

BURLINGTON NORTHERN SANTA FE RAILROAD,
CAJON SUBDIVISION , STRUCTURE NO. 61.3X
Between Cajon Summit and Keenbrook
Devore vicinity
San Bernardino County
California

HAER CA-2259-H
CA-2259-H

HABS
CA 2259-H

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD
PACIFIC WEST REGIONAL OFFICE
National Park Service
U.S. Department of the Interior
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HISTORIC AMERICAN ENGINEERING RECORD

Burlington Northern Santa Fe Railroad, Cajon Subdivision,
Structure No. 61.3X

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Location: BNSF Railway (BNSF) Railroad Structure No. 61.3X, a reinforced-concrete-arch and corrugated-metal-pipe culvert, is located at Milepost 61.3X on Main Track 1, Devore vicinity, San Bernardino County, California. The culvert is bounded by the Union Pacific Railroad to the west and Interstate 15 to the east.

The culvert lies within the SE $\frac{1}{4}$ of the SW $\frac{1}{4}$ of the NE $\frac{1}{4}$ of Section 27, Township 3 North, Range 6 West, on the 1956 Cajon, California (photorevised 1988), 7.5-minute U.S. Geological Survey quadrangle. Universal Transverse Mercator Coordinates: Zone 11, NAD83, Geodetic Reference System 1980 ellipsoid, mN 3798082, mE 454510 (inlet); mN 3798092, mE 454528 (outlet).

Date of Construction: 1913, modified 1977

Architect/Engineer: unknown

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

Present Owner: BNSF

Present Use: Culvert 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. 61.3X contributes to the function and significance of the railroad line by mitigating the effects of erosion on the integrity of the system.

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I. ARCHITECTURAL AND ENGINEERING INFORMATION

Located on a major drainage, Structure No. 61.3X is a combined reinforced-concrete-arch and corrugated-metal-pipe culvert (Figure 1). A culvert is a structure designed to protect the roadbed from the erosive effects of storm runoff by carrying water safely under the track. Culverts are placed at points along the roadbed where the railroad intersects normally dry channels. The size of a culvert is determined by the anticipated rate of flow during periods of heavy rainfall (Hay 1953:282, 284; Webb 1932:249).

The arch culvert was constructed in 1913. The length of the culvert barrel is 59'-0", with an approximate overall length (from inlet transition to outlet transition) of 112' (Second Track Summit to Cajon, 18' x 9'-6" Arch, Station 265+32.8. C. E. C. L. No. 87-12068, drawing, 1913, Structures Department, BNSF Railway Company [BNSF], Kansas City, Kansas). On the downstream side of the culvert, the outlet transition consists of an arched opening, headwall, wing walls, and apron. The headwall and wing walls hold back the roadbed fill from the culvert opening, and the apron prevents scouring around the outlet. The arched opening has a center height of 18'-6" and bottom width of 18'-0". Inside the barrel of the arch culvert is a poured-concrete floor covered with a thin layer of sediment. At the arched opening, the distance from the floor to the top of the headwall is 21'-7-1/2". The headwall has a length of 21'-3" and a width of 2'-0". Two wing walls extend from the headwall. Each wing has a length of 25'-3", a width of 2'-0", and is tapered, with a maximum height of 20'-1-1/2" and a minimum height of 3'-3-1/2". The northernmost wing wall is perpendicular to the headwall, and the southernmost wing wall flares away from the headwall at a wide angle. The edge of the concrete apron, at the point where the structure transitions to the natural drainage, is 30'-0" wide.

In 1977, Atchison, Topeka and Santa Fe Railway extended the culvert on the upstream side of Main Track 1 during construction of a maintenance road embankment. The extension consists of an oval-shaped corrugated-metal pipe with an opening that measures 5'-8" x 6'-2". Fill from the roadbed embankment surrounds the pipe on the upstream side of the culvert. The pipe extends about 30' into the arch culvert and is held in place by compacted sediment and gravel that surround the length of the pipe. This pipe likely had a diameter of 6'-0" but has been slightly compressed by the fill used to hold it in place. The length of the modified culvert is approximately 135' (Bridge List, First District, Los Angeles Division, p. 46, Structures Department, BNSF). The inlet transition of the original culvert—consisting of the headwall, wing walls, apron, and arch opening—is covered by the maintenance road embankment.

II. REFERENCES CITED

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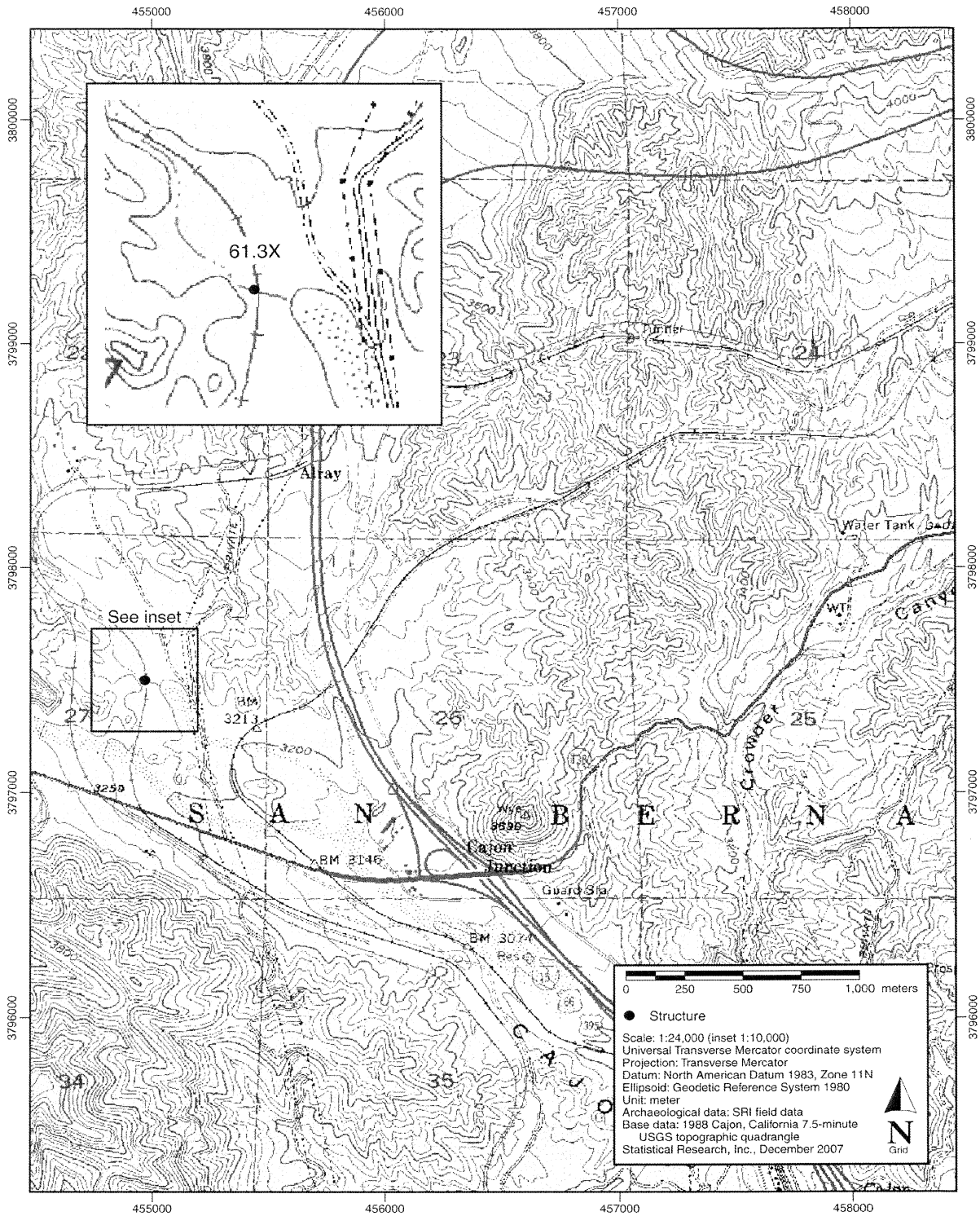


Figure 1. Project location (1956 Cajon, California, 7.5-minute U.S. Geological Survey quadrangle [photorevised 1988]).