



3. The epoxy coating was eliminated from the rebar because of more than adequate concrete cover. This saved money as well as time because of easy availability of standard rebar. All rebar is 60 KSI.
4. To allow bending in the field, the dowel bars were changed from #6 to #5, but the number of dowel bars was increased to maintain the same cross-sectional area. A Joslyn Universal pole band was utilized to connect the #5 bars to the transmission poles, instead of the pipe straps.
5. GPU Energy provided single curve spike grids. GPU Energy also provided 3-inch by 3-inch by 1/4-inch square washers for the suspenders, in lieu of the 4-inch by 4-inch specified.
6. The walkway portal crossarm centerpoints were lag-screwed in lieu of through-bolted.
7. The cable saddles were customized for the individual non-uniform pole tops. See previous discussion on page 45. Top crossarms were doubled-up.
8. The walkway interior 2-inch by 6-inch stringers (joists) were not staggered for ease of prefabrication and transport.
9. The west staircase has a total rise of 12 feet, 3 inches in lieu of 12 feet.
10. An underbelly wind guy was added.
11. In order to ensure Americans with Disabilities Act compliance, bridge walkway slope was revised from 4.5 to 3.5 percent.
12. For ease of prefabrication, the bridge walkway rail truss was revised from a "Pratt" to a "Howe" configuration.
13. Available 2-inch by 12-inch lumber was substituted for the 2-inch by 6-inch stock on the staircase treads.

## Americans with Disabilities Act (ADA) Compliance

As indicated in the project goals and project correspondence, the bridge is the central element in what may become a handicapped-accessible segment of the Appalachian Trail. It is NJDEP policy to meet the recreational needs of citizens with disabilities. In order to provide a standard of which to design to, the project engineer treated the walkway of the bridge no differently than any other public pedestrian walkway. Project design adhered to the handicapped-accessible standards of the following three codes or standards:

- The BOCA® National Building Code
- N.J.A.C. 5:23-7, Barrier Free Subcode
- Title III of the Americans With Disabilities Act

In order to meet ADA requirements, the bridge walkway had to meet specific dimensional, clearance, and slope criteria. Specific design elements referenced to the appropriate ADA section numbers are as follows:

- 4.8.1 The walkway slope is 3.5 percent or 1:22.5. As it is under 5 percent, it is not considered a ramp. The length and rise limitations of section 4.8 are not applicable.
- 4.8.3 The walkway clear width of 39 inches exceeds the minimum standard of 36 inches.
- 4.8.4 Although not required as the walkway is not a ramp, a 10-foot level platform is provided at the center of the bridge, and a 6-foot long by 8-foot wide level platform is provided at either end.



4.8.7 In addition to having an AASHTO and BOCA® rail system, a 2.5-inch curb is provided.

A step or series of steps at either end of the walkway down to the platform as is typical for such bridges was not acceptable in this case because of the ADA goals. The ramp transition from the platform to the bridge walkway is detailed on Plan Sheet 2.

Subsequent to the construction of the bridge, two guidance documents became available that provide accessibility guidelines for the design and construction of recreation trails in a variety of settings. These two documents are as follows:

- “Recommendations for Accessibility Guidelines, Recreational Facilities and Outdoor Developed Areas” by the Recreation Access Advisory Committee, 1331 F Street NW, Suite 1000, Washington, DC 20004
- “Design Guide for Accessible Outdoor Recreation” by the USDA Forest Service and USDI National Park Service, USDA Forest Service, 201 14th Street SW at Independence Avenue SW, Washington, DC 20250

## **Environmental Integrity**

The bridge plans and construction were subject to a comprehensive review by the NJDEP Bureau of Land Use for compliance with the Flood Hazard Area Control Act and the Freshwater Wetlands Protection Act. Stream Encroachment and Wetlands Permits were issued. Mr. Paul Drake, the environmental specialist within the NJDEP Bureau of Land Use, who reviewed the permit application, also performed site inspections during construction. All participants were very pleased over the minimal environmental impact on the fragile quagmire ecosystem.

## **Aesthetics**

Palladio, an Italian architect of the 16th century, compared a good bridge to a fine fabric. “A bridge must be convenient, beautiful, and durable.” Those eight words provide the fundamental principles of bridge design.

Trail groups within the project partnership felt strongly that the bridge should have a rustic appearance in order to preserve the primitive trail experience of the Appalachian Trail. Without question, this goal was attained. The fact that the entire bridge, other than the cables and connectors, is #1 southern yellow pine gives it an inherently rustic flavor. Although the bridge owes more to John Roebling, it appears as if Daniel Boone built it.

The Pochuck Quagmire Bridge is a classic example of structural functionalism. All members are necessary. But within this structural functionalism, attention was paid to architectural lines. The camber of the bridge was incorporated for aesthetic as well as functional reasons. The smooth upward 3.5 percent camber of the walkway serves to accent the parabola of the catenary cables. The simple act of trimming the tower crossarm ends to 45 degrees gave the towers a finished look. This 45 degree end treatment was carried through the walkway portals.