OREGON INVENTORY OF HISTORIC PROPERTIES

SECTION 106 DOCUMENTATION FORM

Agency/Project: Federal Energy Regulatory Commission (FERC)/ delegated to PacifiCorp: Klamath River Hydroelectric Project (FERC No. 2082)	
Street Address: n/a	City, County: Klamath County, Oregon and Siskiyou County, California
USGS Quad Name: multiple Township: Range: Section: Tax Lot #:	District, Grouping or Ensemble? Name: Klamath River Hydroelectric Project District

Current Use: Industrial - hydroelectric; Residential	Date of Construction: multiple – see continuation sheets
Architectural Classification/Resource Type: Dams, Water conveyance systems, Powerhouses, Hatcheries, Residential, Institutional, Industrial support facilities, Timber cribbing	Alterations & Dates: multiple – see continuation sheets
Window Type & Material: multiple – see continuation sheets	Exterior Surface Materials: multiple – see continuation sheets Primary: Secondary: Decorative:
Roof Type & Material: multiple – see continuation sheets	
Condition: ☒ Excellent ☐ Good ☐ Fair ☐ Poor	Integrity: ☐ Excellent ☒ Good ☐ Fair ☐ Poor

(See next page for project map)

Preliminary National Register Findings:

☐ National Register listed Potentially Eligible: ☐ Individually ☒ As part of District

☐ Not Eligible: ☐ In current state ☐ Irretrievable integrity loss ☐ Lacks Distinction ☐ Not 50 Years

State Historic Preservation Office Comments:

☐ Concur ☐ Do Not Concur:

☐ Potentially Eligible Individually ☐ Potentially Eligible As part of District ☐ Not Eligible

Signed _____ Date _____

Comments:

OREGON INVENTORY OF HISTORIC PROPERTIES

SECTION 106 DOCUMENTATION FORM

Street Address: n/a	City, County: Klamath County, Oregon and Siskiyou County, California
Architect, Builder or Designer (if known): J. C. Boyle and others	Property Category: ☐ Building ☐ Structure ☒ District ☐ Site ☐ Object

Owner:

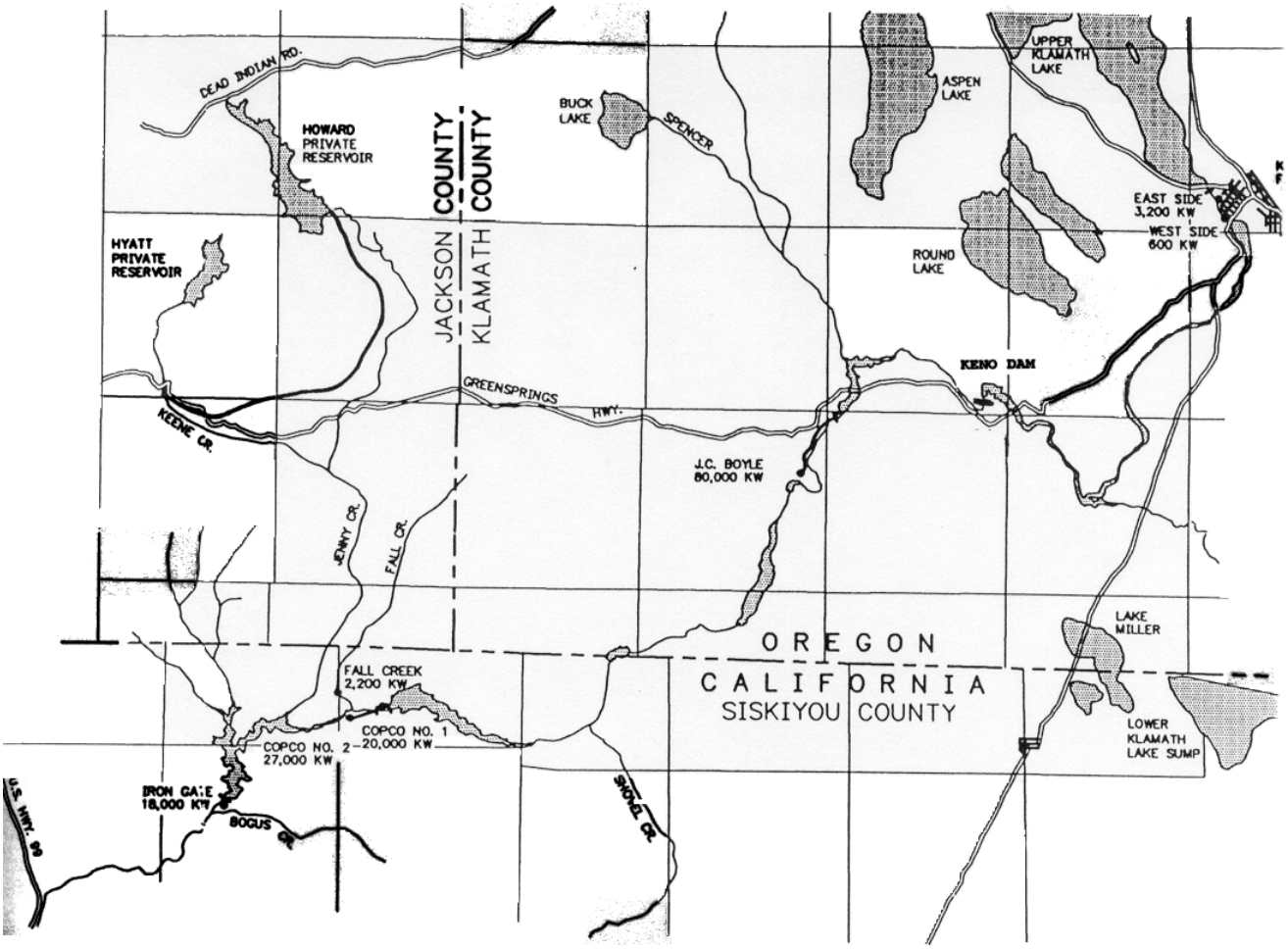
☒ Private ☐ Local Government. ☐ State ☐ Federal ☐ Other

Name: PacifiCorp

Address: 825 N. E. Multnomah, Suite 1500

City, State, Zip: Portland, OR 97232

Phone: (503) 813-5000



VICINITY MAP
KLAMATH HYDROELECTRIC PROJECT
APPROXIMATE SCALE: 1"=30000'

Description of Property (including exterior alterations & approximate dates), Significance Statement, and Sources. (Use continuation sheets if necessary):

The Klamath River Hydroelectric Project encompasses the development of hydroelectric generation facilities along the Klamath River and its tributaries in Klamath County, Oregon and Siskiyou County, California, beginning in the early 1890s through 1963. Planned in 1911 as a cohesive system, it was designed and built in phases over the next five decades. It continues to function today as a single system that utilizes the same water flow at each of its locations, with upstream features serving regulatory functions for facilities further downstream. Today, the Klamath River Hydroelectric Project is owned by PacifiCorp and consists of seven generation facilities and multiple related resources, such as diversion dams, flumes, tunnels, and support structures. The project boundary begins at the Link River, in Klamath Falls, OR and continues in a roughly southwesterly direction following the Klamath River downstream through the unincorporated community of Keno, OR. Crossing the Oregon-California border, the river, and the project, continues through rugged mountain canyons to the hydro-related developments at COPCO #1, COPCO #2, J.C. Boyle (formerly Big Bend) and finally to Iron Gate Dam, the end of the project. The Fall Creek Powerhouse is located on Fall Creek, a tributary of the Klamath, just north of the COPCO #2 development. The geographic boundary for the project is coincidental with the Klamath Hydroelectric Project boundary as defined by the Federal Energy Regulatory Commission (FERC) License No. 2082.

Each of the developments is composed of individual elements that together create a system to generate electricity. Generally speaking, the development begins with a dam, which is connected by a water conveyance system to a powerhouse. The dam often incorporates a gated spillway, to regulate the water level in the reservoir and the river. It also may contain intake gates, which divert water from the reservoir into the forebay or the penstocks. The forebay, part of the water conveyance system, is a reservoir or canal that serves as a holding area for water before it is taken into the penstock or flume and directed to the powerhouse. A flume is an artificial channel for a stream of water, and a penstock is a pipe or conduit used to carry water to a turbine. A water conveyance system may include both a flume and a penstock, or a flume and multiple penstocks as at COPCO #1. In the Klamath system, the penstocks are either steel or original wood stave pipe. Water enters the powerhouse through the penstock, where it spins the turbine, which drives the generator that produces electricity. The electricity is then fed through the transformers, which transform the voltage of the current to the level desired for transmission along power lines to service areas. The spent water flows out of the powerhouse through the tailrace. The developments also may incorporate elements designed to assist fish to pass around the dam, to mitigate the damming of the waterways. These elements may include a fish ladder to enable fish to migrate up the river, a fish screen to prevent entrainment, injury or death of targeted aquatic species, or fish hatcheries and rearing ponds to increase the targeted fish population. Most of the developments were originally operated manually, although they are now automated. Construction camps were built to support the large crews who built the dams and hydro-power facilities, while residential villages were erected for the staff that ran them, and for their families. Most of these support structures have vanished, but a few survive, most notably at the COPCO #2 village.

The resources of the Klamath River Hydroelectric Project are strongly associated with the early development of electricity in the southern Oregon and northern California region, and they played a significant role in the area's economy both directly and indirectly, through the role that increased electrical capacity played in the expansion of the region's timber, agriculture, and recreation industries during the first six decades of the 20th century. They are significant under Criterion A, as defined by the National Park Service, for its association with events that have made a significant contribution to the broad patterns of our history. Specific portions of the project, such as COPCO #1, are also significant under Criterion C for design and engineering characteristics that exemplify the design of early hydroelectric generation facilities. The applicable areas of significance for the project are Commerce, for the development of electrical services, and Industry, for the economic impact on the area as a result of abundant hydropower capacity. Individual resources such as the Fall Creek Powerhouse and COPCO #1 may also be evaluated under the area of Engineering.

For industrial resources such as those associated with the Klamath River Hydroelectric Project, the inherent nature of the project as a continuously operating generation facility complicates the evaluation of integrity. New technologies are often required to allow a powerhouse, water management feature, or other element to continue functioning in a highly structured, highly regulated environment. The evaluation of integrity must recognize the adaptations necessary to allow the project to continue to fulfill its original, historic function. While modified by more than a century of continuing hydroelectric generation activity, the resources of the Klamath River Hydroelectric Project generally retain a high degree of integrity in most, if not all, of the seven aspects of integrity as defined by the National Park Service. Minor alterations, particularly improvements to generation facilities that enable their continued function within the system, do not seriously reduce their ability to convey

(cont.)

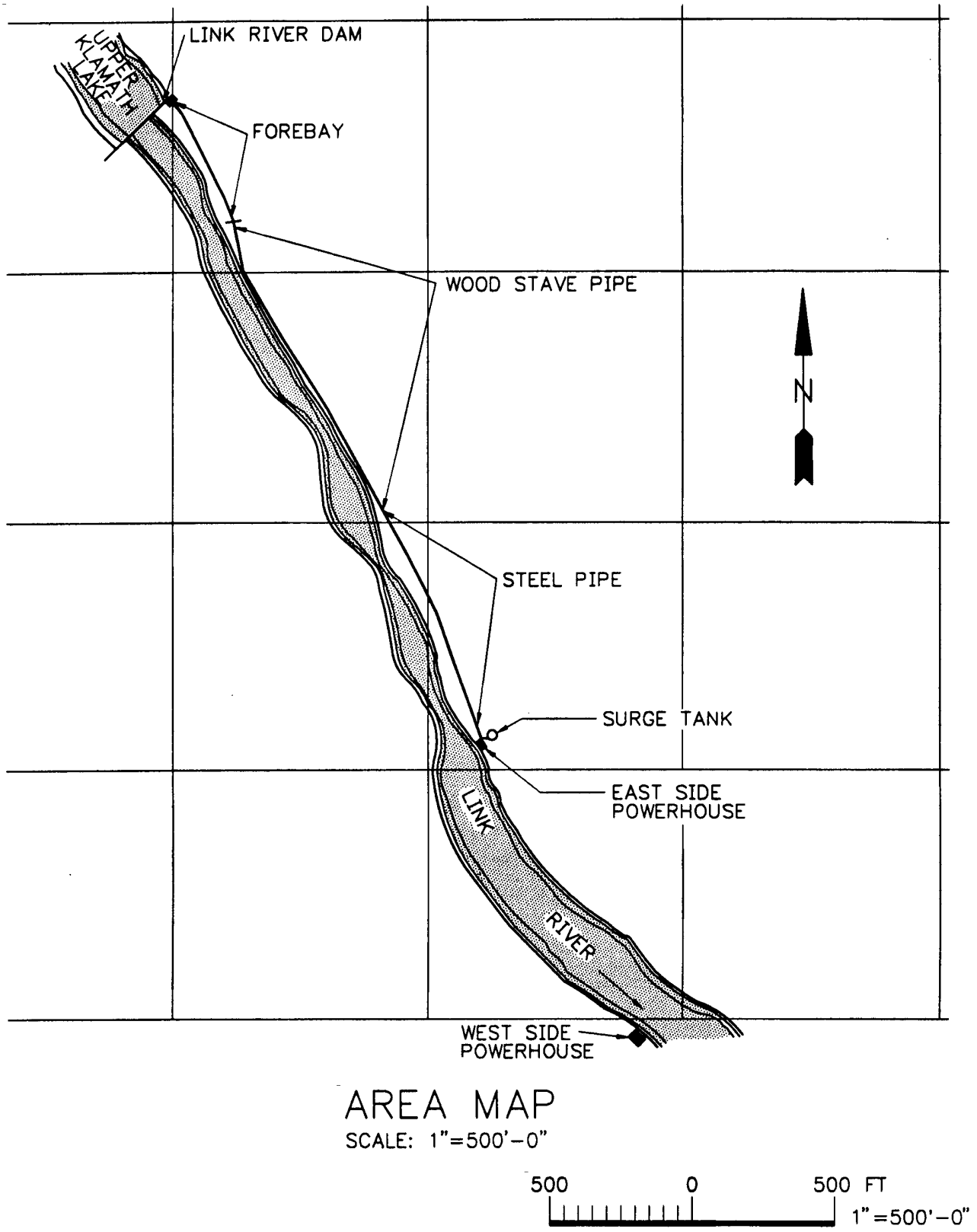
Street Address: Klamath River Hydroelectric Project	City, County: Klamath County, OR and Siskiyou County, CA

their original character or association with historic events and themes. As a whole, the project retains high integrity and effectively conveys its association with the development of electric generation and the economy of the southern Oregon and northern California region. Attachment #1 is a table of all resources associated with the project, listing their status as contributing or non-contributing and their date of construction.

The project developments were constructed between 1902-03 and 1958. Standard National Register evaluation would typically establish a 50-year requirement for consideration of historic significance. In the case of the Klamath Project, based on the renewal period under the present FERC operation license which lasts until 2006, the cut off date would be 1956. Given the particular history of the facilities that constitute the Klamath Project, initially envisioned as a river-wide system in 1911, the temporal boundary may be extended by two years to 1958, in order to include the development of the Big Bend Hydroelectric Plant (now J. C. Boyle) and its related structures. Iron Gate Dam, the final and most recent piece of the project, was completed in 1962 and dates from well beyond the period of significance. Additional consultation with state and federal agencies may adjust the period of significance back to 1956 or expand it to 1962 to include Iron Gate.

The property description contained on the following continuation pages is presented by development, with individual resources described within each development. It begins with the Link River Dam, the furthest upriver resource, and continues through the resources on a downriver path, presenting them in the order of the river flow.

Street Address: Link River Dam Complex	City, County: Klamath Falls, Klamath County, OR

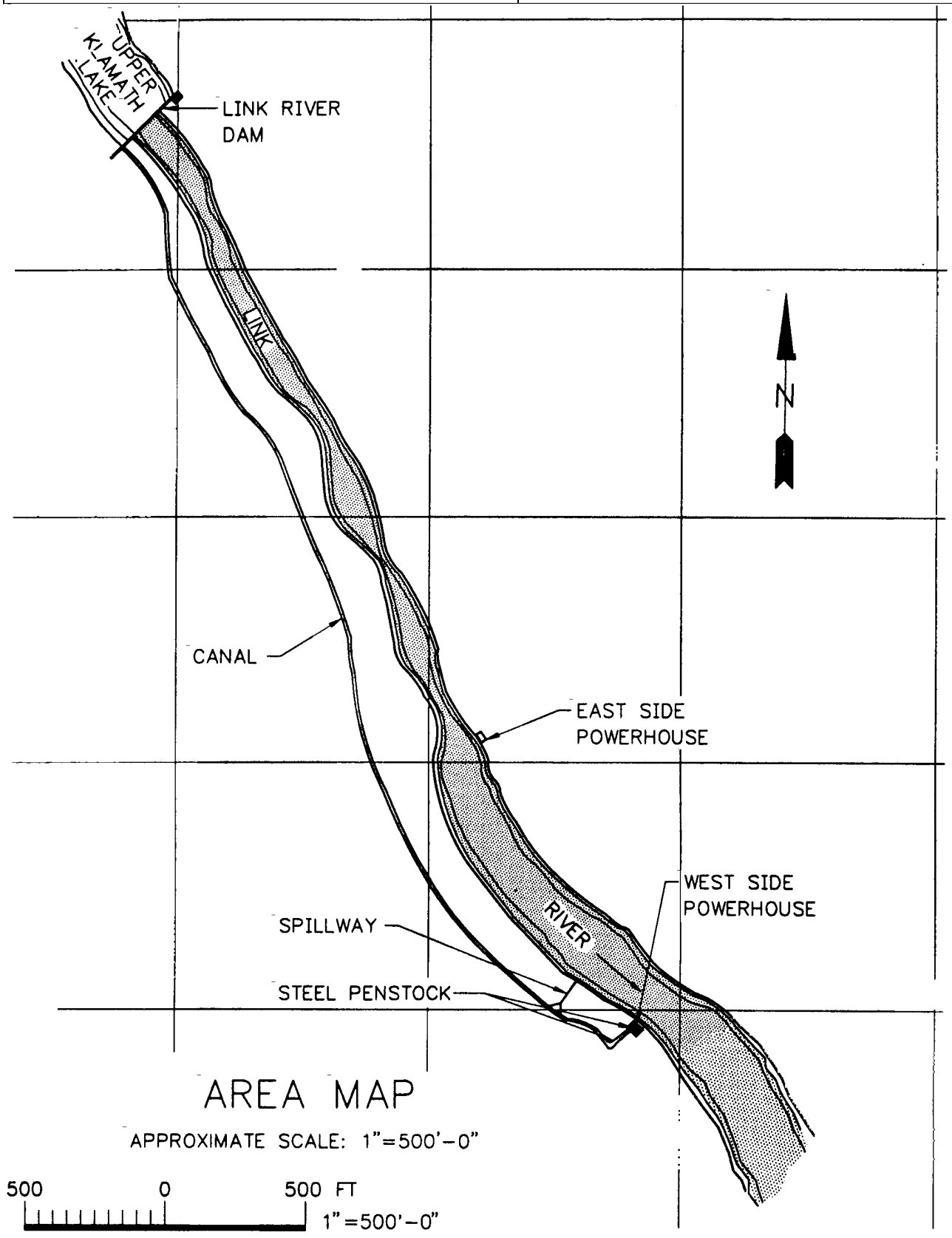


View: Link River Dam, east side development

Surveyor/Agency: L Durio/CH2M HILL Date Recorded: July 2003 **106 Documentation Pg 5**

SECTION 106: SUPPLEMENTAL PHOTOGRAPHS

Street Address: Link River Dam Complex	City, County: Klamath Falls, Klamath County, OR



View: Link River Dam, west side development

Surveyor/Agency: L Durio/CH2M HILL Date Recorded: July 2003 **106 Documentation Pg 6**

Street Address: Link River Dam Complex	City, County: Klamath Falls, Klamath County, OR

View: Link River Dam from west side, also showing gated West Side Canal Intake Structure

View: Link River Dam Spillway Gates

Street Address: Link River Dam Complex	City, County: Klamath Falls, Klamath County, OR

View: Link River Dam Fish Ladder, and construction for new fish by-pass

View: Link River Dam Fish Ladder Close-up

Street Address: Link River Dam Complex	City, County: Klamath Falls, Klamath County, OR

View: Link River Dam Communications Building

View: Link River Dam East Side Forebay Intake Gates

Street Address: Link River Dam Complex	City, County: Klamath Falls, Klamath County, OR

View: Link River Dam East Side Forebay showing Stone Wall and Penstock Intake Structure

View: Link River Dam East Side Stone Wall Flume, Close-up

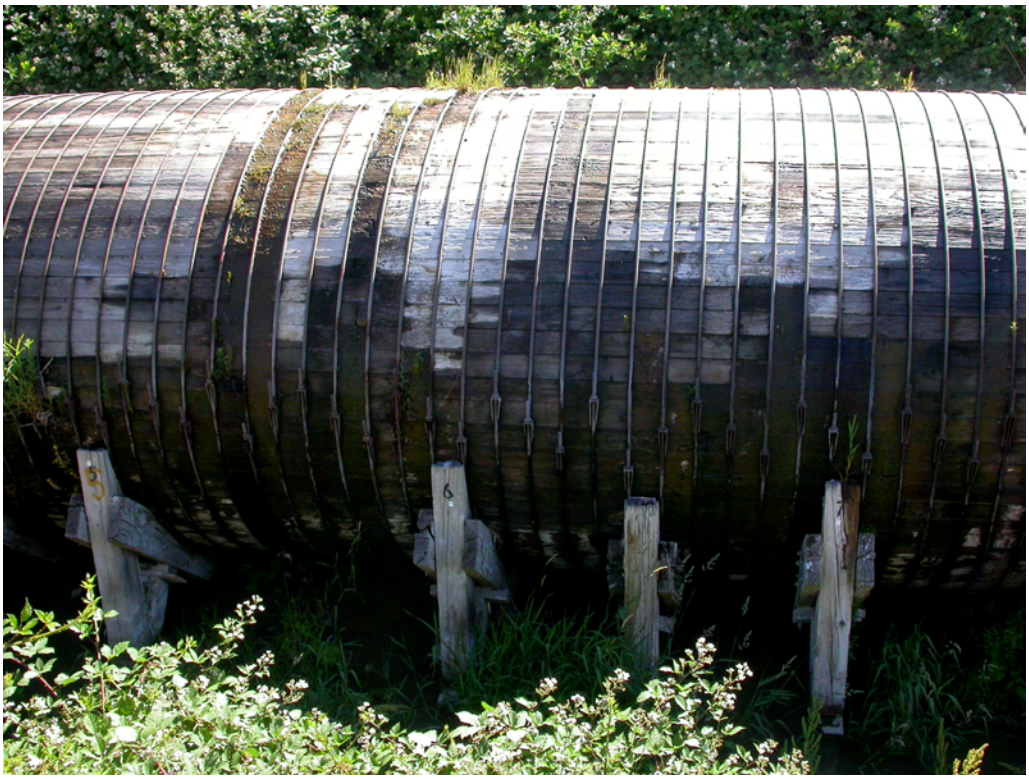
Street Address: Link River Dam Complex	City, County: Klamath Falls, Klamath County, OR

View: Link River Dam East Side Penstock Intake Structure

View: Link River Dam East Side Forebay Stone Wall and Trash Chute at Penstock Intake Structure, also showing abandoned fish by-pass on concrete cribs

Street Address: Link River Dam Complex	City, County: Klamath Falls, Klamath County, OR

View: Link River Dam East Side Water Conveyance System – Wood Stave



View: Link River Dam East Side Water Conveyance System – Wood Stave with numbered wood cradles

Street Address: Link River Dam Complex	City, County: Klamath Falls, Klamath County, OR

View: Link River Dam East Side Powerhouse No. 3, front façade (southeast corner)

View: Link River Dam East Side Powerhouse interior, showing roof structure and clerestory windows

Street Address: Link River Dam Complex	City, County: Klamath Falls, Klamath County, OR

View: Link River Dam East Side Powerhouse Turbine

View: Link River Dam East Side Powerhouse Generator

Street Address: Link River Dam Complex	City, County: Klamath Falls, Klamath County, OR

View: Link River Dam East Side Powerhouse Surge Tank

View: Link River Dam West Side Additional Gate Structure in canal near intake structure

Street Address: Link River Dam Complex	City, County: Klamath Falls, Klamath County, OR

View: Link River Dam West Side Water Conveyance System – Spillway and Concrete-lined Channel to Link River

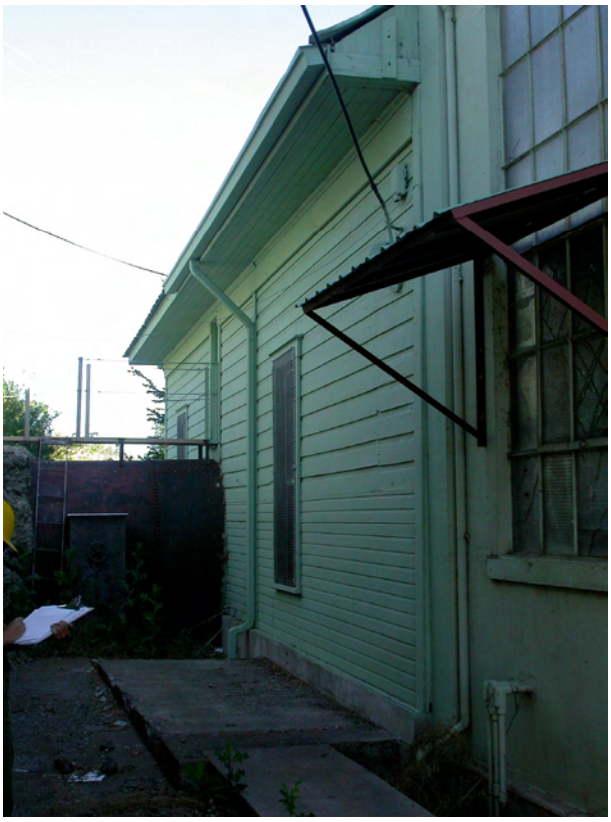
View: Link River Dam West Side Water Conveyance System – Penstock and Concrete Intake Structure

Street Address: Link River Dam Complex	City, County: Klamath Falls, Klamath County, OR

View: Link River Dam West Side Powerhouse Front (south) Façade – 1920s building

View: Link River Dam West Side Powerhouse, west side facade showing both sections of building, and penstock as it enters building

Street Address: Link River Dam Complex	City, County: Klamath Falls, Klamath County, OR



View: Link River Dam West Side Powerhouse, west side facade, showing seam where the two sections of building join and the penstock

View: Link River Dam West Side Powerhouse, showing penstock entering building

Street Address: Link River Dam Complex	City, County: Klamath Falls, Klamath County, OR

View: Link River Dam, West Side Powerhouse, rear (north) facade, original building

View: Link River Dam West Side Powerhouse Interior, Original Building

Street Address: Link River Dam Complex	City, County: Klamath Falls, Klamath County, OR

View: Link River Dam West Side Powerhouse Interior – 1920s building

View: Link River Dam West Side Development – Operator's Cottage, Front (east) Façade (facing river)

Street Address: Link River Dam Complex	City, County: Klamath Falls, Klamath County, OR

View: Link River Dam West Side Development – Operator's Cottage, rear (west) facade

View: Link River Dam West Side Development – Chicken House/Shed at Operator's Cottage Site (also showing adjacent garage)

Street Address: Link River Dam Complex	City, County: Klamath Falls, Klamath County, OR

View: Link River Dam West Side Development – Garage/Barn at Operator's Cottage Site

View:

Street Address: Link River Dam Complex	City, County: Klamath Falls, Klamath County, OR

1.0 Link River Dam Complex

Located at the southern end of Upper Klamath Lake on the Link River near Klamath Falls, Oregon, the Link River Dam serves as the diversion point for the Klamath Hydroelectric Project but is not included in the FERC license. **Link River Dam (1.1)** is owned by the U.S. Bureau of Reclamation and consists of a concrete gravity structure built in 1920-21 to provide water control for both hydroelectric and irrigation projects. It is 435 feet long with an average height of 16 feet. The Link River Dam includes the 40-foot wide gated West Side canal intake structure, a 40-foot wide gated concrete weir spillway section with six cast iron spillway gates, a 260-foot long ungated overflow spillway with stoplogs, and the 48-foot wide gated East Side forebay intake structure. Also on the east side is a fish ladder and an abandoned fish by-pass - a secondary fish by-pass line through bay number six is currently under construction (July 2003). On the west side, overlooking the dam, is a modern **communications building (1.2)** of rough-faced concrete block with a shed roof. It is rectangular in plan and its only fenestration consists of metal doors on the south and west facades. Its function is to communicate electronically with the PacifiCorp Hydro Control Center at Merwin Dam in southwest Washington. From the Link River Dam, there are two separate water conveyance systems that feed two separate powerhouses, known as the East Side Powerhouse and the West Side Powerhouse. The Hydroelectric Project boundary begins at the water conveyance structures immediately below the dam.

East Side Development

The East Side forebay intake has 7 cast iron slide gates with electric motor-driven rising stem operators. The **East Side water conveyance system (1.3)** begins with the forebay, which consists of 670 feet of single wall, mortar and stone flume, 47 feet wide, extending from the dam to the trashracks and ungated, concrete penstock intake structure. The stone wall of the flume is of particular note for its craftsmanship and unique quality. An abandoned fish by-pass runs along this wall. The forebay feeds an impressive wood-stave penstock, 12 feet in diameter and 1,729 feet long, which connects to a replacement steel penstock (1970-80) that is 1,361 feet long. The wood stave penstock contains a rubber liner, first installed in 1995, and is mounted on wooden cradles, each of which is consecutively numbered for identification. The East Side Powerhouse was originally known as the H. V. Gates' Klamath Falls Light and Water Company powerhouse, the first electricity provider in the Klamath Falls region. It began operation in 1895 and was expanded in 1906. Following its purchase by Rufus and Charles Moore, it became known as East Side Power Plant No. 1 and continued operating until 1908. East Side Powerhouse No. 2, an L-shaped wooden building, was constructed in 1905-06 and operated until June 1917, when it was rebuilt due to its deteriorated condition. The existing powerhouse, East Side Powerhouse No. 3, dates from 1924 and went into production in August of that year. It is the earliest automatic remote-controlled plant in the Klamath Hydroelectric Project.

East Side Powerhouse No. 3 (1.4) is concrete construction with a smooth stucco exterior. It is four bays wide by four bays deep with a steel-framed, pyramidal roof. The bays are delineated by simple engaged pilasters that terminate in stepped molding beneath a substantial projecting cornice that creates a deep eave. Although not visible from a near vantage point, there are glass clerestory windows that wrap around all four sides of the roof above this cornice. The windows in the main body of the building are 30-light industrial steel sash with an operational 6-light hopper (pivoting) sash. Each is covered by a steel mesh screen with a projecting triangular box to accommodate the open hopper window. The front (east) façade has one bay that contains the entry, a heavy, wooden, double-leaf door of board and batten construction. The rear (west) facade of the building extends down to a second story where it meets the river, but this facade is not visible from the site. The exterior of the building has received few alterations over the years and remains remarkably intact and in excellent condition. The interior is utilitarian in nature and contains a vertical-shaft, Allis-Chalmers turbine-generator, with a Francis-type hydraulic turbine and synchronous generator set. The turbine is fitted with an original brass plaque that reads, "Allis-Chalmers Manufacturing Co. Milwaukee, Wis. Hydraulic Turbine," followed by technical specifications. The roof structure is supported on steel framing that incorporates the clerestory. The clerestory windows are set in a steel frame with steel operational hardware. The Powerhouse also includes a large, round, metal surge tank at the rear of the site. It is set on a poured concrete foundation and has a riveted steel skin. The entire East Side site was enclosed with chain link fencing in 1975.

(cont.)

Street Address: Link River Dam Complex	City, County: Klamath Falls, Klamath County, OR

West Side Development
The 40-foot wide West Side canal intake structure contains 6 cast iron slide gates with manual rising stem operators. An additional gate structure is incorporated into the canal near the intake. The **West Side waterway (1.5)** consists of a flume that is alternately concrete-lined and unlined, running 5,575 feet from the dam to the concrete penstock intake structure. Near the penstock intake structure is a canal overflow spillway, probably dating from 1921 and rebuilt in 1973, with a channel to the Link River. The penstock, 7 feet in diameter, is steel and extends approximately 140 feet from the intake structure to the Powerhouse. The **West Side Powerhouse (1.6)** was built by Rufus and Charles Moore's Klamath Light and Power Company in 1908 to compete with H. V. Gates' Klamath Falls Light and Water Company across the river. It was originally designed with a "unique wood flume spillway which discharged surplus water over the top of the powerhouse.." (Boyle, John C., *50 Years on the Klamath*. 1976) This feature was removed in 1921 as the result of changes to the Link River Dam that allowed the construction of the saw-tooth spillway with a concrete-lined chute to the river (Boyle, 1976). There is no archival documentation on whether the existing Powerhouse incorporates the original 1908 Powerhouse, but the current structure consists of a 1920s building appended onto an earlier wooden building that appears to be the original 1908 structure. The front (1920s) section of the Powerhouse is nearly identical in style and materials to East Side Powerhouse No. 3. Of concrete construction with a smooth stucco exterior, it is square in plan, three bays by three bays, with a low gabled roof that is not visible behind the tall parapet. The center bay of the front (south) façade contains the heavy wooden, double-leaf entry door, shaded by a non-original metal-framed shed awning of corrugated plastic. Above the awning is a screened rectangular vent. The other bays have 30-light industrial steel sash windows with operational 6-light hopper (pivoting) sashes. The last hopper window on the west facade is shaded by an awning similar to that over the entry door. Like the East Side Powerhouse, the bays are delineated by simple engaged pilasters that terminate in stepped molding and a paneled parapet beneath a substantial projecting cornice that creates a deep eave. However, the West Side Powerhouse has no clerestory windows.

The rear, and probably original, section of the Powerhouse is also three bays by three bays and is nicely detailed. Wood framed, it has a steep front gable roof and is clad in 10-inch wooden drop siding. One lower section of wall on the west façade between the penstock entry point and the 1920s addition has been repaired with narrow 6-inch drop siding. The windows are 1/1 with replacement vinyl sash, covered by metal screening. The exterior door in the center of the rear (north) façade is wooden, with a wooden screen door on the outside. The door and all the windows have wooden frames with drip molding at the top of the header. The head height of the door is considerably lower than that of the windows. The building is adorned with corner boards and substantial fascia boards with crown molding. The fascia and crown molding wrap the corners, forming pilasters with the corner boards. The gable roof extends over the edges of the walls, forming deep eaves enclosed with beaded board soffits. The overhang returns on both sides of the rear façade, terminating at the edge of the corner board, and the return is enclosed with beaded board. The steel penstock enters the building between the two windows on the west side façade, and there is a framed opening above it that appears to have been a doorway. The opposite, river side façade is not visible from the site.

The interior of the building is one large open space, but it is readily apparent where the original building ends and the newer building begins. The original building has wooden 4-inch tongue and groove walls and ceiling, and houses the penstock and turbine-generator. The newer building is concrete, with a vaulted ceiling and visible metal framing. It contains the controls and office area. The turbine is a horizontal-shaft, pit-type Francis hydraulic turbine, manufactured by Pelton. The generator is manufactured by Westinghouse. The Powerhouse is in excellent condition and has received few significant alterations since the 1920s addition, with the exception of the replacement sash in the seven windows. The site is enclosed by a chain link fence, portions of which contain privacy slats.

(cont.)

Street Address: Link River Dam Complex	City, County: Klamath Falls, Klamath County, OR

Slightly downriver from the West Side Powerhouse is the **operator's residence (1.7)** constructed as worker housing to support the Powerhouse operations, and its two accessory buildings. The residence is oriented to face the river, with the rear of the house facing the access road. Its construction date is unknown – it may date from as early as the 1920s, putting its construction in conjunction with that of the powerhouses. However, its physical appearance, though compromised, suggests a later date of 1940s-50s, although this could be the result of later remodeling. A California-Oregon Power Company (COPCO) map dated April 1956 shows this house, with another identical one behind it where there is now a large yard. The house is a single story, wood framed structure with a rectangular footprint on a poured concrete foundation. It has a standing seam metal, side gable roof, with an interior brick chimney straddling the ridge. It is clad in wood siding and has louvered vents in the gable ends. The roof overhang has boxed eaves. There is an inset concrete front porch with a wooden support post and wood lattice railing. All of the windows have been replaced with 1/1 vinyl-clad sashes. The entry door has also been replaced, and is covered by a vinyl-clad storm door. A non-original carport has been added to the rear, with an R-panel metal shed roof, wood posts, wood siding to match the house, and wood lattice trim. The house is in excellent condition, but its architectural integrity has been severely compromised by the replacement of all the doors and windows, as well as by the carport addition. Just upriver from the house, with its rear façade on the river, is a wood-framed, board and batten shed that appears to have originally been a chicken coop. (The rear façade is not visible from the lot.) The structure has a shed roof, but the roofing material is not visible due to heavy vegetation. The front façade has a 5-panel wood door, as well as an opening cut into the board and batten that appears to be a fold-down ramp. There is also a small opening in the side facade that accesses the side yard (chicken yard), which is enclosed with a wood frame and wire fence. This structure is in fair condition. Adjacent to the chicken coop on the upriver (north) side is a large double garage/barn structure. This wood-framed structure has a front gable roof of corrugated metal with exposed rafter tails and is clad in drop siding. The front façade features two large sliding doors, also constructed of drop siding, one on either side of a 3-panel wood pedestrian door. A framed opening in the gable end also has a drop siding door. The rear, river side façade is not visible from the lot. This structure is in fair to good condition.

The overall site of these three buildings is an extensive lawn with mature plantings, including an aspen and a black locust tree. There is a rock retaining wall along the river bank. Between the residential site and the Powerhouse is an electrical substation within a chain link fence.