



CUMBERLAND RIVER PEDESTRIAN BRIDGE

Nashville, Tennessee

Owner: City of Nashville

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

Years of Project: 2007

Total Project Cost: \$8.5 Million

Client Reference:
Craig Smith (Hayward Baker— 865-583-8212)



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.

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 led to a change from drilled shaft foundations to a micropile group foundation.

Hayward Baker Inc. 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 deep, had compression capacities of 250 tons, and uplift capacities of 125 tons.

DBA assisted Hayward Baker's design efforts by performing stability analysis of the micropile foundation system to quantify the potential lateral loads that could occur due to slope instability. Both 2D and 3D analyses were performed using finite element and limit-state software applications.

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