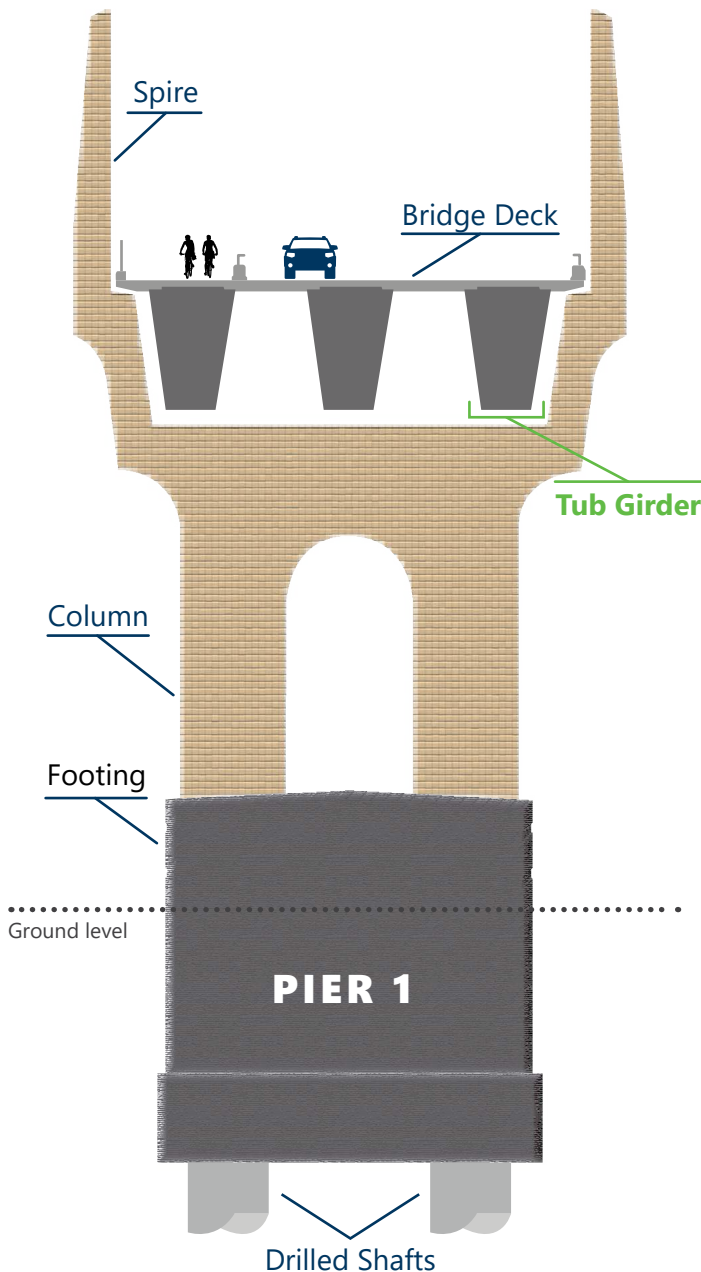


WHAT IS A TUB GIRDER?

 www.dot.state.mn.us/d6/projects/redwing-bridge/

A **TUB GIRDER** is a large, steel hollow beam that supports the bridge deck (driving surface) and resembles the shape of a bath tub.



Quick Facts:

- 4 tub girders make up a set. Three side-by-side sets support the bridge deck.
- Sets over land: 216 ft long and 9 ft tall.
- Sets over water: 432 ft long and up to 14 ft tall.



HOW ARE TUB GIRDERS TRANSPORTED TO THE SITE?

The girders are delivered via semi tractor-trailer from Veritas Steel in Eau Claire, WI. Large cranes are used to unload the girders.

HOW ARE TUB GIRDERS INSTALLED?

Over land: The first girder is placed on a temporary truss bridge (launcher). The second girder is held by a crane while bolted to the first girder then guided out toward Pier 1 using winches and the launcher. Subsequent girders that make up a set are bolted together at each end and launched toward Pier 1.

Over water: Construction crews use cranes on barges to lift the girders into place. Similar to those over land, the girders are connected using temporary bolts, a process called "pinning."

WHAT HOLDS ALL THE PIECES TOGETHER?

Once the tub girders span from the south abutment to Pier 3 (in that order, from MN to WI), permanent bolts (thousands of them!) are installed and expertly tensioned.