

HAER INVENTORY

Historic American Engineering Record
Department of the Interior, Washington, D.C.

1. SITE I.D. NO

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2. INDUSTRIAL CLASSIFICATION

Bridges, Trestles, and Aqueducts

7	5	9	5
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3. PRIORITY
1

4. DANGER OF DEMOLITION?
(SPECIFY THREAT)

YES NO UNKNOWN

Life expectancy: 1999

ARCH: Concrete

Designation Number: 101/404 10105
31993 101/404 1010531970

5. DATE
1924/00

6. GOVT SOURCE OF THREAT

OWNER ADMIN

7. OWNER/ADMIN

State Department of Transportation

8. NAME(S) OF STRUCTURE

North Hamma Hamma River
South Hamma Hamma River

9. OWNER'S ADDRESS

Highway Administration Building
Olympia, Washington 98504

10. STATE

WA

COUNTY NAME

CITY/VICINITY

CONG. DIST.

COUNTY

045

Mason

Eldon

03

STATE

COUNTY NAME

CITY/VICINITY

COUNTY

CONG. DIST.

11. SITE ADDRESS (STREET & NO)

5.1 South Jefferson Co./5.3 South of Jefferson Co.

12. EXISTING SURVEYS

NR NHL HABS HAER-I HAER NPS CL6

CONF STATE COUNTY LOCAL OTHER

13. SPECIAL FEATURES (DESCRIBE BELOW)

INTERIOR INTACT EXTERIOR INTACT ENVIRONS INTACT

14. UTM ZONE

EASTING

NORTHING

SIGN

SCALE

1:24 1:62.5

QUAD NAME

The Brothers, Washington

UTM ZONE

EASTING

NORTHING

SIGN

SCALE

1:24 1:62.5

QUAD NAME

UTM ZONE

EASTING

NORTHING

SIGN

SCALE

1:24 1:62.5

QUAD NAME

15. CONDITION

70 EXCELLENT

71 GOOD

72 FAIR

73 DETERIORATED

74 RUINS

75 UNEXPOSED

76 ALTERED

82 DESTROYED

85 DEMOLISHED

16. INVENTORIED BY

Lisa Soderberg

AFFILIATION

HAER/Washington State Bridge Inventory

DATE

June 1979

17. DESCRIPTION AND BACKGROUND HISTORY, INCLUDING CONSTRUCTION DATE(S), HISTORICAL DATE(S), PHYSICAL DIMENSIONS, MATERIALS, EXTANT EQUIPMENT, AND IMPORTANT BUILDERS, ENGINEERS, ETC.

Two identical single-spanned concrete tied arches were constructed by the Colonial Building Company in 1924 over the North Hamma Hamma and the South Hamma Hamma River. Spaced a few hundred feet apart, their arched forms frame a pathway of trees creating the momentary illusion of a serene, sheltered boulevard along Highway 101 on the Olympic Peninsula.

Each bridge is 154 feet long, and consists of a 150 foot three hinged arch with a rise of 30 feet. Unlike the flat truss or girder, the arch exerts a horizontal thrust on the skewbacks. In most arches, massive abutments and foundations are necessary to resist the horizontal thrust. However in the tied arch, the horizontal thrust is resisted by longitudinal ties which extend between the hinged springing points. In the Hamma Hamma River Bridges, the deck slab itself, which is hung by suspenders from the pair of arch ribs, acts as a tie. Since the arch is in compression, the deck slab is subject to a tensile stress. The double function of the deck slab was an economical solution, and it eliminated

(CONT OVER)

18. ORIGINAL USE

vehicular

PRESENT USE

vehicular

ADAPTIVE USE

19. REFERENCES—HISTORICAL REFERENCES, PERSONAL CONTACTS, AND/OR OTHER

State Department of Transportation files.

Carl W. Condit, American Building Art, 2 Vols., (New York, 1960), 2:116, 126, 206.

(CONT OVER)

20. URBAN AREA 50,000 POP. OR MORE?

YES NO

21. HCRS REGION

NEW

22. PUBLIC ACCESSIBILITY

YES, LIMITED

YES, UNLIMITED

NO

UNKNOWN

23. EDITOR

INDEXER

24. LOCATED IN AN HISTORIC DISTRICT?

YES

NO

NAME

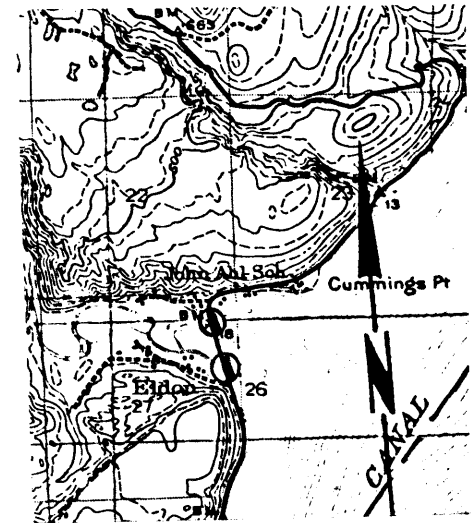
DISTRICT I.D. NO

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Description (continued)

the need of massive abutments. Carl Condit points out in his book, American Building Art, that the concrete tied arch demonstrates how techniques commonly used in steel arch construction were adapted to the concrete form. For example, as in steel arch construction, the two arch ribs were connected by struts to provide lateral rigidity against traffic and wind loads. Originally, six reinforced concrete struts connected the Hamma Hamma River arches above the roadway. However, two struts were removed from each bridge to increase the vertical clearance of the two spans.

The North and South Hamma Hamma River Bridges are two of five concrete tied arches within the State. Of the five bridges, their arch spans are the longest. Although there are examples of tied arches that were built throughout the 20's and 30's, it is a rare concrete arch form.



REFERENCES (CONTINUED)

ABSTRACT											
HAER NO	LC	TECH REPORT	HIST REPORT	CONTEMP PHOTO	HIST PHOTO	CONTEMP DRWG	HIST DRWG	COLOR PLATE	PHOTOGRAM	SW	FILM