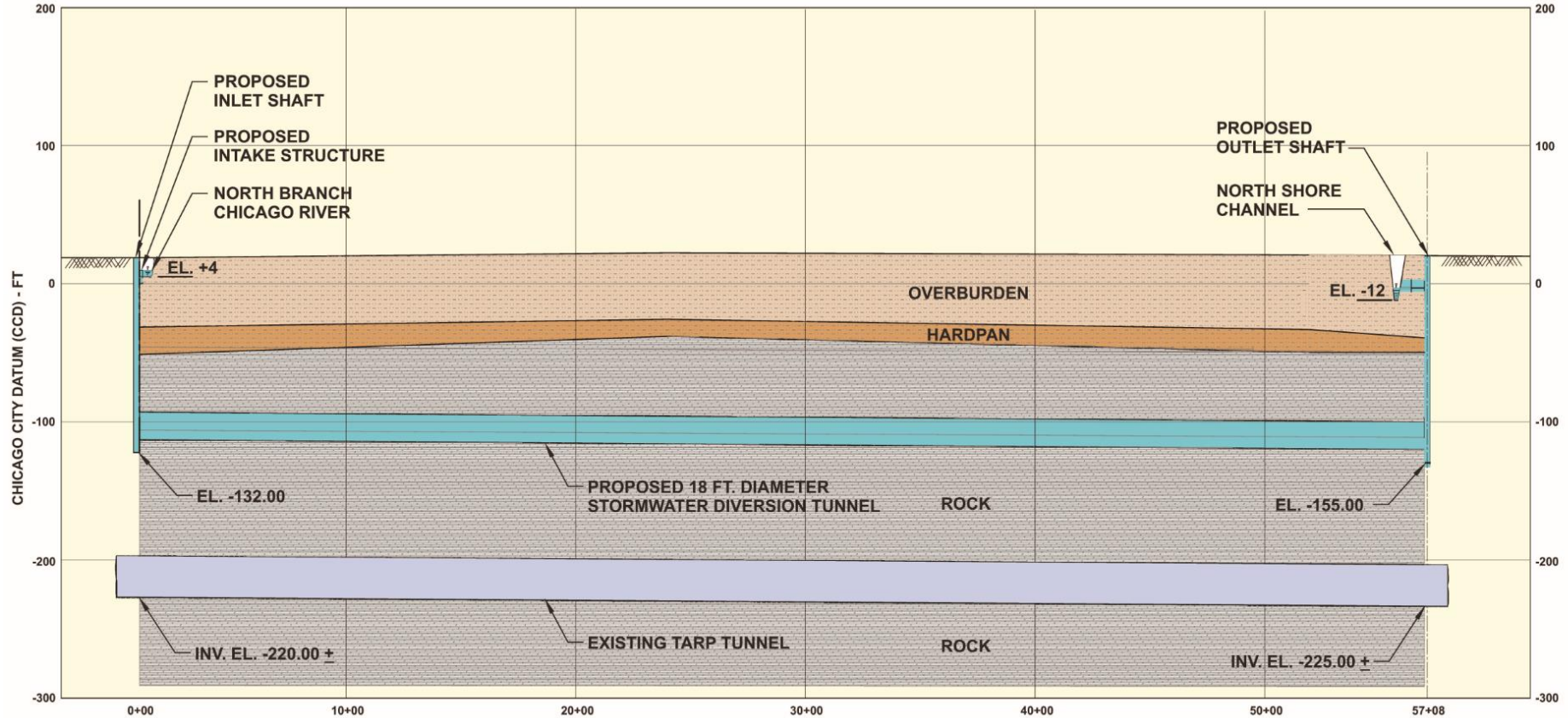
- September 2008
- July 2010
- April 2013 (Federal Disaster Declaration)





# Project Overview

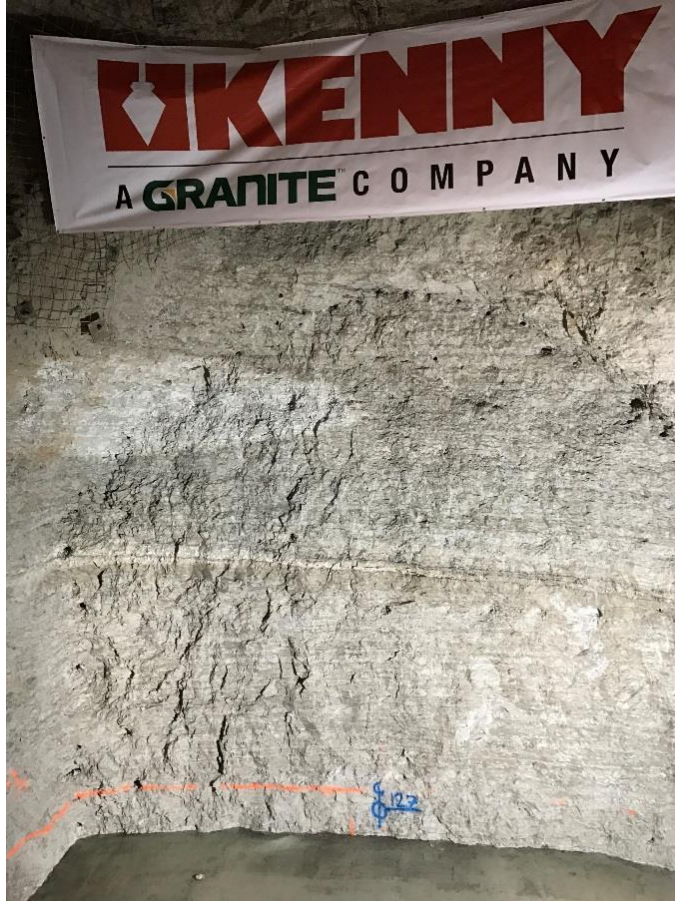
## Profile View



# Holing Through



Metropolitan Water  
Reclamation District  
of Greater Chicago





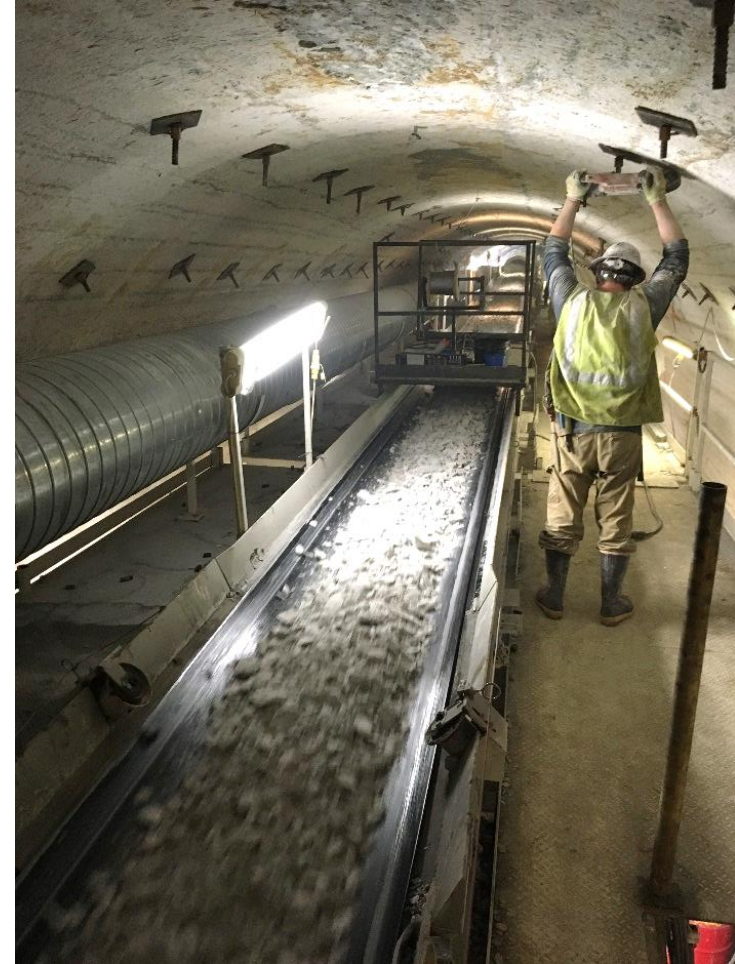
# Mining 5833 feet of tunnel



BUILDING A NEW  
**CHICAGO**  
\*\*\*



Metropolitan Water  
Reclamation District  
of Greater Chicago



# Shaft Concrete Lining

Albany Park Stormwater Diversion Tunnel



BUILDING A NEW  
**CHICAGO**  
★ ★ ★ ★



Metropolitan Water  
Reclamation District  
of Greater Chicago





# Inlet Structure

Albany Park Stormwater Diversion Tunnel



Metropolitan Water  
Reclamation District  
of Greater Chicago

