



# Cumberland River Pedestrian Bridge Foundation Nashville, Tennessee



**DBA Client:** Hayward Baker, Inc.

**Owner:**  
City of Nashville

**Specialty Geotechnical Contractors:**  
Hayward Baker, Inc.  
Long Foundation Drilling Company, Inc.

**DBA Services:**

- Performed slope stability analyses to evaluate the stability of the existing slope and its potential loading of the proposed micropile foundation.

**Project Highlights:**

The Cumberland River Pedestrian Bridge is a pedestrian and bicycle bridge that connects the Shelby Bottoms and Stone River sections of Nashville's Greenways Project.



Deep foundation support for Main Bearing Pier No. 2 of the Cumberland River Pedestrian Bridge was originally designed for two 8-foot diameter drilled shafts. The main pier support was located on the edge of the Cumberland River, at the base of a steep bluff. A thick, sloping layer of large boulders and rip-rap was located at the river's edge at the proposed pier location.

The sloping bedrock and thick boulder fill made the drilled shaft installation near impossible without extensive remedial measures and schedule delays. Long Foundation Drilling Company approached Hayward Baker Inc. about providing a micropile foundation alternative to the drilled shafts. HBI developed a design consisting of 34 steel cased micropiles installed in a 32'-6" x 12' wide pile cap footprint. The piles extended up to 55 feet in depth, had compression capacities of 250 tons, and had uplift capacities of 125 tons.

During the design submittal review process, questions arose about the stability of the sloping rip-rap and the potential lateral loading the rip-rap could induce on the piling system. As a subconsultant to Hayward Baker, DBA performed a stability analysis to quantify the potential lateral loads that were subsequently incorporated into the design.

The proposed design was ultimately accepted. The piles were drilled with a hydraulic track drill and tooling was delivered to the site by crane. A load test to 200% of the design compressive load was performed in the middle of the pile cap.

*Photo Credits: Hayward Baker, Inc.*