



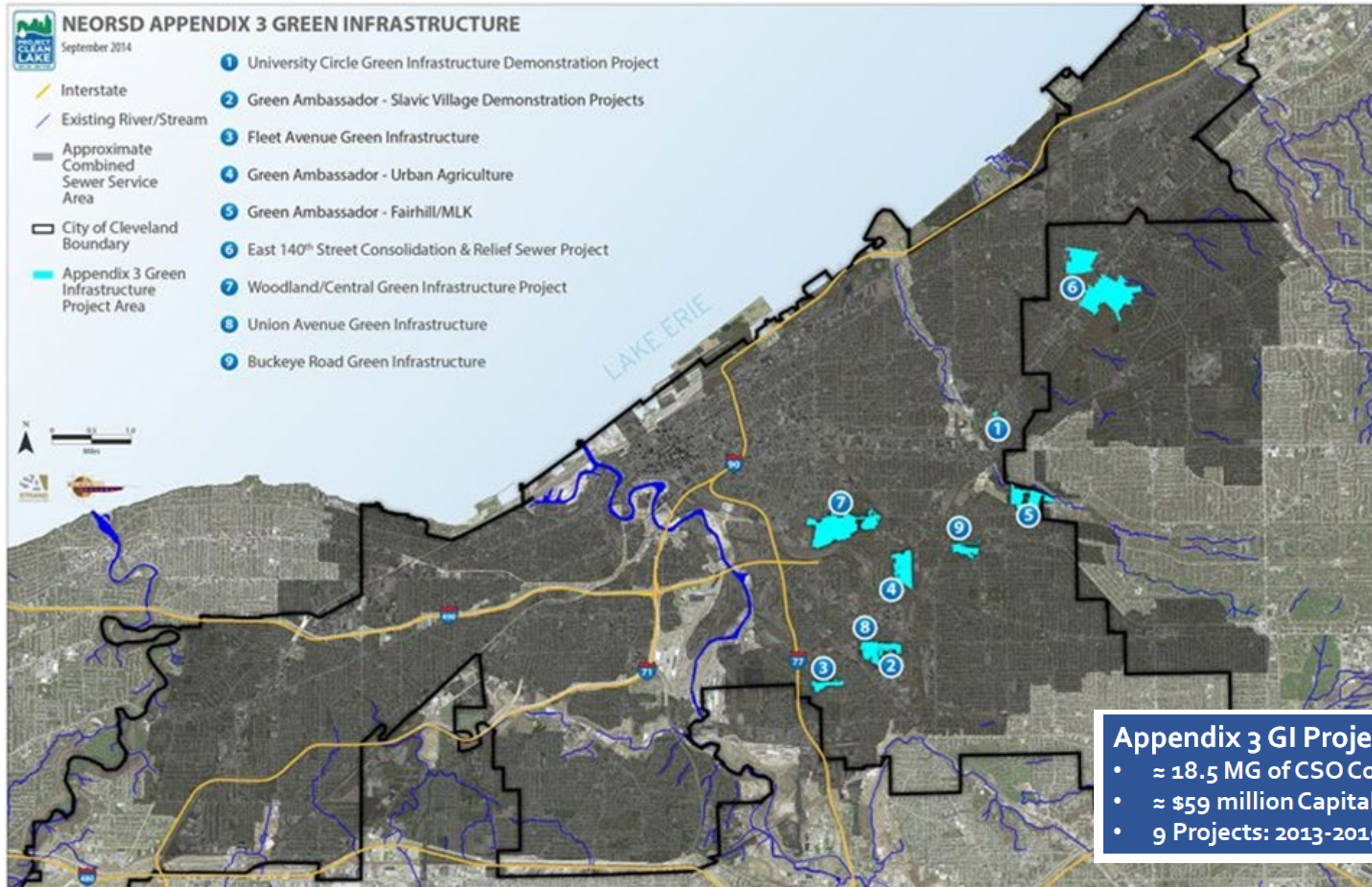
OVERCOMING URBAN INFRASTRUCTURE CHALLENGES THE WOODLAND CENTRAL GREEN INFRASTRUCTURE PROJECT

2019 Ohio Stormwater Conference • Kim Colich, PE • Joseph Danyluk, AICP

Overview

- The District's Appendix 3 Green Infrastructure
- Project Location & Historical Context
- Project Components
- **Challenges:** Environmental, Spatial, and Hydraulic
- Status

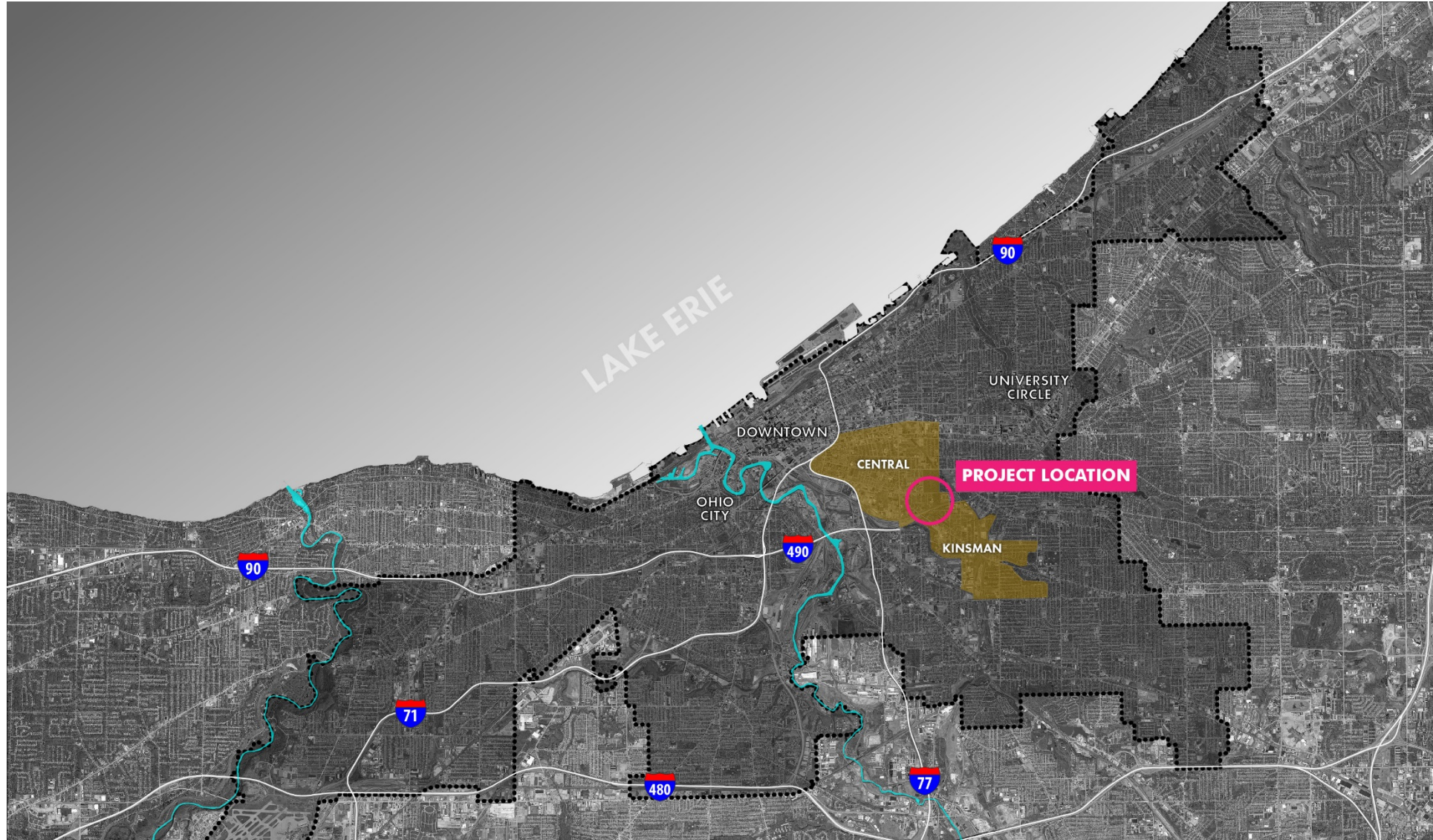
Appendix 3 Green Infrastructure



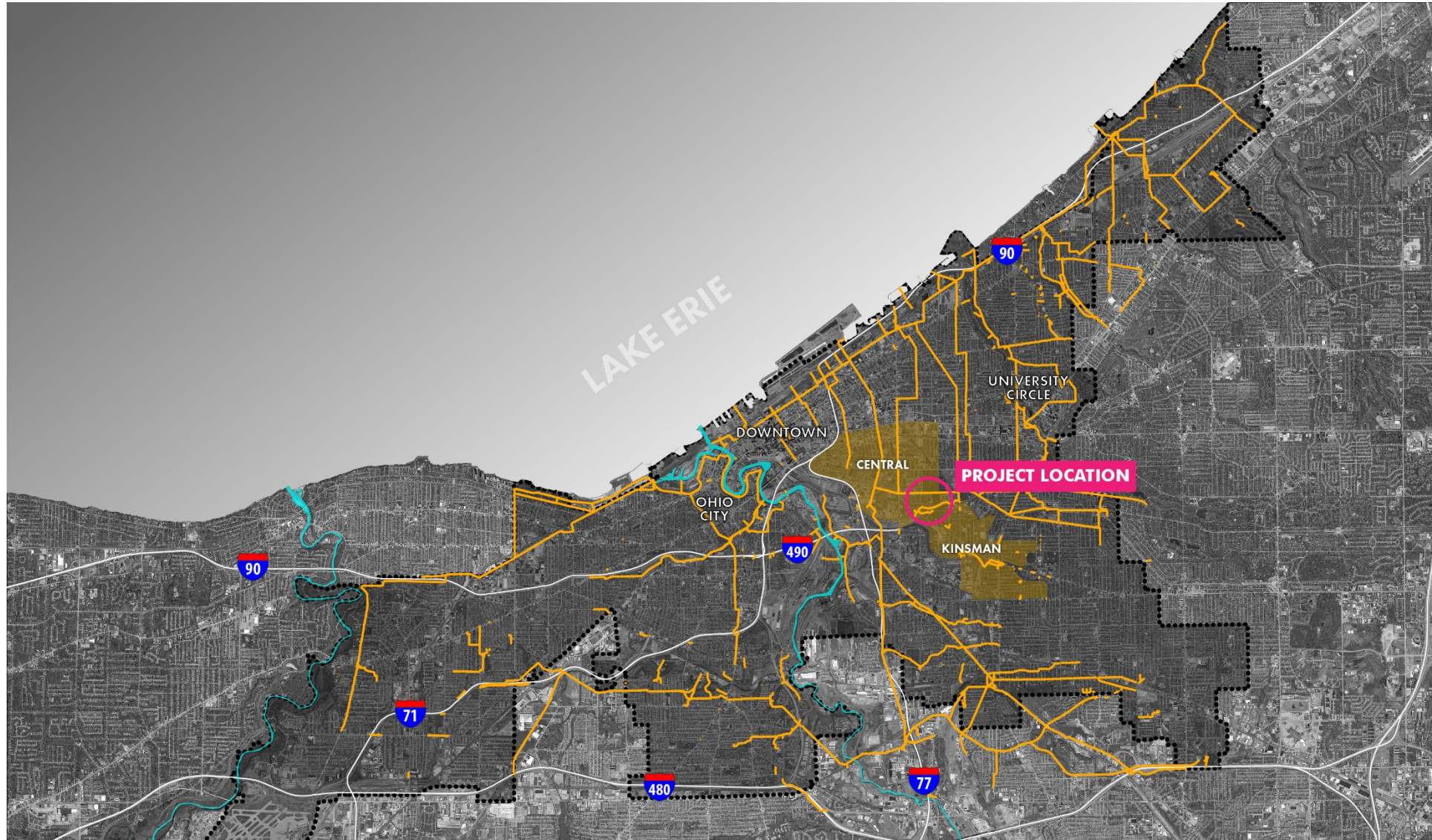
Appendix 3 GI Projects:

- ≈ 18.5 MG of CSO Control
- ≈ \$59 million Capital Cost
- 9 Projects: 2013-2019

Project Location



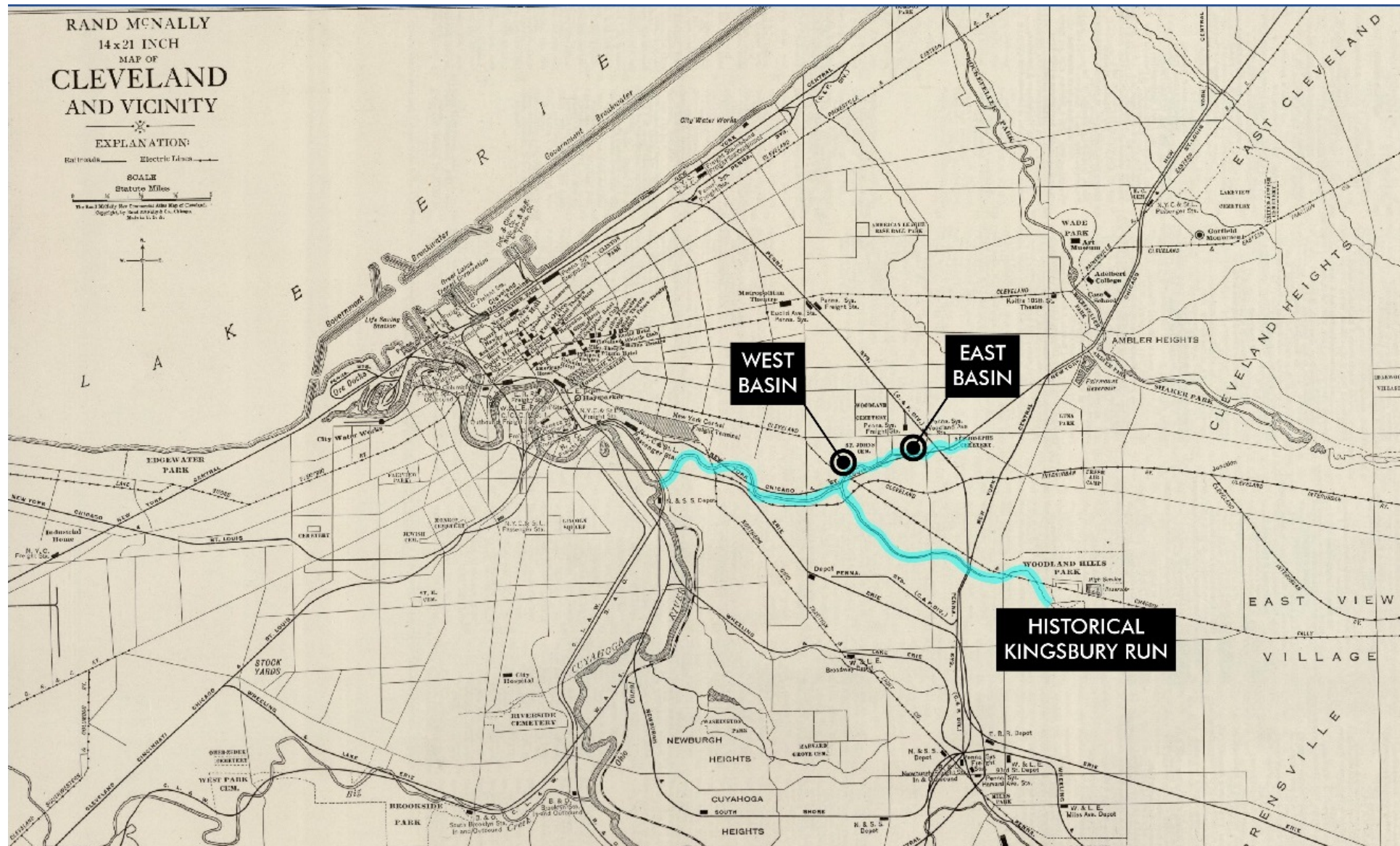
Project Location



Project Location



Historical Context



Historical Context



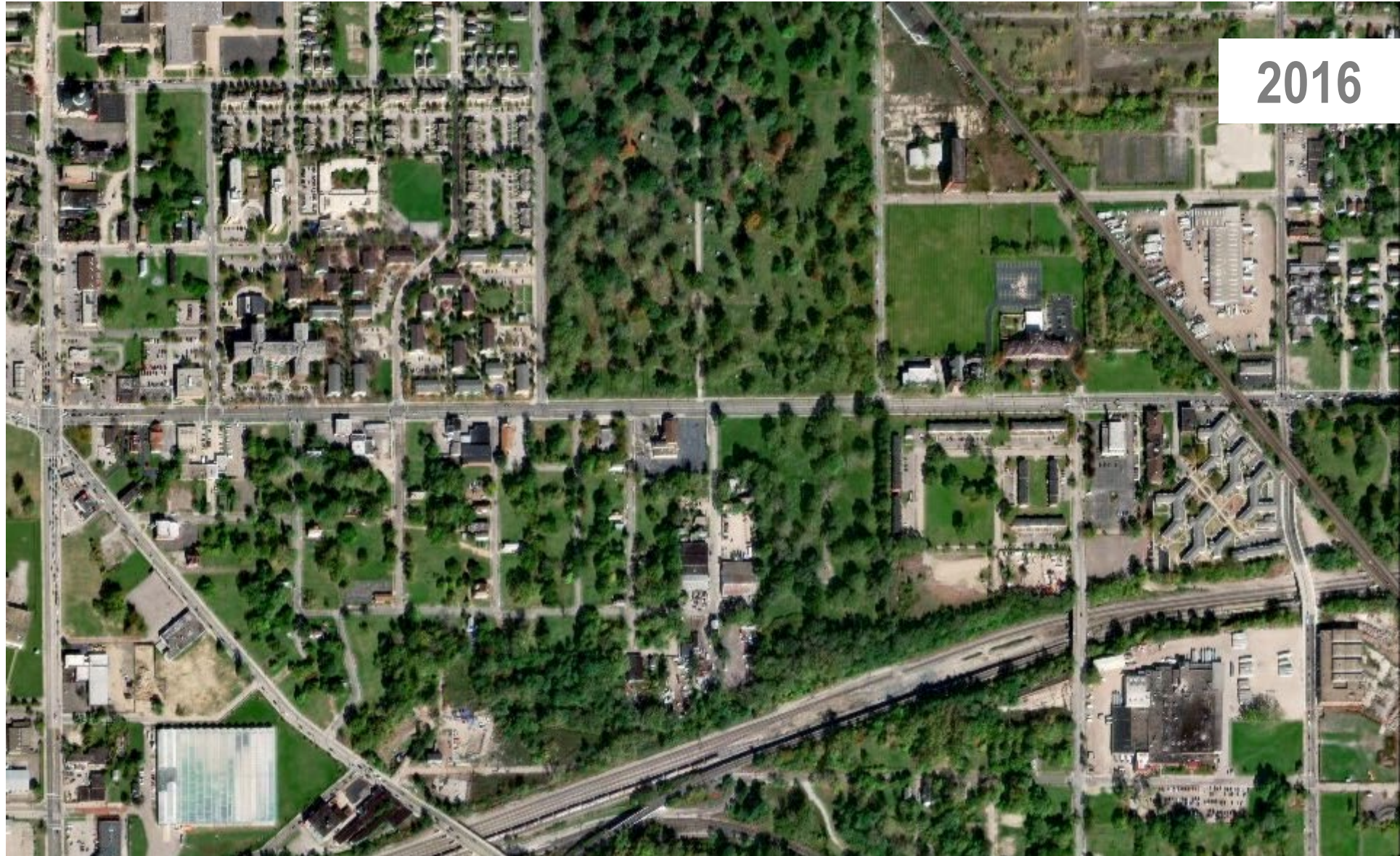
1950s

Historical Context



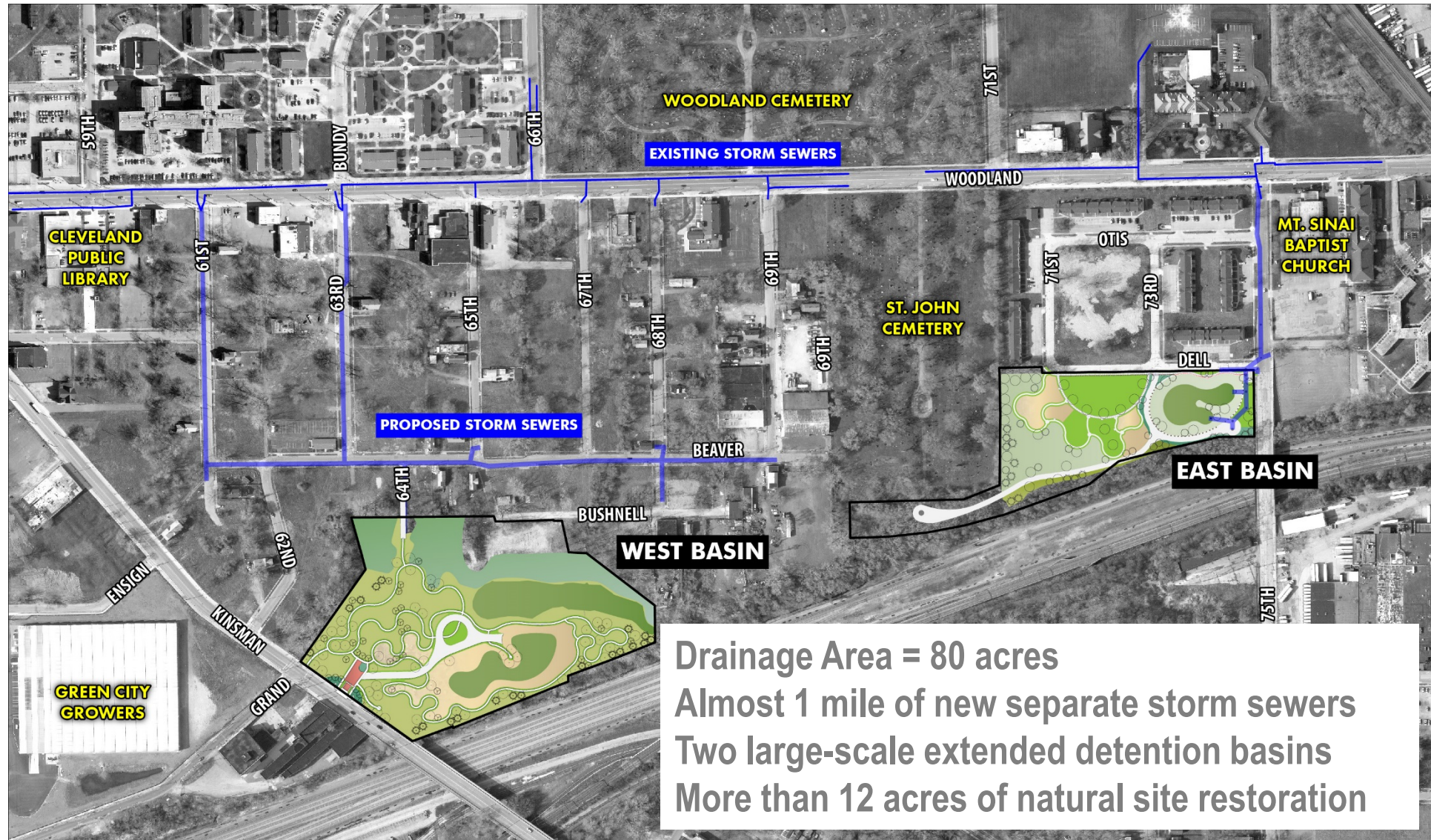
1970s

Historical Context



2016

Project Components

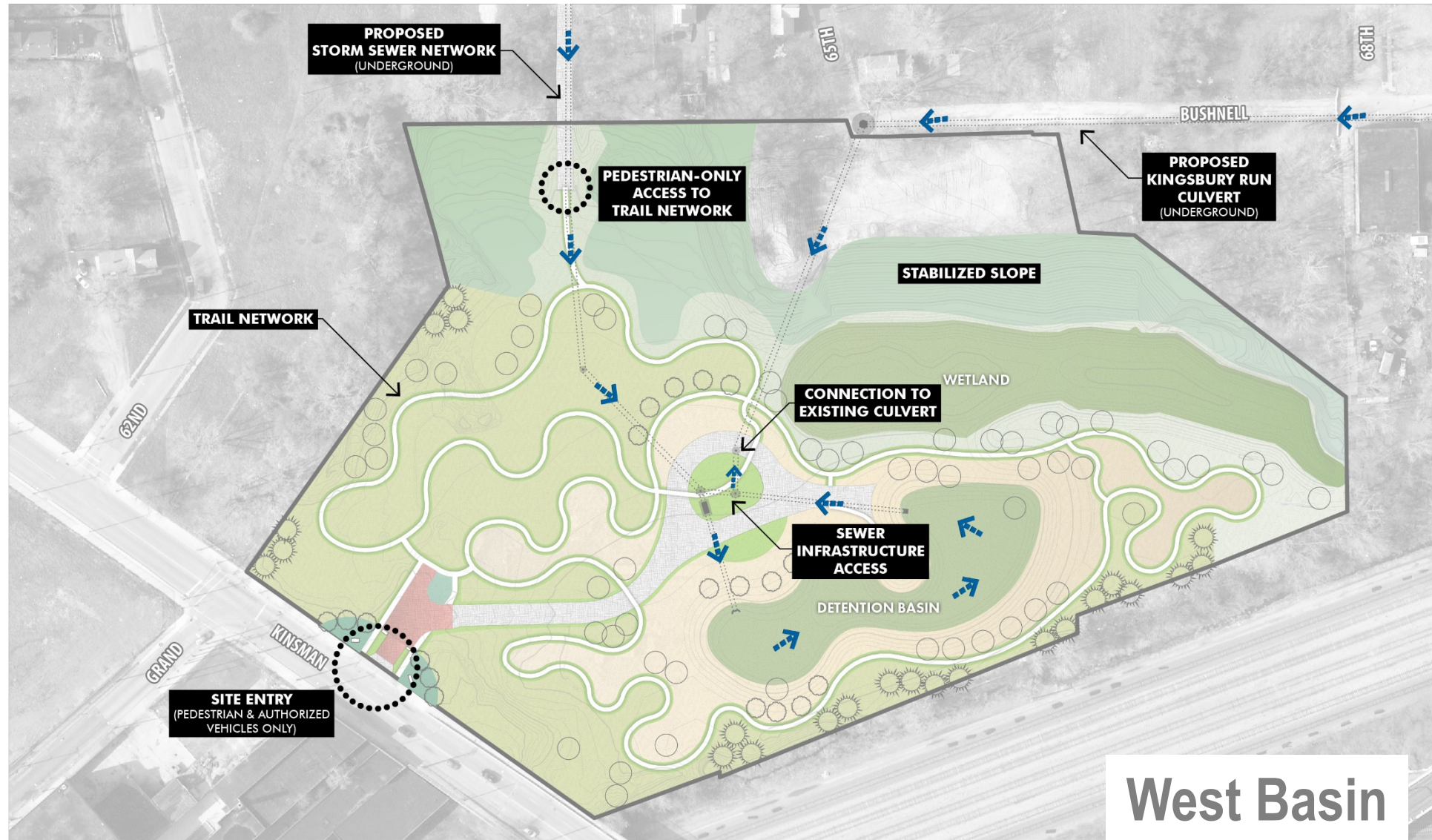


Project Components



West Basin

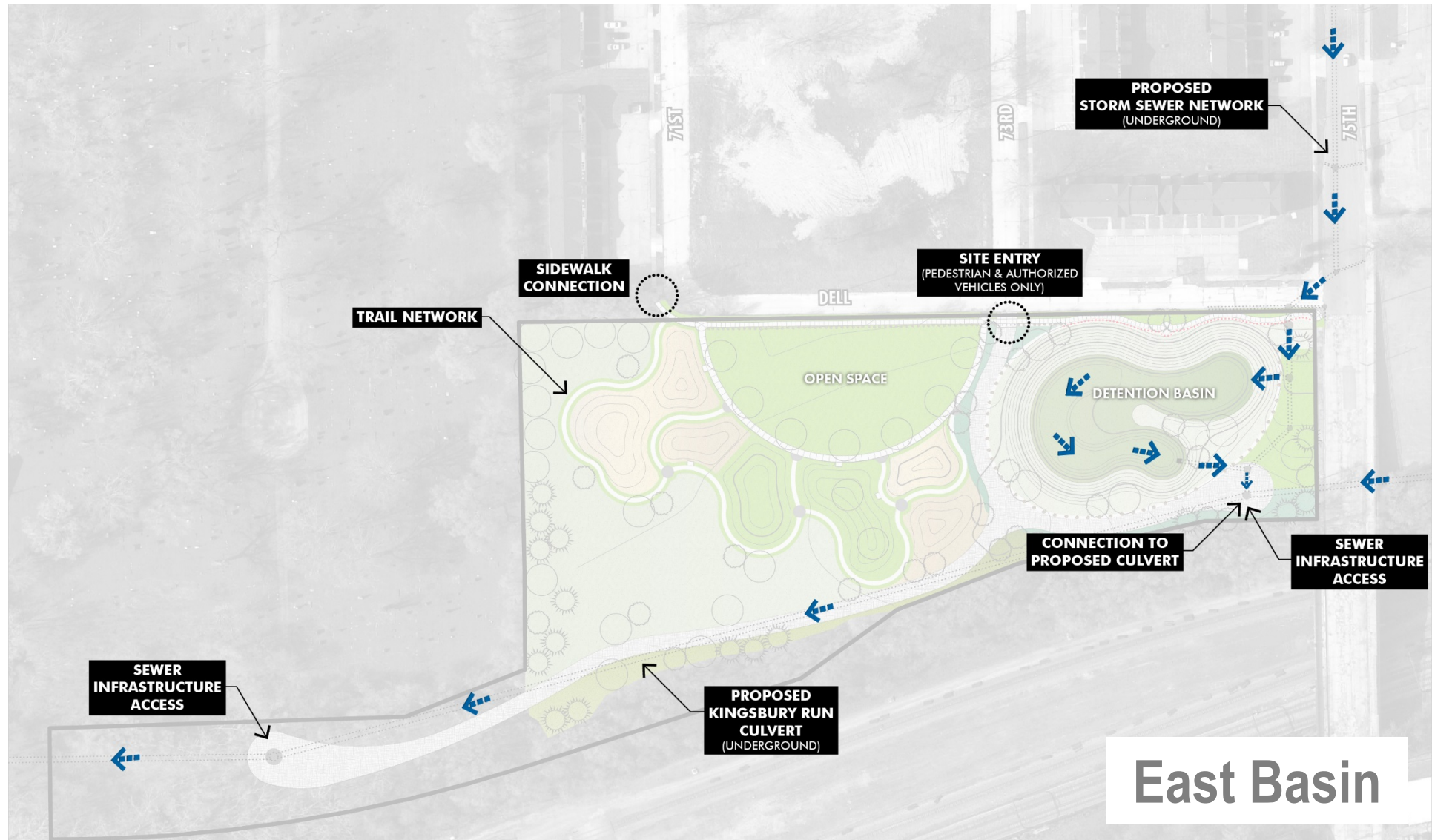
Project Components



Project Components



Project Components



Challenges



Source: Google Earth

Challenges



Challenges Context

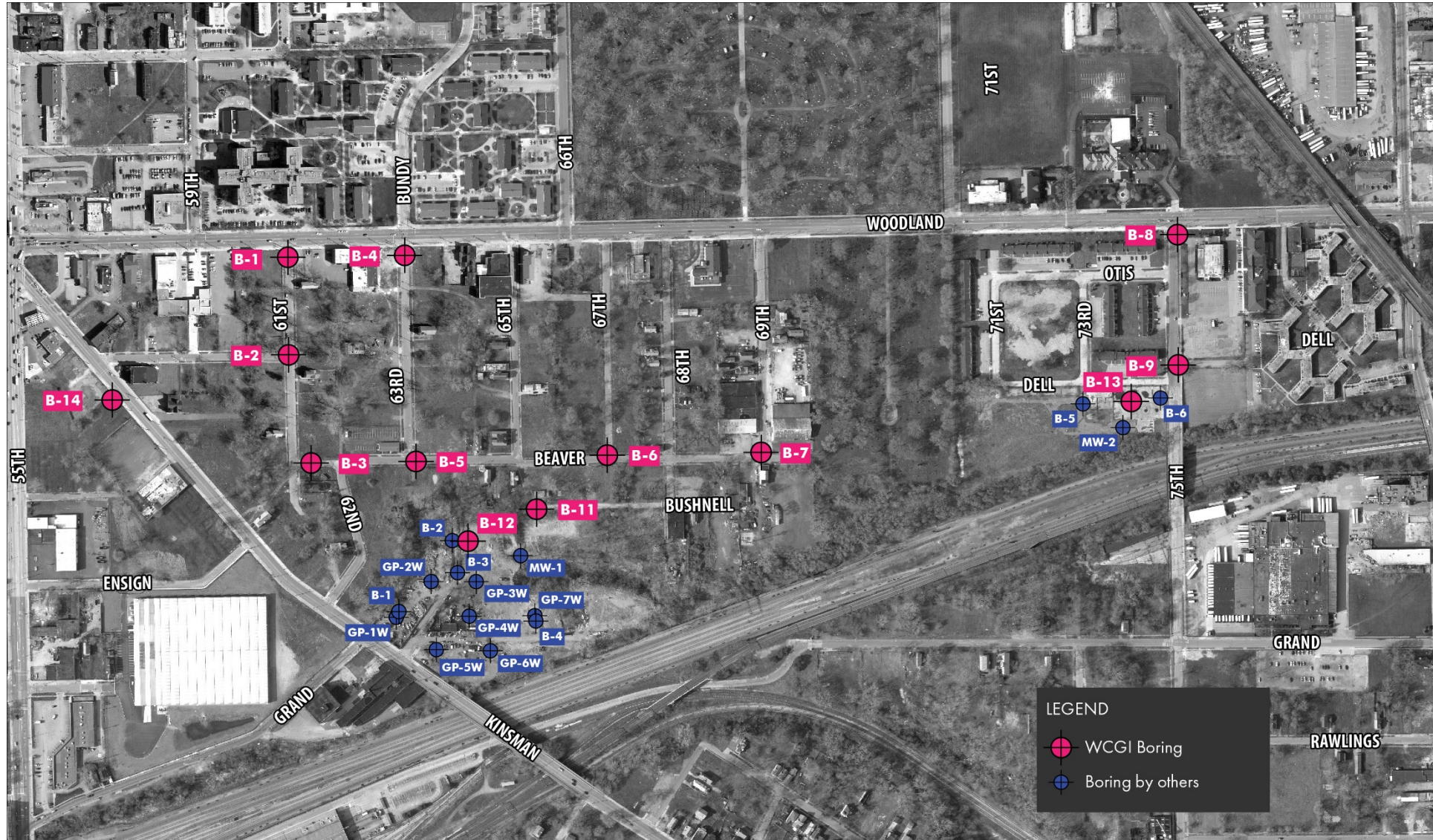


Source: Google Earth

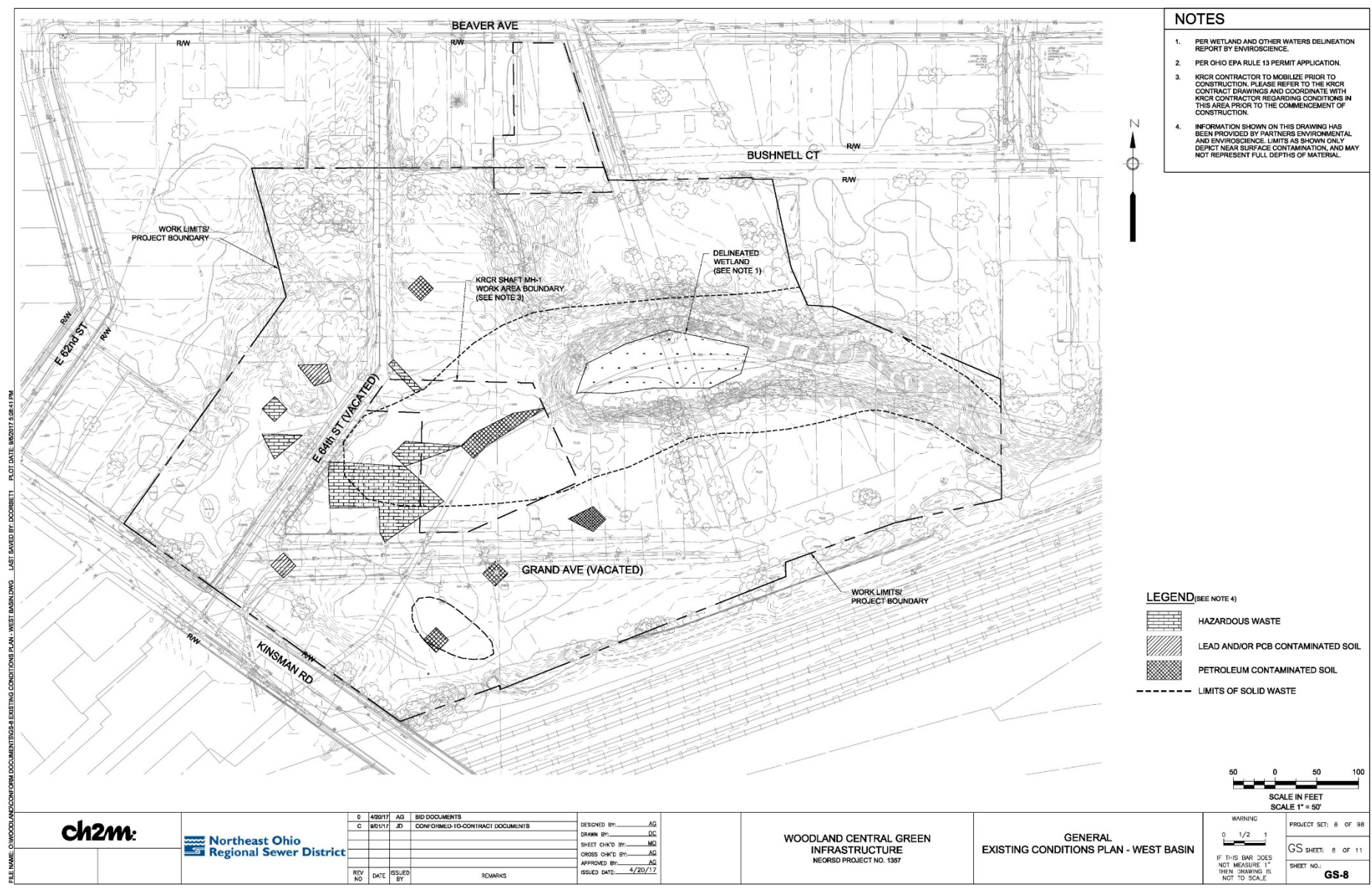
Environmental Challenges



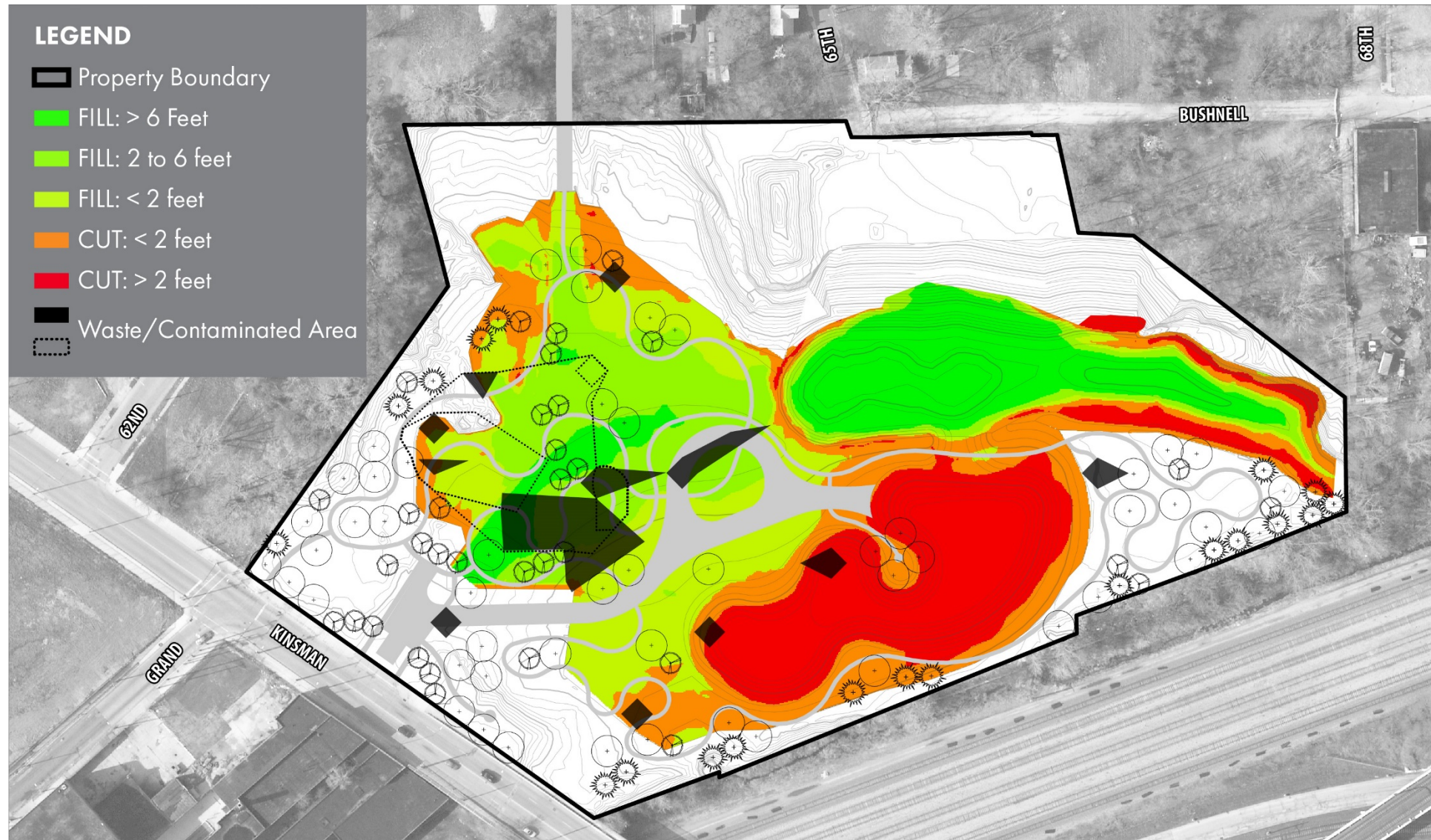
Environmental Challenges



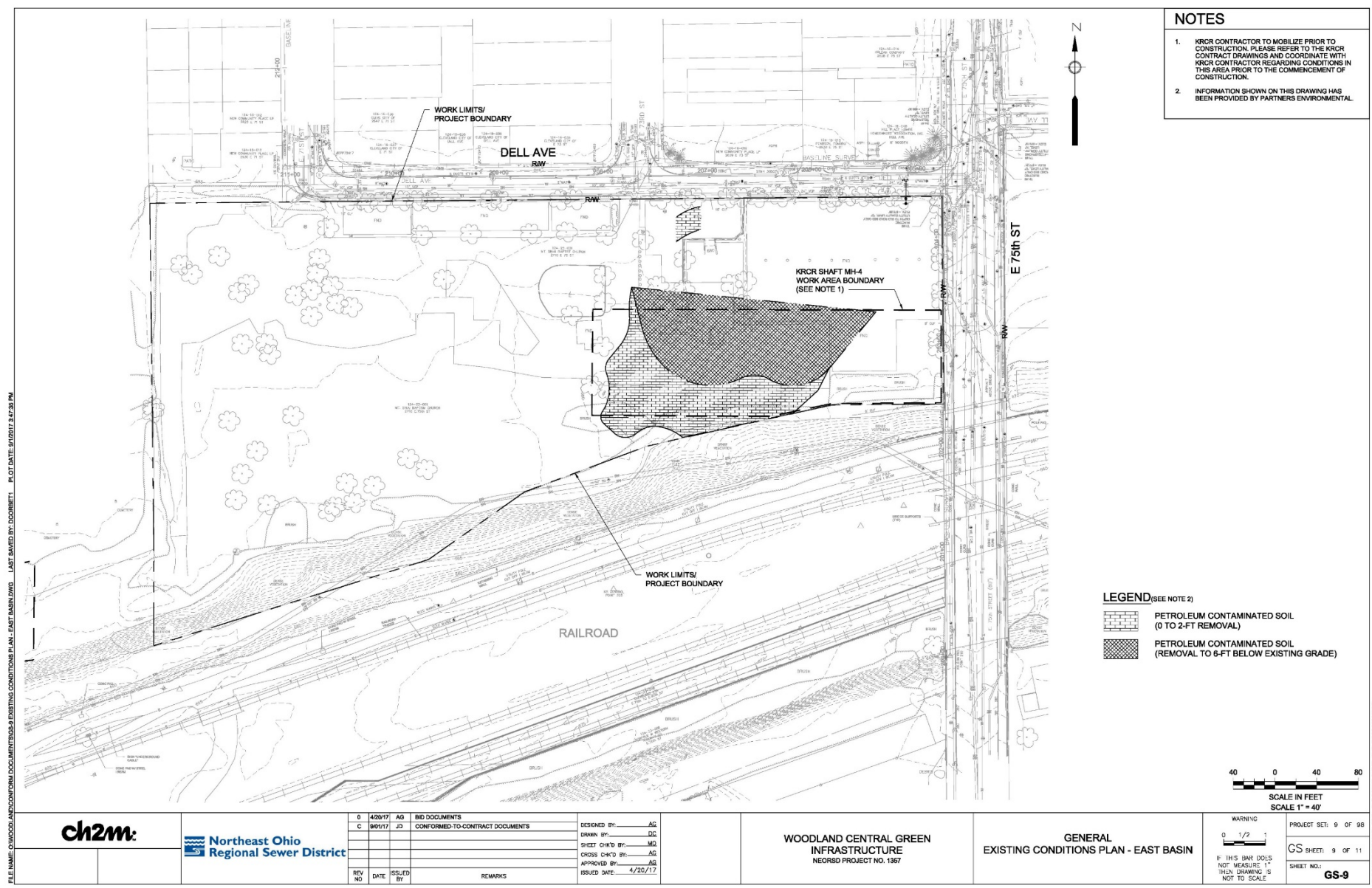
Environmental Challenges



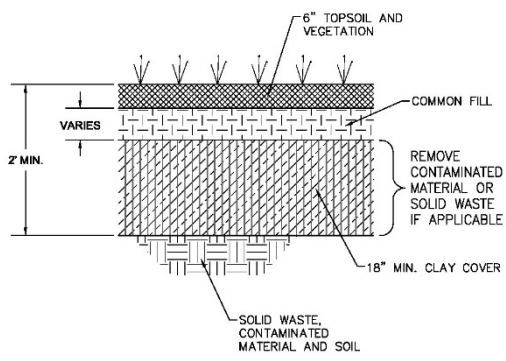
Environmental Challenges



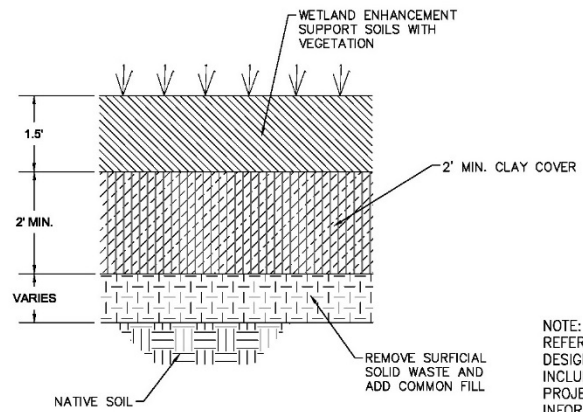
Environmental Challenges



Environmental Challenges

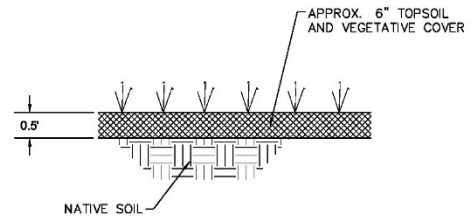


2 **ZONE 2 - TYPICAL SECTION**
LIMITED (2 FT.) CONTAMINATED MATERIAL OR SOLID WASTE REMOVAL.
18-INCHES CLAY SOIL COVER WITH 6-INCHES OF TOPSOIL.

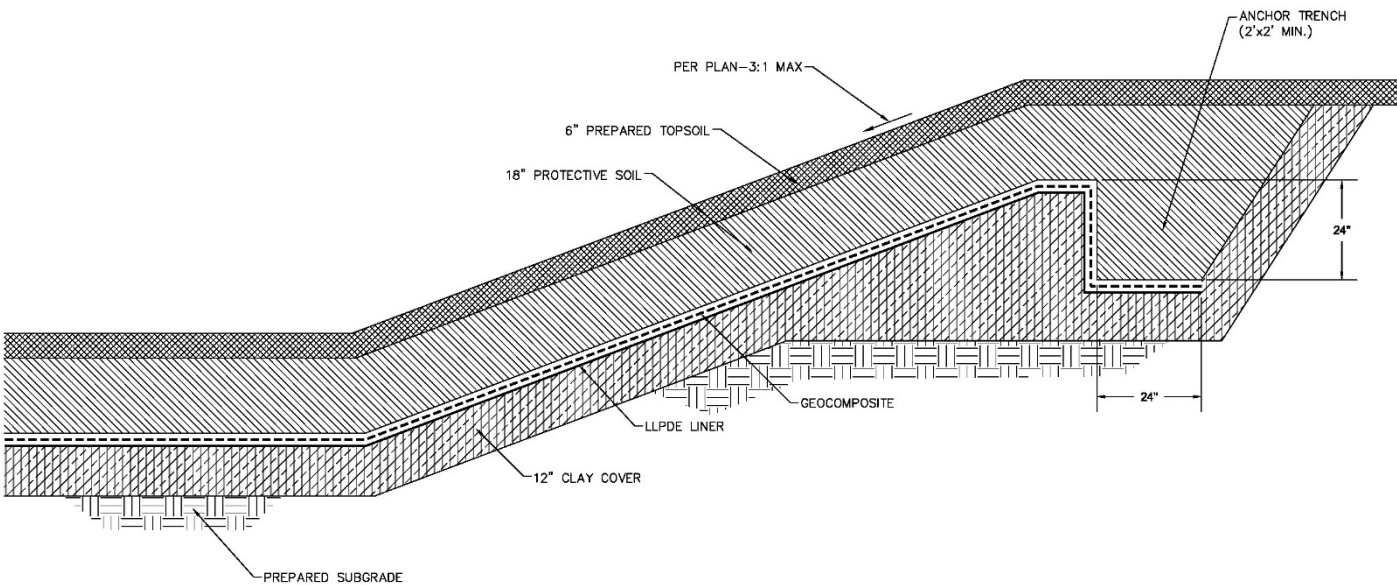


NOTE:
REFER TO THE WEST BASIN WETLAND
DESIGN DRAWINGS BY ENVIROSCIENCE,
INCLUDED IN VOLUME 5 OF THE
PROJECT SPECIFICATIONS FOR MORE
INFORMATION REGARDING WORK TO BE
COMPLETED IN THE RAVINE/ZONE 3.

3 **ZONE 3-TYPICAL SECTION**
WETLAND ENHANCEMENT

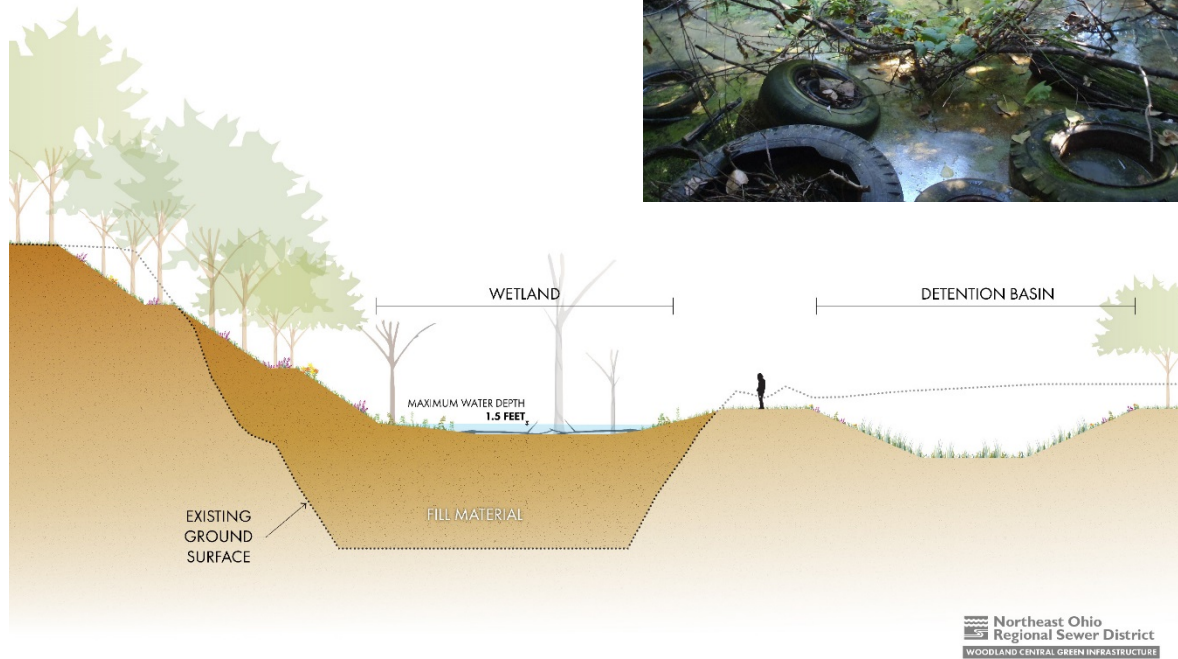


4 **ZONE 4-TYPICAL SECTION**
SURFICIAL SOLID WASTE AND DEBRIS REMOVAL. CLEARING AND GRADING.



1 **ZONE 1-TYPICAL SECTION**
LIMITED CONTAMINATED MATERIAL OR SOLID WASTE REMOVAL.
LLPDE LINER WITH SUPPORT SOIL

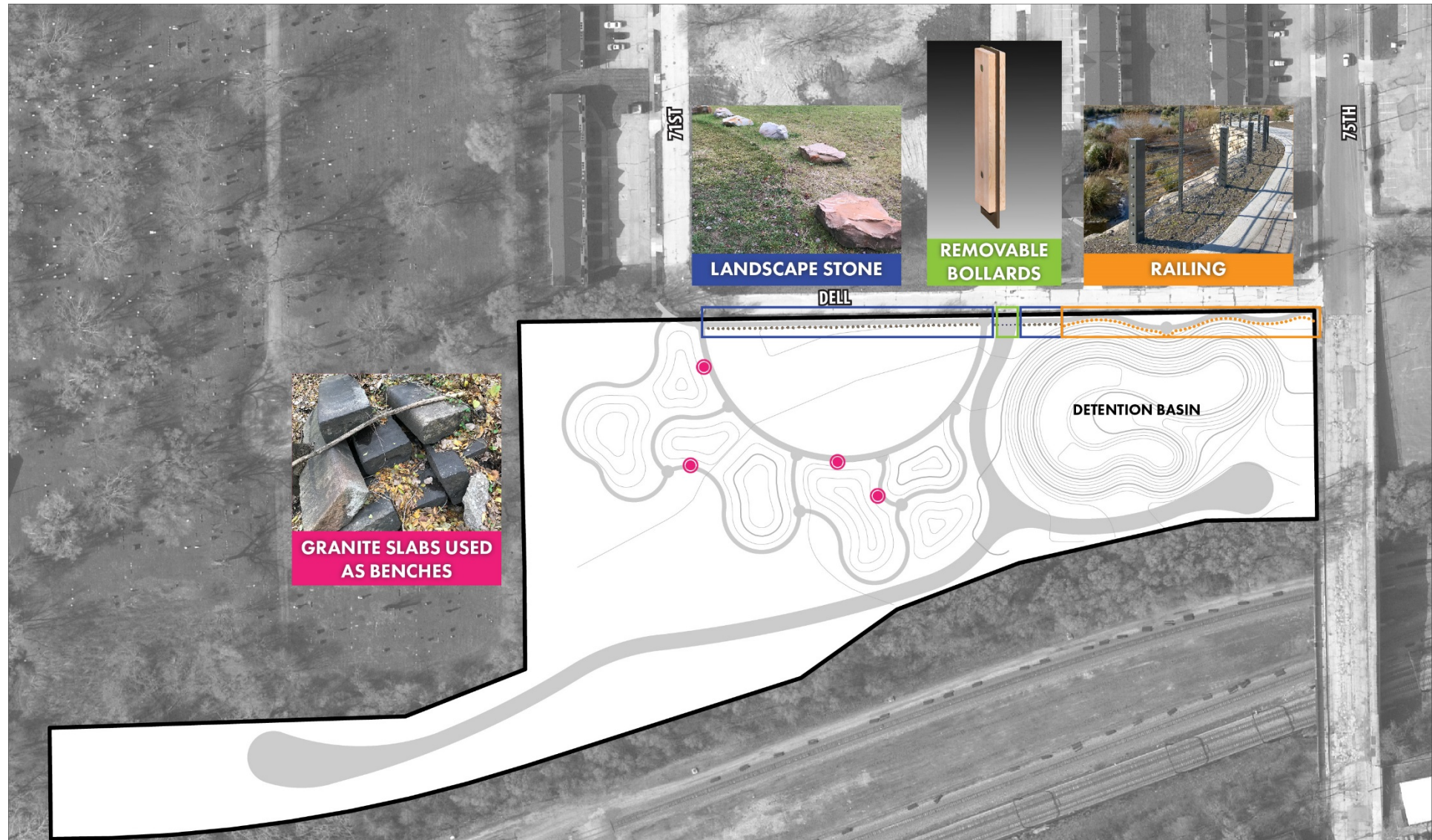
Spatial Challenges



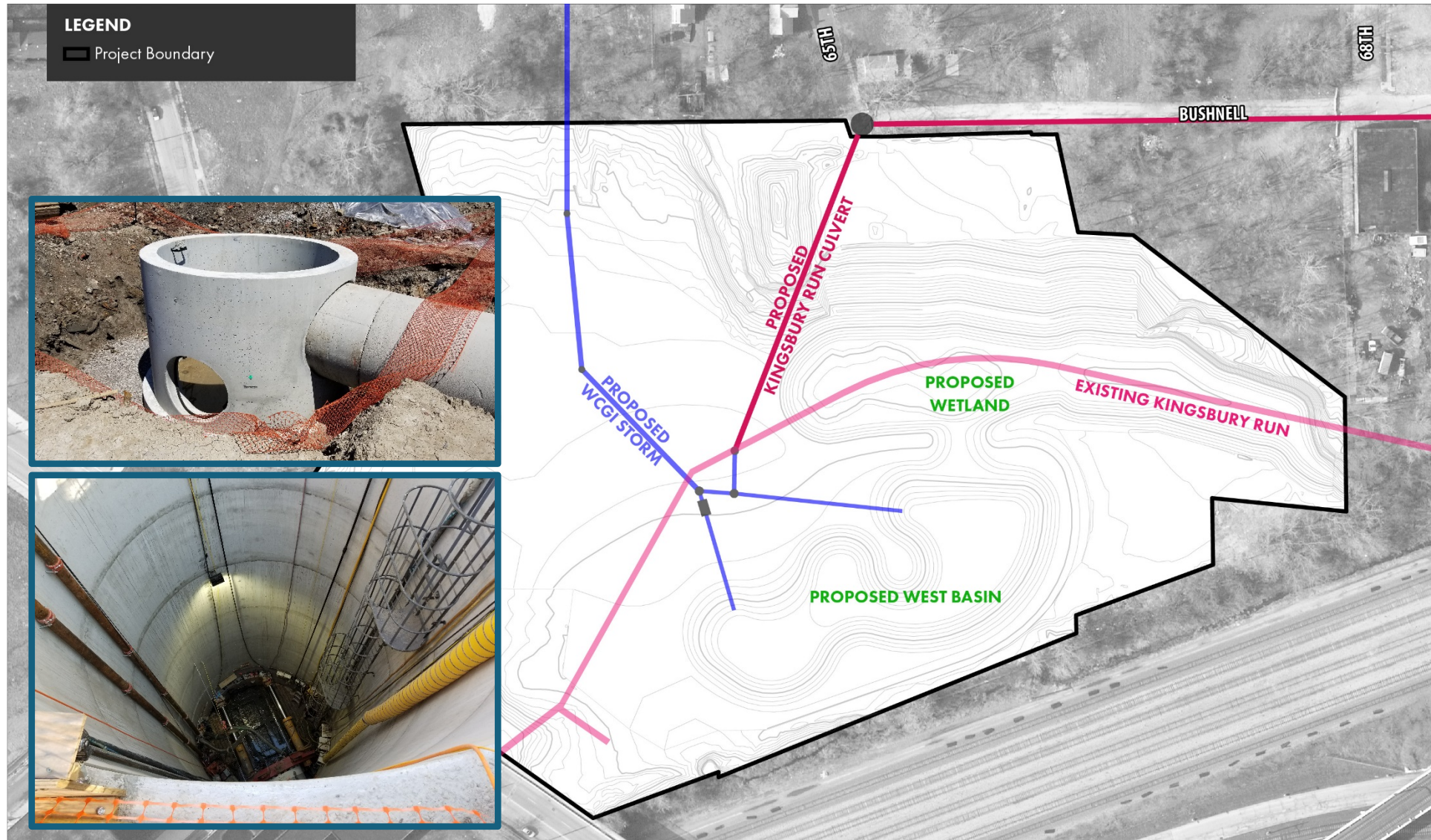
Spatial Challenges



Spatial Challenges



Spatial & Hydraulic Challenges

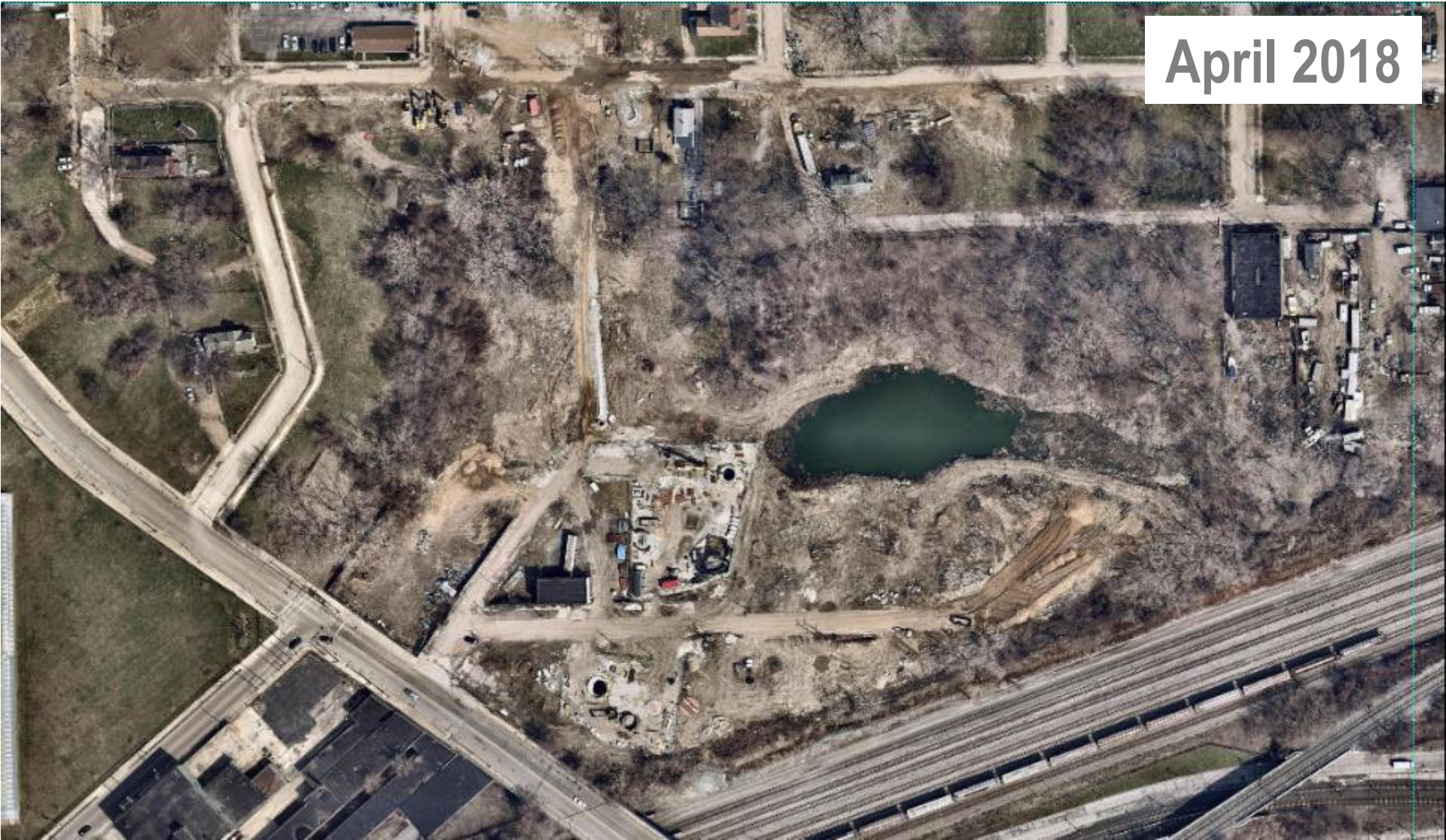


Status



Source: NEORS

Status



Source: NearMap

Status



September 2018

Source: NearMap

Status

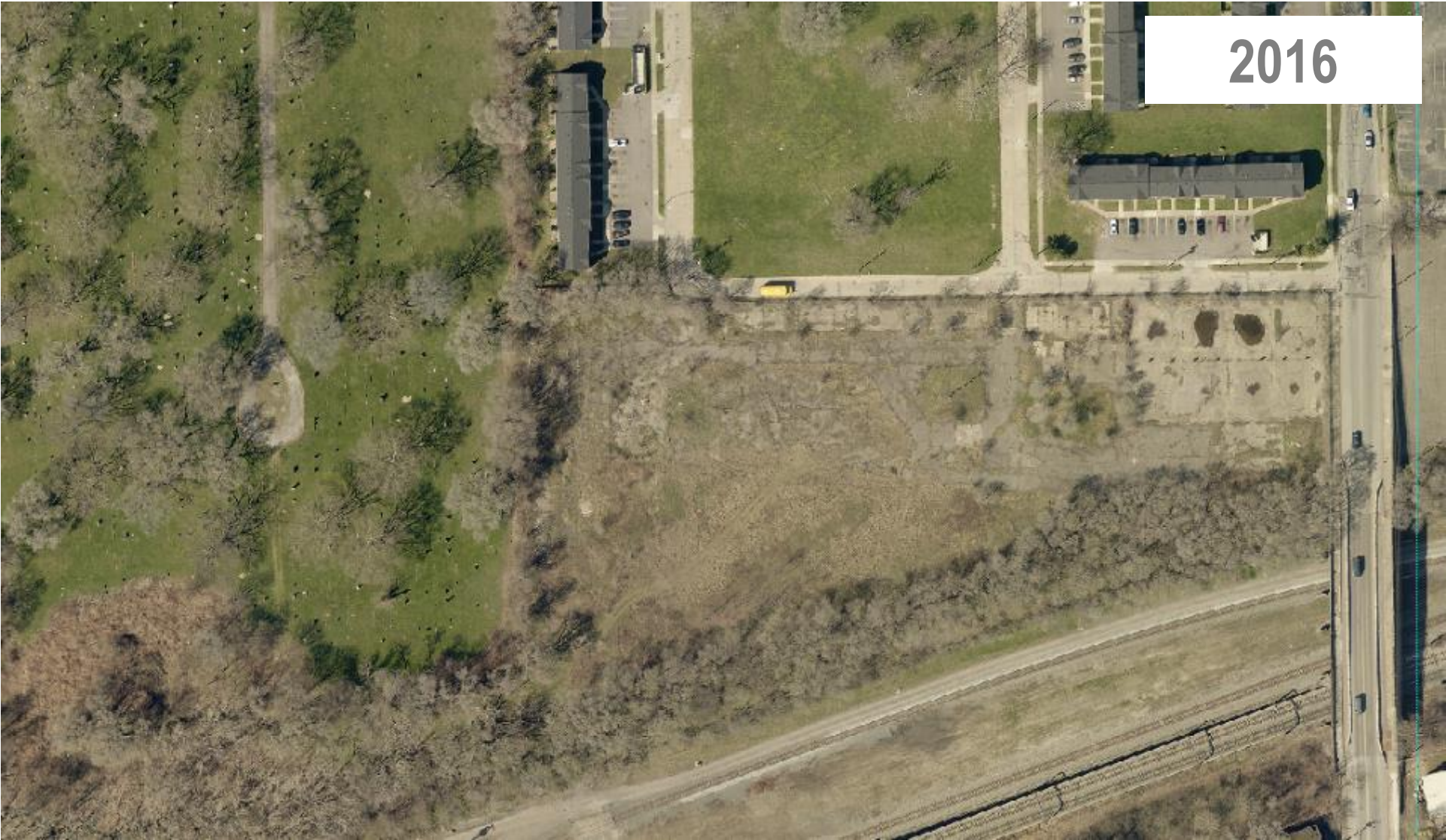


Source: NearMap

Status



Status



Source: NEORS

Status



Source: NearMap

Status



Source: NearMap

Status



April 2019

Source: NearMap

Status



Lessons Learned

- Green infrastructure (GI) is an important tool in the toolbox of **CSO control technologies**, but there are challenges, especially when integrating GI in urban neighborhoods.
- Open spaces in urban neighborhoods may have histories (e.g., previous land uses) that present significant **design and construction challenges**.
- Collaboration during design is essential and can lead to **creative solutions** to addressing challenges and enhancing the leave-behind with infrastructure projects.



OVERCOMING URBAN INFRASTRUCTURE CHALLENGES THE WOODLAND CENTRAL GREEN INFRASTRUCTURE PROJECT

2019 Ohio Stormwater Conference • Kim Colich, PE • Joseph Danyluk, AICP