AASHTOWare BrDR 7.5.0

Substructure Tutorial

Pier Supports Two Superstructures

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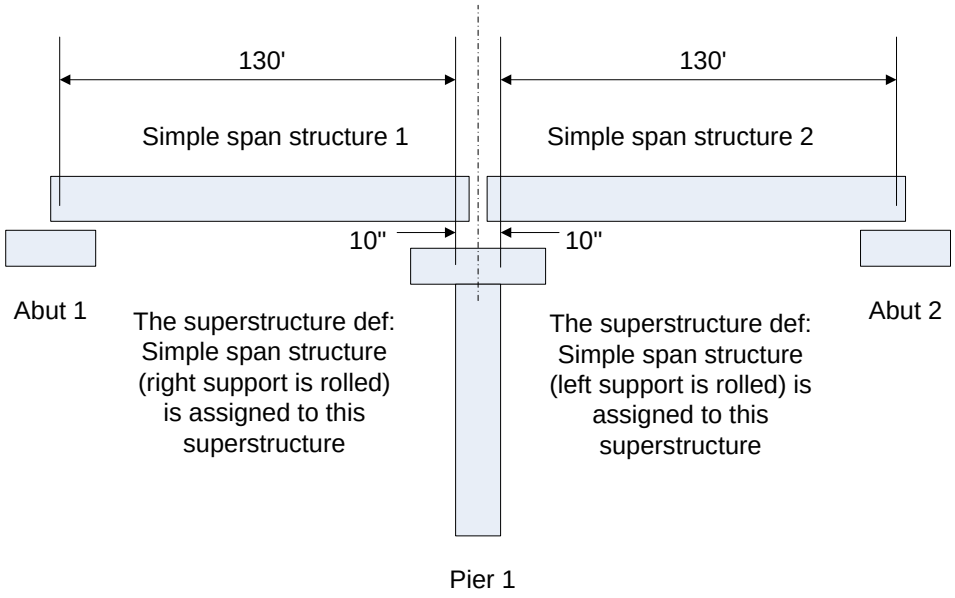
How to Describe a Pier that Supports 2 Independent Superstructures

This example illustrates the description of a pier in BrDR that supports 2 independent superstructures. In this example, 2 prestressed simple spans that are **not** made continuous for live load are defined. Therefore the pier supports 2 independent superstructures. If the prestress spans were made continuous for live load, the pier would be supporting only one superstructure.

Open the Bridge workspace for **BID20, LRFD Substructure Example 1**. This bridge contains an example of a pier supporting 2 independent superstructures.

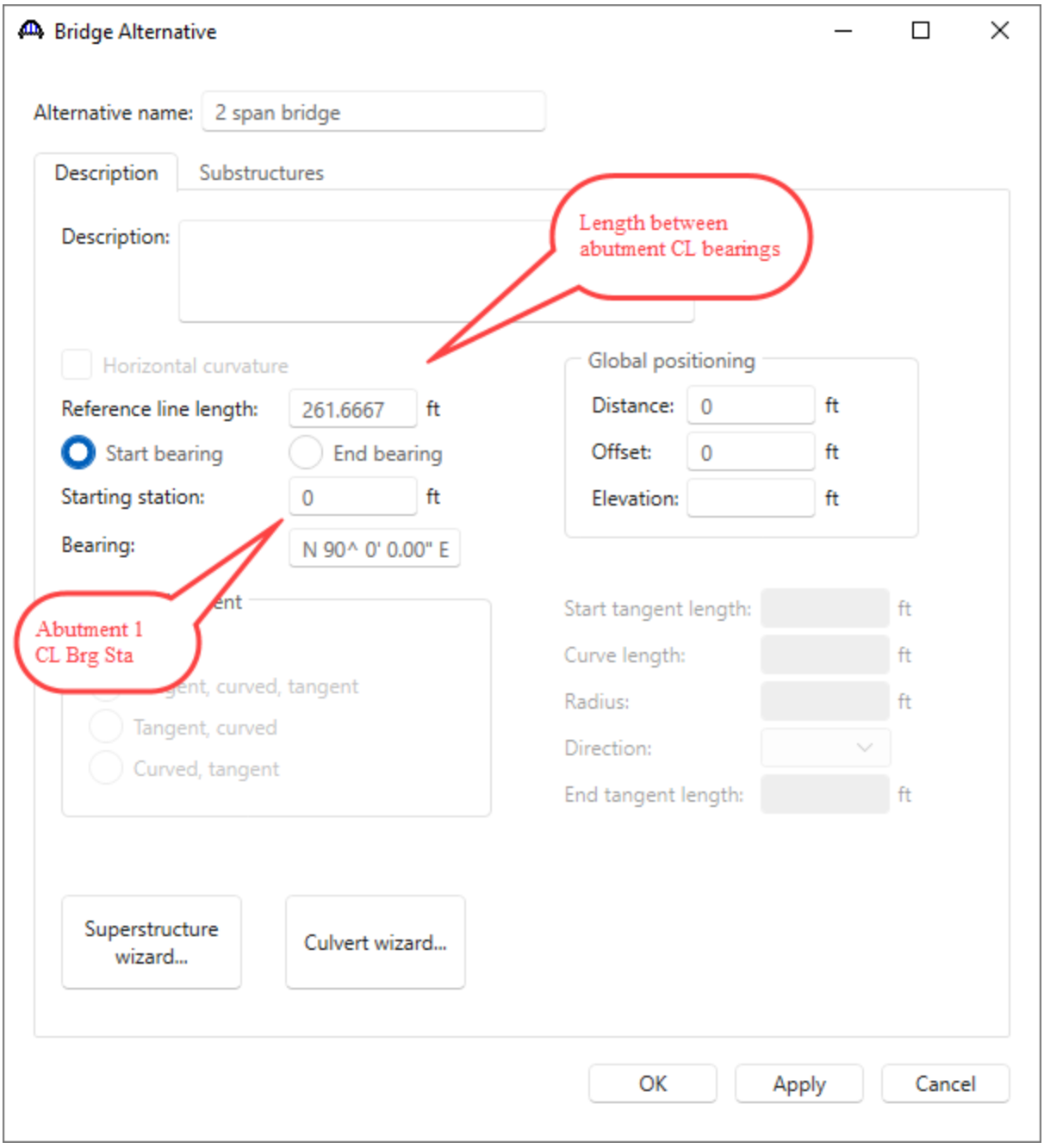
The following sketch illustrates the Bridge Alternative named **2 span bridge**.



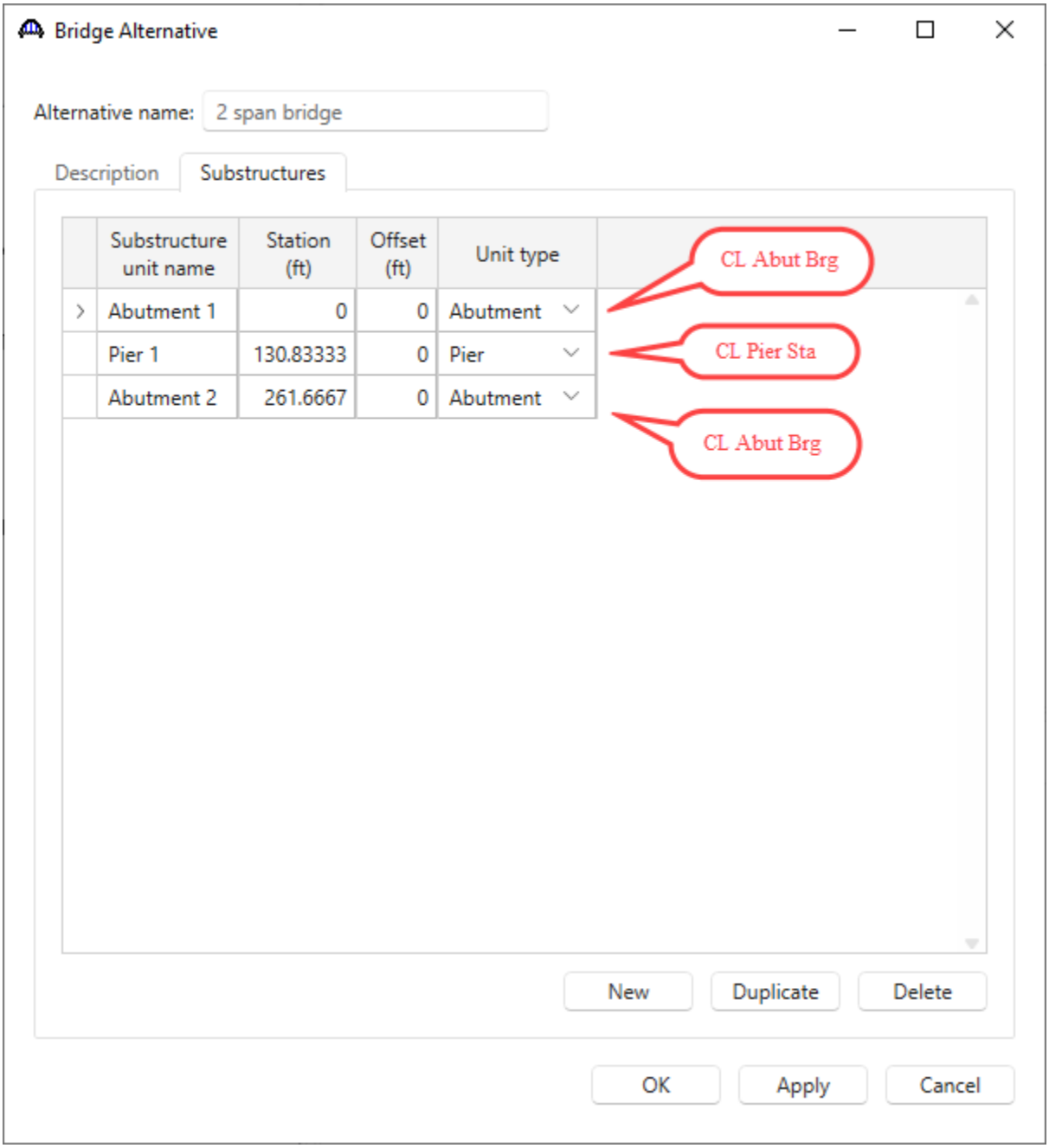
Open the Bridge Alternative – **2 span bridge**

This bridge alternative contains 2 abutments and 1 pier:

Bridge Alternative Description tab



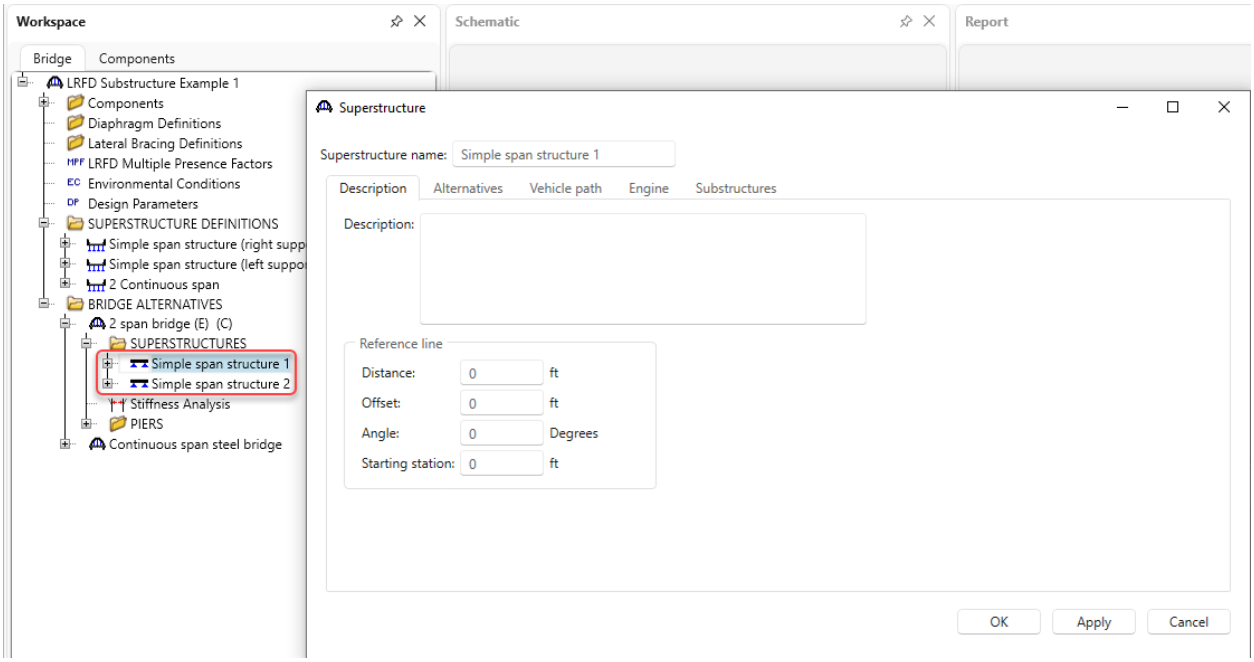
Bridge Alternative Substructures tab

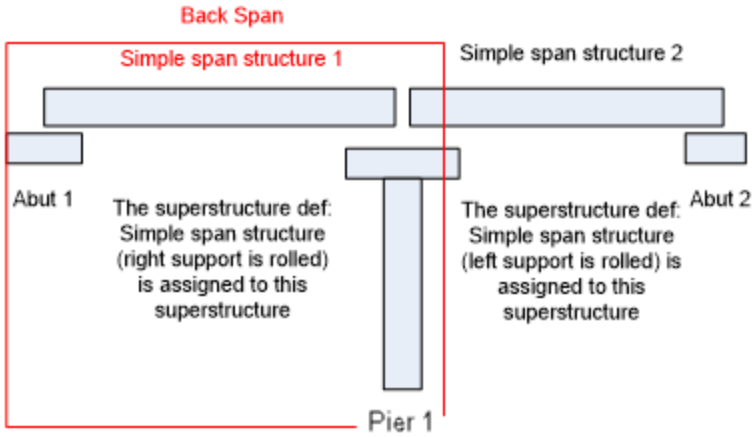


Pier Supports Two Superstructures

The bridge alternative contains 2 superstructures, one for the back span structure and one for the ahead span structure. The following is the window for the back span structure. It is supported by Abut 1 and Pier 1.

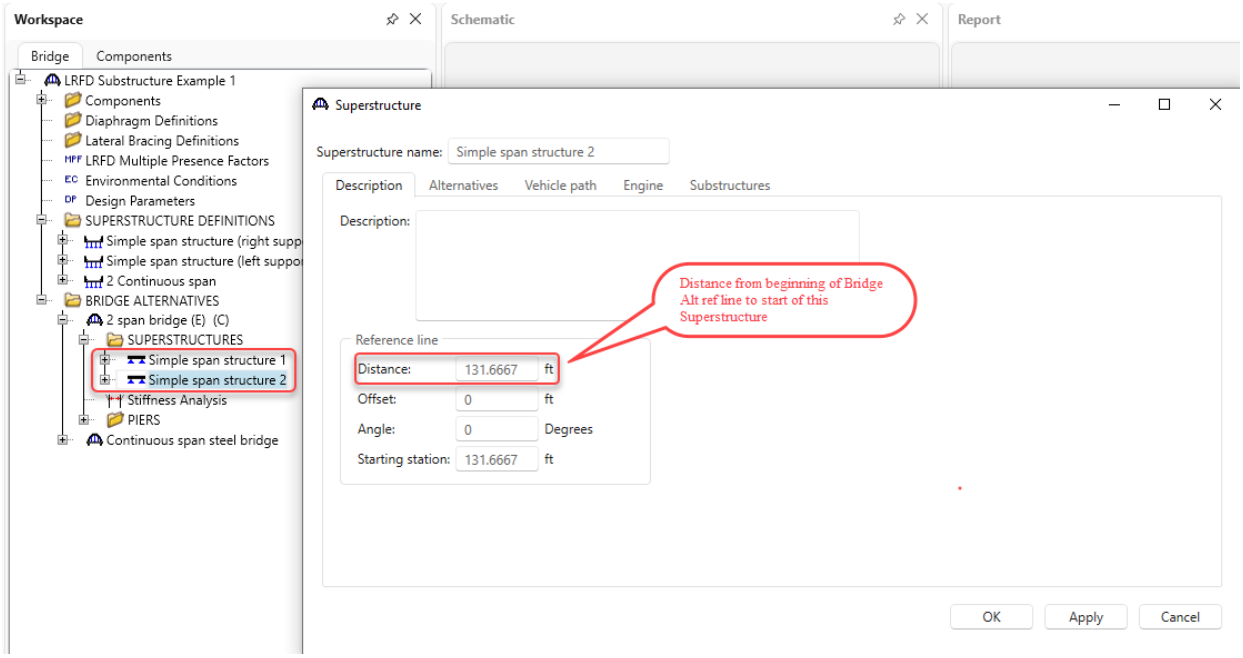
Back Span Superstructure Description tab

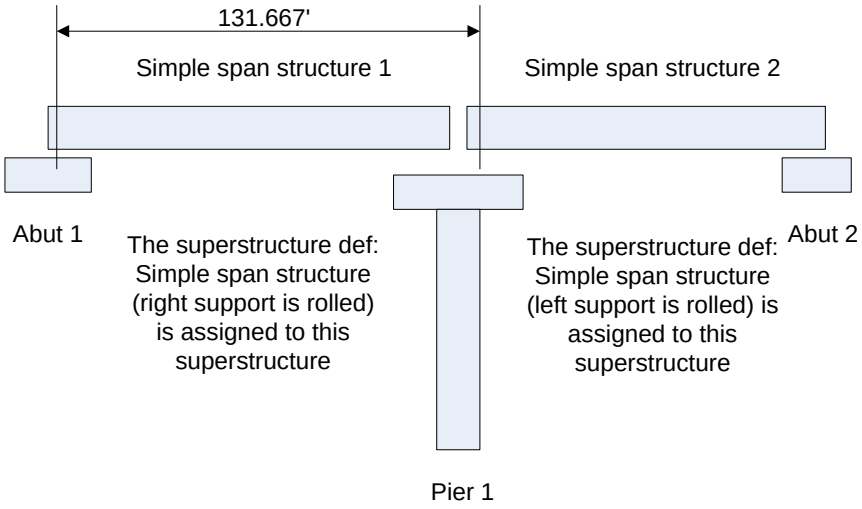




Similar windows exist for the ahead span superstructure which is supported by Pier 1 and Abut 2.

Ahead Span Superstructure Description tab

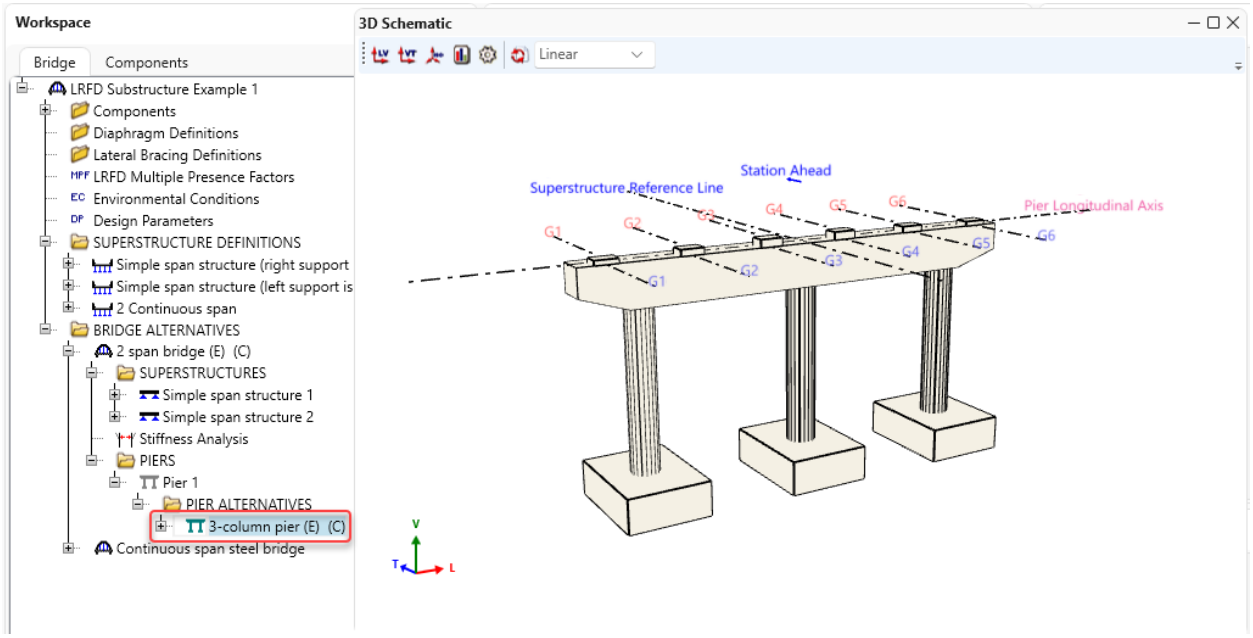




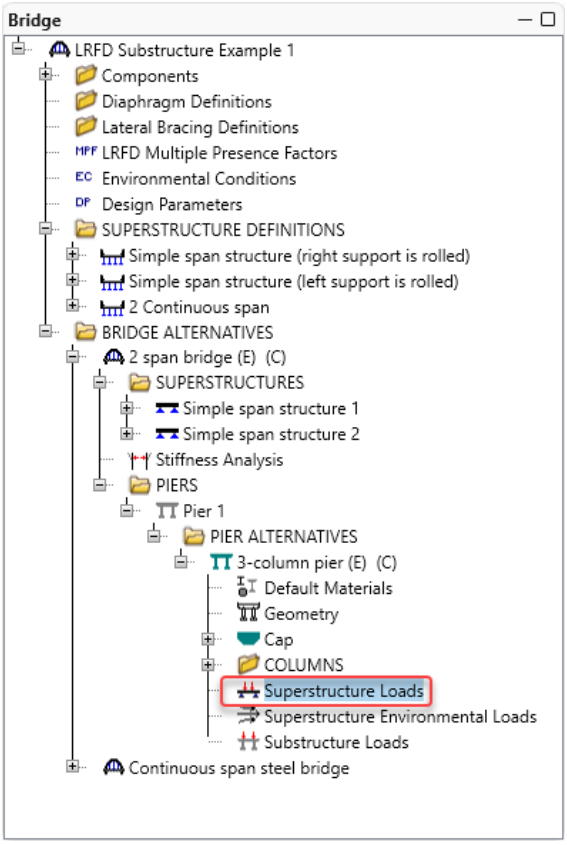
Right click on **3-column pier** and select **3D Schematic**

The 3D schematic shows 2 bearing lines:

Pier 1 3-column pier 3D Schematic



From **Superstructure Loads** in the tree



The loads are generated producing the **Superstructure Loads** window below. Using the **Compute DL reaction** button the below table is completed that shows the girders for the back and ahead spans:

Superstructure Loads - Pier 1-3 – column pier DL tab