The PGSuper Professional Complement to BrDR

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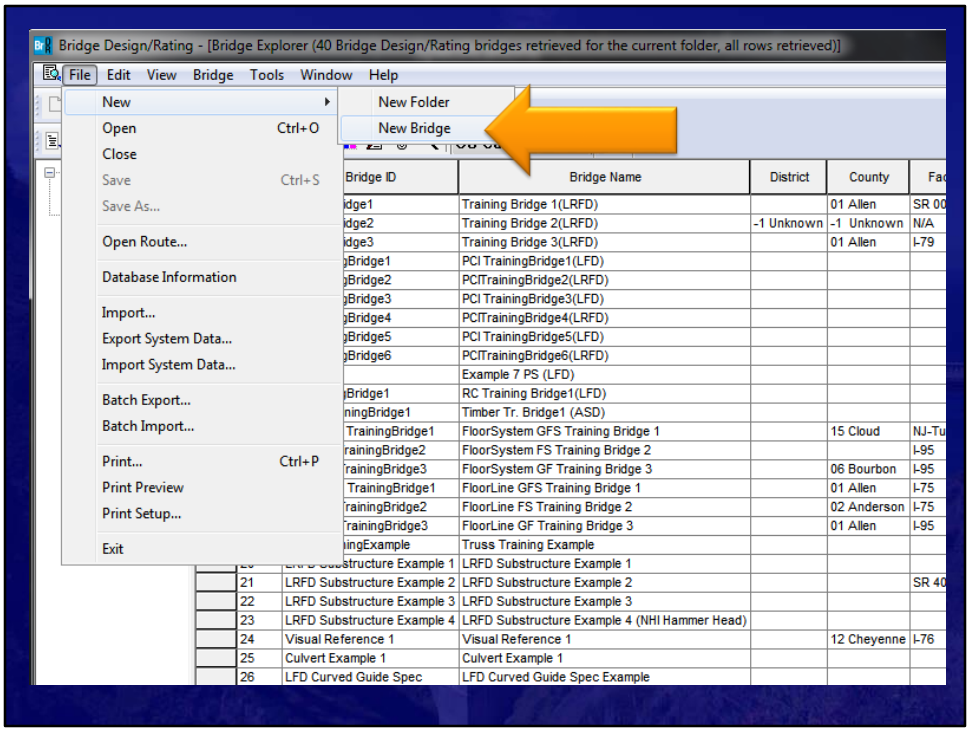
BridgeSight Software™

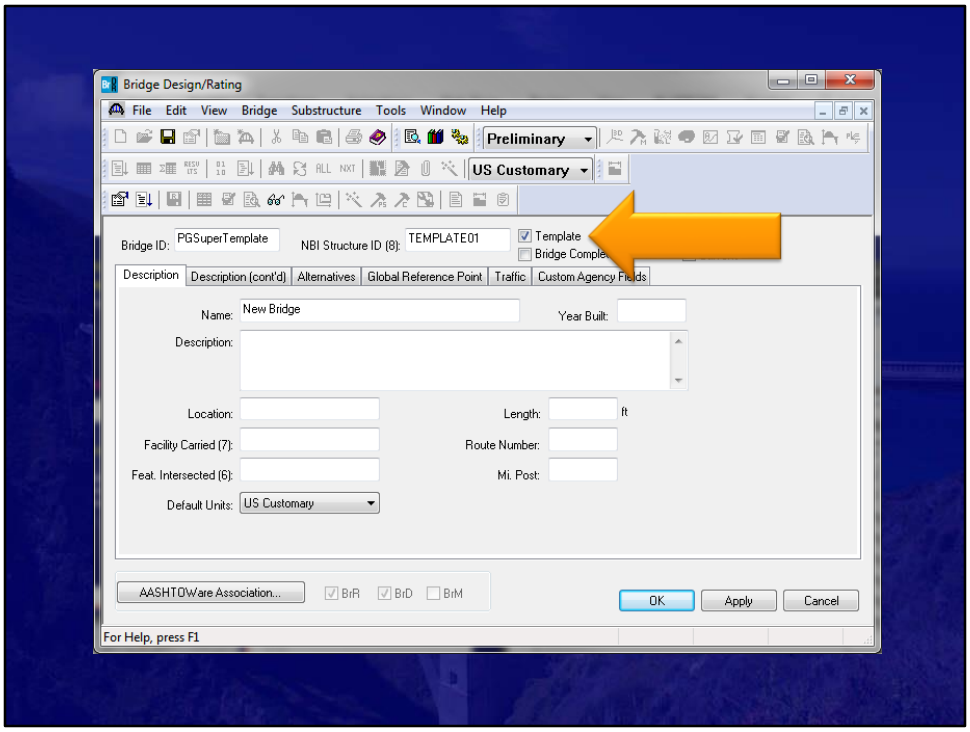
Kansas Department of Transportation

PGSuper Professional™ Export To BrDR

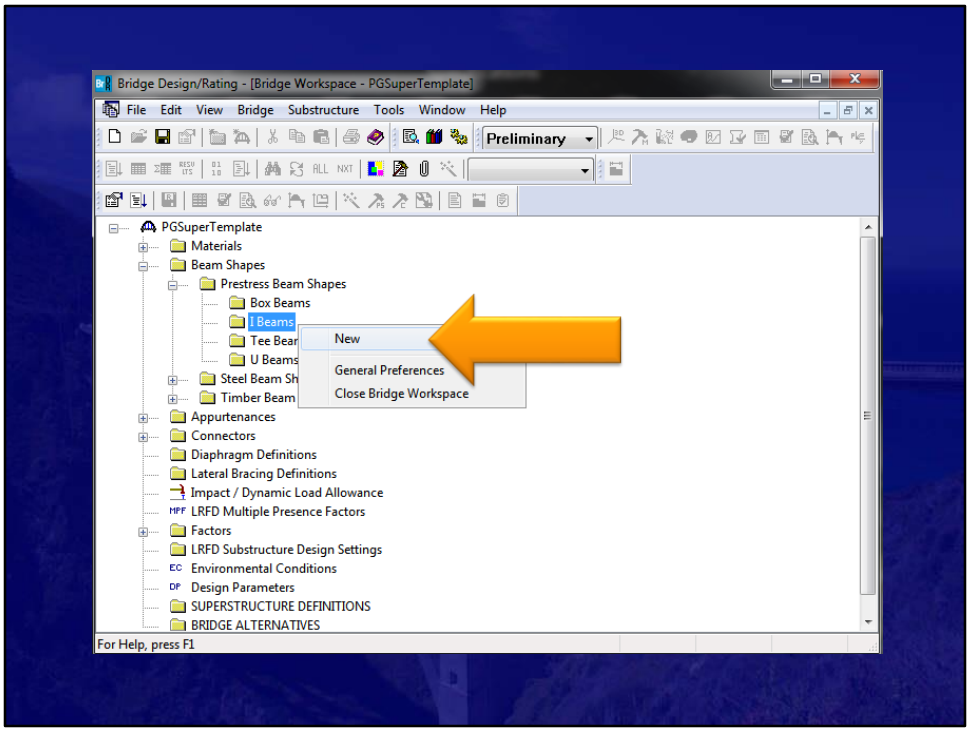
- Process Begins with BrDR
  - Create Template Bridge in Database
  - Add Prestress Sections to Beam Shapes
  - Add Railing to Appurtenances
  - Add LFRD Factors



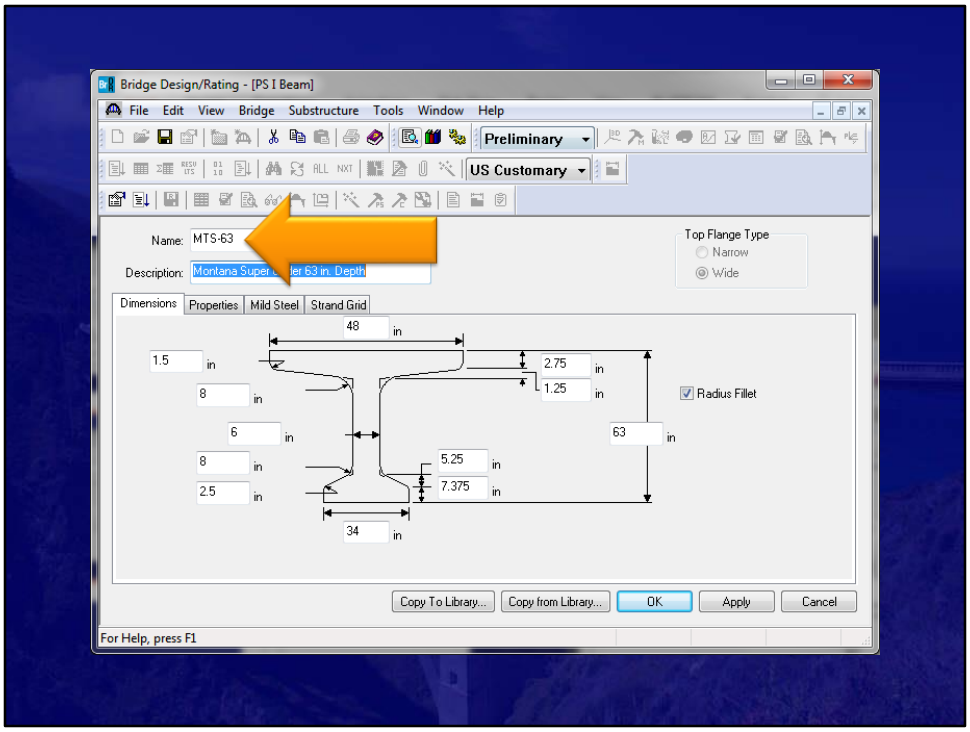
First Create a template bridge for The Translator to use.



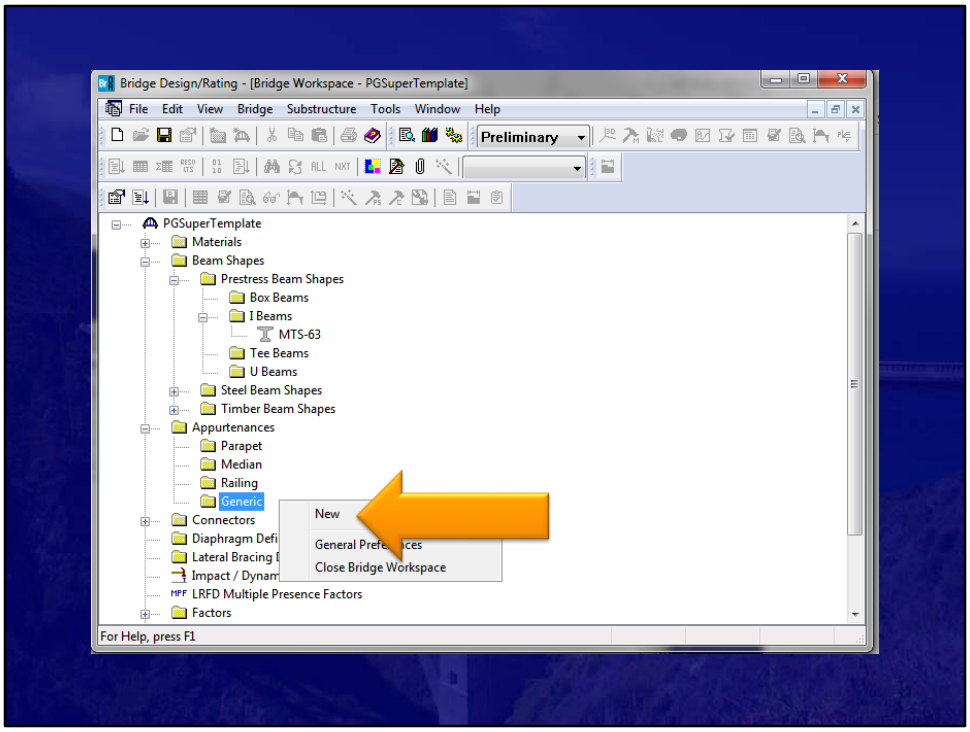
Enter the Unique Bridge ID/ NBI ID combination.
Select “Template” checkbox



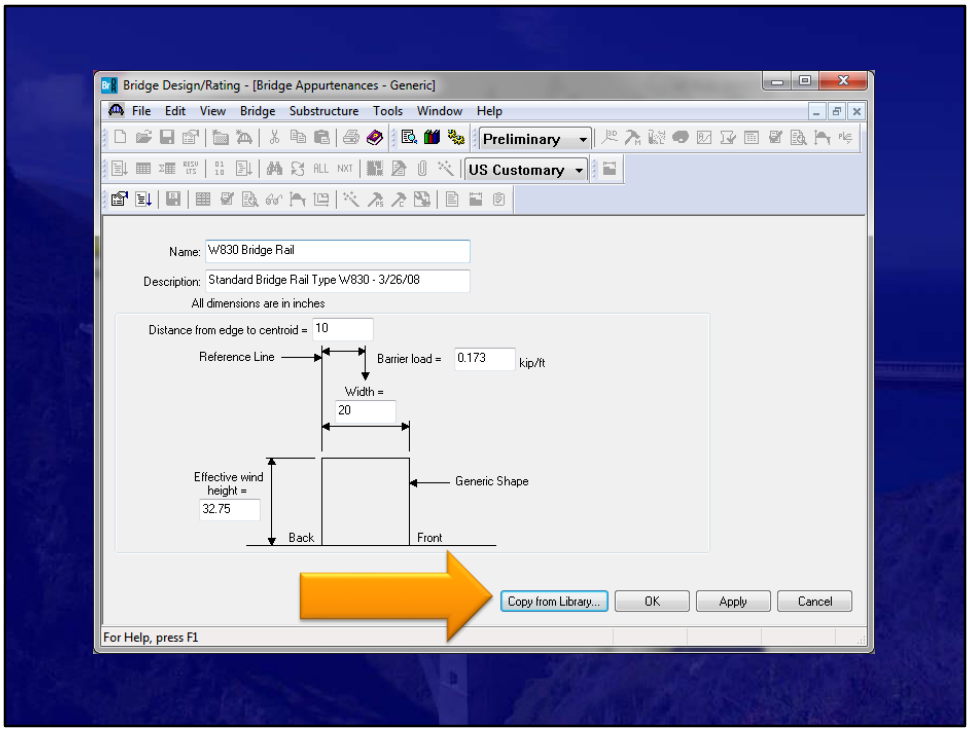
Add the beam shapes you plan on using in your PGSuper model.



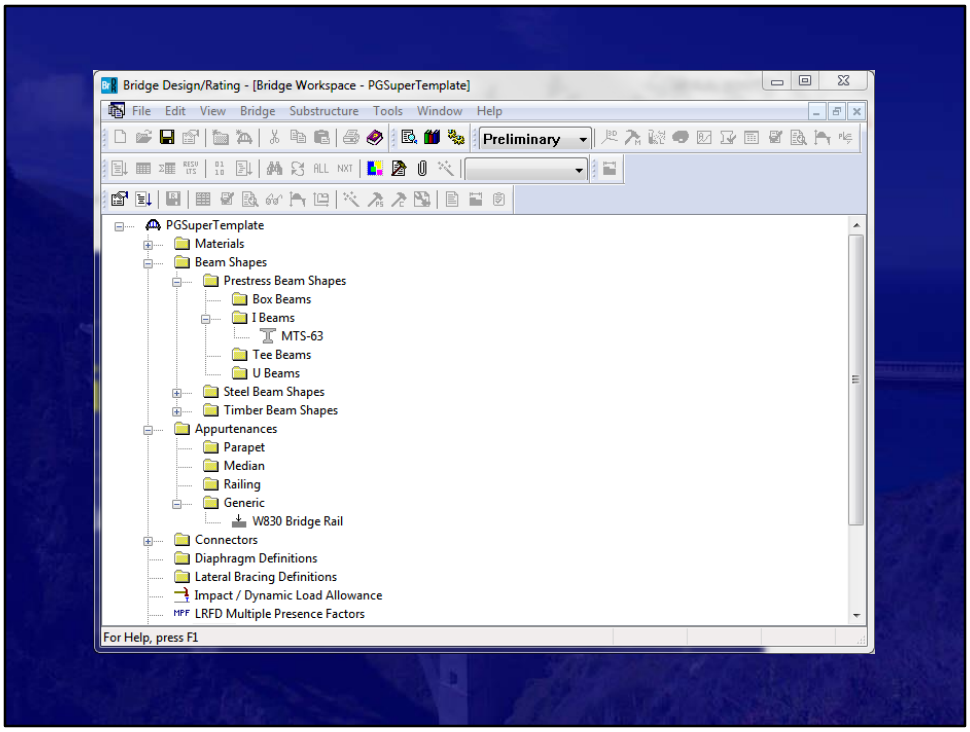
You have to make sure that the shapes you add have the same name as the ones in the PGSuper Library.
You also need to make sure the strand pattern matches as well.



Now add typical railings you will use.



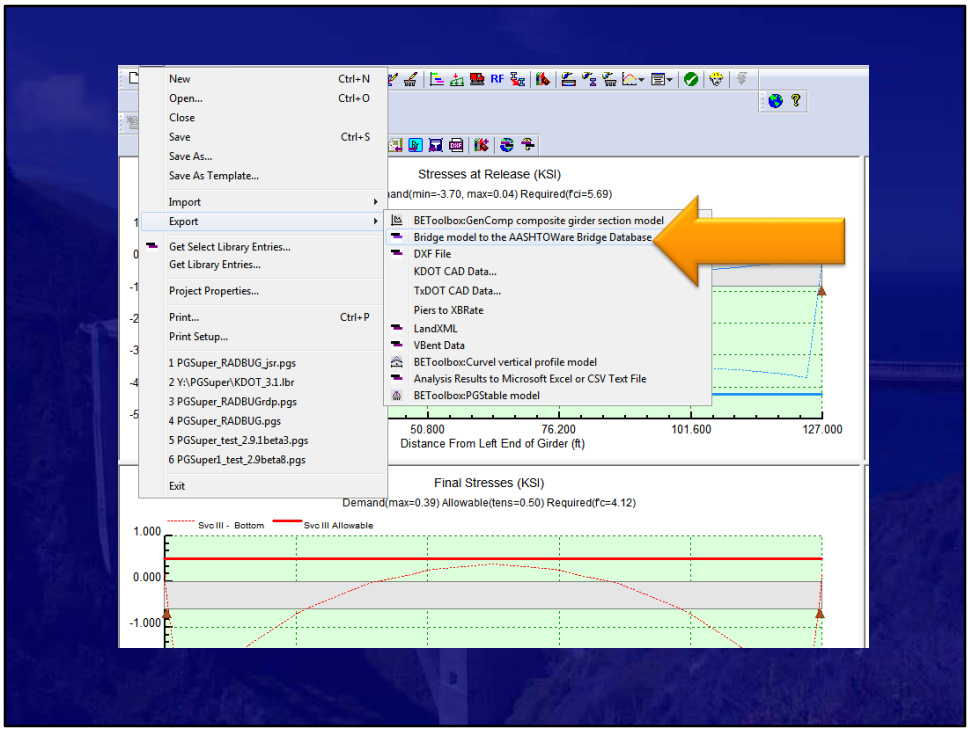
It is always nice to use what you already have define in the Library.
Once you create your standard Beam shapes and Railings in the PGSuper Library that match what you have in the AASHTOWare BrDR Library, creating templates are easy.

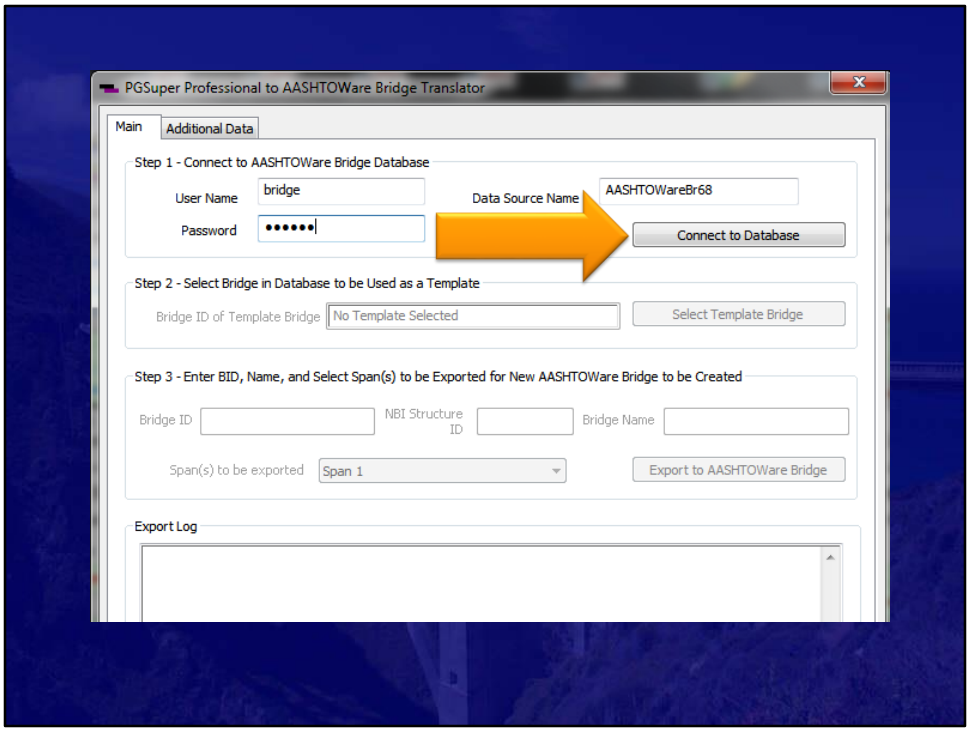


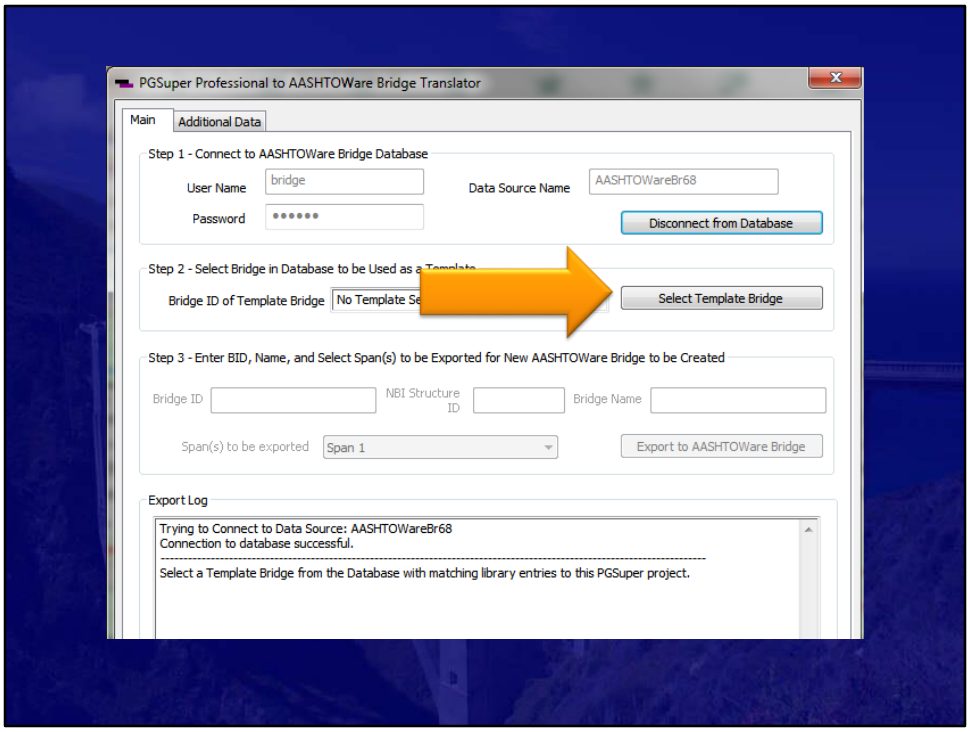
Now that we have the Beam shapes and Railings we are going to use, save this bridge template to the database.
This is all the setup we need to do in BrDR before we export from PGSuper.
And, once you set up this template bridge, you will not need to modify it unless you add new rails or sections in the future.
It is your choice to have one template that includes everything, or have a template for each family of girders you use.

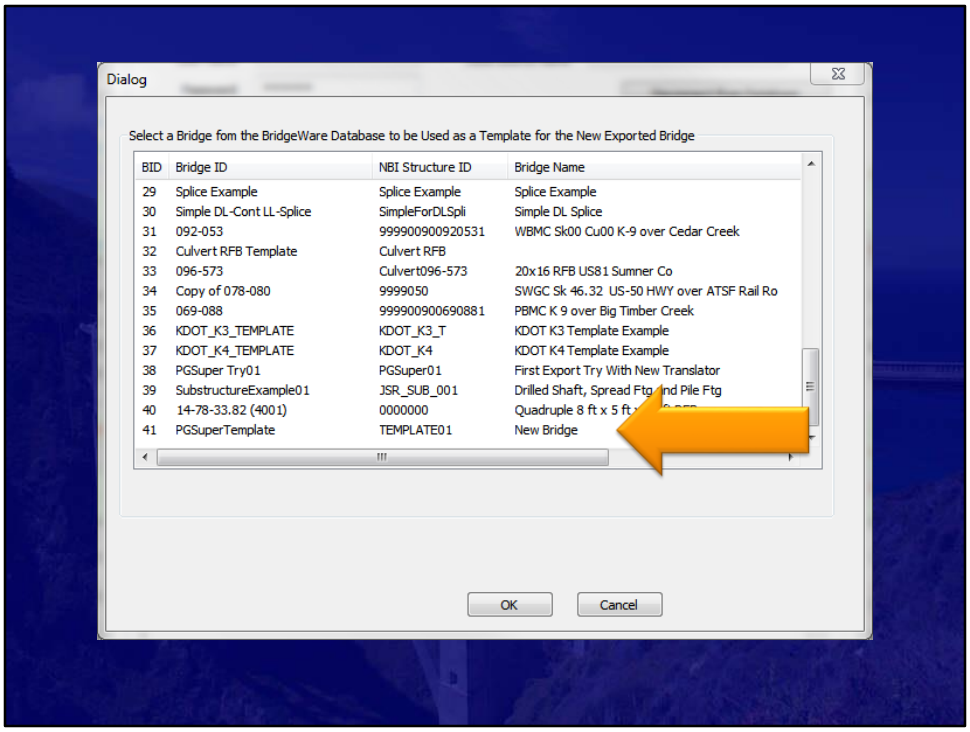
PGSuper Professional™ Export To BrDR

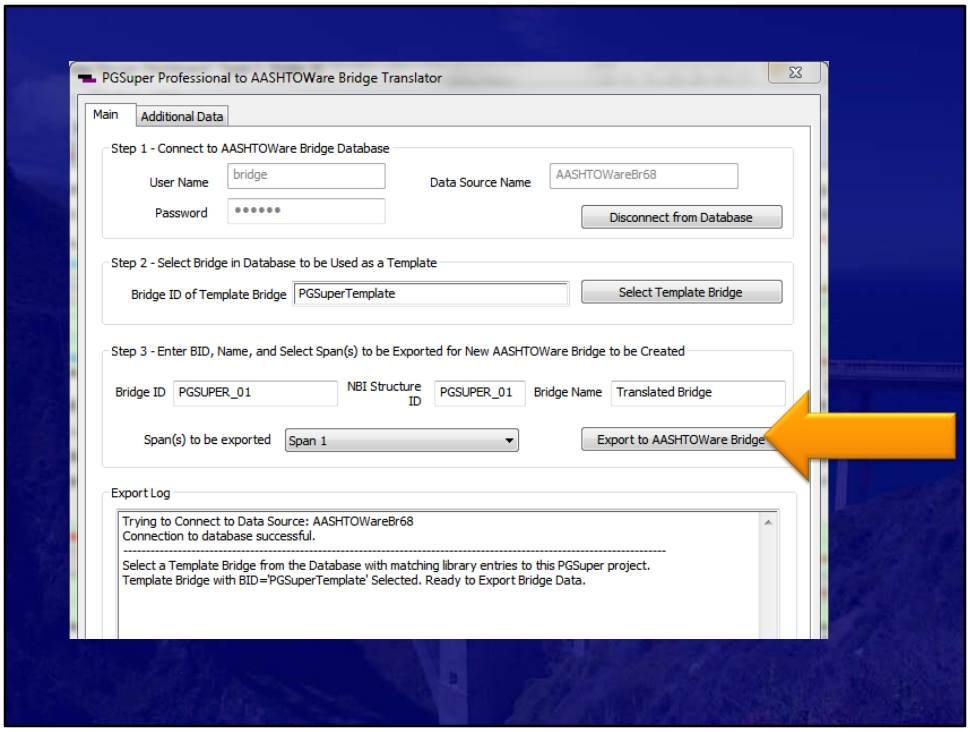
- Steps in PGSuper
  - Create Bridge and Design Girders
  - Connect to AASHTOWare BrDR Database
  - Give you new bridge a name
  - Export

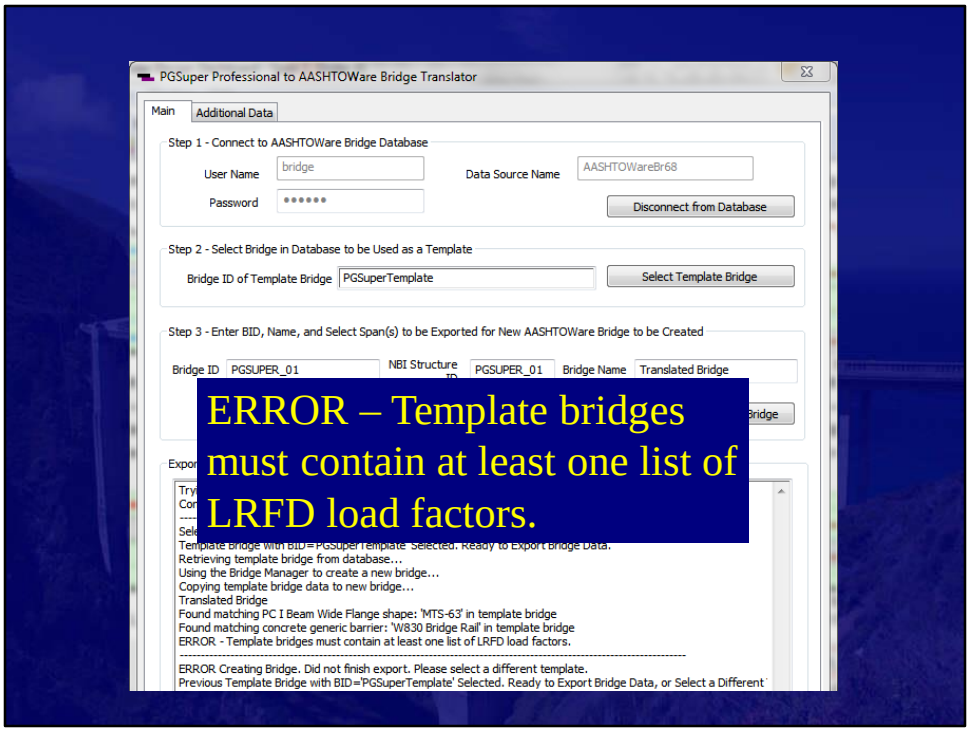

New Ctrl+N
Open... Ctrl+O
Close
Save Ctrl+S
Save As...
Save As Template...
Import
Export
Get Select Library Entries...
Get Library Entries...
Project Properties...
Print... Ctrl+P
Print Setup...
1 PGSuper_RADBUG_jsr.pgs
2 Y:\PGSuper\KDOT_3.1.lbr
3 PGSuper_RADBUGrdp.pgs
4 PGSuper_RADBUG.pgs
5 PGSuper_test_2.9.1beta3.pgs
6 PGSuper1_test_2.9beta8.pgs
Exit
BEToolbox:GenComp composite girder section model
Bridge model to the AASHTOWare Bridge Database
DXF File
KDOT CAD Data...
TxDOT CAD Data...
Piers to XBRate
LandXML
VBent Data
BEToolbox:Curvel vertical profile model
Analysis Results to Microsoft Excel or CSV Text File
BEToolbox:PGStable model
Stresses at Release (KSI)
and(min=-3.70, max=0.04) Required(fci=5.69)
50.800
76.200
101.600
127.000
Distance From Left End of Girder (ft)
Final Stresses (KSI)
Demand(max=0.39) Allowable(tens=0.50) Required(fc=4.12)
Svc III - Bottom
Svc III Allowable
1.000
0.000
-1.000


PGSuper Professional to AASHTOWare Bridge Translator
Main
Additional Data
Step 1 - Connect to AASHTOWare Bridge Database
User Name
bridge
Password
Data Source Name
AASHTOWareBr68
Connect to Database
Step 2 - Select Bridge in Database to be Used as a Template
Bridge ID of Template Bridge
No Template Selected
Select Template Bridge
Step 3 - Enter BID, Name, and Select Span(s) to be Exported for New AASHTOWare Bridge to be Created
Bridge ID
NBI Structure ID
Bridge Name
Span(s) to be exported
Span 1
Export to AASHTOWare Bridge
Export Log

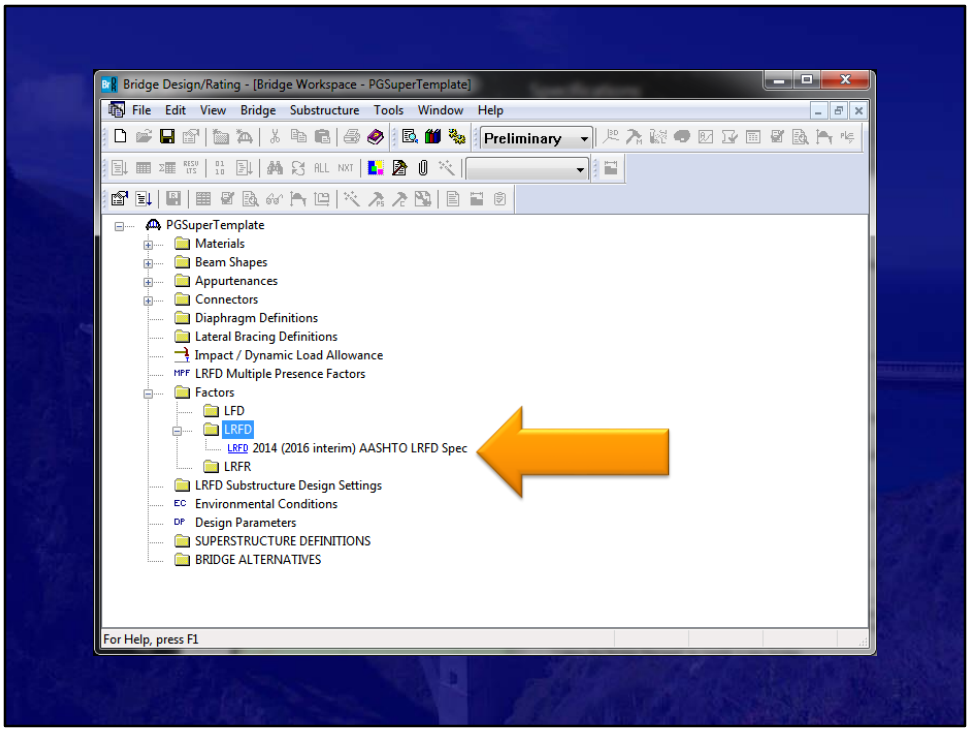

PGSuper Professional to AASHTOWare Bridge Translator
Main
Additional Data
Step 1 - Connect to AASHTOWare Bridge Database
User Name
bridge
Data Source Name
AASHTOWareBr68
Password
Disconnect from Database
Step 2 - Select Bridge in Database to be Used as a Template
Bridge ID of Template Bridge
Select Template Bridge
Step 3 - Enter BID, Name, and Select Span(s) to be Exported for New AASHTOWare Bridge to be Created
Bridge ID
NBI Structure ID
Bridge Name
Span(s) to be exported
Span 1
Export to AASHTOWare Bridge
Export Log
Trying to Connect to Data Source: AASHTOWareBr68
Connection to database successful.
Select a Template Bridge from the Database with matching library entries to this PGSuper project.

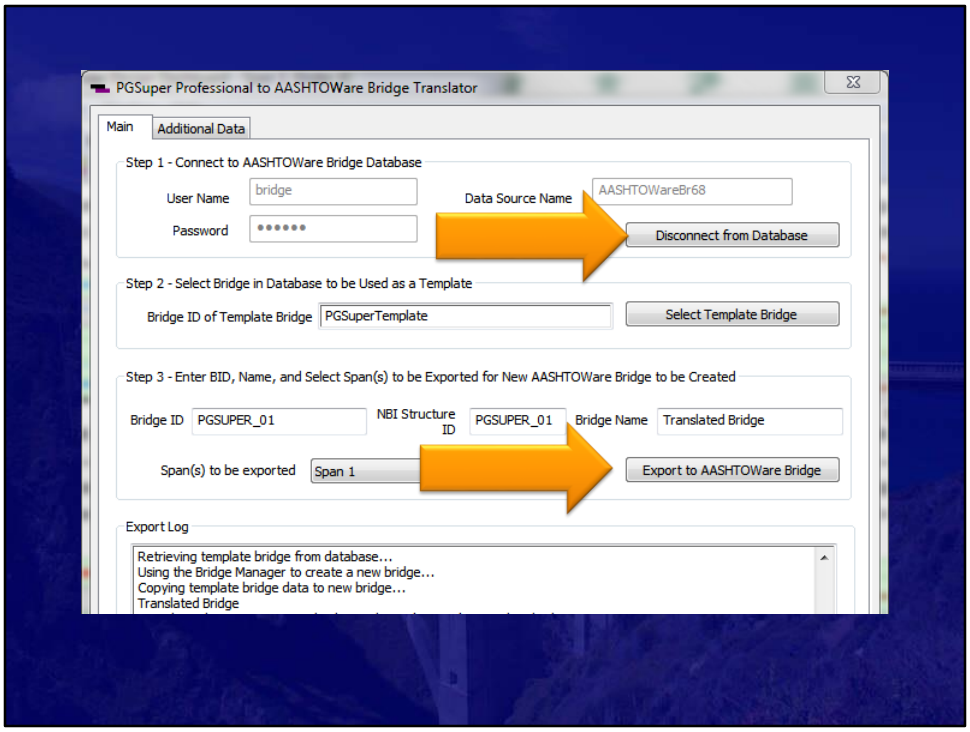

Dialog
Select a Bridge fom the BridgeWare Database to be Used as a Template for the New Exported Bridge
BID Bridge ID NBI Structure ID Bridge Name
29 Splice Example Splice Example Splice Example
30 Simple DL-Cont LL-Splice SimpleForDLSpli Simple DL Splice
31 092-053 999900900920531 WBMC Sk00 Cu00 K-9 over Cedar Creek
32 Culvert RFB Template Culvert RFB
33 096-573 Culvert096-573 20x16 RFB US81 Sumner Co
34 Copy of 078-080 9999050 SWGC Sk 46.32 US-50 HWY over ATSF Rail Ro
35 069-088 999900900690881 PBMC K 9 over Big Timber Creek
36 KDOT_K3_TEMPLATE KDOT_K3_T KDOT K3 Template Example
37 KDOT_K4_TEMPLATE KDOT_K4 KDOT K4 Template Example
38 PGSuper Try01 PGSuper01 First Export Try With New Translator
39 SubstructureExample01 JSR_SUB_001 Drilled Shaft, Spread Ftg and Pile Ftg
40 14-78-33.82 (4001) 0000000 Quadruple 8 ft x 5 ft
41 PGSuperTemplate TEMPLATE01 New Bridge
OK
Cancel


PGSuper Professional to AASHTOWare Bridge Translator
Main
Additional Data
Step 1 - Connect to AASHTOWare Bridge Database
User Name
bridge
Data Source Name
AASHTOWareBr68
Password
Disconnect from Database
Step 2 - Select Bridge in Database to be Used as a Template
Bridge ID of Template Bridge
PGSuperTemplate
Select Template Bridge
Step 3 - Enter BID, Name, and Select Span(s) to be Exported for New AASHTOWare Bridge to be Created
Bridge ID
PGSUPER_01
NBI Structure ID
PGSUPER_01
Bridge Name
Translated Bridge
Span(s) to be exported
Span 1
Export to AASHTOWare Bridge
Export Log
Trying to Connect to Data Source: AASHTOWareBr68
Connection to database successful.
Select a Template Bridge from the Database with matching library entries to this PGSuper project.
Template Bridge with BID='PGSuperTemplate' Selected. Ready to Export Bridge Data.

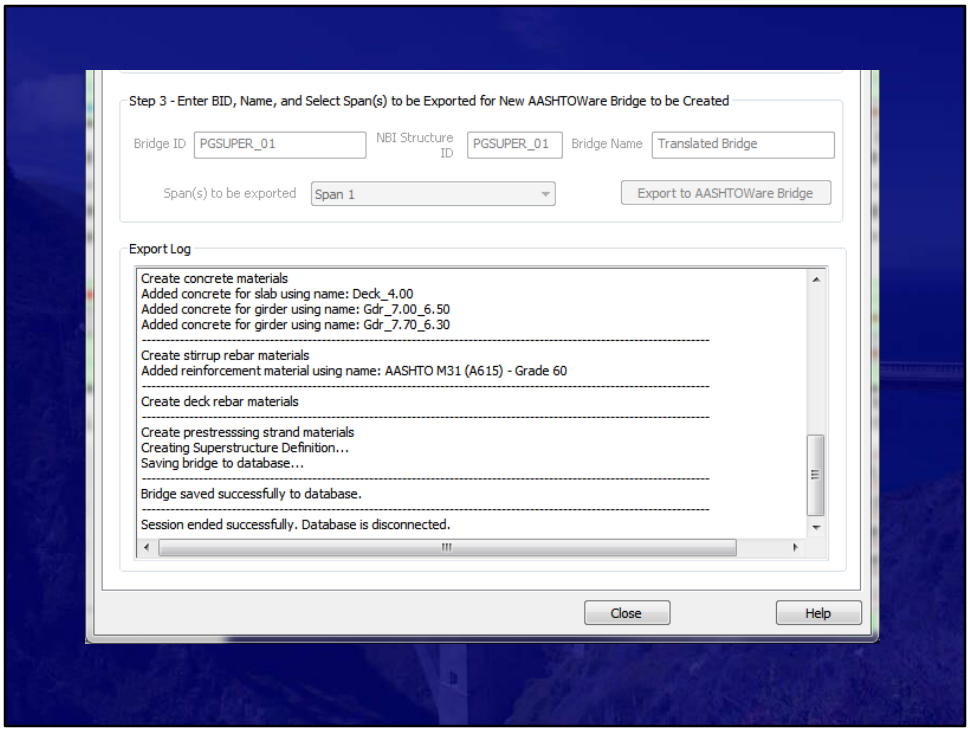


Ooops. I was in a little bit of a hurry. I forgot something when creating my template. Thankfully the ERROR message


Bridge Design/Rating - [Bridge Workspace - PGSuperTemplate]
File Edit View Bridge Substructure Tools Window Help
Preliminary
PGSuperTemplate
Materials
Beam Shapes
Appurtenances
Connectors
Diaphragm Definitions
Lateral Bracing Definitions
Impact / Dynamic Load Allowance
LRFD Multiple Presence Factors
Factors
LFD
LRFD
LRFD 2014 (2016 interim) AASHTO LRFD Spec
LRFR
LRFD Substructure Design Settings
Environmental Conditions
Design Parameters
SUPERSTRUCTURE DEFINITIONS
BRIDGE ALTERNATIVES
For Help, press F1



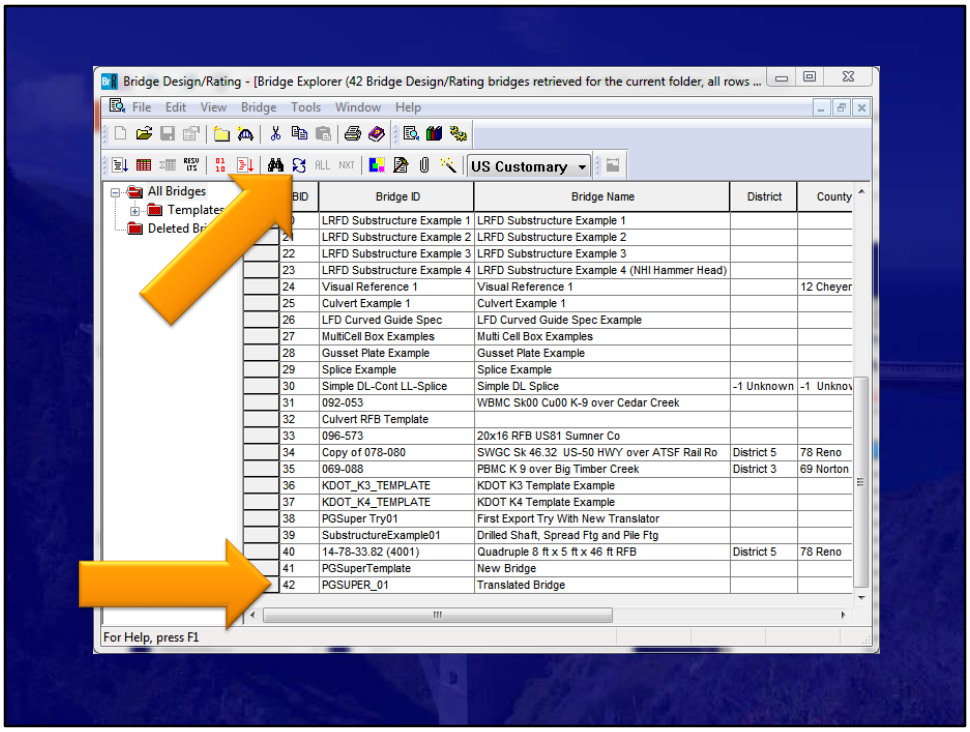
After we save the changes in BrDR, return to PGSuper and select “Disconnect from Database”.
Then select the same button when it changes to “Connect to Database”
Now hopefully we are ready to Export again.



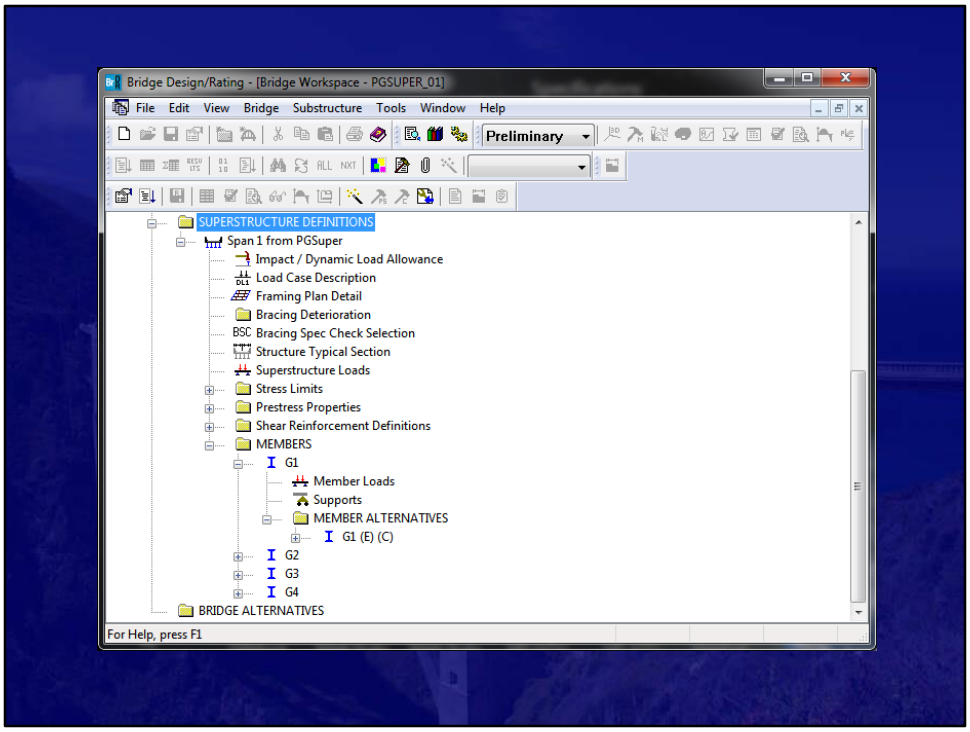
Success!
Now let us see what happened in BrDR

PGSuper Professional™ Export To BrDR

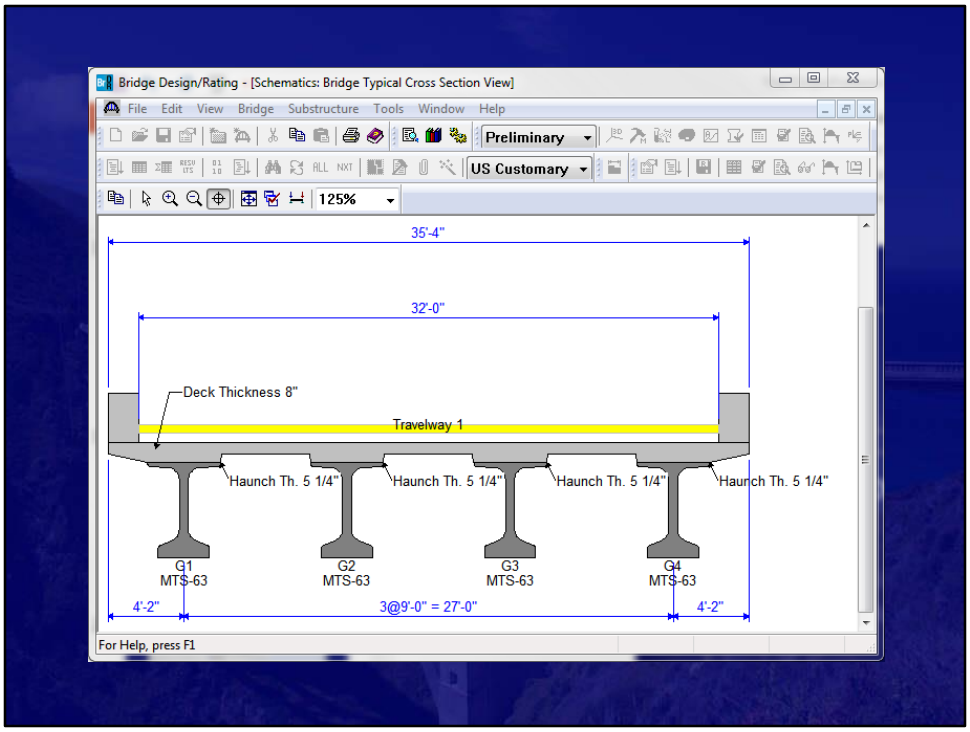
- Back in BrDR
  - Open New Bridge from Database
  - Select Analysis Settings
  - Run
  - Review the Differences



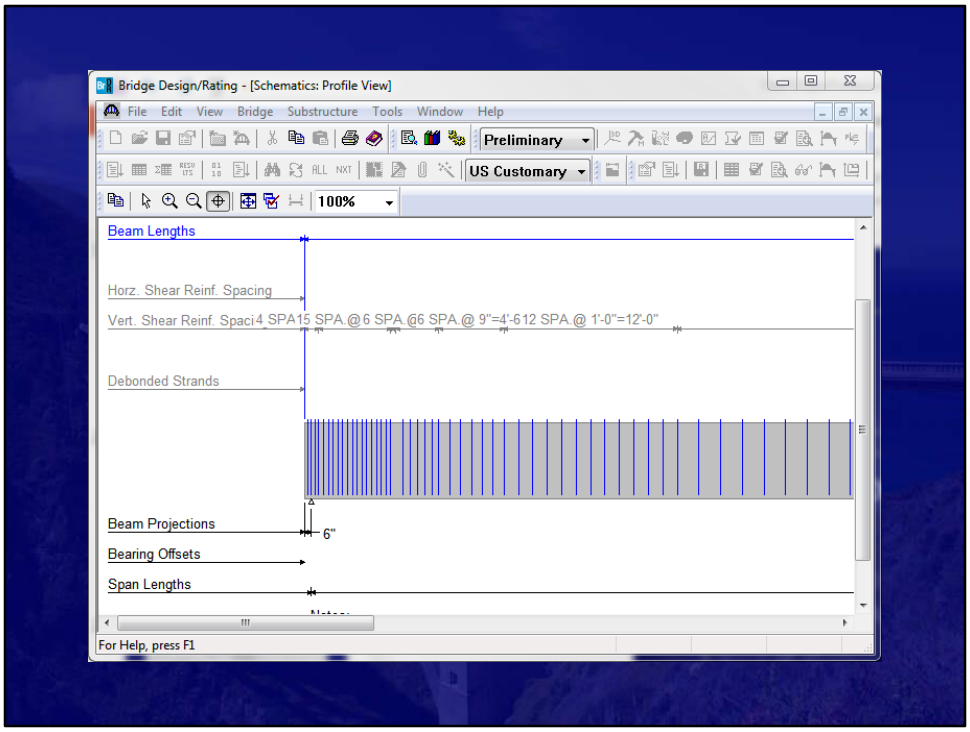
If we have BrDR Open, we will have to hit the “Refresh” button so that we can load the database changes.



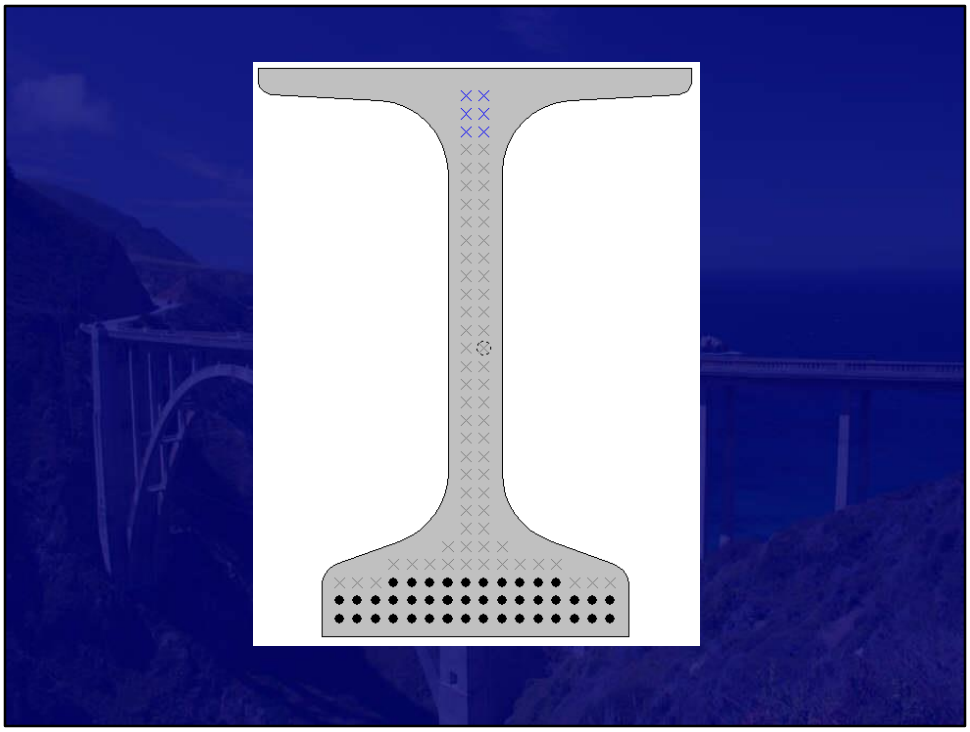
Here is the new Superstructure Definition



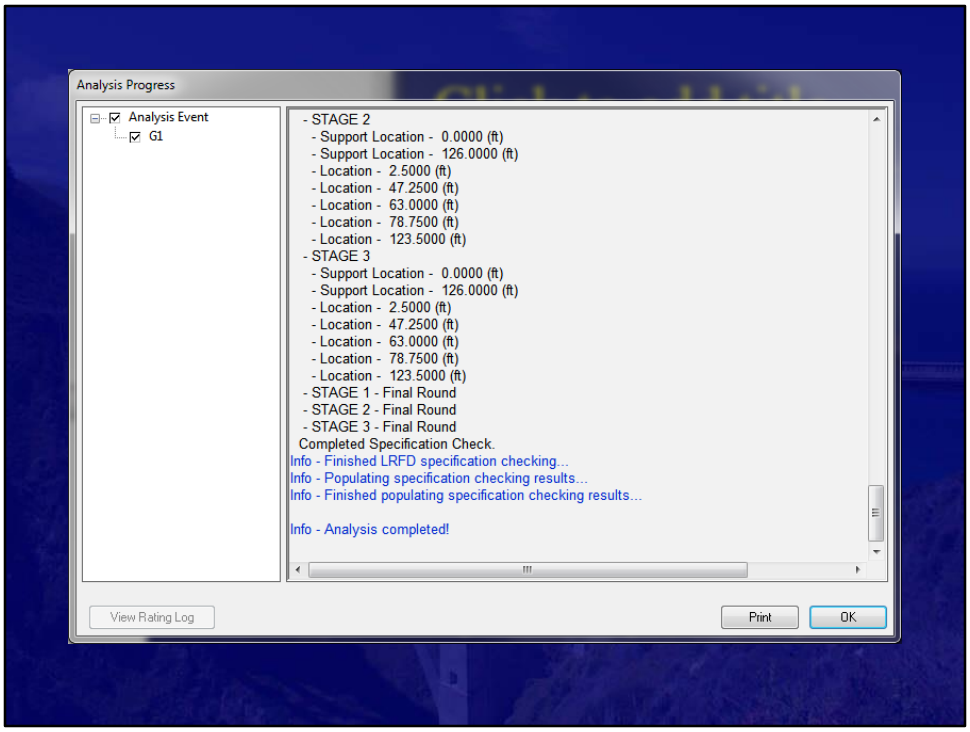
Typical Section Looks about right.



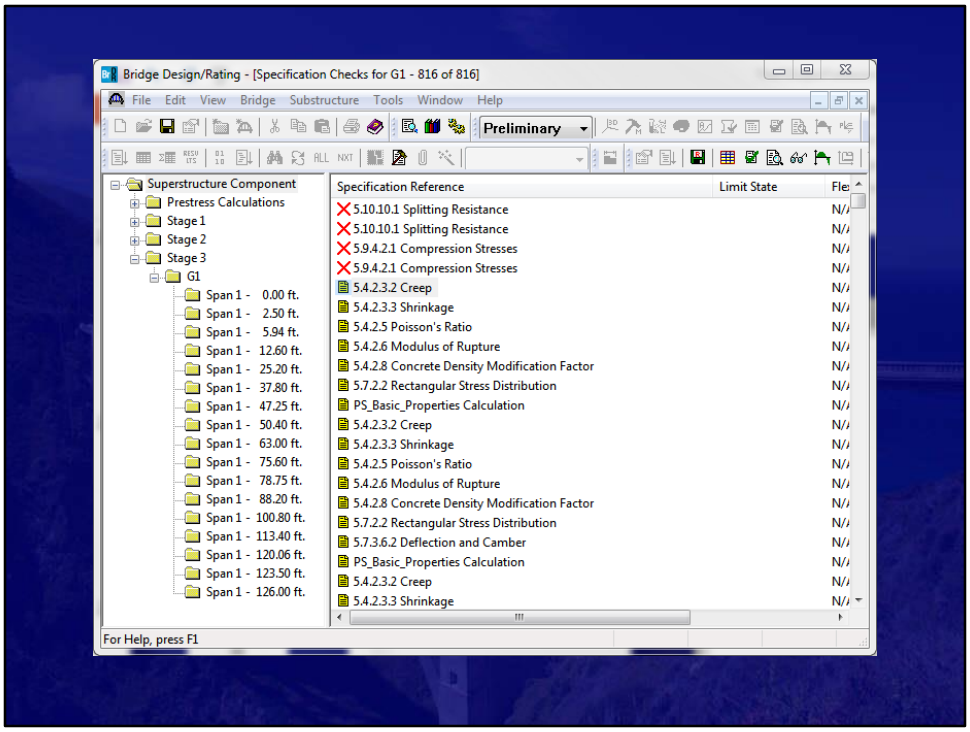
We have some stirrups. Good.



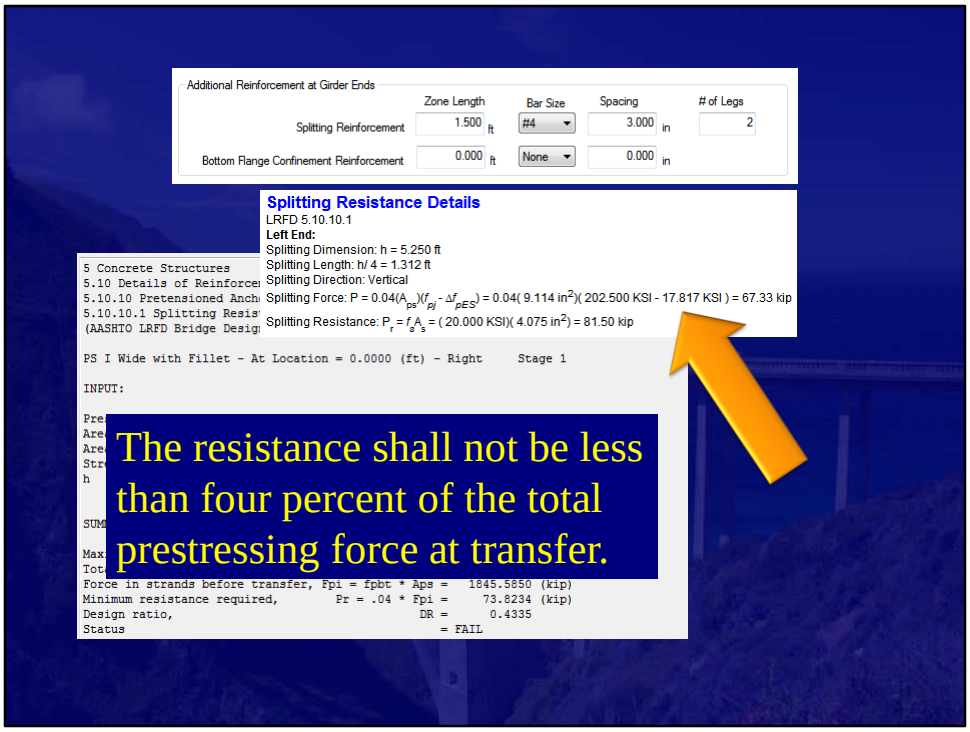
Beam and Strands look OK.



Hit the analysis button and shortly you will hopefully see Analysis complete.



We did pretty good. As Richard pointed out, some of the assumptions made between PGSuper and AASHTOWare BrDR are different. But nothing major you can't tweak



Here is an instance of the benefit of using different design software.
In PGSuper these is a place to include additional reinforcing for the Splitting Resistance Check.
And, when you take a look at the details you see that this splitting Resistance is Calculated differently. PGSuper subtracts the Elastic Shortening from PS force.

Questions?
BridgeSight
Software™