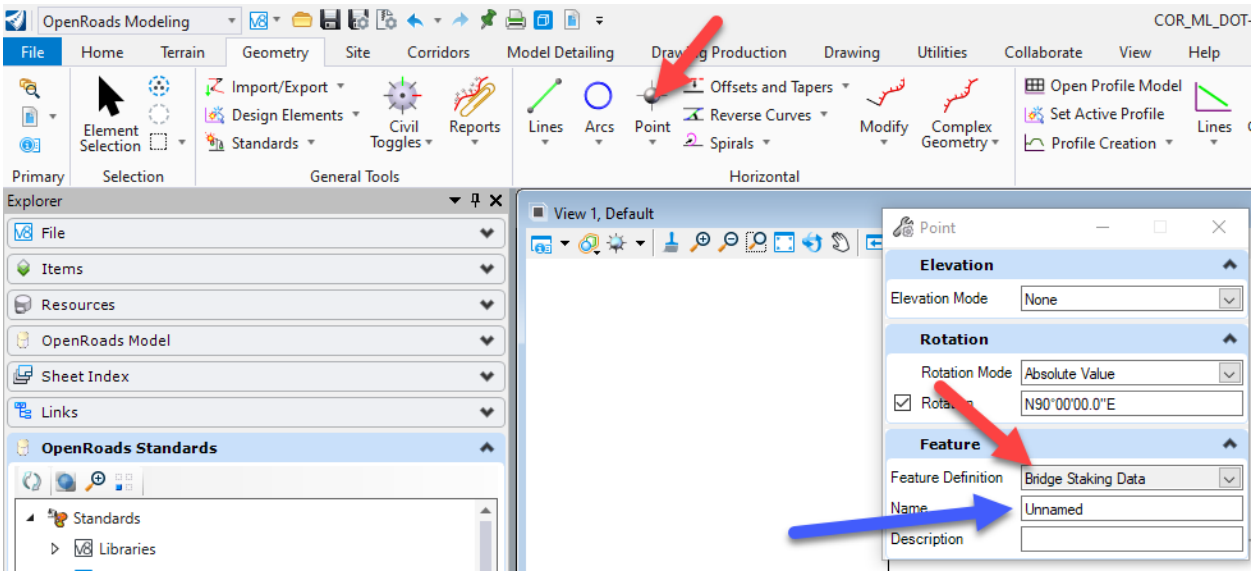
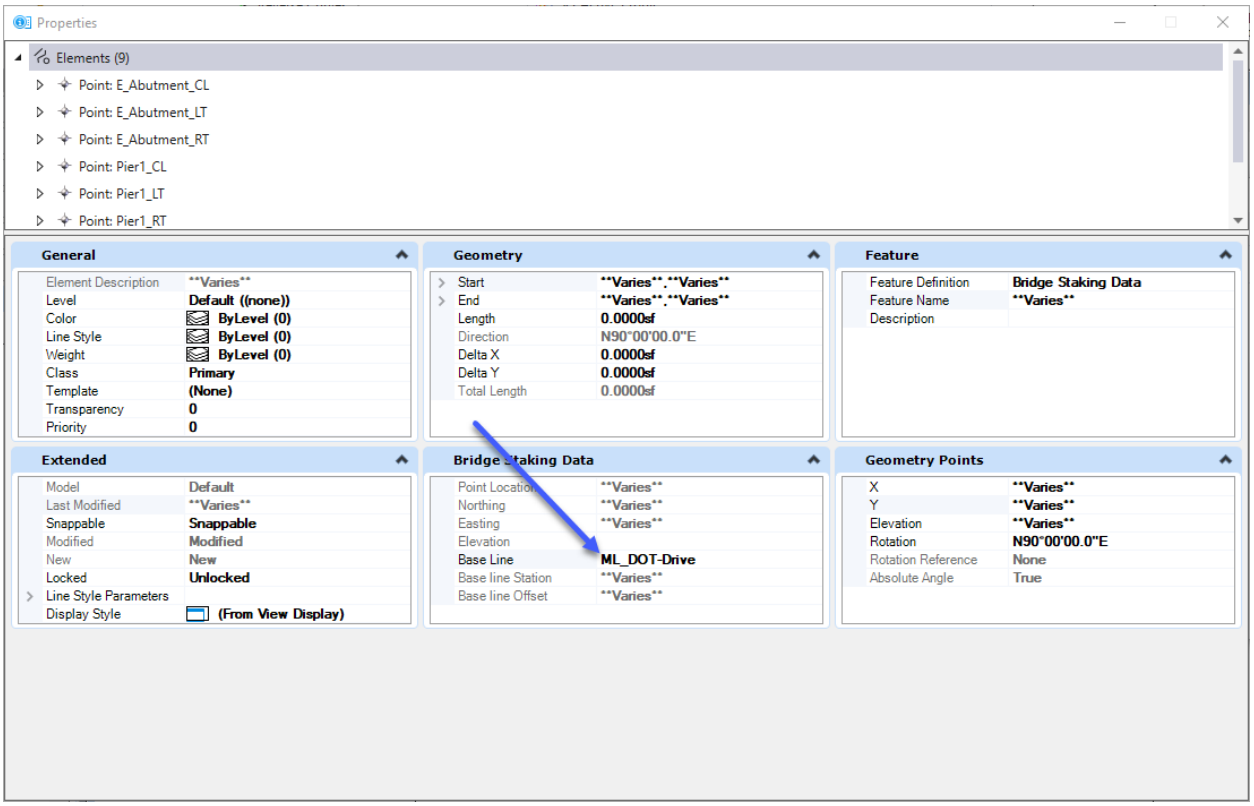
Automated Bridge Staking report

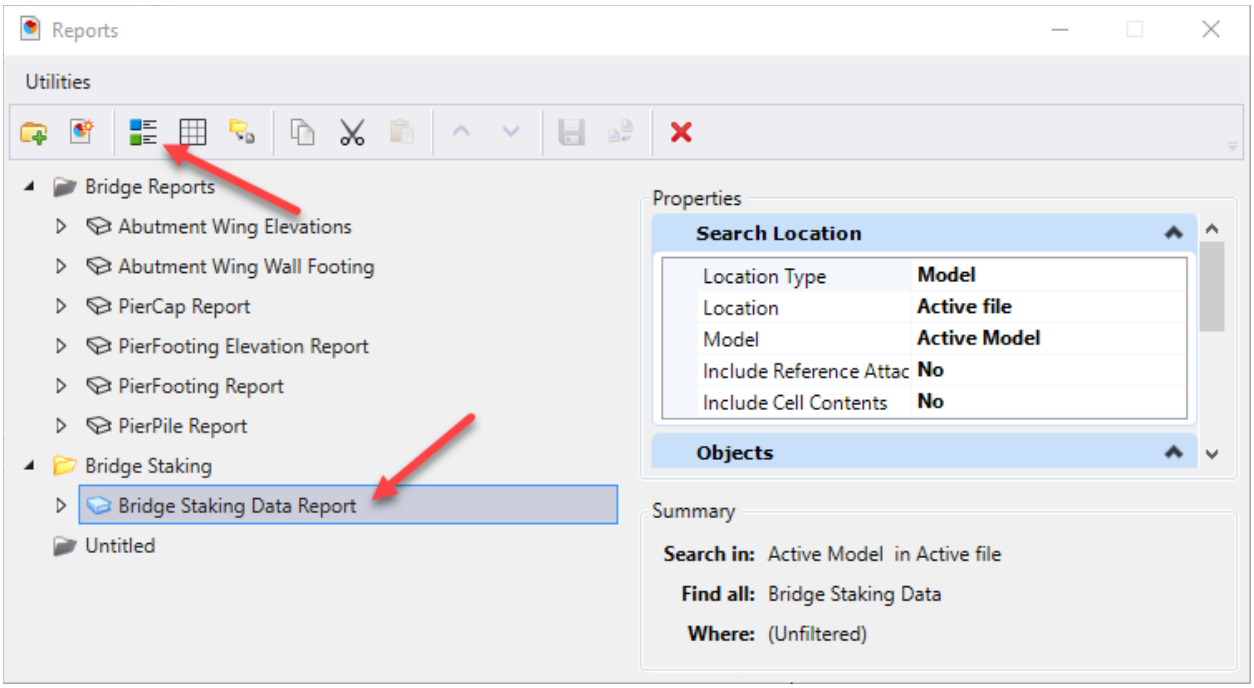
Place a Civil Point on the Feature Definition: **Bridge Staking Data**



The name of the feature is used to populate the point location in the report. Set it to be the location (i.e. Pier1_CL)

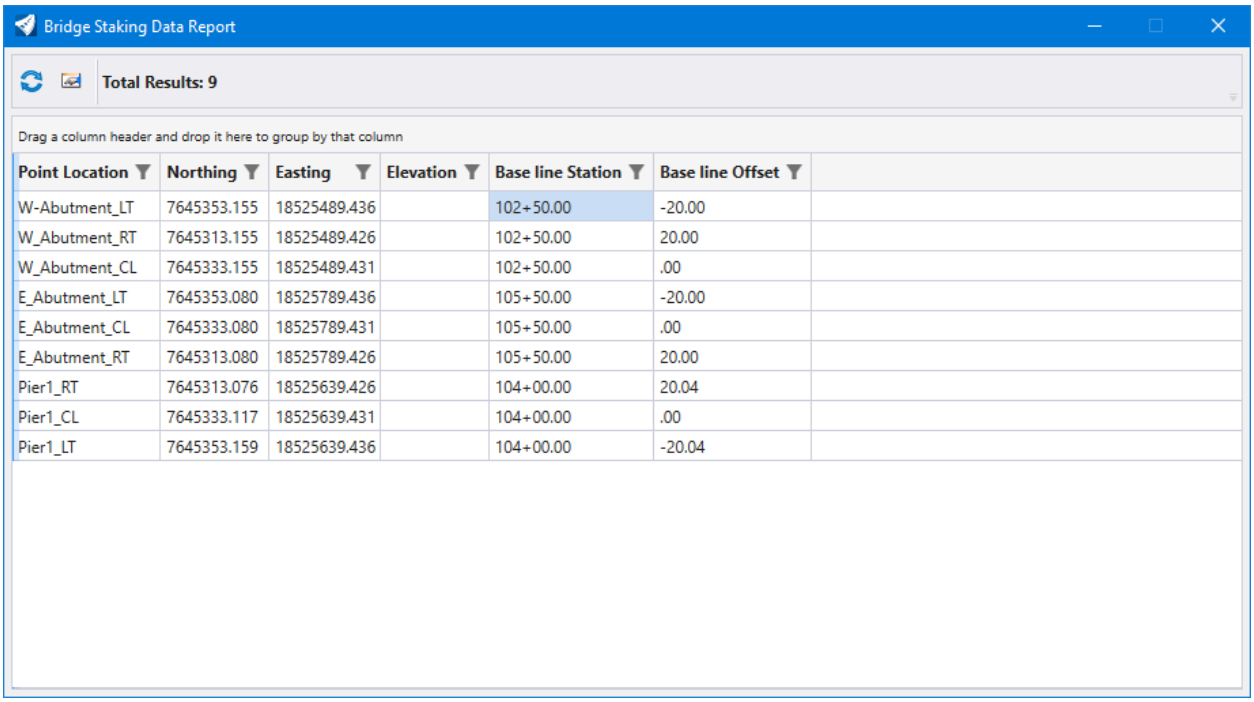
Select all the points placed with this feature. Then type in the name of the base line chain.



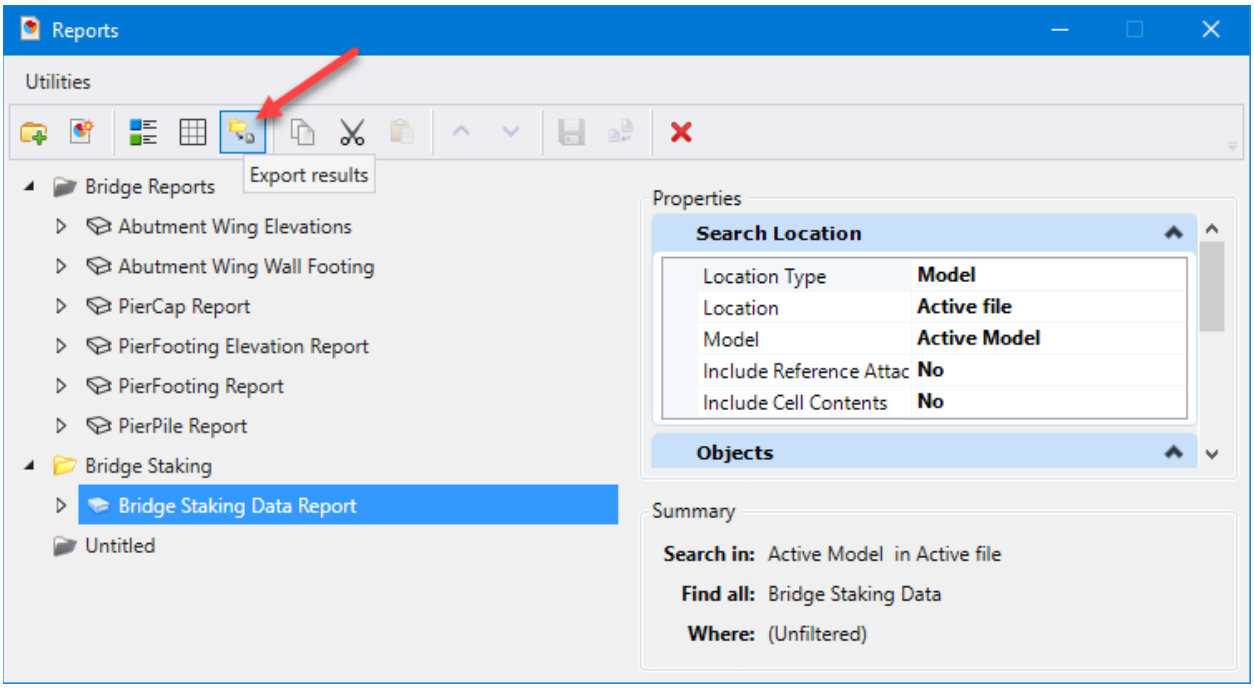


The report finds all elements in the file that have the Item Type Bridge Staking Data.

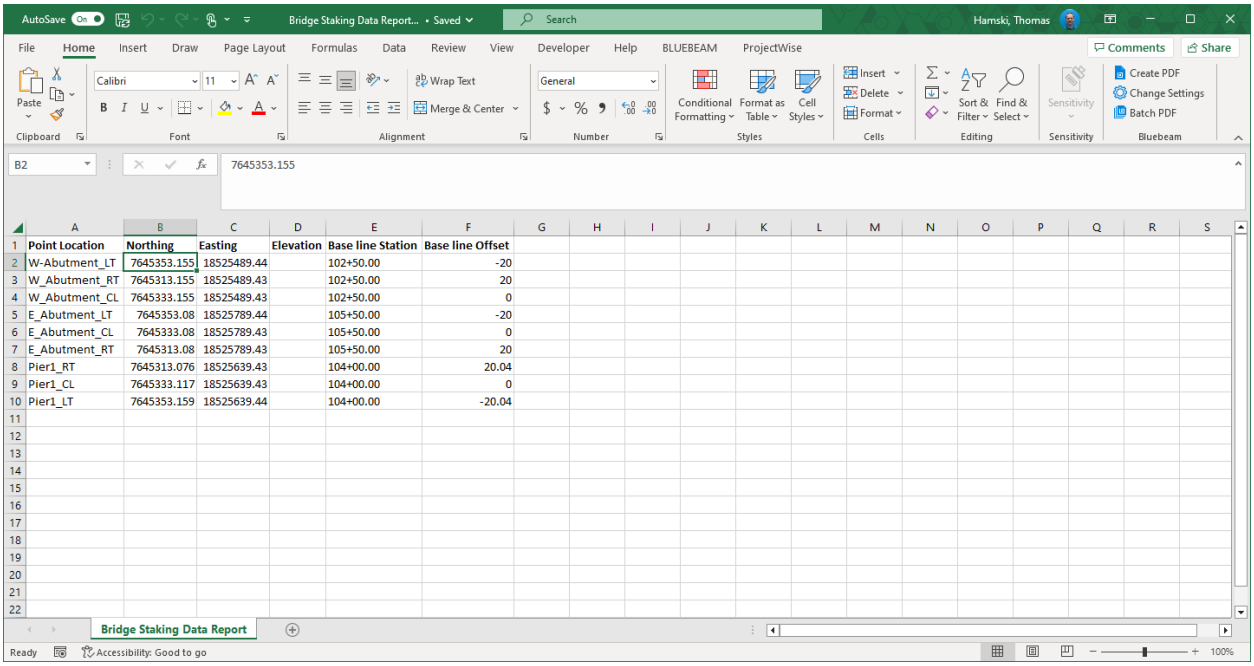
This is the report preview.



Point Location	Northing	Easting	Elevation	Base line Station	Base line Offset
W-Abutment_LT	7645353.155	18525489.436		102+50.00	-20.00
W_Abutment_RT	7645313.155	18525489.426		102+50.00	20.00
W_Abutment_CL	7645333.155	18525489.431		102+50.00	.00
E_Abutment_LT	7645353.080	18525789.436		105+50.00	-20.00
E_Abutment_CL	7645333.080	18525789.431		105+50.00	.00
E_Abutment_RT	7645313.080	18525789.426		105+50.00	20.00
Pier1_RT	7645313.076	18525639.426		104+00.00	20.04
Pier1_CL	7645333.117	18525639.431		104+00.00	.00
Pier1_LT	7645353.159	18525639.436		104+00.00	-20.04



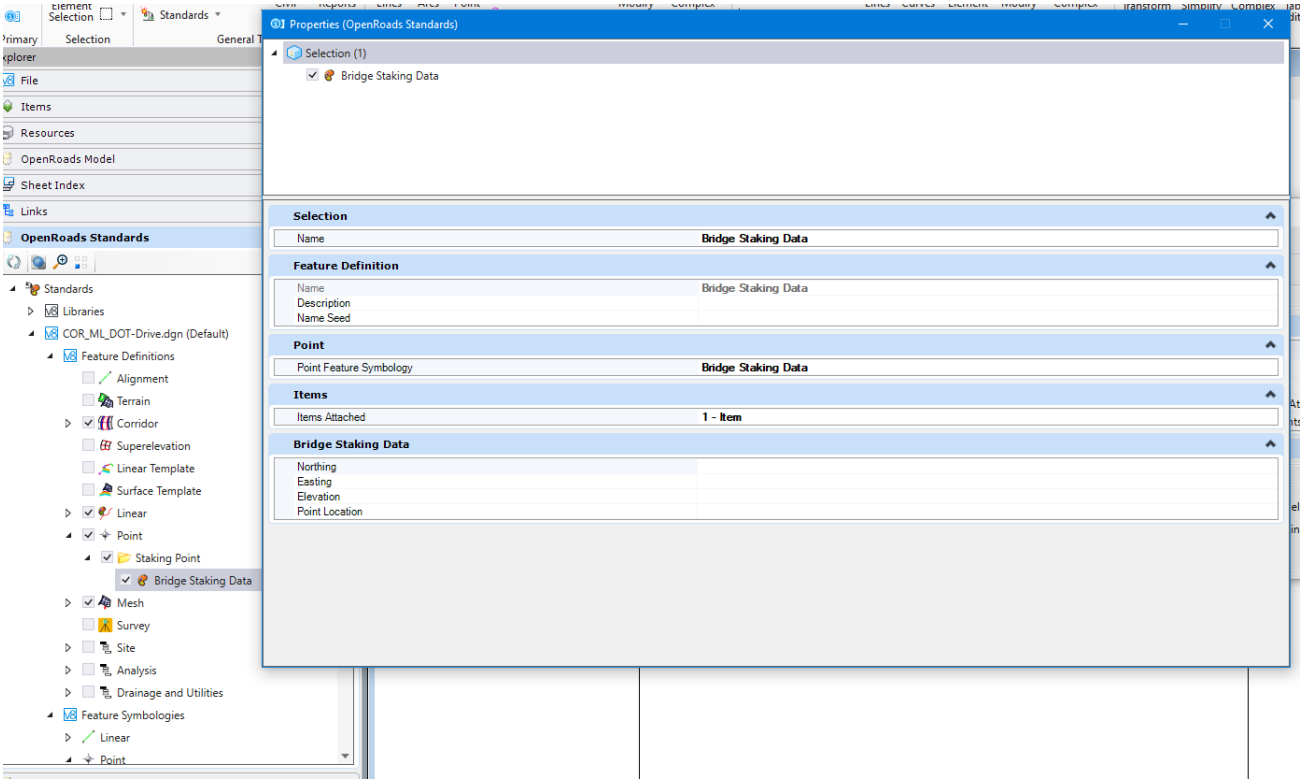
Save the exported report results to Excel:



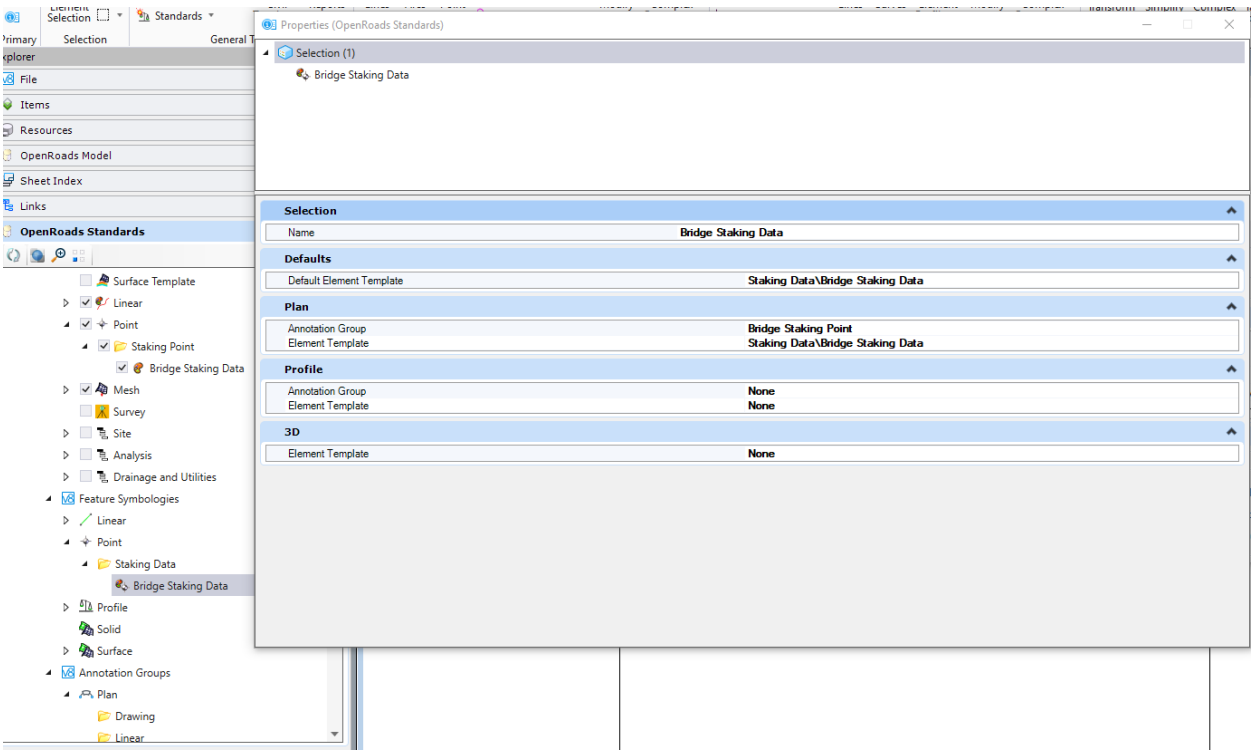
	A	B	C	D	E	F
1	Point Location	Northing	Easting	Elevation	Base line Station	Base line Offset
2	W-Abutment_LT	7645353.155	18525489.44		102+50.00	-20
3	W_Abutment_RT	7645313.155	18525489.43		102+50.00	20
4	W_Abutment_CL	7645333.155	18525489.43		102+50.00	0
5	E_Abutment_LT	7645353.08	18525789.44		105+50.00	-20
6	E_Abutment_CL	7645333.08	18525789.43		105+50.00	0
7	E_Abutment_RT	7645313.08	18525789.43		105+50.00	20
8	Pier1_RT	7645313.076	18525639.43		104+00.00	20.04
9	Pier1_CL	7645333.117	18525639.43		104+00.00	0
10	Pier1_LT	7645353.159	18525639.44		104+00.00	-20.04

Configuration consisted of the following:

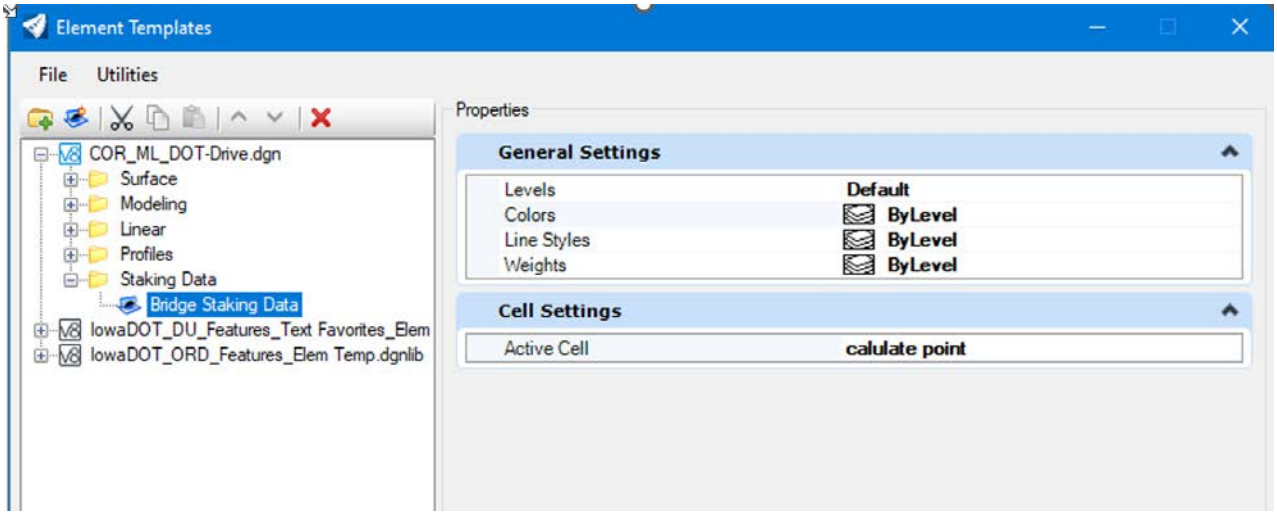
Created Point Feature Definition with Item Type for staking data attached.



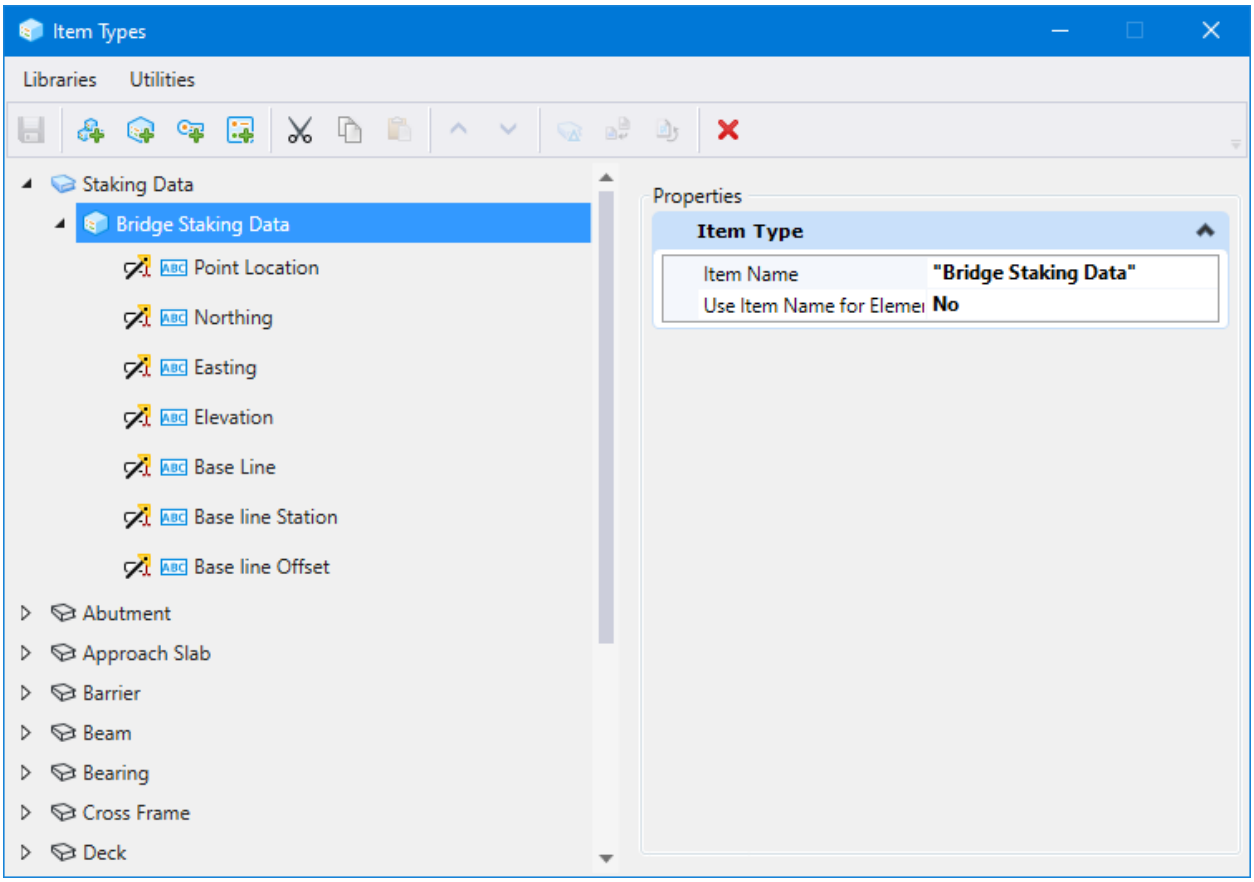
Corresponding Feature Symbology:



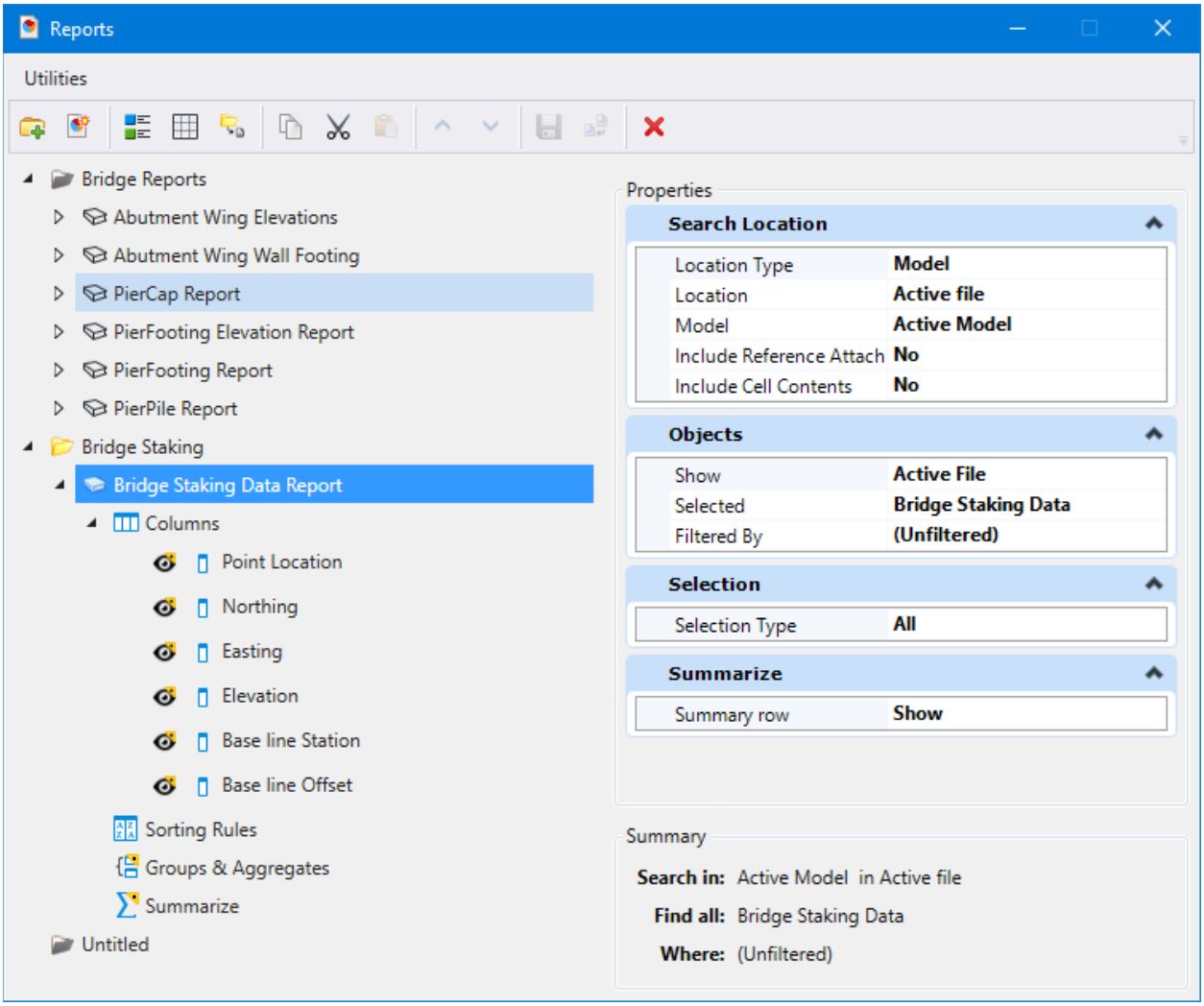
Corresponding Element Template:



Item Type:



Report:

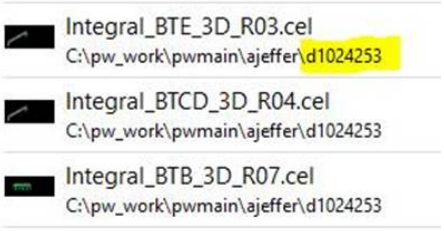

Reports
Utilities
Bridge Reports
Abutment Wing Elevations
Abutment Wing Wall Footing
PierCap Report
PierFooting Elevation Report
PierFooting Report
PierPile Report
Bridge Staking
Bridge Staking Data Report
Columns
Point Location
Northing
Easting
Elevation
Base line Station
Base line Offset
Sorting Rules
Groups & Aggregates
Summarize
Untitled
Properties
Search Location
Location Type Model
Location Active file
Model Active Model
Include Reference Attach No
Include Cell Contents No
Objects
Show Active File
Selected Bridge Staking Data
Filtered By (Unfiltered)
Selection
Selection Type All
Summarize
Summary row Show
Summary
Search in: Active Model in Active file
Find all: Bridge Staking Data
Where: (Unfiltered)

OpenBridge Designer Version Upgrade Maintenance

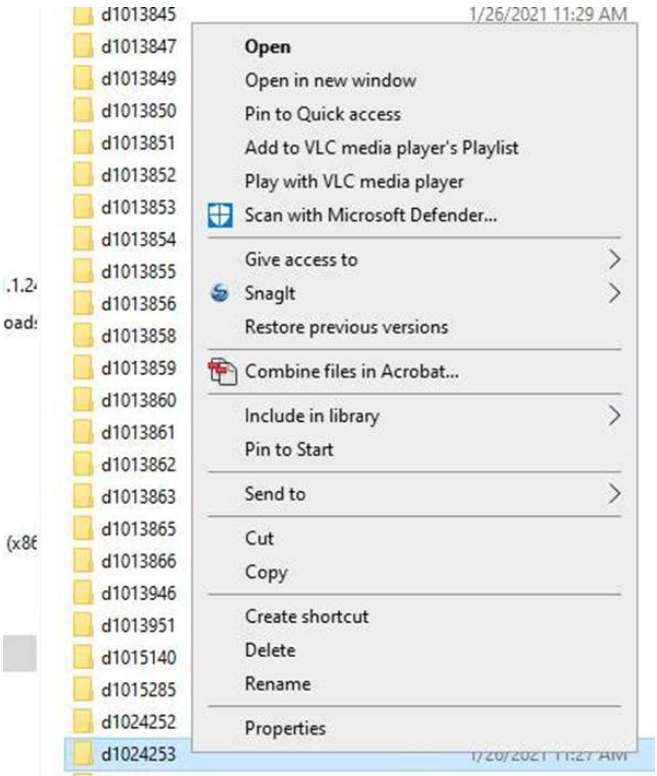
There are two maintenance items recommended after installing a new version of OpenBridge Designer.

To refresh the list of available functional components for modeling the bridge abutments, follow the steps to remove the old versions of the parametric cells that were deleted from the managed workspace. ProjectWise copies to the local computer under your working area all available functional components with the first access to the managed workspace. This process makes only the current abutments available in the list for placing the custom abutments.

1. In Windows Explorer, navigate to C:\pw_work\pwmain\username with username being your personal working directory.
2. Search for *.cel in folders under that location
3. Determine the directory the cel files for integral abutments are stored in, if present.



4. Navigate to and select that specific folder.
5. Right click and select Delete.

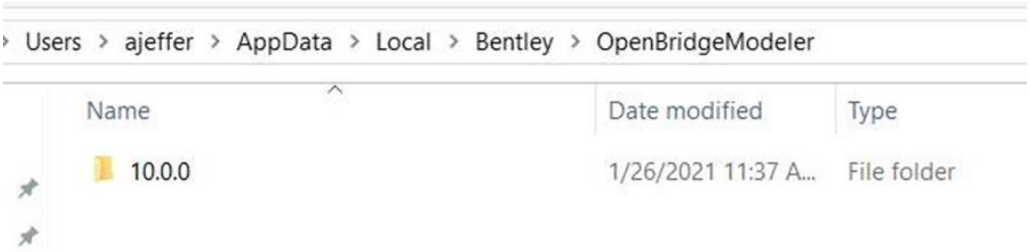


6. Next time an OpenBridge Modeler file is opened in ProjectWise the current functional components will be copied locally.

To clean up system files between versions, follow the steps to remove copies of XML files that may cause functional issues. Following a previous version upgrade it was discovered that the Place Custom Abutment tool did not work correctly in the new version until these files were deleted.

1. In Windows Explorer, navigate to C:\Users\username\AppData\Local\Bentley\OpenBridgeModeler\

   AppData is a hidden system area. This location can be copied and pasted to the explorer address bar. Modify for your Windows profile.



2. Navigate to the specific subfolders you have available. There may be one or more of these folders.
   - 10.0.0\prefs\civil_commands
   - 10.0.0_1\prefs\civil_commands

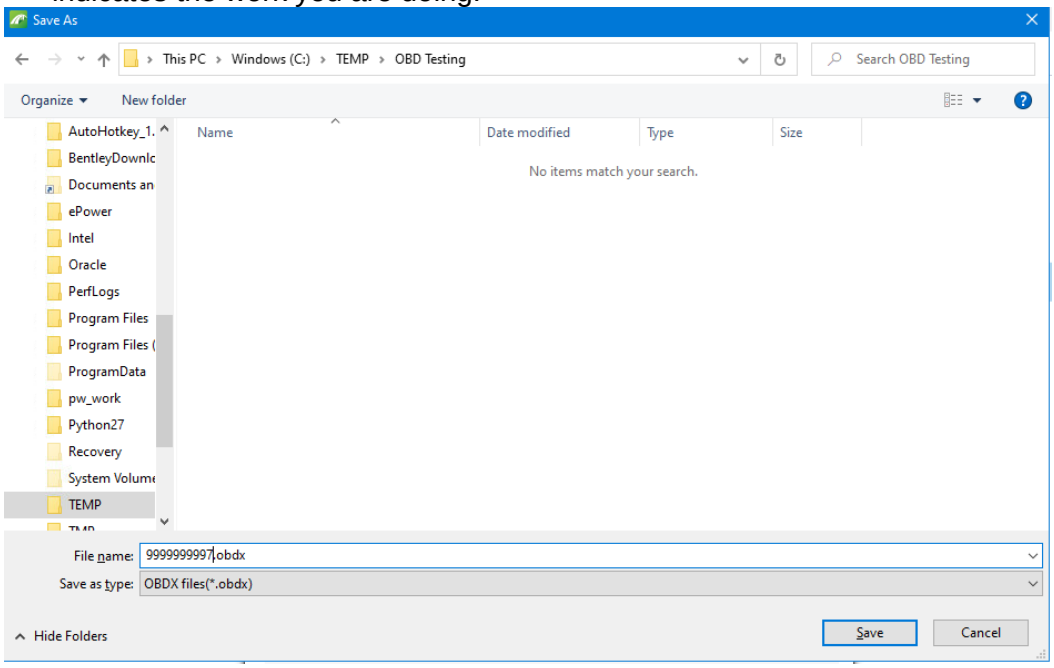
3. Delete all XML extension named files in the folder(s).

Use of LEAP Analysis with OpenBridge Designer

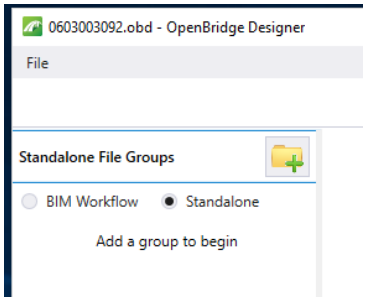
OpenBridge Designer can be used for analysis without a model created through OpenBridge Modeler. The Standalone File Groups option must be used. If the BIM Workflow option is used, then the model of the bridge is needed and sent to the analysis programs.

The following steps should be followed:

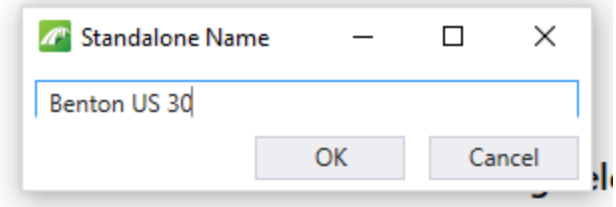
1. Launch OpenBridge Designer.
2. Create an obdx file.
    - Select New File.
    - Navigate to location to create new file.
    - Enter a name that matches the project directory number or a name that logically indicates the work you are doing.



    - Click Save button.
3. Create Standalone Group.
    - Select Standalone workflow option.
    - Click the Add Group button (folder with green plus).

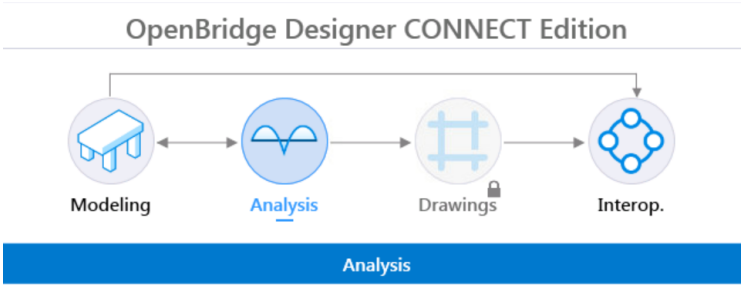


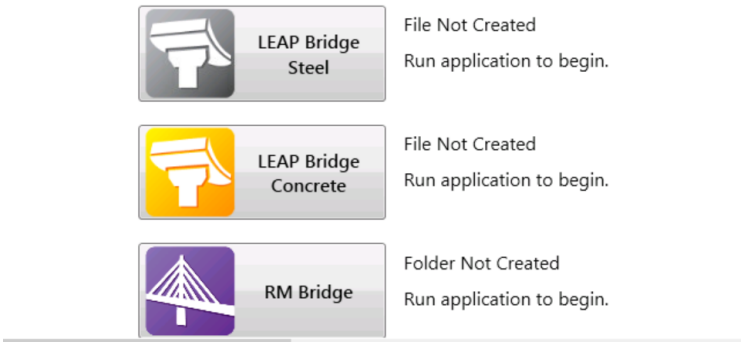
    - Enter the project name for name of the group.



- Click OK button.

4. Click on the Analysis icon.

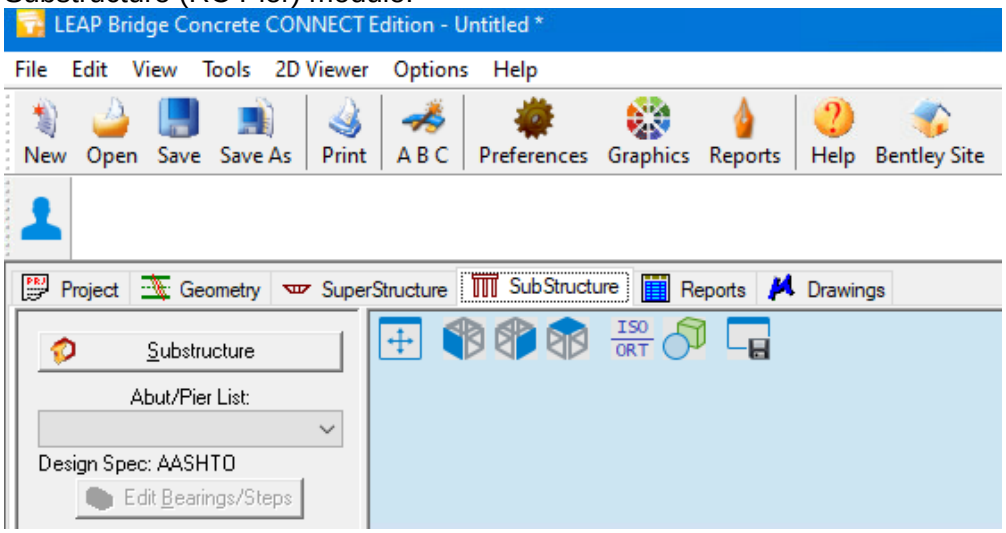




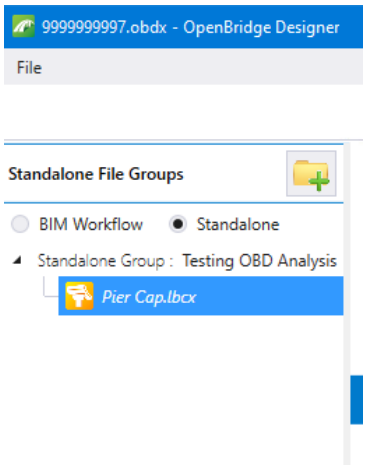
5. Launch LEAP Bridge Concrete (or other application) from the shortcut for applications listed in the lower portion.
6. Proceed with entry of model and typical analysis steps.
7. Click on File > Save or File > Save As to save the model.
8. Enter the file name.
9. Click OK button.
10. The analysis file will be added to the list in the obdx file.
11. Reopen the existing analysis files by selecting in the group list in the obdx file and launching the appropriate analysis application.

As a workflow example, to create a Substructure only file:

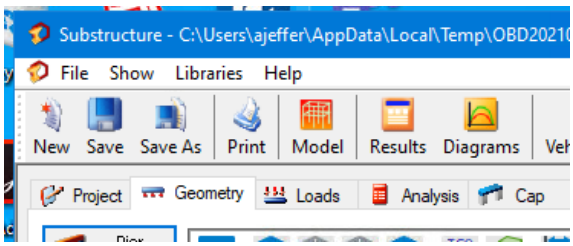
- Complete steps 1-5.
- Access the Substructure tab and click on Substructure button to launch Substructure (RC Pier) module.



- Build the model.
- Click on File > Save or File > Save As and save the model.
- Enter the file name.
- Click OK button.
- When you exit the substructure module, the analysis file will be added to the list in the obdx file.

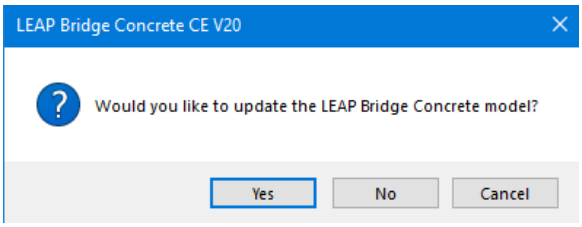


- Reopen the saved analysis file by selecting it in the list and Launch LEAP Bridge Concrete. It will open the Substructure module.

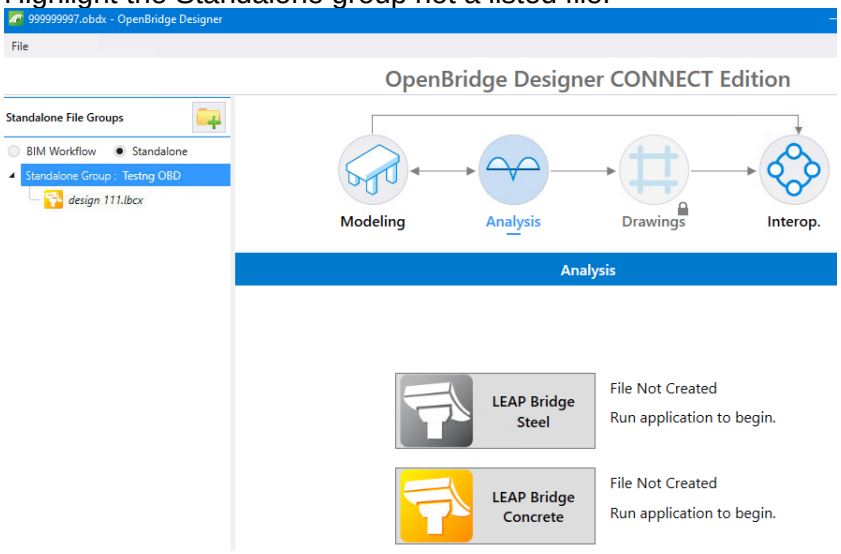


Notes:

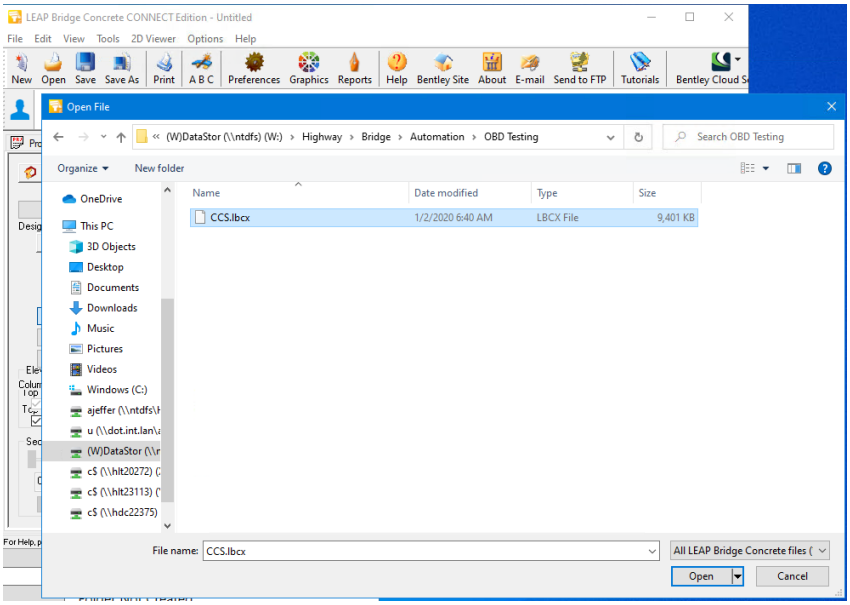
- The obdx file is required for managing the analytical files.
  The location of the file can be on local or network drive or on ProjectWise server.
- The files are saved within the obdx database only and are not available outside the OpenBridge Designer interface.
- If only doing analysis, when you close an analysis module you may see a dialog box indicating to update the model. Make sure to click the No button and exit.



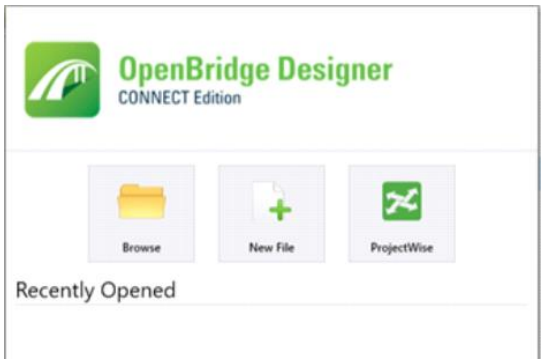
- Existing LEAP Bridge Concrete files created with a previous version can be opened to start a new file.
  - Highlight the Standalone group not a listed file.



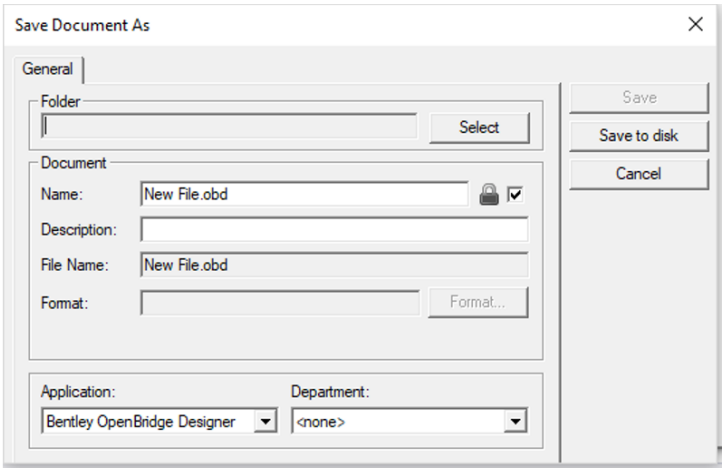
  - Click on the Analysis icon.
  - Launch LEAP Bridge Concrete.
  - Click Open and navigate to the existing lbcx file.

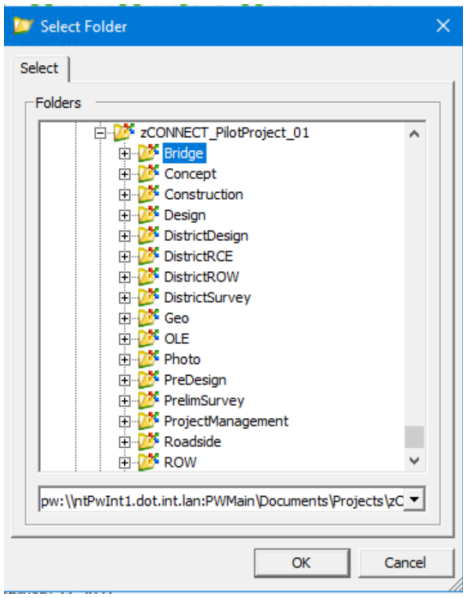


  - Click Open button.
  - The file will be added to the Standalone group once loaded.
- The workflow when working in ProjectWise has slightly different steps to create the obdx file.
  - Select ProjectWise option after launching OpenBridge Designer

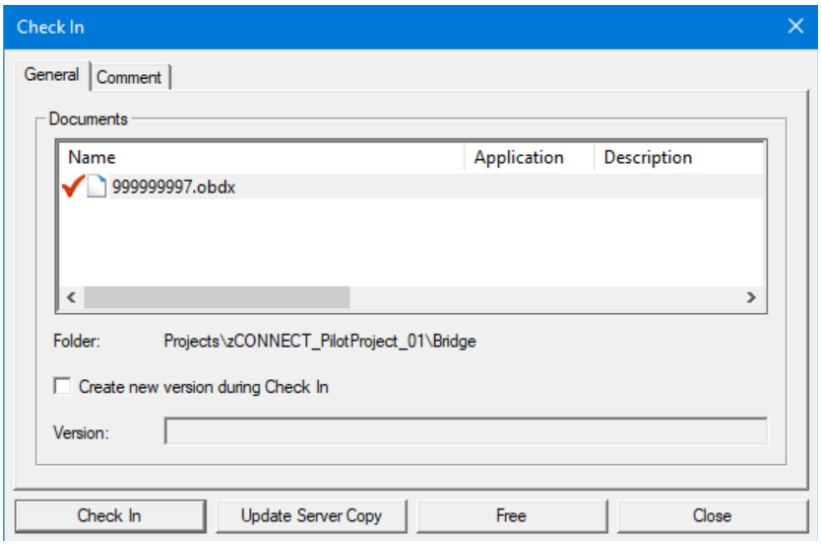


  - Log in to ProjectWise
  - Select New File.
  - Navigate through the Select button to the project directory Bridge subfolder in ProjectWise to create the new file.





- Click OK button
- Enter a name that matches the project directory number.
- Click Save button.
- Steps 3 – 11 are the same with the files saved to the ProjectWise location.
- When exiting OpenBridge Designer a Check In dialog box for ProjectWise will display.



- Click Check In button.

These instructions were created with:

OpenBridge Designer CONNECT Edition Version 10.09.00.10

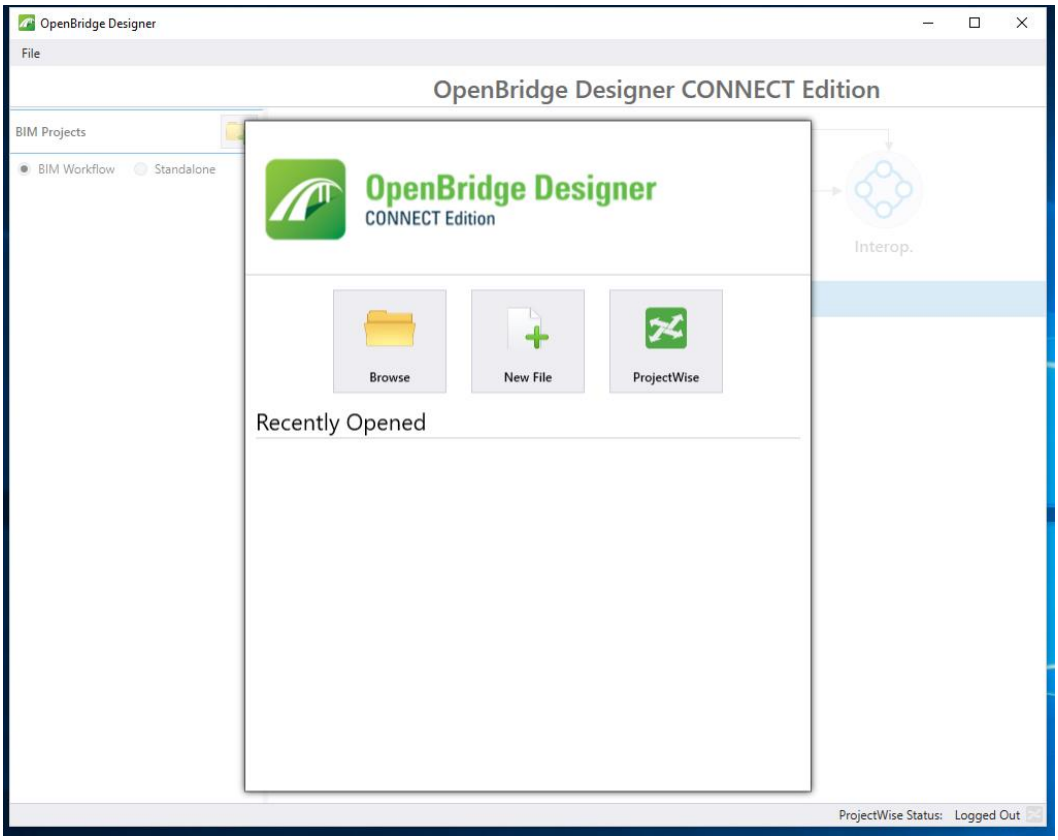
OpenBridge Designer for Starting Bridge Model

OpenBridge Designer (OBD) will be used for creating the model through the OpenBridge Modeler (OBM) module. The Standalone File Groups option should be used. If the BIM Workflow option is used, then the model of the bridge is needed to send analysis data to the analytical module programs.

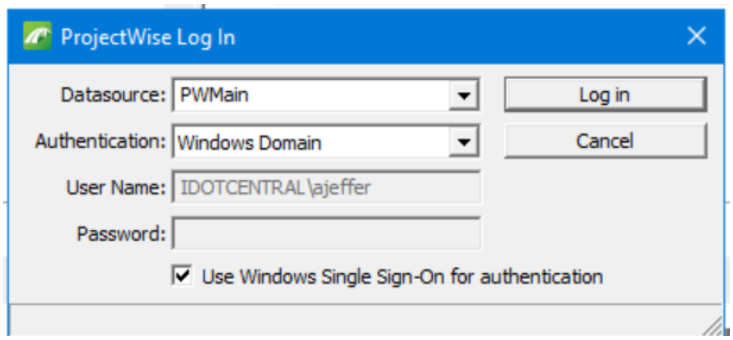
The following steps should be followed:

1. Launch OpenBridge Designer (OBD).

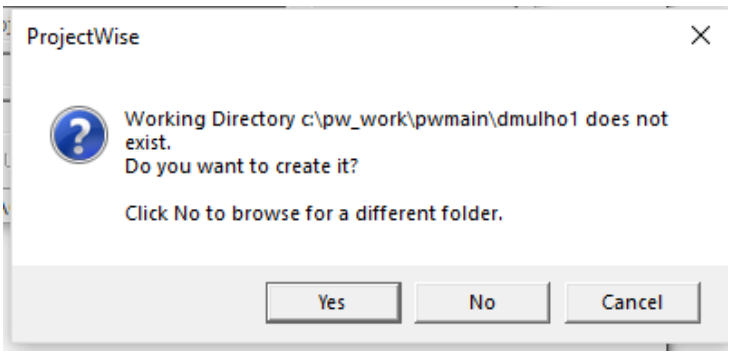
2. Select ProjectWise in OpenBridge Designer interface.



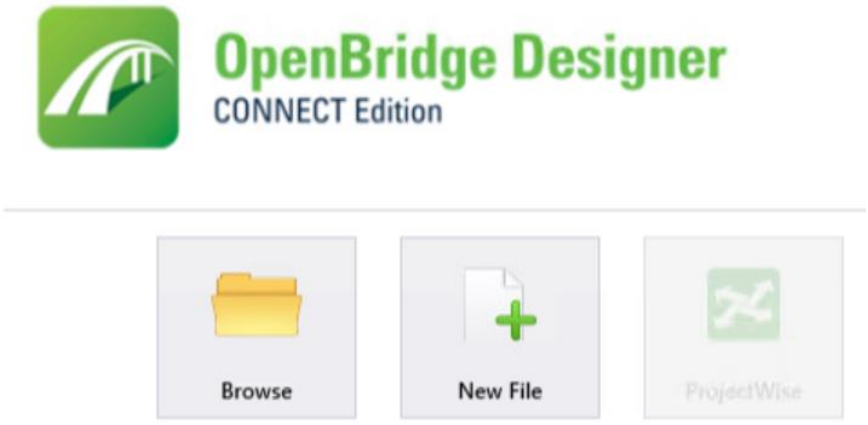
3. In the ProjectWise Log In window, select the Windows Domain or ProjectWise Authentication option. This is dependent on the version of ProjectWise Client being used. Toggle on Use Windows Single Sign-On for authentication and click Log in button.



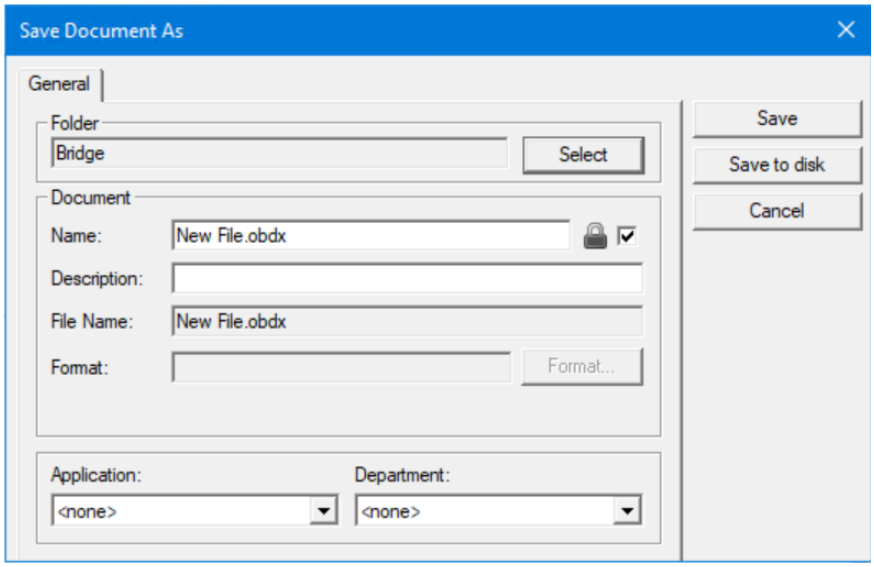
If this is the first time logging in to this ProjectWise datasource on the computer you are using, respond **Yes** to the warning to create the Working Directory.



4. Create an obdx file by selecting New File.

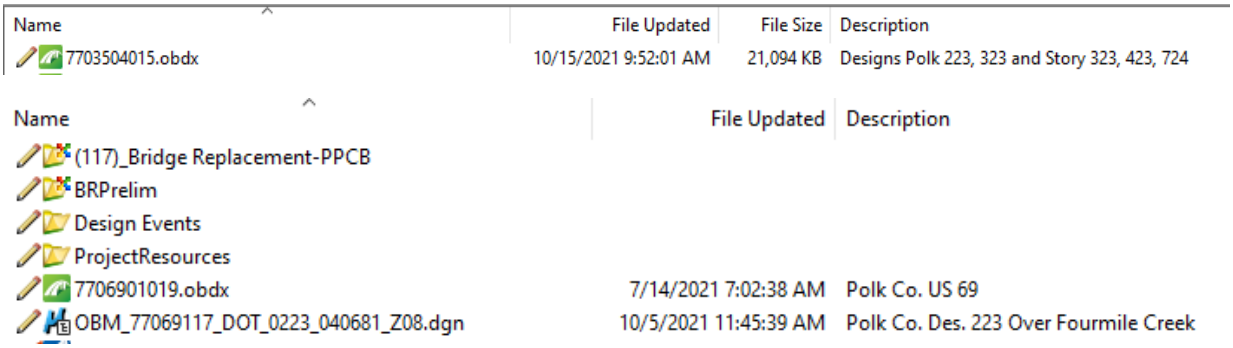


5. Use Select button and browse to Bridge folder for the correct Project Directory.

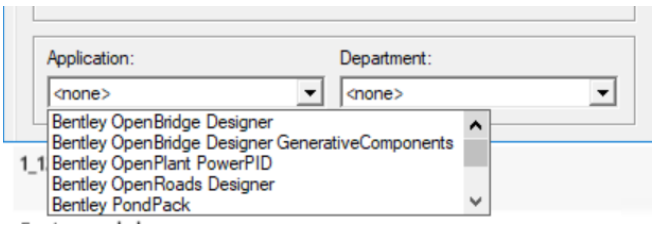


6. Enter a Document Name that matches the project directory number. Add a logical description and location of the project in Document Description field. Providing a good description with a location of the structure will help users in locating the proper file in a project.
   Name example: 0603003092.obdx
   Description examples: Polk Co. US 69 or Designs Polk Co. 223, 323 & Story Co. 323, 423, 724

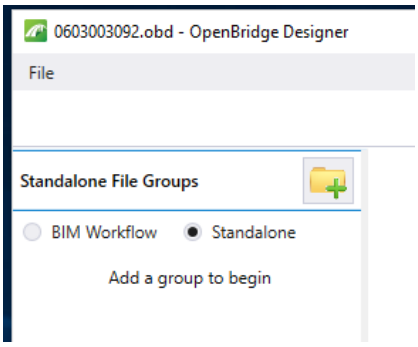
Examples of obdx file Name and Description in ProjectWise:



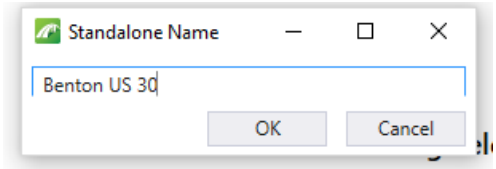
7. Select Application field and change from <none> to Bentley OpenBridge Designer for future recognition by ProjectWise for the associated application.
   The Bentley OpenBridge Designer GenerativeComponents option should only be selected if working with a Generative Component in your model due to performance issues.



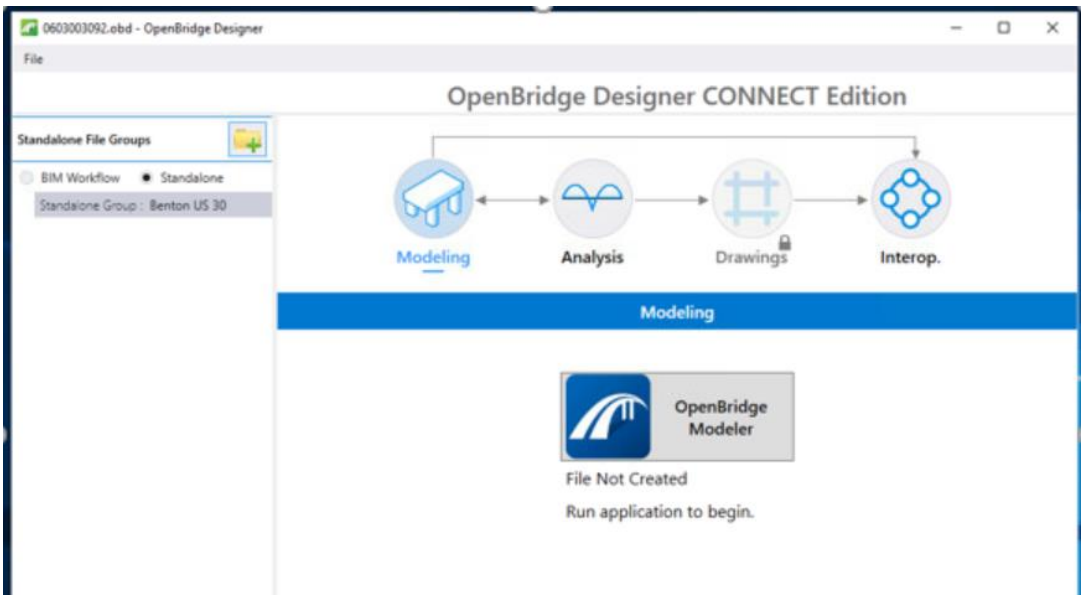
8. Select Department field and change from <none> to Bridge – Bridge Design.
9. Click Save button.
10. Create Standalone Group by selecting the Standalone workflow option. (Standalone workflow is the default selection, *currently Iowa DOT will not be using the BIM Workflow option*.)
11. Click the Add Group button (folder with green plus).



12. Enter project name into following dialog when prompted.

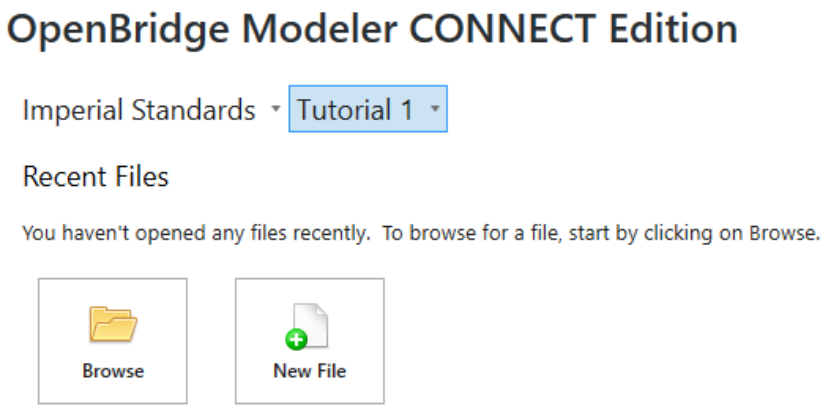


13. Click OK button.
14. Check that the Modeling module icon is highlighted.
15. Launch OpenBridge Modeler (OBM) from the shortcut for applications listed in the lower portion.

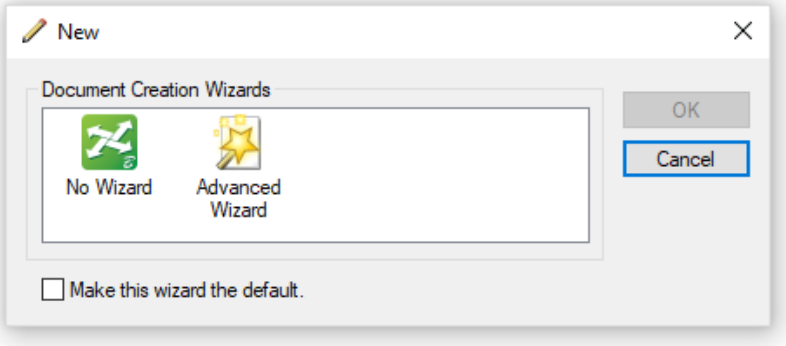


16. When OpenBridge Modeler window opens, select New File.

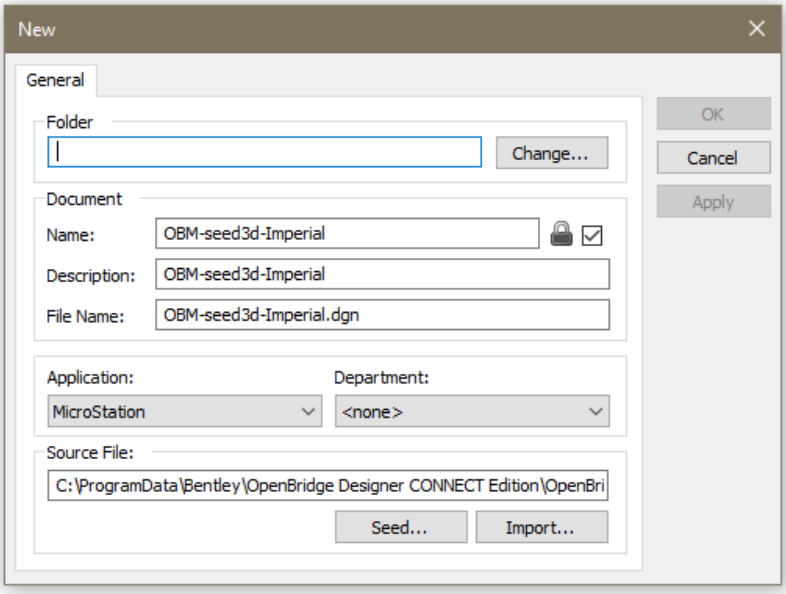
    The CONNECT workspace will load after creation of the new file.



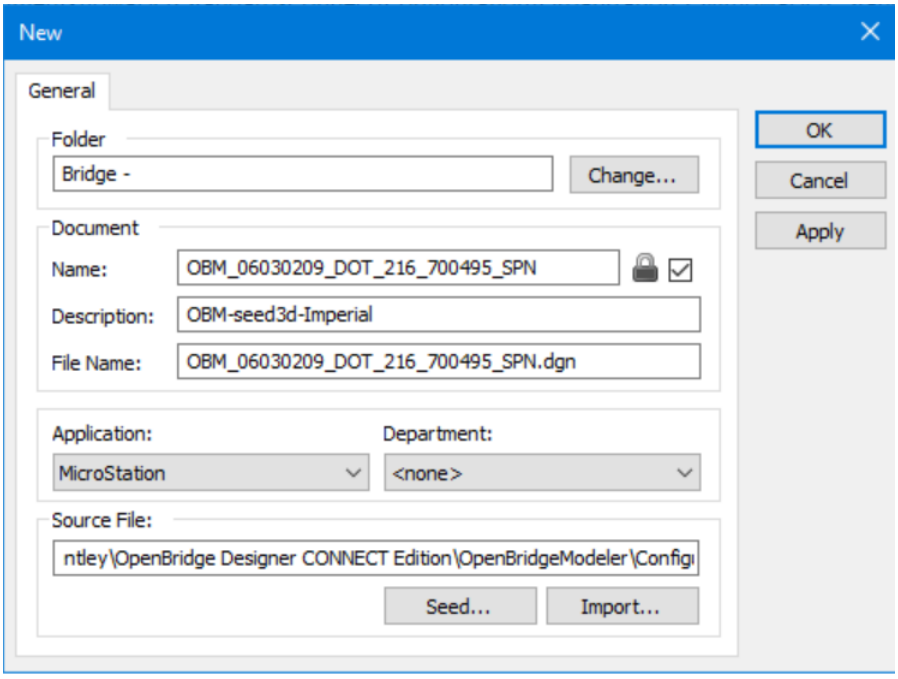
17. Select No Wizard in the New file dialog box.
18. Click OK button.



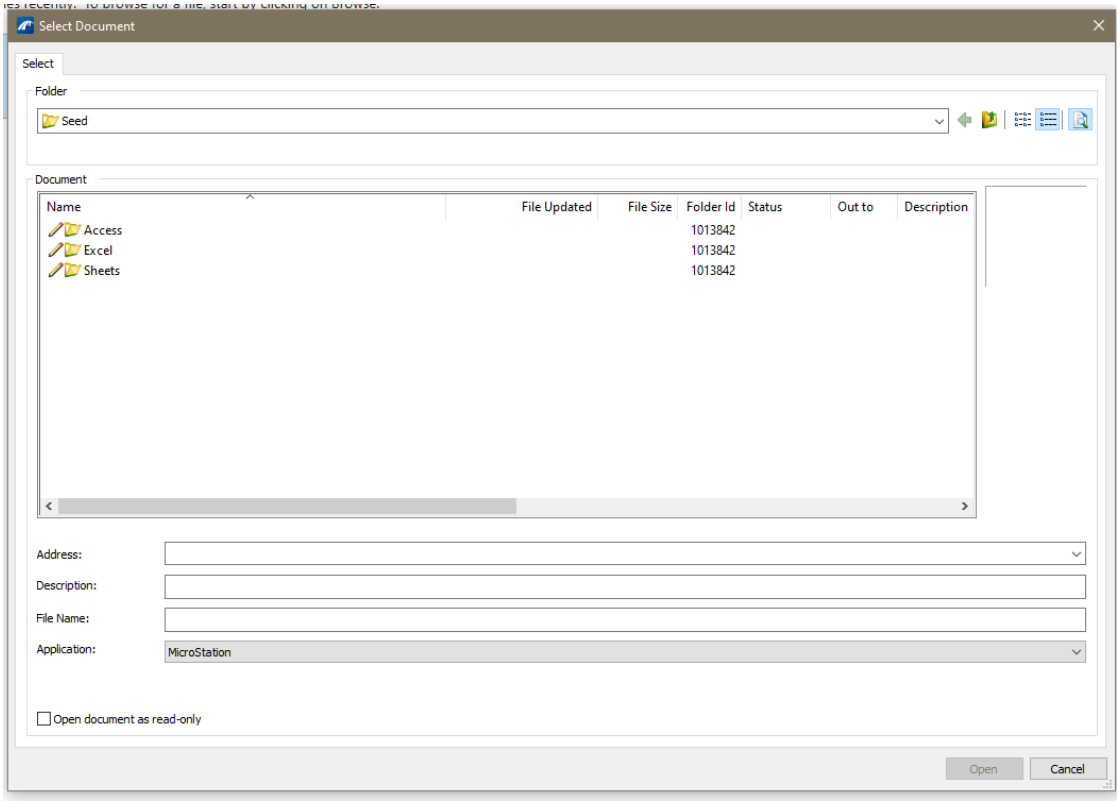
19. The new dialog box displays.



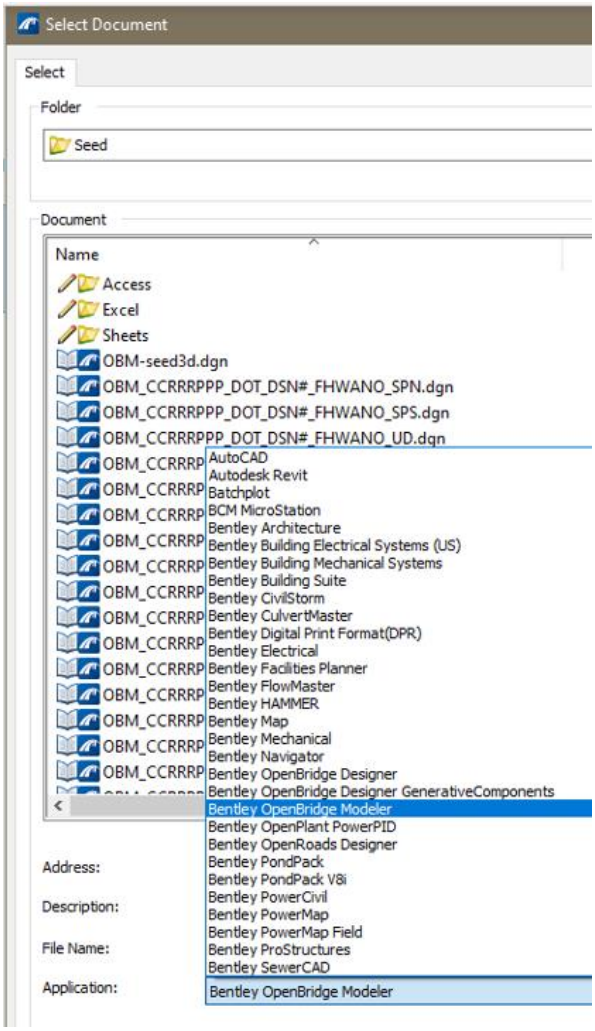
20. Select Change… button in Folder and locate Project Directory in ProjectWise and select the Bridge folder to place the OBD/OBM files in.



21. Select Seed… button to locate the proper Seed File to use with the set Geographic Coordinate System/Zone (Iowa Regional Coordinate System IaRCS).

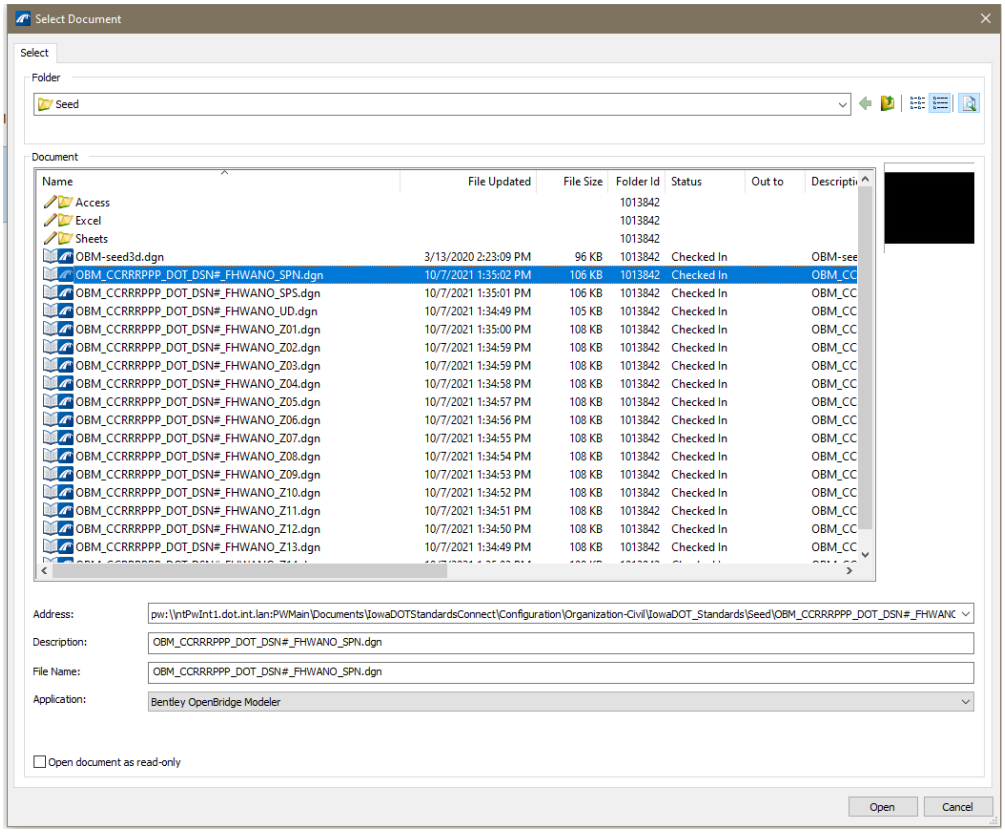


22. Select Application field and change from MicroStation to Bentley OpenBridge Modeler.

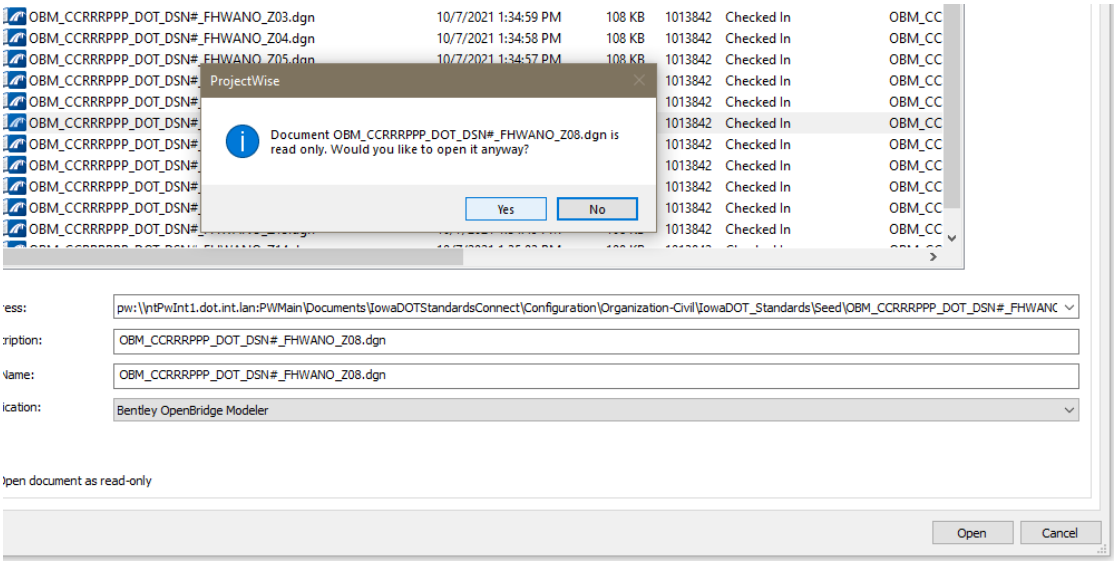


23. Browse to the proper Seed File to use with the set Geographic Coordinate System/Zone (Iowa Regional Coordinate System, IaRCS).

    The Seed files are located at:
    PWMain\Documents\IowaDOTStandardsConnect\Configuration\Organization-Civil\IowaDOT_Standards\Seed\

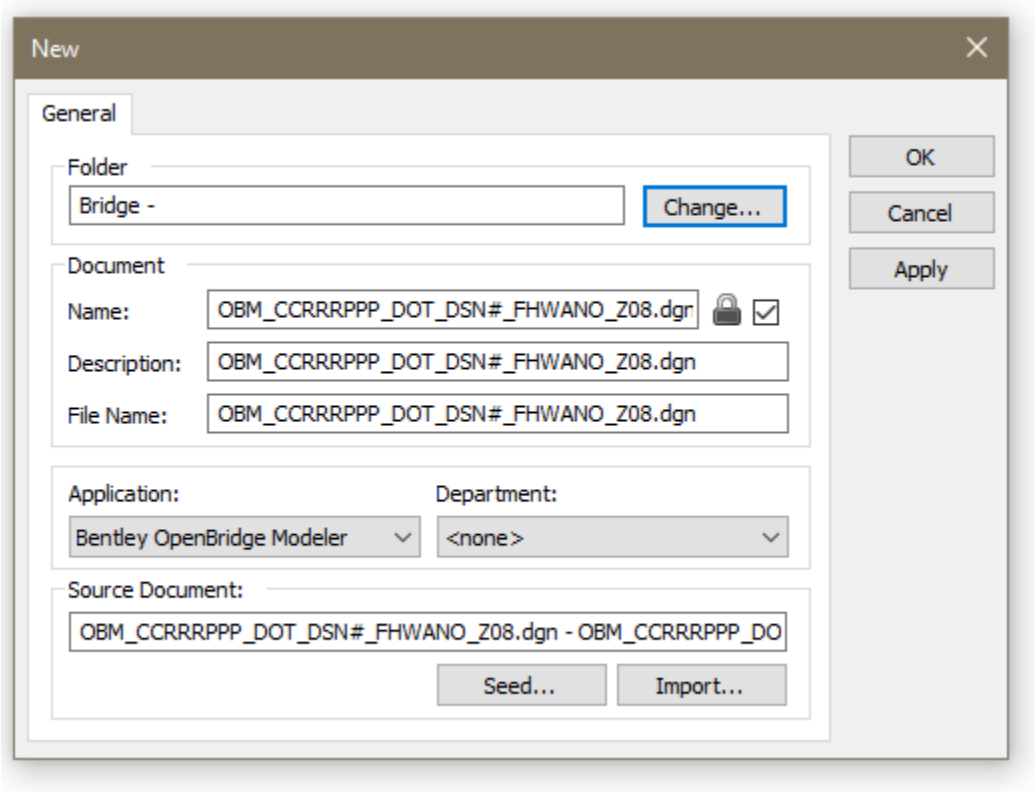


24. Select Open button.



25. Select Yes button.

26. The new dialog box displays.



27. Change the name of the file in Name field and add a proper description in Description field. Providing a good description with a location of the structure will help users in locating the proper file in a project.

    Name: **OBM_CCRRRPPP_DOT_DSN#_FHWANO_Z08.dgn**

    OBM = Designates this as an OpenBridge Modeler file.

    CCRRRPPP = County (CCC) Route (RRR) Paren (PPP) from the Project Number.

    DOT = Signifies entity responsible for creation of model (DOT = Iowa DOT). If the project is created by a Consultant, then DOT would be replaced with the Consultants abbreviated name.

    DSN# = Four-digit Design Number of structure.

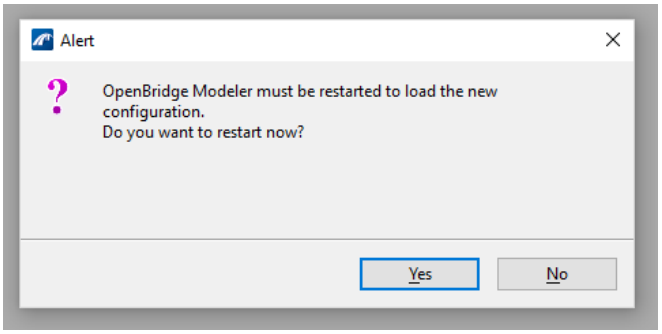
    FHWANO = The six-digit FHWA Number.

    Name Example: **OBM_77069117_DOT_0223_040681_Z08.dgn**
    Description Example: **Polk Co. Des. 223 Over Fourmile Creek**

Example listing of files.

Name	File Updated	Description
(245)_Bridge-Unspecified		
BRPrelim		
Design Events		
ProjectResources		
15-77-035-040-01_STRUCTURES_OVER_VIEW_Z08.dgn	10/6/2021 2:22:19 PM	Project Overview Polk-Story
7703504015.obdx	10/15/2021 9:52:01 AM	Designs Polk 223, 323 and Story 323, 423, 724
OBM_77035245_DOT_0423_040791_Z08.dgn	10/15/2021 9:51:40 AM	NE 126TH AVE (ELKHART INTERCHANGE) BRIDGE
OBM_77035246_DOT_0323_041871_Z08.dgn	6/23/2021 1:19:19 PM	NE 142ND AVE OVER I-35
OBM_77035305_DOT_0724_041891_Z08.dgn	6/23/2021 1:04:45 PM	NE 158TH AVE OVER I-35
OBM_85035269_DOT_0323_049141_Z08.dgn	6/23/2021 12:41:40 PM	315TH ST BRIDGE OVER I-35
OBM_85035284_DOT_0223_049011_Z08.dgn	6/23/2021 1:10:56 PM	IA 210 OVER I-35

28. Select Application field and change from MicroStation to Bentley OpenBridge Modeler.
29. Select Department field and change from <none> to Bridge – Bridge Design.
30. Click OK button.
31. Click Yes button for the configuration Alert and restart.

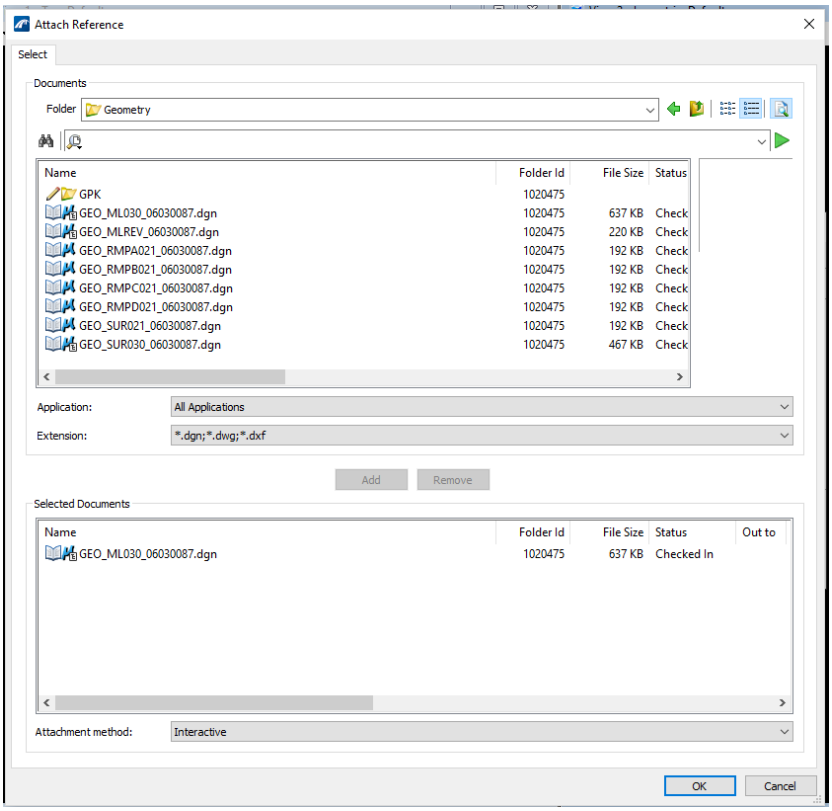


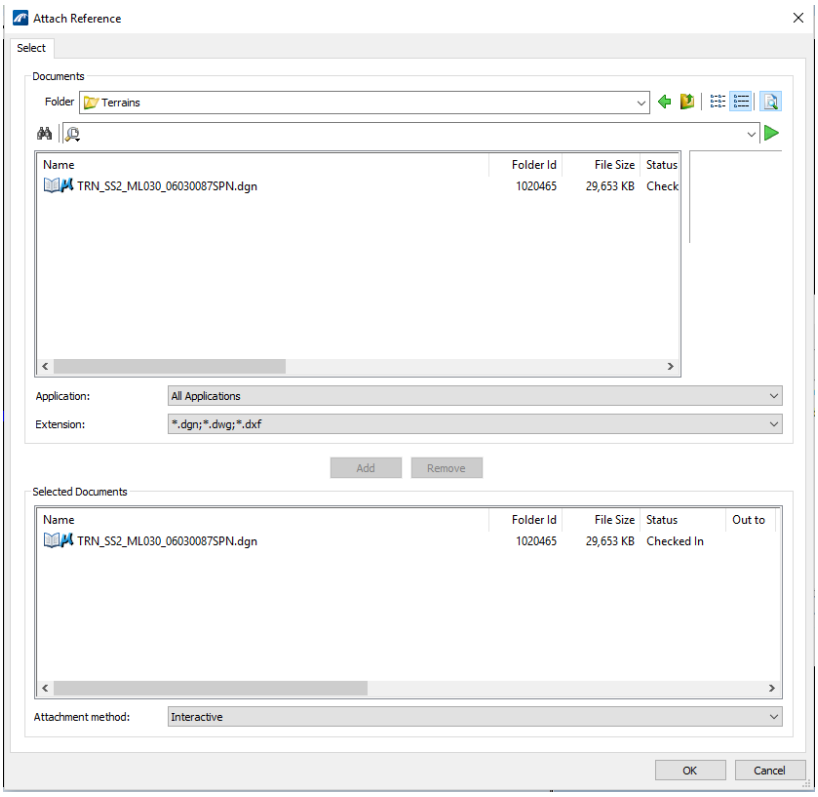
Note: Steps 16 -30 can be skipped if the file is created using Copy Seed.
Refer to CONNECT Seed Files and Naming Convention

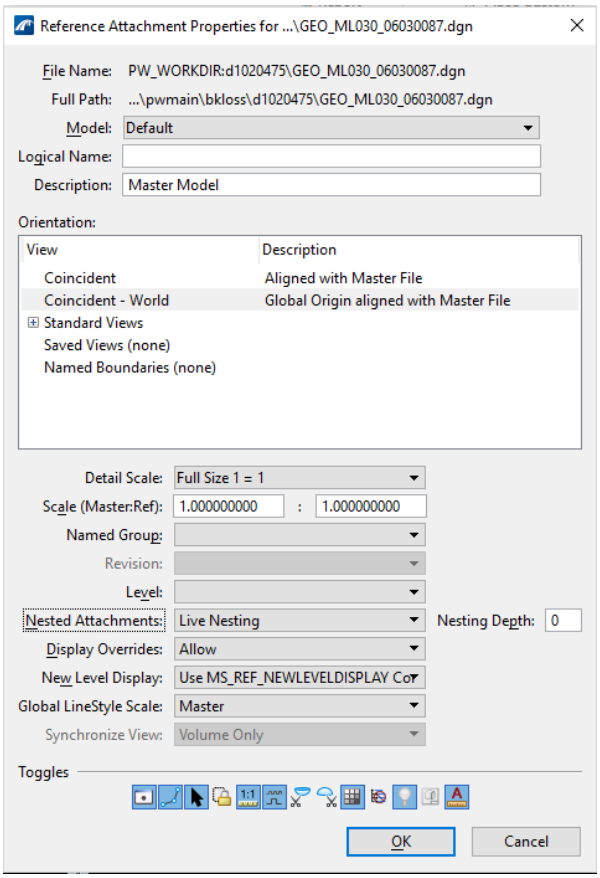
32. When OpenBridge Modeler completes loading, activate the OpenBridge Modeling workflow from the pick list in the upper left corner if it is not already active.
33. Reference the geometry and terrain files needed for the location of the bridge. Always use Coincident World orientation when referencing models.

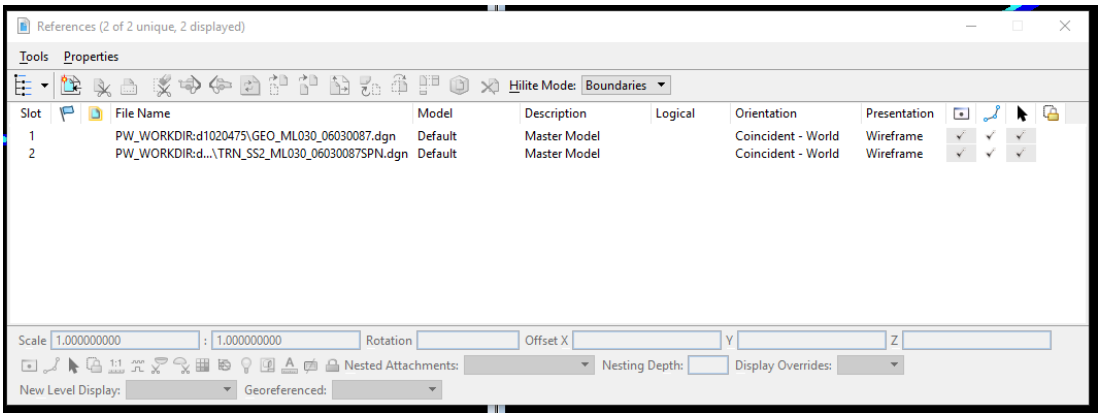
    GEO_ prefix named files are located at Design/CADD_Files/Geometry. This contains alignments and profiles for the project.

    TRN_ prefix named files are located at Design/CADD_Files/Terrains. This contains any terrain models for the project.


Attach Reference
Select
Documents
Folder Geometry
Name Folder Id File Size Status
GPK 1020475
GEO_ML030_06030087.dgn 1020475 637 KB Check
GEO_MLREV_06030087.dgn 1020475 220 KB Check
GEO_RMPA021_06030087.dgn 1020475 192 KB Check
GEO_RMPB021_06030087.dgn 1020475 192 KB Check
GEO_RMPC021_06030087.dgn 1020475 192 KB Check
GEO_RMPD021_06030087.dgn 1020475 192 KB Check
GEO_SUR021_06030087.dgn 1020475 192 KB Check
GEO_SUR030_06030087.dgn 1020475 467 KB Check
Application: All Applications
Extension: *.dgn;*.dwg;*.dxf
Add
Remove
Selected Documents
Name Folder Id File Size Status Out to
GEO_ML030_06030087.dgn 1020475 637 KB Checked In
Attachment method: Interactive
OK
Cancel

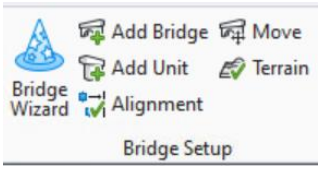

Attach Reference
Select
Documents
Folder Terrains
Name Folder Id File Size Status
TRN_SS2_ML030_06030087SPN.dgn 1020465 29,653 KB Check
Application: All Applications
Extension: *.dgn;*.dwg;*.dxf
Add
Remove
Selected Documents
Name Folder Id File Size Status Out to
TRN_SS2_ML030_06030087SPN.dgn 1020465 29,653 KB Checked In
Attachment method: Interactive
OK
Cancel



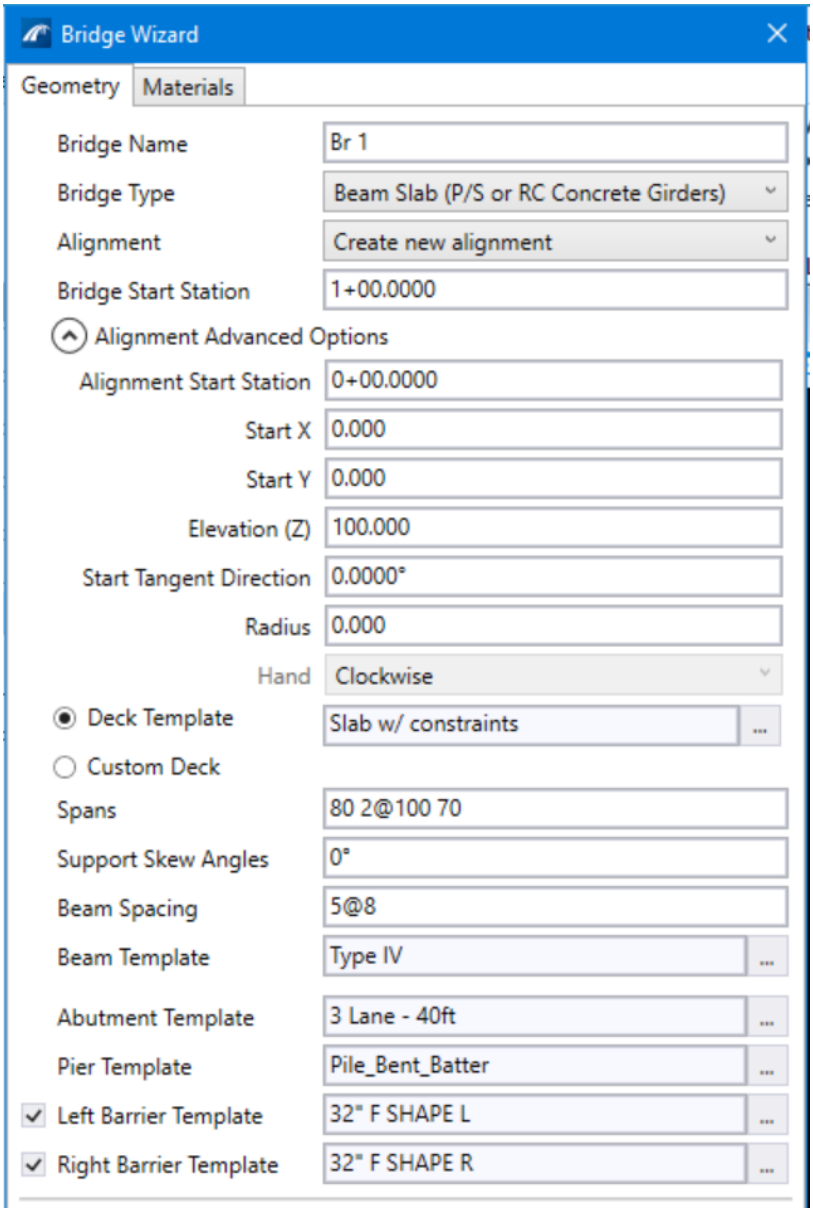


The referenced GEO file should always have Display on for bridge modeling. Turning this reference off may cause problems with the function of the model.

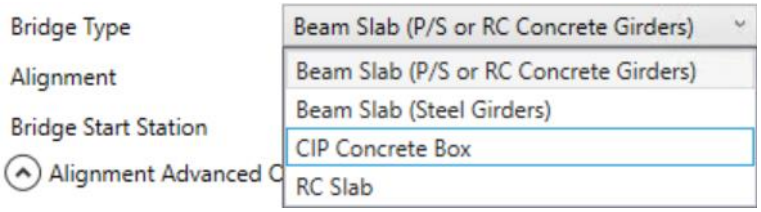
34. Fit the views to see the resulting geometry and terrain.
35. To begin modeling the bridge, select Bridge Wizard in the Bridge Setup tab of the ribbon.



36. Enter fields for the specifics of the bridge to place within the model.

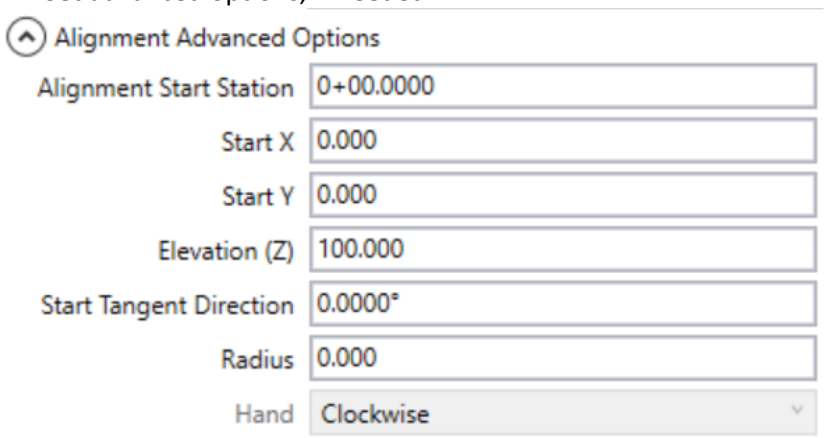


- Enter Bridge Name with County and Design Number. Example Polk Des. 223.
- Select Bridge Type for the specific bridge.



- Select Alignment from the available alignments in the attached referenced GEO file.

- Set advanced options, if needed.



- Select Deck Template from the template library.
- Enter Span lengths.
- Enter Skew Angle for support lines.
- Enter Beam Spacing.
- Select Beam Template from the template library.
- Select Abutment Template from the template library. Abutments available are not Iowa specific. The model will be modified to use a Custom Abutment.
- Select Pier Template from the template library.
- Select Barrier Template from the template library for both left and right barriers.

37. Click OK button.

The model will be placed at the appropriate location. Proceed with any modifications of various components.

Additional information on modifications will be added in the future.