



Step Up Your Game - Plant and Information Design (P&ID) in a Multiple-Discipline Design

Julian Chavez
Engineering Designer
URS Corporation



Class summary

- We will discuss the use of intelligent and informative design applications and 3D BIM modeling in a multiple discipline project environment. Discussion topics include the collaboration capabilities and conflicts between Civil 3D, P&ID, Plant 3D, Revit and Navisworks.

Key learning objectives

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

- Discover the most effective practices and approaches to a multiple-discipline BIM environment
- Use Autodesk design programs to create a multiple-discipline BIM environment
- Implement efficient practices and workflows when working in a BIM environment
- Recognize the limitations and advantages of a multiple-discipline BIM environment

BIM Workflow

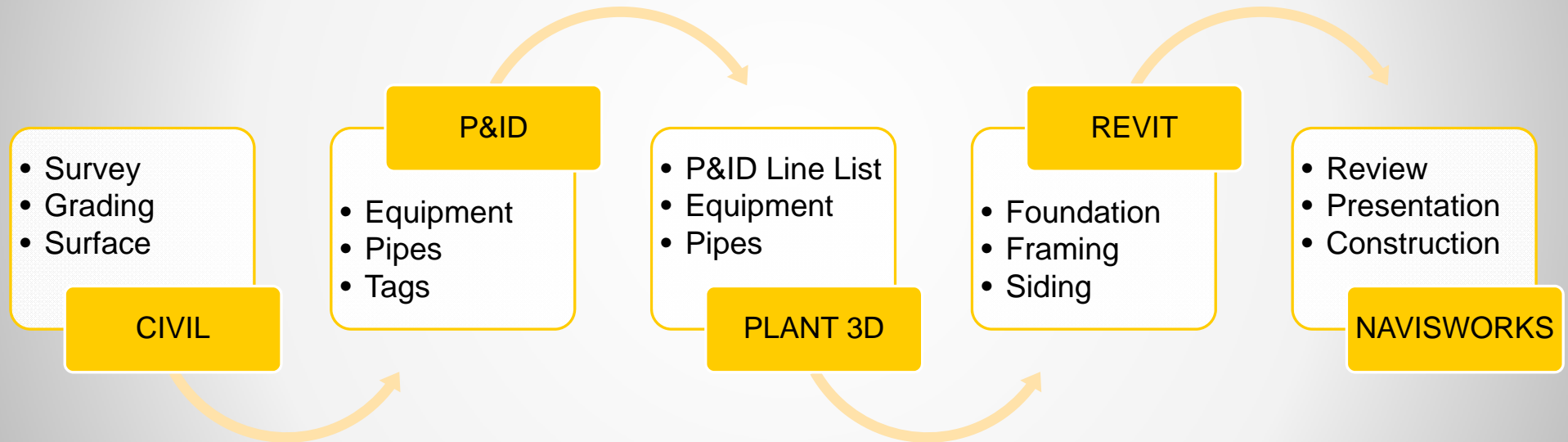


Figure 1 – BIM Workflow

Civil 3D

Existing Surface

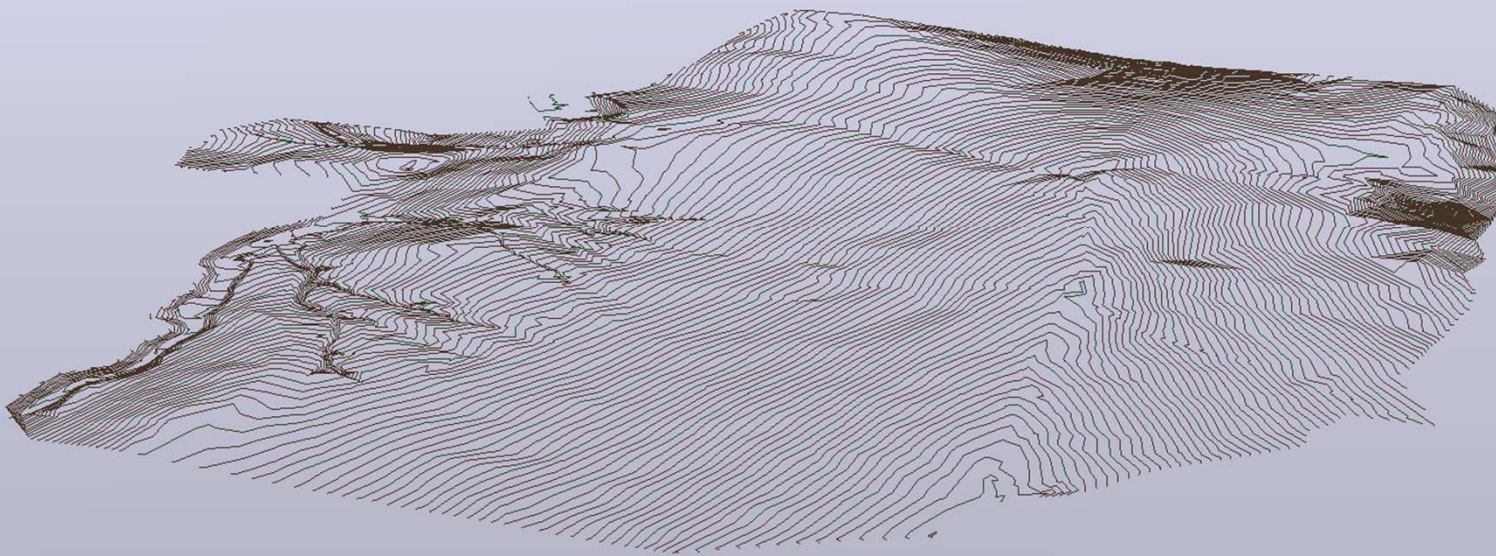


Figure 2 – Existing Ground Surface Based off Survey

Proposed Surface

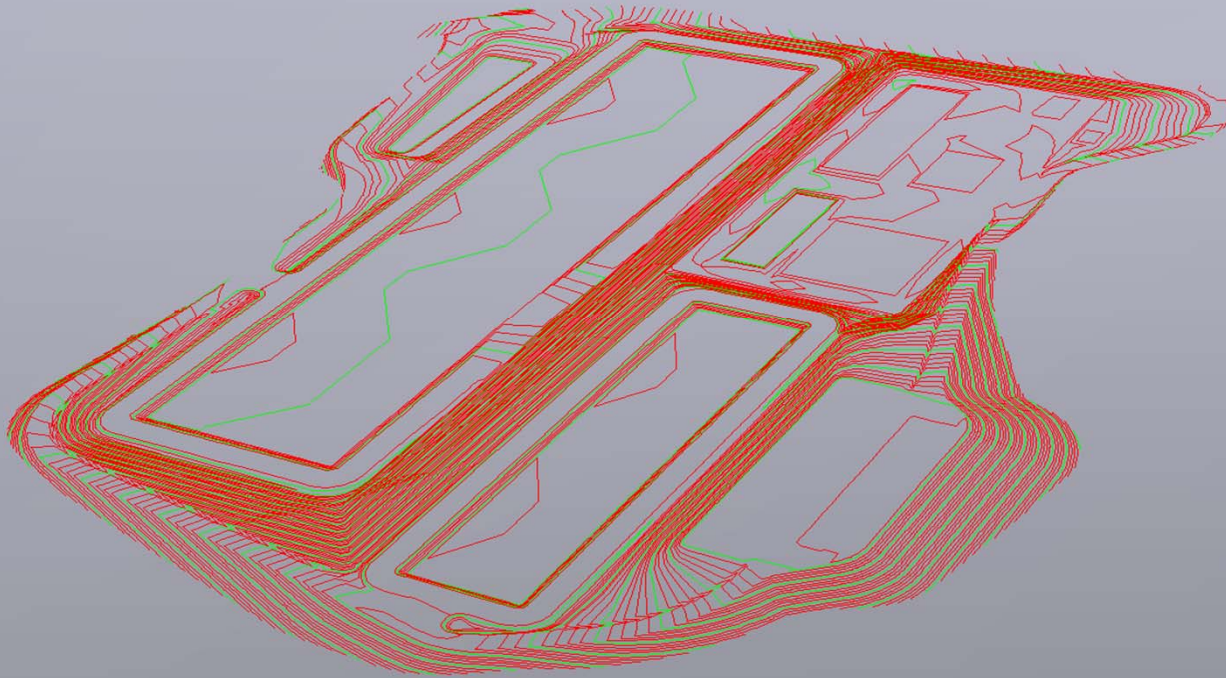


Figure 3 – Proposed Ground Surface

3D Surface

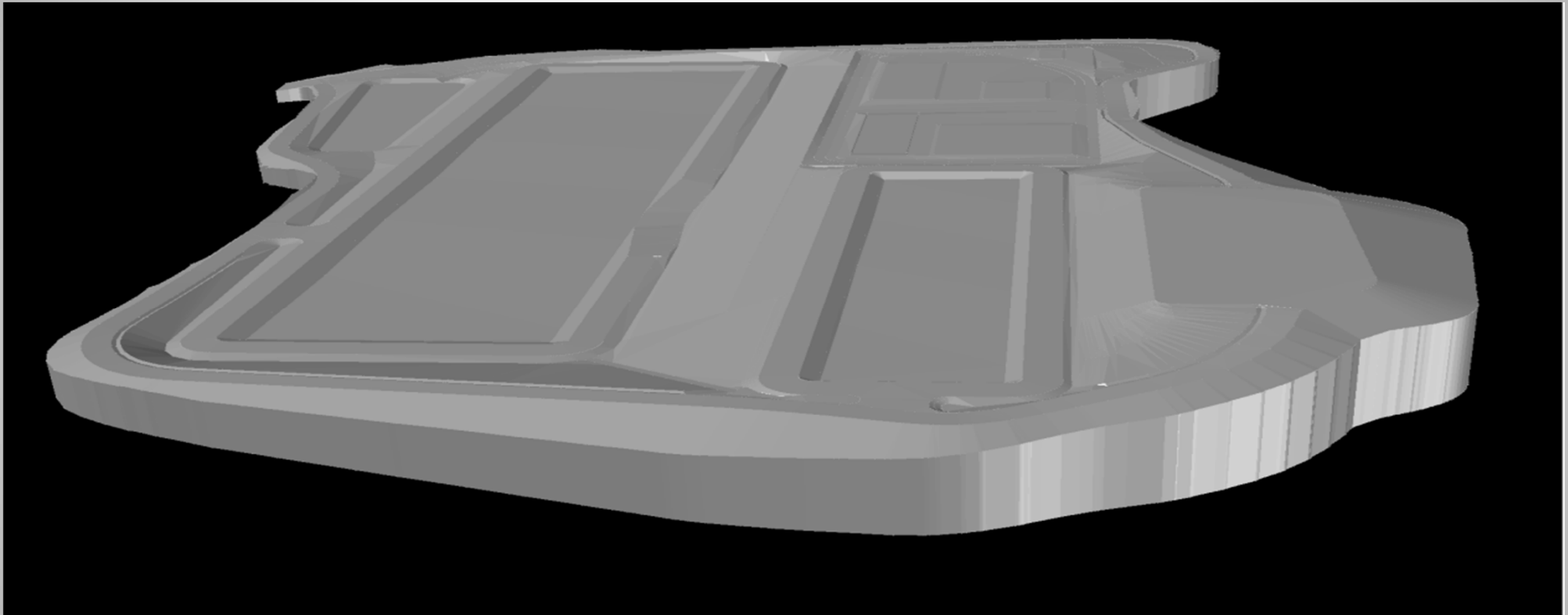


Figure 4 – 3D Proposed Surface

Plant 3D

Database

Learn More'. At the very bottom are three buttons: '<< Back', 'Next >>', and 'Cancel'." data-bbox="253 246 740 727"/>

Project Setup Wizard (Page 5 of 6)

Specify database settings

AutoCAD Plant 3D and AutoCAD P&ID both include a file-based local database (SQLite) that requires no configuration. If you are working with many users simultaneously, it is recommended that you configure a SQL Express server database.

☐ SQLite local database

☒ SQL Express server database

Server Name:

Database name prefix:

Authentication:

Windows Authentication

Test Connection

Generate Name

User name:

Password:

Users will not be required to enter any credentials when they open the project because their Windows credentials will be used.

Already have a project that you'd like to convert from a local database to a server database? [Learn More](#)

<< Back Next >> Cancel

Figure 5 – SQL Express is a Highly Recommended Setting in Project Setup

Additional Project Settings

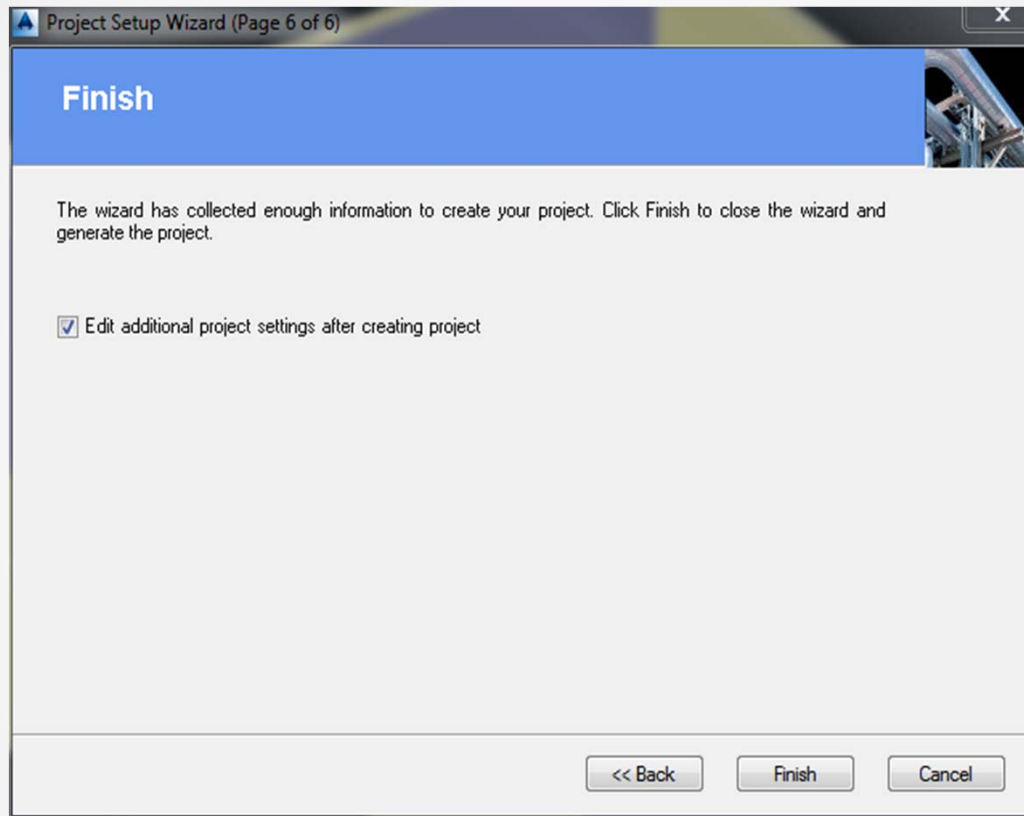


Figure 6 – Checking This Box is Highly Recommended to Continue Growing the Project Library (project.xml)

Project Setup Manager

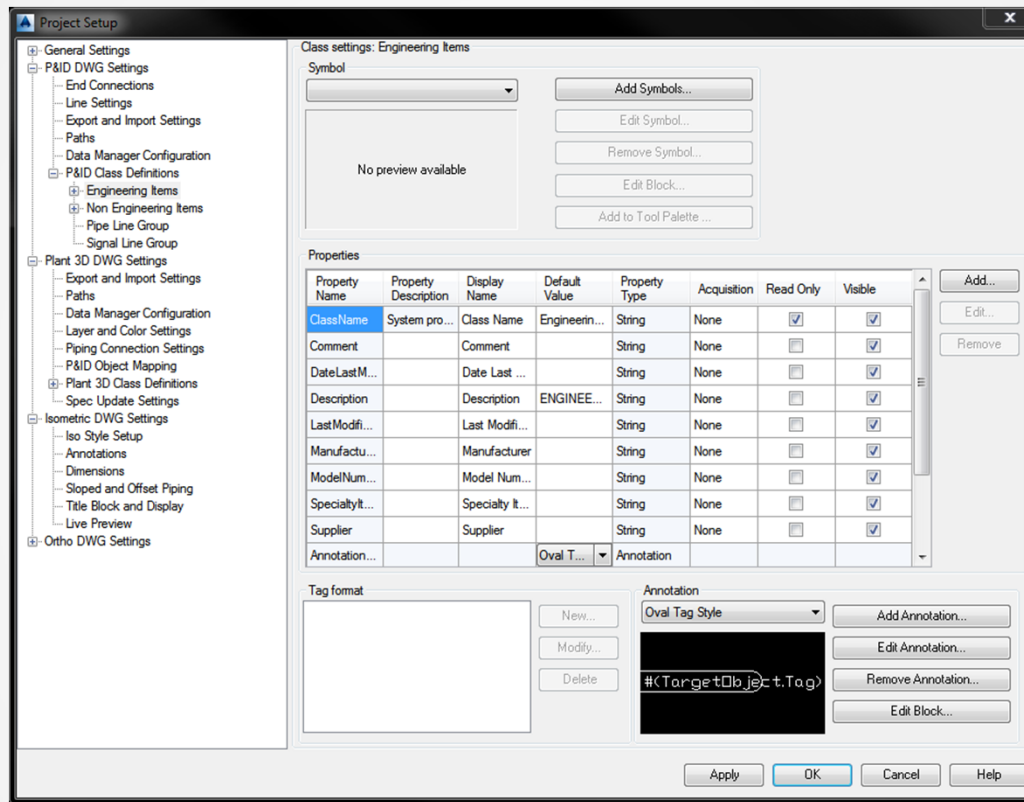


Figure 7 – Project Setup Manger Tree View - Edit and Add Components Within the Project

P&ID

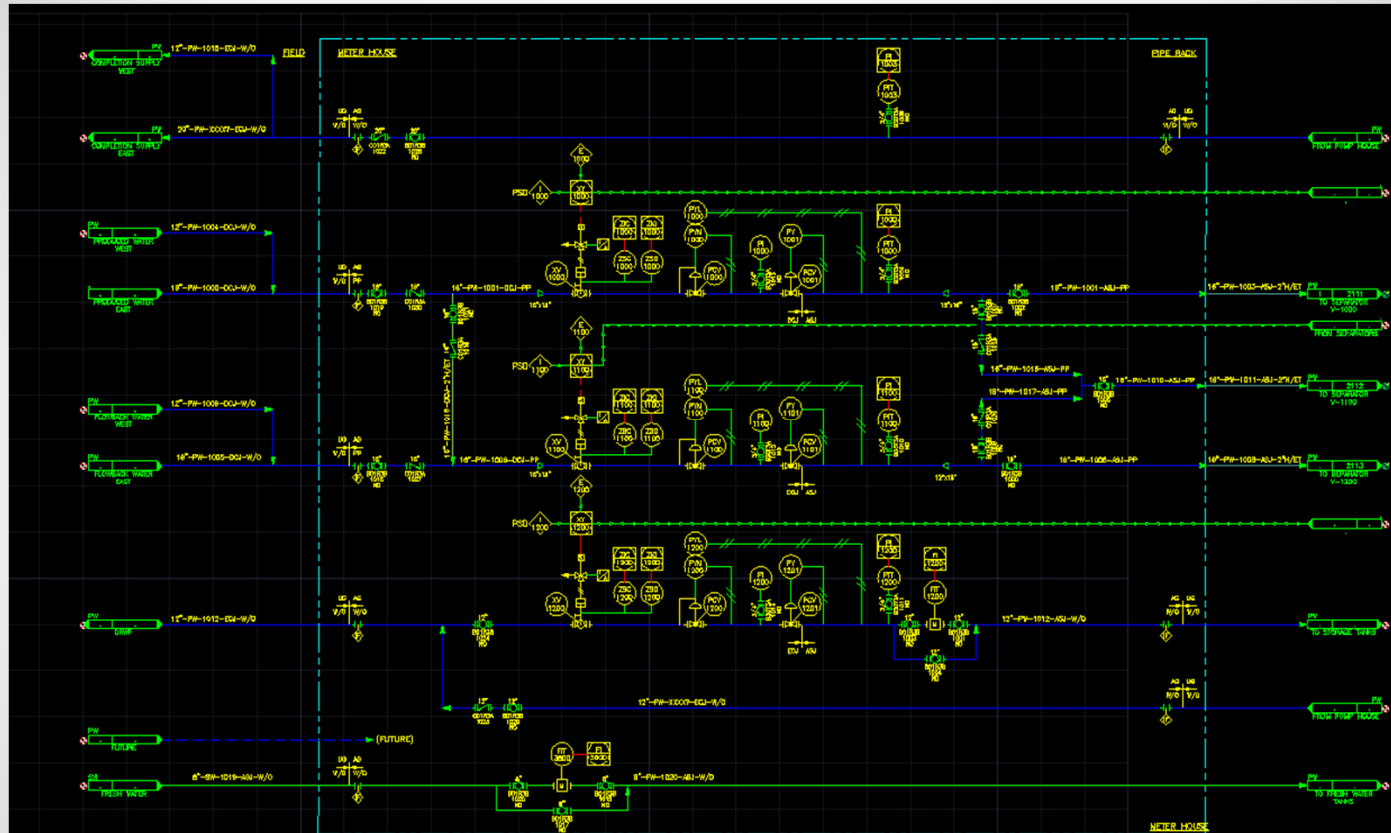


Figure 8 - 60% Complete P&ID Drawing

P&ID Line List

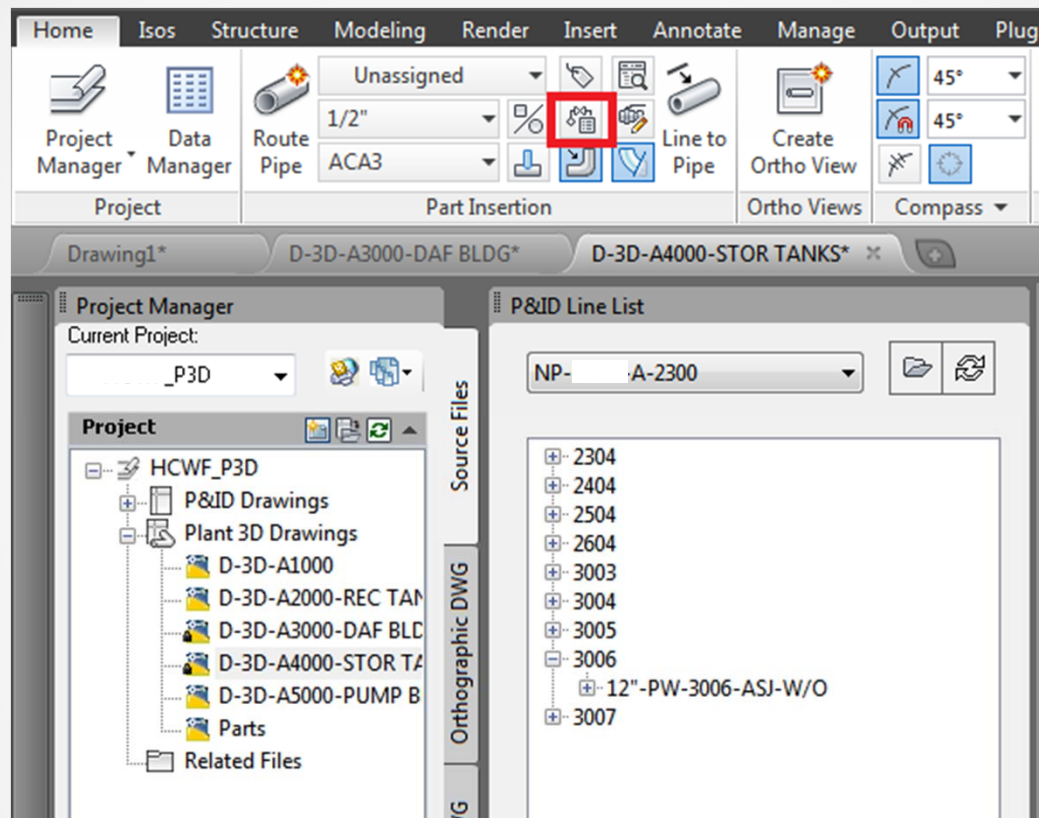


Figure 9 – Toggle for P&ID Line List Within 3D Modeling Workspace

Model

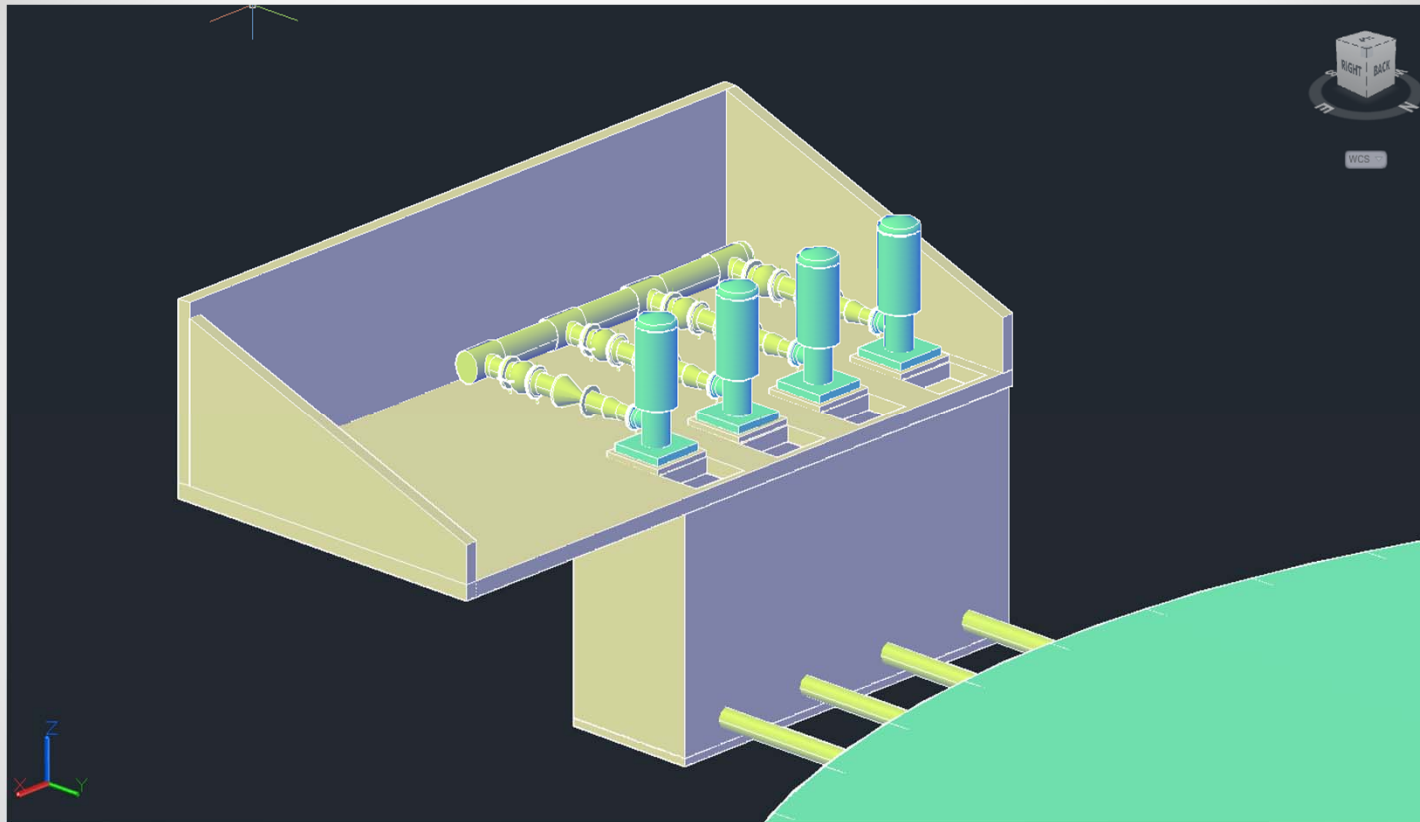


Figure 10 – 3D Pump Station Representation of Layout and Clearance

Revit

Foundation & Framing

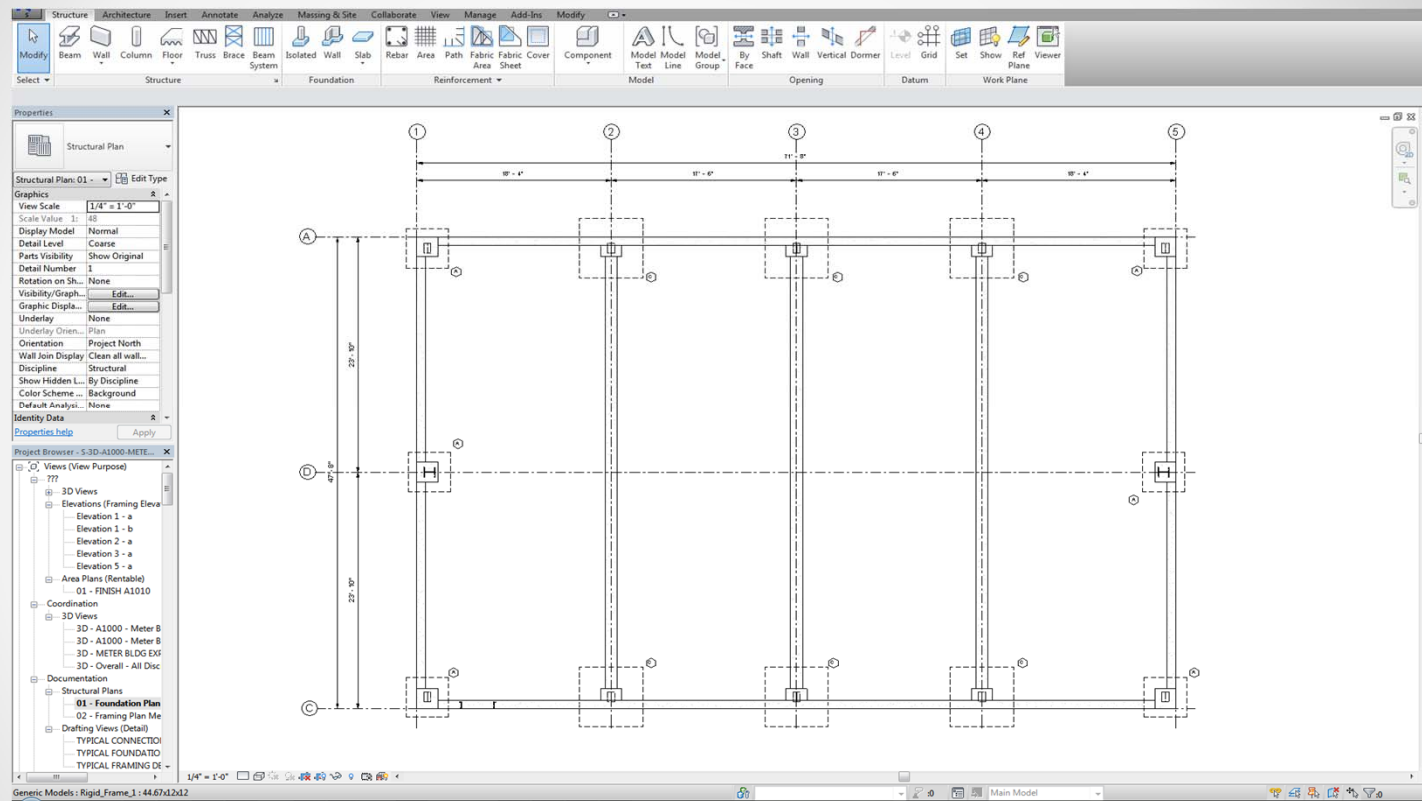


Figure 11 – Foundation and Framing Within Revit

BIM

Conversion

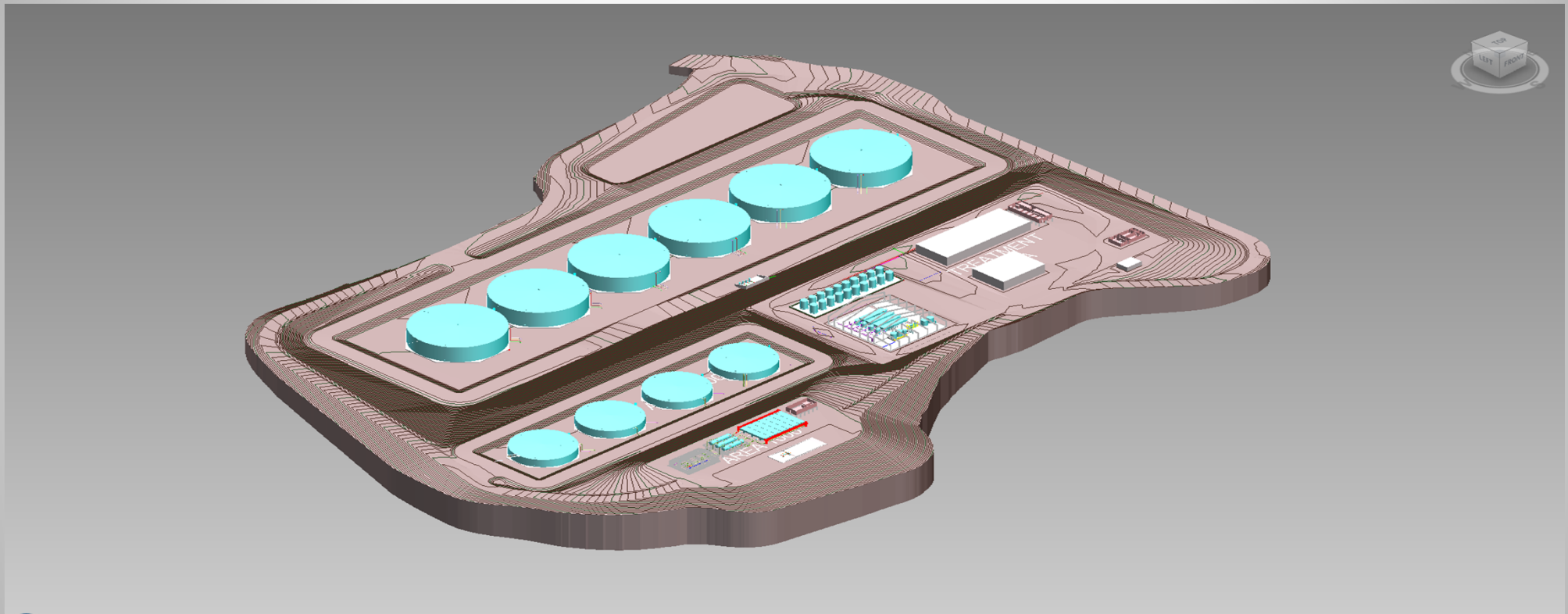


Figure 12 – 3D Model Containing Civil, Plant/Process and Structural Elements

Navisworks

So Much More...

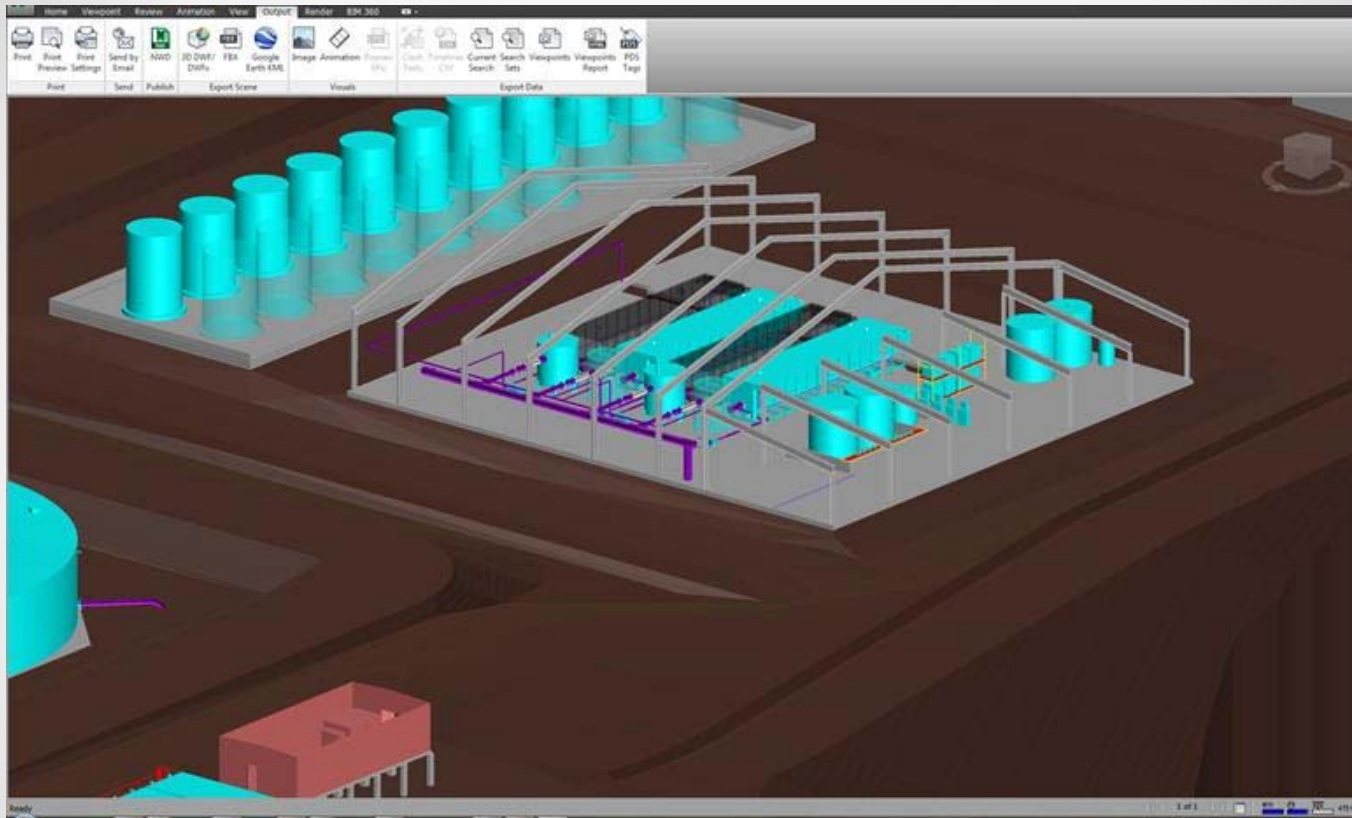


Figure 13 – Navisworks Output Tab on Ribbon Viewing Process Within Building

Benefits

- BIM (Building an Intelligent Model)
- Centralizes All Project Data
- Client Relationship Strengthened
- Group/Peer Model Reviews
- Equipment and Instrumentation Review Time Reduced
- Bill Of Materials
- Conflicts Found and Addressed Early
- Lowers Cost in Revisions
- Reduces Change Orders

Questions?

