BISHOP CREEK HYDROELECTRIC SYSTEM, PLANT 4,
COTTAGE NO. 1
(Building No. 102)
BISHOP CREEK
BISHOP VICINITY
INYO COUNTY
CALIFORNIA

HAER NO. CA-145-4-A

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE

HISTORIC AMERICAN ENGINEERING RECORD
NATIONAL PARK SERVICE
WESTERN REGION
DEPARTMENT OF THE INTERIOR
SAN FRANCISCO, CALIFORNIA 94107

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HISTORIC AMERICAN ENGINEERING RECORD

BISHOP CREEK HYDROELECTRIC SYSTEM, PLANT 4, COTTAGE NO. 1
(Building No. 102) HAER No. CA-145-4-A

Location: Near Bishop Creek in North 1/2 of the Southeast 1/4 of Section 19, Township 7 South, Range 32 East, M.D.M, Inyo County, California. Eastern Sierra Nevada approximately 2.5 miles southwest of the town of Bishop, California, and 225 air miles due north of Los Angeles.

Date of Construction: 1909

Builder: Unknown

Present Owner: Southern California Edison Company
2244 Walnut Grove Avenue
Rosemead, CA 91770

Original Use: Residence

Present Use: Office

Significance: Building 102 Plant 4 (formerly Cottage, Building No. 1, Plant 4), a small bungalow cottage, is a rare, surviving example of early worker's housing at the Bishop Creek Hydroelectric System. Built in 1905, Plant 4 was the first on the Bishop Creek System, and it remains the system's operating headquarters. This house is one of the four earliest cottages built for employees at Plant 4. The Bishop Creek System is considered significant for its role: (1) in the expansion of hydroelectric generation technology, (2) in the development of eastern California, and (3) in the development of long-distance power transmission and distribution.

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Date: January 19, 1994

I. DESCRIPTION

Building 102 Plant 4 is a small, Craftsman style cottage about 170 feet south of the Bishop Creek Hydroelectric System Plant 4 powerhouse. This cottage was part of a residential enclave of 12 houses, most of which have been demolished, where the Plant 4 workers lived. The project area is about five miles southwest of the town of Bishop, Inyo County, California. The Bishop Creek System is primarily located along the south, middle, and north forks of Bishop Creek on the steep eastern slopes of the southern Sierra Nevada Range. Plant 4 is one of five plants sited at varying elevations along Bishop Creek. Situated in the middle of the Bishop Creek System, Plant 4 is northeast of Plants 2 and 3, and southwest of Plants 5 and 6.

Building 102 Plant 4, set about 3 feet higher than the street, is on a site that slopes slightly down toward the low, stone retaining wall separating the front yard from the street west of the house (Photo 1). A concrete stair with six steps penetrates through the stone wall providing access to the front yard and the house. The small front yard consists of a lawn and two, large mature trees flanking the house. A curving concrete path leads from the front of the house to the rear along the south elevation (Photo 2). Three more steps lead up from the front yard to the house's entrance porch and the off-center front door.

Building 102 Plant No. 4 is a single-story with basement, square plan (27 × 27 feet), bungalow style house characterized by its steeply-pitched, transverse gable roof and a prominent front entrance porch along the west elevation (Photos 3, 4 and 5). Structurally, the building is stud-wall, wood-frame construction set on a perimeter concrete foundation. The exterior walls are covered with rough textured stucco, except for the areas covered with wood shingles under the side gables. The roof is covered with asphalt shingles. An old front elevation drawing of this house in the files of Southern California Edison (SCE) indicates that the exterior surfaces now stuccoed (including the front porch) were originally covered with clapboard siding above a base of stone facing. The wood siding on many of the buildings in the Bishop Creek System was covered with asbestos shingles or stucco in recent years as part of a program to reduce fire hazards (Theodoratus Cultural Research 1988:26). The roof was also originally covered with wood shingles, and there were decorative scrolls protruding above the peak of the end gables. The roof has exposed rafters under the front and side eaves. The front exposed rafters have decorative rounded and notched ends (Photo 6). One metal chimney projects above the gable ridge.

Building 102 Plant 4 has 1-over-1, wood-sash, double-hung windows framed with plain boards, except for the fixed, multi-pane window used for the glazed rear porch. Large vents

open below the ridges of the side gables. The glazed, rear porch across the entire rear elevation is a later addition to the house (photo 8). According to drawings in the SCE files, the house originally had a screened-in porch projecting 4 feet from the right half (off the kitchen) of the rear elevation. The open, front entrance porch is formed by a large, shed roof projecting from the house's main gable. The front porch roof is supported by four heavy, square-shaped, chamfered columns set on a low parapet wall enclosing the porch. Two porch columns symmetrically flank each side of the central stairs leading to the entrance porch (Photo 2). The columns have overscaled decorative brackets forming capitals below the heavy beam along the front of the porch roof (Photo 6 and 7). The front entrance door has inset panels below a nine pane window.

The house has about 720 square feet of interior space divided into five rooms: a kitchen, a bathroom, a dining room, a bedroom and a living room. Except for one small hall joining the kitchen and the dining room, the house's compact plan has no halls with the rooms opening directly one to another. Although the original plan is essentially intact, the interior has been remodeled into offices in recent years. As part of this remodeling, three walls of the living room are covered with new wood paneling and two large, flat fluorescent lighting fixtures were installed on the ceiling, now covered with acoustical tiles (Photos 9 and 10). The plain boards framing the interior door and window openings in the living room appear to be original. The bedroom also has an acoustical tile ceiling with flat fluorescent lighting fixtures (Photos 11 and 12). A built-in storage cabinet on one wall of this room is also a recent alteration.

The dining room also has a ceiling with fluorescent lighting and acoustical tiles (Photo 13). The built-in cabinet and closet on one wall in this room is a later addition. The dining room's paneled door and hardware is original. Original architrave door moldings survive in the hallway from the dining room to the kitchen (Photo 14). The fixtures and cabinets in the kitchen and bathroom have recently been remodeled (Photo 15 and 16). The original rear door with inset panels below a window opens from the kitchen into the glazed rear porch area (Photos 17 and 18). The glazed rear porch, a single space with a concrete floor, is a later addition that projects from the rear wall of the house.

II. HISTORICAL CONTEXT

The Bishop Creek Hydroelectric System is significant in the history of hydroelectric power generation technology, the development of eastern California, and the development of long-

distance power transmission and distribution. The hydroelectric electric system is an early example of a high-head, impulse water wheel, high-voltage electric generation system. The system exhibits a high level of innovative planning, maximizing the production of energy by combining use of the steep slope of the eastern Sierra Nevada with specialized generation technology. The five power plants of the Bishop Creek System were built between 1905 and 1913. The power from the system supplies customers in southern California and Nevada.

The first hydroelectric power generation along Bishop Creek was a small plant operated by the Bishop Light and Power Company. The plant, a Stanley polyphase generator (150 horsepower) driven by a 48-inch Pelton wheel, generated power for local use. The impetus for the development of the Bishop Creek System was the discovery of economic minerals in the Tonopah and Goldfield areas of Nevada. The local power companies in these areas generated electricity by burning fuels, an expensive and unreliable source of power for industrial applications.

Loren B. Curtis and Charles M. Hobbs arrived in the Tonopah and Goldfield areas in 1904 because of their interest in mining. Curtis and Hobbs recognized that the economic potential of mining in this area could not be tapped unless a reliable and inexpensive power source could be developed. Curtis, an engineer, decided that Bishop Creek in the eastern Sierra would be the best location for production of hydroelectric power for the nearby Nevada mining areas. Hobbs, a banker and financier, obtained financial backing for the project, and then incorporated with his partner as the Nevada Power, Mining and Milling Company in December 24, 1904. Construction commenced in January 1905 on the first generating plant, Power Plant 4; nine months later, in September 1905, electricity was delivered to the Goldfield substation. Since Nevada Power, Mining and Milling had secured contracts for power delivery to the mining companies in Goldfield and Tonopah, there was a ready market for Bishop Creek electricity. The inexpensive power from Bishop Creek made it possible to mine economically in these areas, producing a new mining boom and a period of posterity in Nevada (Elliott 1984:210-215).

On January 5, 1907, the Nevada-California Power Company was incorporated as the successor to Nevada Power, Mining and Milling Company. In 1907, Nevada-California Power expanded Power Plant 4, and they purchased the capital stock of Hillside Water Company, thus permitting the construction of additional plants along Bishop Creek. In 1908, a fifth operating unit was installed at Power Plant 4 and construction was completed on Power Plant 2. Power Plant 5 was constructed in 1909, and South Lake was enlarged.

Each power plant was originally developed with an associated residential complex occupied by operating and maintenance crews. A number of new houses, like Building 102 at Plant 4, were constructed during the expansion period of 1907-1909 to accommodate the additional workers needed to operate the power plants. Building 102 Plant 4 is one of four bungalow style houses built in 1909 at Plant 4, the earliest worker houses constructed at this plant (Theodoratus Cultural Research 1988:A-72). The company development of employee living areas, especially at Plant 4, permitted comprehensive planning seldom seen in privately developed residential areas during this period. The setting of Building 102 Plant 4 still retains many elements of the old residential planning in this area, including picturesque curving streets, houses sited on terraces with stone retaining walls, manicured front lawns with unified groupings of shade trees, and integrally designed lighting standards.

After the expansion period of 1907-1909, the Bishop Creek System produced substantially more power than was needed by its current market, still primarily mining operations in Nevada. In an attempt to expand the market for Bishop Creek power, the directors of Nevada-California Power Company incorporated the Southern Sierra Power Company as a subsidiary in 1911 with its main purpose being to service the power needs of southeast California.[1] The total output of the Bishop Creek plants was 12,500 kW in 1911 when construction began on a transmission line to San Bernardino where a steam plant was built. Power Plant 3 was completed in 1912, adding 6,000 kW to the system. During 1912 and 1913, the southern California system was expanded substantially, and in 1913, Power Plant 6 was completed increasing the system's capacity to 24,350 kW. By the end of 1913, the Bishop Creek System was essentially complete with all five plants existing today in operation.

Southern Sierra Power Company, which continued to expand by buying smaller power companies, played a significant role in the development of southeastern California, particularly the Imperial Valley. In 1914, tbe longest power transmission line in the world (at the time) was completed, delivering power from Bishop Creek to the Imperial Valley. As a result of the electrical power now available, the population of the Imperial Valley grew from about 50 to over 65,000 in the next 20 years. During the 1920s, the power-generating system was "fine-tuned" to extract as much power as possible from the existing plants. Much of the company's

[1]The creation of Southern Sierra Power Company consolidated several associated companies, including the Nevada-California Power Company, the Bishop Light and Power Company, the Corona Gas and Electric Company, the Lytle Creek Power Company and the Hillside Water Company.

resources at this time were used to market energy at the far reaches of the distribution network and to purchase other power companies.

There was only limited development in Bishop Creek during the 1930s because of the world wide depression. Increased competition from rival companies producing cheaper energy on the Colorado River forced the Bishop Creek company to withdraw from the Imperial and Coachella valley markets. The Nevada-California Electric Corporation, formed as a holding company in 1914 for the companies associated with Southern Sierra Power Company, became an operating company in 1936 when the subsidiary companies were dissolved and the operating properties transferred to the parent company. In 1941, the company changed its name to California Electric Power Company (later known as Calectric).

The properties of Calectric were acquired by Southern California Edison Company in 1964 through a merger consolidation. Southern California Edison (SCE) is the present operator of the Bishop Creek plants. Since 1964, automation of much of the power plant equipment and centralizing of many functions has resulted in the elimination of many of the on-site employees. During the 1960s, all the housing units at Plants 2 and 3 were demolished, leaving structures only at Plant 4, 6 and the Control Station (near Plant 5).

III. SOURCES

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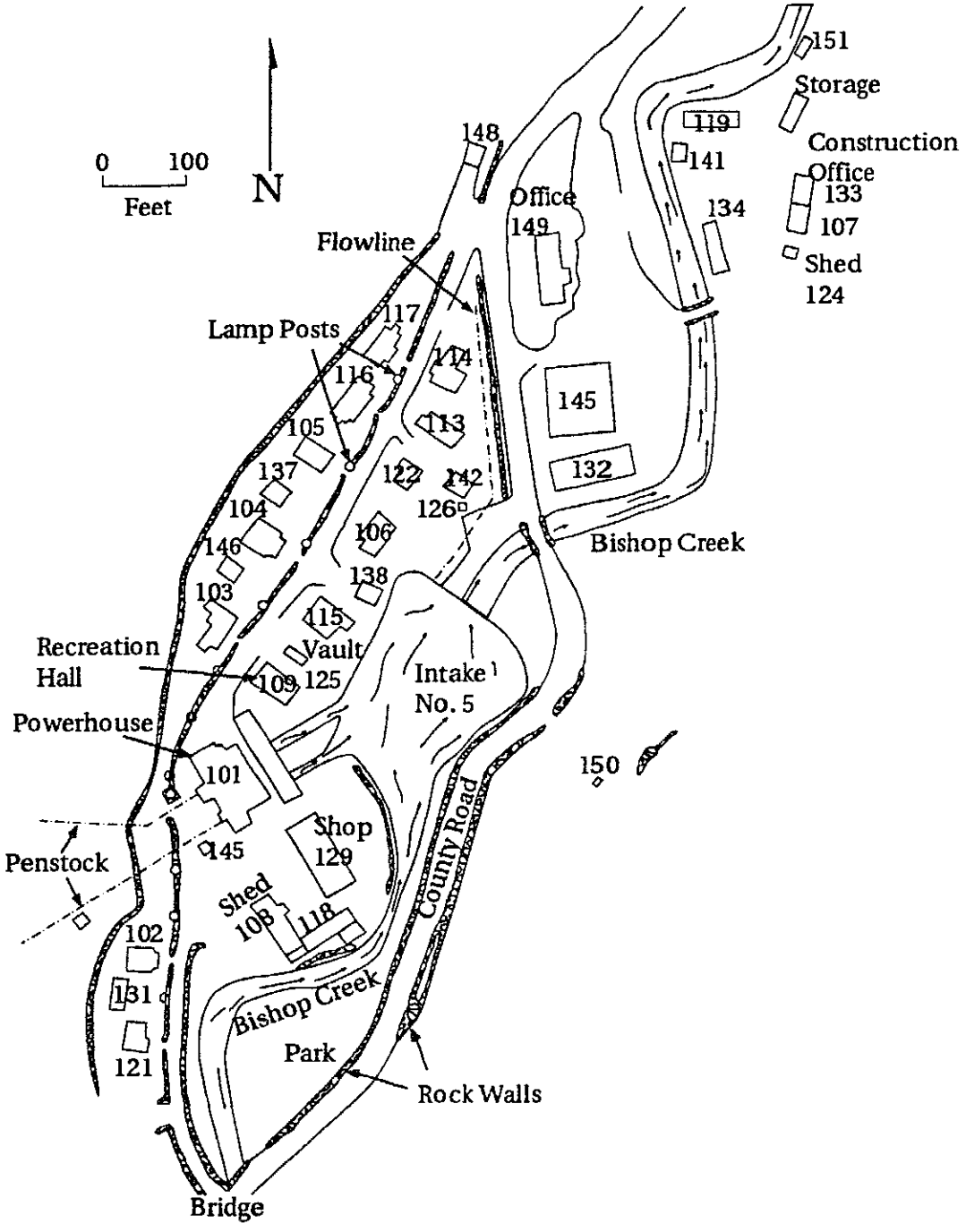
IV. PROJECT INFORMATION

This Historic American Engineering Record documentation of Building 102 Plant 4, a cottage at Plant 4 of the Bishop Creek Hydroelectric System, was undertaken because the building represents excess housing. SCE is continuing to automate the Bishop Creek power plants. The automation of the power plants has made it unnecessary to have on-site crews, thus, residential units like this cottage have become obsolete.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Bishop Creek
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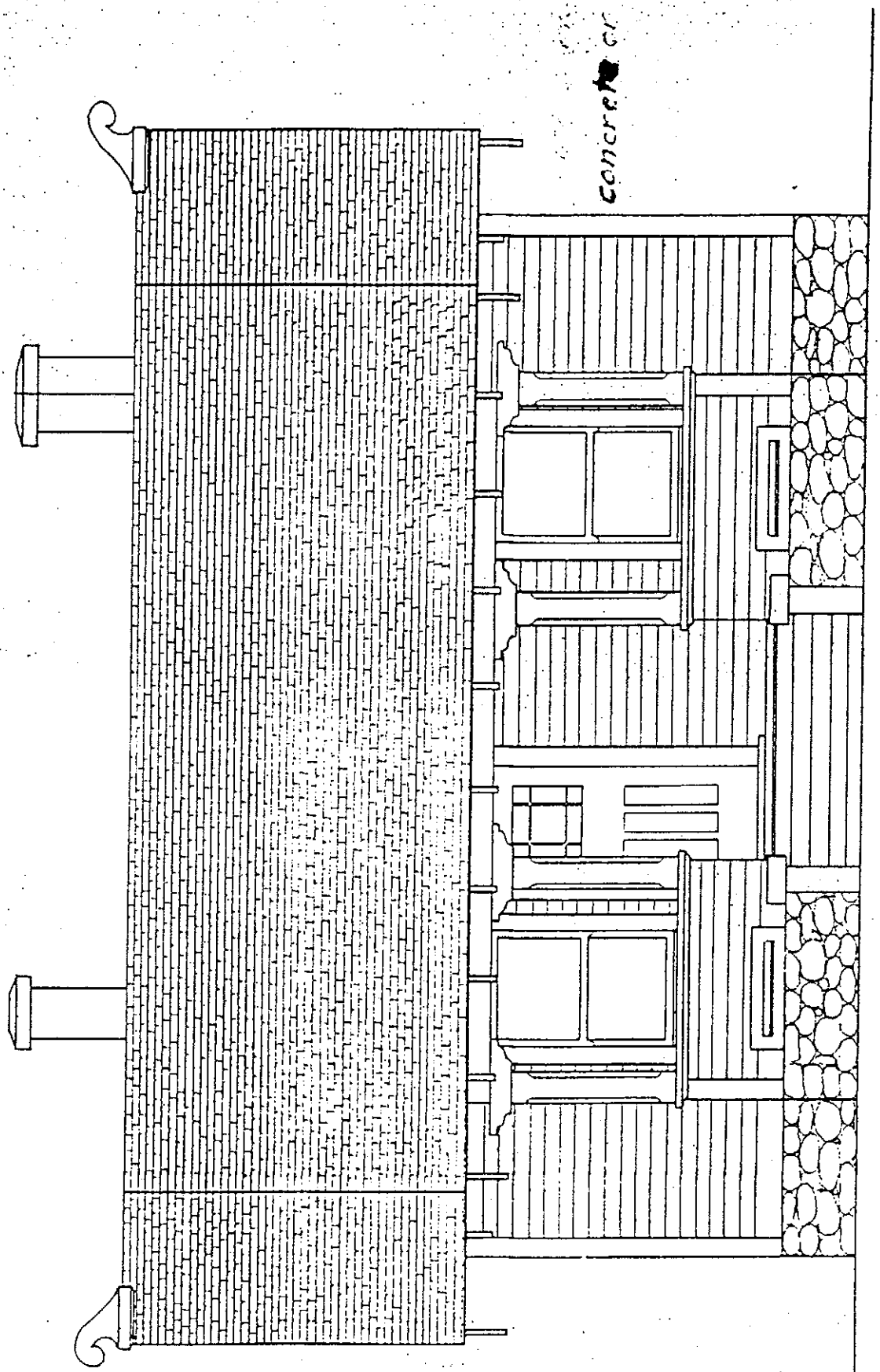
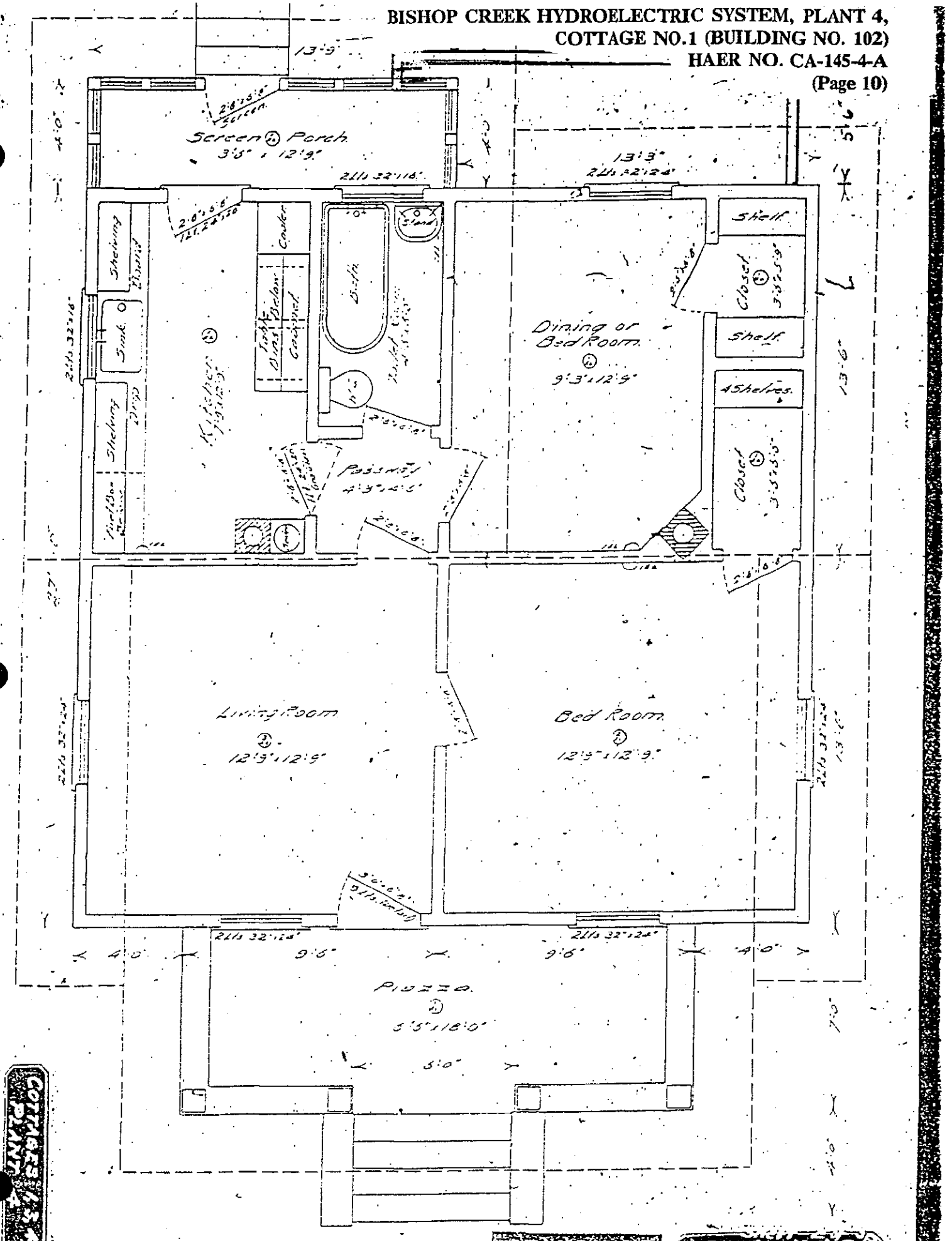
115
Recreation
Hall
Vault
109
125
Intake
No. 5
Powerhouse
101
150
Shop
129
Penstock
145
Shed
108
118
County Road
102
131
Bishop Creek
Park
121
Rock Walls
Bridge

COTTAGES 1, 3, 4
PLANT 4



Building 102, Bishop Creek Plant 4
Front Elevation



COTTAGES
PLANT 4