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Leveraging Autodesk \ Esri integration for Project Collaboration & Delivery

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Learning Objectives

- Demonstrate value of GIS content to support Civil Engineering and Design project work
- Ability to leverage data for more than single project purpose
- D&E critical data also value to owner and all stakeholders involved
- Seeing the bigger picture and making it useful
- Explain how C3D data can be integrated with ArcGIS advanced models (e.g., Utility Network) to create on-going value for owner\operators

Description

To maintain a competitive edge and deliver sustainable solutions Autodesk and Esri are evolving the relationship between BIM and GIS.

Speaker(s)

Micah Callough is the **Technology Director for the Esri AEC sector**. He has a background in technology delivery based on his 25+ year career in AEC. During that time, he has worked for two leading AEC firm across their Water, Infrastructure, Environment, Buildings and Global Digital Solutions (IT) business lines. Throughout this period, he has served as a GIS professional, a management consultant, project manager, a department manager, a technical leader, a technical sales leader, product manager, scrum master and a global IT director. His passion is transforming businesses using technology as a catalyst.

Neil Wakeman is the **Design Technology Lead** for the **Wade Trim Group**. His lifelong career in the AEC industry led him from humble beginnings as a Structural Designer to IT Administrator, Microsoft Certified Systems Engineer, Department Manager, Design Technology Manager, and even Manager of Innovation for many markets served within that time. Neil is also a Certified Autodesk Professional managing a team of people on how BIM, VDC, Reality Capture, AR/VR, GIS and more can complement each other via innovation and the latest technologies surround such. When he's not "geeing out" on all that, he's been known to be a closet musician and original music composer.


Adam Young is a **Senior Project Manager** at **Wade Trim**. Adam is committed to improving the quality of life within a community through a responsible, creative, and citizen-focused approach to the management of land and resources. His experience includes long-range master plans, recreation plans, downtown plans, neighborhood studies, and corridor studies. Adam's emphasis on the creation of user-friendly products featuring easily understood language, attractive graphics, and relevant mapping, has proven to be an asset for many client communities and their citizens.

BIM and GIS Coming Together!

Bringing BIM and GIS together provides context (GIS) to design and engineering content (BIM) which brings value to the development of sustainable infrastructure. As the Esri and Autodesk Partnership evolves and matures we are seeing more and more AEC supportive workflows that connect these two platforms and disciplines.

Connected Data Environments

Autodesk refers to its system approach as a Connected Data Environment and Esri referrers to a System of Record, a System of Insight, and a System of Engagement. Bringing these two approaches together we have what is referred to as a Connected Data Environment.
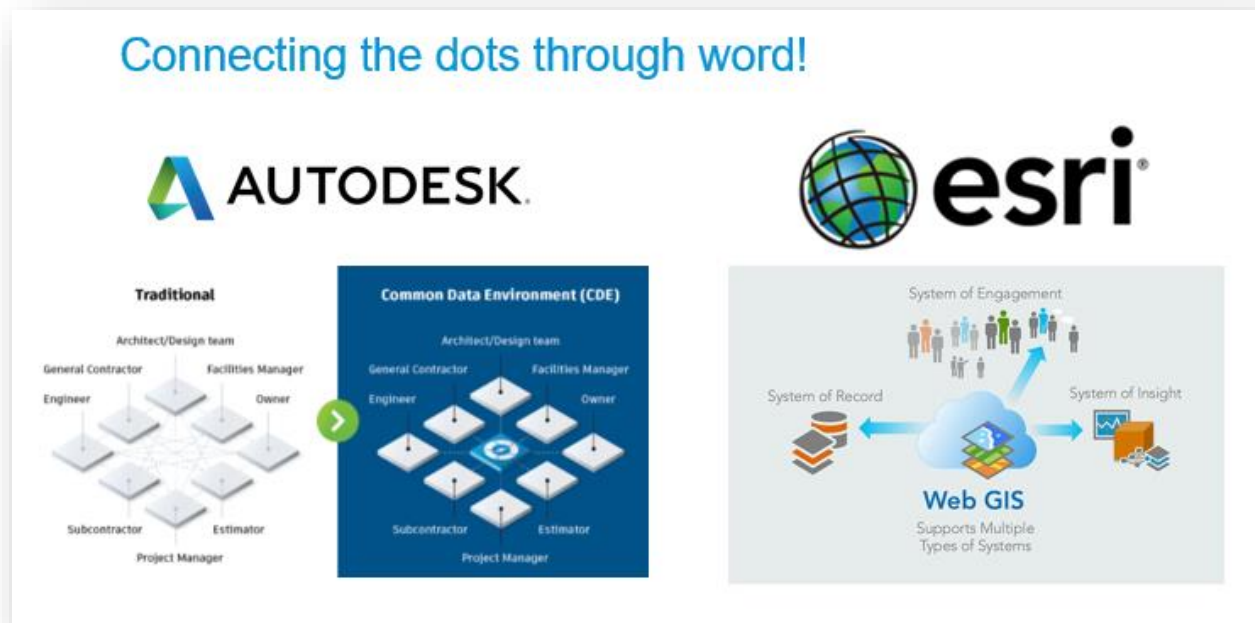
This connected data approach opens both sides of the equation with ArcGIS on one side and BIM360 on the other. Allowing AEC and Owner Operators to explore and leverage strengths from both approaches, systems and datasets.


Example Workflows

The following walkthroughs are from the demo video shown during the session and linked in the additional materials section.

Collaboration - Geospatial to Design Engineer

Adding GIS data to a design project can help start project data rich and our enhance inputs to an existing design. This walkthrough illustrates how you leverage the ArcGIS Connector for Autodesk from Civil3D. But before we dive into this task you will need to ensure that you have either ArcGIS Online or ArcGIS Enterprise named user credentials.

1. From within Autodesk open your drawing that you need content from GIS imported into.
2. Once the drawing is open ensure that you define the coordinate system. This is important when bringing in GIS content to ensure that the data will be properly referenced in your drawing.
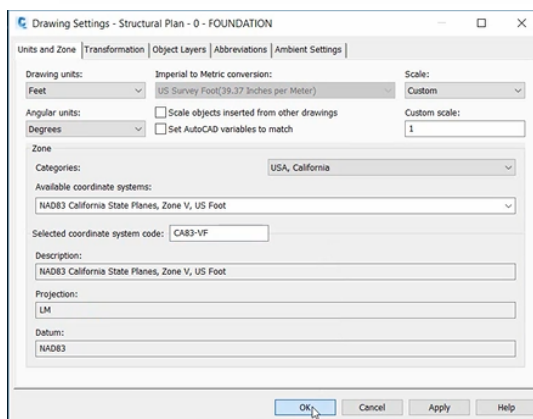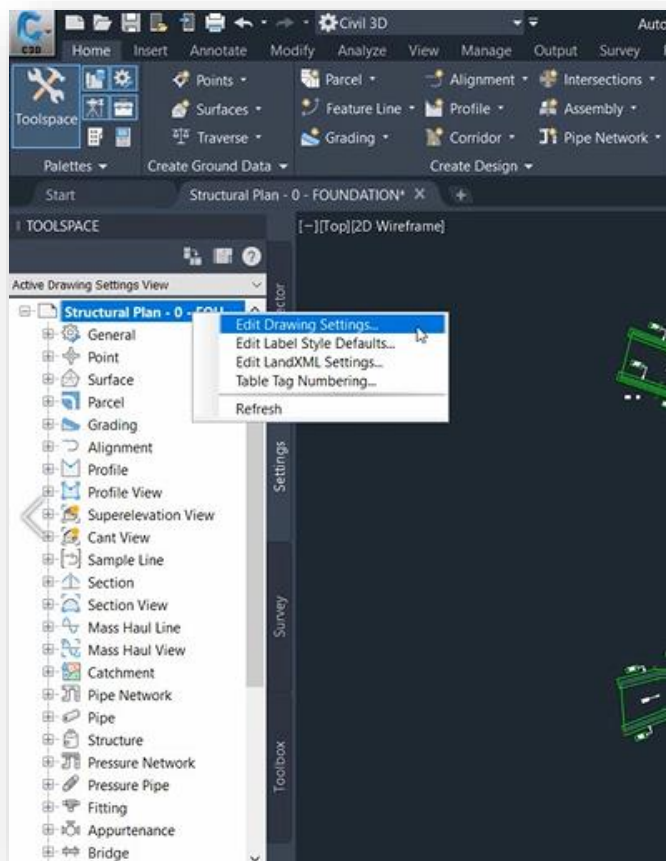
3. With the coordinate defined you can now begin the process to bring in GIS content from Esri Cloud systems (ArcGIS Online or Enterprise) by accessing the Autodesk Connector
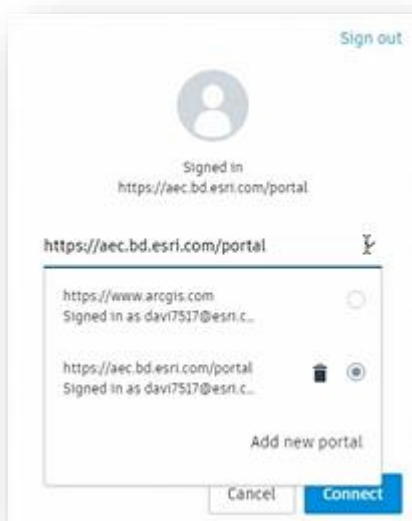
for ArcGIS in the Insert ribbon of C3D.
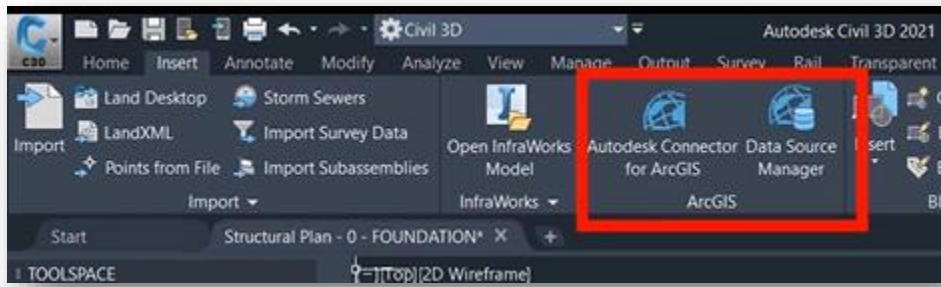
4. Once the Autodesk Connector for ArcGIS is initiated you need to define you project extent and initiate a search for the relevant data you wish to connect to.
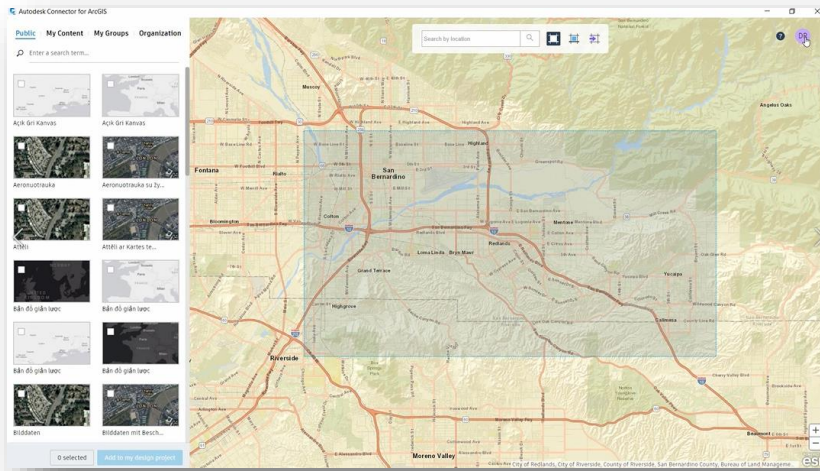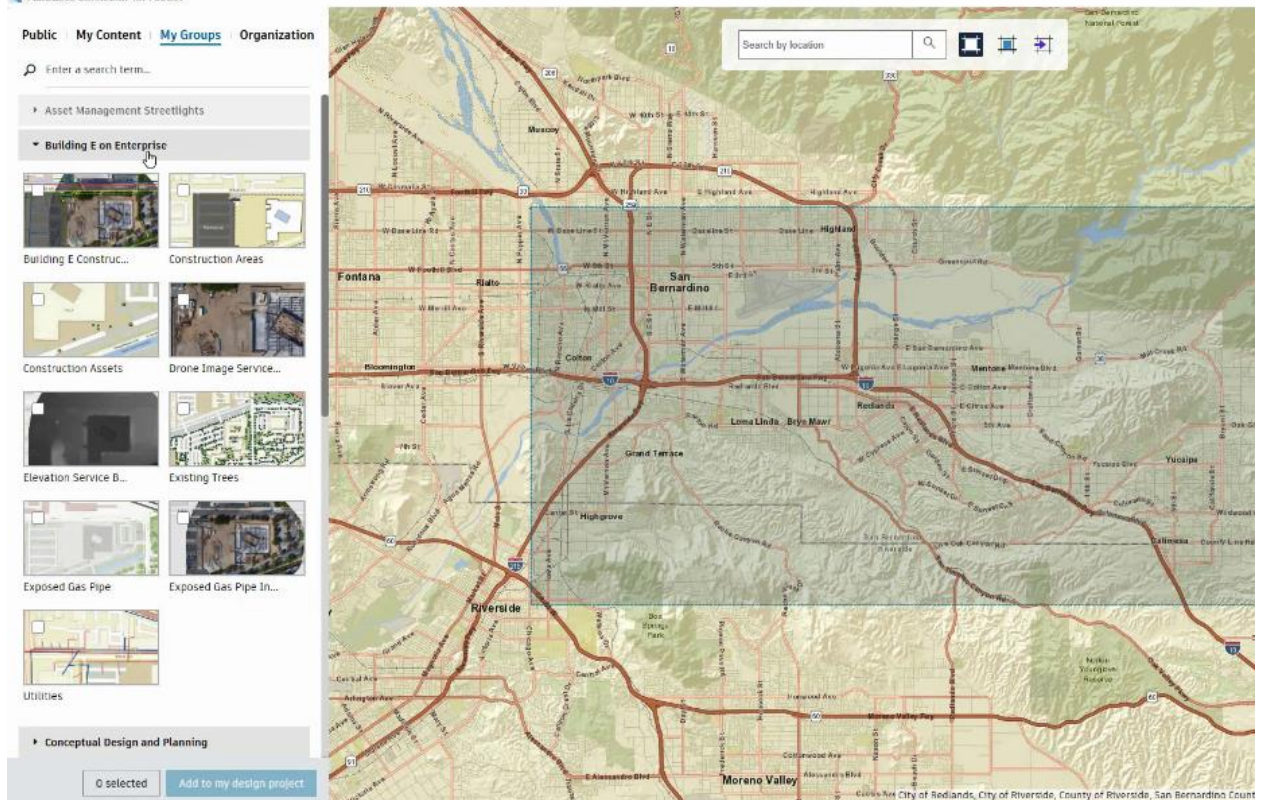

5. At this stage you will need to connect to your ArcGIS Online or Enterprise instance and provide your login credentials from that system.

6. Once connected you will need to navigate to or search for the content you wish to bring in. For this example, we are accessing information shared with our named user via a Group (MyGroup) called Building E on Enterprise.
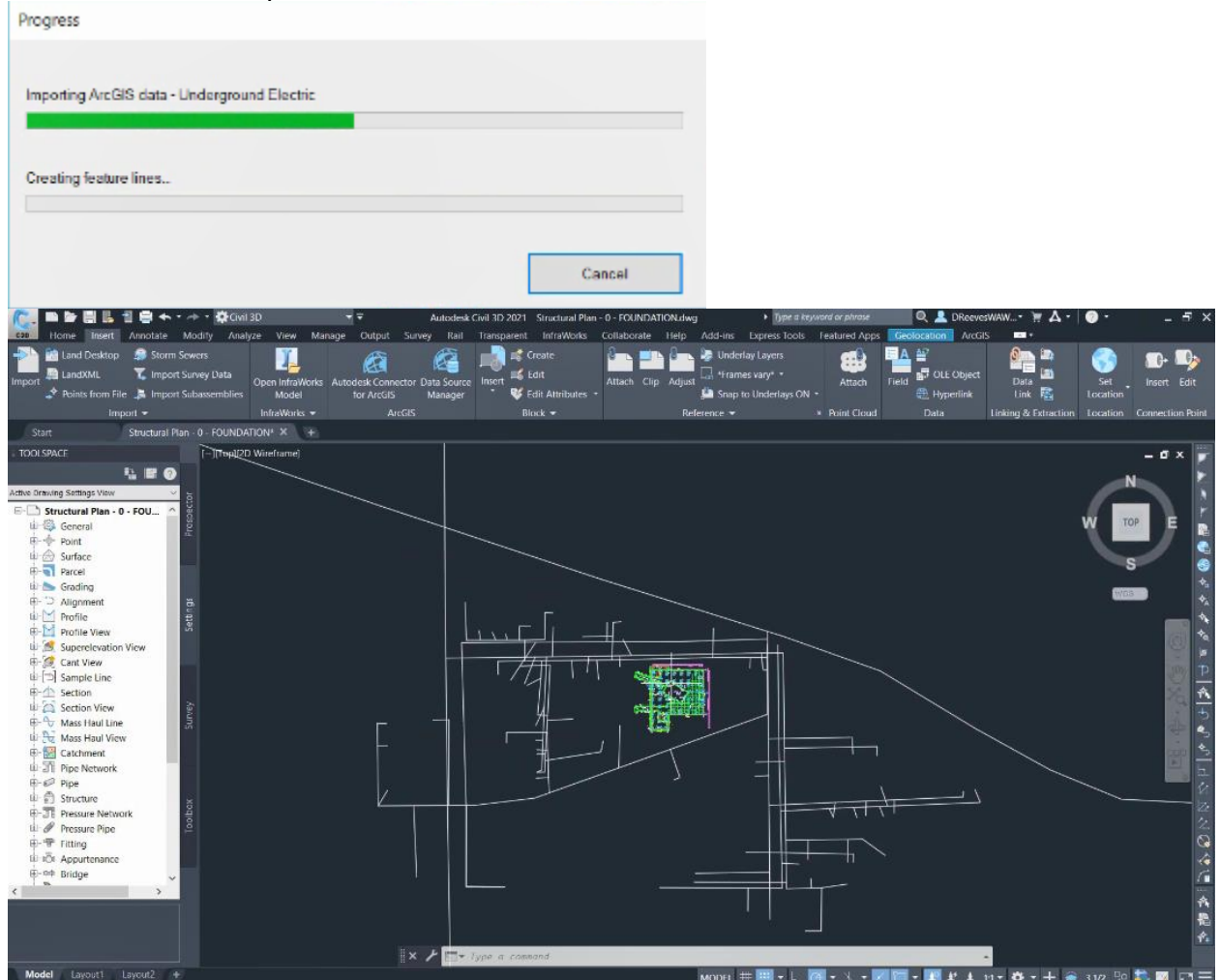

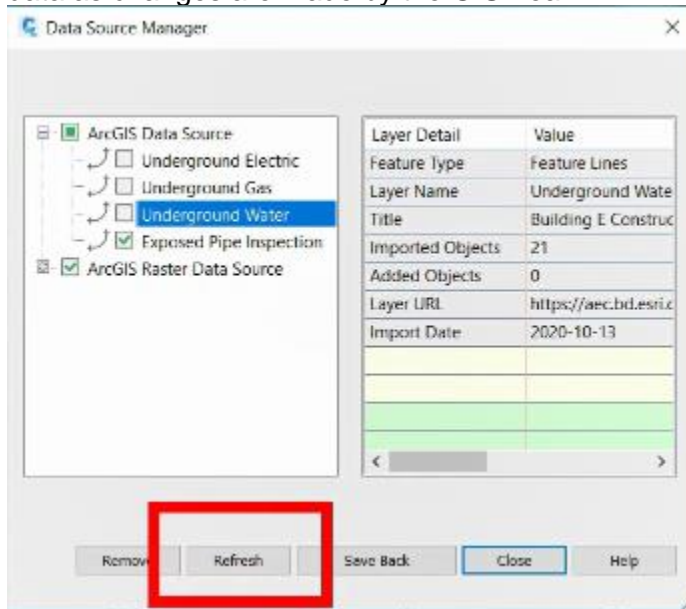7. Select and add the content you wish to add.

8. To access data from ArcGIS Online or eEnterprise in C3D you will now need to map the geospatial content to your model in C3D.
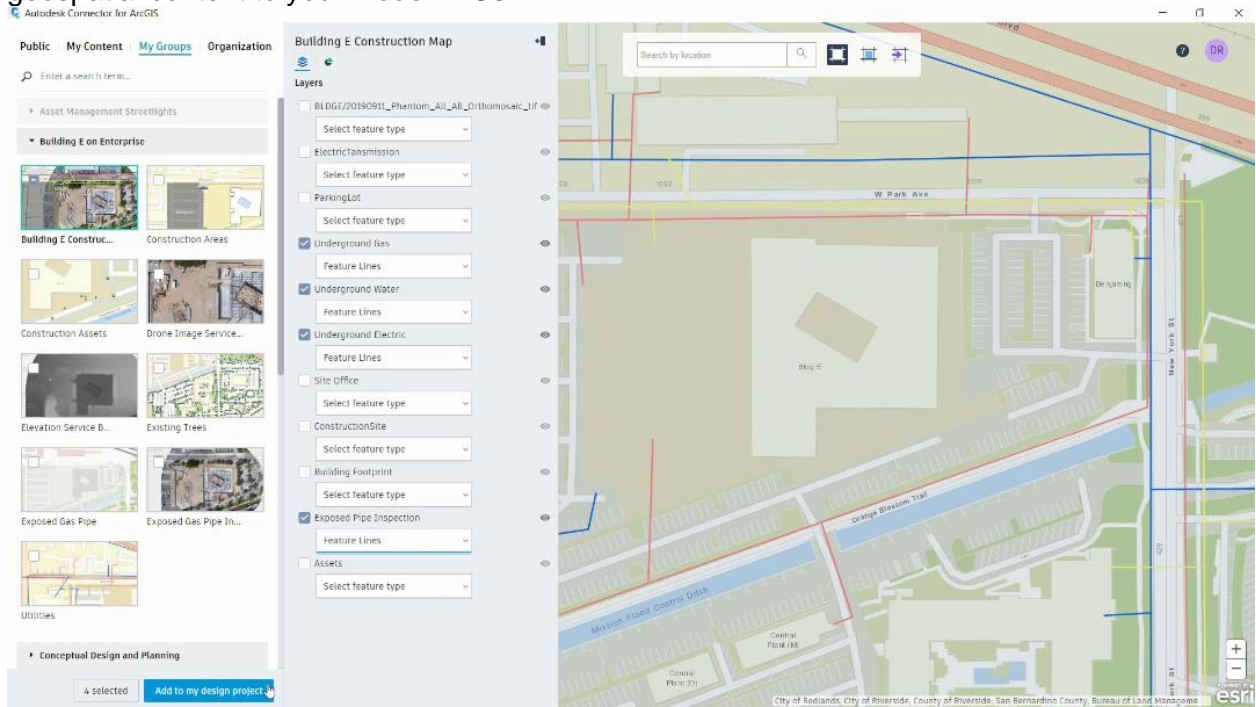
9. The Connector then processes the data for use in C3D

10. Then, using the Data Source Manager tool in the Connector you can refresh the data as changes are made by the GIS Team.
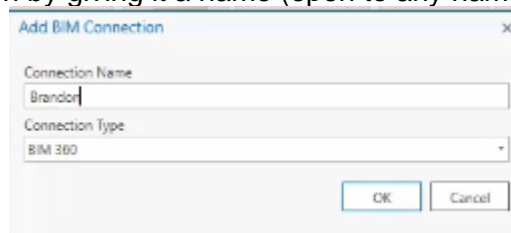
Collaboration - Design Engineer to Geospatial
Next we are going to look at connecting from ArcGIS Pro to BIM360 content. To accomplish this
workflow the GIS operator will need a BIM360 account.

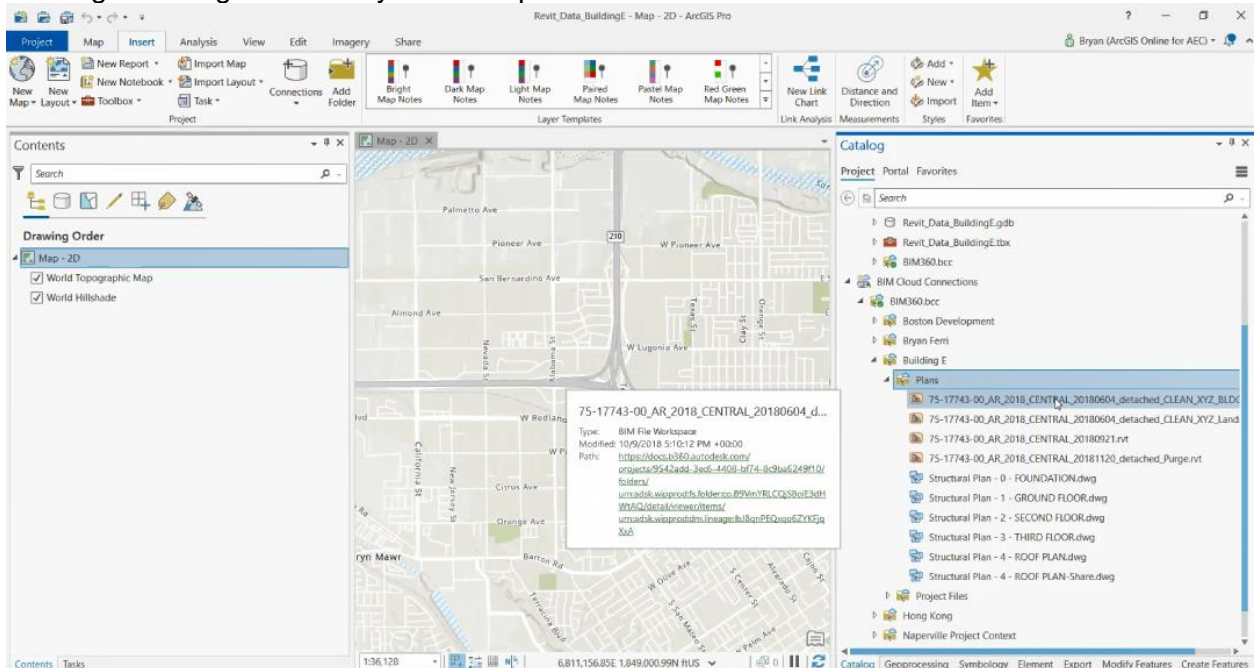1. First, in ArcGIS Pro, establish a new data Connection to BIM360.
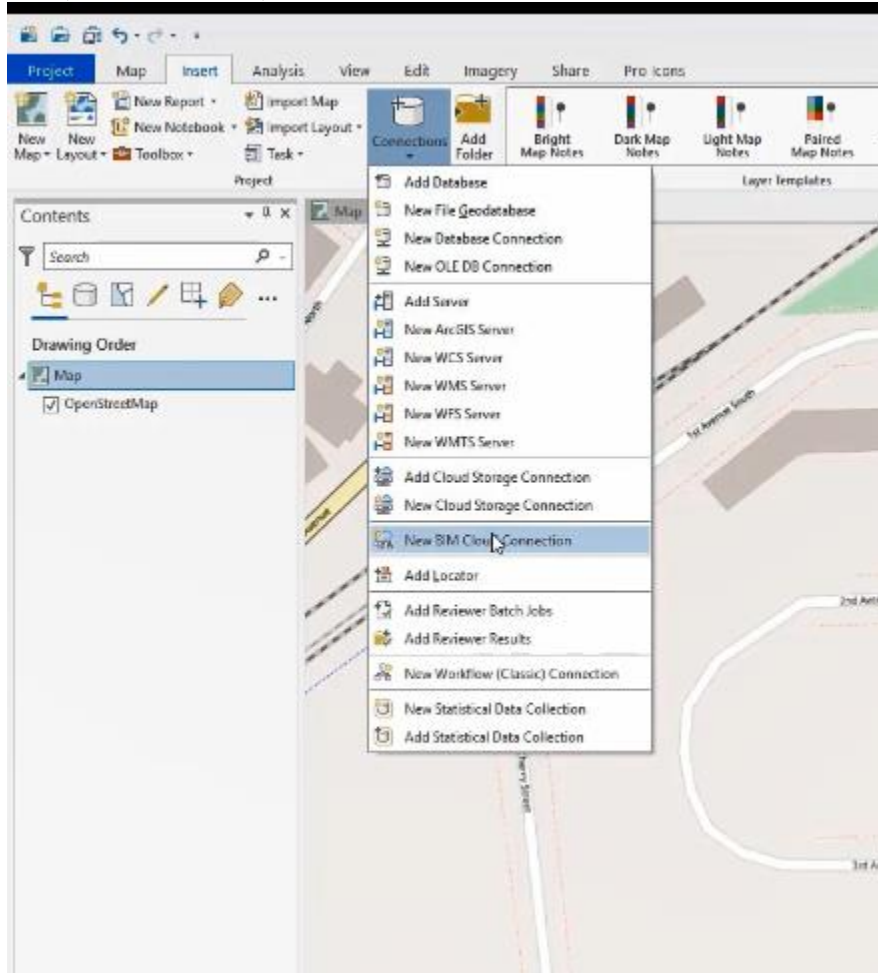
2. Next, create the connection by giving it a name (open to any name you want) and
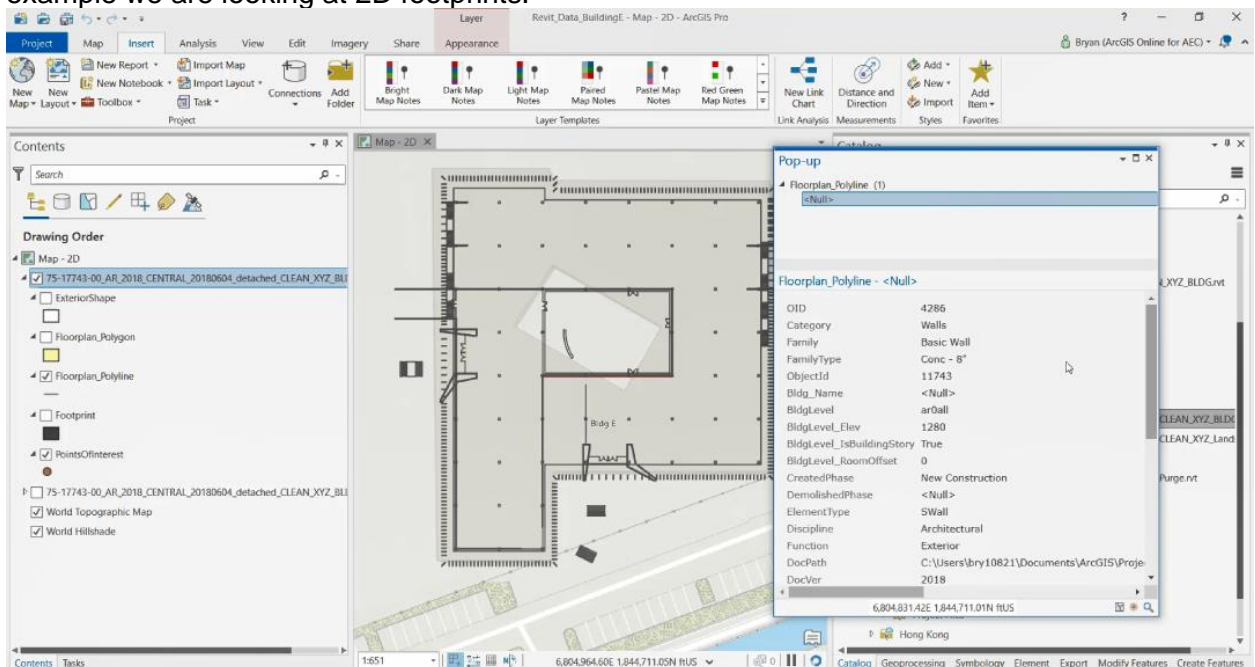

          Connection Type: BIM360

3. You can now navigate to your BIM360 Connection and Project to access content via Catalog and drag content to you 2D Map or 3D Scene.
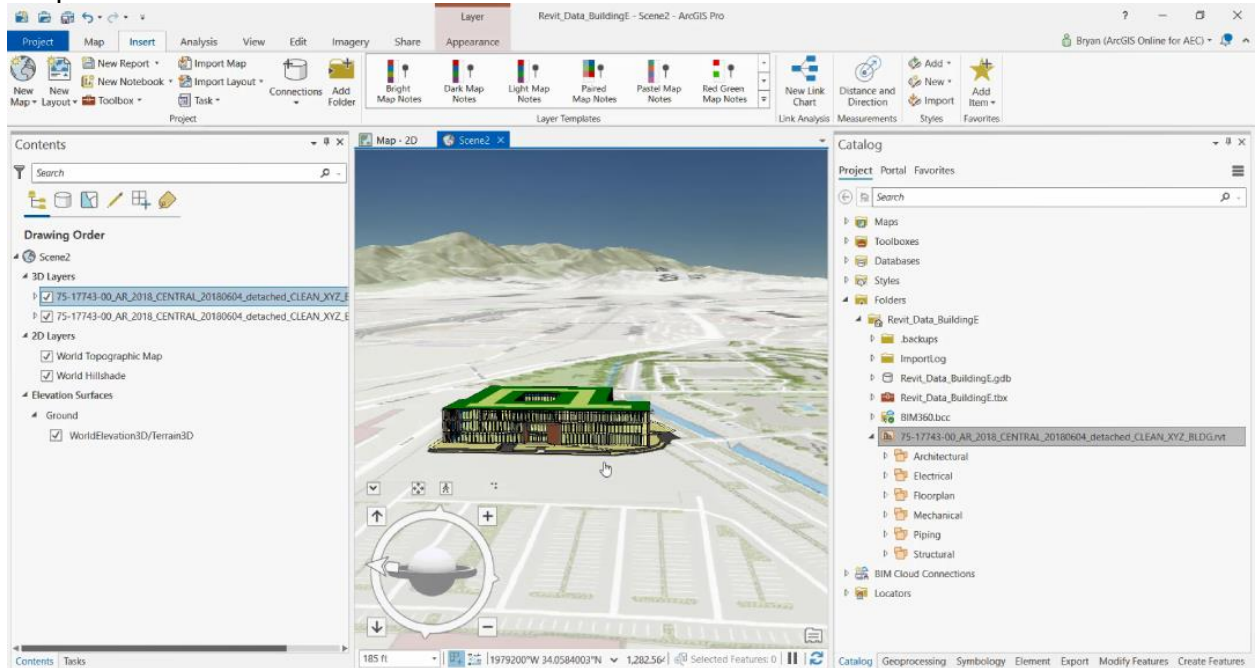

4. Once the data is in the map you can symbolize or turn off layers as needed. In this example we are looking at 2D footprints.

5. To explore data in 3D, navigate to New Map and Select New Global or Local Scene.

6. Once we have a Scene, we can add Revit or C3D content in the same way we did the footprints.

NOTE… Revit and C3D files must be registered in real world coordinate to be rendered in a Scene. For more on this see: https://www.esri.com/arcgis-blog/products/product/3d-gis/how-to-georeference-revit-data-in-arcgis-pro/