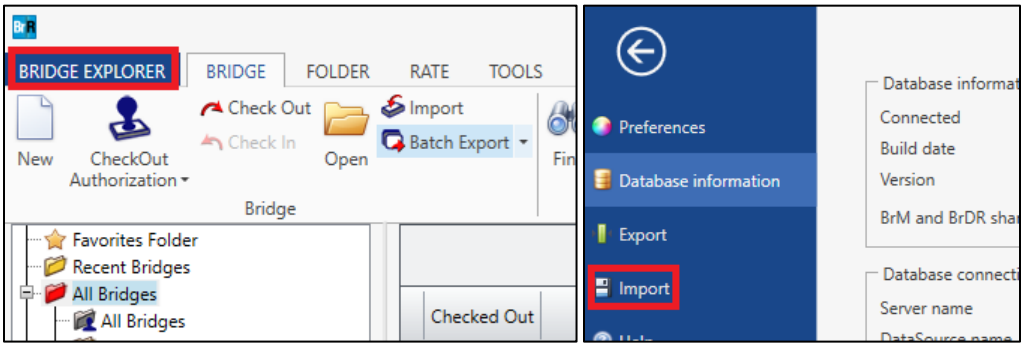
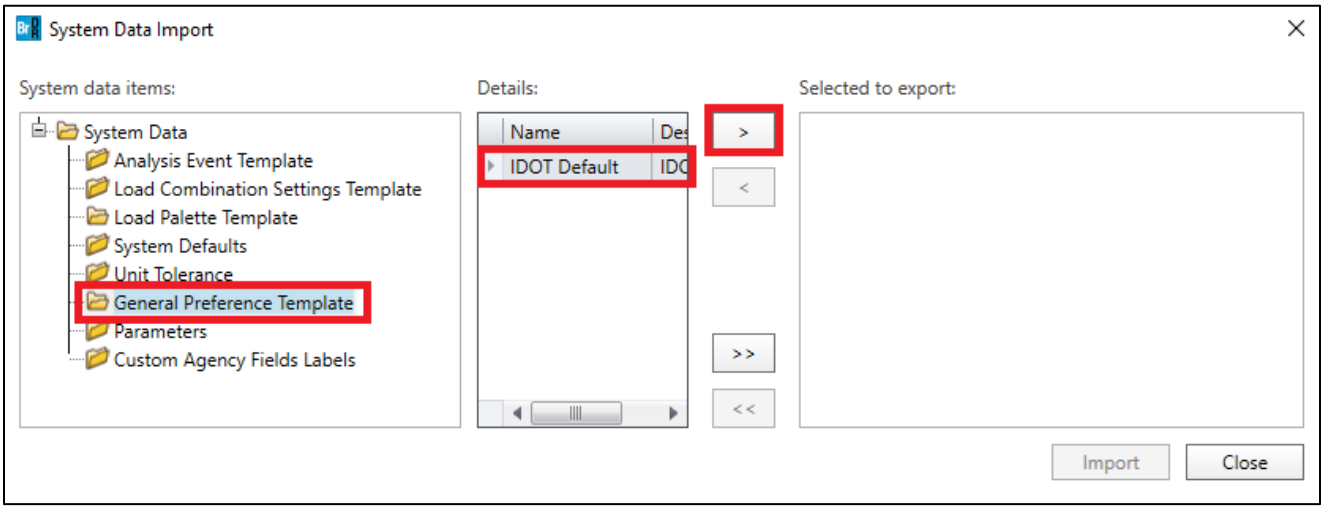
General Preferences:

The following steps describe how to import and setup IDOT default General Preferences.

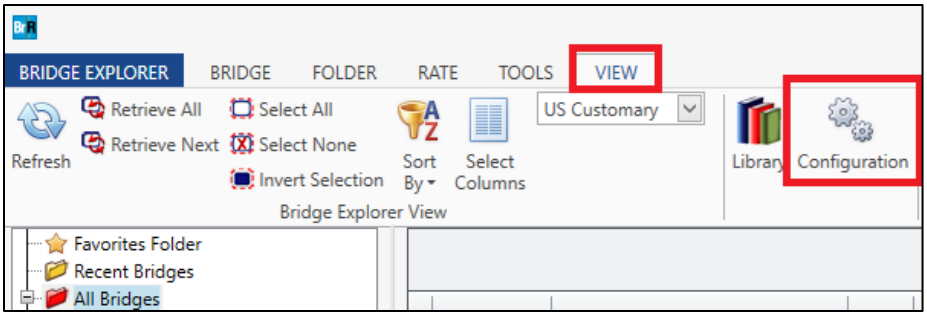
1. Download “Default General Preferences.brsx” from the IDOT Bridge Load Ratings website by clicking the link and extracting the resulting zip file.
2. Click the “Bridge Exporer” tab in the ribbon, click “Import”, select and open the .brsx file.



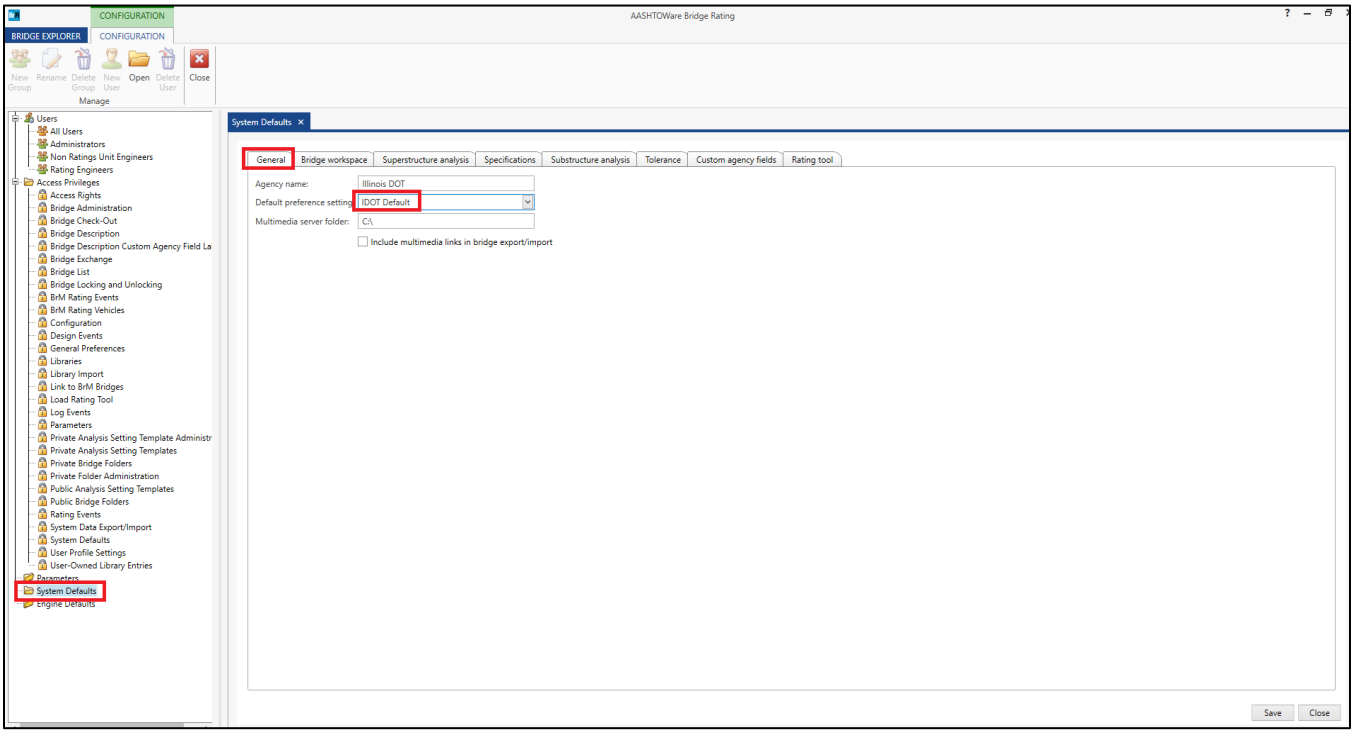
3. Click the “General Preference Template” folder, click “IDOT Default” in the Details, click the “>” button, and import the data.



4. The template will now be available in your currently active database, however it is not yet set as the default.
5. In order to set the “IDOT Default” General Preferences template as the default template used when new models are created, click the “View” tab in the Bridge Explorer ribbon and click “Configuration”.

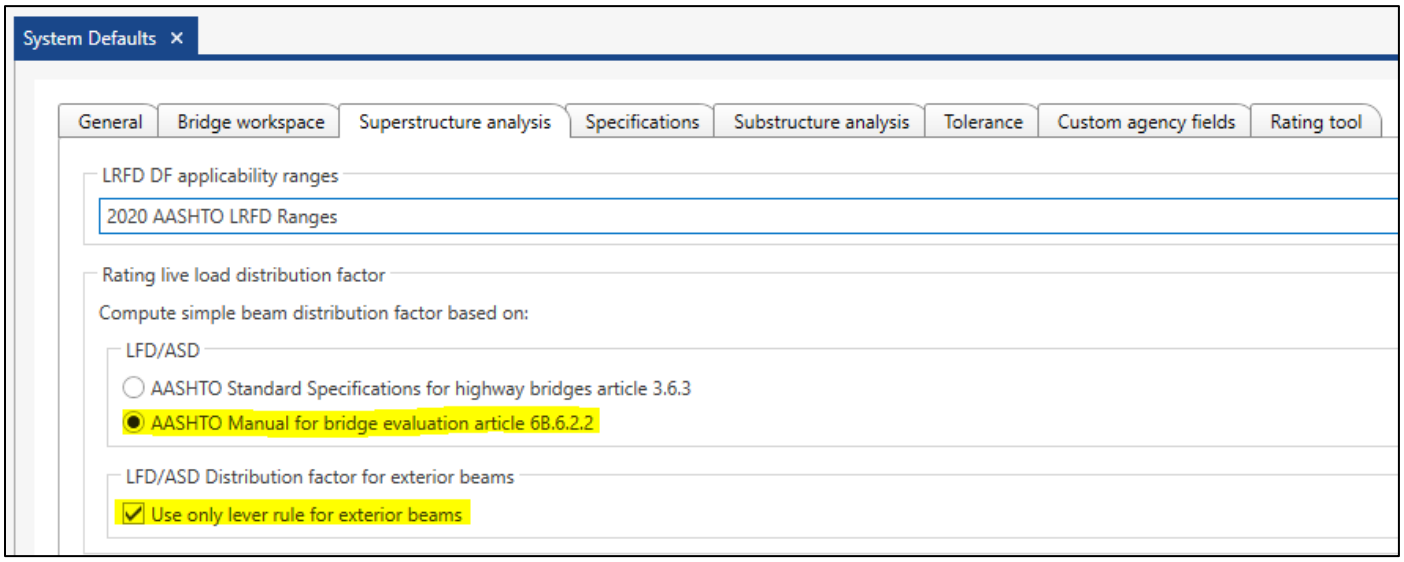


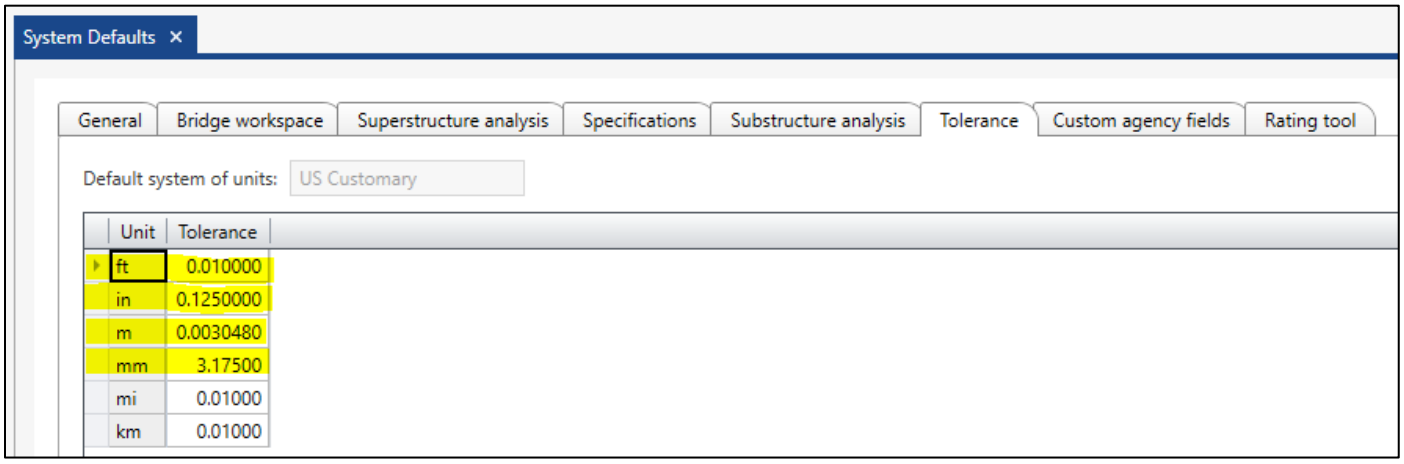
6. Double-click the “System Defaults” folder. Within the “General” tab, select “IDOT Default” from the “Default preference setting” dropdown. Click “Save” in the lower right corner and close the Configuration window.



System Defaults

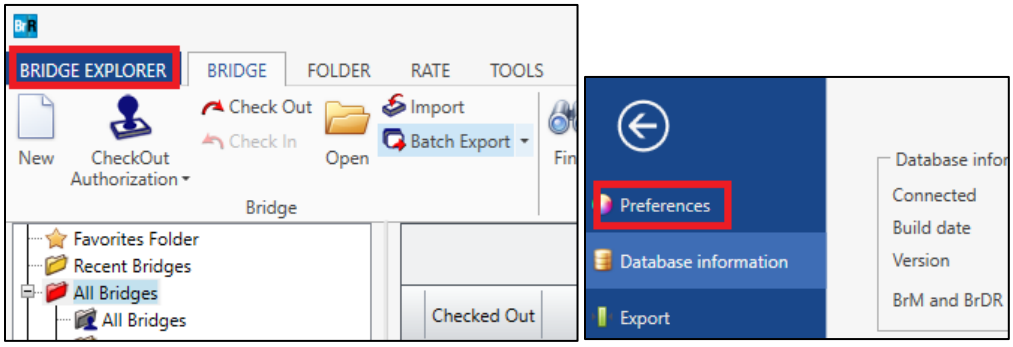
Within the “System Defaults” folder referenced previously, several other settings need to be setup as shown in the following images.

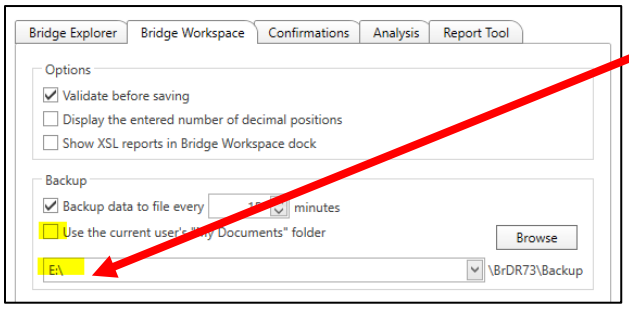




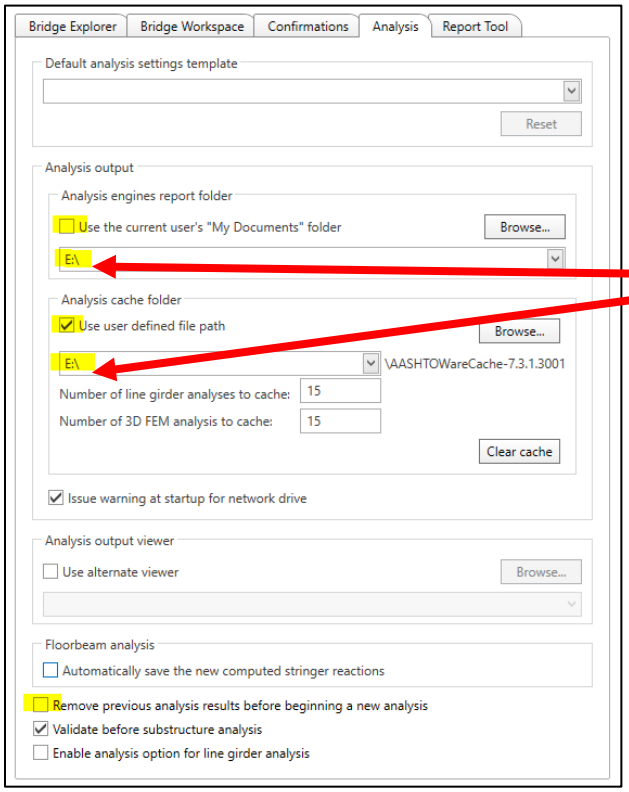
Preferences:

The following images show how to setup recommended Preference settings used by IDOT.





Local Solid-State Drive

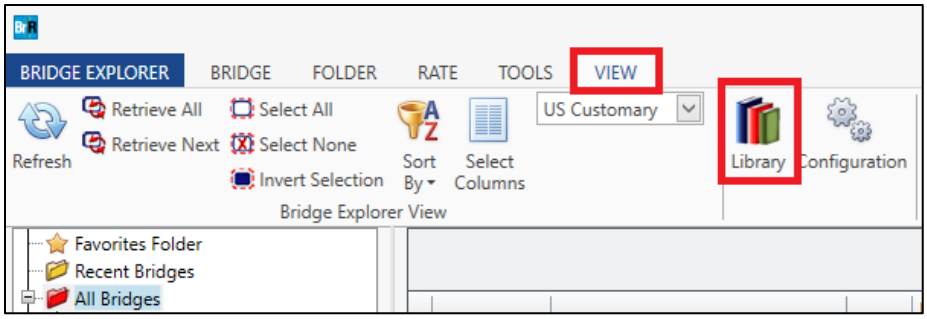


Local Solid-State Drive

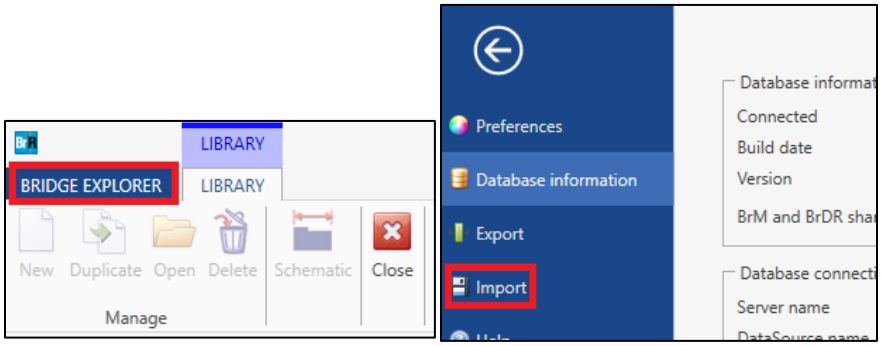
Libraries & Analysis Templates:

Library and analysis template files are available on the IDOT Bridge Load Ratings website. The following steps describe how to import these files.

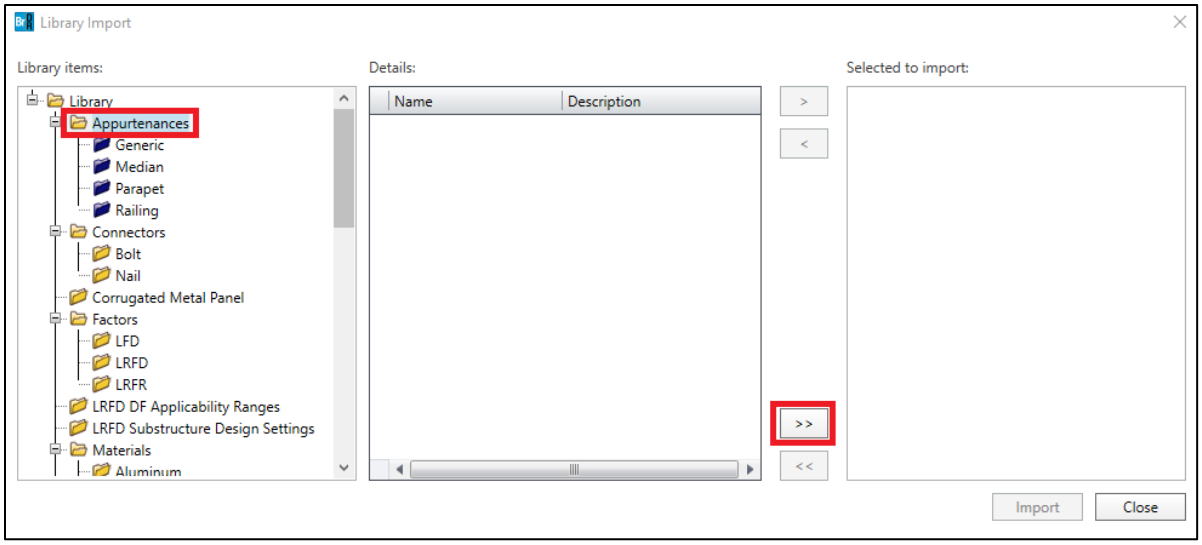
1. Download applicable library or analysis template file from the IDOT Bridge Load Ratings website by clicking the link and extracting the resulting zip file.
2. For libraries:
   a. Click the "View" tab in the Bridge Explorer ribbon and click "Library".



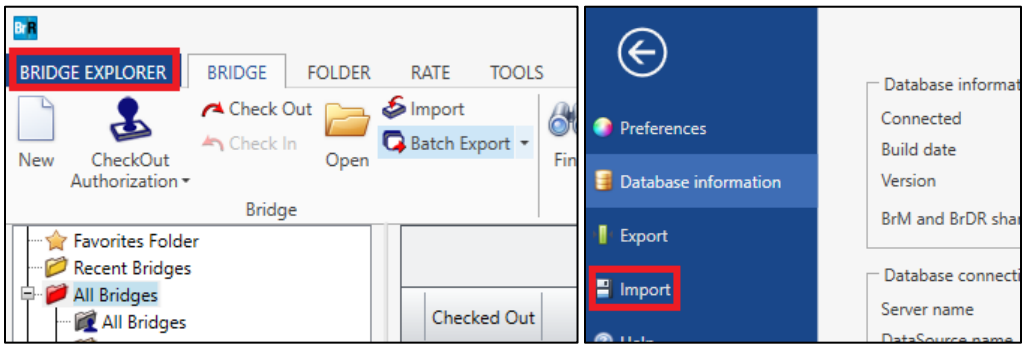
   b. Click the "Bridge Exporer" tab in the ribbon, click "Import", select and open the .brlx file.



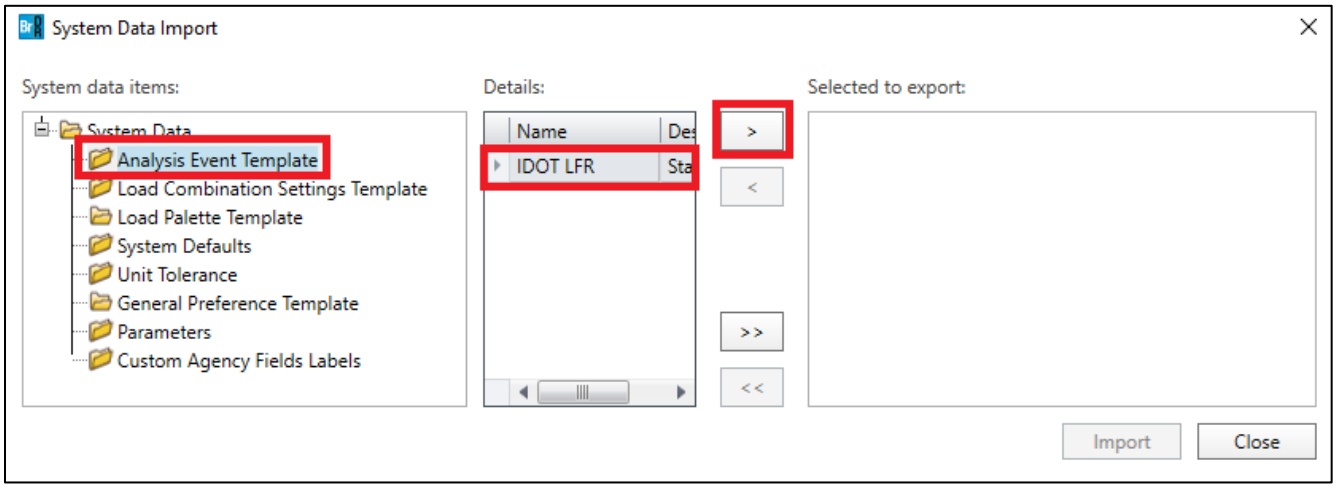
   c. Click the "Appurtenances", "Materials", "Prestress Shapes", or "Vehicles" folders as applicable, click the ">>" button, and import the data.



3. For analysis templates:
   a. Click the “Bridge Exporer” tab in the ribbon, click “Import”, select and open the .brsx file.



   b. Click the “Analysis Event Template” folder, click “IDOT LFR/LRFR” in the Details, click the “>” button, and import the data.



4. The libraries and templates will now be available in your currently active database.

STEEL
(updated 5/28/2024)

LRFD
- Points of Interest
  - ☑ Generate at tenth points
  - ☑ Generate at section change points
  - ☑ Generate at user-defined points
  - ☐ Generate at stiffeners
- ☐ Allow moment redistribution
- ☑ Use Appendix A6 for flexural resistance
- ☑ Allow plastic analysis
- ☐ Ignore long. reinf in negative moment capacity
- ☑ Consider deck reinf. development length[1]
- ☐ Must consider lateral bending stress for line girder[2]
- Distribution Factor Application Method
  - ○ By axle
  - ◉ By POI

LFD
- Points of Interest
  - ☑ Generate at tenth points
  - ☑ Generate at section change points
  - ☑ Generate at user-defined points
- ☐ Allow moment redistribution
- ☑ Allow plastic analysis of cover plates[4]
- ☐ Include field splices in rating[2]
- ☐ Include bearing stiffeners in rating[3]
- ☑ Allow plastic analysis[4]
- ☐ Ignore long. reinf in negative moment capacity
- ☑ Ignore overload operating rating
- ☐ Ignore shear
- ☑ Consider deck reinf. development length[1]
- ☑ Consider tension-field action in stiffened web end[3]
- Distribution Factor Application Method
  - ○ By axle
  - ◉ By POI

LRFR
- Points of Interest
  - ☑ Generate at tenth points
  - ☑ Generate at section change points
  - ☑ Generate at user-defined points
  - ☐ Generate at stiffeners
- ☐ Allow moment redistribution
- ☑ Use Appendix A6 for flexural resistance
- ☑ Allow plastic analysis[4]
- ☐ Evaluate remaining fatigue life
- ☐ Ignore long. reinf in negative moment capacity
- ☐ Include field splices in rating[2]
- ☑ Consider deck reinf. development length[1]
- ☑ Consider tension-field action in stiffened web end[3]
- ☐ Must consider lateral bending stress for line girder[2]
- Distribution Factor Application Method
  - ○ By axle
  - ◉ By POI

ASD
- Points of Interest
  - ☑ Generate at tenth points
  - ☑ Generate at section change points
  - ☑ Generate at user-defined points
- ☐ Ignore long. reinf in negative moment capacity
- ☑ Consider deck reinf. development length[1]
- ☐ Consider tension-field action in stiffened web end[3]

Typical Additional Self-Load for Steel:

	Diaphragm Load Specified in Framing Plan?	
Girder Type	**No**	**Yes**
Rolled	10%	5%
Plate (w/o intermed. stiff.)	10%	5%
Plate (w/ intermed. stiff.)	15%	10%
Built-Up	20%	15%

[1]Not used for Built-Up Members.
[2]Not used for Floorbeams & Stringers.
[3]Not used for Floorbeams.
[4]Unchecked for riveted members, or when plans are missing, or when Fy > 70 ksi.

NORMALLY REINFORCED CONCRETE
(updated 5/28/2024)

LRFD

- Points of Interest
  - ☑ Generate at tenth points except supports
  - ☑ Generate at support points[1]
  - ☑ Generate at support face & critical shear points
  - ☑ Generate at section change points
  - ☑ Generate at user-defined points
- Shear Computation Method
  - ○ Ignore
  - ◉ General Procedure
  - ○ General Procedure - Appendix B5
  - ○ Simplified Procedure
  - ○ Simplified Procedure - Vci, Vcw
- ☐ Consider inclined flexural forces
- Distribution Factor Application Method
  - ○ By Axle
  - ◉ By POI
- ☐ Consider skew reduction factor[2]
- ☐ Allow negative epsilon in general shear method
- ☑ Consider sloped portion of bent long. reinf.[3]

LFD

- Points of Interest
  - ☑ Generate at tenth points except supports
  - ☑ Generate at support points
  - ☑ Generate at support face & critical shear points
  - ☑ Generate at section change points
  - ☑ Generate at user-defined points
- ☐ Ignore shear[4]
- Distribution Factor Application Method
  - ○ By Axle
  - ◉ By POI
- ☑ Consider sloped portion of bent long. reinf.[3]

LRFR

- Points of Interest
  - ☑ Generate at tenth points except supports
  - ☑ Generate at support points[1]
  - ☑ Generate at support face & critical shear points
  - ☑ Generate at section change points
  - ☑ Generate at user-defined points
- Shear Computation Method
  - ○ Ignore[4]
  - ◉ General Procedure
  - ○ General Procedure - Appendix B5
  - ○ Simplified Procedure
  - ○ Simplified Procedure - Vci, Vcw
- ☐ Ignore design & legal load shear[4]
- ☐ Ignore permit load shear[4]
- ☑ Consider permit load tensile steel stress
- ☐ Ignore long. reinf. in rating
- ☐ Consider inclined flexural forces
- Distribution Factor Application Method
  - ○ By Axle
  - ◉ By POI
- ☐ Consider skew reduction factor[2]
- ☐ Allow negative epsilon in general shear method
- ☑ Consider sloped portion of bent long. reinf.[3]

ASD

- Points of Interest
  - ☑ Generate at tenth points except supports
  - ☑ Generate at support points
  - ☑ Generate at support face & critical shear points
  - ☑ Generate at section change points
  - ☑ Generate at user-defined points
- Shear Computation Method
  - ○ Ignore[4]
  - ○ Use AASHTO 1973 or earlier code
  - ○ Use AASHTO 1974 interim
  - ◉ Use current AASHTO
- ☑ Consider sloped portion of bent long. reinf.[3]

[1]May be turned off for non-continuous superstructures.
[2]Not used for I-Beams & T-Beams.
[3]Not used for I-Beams.
[4]Ignore Shear for Slabs

PRESTRESSED CONCRETE
(updated 5/28/2024)

LRFD

- Points of Interest
  - ☑ Generate at tenth points except supports
  - ☑ Generate at support points[1]
  - ☑ Generate at support face & critical shear points
  - ☑ Generate at section change points
  - ☑ Generate at user-defined points
- Shear Computation Method
  - ○ Ignore
  - ◉ General Procedure
  - ○ General Procedure - Appendix B5
  - ○ Simplified Procedure
  - ○ Simplified Procedure - Vci, Vcw
- Loss & Stress Calculations
  - ◉ Use gross section properties
  - ○ Use transformed section properties
- Multi-span analysis
  - ◉ Continuous
  - ○ Continuous and Simple
- ☐ Consider splitting resistance article
- ☑ Consider deck reinf. development length
- Distribution Factor Application Method
  - ○ By Axle
  - ◉ By POI
- ☐ Allow negative epsilon in general shear method

LFD

- Points of Interest
  - ☑ Generate at tenth points except supports
  - ☑ Generate at support points
  - ☑ Generate at support face & critical shear points
  - ☑ Generate at section change points
  - ☑ Generate at user-defined points
- Shear Computation Method
  - ○ Ignore
  - ○ Use AASHTO 1979 Interim code[2]
  - ◉ Use current AASHTO
- Distribution Factor Application Method
  - ○ By Axle
  - ◉ By POI
- ☐ Consider moment capacity reduction
- ☑ Consider deck reinf. development length

LRFR

- Points of Interest
  - ☑ Generate at tenth points except supports
  - ☑ Generate at support points[1]
  - ☑ Generate at support face & critical shear points
  - ☑ Generate at section change points
  - ☑ Generate at user-defined points
- Shear Computation Method
  - ○ Ignore
  - ◉ General Procedure
  - ○ General Procedure - Appendix B5
  - ○ Simplified Procedure
  - ○ Simplified Procedure - Vci, Vcw
- Loss & Stress Calculations
  - ◉ Use gross section properties
  - ○ Use transformed section properties
- Multi-span analysis
  - ◉ Continuous
  - ○ Continuous and Simple
- ☐ Ignore design & legal load shear
- ☐ Ignore permit load shear
- ☐ Consider legal load tensile concrete stress
- ☐ Consider splitting resistance article
- ☐ Ignore tensile rating in top of beam
- ☑ Consider deck reinf. development length
- ☑ Consider permit load tensile steel stress
- ☐ Ignore long. reinf. in rating
- Distribution Factor Application Method
  - ○ By Axle
  - ◉ By POI
- ☐ Allow negative epsilon in general shear method

[1]May be turned off for non-continuous superstructures, e.g. simple span PPC deck beams.
[2]1979 Interim may be used for load rating purposes only, it must be turned off for special/limited crossing permit analysis.

RC BOX CULVERT
(updated 5/28/2024)

LRFD
- Points of Interest
  - ☑ Generate at tenth points except supports
  - ☑ Generate at section change points
  - ☑ Generate at user-defined points
- Shear Computation Method
  - ○ Ignore
  - ◉ General Procedure
  - ○ Simplified Procedure
- ☐ Exclude bottom slab
- ☐ Include haunch stiffness in FE model
- Strength Design Method
  - ◉ RC Box
  - ○ RC Pipe

LRFR
- Points of Interest
  - ☑ Generate at tenth points except supports
  - ☑ Generate at section change points
  - ☑ Generate at user-defined points
- Shear Computation Method
  - ○ Ignore[1]
  - ◉ General Procedure
  - ○ Simplified Procedure
- ☑ Exclude bottom slab
- ☑ Include haunch stiffness in FE model
- Strength Design Method
  - ◉ RC Box
  - ○ RC Pipe
- ☐ Consider modified shear strain capacity
- ☐ Ignore effects from negligible LL

LFD
- Points of Interest
  - ☑ Generate at tenth points except supports
  - ☑ Generate at section change points
  - ☑ Generate at user-defined points
- ☐ Ignore shear[1]
- ☑ Exclude bottom slab
- ☑ Include haunch stiffness in FE model
- ☐ Ignore effects from negligible LL

[1]Ignore Shear when fill height < 2.0'

METAL PIPE CULVERT

(updated 5/28/2024)

LRFR

- ☑ Consider Duncan and Drawsky plastic moment
- ☑ Consider multiple loaded lanes
- ☐ Ignore effects from negligible LL

LFD

- ☑ Consider Duncan and Drawsky plastic moment
- ☑ Consider multiple loaded lanes
- ☐ Ignore effects from negligible LL

MULTI-CELL BOX CULVERT
(updated 5/28/2024)

LRFD
- Points of Interest
  - ☑ Generate at tenth points except supports
  - ☑ Generate at section change points
  - ☑ Generate at user-defined points
  - ☑ Generate at support points
  - ☑ Generate at support face and critical shear points
- Shear Computation Method
  - ○ Ignore
  - ◉ General Procedure
  - ○ General Procedure - Appendix B5
  - ○ Simplified Procedure
  - ○ Simplified Procedure - Vci, Vcw
- ☐ Consider inclined flexural forces
- ☐ Ignore moment skew reduction factor
- Distribution Factor Application Method
  - ○ By axle
  - ◉ By POI
- ☐ Allow negative epsilon in general shear method
- ☐ Ignore flexure

LFD
- Points of Interest
  - ☑ Generate at tenth points except supports
  - ☑ Generate at section change points
  - ☑ Generate at user-defined points
  - ☑ Generate at support points
  - ☑ Generate at support face and critical shear points
- ☐ Ignore shear[1]
- Distribution Factor Application Method
  - ○ By axle
  - ◉ By POI
- ☐ Ignore flexure

LRFR
- Points of Interest
  - ☑ Generate at tenth points except supports
  - ☑ Generate at section change points
  - ☑ Generate at user-defined points
  - ☑ Generate at support points
  - ☑ Generate at support face and critical shear points
- Shear Computation Method
  - ○ Ignore
  - ◉ General Procedure
  - ○ General Procedure - Appendix B5
  - ○ Simplified Procedure
  - ○ Simplified Procedure - Vci, Vcw
- ☐ Ignore design and legal load shear
- ☐ Ignore permit load shear
- ☑ Consider permit load tensile steel stress
- ☐ Ignore long. reinf in rating
- ☐ Consider inclined flexural forces
- ☐ Ignore moment skew reduction factor
- Distribution Factor Application Method
  - ○ By axle
  - ◉ By POI
- ☐ Allow negative epsilon in general shear method
- ☐ Ignore flexure

ASD
- Points of Interest
  - ☑ Generate at tenth points except supports
  - ☑ Generate at section change points
  - ☑ Generate at user-defined points
  - ☑ Generate at support points
  - ☑ Generate at support face and critical shear points
- Shear Computation Method[1]
  - ○ Ignore
  - ○ Use AASHTO 1973 or earlier code
  - ○ Use AASHTO 1974 interim
  - ◉ Use current AASHTO
- ☐ Ignore flexure

[1]Ignore Shear when using LFD or ASD and fill height < 2.0'

BrDR Model Name Acronyms

Acronym	1st Position Material	2nd Position Type/Shape	3rd Position Configuration	Long Name
CBC	Concrete	Box	Continuous	Cast-In-Place Reinforced Concrete Box Culvert Continuous
CBS	Concrete	Box	Simple	Cast-In-Place Reinforced Concrete Box Culvert Simple
CRC	Concrete	Rigid Box	Continuous	Cast-In-Place Reinforced Concrete Rigid Box Culvert Continuous
CRS	Concrete	Rigid Box	Single	Cast-In-Place Reinforced Concrete Rigid Box Culvert Single-Cell
PRS	Precast Concrete	Rigid Box	Single	Precast Reinforced Concrete Rigid Box Culvert Single-Cell
CSC	Concrete	Slab	Continuous	Reinforced Concrete Slab Continuous
CSH	Concrete	Slab	Haunched	Reinforced Concrete Slab Haunched
CSS	Concrete	Slab	Simple	Reinforced Concrete Slab Simple
CTC	Concrete	Tee Beam	Continuous	Reinforced Concrete Tee Beam Continuous
CTH	Concrete	Tee Beam	Haunched	Reinforced Concrete Tee Beam Haunched
CTS	Concrete	Tee Beam	Simple	Reinforced Concrete Tee Beam Simple
PCS	Precast Concrete	Channel Beam	Simple	Precast Reinforced Concrete Channel Beam
PDS	Prestressed Concrete	Deck Beam	Simple	Prestressed Concrete Deck Beam
PES	Prestressed Concrete	Spread Box Beam	Simple	Prestressed Concrete Spread Box Beam
PBC	Prestressed Concrete	Bulb-Tee Beam	Continuous	Prestressed Concrete Bulb-Tee Beam Continuous
PBS	Prestressed Concrete	Bulb-Tee Beam	Simple	Prestressed Concrete Bulb-Tee Beam Simple
PIC	Prestressed Concrete	I-Beam	Continuous	Prestressed Concrete I-Beam Continuous
PIS	Prestressed Concrete	I-Beam	Simple	Prestressed Concrete I-Beam Simple
PXC	Prestressed Concrete	IL-Beam	Continuous	Prestressed Concrete IL-Beam Continuous
PXS	Prestressed Concrete	IL-Beam	Simple	Prestressed Concrete IL-Beam Simple
SPC	Steel	Welded Plate Girder	Continuous	Steel Welded Plate Girder Continuous
SPS	Steel	Welded Plate Girder	Simple	Steel Welded Plate Girder Simple
SRC	Steel	Riveted Plate Girder	Continuous	Steel Riveted Plate Girder (Built-Up) Continuous
SRS	Steel	Riveted Plate Girder	Simple	Steel Riveted Plate Girder (Built-Up) Simple
STC	Steel	Truss	Continuous	Steel Truss Continuous
STS	Steel	Truss	Simple	Steel Truss Simple
SWC	Steel	Wide Flange Beam	Continuous	Steel Wide Flange Beam Continuous
SWS	Steel	Wide Flange Beam	Simple	Steel Wide Flange Beam Simple
TBC	Timber	Beam	Continuous	Timber Beam Continuous
TBS	Timber	Beam	Simple	Timber Beam Simple
TSC	Timber	Slab	Continuous	Timber Slab Continuous
TSS	Timber	Slab	Simple	Timber Slab Simple
MPS	Metal	Pipe	Simple	Corrugated/Spiral Rib/Structural Plate Metal Pipe Culvert