1. SITE I.D. NO

HAER INVENTORY

Historic American Engineering Record
Department of the Interior, Washington, D.C. 20240

2. INDUSTRIAL CLASSIFICATION
Bridges, Trestles, and Aqueducts

TRUSS: steel cantilever 7603

ARCH: steel 7596

3. PRIORITY: 1

5. DATE: 1935

4. DANGER OF DEMOLITION? (SPECIFY THREAT) ☐ YES ☐ NO ☒ UNKNOWN

6. GOVT SOURCE OF THREAT: OWNER ADMIN

7. OWNER/ADMIN
State Department of Transportation

8. NAME(S) OF STRUCTURE
Deception Pass 20/204

Canoe Pass 20/207

9. OWNER'S ADDRESS
Highway Administration Building
Olympia, Washington 98504

10. STATE COUNTY: WA 053 — COUNTY NAME: Skagit — CITY/VICINITY: Anacortes — CONG. DIST.: 02

STATE COUNTY — COUNTY NAME — CITY/VICINITY — CONG. DIST.

11. SITE ADDRESS (STREET & NO.)
On Route 20; 0.0 and .2 miles north of Island County

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.

D — UTM ZONE 10 — EASTING 526400 — NORTHING 5361300 — SIGN — SCALE ☐ 1:24 ☒ 1:62.5 ☐ OTHER — QUAD NAME: Deception Pass, Washington

C — UTM ZONE 10 — EASTING 526300 — NORTHING 5361570 — SIGN — SCALE ☐ 1:24 ☒ 1:62.5 ☐ OTHER — QUAD NAME: Deception Pass, Washington

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: August 1979

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

In 1908, extensive surveys were made to determine the cost of constructing a system of roads and bridges to connect Island and Skagit Counties. Plans were even drawn for two steel arches, and a miniature of the proposed bridge was displayed at the Alaska-Yukon-Pacific Exposition of 1909. "The project is entirely feasible," stated the "First Biennial Highway Report," "but its utility is open to question." More than two decades after the original proposal, two steel structures were finally constructed across the swiftly moving tidal water of Deception and Canoe Passes.

On August 6, 1934, with the assistance of a CCC Camp, the Puget Construction Company of Seattle began work on the excavation of the piers. A 511 foot steel structure composed of a 350 foot arch and three concrete T-beam approach spans was built across the passage way between Fidalgo and Pass Islands. A 976 foot steel structure consisting of two 175 foot anchor spans, two 175 foot cantilever spans, one 200 foot suspended span and four concrete T-beam approach spans was erected between Pass and Whidbey Islands. The two bridges support a 22 foot wide roadway with two 3 foot

(CONT OVER)

18. ORIGINAL USE: vehicular — PRESENT USE: vehicular — ADAPTIVE USE:

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

State Department of Transportation bridge files.
Carl Condit, American Building Art, 2 Vols., (New York, 1961), 2:104
"Long Steel Bridges Added to Washington Highway System," Engineering News-Record, 25 October 1934, p. 519.
"Decades of 'Fighting' are Ended; Nature's Barrier Finally Bridged,"

(CONT OVER)

20. URBAN AREA 50,000 POP. OR MORE? ☐ YES ☒ NO

21. NPS REGION: NW

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

45
46

Description(continued)
sidewalks.

The sheer bluffs of solid rock which line the contours of Whidbey and Fidalgo Islands, and the rocky protrusion of Pass Island, provided ideal natural conditions for the excavation of the pier foundations at points well above the high-water level. In order to begin work on Pass Island, it was necessary to erect a cableway system to Fidalgo Island. The cableway was operated by a gasoline engine and served to transport cement and aggregate from the central cement plant on Fidalgo Island for the piers on Pass Island. The structural steel was also transported by this method. A traveler derrick with an 85 foot steel boom was used to handle the materials and to place them in their proper location. Water for the concrete mixture was piped up to a distance of 6,000 feet from nearby lakes.

The steel arch across Canoe Pass was completed first. It was designed as a three-hinged arch for dead loads. After erection was completed, the central hinge was riveted, creating a two-hinged arch for live loads.

Before steel erection was begun on the cantilever span, a light railroad was constructed across the Canoe Pass Bridge to haul materials for the erection of the cantilever span at the Pass Island end. The materials and supplies for the Whidbey Island end of the bridge were shipped by barge to Cornet Bay and then transported 3 miles to the building site.

Because the Deception and Canoe Pass structures rise to a height of 180 feet above the channels providing a navigable passageway, it was not possible to build falsework. Consequently, both spans were erected by the cantilever method.

The Deception Pass structure was built in the same year as the Grand Coulee Bridge. Though the Deception Pass Bridge is of the deck type, and the Grand Coulee Bridge is of the through truss type, the cantilever and Warren truss suspended span are of equal lengths in both bridges. Riveted connections were used for both cantilever structures, except for those connections at the four corners of the suspended span. There, pin-connected links were used to allow for changes in length due to live load and temperature.

The Wallace Bridge and Structural Steel Company of Seattle provided 465 tons of steel for the arch bridge and 1,130 tons of steel for the Deception Pass Bridge. The design and construction of the bridges was supervised by L.V. Murrow, Director of Highways and O.R. Elwell, Bridge Engineer. The Emergency Relief Administration allocated $245,000 to the project which was matched by $150,000 in county funds and $87,000 in federal funds.

The simple, undulating lines of the arched steel structures conform to the rugged contours of the surrounding land, and compound the drama of their setting. The Deception Pass Bridge demonstrates the evolution and progressive refinement of the cantilever truss in the 20th century. Its distilled, structural simplicity epitomizes the merging of a functional and an aesthetic form in the cantilever truss.

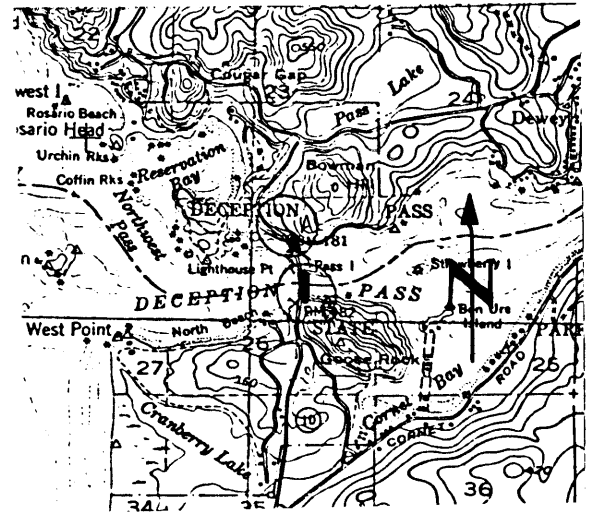
REFERENCES (CONTINUED)

"Deception Pass Bridge," Compressed Air Magazine, September 1935, p. 4834.
"First Biennial Report of the Highway Commissioner for the Period Ending November 15, 1906," Olympia, Washington, p. 15.

ABSTRACT

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

25. Photos and Sketch Map of Location



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