Belmont Concrete Arch Bridge Deck Demolition and Reconstruction Read-Me

Below is a list and brief description of the analysis files used to provide forces for the deck demolition and reconstruction conceptual plan. For each analysis file, there is an associated pdf file that describes the assumptions and process in detail.

Be aware that for some of the reinforced concrete compression members analyzed (arch ribs and spandrel columns), these members' capacities are generally governed by interactions of compressive force and flexure. Therefore, the capacity of these members is dependent upon, and varies with, their loading.

Description of the Model Files and their associated pdf documentation:

-"BEL 40 Iteration 3 Demo Analysis Arch Model First Stage.mcb" This is a Midas Civil file that was first used to load rate the bridge's arch ribs, spandrel columns, and floorbeams in 2023 before being used for the deck demolition analysis. Several members have had their stiffness reduced (see the 2023 load rating report for more information). This model was the starting point for the construction analysis and depicts the first stage of the model. Following construction stages can be created by removing the deck from the model. The pdf that describes this work is titled "Belmont 40 Demo Evaluation Model Set Up 02_7_25.pdf" and the Midas Civil version used to create it was Civil 2023 v1.2.

-"BEL 40 Iteration 3 Deck Reconstruction Analysis Base Model.mcb" This is a Midas Civil file that was first used to load rate the bridge in 2023 before being used for the deck demolition analysis (specifically the arch ribs, spandrel columns, and floorbeams). Several members have had their stiffness reduced (see the 2023 load rating report for more information). This model was the starting point for the construction analysis and can be used to create the stages of deck reconstruction. The pdf that describes this work is titled "Belmont 40 Deck Reconstruction Evaluation Model Set Up 02_18_25.pdf" and the Midas Civil version used to create it was Civil 2023 v1.2.

-"0701599-Stage_2_Construction_Added Strands.xml" This is an AASHTOWare BrR file used to evaluate the proposed box beams, slab beams, and slab span to ensure that they could handle the construction live loads that would be required to traverse these members during the placement of the slab beams in the arch spans. The pdf that describes this work is titled "Belmont Construction Box and Slab Beam Analyses 03-10-25.pdf" and the BrR version that this file was created using is 7.4.1.3001.