

CUSHMAN NO. 1 HYDROELECTRIC POWER PLANT,
POWERHOUSE
Spanning the North Fork of Skokomish River
Hoodsport vicinity
Mason County
Washington

HAER WA-26-C
HAER WA-26-C

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD
PACIFIC WEST REGIONAL OFFICE
National Park Service
U.S. Department of the Interior
333 Bush Street
San Francisco, CA 94104

HISTORIC AMERICAN ENGINEERING RECORD

CUSHMAN NO. 1 HYDROELECTRIC POWER PLANT, POWERHOUSE

HAER No. WA-26-C

Location: East bank of Lake Cushman at the North Fork of the Skokomish River, Mason County, Washington
USGS Topographic Quad: Hoodspout
Township 22 North, Range 4 West, Section 5

GPS Coordinates: Latitude: 47° 25'341 N, Longitude: 123° 13'216 W
This coordinate represents the center of the Cushman No. 1 powerhouse building. Obtained October 17, 2012, using Google Earth (© 2012). The coordinate's datum is North American Datum 1983.

Present Owner: City of Tacoma, Department of Public Utilities, Light Division (doing business as Tacoma Power)

Present Use: Hydroelectric Power Production

Significance: Cushman No. 1 Hydroelectric Power Plant powerhouse represents a significant achievement in power production for the City of Tacoma. Constructed in response to unprecedented increases in power demands in the city, the Cushman No. 1 Development led to further industrial and commercial expansion. Cushman No. 1 dam is a notable example of medium-head hydroelectric technology from the mid-1920s. Moreover, construction of both the dam and powerhouse was an engineering feat, located in steep, nearly inaccessible terrain prone to flooding.

Date: Constructed 1923–1925

Builder: Tacoma City Light

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I. PROJECT DESCRIPTION

The City of Tacoma, Department of Public Utilities, Light Division (doing business as Tacoma Power) owns and operates the Cushman Hydroelectric Project (the Project). The Project is operated under a 50-year Federal Energy Regulatory Commission (FERC) license (FERC Project No. 460), which was granted on July 15, 2010, following over 20 years of negotiations with federal, state, local, and tribal entities. The Cushman Hydroelectric Project comprises two historic districts listed in the National Register of Historic Places (NRHP) in 1988, specifically the Cushman No. 1 Hydroelectric Plant Historic District and the Cushman No. 2 Hydroelectric Plant Historic District. At the time of this writing, the two districts are being combined into one historic district known as the Cushman Hydroelectric Project Historic District; the district, as revised, encompasses the Cushman Nos. 1 and 2 Developments and a segment of the Potlatch (Cushman) Transmission Line.

The Cushman Hydroelectric Project plays an integral role in the City of Tacoma's infrastructure and economic development. The Cushman No. 1 Hydroelectric Power Plant or, more accurately, the Cushman No. 1 Development, includes buildings and structures from the initial building campaign of the Project, 1923–1925. The Cushman No. 1 Development impounds Lake Cushman, and includes the Cushman No. 1 dam and valve house (HAER No. WA-26-B), the Cushman No. 1 powerhouse (HAER No. WA-26-C), the inclined tram and tram house (HAER No. WA-26-D), the water conveyance system (HAER No. WA-26-E), and the Potlatch (Cushman) transmission line (HAER No. WA-26-F). The original spillway (HAER No. WA-26-A) was removed and replaced with a modern spillway in 1991.

As part of FERC relicensing, Article 414 requires a floating surface collector (FSC) and net transition structure (NTS) be installed at the Cushman No. 1 Development, to facilitate downstream fish passage. Construction of the FSC and NTS is considered an undertaking under Section 106 of the National Historic Preservation Act of 1966 (as amended), and constituted an unavoidable adverse effect on a historic property. To minimize the adverse effect, Tacoma Power consulted with an architectural historian during project design phases; combined the Cushman Nos. 1 and 2 Hydroelectric Power Plant historic districts into one Cushman Hydroelectric Project historic district via a NRHP nomination update; and completed this Historic American Engineering Record (HAER) documentation to addend the 1989 recordation of the Cushman No. 1 spillway. As such, the Cushman No. 1 powerhouse is hereby recorded in accordance with HAER Level II documentation.

II. HISTORIC CONTEXT

The City of Tacoma applied for a permit to “appropriate public waters of the state of Washington” on December 11, 1919. The permit stipulated that actual construction work was required to begin on or before May 23, 1923, for the purposes of “generation of electric current for domestic light, heat and for street lighting in City of Tacoma.”¹ The construction of the dam

¹ Application No. 353, Permit No. 1956, Supplement to Permit 252, filed by City of Tacoma, County of Pierce, December 11, 1919, Approved January 4, 1933, Recorded in Book 8 of Permits, Page 1956, Chas. J. Bartholet, State Supervisor of Hydraulics, Water Rights files provided by Steve Fischer, Tacoma Public Utilities.

for storage purposes was completed on October 19, 1925, and the dam itself completed to its full height on February 1, 1926.²

Just prior to completion of the powerhouse, Benjamin E. Torpen, Superintendent of Design and construction, noted

“...the City of Tacoma has done well to secure so favorable and economical a site as the Cushman Project. Thru (sic) its successful completion she will be in a position to continue to supply light and power at a rate lower than anywhere else in the United States.

Under the capable direction of its Chief Engineer the Cushman Project is progressing carefully and steadily and when Jan. 1, 1926 rolls around we may confidently anticipate seeing the Reservoir filling with water, the large units humming away at their life work, and Cushman juice lighting the streets and homes in Tacoma.”³

The powerhouse and equipment were completed and in operating condition by May 1926. The certificate of water right for 1,000 cubic feet per second (cfs) of continuous water was awarded on January 20, 1933.

III. PHYSICAL DESCRIPTION

The neoclassical-style powerhouse is located 700 feet downstream from the dam. The three-story, reinforced concrete building is rectangular in plan, 134 by 74 feet, with a flat roof. The building features neoclassical details such as engaged pilasters with corbelled capitals between the multi-light, metal-sash windows, and a full entablature. On the north, south, and east elevations, the top floor has segmental arch windows.

The generator room contains two Allis Chalmers turbines and a 100-ton Whiting Crane. The interior two-story annex contains the switchboards and a maintenance room. With the exception of a few feet of the southernmost segment of the dam's parapet wall, the dam face is not visible from the powerhouse.

IV. CONSTRUCTION AND MAINTENANCE

In general, the powerhouse has seen only minor alterations over the years. Equipment has been replaced, including the generator governors and exciters, and modern equipment has been added as technology has advanced (for example, automatic oiling systems). Considerable change has occurred in the control room, both to automate the plant and abandon outdated systems. The building itself retains character-defining features.

² Application No. 353, Permit No. 1956, Supplement to Permit 252, Filed by City of Tacoma, County of Pierce, December 11, 1919, Approved January 4, 1933, Recorded in Book 8 of Permits, Page 1956, Chas. J. Bartholet, State Supervisor of Hydraulics, Water Rights files provided by Steve Fischer, Tacoma Public Utilities; City of Tacoma, Department of Plant Extensions, Additions and Betterments, May 19, 1926, Water Rights files provided by Steve Fischer, Tacoma Public Utilities.

³ B. E. Torpen, Superintendent of Design and Construction Cushman Power Project, to J. L. Stannard. “Cushman Power Project Hydro-electric Power Unit No. 2, City of Tacoma, Progress Report No. 1,” April 25, 1924, Cushman Project/Historical Information, 1888–1929. Water Rights Files, provided by Steve Fischer, Tacoma Public Utilities.

V. REFERENCES

Tacoma Public Utilities. Various Files and Archival Information. Tacoma, Washington.