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REUSABLE ANCHORING SYSTEM SUPPORTS TENSION-HELD FABRIC SAILS FOR ANNUAL MUSIC FESTIVAL.

By Wayne Thompson

AS THE MANAGER of CTL/Thompson's Fort Collins, Colo., branch and testing lab — the only testing lab in the world that can perform every aspect of ICC-ES' AC308 standards governing strength testing for helical piers and anchors — I've seen my share of anchoring systems. But I have never used them to rock and roll. That is, until the organizers of a local music festival, Bohemian Nights at NewWestFest (www.bohemiannights.org), contacted CTL/Thompson.

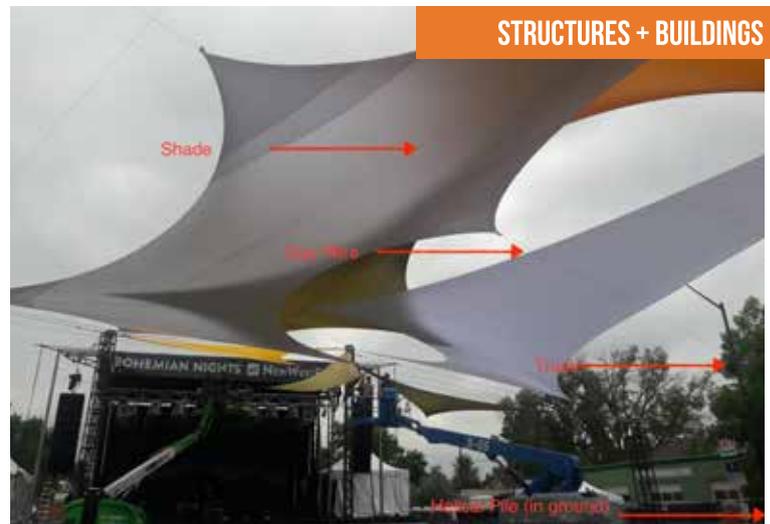
The founders of the free, three-day music festival — with headliners like Cake and featuring top local bands — needed an effective method to anchor a new tension-held fabric sail system purchased to improve acoustics and shelter concertgoers from the formidable Colorado sun at each of the festival's three stages.

The colored fabric structures require a sophisticated anchoring system, and NewWestFest's location presented a unique set of circumstances. The festival takes place in the busy Old Town area of Fort Collins, and the custom structures remain in place during the three-day festival. In the past, the shade architects have used "Jersey walls" or other large concrete blocks to anchor guy wires for similar shade structures. The system supported the fabric system, but the barriers hindered pedestrian and car traffic. Furthermore, the anchoring system had to be recreated each year.

A helical pile system would solve the issues caused by the impeding concrete barriers while still delivering the strength and tension needed to support the shade structures. The system could be hidden with a manhole cover or sprinkler valve box when not being used but was easy to reuse each summer. The process was new to city officials and concert organizers, but CTL's knowledge of helicals and its expertise in local soil conditions instilled the needed confidence to try the unique approach.

The team designed a system with 10 helical piles to anchor rope "guys" that stabilize six main truss columns. The helicals had 1-1/2-inch square shafts and were placed from 6 to 15 feet deep, depending on soil conditions. High-capacity ropes suspended between the trusses supported the shade structures.

When mapping the system, the team worked closely with city and environmental officials to identify utilities and water lines. They also took into consideration the streets and landscaped areas. The final placement created minimal disruption to the pavement and soil.



Music festival founders needed an effective method to anchor a new tension-held fabric sail system purchased to improve acoustics and provide shade.



The helical pile system is hidden with a manhole cover or sprinkler valve box when not being used.

Size did matter. Because of the small diameter of the helicals, we were able to work with existing utilities and keep things out of the way of water lines and tree roots. Moreover, the team didn't have to drill and extract and dispose of dirt as with drilled concrete piers. With small center-shaft helicals, no dirt comes out.

With the NewWestFest project, the helicals can be left in place, covered, and later accessed as needed. The pile system was used in 2017 and will be used again this August and for years to come. Not only did CTL solve the city's problem created by the Jersey walls, but they simplified the setup and takedown process for the structure's designers.

WAYNE THOMPSON manages the Fort Collins, Colo., branch of CTL/Thompson (www.ctlt.com), a full-service geotechnical, structural, environmental, and materials engineering firm. Established in 1971, the firm employs 240 technical and non-technical employees and provides expertise in small- and large-scale projects in all areas of construction. CTL/Thompson is headquartered in Denver and has offices throughout Colorado in Fort Collins, Pueblo, Colorado Springs, Glenwood Springs, and Summit County as well as Cheyenne, Wyo.