DISSEN & JUHN COMPANY

CASE STUDY

Project:
Stevenson University Pedestrian Bridge
Owings Mills, MD

Prime Contractor:
David S. Brown Enterprises, LTD
Owings Mills, MD

Subcontractor:
Dissen & Juhn Company,
Stevensville, MD

PROJECT SCOPE:

Stevenson University is a private university which has grown from a small, mostly commuter school into a 4,100-student, multi-campus university with student dorms and athletic teams. Its expansion goals created some logistical issues such as how to connect its campus properties in a seamless, safe manner.

Constructed primarily of solid-sawn timbers on timber piles, the bridge is designed for pedestrian traffic and light duty vehicles up to 3,000 lbs. GVW, and measures 586' long x 12' wide and features two cantilevered lookouts. Large 12" x 12" pile caps support 3" x 10" stringers and deck boards. A timber railing runs the full length of the structure on both sides.

The bridge spans Gwynns Falls – a 25 mile long stream that runs southeast through Baltimore County and empties into the Patapsco River. At Stevenson University, the stream winds through heavily wooded and rocky terrain. At this point, the bridge is a full 24' above the ground.

Where the bridge spans the stream, three 8¾" wide x 57"deep x 90' long glue laminated timber beams with 2½" thick "glulam" deck panels carry pedestrians safely from one side to the other. A similar 52' long glulam design was also used to span a buried pipeline. The glulam construction was supported by concrete pile caps and concrete-filled, steel pipe pile bents.

CHALLENGES AND SOLUTIONS:

There were several challenges that the contractors had to overcome during the course of the project. First, to be able to service the job, the site had to be cleared of trees and a temporary 20' wide "corduroy road" built along the structure's length. Built of crane mats, the road was some 680' long and provided a solid foundation for the heavy equipment used to construct the bridge.

Secondly, hard rock deposits just under the ground created obstacles for the pile driving operation. A minimum embedment of 15' required that each pile be augured in. In the case of the glulam spans, each of the rock-socketed pipe piles had to be grouted in place and a concrete footer installed around their base.

Lastly, in addition to a serpentine layout, which included five curves (no small chore when working with large, rigid materials), the deck elevation changed 15' over the structure's length. This required a more exacting layout than on a conventional timber bridge.

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