



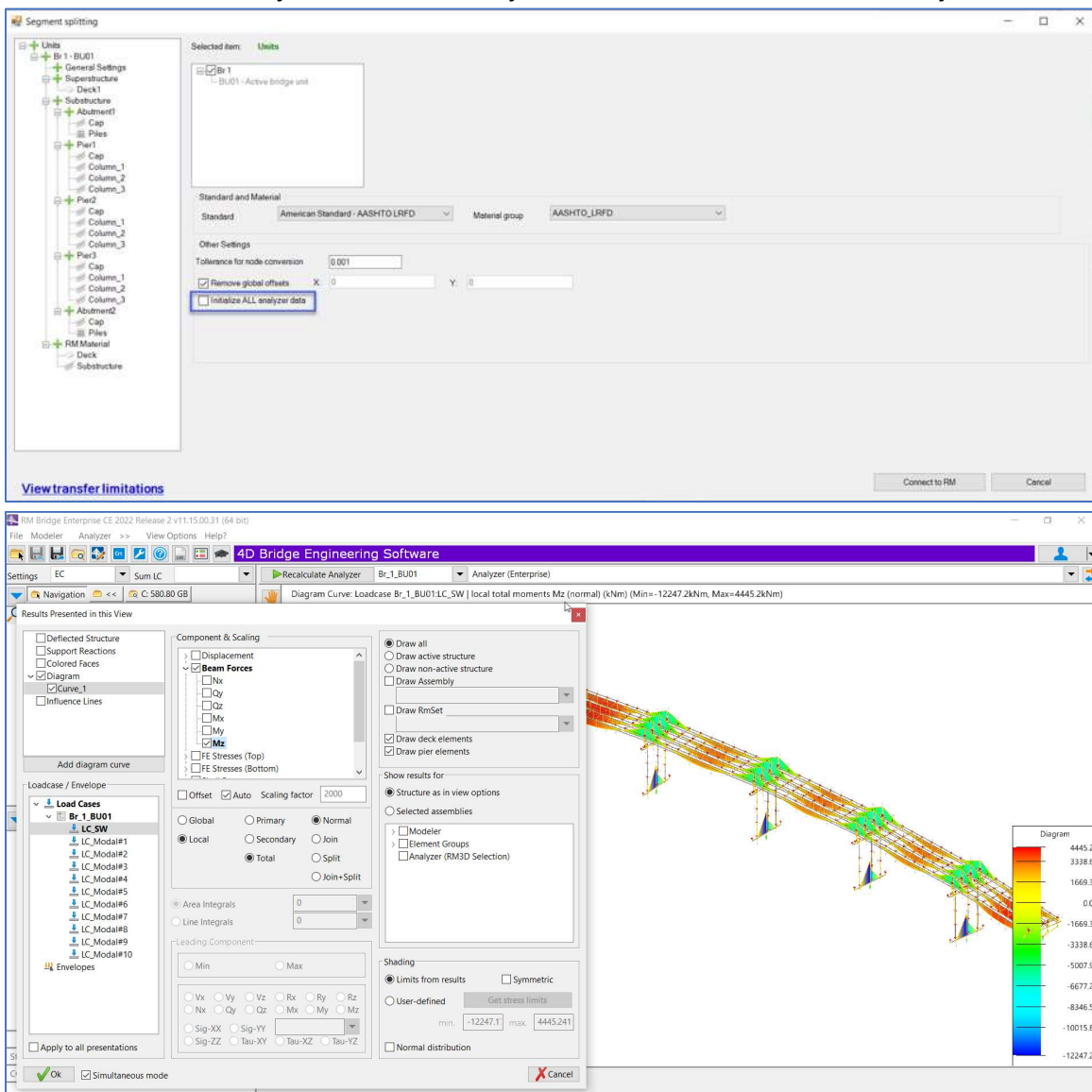
What's New in OpenBridge Designer (OBD) CONNECT Edition 2022 Release 2

OpenBridge Designer (OBD) CONNECT Edition 2022 Release 2 (v10.12.01.) and its components OpenBridge Modeler (OBM), RM Bridge, LEAP Bridge Concrete (LBC), and LEAP Bridge Steel (LBS) contains the following enhancements and error corrections:

1. Enhancements in OpenBridge Designer:

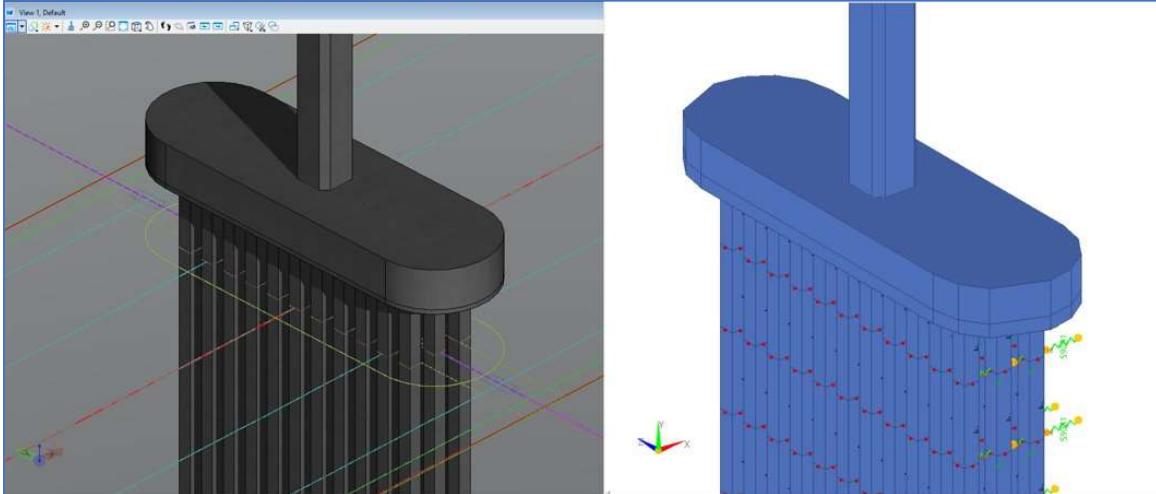
- Added a checkbox in transfer dialogue to initialize the RM folder under BIM workflow

For BIM and Standalone workflow is now introduced one checkbox for automatically initialize Analyzer data. When big changes are introduced in the physical model, the User can automatically initialize the analytical structural model in RM>Analyzer.



- Added ProjectWise Drive to OBD installer as a companion
- Restrict using special characters in file names - \ / : ? " < > |
- OBM-RM – Added capability to transfer pipe piles
- OBM-RM – Added capability to transfer custom footings and attached piles

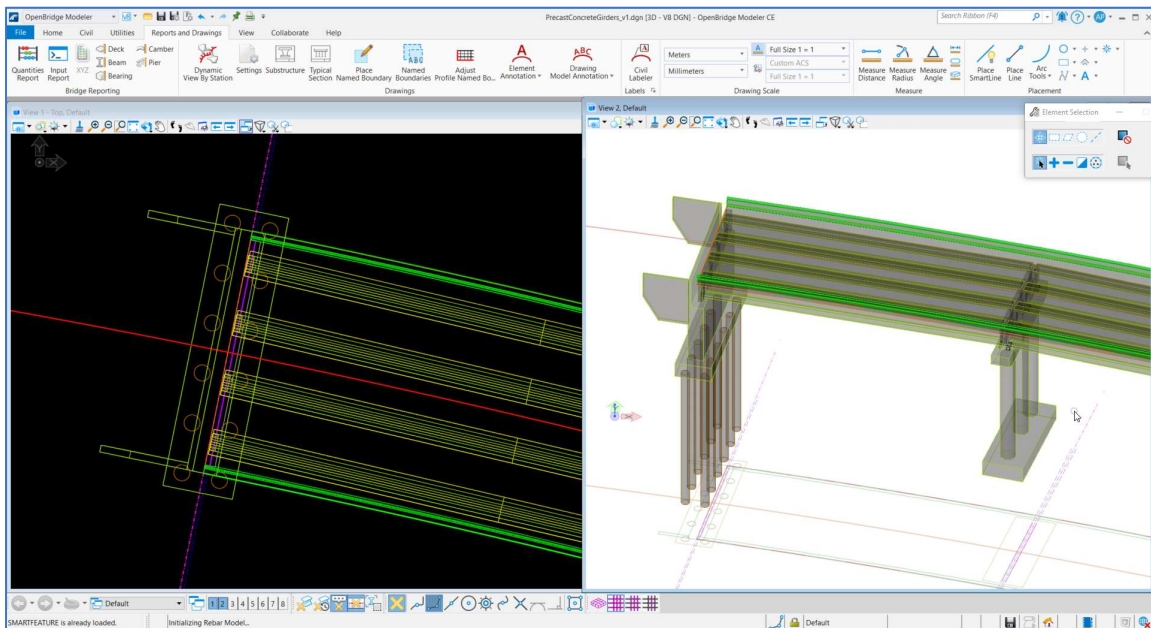
It was enhanced the capability to transfer custom footings and piles to RM for analysis



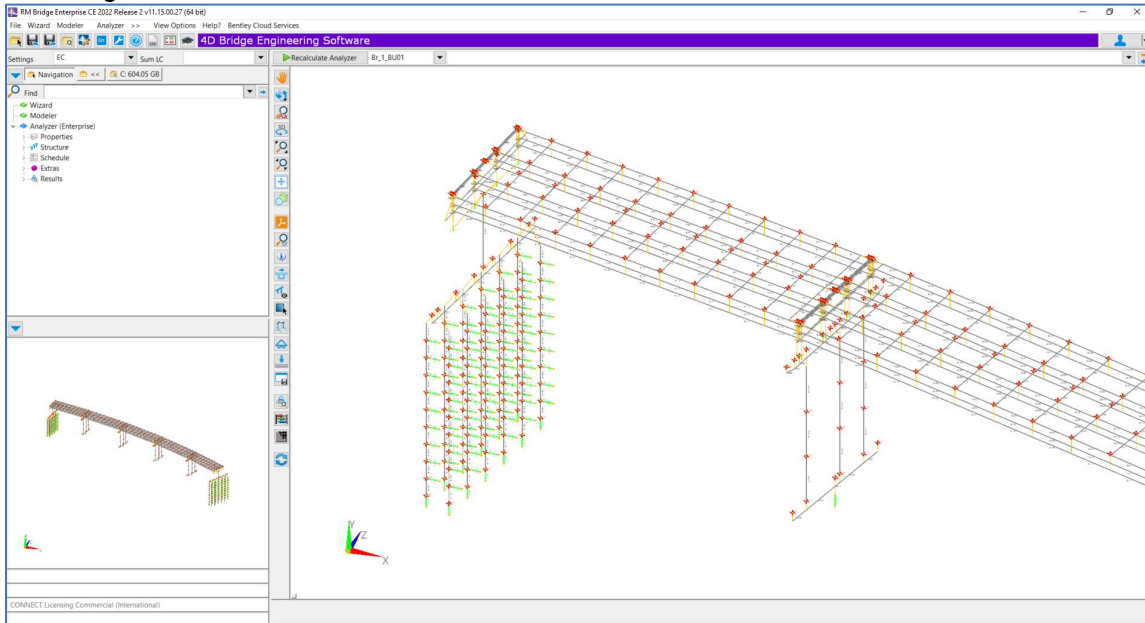
- OBM-RM – Enhance abutment transfer by creating it as a pier with footings and piles if they exist

Abutments modeled in OpenBridge Modeler with piles and footings can now be transfer to RM Bridge as pier elements, for analysis.

OBM model



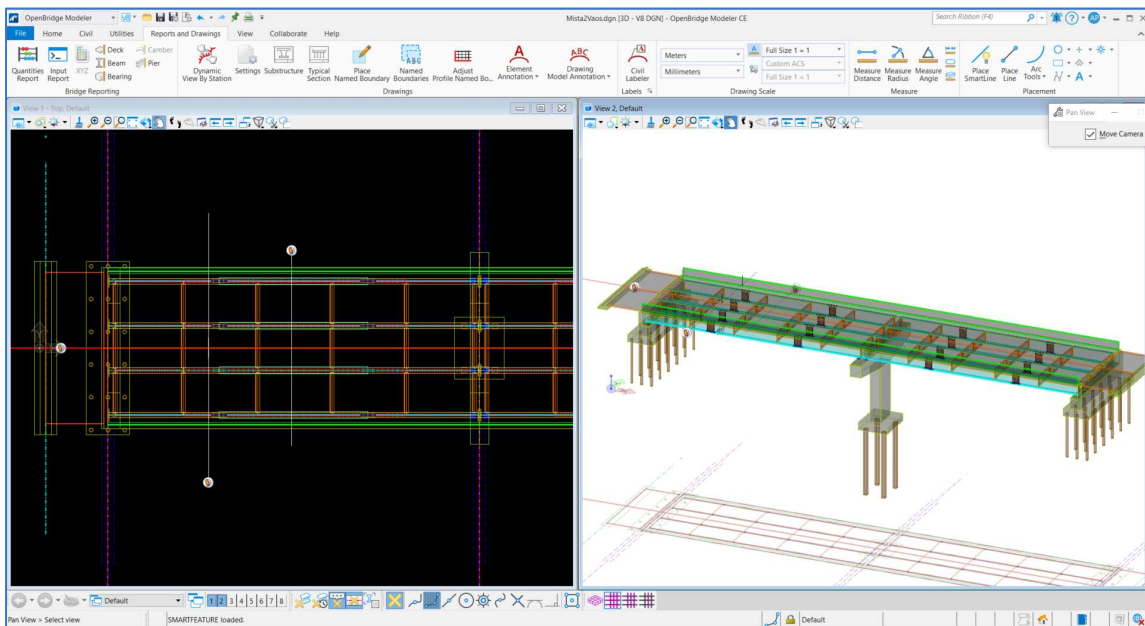
RM Bridge model



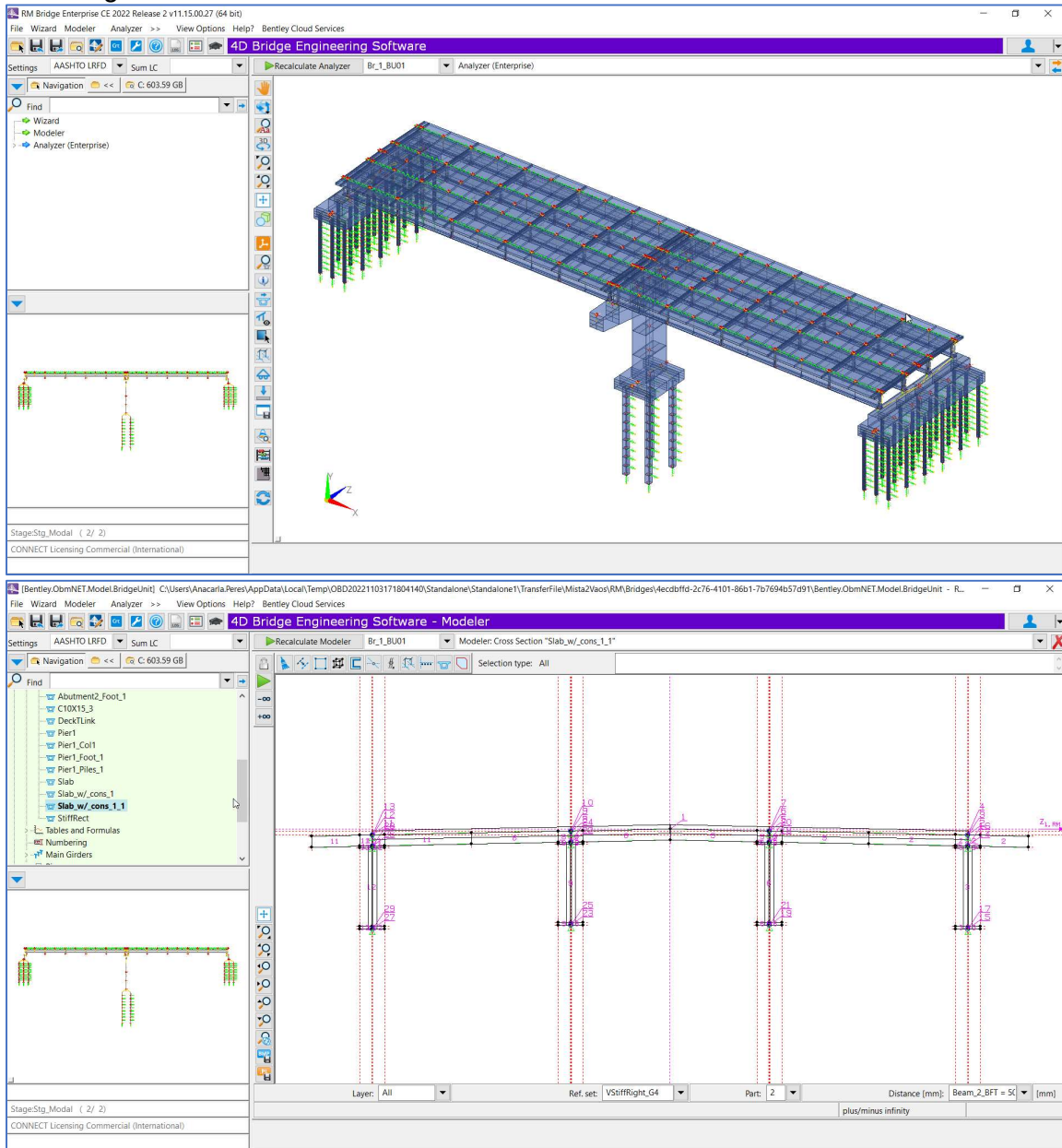
- OBM to RM: Transfer issues - cross section mesh and negative length on link elements

It was fixed the issue on transferring cross section for cross frame elements. The boundary points were outside of the boundary line and the meshing was wrong, this is now corrected. Also, on transferring to analyzer at begin and end of the bridge link elements were giving negative length values, that were solved.

OBM model



RM Bridge model



- PSC Girders OBM to RM: MG with no materials

For Precast Prestressed Concrete Girder Bridges, it was assigned materials to girders and deck slab defined in OBM, when transferring the bridge model from OBM to RM Bridge.

2. Enhancements in the Components:

2.1 OpenBridge Modeler (OBM)

- Model Single Beam in Beam and Slab type Bridges
- Model Barriers on Wing Walls
- Specify Barrier End Cut Orientation at each end
- Improved Bearing Elevations (Properties and Reports)
- Automated 2D Decorations for Bearings and Bearing Seats

- Transverse Offset for Wing Walls
- Expanded Steel Tubs Properties
- Field Splice: Inner Splice Plate now optional
- Improved Superstructure C/S Drawings, PGL and Slope
- Accurate Modeling of Haunch for Concrete Tub Girders
- Option to Slope Crown Cap Bottom
- Improvements to Footing Elevation Constraints and DTM
- Option to Slope between Bearing Seats
- Skew Solid option for Tapered Caps and Inverted Tee Caps
- Improvements in Generative Components workflow (Tech Preview)
- Accurate Excavation for Custom Footings
- Show Direction/Bearing in Pier/Abutment Report
- New option for “Create HEC-RAS Data” under Civil Analysis
- Beam Layout spacing method: Normal or Along the Skew and Bearing placement.

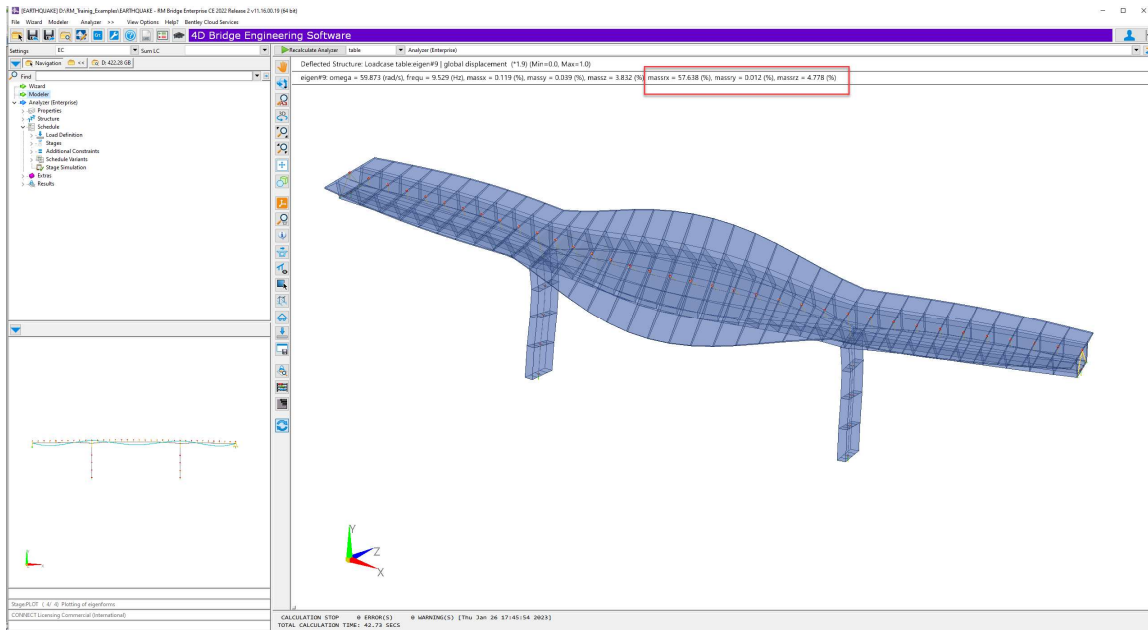
[2.1.1 Technology Stack](#)

- MicroStation PowerPlatform Update 17.2 (v10.17.2.4xx)
- Civil Platform (10.12.1.1xx)
- OpenRoads 2022 Release 2 (v10.12.1.xx)
- ProStructures Update 7.2 (v10.07.2.7)
- Certified with PW v10.00.03.453
- Generative Components (v10.17.2.15)
- GINT (10.0.0.41)
- Descartes (10.17.2.61)
- CONNECTION Client (11.00.05.44)

[2.2 RM Bridge Enterprise](#)

- Spring connections in Modeler prepared for FEM models.

The spring connections in Modeler have been enhanced for finite shell models. The options available in springs connected to zero were extended to spring elements connecting two different nodes, too. In this way, the User will have several possibilities of connections, whether in a complete FEM model, or in a Hybrid model, such as deck modelled with FEM and Piers with beams and/or vice-versa.



ROTATIONAL MASS PARTICIPATION FACTORS [Internal units, %]

MODE	phi*M*phi	RX	RY	RZ	SUM-RX	SUM-RY	SUM-RZ	HERTZ
1	0.4548E+04	0.58	0.00	68.88	0.58	0.00	68.88	0.849
2	0.2002E+04	6.34	0.00	0.96	6.91	0.00	69.84	1.602
3	0.1015E+04	0.02	0.00	0.00	6.94	0.00	69.84	2.930
4	0.2122E+04	0.00	0.02	0.41	6.94	0.02	70.24	3.617
5	0.1285E+04	0.01	0.00	0.06	6.94	0.02	70.31	5.117
6	0.1347E+04	0.02	0.00	0.01	6.96	0.02	70.31	5.926
7	0.2024E+04	0.00	0.00	0.03	6.96	0.02	70.35	6.737
8	0.1074E+04	0.35	0.00	0.11	7.31	0.02	70.46	9.131
9	0.6441E+04	57.64	0.01	4.78	64.95	0.04	75.24	9.529
10	0.1788E+04	0.00	0.12	0.04	64.95	0.16	75.27	11.154
11	0.9677E+03	0.03	0.00	0.00	64.98	0.16	75.27	11.574
12	0.4622E+04	0.09	0.16	5.83	65.07	0.31	81.10	12.586
13	0.5492E+04	15.25	0.00	4.04	80.32	0.31	85.14	13.283
14	0.3513E+03	1.10	0.00	0.72	81.42	0.31	85.86	13.364
15	0.6407E+03	0.30	0.00	0.02	81.71	0.31	85.88	13.517
16	0.2308E+04	2.29	0.00	0.50	84.00	0.31	86.38	15.909
17	0.1180E+04	0.02	0.00	0.03	84.02	0.31	86.42	16.026
18	0.1038E+04	0.00	0.00	0.23	84.02	0.31	86.65	16.074
19	0.1479E+04	0.00	0.00	0.00	84.03	0.31	86.65	16.455
20	0.2184E+04	0.00	0.16	0.09	84.03	0.48	86.74	17.650
21	0.1389E+04	0.05	0.00	0.07	84.08	0.48	86.81	20.515
22	0.2358E+04	0.00	0.16	0.14	84.08	0.64	86.95	21.097
23	0.1715E+04	0.00	0.00	0.04	84.08	0.64	86.99	23.223
24	0.2521E+04	0.00	0.35	0.13	84.09	0.99	87.12	23.943
25	0.2003E+04	0.00	0.00	0.07	84.09	0.99	87.19	25.293
26	0.1986E+04	0.19	0.00	0.01	84.28	0.99	87.20	26.515
27	0.1920E+04	0.00	0.00	0.00	84.28	0.99	87.20	27.186
28	0.1615E+04	0.00	0.00	0.01	84.28	0.99	87.22	28.753
29	0.7012E+04	0.18	0.00	0.08	84.46	0.99	87.31	29.445
30	0.1902E+04	0.00	11.79	0.00	84.46	12.78	87.31	29.799

2.3 LEAP Bridge Concrete (LBC)

- Enhancements for PennDOT
 - Show PennDOT DM-4 reference articles in design reports
 - Custom maximum permitted spacing of shear connectors per PennDOT DM-4
- Other enhancements
 - Interoperability to read substructure from OBM in the view of both Upstation and Downstation
 - Support new deformed steel reinforcement per ACI
 - Allow users to specify girder type as either adjacent or spread box girder for live load distribution factor calculation purpose

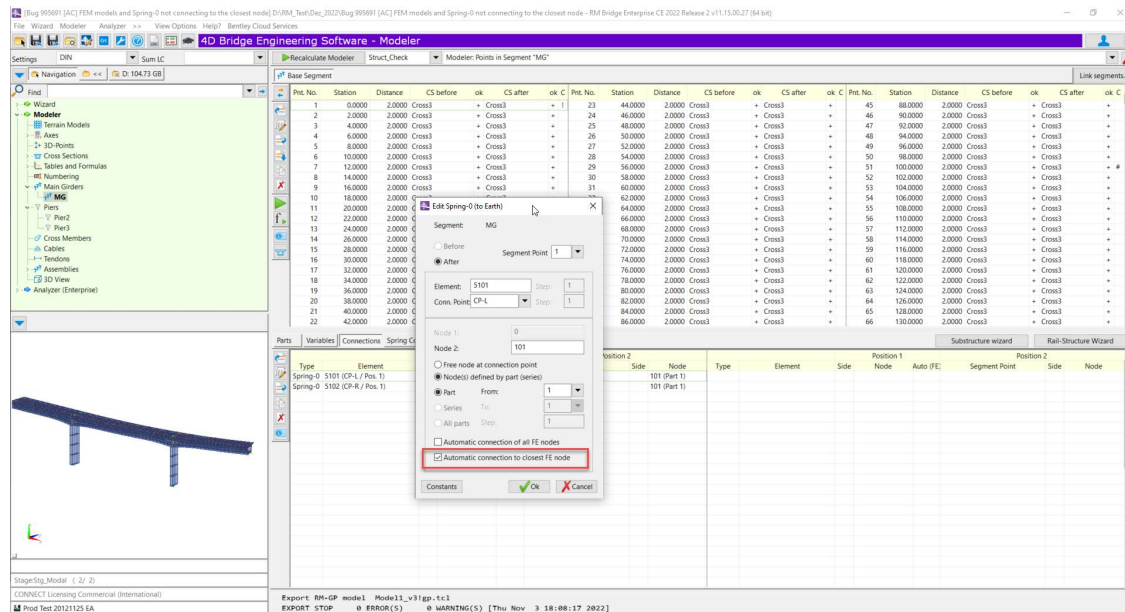
2.4 LEAP Bridge Steel (LBS)

- Enhancements for PennDOT
 - Inclusion of self-weight of filed splice in analysis and design
 - Renaming deadload of wearing surface and utility to add clarity in the load combinations
 - Support the load rating of the PennDOT custom load group STR-IP
 - Custom shear correction factor for live load distribution factors when there is a skew
- Other enhancements
 - New reaction reports due to live load without impact at supports
 - Support fatigue checking category E' for bolted connection option in cross-frame fatigue check
 - Support wind load in construction stages
 - Support auto generation of load effects for haunch

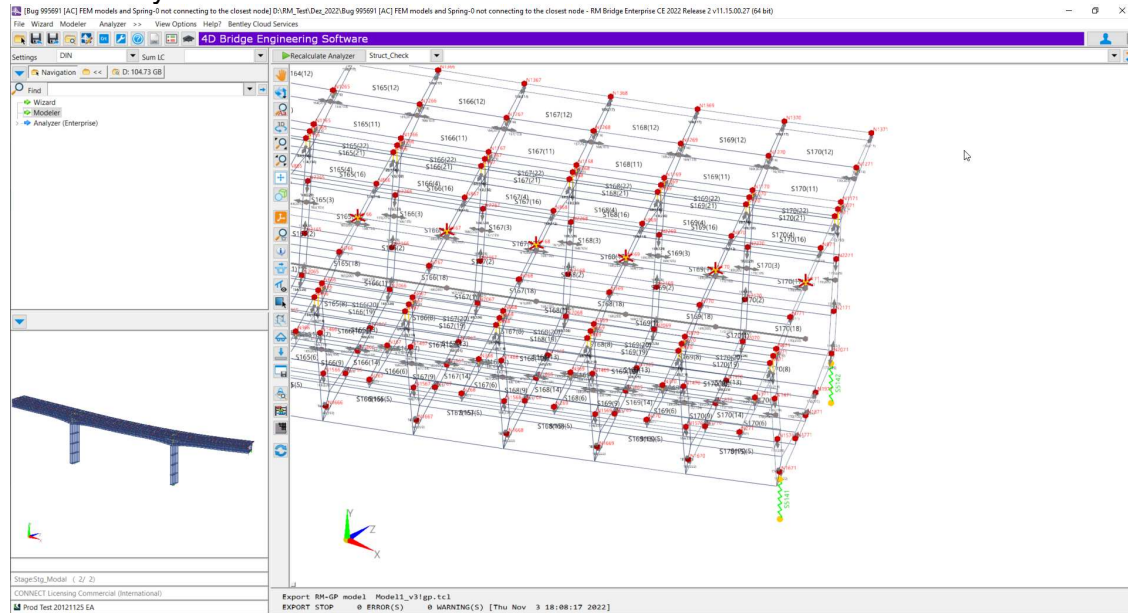
3. Error Corrections in the Components:

3.1 RM Bridge

- FEM models and Spring-0 not connecting to the closest node.
For a FEM model and in RM > Modeler, it is fixed the issue related with Spring-0 when chosen the option “Automatic connection to closest FE node”.
RM > Modeler



RM > Analyzer



- Users Area and Line integral results wrongly displayed around rigid connections.

Fixed the issue related with Users Area and Line integral results presentation in the Main View when a FEM model with rigid connections is performed.

- Strange lines appear in FEM integral results when rigid connections were used.

Fixed the issue with FEM integral results presentation in Main View, when a FEM model with rigid connections is performed.

- Accidental deviation angle β unit was corrected considering the User-defined Units.

Fixed the issue with accidental deviation angle β unit, when were used User-defined system units.

- Fixed the Prestressing Training Example Error.

Fixed the issue with the Prestressing training example calculation error.

3.2 LEAP Bridge Concrete (LBC)

The following issues are fixed:

- Bearing to bearing distance was unexpected changed automatically after sacrificial thickness was being saved in Precast/Prestressed Girder module.
- Steel reinforcement of the column or pile was not being correctly retained in Substructure module.
- Incorrectly shear diagram was presented when a point load was applied between the 10th points along the span length in Precast/Prestressed Girder module.

- Load effects due to wind load on structure were incorrectly generated for column of the hammer head pier in Substructure module.
- Referenced equation numbers were not updated to LRFD 8th and 9th editions in detailed loss report in Precast/Prestressed Girder module.
- Incorrect diagram was reported under Fatigue limit state in Precast/Prestressed Girder module.
- Clarity of ADTT load effect was missing in the live load distribution factor report in Precast/Prestressed Girder module.
- The program crashed when a user tried to create a new Superstructure only model using a X Beam in Precast/Prestressed Girder module.
- Incorrect truck information was reported in the live load details reports of both design and fatigue live loads in Substructure module.
- Load effects due to axial force were not correctly considered for shear rating in CIP RC/PT Girder module.

3.3 LEAP Bridge Steel (LBS)

The following issues are fixed:

- Incorrect version number was shown in design report.
- Graphic issue related to field splice and bolts.
- Incorrect category was used under the conditions of positive flexure compact or non-compact section.
- Cross frame design did not honor the material's Modulus of Elasticity.
- User defined hinges showed up in the incorrect span.
- Error message popped up when a user tried to add generic shear studs into a model.
- Live load analysis did not show meaningful results for line girder analysis when a hinge was defined.
- The program failed to identify the beginning of the slab because of the overhang and the related analytical process did not include deck for the composite action.
- The program incorrectly showed jagged diagrams for live load analysis when FEM was being used.
- Wind load pressure was not correctly transferred internally for calculation of the related load effects.
- Truck position was missing in the live load detailed report.
- Incorrect haunch thickness was incorrectly shown in the 3D model.
- Failed to correctly perform the girder spacing check for steel tub girder bridge models.