IOWA

Cleaveland Park Stormwater

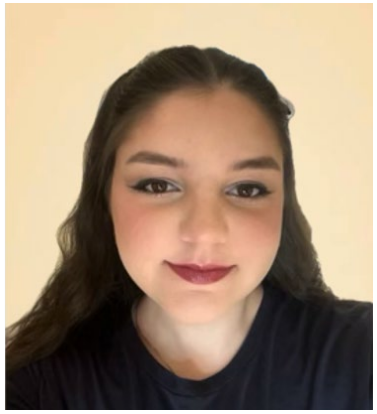
Megan Koumoundouros

Laura Hernandez

Josh Jackson

May 8, 2026

About us



Megan Koumoundouros

Civil Engineer

Urban studies

Project manager

Laura Hernandez

Civil Engineer

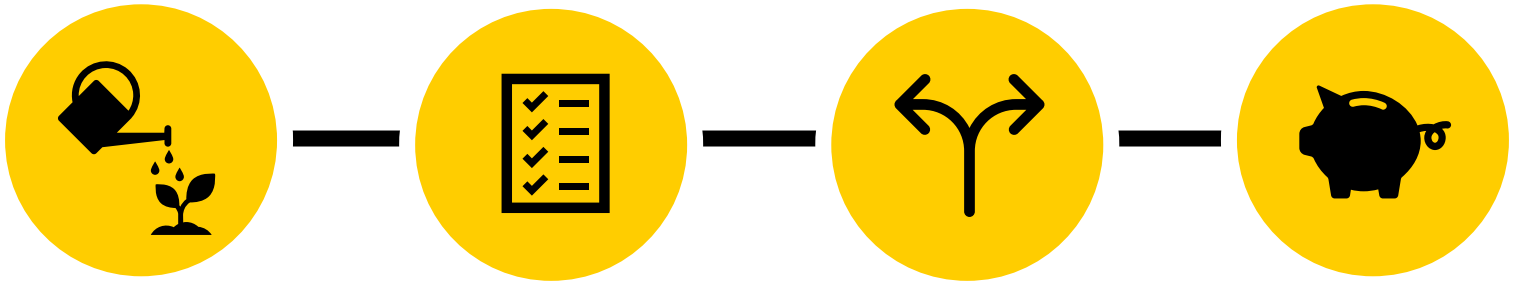
Hydraulics and Water Resources

Josh Jackson

Civil Engineer

Civil and Environmental Practice

Cleaveland Stormwater Plan



Project Scope & Constraints

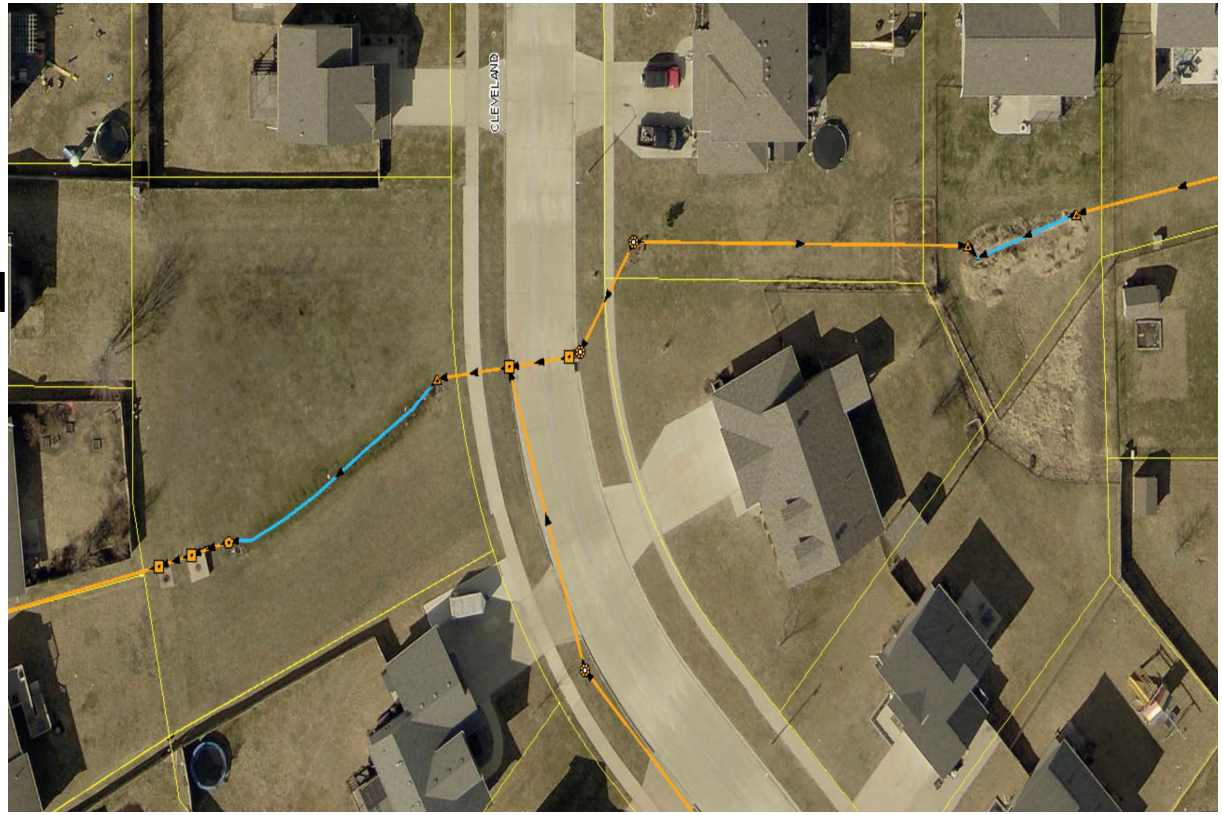
Existing Conditions

Final Design

Cost Analysis

Project Scope

- Evaluates storm sewer network and overland runoff that has inhibited park development
- Design a stormwater system to resolve drainage constraints

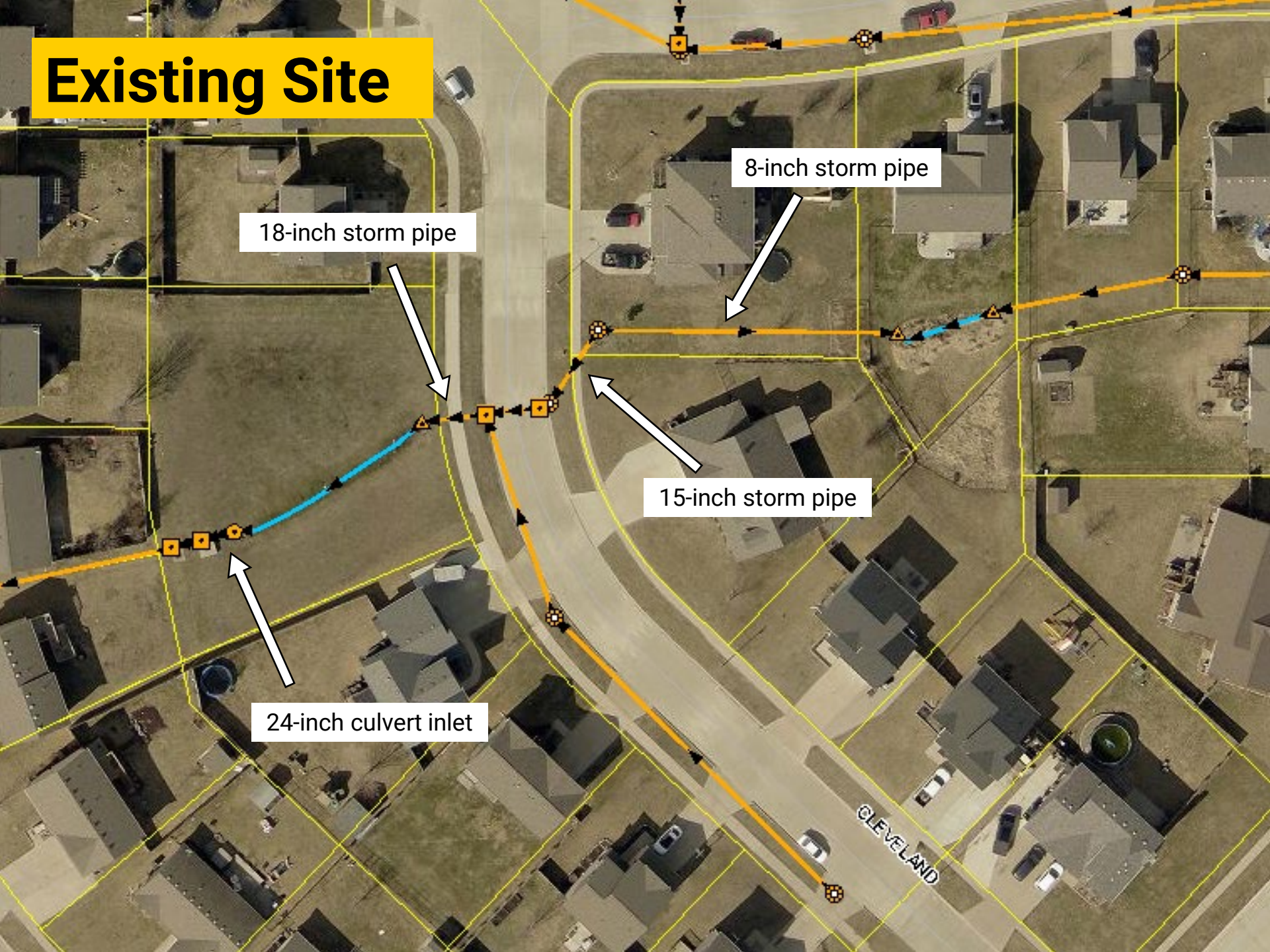


Existing Site

Site 1 - Proposed Stream

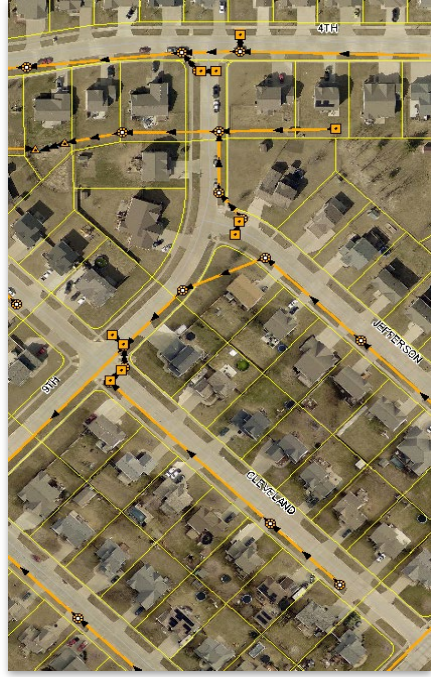
Site 1 - Playground

Site 2 – Retention basin


Existing Site
8-inch storm pipe
18-inch storm pipe
15-inch storm pipe
24-inch culvert inlet
CLEVELAND

Constraints

- Site 1 - Located in a neighborhood
  - Pipes are located under roadways and in yards
- Site 2 – Located behind multiple houses and is fenced off
- Water table is roughly 6ft, this restricts drainage



Design Plan & Considerations

Nature Based Play

Winding Stream

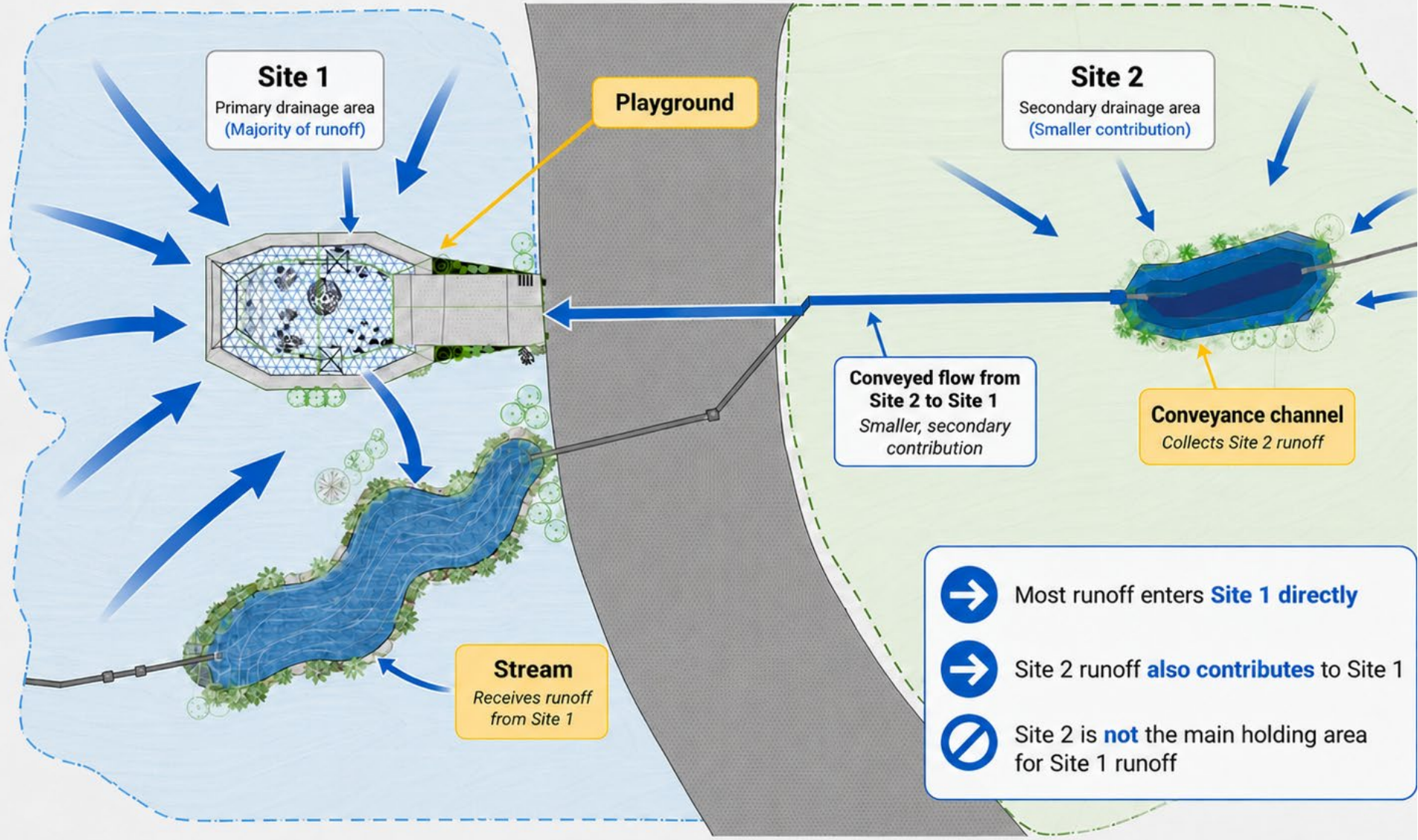
References

POLK COUNTY
Leading the Way

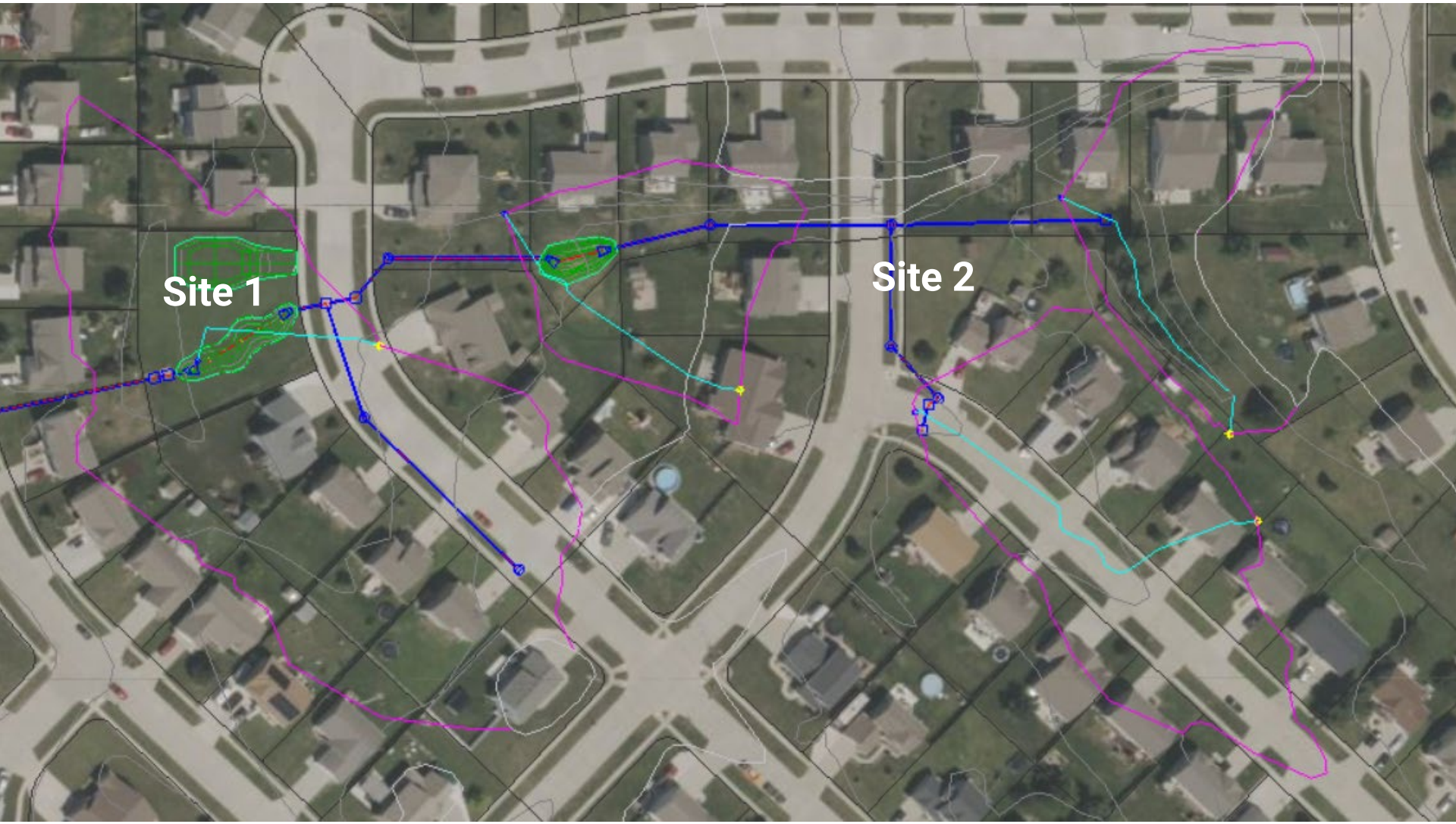
Iowa SUDAS
STATEWIDE URBAN DESIGN AND SPECIFICATIONS

Runoff Flow Path

How runoff from Site 1 and Site 2 flows to the stream



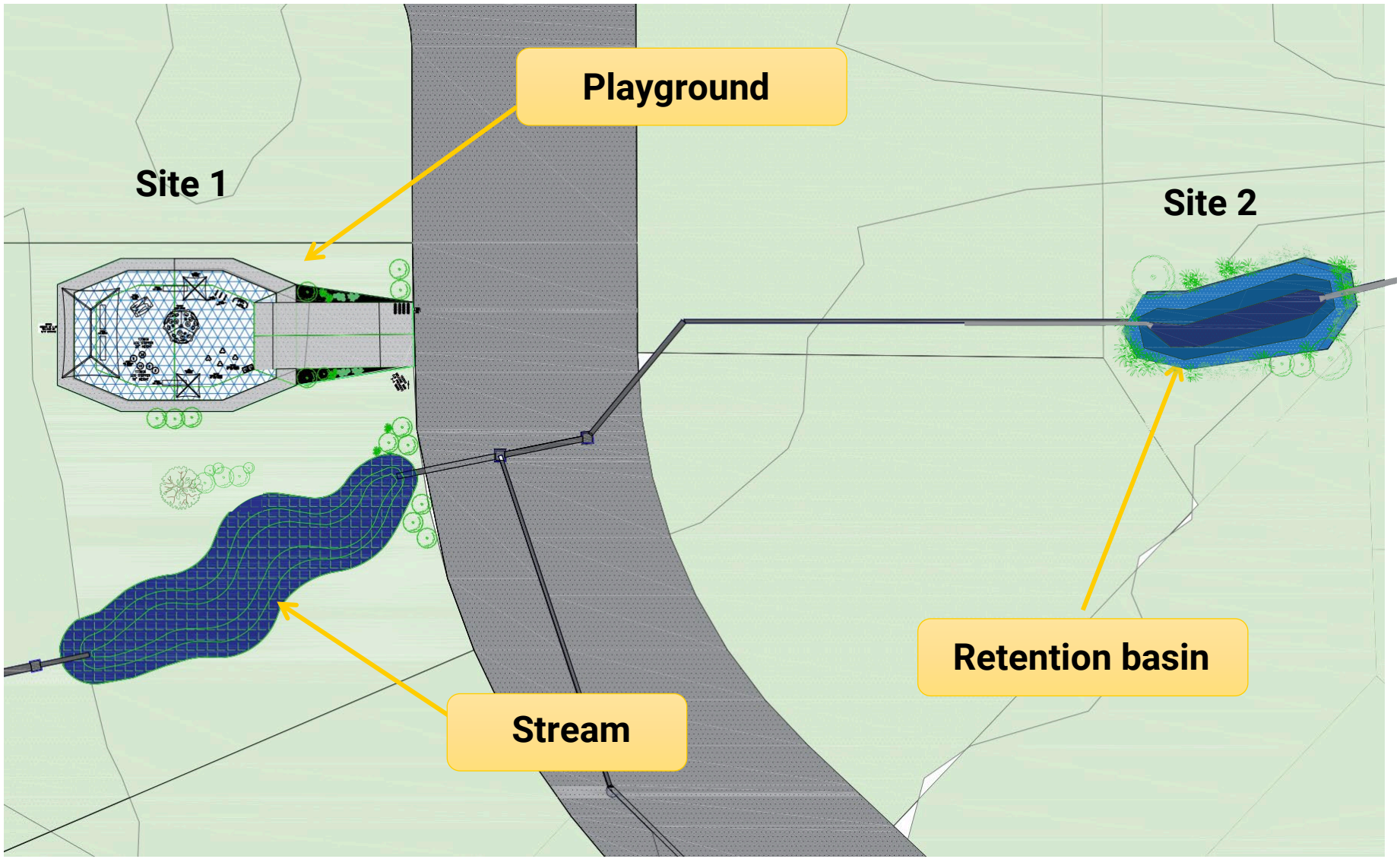
Catchment Areas



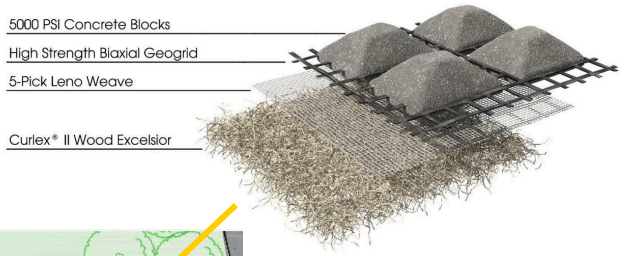
Hydraulic Analysis - Site 1

- Defined drainage areas for Site 1 and Site 2
- Modeled design storm runoff using Hydraflow Express
- Used proposed stream geometry from Civil 3D
- Entered peak flow rates & geometry into HEC-RAS

Final Design



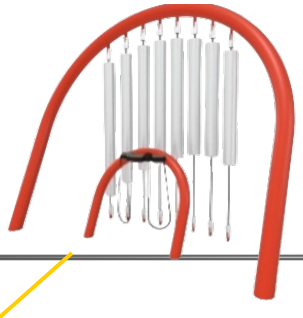
Site 1- Civil 3D Geometry

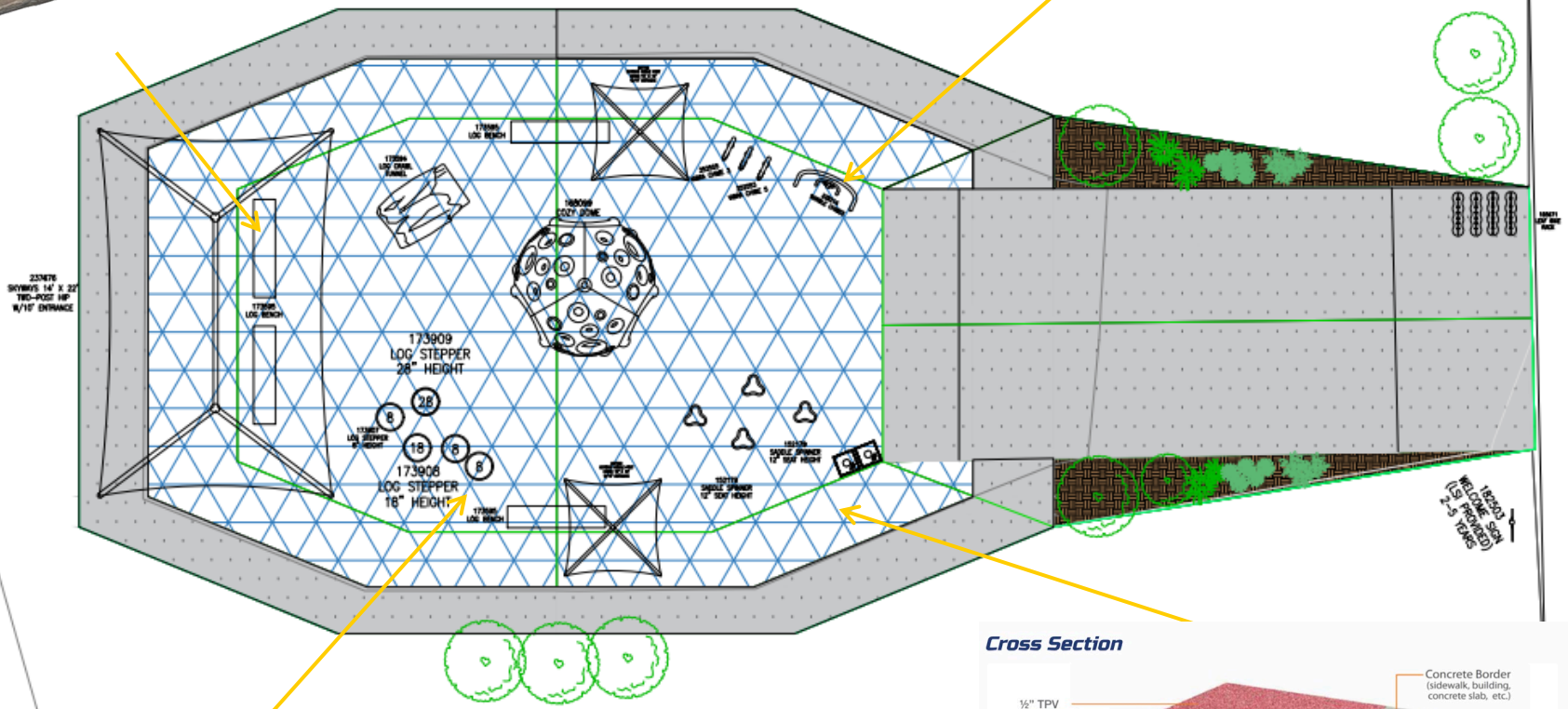


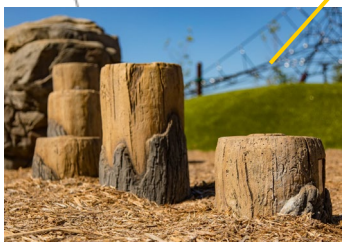
FlexAmat

Upsized
24 in Flared
culvert

Site 1- Playground



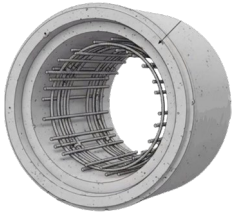


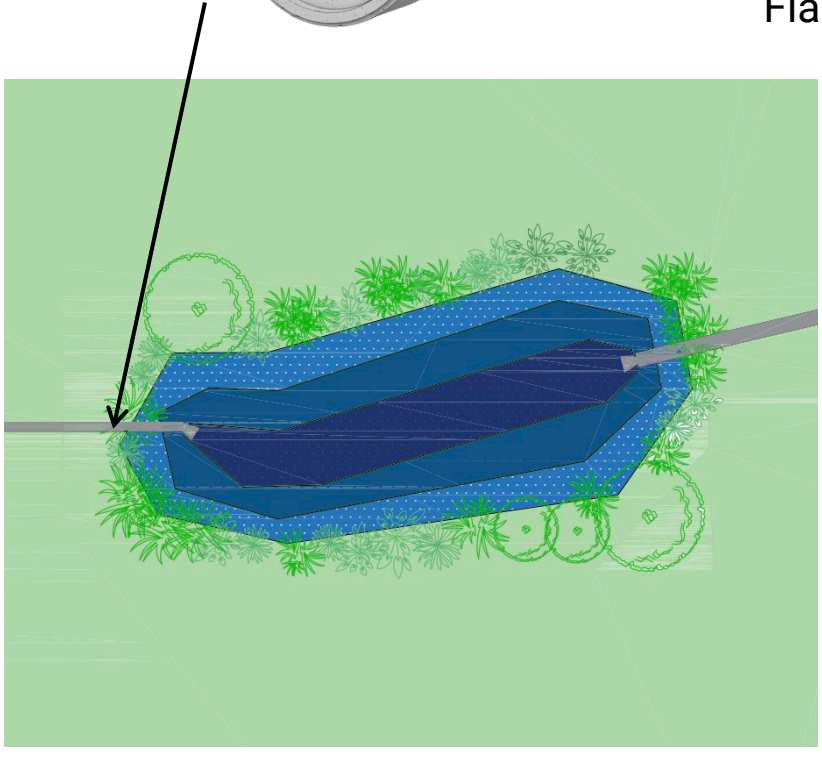


PIP – Pour in Place Cross Section

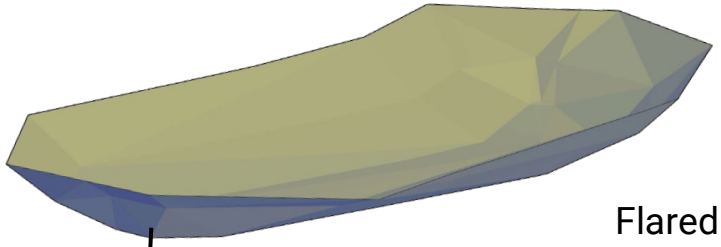
Final Design Site 2

20 in RCP - Reinforced Concrete Pipe



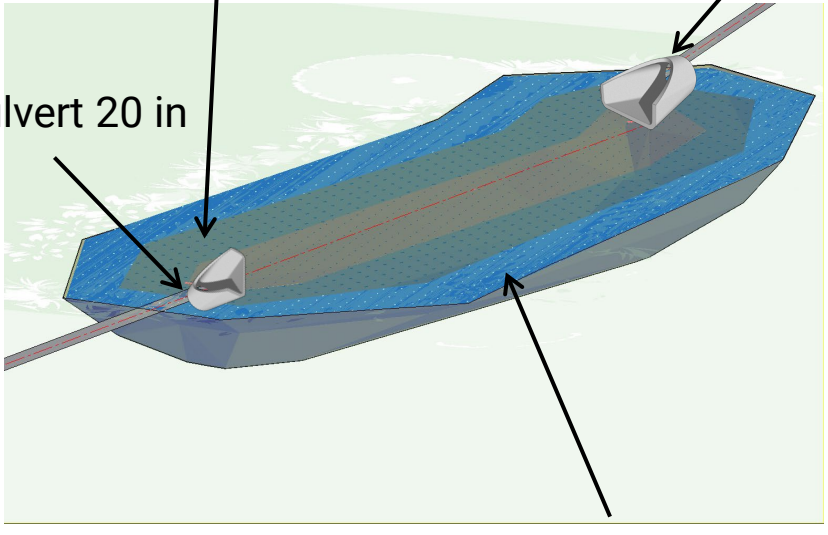


Site 2 – Profile



Flared Culvert
(Existing 18 in)

Flared Culvert 20 in



HDPE - High Density Polyethylene Lining Site 2 under the FlexAmat

Cost Analysis

Contingency – 20% Engineering and Administration - 5%

Section	Section total						
Site 1	110,035.00						
Site 2	71,933.00						
Playground	427,620.00		Site 1 & Site 2			All Sections	
			Sub total	182,300.00		Sub total	582,311.00
			Contingency Engineering & Administration	218,700.00		Contingency Engineering & Administration	698,780.00
			Total	230,000.00		Grand Total	733,720.00

Thank you

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