

A CASE HISTORY

Chance Civil Construction Distributor:

DANBRO Distributors, Philadelphia, Pennsylvania

Project:

Girl Scouts of Eastern Pennsylvania
New Pedestrian Bridge Design
& Construction

Structural Engineer:

W.J. Castle, P.E. & Associates, P.C.
(Member of THE CASTLE GROUP)

General Contractor:

Hydro-Marine Construction Co., Inc.
(Member of THE CASTLE GROUP)

Background Information:

Camp Laughing Waters in Gilbertsville, Pennsylvania hosts a variety of camp activities and amenities for the Girl Scouts. However, no direct access was available to cross between the camps divided by Swamp Creek. Instead every time they needed to travel between the camp sites, a shuttle car would drive around on the main road.

In 2007, the Girl Scouts of Eastern Pennsylvania planned to re-design the camp site to include a new route for pedestrians to cross Swamp Creek and *W.J. Castle* was retained to provide the design/build services for this project. *W.J. Castle* was brought in as the Bridge Engineer/Contractor and was responsible for the design and construction of the bridge and foundations, including the foundation excavation.

W.J. Castle had the 140 foot long by 8 foot wide steel bridge pre-fabricated into two modules and shipped to the site, ready for installation. Per our specifications, the fabricator constructed the bridge of weathering steel with pressure treated timber decking. Utilizing weathering steel not only blends well with the rustic surroundings but it is very low maintenance which was a huge benefit to the owner saving them future maintenance costs.



W.J. Castle has been a certified distributor of “Chance” anchors and our affiliate company *Hydro-Marine Construction Co., Inc.* has been a certified installer since 2007.



Marine was utilized to perform the site work, the foundation excavation and installation, construction of the abutments and wingwalls, and the construction management from start of the project to final installation.

Job Description:

Prior to any design work, several considerations had to be taken into account including the isolated settings which hindered access to the site, as well as the soil conditions and water levels which limited the foundation design options.

The owner wanted to keep the rustic ambiance of the site and preserve as much of the trees and wooded areas as possible. Initial site visits were done to verify field conditions and determine the best layout and design.

The concrete abutments were designed to support the ~56,000 lb. steel bridge. The concrete abutments and wingwalls were tinted light brown to blend into the environment. *W.J. Castle* designed the bridge abutments using a “Chance” helical pile foundation system. The water table level, soil conditions, and surrounding woods negated the use of spread footings and by utilizing a helical pile foundation the abutments would leave a smaller footprint with less disturbance to the site. Each abutment foundation consists of eighteen 1¾” square anchors and seven 3½” diameter anchors driven as required to achieve the minimum pile capacity of each anchor.





Using a 500 ton crane supplied by Thackray Crane Rental, the bridge sections were taken off of the trucks and set into the designated temporary location.



After the bridge sections were connected, the bridge was then lifted and placed into the final position on the concrete abutments. Installation of the bridge from when it was brought to the site to when it was completely installed took less than 4 hours.

The bridge installation was completed on June 11, 2008, for a total cost of \$422,000. The bridge was open and in use by June 20, 2008.

