

# From AutoCAD Civil 3D to Storm and Sanitary Analysis - Pond Design Using Volume-Grading Tools

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# Class summary

- This class will demonstrate the use of AutoCAD Civil 3D grading objects and volume grading tools to design a stormwater pond based on a desired storage volume.
- Stage storage data will be exported from Civil 3D and analyzed in Storm and Sanitary Analysis

# Key learning objectives

At the end of this class, you will be able to:

- Dynamically model stormwater ponds using AutoCAD Civil 3D grading objects
- Understand how to control pond geometry to achieve a desired storage volume using the Volume Grading Tools
- Perform Stage Storage takeoff, and export data to SSA for analysis
- Import Stage Storage Data into an SSA model to accurately simulate pond performance.

# Designing Detention Ponds: AutoCAD Civil 3D

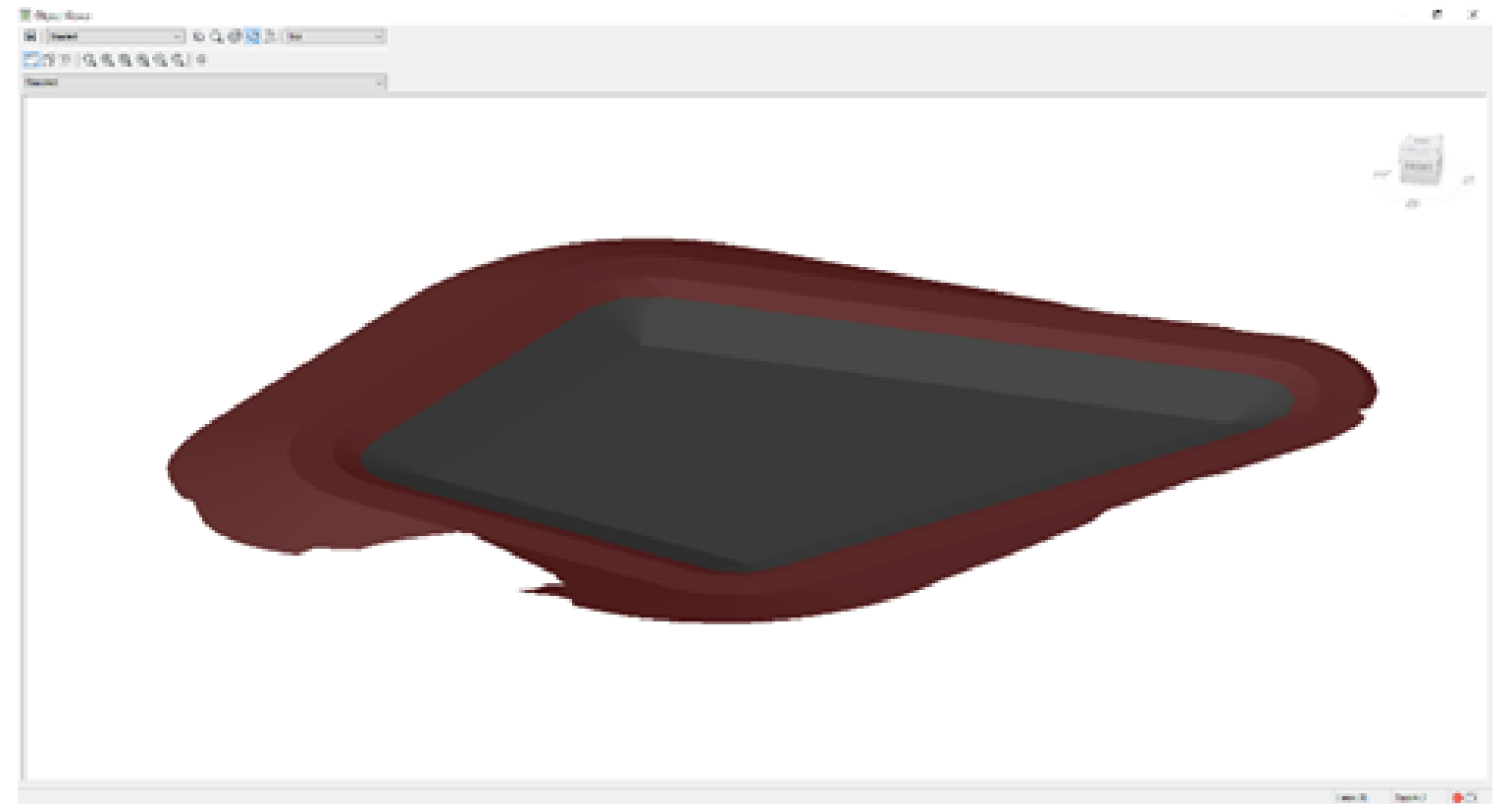
# Why Use Grading Objects?

- Design Faster?
  - Initial Time Investment
  - Payoff Comes Later
- Volume Grading Tools
  - Balance Earthwork
  - Achieve Storage Volume



# Building the Pond Model

- Only One Feature Line
- Grading Groups
  - More than one
- Grading Objects
- Reference Surfaces



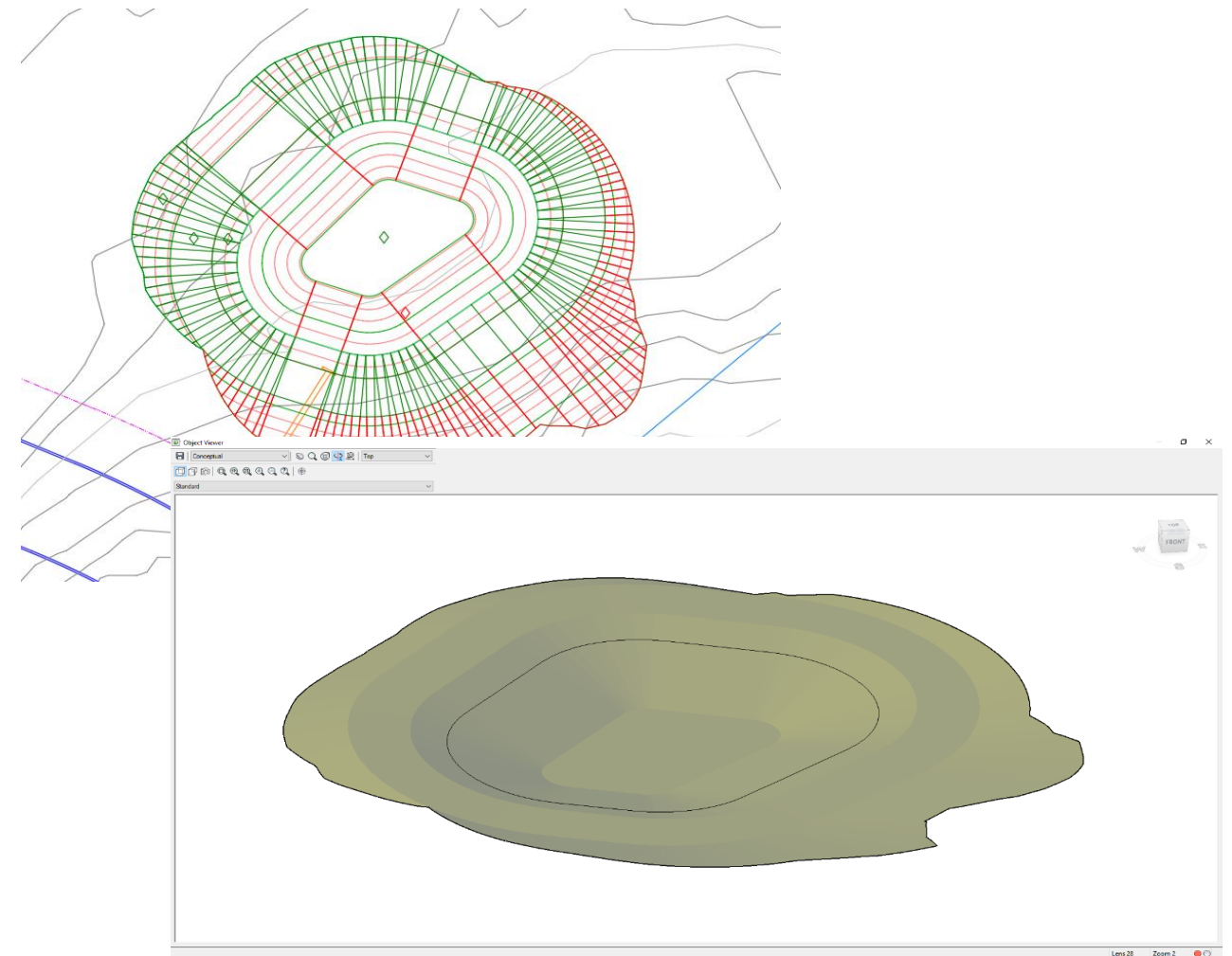
A look at the pond in Object Viewer

# Building the Pond Model



# Tweak the Design

- One *Feature Line* to Rule Them All!
  - Grip Edit (w/ point filters)
  - Edit Geometry Panel
- Reference Surfaces
- Grading Volume Tools
  - Auto-balance



A look at the pond in plan view (above) and Object Viewer (Bottom)



# Tweak the Design



# Stage Storage Takeoff

- Get More from the Model
  - Let Civil 3D do the Math
- Export Data to use in SSA

STAGE STORAGE TABLE			
DEPT H (ft)	AVG END INC. VOL. (cu. ft.)	AVG END TOTAL VOL. (cu. ft.)	IN (c
N/A	N/A	0.00	
1.00	981.97	981.97	
1.00	1369.53	2351.49	1
1.00	1813.51	4165.01	1
1.00	2313.93	6478.93	2
1.00	2870.77	9349.70	2
1.00	3484.36	12834.06	3
1.00	4154.75	16988.81	4

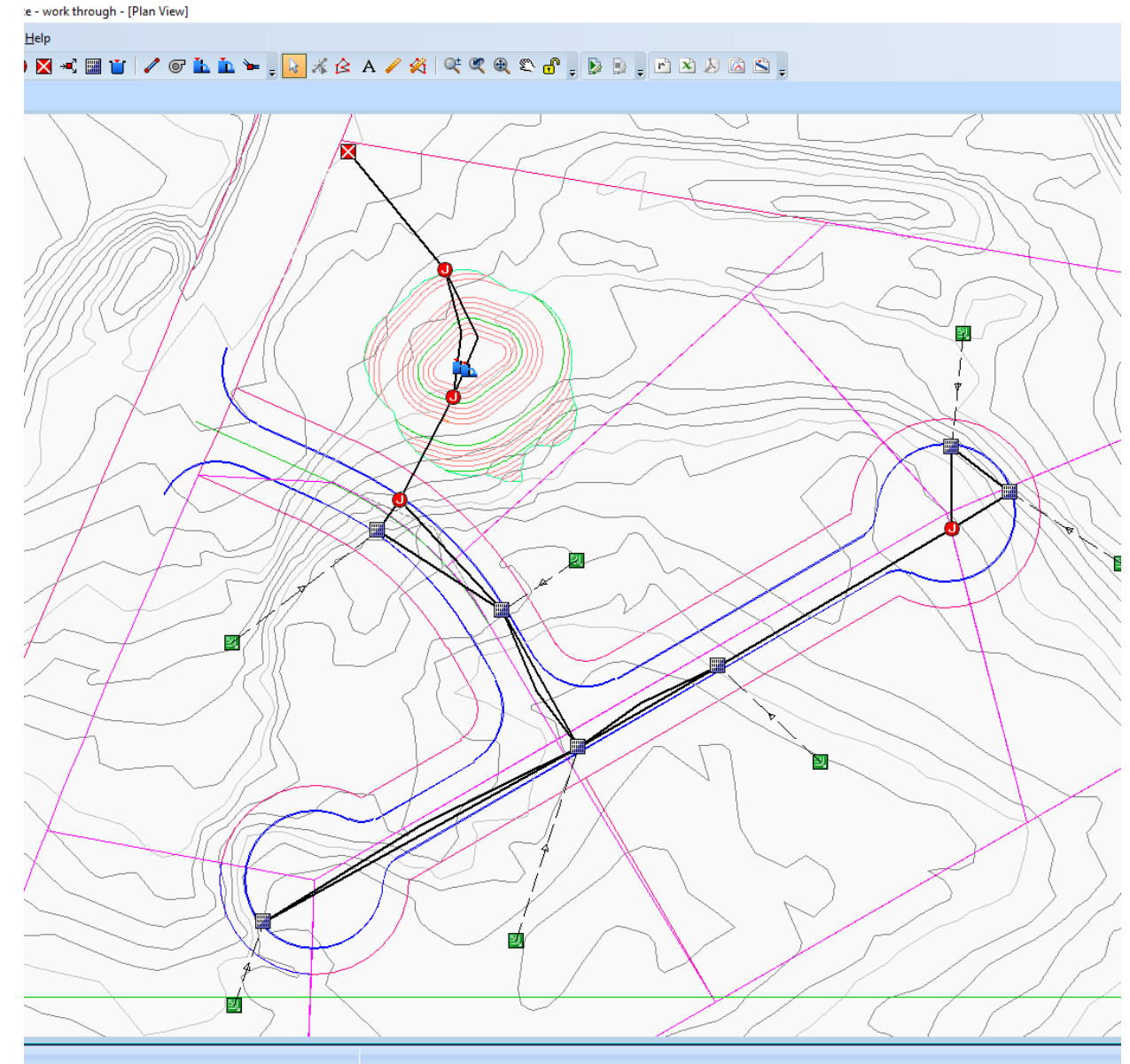
Stage Storage table inserted into Civil 3D

# Stage Storage Takeoff



# Analyze the Design

- **Configure Storage Node**
  - Add Storage Curve
  - Import Stage Storage
- **Run Analysis!**

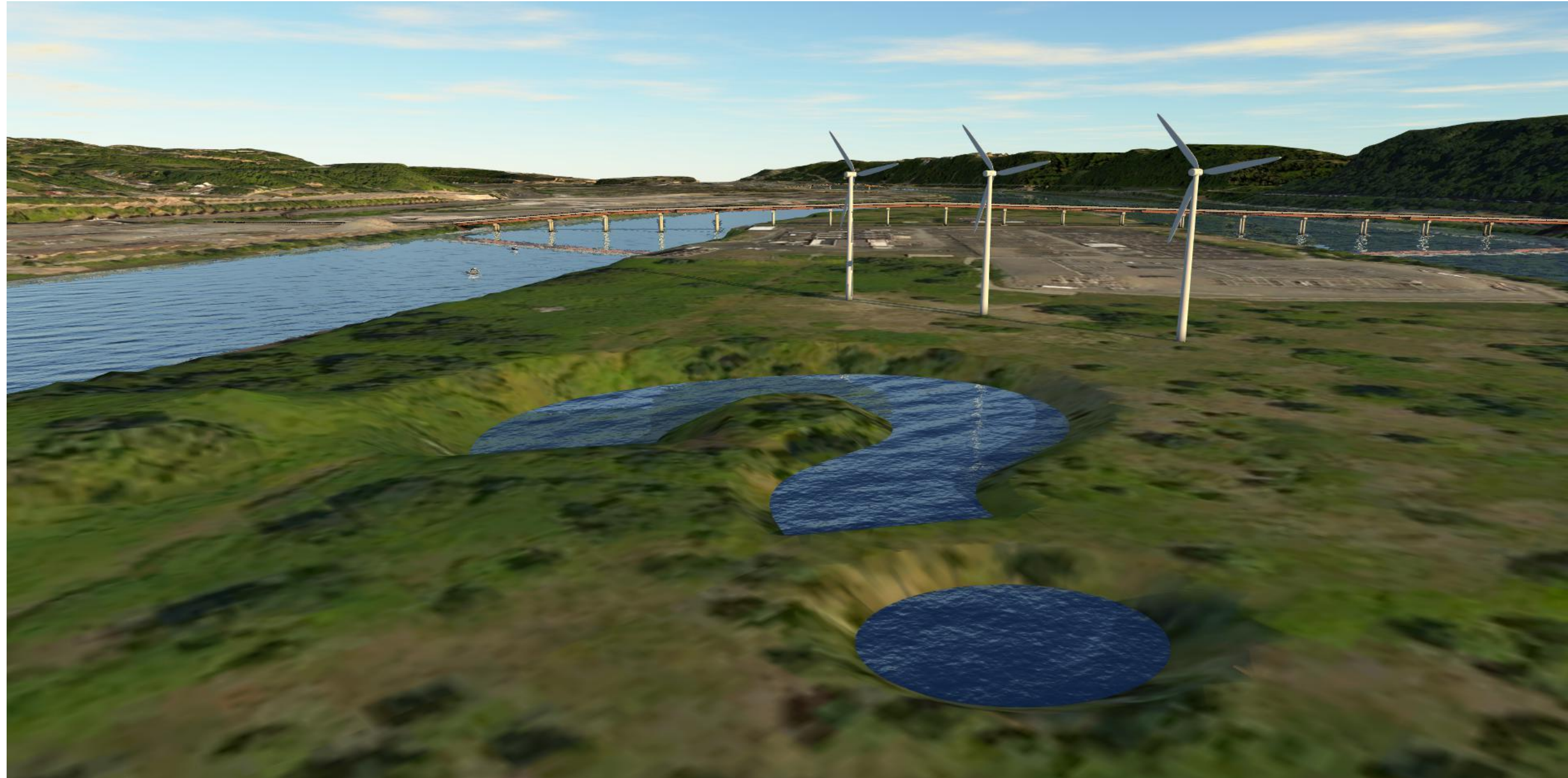


Plan View in Storm and Sanitary Analysis

# Analyze the Design



# Questions?



# How did I do?

- Your class feedback is critical. Fill out a **class survey** now.
- Use the AU mobile app or fill out a class survey online.
- Give feedback after each session.
- AU speakers will get feedback in real-time.
- **Your feedback results in better classes and a better AU experience.**



