Albany Park Stormwater Tunnel

David Handwerk, PE, CFM
dhandwerk@spaantech.com

Thera Novotny, PE, CFM
Thera.novotny@stantec.com

Illinois Association for Stormwater and Floodplain Management
2019 Conference
336 structures impacted in Albany Park neighborhood
Overbank Flooding in Albany Park Neighborhood

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

Project Overview
Plan 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 (39th), O’Connor (40th) & Mell (33rd)
- Swedish Covenant Hospital
- Chicago Park District – Three Parks
- IDOT
- People’s Gas & Utilities
- Regulatory Agencies
- Police & Fire Departments
- Community
Public Outreach
Shaft Construction

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

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

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

Albany Park Stormwater Diversion Tunnel
Shaft Concrete Lining
Shaft Concrete Lining
Shaft Concrete Lining
Tunnel Boring Machine (TBM)
At off-site shop assembly & testing
Tunnel Boring Machine (TBM)
Rock Removal
Tunnel Lining

Albany Park Stormwater Diversion Tunnel
Inlet Structure
Inlet Structure
Outlet Structure
Outlet Structure
Outlet Structure
Flooding During Construction
Flooding During Construction
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

- 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

State Threatened Species - Banded Killifish

Photo by John Lyons, Wisconsin DNR
In stream Fish Habitat Mitigation

- **Riffle**
- **Boulder Cluster**
In stream Fish Habitat Mitigation

Albany Park Stormwater Diversion Tunnel
In stream Fish Habitat Mitigation

Riffle 1

Photos Taken July 2018

Riffle 2
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
First operation event during construction = May 5, 2018

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

Significant Flooding Events
- September 2008
- July 2010
- April 2013 (Federal Disaster Declaration)
Albany Park Stormwater Diversion Tunnel

Introduction

Flooding

Project Overview

Profile View

Diagram showing a proposed inlet shaft, intake structure, North Branch Chicago River, proposed outlet shaft, North Shore Channel, overburden, hardpan, proposed 18 ft. diameter stormwater diversion tunnel, rock, existing TARP tunnel, and rock layers.
Holing Through
Mining 5833 feet of tunnel
Shaft Concrete Lining
Inlet Structure