HISTORIC RESOURCES INVENTORY AND EVALUATION REPORT

for the

Sacramento Water Treatment Plants Rehabilitation Project

City of Sacramento, California

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SUMMARY OF FINDINGS

The City of Sacramento (City) is conducting the Sacramento Water Treatment Plants Rehabilitation Project. This project proposes improvements to the Sacramento River Water Treatment Plant (SRWTP) on the Sacramento River just east of Interstate 5 and north downtown and to the E.A. Fairbairn Water Treatment Plant (FWTP) on the American River adjacent to the campus of California State University, Sacramento. The project is needed to ensure a reliable water supply and to allow the plants to operate at full production capacity.

JRP Historical Consulting, LLC (JRP) prepared this Historic Resources Inventory and Evaluation Report (HRIER) under contract with the City as part of the environmental compliance requirements for the Sacramento Water Treatment Plants Rehabilitation Project. The purpose of this document is assist with project compliance with the California Environmental Quality Act (CEQA). The two properties addressed in this report, SRWTP and FWTP, have been evaluated in accordance with Section 15064.5(a)(2)-(3) of the CEQA Guidelines using the criteria outlined in Section 5024.1 of the California Public Resources Code and City of Sacramento Historic Preservation Ordinance (2006-063) using the criteria outlined in Section 17.134.170 (A)(1)-(2) of the Sacramento City Code. This document is also intended to assist with project compliance, if necessary, under Section 106 of the National Historic Preservation Act (NHPA) and the implementing regulations of the Advisory Council on Historic Preservation (ACHP), as these pertain to federally funded undertakings and their impacts on historic properties. This HRIER evaluates if either the SRWTP or FWTP should be considered eligible for listing in the National Register of Historic Places (NRHP). It also evaluates whether they are historical resources for the purposes of CEQA or City of Sacramento historic landmarks; that is, whether they are listed in, eligible for, or appear eligible for listing in the California Register of Historic Resources (CRHR) or Sacramento Register of Historic and Cultural Resources (SRHCR). The City is the lead agency for the project.

SRWTP was previously evaluated in 2000 and 2009 by Historic Environmental Consultants and found to have historical significance and be eligible for the NRHP, CRHR, and SRHCR.[1] JRP concurs with these findings and has indentified seven elements at SRWTP that contribute to the historical significance of the property. Thus, the SRWTP appears to be eligible for listing in the NRHP, as a historical resource for the purposes of CEQA, and as a historic landmark of the City of Sacramento. This report also analysis regarding project impacts to this historical resource, in compliance with CEQA Guidelines Section 15064.5(b).

[1] Historic Environmental Consultants, "Richards Boulevard Area Architectural and Historical Property Survey," September 2000; Historic Environmental Consultants, "River District Architectural and Historical Property Survey Update," July 2009.

Far Western Anthropological Research Group, Inc. (Far Western) addressed potential archaeological resources at the project locations. The results of Far Western's survey are presented in a separate cultural resources report.

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APPENDICES

1 PROJECT DESCRIPTION[2]

The City of Sacramento (City) proposes to rehabilitate its two municipal water treatment facilities: the Sacramento River Water Treatment Plant (SRWTP) at 101 Bercut Avenue (also known as 1 Water Street) and the E.A. Fairbairn Water Treatment Plant (FWTP) at 7501 College Town Drive. The City provides water approximately 480,000 people, ninety percent of which comes from these two plants.

The SRWTP was originally constructed in the 1920s, with major plant expansions in the 1930s and in 2003. The 2003 project expanded the plant to a design capacity of 160 million gallons per day (mgd), but did not address the aging condition of the existing facilities. The EA Fairbairn Water Treatment Plant (EAFWTP) was originally constructed in the 1960s and expanded in 2004.

The City has performed extensive operational investigations of the facilities at the SRWTP, many of which have been in use for 80 to 90 years. The aged facilities are currently failing, becoming less reliable and need replacement. Because of the inadequacy of these facilities, the City is unable to operate the plant to the full design capacity and efficiently maintain the plant. An operational failure at either of the facilities could present water supply problems, including pressure reduction throughout the City, and water shortages.

The objective of the proposed project is to make both SRWTP and FWTP more efficient and reliable. Major components of the rehabilitation project at SRWTP are:

1. Demolition of the existing Emergency Call Center building in the northwest corner of the property and construction a new High Service Pump Station on the site;

2. Demolition of Basin No. 2 and construction of a new sedimentation basin on that site;

3. Construction of eight new filters; and

4. Construction of new solids handling facilities including a dewatering building, sludge pump station, and two thickener tanks.

The project also calls for the decommissioning of the Head House, Basin No. 1 and the West Filter Building and filters. Minor components are new paving around the new High Service Pump Station, and an electrical equipment building near the pump station, retrofitting of the existing filter waste washwater basins with mechanical sludge collection systems, improvements to the chlorine gas system, and electrical improvements.

[2] City of Sacramento, Department of Utilities provided this project description to JRP.

Proposed improvements at FWTP consist of the construction of new solids handling facilities including a dewatering building, thickener pump station, two thickener tanks and two day tanks. In addition, paving will be added around new facilities. Minor components of the project at FWTP are the retrofitting of the existing filter waste washwater basins with mechanical sludge collection systems, improvements to the chlorine gas system and electrical improvements and other improvements are proposed at the intake facility to improve reliability and operational efficiency. Further electrical improvements will be made necessary throughout the plants to improve power to proposed new equipment and replace older unreliable facilities at SRWTP.

The project has two Study Areas.[3] The study areas include the current plant boundaries and at SRWTP also encompass a vacant parcel adjacent to the east gate. For SRWTP the Study Area is Assessor Parcel Numbers (APNs): 001-0210-038; 001-0210-024 and 001-0061-025 for FWTP this is APNs 005-0010-011; 005-0010-012. See **Appendix A** for a project vicinity map, location map and study area maps.

[3] These study areas would likely serve as Areas of Potential Effects (APEs) if this project were to require NHPA Section 106 compliance.

2 RESEARCH AND FIELD METHODS

Research for this project consisted of developing a general historic context relative to the two project locations, as well as research specific to the development of SRWTP and FWTP. Such research helped determine the original appearance and character of the two facilities and its individual buildings / structures, as well as to the development and changes of the facilities over time. Efforts were primarily focused on resources that are 45 years old or older.[4]

JRP conducted fieldwork at SRWTP and FWTP on October 27, 2011, photographing and recording all buildings and structures 45 years old or older at each facility. Research was conducted at the Center for Sacramento History, California State Library, Sacramento Public Library, and the City of Sacramento Public Utility Department. Far Western conducted a record search for this project at the North Central Information Center at California State University, Sacramento and shared the results with JRP as they pertained to historic architectural resources. JRP also reviewed the National Park Service's National Register Information System online database; California Office of Historic Preservation, Directory of Properties in the Historic Property Data File for Sacramento County; California Department of Parks and Recreation, *California Inventory of Historic Resources*; California Office of Historic Preservation, *California Historical Landmarks*; California Office of Historic Preservation, *California Points of Historical Interest*; and the City of Sacramento, Sacramento Register of Historic and Cultural Resources.[5]

JRP then prepared a historic context to address pertinent themes of Sacramento urban growth and the development of a municipal water supply, and evaluated the properties for historical significance under NRHP, CRHR and SRHCR criteria on DPR 523 forms, which are provided in **Appendix B**. The historic context is presented in Section 3. The description and historical evaluation of the property are in Sections 4 and 5, respectively. Refer to Section 6 for JRP professional qualifications, and to the references listed in Section 7 for a complete listing of materials consulted.

[4] Office of Historic Preservation, "Instructions for Recording Historical Resources," March 1995, 2. Properties that are less than fifty years old generally are excluded from listing in the NRHP or CRHR, unless they can be shown to be exceptionally important and there is scholarly evidence supporting their significance. OHP instructions for conducting historic resource surveys note that resources more than 45 years old are evaluated to address the lag time between historic resource identification / analysis and project construction.

[5] National Park Service, National Register Information System, online database: http://www.nrhp.focus.nps.gov (accessed December 2011); Office of Historic Preservation, Directory of Properties in the Historic Property Data File for Sacramento County; Department of Parks and Recreation, California Inventory of Historic Resources, March 1976; Office of Historic Preservation, California Historical Landmarks, (Sacramento: California State Parks, 1996); and Office of Historic Preservation, California Points of Historical Interest, (Sacramento: California State Parks, May 1992).

3 HISTORICAL OVERVIEW

The proposed project is at SRWTP and FWTP are in different parts of the City of Sacramento, the former just north of downtown and the latter in the eastern part of the city. Buildings, structures, and objects that are more than 45 years old are at both locations and are referred to as historic-era resources. The historical overview presented below provides a historic context relevant to the two water treatment plants and the historic-era resources thereon. The development of Sacramento provided the impetus for construction and expansion of the city's municipal water system.

3.1 General Development of Sacramento

European settlement in the area that became Sacramento was initiated by large land grants allotted by Mexican governors during the Mexican period of California history. In 1841, John Augustus Sutter, from Switzerland, obtained a land grant along the Sacramento River where he constructed a fortified settlement and trading post. The grant, which Sutter named New Helvetia, encompassed approximately 44,000 acres, including all of the land where SRWTP and FWTP currently sit. Even with Sutter's settlement activities, the Sacramento Valley remained isolated and sparsely settled until January 1848, when James Marshall discovered gold at Sutter's lumber mill along the South Fork of the American River at Coloma. The initial development of the City of Sacramento is directly attributable to the subsequent onslaught of gold seekers rushing to the Sierra Nevada and the settlement quickly took on the role of a gold rush river port.[6]

Two of Sutter's business associates, Sam Brannan and Peter Burnett, joined Sutter's son, John A. Sutter, Jr., in establishing the new town of Sacramento. They set aside four square miles of New Helvetia land between the riverfront and the fort, and in December 1848 commissioned Captain William H. Warner and Lt. William Tecumseh Sherman to lay out a system of streets and blocks. The grid plan included wide streets and space reserved for several city parks and plazas. Sacramento incorporated in 1850 and its population quickly grew to 6,820 within a few months.[7] Sacramento importance as a gold rush town and growth in the late 1840s and early 1850s made it a viable candidate for the site of the state capitol. Political fighting over the location of the capitol, and disasters such as fires and floods, kept

[6] John F. Burns, ed., *Sacramento: Gold Rush Legacy, Metropolitan Destiny* (Carlsbad, CA: Heritage Media Corp., 1999), 18-29; Mildred Brook Hoover, Ethel Grace Rensch, and Hero Eugene Rensch, *Historic Spots in California*, Revised by William N. Abeloe (Stanford, CA: Stanford University Press, 1966), 298-299

[7] Burns, ed., *Sacramento: Gold Rush Legacy, Metropolitan Destiny*, 29-31; Hoover, et. al., *Historic Spots in California*, 302-303; H. H. Jaqueth, *Major Street Report, Sacramento, California* (St. Louis, MI: Bartholomew and Associates, City Plan and Landscape Engineers, 1928) adopted by City of Sacramento Planning Commission and City Council in September, 1928, 10.

the seat of state government moving around northern California for several years, until finally locating permanently in Sacramento in 1854.[8]

Following the gold rush, residents turned to other commercial pursuits in the new city and agriculture became central to Sacramento's economy. Wheat was the dominant crop in the early years and Sacramento served as the region's central shipping center. Steamboats provided much of the transportation for the people and goods moving in and out of the city while at the same time a system of streets and roads developed within the city and throughout Sacramento County. Railroads also entered Sacramento with the Sacramento Valley Railroad establishing service between Sacramento and Folsom in 1856 and the Central Pacific Railroad incorporating in 1862 (later became the Southern Pacific Railroad). Thus, by the mid-1860s Sacramento had developed into a bustling transportation, commercial, agricultural, and social hub for the Sacramento Valley and grew to over 21,000 inhabitants by 1880.[9]

During the city's initial decades residential areas expanded and the crude shelters of early years were replaced with brick and wood-frame buildings. Churches and schools sprang up throughout the city. The Sacramento riverfront, the business district along J and K streets, the State Capitol area developed first, with the land further east being built up as the city's population increased. The levee system adapted by the city in the late 1850s and early 1860s placed limitations on urban development, beyond which urban settlement could not expand without being threatened by floodwaters. In 1862, flooding also prompted the city to relocate the mouth of the American River at the confluence with the Sacramento River about one quarter mile north to its current location. The former channel passes directly through the current site of SRWTP. Until the late 1870s, the practical boundaries of urban settlement in Sacramento were defined by the Sacramento and American rivers to the west and north, and a levee to the south and east. At the time, the levee ran east along R Street from the Sacramento River to roughly 16th Street, then meandered northeasterly along an overflow channel of the American River called Burns Slough to a location near G and 31st streets, and subsequently headed north along 31st Street to the American River. The concentration of residences during the 1870s, though, remained west of 11th Street.[10] In 1878, Sacramento's increasing population compelled the city to move its southern levee south to Y Street (now

[8] Hoover, et. al., *Historic Spots in California*, 303-304; Burns, ed., *Sacramento: Gold Rush Legacy, Metropolitan Destiny*, 30-31.
[9] Burns, ed., *Sacramento: Gold Rush Legacy, Metropolitan Destiny*, 31-35, 48-50.
[10] Burns, ed., *Sacramento: Gold Rush Legacy, Metropolitan Destiny*, 45, 47, 56; Marvin Brienes, "Sacramento Defies the Rivers, 1850-1878," *California Historical Society Quarterly* 58 (Spring 1979): 3-19; Steven M. Avella, *Sacramento: Indomitable City* (San Francisco: Arcadia Publishing, 2003), 51.

Broadway) and east to 21st Street, opening more land to urban development.[11] By the mid-1880s residential construction had spread east of 15th Street and continued to fill in the developable areas of the city with most of the area in what is now south mid-town (15th to 29th streets, L Street south to Broadway) developed by the late 1890s.[12] With this early growth of Sacramento came the need for a municipal water supply. The first was developed in 1849 and expanded and evolved as the city grew. A discussion of the city's municipal water system development is presented below.

The beginning of the twentieth century was a boom time for Sacramento. Fruit and vegetable crops had superseded wheat as the dominant crop in the Sacramento Valley, and Sacramento became an important shipping center exporting produce across the nation and to Europe. While Sacramento's climate could not compete with southern California for the citrus fruit business, deciduous fruit trees, hops, grapes, and tomatoes became central to Sacramento's agricultural business. Sacramento also experienced remarkable industrial growth during the first thirty years of the twentieth century; by the 1920s, with over 600 factories operating in the city by 1929. The city bustled with electric trolley cars throughout the city leading to the development of Sacramento's first suburbs of Oak Park and East Sacramento. Main line railroads also continued to play an important role in the town with the Southern Pacific Railroad operating a major railyard in Sacramento and the Western Pacific Railroad building a main line through the city in 1910. The city's population steadily increased reaching 44,696 in 1910; 65,908 in 1920, and 93,750 by 1930.[13]

The economic development of the period, in both agriculture and manufacturing, brought a great influx of people to the city, stimulating further residential development, extension of public utilities, and construction of new schools. By the 1910s, much of the area in the vicinity of Capitol Park was devoted to multiple-family properties containing apartments and flats to accommodate the new residents. By this time, most of the vacant parcels in had been filled in, primarily with residential development. Commercial enterprises, such as corner stores, creameries, laundries, and auto-service facilities also opened.[14]

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[11] Brienes, "Sacramento Defies the Rivers, 1850-1878," 3-19.

[12] Burns, ed., *Sacramento: Gold Rush Legacy, Metropolitan Destiny*, 45, 47, 56; Sanborn Fire Insurance Company, *Sacramento, California* (New York: Sanborn Fire Insurance Company, 1898).

[13] Joseph McGowan, *History of the Sacramento Valley*, vol. II (New York, NY: Lewis Historical Pub. Co., c1961), chapters 34, 50, and 51; Myrtle Shaw Lord, *A Sacramento Saga: Fifty Years of Achievement-Chamber of Commerce Leadership* (Sacramento: Sacramento Chamber of Commerce, 1946), 275; Phinney, Cate and Marshall, *Map of Sacramento City, 1913, Sacramento County, California* ([n.p.]: 1913); Burns, ed., *Sacramento: Gold Rush Legacy, Metropolitan Destiny*, 72-73; *The Sacramento Bee*, November 30, 1929; and *Population Growth of the City and County of Sacramento, 1850 – 1980* (Part of the Master Plan of the City of Sacramento, November 1953), 36.

[14] Sanborn Fire Insurance Company, *Sacramento, California* (New York: Sanborn Fire Insurance Company, 1915).

Growth in the early 1900s led to the first annexation of land to Sacramento. The "Greater Sacramento" movement began around 1908 led by the Chamber of Commerce, Sacramento Realty Association, and the residents of the suburban districts outside of the city limits. After considerable debate, Oak Park and East Sacramento were annexed in 1911. This newly acquired, unincorporated area included 9.5 square miles of land east and south of the original city limits, tripling the size of Sacramento's urban area. Additional areas were annexed over the following decades.[15]

Growth continued in the subsequent decades and Sacramento developed into a modern city. The foundation of Sacramento's expansion was a solid economy based on the Southern Pacific railyards, agriculture, and the canning industry. Neighborhoods developed in East Sacramento, Oak Park and newly annexed lands of Land Park and Curtis Park. Concomitant with the residential expansion was new commercial construction with nearly 30 new buildings being built downtown in the 1920s. These boom times led to further expansion and improvement of the city's infrastructure including electricity and the electric streetcar system, which reached maturity in the 1920s with a complex web of lines reaching all parts of the Sacramento.[16] As discussed below, this is also when Sacramento built its first municipal water treatment facility at SRWTP.

Sacramento weathered the Depression and, like much of California, was revived by an influx of population because of the military's presence in and near the city during World War II. During the war the defense industry blossomed throughout the state drawing workers from across the nation. In addition, the number of military bases doubled in California bringing servicemen and civilian workers. Although Sacramento did not have any large war-related industries, it did have McClellan Air Base, Sacramento Army Depot, and Mather Field, which helped stimulate the economy and spawn growth. Both McClellan Air Base and Mather Field were outside the city limits north and east of downtown and whole new communities grew up around the bases.[17]

Immediately following the war growth continued in Sacramento. The military bases remained active after the war and new industry also moved to the area. Private defense contractors such as Aerojet-General and McDonnell-Douglas Aircraft opened plants just east

[15] Steven M. Avella, *Sacramento: Indomitable City* (San Francisco: Arcadia Publishing, 2003), 80-81.
[16] Avella, *Sacramento: Indomitable City*, 58-60, 80-85, 90-94, 97.
[17] Burns, ed., *Sacramento: Gold Rush Legacy, Metropolitan Destiny*, 91, 107-109; Sacramento City Government, "Traffic Signs and Signals, Annual Report, 1936," City of Sacramento Traffic Engineer Reports, Box 5, Folder 8, Center for Sacramento History, Sacramento, California; Sacramento City Government, "City of Sacramento Municipal Progress, 1939," 1940, City of Sacramento Traffic Engineer Reports, Box 5, Folder 7, Center for Sacramento History, Sacramento, California.

of the city limits. Other industries also located in Sacramento during the mid-twentieth century, including Crown-Zellerbach, Firestone Tire, Proctor and Gamble, and Campbell Soup. Further propelling the economy was an increased number of local, state and federal jobs in the city and the establishment of Sacramento State College, which became CSUS in 1972. The impact of World War II and the economic boom of the post-war years caused a surge in the population of Sacramento. Between 1940 and 1950, the number of residents increased from 105,958 to 135,761. The county's population grew even more from 170,333 to 277,140 during the same period with a large amount of this occurring on the city's northern and eastern fringes. This trend continued with the population of Sacramento increasing 39 percent during the decade of the 1950s. Sacramento's growth continued into the 1960s as government and industry remained prominent employers, new freeways facilitated transportation, and the city solidified its role as a regional retail and commercial hub. As discussed below, this led to increased demands on the city's infrastructure, including its municipal water system and the need for construction of the FWTP.[18]

3.2 Sacramento Municipal Water Works Development

Development of municipal water in Sacramento began during the burst of growth triggered by the Gold Rush. Prior to this time, residents drew water directly from the river using buckets, but the increasing population of Sacramento demanded a more efficient method of obtaining water. The need was first answered in 1849 by local entrepreneur William P. Henry who built a privately owned municipal water supply system consisting of a five horsepower engine which pumped water from the Sacramento River near the foot of I Street to elevated wooden tanks. Pushcarts and water wagons then filled up at the tanks and delivered water to customers throughout the city. Soon after Henry's successful business got underway, Billy Anderson set up a similar endeavor downstream, and by the early 1850s the two men had combined their enterprises.[19]

Private systems had their failings, however, and following a devastating fire in 1852 that destroyed much of the city, Sacramento developed its first public municipal water system. In 1854, a publicly financed water system was put in operation at a cost $120,000. The new water works pumped water from the Sacramento River into tanks located on the second floor of City Hall from which it flowed by gravity into distribution pipes. This system also had its

[18] Burns, ed., *Sacramento: Gold Rush Legacy, Metropolitan Destiny*, 110-113; *Population Growth of the City and County of Sacramento, 1850 – 1980*, part of the Master Plan of the City of Sacramento, November 1953 (Sacramento, CA: n.p., 1953), 36; Richard S. Petersen, *The Growth of Sacramento County, 1940-1960* (Sacramento, CA: Bank of America, 1961); Avella, *Sacramento: Indomitable City*, 116-122, 124-126, 133, 134.
[19] Myrtle Shaw Lord, *A Sacramento Saga: Fifty Years of Achievement-Chamber of Commerce Leadership* (Sacramento, CA: Sacramento Chamber of commerce, 1946), 162.

faults, specifically a lack of adequate water pressure to reach distant customers. As the city grew, the water pressure problem worsened and was temporarily resolved by raising the tanks in 1870.[20]

Civic leaders understood the inadequacies of the water system as it existed in 1870 and made plans to construct an entirely new water works. They hired Holly Manufacturing Company who designed a system that pumped water from the river at I Street directly into the distribution pipes. The new system would cost $190,000 and voters initially rejected the proposal, but approved it in 1872 and construction began almost immediately. The direct pumping Holly system had a pressure capacity between 40 and 100 pounds per square inch (psi). Sacramento now had adequate water pressure, but water quality was very poor and the issue of a better system remained a major topic among the city's inhabitants.[21]

By 1895, the newly organized Chamber of Commerce took up the issue of Sacramento's water supply in earnest. The Chamber pushed for improvements to the distribution system and the water quality. Water purity had become the pressing issue by this time as the water quality had steadily worsened. Water in Sacramento's pipes was muddy and drawn from a river which often carried garbage and raw sewage. Lacking action from the City Board of Trustees (which became the City Commission in 1915, which in turn was replaced by the City Council in 1921), the Chamber sponsored investigations into drilling municipal wells and running a pipeline from the American River near Auburn. The Chamber continued to urge an unresponsive City Board of Trustees to act on the issue throughout the late 1890s, but to no avail. Additional pressure from the public and press finally compelled the Chamber to authorize formation of a committee to investigate a pure water supply for the city. Upon the committee's recommendation, the city hired Rudolph Herring, an engineer from New York to examine the problem in 1899. Herring's concluded the best solution was to filter Sacramento River water, but the committee continued to examine other options before issuing their final report in 1901 which favored river water filtration. The city did not act on Herring's recommendations, rather it extended the existing system and increased the capacity of the pumping plant at Front Street.[22]

[20] Historic Environmental Consultants, "Richards Boulevard Area Architectural and Historical Property Survey," September 2000, 4; Lord, *A Sacramento Saga*, 163; Kevin Carunchio, "Turning Mud into Liquid Gold: A History of Sacramento's Water Supply, 1849-1924," *Sacramento History Journal* 6, no. 1-4 (2006), 264-265.

[21] Historic Environmental Consultants, "Richards Boulevard Area Architectural and Historical Property Survey," September 2000, 4; Carunchio, "Turning Mud into Liquid Gold: A History of Sacramento's Water Supply, 1849-1924," 265-266.

[22] Lord, *A Sacramento Saga*, 163; Carunchio, "Turning Mud into Liquid Gold: A History of Sacramento's Water Supply, 1849-1924," 266-269, 271, 274.

In 1908, interest in water filtration again came to the fore and city engineer Albert Givan was sent to eastern states to look at water filtration plants in other cities. Following submittal of Givan's report detailing the current methods of filtration at other plants, the city hired Charles G. Hyde, a sanitary engineer and professor at University of California, to prepare an estimate for a water filtration plant in Sacramento. Hyde's report, submitted in 1909, recommended a rapid sand filtration plant located on the Sacramento River just south of the confluence with the American River. The Board of Trustees endorsed the plan, but Sacramentans twice voted down bond measures to finance the project. The plan died and instead, the city once again expanded the existing system and built a chlorination plant at the foot of I Street to help improve water quality.[23]

These stop-gap measures did little to quiet the calls for clean water in Sacramento. In 1915, the city once again hired Hyde, this time as part of a consulting team with George H. Wilhelm to work with city engineer Frank Miller to study the problem of the city's water supply. The result was a six volume report titled "Report Upon Possible Sources of Water Supply for the City of Sacramento, California." It identified four different potential water sources: reservoirs in the Sierra Nevada on the American River and the Mokelumne River, wells south and east of Sacramento, and filtering Sacramento River water as Hyde had recommended in 1909. The Hyde & Wilhelm report concluded that the latter option was the most viable, calling it "the most satisfactory, rational, dependable and economical source." The report included designs for a new facility to be located 1,200 feet east of the east bank of the Sacramento River and 1,500 feet south of the confluence with the American River, the location that was eventually adopted as the site for the current SRWTP facility.[24]

Debate among various factions over the validity of the different options presented in the Hyde & Wilhelm report and the economic disruption caused by World War I delayed construction of a new water supply system. The Sacramento Retail Merchants Association, for example, believed that the option of more water from wells was the better alternative, while the Real Estate Men's Association wanted a mountain water supply, and various city officials favored the Sacramento River pumping and filtration option. The stalemate was finally ended in 1919 when the Chamber put together a committee and hired its own consulting engineer, C. E. Grunsky, to perform another water supply evaluation. Grunsky, like Hyde & Wilhelm before him, came to the conclusion that building a rapid sand filtration plant to purify river water was the optimal method. The rapid sand filtration process, which had been successfully used in municipal water systems in multiple cities, involved three principal steps to treat water from the river: sedimentation and clarification, filtration through

[23] Carunchio, "Turning Mud into Liquid Gold: A History of Sacramento's Water Supply, 1849-1924," 269, 270.
[24] Carunchio, "Turning Mud into Liquid Gold: A History of Sacramento's Water Supply, 1849-1924," 270-272.

sand filters, and chlorination. The Chamber and several other groups backed this proposal and lobbied for a bond measure to be put before the voters. The City Council obliged and in June 1919, Sacramento voters approved a $1.8 million for the construction of a new filtration plant. The city then purchased a 33.6-acres tract from F.A. Warner and an 8.2-acre tract from A.M. Mull in 1920 for the plant (**Illustration 1**).[25]

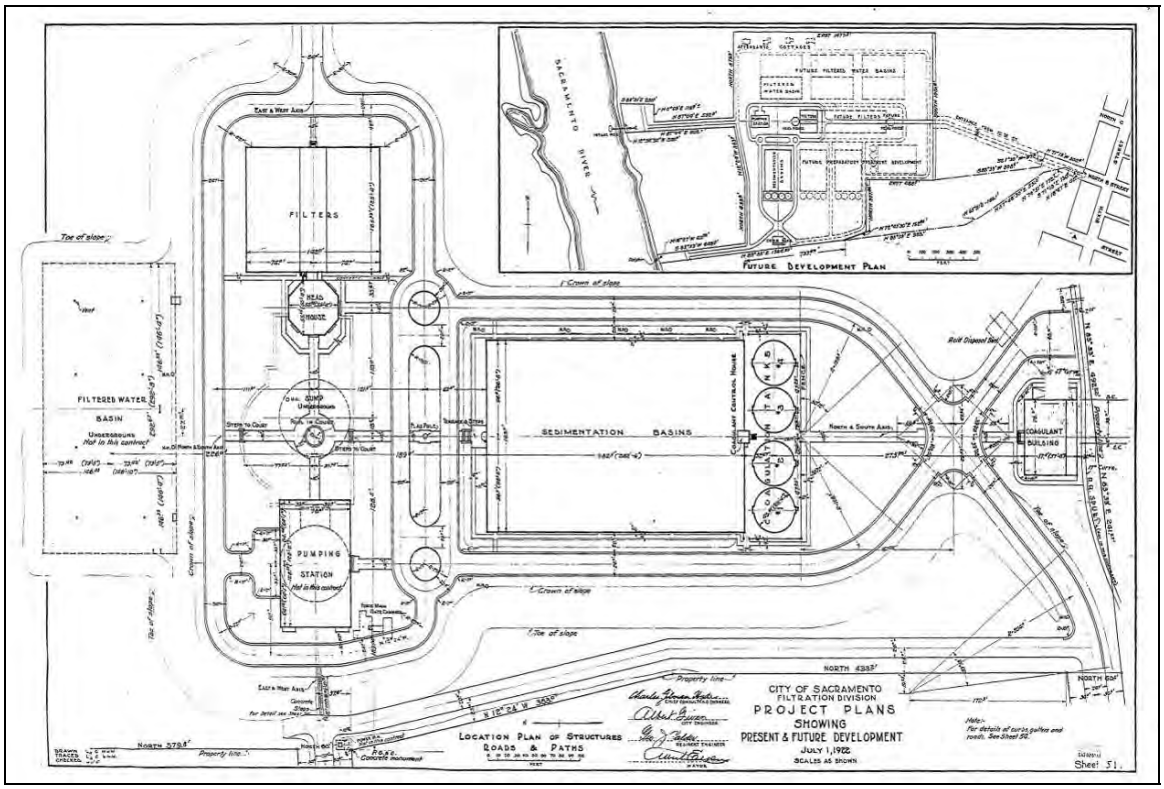


Illustration 1. Site plan for SRWTP dated July 1, 1922.

The 1916 Hyde & Wilhelm report provided the basis for design of the plant, but significant changes were ultimately made from the initial plan. After approval of the bond in 1919, Hyde asked fellow University of California (Berkeley) professor Wilfred Langelier, a chemist and sanitary engineer, to review preliminary drawings for the SRWTP. Particularly, Hyde requested input regarding coagulation and flocculation with alum (aluminum sulfate), an area of research of interest to Langelier. Coagulation and flocculation are part of the sedimentation process, the initial step in the water treatment procedure. Coagulation refers to the addition of a coagulant to untreated water, in this case alum, which neutralizes the charge of suspended particles and allows the particles to stick together and produce microflocs.

[25] Historic Environmental Consultants, "Richards Boulevard Area Architectural and Historical Property Survey," September 2000, 5; Myrtle Shaw Lord, *A Sacramento Saga*, 214; Carunchio, "Turning Mud into Liquid Gold: A History of Sacramento's Water Supply, 1849-1924," 272; City of Sacramento, "Map of Proposed Site of Filtration Plant," January 26, 1920.

Flocculation follows coagulation and is a gentle mixing stage which causes the microflocs to bond together to form larger flocs. The large flocs then settle out of the water in sedimentation basins and/or are removed by filtration.

Langelier agreed to assist and conducted experiments in the laboratory at Berkeley and at Sacramento using Sacramento River water to devise an improved method of coagulation and flocculation. Langelier's tests proved to be groundbreaking and established the foundation for modern flocculation practice. Important outcomes of Langelier's research were the invention of jar tests to control coagulate variables, greater understanding of the concept of flocculation, the role of gentle mixing to promote floc growth, and the importance of measuring acidity and alkalinity (pH) in the coagulation process. The most important advancement resulting from these experiments, however, was in the mixing and agitation phase of the water treatment process. Previous water treatment plants had induced coagulation and flocculation using waffle basins. Langelier noticed faults with this practice and innovated a method of prolonged, mechanical agitation using paddle wheel flocculators in cylindrical tanks. Using mechanical flocculation adjustments could be made in the speed and duration of agitation, and uniform agitation could be achieved. The result was much improved floc formation. Langelier's experiments were so convincing that Hyde abandoned the original designs for the sedimentation basin at SRWTP and redesigned the structure in accordance with Langelier's findings (current Basin No. 1) (**Illustration 2**). SRWTP was the first water treatment plant to implement the technology of mechanically driven paddle wheel flocculators in the United States. Additionally, the research undertaken by Langelier for SRWTP on the coagulation and flocculation process and the resulting designs improvements for water treatment plants were adopted by plants throughout the country and continue to be used today.[26]

While initial designs for SRWTP were based on those of the 1916 Hyde & Wilhelm report which included engineering layouts, site plans, and architectural drawings prepared by Oakland architect C.K. Bonestell, the city hired the Sacramento architectural firm of Dean & Dean to draft the final plans (See Architecture Section below). Construction of SRWTP began in January 1921 with the Coast Construction Company of San Francisco receiving the contract for building the majority of the plant.

[26] David Hendricks, *Water Treatment Unit Processes: Physical and Chemical* (Boca Raton, FL: CRC Press, 2006), 290, 349, 483-485; Wilfred F. Langelier, "Coagulation of Water with Alum by Prolonged Agitation," in *Engineering News-Record 86* (1921): 924-928; University of California, *University of California: In Memoriam, 1989,Wilfred F. Langelier, Civil Engineering: Berkeley*, California Digital Library. http://texts.cdlib.org/view?docId=hb4p30063r;NAAN=13030&doc.view=frames&chunk.id=div00030&toc.depth=1&toc.id=&brand=calisphere&query=wilfred%20F.%20langelier (accessed October 2011).

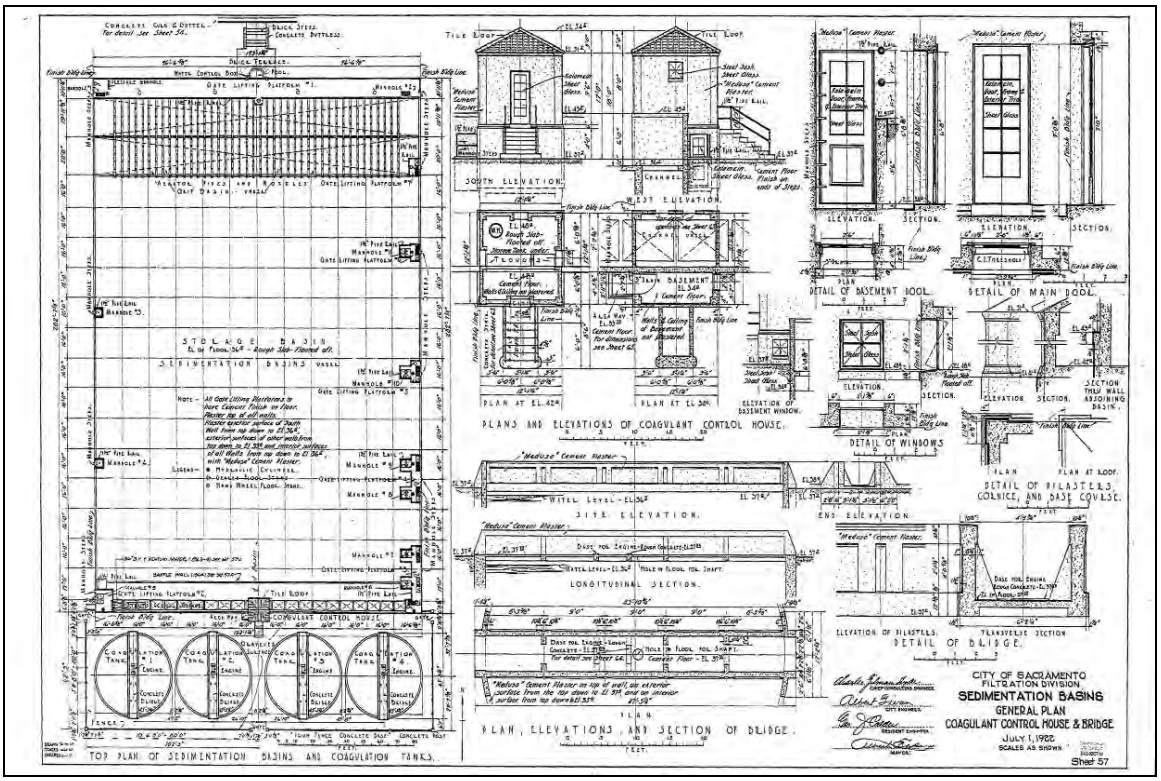


Illustration 2. Plan for Basin No. 1 dated 1922.

Later that year, the city prepared a cost estimate to complete the project and determined that an additional $900,000 was needed above the original $1.8 million bond making the total estimated cost $2.7 million. Voters approved the new bond later that year. Meanwhile progress on the intake structure of the plant by Coast Construction lagged, frustrating city officials and leading the city to cancel the company's contract in January 1922. Subsequently, city engineers took over construction of the intake facilities and pumping works using day labor. The Mathews Construction Company completed the remainder of the buildings and structures by 1924 (**Illustration 3**).[27]

On New Year's Eve 1923, the plant was officially dedicated with a celebration at City Plaza. The highlight of the event was President Calvin Coolidge pressing a button in Washington, D.C. which purportedly sent an electric impulse across the country causing "clear water to gush forth from the [City Plaza] fountain" and thus, marking the completion of the new water treatment plant. The SRWTP as built in 1924 consisted of the Pumping Station, Head House,

[27] Historic Environmental Consultants, "Richards Boulevard Area Architectural and Historical Property Survey," September 2000, 7; *The Sacramento Bee*, February 24, 1923, E4; *The Sacramento Bee*, March 31, 1923, E5; Carunchio, "Turning Mud into Liquid Gold: A History of Sacramento's Water Supply, 1849-1924," 274, 275.

Coagulant Building, Sedimentation Basin No. 1, West Filter Building and eight filters and a 5 million gallon clear water reservoir, the latter of which was built underground. When completed, the estimated peak load of water used by Sacramento was 20 mgd, and the new plant was capable of providing twice that amount.[28]

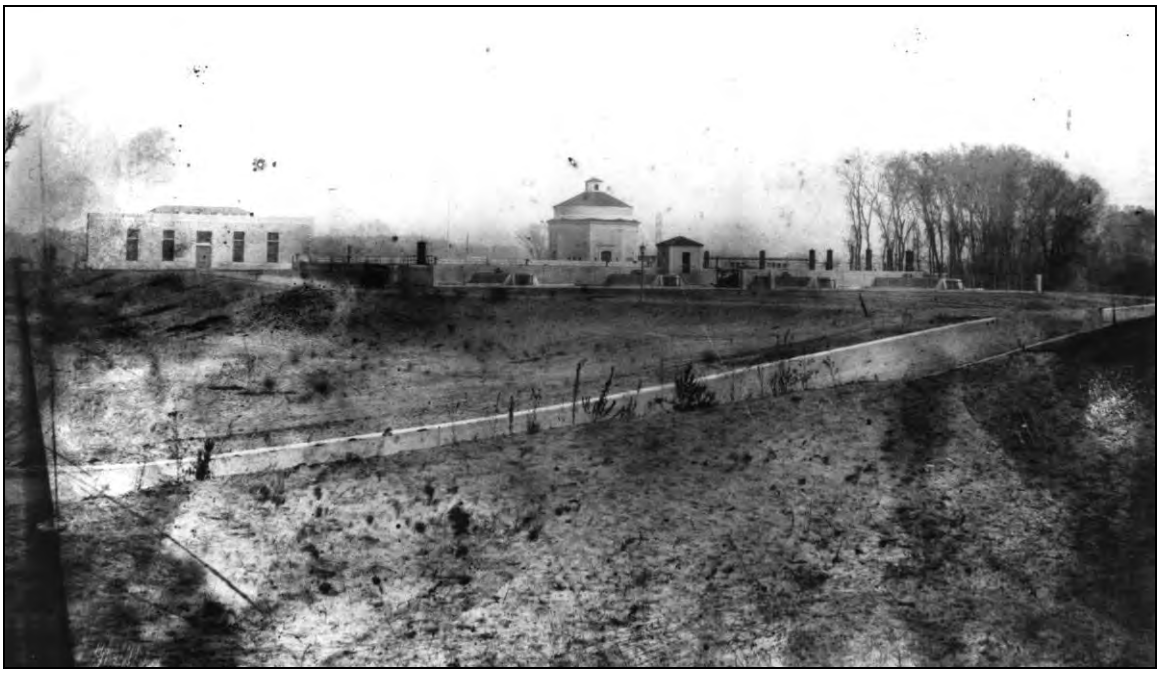


Illustration 3. SRWTP in 1920s showing Basin No. 1 in foreground, Pump Station on left and Head House on right. Photo courtesy of Center for Sacramento History.

Plant designers, however, did not anticipate the dramatic increase in water use following the completion of SRWTP. It seems that having suffered through years of poor water and water shortages, Sacramentans indulged in copious water use. By summer of 1924, the plant was operating at capacity and plans for expansion began (**Illustration 4**). Eight additional filters and an addition to the east end of the West Filter Building were constructed in 1928, Sedimentation Basin No. 2 was added in 1933, and a 9.5 million gallon clear water reservoir in 1937 (**Illustration 5**). While these latter facilities doubled the plant's capacity to 80 mgd, they were designed and built using standard water treatment and construction technologies that do not illustrate engineering innovation like Basin No. 1. Several small utilitarian building were built in subsequent years including the Machine Shop, Oil Room, Emergency

[28] Historic Environmental Consultants, "Richards Boulevard Area Architectural and Historical Property Survey," September 2000, 7; *The Sacramento Bee*, March 31, 1923: E5; Carunchio, "Turning Mud into Liquid Gold: A History of Sacramento's Water Supply, 1849-1924," 274; "Coolidge Touches Key Opening Sacramento Filtration Plant," *Sacrament Union*, January 1, 1924, 1 and 3.

Pump Storage, Storage Building/Equipment Platform and the Supervisor and Engineering Building.[29]

Illustration 4. SRWTP in 1931. Photo courtesy of Center for Sacramento History.

In 1987, SRWTP received an American Water Landmark Award from the American Water Works Association. The award recognizes "water landmarks" in the United States, Canada, and Mexico which are at least 50 years old and have "had a direct and significant relationship with water supply, treatment, distribution, or technological development."[30] A need for additional water production prompted major improvements to the plant in 2003 which included a new intake, Administration Building, Control Building, Chemical Building, filters, sedimentation basins and lagoons.[31] As a result of these recent upgrades, intake and treatment capacity increased from 110 mgd to 160 mgd at SRWTP. Other construction on this parcel not related to water treatment was the Emergency Call Center building in the

[29] Sacramento Division of Water and Sewers, *Public Water Supply of Sacramento: Its Purification and Distribution* (Sacramento, CA: Division of Water and Sewers, 1956), 1-8; City of Sacramento, Building Plans for SRWTP, Sacramento Department of Utilities; Carunchio, "Turning Mud into Liquid Gold: A History of Sacramento's Water Supply, 1849-1924," 277.

[30] Boghosian, "The Architecture of Water in Sacramento," *Sacramento History Journal* 6, no. 1-4 (2006): 292; American Water Works Association (AWWA), AWWA Water Landmarks, AWWA, http://www.awwa.org/ (accessed October 2011).

[31] Boghosian, "The Architecture of Water in Sacramento," *Sacramento History Journal* 6, no. 1-4 (2006): 289-295.

northwest corner of the property constructed in 1985 (**Illustration 5**, **Illustration 6**, **Illustration 7**, and **Illustration 8**).[32]

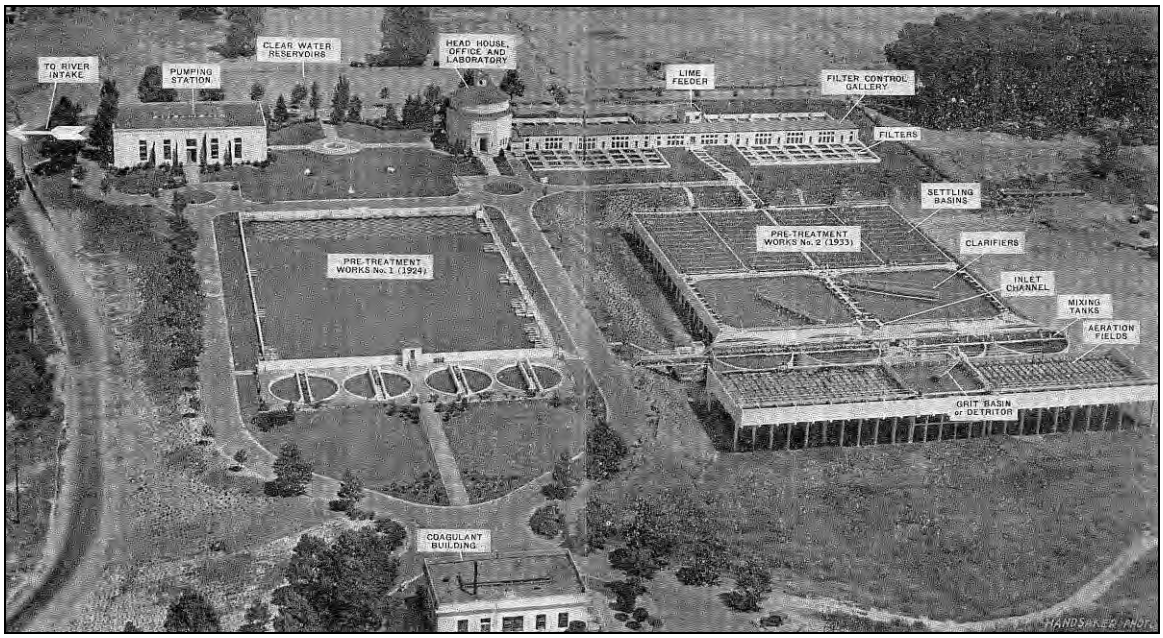


Illustration 5. SRWTP circa 1940s. Image from: City of Sacramento, *Public Water Supply of Sacramento*.

Illustration 6. SRWTP circa 1950s. Photo courtesy of Center for Sacramento History.

[32] David L. Brent, Report to Council, City of Sacramento, "Completion of Water Facilities Expansion Program," EAFWTP (ZF43) Final Change Order No. 30, December 13, 2005.

Illustration 7. Aerial image of SRWTP in 1980. Image courtesy of Sacramento Public Library, Sacramento Room.

Illustration 8. Current aerial image of SRWTP. Image courtesy of Google Maps (accessed June 2011).

When it began operation SRWTP provided all water for Sacramento and continued to do so for several decades. Growth of the city in the 1950s created a need for an additional water treatment plant and City Engineer E.A. Fairbairn initiated planning of a new plant on the American River adjacent to the Sacramento State College campus. The City Council approved the plant in 1961 and construction commenced that year by the Fruin-Colnon Contracting Company and the Alex Robertson Company (**Illustration 9**). Work concluded in 1964. The plant was originally known as the American River Filtration Plant and later named the Fairbairn Water Treatment Plant (**Illustration 10**).[33] FWTP operated without any major improvements or alterations to the plant until 1993 when the Laboratory Building was constructed adjacent to the original Head House (currently the Administration Building). Major improvements to the facility occurred in 2005 consisting of a new water intake structure and several other buildings and structures. Architects Carissimi, Rohrer, McMullin, and Shively designed the new components of the plant and Corollo Engineers were the general contractors.[34] As a result of these recent upgrades, intake and treatment capacity increased from 90 mgd to 200 mgd at FWTP (**Illustration 11**, **Illustration 12**, and **Illustration 13**).[35]

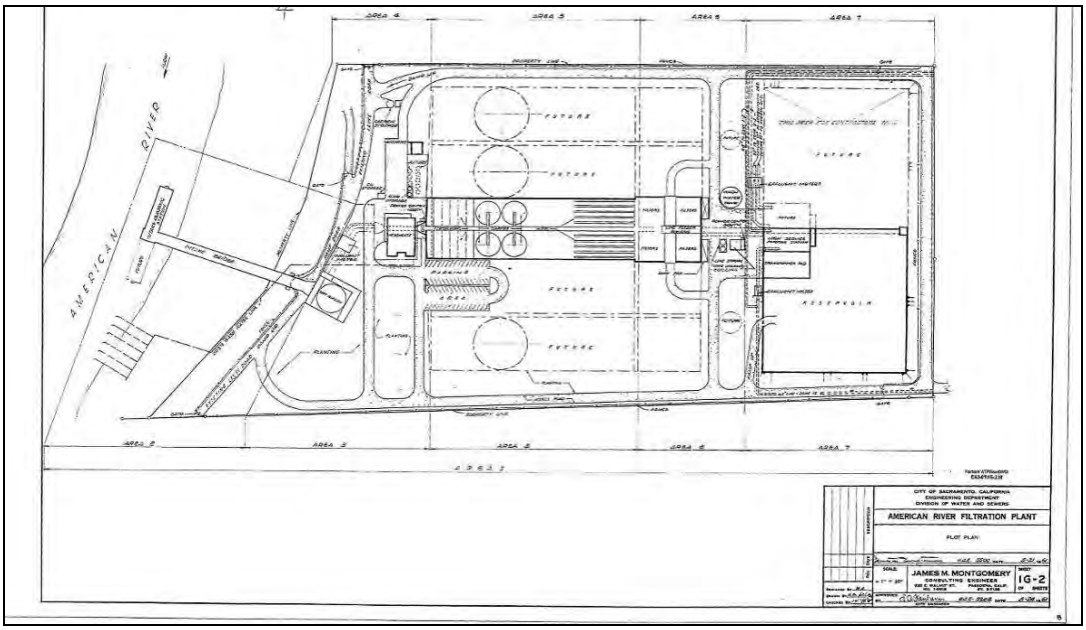


Illustration 9. Original plot plan for FWTP plant dated 1961.

[33] Historic Environmental Consultants, "Richards Boulevard Area Architectural and Historical Property Survey," September 2000, 8; Carunchio, "Turning Mud into Liquid Gold: A History of Sacramento's Water Supply, 1849-1924," 277; Boghosian, "The Architecture of Water in Sacramento," *Sacramento History Journal* 6, no. 1-4 (2006): 292. The plant was originally known as the American River Treatment Plant.

[34] Boghosian, "The Architecture of Water in Sacramento," *Sacramento History Journal* 6, no. 1-4 (2006): 289-295.

[35] David L. Brent, Report to Council, City of Sacramento, "Completion of Water Facilities Expansion Program," EAFWTP (ZF43) Final Change Order No. 30, December 13, 2005.

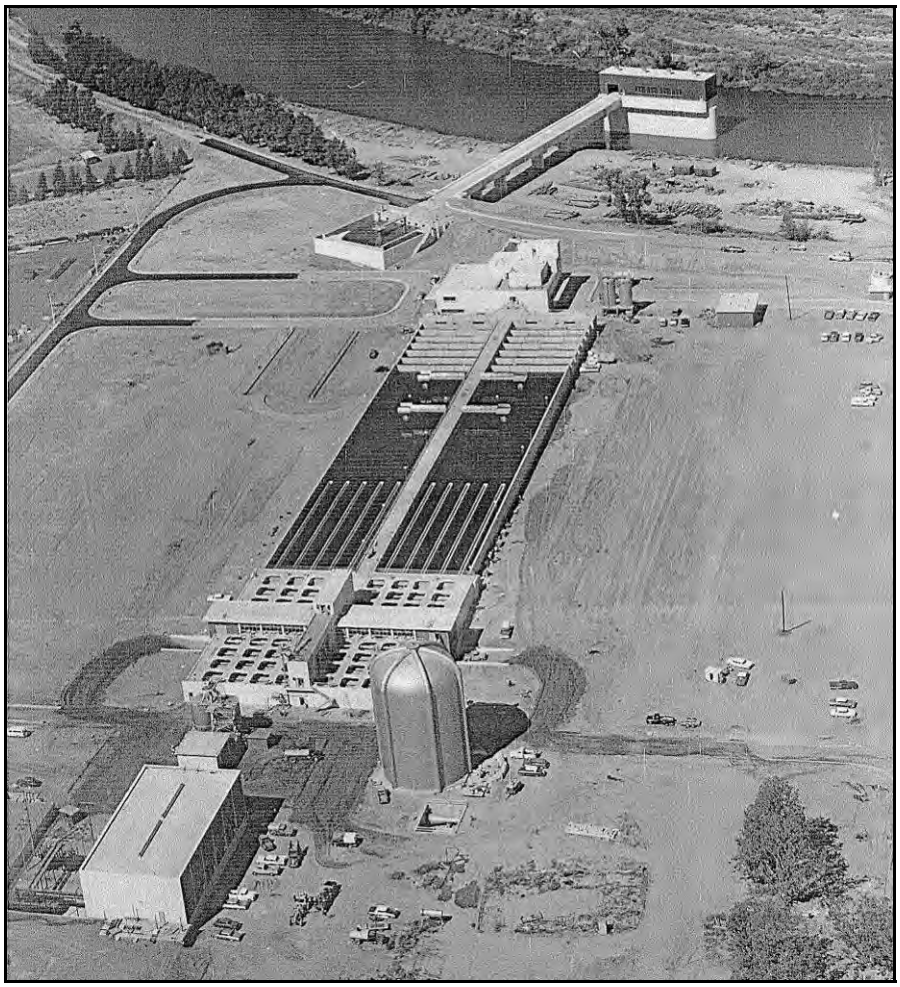


Illustration 10. Fairbairn Water Treatment Plant nearing completion in September 1963.

Illustration 11. FWTP circa 1968. Photo courtesy of City of Sacramento Utilities Department.

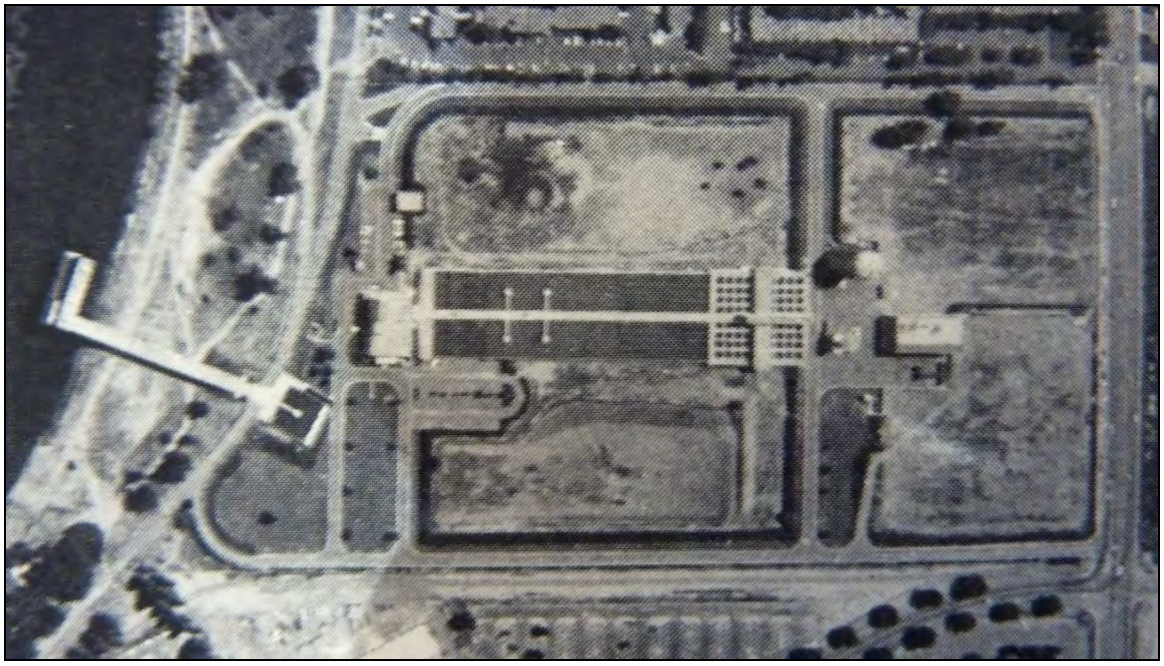


Illustration 12. Aerial image of FWTP in 1980. Image courtesy of Sacramento Public Library, Sacramento Room.

Illustration 13. Current aerial image of FWTP. Image courtesy of Google Maps (accessed June 2011).

3.3 Architectural Styles at SRWTP and FWTP

In the early 20th century Sacramento underwent a period of growth resulting in a great boom of both Neoclassical Revival and Spanish Revival designed civic and public buildings in the early portion of the 20th century, including 30 that were completed between 1912 and 1928. Of these buildings, notable were City Hall (1911), City Library (1918), the Masonic Temple (1920), the Sacramento Public Market (1923), the Senator Hotel (1924), and the Elks Club Building (1926), and Memorial Auditorium (1927).[36]

The formation of the architectural partnership of Dean & Dean comprised of brothers Charles F. Dean and James S. Dean coincided with Sacramento's 1920s building boom. The firm became one of the preeminent architectural firms in Sacramento during this period. The Deans were born in Belton, Texas and educated at the Texas A&M College of Architecture. After finishing completing work at Texas A&M, James continued his studies at Massachusetts Institute of Technology before returning to his alma mater as an instructor, while Charles moved to San Francisco in 1908 to join the city's post-earthquake rebuilding effort. After only five months in San Francisco, Charles settled in Sacramento to work in the office of the state architect. In 1914, James joined his brother in Sacramento as a state employee and nine years later they founded their private practice.[37]

Between 1922 and 1930, Dean & Dean Architects are credited with helping transform Sacramento's architecture from a city of predominantly Victorian-era buildings to a regional center with numerous important public buildings and many residences in various Revival style. Their work was featured twice during this period in *Architect and Engineer*, a prominent West Coast publication of that time, and in several other publications. They also received honor awards from the California section of the American Institute of Architects. No firm designed more schools, churches, or other large public buildings in Sacramento than Dean & Dean including what historians would later dub the city's "crowning achievement" of the 1920s: Memorial Auditorium. In addition, Dean & Dean designed a host of other notable buildings in Sacramento, including many schools, including Coloma School / Elmhurst School (now Coloma Community Center) and Highland Park / Sierra School (now Sierra 2 Community Center), as well as Hughes Stadium at Sacramento City College, Sutter

[36] City of Sacramento Neighborhoods, Planning and Development Services Department, *Implementation Plan for the Preservation Element of the City of Sacramento General Plan*, December 1999 (amended April 20, 2000), Sec 10, 11.

[37] G. Walter Reed, *History of Sacramento County with Biographical Sketches* (Los Angeles: Historical Record Co., 1923); Paula Boghosian, "The Architecture of Water in Sacramento," *Sacramento History Journal* 6, no. 1-4 (2006): 290; Andrew Hope, Caltrans, Coloma Community Center (former Coloma School and Elmhurst School), 4623 T Street, Sacramento, DPR 523 form, prepared December 2005. The Coloma Community Center was listed in the Sacramento Register in August 2009.

Club building, Westminster Presbyterian Church, Trinity Episcopal Cathedral, YMCA (at L and 17th streets) and Clunie Library in McKinley Park. They also designed many prominent residences during this period including multiple houses in the "Fabulous 40s" (Wright and Kimbro Tract 24) and the J.C. Carly House on Montgomery Way in Curtis Park. James Dean left the firm in 1930 to take the post of City Manager with the City of Sacramento. Charles Dean continued the firm until his death in 1956.[38]

Among Dean & Dean's earliest work were the original buildings at SRWTP (**Illustration 14** and **Illustration 15**). Consistent with the style trend at the time, Dean & Dean designed the buildings at SRWTP in the Neoclassical Revival style with modest Beaux Arts elements. The Neoclassical Revival features of the SRWTP building are flat roofs; symmetrical façades; and smooth, unadorned wall surfaces. The buildings also exhibit some modest Beaux Arts characteristics such as quoins, pilasters and accentuated cornices. The octagonal shape of the Head House and its conical roof are the result of the building housing a 270,000 gallon cylindrical water tank on the second floor. Buildings with the Neoclassical style at SRWTP are Pump Station, Head House, Coagulant Building, Basin No. 1, and West Filter Building.

The landscape and site plan of SRWTP also reflected a trend at the time, the City Beautiful movement. This movement was inspired by, and a reaction to, the haphazard industrial urban growth of the late nineteenth century and a desire to create order and beauty in the urban landscape. This movement coincided with the municipal reform efforts of the Progressive Era which sought to bring efficiency and professionalism to local governments. In Sacramento, the city hired professional city planners who attempted to instill order into city development. Among the measures adopted at during this era were a comprehensive

[38] Avella, *Sacramento: Indomitable City*, 90; *Sacramento Bee*, July 2, 1956; JRP Historical Consulting, "Historic Architectural Survey Report, South Sacramento Corridor LRT Project," October 1995, 67-68; Paula Boghosian, "The Architecture of Water in Sacramento," *Sacramento History Journal* 6, no. 1-4 (2006): 290; Andrew Hope, Caltrans, Coloma Community Center (former Coloma School and Elmhurst School), 4623 T Street, Sacramento, DPR 523 form, prepared December 2005; Carol Rowland, Roland-Nawi Associates, Sierra 2 Community Center, former Highland Park School / Sierra School, 2791 24th Street, Sacramento, DPR 523 form, prepared March 2003; Janice C. Calpo with Spencer Lockson & Dan Murphy (Sierra Curtis Neighborhood Association Heritage Committee), J.C. Carly House, 2761 Montgomery Way, Sacramento, National Register Nomination form, prepared November 2005. The Sierra 2 Community Center was listed in the Sacramento Register in August 2005. The J.C. Carly House was listed in the NRHP in March 2006. Other Dean & Dean designs listed in the NRHP are the Memorial Auditorium and the Westminster Presbyterian Church (see NRHP website http://nrhp.focus.nps.gov/natreghome.do?searchtype=natreghome). Features articles of Dean & Dean's work include: John Donovan, "Recent Work of Dean and Dean Architects," *Architect and Engineer*, July 1927, vol. 19, no 1 and Irving F. Morrow, "Recent Works by Dean and Dean " *Architect and Engineer*, June 1922, v. LXIX, no. 3.

park system plan in 1916, zoning ordinance in 1922, and a master plan in 1926. It was in this period that the City Beautiful inspired landscape and plan for SRWTP was designed. Generally speaking, the City Beautiful movement's objective was to make cities more ordered, aesthetically pleasing, enhance civic pride and improve public morals. To achieve these goals, the movement often turned to neoclassical architecture set in an ordered natural landscape. The plan featured formal symmetry set on a north/south and east/west axis, a park-like setting and tree-lined streets with viewsheds focused on the plant's two monumental buildings: the Pump Station and Head House. Before each of these buildings was a circular island and between them a courtyard of trees, lawn, sidewalks, fountain and a flagpole (**Illustration 16**). While the landscape design was not fully carried out according to plans, much of the design was realized and plant still evokes a City Beautiful aesthetic.[39]

The Neoclassical style buildings and their landscape constructed in the 1920s sit in some contrast to later historic-era additions to SRWTP. In particular, Basin No. 2 and the 9.5 million gallon clear water reservoir, constructed in the 1930s, are starkly utilitarian in their design, and Basin No. 2 is constructed on concrete piers in an excavated depression that is distinctly different than the landscape design of the original facility.

[39] City of Sacramento Neighborhoods, Planning and Development Services Department, *Implementation Plan for the Preservation Element of the City of Sacramento General Plan*, December 1999 (amended April 20, 2000), Sec 10, 11; Daphne Spain, *How Women Saved the City* (Minneapolis: University of Minnesota Press, 2001), 51-54.

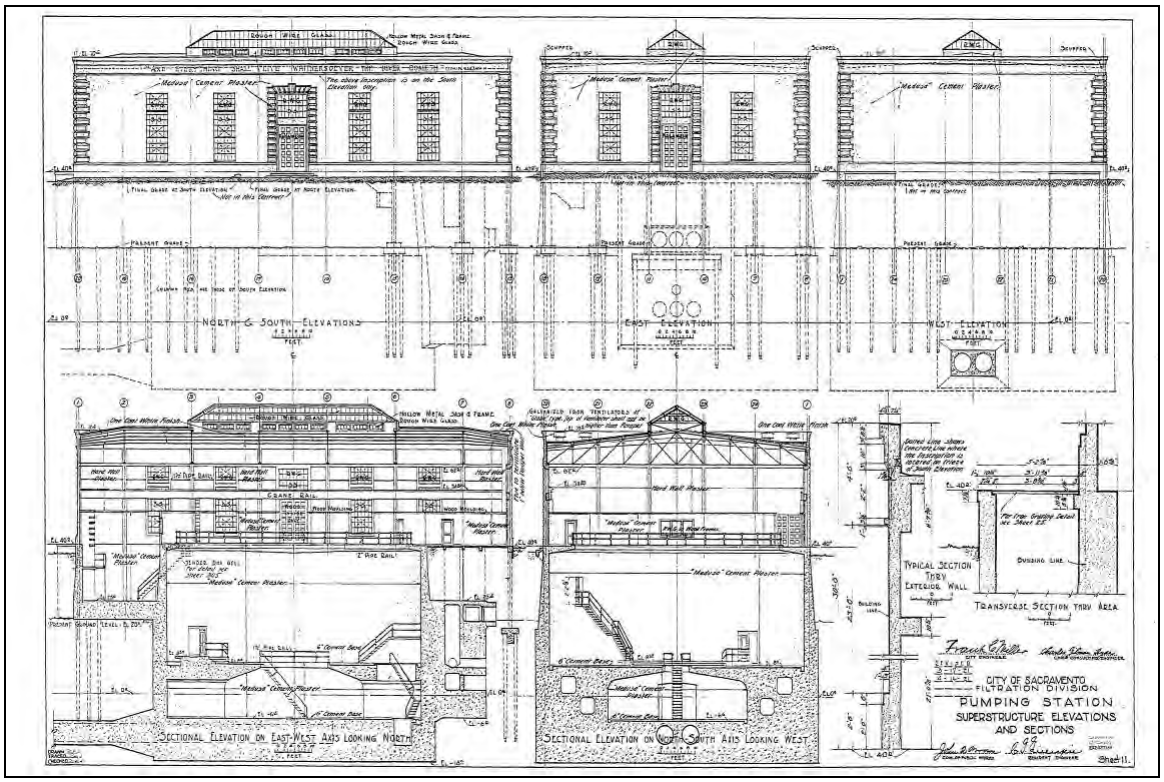


Illustration 14. Elevation drawing for Pump Station dated 1921.

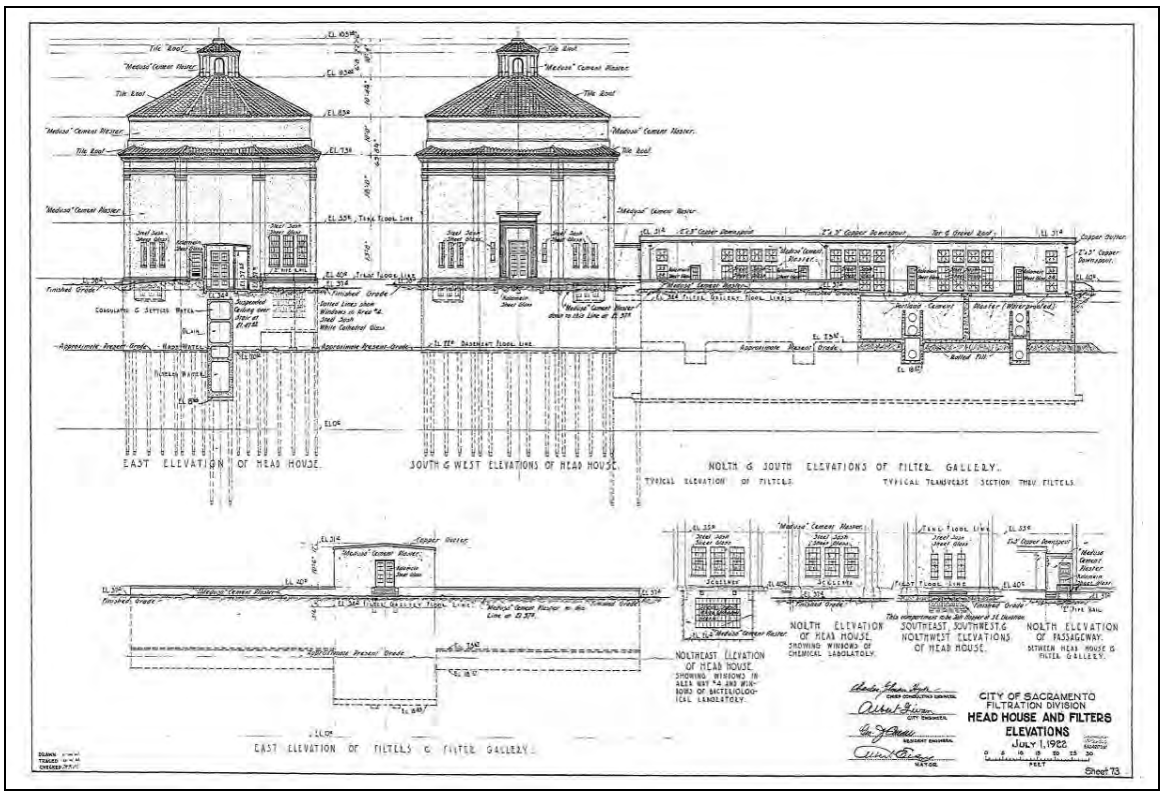


Illustration 15. Elevation drawing for Head House and original part of West Filter Building dated 1922.

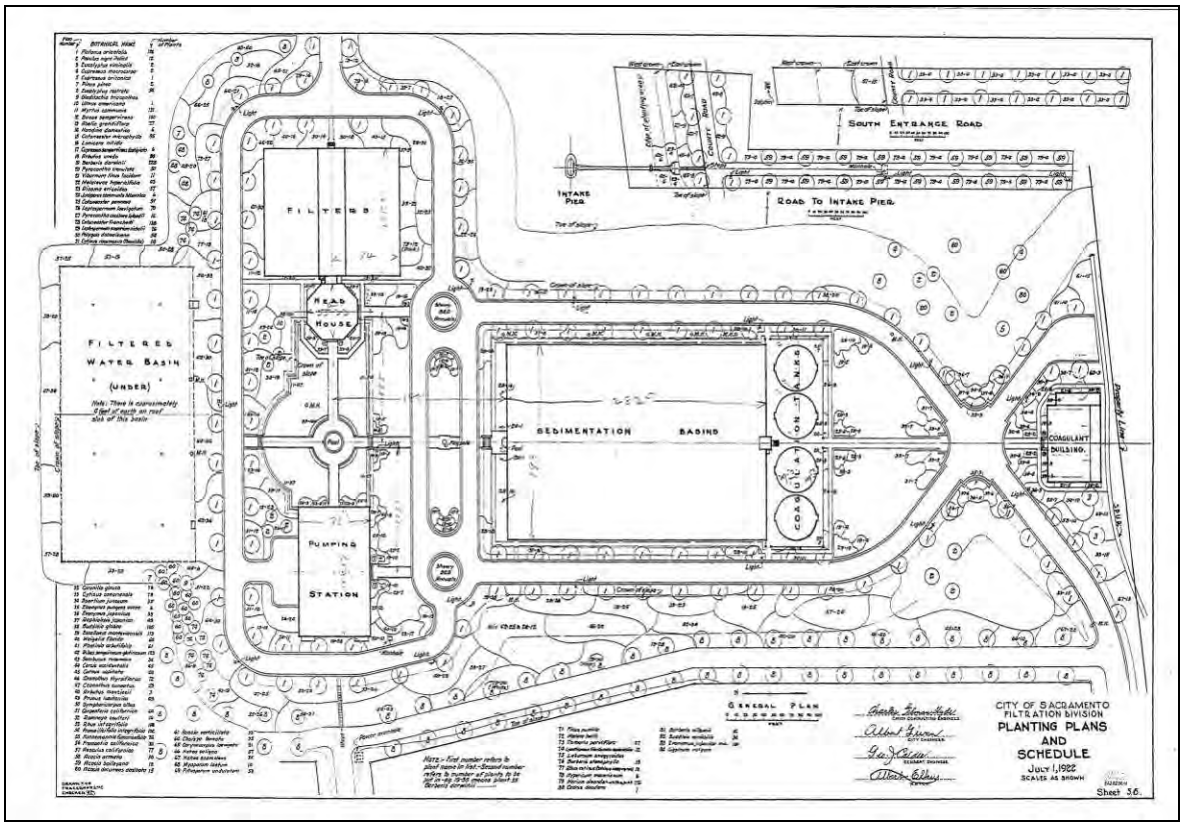


Illustration 16. City Beautiful inspired landscape plan for SRWTP dated 1922.

At FWTP, built in the 1960s, many of the original buildings exhibit some International Style Modernism characteristics. The International Style derived from progressive European architectural trends of the 1910s and 1920s. It was then imported to the United States by such noted architects as Richard Neutra and Rudolph Shindler in Southern California who applied the style to residential buildings. International Style became the dominant force in architecture in the United States during the 1940s and 1950s and was adapted to institutional, commercial and industrial buildings at this time. The style was based on functionality and expression of the building structure rather than superfluous applied decoration. Commonly, building materials of reinforced concrete, steel, and glass were left exposed and became part of the design element. The commercial building type of the style is identified by reinforced concrete construction; flat roofs; lack of decoration; simple cubic forms; smooth, blank exterior walls; cantilevered projections; ribbon windows; large, projecting window surrounds; spandrel panels; symmetrical facades; repeating elements, curtain walls of glass, and multiple roof levels. This blend of International Style, modern design techniques became known as the International Style Modernism. Buildings at FWTP such as the Pump Station, Filter/Lime Feeder Building and Administration Building are modest expressions of the

International Style combined with utilitarianism (**Illustration 17**).[40] Other historic-era buildings and structures at FWTP are utilitarian and do not exhibit architectural design characteristics that illustrate particular styles or aesthetic value.

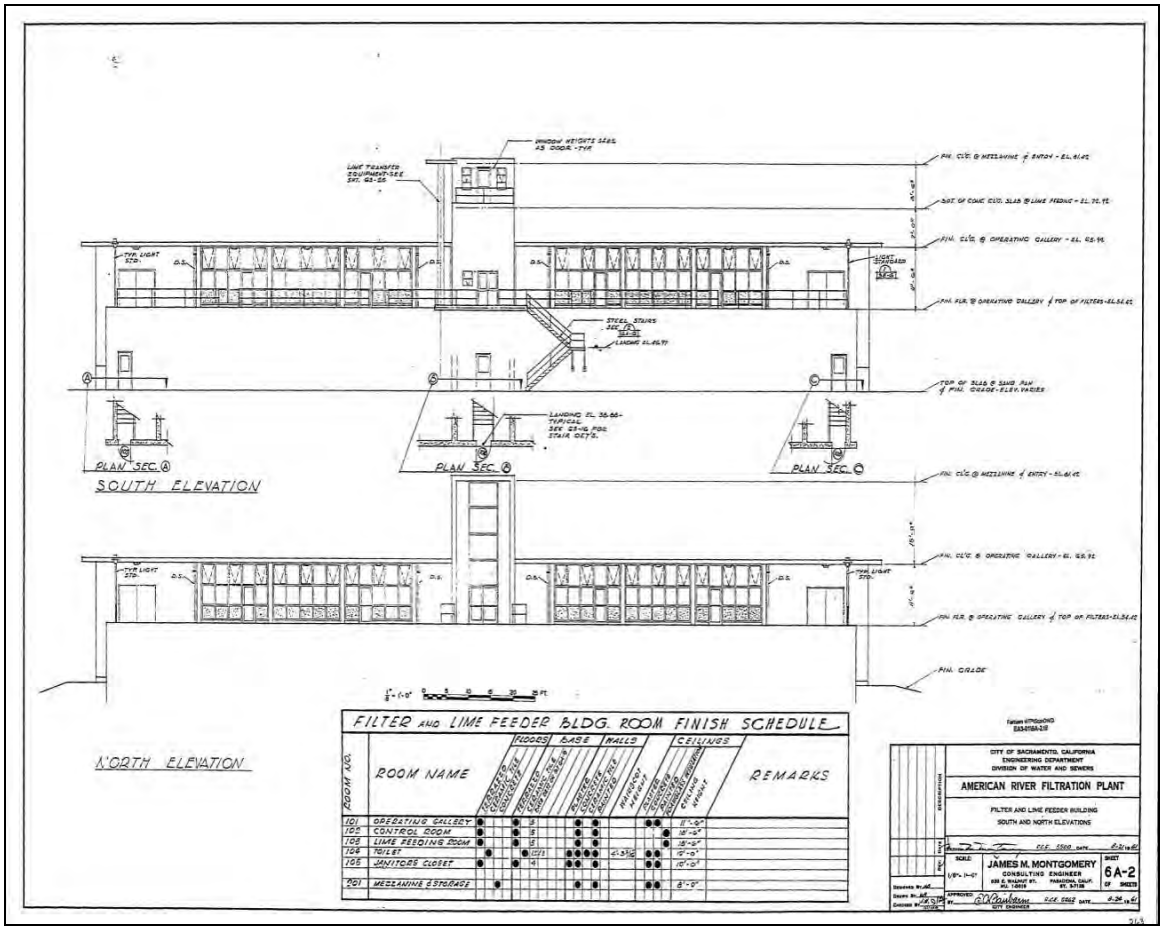


Illustration 17. Elevation drawing of Filter and Lime Feeder Building dated 1961.

[40] Lee McAlester and Virginia McAlester, *Field Guide to American Houses*, (New York" Alfred A. Knopf, 1988), 469-470; Cyril M. Harris, *American Architecture: An Illustrated Encyclopedia*, (New York: W.W. Norton & Co., 1998), 182-183; Mary Brown, "San Francisco: Modern Architecture and Landscape Design, 1935-1970," City and County of San Francisco, September 30, 2010, 167-171.

4 DESCRIPTION OF RESOURCES

This section describes the buildings and structures at the SRWTP and FWTP that are 45 years old or older. Originally constructed in the early 1920s, there are 14 such historic-era resources at SRWTP. At FWTP, which was built in 1963 and 1964, there are 11. See the attached DPR 523 forms in Appendix B for more complete descriptions and additional photographs. The resources for each plant are presented below in chronological order by dates of construction given in parentheses.

4.1 Sacramento River Water Treatment Plant

The SRWTP is on a 40.58-acre parcel near the Sacramento River just north of downtown. There are 25 buildings and structures on the property. Generally speaking, the older buildings are located on the west side of the parcel, and the newer on the east. The original elements of the plant are in the southwestern part of the site. The main entrance has recently been moved from the southwestern corner to the east side (**Illustration 18**). The area that comprises the historic buildings and landscape features is shown on Illustration 18.

The single-story **Pump Station** (1921) is rectangular in plan, rests on a concrete foundation, has a flat roof, and Neo-Classical details (**Photograph 1**). The walls are clad in stucco with a wide base course, rusticated quoins at the corners, and a simple entablature along the roofline. The main (southern) façade is symmetrical in plan with a central entry door flanked by four industrial metal windows. The entry features a rusticated door surround, a set of replacement metal glazed doors with sidelights and fixed two-part metal transom, with an additional metal sash transom above.

The Neo-Classical style **Head House** (1924) is a two-story, stucco-clad, octagonal building resting on a concrete foundation and topped by a Spanish tiled truncated octagonal hipped roof, below a conical roof, and crowned by a cupola (**Photograph 2**). Smooth corner pilasters with decorative capitals are located at each wall junction. The building is accessed through two recessed entries, one on the west side and another on the south side. Fenestration on the building includes a mixture of two sizes of metal framed pivot windows, a large three-part, metal framed replacement window, and replacement glass block windows.

The Neo-Classical **West Filter Building** (1924 & 1928) is a long, rectangular building that rests on a concrete foundation and has a low-pitched gable roof (**Photograph 3**). The stucco-clad building features a repeating door and window opening pattern consisting of a single window set of metal sash horizontal pivot windows with a three-by-three glass block transom window, followed by group of four sets, then another single set. Between each single set and group of four are single metal glazed personnel doors. Centrally located on the building is the

main entrance consisting of a single, metal glazed entry door with glass block sidelights on the south side. To the north and south of the building are a total of 16 water filter structures. The structures are partially below grade chambers largely made of poured concrete and metal supports. The tops of the filters are a grid pattern of poured concrete walkways surrounded by a low concrete wall clad in stucco.

Illustration 18. SRWTP Site Plan

Photograph 1. Pump Station, facing northeast, 10/27/2011.

Photograph 2. Head House, camera facing east, 10/27/2011.

Photograph 3. South side of West Filter Building and Head House in distance, camera facing northeast, 10/27/2011.

The single-story **Coagulant Building** (1924) has a rectangular plan set on a concrete foundation and capped by a flat roof (**Photograph 4**). Its walls are clad in stucco with a modest base course and accentuated cornice. The north facing façade consists of a centrally located double, metal glazed entry door with a transom light and a simple door entablature. Flanking the door are four windows with two-stacked sections of metal sash horizontal pivot windows with rough wire glass lights. The east and west sides of the building each contain three of these windows. The south side of the building features a full-length concrete loading dock with metal railing and concrete stairs on the east and west ends.

Basin No. 1 (1924) is a partially below grade, rectangular structure with modest Neo-Classical style details. It is comprised of a sedimentation basin and four coagulation/flocculation tanks on the south end (**Photograph 5**). The north wall of the basin features a base course, smooth pilasters and a modest cornice. In the middle of the south wall is the Coagulant Control House. This small structure is square in plan, has a hipped Spanish tile roof, corner pilasters, and sits on a raised foundation between the sedimentation basin and tanks. On the south end of Basin No. 1 are four circular concrete coagulation/flocculation tanks about 45 feet in diameter.

The original landscaping and layout of the SRWTP was inspired by the City Beautiful movement (**Photograph 6**). The current layout in the area of the 1920s buildings has a formal symmetry set on a north/south axis with tree-lined streets, a park-like setting and

viewsheds focused on monumental buildings. The original entrance on Bercut Drive (now closed) led visitors into the plant passed the Coagulant Building on roads by each side of Basin No. 1 which presented a view of either the Pump Station or Head House. Before each of these building is a circular island and between them a courtyard of trees and lawn with sidewalks and a flagpole.

Photograph 4. Coagulant Building, facing southwest, 10/27/2011.

Photograph 5. North end of Basin No 1, facing southwest, 10/27/2011.

Photograph 6. Showing tree line road past Basin No. 1 leading to roundabout and Pump Station, camera facing north, 10/27/2011.

Basin No. 2 (1933) is a rectangular, board-formed concrete structure consisting of three elements: sedimentation basin, clarifiers, and mixing tanks. This structure lacks the Neo-Classical details of other older structures on the property (**Photograph 7**) and has a different design than Basin No. 1. The sedimentation basins and clarifiers of Basin No. 2 are built in an excavated depression on cylindrical concrete piers with the mixing tanks on the south end. The sedimentation basin portion of the structure consists of four sections separated by concrete walls. The central concrete wall functions as a walkway down the entire length of the structure. The two large clarifiers are roughly square in plan and feature motorized pivot paddles that move along a metal track on the tank's perimeter with a metal catwalk above. At the south end of the basin are three mixing tanks.

The **9.5 mg Clear Water Reservoir** (1937) is a large, board-formed concrete building with rounded corners and is roughly square in plan (**Photograph 8**). The building has a low-pitched, pressed seamed gable roof with a metal gable roof monitor. Small rectangular openings with screens are located bellow the roofline around the entire building. Concrete buttresses line the base of the southern wall.

Photograph 7. North end of Basin No. 2, facing southwest, 10/27/2011.

Photograph 8. 9.5 mg Clear Water Reservoir, facing northwest, 10/27/2011.

The remaining historic-era buildings at SRWTP are utilitarian buildings constructed ca. 1949 to 1965. These have flat or low-pitched gable roofs and are clad in either stucco or corrugated metal. Fenestration is metal sash pivot windows, two-part metal sash casement windows, metal personnel doors and metal roll-up or sliding utility doors (**Photograph 9** and **Photograph 10**). See the DPR 523 form in Appendix B for a complete description and additional photographs of these buildings.

Photograph 9. Machine Shop (1949), camera facing northwest, 10/27/2011.

Photograph 10. Emergency Pump Storage (1959), camera facing southwest, 10/27/2011.

4.2 E.A. Fairbairn Water Treatment Plant

This 44.19-acre property at 7501 College Town Drive is the site of the E.A. Fairbairn Water Treatment Plant. The parcel is roughly rectangular with the first buildings and structures built in 1963 and 1964 set in the center of the tract with major additions to the plant in 1993 and 2005 built adjacent on all sides of the original buildings and structures (**Illustration 19**).

The original buildings at the FWTP all have modest International Style characteristics. The **High Service Pump Station** (1964) exhibits this style with its flat roof, and exterior separated into vertical sections by blue low-relief columns and courses at the base and roofline framing white, vertically scored concrete panels. The center element of the façade has a metal overhead vehicle door below two bands of five multi-light, aluminum framed windows. Above and between the windows are spandrel panels (**Photograph 11**). On the east and west sides are rows of awning windows over fixed pane windows above a row of spandrels and vents.

The **Filter/Lime Feeder Building** (1964) is a T-shaped building with filter structures both north and south of the main building wing (**Photograph 12**). The building faces north and is attached on the north with the Sedimentation Basins. The Filter/Lime Feeder Building's main elevation is one story above ground level, built atop the filter structures and consists of a two-story central element and single story wings, all constructed of poured concrete and topped by a flat roof. The symmetrical façade has its main entry in the two-story central element consisting of double metal full-light entry doors. Above the doors are four large, stacked, fixed aluminum windows that extend to the roofline. The entry is framed by blue low-relief columns and a course along the roofline. The low-relief columns repeat on the flanking single-story wings of the building, framing sets of aluminum sash, fixed pane and hopper windows with blue spandrels.

Illustration 19. FWTP Site Map.

Photograph 11. High Service Pump Station, camera facing southwest, 10/27/2011.

Photograph 12. Filter Building and filter structures,
camera facing southwest, 10/27/2011.

The framing is completed by a cantilevered roof with a blue fascia. In four of the sets are full-light aluminum personnel doors. Identical sections of windows with spandrels and full-light personnel doors repeat on the other sides of the building. Both north and south of the main wings of the Filter/Lime Feeder Building are the filter structures. These consist of poured concrete chambers with poured concrete walkways above comprising a grid pattern with 16 squares in each quadrant around the wings of the Filter/Lime Feeder Building. Attached to the north of the Filter Building are **Sedimentation Basins 1 and 2** (1964). This long rectangular structure is about one story above grade and constructed largely of poured concrete and is attached to the Administration Building on the north (**Photograph 13**). The exterior walls are tilt-up concrete construction and have similar low relief blue columns as the Filter Building at the north end. The basins are divided into four sections from south to north with a concrete central walkway. The four sections are weirs, sludge rakes, clarifiers, and flocculators. The weirs consist of rows of parallel troughs with metal weirs set on concrete pillars. Next are the sludge rakes: large horizontal rakes pulled by massive chains pulled by motor driven gears. The clarifiers are two large basins each with a two large motor-driven pivot arm attached to paddle rakes. On top of the arms are metal catwalks and railings that extend to the middle of each basin. At the north end of this structure are the flocculators that comprise a maze-like component made of boards set in slotted concrete posts. The boards form channel walls through which the water passes on a zig-zag course through the flocculator. Within the channel are metal paddles wheels rotating on a horizontal axis to agitate the water.

Photograph 13. Sedimentation Basins 1 & 2 showing clarifiers and sludge rakes, camera facing south, 10/27/2011.

The **Administration Building** (1964-formerly known as the Head House) is at the north end of the property and attached the Sedimentation Basins on the south, modern Laboratory Building on the west and Control Building on the east (**Photograph 14** and **Photograph 15**). The three-story building has a rectangular plan and a stepped, flat roof. The main entry to the building is through connecting corridor with the Laboratory Building. This has double glazed metal doors with sidelights on the south and north sides. Sets of metal framed sliding windows framed by projecting surrounds are throughout the building. The remaining windows are three-part, metal framed pivot style. The north side (rear) of the building has a wrap-around loading bay and a metal personnel door accessed by concrete stairs. A cantilevered awning extends from just inside the shortest wall portion and wraps around the northeast corner and down the east side.

Photograph 14. Administration Building on right, modern Laboratory Building on left, camera facing northeast, 10/27/2011.

The **Grit Basin** (1964) is located northwest of the Administration Building and abuts the American River levee. Water from the intake structure flows directly into the Grit Basin, which is square in plan and has plain tilt-up concrete walls (**Photograph 16**). External concrete stairs with metal railing are on the east side and lead up to a concrete platform that overlooks the square tank. A motorized pivot arm propels a paddle around the tank and a metal catwalk provides access to the motor in the center of the tank. A metal railing rings the top of the tank.

Photograph 15. Laboratory Building, camera facing northwest, 10/27/2011.

Photograph 16. Grit Basin, camera facing northwest, 10/27/2011.

The remaining historic-era buildings at FWTP are relatively small, minor components. They are the **Carbon Storage Building**, a small brick building and tank with an overhanging flat roof. Fenestration consists of a metal personnel door and fixed metal framed windows. The **Metering Vault** is a poured concrete structure with stepped walls which abuts the levee. At the south end of the parcel between the Pump Station and Filter House is the **Lime Unloading Building**. It is a small rectangular concrete block building topped by a flat roof. Openings are a glazed metal personnel door, multi-pane metal sash windows and large metal overhead doors. Near the Lime Unloading Building is the **Lime Storage** structure which consists of a raised concrete platform holding two cylindrical metal lime tanks (**Photograph 17**). A metal stairway on the south side leads to metal platforms on top of the tanks. Next to the tanks on the east side is a small concrete block building with a flat roof. Its entire west wall is open and enclosed with two chainlink gates. To the east of these buildings is the **Wash Water Tank** (**Photograph 18**). Constructed in 1964, the approximately three-story high cylindrical metal tank has a metal stairway affixed to the northwest side. Vertical ribbing divides the exterior of the tank into six parts. See the DPR 523 form in Appendix B for a complete description and additional photographs of these buildings.

Photograph 17. Lime Unloading Building on left, Lime Storage structure on right, camera facing northwest, 10/27/2011.

Photograph 18: Wash Water Tank, camera facing northwest, 10/27/2011.

Modern buildings and structures at FWTP include the Laboratory Building, Control Building, Chemical Building, East Filter Building, Sedimentation Basins 3 & 4, FWW Lagoons 1 & 2, Sludge Lagoons 1, 2 & 3, Lime Building, underground reservoirs, garage, warehouse, and a storage building.

5 FINDINGS AND CONCLUSIONS

JRP prepared this HRIER to assist the City of Sacramento with its compliance under CEQA for the Sacramento Water Treatment Plants Rehabilitation project. The resources at SRWTP and FWTP have been evaluated in accordance with Section 15064.5(a)(2)-(3) of the CEQA Guidelines using the criteria outlined in Section 5024.1 of the California Public Resources Code and the City of Sacramento Historic Preservation Ordinance (2006-063) using the criteria outlined in Section 17.134.170 (A)(1)-(2) of the Sacramento City Code. This document has also been prepared for project compliance with NHPA Section 106 and the implementing regulations of the ACHP, if such compliance becomes necessary.

JRP surveyed and evaluated two properties, the SRWTP and FWTP. There are 14 historic-era resources at SRWTP and 11 at FWTP. JRP concludes that FWTP does not appear to be eligible for listing in the NRHP, CRHR, and SRHCR because the property does not have historical significance and it also has diminished historic integrity to convey any potential significance. SRWTP was previously evaluated in 2000 and 2009 and found to have historical significance and be eligible for the NRHP, CRHR, and SRHCR. JRP generally concurs with these findings. Of the 14 historic-era resources at SRWTP, seven appear to contribute to the historical significance of the property. As discussed below, SRWTP is eligible for its architectural and engineering significance under NRHP Criterion C, CRHR Criterion 3, SRHCR Criterion iii, and SRHCR Criterion iv, and the complex retains sufficient historic integrity to convey its significance. Thus, the SRWTP is a historical resource for the purposes of CEQA and a historic landmark of the City of Sacramento. The historical resource's period of significance is 1924-1928 and its boundary is the SRWTP property. Detailed evaluations of SRWTP and FWTP are provided on DPR 523 forms in Appendix B.

JRP concludes that none of the historic-era resources at SRWTP and FWTP are historically significant for their association with the growth of Sacramento or because of their roles in the development of local municipal water works (NRHP Criterion A/CRHR Criterion 1/SRHCR Criterion i). Similarly, none of these buildings appear to be associated with any historically significant individuals (Criterion B/2/ii). In rare instances buildings and structures themselves can serve as sources of important information about historic construction materials or technologies, but these resources at SRWTP and FWTP are otherwise well documented and do not appear to be principal sources of information in this regard (Criterion D/4/iv). In addition, FWTP does not appear to be distinctive for its architecture or its engineering design (Criterion C/3 or Criteria iii/iv/v). While the original buildings and structures at this plant constructed in 1964 exhibit characteristics of International Style Modernism, they are not distinctive examples of that aesthetic. Furthermore, the design of FWTP was standard for water treatment plants at the time and the plant not employ any new or innovative technology in its operation.

At SRWTP, a complex of seven buildings and structures are historically significant at the local level illustrating architectural distinction as an important and exceptional example of Neoclassical Revival style design for a public utility set in a City Beautiful inspired landscape, as well as the design of prominent architects Dean & Dean. In addition, one of these structures, Sedimentation Basin No. 1, is also distinctive for its engineering design innovations, incorporating important scientific findings with the addition of the paddle wheel coagulation/flocculation tanks. The new design proved to be so effective that it was adopted at water treatment plants throughout the country and is still being implemented at modern plants. (Criterion C/3 and Criteria iii / iv).

Basin No. 2 and the 9.5 mg clear water reservoir do not contribute to the historical significance of SRWTP because they are of a different architectural style than the elements of the property that contribute to its historical significance. The contributing elements derive their historical significance for being examples of Neoclassical Revival buildings and the associated City Beautiful landscape. In the case of Basin No. 1, it also derives historical importance for representing a design innovation in water treatment. Basin No. 2, built in 1933, and the 9.5 mg clear water reservoir, built in 1937, have utilitarian designs, do not illustrate the plant's original Neoclassical Revival design, and are is not important for contributions to municipal water system design development like Basin No. 1.

In addition to the historic-era buildings and structures on the SRWTP and FWTP there are also several buildings and structures less than 45 years old. As such they have been considered for possible historical significance under NRHP Criteria Consideration G, CRHR Special Consideration for properties that may have achieved significance within the past fifty years, and SRHCR Criterion Consideration E. Such properties less than 50 years old must attain a level of *exceptional* importance, with adequate time passed to gain sufficient historical perspective. None of the modern resources at either plant appear to reach this level of importance.[41]

Integrity is the ability of a property to convey its significance. The seven aspects of integrity are materials, workmanship, design, setting, location, association and feeling. The integrity of SRWTP has been diminished somewhat by the replacement of windows and doors on buildings, which affected the integrity materials, workmanship, and design. The property's integrity of setting and feeling have also been diminished by alterations to the original landscape plan and construction of new buildings. New buildings have mostly been built on the east portion of the property and none were constructed within the portion of the property that encompasses the historic 1920s facility. Although changes have occurred to the property, SRWTP still retains

[41] National Park Service, *How to Apply the National Register Criteria for Evaluation*, National Register Bulletin #15 (Washington, D.C.: NPS, 1997), 41-43.

sufficient integrity to convey its significance. The historic integrity of the FWTP has been diminished by the construction of the Laboratory Building in 1993, which drastically altered the façade of the Administration Building. Subsequent modern buildings constructed at the plant including buildings that abut historic-era resources have also degraded the historic integrity of the property, specifically of its design, materials, workmanship, setting, and feeling.

The following provides summary tables of the properties surveyed and evaluated in this report.

5.1 Properties listed in or previously determined eligible for the NRHP, CRHR and/or SRHCR:

Property	Year Built	OHP Status Code
SRWTP	1924	3S, 3CS, 5S3

5.2 Properties previously determined ineligible for the NRHP, CRHR and/or SRHCR:

None.

5.3 Properties determined eligible for NRHP, CRHR and/or SRHCR listing as a result of current study:

No properties were determined eligible for NRHP, CRHR and/or SRHCR listing as a result of current study, but the current study does clarify which of the 14 historic-era buildings and structures at the previously determined eligible SRWTP contribute to the property's historical significance.

Property	Building/Structure	Year Built	Contributor/Non-Contributor
SRWTP	Pump Station	1924	Contributor
SRWTP	Head House	1924	Contributor
SRWTP	Coagulant Building	1924	Contributor
SRWTP	Sedimentation Basin No. 1	1924	Contributor
SRWTP	West Filter Building and Filters (west half)	1924	Contributor
SRWTP	5 m.g. Clear Water Basin	1924	Non-Contributor
SRWTP	Landscaping and road layout	1924	Contributor

Property	Building/Structure	Year Built	Contributor/Non-Contributor
SRWTP	West Filter Building and Filters (east half)	1928	Contributor
SRWTP	Sedimentation Basin No. 2	1933	Non-Contributor
SRWTP	9.5 m.g. Clear Water Basin	1937	Non-Contributor
SRWTP	Machine Shop	ca. 1949	Non-Contributor
SRWTP	Oil Room (formerly Chlorine House)	ca. 1952	Non-Contributor
SRWTP	Emergency Pump Storage (formerly Pre-Chlorination Building)	ca. 1959	Non-Contributor
SRWTP	Storage Building/Equipment Platform	ca. 1965	Non-Contributor
SRWTP	Emergency Call Center	1985	Non-Contributor
SRWTP	5.8 m.g. CT Basin	2003	Non-Contributor
SRWTP	Earthen Sludge Lagoon	2003	Non-Contributor
SRWTP	Chemical Building	2003	Non-Contributor
SRWTP	East Filter Building	2003	Non-Contributor
SRWTP	Administration Building	2003	Non-Contributor
SRWTP	Sludge Lagoons 1, 2, 3	2003	Non-Contributor
SRWTP	FWW Lagoons 1 & 2	2003	Non-Contributor
SRWTP	Basin No. 3	2003	Non-Contributor
SRWTP	Grit Basin/Flash Mix	2003	Non-Contributor

5.4 Properties determined not eligible for NRHP, CRHR and/or SRHCR listing as a result of current study:

Property	Year Built	OHP Status Code
FWTP	1964	6Z

5.5 Properties that are not historical resources under CEQA §15064.5 because they do not meet CRHR criteria outlined in PRC §5024.1:

Property	Year Built	OHP Status Code
FWTP	1964	6Z

5.6 Properties that are not historic landmarks under the City of Sacramento Historic Preservation Ordinance (2006-063) using the criteria outlined in Section 17.134.170 (A)(1)-(2) of the Sacramento City Code:

Property	Year Built	OHP Status Code
FWTP	1964	6Z

5.7 Impacts Analysis and Mitigation Measures

The CEQA guidelines Section 15064.5(b) state that "a project with an effect that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment." This section of the CEQA Guidelines further details the standards for impacts to historical resources as follows:

1. Substantial adverse change in the significance of an historical resource means physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired.
2. The significance of an historical resource is materially impaired when a project:
   a. Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register of Historical Resources; or
   b. Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to section 5020.1(k) of the Public Resources Code or its identification in an historical resources survey meeting the requirements of section 5024.1(g) of the Public Resources Code, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or
   c. Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and

that justify its eligibility for inclusion in the California Register of Historical Resources as determined by a lead agency for purposes of CEQA.

3. Generally, a project that follows the Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings or the Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings (1995), Weeks and Grimmer, shall be considered as mitigated to a level of less than a significant impact on the historical resource.

The following is based on the project description in Section 2 and provides an impacts analysis for SRWTP, the one historical resource identified in this report. The City of Sacramento Department of Utilities also provided JRP some additional information that refines details from the project description.

The components of the rehabilitation project at SRWTP are as follows: (**Illustration 20** and **Illustration 21**)

1. Demolition of the existing Emergency Call Center building in the northwest corner of the property and construction a new High Service Pump Station and small electrical equipment building surrounded by new paving at this location;
2. Demolition of Basin No. 2 and construction of a new sedimentation basin on the eastern portion of that site;
3. Construction of eight new filters east of the West Filter building; and
4. Construction of new solids handling facilities at the east edge of the facility and on the vacant parcel adjacent to the east gate.
5. Decommissioning of the Pump Station, Head House, Basin No. 1, and the West Filter Building and its filters. The Department of Utilities noted that decommissioning entails discontinuing use of these facilities, but no alterations or actions are proposed for these buildings.

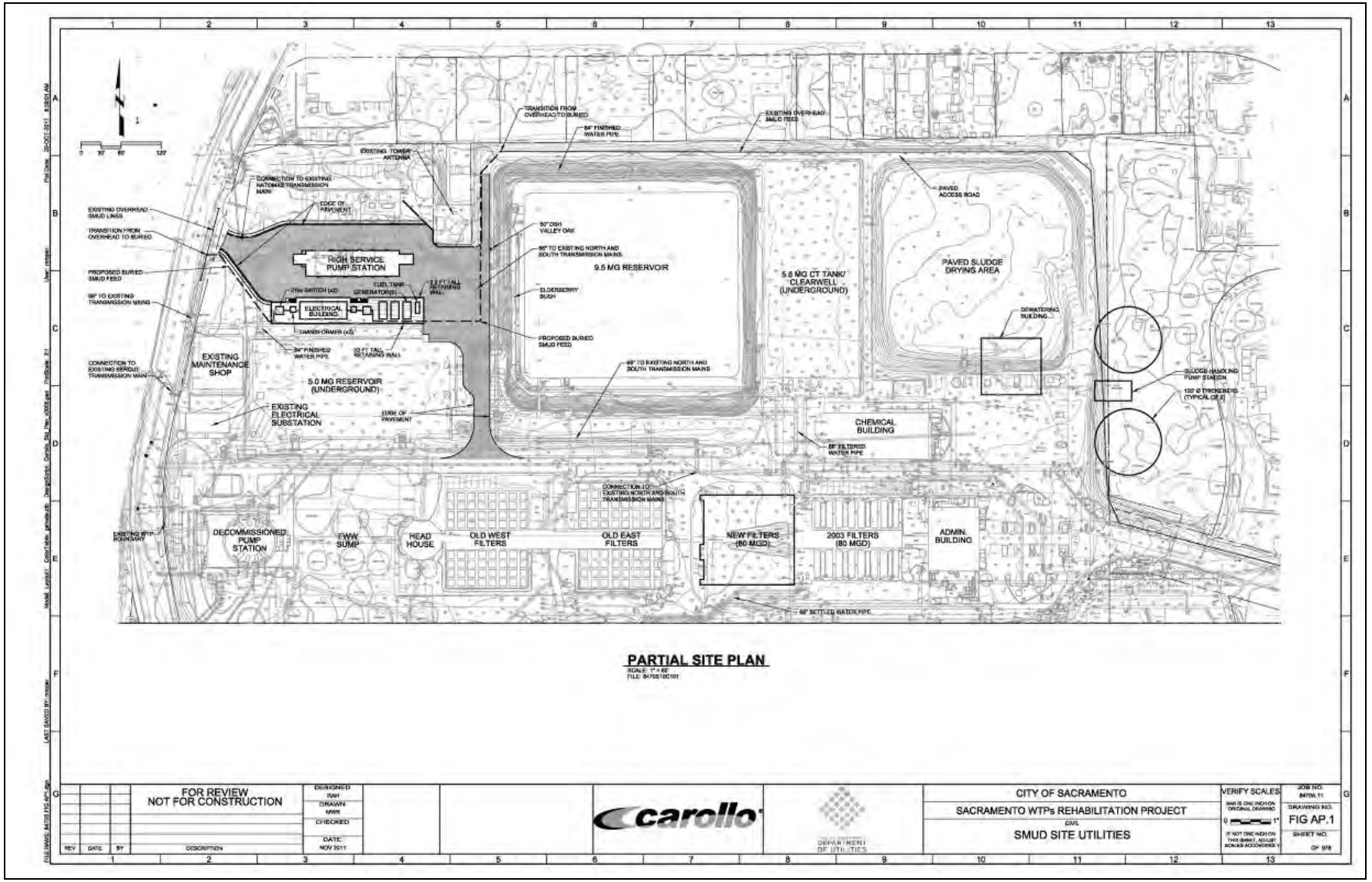


Illustration 20. Site plan showing location of new pump station (left), filters (center) and solids handling facility, all outlined in black. Image courtesy of City of Sacramento.

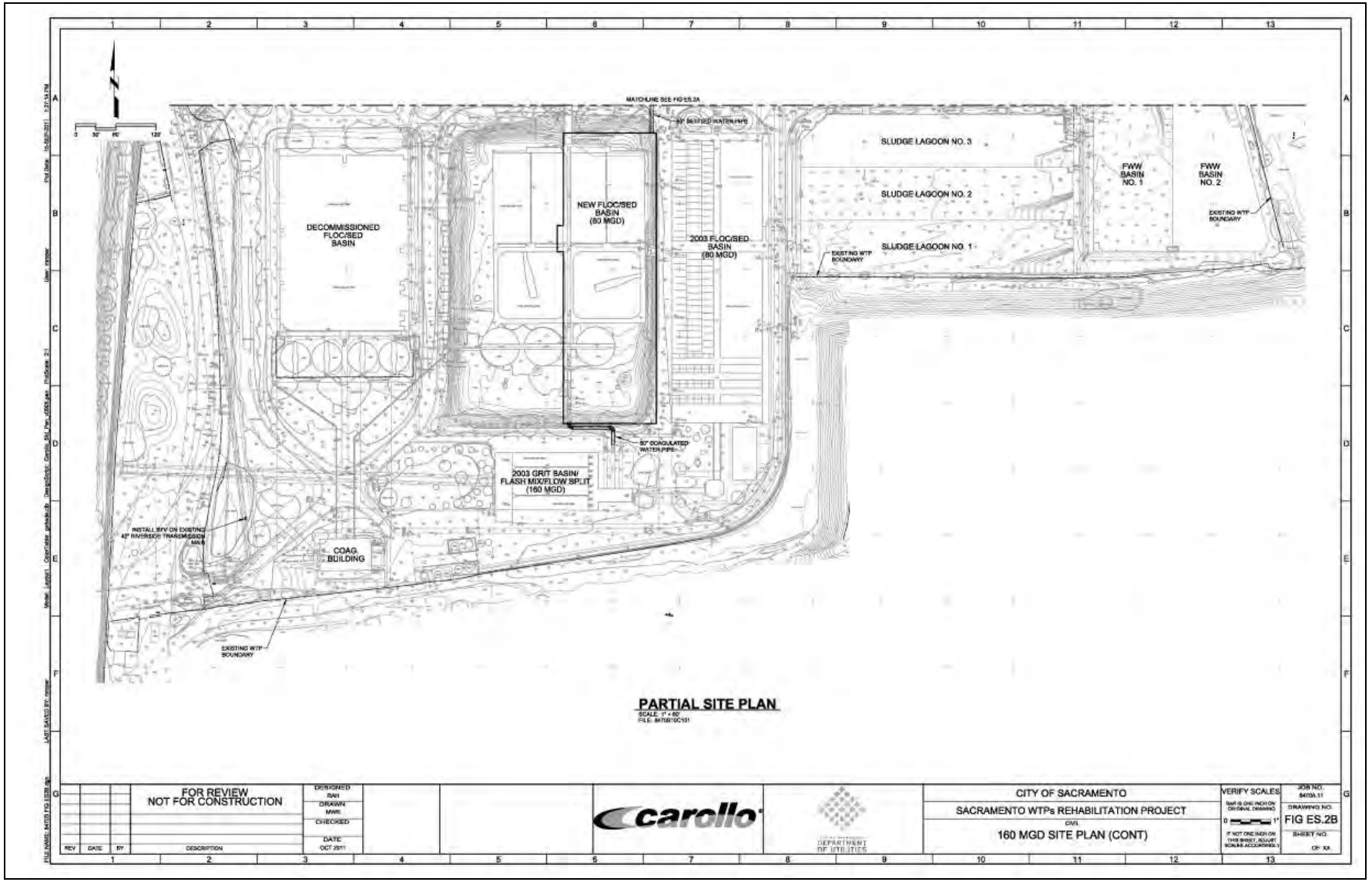


Illustration 21. Site plan showing location of new sedimentation basin outlined in center of image outlined in black. Image courtesy of City of Sacramento.

Demolition for this project is limited to the Emergency Call Center, constructed in 1985, and Basin No. 2, constructed in 1937. Neither of these facilities contributes to the historical significance of SRWTP and are not contributing elements of the historical resource. Their removal and replacement with new facilities will not alter the contributing elements of the historical resource and will also not diminish the setting of the historical resource. The Emergency Call Center is approximately 1,700 feet north of the contributing elements area of the plant. It will be replaced by the new High Service Pump Station at the same location. The proposed replacement basin will be roughly the same height as Basin No. 2, and its footprint will be approximately half the size of Basin No. 2, constructed 100 feet further away from Basin No. 1 and the landscape components that contribute to the historical resource than the current basin. Thus, demolition of the Emergency Call Center and Basin No. 2 will have neither direct nor indirect impact on the historical resource and thus will not cause a substantial adverse change to the historical resource.

The eight new filters and new solid handlings facilities will be constructed on the east portion of the property. These new facilities will not physically alter the contributing elements of the historical resource at SRWTP. They also will not diminish the historic integrity of setting that the historical resource possesses. The new filters will be an addition to existing filters built in 2003 and of the same design. These filters will be on the east edge of the contributing elements area, just east of the West Filter Building, separated by a roadway. This addition will have a minimal visual impact because it is only a 136 foot wide addition to a currently existing building and will be only modestly taller than the historic filters. The new solid handling facilities will be in the extreme northeast part of the property far from the contributing elements area and there will be no visual impact. Thus, neither of the new facilities on the east portion of the property will cause a substantial adverse change.

As noted, decommissioning of contributing elements of the historical resource at SRWTP appears to not require any alteration to the Pump Station, Head House, or West Filter Building and its filters. JRP assumes that the buildings / structures will be regularly maintained to ensure that they do not physically deteriorate. If the City plans to not use these facilities for an extended period of time, JRP recommends that appropriate procedures for mothballing historic buildings be followed, such as Sharon C. Park, “Mothballing Historic Buildings,” Preservation Brief No. 31 (Washington DC: National Park Service, 1993). If needed, implementing appropriate procedures for mothballing historic buildings would prevent the decommissioning of these facilities from causing a substantial adverse change to the historical resource.

The FWTP is not a historical resource for the purposes of CEQA and thus the proposed project will have no substantial adverse change to historical resources at that facility.

6 PREPARERS' QUALIFICATIONS

JRP Partner Christopher McMorris (M.S. in Historic Preservation, Columbia University) provided general direction for this project and edited this report, contributing to the historic evaluations and impacts analysis. Mr. McMorris qualifies as an architectural historian and historian under the United States Secretary of the Interior's Professional Qualification Standards (as defined in 36 CFR Part 61).

JRP historian Steven J. Melvin was the lead historian for this project. Mr. Melvin conducted fieldwork and research, wrote the contextual statement and evaluations, and prepared the HRIER and DPR 523 forms. Mr. Melvin received an M.A. in Public History from California State University, Sacramento and has over six years of experience conducting historical research and evaluating historic resources. Based on his level of experience and education, Mr. Melvin qualifies as a historian under the Secretary of the Interior's Professional Qualification Standards (as defined in 36 CFR Part 61).

Research Assistant Heather Miller assisted in fieldwork, research, and preparation of the report and DPR 523 forms. Ms. Miller holds a B.A. in American History from Humboldt State University and a certificate in Historic Preservation and Restoration Technology from College of the Redwoods.

7 BIBLIOGRAPHY

Published Sources

Avella, Steven M. *Sacramento: Indomitable City.* San Francisco: Arcadia Publishing, 2003.

Burns, John F. ed. *Sacramento: Gold Rush Legacy, Metropolitan Destiny*. Carlsbad, CA: Heritage Media, 1999.

Hendricks, David. *Water Treatment Unit Processes: Physical and Chemical*. Boca Raton, FL: CRC Press, 2006.

Hoover, Mildred Brook, Ethel Grace Rensch, and Hero Eugene Rensch. *Historic Spots in California*. Revised by William N. Abeloe. Stanford, CA: Stanford University Press, 1966.

Jaqueth, H.H. *Major Street Report, Sacramento, California.* St. Louis: Bartholomew and Associates, City Plan and Landscape Engineers, 1928.

Lord, Myrtle Shaw. *A Sacramento Saga: Fifty Years of Achievement-Chamber of Commerce Leadership*. Sacramento: Sacramento Chamber of Commerce, 1946.

McAlester, Lee and Virginia McAlester. *Field Guide to American Houses*. New York: Alfred A. Knopf, 1988.

McGowan, Joseph. *History of the Sacramento Valley*, vol. II. New York: Lewis Historical Publishing, 1961.

Petersen, Richard S. *The Growth of Sacramento County, 1940-1960.* Sacramento: Bank of America, 1961.

Reed, G. Walter. *History of Sacramento County with Biographical Sketches.* Los Angeles: Historical Record Company, 1923.

Spain, Daphne. *How Women Saved the City.* Minneapolis: University of Minnesota Press, 2001.

Unpublished Sources

Brent, David L. Report to Council, City of Sacramento. "Completion of Water Facilities Expansion Program." EAFWTP (ZF43) Final Change Order No. 30. December 13, 2005.

Calpo, Janice C., with Spencer Lockson & Dan Murphy (Sierra Curtis Neighborhood Association Heritage Committee). J.C. Carly House, 2761 Montgomery Way, Sacramento, National Register Nomination form. Prepared November 2005.

City of Sacramento. *Population Growth of the City and County of Sacramento, 1850 – 1980*. Part of the Master Plan of the City of Sacramento, November 1953.

City of Sacramento. Building and Site Plans for Sacramento River Water Treatment Plant and E.A. Fairbairn Water Treatment Plant. Obtained at the Sacramento Department of Utilities.

City of Sacramento. "City of Sacramento Municipal Progress, 1939," 1940, City of Sacramento Traffic Engineer Reports. Box 5. Folder 7. Center for Sacramento History, Sacramento, California.

City of Sacramento. "Traffic Signs and Signals, Annual Report, 1936." City of Sacramento Traffic Engineer Reports. Box 5. Folder 8. Center for Sacramento History, Sacramento, California.

City of Sacramento. Division of Water and Sewers. *Public Water Supply of Sacramento: Its Purification and Distribution*. Sacramento, CA: Division of Water and Sewers, 1956.

Historic Environmental Consultants. "Richards Boulevard Area Architectural and Historical Property Survey." September 2000.

Historic Environmental Consultants. "River District Architectural and Historical Property Survey Update." July 2009.

Hope, Andrew (Caltrans). Coloma Community Center (former Coloma School and Elmhurst School), 4623 T Street, Sacramento, DPR 523 form. Prepared December 2005.

JRP Historical Consulting. "Historic Architectural Survey Report, South Sacramento Corridor LRT Project." October 1995.

Rowland, Carol (Roland-Nawi Associates). Sierra 2 Community Center, former Highland Park School / Sierra School, 2791 24th Street, Sacramento, DPR 523 form. Prepared March 2003.

Newspapers / Periodicals

Boghosian, Paula. "The Architecture of Water in Sacramento," *Sacramento History Journal* 6, no. 1-4 (2006): 289-295.

Brienes, Marvin. "Sacramento Defies the Rivers, 1850-1878." *California Historical Society Quarterly* 58 (Spring 1979): 3-19.

Carunchio, Kevin. "Turning Mud into Liquid Gold: A History of Sacramento's Water Supply, 1849-1924." *Sacramento History Journal* 6, no. 1-4 (2006): 264-274.

Langelier, Wilfred F. "Coagulation of Water with Alum by Prolonged Agitation." *Engineering News-Record* 86 (1921): 924-928.

Sacramento Bee

Sacramento Union

Maps / Aerial Photographs / Historic Photographs

California Real Estate & Zoning Aerial Survey. *Sacramento and Vicinity*. Roseville, CA: California Real Estate & Zoning Aerial Survey, 1990.

City of Sacramento. "Map of Proposed Site of Filtration Plant." January 26, 1920.

"Fairbairn Water Treatment Plant Nearing Completion." September 27, 1963. Photograph from Sacramento Bee Photo Morgue, Center for Sacramento History.

Lusk Air Photo. "Sacramento Water Filtration Plant, Spring 1931." Photo No. 2001/57/16, Bob McCabe Collection. Center for Sacramento History.

Phinney, Cate and Marshall. *Map of Sacramento City, 1913, Sacramento County, California*. [n.p.]: 1913.

Real Estate Data, Inc. *Aerial/Map Volume of Sacramento County, California*. 17th ed. Miami, FL: Real Estate Data, Inc., 1980.

"Sacramento Water Filtration Plant, ca. 1920s". Photo No. 70/01/152. David Joslyn Collection. Center for Sacramento History.

"Sacramento Water Filtration Plant, ca. 1950s." Photo No. 84/21/20. Don Rivett Collection. Center for Sacramento History.

Sanborn Fire Insurance Company. *Sacramento, California.* New York: Sanborn Fire Insurance Company, 1898, 1915, 1952.

Online Resources

American Water Works Association (AWWA). "AWWA Water Landmarks." AWWA. http://www.awwa.org/ (accessed October 2011).

United States Department of Agriculture. Sacramento County. 1957 & 1964. www.historicaerials.com (accessed October/November 2011).

University of California. *University of California: In Memoriam, 1989, Wilfred F. Langelier, Civil Engineering: Berkeley*. California Digital Library. http://texts.cdlib.org/view?docId=hb4p30063r;NAAN=13030&doc.view=frames&chunk.id=div00030&toc.depth=1&toc.id=&brand=calisphere&query=wilfred%20F.%20langelier (accessed October 2011).

APPENDIX A

Figures

Figure 1. Project Vicinity Map

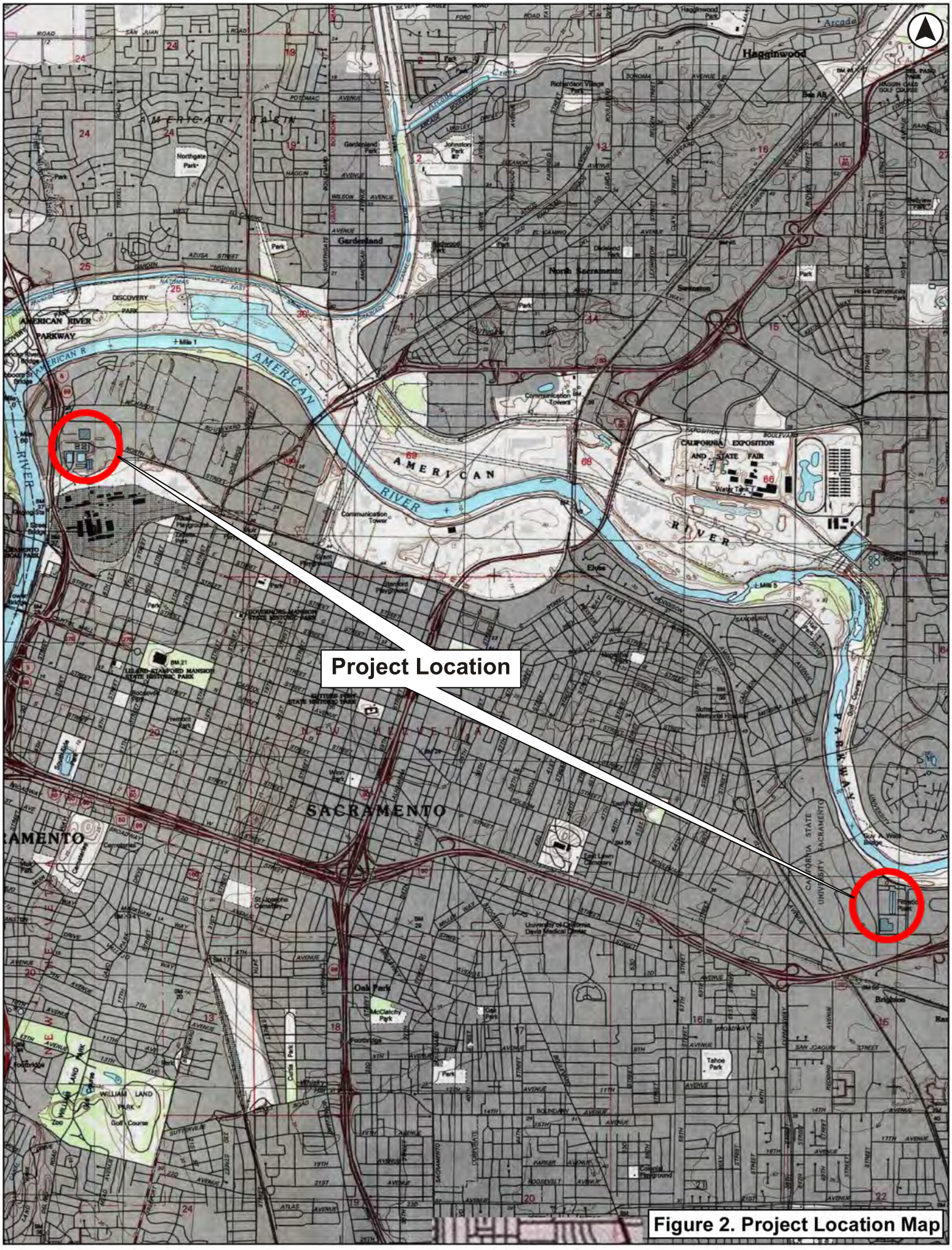

Project Location
SACRAMENTO
AMERICAN RIVER
Hagginwood
North Sacramento
Gardenland
CALIFORNIA EXPOSITION AND STATE FAIR
Oak Park
Figure 2. Project Location Map

Figure 3-1. Study Area

Figure 3-2. Study Area

APPENDIX B

DPR 523 Forms

P1. Other Identifier: Sacramento River Water Filtration Plant
*P2 e. Other Locational Data: 101 Bercut Avenue Street; APN: 001-0210-038

***P3a. Description:** This form is being prepared to update previous recordations and evaluations of the Sacramento River Water Treatment Plant (SRWTP) undertaken by C. Caesar of Historic Environment Consultants in 1985, Paula Boghosian of Historic Environment Consultants in 2000 and updated by Boghosian in 2009 (See attached forms). The previous DPR 523 form included brief descriptions of the Pumping Station, Head House and West Filter Building. This section will provide comprehensive descriptions of those buildings and all other buildings and structures on the property more than 45 years old. (See Description continued on Page 2.)

***P3b. Resource Attributes:** HP 9 – Public Utility
***P8. Recorded by:** Steven J. Melvin and Heather Miller, JRP Historical Consulting, LLC, 1490 Drew Ave, Suite 110, Davis, CA 95618
***P9. Date Recorded:** October 27, 2011

***P11. Report Citation:** JRP Historical Consulting, LLC, "Sacramento Water Treatment Plant Rehabilitation Project, Sacramento, California," 2011

***B10. Significance:**

The SRWTP is eligible for the National Register of Historic Places (NRHP), California Register of Historic Resources (CRHR) and the Sacramento Register of Historic and Cultural Resources (SRHCR) based on conclusions by Paula Boghosian of Historic Environmental Consultants in 2000 and 2009.[1] Boghosian concluded the complex is eligible under NRHP Criterion C for "historical and architectural/engineering significance." She noted that the "the buildings of the complex, particularly the Pumping Station and the Administration Building [Head House] are handsome and elegant examples of Classical Revival style variation, unusually graceful for essentially functional public works buildings. With their park like setting, they represent the implementation of 'City Beautiful' ideals in a utilitarian context." She goes on to write that the Pumping Station, Head House and Coagulant Building are "the principal agents of the Beaux Arts architectural design and style complex. The pools, aeration ponds and storage facilities also located on the property are functional elements of the plant's activities and are utilitarian in nature." In addition to the three buildings listed above, Boghosian included a description of the West Filter Building, thereby including it among the notable buildings on the complex. This study also recognized the important design innovations of the original SRWTP plant calling it "the most modern facility of its kind in the United States at the time of its construction" and "the first filtration plant constructed west of the Rockies." Boghosian determined the date of construction of the plant to be 1921, a date which does not encompass all of the original buildings, and the period of significance as 1921-1948, which is not explained or justified and does not reflect the era in which SRWTP achieved significance.[2] While the present study in essence concurs with the findings of the previous report, it seeks to clarify and amend elements of the earlier study and provide additional information. Specifically, this significance statement will present an enhanced historic context, give dates of construction for all buildings on the complex, present clear historic significance evaluations for each of the NRHP/CRHR/ SRHCR criteria, amend the period of significance to reflect the period of time when SRWTP attained its historic significance, clearly define which buildings on the site contribute to the historical significance of the plant, and assess the current historic integrity of the historical resource.

(See Significance continued on Page 4.)

[1] Historic Environmental Consultants, "Richards Boulevard Area Architectural and Historical Property Survey," September 2000; Historic Environmental Consultants, "River District Architectural and Historical Property Survey Update," July 2009.
[2] Paula Boghosian, "101 Bercut Drive, Sacramento River Water Treatment Plant," DPR 523 form, September 1997, in "Richards Boulevard Area Architectural and Historical Property Survey," Historic Environmental Consultants, September 2000; Sacramento River Water Filtration Plant, DPR 523 form, March 2009, in "River District Architectural and Historical Property Survey Update," Historic Environmental Consultants, July 2009.

P3a. Description (continued):

The SRWTP is on a 40.58-acre parcel near the Sacramento River just north of downtown. On the property are 25 buildings and structures, 14 of which are 45 years old or older. Generally speaking, the older buildings are located on the west side of the parcel, and the newer on the east (**See Site Map**). The original elements of the plant are in the southwestern part of the site. The following description of the existing buildings at SRWTP is ordered chronologically by date of construction.

The single-story Neoclassical Revival style **Pump Station** built in 1921 is rectangular in plan, rests on a concrete foundation, and has a flat roof (**Photograph 1**). The walls are clad in stucco with a wide base course, rusticated quoins at the corners, and a simple entablature along the roofline. In the frieze level of the cornice an inscription reads, " 'And Everything Shall Live Whithersoever the Rive Cometh' Ezekiel XLVII-9" (**Photograph 2**). The symmetrical façade has a central entry door flanked by four industrial sash metal windows. The entrance features a rusticated door surround, set of replacement full-light metal doors with sidelights and fixed two-part metal transom, with an additional transom of metal sash rough wire glass lights above. Between the two transoms is a transom bar with an inscription that reads "Pumping Station" and 1921 in Roman numerals. The windows consist of three stacked sections of metal sash horizontal pivot windows with rough wire glass lights. The north side of the building has the same plan as the main façade (**Photograph 3**), but retains the original wood paneled double doors although the stairway has been removed (**Photograph 4**). A small metal personnel door with four fixed lights accessed by metal portable stairs has been added just east of this rear entrance. The east side of the building features the same entry configuration as the main façade, but lacks stairs and is flanked by only two windows. A small, rectangular, single-story addition built in 1956 is located at the northeast corner of the Pump Station (**Photograph 5**). The addition has metal casement windows, glazed metal personnel door, and a metal overhead roll-up door.

Built in 1924, the Neoclassical Revival style **Head House** is a two-story, stucco-clad, octagonal building resting on a concrete foundation. It is topped by a truncated octagonal hipped roof, below a conical roof, and crowned by a cupola, all clad in Spanish tile (**Photograph 6**). Below the entablature of the conical roof are the names of notable engineers and scientists as well as two inscriptions: "And The Glowing Sand Shall Become A Pool And The Thirsty Ground Springs Of Water" and "To Protect The Health Of The People Is A Fundamental Duty of the Commonwealth." Smooth corner pilasters with decorative capitals are located at each wall junction. The building is accessed through two recessed entries on the west side and south sides, respectively. The main, western entry has a simple doorway entablature with a single glazed metal door, glass block sidelights and transom. Located on the south wall inside the recessed doorway is a single wood personnel door with ten lights. The doorway entablature is flanked by two narrow metal sash windows. The secondary entrance on the south side is the same as the main entry, but is accessed by concrete stairs (**Photograph 7**). The two narrow metal sash windows that flank the door have been replaced with glass blocks. Fenestration on the building includes a mixture of two sizes of metal framed pivot windows, a large three-part, metal framed replacement window, and replacement glass block windows. A small, enclosed connecting passageway that connects the Head House to the West Filter Building is located on the west side of the Head House. A metal personnel door with four fixed lights is located on the north side of the passageway (**Photograph 8**).

The **West Filter Building** was built in 1924 with an addition in 1928 and has modest Neoclassical Revival characteristics. It is a long, rectangular building that rests on a concrete foundation and has a low-pitched gable roof (**Photograph 9**). The stucco-clad building features a repeating door and window opening pattern consisting of a single window set of metal sash horizontal pivot windows with a three-by-three glass block transom window, followed by group of four sets, then another single set. Between each single set and group of four are single metal glazed personnel doors (**Photograph 10**). Centrally located on the building is the main entrance consisting of a single, metal glazed entry door with glass block sidelights on the south side (**Photograph 11**). The opposite (north) side of the building has the same window and door configuration (**Photograph 12**). A single metal glazed entry door is centrally located on the east side. To the north and south of the building are a total of 16 water filter structures. The structures are partially below grade chambers largely made of poured concrete and metal supports. The tops of the filters are a checkerboard of poured concrete walkways surrounded by a low concrete wall clad in stucco.

The single-story **Coagulant Building** was built in 1924 and has modest Neoclassical Revival details. Its rectangular plan is set on a concrete foundation and capped by a flat roof (**Photograph 13**). Walls are clad in stucco with a modest base course and accentuated cornice. The north facing façade consists of a centrally located double, metal glazed entry door with a transom light and a simple door entablature. Flanking the door are a total of four windows with two-stacked sections of metal sash horizontal pivot windows with rough wire glass lights. The east and west sides of the building each contain three of these windows. The south side of the building features a full-length concrete loading dock with metal railing and concrete stairs on the east and west ends (**Photograph 14**). Centrally placed on the south side is a contemporary overhead door and three of the same metal pivot windows found on the building. One set of windows is partially infilled with a wide, sliding wood door. Access to the basement to the building is gained through a set of metal stairs descending from ground level on the east side of the building.

Basin #1, built in 1924, is a partially below grade, rectangular structure with modest Neoclassical Revival details. It is comprised of a sedimentation basin and four coagulation/flocculation tanks on the south end (**Photograph 15**). The north wall of the basin features a base course, smooth pilasters and a modest cornice. The remaining three walls are lower in height and lack a base course and pilasters. Along the east wall are five concrete platforms jutting out into the basin and accessed by metal ladder rungs inserted in east wall (**Photograph 16**). In the middle of the south wall is the Coagulant Control House (**Photograph 17**). This small structure is square in plan, has a hipped Spanish tile roof, corner pilasters, and sits on a raised foundation between the sedimentation basin and tanks. A plywood entry door is located on the south side and is accessed by concrete stairs with pipe railings. Small recessed window openings with metal sash pivot windows are located on the east, west, and north sides. On the south end of Basin #1 are four circular coagulation/flocculation tanks about 45 feet in diameter (**Photograph 18**). They are constructed of concrete and each has a concrete walkway across the top. The walkway has a balustrade with cornice, base course, and paired pilasters. At the middle of the tank is a corrugated metal gable roof supported by metal pipes and sheltering the motor which turns the paddles in the tank. This end of Basin #1 is enclosed by a metal fence with a centrally located metal gate set on stucco posts.

Built in 1924, the **5mg Clear Water Basin** is a below grade structure that is roughly rectangular in plan (**Photograph 19**). The perimeter of the structure is lined a combination of concrete block retaining walls and metal pole and wire fencing. A layer of large aggregate gravel covers the entire area. A concrete pad with four tank lids is located in the northwest corner and diamond plated covers are located in the southwest and northeast corners. Two sets of above-ground pumps and associated metal stairs are located on the southwest corner and the middle of the southern wall.

The original **landscaping** and layout of the SRWTP was inspired by the City Beautiful movement (**Photograph 20**). The current layout in the area of the 1920s buildings has a formal symmetry set on a north/south axis with tree-lined streets, a park-like setting and viewsheds focused on monumental buildings. The original entrance on Bercut Drive (now closed) led visitors into the plant passed the Coagulant Building on roads by each side of Basin No. 1 which presented of view of either the Pump Station or Head House. Before each of these buildings is a roundabout and between them a courtyard of trees and lawn with sidewalks and a flagpole.

Basin No. 2 is a rectangular, board-formed concrete structure built in 1933 consisting of three elements: sedimentation basin, clarifiers, and mixing tanks. This structure lacks the Neoclassical Revival details of other older structures on the property (**Photograph 21**). The sedimentation basins and clarifiers of Basin #2 are built on below grade cylindrical concrete piers with the mixing tanks on the south end. A concrete water channel flows from the center of the north end and into the West Filter Building. The sedimentation basin portion of the structure consists of four sections separated by concrete walls (**Photograph 22**). At the north and south ends of the walls are metal lift gates. The central concrete wall functions as a walkway down the entire length of the structure. The two large clarifiers are roughly square in plan and feature motorized pivot paddles which move along a metal track on the tank's perimeter with a metal catwalk above (**Photograph 23**). At the south end of the basin are three mixing tanks (**Photograph 24**)**.** The tanks are accessed by metal railings and catwalks on the west side of the structure (**Photograph 25**). A fourth tank has been removed from the southeast corner of the structure

(**Photograph 26**). The two eastern tanks are connected and a small shed roof, metal corrugated sided building is located between them. A small concrete block pump house with a metal sash pivot window is located on the west side of the western mixing tank.

Constructed in 1937, the **9.5 mg Clear Water Reservoir** is a large, board-formed concrete building with rounded corners and a roughly square in plan (**Photograph 27**). The building has a low-pitched, pressed seamed gable roof with a metal gable roof clearstory. Small rectangular openings with screens are located below the roofline around the entire building. Concrete buttresses line the base of the southern wall. A metal bridge is located on the southwest corner to access the building.

The **Machine Shop**, built circa 1949, is a corrugated metal building with a rectangular shaped plan and low pitched gable roof. On the east side is a large, shed roof addition built ca. 1958 (**Photograph 28**). The façade has a large central vehicle bay, a metal personnel door west, and a two-part, top-hung, sliding door on the eastern shed roof addition. A smaller shed roof addition is on the west side and has a two-part metal personnel entry. The east side of the building has one small vent, the north side has a gable vent, and the west side lacks wall openings.

The **Oil Room** was built around 1952 with an addition in 1962. It is a small, single-story stucco clad building with a low-pitched gable roof (**Photograph 29**). On the north side is a metal overhead door and two, metal sash pivot windows are on the east side. The addition on the west side has a shed roof, raised seam metal siding and metal personnel doors on the north and south sides.

The **Emergency Pump Storage Building** is a small stucco building built circa 1959. It has a square plan, rests on a concrete foundation, and is topped by a flat roof (**Photograph 30**). A corrugated shed roof supported by metal poles shelters the length of the east side. This side has a two-part, vertical wood plank door and a two-part metal sash casement window. On the north side are three similar windows. A metal personnel door is on the west side along with a shed roof storage shed addition, and a window opening covered by sheet metal. The south side has two, two-part metal sash casement windows and a metal glazed personnel door.

Built circa 1965, the **Storage Shed/Equipment Platform** is a poured concrete and corrugated metal building roughly rectangular in plan. The lower level as five bays with corrugated metal doors facing north. Above, and set on a concrete platform are what appears to be electrical equipment and metal storage sheds (**Photograph 31**).

In addition to the above described buildings which are 45 years old or older, numerous additional buildings and structures have been built on this property. These are the Supervisor and Engineering Building, Emergency Call Center, Administration/Operations Building, Chemical Building, East Filter Building, Grit Basin/Flash Mix structure, Basin #3, Filter Wash Water Lagoons 1 and 2, Sludge Lagoons 1, 2 and 3, Earthen Sludge Lagoon, and a 5.8mg CT Basin.

B10. Significance (continued):

***B10. Significance: Theme:** Public Utility Architecture; Water Treatment Plant Design **Area:** Sacramento
Period of Significance: 1924-1928 **Property Type:** Municipal Water Treatment Plant **Applicable Criteria:** C/3/iii

***B14. Evaluator:** Steven J. Melvin / Christopher McMorris ***Date of Evaluation:** December 2011

The SRWTP appears to meet the criteria for listing in the NRHP, CRHR and SRHCR for its distinctive Neoclassical Revival / Beaux Arts style architecture, for its innovations in water treatment plant engineering design, and as an important work of Dean & Dean Architects, who are considered "master" architects (NRHP Criterion C / CRHR Criterion 3 and SRHCR Criteria iii and iv). The property has been evaluated in accordance with Section 15064.5 (1)(2)-(3) of the CEQA Guidelines using the criteria outlined in Section 5024.1 of the California Public Resources Code and the City of Sacramento Historic

Preservation Ordinance (2006-063) using the criteria outlined in Section 17.134.170 (A)(1)-(2) of the Sacramento City Code. Therefore, this property appears to be a historical resource for the purposes of CEQA and a historic landmark of the City of Sacramento. (See Evaluation below.)

Historic Context

General Development of Sacramento

European settlement in the area that became Sacramento was initiated by large land grants allotted by Mexican governors during the Mexican period of California history. In 1841, John Augustus Sutter, from Switzerland, obtained a land grant along the Sacramento River where he constructed a fortified settlement and trading post. The grant, which Sutter named New Helvetia, encompassed approximately 44,000 acres, including all of the land where SRWTP currently sits. Even with Sutter's settlement activities, the Sacramento Valley remained isolated and sparsely settled until January 1848, when James Marshall discovered gold at Sutter's lumber mill along the South Fork of the American River at Coloma. The initial development of the City of Sacramento is directly attributable to the subsequent onslaught of gold seekers rushing to the Sierra Nevada and the settlement quickly took on the role of a gold rush river port.[3]

Two of Sutter's business associates, Sam Brannan and Peter Burnett, joined Sutter's son, John A. Sutter, Jr., in establishing the new town of Sacramento. They set aside four square miles of New Helvetia land between the riverfront and the fort, and in December 1848 commissioned Captain William H. Warner and Lt. William Tecumseh Sherman to lay out a system of streets and blocks. The grid plan included wide streets and space reserved for several city parks and plazas. Sacramento incorporated in 1850 and its population quickly grew to 6,820 within a few months.[4] Sacramento importance as a gold rush town and growth in the late 1840s and early 1850s made it a viable candidate for the site of the state capitol. Political fighting over the location of the capitol, and disasters such as fires and floods, kept the seat of state government moving around northern California for several years, until finally locating permanently in Sacramento in 1854.[5]

Following the gold rush, residents turned to other commercial pursuits in the new city and agriculture became central to Sacramento's economy. Wheat was the dominant crop in the early years and Sacramento served as the region's central shipping center. Steamboats provided much of the transportation for the people and goods moving in and out of the city while at the same time a system of streets and roads developed within the city and throughout Sacramento County. Railroads also entered Sacramento with the Sacramento Valley Railroad establishing service between Sacramento and Folsom in 1856 and the Central Pacific Railroad incorporating in 1862 (later became the Southern Pacific Railroad). Thus, by the mid-1860s Sacramento had developed into a bustling transportation, commercial, agricultural, and social hub for the Sacramento Valley and grew to over 21,000 inhabitants by 1880.[6]

During the city's initial decades residential areas expanded and the crude shelters of early years were replaced with brick and wood-frame buildings. Churches and schools sprang up throughout the city. The Sacramento riverfront, the business district along J and K streets, the State Capitol area developed first, with the land further east being built up as the city's population increased. The levee system adapted by the city in the late 1850s and early 1860s placed limitations on urban development, beyond which urban settlement could not expand without being threatened by floodwaters. In 1862, flooding also prompted the city to relocate the mouth of the American River at the confluence with the Sacramento River about one

[3] John F. Burns, ed., *Sacramento: Gold Rush Legacy, Metropolitan Destiny* (Carlsbad, CA: Heritage Media Corp., 1999), 18-29; Mildred Brook Hoover, Ethel Grace Rensch, and Hero Eugene Rensch, *Historic Spots in California*, Revised by William N. Abeloe (Stanford, CA: Stanford University Press, 1966), 298-299

[4] Burns, ed., *Sacramento: Gold Rush Legacy, Metropolitan Destiny*, 29-31; Hoover, et. al., *Historic Spots in California*, 302-303; H. H. Jaqueth, *Major Street Report, Sacramento, California* (St. Louis, MI: Bartholomew and Associates, City Plan and Landscape Engineers, 1928) adopted by City of Sacramento Planning Commission and City Council in September, 1928, 10.

[5] Hoover, et. al., *Historic Spots in California*, 303-304; Burns, ed., *Sacramento: Gold Rush Legacy, Metropolitan Destiny*, 30-31.

[6] Burns, ed., *Sacramento: Gold Rush Legacy, Metropolitan Destiny*, 31-35, 48-50.

quarter mile north to its current location. The former channel passes directly through the current site of SRWTP. Until the late 1870s, the practical boundaries of urban settlement in Sacramento were defined by the Sacramento and American rivers to the west and north, and a levee to the south and east. At the time, the levee ran east along R Street from the Sacramento River to roughly 16th Street, then meandered northeasterly along an overflow channel of the American River called Burns Slough to a location near G and 31st streets, and subsequently headed north along 31st Street to the American River. The concentration of residences during the 1870s, though, remained west of 11th Street.[7] In 1878, Sacramento's increasing population compelled the city to move its southern levee south to Y Street (now Broadway) and east to 21st Street, opening more land to urban development.[8] By the mid-1880s residential construction had spread east of 15th Street and continued to fill in the developable areas of the city with most of the area in what is now south mid-town (15th to 29th streets, L Street south to Broadway) developed by the late 1890s.[9] With this early growth of Sacramento came the need for a municipal water supply. The first was developed in 1849 and expanded and evolved as the city grew. A discussion of the city's municipal water system development is presented below.

The beginning of the twentieth century was a boom time for Sacramento. Fruit and vegetable crops had superseded wheat as the dominant crop in the Sacramento Valley, and Sacramento became an important shipping center exporting produce across the nation and to Europe. While Sacramento's climate could not compete with southern California for the citrus fruit business, deciduous fruit trees, hops, grapes, and tomatoes became central to Sacramento's agricultural business. Sacramento also experienced remarkable industrial growth during the first thirty years of the twentieth century; by the 1920s, with over 600 factories operating in the city by 1929. The city bustled with electric trolley cars throughout the city leading to the development of Sacramento's first suburbs of Oak Park and East Sacramento. Main line railroads also continued to play an important role in the town with the Southern Pacific Railroad operating a major railyard in Sacramento and the Western Pacific Railroad building a main line through the city in 1910. The city's population steadily increased reaching 44,696 in 1910; 65,908 in 1920, and 93,750 by 1930.[10]

The economic development of the period, in both agriculture and manufacturing, brought a great influx of people to the city, stimulating further residential development, extension of public utilities, and construction of new schools. By the 1910s, much of the area in the vicinity of Capitol Park was devoted to multiple-family properties containing apartments and flats to accommodate the new residents. By this time, most of the vacant parcels in had been filled in, primarily with residential development. Commercial enterprises, such as corner stores, creameries, laundries, and auto-service facilities also opened.[11] Growth in the early 1900s led to the first annexation of land to Sacramento. The "Greater Sacramento" movement began around 1908 led by the Chamber of Commerce, Sacramento Realty Association, and the residents of the suburban districts outside of the city limits. After considerable debate, Oak Park and East Sacramento were annexed in 1911. This newly acquired, unincorporated area included 9.5 square miles of land east and south of the original city limits, tripling the size of Sacramento's urban area. Additional areas were annexed over the following decades.[12]

Growth continued in the subsequent decades and Sacramento developed into a modern city. The foundation of Sacramento's expansion was a solid economy based on the Southern Pacific railyards, agriculture, and the canning industry. Neighborhoods developed in East Sacramento, Oak Park and newly annexed lands of Land Park and Curtis Park.

[7] Burns, ed., *Sacramento: Gold Rush Legacy, Metropolitan Destiny*, 45, 47, 56; Marvin Brienes, "Sacramento Defies the Rivers, 1850-1878," *California Historical Society Quarterly* 58 (Spring 1979): 3-19; Steven M. Avella, *Sacramento: Indomitable City* (San Francisco: Arcadia Publishing, 2003), 51.
[8] Brienes, "Sacramento Defies the Rivers, 1850-1878," 3-19.
[9] Burns, ed., *Sacramento: Gold Rush Legacy, Metropolitan Destiny*, 45, 47, 56; Sanborn Fire Insurance Company, *Sacramento, California* (New York: Sanborn Fire Insurance Company, 1898).
[10] Joseph McGowan, *History of the Sacramento Valley*, vol. II (New York, NY: Lewis Historical Pub. Co., c1961), chapters 34, 50, and 51; Myrtle Shaw Lord, *A Sacramento Saga: Fifty Years of Achievement-Chamber of Commerce Leadership* (Sacramento: Sacramento Chamber of Commerce, 1946), 275; Phinney, Cate and Marshall, *Map of Sacramento City, 1913, Sacramento County, California* ([n.p.]: 1913); Burns, ed., *Sacramento: Gold Rush Legacy, Metropolitan Destiny*, 72-73; *The Sacramento Bee*, November 30, 1929; and *Population Growth of the City and County of Sacramento, 1850 – 1980* (Part of the Master Plan of the City of Sacramento, November 1953), 36.
[11] Sanborn Fire Insurance Company, *Sacramento, California* (New York: Sanborn Fire Insurance Company, 1915).
[12] Steven M. Avella, *Sacramento: Indomitable City* (San Francisco: Arcadia Publishing, 2003), 80-81.

Concomitant with the residential expansion was new commercial construction with nearly 30 new buildings being built downtown in the 1920s. These boom times led to further expansion and improvement of the city's infrastructure including electricity and the electric streetcar system, which reached maturity in the 1920s with a complex web of lines reaching all parts of the Sacramento.[13] As discussed below, this is also when Sacramento built its first municipal water treatment facility at SRWTP.

Sacramento weathered the Depression and, like much of California, was revived by an influx of population because of the military's presence in and near the city during World War II. During the war the defense industry blossomed throughout the state drawing workers from across the nation. In addition, the number of military bases doubled in California bringing servicemen and civilian workers. Although Sacramento did not have any large war-related industries, it did have McClellan Air Base, Sacramento Army Depot, and Mather Field, which helped stimulate the economy and spawn growth. Both McClellan Air Base and Mather Field were outside the city limits north and east of downtown and whole new communities grew up around the bases.[14]

Immediately following the war growth continued in Sacramento. The military bases remained active after the war and new industry also moved to the area. Private defense contractors such as Aerojet-General and McDonnell-Douglas Aircraft opened plants just east of the city limits. Other industries also located in Sacramento during the mid-twentieth century, including Crown-Zellerbach, Firestone Tire, Proctor and Gamble, and Campbell Soup. Further propelling the economy was an increased number of local, state and federal jobs in the city and the establishment of Sacramento State College, which became CSUS in 1972. The impact of World War II and the economic boom of the post-war years caused a surge in the population of Sacramento. Between 1940 and 1950, the number of residents increased from 105,958 to 135,761. The county's population grew even more from 170,333 to 277,140 during the same period with a large amount of this occurring on the city's northern and eastern fringes. This trend continued with the population of Sacramento increasing 39 percent during the decade of the 1950s. Sacramento's growth continued into the 1960s as government and industry remained prominent employers, new freeways facilitated transportation, and the city solidified its role as a regional retail and commercial hub. As discussed below, this led to increased demands on the city's infrastructure, including its municipal water system and the need for construction of the FWTP.[15]

Sacramento Municipal Water Works Development

Development of municipal water in Sacramento began during the burst of growth triggered by the Gold Rush. Prior to this time, residents drew water directly from the river using buckets, but the increasing population of Sacramento demanded a more efficient method of obtaining water. The need was first answered in 1849 by local entrepreneur William P. Henry who built a privately owned municipal water supply system consisting of a five horsepower engine which pumped water from the Sacramento River near the foot of I Street to elevated wooden tanks. Pushcarts and water wagons then filled up at the tanks and delivered water to customers throughout the city. Soon after Henry's successful business got underway, Billy Anderson set up a similar endeavor downstream, and by the early 1850s the two men had combined their enterprises.[16]

[13] Avella, *Sacramento: Indomitable City*, 58-60, 80-85, 90-94, 97.
[14] Burns, ed., *Sacramento: Gold Rush Legacy, Metropolitan Destiny*, 91, 107-109; Sacramento City Government, "Traffic Signs and Signals, Annual Report, 1936," City of Sacramento Traffic Engineer Reports, Box 5, Folder 8, Center for Sacramento History, Sacramento, California; Sacramento City Government, "City of Sacramento Municipal Progress, 1939," 1940, City of Sacramento Traffic Engineer Reports, Box 5, Folder 7, Center for Sacramento History, Sacramento, California.
[15] Burns, ed., *Sacramento: Gold Rush Legacy, Metropolitan Destiny*, 110-113; *Population Growth of the City and County of Sacramento, 1850 – 1980*, part of the Master Plan of the City of Sacramento, November 1953 (Sacramento, CA: n.p., 1953), 36; Richard S. Petersen, *The Growth of Sacramento County, 1940-1960* (Sacramento, CA: Bank of America, 1961); Avella, *Sacramento: Indomitable City*, 116-122, 124-126, 133, 134.
[16] Myrtle Shaw Lord, *A Sacramento Saga: Fifty Years of Achievement-Chamber of Commerce Leadership* (Sacramento, CA: Sacramento Chamber of commerce, 1946), 162.

Private systems had their failings, however, and following a devastating fire in 1852 that destroyed much of the city, Sacramento developed its first public municipal water system. In 1854, a publicly financed water system was put in operation at a cost $120,000. The new water works pumped water from the Sacramento River into tanks located on the second floor of City Hall from which it flowed by gravity into distribution pipes. This system also had its faults, specifically a lack of adequate water pressure to reach distant customers. As the city grew, the water pressure problem worsened and was temporarily resolved by raising the tanks in 1870.[17]

Civic leaders understood the inadequacies of the water system as it existed in 1870 and made plans to construct an entirely new water works. They hired Holly Manufacturing Company who designed a system that pumped water from the river at I Street directly into the distribution pipes. The new system would cost $190,000 and voters initially rejected the proposal, but approved it in 1872 and construction began almost immediately. The direct pumping Holly system had a pressure capacity between 40 and 100 pounds per square inch (psi). Sacramento now had adequate water pressure, but water quality was very poor and the issue of a better system remained a major topic among the city's inhabitants.[18]

By 1895, the newly organized Chamber of Commerce took up the issue of Sacramento's water supply in earnest. The Chamber pushed for improvements to the distribution system and the water quality. Water purity had become the pressing issue by this time as the water quality had steadily worsened. Water in Sacramento's pipes was muddy and drawn from a river which often carried garbage and raw sewage. Lacking action from the City Board of Trustees (which became the City Commission in 1915, which in turn was replaced by the City Council in 1921), the Chamber sponsored investigations into drilling municipal wells and running a pipeline from the American River near Auburn. The Chamber continued to urge an unresponsive City Board of Trustees to act on the issue throughout the late 1890s, but to no avail. Additional pressure from the public and press finally compelled the Chamber to authorize formation of a committee to investigate a pure water supply for the city. Upon the committee's recommendation, the city hired Rudolph Herring, an engineer from New York to examine the problem in 1899. Herring's concluded the best solution was to filter Sacramento River water, but the committee continued to examine other options before issuing their final report in 1901 which favored river water filtration. The city did not act on Herring's recommendations, rather it extended the existing system and increased the capacity of the pumping plant at Front Street.[19]

In 1908, interest in water filtration again came to the fore and city engineer Albert Givan was sent to eastern states to look at water filtration plants in other cities. Following submittal of Givan's report detailing the current methods of filtration at other plants, the city hired Charles G. Hyde, a sanitary engineer and professor at University of California, to prepare an estimate for a water filtration plant in Sacramento. Hyde's report, submitted in 1909, recommended a rapid sand filtration plant located on the Sacramento River just south of the confluence with the American River. The Board of Trustees endorsed the plan, but Sacramentans twice voted down bond measures to finance the project. The plan died and instead, the city once again expanded the existing system and built a chlorination plant at the foot of I Street to help improve water quality.[20]

These stop-gap measures did little to quiet the calls for clean water in Sacramento. In 1915, the city once again hired Hyde, this time as part of a consulting team with George H. Wilhelm to work with city engineer Frank Miller to study the problem of the city's water supply. The result was a six volume report titled "Report Upon Possible Sources of Water Supply for the City of Sacramento, California." It identified four different potential water sources: reservoirs in the Sierra Nevada on the

[17] Historic Environmental Consultants, "Richards Boulevard Area Architectural and Historical Property Survey," September 2000, 4; Lord, *A Sacramento Saga*, 163; Kevin Carunchio, "Turning Mud into Liquid Gold: A History of Sacramento's Water Supply, 1849-1924," *Sacramento History Journal* 6, no. 1-4 (2006), 264-265.
[18] Historic Environmental Consultants, "Richards Boulevard Area Architectural and Historical Property Survey," September 2000, 4; Carunchio, "Turning Mud into Liquid Gold: A History of Sacramento's Water Supply, 1849-1924," 265-266.
[19] Lord, *A Sacramento Saga*, 163; Carunchio, "Turning Mud into Liquid Gold: A History of Sacramento's Water Supply, 1849-1924," 266-269, 271, 274.
[20] Carunchio, "Turning Mud into Liquid Gold: A History of Sacramento's Water Supply, 1849-1924," 269, 270.

American River and the Mokelumne River, wells south and east of Sacramento, and filtering Sacramento River water as Hyde had recommended in 1909. The Hyde & Wilhelm report concluded that the latter option was the most viable, calling it "the most satisfactory, rational, dependable and economical source." The report included designs for a new facility to be located 1,200 feet east of the east bank of the Sacramento River and 1,500 feet south of the confluence with the American River, the location that was eventually adopted as the site for the current SRWTP facility.[21]

Debate among various factions over the validity of the different options presented in the Hyde & Wilhelm report and the economic disruption caused by World War I delayed construction of a new water supply system. The Sacramento Retail Merchants Association, for example, believed that the option of more water from wells was the better alternative, while the Real Estate Men's Association wanted a mountain water supply, and various city officials favored the Sacramento River pumping and filtration option. The stalemate was finally ended in 1919 when the Chamber put together a committee and hired its own consulting engineer, C. E. Grunsky, to perform another water supply evaluation. Grunsky, like Hyde & Wilhelm before him, came to the conclusion that building a rapid sand filtration plant to purify river water was the optimal method. The rapid sand filtration process, which had been successfully used in municipal water systems in multiple cities, involved three principal steps to treat water from the river: sedimentation and clarification, filtration through sand filters, and chlorination. The Chamber and several other groups backed this proposal and lobbied for a bond measure to be put before the voters. The City Council obliged and in June 1919, Sacramento voters approved a $1.8 million for the construction of a new filtration plant. The city then purchased a 33.6-acres tract from F.A. Warner and an 8.2-acre tract from A.M. Mull in 1920 for the plant (**Illustration 1**).[22]

The 1916 Hyde & Wilhelm report provided the basis for design of the plant, but significant changes were ultimately made from the initial plan. After approval of the bond in 1919, Hyde asked fellow University of California (Berkeley) professor Wilfred Langelier, a chemist and sanitary engineer, to review preliminary drawings for the SRWTP. Particularly, Hyde requested input regarding coagulation and flocculation with alum (aluminum sulfate), an area of research of interest to Langelier. Coagulation and flocculation are part of the sedimentation process, the initial step in the water treatment procedure. Coagulation refers to the addition of a coagulant to untreated water, in this case alum, which neutralizes the charge of suspended particles and allows the particles to stick together and produce microflocs. Flocculation follows coagulation and is a gentle mixing stage which causes the microflocs to bond together to form larger flocs. The large flocs then settle out of the water in sedimentation basins and/or are removed by filtration.

Langelier agreed to assist and conducted experiments in the laboratory at Berkeley and at Sacramento using Sacramento River water to devise an improved method of coagulation and flocculation. Langelier's tests proved to be groundbreaking and established the foundation for modern flocculation practice. Important outcomes of Langelier's research were the invention of jar tests to control coagulate variables, greater understanding of the concept of flocculation, the role of gentle mixing to promote floc growth, and the importance of measuring acidity and alkalinity (pH) in the coagulation process. The most important advancement resulting from these experiments, however, was in the mixing and agitation phase of the water treatment process. Previous water treatment plants had induced coagulation and flocculation using waffle basins. Langelier noticed faults with this practice and innovated a method of prolonged, mechanical agitation using paddle wheel flocculators in cylindrical tanks. Using mechanical flocculation adjustments could be made in the speed and duration of agitation, and uniform agitation could be achieved. The result was much improved floc formation. Langelier's experiments were so convincing that Hyde abandoned the original designs for the sedimentation basin at SRWTP and redesigned the structure in accordance with Langelier's findings (current Basin No. 1) (**Illustration 2**). SRWTP was the first water treatment plant to implement the technology of mechanically driven paddle wheel flocculators in the United States. Additionally, the research

[21] Carunchio, "Turning Mud into Liquid Gold: A History of Sacramento's Water Supply, 1849-1924," 270-272.
[22] Historic Environmental Consultants, "Richards Boulevard Area Architectural and Historical Property Survey," September 2000, 5; Myrtle Shaw Lord, *A Sacramento Saga*, 214; Carunchio, "Turning Mud into Liquid Gold: A History of Sacramento's Water Supply, 1849-1924," 272; City of Sacramento, "Map of Proposed Site of Filtration Plant," January 26, 1920.

undertaken by Langelier for SRWTP on the coagulation and flocculation process and the resulting designs improvements for water treatment plants were adopted by plants throughout the country and continue to be used today.[23]

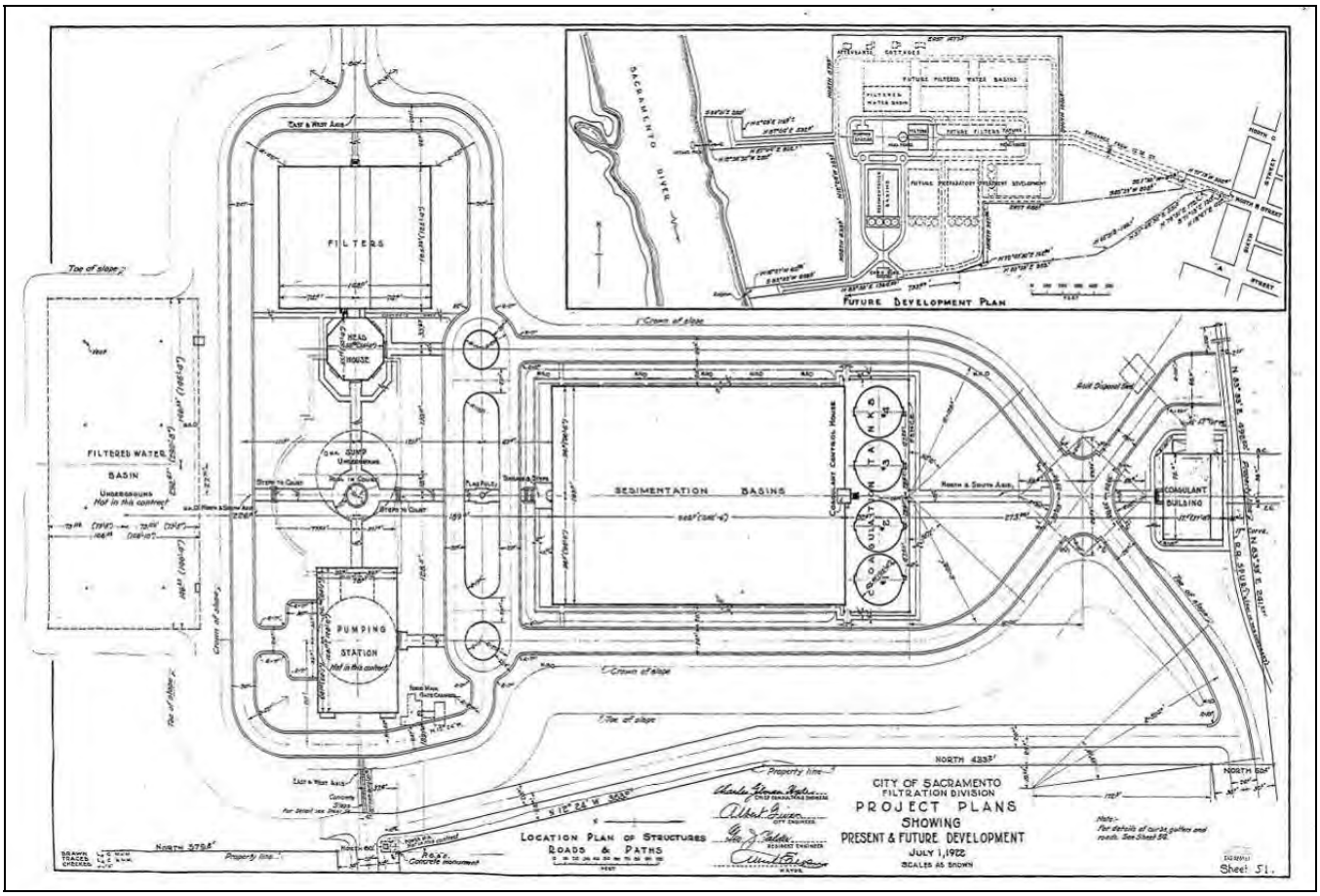


Illustration 1. Site plan for SRWTP dated July 1, 1922.

[23] David Hendricks, *Water Treatment Unit Processes: Physical and Chemical* (Boca Raton, FL: CRC Press, 2006), 290, 349, 483-485; Wilfred F. Langelier, "Coagulation of Water with Alum by Prolonged Agitation," in *Engineering News-Record 86* (1921): 924-928; University of California, *University of California: In Memoriam, 1989,Wilfred F. Langelier, Civil Engineering: Berkeley*, California Digital Library. http://texts.cdlib.org/view?docId=hb4p30063r;NAAN=13030&doc.view=frames&chunk.id=div00030&toc.depth=1&toc.id=&brand=calisphere&query=wilfred%20F.%20langelier (accessed October 2011).

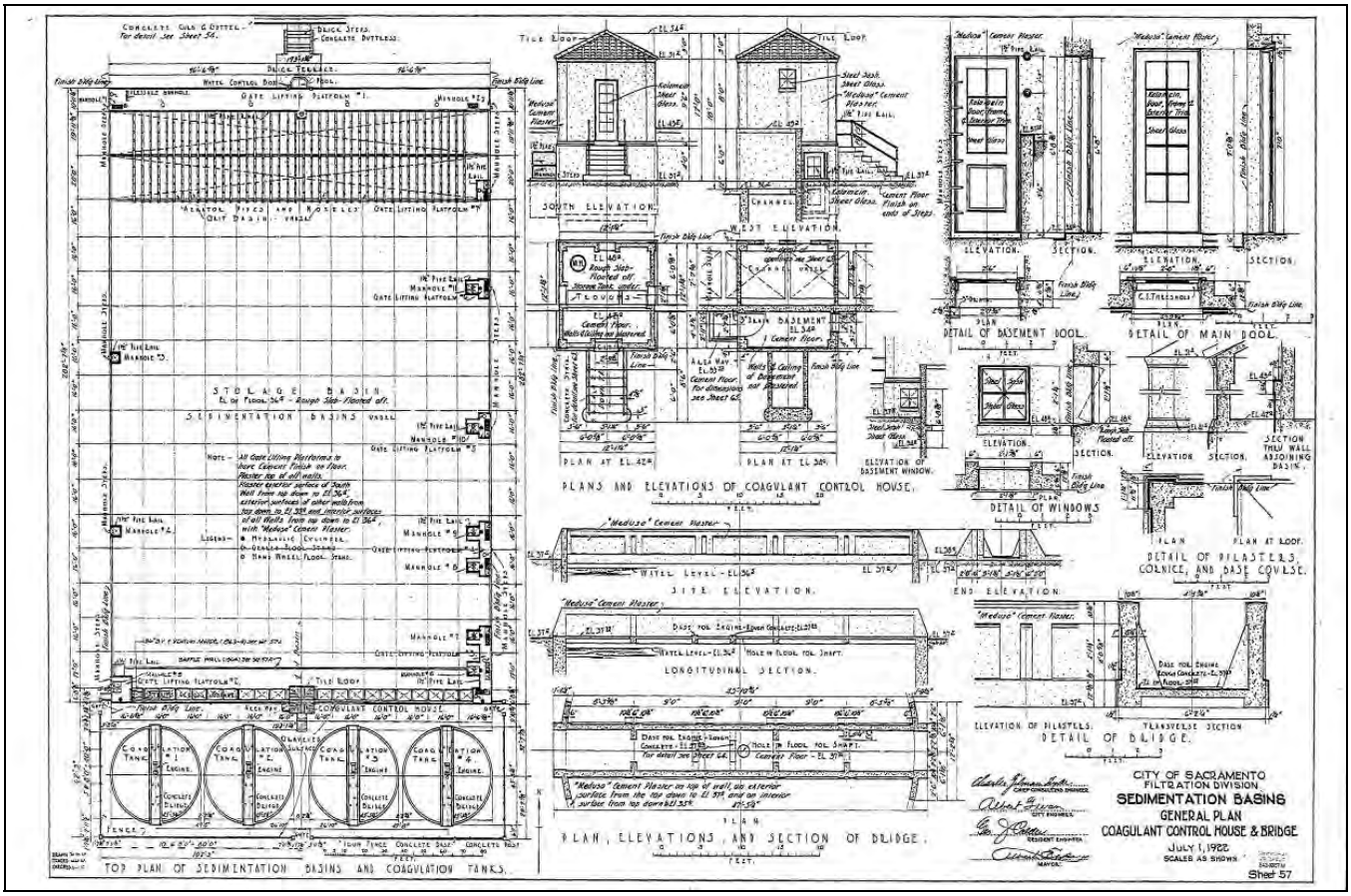


Illustration 2. Plan for Basin No. 1 dated 1922.

While initial designs for SRWTP were based on those of the 1916 Hyde & Wilhelm report which included engineering layouts, site plans, and architectural drawings prepared by Oakland architect C.K. Bonestell, the city hired the Sacramento architectural firm of Dean & Dean to draft the final plans (See Architecture Section below). Construction of SRWTP began in January 1921 with the Coast Construction Company of San Francisco receiving the contract for building the majority of the plant. Later that year, the city prepared a cost estimate to complete the project and determined that an additional $900,000 was needed above the original $1.8 million bond making the total estimated cost $2.7 million. Voters approved the new bond later that year. Meanwhile progress on the intake structure of the plant by Coast Construction lagged, frustrating city officials and leading the city to cancel the company's contract in January 1922. Subsequently, city engineers took over construction of the intake facilities and pumping works using day labor. The Mathews Construction Company completed the remainder of the buildings and structures by 1924 (**Illustration 3**).[24]

On New Year's Eve 1923, the plant was officially dedicated with a celebration at City Plaza. The highlight of the event was President Calvin Coolidge pressing a button in Washington, D.C. which purportedly sent an electric impulse across the country causing "clear water to gush forth from the [City Plaza] fountain" and thus, marking the completion of the new water treatment plant. The SRWTP as built in 1924 consisted of the Pumping Station, Head House, Coagulant Building, Sedimentation Basin No. 1, West Filter Building and eight filters and a 5 million gallon clear water reservoir, the latter of

[24] Historic Environmental Consultants, "Richards Boulevard Area Architectural and Historical Property Survey," September 2000, 7; *The Sacramento Bee,* February 24, 1923, E4; *The Sacramento Bee,* March 31, 1923, E5; Carunchio, "Turning Mud into Liquid Gold: A History of Sacramento's Water Supply, 1849-1924," 274, 275.

which was built underground. When completed, the estimated peak load of water used by Sacramento was 20 million gallons per day (mgd), and the new plant was capable of providing twice that amount.[25]

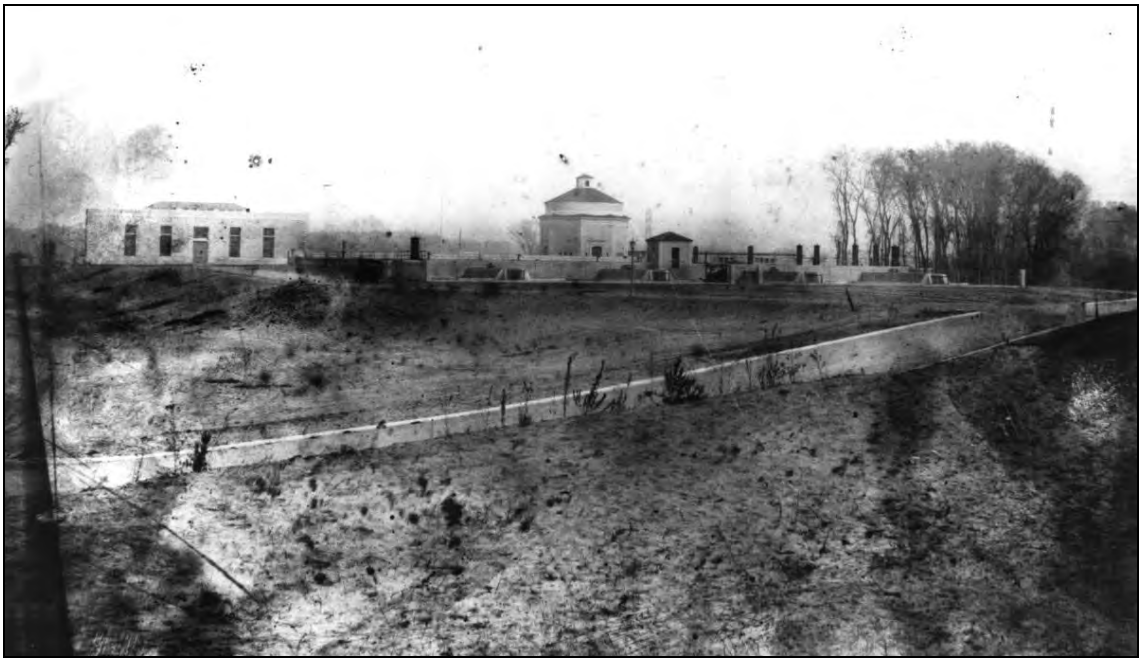


Illustration 3. SRWTP in 1920s showing Basin No. 1 in foreground, Pump Station on left and Head House on right. Photo courtesy of Center for Sacramento History.

Plant designers, however, did not anticipate the dramatic increase in water use following the completion of SRWTP. It seems that having suffered through years of poor water and water shortages, Sacramentans indulged in copious water use. By summer of 1924, the plant was operating at capacity and plans for expansion began. Eight additional filters and an addition to the east end of the West Filter Building were constructed in 1928, Sedimentation Basin No. 2 was added in 1933, and a 9.5 million gallon clear water reservoir in 1937 (**Illustration 4** and **Illustration 5**). Maximum capacity of SRWTP following these improvements increased to 80 mgd. These latter facilities were designed and built using standard water treatment and construction technologies that do not illustrate engineering innovation like Basin No. 1. Several small utilitarian building were built in subsequent years including the Machine Shop, Oil Room, Emergency Pump Storage, Storage Building/Equipment Platform and the Supervisor and Engineering Building (**Illustration 6**).[26]

In 1987, SRWTP received an American Water Landmark Award from the American Water Works Association. The award recognizes "water landmarks" in the United States, Canada, and Mexico which are at least 50 years old and have "had a direct and significant relationship with water supply, treatment, distribution, or technological development."[27] A need for additional water production prompted major improvements to the plant in 2003 which included a new intake, Administration Building, Control Building, Chemical Building, filters, sedimentation basins and lagoons (**Illustration 7** and **Illustration**

[25] Historic Environmental Consultants, "Richards Boulevard Area Architectural and Historical Property Survey," September 2000, 7; *The Sacramento Bee*, March 31, 1923: E5; Carunchio, "Turning Mud into Liquid Gold: A History of Sacramento's Water Supply, 1849-1924," 274; "Coolidge Touches Key Opening Sacramento Filtration Plant," *Sacrament Union*, January 1, 1924, 1,3.

[26] Sacramento Division of Water and Sewers, *Public Water Supply of Sacramento: Its Purification and Distribution* (Sacramento, CA: Division of Water and Sewers, 1956), 1-8; City of Sacramento, Building Plans for SRWTP, Sacramento Department of Utilities; Carunchio, "Turning Mud into Liquid Gold: A History of Sacramento's Water Supply, 1849-1924," 277.

[27] Boghosian, "The Architecture of Water in Sacramento," *Sacramento History Journal* 6, no. 1-4 (2006): 292; American Water Works Association (AWWA), AWWA Water Landmarks, AWWA, http://www.awwa.org/ (accessed October 2011).

8).[28] As a result of these recent upgrades, intake and treatment capacity increased from 110 million gallons mgd to 160 mgd at SRWTP. Other construction on this parcel not related to water treatment was the Emergency Call Center building in the northwest corner of the property constructed in 1985.[29]

Illustration 4. SRWTP in 1931. Photo courtesy of Center for Sacramento History.

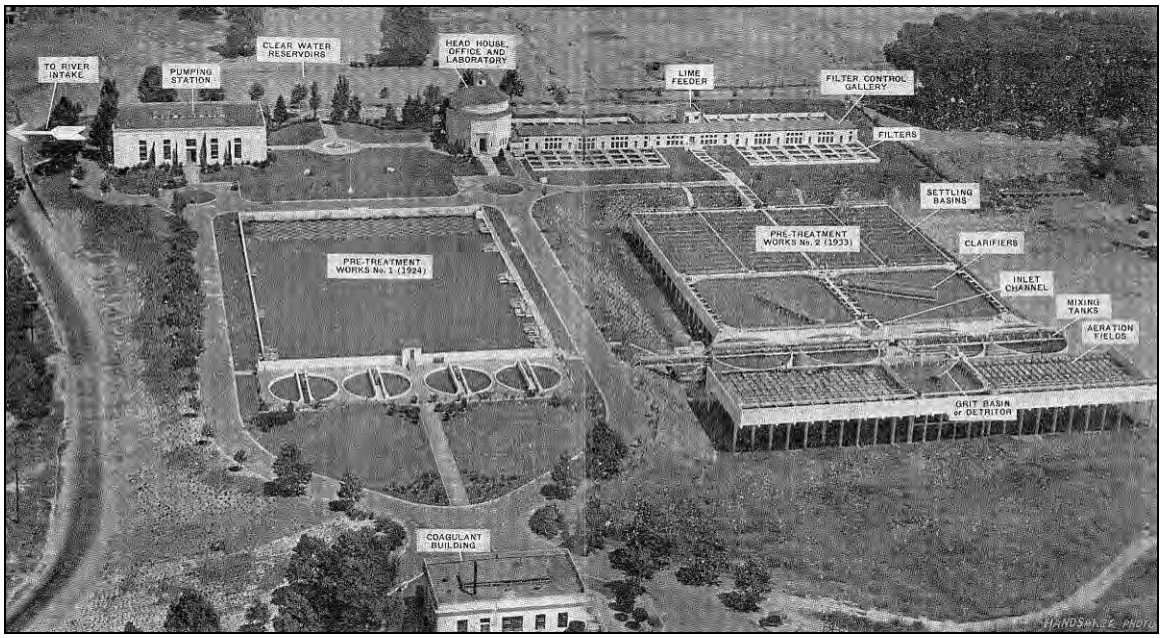


Illustration 5. SRWTP circa 1940s. Image from: City of Sacramento,

[28] Boghosian, "The Architecture of Water in Sacramento," *Sacramento History Journal* 6, no. 1-4 (2006): 289-295.
[29] David L. Brent, Report to Council, City of Sacramento, "Completion of Water Facilities Expansion Program," EAFWTP (ZF43) Final Change Order No. 30, December 13, 2005.

Public Water Supply of Sacramento.

Illustration 6. SRWTP circa 1950s. Photo courtesy of Center for Sacramento History.

Illustration 7. Aerial image of SRWTP in 1980. Image courtesy of Sacramento Public Library, Sacramento Room.

Illustration 8. Current aerial image of SRWTP. Image courtesy of Google Maps (accessed June 2011).

Architecture at SRWTP

In the early 20th century Sacramento underwent a period of growth resulting in a great boom of both Neoclassical Revival and Spanish Revival designed civic and public buildings in the early portion of the 20th century, including 30 that were completed between 1912 and 1928. Of these buildings, notable were City Hall (1911), City Library (1918), the Masonic Temple (1920), the Sacramento Public Market (1923), the Senator Hotel (1924), and the Elks Club Building (1926), and Memorial Auditorium (1927).[30]

The formation of the architectural partnership of Dean & Dean comprised of brothers Charles F. Dean and James S. Dean coincided with Sacramento's 1920s building boom. The firm became one of the preeminent architectural firms in Sacramento during this period. The Deans were born in Belton, Texas and educated at the Texas A&M College of Architecture. After finishing completing work at Texas A&M, James continued his studies at Massachusetts Institute of Technology before returning to his alma mater as an instructor, while Charles moved to San Francisco in 1908 to join the city's post-earthquake rebuilding effort. After only five months in San Francisco, Charles settled in Sacramento to work in the office of the state architect. In 1914, James joined his brother in Sacramento as a state employee and nine years later they founded their private practice.[31]

[30] City of Sacramento Neighborhoods, Planning and Development Services Department, *Implementation Plan for the Preservation Element of the City of Sacramento General Plan*, December 1999 (amended April 20, 2000), Sec 10, 11.

[31] G. Walter Reed, *History of Sacramento County with Biographical Sketches* (Los Angeles: Historical Record Co., 1923); Paula Boghosian, "The Architecture of Water in Sacramento," *Sacramento History Journal* 6, no. 1-4 (2006): 290; Andrew Hope, Caltrans, Coloma Community Center (former Coloma School and Elmhurst School), 4623 T Street, Sacramento, DPR 523 form, prepared December 2005. The Coloma Community Center was listed in the Sacramento Register in August 2009.

Between 1922 and 1930, Dean & Dean Architects are credited with helping transform Sacramento's architecture from a city of predominantly Victorian-era buildings to a regional center with numerous important public buildings and many residences in various Revival style. Their work was featured twice during this period in *Architect and Engineer*, a prominent West Coast publication of that time, and in several other publications. They also received honor awards from the California section of the American Institute of Architects. No firm designed more schools, churches, or other large public buildings in Sacramento than Dean & Dean including what historians would later dub the city's "crowning achievement" of the 1920s: Memorial Auditorium. In addition, Dean & Dean designed a host of other notable buildings in Sacramento, including many schools, including Coloma School / Elmhurst School (now Coloma Community Center) and Highland Park / Sierra School (now Sierra 2 Community Center), as well as Hughes Stadium at Sacramento City College, Sutter Club building, Westminster Presbyterian Church, Trinity Episcopal Cathedral, YMCA (at L and 17th streets) and Clunie Library in McKinley Park. They also designed many prominent residences during this period including multiple houses in the "Fabulous 40s" (Wright and Kimbro Tract 24) and the J.C. Carly House on Montgomery Way in Curtis Park. James Dean left the firm in 1930 to take the post of City Manager with the City of Sacramento. Charles Dean continued the firm until his death in 1956.[32]

Among Dean & Dean's earliest work were the original buildings at SRWTP (**Illustration 9** and **Illustration 10**). Consistent with the style trend at the time, Dean & Dean designed the buildings at SRWTP in the Neoclassical Revival style with modest Beaux Arts elements. The Neoclassical Revival features of the SRWTP building are flat roofs; symmetrical façades; and smooth, unadorned wall surfaces. The buildings also exhibit some modest Beaux Arts characteristics such as quoins, pilasters and accentuated cornices. The octagonal shape of the Head House and its conical roof are the result of the building housing a 270,000 gallon cylindrical water tank on the second floor. Buildings with the Neoclassical style at SRWTP are Pump Station, Head House, Coagulant Building, Basin No. 1, and West Filter Building.

The landscape and site plan of SRWTP also reflected a trend at the time, the City Beautiful movement. This movement was inspired by, and a reaction to, the haphazard industrial urban growth of the late nineteenth century and a desire to create order and beauty in the urban landscape. This movement coincided with the municipal reform efforts of the Progressive Era which sought to bring efficiency and professionalism to local governments. In Sacramento, the city hired professional city planners who attempted to instill order into city development. Among the measures adopted at during this era were a comprehensive park system plan in 1916, zoning ordinance in 1922, and a master plan in 1926. It was in this period that the City Beautiful inspired landscape and plan for SRWTP was designed. Generally speaking, the City Beautiful movement's objective was to make cities more ordered, aesthetically pleasing, enhance civic pride and improve public morals. To achieve these goals, the movement often turned to neoclassical architecture set in an ordered natural landscape. The plan featured formal symmetry set on a north/south and east/west axis, a park-like setting and tree-lined streets with viewsheds focused on the plant's two monumental buildings: the Pump Station and Head House. Before each of these buildings was a

[32] Avella, *Sacramento: Indomitable City*, 90; *Sacramento Bee*, July 2, 1956; JRP Historical Consulting, "Historic Architectural Survey Report, South Sacramento Corridor LRT Project," October 1995, 67-68; Paula Boghosian, "The Architecture of Water in Sacramento," *Sacramento History Journal* 6, no. 1-4 (2006): 290; Andrew Hope, Caltrans, Coloma Community Center (former Coloma School and Elmhurst School), 4623 T Street, Sacramento, DPR 523 form, prepared December 2005; Carol Rowland, Roland-Nawi Associates, Sierra 2 Community Center, former Highland Park School / Sierra School, 2791 24th Street, Sacramento, DPR 523 form, prepared March 2003; Janice C. Calpo with Spencer Lockson & Dan Murphy (Sierra Curtis Neighborhood Association Heritage Committee), J.C. Carly House, 2761 Montgomery Way, Sacramento, National Register Nomination form, prepared November 2005. The Sierra 2 Community Center was listed in the Sacramento Register in August 2005. The J.C. Carly House was listed in the NRHP in March 2006. Other Dean & Dean designs listed in the NRHP are the Memorial Auditorium and the Westminster Presbyterian Church (see NRHP website http://nrhp.focus.nps.gov/natreghome.do?searchtype=natreghome). Features articles of Dean & Dean's work include: John Donovan, "Recent Work of Dean and Dean Architects," *Architect and Engineer*, July 1927, vol. 19, no 1 and Irving F. Morrow, "Recent Works by Dean and Dean " *Architect and Engineer*, June 1922, v. LXIX, no. 3.

circular island and between them a courtyard of trees, lawn, sidewalks, fountain and a flagpole (**Illustration 11**). While the landscape design was not fully carried out according to plans, much of the design was realized and plant still evokes a City Beautiful aesthetic.[33]

The Neoclassical style buildings and their landscape constructed in the 1920s sit in some contrast to later historic-era additions to SRWTP. In particular, Basin No. 2 and the 9.5 million gallon clear water reservoir, constructed in the 1930s, are starkly utilitarian in their design, and Basin No. 2 is constructed on concrete piers in an excavated depression that is distinctly different than the landscape design of the original facility.

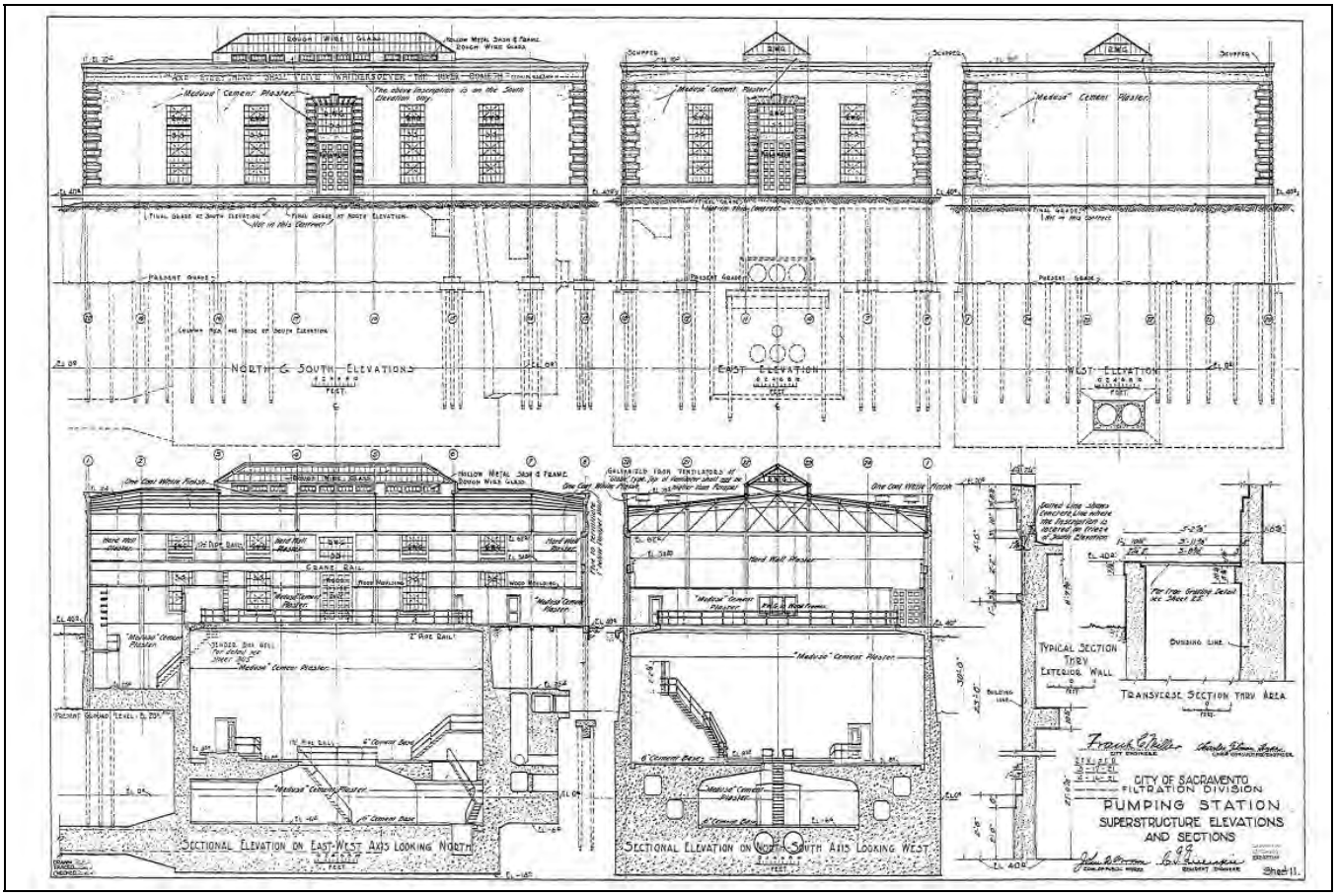


Illustration 9. Elevation drawing for Pump Station dated 1921.

[33] City of Sacramento Neighborhoods, Planning and Development Services Department, *Implementation Plan for the Preservation Element of the City of Sacramento General Plan*, December 1999 (amended April 20, 2000), Sec 10, 11; Daphne Spain, *How Women Saved the City* (Minneapolis: University of Minnesota Press, 2001), 51-54.

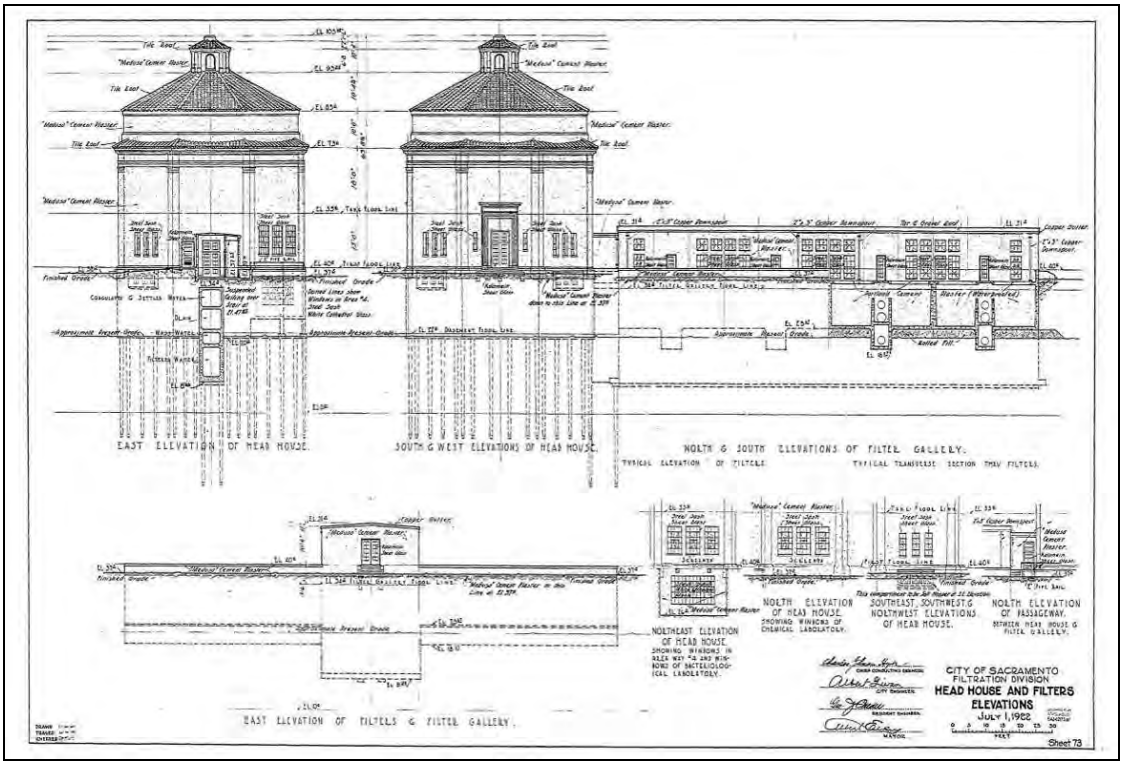


Illustration 10. Elevation drawing for Head House and original part of West Filter Building dated 1922.

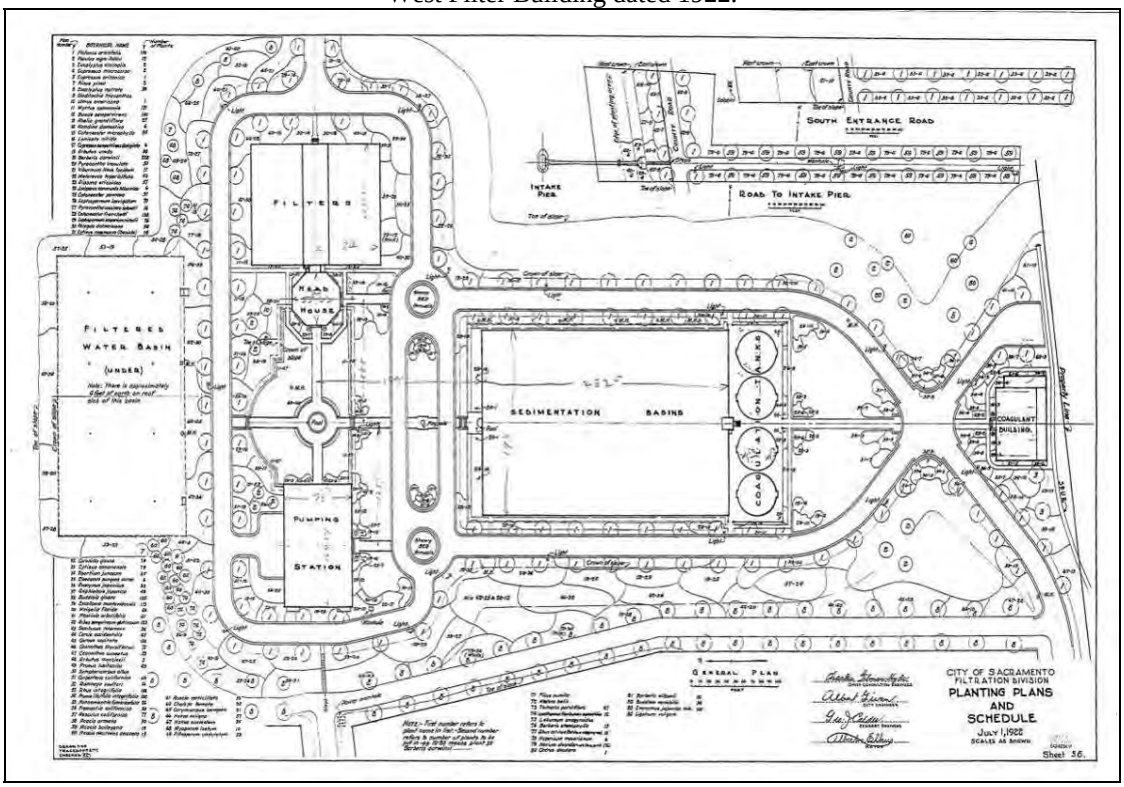


Illustration 11. City Beautiful inspired landscape plan for SRWTP dated 1922.

Evaluation

The period of significance for the SRWTP is 1924-1928, the year construction was completed and the plant began operating to the year of completion West Filter Building addition, which is in the same style as the original element of the building. The currently extant elements of SRWTP from 1924 are the Pumping Station, Head House, Coagulant Building, Basin Number 1, West Filter Building and associated filter structure, 5 million gallon clear water basin, and the landscape and road layout in the vicinity of these original buildings and structures (**Table 1**). All of these elements contribute to the property's historical significance except the 5 million gallon clear water basin, which is entirely underground and does not exhibit the Neoclassical Revival style, nor is it important for its engineering. In addition there are six buildings and structures constructed between 1933 and 1965 that do not contribute to the historical significance of SRWTP. These are the Sedimentation Basin No. 2, the 9.5 million gallon clear water basin, Machine Shop, Emergency Pump Storage Building, Oil Room, and the storage building/equipment platform.

SRWTP does not appear to have important associations with historically significant events. SRWTP is associated with the growth of Sacramento during the early twentieth century and the development of local municipal water works, but did not play a particularly important role in that development. While a sufficient supply of municipal water is necessary to allow growth, plants such as SRWTP fall under a class of public utility such as sewers or electrical systems which are ubiquitous and essential for any city to function. As such, they must be evaluated under this criterion relative to similar plants in other cities, lest the trivial conclusion is reached that all water treatment plants are historically significant. With this in mind, SRWTP answered a need for municipal water in Sacramento typical of water treatment plants in other cities, but it does not stand out as a particularly important cause of growth and expansion and therefore, is not historically significant in this regard. SRWTP also does not appear to have played a particularly important role in the development of municipal water treatment plants. Such plants were common by the 1920s throughout the United States. Basin No. 1 at SRWTP did introduce a design innovation relating to coagulation and flocculation which is discussed below under Criterion C/3/iii. SRWTP, therefore, does not appear to be eligible for the NRHP under Criterion A, CRHR under Criterion 1, or SRHCR under Criterion i.

SRWTP does not appear to have important associations with historically significant persons. The plant is associated with the work of Professor Wilfred Langelier, but Langelier did not conduct his experiments in any of the current buildings at SRWTP. Research did not reveal SRWTP had any other associations with historically significant people, therefore, SRWTP does not appear to be eligible for the NRHP under Criterion B, CRHR under Criterion 2, or SRHCR under Criterion ii.

SRWTP does appear to be distinctive for its architecture and for its engineering design. The Pumping Station, Head House, Coagulant Building, Basin Number 1, West Filter Building, and landscaping and road layout around these buildings are inspired by the City Beautiful movement and Neoclassical Revival style architecture. All of these elements contribute to the architectural distinctiveness of the plant and make SRWTP an important and exceptional example of Neoclassical Revival in a public utility complex. The buildings are characterized by flat roofs; symmetrical façades; and smooth, unadorned wall surfaces. They also exhibit some modest Beaux Arts characteristics such as quoins, pilasters and accentuated cornices. The City Beautiful inspired landscaping features are the formal symmetry of the site plan set on a north/south and east/west axis, park-like setting and tree-lined streets with viewsheds focused on the plant's two monumental buildings: the Pump Station and Head House. Other elements are circular traffic islands and a courtyard between the Pump Station and Head House of trees, lawn, sidewalks, fountain and a flagpole. The historic portions of the facility are also the work of the architectural firm of Dean & Dean. They were one of the most prominent architectural and accomplished architectural firms in Sacramento in the 1920s and they are noted as "master" architects.[34] SRWTP is an important example of their work for public buildings.

[34] See: Andrew Hope, Caltrans, Coloma Community Center (former Coloma School and Elmhurst School), 4623 T Street, Sacramento, DPR 523 form, prepared December 2005; Carol Rowland, Roland-Nawi Associates, Sierra 2 Community Center, former Highland Park School / Sierra School, 2791 24th Street, Sacramento, DPR 523 form, prepared March 2003; Janice C. Calpo with Spencer Lockson & Dan Murphy (Sierra Curtis Neighborhood

SRWTP also appears to be historically significant for representing technological innovations in engineering design of water treatment plants. The groundbreaking research of Wilfred Langelier led to the redesign of Basin No. 1 to incorporate his findings, specifically the addition of paddle wheel coagulation/flocculation tanks. The new design proved to be so effective that it was adopted at water treatment plants throughout the country and is still being implemented at modern plants. SRWTP, therefore, appears to be eligible for the NRHP under Criterion C, CRHR under Criterion 3, and SRHCR under Criterion iii as a distinctive example of Neoclassical Revival architecture in a public utility complex and for the design innovation of Basin No. 1 relating to coagulation/flocculation. SRWTP is also eligible under SRHCR Criterion iv as an important work of Dean & Dean Architects. All of the other buildings and structures at SRWTP complex lack architectural distinction, are utilitarian style, and/or lack distinction in engineering design.

This property does not appear to be a significant or likely source of important information regarding history. They do not appear to have any likelihood of yielding important information about historic construction materials or technologies and, therefore, do not appear to be eligible for the NRHP under Criterion D, CRHR under Criterion 4 or SRHCR under Criterion vi.

In addition to the historic-era buildings and structures on the SRWTP property there are also eleven modern buildings and structures built from 1969 to 2003. As elements which as less than 50 years old, they have been considered for possible historical significance under National Register Criteria Consideration G and SRHCR Criterion Consideration E, which allows consideration for properties that may have achieved significance within the last fifty years. Such properties less than 50 years old must attain a level of *exceptional* importance, with adequate time passed to gain sufficient historical perspective. None of the eleven modern resources appear to reach this level of importance.[35]

The seven aspects of integrity are materials, workmanship, design, setting, location, association and feeling. The integrity of SRWTP has been diminished somewhat by the replacement of windows and doors on buildings, which affected the integrity materials, workmanship, and design. The property's integrity of setting and feeling have also been diminished by alterations to the original landscape plan and construction of new buildings. New buildings have mostly been built on the east portion of the property and none were constructed within the portion of the property that encompasses the historic 1920s facility. Although changes have occurred to the property, SRWTP still retains sufficient integrity to convey its significance (**Table 2** and **Site Map**).

Association Heritage Committee), J.C. Carly House, 2761 Montgomery Way, Sacramento, National Register Nomination form, prepared November 2005.

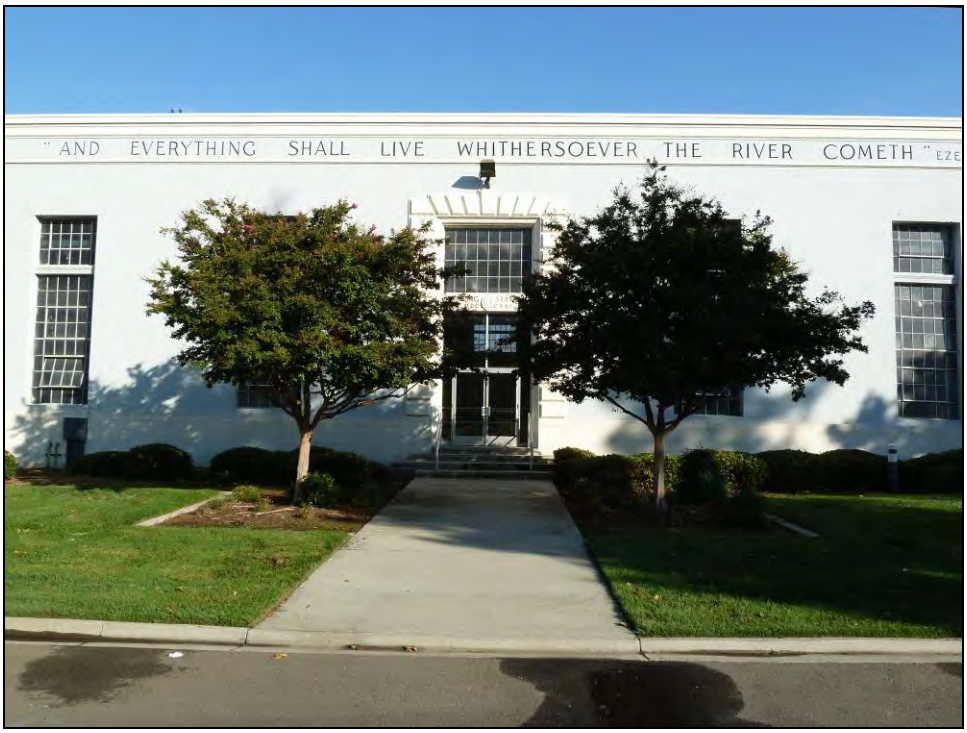
[35] National Park Service, *How to Apply the National Register Criteria for Evaluation*, National Register Bulletin #15 (Washington, D.C.: NPS, 1997), 41-43.

Table 1		
Sacramento River Water Treatment Plant Extant Buildings and Structures		
Building/Structure	**Date of Construction**	**Contributor/Non-Contributor**
Pump Station	1921	Contributor
Head House	1924	Contributor
Coagulant Building	1924	Contributor
Sedimentation Basin No. 1	1924	Contributor
West Filter Building and Filters (west half)	1924	Contributor
5 m.g. Clear Water Basin	1924	Non-Contributor
Landscape Plan	1924	Contributor
West Filter Building and Filters (east half)	1928	Contributor
Sedimentation Basin No. 2	1933	Non-Contributor
9.5 m.g. Clear Water Basin	1937	Non-Contributor
Machine Shop	ca. 1949	Non-Contributor
Oil Room (formerly Chlorine House)	ca. 1952	Non-Contributor
Emergency Pump Storage (formerly Pre-Chlorination Building)	ca. 1959	Non-Contributor
Storage Building/Equipment Platform	ca. 1965	Non-Contributor
Supervisor and Engineering (formerly Shop and Storage Building)	ca. 1969	Non-Contributor
Emergency Call Center	1985	Non-Contributor
5.8 m.g. CT Basin	2003	Non-Contributor
Earthen Sludge Lagoon	2003	Non-Contributor
Chemical Building	2003	Non-Contributor
East Filter Building	2003	Non-Contributor
Administration Building	2003	Non-Contributor
Sludge Lagoons 1, 2, 3	2003	Non-Contributor
FWW Lagoons 1 & 2	2003	Non-Contributor
Basin No. 3	2003	Non-Contributor
Grit Basin/Flash Mix	2003	Non-Contributor

Table 2		
Integrity of Historic-Era Buildings and Structures		
Building/Structure	**Integrity Considerations**	**Integrity Aspect**
Pumping Station	Wood panel front door replaced with full-light metal door, small addition built on north side	materials, design workmanship
Head House	Multi-light front and west doors replaced with full-light metal doors, some windows replaced	materials, design workmanship
Coagulant Building	Multi-light front door replaced with full-light metal door, overhead door and loading dock added to rear, Multi-light back door replaced with solid wood door	materials, design workmanship
Sedimentation Basin No. 1	Multi-light door on control house replaced by solid wood door	materials, design workmanship
West Filter Building	All multi-light doors replaced with full-light metal doors	materials, design workmanship
Landscape Plan	Courtyard fountain removed, trees removed, entrance moved, sidewalk configuration in courtyard altered	materials, design workmanship, setting, feeling
Sedimentation Basin No. 2	Demolition of one mixing tank and the aeration fields	materials, design workmanship
9 m.g. Clear Water Basin	New roof	materials, design workmanship
Machine Shop	Large addition on east side, small addition on west side	materials, design workmanship
Oil Room	Addition on west side	materials, design workmanship
Emergency Pump Storage	Shed roof shelter and small addition built	materials, design workmanship

Photographs:

Photograph 1. Pump Station, camera facing northeast, 10/27/2011.



Photograph 2. South façade of Pump Station, camera facing north, 10/27/2011.

Photograph 3. West and north sides of Pump Station, camera facing southeast, 10/27/2011.

Photograph 4. Original door on north side of Pump Station, camera facing southeast, 10/27/2011.

Photograph 5. Rear of Pump Station and showing addition, camera facing southeast, 10/27/2011.

Photograph 6. Head House, camera facing east, 10/27/2011.

Photograph 7. South side of Head House, camera facing north, 10/27/2011.

Photograph 8. Rear of Head House, and west end of the West Filter Building, camera facing southwest, 10/27/2011.

Photograph 9. South side of West Filter Building with Head House in background, camera facing northwest, 10/27/11.

Photograph 10. North side of the west end of the West Filter Building, camera facing southwest, 10/27/2011.

Photograph 11. West Filter Building showing water channel and entrance, camera facing north, 10/27/2011.

Photograph 12. Central section of the north side of the West Filter Building, camera facing south, 10/27/2011.

Photograph 13. Coagulant Building, camera facing southwest, 10/27/2011.

Photograph 14. Loading dock on south side of Coagulant Building, camera facing northeast, 10/27/2011.

Photograph 15. North end of Basin No. 1, camera facing southwest, 10/27/2011.

Photograph 16. North and east walls of Basin No. 1, camera facing northwest, 10/27/2011.

Photograph 17. South side of Basin No. 1 showing coagulant control house and coagulation/flocculation tanks, camera facing north, 10/27/2011.

Photograph 18. Basin No. 1 showing coagulation/flocculation tanks and coagulant control house, camera facing west, 10/27/2011.

Photograph 19: 5 mg Clear Water Basin, camera facing southwest, 10/27/2011.

Photograph 20. Showing tree line road past Basin No. 1 leading to roundabout and Pump Station, camera facing north, 10/27/2011.

Photograph 21. Basin No. 2, camera facing southwest, 10/27/2011.

Photograph 22. Sedimentation basins of Basin No. 2, camera facing northwest, 10/27/2011.

Photograph 23. Clarifier tanks with sedimentation basins in distance, camera facing northwest, 10/27/2011.

Photograph 24. Basin No. 2 showing mixing tanks, camera facing northeast, 10/27/2011.

Photograph 25. Top of mixing tanks, camera facing west, 10/27/2011.

Photograph 26. Southeast corner and east side of Basin No. 2, camera facing northwest, 10/27/2011.

Photograph 27. The 9.5 mg Clear Water Reservoir, camera facing northwest, 10/27/2011.

Photograph 28. Machine Shop, camera facing northwest, 10/27/2011.

Photograph 29. Oil Room, camera facing southwest, 10/27/2011.

Photograph 30. Emergency Pump Station, camera facing southwest, 10/27/2011.

Photograph 31. Storage Shed/Equipment Platform, camera facing southwest, 10/27/2011.

Sketch Map:


RICHARDS BLVD
BANNON STREET
SACRAMENTO RIVER
WATER STREET
I-5

Site Map:


Sacramento River Water Treatment Plant
Contributing Elements Area
1 Pump Station
2 Head House
3 Coagulant Building
4 Sedimentation Basin No. 1
5 West Filter Building and Filters (west half)
6 5 m.g. Clear Water Basin
7 West Filter Building and Filters (east half)
8 Sedimentation Basin No. 2
9 9.5 m.g. Clear Water Basin
10 Machine Shop
11 Oil Room (formerly Chlorine House)
12 Emergency Pump Storage (formerly Pre-Chlorination Building)
13 Storage Building/Equipment Platform
14 Supervisor and Engineering (formerly Shop and Storage Building)
15 Emergency Call Center
16 5.8 m.g. CT Basin
17 Earthen Sludge Lagoon
18 Chemical Building
19 East Filter Building
20 Administration Building
21 Sludge Lagoons 1, 2 & 3
22 FWW Lagoons 1 & 2
23 Basin No. 3
24 Grit Basin/Flash Mix

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

HISTORIC RESOURCES INVENTORY

Ser. No. 5813 - 1000-0000
HABS ____ HAER ____ NR 3 SHL ____ Loc ____
UTM: A ____ B ____
C ____ D ____

P-34-897

IDENTIFICATION

1. Common name: Sacramento City Water Filtration Plant
2. Historic name: Sacramento City Water Filtration Plant
3. Street or rural address: 101 Bercut Drive
   City Sacramento Zip 95814 County Sacramento
4. Parcel number:
5. Present Owner: City of Sacramento Address: 915 I Street
   City Sacramento Zip 95814 Ownership is: Public X Private ____
6. Present Use: Water Filtration Plant Original use: Water Filtration Plant

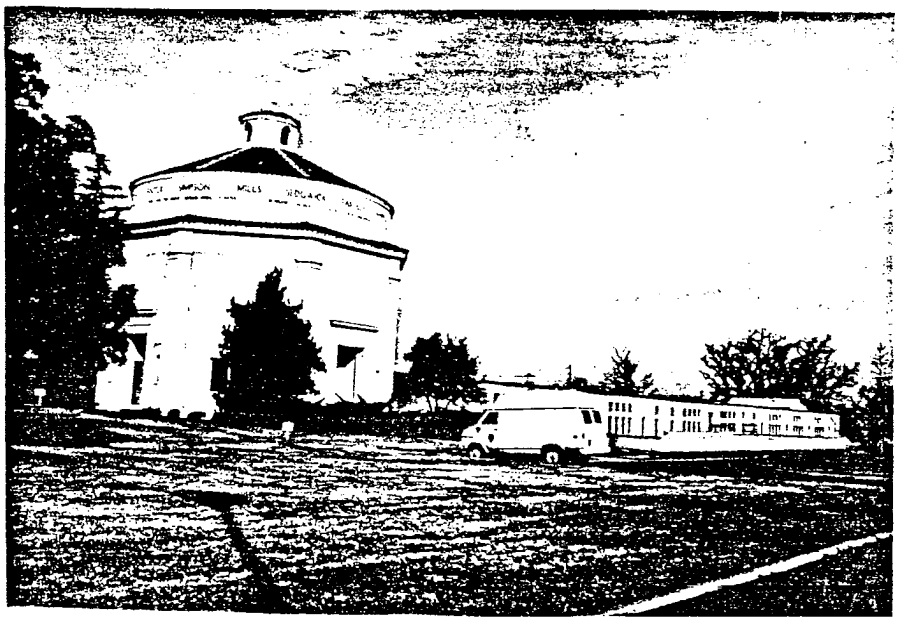
DESCRIPTION

7a. Architectural style: Classical influences.

7b. Briefly describe the present *physical description* of the site or structure and describe any major alterations from its original condition The Filtration Plant Complex contains four principal structures, a below grade reservoir, a tank, and sun een filter tanks, placed in landscaped setting of lawn and planting.

The Pumping Station, dated 1921, is a one story concrete structure with a flat roof. Quoined detailing decorates the corners and the centered entry. Windows and entry are tall, with separated transom sections, and fitted with industrial sash. An encircling frieze beneath the cornice bears the incised inscription, "And Everything Shall Live Whithersoever the River Cometh, Ezekiel, XLVII-9." The lower portion of the entry appears altered.

The Administration Building, built in 1921, is a two story octagonal structure of concrete and stucco with a conical tiled roof and cupola. The octagonal building contains two recessed entries with classical trim, and applied pilasters with molding caps. The circular drum above, supporting the cupola and roof, contains inscribed names of inventors and scientists, and the words; "to protect the health of the people is a fundamental duty of the commonwealth," "and the glowing sand shall become a pool and the thirsty ground springs of water." The building was renovated in 1983 and the windows enlarthed. The Filter Building attached on the east, is one story, concrete and flat-roofed, with numerous windows and glass brick.



8. Construction date: Estimated ____ Factual 1921
9. Architect City Engineering Department
10. Builder Unknown
11. Approx. property size (in feet) Frontage N/A Depth N/A or approx. acreage ____
12. Date(s) of enclosed photograph(s) February 1985

13. Condition: Excellent _X_ Good _X_ Fair ____ Deteriorated ____ No longer in existence ____

14. Alterations: See text.

15. Surroundings: (Check more than one if necessary) Open land ____ Scattered buildings _X_ Densely built-up ____
Residential ____ Industrial _X_ Commercial ____ Other: ____

16. Threats to site: None known _X_ Private development ____ Zoning ____ Vandalism ____
Public Works project ____ Other: ____

17. Is the structure: On its original site? _X_ Moved? ____ Unknown? ____

18. Related features: See text.

SIGNIFICANCE

19. Briefly state historical and/or architectural importance (include dates, events, and persons associated with the site.)

Designed by the Engineering Department of the City of Sacramento and constructed in 1921, the Sacramento City Water Filtration Plant was at the time of its construction, the most modern facility of its kind in the United States. The dedication ceremony included the starting of the plant's pumps by Mrs. Calvin Coolidge through an electrical impulse transported by telegraph from the White House.

With an estimated output of 48 million gallons per day, the plant was an example of the rapid sand filtration technique, utilizing an intake pier, grit removal and storage stations, coagulating tanks, sedimentation basins, a head hous and chlorine plant, filters, and a clear water reservoir. The plant's channeling system was based on the gravity flow design, utilizing 40 inch wide pipes carrying water from the Sacramento River 1100 feet to the pumping station.

The filtration plant corrected a number of problems connected with the older treatment facilities' inability to provide clean and clear water to Sacramento's citizens. A study in 1914 by the City Health Officer noted a high inci ice of typhoid fever among Sacramentans. Prompted by this report, voters(proved a bond measure of 2.7 million dollars in 1919 to build the plant.

Since its construction, the plant has undergone numerous changes. A new reservoir was added by 1950, and a lime treatment facility was constructed in 1960. The structure is an intersting reflection of its era in its health and citizen welfare concerns, and the use of "pure", and formed Classical design elements to express those ideals. Interesting design qualities combine with functions and history to make the plant an important resource.

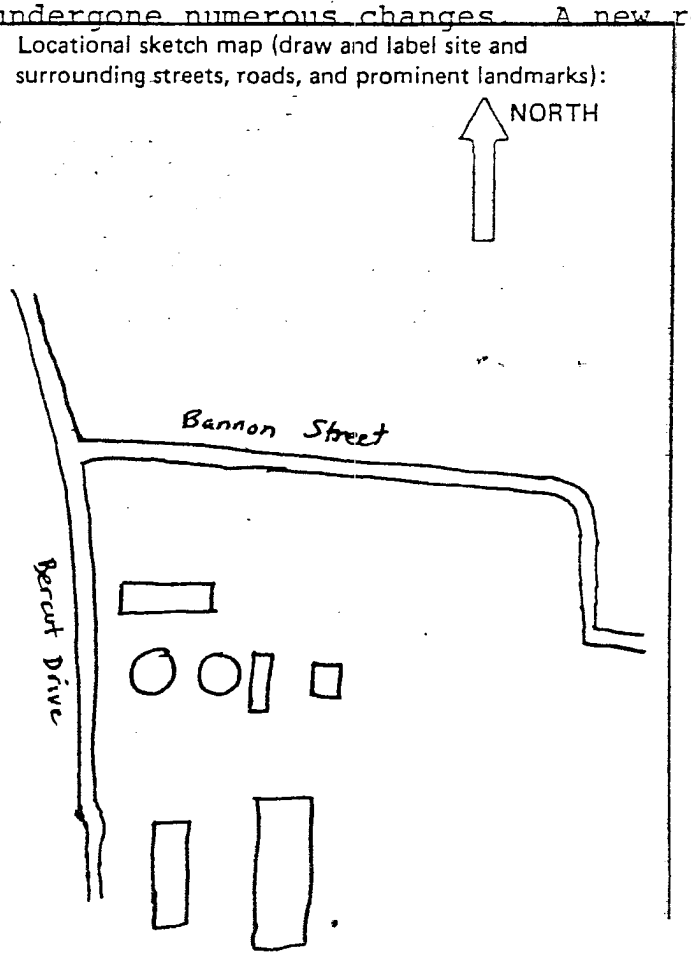
20. Main theme of the historic resource: (If more than one is checked, number in order of importance.)
Architecture 2 Arts & Leisure ____
Economic/Industrial ____ Exploration/Settlement ____
Government 1 Military ____
Religion ____ Social/Education ____

21. Sources (List books, documents, surveys, personal interviews and their dates).

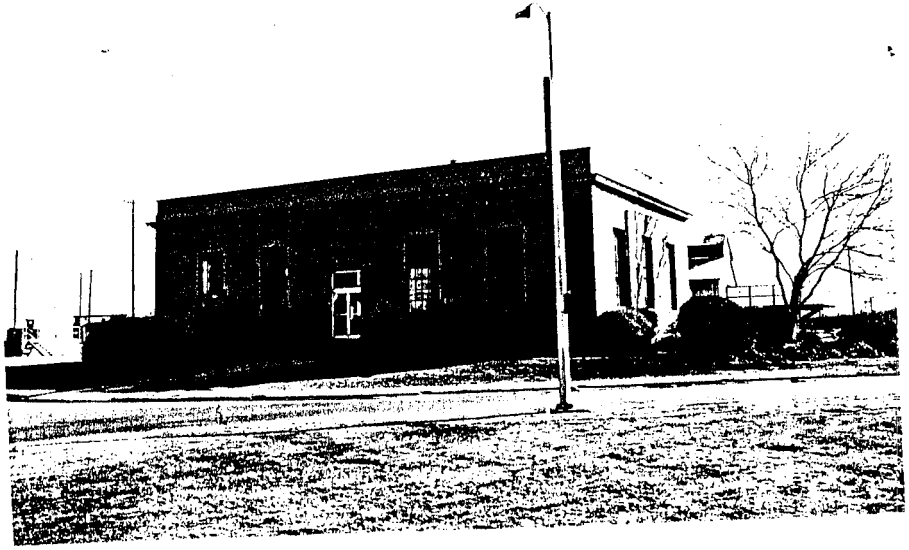
Sacramento Bee, January 1, 1924

22. Date form prepared June 21, 1985
By (name) Hist. Env. Cons./C. Caesar
Organization Sacramento Old City Assoc.
Address: P.O. Box 1022
City Sacramento Zip 95805
Phone: (916) 448-1688

Locational sketch map (draw and label site and surrounding streets, roads, and prominent landmarks):

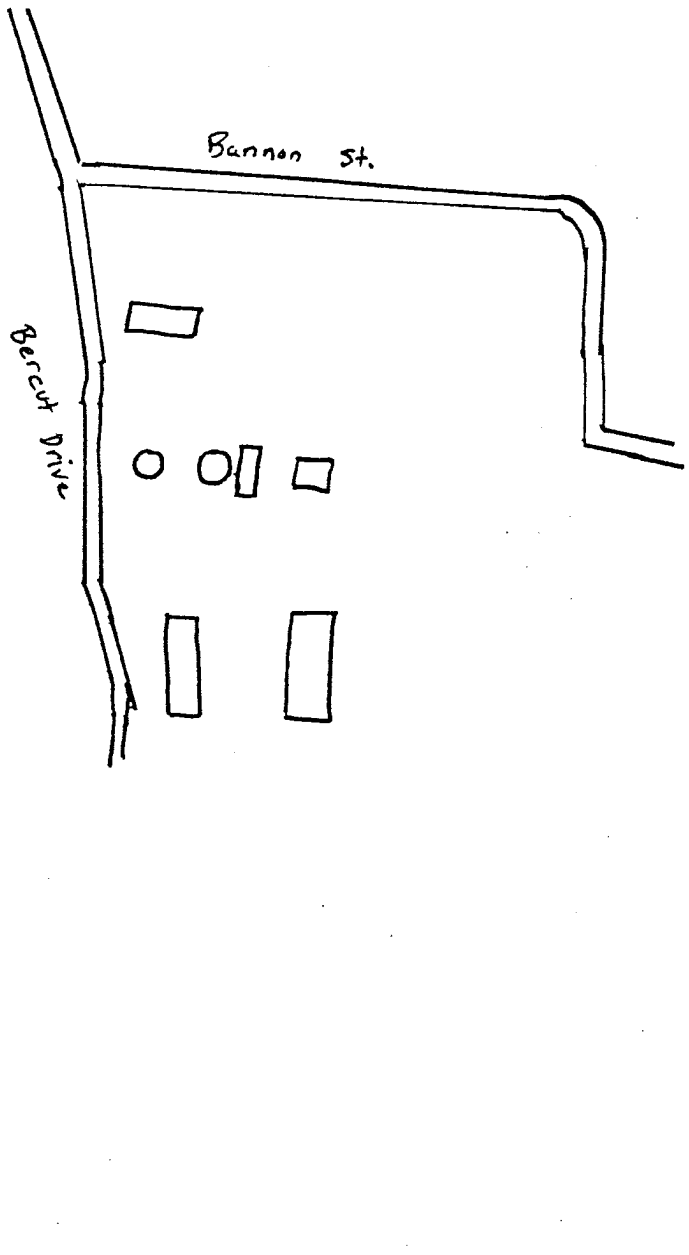



AND EVERYTHING SHALL LIVE WHITHERSOEVER THE RIVER



UTM- Water Filtration Plant

A.) Northeast corner - 10/630900/4268800
B.) Southeast corner - 10/630930/4268420
C.) Southwest corner - 10/630430/4268340
D.) Northwest corner - 10/630470/4268810



P-34-897

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Primary #
HRI #
Trinomial
NRHP Status Code 3S
Other Listings
Review Code Reviewer Date

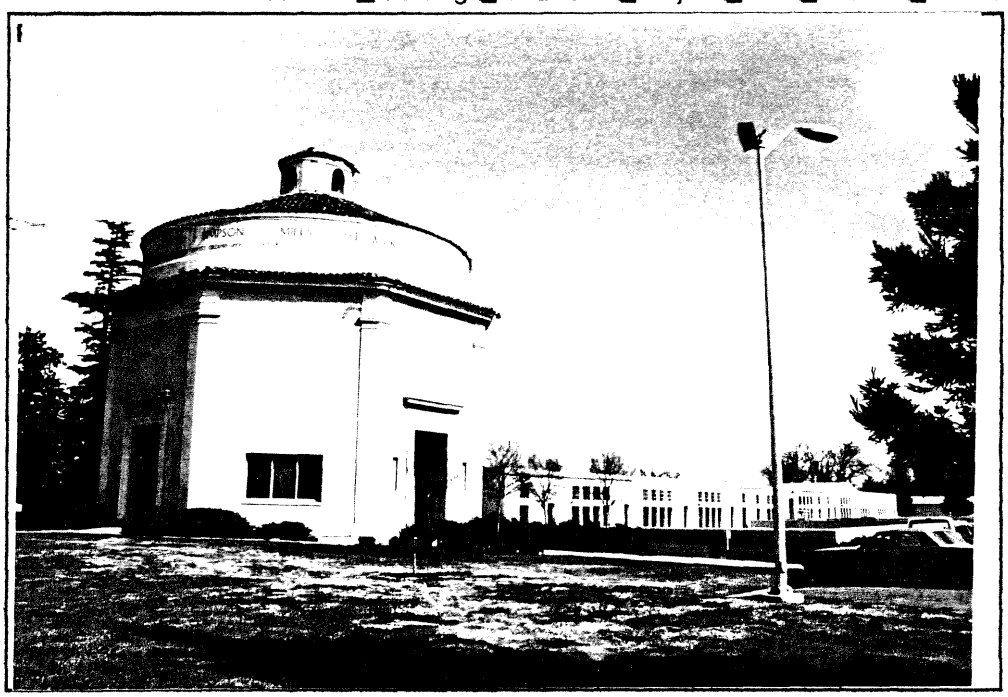
Page 1 of 1 Resource Name or #: 101 Bercut Drive
P1. Other Identifier: Sacramento River Water Treatment Plant
*P2. Location: *a. County Sacramento b. USGS 7.5' Quad Sacramento West Date 1967
c. Address: 101 Bercut Drive City Sacraemento Zip 95814
*e. Other Locational Data: APN#: 001-0210-023

*P3a. Description:

The Sacramento River Water Filtration Plant is located to the east of Interstate 5 Freeway just north of downtown Sacramento. The Plant complex is comprised of three principal structures, a below grade reservoir, and various tanks, pumps and holding ponds, placed in a landscaped setting of lawn with mature trees and shrubs.

The Pumping Station, one of the three main buildings, is sited closest to the eastern side of the I-5 Freeway. This building is a one story, rectangular concrete structure with a flat roof and minor Classical Revival references. Building corners and the centered entry are quoined, and an encircling frieze beneath the cornice bears the incised inscription, "And Everything Shall Live Whithersoever the River Cometh, Ezekiel, XLVII-9". The interior is lit by tall, rectangular, multi paned, metal-sashed windows. Some alterations to the base of this building have occurred. The building is in good condition.

*P3b. Resource Attributes: HP9
*P4. Resources Present: ■ Building ❑ Structure ❑ Object ❑ Site ❑ District ❑ Element of District ❑ Other (Isolates, etc.)



P5b. Description of Photo: View to Northeast 10/97

*P6. Date Constructed/Age and Source: ■ Historic ❑ Prehistoric ❑ Both
1921 Factual

*P7. Owner and Address:
City of Sacramento
Real Estate Div.,
1023 J Street
Sacramento, CA 95814

*P8. Recorded by:
Paula Boghosian, HEC
5420 Home Court
Carmichael, CA 95608

*P9. Date Recorded:
7/95, 9/97

*P10. Survey Type:
Intensive

P11. Report Citation*: Sacramento Survey III, Richards Blvd. Specail Planning District

*Attachments: ❑ NONE ❑ Location Map ❑ Sketch Map ❑ Continuation Sheet ■ Building, Structure, and Object Record ❑ Linear Resource Record ❑ Archaeological Record ❑ District Record ❑ Milling Station Record ❑ Rock Art Record ❑ Artifact Record ❑ Photograph Record ❑ Other (List)

State of California — The Resources Agency | Primary #

DEPARTMENT OF PARKS AND RECREATION | HRI#

BUILDING, STRUCTURE, AND OBJECT RECORD

Page 1 of 1 | *NRHP Status Code 3S

*Resource Address: 101 Bercut Drive

B1. Historic Name: Sacramento River Water Treatment Plant

B2. Common Name: Sacramento River Water Treatment Plant

B3. Original Use: Water Treatment Plant | B4. Present Use: Water Treatment Plant

*B5. Architectural Style: Classical Revival/Beaux Arts influences

*B6. Construction History

The building was constructed in 1921.

*B7. Moved? ■ No ❑ Yes ❑ Unknown Date: _____ Original Location:

*B8. Related Features: The complex contains several structures and buildings, as described, including the water intake facility in the Sacramento River.

B9a. Architect: Dean & Dean | b. Builder: Mathews Construction Co.

*B10. Significance: Theme Public Utility in an industrial area

Area Richards Blvd. Special Planning District

Period of Significance 1921-1948 Property Type Water Treatment Plant Applicable Criteria C

The Sacramento River Water Treatment Plant was the most modern facility of its kind in the United States at the time of its construction in 1921. The dedication ceremony included the starting of the plant's pumps by Mrs. Calvin Coolidge through an electrical impulse transported by telegraph from the White House in Washington, D.C. According to Plant information, it was the first filtration plant constructed west of the Rockies. It was one of the most modern, state-of-the- art facilities of its kind in the country at the time of its construction. The complex received designation as a national American Water Works Association historical landmark in 1987.

In addition to historic importance, the buildings of the complex, particularly the Pumping Station and the Administration Building, are handsome and elegant examples of classical revival style variations, unusually graceful for essentially functional public works buildings. With their parklike setting, they represent the implementation of "City Beautiful" ideals in a utilitarian context.

The Head House, Pump House and Coagulant Buildings are the principal agents of the Beaux Arts architectural design and styl complex. The pools, aeration ponds and storage facilities also located on the property are functional elements of the plant's activities and are utilitarian in nature.

The complex possesses both historical and architectural/engineering significance, has retained a substantial degree of integrity, and appears to meet eligibility criteria for listing in the National Register of Historic Places, the California Register of Historical Resources, and the Sacramento Register as an Essential structure.

B11. Additional Resource Attributes: None

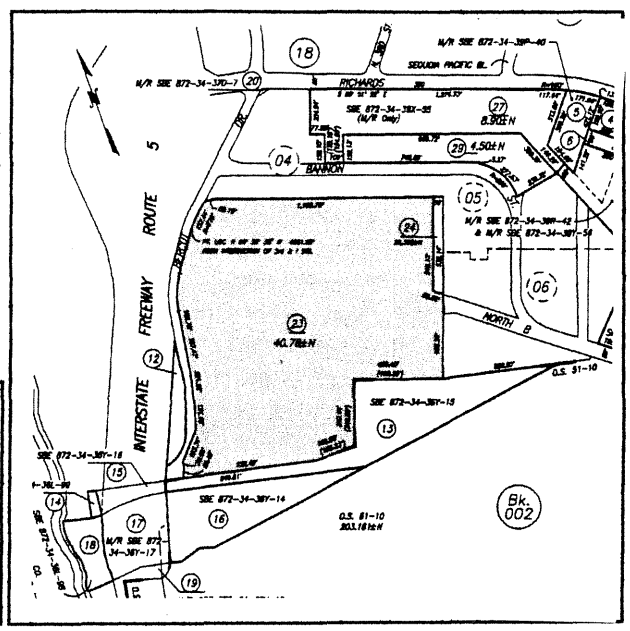
*B12. References:

Sacramento Survey III, Richards Blvd. Area Architectural and Historical Survey, Sacramento City Information Brochure

B13. Remarks:

*B14. Evaluator: Paula Boghosian, HEC

*Date of Evaluation: 7/95, 9/97



(This space reserved for official comments.)

*These items consist of required information.

Sacramento River Water Treatment Plant, 101 Bercut Drive

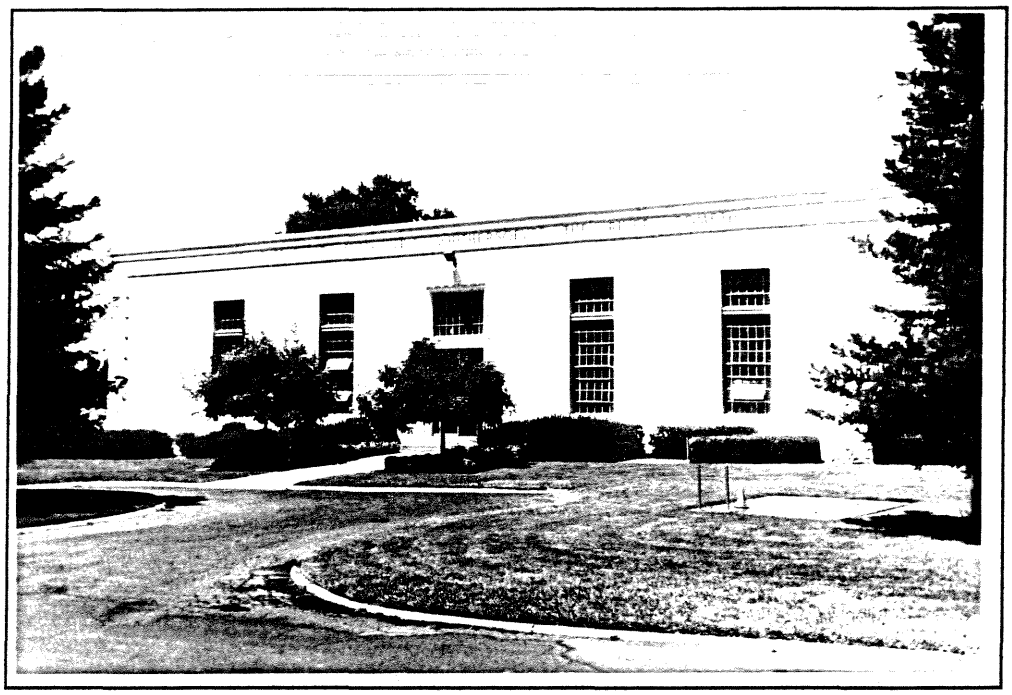
P3a., continued

The Head Building (Administration Building) is a two story octagonal structure of concrete and stucco with a clay-tiled conical roof and cupola. On the exterior, the circular drum between walls and roof contains inscribed names of well-known inventors and scientists, and two inscriptions. Alterations include the enlargement of windows. The building is in good condition. The concrete Filter Building, attached on the east, is a long, one and one-half story, multi-windowed, flat-roofed structure, partly below grade. The tanks and ponds lie to the south of the structure.

With an estimated output of 48 million gallons per day, the plant was an example of the rapid sand filtration technique, utilizing an intake pier, grit removal and storage stations, coagulating tanks, sedimentation basins, a head house and chlorine plant, filters and a clear water reserrvoir. The plant's channeling system was based on the gravity flow design, utilizing 40 inch wide pipes carrying water from the Sacramento River 1100 feet to the pumping station. A new reservoir was added by 1950, and a lime treatment facility was constructed in 1960.

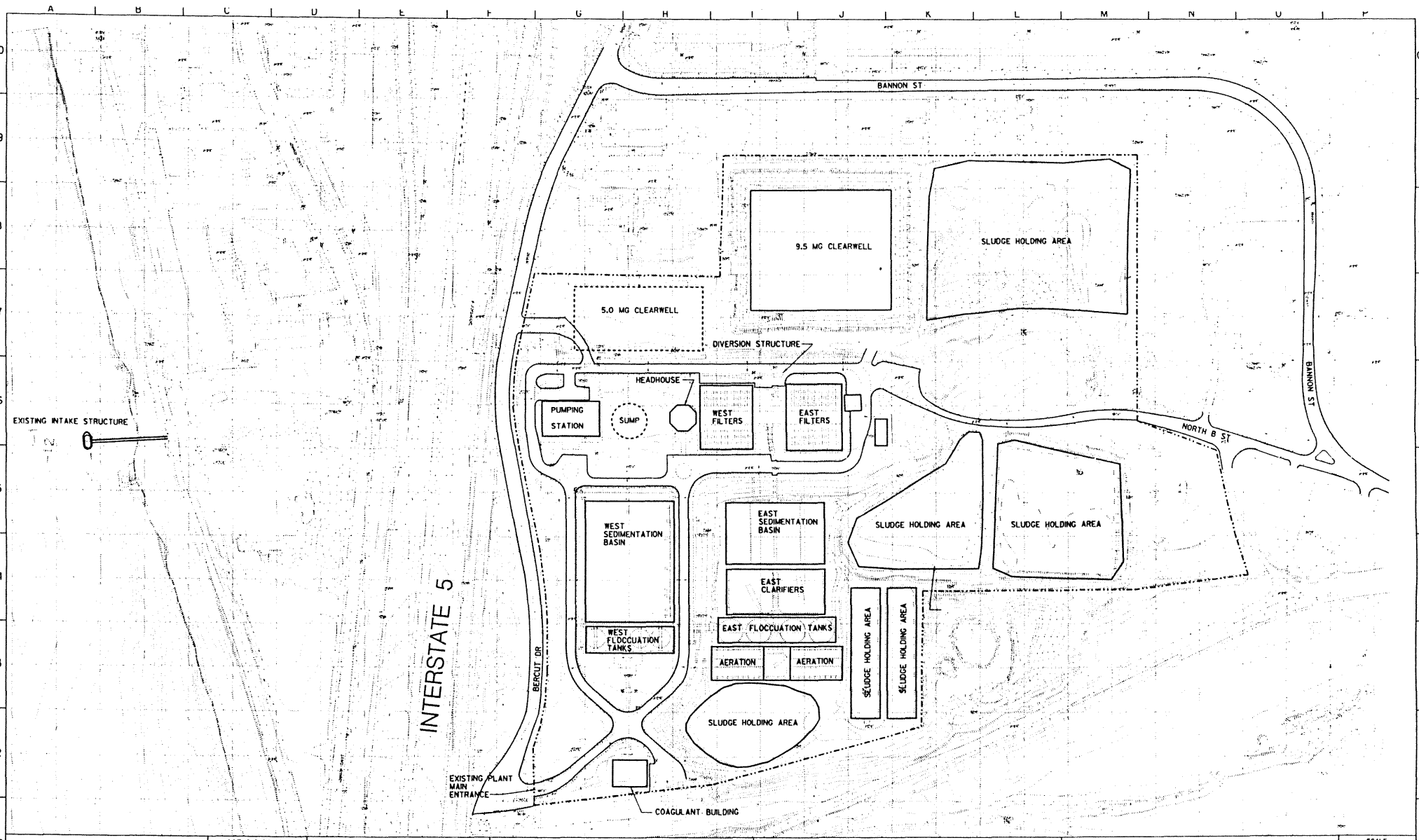
An associated structure lies to the west in the Sacramento River, approximately 30' from shore, housing a water intake system and accompanying functions. The structure is approximately two stories in height (above water level), with an oval shaped base supporting an encircling projecting deck and oval upper building. The north and south ends of the structure above deckline are curved in form and covered with partially conical clay-tiled roofs. They flank an entry tower with support cables for the suspension bridge walkway that extends to the tower on shore. The structure is surfaced with stucco, fitted with a river height indicator, multi-paned windows and mooring rings.

Sacramento Water Filtration Plant



Coagulant Building, view to the south.

Pump House, view to the north.



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s:\city_of_sacramento\srwtp_expansion_107616\civ\drop\arts_commision_ex.dgn
FILE No. 107616.0335003

MONTGOMERY WATSON
Sacramento, California

SUBMITTED: _____ DATE: _____

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2"-SCALE ACCORDINGLY)
FILE _____
DRAWN _____
DESIGNED _____

PRELIMINARY
NOT FOR CONSTRUCTION

REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.

CITY OF SACRAMENTO
DEPARTMENT OF UTILITIES

SACRAMENTO RIVER WATER TREATMENT PLANT

CIVIL

EXISTING SITE PLAN

SCALE
1" = 100'

DRAWING NUMBER
C-1

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary #_____
HRI #_____
Trinomial_____
NRHP Status Code 3S
Other Listings_____
Review Code_____ Reviewer_____ Date_____

Page 1 **of** 1 **Resource Name or #:** Sacramento River Water Filtration Plant
P1. Other Identifier: Sacramento River Water Treatment Plant
***P2. Location: *a. County** Sacramento **b. USGS 7.5' Quad** Sacramento West **Date** 1967
c. Address: 101 Bercut Drive **City** Sacramento **Zip** 95814
***e. Other Locational Data:** APN#: 001-0210-038
***P3a. Description:**

The Sacramento River Water Filtration Plant is located to the east of Interstate 5 Freeway just north of downtown Sacramento. The Plant complex is comprised of three principal structures, a below grade reservoir, and various tanks, pumps and holding ponds, placed in a landscaped setting of lawn with mature trees and shrubs.

The Pumping Station, one of the three main buildings, is sited closest to the eastern side of the I-5 Freeway. This building is a one story, rectangular concrete structure with a flat roof and minor Classical Revival references. Building corners and the centered entry are quoined, and an encircling frieze beneath the cornice bears the incised inscription, "And Everything Shall Live Whithersoever the River Cometh, Ezekiel, XLVII-9". The interior is lit by tall, rectangular, multi paned, metal-sashed windows. Some alterations to the base of this building have occurred. The building is in good condition.

***P3b. Resource Attributes:** HP9
***P4. Resources Present:** ■ Building ☐ Structure ☐ Object ☐ Site ☐ District ☐ Element of District ☐ Other (Isolates, etc.)

P5b. Description of Photo: View to Northwest 02/09
***P6. Date Constructed/Age and Source:** ■ Historic ☐ Prehistoric ☐ Both
1921 Factual
***P7. Owner and Address:**
City of Sacramento
Real Estate Div.,
1023 J Street
Sacramento, CA 95814

***P8. Recorded by:**
Paula Boghosian, HEC
5420 Home Court
Carmichael, CA 95608

***P9. Date Recorded:**
7/95, 9/97, 3/2009

***P10. Survey Type:**
Intensive

P11. Report Citation*: Richards Blvd. Area Architectural and Historical Property Survey, Historic Environment Consultants, January 1999.

***Attachments:** ☐ NONE ☐ Location Map ☐ Sketch Map ■ Continuation Sheet ■ Building, Structure, and Object Record
☐ Linear Resource Record ☐ Archaeological Record ☐ District Record ☐ Milling Station Record ☐ Rock Art Record
☐ Artifact Record ☐ Photograph Record ☐ Other (List)

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

Primary #_____
HRI#_____

BUILDING, STRUCTURE, AND OBJECT RECORD

Page 1 **of** 1 ***NRHP Status Code** 3S

***Resource Address:** 101 Bercut Drive

B1. Historic Name: Sacramento River Water Treatment Plant

B2. Common Name: Sacramento River Water Treatment Plant

B3. Original Use: Water Treatment Plant **B4. Present Use:** Water Treatment Plant

***B5. Architectural Style:** Classical Revival/Beaux Arts influences

***B6. Construction History**

The building was constructed in 1921.

***B7. Moved?** ■ **No** ☐ **Yes** ☐ **Unknown Date:**_____ **Original Location:**

***B8. Related Features:** The complex contains several structures and buildings, as described, including the water intake facility in the Sacramento River.

B9a. Architect: Dean & Dean **b. Builder:** Mathews Construction Co.

***B10. Significance: Theme** Public Utility in an industrial area

Area Richards Blvd. Special Planning District

Period of Significance 1921-1948 **Property Type** Water Treatment Plant **Applicable Criteria** C

The Sacramento River Water Treatment Plant was the most modern facility of its kind in the United States at the time of its construction in 1921. The dedication ceremony included the starting of the plant's pumps by Mrs. Calvin Coolidge through an electrical impulse transported by telegraph from the White House in Washington, D.C. According to Plant information, it was the first filtration plant constructed west of the Rockies. It was one of the most modern, state-of-the- art facilities of its kind in the country at the time of its construction. The complex received designation as a national American Water Works Association historical landmark in 1987.

In addition to historic importance, the buildings of the complex, particularly the Pumping Station and the Administration Building, are handsome and elegant examples of classical revival style variations, unusually graceful for essentially functional public works buildings. With their park-like setting, they represent the implementation of "City Beautiful" ideals in a utilitarian context.

The Head House, Pump House and Coagulant Buildings are the principal agents of the Beaux Arts architectural design and style complex. The pools, aeration ponds and storage facilities also located on the property are functional elements of the plant's activities and are utilitarian in nature.

The complex possesses both historical and architectural/engineering significance, has retained a substantial degree of integrity, and appears to meet eligibility criteria for listing in the National Register of Historic Places, the California Register of Historical Resources, and the Sacramento Register as a Landmark property.

B11. Additional Resource Attributes: None

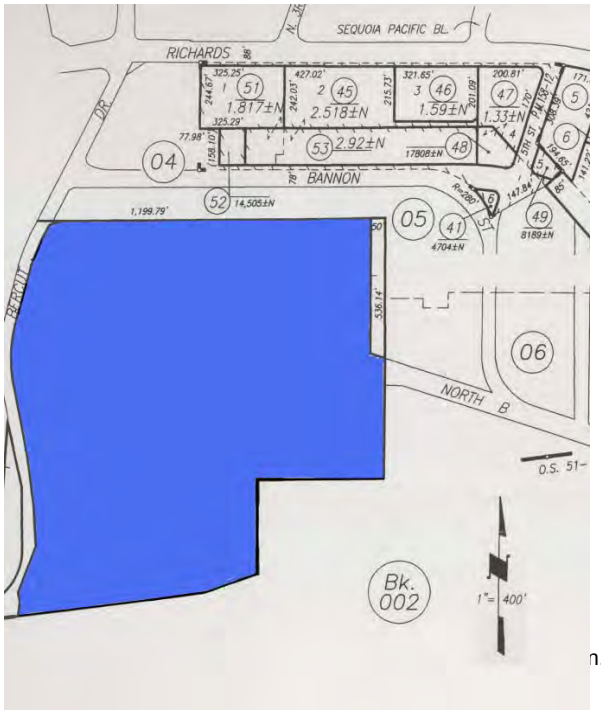
***B12. References:**

Sacramento Survey III, Richards Blvd. Area Architectural and Historical Survey, Sacramento City Information Brochure

B13. Remarks:

***B14. Evaluator:** Paula Boghosian, HEC

***Date of Evaluation:** 7/95, 9/97, 3/2009



(This space reserved for official comments.)

Sacramento River Water Treatment Plant, 101 Bercut Drive

P3a., continued

The Head Building (Administration Building) is a two story octagonal structure of concrete and stucco with a clay-tiled conical roof and cupola. On the exterior, the circular drum between walls and roof contains inscribed names of well-known inventors and scientists, and two inscriptions. Alterations include the enlargement of windows. The building is in good condition. The concrete Filter Building, attached on the east, is a long, one and one-half story, multi-windowed, flat-roofed structure, partly below grade. The tanks and ponds lie to the south of the structure.

With an estimated output of 48 million gallons per day, the plant was an example of the rapid sand filtration technique, utilizing an intake pier, grit removal and storage stations, coagulating tanks, sedimentation basins, a head house and chlorine plant, filters and a clear water reserrvoir. The plant's channeling system was based on the gravity flow design, utilizing 40 inch wide pipes carrying water from the Sacramento River 1100 feet to the pumping station. A new reservoir was added by 1950, and a lime treatment facility was constructed in 1960.

An associated structure lies to the west in the Sacramento River, approximately 30' from shore, housing a water intake system and accompanying functions. The structure is approximately two stories in height (above water level), with an oval shaped base supporting an encircling projecting deck and oval upper building. The north and south ends of the structure above deckline are curved in form and covered with partially conical clay-tiled roofs. They flank an entry tower with support cables for the suspension bridge walkway that extends to the tower on shore. The structure is surfaced with stucco, fitted with a river height indicator, multi-paned windows and mooring rings.

A series of recent updates and construction has occurred on the east half of the property. Old settling ponds in that area have been replaced by new buildings. A new main office building has been added as well as a new tower structure that reflects the original head house in design. A new concrete settling/filtration pond has been added to the east of the original concrete settling/filtration ponds. The main entrance has been moved from Bercut Drive to 1 Water Street on the opposite side of the property, and enclosed by large gates.

State of California – The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Primary # _____
HRI # _____
Trinomial _____
NRHP Status Code 6Z
Other Listings _____
Review Code _____ Reviewer _____ Date _____

***Resource Name or #** E.A. Fairbairn Water Treatment Plant

P1. Other Identifier: E.A. Fairbairn Water Treatment Plant

***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted** ***a. County** Sacramento
and (P2b and P2c or P2d. Attach a Location Map as necessary.)
***b. USGS 7.5' Quad** Sacramento East **Date** 1967
c. Address 7501 College Town Drive City Sacramento Zip 95826
d. UTM: (give more than one for large and/or linear resources) Zone _____; _____mE/ _____mN
e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate)
APN: 005-0010-011; 005-0010-012

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)

This 44.19-acre property at 7501 College Town Drive is the site of the E.A. Fairbairn Water Treatment Plant. The parcel is roughly rectangular with the first buildings and structures built in 1964 set in the center of the tract with major additions to the plant in 1993 and 2005 built adjacent on all sides of the original buildings and structures (**See Table 1** and **Site Map**). The International Style **Pump Station,** built in 1964, is rectangular in plan, rests on a concrete foundation and has a flat roof (**Photograph 1**). The building's exterior is separated into vertical sections by blue low-relief columns and courses at the base and roofline framing white, vertically scored concrete panels. These sections are supported by a seven foot tall board-formed concrete base. The center element of the façade has a metal overhead vehicle door below two bands of five multi-light, aluminum framed windows. Above and between the windows are spandrel panels. (See Continuation Sheet.)

***P3b. Resource Attributes:** (List attributes and codes) HP9 – Public utility building
***P4. Resources Present:** ☒ Building ☒ Structure ☐ Object ☐ Site ☐ District ☐ Element of District ☐ Other (Isolates, etc.)

P5a. Photo or Drawing (Photo required for buildings, structures, and objects.)

P5b. Description of Photo: (View, date, accession #): **Photograph 1**. Pump Station, camera facing southwest, 10/27/11.

***P6. Date Constructed/Age and Sources:**
☒ Historic ☐ Prehistoric ☐ Both
1964 (Boghosian)

***P7. Owner and Address:**
City of Sacramento
1023 J Street
Sacramento, CA 95814

***P8. Recorded by:** (Name, affiliation, address)
Steven J. Melvin and Heather Miller
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

***P9. Date Recorded:** October 27, 2011
***P10. Survey Type:** Intensive

***P11. Report Citation:** (Cite survey report and other sources, or enter "none.") JRP Historical Consulting, LLC, "Sacramento Water Treatment Plant Rehabilitation Project, Sacramento, California," 2011

***Attachments:** ☐ None ☐ Location Map ☐ Sketch Map ☒ Continuation Sheet ☒ Building, Structure, and Object Record ☐ Archaeological Record ☐ District Record ☐ Linear Feature Record ☐ Milling Station Record ☐ Rock Art Record ☐ Artifact Record ☐ Photograph Record ☒Other (list) Site Map

***NRHP Status Code** 6Z
***Resource Name or #** E.A. Fairbairn Water Treatment Plant

B1. Historic Name: American River Water Treatment Plant
B2. Common Name: E.A. Fairbairn Water Treatment Plant
B3. Original Use: Water Treatment Plant B4. Present Use: Water Treatment Plant
***B5. Architectural Style:** International Style Modernism
***B6. Construction History:** (Construction date, alteration, and date of alterations) Original Construction: 1964; major additions in 1993 and 2005

***B7. Moved?** ☒ **No** ☐ **Yes** ☐ **Unknown** **Date:** _____ **Original Location:** _____
***B8. Related Features:**

B9. Architect: James M. Montgomery, Engineers b. Builder: Fruin-Colnon Contracting Co. and Alex Robertson Co.
***B10. Significance: Theme** n/a **Area** n/a
Period of Significance n/a **Property Type** n/a **Applicable Criteria** n/a
(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)

The E.A. Fairbairn Water Treatment Plant does not appear to meet the criteria for listing in the National Register of Historic Places (NRHP), the California Register of Historical Resources (CRHR), or the Sacramento Register of Historic and Cultural Resources (SRHCR) because it does not have historical or architectural / engineering significance and lacks integrity. This resource has been evaluated in accordance with Section 15064.5(a)(2)-(3) of the CEQA Guidelines, using the criteria outlines in Section 5024.1 of the California Public Resources Code and the City of Sacramento Historic Preservation Ordinance (2006-063) using the criteria outlined in Section 17.134.170 (A)(1a)-(2) of the Sacramento City Code. Therefore, this property does not appear to be a historical resource for the purposes of CEQA, nor does it appear to be a historic landmark of the City of Sacramento. (See Continuation Sheet.)

B11. Additional Resource Attributes: (List attributes and codes)

***B12. References:** John F. Burns, ed., *Sacramento: Gold Rush Legacy, Metropolitan Destiny*; Myrtle Shaw Lord, *A Sacramento Saga: Fifty Years of Achievement-Chamber of Commerce Leadership*; Steven M. Avella, *Sacramento: Indomitable City*; Kevin Carunchio, "Turning Mud into Liquid Gold: A History of Sacramento's Water Supply, 1849-1924"; Paula Boghosian, "The Architecture of Water in Sacramento," *Sacramento History Journal* 6, no. 1-4 (2006). (See also footnotes.)

B13. Remarks:

***B14. Evaluator:** Steven J. Melvin / Christopher McMorris
***Date of Evaluation:** December 2011

(This space reserved for official comments.)

P3a. Description (continued):

A glazed metal personnel door is just east of the overhead door and a small metal framed hopper window to the west. The east and west sides are each divided into six sections. On the east and west sides are rows of awning windows over fixed pane windows above a row of spandrels and vents. Modifications include a metal personnel door placed in the southernmost window set on the west side and a HVAC unit placed in the southernmost window set on the east side. A glass block window is located in the southernmost section on the east side and two metal beams enter the building in the southernmost section on the west side. The south side of the building is divided into six narrow sections with a smooth concrete finish with flush separation columns and a single metal personnel door (**Photograph 2**).

The International Style **Filter/Lime Feeder Building** consists of a T-shaped building with filter structures both north and south of the main building wing. The building faces north and is attached on the north with the Sedimentation Basins. Built in 1964, the Filter/Lime Feeder Building's main elevation is one story above ground level, and consists of a two-story central element and single story wings, all constructed of poured concrete and topped by a flat roof (**Photograph 3)**. The symmetrical façade has its main entry in the two-story central element consisting of double metal full-light entry doors, with "Filter Building" in thin-line font above the doors (**Photograph 4** and **Photograph 5**). Above the doors are four large, stacked, fixed aluminum windows that extend to the roofline. The entry is framed by blue low-relief columns and a course along the roofline. The low-relief columns repeat on the flanking single-story wings of the building, framing sets of aluminum sash, fixed pane and hopper windows with blue spandrels. The framing is completed by a cantilevered roof with a blue fascia. In four of the sets are full-light aluminum personnel doors. Large, metal double personnel doors are located at each end of the façade. Identical sections of windows with spandrels and full-light personnel doors repeat on the other sides of the building (**Photograph 6)**. Metal personnel doors and a few single windows are also on the south side of both the main wing and central element. One of these doors provided roof access to the central element of the building. Both north and south of the main wings of the Filter/Lime Feeder Building are the filter structures. These consist of poured concrete chambers with poured concrete walkways above which create a grid pattern with 16 squares in each quadrant around the wings of the Filter/Lime Feeder Building. Aluminum railings are around the edge of the filter structure. A metal staircase provides access to the filter structures and at the top of the staircase platform is a metal tower. At ground level on the south side of the Filter/Lime Feeder Building are glazed metal personnel doors (**Photograph 7**).

Attached to the north of the Filter Building are **Sedimentation Basins 1 and 2**. This long rectangular structure built in 1964 is about one story above grade and constructed largely of poured concrete and is attached to the Administration Building on the north (**Photograph 8**). The exterior walls are tilt-up concrete construction and have similar low relief blue columns as the Filter Building at the north end of the structure. The basins are divided into four sections from south to north: weirs, sludge rakes, clarifiers, and flocculators. The weirs consist of rows of parallel troughs with metal weirs set on concrete pillars (**Photograph 9**). Next are the sludge rakes: large horizontal rakes pulled by massive chains pulled by motor driven gears (**Photograph 10**). The clarifiers are two large basins each with a two large motor-driven pivot arm attached to paddle rakes. On top of the arms are metal catwalks and railings that extend to the middle of each basin (**Photograph 11**). At the north end of this structure are the flocculators which comprise a maze-like component made of slotted concrete posts with boards between. The boards form channel walls through which the water passes on a zig-zag course through the flocculator. Within the channel are metal paddles wheels rotating on a horizontal axis to agitate the water (**Photograph 12**).

The **Administration Building** (formerly known as the Head House) is at the north end of the property and attached to the north end of the Sedimentation Basins. It was built in 1964 and is also attached to the modern Laboratory Building built in 1993 on the west and the Control Building on the east. The three-story, International style building has a rectangular plan and a stepped, flat roof. The façade was originally on the west side, but this side was heavily altered when the lab building was built, including alterations to the main entrance. Currently, the main entry to the building is through a new connecting corridor with the Laboratory Building. This has double glazed metal doors with sidelights on the south side and north sides (**Photograph 13**). Sets of metal framed sliding windows framed by projecting surrounds are throughout the building. The west side of the building is clad in stucco with vertical and horizontal bands and a glass block window to match the adjacent

lab building. The north side of the building has a wrap-around loading bay and a metal personnel door accessed by concrete stairs (**Photograph 14**). A cantilevered awning extends from just inside the shortest wall portion and wraps around the northeast corner and down the east side and terminates at the new building addition. The wall finish below the awning has the same vertical grooves as the Pump House while the finish is smooth above the awning. A large, double metal loading door is centrally located on the first-story with a glazed metal personnel door to the east. The remaining windows are three-part, metal framed pivot style. The east side of the building has a metal vertical sliding freight door near the northeast corner with a two-part, metal framed sliding window to the south. A short walkway with metal railing is located on the third-story that is accessed by a glazed metal security door. The walkway wraps around to the stepped roof portion on the south side of the building. A set of double, glazed metal personnel doors are located on the south side of the middle portion of the stepped roof projection and a single glazed metal personnel door is located on the south side of the highest stepped roof projection (**Photograph 15**).

The **Grit Basin** was built in 1964 and is located northwest of the Administration Building and abuts the American River levee. Water from the intake structure flows directly into the Grit Basin which is square in plan and has plain tilt-up concrete walls (**Photograph 16**). External concrete stairs with metal railing are on the east side and lead up to a concrete platform which overlooks the square tank. A motorized pivot arm propels a paddle around the tank and a metal catwalk provides access to the motor in the center of the tank. Around the tank is a metal railing (**Photograph 17**).

A small **Carbon Storage Building** and tank are located at the northeast corner of the property (**Photograph 18**). The brick building built in 1964 is rectangular in plan, rests on a concrete foundation, and has an overhanging flat roof. A metal personnel door is located on the south side and fixed metal framed windows and a vent are located on the east and west sides. The attached tank structure to the north has concrete wings walls that cut into the levee. Concrete stairs and metal railings are located on the east side and lead to a concrete platform on top of the tank with metal railing.

A **Metering Vault** structure built in 1964 abuts the levee just north of the Administration Building. The vault is a poured concrete structure with stepped east and west walls and a metal railing all around (**Photograph 19**). A metal ladder is located on the west side that leads down to the below grade concrete floor and two large water pipes.

At the south end of the parcel between the Pump Station and Filter House is the **Lime Unloading Building**, also built in 1964. It is rectangular in plan, has a flat roof with moderate overhang and made of concrete blocks (**Photograph 20**). Large metal overhead doors are located on the east and west sides. The north side has a glazed metal personnel door, and two, three-part metal windows.

Near the Lime Unloading Building is the **Lime Storage** structure built in 1964 which consists of a raised concrete platform holding two cylindrical metal lime tanks (**Photograph 20**). A metal stairway on the south side leads to metal platforms on top of the tanks. Next to the tanks on the east side is a small concrete block building with a flat roof. Its entire west wall is open and enclosed with two chainlink gates. To the east of these buildings is the **Wash Water Tank**. Constructed in 1964, the approximately three-story high cylindrical metal tank has a metal stairway affixed to the northwest side. Vertical ribbing divides the exterior of the tank into six parts (**Photograph 21**). On the southwest corner of the parcel is the 20 million gallon reservoir, which is entirely underground.

Modern buildings and structures on the property include the Lab Building, Control Building, Chemical Building, East Filter Building, Sedimentation Basins 3 & 4, FWW Lagoons 1 & 2, Sludge Lagoons 1, 2 & 3, Lime Building, underground reservoirs, garage, warehouse, and a storage building.

Table 1	
E.A. Fairbairn Water Treatment Plant Extant Buildings and Structures	
Building/Structure	**Date of Construction**
Pump Station	1964
Filter/Lime Feeder Building	1964
Sedimentation Basins 1 & 2	1964
Administration Building	1964
Grit Basin	1964
Carbon Storage Building	1964
Metering Vault	1964
Lime Unloading Building	1964
Lime Storage	1964
Wash Water Tank	1964
20 mg Reservoir	1964
Lab Building	1993
Warehouse	ca. 1996
Control Building	2005
Chemical Building	2005
East Filter Building	2005
Lime Building	2005
Sedimentation Basins 3 & 4	2005
FWW Lagoons 1 & 2	2005
Sludge Lagoons 1, 2 & 3	2005
3 mg Reservoir	2005
6 mg Reservoir	2005
Garage	2005

B10. Significance (continued):

Historic Context

General Development of Sacramento

European settlement in the area that became Sacramento was initiated by large land grants allotted by Mexican governors during the Mexican period of California history. In 1841, John Augustus Sutter, from Switzerland, obtained a land grant along the Sacramento River where he constructed a fortified settlement and trading post. The grant, which Sutter named New Helvetia, encompassed approximately 44,000 acres, including all of the land where FWTP currently sits. Even with Sutter's settlement activities, the Sacramento Valley remained isolated and sparsely settled until January 1848, when James Marshall discovered gold at Sutter's lumber mill along the South Fork of the American River at Coloma. The initial

development of the City of Sacramento is directly attributable to the subsequent onslaught of gold seekers rushing to the Sierra Nevada and the settlement quickly took on the role of a gold rush river port.[1]

Two of Sutter's business associates, Sam Brannan and Peter Burnett, joined Sutter's son, John A. Sutter, Jr., in establishing the new town of Sacramento. They set aside four square miles of New Helvetia land between the riverfront and the fort, and in December 1848 commissioned Captain William H. Warner and Lt. William Tecumseh Sherman to lay out a system of streets and blocks. The grid plan included wide streets and space reserved for several city parks and plazas. Sacramento incorporated in 1850 and its population quickly grew to 6,820 within a few months.[2] Sacramento importance as a gold rush town and growth in the late 1840s and early 1850s made it a viable candidate for the site of the state capitol. Political fighting over the location of the capitol, and disasters such as fires and floods, kept the seat of state government moving around northern California for several years, until finally locating permanently in Sacramento in 1854.[3]

Following the gold rush, residents turned to other commercial pursuits in the new city and agriculture became central to Sacramento's economy. Wheat was the dominant crop in the early years and Sacramento served as the region's central shipping center. Steamboats provided much of the transportation for the people and goods moving in and out of the city while at the same time a system of streets and roads developed within the city and throughout Sacramento County. Railroads also entered Sacramento with the Sacramento Valley Railroad establishing service between Sacramento and Folsom in 1856 and the Central Pacific Railroad incorporating in 1862 (later became the Southern Pacific Railroad). Thus, by the mid-1860s Sacramento had developed into a bustling transportation, commercial, agricultural, and social hub for the Sacramento Valley and grew to over 21,000 inhabitants by 1880.[4]

During the city's initial decades residential areas expanded and the crude shelters of early years were replaced with brick and wood-frame buildings. Churches and schools sprang up throughout the city. The Sacramento riverfront, the business district along J and K streets, the State Capitol area developed first, with the land further east being built up as the city's population increased. The levee system adapted by the city in the late 1850s and early 1860s placed limitations on urban development, beyond which urban settlement could not expand without being threatened by floodwaters. In 1862, flooding also prompted the city to relocate the mouth of the American River at the confluence with the Sacramento River about one quarter mile north to its current location. The former channel passes directly through the current site of SRWTP. Until the late 1870s, the practical boundaries of urban settlement in Sacramento were defined by the Sacramento and American rivers to the west and north, and a levee to the south and east. At the time, the levee ran east along R Street from the Sacramento River to roughly 16th Street, then meandered northeasterly along an overflow channel of the American River called Burns Slough to a location near G and 31st streets, and subsequently headed north along 31st Street to the American River. The concentration of residences during the 1870s, though, remained west of 11th Street.[5] In 1878, Sacramento's increasing population compelled the city to move its southern levee south to Y Street (now Broadway) and east to 21st Street, opening more land to urban development.[6] By the mid-1880s residential construction had spread east of 15th Street and continued to fill in the developable areas of the city with most of the area in what is now south mid-town (15th to 29th streets, L Street south to Broadway) developed by the late 1890s.[7] With this early growth of Sacramento came the need for a municipal

[1] John F. Burns, ed., *Sacramento: Gold Rush Legacy, Metropolitan Destiny* (Carlsbad, CA: Heritage Media Corp., 1999), 18-29; Mildred Brook Hoover, Ethel Grace Rensch, and Hero Eugene Rensch, *Historic Spots in California*, Revised by William N. Abeloe (Stanford, CA: Stanford University Press, 1966), 298-299

[2] Burns, ed., *Sacramento: Gold Rush Legacy, Metropolitan Destiny*, 29-31; Hoover, et. al., *Historic Spots in California*, 302-303; H. H. Jaqueth, *Major Street Report, Sacramento, California* (St. Louis, MI: Bartholomew and Associates, City Plan and Landscape Engineers, 1928) adopted by City of Sacramento Planning Commission and City Council in September, 1928, 10.

[3] Hoover, et. al., *Historic Spots in California*, 303-304; Burns, ed., *Sacramento: Gold Rush Legacy, Metropolitan Destiny*, 30-31.

[4] Burns, ed., *Sacramento: Gold Rush Legacy, Metropolitan Destiny*, 31-35, 48-50.

[5] Burns, ed., *Sacramento: Gold Rush Legacy, Metropolitan Destiny*, 45, 47, 56; Marvin Brienes, "Sacramento Defies the Rivers, 1850-1878," *California Historical Society Quarterly* 58 (Spring 1979): 3-19; Steven M. Avella, *Sacramento: Indomitable City* (San Francisco: Arcadia Publishing, 2003), 51.

[6] Brienes, "Sacramento Defies the Rivers, 1850-1878," 3-19.

[7] Burns, ed., *Sacramento: Gold Rush Legacy, Metropolitan Destiny*, 45, 47, 56; Sanborn Fire Insurance Company, *Sacramento, California* (New York: Sanborn Fire Insurance Company, 1898).

water supply. The first was developed in 1849 and expanded and evolved as the city grew. A discussion of the city's municipal water system development is presented below.

The beginning of the twentieth century was a boom time for Sacramento. Fruit and vegetable crops had superseded wheat as the dominant crop in the Sacramento Valley, and Sacramento became an important shipping center exporting produce across the nation and to Europe. While Sacramento's climate could not compete with southern California for the citrus fruit business, deciduous fruit trees, hops, grapes, and tomatoes became central to Sacramento's agricultural business. Sacramento also experienced remarkable industrial growth during the first thirty years of the twentieth century; by the 1920s, with over 600 factories operating in the city by 1929. The city bustled with electric trolley cars throughout the city leading to the development of Sacramento's first suburbs of Oak Park and East Sacramento. Main line railroads also continued to play an important role in the town with the Southern Pacific Railroad operating a major railyard in Sacramento and the Western Pacific Railroad building a main line through the city in 1910. The city's population steadily increased reaching 44,696 in 1910; 65,908 in 1920, and 93,750 by 1930.[8]

The economic development of the period, in both agriculture and manufacturing, brought a great influx of people to the city, stimulating further residential development, extension of public utilities, and construction of new schools. By the 1910s, much of the area in the vicinity of Capitol Park was devoted to multiple-family properties containing apartments and flats to accommodate the new residents. By this time, most of the vacant parcels in had been filled in, primarily with residential development. Commercial enterprises, such as corner stores, creameries, laundries, and auto-service facilities also opened.[9] Growth in the early 1900s led to the first annexation of land to Sacramento. The "Greater Sacramento" movement began around 1908 led by the Chamber of Commerce, Sacramento Realty Association, and the residents of the suburban districts outside of the city limits. After considerable debate, Oak Park and East Sacramento were annexed in 1911. This newly acquired, unincorporated area included 9.5 square miles of land east and south of the original city limits, tripling the size of Sacramento's urban area. Additional areas were annexed over the following decades.[10]

Growth continued in the subsequent decades and Sacramento developed into a modern city. The foundation of Sacramento's expansion was a solid economy based on the Southern Pacific railyards, agriculture, and the canning industry. Neighborhoods developed in East Sacramento, Oak Park and newly annexed lands of Land Park and Curtis Park. Concomitant with the residential expansion was new commercial construction with nearly 30 new buildings being built downtown in the 1920s. These boom times led to further expansion and improvement of the city's infrastructure including electricity and the electric streetcar system, which reached maturity in the 1920s with a complex web of lines reaching all parts of the Sacramento.[11] As discussed below, this is also when Sacramento built its first municipal water treatment facility at SRWTP.

Sacramento weathered the Depression and, like much of California, was revived by an influx of population because of the military's presence in and near the city during World War II. During the war the defense industry blossomed throughout the state drawing workers from across the nation. In addition, the number of military bases doubled in California bringing servicemen and civilian workers. Although Sacramento did not have any large war-related industries, it did have McClellan Air Base, Sacramento Army Depot, and Mather Field, which helped stimulate the economy and spawn growth. Both

[8] Joseph McGowan, *History of the Sacramento Valley*, vol. II (New York, NY: Lewis Historical Pub. Co., c1961), chapters 34, 50, and 51; Myrtle Shaw Lord, *A Sacramento Saga: Fifty Years of Achievement-Chamber of Commerce Leadership* (Sacramento: Sacramento Chamber of Commerce, 1946), 275; Phinney, Cate and Marshall, *Map of Sacramento City, 1913, Sacramento County, California* ([n.p.]: 1913); Burns, ed., *Sacramento: Gold Rush Legacy, Metropolitan Destiny*, 72-73; *The Sacramento Bee*, November 30, 1929; and *Population Growth of the City and County of Sacramento, 1850 – 1980* (Part of the Master Plan of the City of Sacramento, November 1953), 36.
[9] Sanborn Fire Insurance Company, *Sacramento, California* (New York: Sanborn Fire Insurance Company, 1915).
[10] Steven M. Avella, *Sacramento: Indomitable City* (San Francisco: Arcadia Publishing, 2003), 80-81.
[11] Avella, *Sacramento: Indomitable City*, 58-60, 80-85, 90-94, 97.

McClellan Air Base and Mather Field were outside the city limits north and east of downtown and whole new communities grew up around the bases.[12]

Immediately following the war growth continued in Sacramento. The military bases remained active after the war and new industry also moved to the area. Private defense contractors such as Aerojet-General and McDonnell-Douglas Aircraft opened plants just east of the city limits. Other industries also located in Sacramento during the mid-twentieth century, including Crown-Zellerbach, Firestone Tire, Proctor and Gamble, and Campbell Soup. Further propelling the economy was an increased number of local, state and federal jobs in the city and the establishment of Sacramento State College, which became CSUS in 1972. The impact of World War II and the economic boom of the post-war years caused a surge in the population of Sacramento. Between 1940 and 1950, the number of residents increased from 105,958 to 135,761. The county's population grew even more from 170,333 to 277,140 during the same period with a large amount of this occurring on the city's northern and eastern fringes. This trend continued with the population of Sacramento increasing 39 percent during the decade of the 1950s. Sacramento's growth continued into the 1960s as government and industry remained prominent employers, new freeways facilitated transportation, and the city solidified its role as a regional retail and commercial hub. As discussed below, this led to increased demands on the city's infrastructure, including its municipal water system and the need for construction of the FWTP.[13]

Sacramento Municipal Water Works Development

Development of municipal water in Sacramento began during the burst of growth triggered by the Gold Rush. Prior to this time, residents drew water directly from the river using buckets, but the increasing population of Sacramento demanded a more efficient method of obtaining water. The need was first answered in 1849 by local entrepreneur William P. Henry who built a privately owned municipal water supply system consisting of a five horsepower engine which pumped water from the Sacramento River near the foot of I Street to elevated wooden tanks. Pushcarts and water wagons then filled up at the tanks and delivered water to customers throughout the city. Soon after Henry's successful business got underway, Billy Anderson set up a similar endeavor downstream, and by the early 1850s the two men had combined their enterprises.[14]

Private systems had their failings, however, and following a devastating fire in 1852 that destroyed much of the city, Sacramento developed its first public municipal water system. In 1854, a publicly financed water system was put in operation at a cost $120,000. The new water works pumped water from the Sacramento River into tanks located on the second floor of City Hall from which it flowed by gravity into distribution pipes. This system also had its faults, specifically a lack of adequate water pressure to reach distant customers. As the city grew, the water pressure problem worsened and was temporarily resolved by raising the tanks in 1870.[15]

Civic leaders understood the inadequacies of the water system as it existed in 1870 and made plans to construct an entirely new water works. They hired Holly Manufacturing Company who designed a system that pumped water from the river at I Street directly into the distribution pipes. The new system would cost $190,000 and voters initially rejected the proposal, but approved it in 1872 and construction began almost immediately. The direct pumping Holly system had a pressure

[12] Burns, ed., *Sacramento: Gold Rush Legacy, Metropolitan Destiny*, 91, 107-109; Sacramento City Government, "Traffic Signs and Signals, Annual Report, 1936," City of Sacramento Traffic Engineer Reports, Box 5, Folder 8, Center for Sacramento History, Sacramento, California; Sacramento City Government, "City of Sacramento Municipal Progress, 1939," 1940, City of Sacramento Traffic Engineer Reports, Box 5, Folder 7, Center for Sacramento History, Sacramento, California.

[13] Burns, ed., *Sacramento: Gold Rush Legacy, Metropolitan Destiny*, 110-113; *Population Growth of the City and County of Sacramento, 1850 – 1980*, part of the Master Plan of the City of Sacramento, November 1953 (Sacramento, CA: n.p., 1953), 36; Richard S. Petersen, *The Growth of Sacramento County, 1940-1960* (Sacramento, CA: Bank of America, 1961); Avella, *Sacramento: Indomitable City*, 116-122, 124-126, 133, 134.

[14] Myrtle Shaw Lord, *A Sacramento Saga: Fifty Years of Achievement-Chamber of Commerce Leadership* (Sacramento, CA: Sacramento Chamber of commerce, 1946), 162.

[15] Historic Environmental Consultants, "Richards Boulevard Area Architectural and Historical Property Survey," September 2000, 4; Lord, *A Sacramento Saga*, 163; Kevin Carunchio, "Turning Mud into Liquid Gold: A History of Sacramento's Water Supply, 1849-1924," *Sacramento History Journal* 6, no. 1-4 (2006), 264-265.

capacity between 40 and 100 pounds per square inch (psi). Sacramento now had adequate water pressure, but water quality was very poor and the issue of a better system remained a major topic among the city's inhabitants.[16]

By 1895, the newly organized Chamber of Commerce took up the issue of Sacramento's water supply in earnest. The Chamber pushed for improvements to the distribution system and the water quality. Water purity had become the pressing issue by this time as the water quality had steadily worsened. Water in Sacramento's pipes was muddy and drawn from a river which often carried garbage and raw sewage. Lacking action from the City Board of Trustees (which became the City Commission in 1915, which in turn was replaced by the City Council in 1921), the Chamber sponsored investigations into drilling municipal wells and running a pipeline from the American River near Auburn. The Chamber continued to urge an unresponsive City Board of Trustees to act on the issue throughout the late 1890s, but to no avail. Additional pressure from the public and press finally compelled the Chamber to authorize formation of a committee to investigate a pure water supply for the city. Upon the committee's recommendation, the city hired Rudolph Herring, an engineer from New York to examine the problem in 1899. Herring's concluded the best solution was to filter Sacramento River water, but the committee continued to examine other options before issuing their final report in 1901 which favored river water filtration. The city did not act on Herring's recommendations, rather it extended the existing system and increased the capacity of the pumping plant at Front Street.[17]

In 1908, interest in water filtration again came to the fore and city engineer Albert Givan was sent to eastern states to look at water filtration plants in other cities. Following submittal of Givan's report detailing the current methods of filtration at other plants, the city hired Charles G. Hyde, a sanitary engineer and professor at University of California, to prepare an estimate for a water filtration plant in Sacramento. Hyde's report, submitted in 1909, recommended a rapid sand filtration plant located on the Sacramento River just south of the confluence with the American River. The Board of Trustees endorsed the plan, but Sacramentans twice voted down bond measures to finance the project. The plan died and instead, the city once again expanded the existing system and built a chlorination plant at the foot of I Street to help improve water quality.[18]

These stop-gap measures did little to quiet the calls for clean water in Sacramento. In 1915, the city once again hired Hyde, this time as part of a consulting team with George H. Wilhelm to work with city engineer Frank Miller to study the problem of the city's water supply. The result was a six volume report titled "Report Upon Possible Sources of Water Supply for the City of Sacramento, California." It identified four different potential water sources: reservoirs in the Sierra Nevada on the American River and the Mokelumne River, wells south and east of Sacramento, and filtering Sacramento River water as Hyde had recommended in 1909. The Hyde & Wilhelm report concluded that the latter option was the most viable, calling it "the most satisfactory, rational, dependable and economical source." The report included designs for a new facility to be located 1,200 feet east of the east bank of the Sacramento River and 1,500 feet south of the confluence with the American River, the location that was eventually adopted as the site for the current SRWTP facility.[19]

Debate among various factions over the validity of the different options presented in the Hyde & Wilhelm report and the economic disruption caused by World War I delayed construction of a new water supply system. The Sacramento Retail Merchants Association, for example, believed that the option of more water from wells was the better alternative, while the Real Estate Men's Association wanted a mountain water supply, and various city officials favored the Sacramento River pumping and filtration option. The stalemate was finally ended in 1919 when the Chamber put together a committee and hired its own consulting engineer, C. E. Grunsky, to perform another water supply evaluation. Grunsky, like Hyde & Wilhelm before him, came to the conclusion that building a rapid sand filtration plant to purify river water was the optimal

[16] Historic Environmental Consultants, "Richards Boulevard Area Architectural and Historical Property Survey," September 2000, 4; Carunchio, "Turning Mud into Liquid Gold: A History of Sacramento's Water Supply, 1849-1924," 265-266.
[17] Lord, *A Sacramento Saga*, 163; Carunchio, "Turning Mud into Liquid Gold: A History of Sacramento's Water Supply, 1849-1924," 266-269, 271, 274.
[18] Carunchio, "Turning Mud into Liquid Gold: A History of Sacramento's Water Supply, 1849-1924," 269, 270.
[19] Carunchio, "Turning Mud into Liquid Gold: A History of Sacramento's Water Supply, 1849-1924," 270-272.

method. The rapid sand filtration process, which had been successfully used in municipal water systems in multiple cities, involved three principal steps to treat water from the river: sedimentation and clarification, filtration through sand filters, and chlorination. The Chamber and several other groups backed this proposal and lobbied for a bond measure to be put before the voters. The City Council obliged and in June 1919, Sacramento voters approved a $1.8 million for the construction of a new filtration plant. The city then purchased a 33.6-acres tract from F.A. Warner and an 8.2-acre tract from A.M. Mull in 1920 for the plant.[20]

While initial designs for SRWTP were based on those of the 1916 Hyde & Wilhelm report which included engineering layouts, site plans, and architectural drawings prepared by Oakland architect C.K. Bonestell, the city hired the Sacramento architectural firm of Dean & Dean to draft the final plans. Construction of SRWTP began in January 1921 with the Coast Construction Company of San Francisco receiving the contract for building the majority of the plant. Later that year, the city prepared a cost estimate to complete the project and determined that an additional $900,000 was needed above the original $1.8 million bond making the total estimated cost $2.7 million. Voters approved the new bond later that year. Meanwhile progress on the intake structure of the plant by Coast Construction lagged, frustrating city officials and leading the city to cancel the company's contract in January 1922. Subsequently, city engineers took over construction of the intake facilities and pumping works using day labor. The Mathews Construction Company completed the remainder of the buildings and structures by 1924.[21] On New Year's Eve 1923, the plant was officially dedicated with a celebration at City Plaza. The highlight of the event was President Calvin Coolidge pressing a button in Washington, D.C. which purportedly sent an electric impulse across the country causing "clear water to gush forth from the [City Plaza] fountain" and thus, marking the completion of the new water treatment plant. When completed, the estimated peak load of water used by Sacramento was 20 million gallons per day (mgd), and the new plant was capable of providing twice that amount.[22]

Plant designers, however, did not anticipate the dramatic increase in water use following the completion of SRWTP. It seems that having suffered through years of poor water and water shortages, Sacramentans indulged in copious water use. By summer of 1924, the plant was operating at capacity and plans for expansion began. Eight additional filters and an addition to the east end of the West Filter Building were constructed in 1928, Sedimentation Basin No. 2 was added in 1933, and a 9.5 million gallon clear water reservoir in 1937. Maximum capacity of SRWTP following these improvements increased to 80 mgd.[23] Prompted by a need for additional water production, the next major improvements to the plant came in 2003 which included a new intake, Administration Building, Control Building, Chemical Building, filters, sedimentation basins and lagoons.[24] As a result of these recent upgrades, intake and treatment capacity increased from 110 million gallons mgd to 160 mgd at SRWTP.[25]

When it began operation SRWTP provided all water for Sacramento and continued to do so for several decades. Growth of the city in the 1950s increased demand to such an extent that a new water treatment plant was needed. City Engineer E.A. Fairbairn initiated planning of a new plant on the American River adjacent to the Sacramento State College campus. The

[20] Historic Environmental Consultants, "Richards Boulevard Area Architectural and Historical Property Survey," September 2000, 5; Myrtle Shaw Lord, *A Sacramento Saga*, 214; Carunchio, "Turning Mud into Liquid Gold: A History of Sacramento's Water Supply, 1849-1924," 272; City of Sacramento, "Map of Proposed Site of Filtration Plant," January 26, 1920.
[21] Historic Environmental Consultants, "Richards Boulevard Area Architectural and Historical Property Survey," September 2000, 7; *The Sacramento Bee*, February 24, 1923, E4; *The Sacramento Bee*, March 31, 1923, E5; Carunchio, "Turning Mud into Liquid Gold: A History of Sacramento's Water Supply, 1849-1924," 274, 275.
[22] Historic Environmental Consultants, "Richards Boulevard Area Architectural and Historical Property Survey," September 2000, 7; *The Sacramento Bee*, March 31, 1923: E5; Carunchio, "Turning Mud into Liquid Gold: A History of Sacramento's Water Supply, 1849-1924," 274; "Coolidge Touches Key Opening Sacramento Filtration Plant," *Sacrament Union*, January 1, 1924, 1,3.
[23] Sacramento Division of Water and Sewers, *Public Water Supply of Sacramento: Its Purification and Distribution* (Sacramento, CA: Division of Water and Sewers, 1956), 1-8; City of Sacramento, Building Plans for SRWTP, Sacramento Department of Utilities; Carunchio, "Turning Mud into Liquid Gold: A History of Sacramento's Water Supply, 1849-1924," 277.
[24] Boghosian, "The Architecture of Water in Sacramento," *Sacramento History Journal* 6, no. 1-4 (2006): 289-295.
[25] David L. Brent, Report to Council, City of Sacramento, "Completion of Water Facilities Expansion Program," EAFWTP (ZF43) Final Change Order No. 30, December 13, 2005.

City Council approved the plant in 1961 and construction commenced that year by the Fruin-Colnon Contracting Company and the Alex Robertson Company (**Illustration 1**). Work concluded in 1964. The plant was originally known as the American River Filtration Plant and later named the Fairbairn Water Treatment Plant (**Illustration 2** and **Illustration 3**).[26] FWTP operated without any major improvements or alterations to the plant until 1993 when the Laboratory Building was constructed adjacent to the original Head House (currently the Administration Building). Major improvements to the facility occurred in 2005 consisting of a new water intake structure and several other buildings and structures (**Illustration 4** and **Illustration 5**). Architects Carissimi, Rohrer, McMullin, and Shively designed the new components of the plant and Corollo Engineers were the general contractors.[27] As a result of these recent upgrades, intake and treatment capacity increased from 90 mgd to 200 mgd at FWTP.[28]

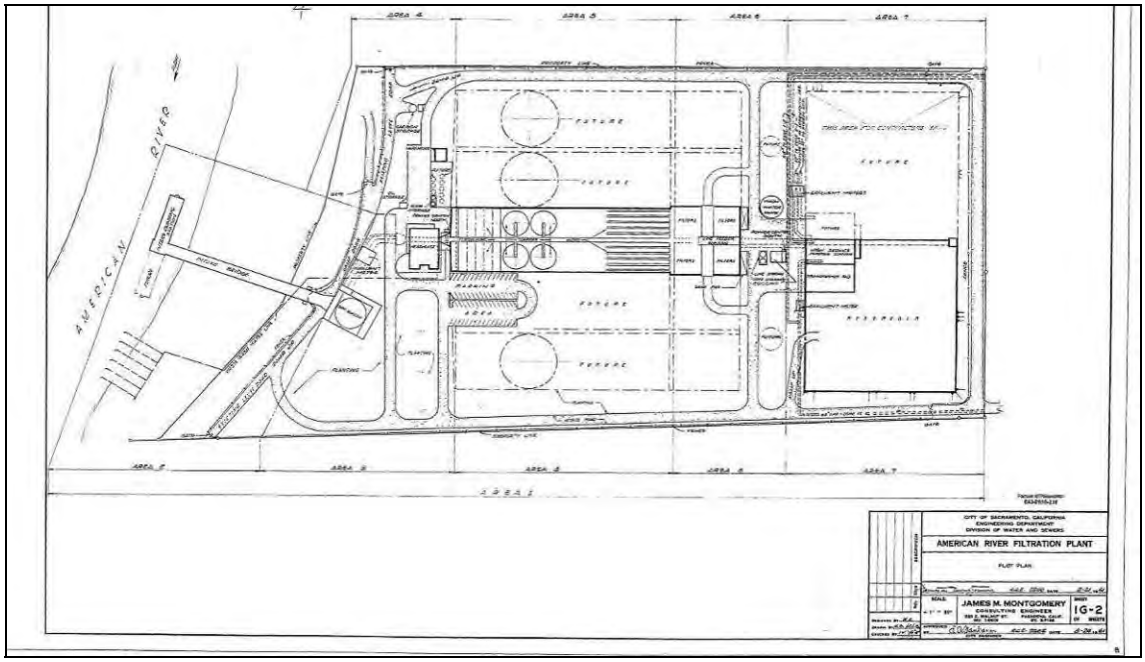


Illustration 1. Original plot plan for FWTP plant dated 1961.

[26] Historic Environmental Consultants, "Richards Boulevard Area Architectural and Historical Property Survey," September 2000, 8; Carunchio, "Turning Mud into Liquid Gold: A History of Sacramento's Water Supply, 1849-1924," 277; Boghosian, "The Architecture of Water in Sacramento," *Sacramento History Journal* 6, no. 1-4 (2006): 292. The plant was originally known as the American River Treatment Plant.
[27] Boghosian, "The Architecture of Water in Sacramento," *Sacramento History Journal* 6, no. 1-4 (2006): 289-295.
[28] David L. Brent, Report to Council, City of Sacramento, "Completion of Water Facilities Expansion Program," EAFWTP (ZF43) Final Change Order No. 30, December 13, 2005.

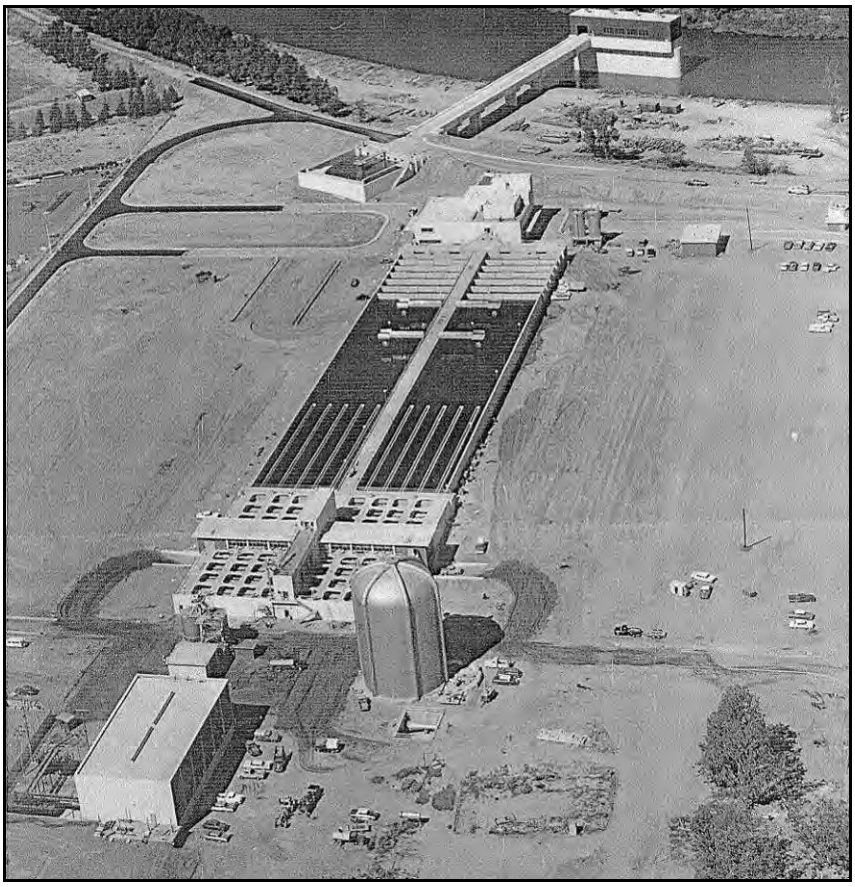


Illustration 2. Fairbairn Water Treatment Plant nearing completion in September 1963.

Illustration 3. FWTP circa 1968. Photo courtesy of City of Sacramento Utilities Department.

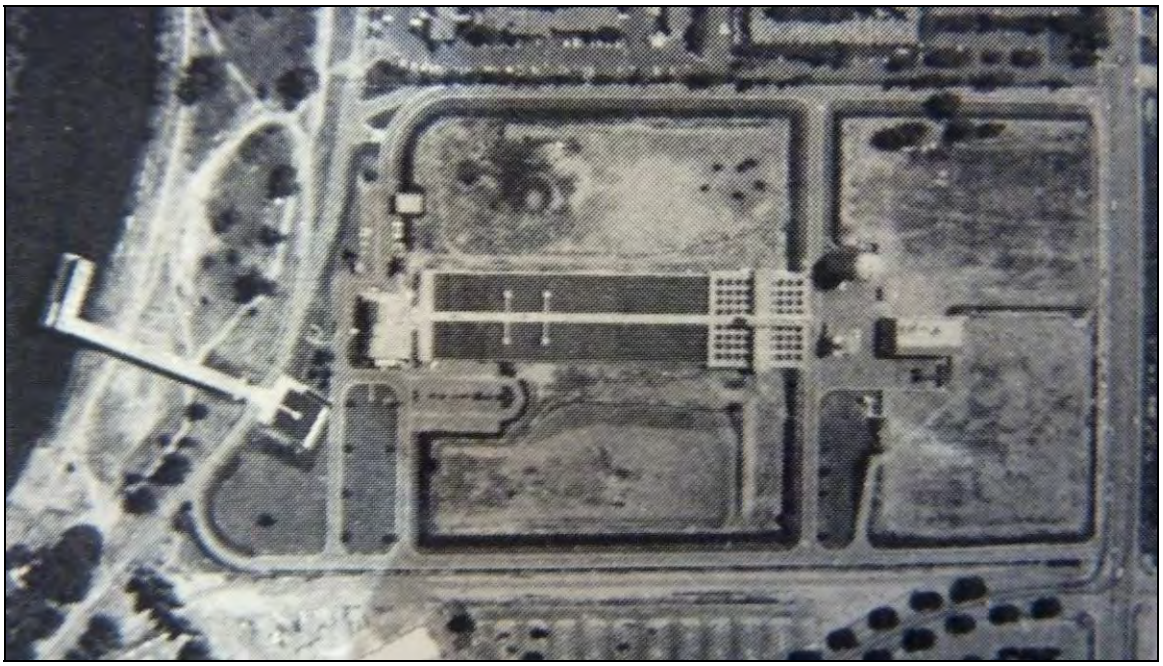


Illustration 4. Aerial image of FWTP in 1980. Image courtesy of Sacramento Public Library, Sacramento Room.

Illustration 5. Current aerial image of FWTP. Image courtesy of Google Maps (accessed June 2011).

Architecture at FWTP

At FWTP, built in the 1960s, many of the original buildings exhibit some International Style Modernism characteristics. The International Style derived from progressive European architectural trends of the 1910s and 1920s. It was then imported to the United States by such noted architects as Richard Neutra and Rudolph Shindler in Southern California who applied the style to residential buildings. International Style became the dominant force in architecture in the United States during the 1940s and 1950s and was adapted to institutional, commercial and industrial buildings at this time. The style was based on functionality and expression of the building structure rather than superfluous applied decoration. Commonly, building materials of reinforced concrete, steel, and glass were left exposed and became part of the design element. The commercial building type of the style is identified by reinforced concrete construction; flat roofs; lack of decoration; simple cubic forms; smooth, blank exterior walls; cantilevered projections; ribbon windows; large, projecting window surrounds; spandrel panels; symmetrical facades; repeating elements, curtain walls of glass, and multiple roof levels. This blend of International Style, modern design techniques became known as the International Style Modernism. Buildings at FWTP such as the Pump Station, Filter/Lime Feeder Building and Administration Building are modest expressions of the International Style combined with utilitarianism (**Illustration 6**, **Illustration 7** and **Illustration 8**).[29] Other historic-era buildings and structures at FWTP are utilitarian and do not exhibit architectural design characteristics that illustrate particular styles or aesthetic value.

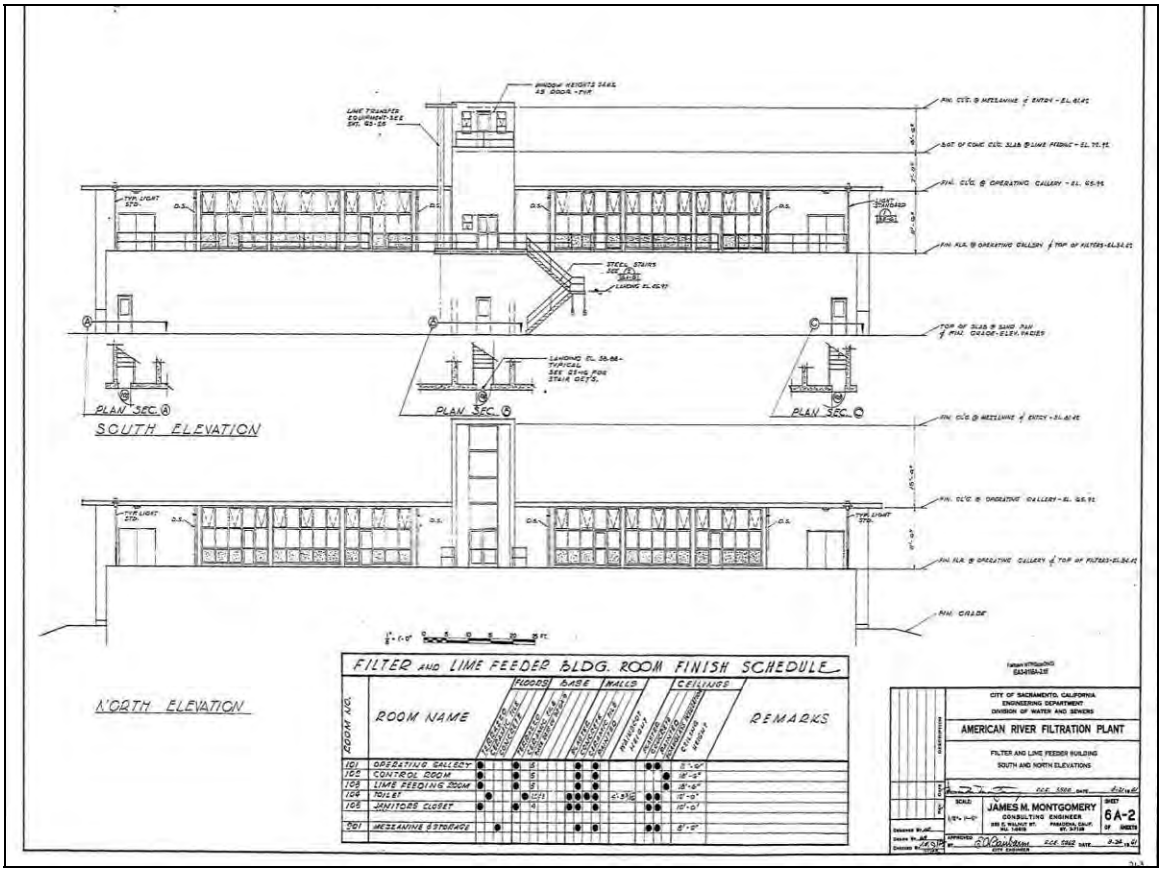


Illustration 6. Elevation drawing of Filter and Lime Feeder Building dated 1961.

[29] Lee McAlester and Virginia McAlester, *Field Guide to American Houses*, (New York" Alfred A. Knopf, 1988), 469-470; Cyril M. Harris, *American Architecture: An Illustrated Encyclopedia*, (New York: W.W. Norton & Co., 1998), 182-183; Mary Brown, "San Francisco: Modern Architecture and Landscape Design, 1935-1970," City and County of San Francisco, September 30, 2010, 167-171.

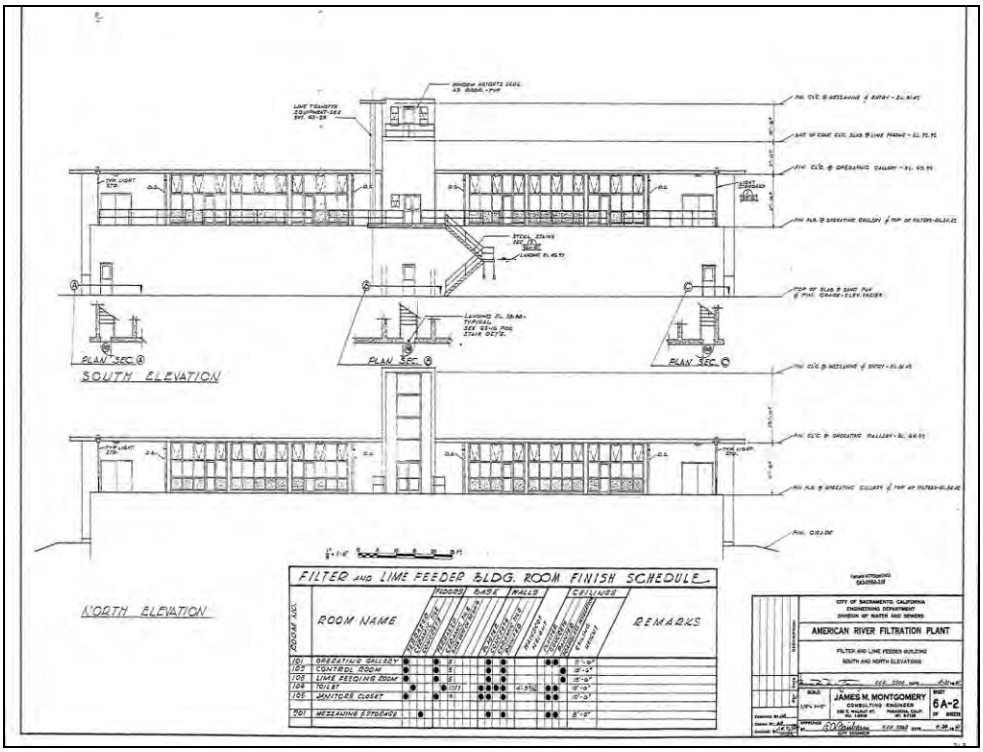


Illustration 7. Elevation drawing of Filter and Lime Feeder Building dated 1961.

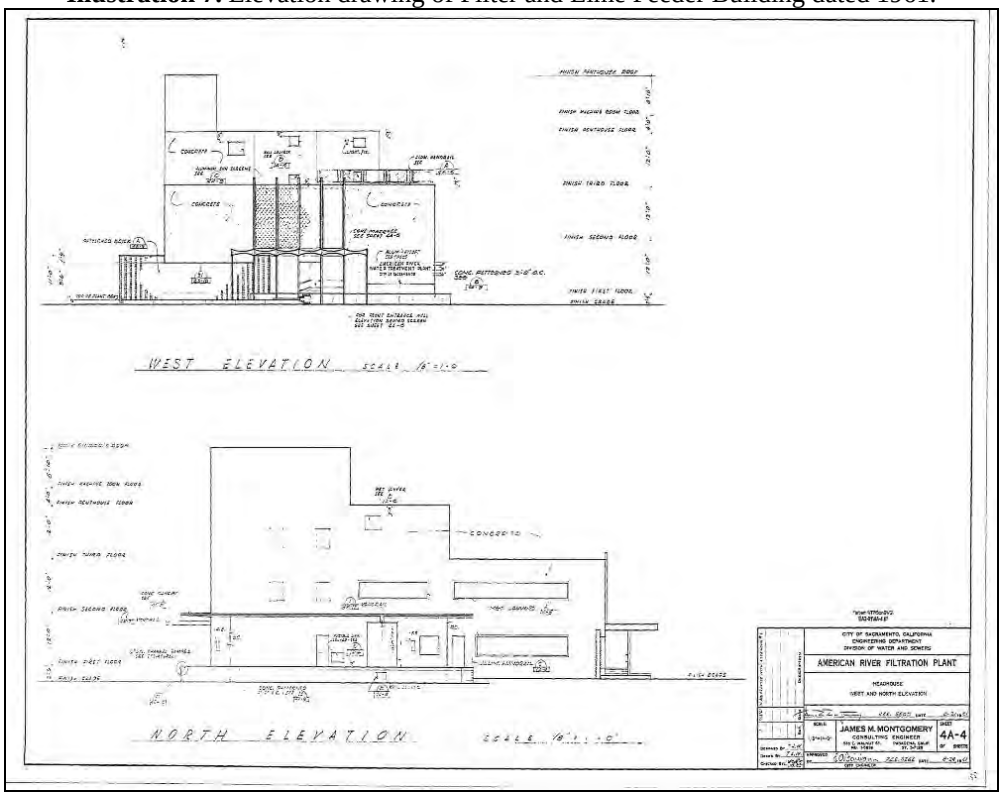


Illustration 8. Elevation drawing of Administration Building
(formerly known as Head House) dated 1961.

Significance

FWTP does not appear to have important associations with historically significant events. The plant is associated with the growth of Sacramento during the early twentieth century and the development of local municipal water works, but did not play a particularly important role in that development. While sufficient municipal water is necessary to provide for a growing population, plants such as FWTP fall under a class of public utility such as sewers or electrical systems which are ubiquitous and essential for any city to function. As such, they must be evaluated under this criterion relative to similar plants in other cities, lest the trivial conclusion is reached that all water treatment plants are historically significant. With this in mind, FWTP answered a need for additional municipal water in Sacramento when the city's other water treatment plant, the Sacramento River Water Treatment Plant, was no longer able to meet demands. FWTP was typical of water treatment plants in other cities but does not stand out as a particularly important cause of growth and expansion and therefore, is not historically significant in this regard. FWTP, therefore, does not appear to be eligible for the NRHP under Criterion A, CRHR under Criterion 1, or SRHCR under Criterion i.

FWTP does not appear to have important associations with historically significant persons. Research did not reveal any person important to history associated with this plant. FWTP, therefore, does not appear to be eligible for the NRHP under Criterion B, CRHR under Criterion 2, or SRHCR under Criterion ii.

FWTP does not appear to be distinctive for its architecture or its engineering design. The original buildings and structures built in 1964 do exhibit the characteristics of the International Style such as concrete construction, smooth walls, ribbon windows, spandrel panels, flat cantilevered roofs, columns and projecting window surrounds. While these characteristics are present in varying degrees, the buildings and structures are not particularly distinctive examples of the International Style. In addition, the design of FWTP was standard for water treatment plants at the time and the plant not employ any new or innovative technology in its operation. FWTP, therefore, does not appear to be eligible for the NRHP under Criterion C, CRHR under Criterion 3, or SRHCR under Criteria iii / iv / v.

This property does not appear to be a significant or likely source of important information regarding history. They do not appear to have any likelihood of yielding important information about historic construction materials or technologies and, therefore, do not appear to be eligible for the NRHP under Criterion D, CRHR under Criterion 4 or SRHCR under Criterion vi.

In addition to the historic-era buildings and structures on the FRWTP property there are also twelve modern buildings and structures built from 1969 to 2003. As elements which as less than 45 years old, they have been considered for possible historical significance under National Register Criteria Consideration G and SRHCR Criterion Consideration E, which allows consideration of properties that may have achieved significance within the last fifty years. Such properties less than 50 years old must attain a level of exceptional importance, with adequate time passed to gain sufficient historical perspective. None of the twelve modern resources appear to reach this level of importance.[30]

In addition to lacking historical significance, FWTP also lacks historic integrity. The seven aspects of integrity are materials, workmanship, design, setting, location, association and feeling. Construction of the Laboratory Building in 1993 drastically altered the façade of the Administration Building including the demolition of the main entrance and cross-hatched aluminum sun screen. This severely diminished the building's integrity of materials, workmanship, and design. Furthermore, construction of the Control Building attached on the east affected the appearance of the Administration Building. The many improvements of the 2005 upgrade to the facility resulted in additional compromises in the integrity of setting, design and feeling.

[30] National Park Service, *How to Apply the National Register Criteria for Evaluation*, National Register Bulletin #15 (Washington, D.C.: NPS, 1997), 41-43.

Photographs (continued):

Photograph 2. Pump Station, camera facing northwest, 10/27/2011.

Photograph 3. Filter Building and filter structures, camera facing southwest, 10/27/2011.

Photograph 4. Filter Building façade, camera facing south, 10/27/2011.

Photograph 5. Main Entrance of Filter Building, camera facing south, 10/27/2011.

Photograph 6. Filter Building showing rear of building and filter structures, camera facing northeast, 10/27/2011.

Photograph 7. South side of Filter Building, camera facing north, 10/27/2011.

Photograph 8. Exterior west wall of Sedimentation Basin 1 & 2 with Filter Building on the right, camera facing south, 10/27/2011.

Photograph 9. Sedimentation Basin weirs, camera facing north, 10/27/2011.

Photograph 10. Sedimentation Basin sludge rakes, camera facing north, 10/27/2011.

Photograph 11. Sedimentation Basin clarifiers, camera facing northeast, 10/27/2011.

Photograph 12. Sedimentation Basin flocculators, camera facing south, 10/27/11.

Photograph 13. New Laboratory building on left, Administration Building on right, camera facing northeast, 10/27/11.

Photograph 14. North and east sides of Administration Building, camera facing south, 10/27/2011.

Photograph 15. South side of Administration Building, camera facing north, 10/27/2011.

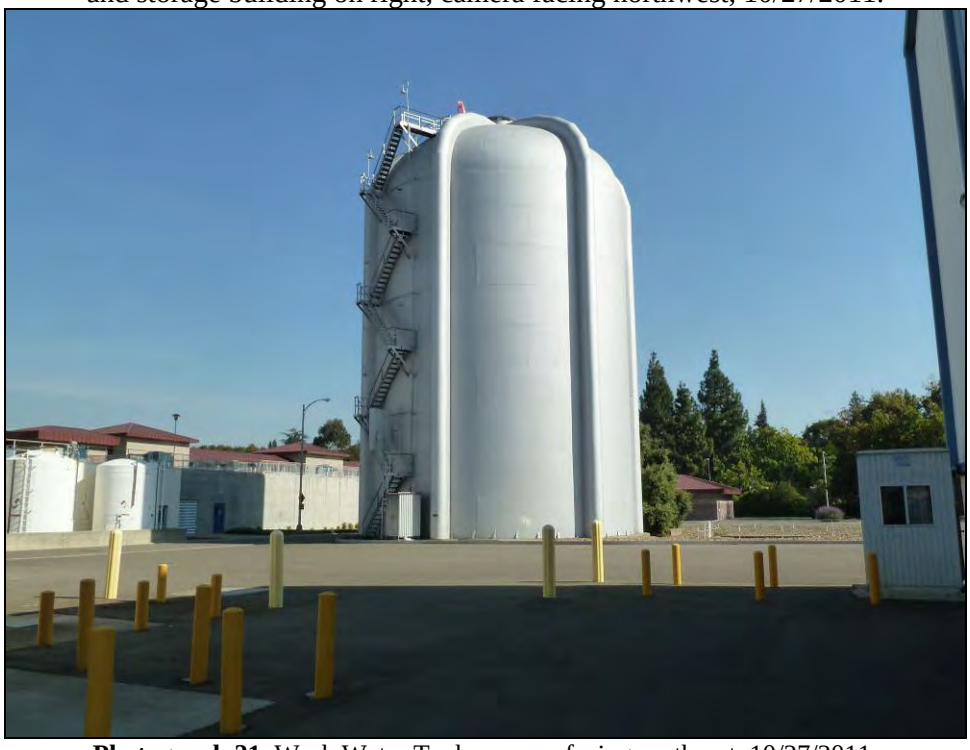
Photograph 16. Grit Basin, camera facing northwest, 10/27/2011.

Photograph 17. Top of Grit Basin, camera facing southwest, 10/27/2011.

Photograph 18. Carbon Storage Building and Tank, camera facing northwest, 10/27/2011.

Photograph 19. Metering Vault, camera facing north, 10/27/2011.

Photograph 20. Lime Unloading Building on left, Lime Storage structure, tanks and storage building on right, camera facing northwest, 10/27/2011.



Photograph 21. Wash Water Tank, camera facing northeast, 10/27/2011.

Site Map:


E.A. Fairbairn Water Treatment Plant
1 Pump Station
2 Filter/Lime Feeder Building
3 Sedimentation Basins 1 & 2
4 Administration Building
5 Grit Basin
6 Carbon Storage Building
7 Metering Vault
8 Lime Uploading Building
9 Lime Storage
10 Wash Water Tank
11 20 m.g. Reservoir
12 Lab Building
13 Warehouse
14 Control Building
15 Chemical Building
16 East Filter Building
17 Lime Building
18 Sedimentation Basins 3 & 4
19 FWW Lagoons 1 & 2
20 Sludge Lagoons 1, 2 & 3
21 3 m.g. Reservoir
22 6 m.g. Reservoir
23 Garage