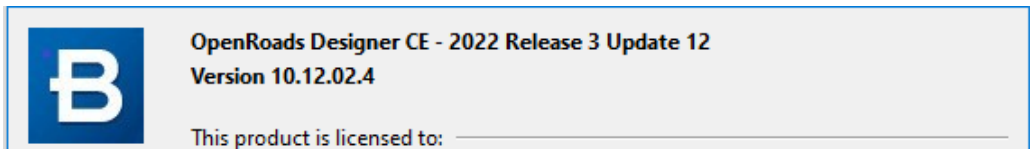
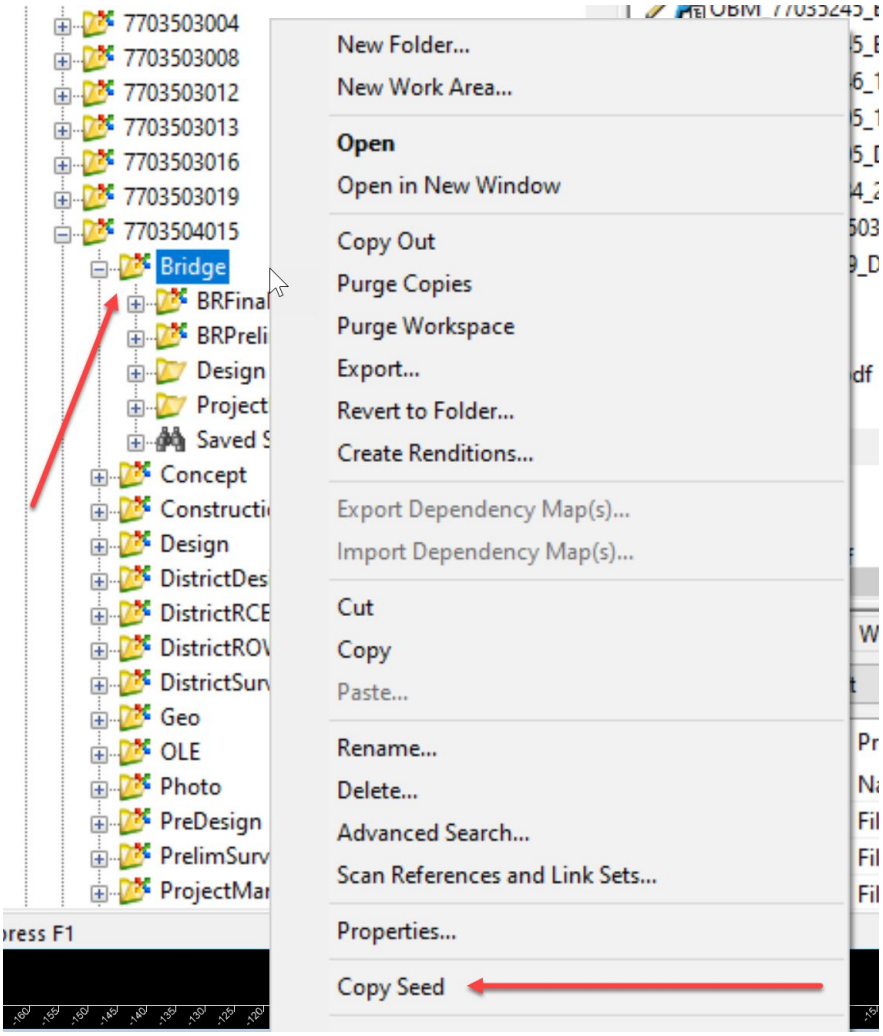
Setting up the OpenRoads Designer File for Pipe Design

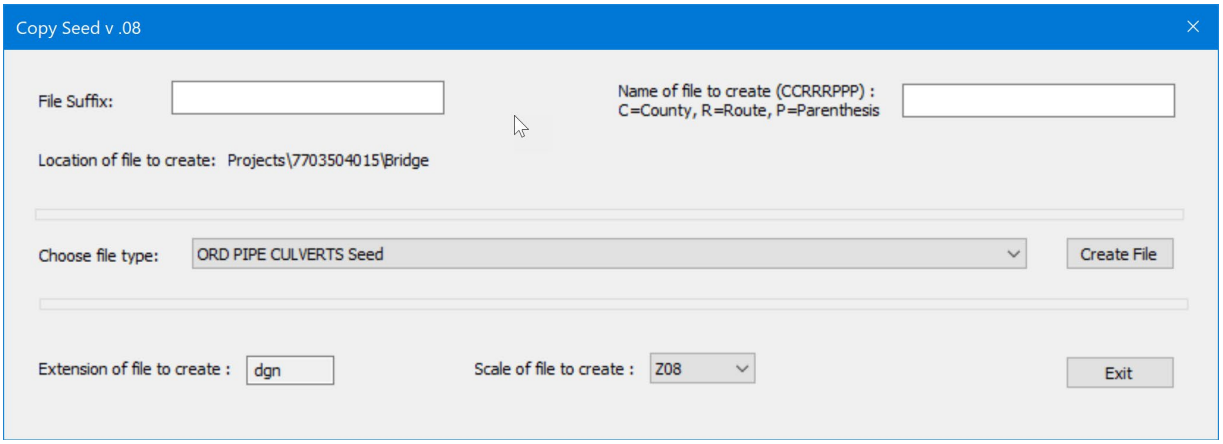
These instructions were created February 2024. These instructions were created with:



The first step to a pipe design, is to create the OpenRoads Designer files that are needed. In ProjectWise, use the Copy Seed tool. Navigate to the correct project directory for the project. In the Bridge folder right click on the folder and select the Copy Seed command.



The Copy Seed utility will open.



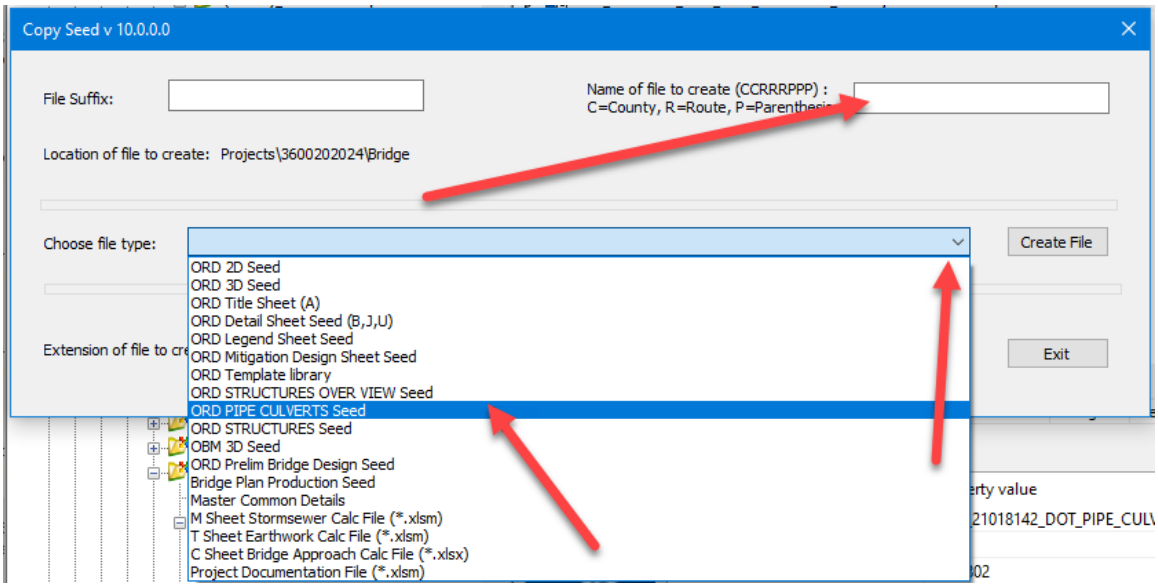
Next, name the file. For pipes, the naming convention for the file is ORD_CCRRRPPP_DOT_PIPE_CULVERTS_SPN

where

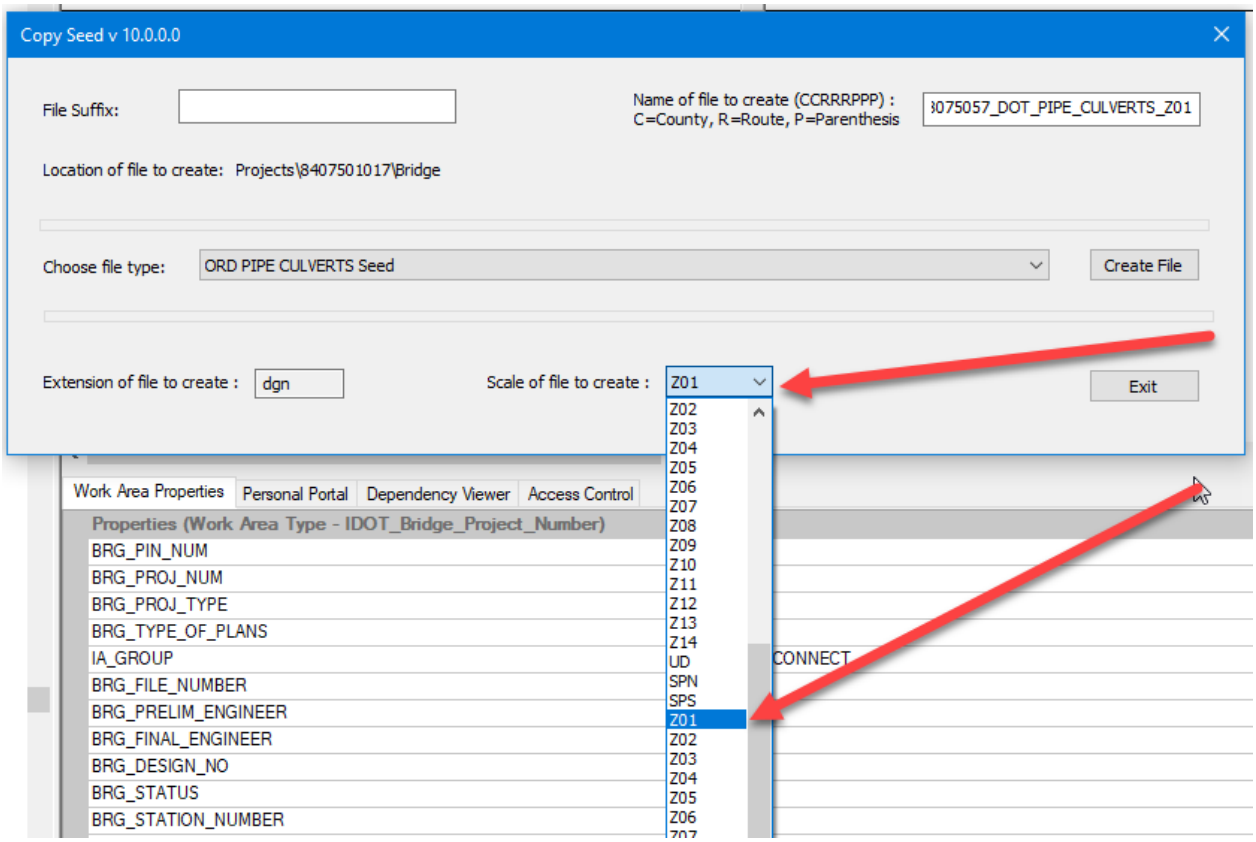
ORD = the application the work is done in
CC = County
RRR = Route
PPP = Parenthesis
DOT = company and or source of the file
PIPE_CULVERTS = type of work
SPN = coordinate projection of this project.

For this example, the file will be ORD_8075057_DOT_PIPE_CULVERTS_Z01.dgn. Please refer to the Seed File document on Iowa Department of Transportation Bridge Connect Documentation page for further instructions on naming the files.

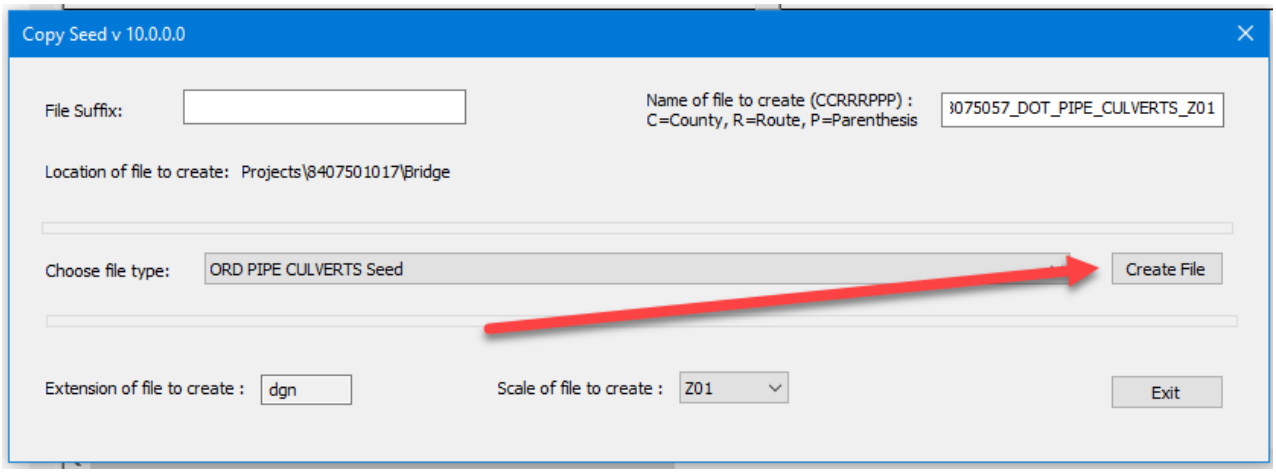
Next select the correct file type. For this work, choose the ORD PIPE CULVERTS Seed.



Then select the correct coordinate projection for the file. For this example, select Z08 for IaRCS Zone 08.

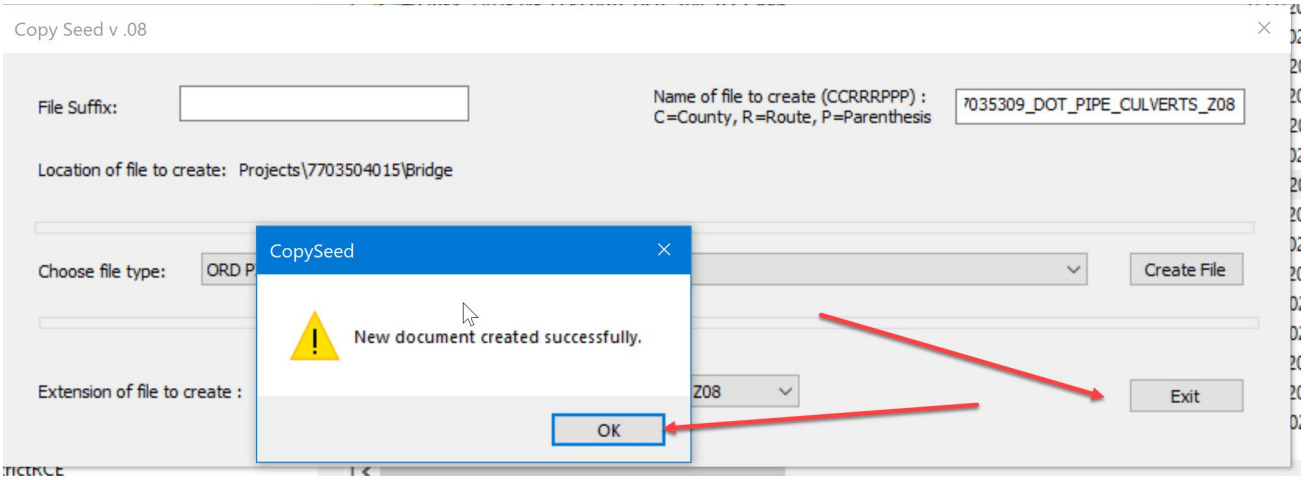


Once everything is set, click on the Create File button.



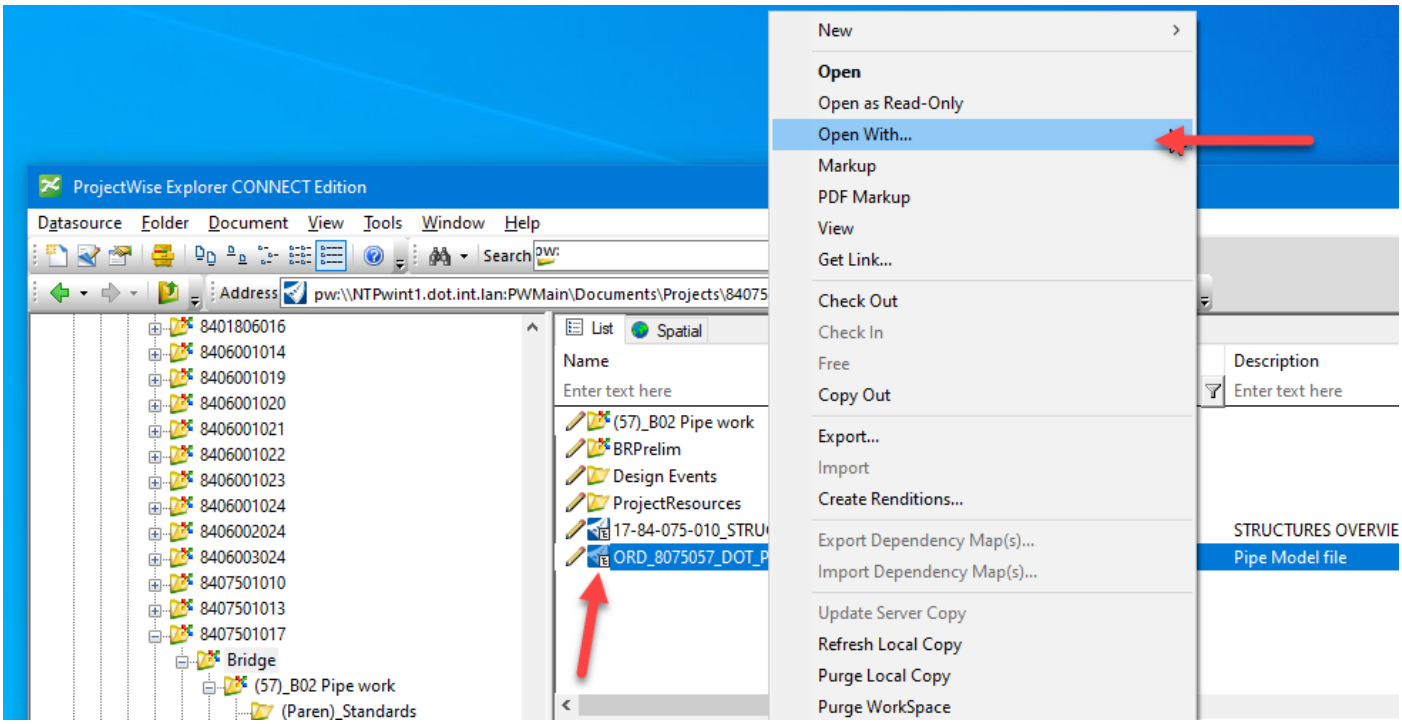
This creates the correct dgn file in the project directory.

A message saying New document created successfully displays. Click OK button on the message.

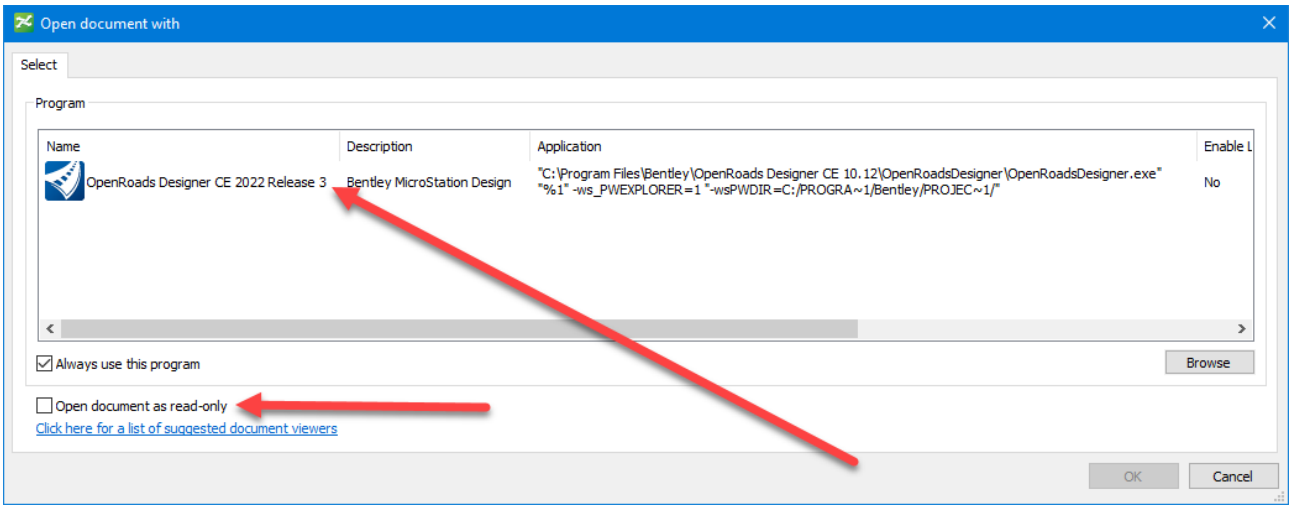


Then, click on the Exit button to close the Copy Seed tool.

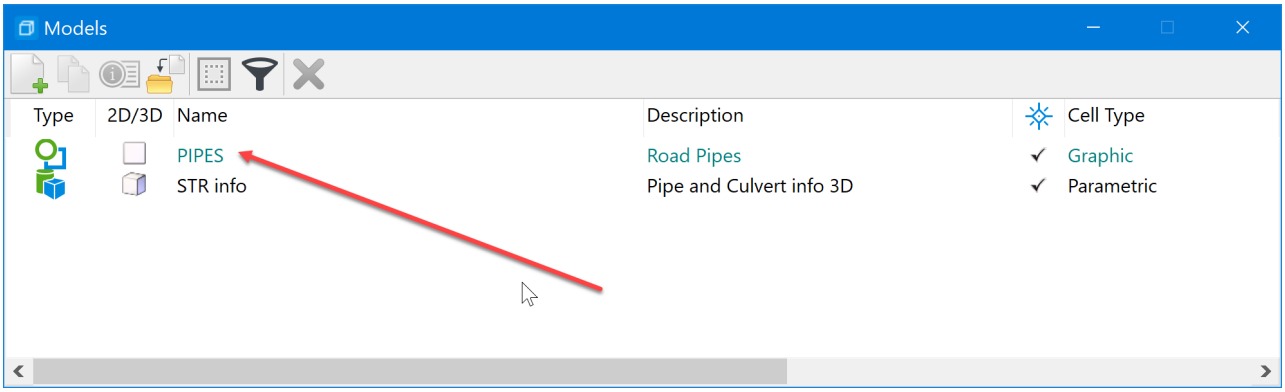
Once the file is created, open it in the project directory. To do this, select the file, then right click and select Open with…



Select the OpenRoads Designer CONNECT Edition program. Then click on OK.



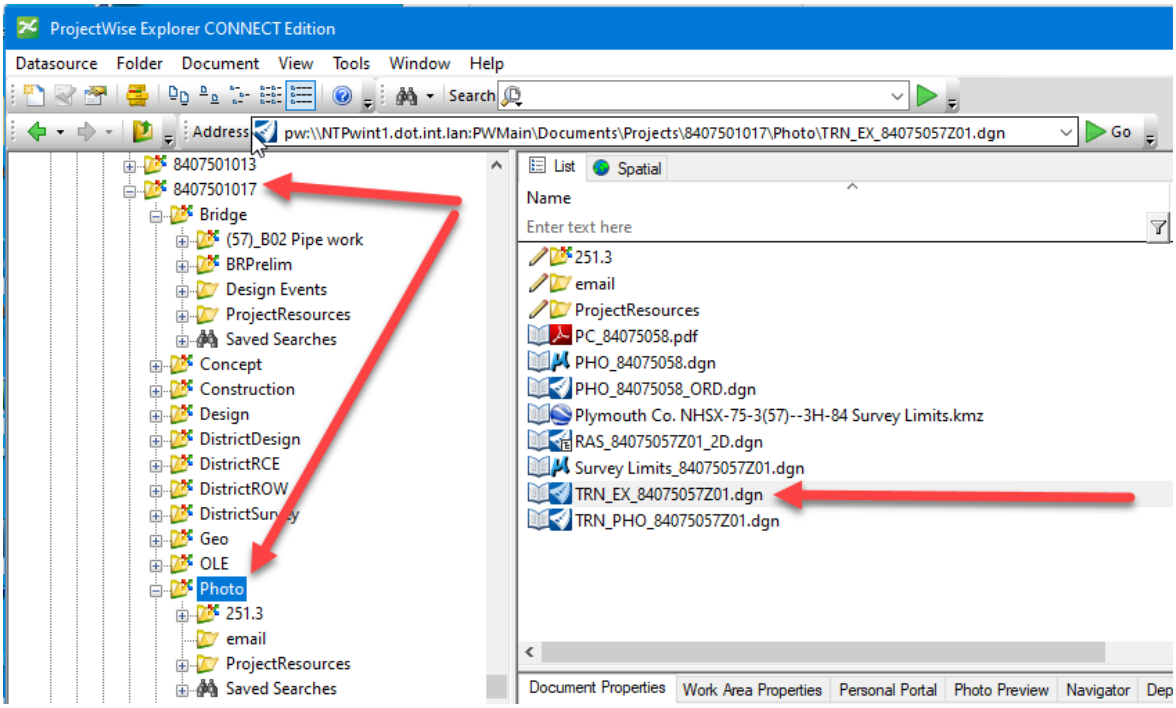
Now that the file is open, set the file up to allow the use of the muti-model workflow and make a 3D cut of the proposed corridor.



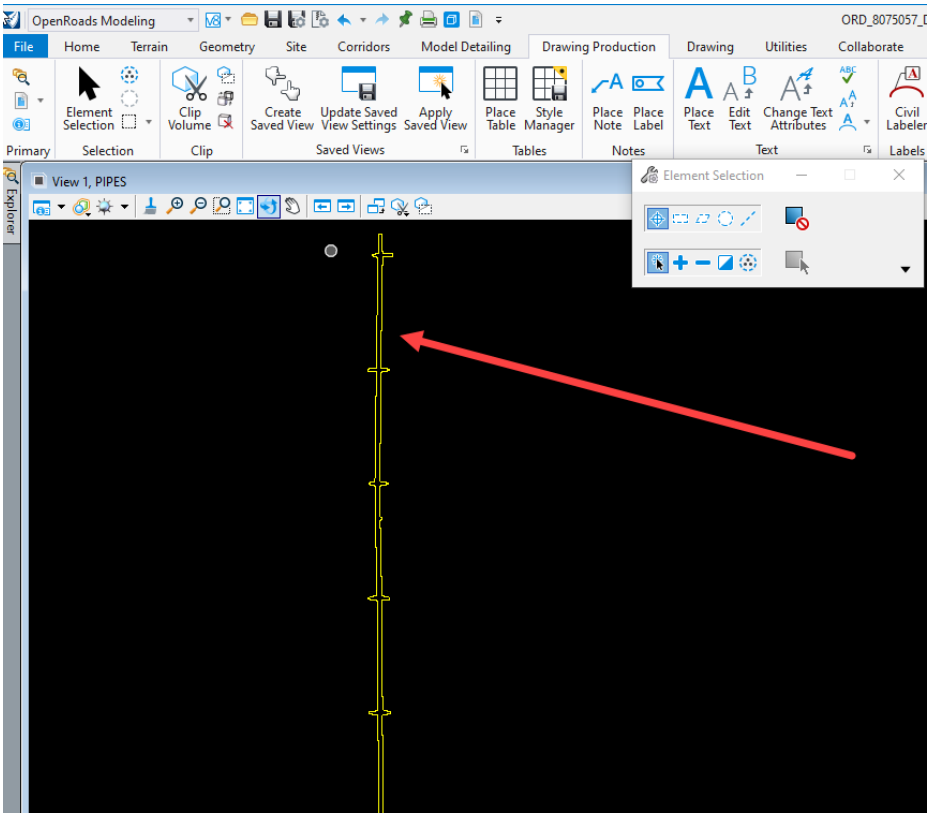
Next, use the existing ground TRN file to create the 3D managed model. Reference in the existing ground TRN file to the PIPES 2D model in the file that was just created.

In ORD when 3D information is leveraged in a 2D file it will automatically create the 3D managed model.

For this example, reference in the TRN file from the survey or Photo location. For this example, it is in the Photo folder and is called TRN_EX_84075057Z01.dgn.

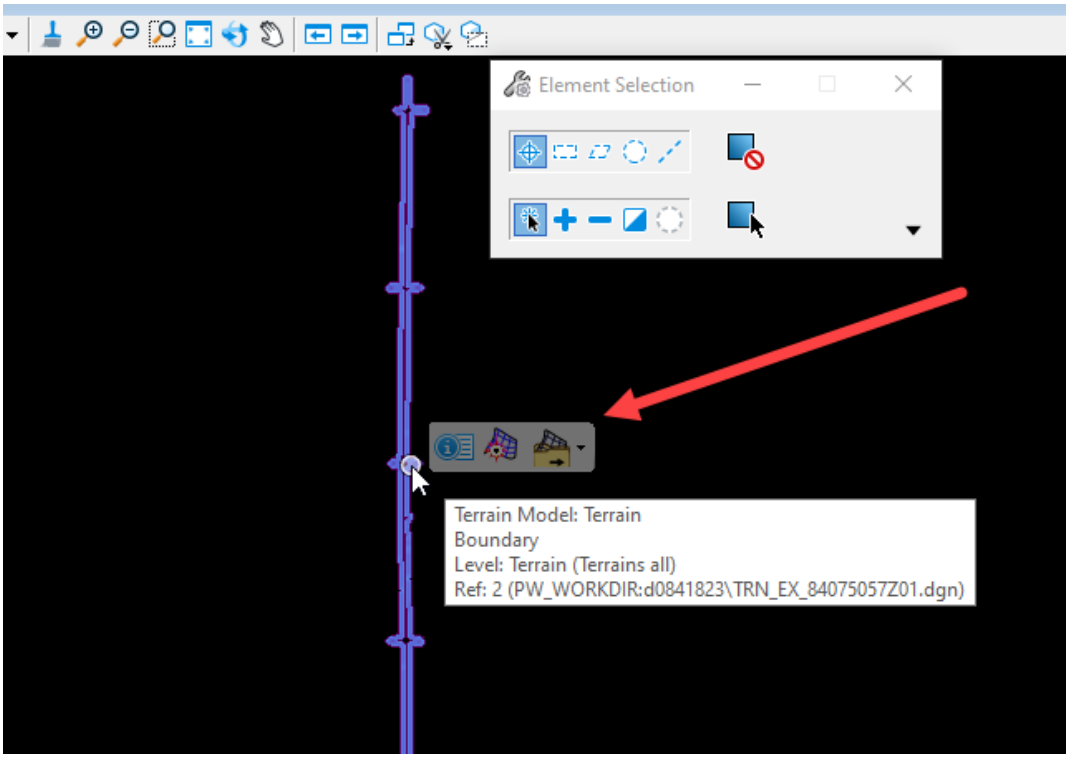


The content of the file should look like this:

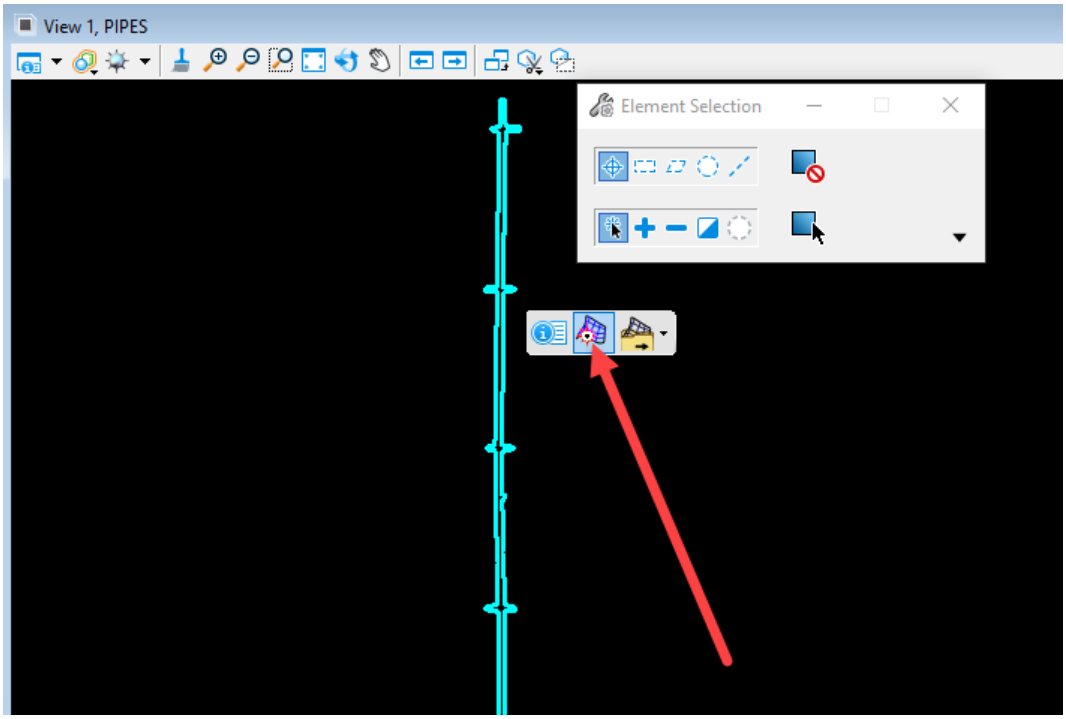


Next, using the Element Selection tool select the boundary of the TRN file.

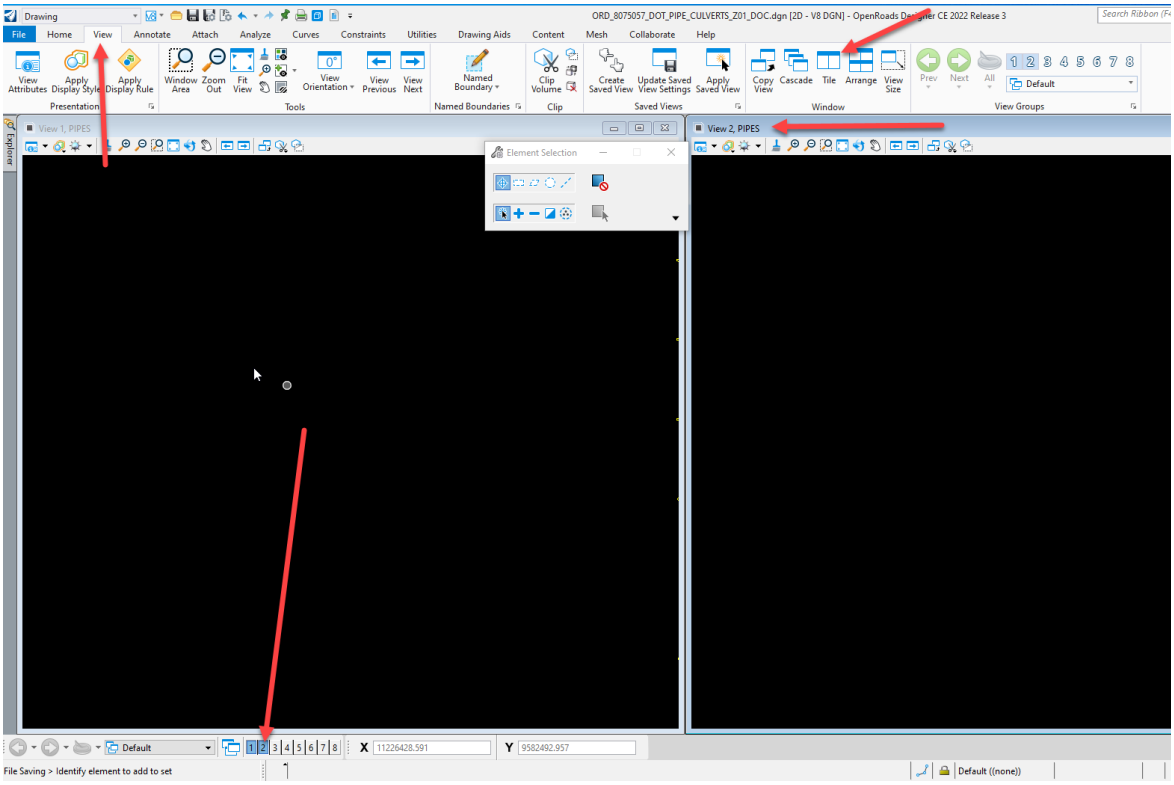
It should turn blue. Then hover over it to activate the heads-up toolbox.



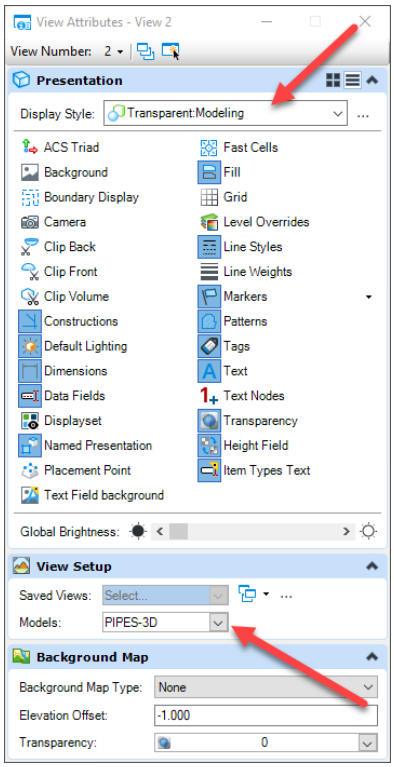
Select the middle tool, Set As Active Terrain Model. Once selected, it will change the icon.



Next, open a second view window. Then select the Tile windows tool in the Window ribbon.

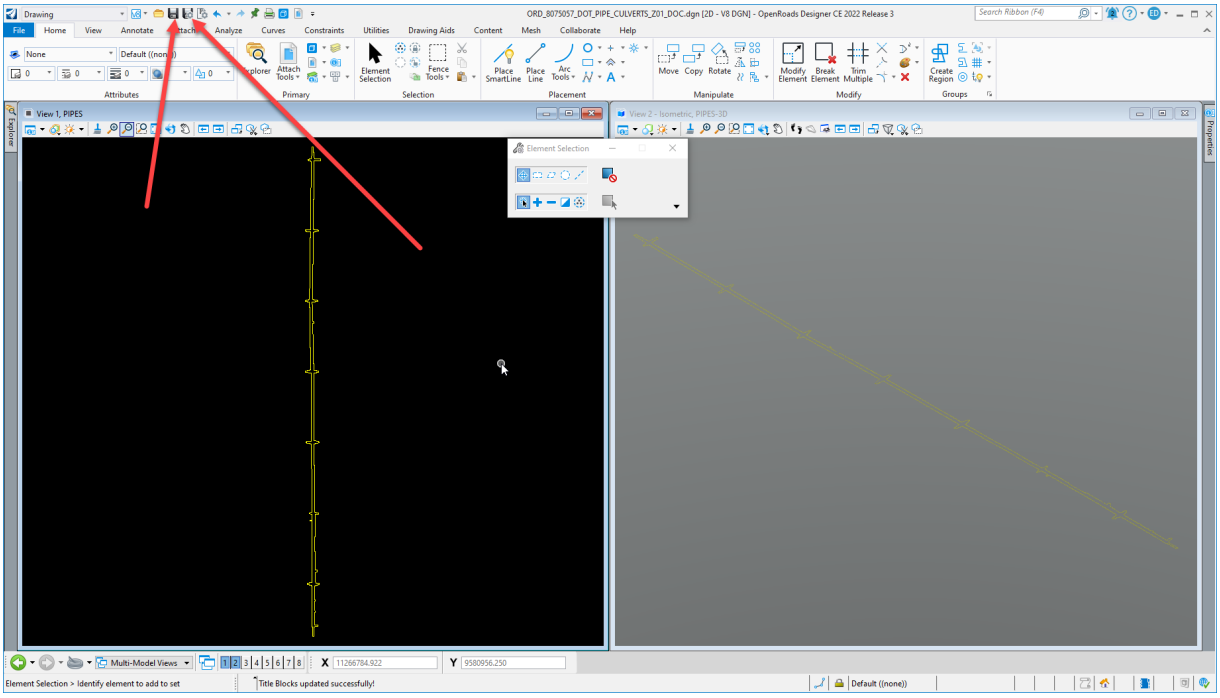


Open the View Attributes tool in view 2. Select the PIPES-3D model in the View Setup section of the View Attributes tool.

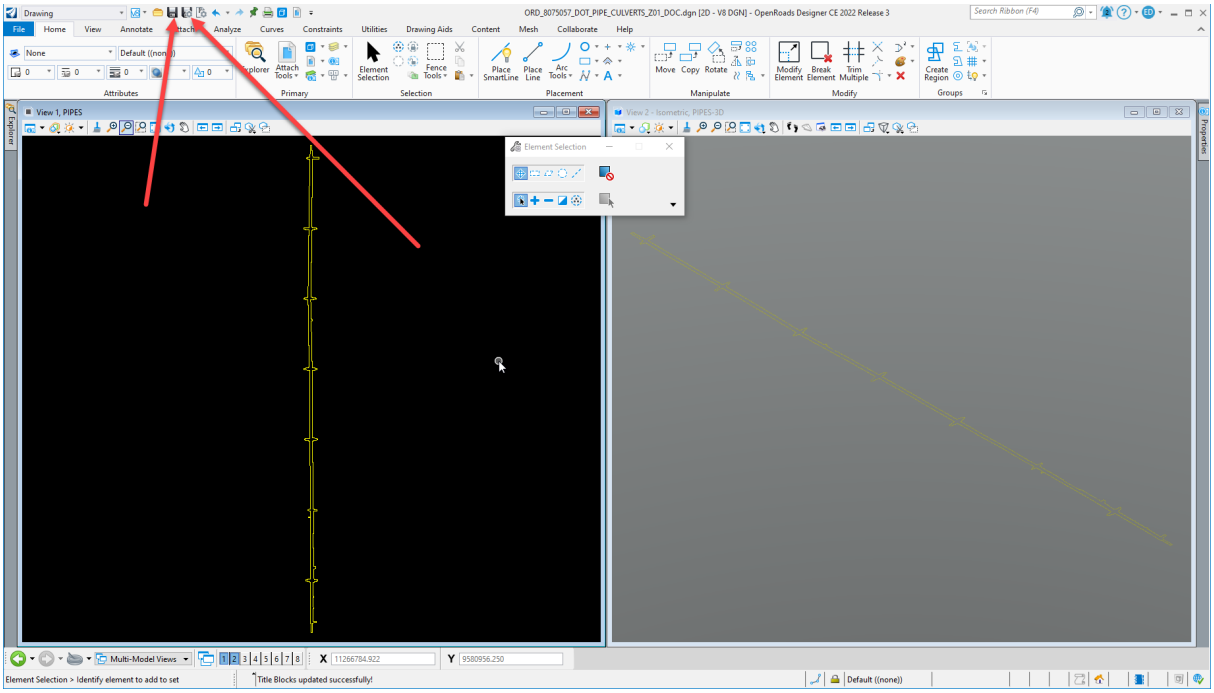


Note: It is preferred to change the Display Style in this view to Transparent Modeling to make it obvious when working in 2D or 3D.

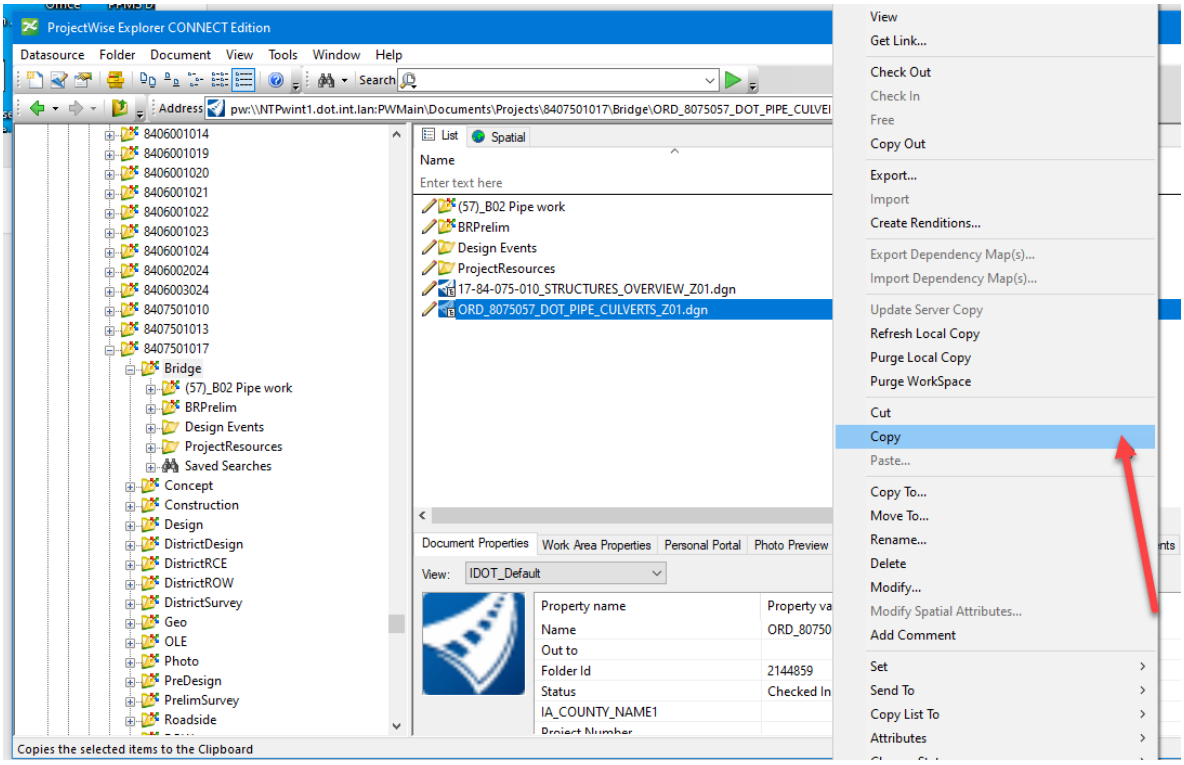
The content of the file should look like this:



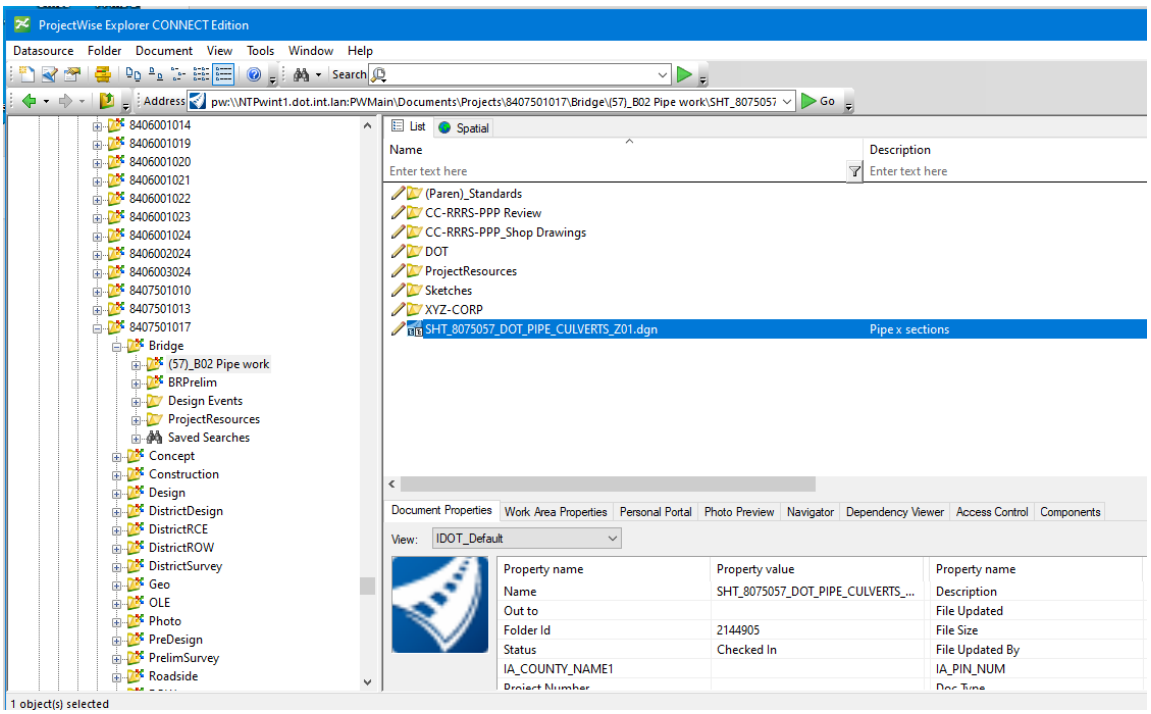
Save the file and save the settings so that the next time the file is opened it will be set to these view settings.



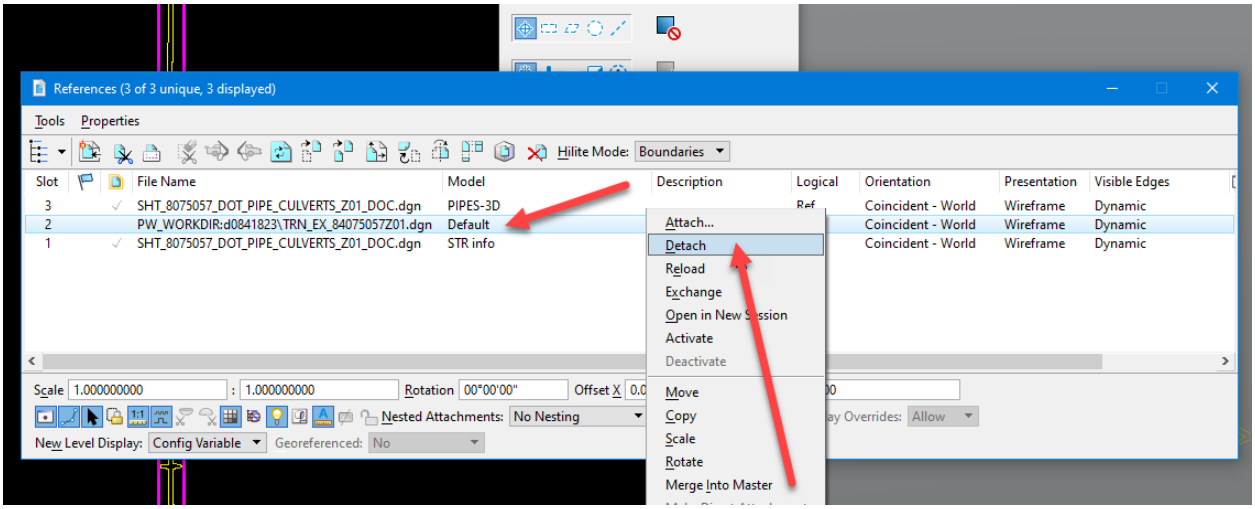
Next, close the file and check it into ProjectWise. Then, select this file and right click to select Copy.



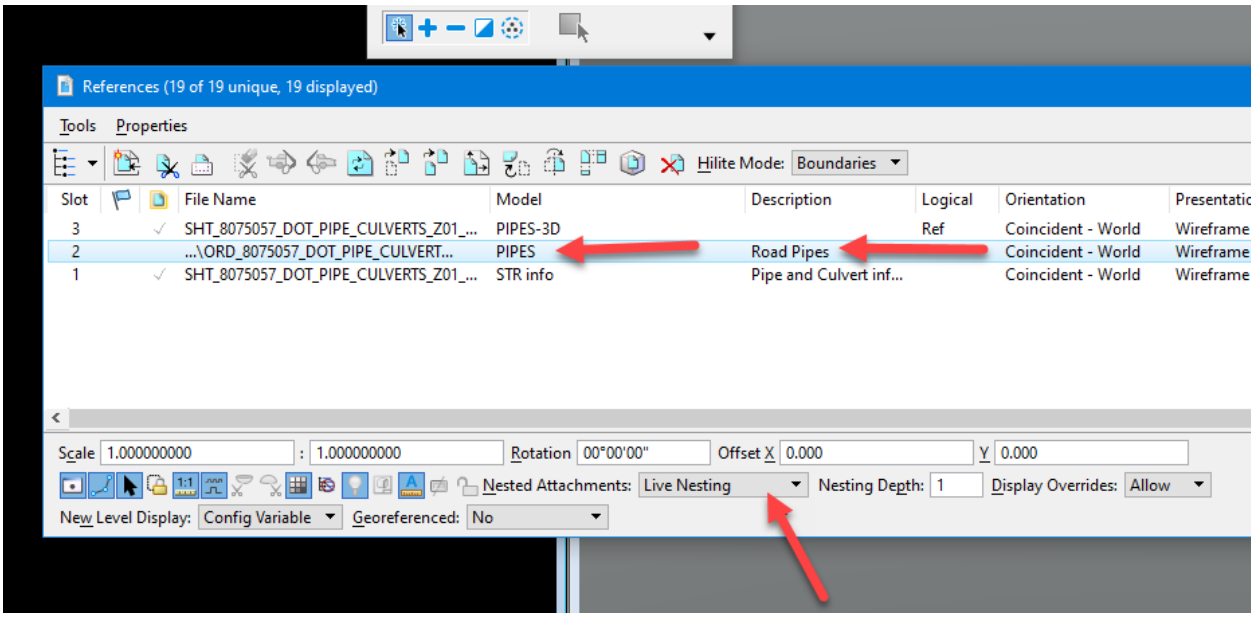
Paste the copied file in the parenthesis folder for making sheets. Rename the file to SHT_8075057_DOT_PIPE_CULVERTS_Z01.dgn. Please refer to the Seed File document on Iowa Department of Transportation Bridge Connect Documentation page for further instructions on naming the files.



Next, open the SHT file. Then, detach the TRN file reference.



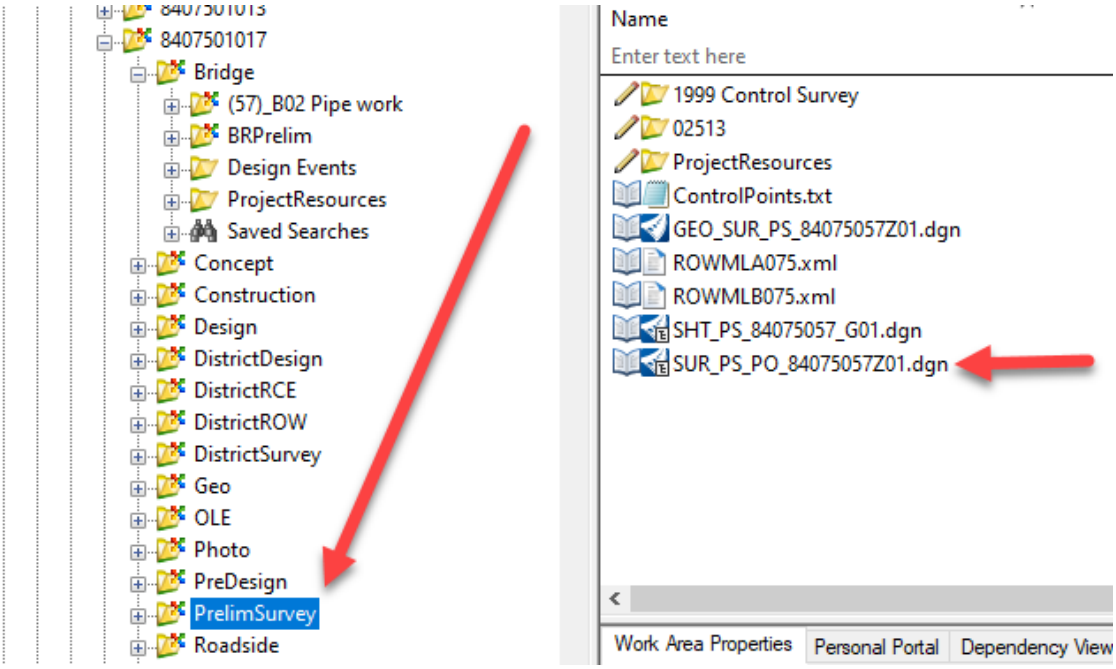
Then attach the model file ORD_CCRRRPPP_DOT_PIPE_CULVERTS_Z01.dgn from under the Bridge folder using live Nesting Depth of 2.



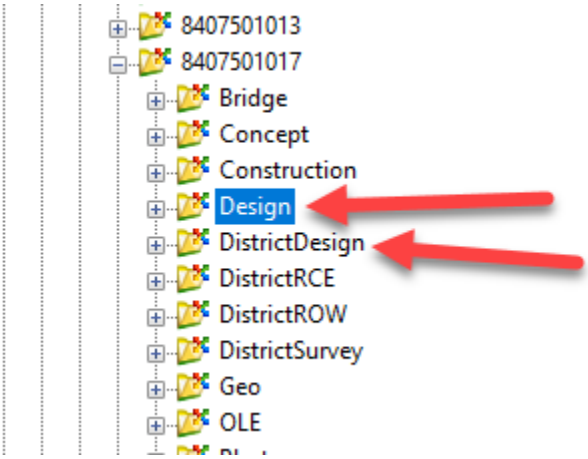
Save settings and exit the file.

The sheet file and model file are now created for the pipe design.

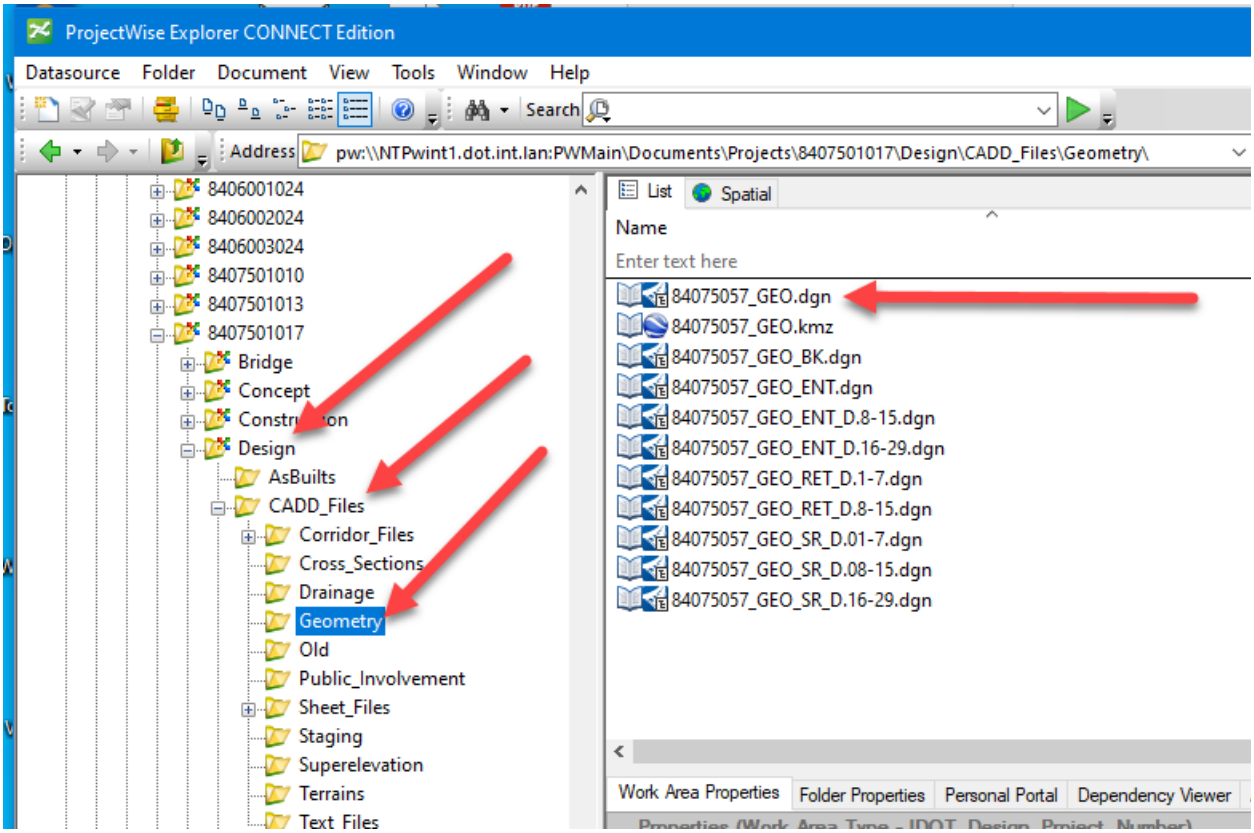
In the Bridge folder open the ORD_CCRRRPPP_DOT_PIPE_CULVERTS_Z01.dgn. Attach the survey file that contains the existing 3D pipes and surrounding topo features that are needed to do an effective design.



Next reference in the Design alignment that has an active profile. This file should be located in the Design or the District Design folder depending on what group is doing the road design portion of this project.

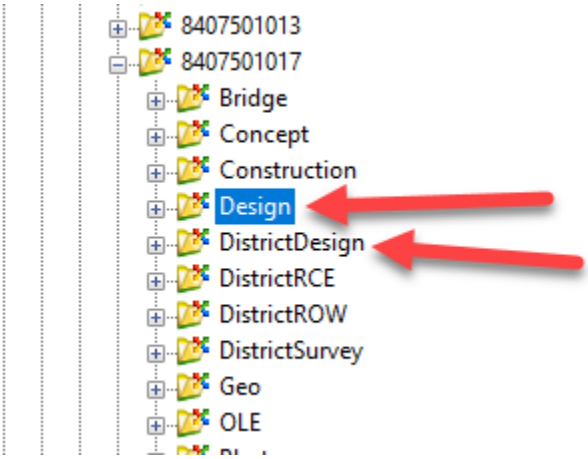


For this example, it is being done by the design group. So the alignment is under the CADD_Files\Geometry\ folder. Select the GEO Alignment file that is named GEO_CCRRRPPPZZZ.dgn.

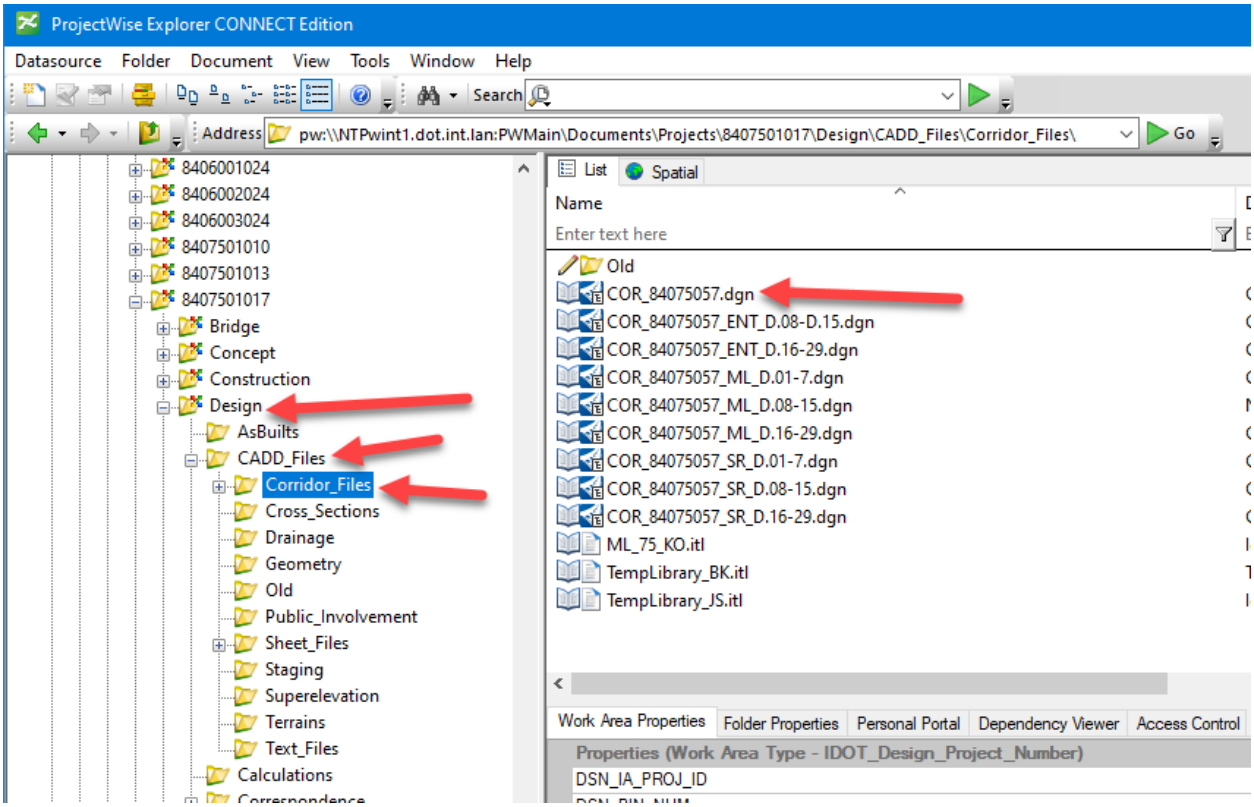


This is the container GEO file that will contain all the Alignments for this project. Attach it using the orientation of Coincident World. Turn on the live nesting and set its depth to 1.

Next, reference the proposed corridor container file. This file should be located in the Design or the District Design folder depending on what group is doing the road design portion of this project.

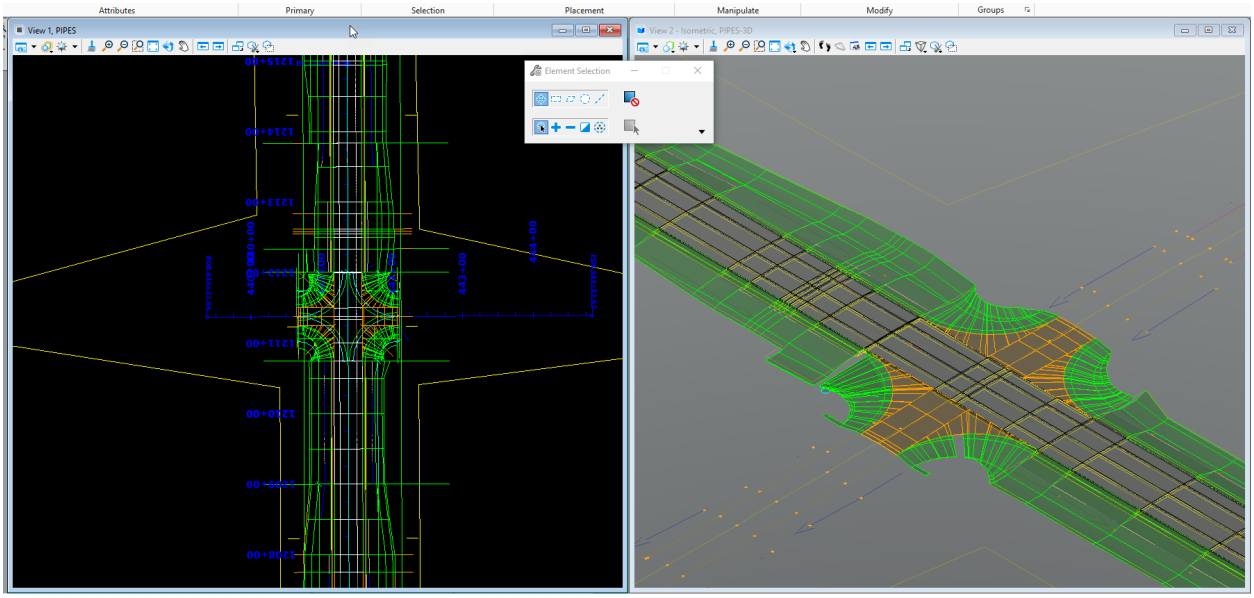


For this example, it is being done by the design group. So the corridor file is under the CADD_Files\ Corridor_Files\folder. Select the COR Corridor file that is named COR_CCRRRPPPZZZ.dgn.



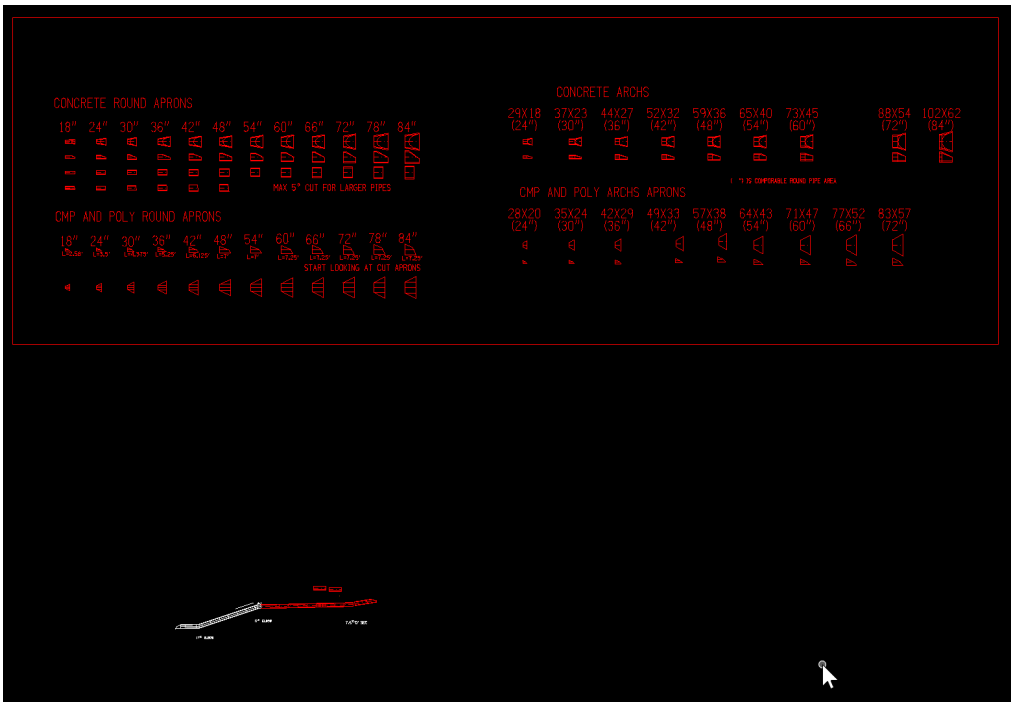
This is the container COR file that will contain all the Corridor for this project. Attach it using the orientation of Coincident World. Turn on the live nesting and set its depth to 1.

The file content should look like this:



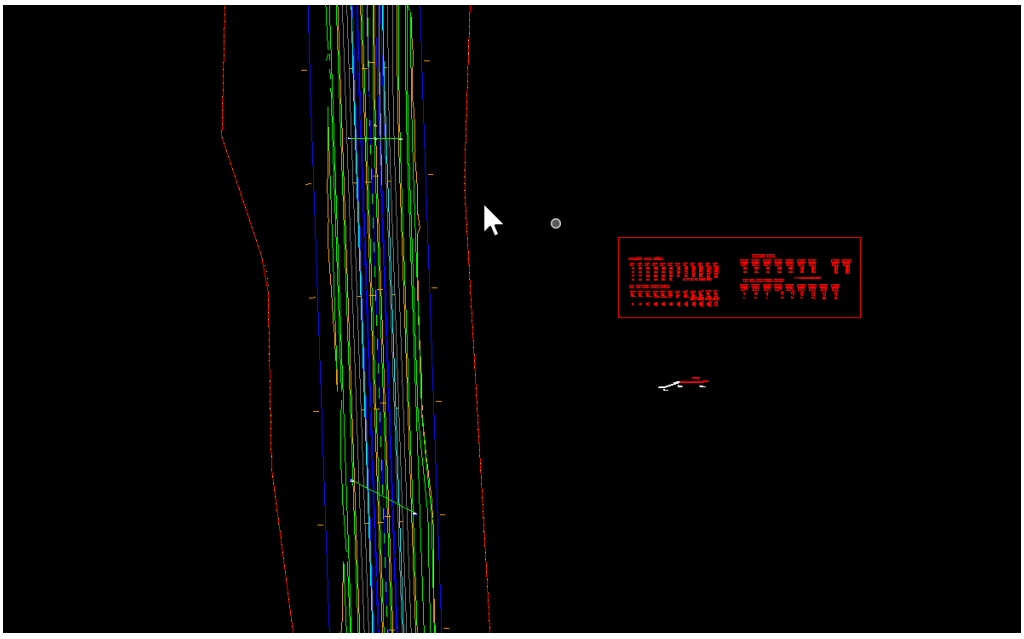
Next, reference in a file that contains a selection of Iowa DOT pipe aprons 2D cells. This file is located in pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Resources\ClientWorkspaces\IowaDOT\IowaDOTProduction\Organization-Civil\IowaDOT_Standards\Cell\BridgeDesignDetails\ ApronsConnect.dgn

Then find this refenced content. It should look like this:



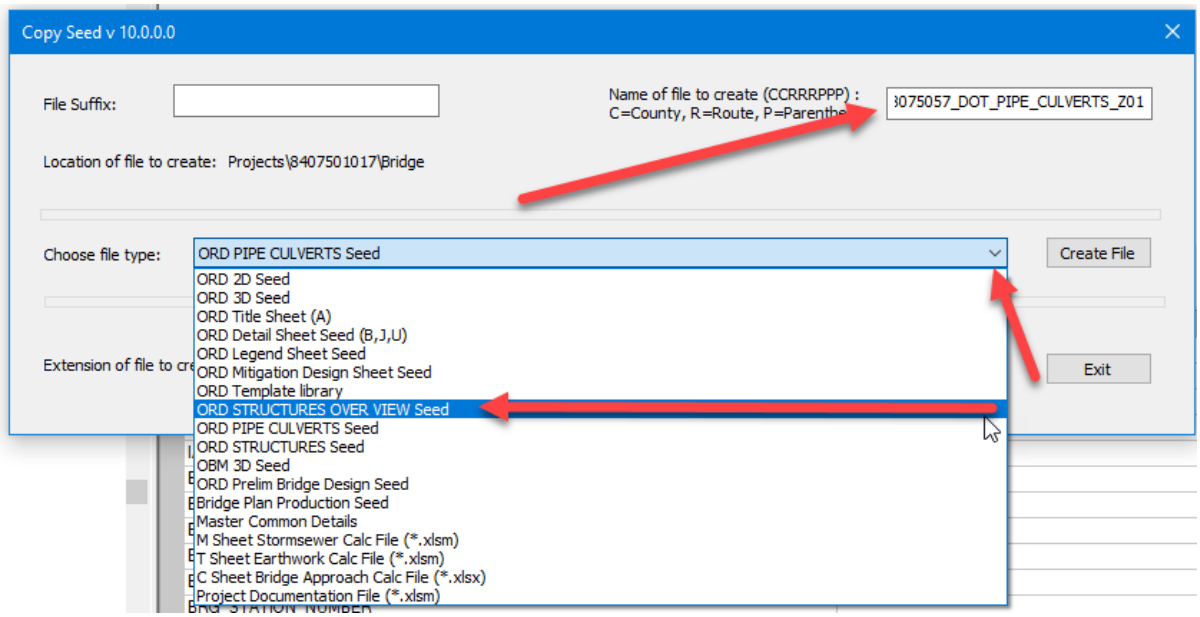
Select it with the Element Selection tool.

With the Copy tool make a copy of it and place it close to the design corridor.



Then, detach the reference file and save the settings.

The last step to setting up the CADD files for pipe design is to make sure the pipe3D model is referenced into the Structures overview file. If there is not a Structures overview file in the project directory, create it with the Copy Seed tool.



The Structures overview file will only contain the 3D information from the model files under the Bridge folder. Make sure only the 3D model is referenced from the ORD_CCRRRPPP_DOT_PIPE_CULVERTS_SPN.dgn into the overview file.

Other designers will be referencing this file nested and don't need to be pulling in any information, but the models that were just created. Make sure all references to the overview file are not nested.

Now that the file is set up, start designing and calculating the pipe inverts from the project information. PW02_Laying out Pipes in Connect