

BURLINGTON NORTHERN SANTA FE RAILROAD,
CAJON SUBDIVISION , STRUCTURE NO. 61.5X
between Cajon Summit and Keenbrook
Devore vicinity
San Bernardino County
California

HAER CA-2259-I
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PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD
PACIFIC WEST REGIONAL OFFICE
National Park Service
U.S. Department of the Interior
1111 Jackson Street, Suite 700
Oakland, CA 94607

HISTORIC AMERICAN ENGINEERING RECORD

Burlington Northern Santa Fe Railroad, Cajon Subdivision,
Structure No. 61.5X

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Location: BNSF Railway Company (BNSF) Railroad Structure No. 61.5X, a steel-plate girder bridge with four spans, is located at Milepost 61.5X on Main Track 1, Devore vicinity, San Bernardino County, California. The bridge crosses Cajon Creek and is bounded by the Union Pacific Railroad to the west, BNSF Main Track 2 to the east, and State Highway 138 to the south.

The bridge lies within the SE $\frac{1}{4}$ of the NW $\frac{1}{4}$ of the SE $\frac{1}{4}$ of Section 27, Township 3 North, Range 6 West, on the 1956 Cajon, California, 7.5-minute U.S. Geological Survey quadrangle (photorevised 1988). Universal Transverse Mercator Coordinates: Zone 11, NAD83, Geodetic Reference System 1980 ellipsoid, 3797301 mN, 454830 mE (south abutment); 3797350 mN, 454833 mE (north abutment).

Date of Construction: 1913

Architect/Engineer: unknown

Builder: Atchison, Topeka and Santa Fe Railway (AT&SF)

Present Owner: BNSF

Present Use: Bridge on Main Track 1.

Significance: The section of railroad through Cajon Pass provided a vital link between the greater Los Angeles area and distant markets. In 1998, the California State Historic Preservation Office determined the historic route of the AT&SF (now BNSF) railroad alignment through Cajon Pass to be eligible for listing in the National Register of Historic Places under Criteria a and c. By connecting Los Angeles and San Bernardino to markets throughout the United States, the railroad dramatically affected demographic, commercial, and cultural trends in Southern California. Furthermore, construction of the long, winding alignment through rugged and often steep terrain represents a significant engineering feat for its time. Structure No. 61.5X contributes to the function and significance of the railroad line by carrying rail traffic across Cajon Creek.

Report Prepared by: Scott Thompson, Senior Historian
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Tucson, Arizona

Date: March 2008

Architectural and Engineering Information

Structure No. 61.5X is a four-span, steel-plate girder bridge (also known as a thru girder bridge) on a 6° curve that carries Main Track 1 over Cajon Creek (Figure 1). Each span is 40'-0", and the bridge has a total length of approximately 164'. The width of the bridge is 14'-9" from the center of one plate girder to the other, and the center height of the bridge from the deck bottom to the creek bed is approximately 13'.

The reinforced-concrete substructure bears the concentrated vertical load of the bridge and consists of two abutments, one on each side of Cajon Creek, and three piers for supporting the bridge deck spans. The east abutment has a length of 24'-4" and an approximate height of 10' above the creek bed. Extending from both sides of this abutment are 15'-0"-long wing walls. The southeast wing of this abutment has an upper, more recent extension with a height of 6'-0". L-iron guardrails are attached to the top of the wing wall extension. The western abutment has a length of 21'-8" and an approximate height of 10' above the creek bed. The wing walls of this abutment have a length of 13'-0". Metal ladders for routine bridge inspections are anchored to the abutments.

The three piers are identical in design and dimensions. Each pier is hexagonally shaped, with sides that slope upward. The aboveground sections of the piers have an average height of 10', an average length of 21', a top width of 6'-0", and an average bottom width of 8'. The piers are spaced at an average distance of 33'. Two metal inspection ladders are anchored to the opposing sides of each pier.

There are two (left and right) steel-plate girders that appear as an I form in cross section and provide support for each span. The girders, which consist of large steel plates that are riveted together, have a web 4'-8-1/2" high. Cast-iron shoes anchor the girder ends to their respective vertical supports (either abutments or piers). Floor beams (steel I-beams) run perpendicular to the main girders and are riveted to the inside flanges of the girders. Three sets of metal bars, placed diagonally to the floor beams, provide lateral support for each span. The bridge deck—on which rest the ballast, ties, and rails—is constructed of 4" x 10" creosoted timber.

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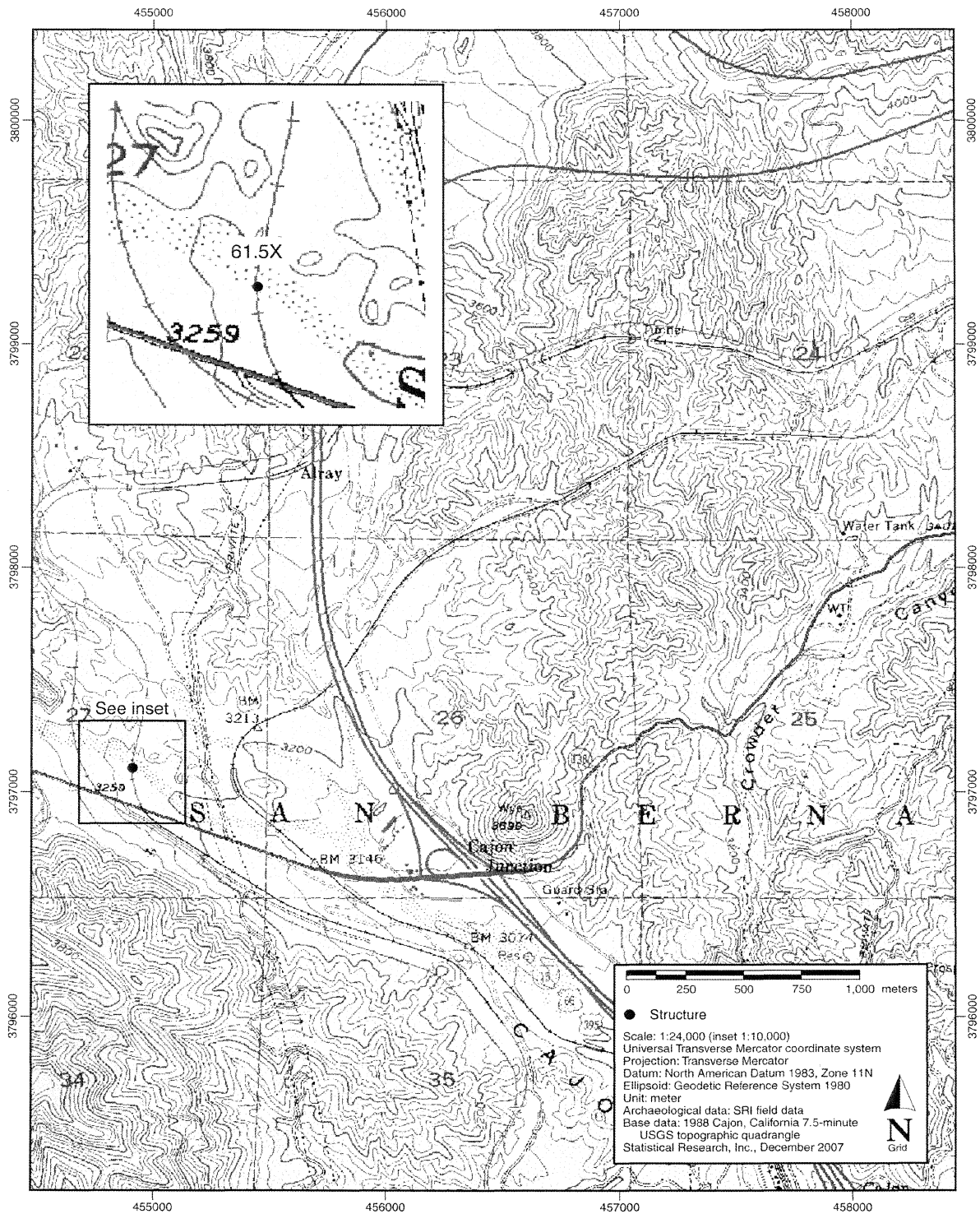


Figure 1. Project location (1956 Cajon, California, 7.5-minute U.S. Geological Survey quadrangle [photorevised 1988]).

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David G. De Vries, photographer

June 2007

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