United States Department of the Interior
National Park Service

NATIONAL REGISTER OF HISTORIC PLACES
Registration Form

1. NAME OF PROPERTY

HISTORIC NAME: **Cushman Hydroelectric Project Historic District**

OTHER NAME/SITE NUMBER: Cushman No. 1 Hydroelectric Power Plant Historic District
Cushman No. 2 Hydroelectric Power Plant Historic District

2. LOCATION

STREET & NUMBER: 21451 N Hwy 101 ☐ **NOT FOR PUBLICATION**
CITY OR TOWN: Hoodsport ☐ **VICINITY**
STATE: Washington **CODE:** WA **COUNTIES:** Mason **CODES:** 045 **ZIP CODE:** 98584

1. STATE/FEDERAL AGENCY CERTIFICATION

As the designated authority under the National Historic Preservation Act, as amended, I hereby certify that this ☐ nomination ☐ request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60. In my opinion, the property ☐ meets ☐ does not meet the National Register criteria. I recommend that this property be considered significant ☐ nationally ☐ statewide ☐ locally. (☐ See continuation sheet for additional comments.)

______________________________ ______________
Signature of certifying official / Title **Date**

Washington State Department of Archaeology & Historic Preservation
State or Federal agency / bureau or Tribal Government

In my opinion, the property ☐ meets ☐ does not meet the National Register criteria. (☐ See continuation sheet for additional comments.)

______________________________ ______________
Signature of commenting or other official **Date**

____
State or Federal agency / bureau or Tribal Government

4. NATIONAL PARK SERVICE CERTIFICATION

I hereby certify that the property is:	Signature of the Keeper	Date of Action
☐ entered in the National Register ☐ See continuation sheet.	______________	______________
☐ determined eligible for the National Register ☐ See continuation sheet.	______________	______________
☐ determined not eligible for the National Register.	______________	______________
☐ removed from the National Register ☐ See continuation sheet.	______________	______________
☐ other, explain ☐ See continuation sheet.	______________	______________

5. CLASSIFICATION

OWNERSHIP OF PROPERTY

	Private
X	Public – Local
	Public – State
	Public – Federal

CATEGORY OF PROPERTY

	Building(s)
X	District
	Site
	Structure
	Object

NUMBER OF RESOURCES WITHIN PROPERTY

Contributing	Non-contributing	Category
10	6	Buildings
0	0	Sites
13	3	Structures
0	0	Objects
23	9	**TOTAL**

NUMBER OF CONTRIBUTING RESOURCES PREVIOUSLY LISTED IN THE NATIONAL REGISTER: N/A

NAME OF RELATED MULTIPLE PROPERTY LISTING: Hydroelectric Power Plants in Washington State

6. FUNCTION OR USE

HISTORIC FUNCTIONS: INDUSTRY/PROCESSING/EXTRACTION – waterworks, energy facility

CURRENT FUNCTIONS: INDUSTRY/PROCESSING/EXTRACTION – waterworks, energy facility

7. DESCRIPTION

ARCHITECTURAL CLASSIFICATION:
Late 19th and 20th Century Revivals: Classical Revival (Neo-classical Revival)
Other: Arch dams, Industrial/Utilitarian

MATERIALS:

FOUNDATION – concrete
WALLS – concrete
ROOF – composition/asphalt
OTHER – steel, wood

NARRATIVE DESCRIPTION: SEE CONTINUATION SHEETS 7-6 THROUGH 7-18

8. STATEMENT OF SIGNIFICANCE

APPLICABLE NATIONAL REGISTER CRITERIA
Property:

X **A** is associated with events that have made a significant contribution to the broad patterns of our history.

CRITERIA CONSIDERATIONS: N/A

AREAS OF SIGNIFICANCE: Engineering; Industry

PERIOD OF SIGNIFICANCE: 1923 – 1935, 1953

SIGNIFICANT DATES:

1923: Incline Tram and Tram House constructed; Construction of Cushman No. 1 begins

1925: Cushman No. 1 Development completed

1928: Construction of Cushman No. 2 dam and powerhouse begins

1930: Cushman No. 2 Development completed

1935: Yard Storage Building (Maintenance/Blacksmith Shop) completed at Cushman No. 2

1953: Third penstock and turbine/generator installed at Cushman No. 2 powerhouse

SIGNIFICANT PERSON: N/A

CULTURAL AFFILIATION: N/A

ARCHITECT / BUILDER: Tacoma City Light (Builder), Stannard, J. L. (Chief Engineer),
Guthrie & Company (Contractors, Cushman No. 1 Development),
L.H. Hoffman Company (Contractors, Cushman No. 2 Dam),
Youdall Construction Company (Contactors, Cushman No. 2 Tunnel)
J. E. Bonnel & Sons (Contractors, Cushman No. 2 Powerhouse)

NARRATIVE STATEMENT OF SIGNIFICANCE: See continuation sheets 8-19 through 8-28

9. MAJOR BIBLIOGRAPHIC REFERENCES

BIBLIOGRAPHY: See continuation sheet 9-29

PREVIOUS DOCUMENTATION ON FILE WITH NPS:

x Previously listed in the National Register
_ Previously determined eligible by the National Register
_ Designated a National Historic Landmark
_ Recorded by Historic American Buildings Survey
x Recorded by Historic American Engineering Record – No. WA-26-A (Cushman No. 1 Hydroelectric Power Plant, Spillway) and No. WA-192 (Cushman No. 2 Hydroelectric Power Plant)

PRIMARY LOCATION OF ADDITIONAL DATA:

x State Historic Preservation Office: Washington State Department of Archaeology and Historic Preservation
_ Federal agency
_ Local government
_ University

10. GEOGRAPHICAL DATA

ACREAGE OF PROPERTY: 332 acres

UTM REFERENCES (SEE MAP 7)

POINT ID	ZONE	EASTING	NORTHING
1	10	483287	5252360
2	10	484139	5252020
3	10	485568	5249840
4	10	485882	5248120
5	10	487961	5246320
6	10	487896	5245990
7	10	487100	5246400
8	10	485750	5248090
9	10	485596	5248390
10	10	484968	5249130
11	10	484664	5249330
12	10	484773	5249460
13	10	484970	5249320
14	10	485024	5249200
15	10	485715	5248420
16	10	485471	5249810
17	10	484042	5251930
18	10	483484	5252180
19	10	483438	5252070
20	10	483290	5252070
21	10	483257	5251860
22	10	483119	5251690
23	10	483206	5251410
24	10	483060	5251370
25	10	482951	5251690
26	10	483116	5251830

VERBAL BOUNDARY DESCRIPTION:

The Cushman Hydroelectric Project Historic District comprises the Cushman Nos. 1 and 2 dams and related buildings and structures, as well as the transmission-line corridor connecting Cushman Nos. 1 and 2.

Beginning at the entrance to the Cushman No. 1 complex on N South Standstill Road, southwest of Lake Standstill in Mason County, Washington, the boundary travels roughly northwest to the shoreline of Lake Cushman, where it follows the shoreline south-southwest, including the Cushman No.1 dam and spillway. The boundary then turns south-southeast and includes the modern spillway, before turning north-northeast along the Cushman No. 1 access road. The boundary turns west at the southernmost intersection of the access road and Cushman No.1 dam parapet road, cuts across the narrow gorge to the Cushman No. 1 powerhouse, and returns almost to the point of beginning where it turns south-southeast and follows the Cushman Nos. 1 and 2 transmission-line corridor. The boundary then parallels the corridor to the Cushman No. 2 switchyard. From there, the boundary turns north and parallels Highway 101 to a point just northeast of the Cushman No. 2 powerhouse. The boundary then turns due west to intersect with the Cushman No. 2 penstocks, then turns north-northwest to parallel the penstocks and include the surge tank. From here, the boundary continues along a northwest diagonal underground (this includes the tunnel only and is not on the surface), to the Cushman No. 2 intake gate house. The boundary then turns north-northwest and follows the arch curve of the Cushman No. 2 dam to the northwest bank of Lake Kokanee at the intersection of the Cushman No. 2 dam. The boundary then turns south-southwest to include the spillway, then turns south-southeast back to the point of emerging from the underground at the Cushman No. 2 intake gate house.

BOUNDARY JUSTIFICATION: The nominated district includes all properties historically associated with the Cushman Hydroelectric Project's hydroelectric power generation and transmission system that retain sufficient integrity to convey the historic context, and that are located within a geographical proximity to each other sufficient to convey the boundaries of a historic district.

11. FORM PREPARED BY

NAME / TITLE: Natalie K. Perrin, M.S., Architectural Historian
ORGANIZATION: Historical Research Associates, Inc. **DATE:** March 28, 2013
STREET & NUMBER: 1904 Third Avenue, Suite 240 **TELEPHONE:** 206-343-0226
CITY OR TOWN: Seattle **STATE:** Washington **ZIP CODE:** 98101

12. PROPERTY OWNER

NAME: City of Tacoma (Pat McCarty, Generation Manager)
STREET & NUMBER: 3628 South 35th Street **TELEPHONE:** 252-502-8600
CITY OR TOWN: Tacoma **STATE:** Washington **ZIP CODE:** 98409

NARRATIVE DESCRIPTION

Summary Paragraph

The Cushman Hydroelectric Project Historic District comprises two historic districts previously listed in the National Register of Historic Places (NRHP, National Register), specifically the Cushman No. 1 Hydroelectric Plant Historic District and the Cushman No. 2 Hydroelectric Plant Historic District. The two districts are combined in this nomination update to create a single, continuous historic district encompassing the Cushman Nos. 1 and 2 Developments and a segment of the Potlatch (Cushman) Transmission Line.

The Cushman Hydroelectric Project Historic District is significant under Criterion A, for contributions to engineering and industry, with a period of significance of 1923–1935, the dates of initial construction, and 1953, the date the third and final penstock was installed at Cushman No. 2.

The Cushman Hydroelectric Project Historic District is located in the vicinity of Hoodsport in Mason County, Washington. See Table 1 for township, range, and section information.

Table 1. Township, Range, and Section information for the Cushman Hydroelectric Project Historic District.

Quadrangle	**Township**	**Range**	**Section(s)**
Hoodsport	22N	4W	4, 5, 8, 9, 16, 21, 22
Skokomish Valley	22N	4W	26, 27

The historic district includes buildings and structures, divided into categories based on their construction campaigns for the Cushman Nos. 1 and 2 developments, and the transmission line. A complete inventory and description of each building and structure extant within the historic district follows (Table 2).[1]

The Cushman Hydroelectric Project Historic District includes buildings and structures from at least three building campaigns. The first dates to the initial construction of the Cushman No. 1 Development, 1923–1925. The second, 1928–1935, includes construction of the Cushman No. 2 Development. The third construction campaign dates to 1953, when the third and final penstock, turbine, and generator were installed at Cushman No. 2. The period of significance for the historic district is 1923–1935, and 1953. This expands the periods of significance given in the 1988 nominations (1923–1938 and 1929–1938, respectively; note that 1938 was the arbitrary 50-year cut-off date when the nomination was written, and does not represent a significant date in the history of either development) to better tell the story of the development of the complete Cushman Hydroelectric Project.

In general, resources are described as one would encounter them moving upstream to downstream and following the flow of power from Cushman No. 1 to Cushman No. 2.

[1] Also within the boundaries of the historic district are three known archaeological sites: 45MS102, 45MS107, and 45MS138. Regardless of individual eligibility to the National Register, the archaeological sites predate the historic district period of significance and are not affiliated with the Cushman Hydroelectric Project historic context.

Table 2. Buildings and structures located within the Cushman Hydroelectric Project Historic District Boundaries. The Resource Number (No.) matches the locations indicated on Maps 1–6.

No.	Resource Name	Date(s)	Historic District Status
	Cushman No. 1 Development		
1	Inclined Tram	1923	Contributing Structure
2	Tram House	1924	Contributing Building
3	Modern Tram	1987	Noncontributing Structure
4	Cushman No. 1 Powerhouse	1925	Contributing Building
5	Diversion Intake	1925	Contributing Structure
6	Intake Gate House (and platform)	1925	Contributing Building
7	Power Tunnel (Diversion Tunnel and Penstocks)	1925	Contributing Structure
8	Cushman No. 1 Dam	1925	Contributing Structure
9	Valve House	1925	Contributing Building
10	Buttress Dam	1957	Noncontributing Structure
11	Spillway	1991	Noncontributing Structure
12	Spillway Control House	1991	Noncontributing Building
13	Control House (and Switchyard)	1924, altered 1988	Noncontributing Building
14	Warehouse/Garage	ca. 1925, addition 1939	Contributing Building
15	Storage Garage	1985	Noncontributing Building
16	Concrete Water Reservoir	ca. 1925	Contributing Structure
	Cushman No. 2 Development		
17	Cushman No. 2 Dam and Spillway	1930	Contributing Structure
18	Valve House	1930, altered 2012	Contributing Building
19	Spillway Control House	1978	Noncontributing Building
20	Intake House and Intake	1930	Contributing Building
21	Cushman No. 2 Dam Service House	2004	Noncontributing Building
	Water Conveyance System, including		
22	Water Conveyance Tunnel	1930	Contributing Structure
23	Surge Tank	1930	Contributing Structure
24	Surge Tank Gate House	1930, altered ca. 1991	Contributing Building
25	Emergency Generator Building	1991	Noncontributing Building
26	Vent Pipes	1930	Contributing Structure
27, 28	Penstocks (2)	1930	Contributing Structures (2)
29	Penstock (1)	1953	Contributing Structure
30	Cushman No. 2 Powerhouse	1930	Contributing Building
31	Yard Storage Building	1935	Contributing Building
	Potlatch 1 & 2 (a.k.a. Potlatch or Cushman) Transmission Line Corridor		
32	Cushman Nos. 1 and 2 Transmission Line	ca. 1925	Contributing Structure

Cushman No. 1 Development

The Cushman No. 1 Development, constructed in 1923–1925, is synonymous with the Cushman No. 1 dam that impounds Lake Cushman. Lake Cushman is a 9.6-mile-long storage impoundment with a 4,058-acre surface area, and a 453,350 acre-foot storage capacity at full pool. The level of the lake is moderated via the Cushman No. 1 Development, which includes the dam, spillway, power intake and tunnel, the Cushman No. 1 powerhouse, and various other buildings and structures (described below).

Topography determined the original positioning of the Cushman No. 1 dam and its associated structures and buildings. The dam was built in a relatively inaccessible gorge that separated Lake Standstill and Deer Meadow. The buildings and structures originally constructed on the site generally retain their character-defining features. Their close proximity creates a feeling of singleness of purpose. Their existence in this remote location is evidence that the struggle for technological dominance over nature was alive in the mid-1920s.

1. Inclined Tram (1923)

The inclined tram runs on a 450-foot-long tramway at a 38-degree incline from the top of the canyon to the Cushman No. 1 powerhouse. Some original cast-concrete lampposts remain along the west side of the tram rails, though most if not all of the original glass globes have been replaced with plastic globes similar in style. The inclined tram was one of the first structures completed for the Cushman No. 1 Development. Completion of the tram enabled construction of the Cushman No. 1 powerhouse to proceed. The inclined tram retains integrity of materials, design, workmanship, location, setting, feeling, and association. The inclined tram is a contributing structure to the historic district.

2. Tram House (1924)

The electrical and operating equipment for the tram is located at the top of the incline in a rectangular concrete building known as the tram house. The tram house is two stories tall with a flat roof and projecting cornice, and features operable multi-light, metal-sash windows at all elevations. There are two original metal doors at the north elevation and one at the south elevation. The tram house retains integrity of materials, design, workmanship, location, setting, feeling, and association. The tram house is a contributing building to the historic district.

3. Modern Tram (1987)

North of the historic tram is the modern tram, constructed in 1987. The modern tram comprises an aluminum and plastic tram shelter and the aerial tram. The aerial tram is supported via steel cables on steel poles, and was installed as an alternative to the inclined tram. The modern tram was built outside of the period of significance and is a noncontributing structure to the historic district.

4. Cushman No. 1 Powerhouse (1925)

The neoclassical-style powerhouse is located approximately 600 feet downstream from the dam. The three-story, reinforced-concrete building is rectangular in plan, 134 x 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. The powerhouse maintains integrity of materials, design, workmanship, feeling, association, setting, and location; is architecturally significant under Criterion C; and is a contributing building to the historic district.

5. Diversion Intake (1925)

Constructed on the upstream face of the dam, the diversion intake is a reinforced-concrete structure with two intake gates. The gates divert water, used to power the turbines, from the Cushman reservoir into a tunnel that leads to the powerhouse. The gates operate through a vertical well just behind the intake and at the head of the power tunnel. The intake is protected by a trash rack of ½ x 4-inch steel bars, which is fitted with a power-operated trash rake to remove debris. The diversion intake maintains integrity of materials, design, workmanship, feeling, association, location, and setting, and is a contributing structure to the historic district.

6. Intake Gate House and Platform (1925)

Operating equipment for the gates and the trash rake occupies the intake house, located immediately above the gate well and trash rake on a raised platform. This building carries the tunnel vent and the bypass valve to a point above high water. The bypass valve is used to fill the tunnel and equalize the pressure before the main gates are opened. The building and platform are accessible via a short bridge from the top of the dam. The intake house is rectangular in plan with a gable roof of standing-seam metal. The building is clad in prefabricated metal panels and features four three-light metal-sash windows, one in each gable end on the north and south elevations and two flanking the central steel entry door on the west elevation. The intake gate house (and platform) maintains integrity of materials, design, workmanship, feeling, association, setting, and location, and is a contributing building to the historic district.

7. Power Tunnel (Diversion Tunnel and Penstocks) (1925)

The circular, concrete-lined power tunnel is 540 feet long and 17 feet in diameter. The maximum water velocity in the tunnel is 12 feet per second. (Portions of the tunnel built for diversion and drainage only are 10 feet in diameter and unlined.) Water is conveyed from the tunnel through two 12-foot diameter lateral branches to two riveted steel penstocks, each 150 feet long and 10 feet in diameter. In her original NRHP nomination for the Cushman No. 1 Hydroelectric Power Plant Historic District, historian Lisa Soderberg noted that “the low water velocity and the short length of the conduit between the intake and the water wheels obviated the use of relief valves and surge chamber.”[2] The tunnel and penstocks maintain integrity of materials, design, workmanship, feeling, association, setting, and location, and are counted as one contributing structure to the historic district.

8. Cushman No. 1 Dam (1925)

Cushman No. 1 dam is a constant-angle arch dam that spans a narrow rock gorge. The dam rises 275 feet above bedrock. It is 1,111 feet long, including gravity wing abutments, and has a thickness that telescopes from 52 feet at the base to 8 feet at the top. Containing 90,000 cubic yards of concrete, the dam impounds 440,000 acre-feet of water.

The arch portion of the dam has an upstream radius at the base of 118 feet and at the crest of 210 feet with the crest measuring 470 feet long. The south gravity abutment wing measures 278 feet long and the north wing

[2] Lisa Soderberg, “Cushman No. 1 Hydroelectric Power Plant,” National Register of Historic Places Nomination Form, 1988, on file at Washington Department of Archaeology and Historic Preservation, Olympia (hereafter DAHP); and Soderberg, “Hydroelectric Power Plants in Washington State, 1890-1938,” National Register of Historic Places Multiple Property Documentation Form, July 1988, on file at DAHP, 7-2.

is 130 feet. The north wing extends to a 380-foot-long core wall that rises from bedrock and is supported by earth fill. Concrete parapet walls adorn the dam's crest, flanking an 8-foot-wide roadway.

The dam maintains integrity of materials, design, workmanship, feeling, association, location, and setting. The Cushman No. 1 dam is a contributing structure to the historic district.

9. Valve House (1925)

At the base of the dam on the downstream side is the valve house, which contains a 62-inch Pelton-Johnson needle valve and a Pelton 90-inch butterfly valve to regulate water flow into the river outlet. The valve house is square in plan with a flat roof, constructed of reinforced concrete. The building is two stories tall and historically featured two banks of two twelve-light metal sash windows on the east, south, and west elevations; the north elevation is integral to the dam face.

Recent alterations to the dam included adding a series of metal platforms, installed in 2004, to enable facilitation of a FERC-ordered seismic study and a subsequent order to monitor seepage and the ongoing interface of the dam with the rock walls. Additionally, access stairs on the downstream dam face are under construction at the time of this nomination (scheduled for completion in 2012). As part of the stair project, which will tie into the metal platforms installed in 2004, the valve house will be minimally altered with a bank of windows on the west elevation changed to a door.

In general, the valve house maintains integrity of materials, design, workmanship, feeling, association, location, and setting. The valve house is a contributing building to the historic district.

10. Buttress Dam (1957)

The buttress dam, located downstream of the Cushman No. 1 dam in the canyon between the dam and powerhouse, was constructed in 1957. The buttress dam, constructed of concrete, was built to maintain a plunge pool for the river valve outlet. Built outside of the period of significance, the buttress dam is a noncontributing structure to the historic district.

11. Cushman No. 1 Spillway (1991)

Listed as a contributing resource in the 1988 National Register nomination, the original spillway (1928), historically located south of the dam, was replaced in 1991. The original 200-foot-wide, broad-spectrum, concrete structure is now obliterated. The original spillway was documented in the Historic American Engineering Record, on file at the Library of Congress.

The new spillway, which was redesigned and constructed in the 1990s, has no historical integrity and is a noncontributing structure to the historic district. The structure's footprint is in roughly the same location as the historic, though the centerline on the new spillway is located approximately 10 feet south of the original spillway's centerline.

12. Spillway Control House (1991)

The concrete masonry unit (CMU) spillway control house adjacent to the Cushman No. 1 spillway is a single-story building, rectangular in plan, with a gable roof and broad overhanging eaves. The building was built simultaneous with the new spillway, and is a noncontributing building to the historic district.

13. Control House and Switchyard (1924, altered 1988)

The control house (aka transmission control house and/or service house) is located in the switchyard, which is west across the paved parking area from the tram house. In the 1920s, high-voltage transmission systems were developed in the western states to distribute power over long distances. As a safety measure to accommodate high voltages, the switches, transformers, and circuit breakers were removed to the exterior switchyard, away from the powerhouse. The extant exterior switchyard features two 115-kilovolt (kV) primary transmission lines extend approximately 5 miles to the Cushman No. 2 development.

The control house was constructed of reinforced concrete and is rectangular in plan. The original building has been substantially altered, and is wrapped on three elevations by recent (1988) additions. The building is listed in the National Register nomination as a contributing resource;[3] however, due to extensive modifications, it no longer retains sufficient integrity to convey its historical significance within the district and it, along with the Switchyard, are considered noncontributing within the Cushman No. 1 Hydroelectric Plant Historic District.

14. Warehouse/Garage (ca. 1925, addition 1939)

This side-gabled, masonry building is one-story tall with brick cladding. The current gable roof is sheathed in standing-seam metal, but was constructed on top of the pre-existing parapet roof. The façade has four overhead garage doors and a small unadorned entry door between the two northernmost garage doors. The building dates to the period of significance with a 1939 addition, and retains good integrity of setting, location, and association, and fair integrity of materials, design, workmanship, and feeling, as the roof and garage doors are modern. However, the overall massing and exterior cladding (poured concrete) are original. Though the building is not directly related to power generation, it was built during the initial construction campaign of the Cushman No. 1 development and is a contributing resource within the historic district.

15. Storage Garage (1985)

The storage garage is rectangular in plan, constructed on a poured concrete slab, one-story, with a side gable roof. Two garage-doors flank a central pedestrian door on the west elevation. The building is clad in T-11 siding. The building was built outside of the period of significance, and is a noncontributing building to the historic district.

16. Concrete Water Reservoir (ca. 1925)

The Cushman No. 1 concrete water reservoir was designed in July 1925 and is believed to have been built concurrently with the Cushman No. 1 dam. The rectangular concrete structure, located along the transmission-line corridor between Cushman Nos. 1 and 2, was used as a water reservoir for domestic supply as well as generator cooling. Rectangular in plan, and approximately 44.5 x 30.5 feet in size, the structure is approximately one-story tall in total (11 feet from footing to top of wall and 12 feet from footings to the top of the domestic water-supply chamber wall), a portion of which is below ground level (the ground surface slopes roughly west to east). The entire reservoir is topped by a concrete cap. The domestic water-supply chamber is a square chamber within the reservoir on the northeast corner, approximately 14 x 14 feet, accessed via a manhole cover and iron ladder. The reservoir floor is only 6 feet below the top of the wall; a series of intake, sluice, and outlet pipes are located beneath the floor. The Cushman No. 1 concrete water reservoir is no longer in use, but maintains integrity of materials, design, workmanship, feeling, association, setting, and

[3] Soderberg, "Cushman No. 1."

location. Though the resource is not directly affiliated with hydroelectric power production, it helps tell the story of conditions during the early days of the Cushman Hydroelectric Project and is a contributing structure to the historic district.

Cushman No. 2 Development

Consumer demand for more electricity was the driving force behind the construction of the Cushman No. 2 dam and its associated structures and buildings. The spatial relationship of the resources in the Cushman No. 2 Development is entirely different from that of the Cushman No. 1 Development. The dam and the powerhouse are physically separated, and there are technological differences. The physical separation creates a perception of isolation for each set of resources, but in fact they function together to produce electrical power for the city of Tacoma. The technological differences include the addition of a surge tank, vent pipes, and penstocks needed to moderate water velocity at the end of the power tunnel and to distribute the water to individual turbines.

17. Cushman No. 2 Dam and Spillway (1930)

Cushman No. 2 dam is a constant-radius-arch reinforced-concrete structure spanning a narrow rock gorge. It rises 235 feet above bedrock and has an upstream radius of 135 feet. The dam is 60 feet long at the base and 450 feet at the crest. The crest supports a 12.5-foot-wide roadway with a curvilinear, pierced, reinforced-concrete parapet. Light fixtures along the parapet have contemporary steel standards. The dam is flanked on the east end by a concrete gravity abutment and on the west end by a 50-foot-high concrete thrust block that stands between the dam and the spillway. The dam impounds 8,000 acre-feet of used and overflow waters from Cushman No. 1, creating the Lake Kokanee reservoir. The 120-foot-wide spillway, which is partially lined with concrete, is located at the dam's west end. The water level is regulated by three 14.5-foot-high by 40-foot-wide drum gates. The dam (including the spillway) maintains integrity of materials, design, workmanship, feeling, association, location, and setting, and is a contributing structure to the historic district.

18. Valve House (1930)

For emergency release of water, two steel-lined, 78-inch-diameter pipe outlets extend through the base of the dam just above the riverbed, protected on the upstream side by trash racks. As initially constructed, each outlet was fitted with a free-discharge Pelton butterfly valve. The valve controls are located above the outlets in a 30-foot 9 inch-wide concrete cantilevered valve house that projects from the base of the dam's downstream side. Two multi-pane windows with steel sash are on the façade, and a third is on the west elevation. The low-pitched gable roof is concrete.

In 2008, one of the butterfly valves was removed and replaced by a jet-flow gate valve, and the abutment at the steep hill overlooking the dam was infilled with concrete. New concrete pads, constructed on the parapet, enabled installation of the new valve and the abutment infill. Additional alterations include the current construction of the North Fork Power House (scheduled for completion in 2012), which will involve minimally altering the existing valve house to allow for power generation in conjunction with construction of a fish tram.

The valve house, including anticipated alterations for conversion to the North Fork Power House, maintains integrity of materials, workmanship, feeling, setting, and location. The anticipated alterations will moderately affect integrity of design and association, but have been developed in accordance with the Secretary of the

Interior's *Standards for the Treatment of Historic Properties* and in consultation with the State Historic Preservation Office and interested parties. The valve house is a contributing building to the historic district

19. Spillway Control House (1978)

In 1978, a single-bay building known as the spillway control house was added to the dam crest. The gate manual controls and the adjustable siphon automatic controls are mounted in the spillway control house. The gates are the floating type, hinged along the upstream horizontal axis. The lower portion of the gate floats in a sealed, water-filled chamber. Historically, siphons were utilized to regulate each chamber's water level and the height of the gate crest; the siphons were removed ca. 1975. The spillway control house building has a shed roof and CMU walls. Built outside of the period of significance, the spillway control house is a noncontributing building to the historic district.

20. Intake House and Intake (1930)

The main intake structure, located east of and adjacent to the dam on its upstream face, consists of a short 30-foot-deep channel, a 17-x-17-foot Broome self-closing head gate, and a 30-inch bypass fill valve. The gate is operated by a mechanical hoist, which is housed in the intake gate house. The intake is equipped with trash racks.

The gate house is a small, rectangular, cast-in-place concrete building located on the intake platform. The building has neoclassical details, including a small parapet and cornice. Original window openings are infilled with plywood to prevent vandalism. Alterations have been primarily to the controlling equipment in the intake house, including, in 2009, replacing and upgrading controls and rehabilitating the head gate. At that time a slot was cut in the roof to facilitate access to the gate; the slot was covered after the repairs were finished, and is hidden by the parapet.

The intake house (and intake) maintains integrity of materials, design, workmanship, feeling, association, location, and setting, and is a contributing building to the historic district.

21. Cushman No. 2 Dam Service House (2004)

South of the intake house and east of and adjacent to the Cushman No. 2 dam is a modern building known as the Cushman No. 2 dam service house, constructed in 2004. The service house is rectangular in plan with a gable roof, and is constructed of CMUs. Built outside of the period of significance, the service house is a noncontributing building to the historic district.

22. Water Conveyance Tunnel (1930)

Water passes through the intake into the circular outlet tunnel that measures 13,000 feet long and 17 feet in diameter. Constructed in 1930, the steel-reinforced tunnel has a 15-inch-thick concrete lining. The tunnel is driven through gravel and hardpan and terminates at the surge tank. The tunnel maintains integrity of materials, design, workmanship, feeling, association, setting, and location, and is a contributing structure to the historic district.

23. Surge Tank (1930)

The Larner differential-type surge tank regulates the pressure in the outlet tunnel. The tank measures 65 feet in diameter and 94 feet in height, and its internal riser measures 14 feet in diameter. The water flows from the surge tank through a three-branch manifold into the penstocks. The surge tank maintains integrity of materials, design, workmanship, feeling, association, location, and setting, and is a contributing structure to the historic district.

24. Surge Tank Gate House (1930)

The Cushman No. 2 surge tank gate house is located adjacent to and southeast of the surge tank. The surge tank gate house is one-story tall, rectangular in plan (52 x 21.5 feet), sits on a roughly northeast to southwest axis, and has a gable roof clad in corrugated metal with plywood boards in the gable ends. The gable roof was constructed on top of the original parapet roof, ca. 1960. Constructed of and clad in board-formed poured concrete, the surge tank gate house features the same streamlined classical details found on all of the Cushman No. 2 buildings constructed concurrent with the dam (ca. 1930). Specifically, these include a projecting cornice and engaged pilasters at the corners and symmetrically along each elevation (one centered on each the north and south elevation and two flanking the central entry on the west elevation) reminiscent of the neoclassical revival style.

The building formerly featured window openings, likely with the same multi-paned metal-sash windows found on other Cushman No. 2 buildings constructed concurrently with the surge tank gate house. However, these have been infilled with CMUs, though the outline of original openings is clearly visible. The north elevation features a tall, narrow “cut” through the east window header that has been infilled with CMUs; the cut was necessitated due to installation of a valve.

The surge tank gate house houses the surge tank gates and, therefore, is used in the regulation of water distribution and is directly affiliated with hydroelectric power production. The building features neoclassical design details found on buildings throughout the Cushman No. 2 district, specifically board-formed concrete construction, a concrete cornice, and engaged pilasters. Though the multi-light metal-sash windows are no longer extant, the building contributes to the architectural significance of the Cushman No. 2 Development and retains good integrity of workmanship, design, location, setting, feeling, and association, and fair integrity of materials. The surge tank gate house is a contributing building within the district.

25. Emergency Generator Building (1991)

Adjacent to and southeast of the surge tank gate house is a modern, CMU ancillary building known as the emergency generator building. The rectangular plan, CMU building with a gable roof sits on the first (western-most) anchor block for the penstocks. This ancillary building was built outside of the period of significance and is a noncontributing building to the historic district.

26. Vent Pipes (1930)

The Cushman No. 2 vent pipes comprise three tall, cylindrical metal pipes, one each to vent the three penstocks (two penstocks were constructed in 1930 and one anticipated during initial construction and installed in 1953; the three vent pipes were constructed simultaneously). Constructed in 1930, concurrent with the Cushman No. 2 dam and powerhouse, the vent pipes are located just east of the surge tank. In plan, the three pipes create a triangle, and are secured to each other via metal X bracings. The vent pipes themselves are constructed of riveted steel in sections. The vent pipes tower above the surge tank when seen from the Cushman No. 2 powerhouse, and are an integral component to the penstocks.

The pipes, which vent the penstocks, are used in the regulation of water distribution and are directly affiliated with hydroelectric power production. The structure mimics the industrial character of the penstocks, specifically the riveted steel construction. The Cushman No. 2 vent pipes contribute to the architectural significance of the Cushman No. 2 Development; retain integrity of materials, design, workmanship, feeling, association, setting, and location; and are a contributing structure within the district.

27-29. Penstocks (1930 and 1953)

Built in 1930, the original two penstocks are riveted steel; built in 1953, the third penstock, located on the north side, is welded steel. The approximately 1,000-foot, steel-lined penstocks convey the water down a steep hill into the powerhouse. The flow of water from the surge tank into the penstocks is regulated in the surge tank valve house, located at the top of the hill at the mouths of the penstocks. Vent pipes rise from the tops of the penstocks to allow air into the penstock following closure of valves in the surge tank gate house. The three penstocks maintain integrity of materials, design, workmanship, feeling, association, location, and setting, and are contributing structures to the historic district.

30. Cushman No. 2 Powerhouse (1930)

The Cushman No. 2 powerhouse is a four-story, 80 x 180-foot, reinforced-concrete building, neoclassical in style and monumental in proportions. The powerhouse stands prominently overlooking U.S. Highway 101 and the Hood Canal in a setting highlighted by the three penstocks that course down the steep hill behind it. The exterior exhibits a formal symmetry with horizontal divisions defined by a pronounced belt course, a bracketed projecting cornice at the second-floor height, a second projecting cornice at the third-floor height (roofline), and a raised parapet. The unpainted, cast-in-place concrete cladding features a polished surface. Large steel-sash arched windows and bifold doors provide a visual and physical link to the building's industrial use. The interior consists of two-part massing with the single-volume generator floor (main floor) on the east and the multi-floor service spaces on the west.

Window and door openings have cast metal surrounds with a delicate floral pattern that contribute to the neoclassical detailing. Large glazed, high-bay equipment doors are located at the north and south elevations. Clerestory windows with painted steel sash are in the sawtooth monitor roof above the control room. Original terrazzo flooring is largely intact, although portions of it were destroyed during the cleanup that followed a 1999 landslide.

The Cushman No. 2 powerhouse contains three Allis Chalmers reaction-type Francis turbines connected to three Allis Chalmers generators. The original two units were installed in 1930 with space left on the north side for a third, added in 1953 (concurrent with the third penstock). The original exciters were replaced with solid-state electronic excitation. Each unit has a new, freestanding governor along with computerized controls. The generator floor supports a 125-ton Whiting bridge crane. The control room contains three modern, freestanding, 8.5-foot-tall control boards with analog and digital control dials.

The Cushman No. 2 powerhouse maintains integrity of materials, design, workmanship, setting, location, feeling, and association. Additionally, the building is an excellent example of neoclassical-revival architecture, and has seen few alterations (apart from minor window and door alterations due to the 1999 landslide). The basic form, massing, and scale of the building, both interior and exterior, are intact. The building is architecturally significant, and is a contributing building to the historic district.

31. Yard Storage Building (1935)

The Cushman No. 2 yard storage building is located due south of the Cushman No. 2 powerhouse. The building was originally constructed for use as a maintenance/blacksmith shop, and is currently used for storage of landscaping equipment. The one-story building is rectangular in plan and features a flat roof with cornice. The building foundation, walls, and roof are all constructed of board-formed poured concrete. Two six-light metal-sash windows are located on the west elevation; the bottom two panes open in a hopper style. The north elevation features a modern metal double door.

The yard storage building was constructed within the period of significance and, although the building is not directly affiliated with hydroelectric power production, the former maintenance/blacksmith shop mimics neoclassical design details found on the adjacent Cushman No. 2 powerhouse, specifically the board-formed concrete construction, concrete cornice, parapet with flat roof, bilateral symmetry, and multi-light metal-sash windows. The building contributes to the architectural significance of the Cushman No. 2 Development, maintains integrity of materials, design, workmanship, feeling, association, setting, and location, and is a contributing building within the district.

Potlatch 1 & 2 Transmission Line

The Potlatch 1 & 2 Transmission Line, also known as the Potlatch or Cushman Transmission Line, is a linear feature composed of a variety of pole structures, transmission cables, conductors, insulators, and mounting equipment. The line stretches from the Cushman No. 1 switchyard to an interchange located south of the Cushman No. 2 switchyard, where the two systems link. From the interchange, two 115-kV transmission lines travel east-northeast approximately 21 miles, crossing the Hood Canal, the Skokomish Estuary, and the North Bay of Case Inlet, to the Vaughn Tap. The Vaughn Tap, located north of the town of Vaughn and just east of the town of Allyn on the Kitsap Peninsula, is the point at which the 115-kV transmission lines tie into Tacoma's integrated transmission system.[4] From the Vaughn Tap, local distribution lines spilt off from the transmission lines, which continue on to the Pearl Street Substation, before continuing on to the historic terminus of the line at the Cushman Substation. The total length of the line is approximately 44 miles.

Since 1926, the replacement of wood poles has occurred as maintenance conditions have dictated. In 1947, in anticipation of construction of the Pearl Street Switching Station (now known as the Pearl Street Substation, completed in 1949), the original steel lattice structures connecting the Cushman Substation to the Tacoma Narrows crossing were rerouted. This was the first of several major alterations that would be made to the transmission-line corridor.

In April 1952, wood H-frames at the Skokomish Flats crossing were replaced with steel lattice poles and a steel "dead-end" tower. The new steel poles did not conform to the historic location of the wood structures, and were of a different size, material, and type than the previous poles. In all, approximately 30 wood H-frames were replaced with 20 steel lattice poles, beginning at the Cushman No. 2 switchyard and stretching across the Skokomish Flats.

[4] Transmission lines are high-voltage delivery systems spanning long distances from the point of generation to the point of use. These are different from distribution lines, which are lower-voltage lines that typically line streets located within cities and towns.

In 1966, plans for the Olympic Village Shopping Center, located northwest of the Tacoma Narrows crossing on State Route 16, necessitated further realignment of the Cushman Transmission Line corridor. At that time, the corridor was shifted from a straight, linear path paralleling State Route 16 to a jogged alignment north of and around the shopping center. The alteration replaced three sets of paired wood H-poles with nine steel monopoles.

Further alterations occurred in 1996, when a segment of transmission-line corridor stretching from the east side of the Hood Canal to just west of the city of Allyn was replaced with 115-kV double-circuit steel poles. Other replacements have occurred between Purdy and the Skokomish Flats. Multiple alterations have been made in Gig Harbor, where three steel poles were necessitated in a new alignment for a park-n-ride complex and an additional relocation was required to accommodate St. Anthony's Hospital.

Additionally, the Tacoma Narrows crossing, which historically featured 325-foot-tall latticed-steel riveted towers, was completely replaced in 2006 with modern, double-circuit lattice towers designed with six arms and a slightly flared body. The new towers were located in the open space between the preexisting pairs of single-circuit towers, and are taller than the original towers. The need for and modifications to the Tacoma Narrows crossing was well documented by POWER Engineers Inc. employees, who noted of the replacement, "it became clear that this crossing would no longer be anything like the longest span in the world. The towers were not going to be nearly the tallest in the world, and the conductors were not going to be pulled nearly as tight as some of the tightest in the world. However, the combination of span length, conductor tension, tower height, right-of-way constraints, and schedule and outage limitations made the project very challenging."[5]

Finally, the Cushman Transmission Line no longer connects directly to the Cushman Substation in Tacoma. In 1947, the Pearl Street Substation in Tacoma was under construction. By 1949, the transmission line was rerouted from the Cushman Substation to the Pearl Street Substation. Although the transmission line continues on to the Cushman Substation, the line's historic alignment and terminus have been altered. The Cushman Substation (discussed below) now acts as a storage building, and all interior equipment has been removed; the switchyard, located on the Cushman Substation property, is still active.

The overall Potlatch Transmission Line does not retain sufficient integrity of materials, design, workmanship, and location to be a contributing structure within the Cushman Hydroelectric Project Historic District; the overall transmission line is a noncontributing structure. However, certain segments of the line (discussed below) do retain sufficient integrity to convey the historic context of the Cushman Hydroelectric Project within the period of significance, specifically the segment connecting the Cushman Nos. 1 and 2 developments.

32. Cushman Nos. 1 and 2 Transmission Line

This segment of the Potlatch line links the Cushman No. 1 and Cushman No. 2 switchyards via an interchange, located south of the Cushman No. 2 substation. The linear corridor was initially constructed concurrent with Cushman No. 1 (ca. 1925) and was connected to Cushman No. 2 when that system was completed (ca. 1930). The predominant pole type found along this segment is a simple wood pole with three insulators, two extending horizontally and spaced in the top third of the pole, and one extending vertically from the top of the pole (hereafter called a three-pronged pole). The insulators are mounted to the poles via steel mounting brackets. Each insulator is connected to one of three transmission cables. Other pole types include T-poles, so called

[5] Bob Kirchmeier and Peter Catchpole, "Crossing the Tacoma Narrows," *Transmission and Distribution World* (October 2007): 3.

due to a horizontal wood bracket mounted to the main pole and used to support the insulators and mounting hardware. The T-poles have a different type of insulator than the three-pronged poles, but function in exactly the same fashion. The different types of poles, insulators, and hardware are representative of alterations made during ongoing maintenance and repairs to individual pole lines and components with more economical construction types.

The Cushman Nos. 1 and 2 Transmission Line, a segment of the overall Potlatch line, retains integrity of materials, design, workmanship, feeling, association, location, and setting, and is a contributing structure to the historic district.

STATEMENT OF SIGNIFICANCE

The Cushman Hydroelectric Project represents a significant achievement in power production for the city of Tacoma. In 1988, Cushman No. 1 and No. 2 Hydroelectric Power Plant Historic Districts were listed in the National Register of Historic Places.[6] A new National Register nomination is being presented here to create one cohesive Cushman Hydroelectric Project Historic District that includes Cushman No. 1 and No. 2 Developments and the Potlatch (Cushman) Transmission Line between Cushman Nos. 1 and 2.

The Cushman Hydroelectric Project Historic District is eligible under Criterion A, associations with broad patterns of history, for the role it played in the development of hydroelectric generation engineering, and electric transmission technology and construction techniques during the growth of the city of Tacoma and the region. The neoclassical-revival style of the Cushman resources presents a cohesive and intact hydroelectric development. The period of significance begins in 1923, the year the first structure (the Incline Tram) was constructed at the hydro project, and ends in 1935, the year in which the last structures at the Cushman hydro project were completed. The period of significance also includes 1953, the year the third and final penstock was added to the dam.

History of Hydroelectric Power Development in Washington

Washington State's abundant water resources possess seemingly limitless hydroelectric potential. An estimate by the U.S. Geological Survey (USGS) released in 1928 credited Washington with a hydro potential of 18.9 percent of the total water power resources of the United States, over half of which belonged to the Columbia River alone (within the state's borders). Washington not only continues to lead the nation in potential water power, but the concentration (water power per square mile of land area) is considered twice as great as the nearest competitor, Oregon. Additionally, the topographic and geographic features have proven to be very favorable for the economic transmission of electric power to and from all parts of the state, even at great distances.[7]

However, water resources in Washington with the greatest hydro potential are generally located in mountainous regions far from the populace. As such, early hydroelectric power development in the Pacific Northwest depended upon significant technological advances, in particular the development of large-capacity hydro-turbo generators and long-distance, high-voltage transmission systems. Precedent was set at Niagara Falls in 1895 when three Westinghouse hydro-turbo generators, rated 5,000 horsepower each, were installed at the hydroelectric development. The Niagara Falls plant transmitted power to Buffalo, New York, over 20 miles away, inaugurating the practice of placing generating stations far from consumption centers.[8]

The development of long-distance transmission was an evolutionary process. Power plants in the 1880s used low-voltage direct-current (DC) dynamos, and could only transmit electricity about 3 miles. Only urban areas

[6] Soderberg, "Cushman No. 1," and Soderberg, "Cushman No. 2 Hydroelectric Power Plant," National Register of Historic Places Registration Form, 1988, on file at DAHP.
[7] C. Edward Magnusson, "Hydro-Electric Power in Washington," *Washington Historical Quarterly* 19, no. 2 (1928): 90, 97; and Paul Dorpat and Genevieve McCoy, *Building Washington: A History of Washington State Public Works* (Seattle: Tartu Publications, 1998), 275.
[8] Soderberg, "Hydroelectric Power Plants in Washington State."

with concentrated populations could be economically served with a local electrical generating plant. The first significant technological advancement allowing the transmission of electricity over greater distances was the development of high-voltage alternating current (AC). The AC power system used today can mostly be attributed to the pioneering work of Nikola Tesla, who had it put into use in a limited capacity by 1890. The new technology, though extremely promising, did not catch on immediately, primarily because the DC system was already firmly in place in essentially all existing power systems. Over the next decade, however, increasing amounts of electricity was being transported over ever-longer distances, and the decision to switch to AC became much easier for utilities and power companies to make. The 1895 Niagara Falls power plant was among the first AC-powered hydroelectric developments in the world, and, as noted, power was transmitted 20 miles to Buffalo. In 1899, the Edison Electric Company built an 83-mile transmission line between its power plant on the upper Santa Ana River and Los Angeles, by far the longest in the world at the time. This engineering feat was made possible by the development of glazed porcelain insulators that were capable of handling 40,000 volts.[9] In 1901, Bay Counties Power Company completed a transmission line 142 miles long that brought hydroelectric power from the Colgate Powerhouse in the Sierra Nevada foothills to Oakland. The line consisted of two parallel rows of cedar poles carrying copper and aluminum wires. In addition to its length, this line was impressive because of its 4,427-foot crossing of the Carquinez Strait. At the time of its construction, the span was the longest of its kind in the world.[10]

Immediately following the groundbreaking efforts at Niagara Falls, Washington’s first large hydroelectric plant was developed at Snoqualmie Falls. Its construction was completed in 1898 and the system began supplying commercial power to Seattle and Tacoma the following year. In 1904, the Puget Sound Power Company completed a high-voltage system that linked the two major cities with the hydroelectric plant at Electron on the Puyallup River. At the time, the turbines at Electron were the largest impulse (Pelton) units in the world. By 1910, the plants at Snoqualmie Falls and Electron could not keep up with the ever-increasing load demands of the Puget Sound population. Dependable service was reestablished in 1911 with the development of a hydroelectric plant on the White River at Dieringer, between Auburn and Sumner. This facility was equipped with the largest high-head reaction (Francis) turbines in existence.[11]

In the 1920s, demand for electric power continued to increase in Washington. During this decade, a number of significant hydroelectric power developments were completed and placed in operation throughout the state. Most notably, these included a Seattle municipal system power plant on the Skagit River at Newhalem, Puget Sound Power & Light Company’s Baker River power development near Concrete, a dam and powerhouse constructed on the Chelan River by the Washington Water Power Company, and Tacoma City Light’s Cushman project on the Skokomish River. The latter, the subject of this NRHP nomination, first delivered power to Tacoma in winter 1926, and a distinctive feature of the transmission line was the span across the Tacoma Narrows, which at the time was the longest power span in the world.[12]

[9] William A. Myers, *Iron Men and Copper Wires: A Centennial History of the Southern California Edison Company* (Glendale, CA: Trans-Anglo Books, 1983), 39.
[10] Charles M. Coleman, *PG&E of California: The Centennial Story of Pacific Gas and Electric Company 1852–1952* (New York: McGraw-Hill Book Company Inc., 1953), 146–48.
[11] Dorpat and McCoy, *Building Washington,* 277–80; Soderberg, “Hydroelectric Power Plants in Washington”; and Dick Malloy and John S. Ott, *The Tacoma Public Utilities Story: The First 100 Years, 1893–1993* (Tacoma, WA: Department of Public Utilities, 1993), 88.
[12] Magnusson, “Hydro-Electric Power in Washington,” 94.

Municipal Power

In the United States, the generation and distribution of electric power has primarily been undertaken by private enterprises. Approximately three-fourths of the nation's consumers pay privately owned utility companies for their energy. In Washington, however, the opposite is true. Continued support for public power and historically successful municipal systems in Seattle and Tacoma made the state an exception and a leader of the progressive public power movement during the first half of the twentieth century.[13] In Seattle and Tacoma, support for a municipal power system grew because the services provided by existing private companies were inadequate and comparatively expensive.[14] These two cities, the largest in the state, continue to be powered primarily by municipal systems today.

Tacoma City Light

In 1893, the City of Tacoma bought Charles Wrights' Tacoma Light and Water Company, thereby becoming one of the first cities in the Pacific Northwest to own and operate a municipal electrical system.[15] Known for political Progressivism, the Pacific Northwest was at the vanguard of the reform movement to control utilities' cost and quality by placing them under public ownership. In the mid-nineteenth century, most American cities awarded franchises to private utility companies, but reformers in the Progressive Party targeted the system's potential for graft, favoritism, and corruption. They maintained that a publicly owned utility would not only eliminate unsavory collusion among private businessmen and public officials but would also promote more efficient management.[16] Unlike older cities in the American East and Midwest, Tacoma and Seattle were able to move quickly toward more democratic utility systems.

After the 1893 purchase, the former Tacoma Light and Water Company became part of the City of Tacoma's Light Department, a division of the City formed to provide municipal lighting and power. The division was operating under the name Tacoma City Light by ca. 1915, a name it would maintain until 1989, after which the organization continued doing business under the name Tacoma Power.

By the turn of the twentieth century, growing consumer demand had overtaxed the direct current system, and the city had to purchase additional power from private companies in the region. In 1909, Tacoma voters authorized construction of a hydroelectric generating facility on the Nisqually River. Attempts to develop a power plant on the North Fork of the Skokomish River at Lake Cushman began in 1912, when Seattle citizens approved a related bond issue. The City of Seattle issued condemnation notices to property owners, but abandoned the project in 1914.[17]

By 1917, Tacoma was experiencing a population explosion and needed a new source of electric power to meet increasing demands of labor saving devices in the home and of power-dependent industries. Public Utilities Commissioner Ira S. Davisson and Tacoma City Light selected the Lake Cushman site for a new hydroelectric complex. The city applied for water rights and reservoir permits in 1919, and began condemnation proceedings the same year for the needed land. Acquisition of the property consumed two years of often-acrimonious

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13 Dorpat and McCoy, *Building Washington,* 280.
14 Soderberg, "Hydroelectric Power Plants in Washington."
15 Malloy and Ott, *Tacoma Public Utilities Story*, 13.
16 Robert Wiebe, *The Search for Order, 1877–1920* (New York: Hill & Wang, 1967), 166–72.
17 Loretta Neumann, William Beckner, Janet Friedman, Steve DelSordo, and John Culliname, *Cultural Resource Management Plan: Cushman Hydroelectric Project*, submitted to Tacoma Public Utilities, Tacoma, WA, 1996, A3-9, on file at Tacoma Public Utilities, WA.

negotiations, including objections by Ed Sims, chair of the Washington State fisheries board. By 1920, however, the Phoenix Logging Company had been awarded a six-year contract to clear the heavily timbered land that would be inundated with water after a dam was constructed.[18] Over 300,000,000 feet of merchantable timber, specifically virgin fir and cedar, was logged from the Cushman basin before the valley was flooded.[19]

As late as June 1921, the geological merits of the Cushman basin as a potential reservoir were still being studied. The final conclusions, submitted in support of the potential for safely raising the elevation of the planned reservoir, noted that

> the impervious structure existing in and around this basin is continuous… in sharp contrast to the loose unconsolidated gravels which generally abound in glacial regions… This whole basin might belikened to one huge bowl carved out of solid rock plastered throughout with an encrustment of the highest grade cement, Compared with other basins from the standpoint of area, no tighter, stronger, or more ideal basin could be found anywhere. It will be safe to raise the water to a height of two hundred and twenty five [*sic*] feet above the present high water mark of the river.[20]

In 1922, Davisson hired J. L. Stannard from San Francisco to serve as chief engineer for the Cushman project. While some of the interviewees for the position wanted as much as $35,000 a year, Stannard offered his services at the bargain rate of $7,500. He explained, "it's just what I wanted to do . . . I made a thorough investigation of the Cushman project in 1917 with the idea of doing it for Seattle and have always wanted to develop the project."[21] Jay Stannard was born to Gilbert and Esther Stannard in New York in 1866. By 1880, the family had relocated to Shell Rock, Iowa, in a westward trend that Jay would continue all the way to Washington. By 1900, Stannard and his wife Carrie A., whom he married in 1899, were lodging in Everett, Washington. Stannard worked with the Great Northern Railway as early as 1902, when he led a survey from Columbia Falls to Tobacco Plains in Flathead, Montana.[22] Stannard also spent time in Oregon, where he was employed by the city of Baker as consulting engineer for a municipal hydroelectric project.[23] An August 1917 edition of *Electrical Review* noted, "J. L. Stannard, Portland, Oregon, is consulting engineer in connection with the proposed hydroelectric plant for the city of Seattle. He has made plans and estimates covering all phases of the contemplated project."[24] By the time Cushman was proposed for Tacoma, Stannard's career as a civil engineer appears to have been well established.

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[18] Neumann et al., *Cultural Resource Management Plan*, A3-9; and Larry Overland, *Early Settlement of Lake Cushman* (1974; reprint, Belfair and Shelton, WA: Mason County Historical Society, 2008), 38.
[19] Ira S. Davisson and Llewellyn Evans, "Cushman Power Project," *1924–1925 Information Book of the Light Department City of Tacoma, Washington*, 59, Tacoma Public Utilities History Collection, Accession PS-20091012-02, Box 7116, Tacoma Public Utilities Archival Collection, Washington State Archives, [WSA-PSRB], Bellevue.
[20] Raymond P. Tarr, "Report: The Lake Cushman Basin, Mason Co. Washington, General Characteristics," *Geological Standpoint* (June 1921), Tacoma Public Utilities History Collection, Accession PS-20091012-02, Box 7116, Tacoma Public Utilities Archival Collection, WSA-PSRB.
[21] Malloy and Ott, *Tacoma Public Utilities Story*, 84.
[22] "Surveying and Speculation Continues in Flathead," *The Inter Lake*, January 3, 1902, Great Northern Railway, Kalispell Division, http://www.gnry.net/lookingback/lbi1900s.html#1902.
[23] "News Notes," *Journal of Electricity, Power and Gas* 33 (December 26, 1914): 589.
[24] "Personal and Biographical," *Electrical Review* 71, no. 6 (1917): 250.

In 1923, a village rose at the Lake Cushman site, with buildings that included warehouses, garages, machine shops, and residences for about 500 workers.[25] Now referred to as Camp A, the village surrounded Lake Standstill (Camp A is no longer extant). Construction of the first Cushman dam and power plant was a significant engineering feat because the structures were located in steep, inaccessible terrain prone to flooding.

The contract for construction of the dam was let to Guthrie & Company of Portland, Oregon, in spring 1924. (Guthrie & Company would also later be awarded the contract for construction of the Cushman No. 1 powerhouse under a separate bid.) Work on the tunnel shafts began first, on May 1, 1924, with construction and excavation for the diversion tunnel and penstock No. 1 following on May 7. The lower tunnel was opened on July 21 enabling work to begin on excavating the bench for the main power tunnel. Early construction of the tunnels helped alleviate some of the flow when the first floods arrived on September 20, though the continuous flood conditions throughout fall that year did cause delays in sealing the tunnels with concrete. Reports of the construction progress, distributed by the City of Tacoma Light Department, further noted that soon after the contract began,

> the canyon was obstructed by a cofferdam. A flume was provided to carry the river in order that the river bed might be excavated to bedrock for the dam foundation. Tunnels were driven around the dam site to help carry the winter freshets which were soon expected. The floods came sooner than expected, however, and the concrete dam foundations had barely been poured when the canyon was transformed into a millrace and all work was halted until the floods should subside. Five times that winter this scene was re-enacted and although work continued on the excavation of the sidewalls for the dam, the power house excavation was entirely re-filled and abandoned until the following spring.[26]

Construction work reached its peak in 1925. Five hundred men “toiled ceaselessly,” and fleets of trucks delivered cement day and night. “Two yards of concrete went into the dam every three minutes, requiring from 4,000 to 5,000 sacks of cement daily.” Sand and gravel was supplied from a gravel bar located directly above the dam, which proved sufficient for the needs of the entire project. On October 20, 1925, the tunnel gates were closed and the impoundment process began.[27]

After a two-year construction period, Lake Cushman began rising to fill the valley. As water approached the Antlers Hotel and Cushman House (located along the banks of the lake), workers doused the buildings with kerosene then burned them to the ground in an effort to minimize floating debris on the water’s surface.

The Cushman No. 1 powerhouse was constructed concurrent with the dam, beginning in spring 1925 and completed in March the following year. Located 700 feet downstream of the dam, the building housed the water turbines and generators, as well as the exciter switchboard and control room. On the ridge 267 feet above the powerhouse stood the station service house and outdoor switchyard, as well as the hoist (tram) house.

To distribute the power of the water, 44 miles of transmission lines were constructed to carry the full load capacity of the Cushman No. 1 powerhouse. The first five miles carried the line to the future site of the

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[25] Malloy and Ott, *Tacoma Public Utilities Story*, 84; Tacoma Power possesses good photographic evidence of the construction camp.
[26] Davisson and Evans, “Cushman Power Project,” 59–62.
[27] Davisson and Evans, “Cushman Power Project,” 62.

Cushman No. 2 powerhouse. The remaining 39 miles carried the power into Tacoma, crossing the Skokomish Flats, the two relatively benign water crossings at North Bay and Henderson Bay, and the “daunting” Narrows Crossing, a particularly treacherous and windy water corridor almost a mile wide. When the transmission line across the Narrows was completed in 1925, the approximately 6,244-foot span across was the longest aerial electrical span in the world with pairs of 315-foot-tall steel towers supporting cables that carried Cushman power across the Narrows to the city.[28] The line terminated at the Cushman Substation.

Original blueprints of the Cushman Substation, dated December 3, 1924, and on file with Tacoma Power, reference Structural Engineer J. V. Gongwer, Superintendent of Electrical Construction A. J. Darland, and, of course, Chief Engineer Stannard. Designed to handle the power from both the Cushman No. 1 and the planned Cushman No. 2 powerhouses, the substation was constructed in the heart of one of Tacoma’s residential districts. As such, “every effort was made to effect a design that was not only permanent and efficient in operation, but was also a beautiful piece of architecture and would harmonize with the surroundings.”[29] By March 1926, there was sufficient water in the reservoir to begin producing power.[30] The 44-mile-long Potlatch Transmission Line, extending from the power plant to the Cushman Substation in Tacoma, was first energized on March 23, 1926; a formal dedication followed in May.[31] At the dedication, “the current from the dam was turned on in Washington, D.C., by President Calvin Coolidge using a gold key made by Lincoln High School students from a Northern Pacific Railroad souvenir gold spike.”[32] The Cushman system has provided power for the city of Tacoma ever since.

From its inception in 1893, Tacoma’s public utility had sold power for commercial purposes in order to reduce the cost of residential power and light. The move to promote industrial expansion within the city directly influenced municipal power development. Following the opening of Cushman No. 1 in 1926, several large industrial enterprises located plants in Tacoma. A consequent population boom and the availability of inexpensive electricity encouraged consumers to purchase electric stoves, refrigerators, washing machines, and smaller appliances. By 1927, a year after Cushman No. 1 came online, the City Light department was promoting a second dam on the Skokomish River with the dire prediction that, without increased electrical output, Tacoma would “face a power shortage within three years.”[33]

In spring 1929, Tacoma City Light began construction of the second power plant on the Skokomish River, 2 miles downstream from the first. With the water discharged from Cushman No. 1, Cushman No. 2 utilized the remaining 480-foot elevation drop to the Hood Canal, a 240-foot-high arch dam, and a 13,000-foot-long tunnel to provide additional power for the city. Construction of Cushman No. 2 began none too soon: extreme drought

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[28] Malloy and Ott, *Tacoma Public Utilities Story*, 88.
[29] Davisson and Evans, “Cushman Power Project,” 73.
[30] Malloy and Ott, *Tacoma Public Utilities Story*, 88; and Overland, *Early Settlement of Lake Cushman*, 40.
[31] Malloy and Ott, *Tacoma Public Utilities Story*, 88.
[32] Office of Historic Preservation, Community Development Department, “Cushman Power Project, Cushman Substation,” Survey-Inventory Form, Community Cultural Resource Survey, Reference No. 31650, April 1981, 2, on file at DAHP.
[33] City of Tacoma, Department of Public Utilities, Light Division, *1926–27 Information Book* (n.p.: n.p., 1927), 18, Tacoma Public Utilities History Collection, Accession PS-20091012-02, Box 7116, Tacoma Public Utilities Archival Collection, WSA-PSBR.

in fall 1929 forced the city to rely on supplemental power supplied by the *U.S.S. Lexington*, which remained anchored in Tacoma harbor from December 18, 1929, through January 16, 1930.[34]

The combined Cushman Nos. 1 and 2 systems were poised to bring a total of 140,000 horsepower to Tacoma—50,000 from Cushman No. 1 and 90,000 from Cushman No. 2. As one report noted, "It is hard for the mind to grasp the significance of 50,000 horsepower of electrical energy. Picture an army of 1,000,000 men engaged in physical labor. Their combined effort would about equal this horsepower."[35]

In 1930, a journalist reported, "work on Cushman No. 2 project is being carried on seven days a week and 24 hours a day, as the power is urgently needed to supply the market at Tacoma."[36] "Camp B," a workers' village, rose north of the site of Powerhouse No. 2. With the exception of House No. 5, which has been significantly altered and was documented via the Historic American Engineering Record, and a small pump house, Camp B is no longer extant. The former location of Camp B is now dominated by ca. 1980s housing, and is located outside of the historic district boundaries.

Project engineers carefully controlled the flow at Cushman No. 1, to avoid hazards of spring flooding at the Cushman No. 2 site. To divert the river's flow during construction, work crews built a 900-foot-long, 2,200-cfs-capacity wooden flume mounted on tall posts. In addition, they constructed a 23-foot-high, rock-filled timber-crib cofferdam that redirected the river 300 feet above the dam site. Using drills and hoists to remove large boulders and gravel, workers excavated the dam foundation 75 feet below the riverbed. The new Cushman No. 2 dam, a 240-foot, constant-radius, high-arch dam, rose to create Lake Kokanee.[37]

In the 1920s, the development of electric drill equipment made it economically feasible to build long tunnels through the earth. Tacoma Power had the capability to construct a 13,000-foot-long water conveyance system to divert water from Lake Kokanee to the powerhouse on the shore of Hood Canal. The tunnel's completion required designs of innovative equipment, including the Hackley pneumatic concrete gun, invented by Roy C. Hackley, who was affiliated with the contractor, Youdall Construction Company of San Francisco. Hackley's invention enabled workers to shoot two cubic yards of concrete in a single operation, resulting in a circular form without voids.[38] The concrete mixing plant for the entire dam complex included two one-yard mixers located on the east bank of the stream. Utilizing chutes suspended from a 250-foot-tall Archer tubular tower, workers relied on gravity to place the concrete. When completed in 1930, the Cushman No. 2 headworks system represented state-of-the-art high-head technology of the day.[39] The 1988 National Register nomination for Cushman No. 2 Hydroelectric Power Plant highlighted the project's engineering feats, including the "enormous power tunnel driven through rock [and gravel]."[40]

[34] "Report to December 31, 1929," *Report and Information Book of the Light Division, Department of Public Utilities, City of Tacoma, Washington*, 16, Tacoma Public Utilities History Collection, Accession PS-20091012-02, Box 7116, Tacoma Public Utilities Archival Collection, WSA-PSRB.
[35] "Cushman Project Visualized," [ca. 1925],] Tacoma Public Utilities History Collection, Accession PS-20091012-02, Box 7116, Tacoma Public Utilities Archival Collection, WSA-PSRB.
[36] "Cushman Power Plant No. 2 for Tacoma," *Western Construction News*, November 10, 1930: 538.
[37] Soderberg, "Cushman No. 1," 8-1.
[38] Soderberg, "Cushman No. 1," 8-1.
[39] "Cushman Power Plant No. 2," 542–543.
[40] Soderberg, "Cushman No. 2," 8-2.

Water diverts from the dam into the 2.5-mile-long, concrete-lined tunnel. Historically, the tunnel then diverted water into one of two penstocks to the powerhouse. Though the penstock anchors were designed for three penstocks, power demand would not necessitate installation of the third penstock (and subsequent turbine) for almost 30 years. The Cushman No. 2 powerhouse, which is located on the Skokomish Reservation, overlooking the Olympic Highway, was constructed by J. E. Bonnel and Son of Tacoma. The City's grand design for the Cushman No. 2 powerhouse exudes the sense of pride and progress felt by Tacoma City Light. The building draws upon neoclassical influences in civic architecture to express the significance of the facility to the functioning of the city.

A third development was planned in conjunction with Cushman Nos. 1 and 2, to be located on the South Fork of the Skokomish River. The South Fork plan, as conceived, would have added another 22,500 horsepower to the overall Cushman system by diverting additional waters into the North Fork at a point above Cushman No. 1. Though the Cushman No. 2 powerhouse was built for a third penstock in anticipation of later expansion for the South Fork development, ultimately the project was never built.[41]

On August 22, 1939, John D. Ross, chief administrator of Bonneville Power (and former head of Seattle City Light), addressed Congress on the status of Bonneville Dam (1934) and the newly proposed Grand Coulee Dam for which he sought federal funding. He said, "the enterprises the Pacific Northwest needs most for industrial development are those requiring large quantities of cheap electrical energy of which the region will soon have abundance." In a feature article, the *Seattle Post-Intelligencer* listed 13 key regional units that provided power and light. Among them was "Tacoma City Light (public monopoly—at present America's lowest power rates)."[42]

By 1947, the Pearl Street Substation in Tacoma was under construction, and in 1949, the transmission line was rerouted from the Cushman to the Pearl substation.[43] Although the transmission line continues on to the Cushman Substation, its historic alignment and terminus have been altered. The Cushman Substation now acts as a storage building, and all the interior equipment has been removed. The switchyard, located on the Cushman Substation property, is still active. The Pearl Street Substation was constructed by the City of

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[41] "Report to December 31, 1929," Report and Information Book of the Light Division, Department of Public Utilities, City of Tacoma, Washington, Tacoma Public Utilities History Collection, Accession PS-20091012-02, Box 7116, Tacoma Public Utilities Archival Collection, WSA-PSRB.

[42] John D. Ross, "Plentiful Electricity Seen as Stimulant. Accompanied by quotes from the author's address to Congress and by a list of 'key units and their present power and light services,'" *Seattle Post-Intelligencer*, August 22, 1939, Costello Scrapbooks, vol. 8, "Dams and Power," Seattle Public Library, Seattle, Washington.

[43] The Pearl Street Substation is located at 2402 Pearl Street North in Tacoma. The substation comprises one building, an outdoor switchyard, and one historic-era tower identical to those found on North 21st Street. The single-story building with a drive-under basement fronts east on Pearl, with parklike landscaping separating the substation from the suburban mini-mall development located east of Pearl Street. The Pearl Street Substation has seen few exterior alterations since initial construction: the windows appear to be original, as does the stucco cladding. Though all doors appear to be modern, they are in original openings. The building retains good integrity of design, workmanship, feeling, association, setting, and location, and fair integrity of materials. The Pearl Street Substation was built outside of the period of significance of the Cushman Hydroelectric Development and is outside of the historic district, and was therefore excluded from the inventory of contributing and noncontributing resources for this inventory. The historic-era tower located at the substation has been isolated from those on North 21st Street, and has lost its ability to convey the historic context of this nomination; therefore, it is also excluded from the historic district boundaries and the list of resources.

Tacoma, Department of Public Utilities, Light Division, between 1947 and 1949. Blueprints for the "Pearl Street Switching Station Control House" are dated June 7, 1949, approved by engineer A. W. Francis.

In 1953, the final penstock, turbine, and generator were added at Cushman No. 2. This final construction campaign completed the Cushman No. 2 penstocks and powerhouse design as detailed in the late 1920s. The design had always called for the addition of a third penstock, turbine, and generator to the Cushman No. 2 facilities. This equipment was to be installed in conjunction with a planned Cushman No. 3 dam, built to divert the South Fork of the Skokomish River to Lake Cushman via a tunnel, but the plan for a third dam on the Skokomish River was abandoned in favor of dams planned on the Cowlitz River. Regardless, by the 1950s, the power needs of Tacoma and the surrounding areas had finally caught up to the capacity of the original Cushman No. 2 facilities, making installation of the additional penstock, turbine, and generator both feasible and cost-effective. Thus, 1953 is included in the period of significance for the district.

Evaluation

The NRHP multiple property documentation form "Hydroelectric Power Plants in Washington State, 1890–1938," prepared by the Washington State Department of Archaeology and Historic Preservation (DAHP) in 1988, states that hydroelectric power plants and installations are eligible for listing in the NRHP if they are at least 50 years old and meet one or more of the following criteria:

1. Significant in the history of hydroelectric generation engineering and electric transmission technology, in the history of hydroelectric design principles, and in the development of construction techniques (Criteria A and C); or,
2. Significant in the social, economic, and industrial development of the locality, state, region or nation (Criterion A); or,
3. Significant example of hydroelectric power systems designed or built by renowned engineers (Criterion C); or,
4. A rare example, a significant early example, or a significant representative example of a low or high head electric development (Criterion C).

More specifically, the multiple property listing establishes that

> early hydroelectric plants in Washington State are significant historic resources which reflect the rapidly evolving technology of power generation in the early 20th century and the emerging business and governmental organizations which developed to harness and distribute that power. The installations are inextricably linked with the development of the electric industry, and are also closely associated with the region's economic and political development.[44]

Cushman No. 1 and No. 2 Hydroelectric Power Plants historic districts "meet the registration requirements established in the Hydroelectric Power Plants in Washington Multiple Property Documentation Form." Specifically, Cushman No. 1 is noted as being a "significant example of medium head hydroelectric technology in the West from the 1920s" and "the plant construction was a significant engineering feat." Cushman No. 1

[44] Soderberg, "Hydroelectric Power Plants in Washington State," F-7.

was the "first remote hydroelectric installation in the Tacoma municipal system and, as such, was important in the expansion of that public utility." Likewise, Cushman No. 2 is a "significant example of state-of-the-art high head hydroelectric technology from the early 1930s, and is closely associated with the expansion of industry and commerce in Tacoma." Cushman No. 2 also "includes an architecturally distinguished powerhouse."[45]

This nomination seeks to combine the two previously listed historic districts for the Cushman Nos. 1 and 2 power plants into a single, unified historic district for the Cushman Hydroelectric Project. The two developments, along with the transmission-line corridor and substation, have been historically intertwined since initial construction, and continue to be so to the present day. By combining the two districts into one district, the complete story of the Cushman Hydroelectric Project can be better told.

The Cushman Hydroelectric Project is significant under Criterion A, for its associations with broad patterns of history, for the role it played in the development of hydroelectric generation engineering, and electric transmission technology and construction techniques during the growth of the city of Tacoma and the region. Most of the Cushman Project buildings were constructed in a streamlined neoclassical revival style, presenting a unified collection of buildings and structures from the period of significance. Further, the neoclassical revival style was popular in the 1920s as an illustration of permanence in architecture and engineering, and was likely an intentional choice on the part of Tacoma City Light to express the municipality's monumental growth and contribution to the community in the field of hydroelectric power generation. Though the 1920s are the tail-end of the neoclassical revival movement, the resources as a collective are representative of the monumental design and engineering requirements that characterized development of large-scale hydro projects in remote and mountainous regions of the Pacific Northwest. These buildings and structures housed the means for efficient and economical production of electricity, which enabled the region to grow and expand and, in a way, made them some of the most important and influential buildings of their time. The monumental architectural style reflected this ideology.

The Cushman Hydroelectric Project is locally significant under Criterion A for the role it played in the growth of the city of Tacoma by providing efficient and inexpensive electrical energy to residential, commercial, and industrial interests. The Cushman Hydroelectric Project historic district is a significant and identifiable entity that conveys this historic context relative to the period of significance, 1923–1935 and 1953, through a continuity of plan, design, and architectural style, specifically streamlined neoclassical revival. Furthermore, the district as a whole features good integrity of materials, design, workmanship, location, setting, feeling, and association.

[45] Soderberg, "Hydroelectric Power Plants in Washington State," F-7.

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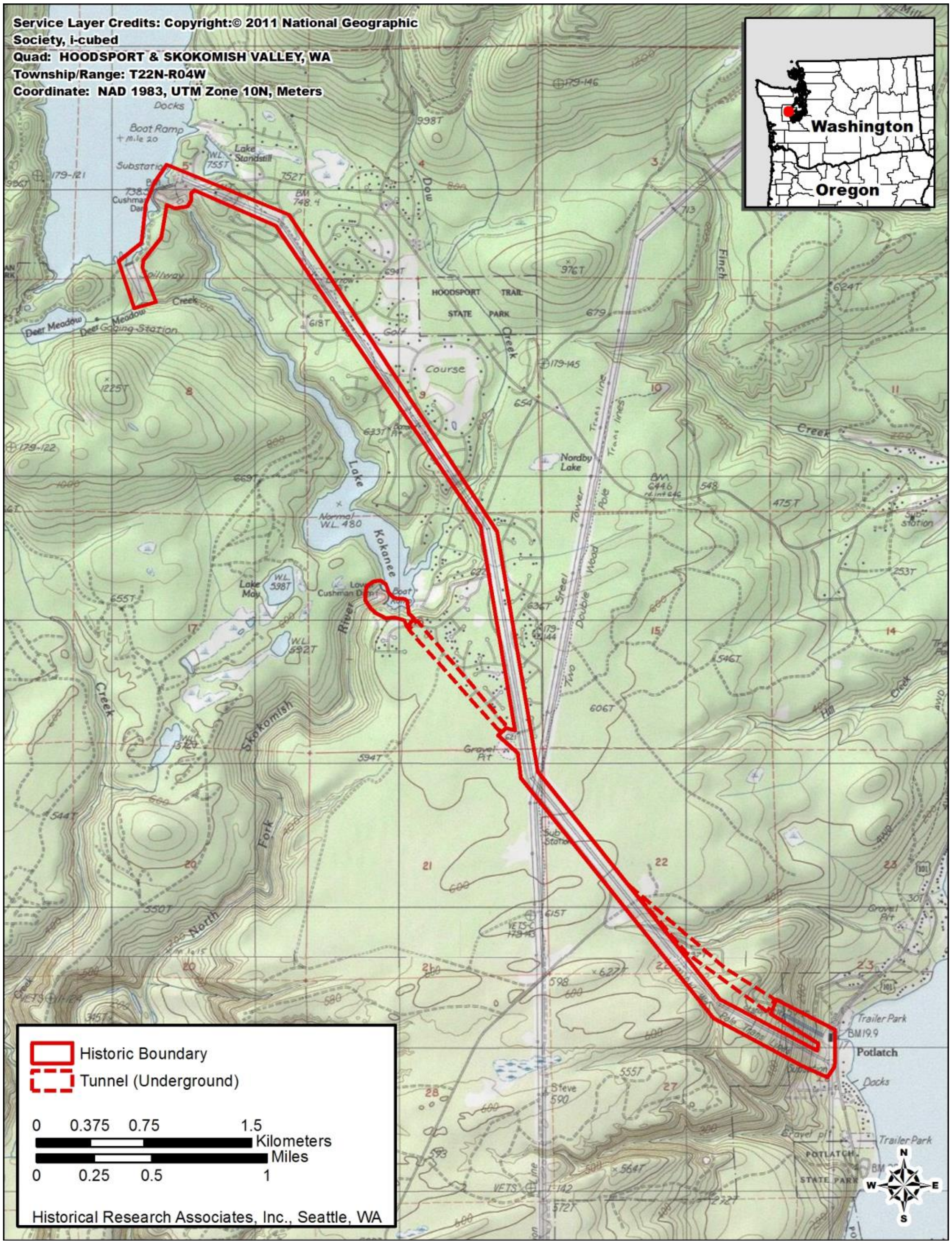
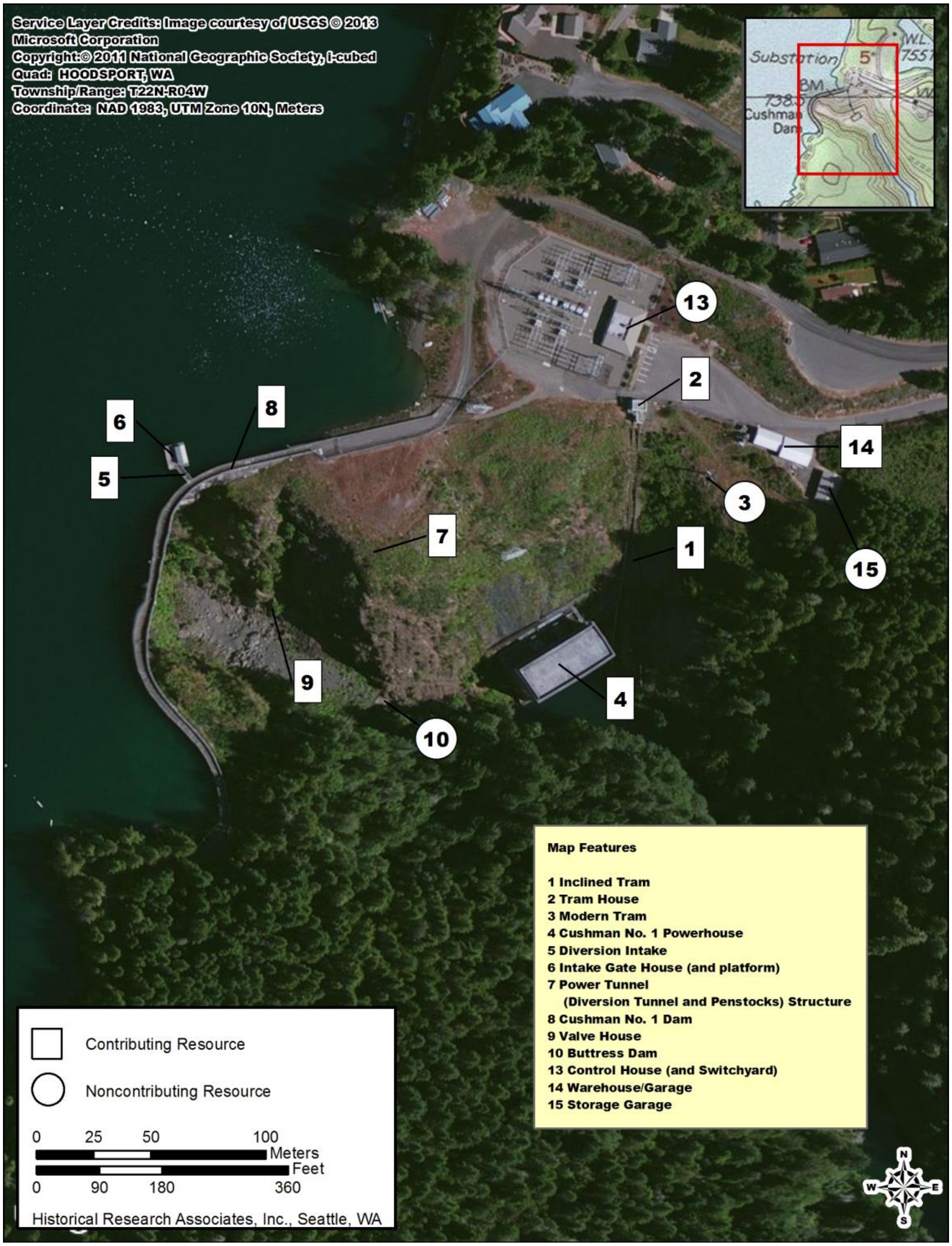
Maps Continutation Sheet

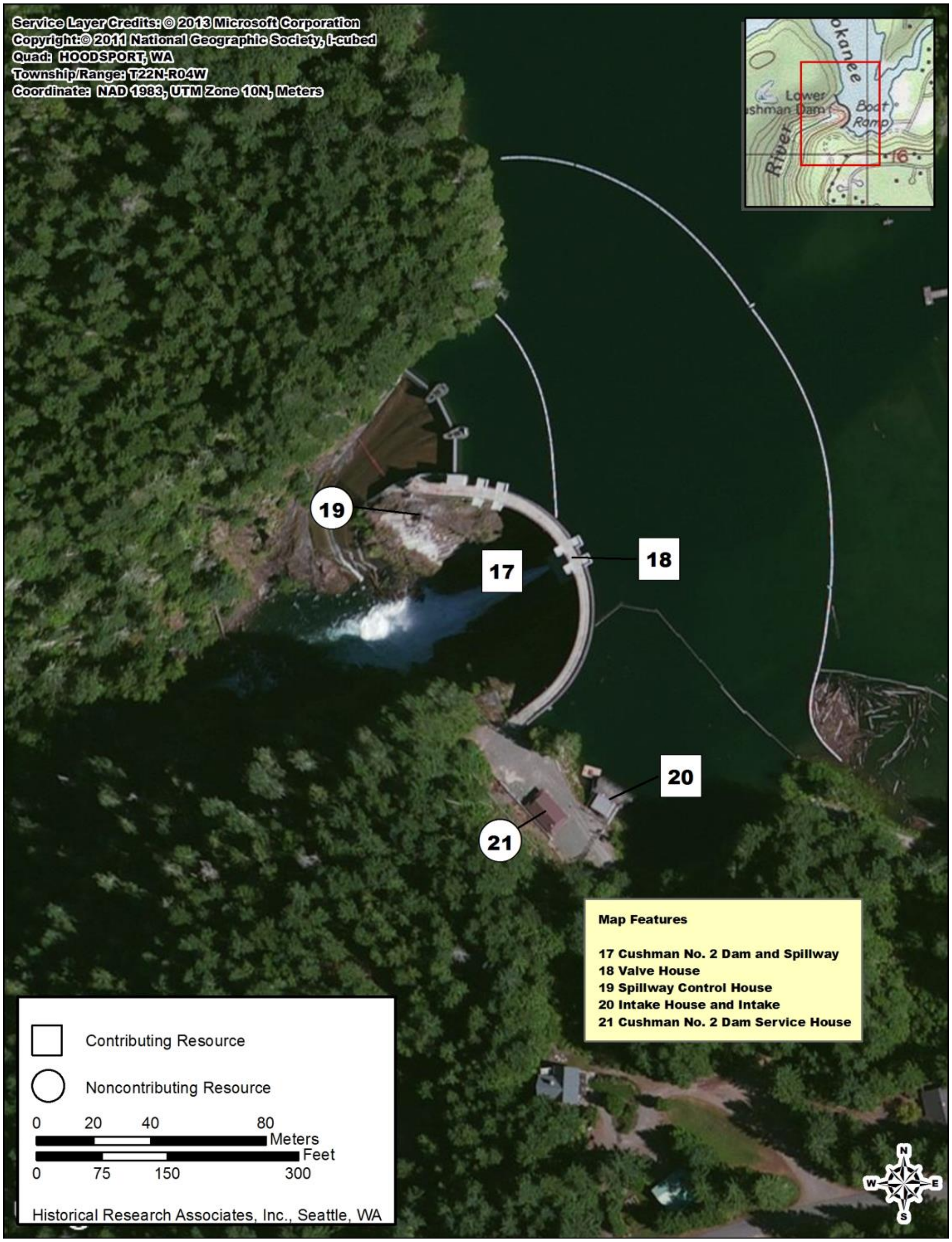


Map 1. Cushman Hydroelectric Project Historic District Boundary Map

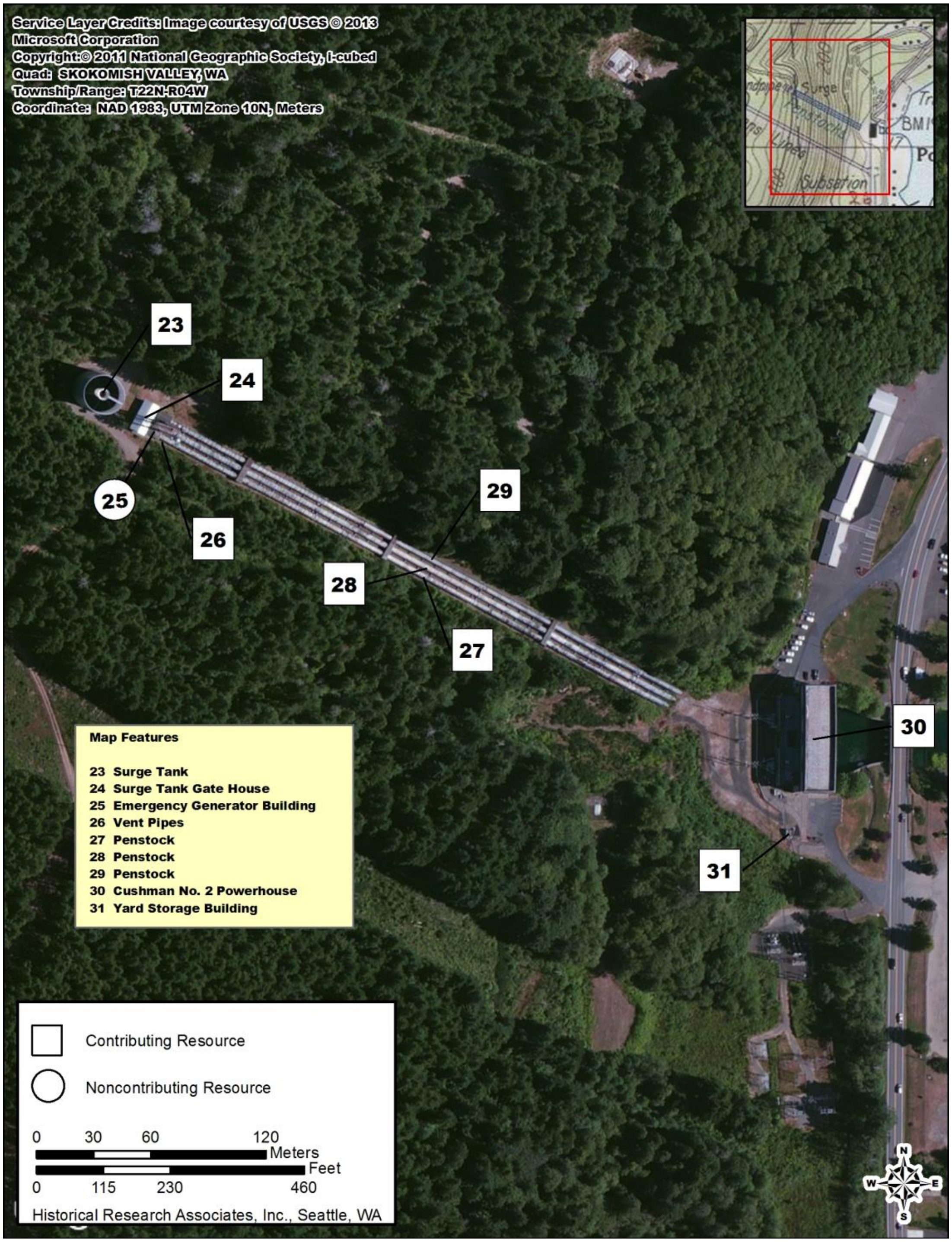


Map 2. Cushman Hydroelectric Project Historic District, Resources (1 of 5)

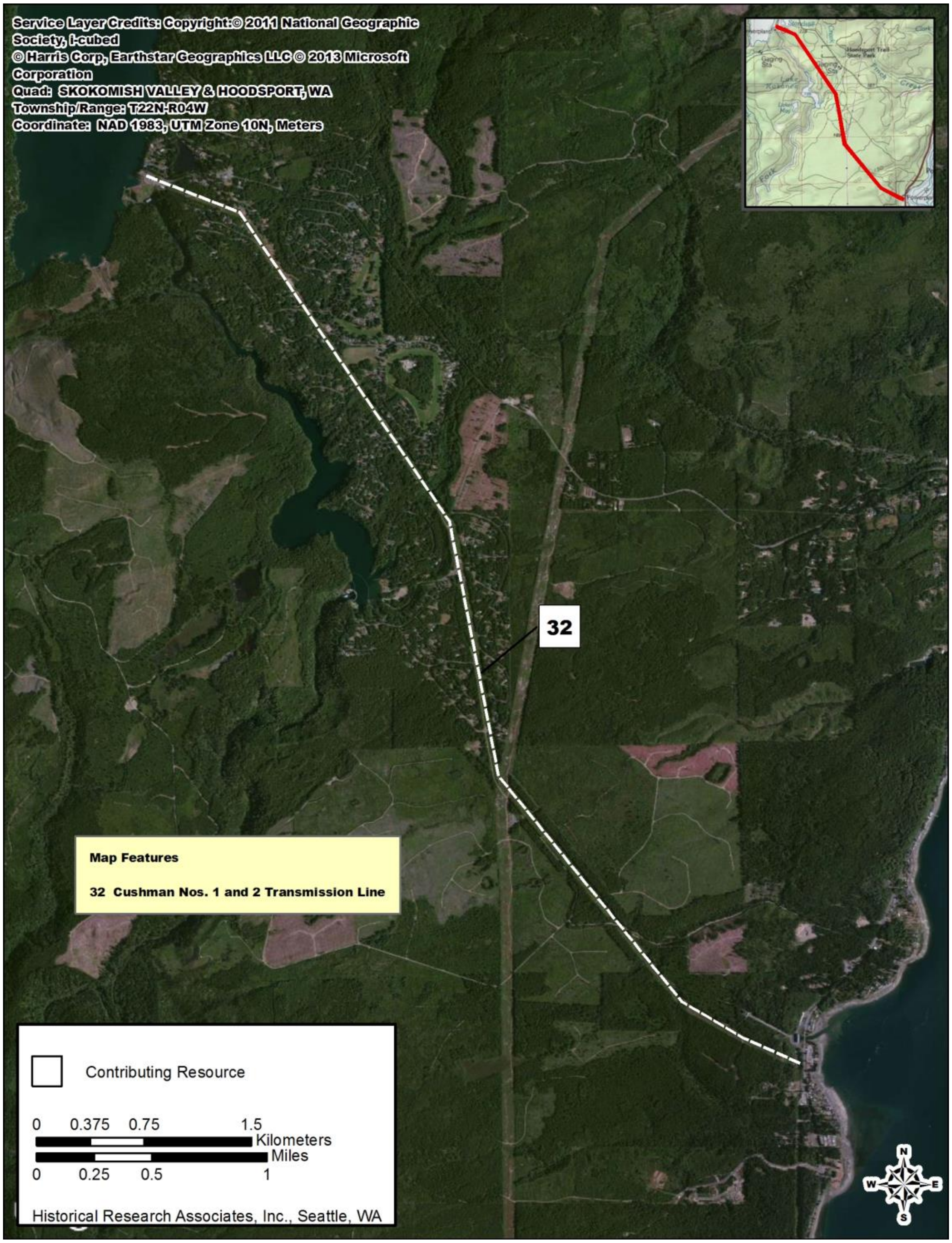
Map 3. Cushman Hydroelectric Project Historic District, Resources (2 of 5)



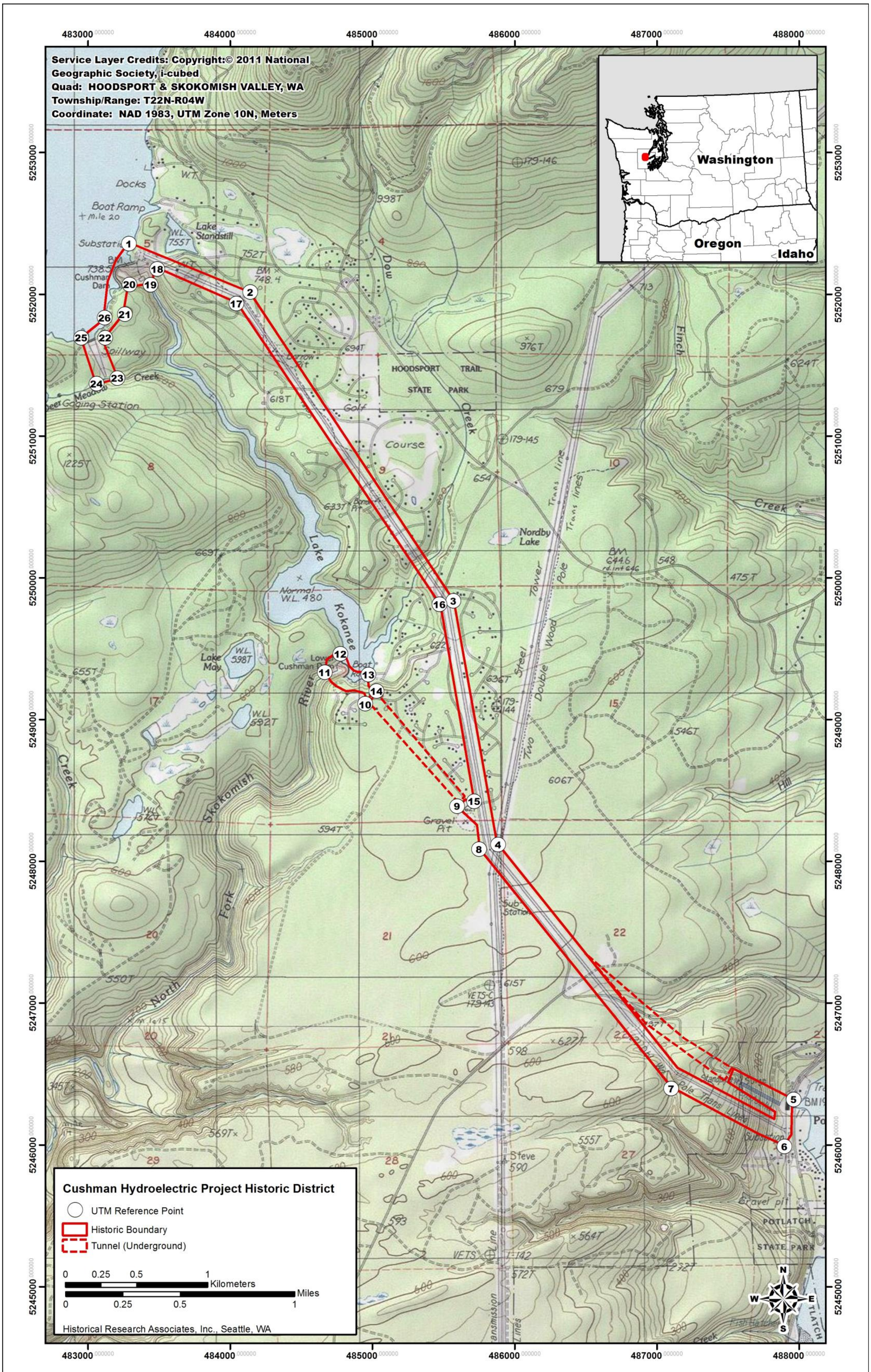
Map 4. Cushman Hydroelectric Project Historic District, Resources (3 of 5)



Map 5. Cushman Hydroelectric Project Historic District, Resources (4 of 5)



Map 6. Cushman Hydroelectric Project Historic District, Resources (5 of 5)



Map 7. Cushman Hydroelectric Project Historic District, UTM Reference Points

Figures Continutation Sheet

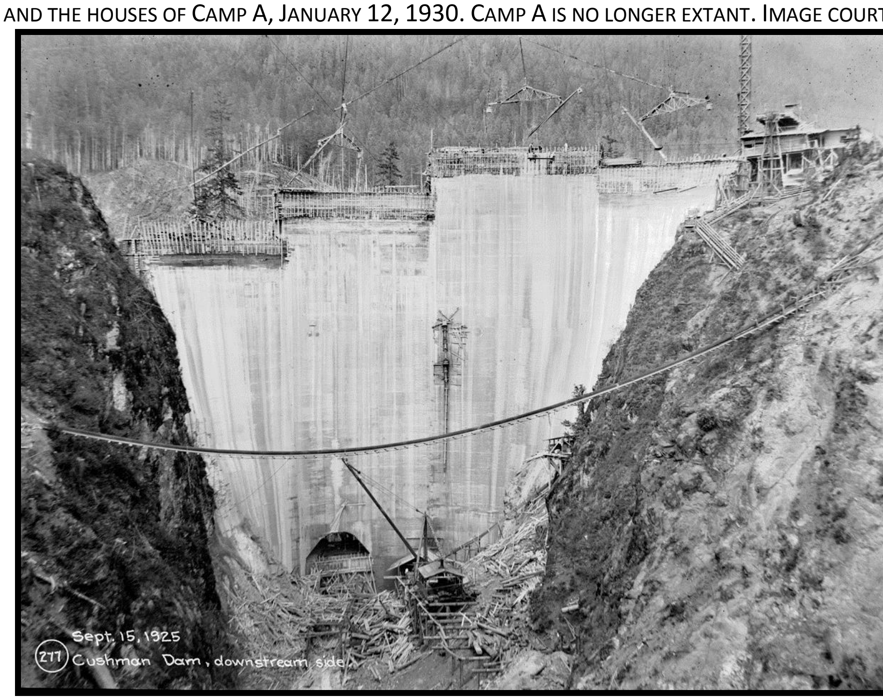


Figure 1. Construction of Cushman No. 1 dam, September 15, 1925. Image courtesy of Tacoma Power.

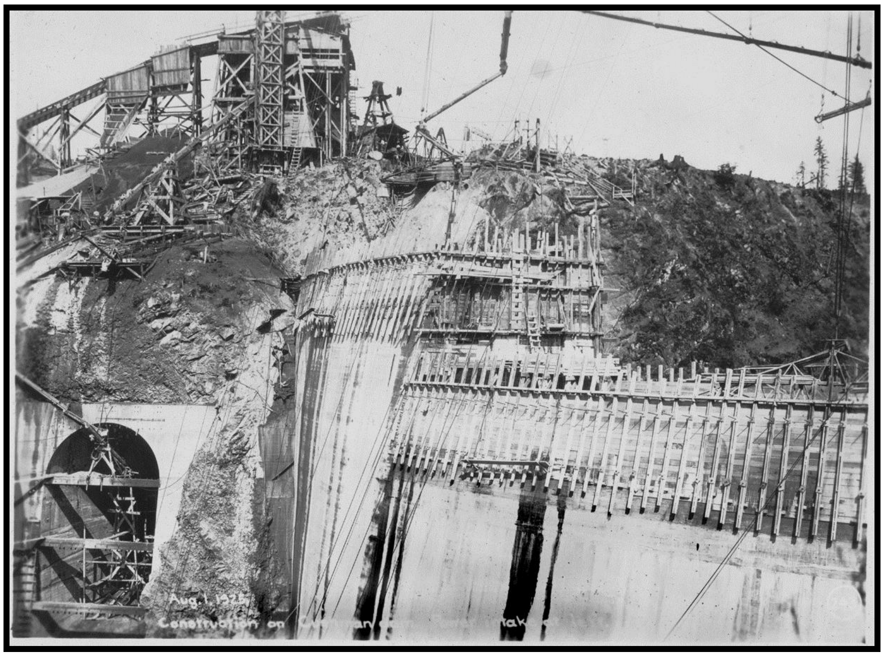


Figure 2. Upstream face of Cushman No. 1 dam during construction, August 1, 1924. Power intake is located at bottom left. Image courtesy of Tacoma Power.

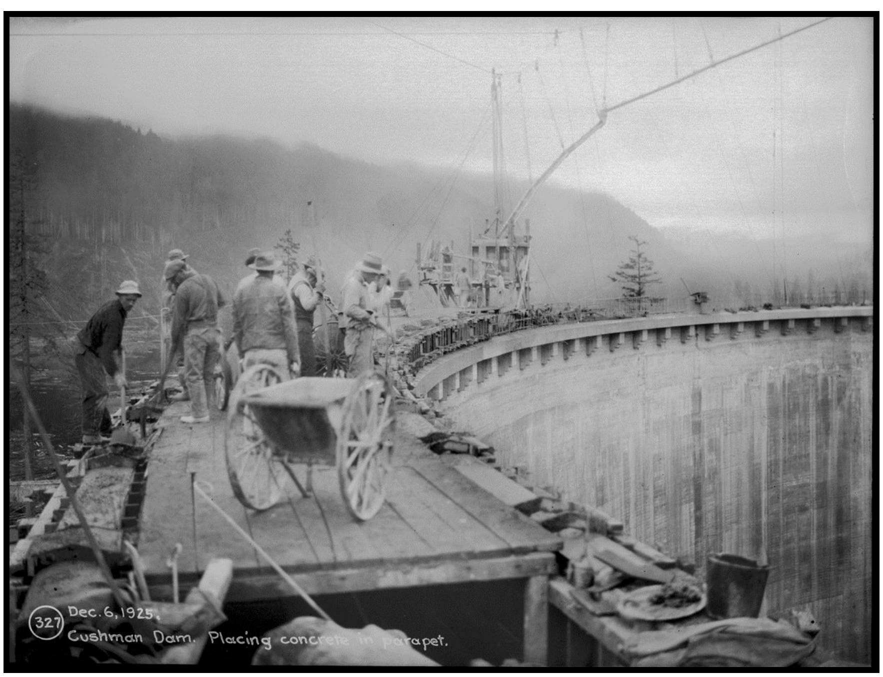


Figure 3. Construction of parapet at Cushman No. 1 dam, December 6, 1925. Image courtesy of Tacoma Power.

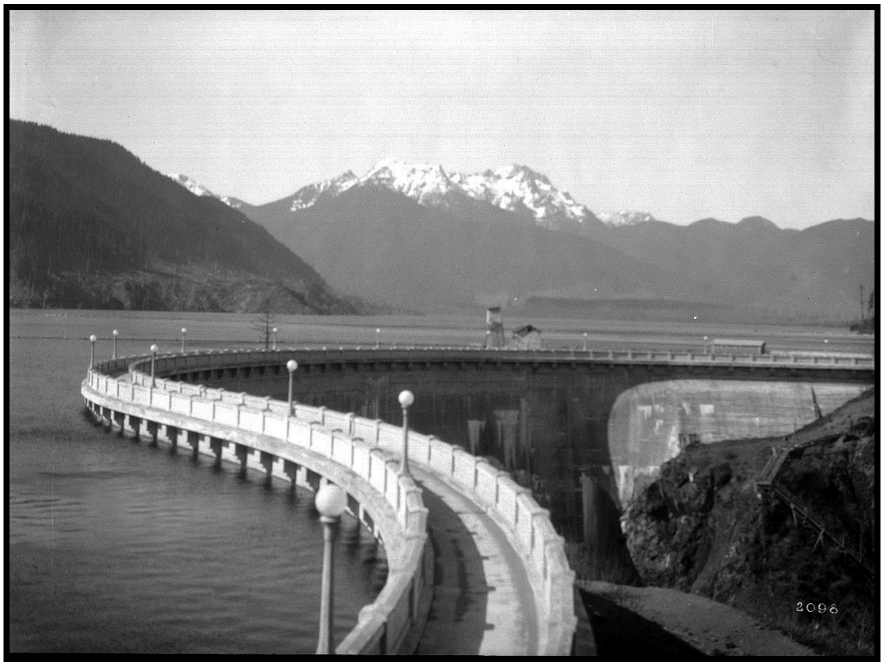


Figure 4. Cushman No. 1 dam, 1931. Image courtesy of Tacoma Power.

Figure 5. Cushman No. 1 dam and power intake, November 11, 1925. Image courtesy of Tacoma Power.

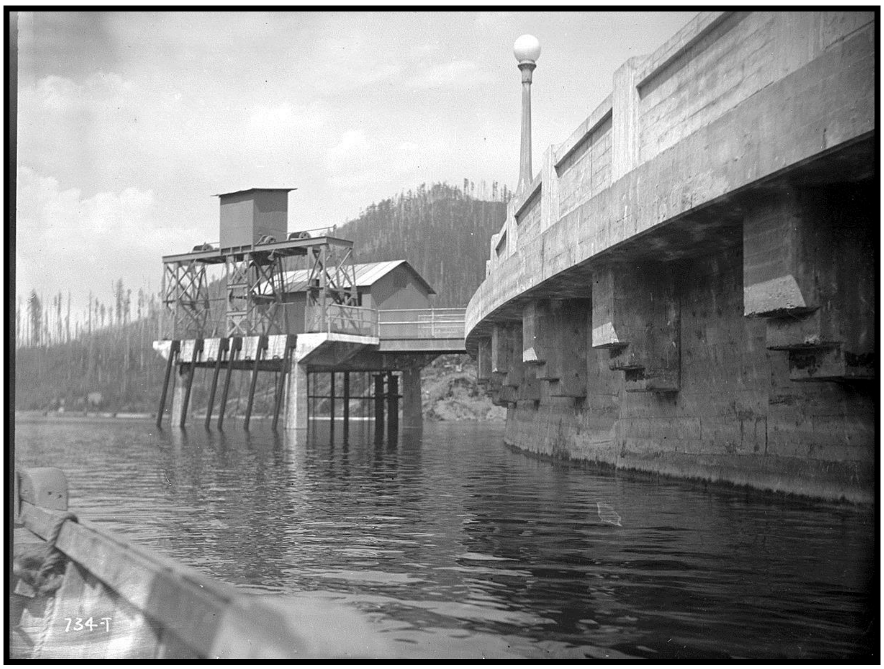


Figure 6. Cushman No. 1 intake gate house and platform, 1927. Image courtesy of Tacoma Power.

Figure 7. Cushman No.1 valve house, February 6, 1926. Image courtesy of Tacoma Power**.**

Figure 8. Cushman No. 1 power tunnel concrete forms, March 5, 1926. Image courtesy of Tacoma Power.

Figure 9. Penstocks at entry to Cushman No.1 powerhouse (powerhouse under construction), July 10, 1925. Image courtesy of Tacoma Power.

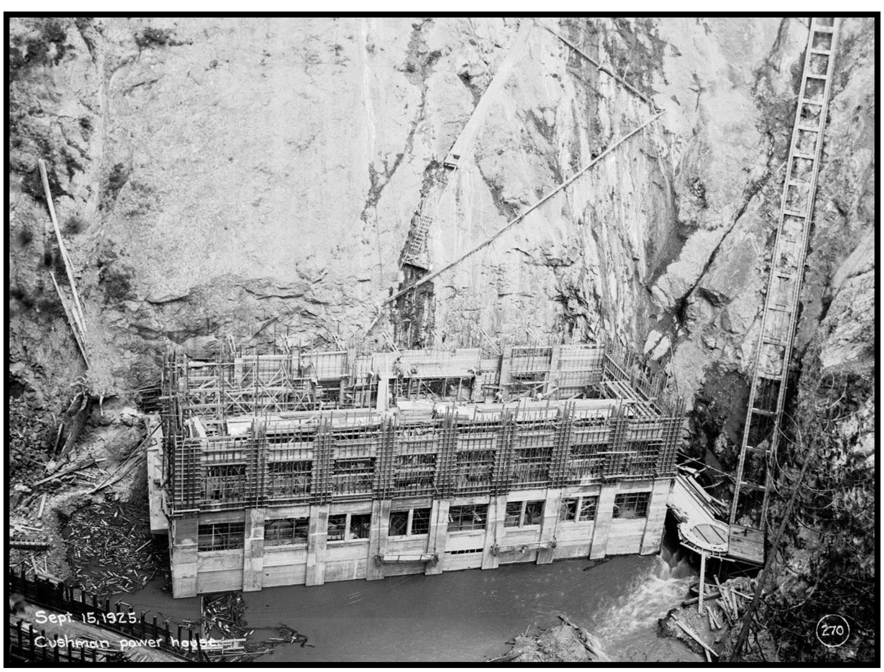


Figure 10. Cushman No. 1 powerhouse under construction, September 15, 1925. Image courtesy of Tacoma Power.

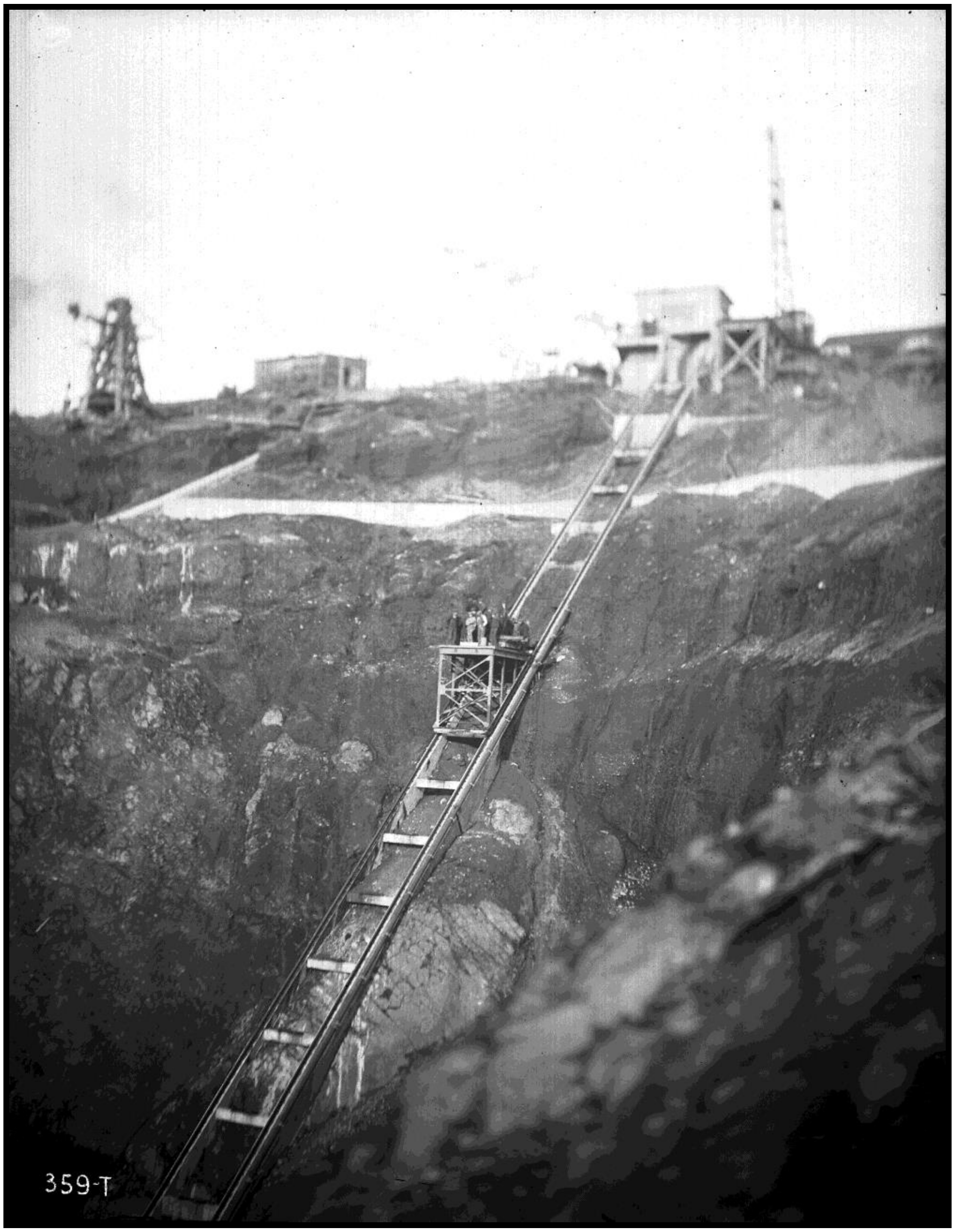


Figure 11. Cushman No. 1 tram transporting crew, 1926. Note tram house above. Image courtesy of Tacoma Power.

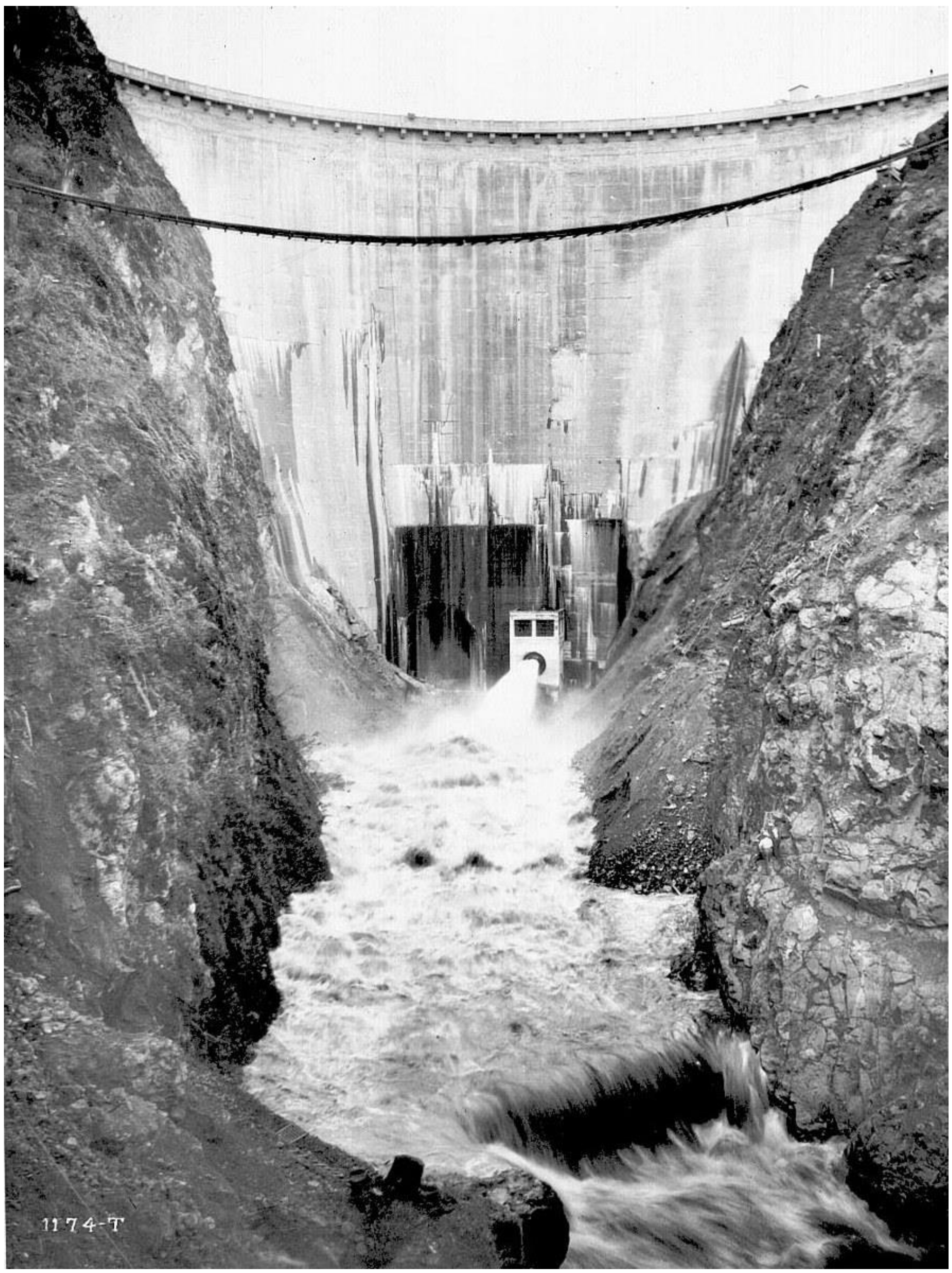


Figure 12. Cushman No. 1 dam and valve house, with valve open, 1929. Image courtesy of Tacoma Power.

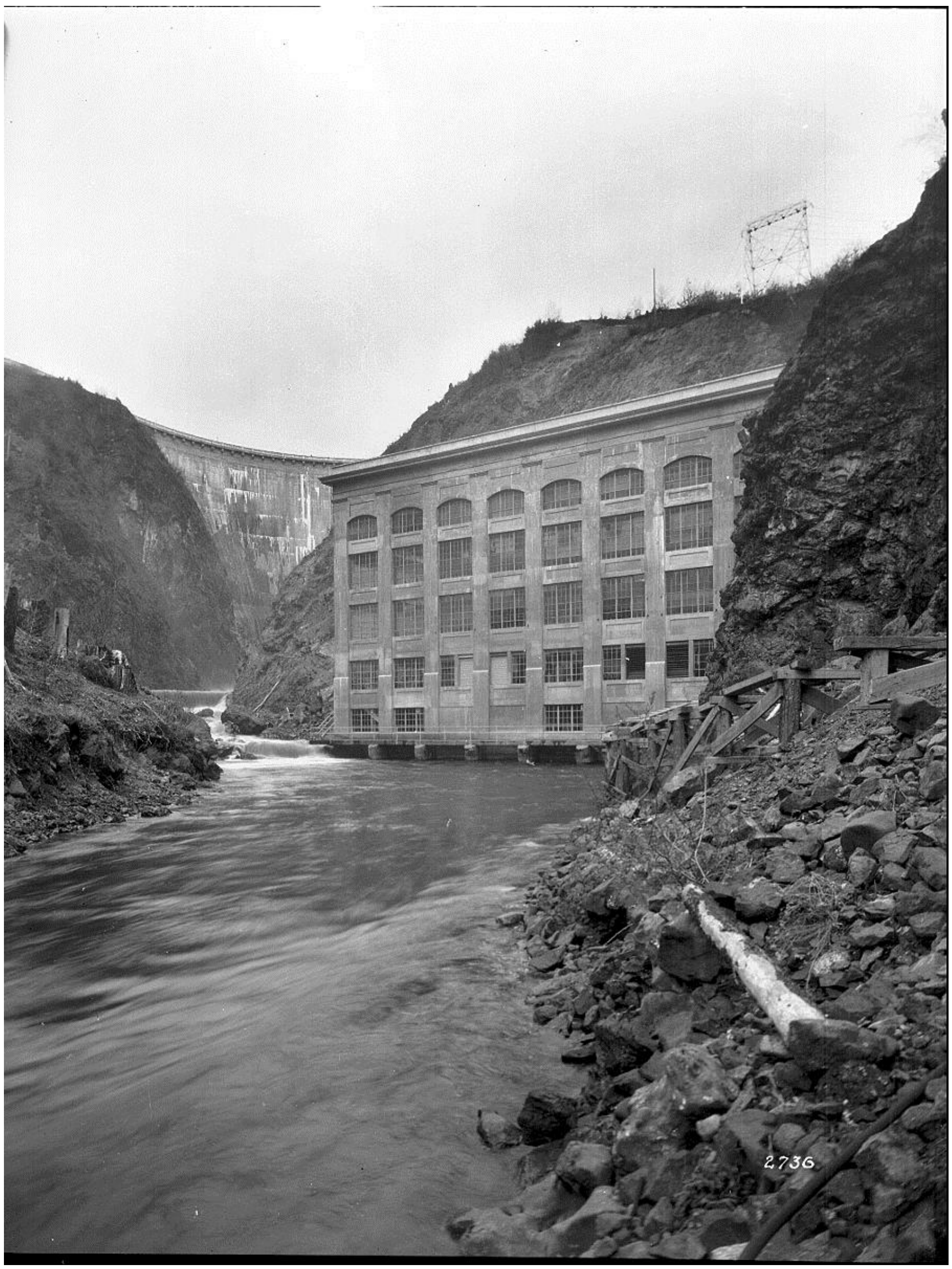


Figure 13. Cushman No.1 dam and powerhouse, 1933. Image courtesy of Tacoma Power.

Figure 14. Cushman No. 2 dam and intake gate house, ca. 1930. Image courtesy of Tacoma Power.

Figure 15. Cushman No. 2 surge tank and penstock gatehouse, June 26, 1931. Image courtesy of Tacoma Power.

Figure 16. Cushman No. 2 powerhouse, February 20, 1931. Image courtesy of Tacoma Power.

Figure 17. Cushman No. 2 penstocks, surge tank and vent pipes, February 28, 1931. Image courtesy of Tacoma Power.

Figure 18. Construction of the Potlatch (Cushman) Transmission Line, ca. 1925. Image courtesy of Tacoma Power.

Figure 19. Potlatch (Cushman) Transmission Line, December 1927. Image courtesy of Tacoma Power.

Figure 20. Lake Standstill and the houses of Camp A, January 12, 1930. Camp A is no longer extant. Image courtesy of Tacoma Power.

PHOTOGRAPH LOG

Name of Property:	Cushman Hydroelectric Project
City:	vicinity of Hoodsport, and Tacoma
County:	Mason County
State:	Washington
Photographers:	Heather Lee Miller, PhD., and Natalie Perrin, M.S.
Date:	2009–2011 (various)
Location of digital files:	Historical Research Associates, Inc. (Seattle, WA)

Photo 1. Cushman No. 1 dam, viewing north.

Photo 2. Viewing east from the Cushman No. 1 dam parapet to other resources at the site, including (from left to right) the substation and switchyard, tram house, tram, modern tram warehouse/garage, storage garage, and Cushman No. 1 powerhouse.

Photo 3. Cushman No. 1 tram house, viewing southwest.

Photo 4. Cushman No. 1 tram house, viewing east.

Photo 5. Cushman No. 1 tram and powerhouse, viewing south. Note the original cast concrete lamp post (pictured right).

Photo 6. Cushman No. 1 powerhouse, viewing southwest.

Photo 7. Cushman No. 1 powerhouse, viewing northwest.

Photo 8. Cushman No. 1 powerhouse, interior.

Photo 9. Cushman no. 1 dam parapet and intake house, viewing south.

Photo 10. Cushman No. 1 intake house and platform, viewing west.

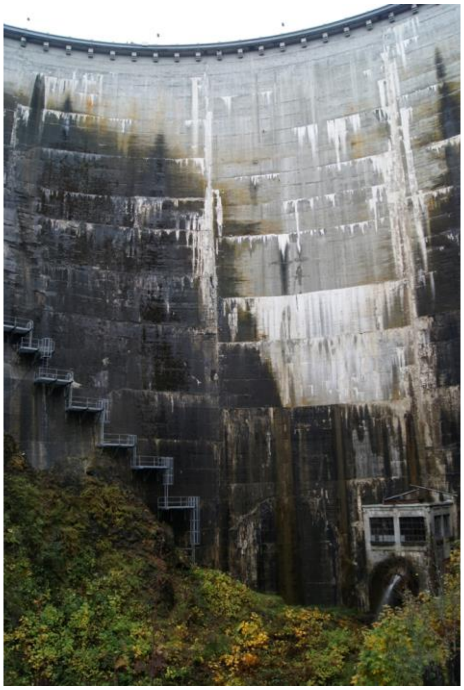


Photo 11. Cushman No. 1 dam, downstream face, showing valve house (right) and new stairs (left), viewing west.

Photo 12. Cushman No. 1 valve house, viewing west.

Photo 13. Needle valve detail on Cushman No. 1 valve house.

Photo 14. Cushman No. 1 dam, downstream face and buttress dam (center foreground), viewing west.

Photo 15. Buttress dam at base on Cushman No. 1 dam, viewing southwest.

Photo 16. Upstream face of modern spillway at Cushman No. 1, viewing southwest.

Photo 17. Downstream face of modern spillway at Cushman No. 1 Dam, viewing west/northwest.

Photo 18. Viewing south, the modern spillway at Cushman No. 1.

Photo 19. Spillway Control House, located west of the modern spillway at Cushman No. 1.

Photo 20. The substation and switchyard at Cushman No. 1, viewing west.

Photo 21. Close-up of Cushman No. 1 substation building north face, showing evidence of original building (center), with concrete parapet and engaged pilasters, surrounded by modern construction, viewing south.

Photo 22. Cushman No. 1 warehouse/garage, viewing southwest.

Photo 23. Cushman No. 1 storage garage, viewing southeast.

Photo 24. Detail of cast concrete lamp post (with modern plastic globe) at Cushman No. 1.

Photo 25. Concrete reservoir and transmission towers at Cushman No. 1, viewing east.

Photo 26. Concrete reservoir at Cushman No. 1, viewing northeast.

Photo 27. Cushman No. 2 resources, from left to right: Intake gate house, modern service house, and Cushman No. 2 dam, viewing west.

Photo 28. Cushman No. 2 dam parapet and intake house, viewing south.

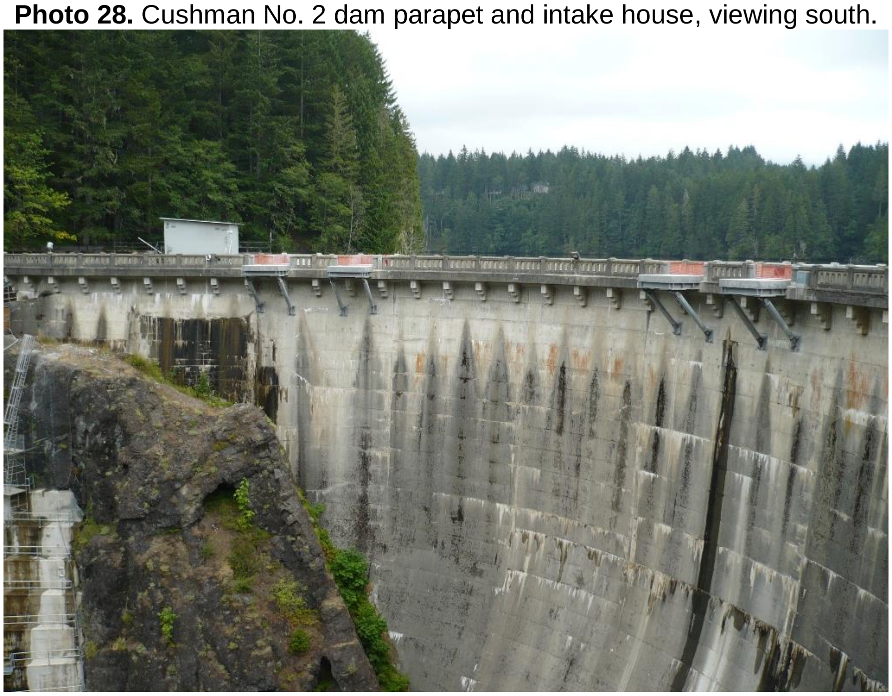


Photo 29. Cushman No. 2 dam, showing modern crane pads at parapet and spillway control house, viewing northeast.

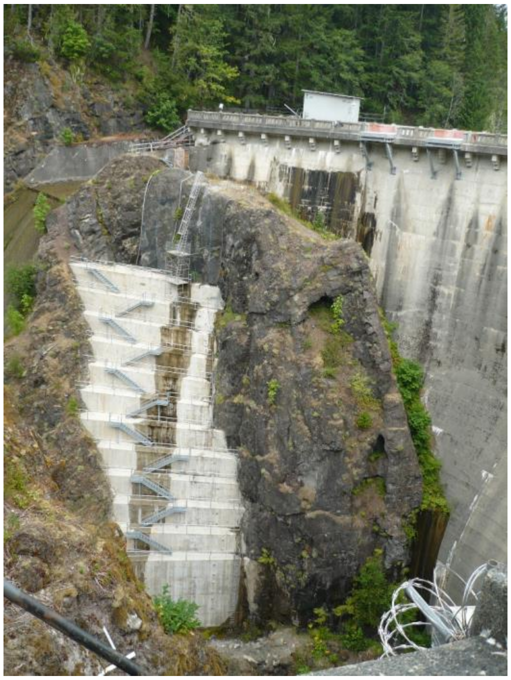


Photo 30. Cushman No. 2 dam, showing abutment infill, spillway, and spillway control house, viewing north.

Photo 31. Cushman No. 2 dam parapet and spillway gatehouse, viewing north.

Photo 32. Detail of modern crane pads on Cushman No. 2 dam parapet, viewing east.

Photo 33. Cushman No. 2 spillway gates, viewing north.

Photo 34. Cushman No. 2 valve house at base of dam.

Photo 35. Cushman No. 2 Intake Gate House, viewing east.

Photo 36. Cushman No. 2 Intake Gate House, viewing northeast.

Photo 37. Cushman No. 2 surge tank, viewing southeast.

Photo 38. Cushman No. 2 surge tank.

Photo 39. Cushman No. 2 valve gate house, vent pipes, and emergency generator building, viewing south.

Photo 40. Cushman No. 2 resources, from left to right: Surge tank, vent pipes, penstocks, and powerhouse, viewing northwest.

Photo 41. Cushman No. 2 powerhouse, viewing northwest.

Photo 42. Cushman No. 2 resources, from left to right: powerhouse, office building, and storage garages, viewing southwest.

Photo 43. Cushman No.2 yard storage building, viewing south/southwest.

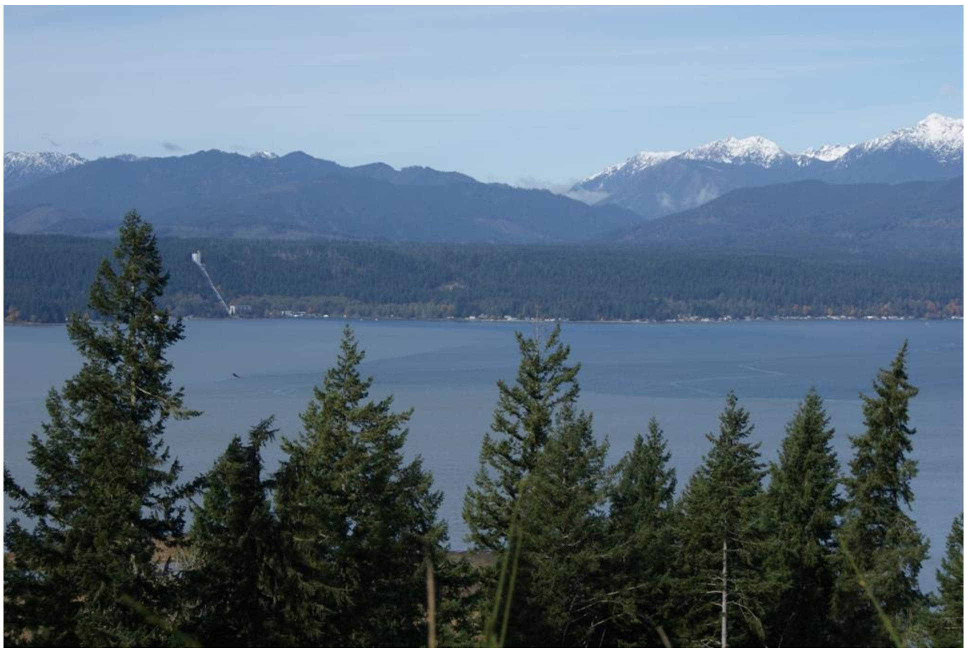


Photo 44. Cushman No. 2 as viewed west across the Hood Canal. Note the surge tank and penstocks clearly visible on the landscape.

Photo 45. View of steel lattice towers located east of Cushman No. 1 along the Cushman transmission-line corridor.

Photo 46. Typical view of the Cushman Nos. 1 and 2 transmission line corridor.