

HISTORIC BRIDGE INVENTORY

Salt River Bridge

PROPERTY IDENTIFICATION

county	Gila	inventory number	00037
milepost	262.44	inventory route	SR 288
location	04.3 M N Jct SR 88	feature intersected	Salt River
city/vicinity	Roosevelt	structure owner	Arizona Department of Transportation
USGS quad	Salt River Peak	UTM reference	12.507250.3719952

STRUCTURAL INFORMATION

main span number	1	main span type	310
appr. span number	0	appr. span type	
degree of skew	0	guardrail type	6
main span length	215.0	superstructure	steel rigid-connected Parker through truss
structure length	220.0	substructure	concrete abutments and wingwalls on spread footings
roadway width	18.2	floor/decking	concrete deck over steel stringers
structure width	19.3	other features	lower chord / upper chord: 2 channels w/ double lacing; vertical: 2 channels with lacing; diagonal: 2 channels or 2 angles w/ batten plates; floor beam: I-beam; steel pipe guardrails

HISTORICAL INFORMATION

construction date	1920	designer/engineer	US Bureau of Public Roads
project number	FHP 12-E	builder/contractor	
info source:	ADOT bridge records	alteration date(s)	
		alterations	

NATIONAL REGISTER EVALUATION

For additional information, see "Vehicular Bridges in Arizona 1880-1978" National Register Multiple Property Documentation Form

inventory score	68	NRHP eligibility	listed
interstate exemption	-	NRHP criteria	A <u>x</u> B <u> </u> C <u>x</u>
program comment	-	signif. statement	longest and oldest riveted through truss in Arizona

FORM COMPLETED BY

Clayton B. Fraser, Principal

FRASERdesign
5700 Jackdaw Drive
Loveland, Colorado 80537
1 October 2018

SALT RIVER BRIDGE

Structure No. 00037



PHOTO INFORMATION

date of photo.: May 2018

view direction: north west

photo no.: DSCF5390 DSCF5396

CONSTRUCTION HISTORY

In 1918 the newly formed U.S. Bureau of Public Roads undertook the construction of a new road in the Tonto and Crook National Forest under the Arizona Forest Highway program. The graded earth road through Gila County would intersect with the Apache Trail near Roosevelt, skirting Roosevelt Lake and extending north 44 miles to the town of Young. BPR surveyors made the initial reconnaissance that summer and engineered the road later that year. A major component of the project was a bridge over the Salt River near the head of Roosevelt Lake. For this, BPR engineers from the District 3 Office in Denver designed a long-span steel truss supported by concrete abutments on spread footings set into the solid rock shoreline. The truss used a Parker web configuration, with riveted connections and built-up steel members. It featured a concrete deck, flanked on both sides by steel pipe guardrails.

The construction drawings were completed on September 1, 1919, and approved by the Gila County Board of Supervisors soon thereafter. The bridge's construction was let for competitive bids, work on the abutments began later that year, and the span was completed in 1920. Since that time, the Salt River Bridge has functioned in unaltered condition, carrying intermittent traffic on this secondary state route.

SIGNIFICANCE STATEMENT

The Bureau of Public Roads was extensively involved with road and bridge construction throughout Arizona, both indirectly in its review of state-engineered federal aid projects and standard bridge designs, and directly in the building of roads and structures in the national forests, monuments and parks. This agency of the Agriculture Department was exceeded only by the Arizona Highway Department in the extent of its bridge design and construction activity in the state between 1917 and 1945. Although the Salt River Bridge served as only a minor roadway crossing in a relatively remote rural area, it is historically significant as the earliest documented example of major BPR bridge construction in Arizona. Technologically, the bridge is important as the earliest and longest originally located through truss, and one of only four Parker trusses found in the statewide bridge inventory. Handsomely sited and well maintained, it is a notable early structure in Arizona bridge history.

NATIONAL REGISTER EVALUATION

TECHNOLOGICAL SIGNIFICANCE

☐ represents the work of a master
☐ possesses high artistic values
☒ represents a type, period or method of construction

HISTORICAL SIGNIFICANCE

☐ associated with significant persons
☒ associated with significant events or patterns
☐ contributes to historical district

NATIONAL REGISTER CRITERIA

☒ Criterion A
☐ Criterion B
☒ Criterion C

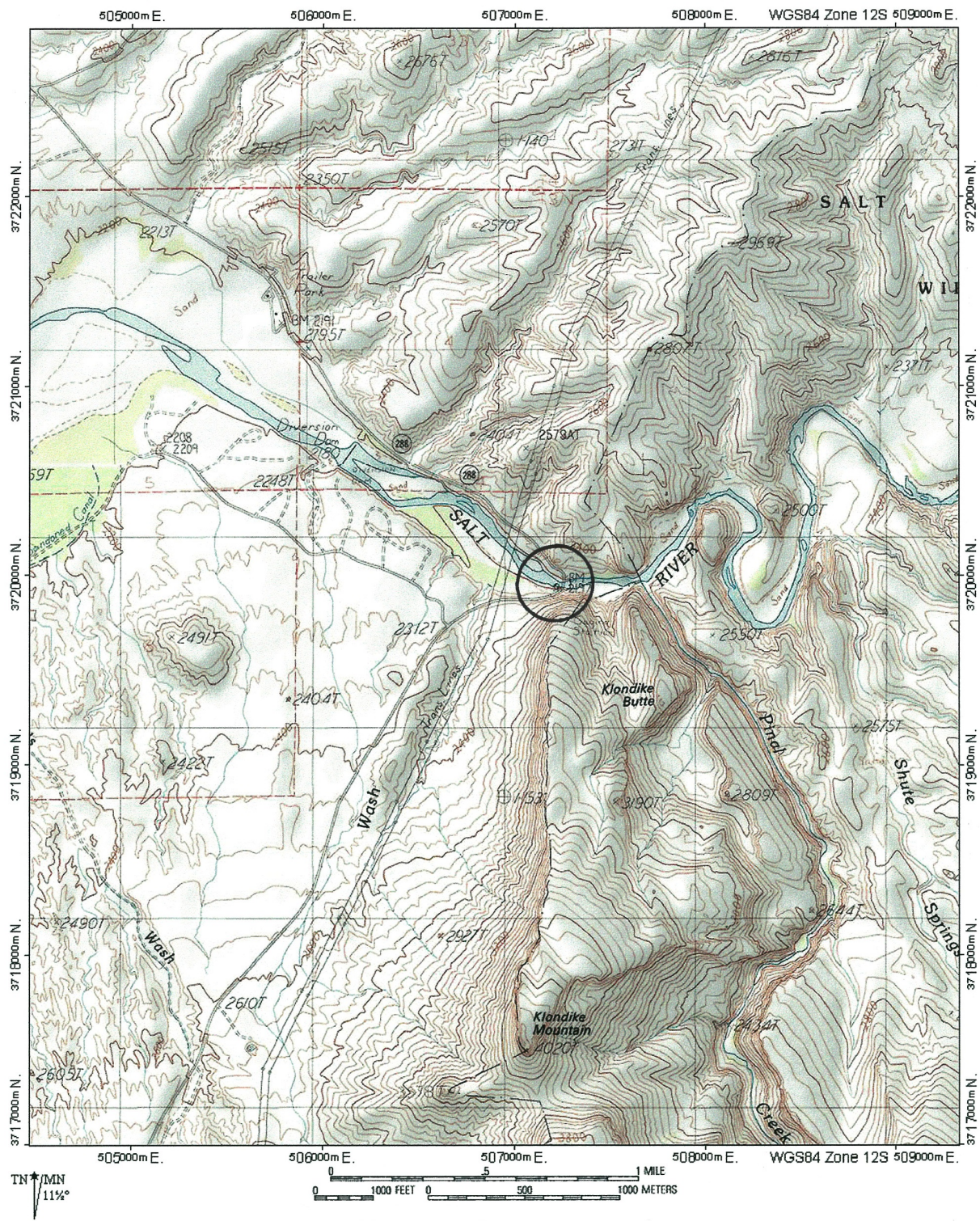
NATIONAL REGISTER ELIGIBILITY

individually eligible ☒ yes ☐ no
 contributes to district ☐ yes ☒ no

AREA OF SIGNIFICANCE: Transportation; Engineering
 PERIOD OF SIGNIFICANCE: 1920-1978
 THEME(S): Transportation: Highways

SALT RIVER BRIDGE

Structure No. 00037



LOCATION MAP

HISTORIC BRIDGE INVENTORY

Salt River Canyon Bridge

PROPERTY IDENTIFICATION

county	Gila	inventory number	00129
milepost	292.91	inventory route	abd. US 60
location	25.2 mi W Jct SR 73	feature intersected	Salt River
city/vicinity	Carrizo	structure owner	Arizona Department of Transportation
USGS quad	Mule Hoof Bend	UTM reference	12.545922.3739870

STRUCTURAL INFORMATION

main span number	1	main span type	311
appr. span number	7	appr. span type	402
degree of skew	0	guardrail type	6
main span length	162.0	superstructure	steel two-hinge girder-ribbed deck arch
structure length	455.0	substructure	concrete abutments and arch pedestals
roadway width	44.0	floor/decking	concrete deck over steel stringers
structure width	47.5	other features	arch rib: riveted steel built-up plate girder w/ angle flanges and web stiffeners; post: wide flange; floor beam: I-beam; decorative steel pylons and guardrails

HISTORICAL INFORMATION

construction date	1934	designer/engineer	Arizona Highway Department
project number	FAP 99-E	builder/contractor	Lee Moor Contracting Company, El Paso TX
info source:	ADOT bridge records	alteration date(s)	1985 c1997
		alterations	guardrails and pylons repaired; twin bridge constructed

NATIONAL REGISTER EVALUATION

inventory score	77	NRHP eligibility	listed
interstate exemption	-	NRHP criteria	A <u>x</u> B <u> </u> C <u>x</u>
program comment	-	signif. statement	outstanding, well-preserved example of rare structural type; pivotal crossing

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1 October 2018

SALT RIVER CANYON BRIDGE

Structure No. 00129



PHOTO INFORMATION

date of photo.: May 2018

view direction: north west

photo no.: DSCF5395 DSCF5398

CONSTRUCTION HISTORY

The Arizona Highway Department began surveying in 1930 for a new all-weather route across the state's northeast region. For a major crossing of the Salt River some 43 miles north of Globe, the engineers chose a "nearly perfect" bridge site in a constricted canyon. The scarcity of nearby concrete materials and the need for a single free span over the river directed AHD to this long-span, two-hinge steel deck arch. As delineated by the highway department, the bridge was comprised of a single 162-foot arch span, with seven shorter steel girder approach spans. Atypical of bridges designed by AHD, which tended to build plain-faced, utilitarian structures, the bridge was distinguished by decorative steel pylons at the arch corners and decorative steel guardrails that flanked the curved concrete deck.

When the road was almost complete in September 1933, the highway department contracted with the Lee Moor Construction Company to build the bridge. Lee Moor's contract, funded under Federal Aid Project 99-E, amounted to \$58,050. The El Paso-based contractor immediately began excavating for the concrete arch pedestals. The Salt River Canyon Bridge and its approaches presented multiple curvature problems—"more, in fact, than any bridge so far constructed in the state"—and its construction proceeded slowly. In January 1934 the work on the first pylon began. Each 18-ton arch girder was erected in five sections that spring, and in June the immense structure was completed. The Salt River Canyon Bridge has since carried mainline traffic at this remote location on U.S. Highway 60 with only minor maintenance. In 1997 a parallel structure was built immediately beside the original bridge, leaving the 1934 span open for pedestrian traffic.

SIGNIFICANCE STATEMENT

"From a distance and with its aluminum paint shining in the sunlight," AHD Resident Engineer A.F. Rath stated, "the structure looks more like a delicate piece of filigree than a well designed and constructed highway bridge." The Salt River Canyon Bridge is historically important as the pivotal structure on U.S. Highway 60 in northeast Arizona. With its architectural treatment and dramatic span over the rugged canyon, it is one of the state's best-known structures. Technologically, the bridge is significant as the first girder-ribbed steel arch undertaken by AHD. More quickly erected than the spandrel-braced arch, the girder rib design became an AHD standard, and several other such arches were built in Arizona: Cedar Canyon [00215], Queen Creek [00406], and Pinto Creek [00351]. Predated by only one other steel deck arch (Navajo Bridge [00051]), the Salt River Canyon Bridge is one of Arizona's most visually striking and technologically noteworthy vehicular bridges.

NATIONAL REGISTER EVALUATION

TECHNOLOGICAL SIGNIFICANCE

☐ represents the work of a master
☐ possesses high artistic values
☒ represents a type, period or method of construction

HISTORICAL SIGNIFICANCE

☐ associated with significant persons
☒ associated with significant events or patterns
☐ contributes to historical district

NATIONAL REGISTER CRITERIA

☒ Criterion A
☐ Criterion B
☒ Criterion C

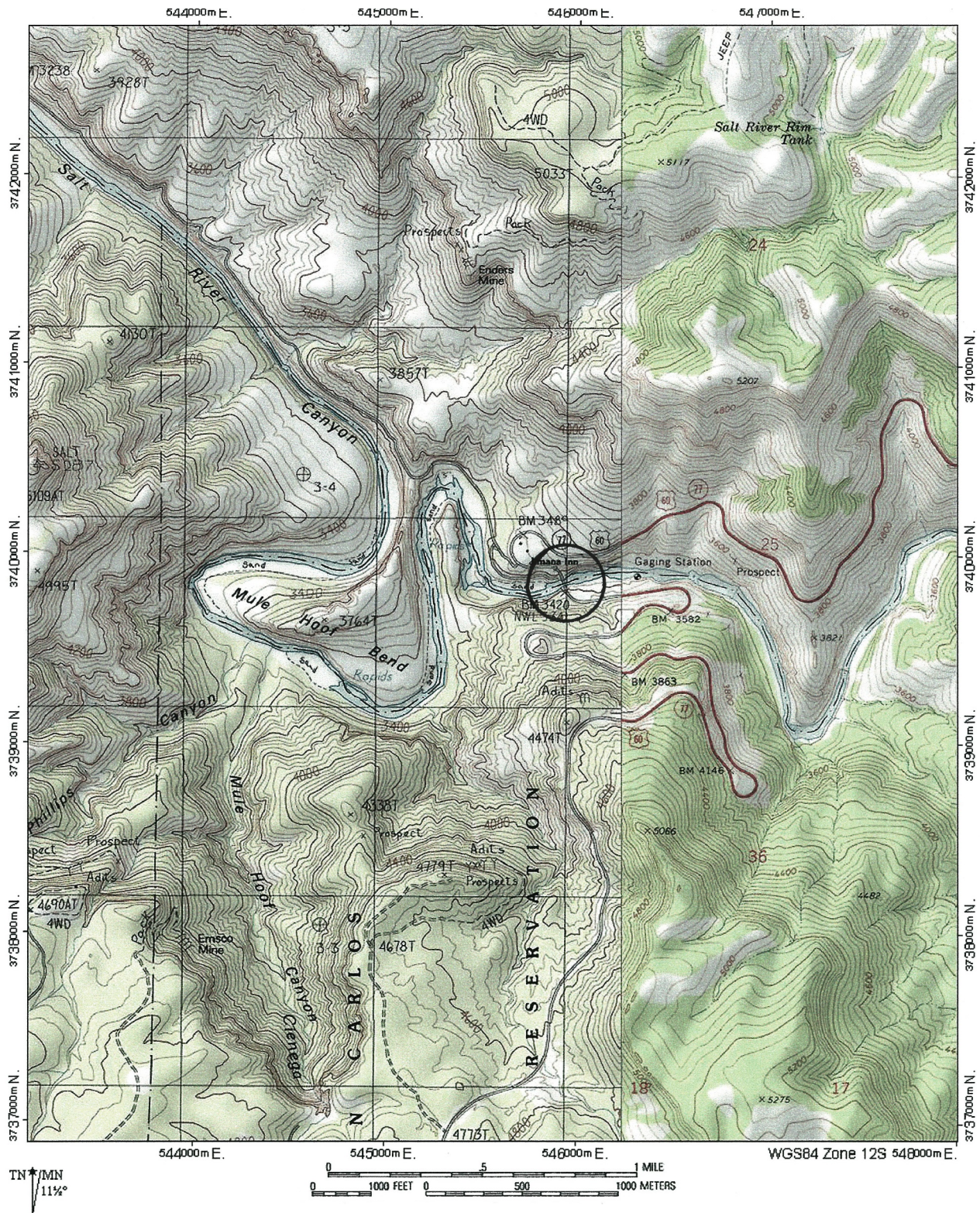
NATIONAL REGISTER ELIGIBILITY

individually eligible ☒ yes ☐ no
contributes to district ☐ yes ☒ no

AREA OF SIGNIFICANCE: Transportation; Engineering
PERIOD OF SIGNIFICANCE: 1934-1978
THEME(S): Transportation: Highways

SALT RIVER CANYON BRIDGE

Structure No. 00129



LOCATION MAP

HISTORIC BRIDGE INVENTORY

Pinto Creek Bridge

PROPERTY IDENTIFICATION

county	Gila	inventory number	00351
milepost	238.25	inventory route	US 60
location	8.8 mi W Jct SR 88	feature intersected	Pinto Creek
city/vicinity	Miami	structure owner	Arizona Department of Transportation
USGS quad	Pinal Ranch	UTM reference	12.504098.3691450

STRUCTURAL INFORMATION

main span number	1	main span type	311
appr. span number	8	appr. span type	302
degree of skew	3	guardrail type	2
main span length	371.0	superstructure	steel two-hinge girder-ribbed deck arch
structure length	637.0	substructure	concrete abutments and arch pedestals
roadway width	30.0	floor/decking	concrete deck with asphalt overlay
structure width	35.0	other features	arch rib: riveted steel built-up plate girder w/ able flanges and web stiffeners; post: built-up square section; floor beam: I-beam; decorative Art Moderne concrete pylons; aluminum tubular guardrails

HISTORICAL INFORMATION

construction date	1949	designer/engineer	Arizona Highway Department
project number	F-16(6)	builder/contractor	H.J. Hagen; Fisher Contracting Company
info source:	ADOT bridge records	alteration date(s)	1971 1977 2000
		alterations	various repairs to rails, expansion joints and superstructural steel

NATIONAL REGISTER EVALUATION

		For additional information, see "Vehicular Bridges in Arizona 1880-1978" National Register Multiple Property Documentation Form	
inventory score	59	NRHP eligibility	eligible
interstate exemption	-	NRHP criteria	A _____ B _____ C <u>x</u>
program comment	-	signif. statement	outstanding, well-preserved example of rare, long-span structural type

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1 October 2018

PINTO CREEK BRIDGE

Structure No. 00351



PHOTO INFORMATION

date of photo.: March 2018

view direction: west south

photo no.: DSCF5617 DSCF5623

PINTO CREEK BRIDGE

Structure No. 00351

CONSTRUCTION HISTORY

This long-span bridge carries U.S. Highway 60 over Pinto Creek and Rattlesnake Canyon southwest of Miami. The structure is configured as a two-hinge steel deck arch, with two riveted plate girder arch ribs, each 7½ feet in depth. Extending 371 feet from center to center of the pylons and rising 72 feet from the bearing pins, the central arch is flanked by five shorter concrete slab spans on the west and three on the east. These bear into cast steel skewbacks bolted to concrete foundations set into solid rock. The 35-foot-wide concrete deck is bounded on both sides by aluminum guardrails with concrete bulkheads. Arizona Highway Department engineer Ralph Hoffman designed the bridge in the spring of 1946. For logistical reasons, the construction was divided into two separate contracts, let on July 15, 1947. H.J. Hagen received the contract for the concrete foundations and approaches; the Fisher Contracting Company received the contract for the steel superstructure of the arch. Work started that summer and continued over the next year. When the foundations were complete, Fisher used a steel superstructure fabricated in Phoenix by the Allison Steel Manufacturing Company for the arch itself. With the arch complete, the concrete deck was laid and guardrails placed. By 1949, the bridge was complete. Total cost: \$460,344. The Pinto Creek Bridge was immense, consuming over one million pounds of structural steel, 409,000 pounds of reinforcing steel and almost 3,500 cubic yards of concrete. Since its completion, it has carried mainline traffic on U.S. 60, with only relatively minor repairs.

SIGNIFICANCE STATEMENT

As a pivotal crossing on a regionally important route, the Pinto Creek Bridge enjoys a degree of historical significance for its contribution to eastern Arizona transportation. The bridge's relatively late construction limits this significance, however. The structure is technologically important as a well-preserved example of large-scale bridge construction. Arizona erected a number of massive steel arches and cantilevered steel deck trusses in the 1940s and 1950s, most of which are impressively scaled spans placed in dramatic settings. A handful of these remain: the Queen Creek Bridge [00406] in Pinal County and the Pinto Creek Bridge in Gila County representing the arches, and the Guthrie Bridge [00352], the Hell Canyon Bridge [00483] in Yavapai County, and the Cameron Bridge [00532] in Coconino County representing the trusses. These were the state's most striking bridges of post-War period. Unfortunately, the three trusses have all been replaced. Upon its completion, the Pinto Creek Bridge won an award from the American Institute of Steel Construction as the most beautiful steel bridge in the country in its class. It numbers among Arizona's most spectacular steel spans. The Pinto Creek Bridge is presently scheduled for demolition.

NATIONAL REGISTER EVALUATION

TECHNOLOGICAL SIGNIFICANCE

☐ represents the work of a master
☐ possesses high artistic values
☒ represents a type, period or method of construction

HISTORICAL SIGNIFICANCE

☐ associated with significant persons
☐ associated with significant events or patterns
☐ contributes to historical district

NATIONAL REGISTER CRITERIA

☐ Criterion A
☐ Criterion B
☒ Criterion C

NATIONAL REGISTER ELIGIBILITY

individually eligible ☒ yes ☐ no
contributes to district ☐ yes ☒ no

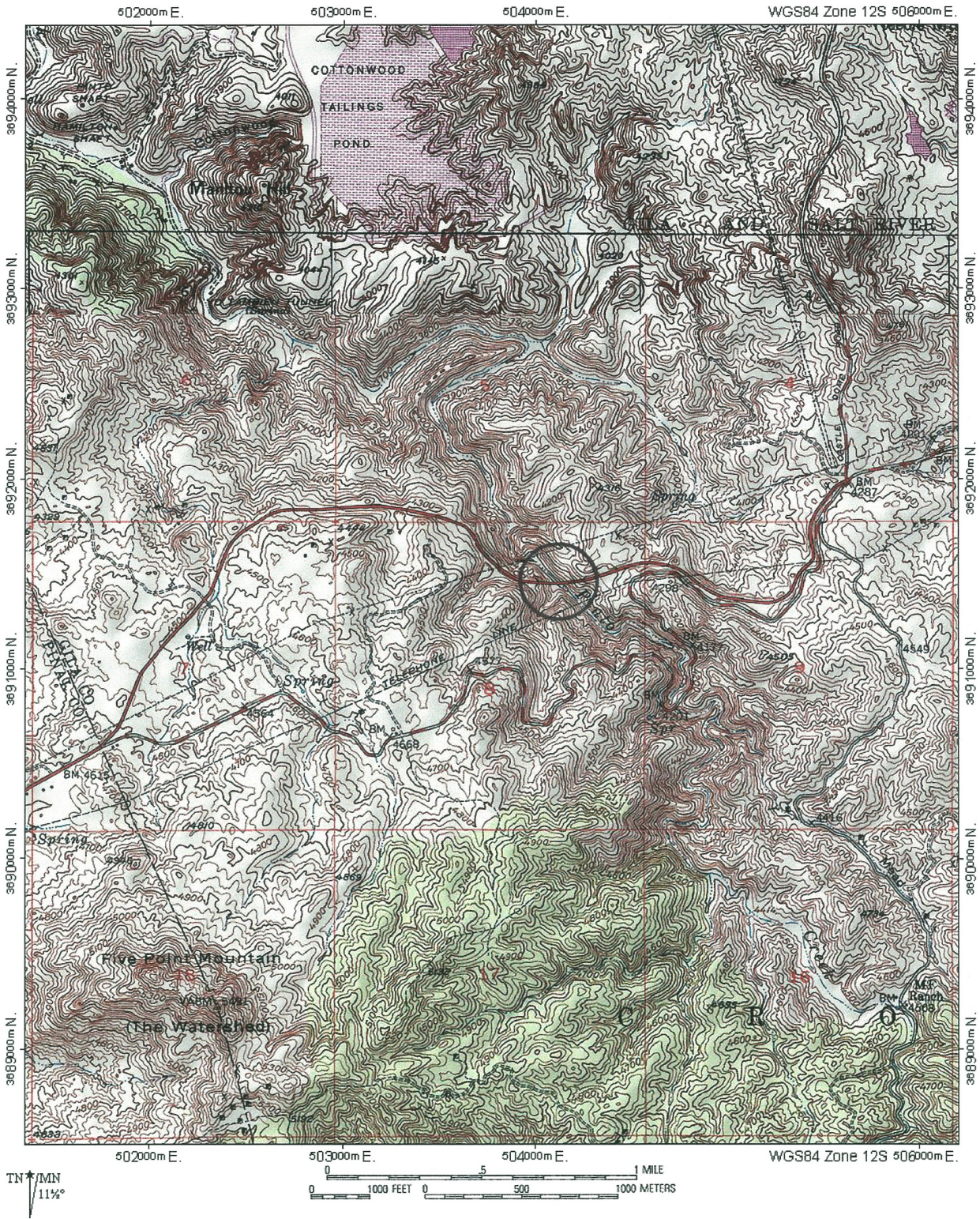
AREA OF SIGNIFICANCE: Engineering

PERIOD OF SIGNIFICANCE: 1949-1978

THEME(S): Transportation: Highways

PINTO CREEK BRIDGE

Structure No. 00351



LOCATION MAP

HISTORIC BRIDGE INVENTORY

Black River Bridge

PROPERTY IDENTIFICATION

county	Gila	inventory number	03128
milepost	0.00	inventory route	Indian Route 9
location	11.9 mi SW of Canyon Day	feature intersected	Black River
city/vicinity	Canyon Day	structure owner	US Bureau of Indian Affairs
USGS quad	Forks Butte	UTM reference	12.573030.3730590

STRUCTURAL INFORMATION

main span number	3	main span type	409
appr. span number	0	appr. span type	
degree of skew	0	guardrail type	0
main span length	82.0	superstructure	steel rigid-connected Warren deck truss
structure length	273.0	substructure	concrete abutments, wingwalls and piers
roadway width	18.0	floor/decking	concrete deck over steel stringers
structure width	20.0	other features	upper / lower chord: 2 channels w/ cover plate and lacing or batten plates; diagonal: wide flange; floor beam: I-beam, cantilevered over truss web; steel lattice guardrails

HISTORICAL INFORMATION

construction date	1912	designer/engineer	Arizona Highway Department
project number	NFA 727	builder/contractor	state work force
info source:	ADOT bridge records	alteration date(s)	1929
		alterations	original timber truss superstructure replaced with steel trusses

NATIONAL REGISTER EVALUATION

inventory score	70	NRHP eligibility	listed
interstate exemption	-	NRHP criteria	A <u>x</u> B <u> </u> C <u>x</u>
program comment	-	signif. statement	outstanding steel truss mounted on piers of early territorial bridge

FORM COMPLETED BY

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1 October 2018

BLACK RIVER BRIDGE

Structure No. 03128



PHOTO INFORMATION

date of photo.: May 2018

view direction: north northeast

photo no.: DSCF5426 DSCF5432

BLACK RIVER BRIDGE

Structure No. 03128

CONSTRUCTION HISTORY

In 1911 the Arizona Territorial Legislature funded the construction of a wagon bridge over the Black River to carry the military road from Fort Apache to the railroad at Rice. Designed by Territorial Engineer G.B. Girard and that December, the 214-foot structure featured two timber/iron Howe deck trusses, supported high above the river by tapered concrete piers. The structure carried sparse traffic at this remote location until the late 1920s, when the Highway Department began the improvement of a state secondary road between Rice and McNary, following the original route. The surveyors used the short-span army bridge, rebuilt in 1916, to cross the White River, but the Black River Bridge was deemed unsuitable for auto traffic.

For the replacement, AHD designed a trio of steel deck trusses, simply supported by the original concrete piers. The 82-foot-long trusses used a Warren web configuration, with rigid connections and built-up box beams for the upper and lower chords. These supported a timber deck over steel stringers, which was bounded on both sides by steel lattice guardrails. The trusses were substantial, requiring about 100,000 pounds of structural steel. They were limited in width by the concrete piers, so to accommodate the greater deck width, the engineers cantilevered it on either side over the truss webs. In October 1928 the highway department advertised for competitive bids to fabricate and supply the trusses. Two months later the agency let the contract to the Pittsburgh-Des Moines Steel Company for \$11,319. A state work force then poured new concrete abutments and erected the trusses over timber falsework, completing the replacement bridge on August 15, 1929. Since that time it has functioned in place with the asphalt paving of the deck as the only alteration of note.

SIGNIFICANCE STATEMENT

Due to its remote location, the contribution of the Black River Bridge to regional transportation was limited primarily to military and reservation traffic. Fort Apache was turned over to the Indian agency in 1924, and the replacement truss received even less traffic than the original, as the highway department developed an alternate route (U.S. Highway 60) soon after its construction. The Black River Bridge is historically significant, however, as one of the first public works projects undertaken by the Arizona territorial government. It was preceded by only five other major structures (the Florence, Verde, Hassayampa, Forest Wash and Lowell bridges) and was the only timber truss built by the territorial engineer. Built on the original piers, the 1929 superstructure is technologically significant as the oldest of the four deck trussed trestles found in the inventory. One of the most striking spans in Arizona, the Black River Bridge represents an important aspect of the state's bridge building history.

NATIONAL REGISTER EVALUATION

TECHNOLOGICAL SIGNIFICANCE

☐ represents the work of a master
☐ possesses high artistic values
☒ represents a type, period or method of construction

HISTORICAL SIGNIFICANCE

☐ associated with significant persons
☒ associated with significant events or patterns
☐ contributes to historical district

NATIONAL REGISTER CRITERIA

☒ Criterion A
☐ Criterion B
☒ Criterion C

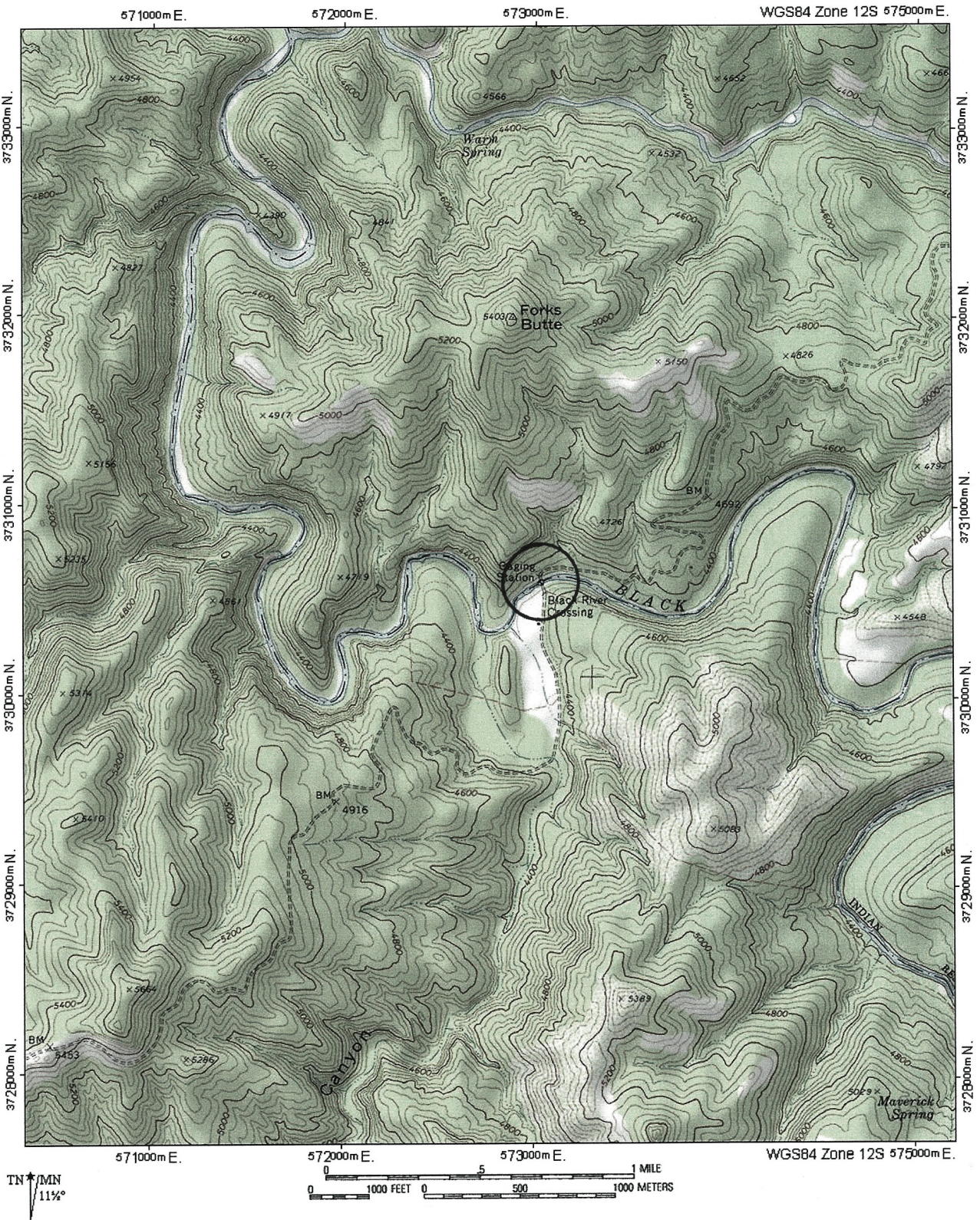
NATIONAL REGISTER ELIGIBILITY

individually eligible ☒ yes ☐ no
contributes to district ☐ yes ☒ no

AREA OF SIGNIFICANCE: Transportation; Engineering
PERIOD OF SIGNIFICANCE: 1912-1978
THEME(S): Transportation: Highways

BLACK RIVER BRIDGE

Structure No. 03128



BLACK RIVER BRIDGE

Structure No. 03128

LOCATION MAP

HISTORIC BRIDGE INVENTORY

White River Bridge

PROPERTY IDENTIFICATION

county	Gila	inventory number	03129
milepost	0.00	inventory route	Indian Route 9
location	8.5 mi SW of Canyon Day	feature intersected	White River
city/vicinity	Canyon Day	structure owner	US Bureau of Indian Affairs
USGS quad	Forks Butte	UTM reference	12.577550.3733188

STRUCTURAL INFORMATION

main span number	1	main span type	310
appr. span number	0	appr. span type	
degree of skew	0	guardrail type	0
main span length	100.0	superstructure	steel rigid-connected Pratt through truss
structure length	101.0	substructure	concrete abutments and wingwalls
roadway width	14.9	floor/decking	concrete deck over steel stringers
structure width	17.0	other features	upper / lower chord: 2 channels w/ cover plate and lacing or batten plates; vertical: wide flange; lateral brace: 1 angle; floor beam: I-beam; Thrie beam guardrails

HISTORICAL INFORMATION

construction date	1899	designer/engineer	Arizona Highway Department
project number		builder/contractor	state work force
info source:	ADOT bridge records	alteration date(s)	1934
		alterations	original timber truss superstructure replaced with steel truss

NATIONAL REGISTER EVALUATION

inventory score	69	NRHP eligibility	eligible
interstate exemption	-	NRHP criteria	A <input checked="" type="checkbox"/> B <input type="checkbox"/> C <input checked="" type="checkbox"/>
program comment	-	signif. statement	steel truss mounted on piers of rare Arizona covered bridge

FORM COMPLETED BY

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1 October 2018

WHITE RIVER BRIDGE

Structure No. 03129



PHOTO INFORMATION

date of photo.: May 2018

view direction: north northeast

photo no.: DSCF5436 DSCF5440

CONSTRUCTION HISTORY

In 1899 a U.S. Army-led force based at Fort Apache constructed a two-span timber/iron Howe truss over the White River on the Fort Apache Indian Reservation. When that was destroyed by flooding in 1916, the army rebuilt the bridge as a timber stringer structure, built with a framed wood covering. The White River bridge later became a pivotal point on the route when the Arizona Highway Department surveyed the Rice-McNary Road in the late 1920s. By 1933, however, the army bridge had deteriorated to the point of needing replacement. The AHD bridge department engineered this medium-span steel truss that year, using the concrete substructure from the original bridge. The truss employed an industry-standard Pratt configuration, with riveted connections and built-up box beams for the upper and lower chords. The structure's 15-foot-wide deck was made of concrete and was bounded by steel beam guardrails.

In February 1934 AHD received proposals to supply the truss from only two firms—the Allison Steel Manufacturing Company of Phoenix and the Virginia Bridge & Iron Company of Tennessee. Allison was locally based but, at \$2,530, Virginia Bridge's proposal was substantially lower. The out-of-state firm received the contract to fabricate and ship the steel truss to Holbrook. From there trucks carried the truss components to the site. A state work force made up of day laborers demolished the earlier bridge and erected the new truss later that year. A remote crossing on a sparsely traveled route, the White River Bridge now carries local traffic on the Fort Apache Reservation. The truss and abutments remain in original condition, but the original guardrails have more recently been replaced with steel Thrie beams.

SIGNIFICANCE STATEMENT

Built by Indian laborers to provide an all-weather route from Fort Apache to the railhead at Rice, the 80-mile Rice-Fort Apache Military Road was one of the early improved routes in Arizona. The original White River Bridge formed an important crossing on that route. The bridge was one of Arizona's most famous and romanticized structures, primarily because it was the state's last known covered bridge. Built on the abutments of the earlier bridge, the present replacement structure forms a continuation of this transportation theme. The White River Bridge is a typical later example of a common vehicular truss configuration—the rigid-connected Pratt through truss. Although several of these have been built in Arizona, only a handful remain in place today.

NATIONAL REGISTER EVALUATION

TECHNOLOGICAL SIGNIFICANCE

☐ represents the work of a master
☐ possesses high artistic values
☒ represents a type, period or method of construction

HISTORICAL SIGNIFICANCE

☐ associated with significant persons
☒ associated with significant events or patterns
☐ contributes to historical district

NATIONAL REGISTER CRITERIA

☒ Criterion A
☐ Criterion B
☒ Criterion C

NATIONAL REGISTER ELIGIBILITY

individually eligible ☒ yes ☐ no
 contributes to district ☐ yes ☒ no

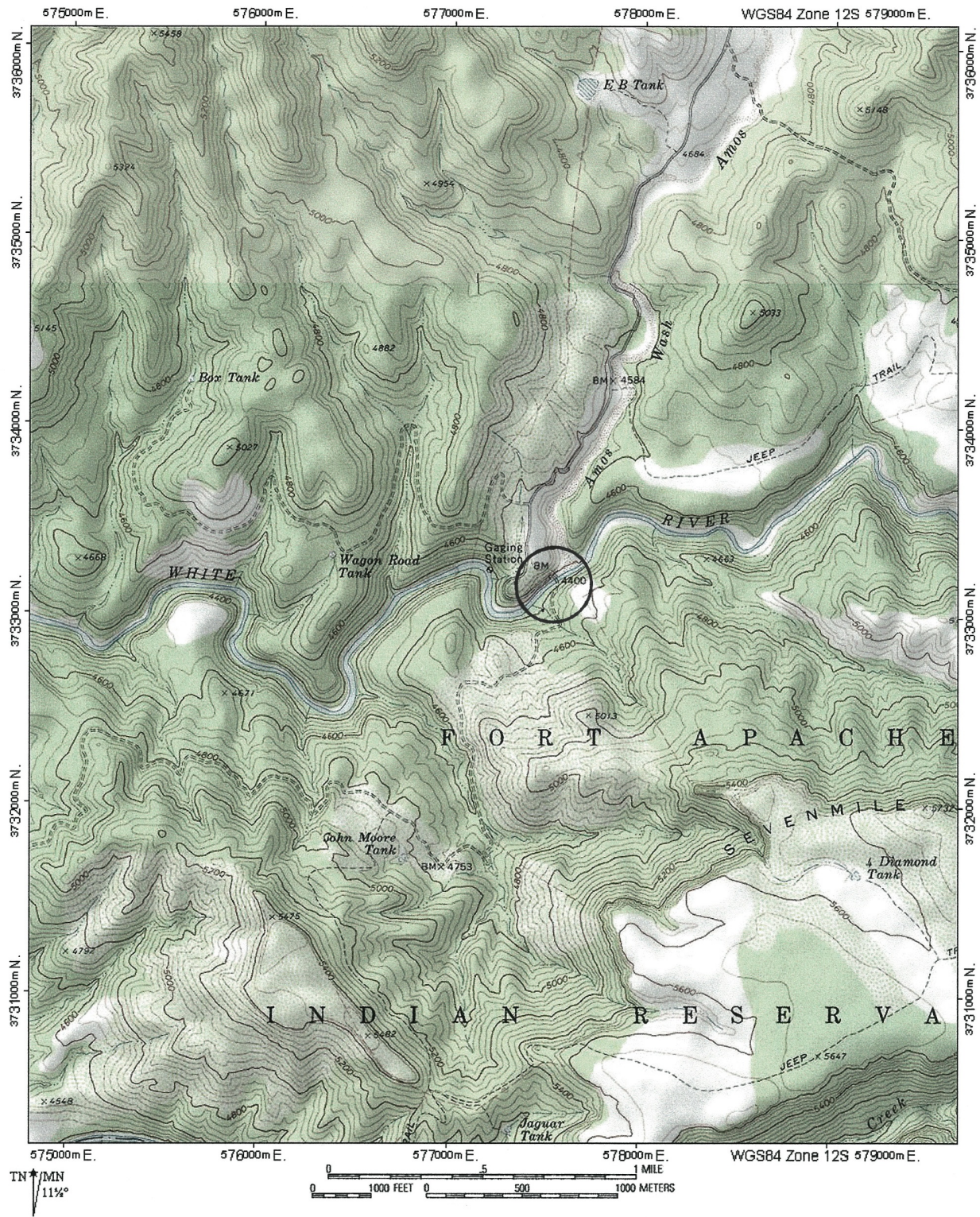
AREA OF SIGNIFICANCE: Transportation; Engineering

PERIOD OF SIGNIFICANCE: 1899-1978

THEME(S): Transportation: Highways

WHITE RIVER BRIDGE

Structure No. 03129



LOCATION MAP

HISTORIC BRIDGE INVENTORY

Fossil Creek Bridge

PROPERTY IDENTIFICATION

county	Gila	inventory number	03215
milepost	10.90	inventory route	Fossil Creek Road
location	7.5 mi West of Strawberry	feature intersected	Fossil Creek
city/vicinity	Strawberry	structure owner	USFS - Tonto National Forest
USGS quad	Hackberry Mountain	UTM reference	12.442100.3806045

STRUCTURAL INFORMATION

main span number	1	main span type	1 1 1
appr. span number	0	appr. span type	
degree of skew	0	guardrail type	4
main span length	70.0	superstructure	concrete filled spandrel arch
structure length	97.0	substructure	concrete abutments and wingwalls on spread footings
roadway width	20.0	floor/decking	gravel roadway over earth fill
structure width	22.0	other features	steel pipe guardrails with paneled concrete bulkheads; corbeled concrete arch ring

HISTORICAL INFORMATION

construction date	1925	designer/engineer	Arizona Highway Department
project number		builder/contractor	
info source:	ADOT bridge records	alteration date(s)	
		alterations	

NATIONAL REGISTER EVALUATION

inventory score	46	NRHP eligibility	listed
interstate exemption	-	NRHP criteria	A _____ B _____ C <u>x</u>
program comment	-	signif. statement	well-preserved, relatively early example of AHD concrete arch construction

FORM COMPLETED BY

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1 October 2018

FOSSIL CREEK BRIDGE

Structure No. 03215



PHOTO INFORMATION

date of photo.: May 2018

view direction: northeast

photo no.: DSCF5498

CONSTRUCTION HISTORY

In August 1924 the bridge section of the Arizona State Engineer's Office completed the construction drawings for this medium-span reinforced concrete arch. The structure carried the Cottonwood-Camp Verde-Pine road over Fossil Creek on the Yavapai-Gila County line between the Tonto and Prescott National Forests. With its 14-foot arch rise, spread concrete footings, Luten-like reinforcing and steel pipe guardrails with paneled concrete bulkheads, the bridge displayed typical highway department design and architectural detailing. The Fossil Creek Bridge was completed later that year for a total construction cost of about \$10,000. It was relatively lightweight for its 70-foot span length—a little more than 300 cubic yards of concrete and 17,500 pounds of reinforcing steel. Since its completion, the bridge has functioned unaltered at this remote and lightly trafficked location.

SIGNIFICANCE STATEMENT

The Arizona Highway Department used three basic reinforced concrete arch configurations in the 1910s and 1920s: the Luten arch, the open spandrel arch, and what it termed the "common arch", or segmental filled spandrel design. Long-span examples of the former, as illustrated by the Canyon Padre Bridge [abd.], the Verde River Bridge [08152] and the Holbrook Bridge [priv.], were engineered by their inventor Daniel Luten and his assistants. The latter two were designed in-house by AHD bridge engineers for medium- and long-span applications. The Fossil Creek Bridge is one of only four such AHD common arches identified in the inventory (others: Devils Canyon Bridge [abd.], Lynx Creek Bridge [08256] and the Verde River Bridge [08236]). All feature similar span lengths, arch rises and detailing. The Fossil Creek Bridge is a well-preserved example of this bridge construction trend.

NATIONAL REGISTER EVALUATION

TECHNOLOGICAL SIGNIFICANCE

☐ represents the work of a master
☐ possesses high artistic values
☒ represents a type, period or method of construction

HISTORICAL SIGNIFICANCE

☐ associated with significant persons
☐ associated with significant events or patterns
☐ contributes to historical district

NATIONAL REGISTER CRITERIA

☐ Criterion A
☐ Criterion B
☒ Criterion C

NATIONAL REGISTER ELIGIBILITY

individually eligible ☒ yes ☐ no
 contributes to district ☐ yes ☒ no

AREA OF SIGNIFICANCE: Engineering
 PERIOD OF SIGNIFICANCE: 1925-1978
 THEME(S): Transportation: Highways

FOSSIL CREEK BRIDGE

Structure No. 03215



LOCATION MAP

HISTORIC BRIDGE INVENTORY

Reppy Avenue Bridge

PROPERTY IDENTIFICATION

county	Gila	inventory number	08585
milepost	0.00	inventory route	Reppy Avenue
location	100 ft N of US 60	feature intersected	Bloody Tanks Wash
city/vicinity	Miami	structure owner	City of Miami
USGS quad	Inspiration	UTM reference	12.511547.3695155

STRUCTURAL INFORMATION

main span number	1	main span type	1 1 1
appr. span number	0	appr. span type	
degree of skew	0	guardrail type	4
main span length	50.0	superstructure	concrete filled spandrel Luten arch
structure length	54.0	substructure	concrete spread footings
roadway width	34.2	floor/decking	asphalt roadway over earth fill
structure width	50.2	other features	cambered roadway with sidewalks, both sides; plain concrete cantilever brackets; moulded concrete guardrails with cast balusters and paneled bulkheads

HISTORICAL INFORMATION

construction date	1921	designer/engineer	Topeka Bridge & Iron Company
project number		builder/contractor	town work force
info source:	ADOT bridge records	alteration date(s)	
		alterations	

NATIONAL REGISTER EVALUATION

inventory score	45	NRHP eligibility	listed
interstate exemption	-	NRHP criteria	A _____ B _____ C <u>x</u>
program comment	-	signif. statement	well-preserved, short-span application of patented bridge type

FORM COMPLETED BY

Clayton B. Fraser, Principal

FRASERdesign
5700 Jackdaw Drive
Loveland, Colorado 80537
1 October 2018

REPPY AVENUE BRIDGE

Structure No. 08585



PHOTO INFORMATION

date of photo.: March 2018

view direction: southeast northeast

photo no.: DSCF5590 DSCF5594

REPPY AVENUE BRIDGE

Structure No. 08585

CONSTRUCTION HISTORY

Spawned by the Inspiration Mine Company, the town of Miami was established in Gila County in 1907. In the late 1910s the town undertook several municipal projects to upgrade its infrastructure. The town council began work on townwide water, sewer and electrical systems. At that time the town contracted for an additional construction project—channelization of Bloody Tanks Wash through the central business district. In July the council instructed the town engineer to design a bridge to carry Keystone Avenue over the newly completed channel. For the structure, he ordered plans and specifications in December from the Topeka Bridge & Iron Company of Kansas. Topeka Bridge delineated a squat short-span Luten design—as wide as it was long—featuring a 50-foot span and a heavily cambered 50-foot-wide deck cantilevered on both sides over the arch's spandrels. Topeka Bridge & Iron also sent moulds with which to cast the decorative concrete balusters for the guardrails.

In May 1920 the town purchased 3,500 barrels of cement and on June 5 began construction of the Keystone Avenue Bridge [08588] using force account labor. In July the men completed the bridge. The project had proceeded so successfully that the town engineer soon began work on a second bridge on Cordova Avenue [08586] using the same design. In 1921 identical bridges were built over the channel on Reppy, Inspiration [08587] and Miami [08589] Avenues. These five identical structures remain in place today, carrying Miami city streets in essentially unaltered condition.

SIGNIFICANCE STATEMENT

These five arch bridges marked the culmination of an extensive public works construction program undertaken by the Town of Miami in the early 1920s. As such, they are important remnants from this formative period in the town's history. Technologically, they are noteworthy examples of an important proprietary bridge type. All of the concrete Luten arches identified in Arizona are associated directly—either through engineering or construction—with the Topeka Bridge & Iron Company, the western representative of Indianapolis-based engineer Daniel B. Luten. The other Luten arches in the state (e.g., Canyon Padre Bridge [abd.], Queen Creek Bridge [08440], Holbrook Bridge [priv.], Gila River Bridge [08152]) were built at rural highway crossings with relatively long spans. The Miami bridges, in contrast, were located in an urban setting in which relatively short spans were required: the traditional engineering conditions for concrete slabs or girders. Their distinctive design is significant as the only short-span application in the state of this important patented bridge type.

NATIONAL REGISTER EVALUATION

TECHNOLOGICAL SIGNIFICANCE

☐ represents the work of a master
☐ possesses high artistic values
☒ represents a type, period or method of construction

HISTORICAL SIGNIFICANCE

☐ associated with significant persons
☒ associated with significant events or patterns
☐ contributes to historical district

NATIONAL REGISTER CRITERIA

☒ Criterion A
☐ Criterion B
☒ Criterion C

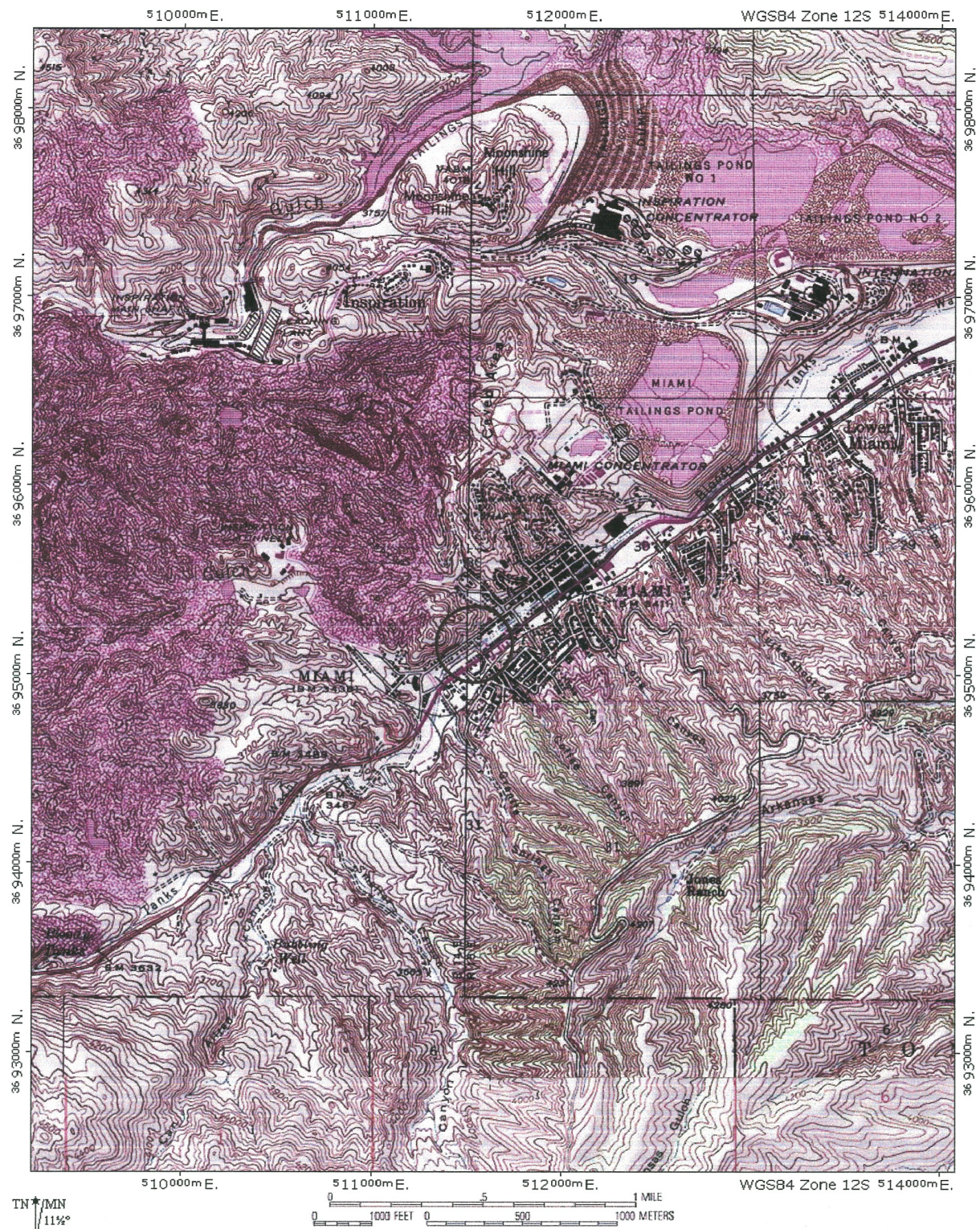
NATIONAL REGISTER ELIGIBILITY

individually eligible ☒ yes ☐ no
contributes to district ☐ yes ☒ no

AREA OF SIGNIFICANCE: Transportation; Engineering
PERIOD OF SIGNIFICANCE: 1921-1978
THEME(S): Transportation: Highways

REPPY AVENUE BRIDGE

Structure No. 08585



LOCATION MAP

HISTORIC BRIDGE INVENTORY

Cordova Avenue Bridge

PROPERTY IDENTIFICATION

county	Gila	inventory number	08586
milepost	0.00	inventory route	Cordova Avenue
location	100 ft N US 60	feature intersected	Bloody Tanks Wash
city/vicinity	Miami	structure owner	City of Miami
USGS quad	Globe	UTM reference	12.511880.3695395

STRUCTURAL INFORMATION

main span number	1	main span type	1 1 1
appr. span number	0	appr. span type	
degree of skew	0	guardrail type	4
main span length	50.0	superstructure	concrete filled spandrel Luten arch
structure length	54.0	substructure	concrete spread footings
roadway width	34.2	floor/decking	asphalt roadway over earth fill
structure width	50.2	other features	cambered roadway with sidewalks, both sides; plain concrete cantilever brackets; moulded concrete guardrails with cast balusters and paneled bulkheads

HISTORICAL INFORMATION

construction date	1920	designer/engineer	Topeka Bridge & Iron Company
project number		builder/contractor	town work force
info source:	ADOT bridge records	alteration date(s)	
		alterations	

NATIONAL REGISTER EVALUATION

inventory score	45	NRHP eligibility	listed
interstate exemption	-	NRHP criteria	A _____ B _____ C <u>x</u>
program comment	-	signif. statement	well-preserved, short-span application of patented bridge type

FORM COMPLETED BY

Clayton B. Fraser, Principal

FRASERdesign
5700 Jackdaw Drive
Loveland, Colorado 80537
1 October 2018

CORDOVA AVENUE BRIDGE

Structure No. 08586



PHOTO INFORMATION

date of photo.: March 2018

view direction: southeast northeast

photo no.: DSCF5586 DSCF5597

CONSTRUCTION HISTORY

Spawned by the Inspiration Mine Company, the town of Miami was established in Gila County in 1907. In the late 1910s the town undertook several municipal projects to upgrade its infrastructure. The town council began work on townwide water, sewer and electrical systems. At that time the town contracted for an additional construction project—channelization of Bloody Tanks Wash through the central business district. In July the council instructed the town engineer to design a bridge to carry Keystone Avenue over the newly completed channel. For the structure, he ordered plans and specifications in December from the Topeka Bridge & Iron Company of Kansas. Topeka Bridge delineated a squat short-span Luten design—as wide as it was long—featuring a 50-foot span and a heavily cambered 50-foot-wide deck cantilevered on both sides over the arch's spandrels. Topeka Bridge & Iron also sent moulds with which to cast the decorative concrete balusters for the guardrails.

In May 1920 the town purchased 3,500 barrels of cement and on June 5 began construction of the Keystone Avenue Bridge [08588] using force account labor. In July the men completed the bridge. The project had proceeded so successfully that the town engineer soon began work on a second bridge on Cordova Avenue using the same design. In 1921 identical bridges were built over the channel on Reppy [08585], Inspiration [08587] and Miami [08589] Avenues. These five identical structures remain in place today, carrying Miami city streets in essentially unaltered condition.

SIGNIFICANCE STATEMENT

These five arch bridges marked the culmination of an extensive public works construction program undertaken by the Town of Miami in the early 1920s. As such, they are important remnants from this formative period in the town's history. Technologically, they are noteworthy examples of an important proprietary bridge type. All of the concrete Luten arches identified in Arizona are associated directly—either through engineering or construction—with the Topeka Bridge & Iron Company, the western representative of Indianapolis-based engineer Daniel B. Luten. The other Luten arches in the state (e.g., Canyon Padre Bridge [abd.], Queen Creek Bridge [08440], Holbrook Bridge [priv.], Gila River Bridge [08152]) were built at rural highway crossings with relatively long spans. The Miami bridges, in contrast, were located in an urban setting in which relatively short spans were required: the traditional engineering conditions for concrete slabs or girders. Their distinctive design is significant as the only short-span application in the state of this important patented bridge type.

NATIONAL REGISTER EVALUATION

TECHNOLOGICAL SIGNIFICANCE

☐ represents the work of a master
☐ possesses high artistic values
☒ represents a type, period or method of construction

HISTORICAL SIGNIFICANCE

☐ associated with significant persons
☒ associated with significant events or patterns
☐ contributes to historical district

NATIONAL REGISTER CRITERIA

☒ Criterion A
☐ Criterion B
☒ Criterion C

NATIONAL REGISTER ELIGIBILITY

individually eligible ☒ yes ☐ no
 contributes to district ☐ yes ☒ no

AREA OF SIGNIFICANCE: Transportation; Engineering
 PERIOD OF SIGNIFICANCE: 1920-1978
 THEME(S): Transportation: Highways

CORDOVA AVENUE BRIDGE

Structure No. 08586



LOCATION MAP

HISTORIC BRIDGE INVENTORY

Inspiration Avenue Bridge

PROPERTY IDENTIFICATION

county	Gila	inventory number	08587
milepost	0.00	inventory route	Inspiration Avenue
location	100 ft N of US 60	feature intersected	Bloody Tanks Wash
city/vicinity	Miami	structure owner	City of Miami
USGS quad	Globe	UTM reference	12.511964.3695465

STRUCTURAL INFORMATION

main span number	1	main span type	1 1 1
appr. span number	0	appr. span type	
degree of skew	0	guardrail type	4
main span length	50.0	superstructure	concrete filled spandrel Luten arch
structure length	54.0	substructure	concrete spread footings
roadway width	34.1	floor/decking	asphalt roadway over earth fill
structure width	50.2	other features	cambered roadway with sidewalks, both sides; plain concrete cantilever brackets; moulded concrete guardrails with cast balusters and paneled bulkheads

HISTORICAL INFORMATION

construction date	1921	designer/engineer	Topeka Bridge & Iron Company
project number		builder/contractor	town work force
info source:	ADOT bridge records	alteration date(s)	
		alterations	

NATIONAL REGISTER EVALUATION

inventory score	45	NRHP eligibility	listed
interstate exemption	-	NRHP criteria	A _____ B _____ C <u>x</u> _____
program comment	-	signif. statement	well-preserved, short-span application of patented bridge type

FORM COMPLETED BY

Clayton B. Fraser, Principal

FRASERdesign
5700 Jackdaw Drive
Loveland, Colorado 80537
1 October 2018

INSPIRATION AVENUE BRIDGE

Structure No. 08587



PHOTO INFORMATION

date of photo.: March 2018

view direction: southeast northeast

photo no.: DSCF5571 DSCF5601

CONSTRUCTION HISTORY

Spawned by the Inspiration Mine Company, the town of Miami was established in Gila County in 1907. In the late 1910s the town undertook several municipal projects to upgrade its infrastructure. The town council began work on townwide water, sewer and electrical systems. At that time the town contracted for an additional construction project—channelization of Bloody Tanks Wash through the central business district. In July the council instructed the town engineer to design a bridge to carry Keystone Avenue over the newly completed channel. For the structure, he ordered plans and specifications in December from the Topeka Bridge & Iron Company of Kansas. Topeka Bridge delineated a squat short-span Luten design—as wide as it was long—featuring a 50-foot span and a heavily cambered 50-foot-wide deck cantilevered on both sides over the arch's spandrels. Topeka Bridge & Iron also sent moulds with which to cast the decorative concrete balusters for the guardrails.

In May 1920 the town purchased 3,500 barrels of cement and on June 5 began construction of the Keystone Avenue Bridge [08588] using force account labor. In July the men completed the bridge. The project had proceeded so successfully that the town engineer soon began work on a second bridge on Cordova Avenue [08586] using the same design. In 1921 identical bridges were built over the channel on Reppy [08585], Inspiration and Miami [08589] Avenues. These five identical structures remain in place today, carrying Miami city streets in essentially unaltered condition.

SIGNIFICANCE STATEMENT

These five arch bridges marked the culmination of an extensive public works construction program undertaken by the Town of Miami in the early 1920s. As such, they are important remnants from this formative period in the town's history. Technologically, they are noteworthy examples of an important proprietary bridge type. All of the concrete Luten arches identified in Arizona are associated directly—either through engineering or construction—with the Topeka Bridge & Iron Company, the western representative of Indianapolis-based engineer Daniel B. Luten. The other Luten arches in the state (e.g., Canyon Padre Bridge [abd.], Queen Creek Bridge [08440], Holbrook Bridge [priv.], Gila River Bridge [08152]) were built at rural highway crossings with relatively long spans. The Miami bridges, in contrast, were located in an urban setting in which relatively short spans were required: the traditional engineering conditions for concrete slabs or girders. Their distinctive design is significant as the only short-span application in the state of this important patented bridge type.

NATIONAL REGISTER EVALUATION

TECHNOLOGICAL SIGNIFICANCE

☐ represents the work of a master
☐ possesses high artistic values
☒ represents a type, period or method of construction

HISTORICAL SIGNIFICANCE

☐ associated with significant persons
☒ associated with significant events or patterns
☐ contributes to historical district

NATIONAL REGISTER CRITERIA

☒ Criterion A
☐ Criterion B
☒ Criterion C

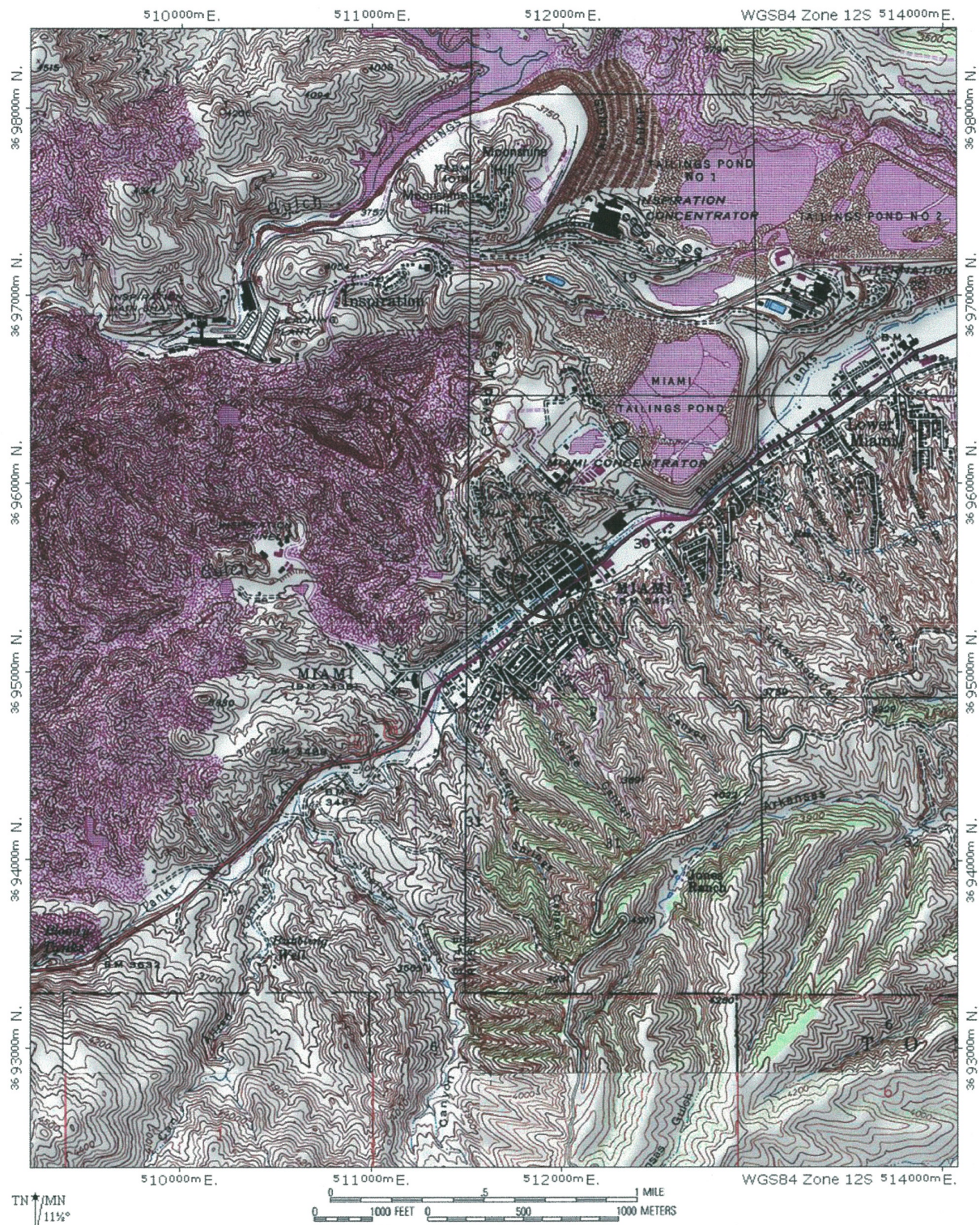
NATIONAL REGISTER ELIGIBILITY

individually eligible ☒ yes ☐ no
 contributes to district ☐ yes ☒ no

AREA OF SIGNIFICANCE: Transportation; Engineering
 PERIOD OF SIGNIFICANCE: 1921-1978
 THEME(S): Transportation: Highways

INSPIRATION AVENUE BRIDGE

Structure No. 08587



LOCATION MAP

HISTORIC BRIDGE INVENTORY

Keystone Avenue Bridge

PROPERTY IDENTIFICATION

county	Gila	inventory number	08588
milepost	0.00	inventory route	Keystone Avenue
location	100 ft N of US 60	feature intersected	Bloody Tanks Wash
city/vicinity	Miami	structure owner	City of Miami
USGS quad	Globe	UTM reference	12.512053.3695528

STRUCTURAL INFORMATION

main span number	1	main span type	1 1 1
appr. span number	0	appr. span type	
degree of skew	0	guardrail type	4
main span length	50.0	superstructure	concrete filled spandrel Luten arch
structure length	54.0	substructure	concrete spread footings
roadway width	34.2	floor/decking	asphalt roadway over earth fill
structure width	50.4	other features	cambered roadway with sidewalks, both sides; plain concrete cantilever brackets; moulded concrete guardrails with cast balusters and paneled bulkheads

HISTORICAL INFORMATION

construction date	1920	designer/engineer	Topeka Bridge & Iron Company
project number		builder/contractor	town work force
info source:	ADOT bridge records	alteration date(s)	
		alterations	

NATIONAL REGISTER EVALUATION

For additional information, see "Vehicular Bridges in Arizona 1880-1978" National Register Multiple Property Documentation Form			
inventory score	45	NRHP eligibility	listed
interstate exemption	-	NRHP criteria	A _____ B _____ C <u>x</u>
program comment	-	signif. statement	well-preserved, short-span application of patented bridge type

FORM COMPLETED BY

Clayton B. Fraser, Principal

FRASERdesign
5700 Jackdaw Drive
Loveland, Colorado 80537
1 October 2018

KEYSTONE AVENUE BRIDGE

Structure No. 08588



PHOTO INFORMATION

date of photo.: March 2018

view direction: southeast northeast

photo no.: DSCF5570 DSCF5605

CONSTRUCTION HISTORY

Spawned by the Inspiration Mine Company, the town of Miami was established in Gila County in 1907. In the late 1910s the town undertook several municipal projects to upgrade its infrastructure. The town council began work on townwide water, sewer and electrical systems. At that time the town contracted for an additional construction project—channelization of Bloody Tanks Wash through the central business district. In July the council instructed the town engineer to design a bridge to carry Keystone Avenue over the newly completed channel. For the structure, he ordered plans and specifications in December from the Topeka Bridge & Iron Company of Kansas. Topeka Bridge delineated a squat short-span Luten design—as wide as it was long—featuring a 50-foot span and a heavily cambered 50-foot-wide deck cantilevered on both sides over the arch's spandrels. Topeka Bridge & Iron also sent moulds with which to cast the decorative concrete balusters for the guardrails.

In May 1920 the town purchased 3,500 barrels of cement and on June 5 began construction of the Keystone Avenue Bridge using force account labor. In July the men completed the bridge. The project had proceeded so successfully that the town engineer soon began work on a second bridge on Cordova Avenue [08586] using the same design. In 1921 identical bridges were built over the channel on Reppy [08585], Inspiration [08587] and Miami [08589] Avenues. These five identical structures remain in place today, carrying Miami city streets in essentially unaltered condition.

SIGNIFICANCE STATEMENT

These five arch bridges marked the culmination of an extensive public works construction program undertaken by the Town of Miami in the early 1920s. As such, they are important remnants from this formative period in the town's history. Technologically, they are noteworthy examples of an important proprietary bridge type. All of the concrete Luten arches identified in Arizona are associated directly—either through engineering or construction—with the Topeka Bridge & Iron Company, the western representative of Indianapolis-based engineer Daniel B. Luten. The other Luten arches in the state (e.g., Canyon Padre Bridge [abd.], Queen Creek Bridge [08440], Holbrook Bridge [priv.], Gila River Bridge [08152]) were built at rural highway crossings with relatively long spans. The Miami bridges, in contrast, were located in an urban setting in which relatively short spans were required: the traditional engineering conditions for concrete slabs or girders. Their distinctive design is significant as the only short-span application in the state of this important patented bridge type.

NATIONAL REGISTER EVALUATION

TECHNOLOGICAL SIGNIFICANCE

☐ represents the work of a master
☐ possesses high artistic values
☒ represents a type, period or method of construction

HISTORICAL SIGNIFICANCE

☐ associated with significant persons
☒ associated with significant events or patterns
☐ contributes to historical district

NATIONAL REGISTER CRITERIA

☒ Criterion A
☐ Criterion B
☒ Criterion C

NATIONAL REGISTER ELIGIBILITY

individually eligible ☒ yes ☐ no
 contributes to district ☐ yes ☒ no

AREA OF SIGNIFICANCE: Transportation; Engineering
 PERIOD OF SIGNIFICANCE: 1920-1978
 THEME(S): Transportation: Highways

Structure No. 08588



HISTORIC BRIDGE INVENTORY

Miami Avenue Bridge

PROPERTY IDENTIFICATION

county	Gila	inventory number	08589
milepost	0.00	inventory route	Miami Avenue
location	100 ft N of US 60	feature intersected	Bloody Tanks Wash
city/vicinity	Miami	structure owner	City of Miami
USGS quad	Globe	UTM reference	12.512140.3695585

STRUCTURAL INFORMATION

main span number	1	main span type	1 1 1
appr. span number	0	appr. span type	
degree of skew	0	guardrail type	4
main span length	50.0	superstructure	concrete filled spandrel Luten arch
structure length	54.0	substructure	concrete spread footings
roadway width	35.1	floor/decking	asphalt roadway over earth fill
structure width	55.1	other features	cambered roadway with sidewalks, both sides; plain concrete cantilever brackets; moulded concrete guardrails with cast balusters and paneled bulkheads

HISTORICAL INFORMATION

construction date	1921	designer/engineer	Topeka Bridge & Iron Company
project number		builder/contractor	town work force
info source:	ADOT bridge records	alteration date(s)	
		alterations	

NATIONAL REGISTER EVALUATION

inventory score	45	NRHP eligibility	listed
interstate exemption	-	NRHP criteria	A _____ B _____ C <u>x</u>
program comment	-	signif. statement	well-preserved, short-span application of patented bridge type

FORM COMPLETED BY

Clayton B. Fraser, Principal

FRASERdesign
5700 Jackdaw Drive
Loveland, Colorado 80537
1 October 2018

MIAMI AVENUE BRIDGE

Structure No. 08589



PHOTO INFORMATION

date of photo.: March 2018

view direction: southeast northeast

photo no.: DSCF5563 DSCF5607

CONSTRUCTION HISTORY

Spawned by the Inspiration Mine Company, the town of Miami was established in Gila County in 1907. In the late 1910s the town undertook several municipal projects to upgrade its infrastructure. The town council began work on townwide water, sewer and electrical systems. At that time the town contracted for an additional construction project—channelization of Bloody Tanks Wash through the central business district. In July the council instructed the town engineer to design a bridge to carry Keystone Avenue over the newly completed channel. For the structure, he ordered plans and specifications in December from the Topeka Bridge & Iron Company of Kansas. Topeka Bridge delineated a squat short-span Luten design—as wide as it was long—featuring a 50-foot span and a heavily cambered 50-foot-wide deck cantilevered on both sides over the arch's spandrels. Topeka Bridge & Iron also sent moulds with which to cast the decorative concrete balusters for the guardrails.

In May 1920 the town purchased 3,500 barrels of cement and on June 5 began construction of the Keystone Avenue Bridge [08588] using force account labor. In July the men completed the bridge. The project had proceeded so successfully that the town engineer soon began work on a second bridge on Cordova Avenue [08586] using the same design. In 1921 identical bridges were built over the channel on Reppy [08585], Inspiration [08587] and Miami Avenues. These five identical structures remain in place today, carrying Miami city streets in essentially unaltered condition.

SIGNIFICANCE STATEMENT

These five arch bridges marked the culmination of an extensive public works construction program undertaken by the Town of Miami in the early 1920s. As such, they are important remnants from this formative period in the town's history. Technologically, they are noteworthy examples of an important proprietary bridge type. All of the concrete Luten arches identified in Arizona are associated directly—either through engineering or construction—with the Topeka Bridge & Iron Company, the western representative of Indianapolis-based engineer Daniel B. Luten. The other Luten arches in the state (e.g., Canyon Padre Bridge [abd.], Queen Creek Bridge [08440], Holbrook Bridge [priv.], Gila River Bridge [08152]) were built at rural highway crossings with relatively long spans. The Miami bridges, in contrast, were located in an urban setting in which relatively short spans were required: the traditional engineering conditions for concrete slabs or girders. Their distinctive design is significant as the only short-span application in the state of this important patented bridge type.

NATIONAL REGISTER EVALUATION

TECHNOLOGICAL SIGNIFICANCE

☐ represents the work of a master
☐ possesses high artistic values
☒ represents a type, period or method of construction

HISTORICAL SIGNIFICANCE

☐ associated with significant persons
☒ associated with significant events or patterns
☐ contributes to historical district

NATIONAL REGISTER CRITERIA

☒ Criterion A
☐ Criterion B
☒ Criterion C

NATIONAL REGISTER ELIGIBILITY

individually eligible ☒ yes ☐ no
 contributes to district ☐ yes ☒ no

AREA OF SIGNIFICANCE: Transportation; Engineering
 PERIOD OF SIGNIFICANCE: 1921-1978
 THEME(S): Transportation: Highways

Structure No. 08589



HISTORIC BRIDGE INVENTORY

Broad Street Bridge

PROPERTY IDENTIFICATION

county	Gila	inventory number	09710
milepost	0.00	inventory route	Haskins Road
location	50 ft N of Broad St	feature intersected	Pinal Creek
city/vicinity	Globe	structure owner	City of Globe
USGS quad	Globe	UTM reference	12.519408.3695833

STRUCTURAL INFORMATION

main span number	4	main span type	201
appr. span number	0	appr. span type	
degree of skew	0	guardrail type	6
main span length	22.0	superstructure	concrete slab
structure length	86.0	substructure	concrete abutments, wingwalls and piers
roadway width	20.1	floor/decking	concrete deck with asphalt overlay
structure width	27.3	other features	steel pipe guardrails

HISTORICAL INFORMATION

construction date	1916	designer/engineer	Globe City Engineer
project number		builder/contractor	Paul Michaelson, Globe AZ
info source:	ADOT bridge records	alteration date(s)	
		alterations	

NATIONAL REGISTER EVALUATION

inventory score	50	NRHP eligibility	eligible
interstate exemption	-	NRHP criteria	A _____ B _____ C <u>x</u>
program comment	-	signif. statement	well-preserved example of common structural type, earliest of type

FORM COMPLETED BY

Clayton B. Fraser, Principal

FRASERdesign
5700 Jackdaw Drive
Loveland, Colorado 80537
1 October 2018

BROAD STREET BRIDGE

Structure No. 09710



PHOTO INFORMATION

date of photo.: March 2018

view direction: east south

photo no.: DSCF5541 DSCF5543

CONSTRUCTION HISTORY

Named after the Globe mine, the town of Globe was first incorporated in 1880, then later incorporated again in 1905, then disincorporated within a year, then reincorporated as a city in 1907. This final incorporation stuck, and the community grew traditionally from that point. In subsequent years the city government undertook various infrastructural improvements to municipal water, sewage and electrical systems, and roads and bridges. One of the latter projects involved construction of a vehicular bridge over Pinal Creek on North Broad Street (Haskins Road). Located at the north end of the city's central business district in an area known locally as the Wedge, the proposed structure would replace an existing timber trestle that had been allowed to deteriorate beyond repair.

In November 1915 the city council authorized and appropriated funds for the new bridge's construction. As delineated by the city engineer, the replacement structure would be comprised of reinforced four concrete slab spans, supported by solid concrete abutments and piers. A month later the city received competitive bids from George F. Briggs, the Midland Bridge Company of Kansas City and Paul Michaelson. Although Midland's bid was slightly lower, Michaelson lived in Globe. As a local builder, he was awarded the contract to remove the old bridge and build the replacement for \$8,526. His men began demolition of the timber structure later that year; in 1916 the new Broad Street Bridge was completed. As built, the structure was comprised of four 22-foot-long concrete slab spans, supported by concrete abutments and piers. The concrete deck was flanked by steel pipe guardrails. Since its completion in 1916, the bridge has carried city street traffic, in essentially unaltered condition.

SIGNIFICANCE STATEMENT

The Arizona State Engineer was using concrete extensively for highway bridge construction in the 1910s and 1920s, and the cities, and counties generally followed the state's lead. The Broad Street Bridge in Globe exemplifies this trend. Built to replace a deteriorated timber structure, its all-concrete construction illustrated the transition in Arizona from the early wagon bridges to more modern—and more substantial—bridges intended to carry heavier automobiles and trucks. The Broad Street Bridge, with its plain-faced appearance, may lack aesthetic appeal but it is distinguished nevertheless by its relatively early date and well-preserved structural condition.

NATIONAL REGISTER EVALUATION

TECHNOLOGICAL SIGNIFICANCE

☐ represents the work of a master
☐ possesses high artistic values
☒ represents a type, period or method of construction

HISTORICAL SIGNIFICANCE

☐ associated with significant persons
☐ associated with significant events or patterns
☐ contributes to historical district

NATIONAL REGISTER CRITERIA

☐ Criterion A
☐ Criterion B
☒ Criterion C

NATIONAL REGISTER ELIGIBILITY

individually eligible ☒ yes ☐ no
 contributes to district ☐ yes ☒ no

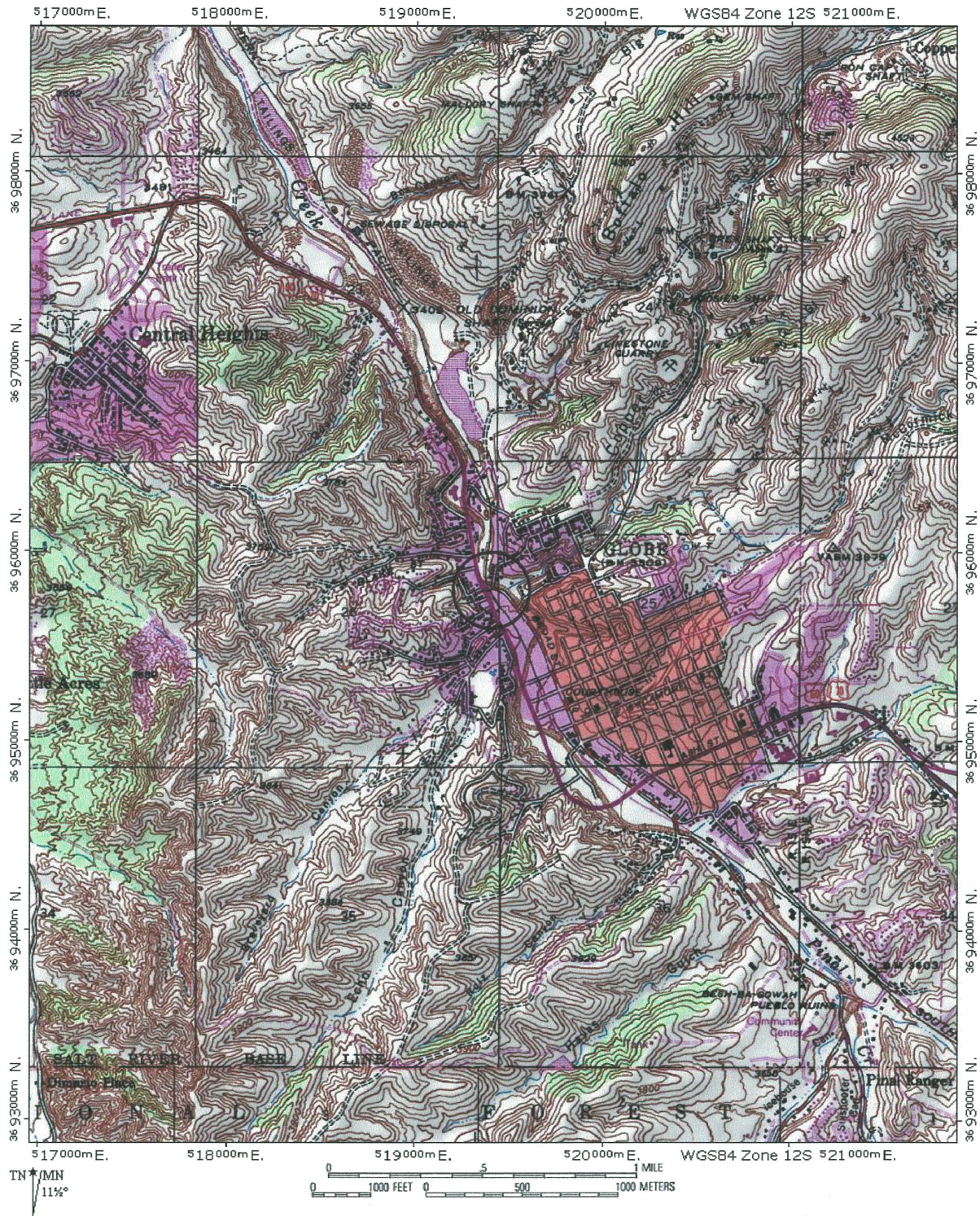
AREA OF SIGNIFICANCE: Transportation; Engineering

PERIOD OF SIGNIFICANCE: 1916-1978

THEME(S): Transportation: Highways

BROAD STREET BRIDGE

Structure No. 09710



LOCATION MAP

HISTORIC BRIDGE INVENTORY

Pinal Creek Bridge

PROPERTY IDENTIFICATION

county	Gila	inventory number	09711
milepost	0.00	inventory route	Cottonwood Street
location	600 ft SW of US 60	feature intersected	Pinal Creek
city/vicinity	Globe	structure owner	City of Globe
USGS quad	Globe	UTM reference	12.519825.3694945

STRUCTURAL INFORMATION

main span number	5	main span type	201
appr. span number	0	appr. span type	
degree of skew	0	guardrail type	4
main span length	22.0	superstructure	concrete slab
structure length	109.0	substructure	concrete abutments, wingwalls and piers
roadway width	18.0	floor/decking	concrete deck with asphalt overlay
structure width	25.3	other features	steel pipe guardrails with concrete posts

HISTORICAL INFORMATION

construction date	1921	designer/engineer	Arizona Highway Department
project number		builder/contractor	state work force
info source:	ADOT bridge records	alteration date(s)	
		alterations	

NATIONAL REGISTER EVALUATION

For additional information, see "Vehicular Bridges in Arizona 1880-1978" National Register Multiple Property Documentation Form

inventory score	47	NRHP eligibility	eligible
interstate exemption	-	NRHP criteria	A <u>x</u> B <u> </u> C <u>x</u>
program comment	-	signif. statement	well-preserved, relatively early example of AHD standard bridge design

FORM COMPLETED BY

Clayton B. Fraser, Principal

FRASERdesign
5700 Jackdaw Drive
Loveland, Colorado 80537
1 October 2018

PINAL CREEK BRIDGE

Structure No. 09711



PHOTO INFORMATION

date of photo.: March 2018

view direction: north west

photo no.: DSCF5515 DSCF5526

CONSTRUCTION HISTORY

In the 1910s and 1920s the Arizona Highway Department worked on the highway that linked Phoenix area with the east (now U.S. Highway 60). Extending through the mining towns of Superior, Miami and Globe in Pinal and Gila counties, the route involved some of the most difficult highway construction undertaken by the state to date. It included construction of three major reinforced concrete bridges—over Queen Creek at the northern end of Superior, over Devils Canyon further north and over Pinal Creek at the northern periphery of Globe.

The two former bridges employed single-span concrete arches, in both open and filled spandrel configurations. Situated in an urban setting, the last bridge was comprised of five simply supported, reinforced concrete slab spans on concrete abutments and piers. All three structures featured all-concrete construction with similarly configured steel pipe guardrails and paneled concrete bulkheads. And all three bridges were apparently built by force account labor under highway department supervision in 1920-1922. The Queen Creek [abd.] and Devils Canyon [abd.] bridges have since been abandoned in place after the highway was rerouted around them. The highway has similarly been rerouted around the Pinal Creek Bridge in Globe, but, unlike the others, it remains open to vehicular traffic, carrying local traffic on Cottonwood Street. It is physically unaltered and in good condition.

SIGNIFICANCE STATEMENT

The Devils Canyon and Queen Creek bridges both used site-specific concrete arch designs. The Pinal Creek Bridge, in contrast, employed a concrete slab design standard recently developed by the state highway department. "Standard plans for various types of reinforced concrete bridges, abutments and culverts were prepared during the summer of 1919," State Engineer Merrill Butler reported to the state legislature in 1920. "Approval by the Federal authorities was secured in February 1920. Since the completion of the original set additions have been made from time to time as the need arose." In the 1918-1920 biennium, the department designed some 77 concrete slab bridges, which cost an aggregate \$170,000. With its five spans, the Pinal Creek structure was one of the larger examples of this common structural type. It is today distinguished as a well-preserved example of this early AHD design standard. The Pinal Creek Bridge is historically significant as a major part of one of the state's most important early highway projects and as an integral link on a regionally important route.

NATIONAL REGISTER EVALUATION

TECHNOLOGICAL SIGNIFICANCE

☐ represents the work of a master
☐ possesses high artistic values
☒ represents a type, period or method of construction

HISTORICAL SIGNIFICANCE

☐ associated with significant persons
☒ associated with significant events or patterns
☐ contributes to historical district

NATIONAL REGISTER CRITERIA

☒ Criterion A
☐ Criterion B
☒ Criterion C

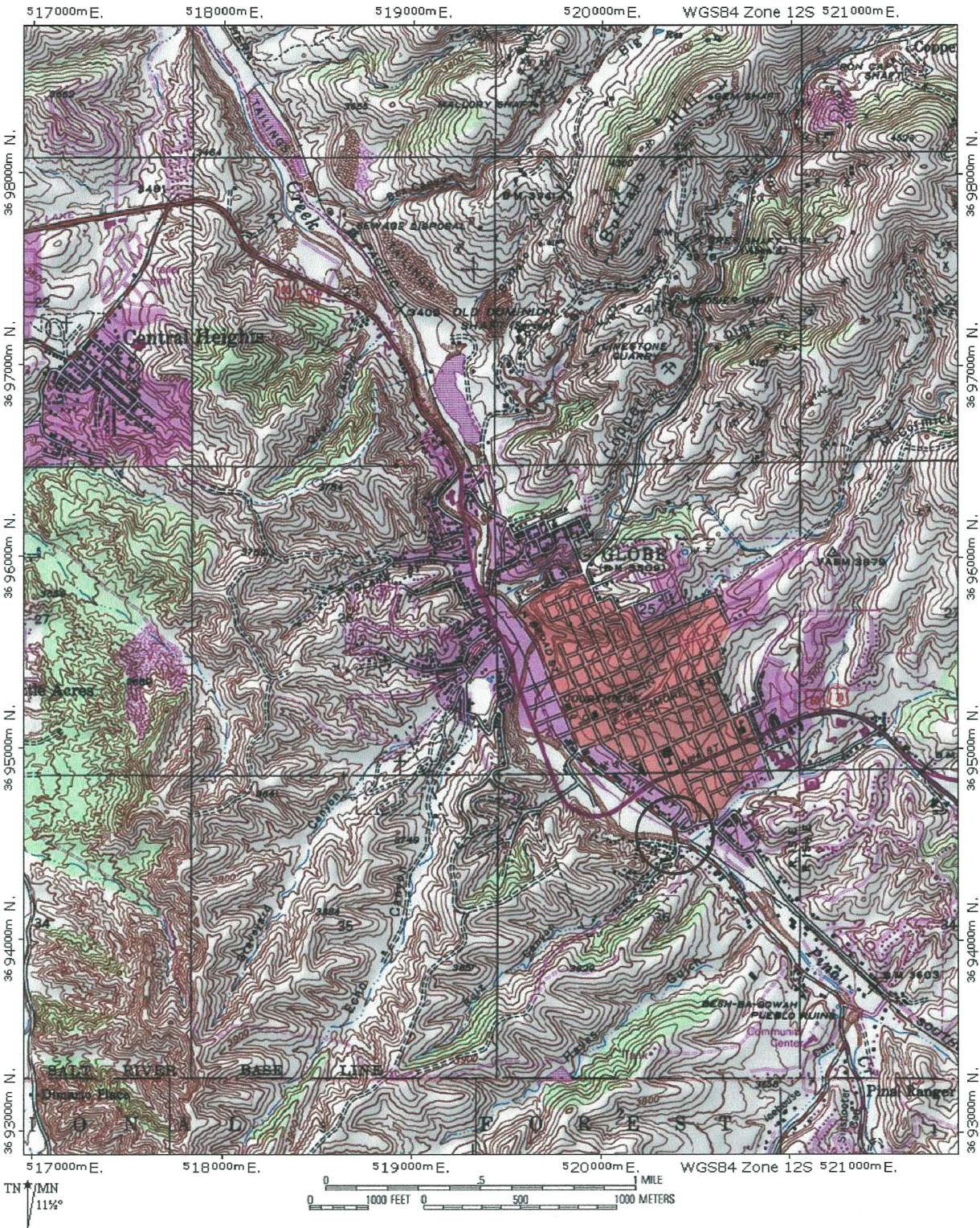
NATIONAL REGISTER ELIGIBILITY

individually eligible ☒ yes ☐ no
 contributes to district ☐ yes ☒ no

AREA OF SIGNIFICANCE: Transportation; Engineering
 PERIOD OF SIGNIFICANCE: 1921-1978
 THEME(S): Transportation: Highways

PINAL CREEK BRIDGE

Structure No. 09711



LOCATION MAP