



HRGreen®

Building Communities.  
Improving Lives.

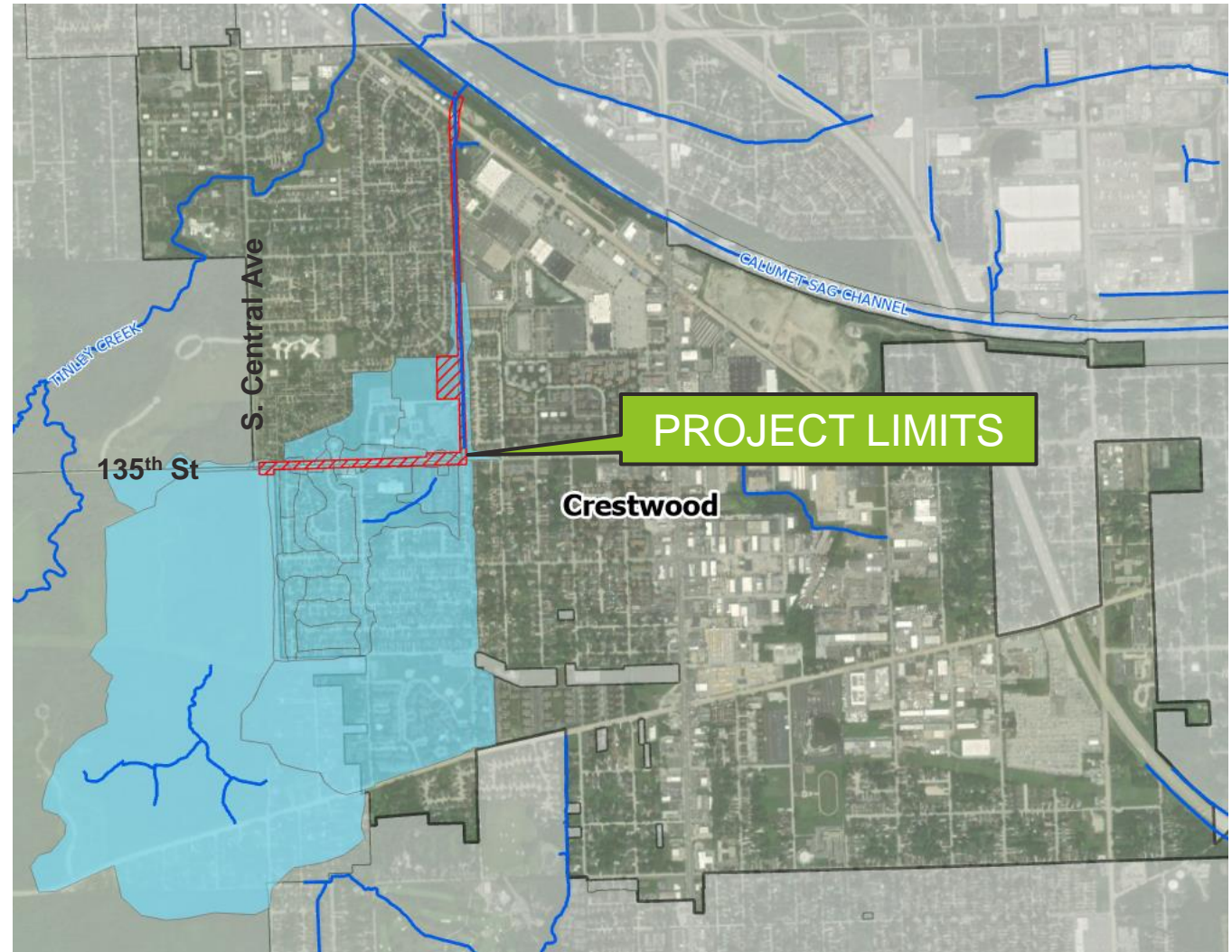
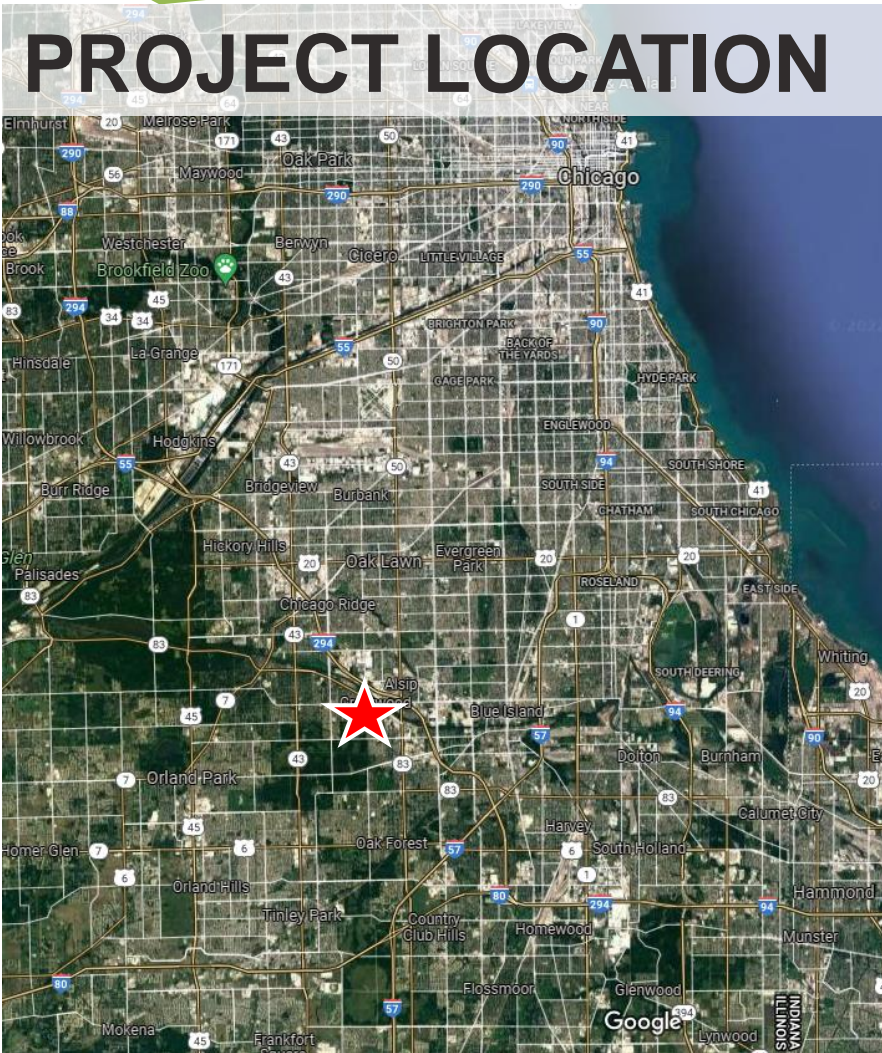


# Flood Control Improvements Case Study MWRD/Crestwood

IAFSM Presentation  
March 13, 2024

# PRESENTATION OUTLINE

- Project Location & Background
- Purpose and Need
- Proposed Improvements
- Stakeholders & Design Considerations
- Project Outcomes





## Key Existing Drainage Features

- Berm reportedly constructed by Village in the 1970s/1980s
  - Located entirely on CCFPD
  - No permits and constructed of topsoil
  - Preliminary coordination with IDNR indicated this would be classified as a Class I dam
- State constructed Crestwood Drainage Ditch and Junction Structure in the 1970s
  - Junction structure located on Nathan Hale School Property

## BERM / DAM



## JUNCTION STRUCTURE



## CRESTWOOD DRAINAGE DITCH



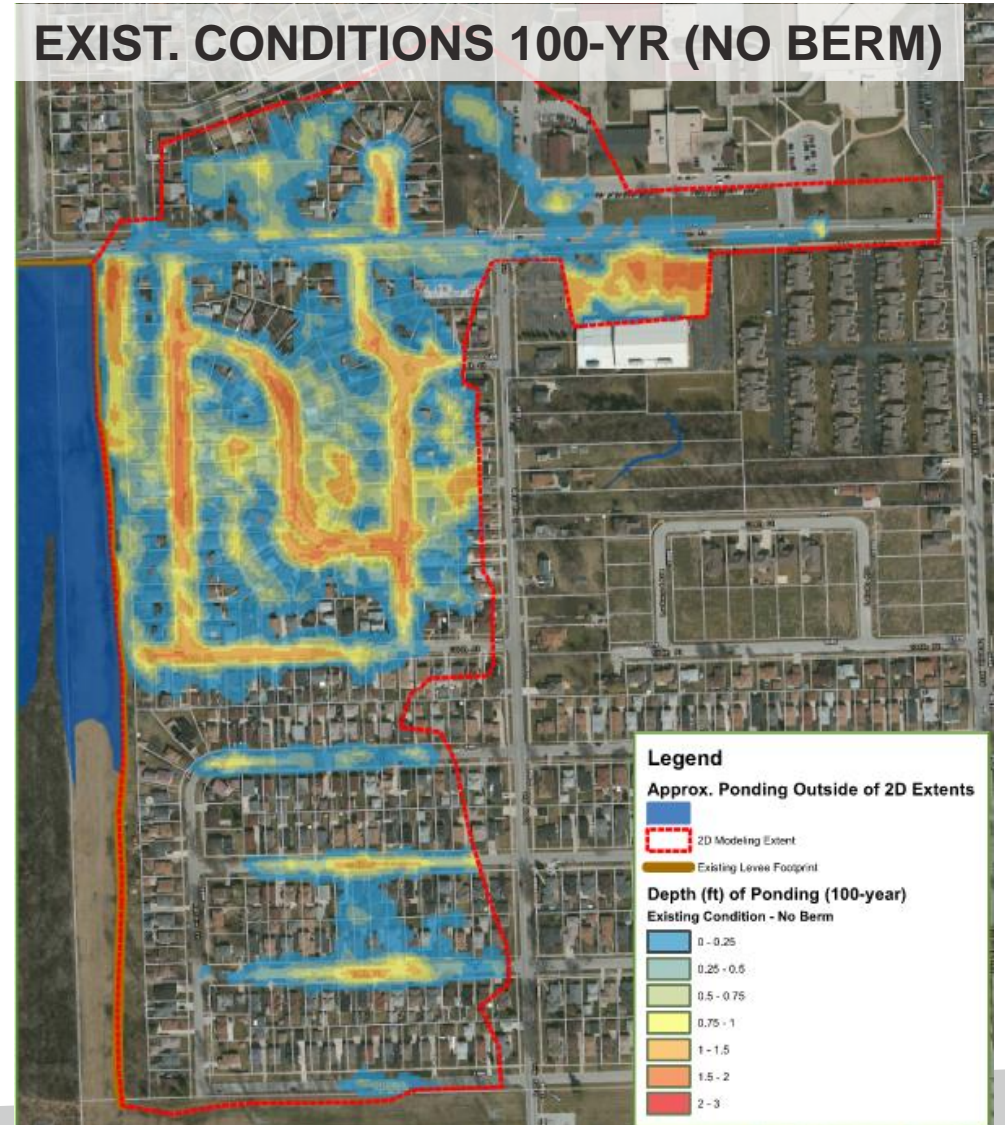
## PURPOSE AND NEED

- Street flooding in local neighborhoods occurred in less than a 5-year storm
- Structure flooding occurred at approximately the 10-year storm
  - 43 residents (of 113 responding to questionnaire) reported structure flooding
- Existing drainage system required Village staff to manually operate gate valves to control flows in an attempt to limit flooding

## FLOODING PICTURES



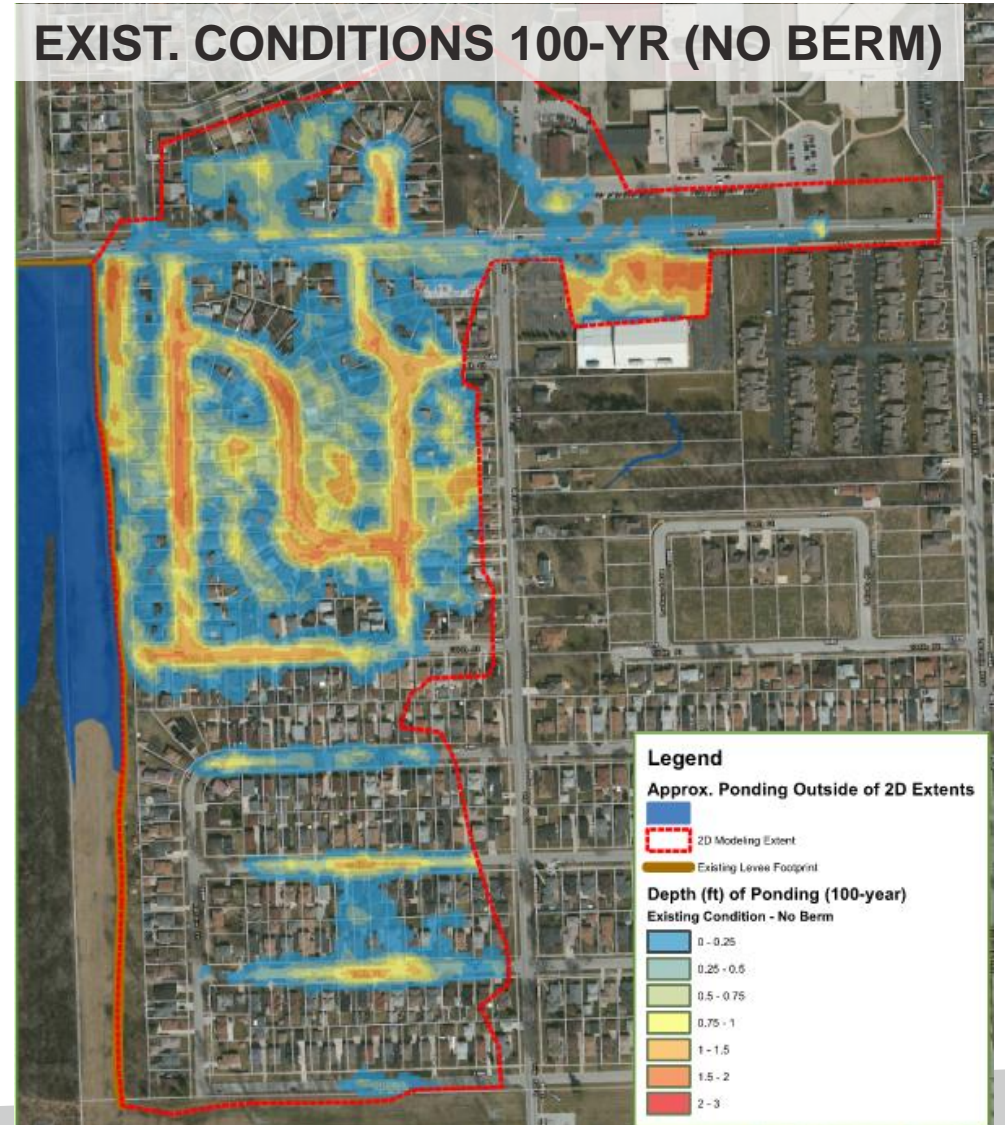




## PROPOSED IMPROVEMENTS

- Installation of a 72” storm sewer along 135<sup>th</sup> St with new outlet from FPD property
- New junction structure and modifications to existing detention basin on Nathan Hale Middle School
- Bank stabilization along Crestwood Drainage Ditch
- Addition of 72” culvert at Cal-Sag Rd
- EOPC – \$8.00M; Construction Contract Amount \$7.6M
  - **Reliable Contracting & Equipment**







# STAKEHOLDERS & DESIGN CONSIDERATIONS

## ■ Stakeholders

### ■ **Village of Crestwood**

### ■ Cook County Forest Preserve District (CCFPD)

### ■ Illinois Department of Transportation (IDOT)

### ■ Enterprise Products

### ■ Nathan Hale Middle School

### ■ Illinois Department of Natural Resources (IDNR)

### ■ Residents

### ■ Army Corps

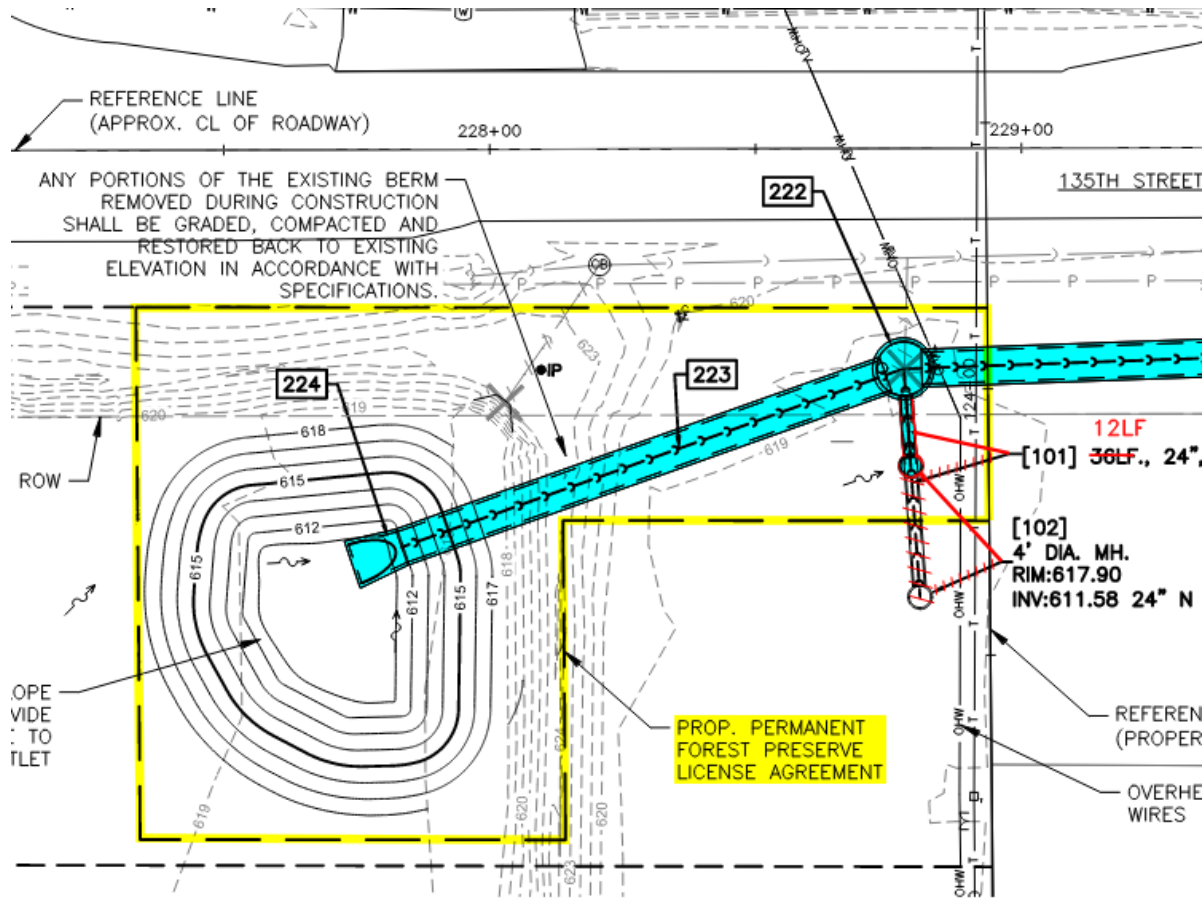
### ■ Buckeye Partners/West Shore

### ■ Franchise utilities

### ■ Cook County Department of Transportation and Highways (CCDoTH)

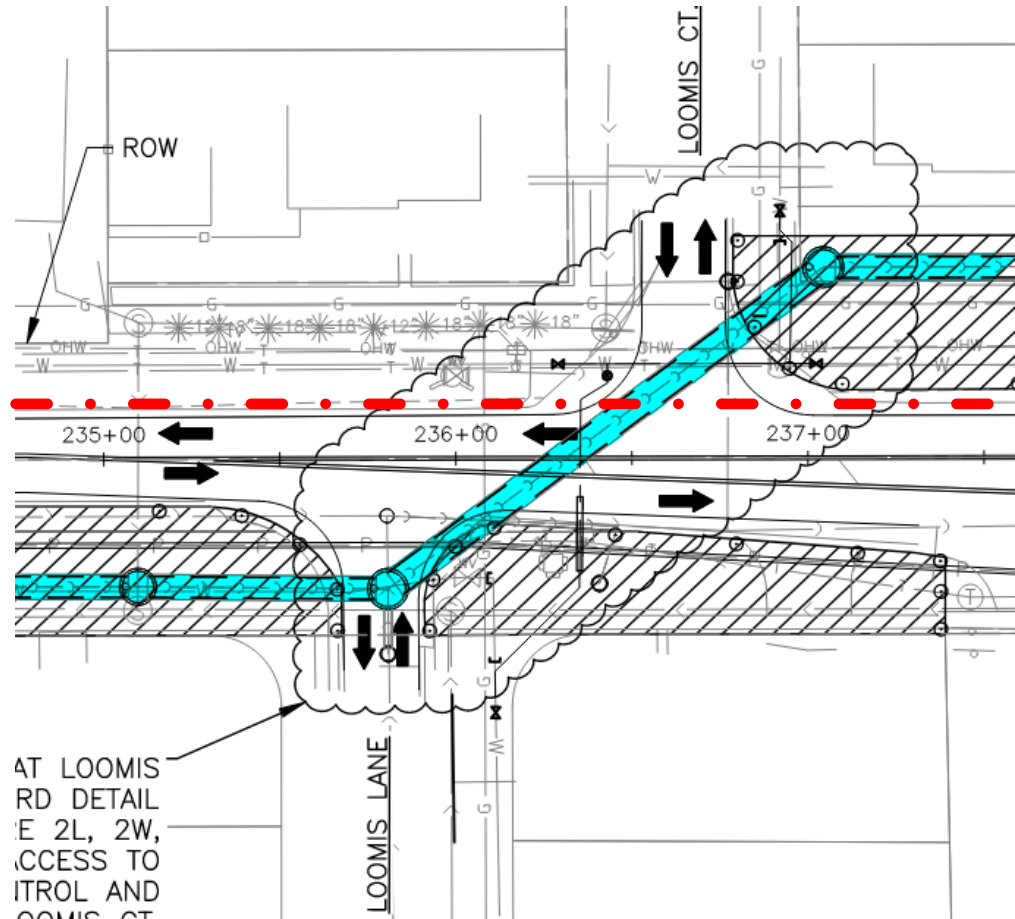
### ■ Illinois Environmental Protection Agency (IEPA)

# COOK COUNTY FPD



- Considerations
  - CCFPD wanted berm permanently removed
  - Village required to obtain license agreement for area containing permanent drainage facilities
- Design
  - Limit area of permanent facilities. License fee based on acreage
  - Village to remove berm under separate contract. Install swale and possibly French drain.

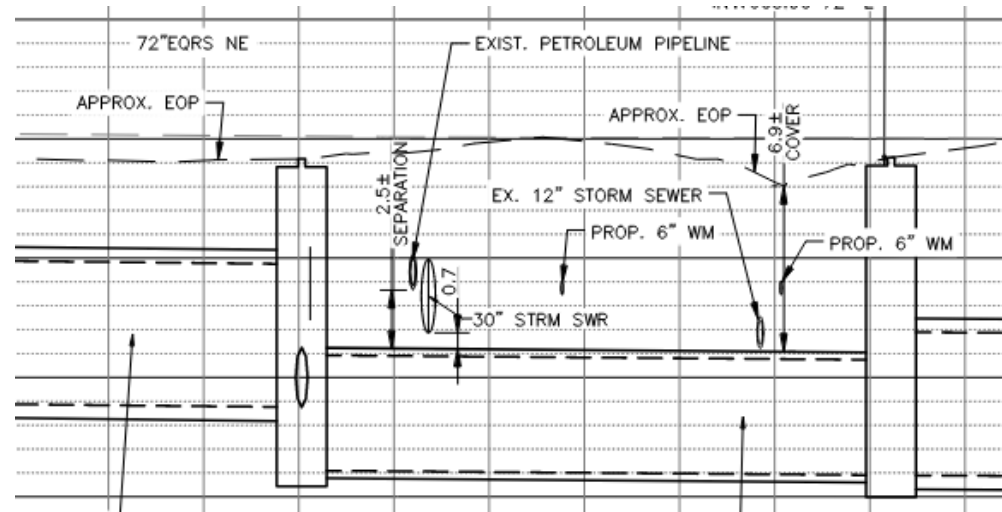
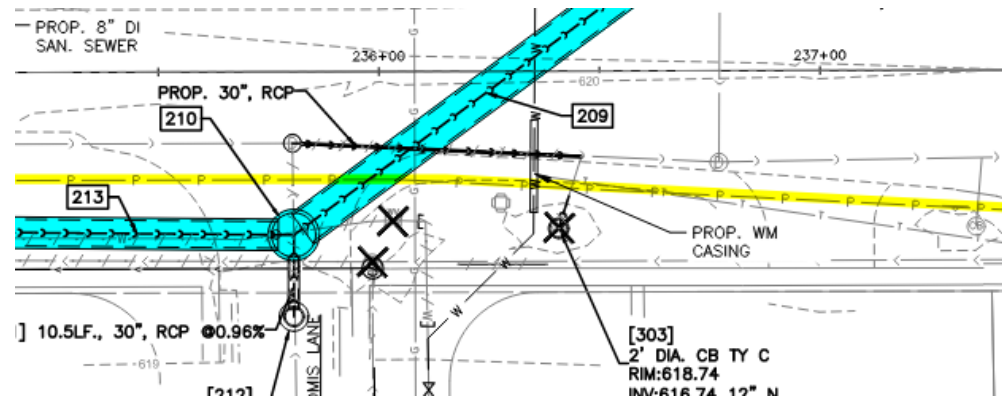
# IDOT



- Considerations
  - IDOT requested full reconstruction of 135<sup>th</sup> St if storm sewer was in the pavement
  - Traffic control
- Design
  - Moved storm sewer out of the pavement except for crossing 135<sup>th</sup> St
  - Required additional sanitary/water main relocations and perm/temp easements
  - Existing traffic patterns remained during construction except when crossing 135<sup>th</sup>

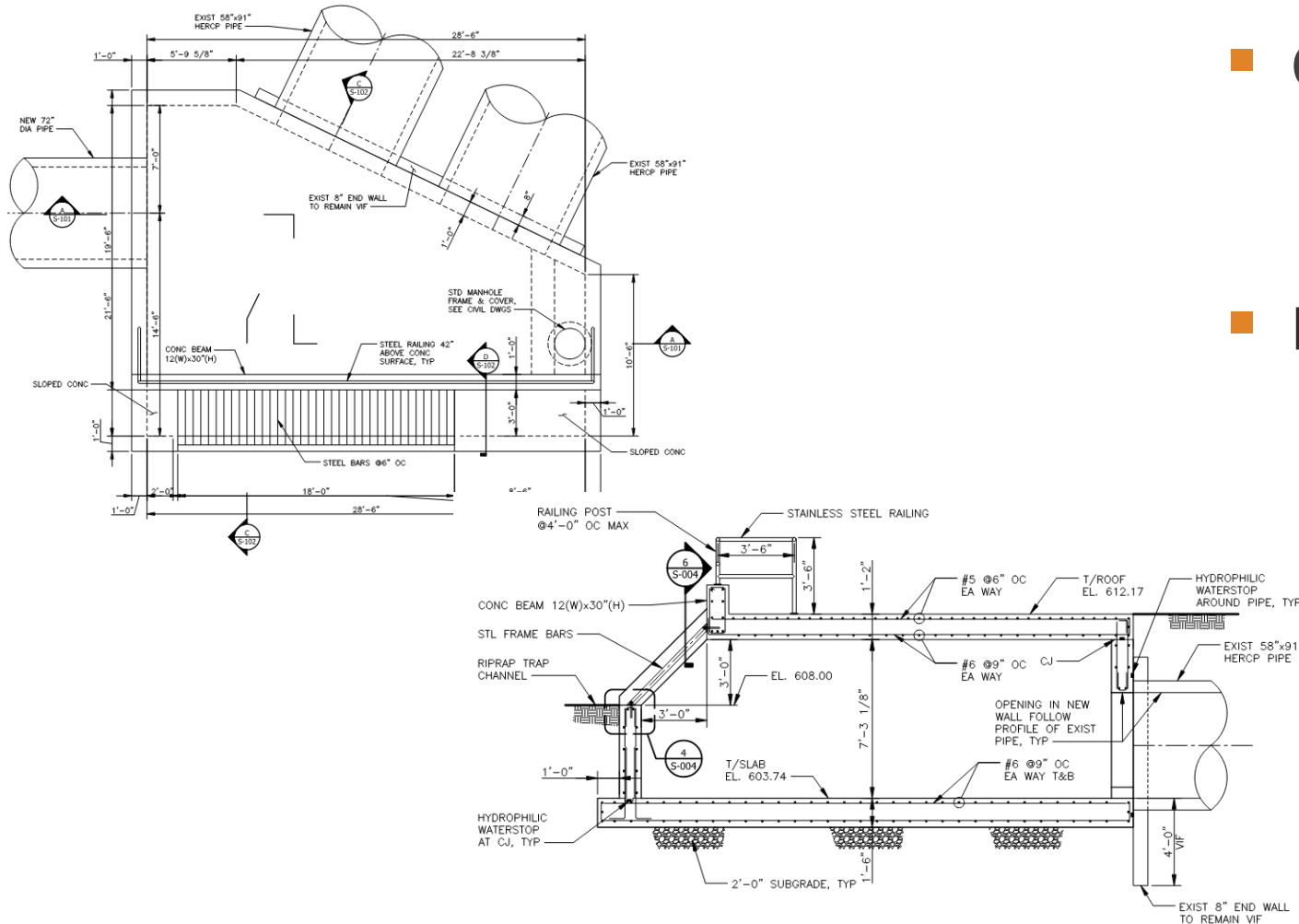


# ENTERPRISE PRODUCTS (PETROLEUM)



- Considerations
  - Vertical (18") and horizontal (36") separation requirements
  - Required Letter of No Objection (LONO)
  - On-site observation when crossing
- Design/Construction
  - Potholed pipeline at three locations
  - Designed five crossings to meet separation requirements to obtain LONO
  - Required contractor to coordinate with Enterprise Products during construction

# NATHAN HALE MIDDLE SCHOOL



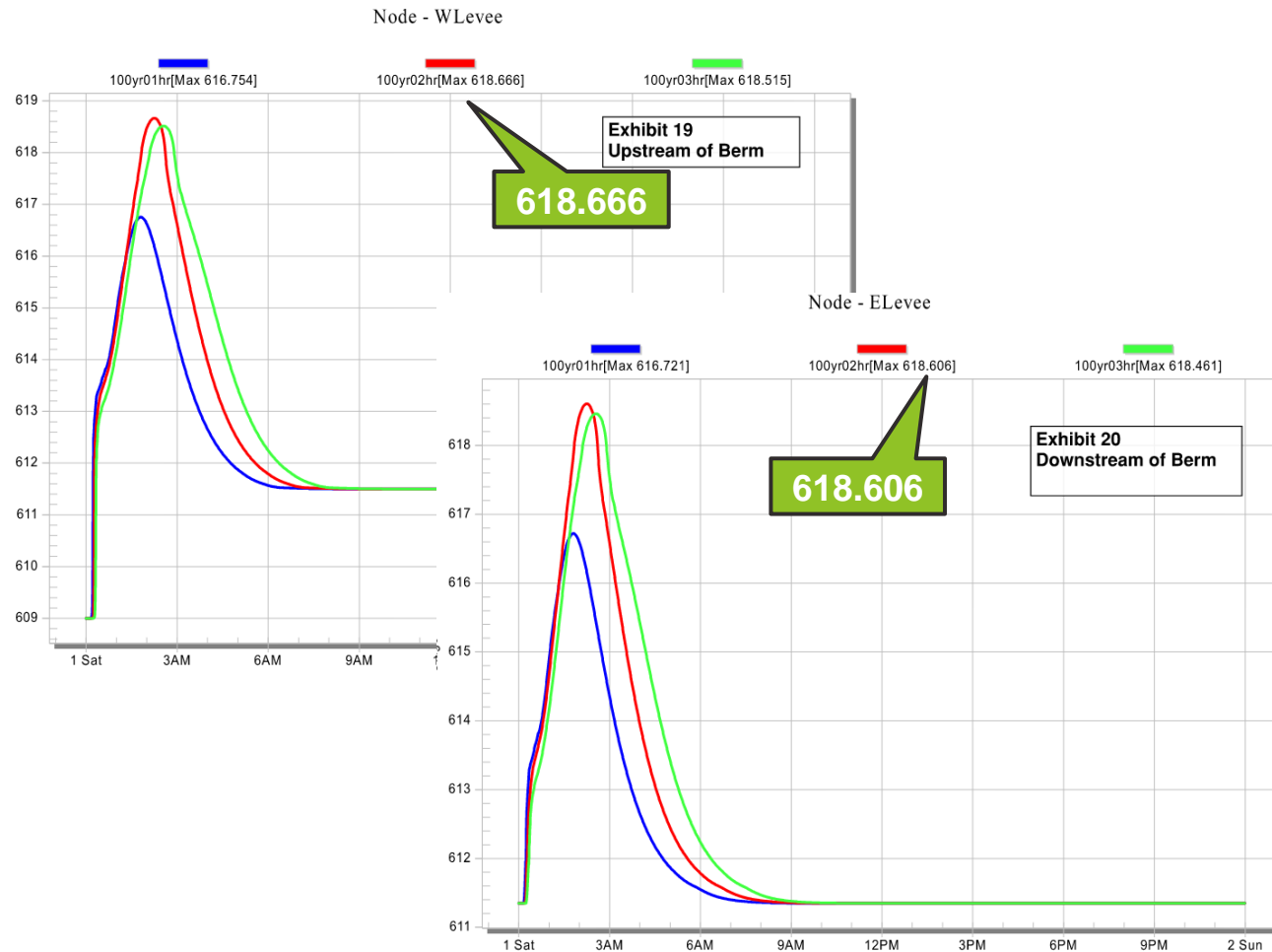
- Considerations

- School had safety and access concerns
- Desired a safer junction structure

- Design/Construction

- Included in contract driveway closure limitations, work hour limitations, and pedestrian access requirements
- Designed closed top junction structure while maintaining other existing drainage facilities
- 6' high chain link fence installed around structure

## IDNR



### Considerations

- Eliminate dam classification of berm
- Floodway Permit/LOMR
- Capital Programs

### Design/Construction

- Provide conveyance capacity so that head difference between upstream and downstream side of berm was  $<0.1'$
- Flood conveyance/storage contained within ROW or easements – No LOMR required
- Coordinated improvements with Capital Programs

## PROJECT OUTCOMES

- Project construction completed end of 2023
- Actual cost – \$7.72M
- Village has completed additional local storm sewer improvement connecting to new 72” storm sewer in 135<sup>th</sup> St to further alleviate flooding in neighborhood

















*From L to R: MWRD Commissioner Dan Pogorzelski, Vice President Patricia Theresa Flynn, President Kari K. Steele, Crestwood Mayor Ken Klein, Crestwood Trustee Frank Caldario, Trustee Anthony J. Benigno, and Trustee Denise M. Pietrucha formally celebrate the completion of the MWRD's Crestwood Flood Control Project.*

# Questions?

## Aerial Video

### MWRD

Jack T.P. Chan, Ph.D., P.E.  
Senior Civil Engineer  
ChanT@MWRD.org

### HR Green

Jarod Oliver, PE  
Project Manager  
joliver@hrgreen.com