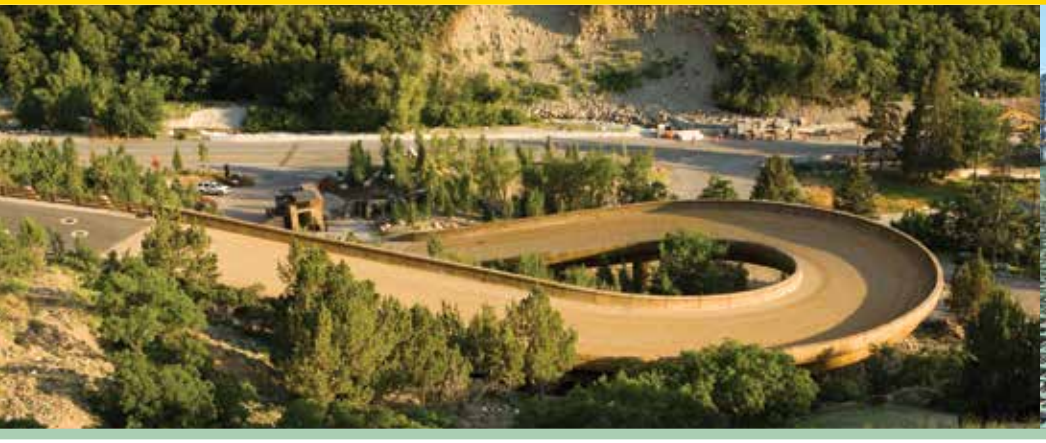
Big Cottonwood Canyon Loop Road Bridge

Salt lake City, UT



A strong welcoming presence was needed to attract buyers to a new upscale housing community near Utah's Wasatch Mountains, but the difficult terrain created challenges. To meet both functional and aesthetic needs, two reinforced concrete bridges were created, including a five-span, 450-foot-long structure with a switchback curve along an 80-foot radius of the centerline.

The entire structure, from its footings to parapet, features conventionally reinforced, cast-in-place concrete. Spread footings of 25 square feet support 7-foot-diameter single column-bent supports. Full-depth integral bent caps, each 5 feet wide, support the concrete box superstructure, which consists of a three-cell concrete box girder.

The lower, five-span bridge features three curved middle spans, connecting to the two straight end spans. The entire structure used more than 2,500 yards of concrete and 415,000 pounds of Grade 60 reinforcement bars. The bridge's curvature was so severe that longitudinal #8 deck bars were bent at the fabricator's shop to achieve the proper shape. Smaller #5 bars were bent in the field and spaced along the deck's outside edge at a wider spacing than along the curve's inside edge. The top deck and parapets feature epoxy-coated reinforcing steel (rebar), with the other sections using uncoated reinforcing bars.

The parapet included recesses for LED lighting tubes along the top of the barrier and conduit, with blockouts for ornamental floor lights. The completed bridge was stained to better fit with the natural environment of Big Cottonwood Canyon while still making a strong structural and architectural statement.

Team

Owner:
Wasatch Pacific LLC

Designer:
Michael Baker Jr. Inc

Builder:
Ralph L. Wadsworth Construction Co.

Photography:
Michael Baker Jr. Inc.