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 — 7603
155/101 155000282600

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: Grand Coulee Bridge

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

10. STATE COUNTY: WA 047 — COUNTY NAME: Okanogan — CITY/VICINITY: Grand Coulee — CONG. DIST.: 05

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

11. SITE ADDRESS (STREET & NO.): Crossing: Columbia River

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 11 — EASTING 352100 — NORTHING 5314150 — SIGN
SCALE ☐ 1:24 ☒ 1:62.5 ☐ OTHER — QUAD NAME: Grand Coulee Dam, Washington

UTM ZONE — EASTING — NORTHING — SIGN
SCALE ☐ 1:24 ☐ 1:62.5 ☐ OTHER — 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: October 1979

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

In late 1934, the Bureau of Reclamation began the construction of a 950 foot through cantilever steel truss across the Coumbia River near the site of the Grand Coulee Dam. The bridge was designed by the Washington Department of Highways for the Columbia Basin Commission to serve a dual purpose. It would be used to transport heavy equipment across the Columbia during the construction of the dam, and after the dam's completion, it would be used as a permanent highway structure on State Route 155. Consequently, the flooring and floor framing which carries a 20 foot wide roadway, curb to curb, and two 4 foot sidewalks, was built to handle H-20 loadings rather than the standard H-15.

The structure consists of two 200 foot anchor arms, two 175 foot riveted cantilever trusses, and one 200 foot Warren truss suspended span. The approach spans were composed of four concrete T-beams. Approximately 300 tons of structural carbon and silicon steel were used. Pin-connected links support the four corners of the suspended span in order to allow for the changes in length due to the live load and temperature. Transverse movement in the suspended (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.
"Long Steel Bridges Added to Washington Highway System," Engineering News-Record, 25 October 1934, p. 519.
"Ten Months' construction Progress," Engineering News-Record, 1 August 1935, pp. 144-151.
"Earth Pressure Tilts Pier of Grand Coulee Bridge," Engineering News-Record, 7 November 1935, pp. 646-647 (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

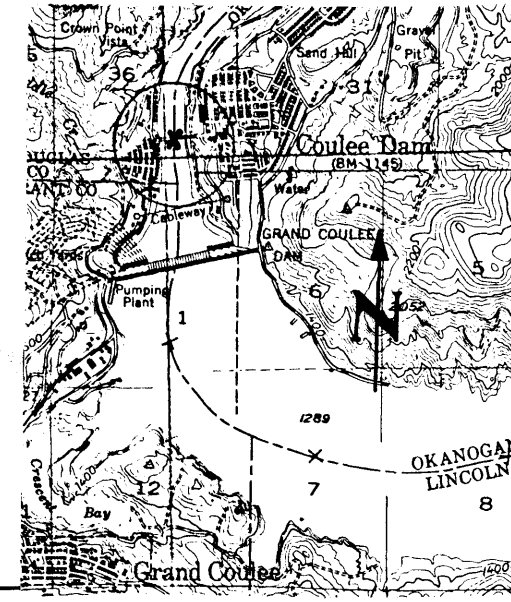
23. EDITOR / INDEXER

24. LOCATED IN AN HISTORIC DISTRICT? ☐ YES ☒ NO NAME — DISTRICT I.D. NO

Description (continued)
span is prevented by a shear lock in the bottom lateral system.

The steel structure is supported by monolithic concrete piers that are 150 feet high, and are resting securely on bedrock. However, during the erection of the structure, the foundation was not so secure - as the structure neared completion, the east pier tilted nine inches from its original position. It was believed that this movement was caused by a deposit of fine glacial material which lay beneath the 20 or 30 foot surface layer of gravel, that often slides when disturbed. As an emergency measure, a 50-ton jack was placed inthe gap between the cantilever arms. Cables were welded to the anchor arms and trusses, and secured to deadmen on shore which consisted of two 72 foot long steel girders. As soon as the jack was in place, the tilting of the pier ceased. It was fortunate that the movement of the pier was parallel to the bridge center line, and did not cause distortion of the steel framing. Although the piers were finally taken down to a firm foundation through the construction of pneumatic caissons, the emergency remedies delayed the bridge contract for several months.

The Grand Coulee Bridge was one of two 550 foot cantilever trusses designed by the highway department in 1935. Its straightforward Warren truss suspended span, and the minimal bracing over the piers reflects the refinement and progressive simplification of the cantilever truss form in the 20th century. The Grand Coulee Bridge even represents a departure in form from the cantilever structures built in Washington during the previous decade. The bridge is significant in its role as a major transportation link in the construction of the Grand Coulee Dam.



REFERENCES (CONTINUED)

Carl Condit, American Building Art, 2 Vols., (New York, 1961), 2:104.

ABSTRACT

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