State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

DRAFT

Primary #
HRI #
Trinomial
NRHP Status Code(s)

Other Listings
Review Code | Reviewer | Date

 ***Resource Name or #:** Bucks Bar Bridge

P1. Other Identifier: Bridge 25C003
***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted** ***a. County:** El Dorado
***b. USGS 7.5' Quad:** Camino **Date:** 1987 **T** 9N **R** 12E; SE ¼ **of** SW ¼ **of Sec**. 25 **M.D.B.M.**
c. Address: Bucks Bar Road at No. Fork Cosumnes River **City**: Somerset **Zip**: 95684
d. UTM: Zone: mE/ mN (G.P.S.)
e. Other Locational Data: N/A Elevation: 1636 ft. AMSL

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)

The Bucks Bar Bridge is an open-spandrel reinforced concrete bridge with a main span of about 70', spanning a narrow and deep gorge over the North Fork of the Cosumnes River. The bridge is 19' wide and operates as a one-lane bridge with drivers yielding to oncoming traffic at the bridge. The bridge was designed in 1941 by the county surveyor and built the same year by an El Dorado County-based contractor.

The reinforced concrete abutments were poured over stacked stone masonry; that masonry was previously the abutment for a covered bridge, built here in 1915 and demolished when this bridge was built in 1941. Each of the four sides of the abutments are nearly identical, angled at about a 45-degree skew from the bases for the arch rings, and carrying a solid concrete barrier. (See Continuation Sheet)

***P3b. Resource Attributes:** (List attributes and codes) Bridge HP19
***P4. Resources Present:** Building ☒Structure ☐Object ☐Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5a. Photograph 1.

P5b. Description of Photo: (View, date, accession #)
Camera facing east 8/21/19.

***P6. Date Constructed/Age and Sources:**
☒Historic ☐Prehistoric ☐Both
1941

***P7. Owner and Address:**
El Dorado County
330 Fairlane Court
Placerville CA 95667

***P8. Recorded by:** (Name, affiliation, and address)
Stephen Mikesell
Mikesell Historical Consulting
1532 Eligio Lane
Davis, California 95618

***P9. Date Recorded:** 7/30/19
***P10. Survey Type:** Intensive

***P11. Report Citation:** (Cite survey report and other sources, or enter "none.") None

***Attachments:** ☒Location Map ☒Sketch Map ☒Continuation Sheet ☒ Building, Structure, and Object Record ☐Archaeological Record ☐District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List):

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
CONTINUATION SHEET

Primary #
HRI #
Trinomial

***Recorded by**: Stephen Mikesell ***Date**: 7/30/19 ☒**Continuation** ☐ **Update**
Page 2 **of** 17 ***NRHP Status Code**
***Resource Name or #** (Assigned by recorder) Bucks Bar Bridge

B1. Historic Name: Bucks Bar Bridge
B2. Common Name: Bucks Bar Bridge
B3. Original Use: Vehicular Bridge **B4. Present Use**: Vehicular Bridge
***B5. Architectural Style:** Open-spandrel concrete bridge
***B6. Construction History:** (Construction date, alterations, and date of alterations)
Built 1941, Unmodified

***B7. Moved?** X **No** ☐**Yes** ☐**Unknown** **Date:** **Original Location:**
***B8. Related Features:**

B9a. Architect: Frank W. McCarton, Deputy County Surveyor **b. Builder**: Hector Williamson
***B10. Significance: Theme:** Transportation, engineering **Area:** El Dorado County
Period of Significance: 1941-1970 **Property Type:** Bridge **Applicable Criteria:** 1 and 3
(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)

Significance:

The Bucks Bar Bridge is significant under California Register of Historical Resources Criterion 1 for its role in the transportation development of the southern parts of El Dorado County; and under Criterion 3 as an excellent example of a type of property: an open-spandrel reinforced concrete arch designed and built to conform with a beautiful natural setting. The bridge retains a very high degree of integrity.

B11. Additional Resource Attributes: (List attributes and codes)

***B12. References:**

See Bibliography

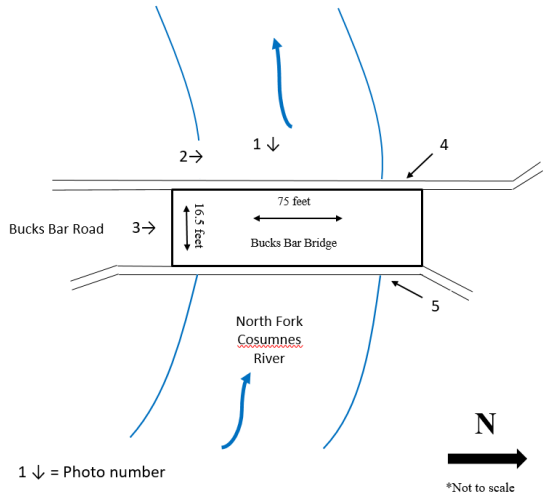
B13. Remarks:

***B14. Evaluator:** Stephen Mikesell

***Date of Evaluation:** 7/30/19

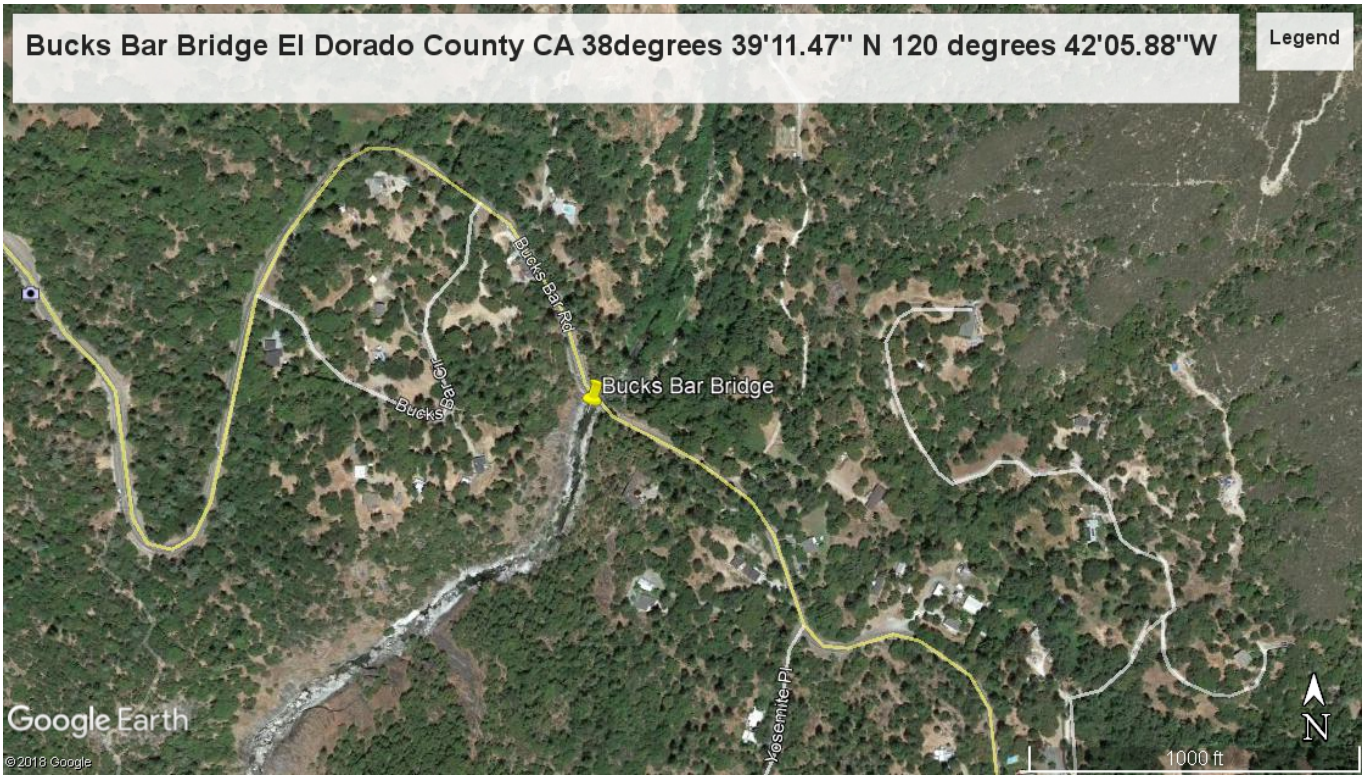
(This space reserved for official comments.)

(Sketch Map



***Recorded by**: Stephen Mikesell ***Date**: 7/30/19 ☒**Continuation** ☐ **Update**

***Map Name:** _____ ***Scale:** _____ ***Date of map:** _____



***Recorded by**: Stephen Mikesell ***Date**: 7/30/19 ☒**Continuation** ☐ **Update**

***Drawn by:** Stephen Mikesell ***Date of map:** August 21, 2019

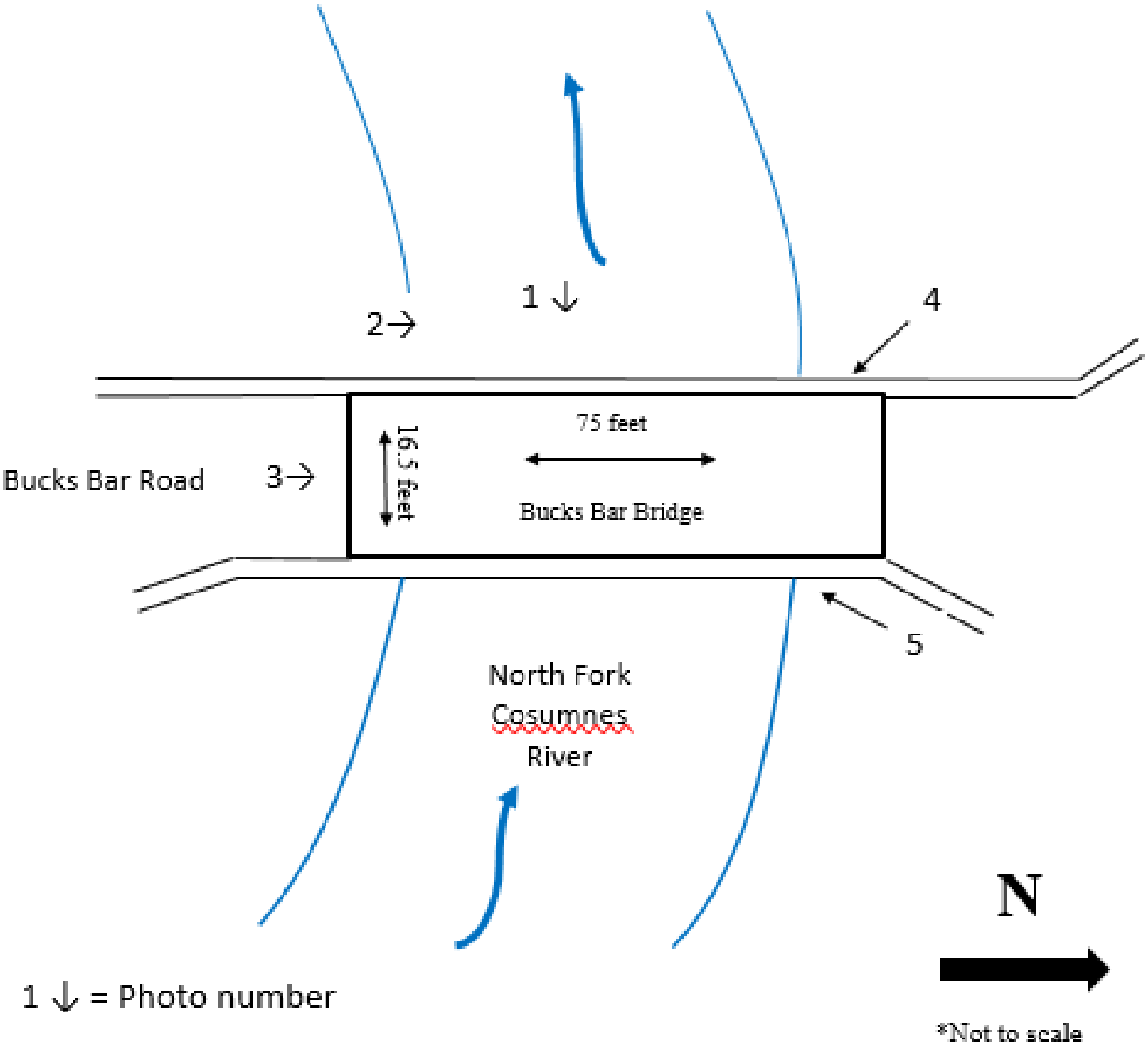


Photo 2. Camera facing north, downstream elevation

Photo 3. Deck. Camera facing north

Photo 4. Camera facing south. Note exposed stacked masonry abutment

Photo 5. Camera facing south, upstream elevation

Description (Continued)

The railings over the main span are similar to those on the abutments and wing walls, with incised panels on both sides (roadside and river side), except at the southwest corner, where the concrete is plain, without decorative panels. At the southwest abutment, the original 1915 stacked masonry is visible on the outside face of the abutment. The railings over the main span (over the arch) also feature slightly protruding top rails, a feature not present on the abutment barriers. The driving surface is a v\bituminous seal coat over concrete.

The most character-defining elements of the bridge are the two arch rings, and sixteen spandrel columns which connect the arch rings with the concrete deck. The spandrel columns are flared where they meet the deck, creating a column-and-capital form. Horizontal struts connect the two arch rings, with eight struts aligning with the eight pairs of spandrel columns.

The bridge is functionally and aesthetically linked to the granite faces upon which it was built. The arch rings are founded in those sloping granite walls and the bridge deck is supported on the top of those granite walls. The stacked masonry and reinforced concrete abutments conform to the gentle (approximately 45 degree) slope of the granite walls.

The bridge retains a very high degree of historical integrity. There are no notable changes to any of the character-defining features for the bridge, including its arch rings, spandrel columns, horizontal struts, railings, or incised railing design.

Significance (continued)

Significance under Criterion 1

Under Criterion 1, the Bucks Bar Bridge has served and continues to serve as the principal link between the county seat in Placerville and remote communities in the southern part of El Dorado County, which local residents generally call “South County.” The bridge provides by far the most direct access between South County and the major population centers around Placerville, without which a detour would double the time required to travel from one part of the county to the next.

Criterion 1 Significance (Continued)

El Dorado County, historically as today, is geographically diverse. Historically, the main population center was Placerville, the county seat and largest city. Other smaller communities surrounded Placerville, including El Dorado, Diamond Springs, and others. South of Placerville, a cluster of communities developed near the Amador County line. The south area included the small towns of Fair Play, Mt. Aukum, Grizzly Flats, and Somerset. Access to these towns was much easier from the Shenandoah Valley of Amador County than from the major settlements in and around Placerville. Until 1857, the south area could be reached only via a circuitous route.

In 1854 and 1857, the El Dorado County Board of Supervisors voted to allow for a more direct access to the south area. In 1854, the board awarded to Daniel Hoag a franchise to operate a toll bridge at Bucks Bar, at a site generally upstream from the current bridge crossing.[1] In 1857, the El Dorado County Board of Supervisors authorized construction of a private toll road that closely approximated the current alignment of Bucks Bar Road and which used the three-year old (1854-1857) private bridge. [2] The toll road was also owned and maintained by Daniel Hoag.

Between 1854 and 1869, a series of bridges served Bucks Bar Road. Hoag lost two bridges between 1854 and 1860, both washing away in the very wet years of the 1850s.[3] Daniel Robert Carson bought the turnpike and bridge rights from Hoag in 1860, built a new bridge but lost it to flooding in 1864.[4] Carson rebuilt the bridge but it washed out twice before he died in 1873. The last bridge built by Carson washed away in 1869. Because Carson died intestate, the State of California seized his turnpike and his other properties. The state deeded the road to El Dorado County in 1889. At that time, there was no bridge for Bucks Bar Road. The North Fork of the Cosumnes could be forded during the summer and fall. In winter and spring, the road was generally unusable.[5]

Bucks Bar Road had no bridge between 1869 and 1915. With the advent of automobiles and trucks and development of lumbering in the area, local residents began to agitate for a new bridge, built above the flood zone. Local residents raised money for bridge construction by holding a series of dances at a nearby hall. The County authorized the remaining funds and went to bid for construction of a covered bridge at this site. This bridge was founded on stacked masonry abutments and piers. The masonry abutments are still in place and used by the existing reinforced concrete bridge.

This 1915 covered bridge was in use until it was replaced by the current Bucks Bar Bridge in 1941. The covered bridge, unlike its predecessors, was built high on the canyon and was generally above the winter flood lines.

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[1] El Dorado County Board of Supervisors Minutes Vol. AA, License for Bucks Bar Bridge to Daniel F Hoag. Toll bridge. Oct 21. 1854, p. 62.

[2] "Bucks Bar Road Bridge Opened the South Area," *Mountain Democrat,* 4 April 2012.

[3] The pattern of low lying bridges, most of them timber trestles, washing out during the heavy rains of the late 1850s and early 1860s is discussed in Stephen D. Mikesell, "The Suspension Bridges of Andrew Smith Hallidie," *California History.* Summer 2018, Vol. 95, No. 2, pp. 52-70.

[4] "Bucks Bar Bridge Once Traveled by Wagon," *Mountain Democrat,* 9 Sep 1998, p. C-7.

[5] The most reliable history of the various bridges at this site is "The History of Bucks Bar," a chapter in George Wilkes Peabody, *How About that!* Placerville, 1889, pp. 117-124.

Criterion 1 Significance (Continued)

The 1941 bridge, like its many predecessors, served as an invaluable link between the main population centers around Placerville and the isolated communities in the south area. It was not the first bridge at this site, but it certainly is the most long-lived, surviving about twice as long as the preceding covered bridge structure. Its role as a vital link between Placerville and the south area has continued for 68 years, roughly half the life of El Dorado County. It has played a significant part in the transportation network of El Dorado County, especially in serving the south area as it developed from an isolated part of El Dorado County to a more integrated part of the county. That role was well-established by 1970, the end of the period of significance, and continues today.

Criterion 3 Significance

The Bucks Bar Bridge is significant under California Register Criterion 3 as it "embodies the distinctive characteristics of a type, period, or method of construction." It is an important example of an open-spandrel reinforced concrete arch bridge, important especially for the degree to which it blends with the natural environment in this remote crossing of the North Fork of the Cosumnes River.

The open-spandrel concrete arch bridge has been a favorite among bridge designers when there is concern about the aesthetic relationship between the bridge and its natural setting. In the 1920s and 1930s, the Division of Highways (todays California Department of Transportation) built a string of open-spandrel concrete arch bridges in settings that were considered sensitive for the relationship between the bridge and the natural setting. Examples of this are the 1924 Donner Summit Bridge, overlooking Donner Lake and the Tahoe Basin. Another famous example is the 1936 Bixby Arch Bridge on the Big Sur Highway. Still another example is the 1940 Frederick Panhorst Bridge over Russian Gulch in Humboldt County. (See Figures 1, 2, and 3 below)

The Division of Highways, which during the period 1920-1940, built numerous wilderness roads (such as the Donner Summit Highway, Big Sur Highway, and the Redwood Highway) recognized the need for an aesthetic approach to bridge design in such environs. Charles Andrew, the head of the Bridge Department at the Division of Highways, called for his engineers to reach for "high ideals" in designing wilderness bridges. He wrote in 1928: "It is the hope of the bridge engineer that the finished product will be durable, pleasing in its appearance, conform to the canyon or stream; so that both layman and engineer will gain the impression that bridge construction is being kept abreast of modern highways."[6]

It was not accidental that state engineers selected the open-spandrel concrete arch as the bridge of choice for the Donner Summit, the Bixby Canyon, and the Russian Gulch. Historian and engineer David P. Billington cited the open-spandrel concrete arch bridges of the Division of Highways in wilderness areas as evidence that the open-spandrel concrete arch was the ideal solution to building bridges in sensitive natural settings.[7] The open spandrel concrete arch commonly used for wilderness settings differed fundamentally from the similar form, as used in urban settings. The typical urban open spandrel arch bridge from the 1920-1940 era was fitted with applied decoration, often in a Neo-Classical or other period revival manner. The Spanish Colonial Macy Street Bridge in Los Angeles is typical of that urban bridge subtype. (See Figure 4)

[6] Charles Andrew, "Bridges on California State Highways," *California Highways and Public Works,* August, 1928, p. 14.
[7] David P. Billington, "History and Esthetics in Concrete Arch Bridges," *Journal of the Structural Section, ASCE,* 1977, pp. 2129-2143.

The Bucks Bar Bridge demonstrates the appropriateness of the less ornamental open-spandrel concrete arch bridge form to a sensitive natural setting. Although built in a durable manner, the bridge seems delicate within its setting. The bridge is especially sensitive to its environment, which are the step granite blocks to which its abutments and arch rings are founded. There can be no doubt that this bridge is a significant example of a specific property type: an open-spandrel concrete arch built in a setting of great natural beauty. Although it was a somewhat late example of this property type, it was conceived in the same era as the Frederick Panhorst Bridge and is reflective of the same design aesthetic. While more modest in size than the above comparisons due to the nature, size, and constraints of the gorge within which it sits, it is wholly consistent with the design intentions and form of the larger scale examples.

The grace and sophistication of the Bucks Bar Bridge is somewhat unexpected in that the designer, Frank McCarton, had little bridge design experience. When the county decided to replace the covered bridge at Bucks Bar in 1941, the elected County Surveyor was Don Marlan Hoffman. Hoffman joined the Army during the 1940 build up to World War II, leaving the elected position of County Surveyor vacant throughout the war. McCarton, who was an appointed Deputy Surveyor, was Acting County Surveyor at the time this bridge was designed and built. McCarton was born in 1883 in Oregon. He had worked for decades in Stanislaus County, as the City Engineer for the City of Modesto and as engineer for the Modesto Irrigation District. He had been hired in El Dorado County chiefly to supervise engineering for an expansion to El Dorado County High School in Placerville. Because Hoffman was in the Army in 1940, Frank McCarton was effectively acting as the County Surveyor, a title he could not assume because it was an elected position.

McCarton was a classic "jack of all trades" engineer, a type that worked in local government from the 1880s until the end of World War II. His biography is captured in census records and local newspaper accounts. He was born in Oregon and had finished only one year of college. In 1920, he was an engineer for the Modesto Irrigation District.[8] In 1923, he was working as the City Engineer for the City of Modesto.[9] In 1930, he was still living in Modesto but had a private practice.[10] In 1942, McCarton resigned his position as Deputy County Surveyor and moved to Los Angeles to take up "government work."[11] In the 1950s, McCarton lived in Clovis near Fresno. He died in Fresno in 1958.

McCarton may or may not have designed other bridges before he went to work for El Dorado County in 1939. As City Engineer in Modesto, he filed an annual report in 1924 that outlined the work undertaken by his department. The report lists many miles of paved streets, street lighting, and sewer work but does not list any work on bridges.[12] It is also possible that he had some bridge design experience while he was an irrigation engineer for the Modesto Irrigation District or while he was a private consulting engineer after his service with the City of Modesto and the Modesto Irrigation District.

[8] U.S. Census, 1920, accessed via Ancestry.com
[9] *Oakdale Leader*, 25 Oct 1923.
[10] 1930 Census.
[11] *Mountain Democrat,* 12 Mar 1942.
[12] *Modesto Evening News,* 2 Aug 1924.

What is clear, however, is that he chanced upon a rare opportunity to learn bridge engineering when Hoffman left to join the Army. The minutes of the El Dorado County Board of Supervisors for 1941 list numerous bridges for which McCarton was directed to prepare plans and specifications, including a small concrete bridge on Otter Creek near Georgetown and several bridges over Weber Creek near Placerville.

In May 1941, the Board of Supervisors directed McCarton to draw up plans and specifications for a bridge at Bucks Bar.[13] Board minutes do not specify why the Board chose to replace the covered bridge, which in 1941 was only 25 years old. The covered bridge had been built in part through volunteer labor and covered bridges were and are high-maintenance structures. The exact reason for replacement, however, was not laid out in the public record.

The Board and Deputy County Surveyor McCarton requested contracting bids for a bridge based upon McCarton's plans and specifications on May 6, 1941, with bids to be opened in early June, 1941.[14] On June 3, the Board received only one bid for the job, from Hector Williamson of the El Dorado County community of Rescue. The Board accepted his bid of $7495.00, with a contingency for more concrete, were the existing stacked masonry abutments unusable. The Board noted that Williamson's bid was the only bid "and his bid being a fair bid." The work started shortly thereafter. In October, Williamson sought and was given an extension until January 1, 1942, to complete the job. It is not clear when the County accepted the bridge as complete and whether that acceptance occurred before or after the attack on Pearl Harbor in early December 1941.

Williamson was a descendant of an early pioneer family in El Dorado County and a specialist in reinforced concrete construction, especially concrete bridge construction. He was born in El Dorado County in 1888 and died there in 1969. His grandfather, Robert, was born in Scotland but moved to the United States before 1853. Hector's father, George, was born in New York in 1853 but moved to El Dorado County some time before 1884. George married an El Dorado County native, Matilda Dunker, in 1884 and Hector was born in 1888 at Weber Creek, south of Placerville. In 1910, he was living with his parents in Rescue, an unincorporated community near today's El Dorado Hills. He attended school in the Rescue area but left school after the fifth grade. [15]

Before 1911, he married Carita Starbuck, who also grew up in El Dorado County. By 1920, he was living on Lotus Road near Coloma, El Dorado County, and listed his occupation as "farmer." He was still at that farm in Coloma in 1930 but he listed his occupation as a "cement contractor." In 1940, he lived at the same place in Coloma and gave the same occupation.[16]

It is not clear how Hector, a farmer with a fifth-grade education, came to enter the concrete construction business. He founded the Hector Williamson Mine near Coloma, which he worked in 1918.[17] It was a deep shaft mine, requiring complex engineering. He also built an earthen dam, called the Hector Williamson Dam, on Weber Creek, storing about 150 acre-feet.[18] As noted earlier, by the time of the 1930 census, Hector described himself as a contractor specializing in concrete construction.

[13] Book N, p. 144, Minutes of 7 Apr 1941; *Mountain Democrat* 16 Apr 1941.
[14] Minutes, Book N, 6 May 1941, p. 147. $7495 in 1941 is equal to about $127,000 in 2019.
[15] 1940 Census, accessed via Ancestry.com.
[16] Various U.S. Censuses accessed via Ancestry.com.
[17] Doug Noble, *Mines of El Dorado County,* 2002, pp. 79-80.
[18] California Department of Water Resources, Bulletin 17, *Dams within the Jurisdiction of the State of California,* 1965, p. 14.

In a brief biography of Williamson in *History of a Place Called Rescue,* historians William Teie and Francis Carpenter highlight his career building concrete bridges.[19] While Williamson worked in other areas, including dam building, the record supports the contention that his primary line of work was building bridges. We have records of dozens of bridges built by Williamson, all in the 1930s and 1940s, all but one of which was built of reinforced concrete. The vast majority of these bridges were small structures, culverts in many cases. The two exceptions were two larger structures: the subject Bucks Bar Bridge (built in 1941) and the Mosquito Road Bridge, built in 1939.

The Mosquito Road Bridge is a suspension span connecting Mosquito Road across the South Fork of the American River and is the only known non-concrete bridge to be built by Williamson. This bridge is scheduled to be replaced in the near future.

His other bridges appear to have been all constructed of reinforced concrete. One early work attributed to Williamson were the concrete approach spans for the Mt. Murphy Rd. Bridge across the South Fork of the American River in Coloma. The principal bridge is a metal truss built in 1911 with timber approaches. The timber approaches washed out in 1936 and were replaced by Williamson. The Mt. Murphy Rd. Bridge is eligible for listing in the National Register (and therefore listed in the California Register) chiefly on the basis of its metal truss. That bridge is scheduled to be demolished in the next few years. [20]

Of the two responsible parties for this bridge – McCarton and Williamson – only Williamson had extensive experience in reinforced concrete bridge work. It is likely that Williamson was given some leeway in building the bridge to meet the specific conditions at this site. The manner in which this bridge was fitted into the rocky banks of the North Fork of the Cosumnes River shows the work of a skilled bridge-builder. The beauty and practicality of the bridge were summarized by local historian George Peabody: "Viewed from below, the structure is a graceful dual arch resting on huge granite outcroppings on each side of the river. The bridge incorporates the original, 1915, masonry and concrete approaches and piers of the old covered bridge that remain as sturdy as they were 73 years ago."[21]

In summary, the Bucks Bar Bridge is significant under California Register Criterion 3 as an excellent example of a specific bridge type: an open-spandrel reinforced concrete arch bridge designed to conform to a beautiful natural setting. While notable designers on the basis of this one example, research to date does not indicate that either McCarton or Williamson had enough career achievements to be considered master designers or builders.

[19] William C. Teie and Francis M. Carpenter, *History of a Place Called Rescue,* Placerville, Deer Valley Press, 2011, p. 67. "Mosquito Part 2" *Mountain Democrat*, 27 Oct 2010.

[20] Williamson's role in building the approaches is recorded in Bridgehunter and in a plate on the bridge concrete approaches to the bridge.

[21] Peabody, *How About That!.* p. 124.

Figure 1. Donner Summit Bridge. Photo route 40.net

Figure 2.Bixby Arch Bridge, Photograph by Stephen Mikesell

Figure 3. Frederick Panhorst Bridge. Photo by State Parks

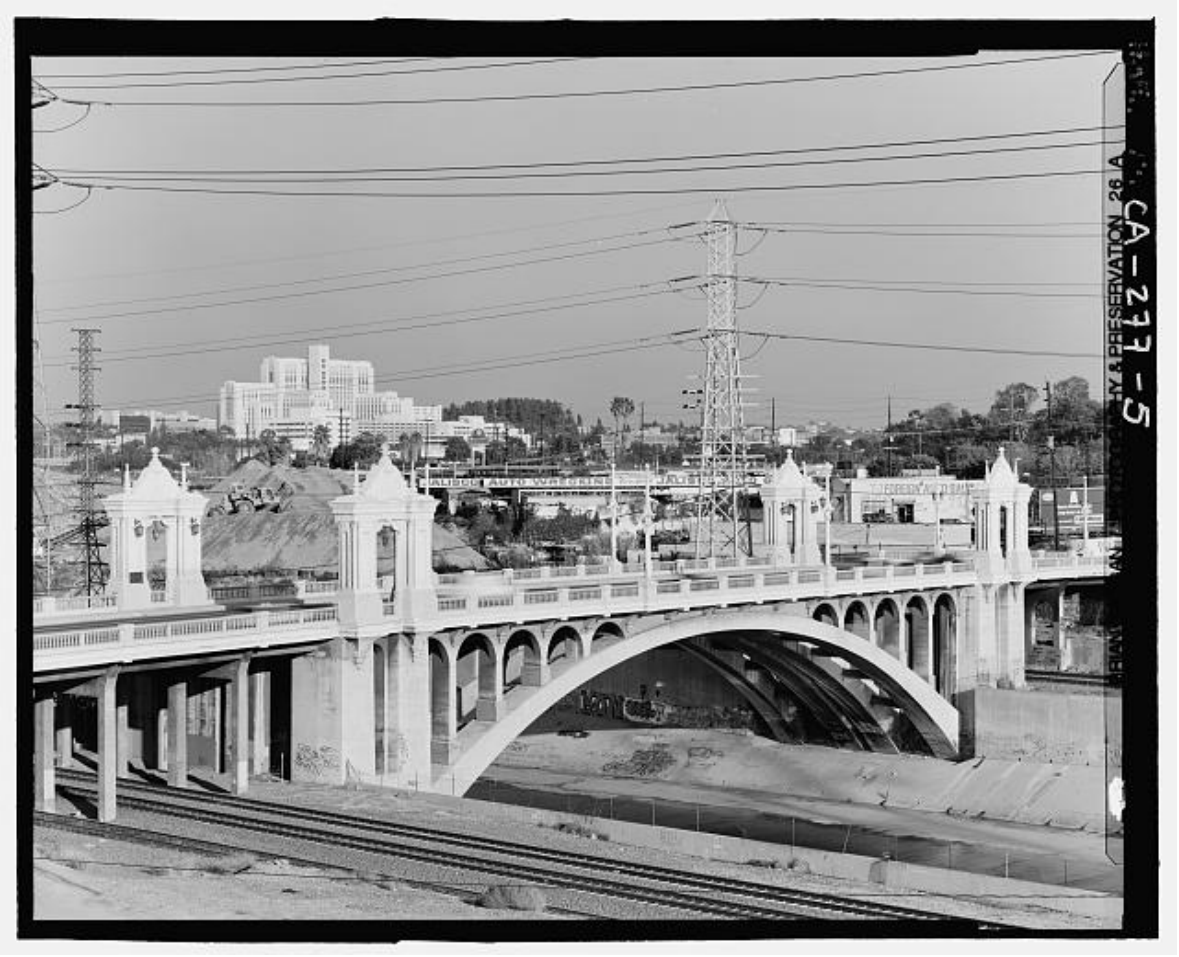

Figure 4. Macy Street Bridge, HAER Photograph

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