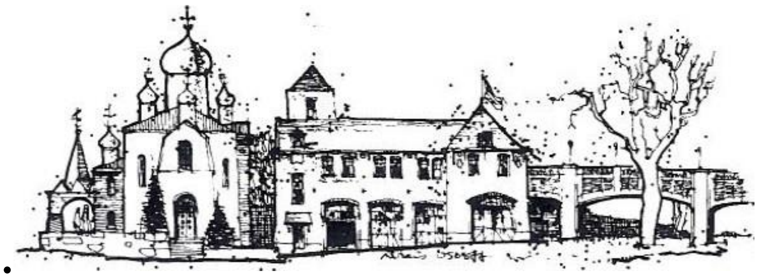

The City of Seattle

Landmarks Preservation Board

Mailing Address: PO Box 94649 Seattle, WA 98124-4649
Street Address: 600 4th Avenue, 4th Floor, Seattle, WA 98104

Landmark Nomination Form

Name: Georgetown Steam Plant Pump House **Year Built:** 1916
(a.k.a. Duwamish Pump Station (Seattle City Light); Georgetown Condensing System (Puget Sound Traction, Light & Power Company))
Street and Number: 7551 8th Ave South

Assessor's File No.: 213620-0666
Plat Name: Duwamish Industrial Addition **Tract:** 11
Legal Description: THAT PORTION OF TRACT 11, DUWAMISH INDUSTRIAL ADDITION TO THE CITY OF SEATTLE, ACCORDING TO THE PLAT THEROF RECORDED IN VOLUME 21 OF PLATS, PAGE(S) 65, IN KING COUNTY, WASHINGTON, DESCRIBED AS FOLLOWS: BEGINNING AT THE NORTHEAST CORNER OF SAID LOT; THENCE NORTH 65°21'31" WEST 152.95 FEET TO THE WESTERLY LINE OF SAID LOT; THENCE SOUTH 49°07'36" EAST 145 FEET TO THE SOUTHERLY LINE OF SAID LOT; THENCE 45.78 FEET NORTH TO THE EASTERLY LINE OF SAID LOT; THENCE NORTH 0°16'14" WEST 124.03 FEET TO THE POINT OF BEGINNING.

Present Owner: Seattle Parks and Recreation **Present Use:** Decommissioned, Vacant
Address: 800 Maynard Avenue South
Seattle, WA 98134

Original Owner: Seattle Electric Company **Original Use:** Pump House
Architect: Stone & Webster Engineering Corp. (William L. Locke/Charles W. Croasdill, Jr.)
Builder: Stone & Webster Engineering Corp.

Submitted By: Kevin Bergsrud **Date: May 23, 2019**

Prepared By: Kevin Bergsrud (Seattle Parks – Seattle Parks and Recreation) and Rebecca R. Ossa (Seattle City Light)
Address: 800 Maynard Avenue South, Seattle, Washington 98134

Reviewed: ____ **Date:** ________
City Historic Preservation Officer

Administered by
The Historic Preservation Program, Seattle, Department of Neighborhoods

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I. INTRODUCTION/BACKGROUND

The Georgetown Steam Plant (GTSP) Pump House, intake gates, bulkhead, and connections to a water intake pipeline are located at 7551 8th Avenue South along the northeast bank of the Duwamish Waterway, and were constructed in 1915-1916. A Valve House was constructed during the period 1926-1936. The Pump House and Valve House are entirely located on an 11,652 square foot property owned by Seattle Parks and Recreation (SPR). A bulkhead extends outward from the water intake gates. Most of it is located on SPR property but the outermost portions (20-40 feet) are located on Port of Seattle property within the Duwamish Waterway. The water intake pipeline extends east and northeast from the Pump House approximately 3,670 feet to the GTSP across city public right-of-way, private and publicly owned properties. Approximately 45 feet of this pipeline is located on the Pump House site at an estimated depth between two to six feet. All structures were constructed by the Stone & Webster Engineering Corporation (SWEC) for one of their subsidiaries, the Seattle Electric Company (SEC). Due to construction of the Duwamish Waterway, the oxbows of the Duwamish River were filled in, including one adjacent to the GTSP. Prior to filling in the river the new GTSP owner, Puget Sound Traction, Light & Power (PSTL&P) reviewed several alternatives for obtaining a new water source for steam turbines and an outlet for discharging heated wastewater. A standalone Pump House and pipeline were determined to be the most cost effective to draw in water from the Duwamish Waterway and transport it to the GTSP. The Pump House contained two centrifugal water pumps and gate valves to the cast iron intake pipelines. The Valve House was constructed after the Pump House and also contained two gate valves for the intake water pipelines to the GTSP. A new flume system for discharging wastewater from the GTSP into Slip #4 was located to the northeast of the Pump House site. SPR purchased the Pump House site from Seattle City Light (SCL) in 2010 using funds from the 2000 Parks Levy. A condition of the sale noted that a determination be made whether the property met the City's definition of a Landmark under Seattle Municipal Code 25.12. This Landmark nomination report seeks to fulfill this condition.

Research Methodology

The GTSP Pump House nomination report has relied on information collected from previous nomination reports completed for the steam plant, pump house and discharge flume. These include the 1978 National Historic Landmark nomination, the 1984 Historic American Engineering Record Survey report, and its 2010 addendum, the 1979 Seattle Landmarks Nomination Form, multiple Seattle City Light drawings, the Seattle Municipal Archives for photographs, legislative and comptroller records; Seattle Public Library databases (Sanborn Fire Insurance Maps and the Seattle Times); Seattle Public Utilities Virtual Vault, King County Road Services Map Vault, King County Assessor and Recorder Offices databases; industry organizations (e.g. Hydraulic Institute) and various online sites (e.g., Google Maps, Google Books, historical societies, etc.).

II. DESCRIPTION – GEORGETOWN STEAM PLANT PUMP HOUSE AND VALVE HOUSE

Urban and River Context

The Pump House, intake gates, bulkhead, and water intake pipeline was constructed in 1915-1916, followed by the Valve House possibly between 1926-1936, on a parcel larger than currently exists. It is located northwest of Slip #4 along the Duwamish Waterway (Photo 1) in the Georgetown neighborhood of Seattle, King County, Washington (Figure 1). The Pump House and smaller Valve House are located south of the intersection of 8th Avenue South and South Othello Street, directly next to the Duwamish

Waterway. The surrounding neighborhood is currently composed of large vehicle storage areas and single story concrete warehouses for industrial uses – Recology CleanScapes along 8th Avenue South to the northwest and truck storage/marine terminal usage to the northeast (Photos 2, 3). The roadway is primarily weathered concrete panels with gravel shoulders; with 8th Avenue South dead-ending at an undeveloped street end with tall trees, along the Duwamish Waterway.

Pump House[1]

The Pump House is basically a one-level structure with a small interior concrete entry landing approximately 7 feet above the main floor and two centrifugal water pumps. Visible above ground is a one story, rectangular, reinforced concrete building. Impressions from wood board forms are visible on the concrete walls and some sections have a smooth troweled finish that has been painted over due to recent graffiti. It measures 37 feet long and 15 feet wide/deep by 22'-6" tall (Figure 16). The lower level of the structure extends directly beneath the upper level footprint approximately 26 feet deep, which corresponded to the extreme low water level at the time of construction. This lower level contains the intake gate, wells, valves and suction pipes (Figures 15, 16). Visible on the south exterior (waterway side) is a portion of the structure that holds the intake gate. The entire structure was built on a concrete foundation and footings on top of 95 wood piles (Figure 16). A wood piling bulkhead extends into the river from each of the corners of the building at an approximate 45-degree angle. The shoreline is eroded, and part of the building's foundation is visible on the east and west sides (Photo 5, Figure 10). The building does not sit on a true north/south axis; it is offset 45 degrees (Figures 5, 9, 10). The main façade/southwest elevation faces the waterway and is three bays wide and one bay deep. These bays are divided by undecorated pilasters and a plain frieze (Photo 5, Figure 15). Each of the pilasters has a narrow, undecorated capital, and a slightly angled cornice wraps around the top of the building. A concrete parapet lines the edge of the flat roof and is decorated with short pilasters located directly above the pilasters on each façade. Each bay was lit with paired, one over-one double-hung wood sash glazed with wire safety glass. All window openings are currently covered by wood sheathing. Photos taken of the interior in 2010 and 2019 showed that some of the wood, paired double-hung windows were still in place (Photos 9, 10). Southeast and northwest elevations (Photos 6, 7) are each a single bay wide with the same straightforward details as the southwest façade. The northeast elevation (entry, facing 8th Avenue South) is also a duplicate of the southwest elevation, but with an entry double door in the southern most bay (Photo 6, Figure 17). Electrical connection to the building from a nearby power pole was located on the southeast corner (Photo 8). The wood doors have panels with board placed at a 45-degree angle; similar to large double doors on the GTSP. A transom light over the doors has been covered by sheet metal. There is also a 37'-9" tall 24-inch diameter standpipe which functioned as a vent from the intake pipeline.

The interior is accessed via the double doors on the southeast corner. Inside the entrance is a small poured concrete landing, with pipe railing and stairs that lead down to the floor, which is located approximately 7 feet below the exterior grade (Photo 10, Figure 17). A walkway above the main floor level is located on the northeast side of the interior. Two 20" Allis-Chalmers centrifugal river pumps, associated gate valves and two 400 horsepower, 220-volt General Electric Company motors take up the remaining space in the building (Photos 9, 10).

[1] (Historic American Engineering Record (HAER), 2009)

Architecturally, the building features simplified elements of the Classical Revival style (e.g., pilasters, capitals, plain frieze, smooth finish) taken from ancient Greek and Roman architecture. For example, the GTSP has very detailed features on the south and north building elevations, door overhangs and a belt course signifying the height of the ground floor which are not repeated on the Pump House.

Valve House

The Valve House is located approximately 20 feet to the northeast of the Pump House and faces 8th Avenue South (Photo 6). It measures approximately 10' x 20' and is a short, one-story structure with concrete foundation and stem wall with wood frame walls and gable roof, sheathed with corrugated steel (Photos 14, 15). An electrical conduit runs overhead from the Pump House to the Valve House entering through the roof. the structure was built sometime after 1916, possibly between 1926 and before 1936, as a similar footprint structure is visible in a 1936 aerial photo (Figure 8). Records do not indicate why the Valve House was constructed after the Pump House. A 1952 City Light drawing for Pump House bulkhead repair also notes its location in the same place (Figure 20). Based on this information, the location of the structure coincides with the valves for the intake pipeline. A small corrugated metal door on the southeast elevation leads inside to a small wooden landing and several steps leading to a wooden floor approximately three feet below the exterior grade. Gate valves exist for both pipelines. However the handwheel is missing on one and the entire valve screw and housing are missing from the other.

Bulkhead

Bulkheads are man-made retaining walls, also known as seawalls that are built to protect the shoreline, control shoreline erosion and/or protect building foundations.[2] The existing GTSP Pump House Bulkhead is composed of two buildouts (1916 and 1954), both of whose outer edges extend beyond the current property boundary, and into the Duwamish Waterway and Port of Seattle property The inner most (closest to shore) is the original creosoted wood Bulkhead that was designed in 1915 and built in 1916. Facing the Pump House from the river (looking east), it extended diagonally away from either side of the Pump House into the Duwamish River, 101 feet on the left bank and 91 feet on the right bank. The creosoted wood bulkhead's sheet piling appeared to have been made with three vertical 4-inch by 12-inch wood posts spiked together and then slotted/keyed into place. It was held in place on the riverside by five wood round piles located 6 feet 9 inches from one another on the right bank; with the left treated similarly. It was also anchored on the shore side by 5 anchor piles driven into the ground and secured by five 1 inch by 20-foot long tie rods one each into the anchor pile. Also built in 1916, on either side of the Pump House was a "Wakefield" Coffer Dam to assist in the construction of the Pump House foundation which consisted of 40-foot-long round piles driven into the ground approximately 25 to 26 feet (Figure 20).

In 1954, City Light made repairs to the entire Bulkhead structure resulting in what currently exists. At the time, an existing dock and the coffer dam walls were removed, and a new wood bulkhead adjacent and braced/bolted into the original bulkhead was installed (Figure 20). There were eleven (11) new pilings installed on the left bank, and fourteen (14) piles on the right bank. The Bulkhead that currently exists has a rectangular egg crate appearance when viewed from above. A few deteriorated pilings stick out of the ground at odd angles behind (to the east) of the bulkheads. These may be part of the original "anchor piles" per the 1915 drawing.

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[2] (Wikipedia, 2019).

III. STATEMENT OF SIGNIFICANCE

Connection to the Georgetown Steam Plant[3]

The Georgetown Pump House, bulkhead, intake lines, and discharge flume was completed nine years after the GTSP began operations and provided a new source of fresh water to the GTSP after the Duwamish River was filled in to create the Duwamish Waterway. The Valve House was constructed at some point between 1926-1936, although the precise reason is not reflected in archival records. Select excerpts from historic context of the GTSP and physical description are included below along with information regarding the water intake lines and discharge flume to describe the functional relationship between the Pump House and GTSP.

Georgetown Steam Plant – History

The National Register of Historic Places nomination states, "The Georgetown Steam Plant is a 1906 reinforced concrete building housing the last operational examples of the world's first large-scale steam turbine (Photo 17). The success of these vertical steam turbine generators marked the end of an era of reciprocating steam engine driven generators, the beginning of a steam turbine technology still in use today, and the survival of General Electric as a manufacturer of large-scale steam-driven prime movers. The structure, built using a "fast-track" construction process, was designed and supervised by Frank B. Gilbreth, later a nationally famous proponent of efficiency engineering. The history of the GTSP and its immediate site as a standby or "peaking" facility demonstrated the changing demands for, and development of, electrical power in Seattle, while its survival and its integrity of equipment, building, and site assure a national level of significance in electrical, mechanical and civil engineering."

Georgetown Steam Plant – Architectural Style

"The Georgetown Steam Plant, constructed in 1906, is an example of Classical Revival architecture (Photo 17). This style, introduced in the United States in the 1890s, served as a model for numerous federal, municipal and industrial structures across the country. The Classical Revival style derives inspiration from Greek and Roman architecture both in plan and exterior design. Although boasting elements of applied surface ornamentation, the Classical Revival style emphasizes monumentality, scale and structural expression. The Georgetown Steam Plant has a T-shaped plan and is constructed of reinforced concrete. Overall, the Classical Revival elements are simplified on the exterior, with linear as opposed to symmetrical design. The building is divided into two main wings, the Engine House and the Boiler House."[4]

Georgetown Steam Plant – Siting, Machinery and Operation

The basic concept behind a steam turbine electrical generating plant is that a source of heat, in this case coal or oil, is used to heat water into steam. It also requires a reliable water source. The steam, under pressure, is directed against the blades of a turbine, causing it to turn. A generator is turned by the turbine, producing electricity. Hydroelectric generating plants operate under a similar concept where a pump house provides water through penstocks (pipelines) which is then forced by gravity through generator turbines to produce power. For example, the Lake Union Steam Plant (1914) had a 3,400 foot-

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[3] (National Register of Historic Places, 1978), Section 8-1.

[4] (National Register of Historic Places, 1978), Architectural Description.

long penstock which ran from the Volunteer Park Reservoir to a hydro generating house next to the steam plant. The White River Power Plant (1911) had penstocks constructed of 1-inch thick steel, 8 feet in diameter and 2,500 feet long.

Feed water for the GTSP came from the Duwamish River, adjacent and south of the plant (Figure 11). A 10-inch pipe ran underground in a concrete-lined 6 x 10 foot-trench. Two Blake steam-driven reciprocating pumps brought water to an 13,280-gallon steel tank in the Boiler Room. This large overhead tank furnished water to the boilers. This water supply or "feed water" had to be heated, a step accomplished by using the exhaust steam of the turbo-generator's auxiliary equipment.

"The steam plant's location along the east bank of the Duwamish River was ideal to take advantage of the river as a source of cooling water for the condensers and for convenience in discharging the still hot (115 degree) wastewater"[5]. Water for the condensers was drawn from the Duwamish River, pulled through a 16-inch pipe by a centrifugal pump direct-connected to two high-speed engines. The larger pump provided 7,500 gallons of cooling water per minute, and the smaller pump proportionately less. After passing through the condenser, the water, heated to about 115 degrees, was discharged back into the river via a tunnel 8 x 12-1/2 feet in cross section. This concrete-lined tunnel was 300 feet long, extending some 200 feet downstream of the intake pipes (Figure 11).

Two major changes to the steam plant were made between 1917 to 1919. In 1917, major portions of the Duwamish River were filled in and the Duwamish Waterway was constructed. This necessitated studies to find new water sources and alterations for drawing water for boiler (steam) and condenser (cooling) water. In addition, new infrastructure was needed for discharging hot wastewater. A new pump house was designed and built on the bank of the Duwamish Waterway which is the structure described in this nomination (Figure 5). Records and narratives do not indicate if other sites for a pump house were considered. An interim wood-stave pipe was installed for intake condenser water and an open wood-lined trench constructed for discharge water from the plant to Slip #4 on the Waterway (Figure 14). Portions of the wood-stave pipe exist outside the Pump House site and was noted to be at least 8 feet below grade in a SEPA checklist for a project to the northeast. Portions of the flume and wood pipe were removed in 2011 east of East Marginal Way as part of hazardous materials remediation. Historic photos taken in 1933 and 1936 show the now filled-in riverbed (Photo 19).

In 1951, the steam plant was purchased by SCL and the machinery kept in its former condition. SCL already had a steam plant, the Lake Union facility, which meant that the need for power from the Georgetown facility was reduced. The steam plant's last production run was from November 1952, to January 1953, during a major water shortage. By the 1970s, the steam plant was only powered for tests. The Bonneville Power Authority (BPA) gave credit to SCL for having the plant as a standby facility and in order to receive it, SCL had to occasionally operate the plant. Turbine #1 was last run on November 28, 1972 and Turbines #2 and #3 on November 14, 1974. On June 20, 1977, the steam plant was taken off BPA rolls. It could not meet environmental standards and has not operated since.

[5] (National Register of Historic Places, 1978). Section 7-2.

Georgetown Steam Plant – Current Historic Status

The GTSP was listed on the National Register of Historic Places in 1979 and upgraded to National Historic Landmark status. That designation included "Tracts A, B, C, and D of the Queen Addition to Georgetown, Washington (now Seattle), and the southern 100 feet of Tract II of the Duwamish Industrial Addition, together with all existing easements and rights-of-way that pertain to the ducting of water to and from Seattle City Light's Georgetown generating facility". Note that "all existing easements and rights-of-way that pertain to the ducting of water" include a vacated street (South Webster Street), and areas on private property. The exhaust flume that ran to the south and southwest of the GTSP was demolished in 2011. It should be noted that the southern 100 feet of Tract II of the Duwamish Industrial Addition does not include the entire pump station parcel as it currently exists. A portion of the valve house lies outside of this described boundary.

The National Register nomination in the statement of significance and the architectural description solely describe features of the GTSP, mostly focused on the steam turbine generators, architectural elements of the steam plant and the Boiler House. The Pump House is referred to in the nomination relative to operational changes, particularly establishing a new water source for the steam plant, but its architectural features are not described (see excerpt below). The nomination also does not reference the Valve House.

> *Two other major changes to the Georgetown plant were made in the 1917 to 1919 period. In 1917, the course of the Duwamish River was changed and the Duwamish Waterway created by the Army Corps of Engineers necessitated a number of alterations in the means by which the plant drew its boiler and condenser water. A new pump house was built on the bank of the waterway, and the old connections replaced with a wood-stave pipe for intake condenser water and an open wood-lined trench for its exhaust."* (National Register of Historic Places, Continuation Sheet, Page 14).

The GTSP was designated a Seattle Landmark in 1979 which included the steam plant and only a portion of the immediate property. While Landmarks staff proposed to include "*the pumping station, the discharge flume and easements necessary for (steam) plant operations ";* the controls and incentives did not include the pump house, valve house, discharge flume, or intake pipeline.[6]

Pump House Inception[7]

Many ambitious plans were proposed for providing better transportation access and additional land for industrial development in Seattle and surrounding areas of King County. As part of a large-scale effort to reconfigure the urban landscape that began with regrading hills and filling tidal lands, engineers and entrepreneurs also developed proposals to straighten the Duwamish River for easier maritime access. In 1911, a state law (repealed 1971) enabled communities to establish commercial waterway districts and issue bonds to pay for major projects, the Commercial Waterway District No. 1 of King County was organized. The district moved forward to change the course of the Duwamish River, and plans included moving the main channel a significant distance from the GTSP. Stone & Webster, the parent company of PSTL&P, previously the SEC, eventually determined that most cost-effective option for obtaining fresh water and discharging wastewater was to construct a pump house, water intake gates, pipeline and

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[6] http://clerk.seattle.gov/~archives/Ordinances/Ord_123352.pdf

[7] (Historic American Engineering Record (HAER), 2009), 53-54.

discharge system. Historical narratives do not indicate if other sites were considered for the Pump House.

The Duwamish River – Importance and Realignment[8]

The Duwamish (Dkhw'Duw'Absh) Tribe had lived and fished in the Puget Sound area and along the Duwamish River Valley for many centuries prior to the arrival of European-American peoples in the mid-nineteenth century. Peoples along the Cedar, Black, and Duwamish rivers were collectively referred to as the Duw-ABSH (Anglicized as Duwamish), which meant "people of the inside." In 1851 the Duwamish people and Chief Si'ahl or Si'at (a.k.a. Chief "Seattle) welcomed the arrival of the Alki landing party. As more non-native peoples arrived seeking land for homesteads, native peoples were ignored and pushed out from traditional settlement areas. According to tribal historian Thomas R. Speer, between 1855 and 1904, 94 traditional Duwamish longhouses were burned to the ground. Nearly all other remaining longhouses were destroyed by non-native arson by 1910. Figure 3 illustrates estimated locations of villages and water related places. Duwamish people continued to work and fish along the Duwamish River, using man-made "Ballast Island" on the Seattle waterfront (at the foot of present day Washington Street) as a canoe haul-out and informal market, but by the early 1900s most remnants of traditional life along the river had disappeared. It was reported that the last year-round native residents on the Duwamish, an old man named Seetoowathl, and his wife died of starvation in their float-house on Kellogg Island (1.8 miles to the north of the Pump House) in the winter of 1920.

On or the near the Pump House site, a Lushootseed place name has been recorded which means "forked house post". The name reflects the shape of the former river bend. No archaeological information has been recorded that an actual house or village was located here.

From the earliest days of non-Native settlement, the city's landscape was drastically altered to create transportation routes and buildable land for commerce and industry. Hillsides were graded and tidelands were filled and leveled. Other projects excavated canals large enough for ocean-going vessels, filled in rivers and created waterways.

Legally, tidelands and rivers belonged to the federal government prior to Washington statehood in 1889. Many new government policies emerged from the early legislative sessions after statehood, but the laws regulating the use of state tidelands and waterways had the most immediate impact on the growth of Seattle. The Harbor Line Commission was originally set up to determine boundaries and oversee the initial development of waterfront areas throughout the state. In 1893 the Washington state legislature passed a bill that allowed private individuals or corporations to dig public waterways along state-owned right of ways. Corporations could then charge liens on lands created from the excavated soils to finance the initial waterway excavation. The historical record notes that this legislation was used primarily to construct two canals from the Duwamish River to Lake Washington and use the spoils to infill Elliott Bay tidelands.

In direct response to this new law, former governors John Ferry and Eugene Semple founded the Seattle and Lake Washington Waterways Company in 1894 and initiated a project to dig a canal from Puget Sound to Lake Washington on the southern end of the city (approximately 4 miles north of the Pump House). The company also included in their proposal a plan to dig two canals, the East and West

[8] (Historic American Engineering Record (HAER), 2009), 54.

Waterways, around a manmade land mass that later would become known as Harbor Island, and to dredge and straighten the Duwamish River so that it could accommodate ocean-going vessels. Much of the earth removed during the waterway excavations would be used to fill in the tidelands. Work on the South Canal, as the connection to Lake Washington came to be known, would also include sluicing huge sections of nearby hillsides onto the tidal areas, such as the area between the north end of Beacon Hill and the Little Saigon district.

During the first phase of the project, over 175 acres in the tidelands south of the city were filled, primarily with spoils from the dredging of the East Waterway. Despite this progress, the Seattle and Lake Washington Waterway Company faced strong opposition from an influential group of city residents who supported a northern canal instead of a southern route. The group filed expensive legal suits and secured an injunction to stop work on the South Canal, eventually forcing the dredging company into bankruptcy. The canal company then lost its original investors and was forced to negotiate an extension of its contract with the state before additional financing could be found. After nearly two years of litigation when in-filling was halted, the South Canal project was revived in 1900 and reclamation efforts resumed. A local company, Puget Sound Bridge and Dredging, was hired to continue work on the East Waterway, and in just two months more than 85,000 cubic yards of fill was spread in the area to the east of the present-day Harbor Island. This waterway was completed by the fall of 1902 and dredging of the West Waterway began in the summer of 1903. The South Canal continued to be controversial and finally in 1905 this portion of the project was abandoned. The Seattle and Lake Washington Waterway Company continued with its state contract for filling the tidelands and during the next decade over 1,400 acres were reclaimed. By 1917 more than 90% of the fill was completed.

The financial difficulties of the Seattle and Lake Washington Waterway Company prevented completion of its plans for the Duwamish River, but residents of the south end continued to lobby for the straightening of the river as a necessary reclamation project. Proponents argued that the river improvements were necessary for effective development of the East and West Waterways and Seattle's waterfront. Their case was further strengthened by a series of floods that caused extensive damage to farms and homes throughout the Duwamish Valley in November 1906.

Residents had immediately set out to address the issue of flood control on the Duwamish River. Among the most vocal proponents of changing the flow of the river to prevent future flooding and to provide new land for potential industrial growth was the Duwamish Improvement Club, a local community group. In 1909 they commissioned a group of five noted engineers, including Major J.M. Clapp from the Army Corps of Engineers and Seattle City Engineer R. H. Thomson, to review alternatives. The committee's report outlined the best options for Duwamish River improvement and estimated the cost of straightening and deepening the river, including land purchases, at more than 1.5 million dollars.

In a 1909 special session, the Washington State Legislature passed an act that provided for the development of commercial waterways through the organization of local districts. Following the provisions of this law, a special election was held in February 1910 to organize Commercial Waterway District No. 1 of King County, was also widely known as the Duwamish Improvement Project. District commissioners moved forward with plans for the rechanneling of the river in conjunction with the Army Corps of Engineers. Early proposals included the installation of dams at either end of the large bends in the river known as oxbows so that water would be maintained in the old channel. Ultimately, this idea was not implemented, and instead improvements were recommended that would result in a waterway with a bottom width of 150 feet and a depth of approximately 16 feet at extreme low tide. This proposal also included the construction of bulkheads and the dredging of several turning basins. In 1911, plans were submitted to the Secretary of War for approval where the length of this portion of the Duwamish was shortened from approximately 13.5 miles to about 4.5 miles.

Plans for construction of the waterway were forwarded so that it could be in use soon after the 1913 opening of the Panama Canal, which was expected to have a huge impact on West Coast shipping and trade. Dredging on the Duwamish Waterway officially began in October 1913 and to finance the project, in addition to bonds, the commission sold dredge spoils to the city and other purchasers for sanitary fill and for further reclamation of the tidelands. The district later authorized the sale of lands in the former bends of the river and filling began in the oxbows by early 1916. Commissioners agreed to sell to PSTL&P a portion of the riverbed near its holdings in August 1918.

Seeking New Water Sources[9]

Early proposals for the Duwamish Waterway caused concern among power company leadership because of its potential impact on the GTSP. Plans called for the river to be moved nearly 3,000 feet from its current location near the plant. In the fall of 1911, M.T. Edgar, the company manager, asked staff engineers to estimate the damages the company would suffer if the waterway was built as well as the cost of other potential systems for obtaining condensing water for the plant. Various alternatives that were considered included hooking into the city water system or building new pipelines; cost estimates ranged from $170,000 to more than $425,000 ($4.4 to $11 million in 2019 dollars). Engineers also presented the additional option of constructing a new plant at another location, with replacement costs for the Georgetown plant estimated at approximately $600,000 ($15.5 million in 2019 dollars).

Samuel Shuffleton, a respected civil engineer who had become the western manager for S&W, also analyzed these alternatives. The plant's site on the Duwamish was of particular importance, in his opinion, because the river provided a constant source of water for feeding and cooling. The site also allowed easy access to steam and interurban railroads and to tidewater shipping for fuel and other needs. In addition, a back-up labor supply was available at the electric trolley shops to the east of the GTSP. From the company's perspective, the most desirable feature of the Georgetown site, its fresh water supply, would be lost if the waterway was created and the river's original course changed. According to Shuffleton:

> *The principal damages sustained by the Georgetown plant by reason of the waterway are, --first, the removal of fresh water supply for boiler feed purposes, due to the fact that the waterway will introduce sea water into the river for a long distance above the Georgetown plant, and second, the removal of an adequate condensing water supply, due to the fact that the present river bed will be practically drained at low tide, and there will be no continuous current of water passing the station.*

At its 1912 operation levels, the plant required 5,000 cubic feet per hour of boiler feed water as well as 30 cubic feet per second (108,000 cubic feet per hour) of condensing water. Potential new sources of supply included wells, water purchased from the City of Seattle Cedar River system or Duwamish River water piped from an area beyond the reach of Puget Sound tide (salt) water. All these alternatives had

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[9] (Historic American Engineering Record (HAER), 2009), 58.

significant costs attached, although the cheapest option appeared to be a pipeline from another point on the river.

Legal Battles[10]

PSTL&P was initially a party to the condemnation suit for the land to be taken by the Duwamish Waterway project. The land was valued by a commission specifically set up to make the appraisals. In addition to what the company considered a low appraisal value for its property, it also believed that there were significant damages to the steam plant's operations by the waterway construction. A lawsuit was first brought before the Superior Court, where the company argued that it should be paid $500,000 in compensation for the diversion of the Duwamish River. According to the suit, the company used over 20 million gallons of water per day from the river and claimed the rights to the water flow across its property. Construction of the canal would divert the river from its original banks and so PSTL&P asked for monetary damages. The judge ruled against the company on November 1, 1912. The suit was next appealed to the Washington State Supreme Court, which on December 13, 1913, supported the lower court's decision that the company did not have riparian rights and was not entitled to compensation for the change in the river's course. The company decided to continue its appeal to the United States Supreme Court. The rationale contained in the annual Directors Report of 1914 and other correspondence cited a high potential return for the relatively low cost of pursuing the claim:

> *The case of Puget Sound Traction, Light and Power v. Waterway District No. 1, pending in the Supreme Court of the US, will probably be submitted to the Supreme Court in January 1918. In that case the Supreme Court of the state held that the Waterway District could divert the waters of the Duwamish River so as to render the land of the company, abutting on the river, non-riparian land, and even from within the boundaries of the company's land, without making compensation therefor. It is exceedingly probable that the decision of the Supreme Court of the State will be affirmed by the US Supreme Court, but the case is being submitted to the latter court simply for the purpose of making every effort to obtain compensation for what undoubtedly has been a great damage to the company.*

Temporary Water System Constructed[11]

Despite PSTL&P objecting to plans for the Duwamish Waterway, the rechanneling of the river began in 1913. In preparation for the changes that would be needed at the steam plant, the company initiated some temporary measures to ensure that the boilers would have a continuous flow of water before a final plan was adopted. In the summer of 1914, a 6-inch water main was installed at the plant and then connected with the city's 12 inch main at Georgetown to provide adequate water supply. Engineers also investigated alternative means of obtaining condenser water that otherwise might require an estimated $60,000 ($1.6 million, 2019 dollars) in additional costs to the company.

Constructing New Pump House, Pipeline and Flume[12]

The option chosen by PSTL&P to resolve changes to the river was to build a new pump house on the Duwamish Waterway and transport fresh water to the GTSP in a 30-inch cast-iron water pipe. On December 29, 1914, PSTL&P purchased Tract 11 of the Duwamish Industrial Addition from Maggie Harriman, et al (Figure 6). Ground preparations for this work began in early 1915, before the final design

[10] (Historic American Engineering Record (HAER), 2009), 59.
[11] (Historic American Engineering Record (HAER), 2009), 60
[12] (Historic American Engineering Record (HAER), 2009), 61-62.

of the pump house was completed, and once pipe was received, it was laid out along the length of the ditch. Workers used a one-horse team to haul the huge 3,500-pound pieces of pipe, manufactured by the United States Cast Iron Pipe and Foundry Company, a huge conglomerate based in the eastern and southern United States, and then to maneuver them into place with the help of a plank runway and a dolly.

In 1915, it was reported in the Puget Sound Electric Journal that: "(t)he new site for the head of the intake was 3,668 feet from the original location with a nearly 6 foot difference in elevation." Drawings show that the pipeline followed the meander line of the original riverbank and required eight angles in the line ranging from 8 to 69 degrees. A local company manufactured special castings for these angled pipe sections. The average cut made was approximately six feet in depth and work progressed quickly because of the ease of ditching in the bed sand. A description of the pipe-laying process in the company newsletter indicated that all the pipe joints were packed with oakum and then caulked, using nearly 75 pounds of lead for each joint.

While the pipeline was under construction, work on the new pump house also began (Figures 15-19). Significant foundation preparation was needed at the site where the difference between extreme high tide at plus 1.26 feet and low water at minus 17.14 feet was more than 18 feet. Initial excavation was accomplished with a scraper and donkey engine and then workers installed a sheet-metal cofferdam that allowed them to drive piles and build the intake wall. Pressure against the "21 E" section of the cofferdam was so great that eventually a cribbing of log piles was added for support, while two pumps ran continuously to keep the site dry. Problems with stumps and logs in the old riverbed also impeded work, so additional lagging was inserted at the base and then packed with stones and straw. More than 95 piles, each 40 feet in length, were driven for the foundation and cut off about nine feet below extreme low tide. This method of creating a foundation was a method commonly used in shoreline locations for this time period (e.g. University Avenue Bridge). An electric trolley line extended west from the Georgetown electric trolley shops (adjacent and east of the GTSP) to 8th Avenue South, over a bridge and across the Duwamish River/Waterway to the South Park neighborhood. Archive drawings indicate that a building for the bridge tender existed and it is possible that it was located to the north of the Pump House on the west side of 8th Avenue. This trolley line was in operation from 1914-1937. This same line was used to bring piles, pipe and other materials to the site. C. W. Croasdill drafted the drawings for the Pump House, which was a 15 by 37 foot reinforced concrete building with concrete intakes. SWEC supervised construction.

Construction of the pump house was completed in the spring of 1916. A standpipe air cushion regulated the pressure of the two pumps, which were operated in tandem. Two Allis-Chalmers, Type S, 20-inch size centrifugal pumps powered by 400 horsepower motors are currently installed in the pump house and date from 1935. Previous nomination reports do not indicate what size or type of pumps were initially installed. A dwelling, sheds, and storage buildings were shown on mapping at the northern end of the parcel in 1929 (Figures 7, 9). It is possible that one of the buildings was for the 8th Avenue bridge tender. These buildings appeared to be unrelated to the Pump House and were removed. They also were not in the location where the Valve House was eventually built.

Centrifugal Pump History

In 1818, centrifugal pumps were known to have been fabricated in the United States, but the inventor or inventors are unknown. In 1830 this type of pump was exhibited in New York and were called

“Massachusetts Pumps” and at the Great Exhibition of 1851 in London at the Crystal Palace several designs for centrifugal impellers were presented. From this date onward the development of the centrifugal pump proceeded rapidly and by the late 1890s and early 1900s many companies were manufacturing pumps in the United States. According to the 1910 Census there were 102 companies manufacturing pumps (not including steam pumps) in the United States. The three leading states in pump manufacturing, based on revenues, were Ohio, New York and Illinois. At that time Allis-Chalmers was based in Wisconsin. The earliest patents for improvements to single stage centrifugal pumps date from early 1900s, although it was not until the 1930s through the 1950s that patents were occasionally awarded to Allis-Chalmers.

In 1860, Edward P. Allis purchased the Reliance Works and began producing steam engines and mill equipment. In 1901, the Edward P. Allis Company merged with Fraser & Chalmers (mining and ore milling equipment), the Gates Iron Works (rock and cement milling equipment), and the industrial business line of the Dickson Manufacturing Company (engines and compressors) to form the Allis-Chalmers Company. Company headquarters were relocated to West Allis, Wisconsin. Then in 1912 it was reorganized as the Allis-Chalmers Manufacturing Company. It is not clear when Allis-Chalmers began manufacturing single stage centrifugal pumps, although an advertisement in 1917 included photos of pumps ready for shipment from a factory. According to a company brochure from the 1930s, “Type S” pumps as installed in the Pump House are described as follows:

“Single Stage Type “S” is the most generally used pump. It is a single stage, double suction, horizontal shaft, bronze fitted pump built in sizes 2 inch to 30-inch discharge; capacities 30 to 42,000 g.p.m.; heads up to 200 ft., and in some of the smaller sizes for still higher heads.”

The National Register nomination included details that one pump was “Style A” and the other “Style B”. Historical research did not find references to either style. Allis-Chalmers operated diversified business lines which included agricultural and construction equipment, power generation and power transmission equipment, and industrial machinery. The company was most recognizable from the orange paint used on agricultural equipment. However, by the 1980s and 1990s a series of divestitures caused it to be dissolved with its headquarters in Milwaukee to close in 1999.

Owner/Builder – Stone & Webster Engineering Corporation

The Stone & Webster Company, was founded by electrical engineers Charles A. Stone and Edwin S. Webster after they graduated from the Massachusetts Institute of Technology. The firm initially designed electrical machinery for powerhouses and tested electrical equipment. By the early 1900s, Stone & Webster expanded to include the evaluation of distressed electric companies. Eventually the company moved into acquiring and reorganizing the financial and technical management of these companies, including designing capital improvements and managing construction. The firm became recognized for building and operating integrated power systems which lead to the design and operation of lighting and electric street railway systems. In 1906, a subsidiary was formed, the Stone & Webster Engineering Corporation (SWEC) which managed all engineering, construction, and purchasing activities.

By 1910, almost 15% of the total electrical generating capacity in United States had been designed, engineered, and built by SWEC. In 1913, SWEC operated in more than 25 states, Canada and the West Indies. Branch offices were located New York, Chicago, Dallas and Seattle with each in charge by a district manager. Through the 1920s SWEC grew and remained active into the 1930s, although it was forced by federal anti-monopoly legislation to divest many of its subsidiaries in 1934.

In western Washington Stone & Webster operations included the Pacific Coast Power Company, PSTL&P, the Seattle Electric Company, the Puget Sound Electric Railway, and the Whatcom County Railway and Light Company. SWEC constructed several buildings in Seattle, including three office buildings (White Building, 1908-1909; Maritime Building, 1909-1910; Henry Building, 1910; and the Stuart Building, 1914-1915) for the Metropolitan Building Company; office buildings for the Seattle Electric Company, The Yukon Investment Company (Lyon Building, 1910), and for Charles Frohman in association with the Klaw & Erlanger theatre company (Metropolitan Theatre, 1911). Many of these included reinforced concrete frames.

The Stone & Webster Journal, was a company publication which detailed activities throughout the company and engineering firm. In 1913, an article detailed the organization of engineering departments such as would be found in the Seattle branch office. An engineering department was located in each branch office, and headed by an engineering manager, then chief engineers, and division heads over specific sections including electrical, mechanical, drafting, hydraulic, station betterment, and gas. A chief draftsman was the engineering department division head and managed a staff composed of an assistant chief draftsman, production supervisor and draftsmen. Drafting divisions were noted as having between 90 to 125 draftsmen. A drafting room was organized by squads which were composed of staff with similar experience and headed by squad chief who dealt directly with engineers who were responsible for design.

Drawings of the Pump House show that they were drawn by "CWC". The 1984 National Landmark nomination indicated that these initials were for C.W. (Charles Watson) Croasdill. The drawings were approved by the Superintendent of Construction who was noted as W.L. (William Lorenzo) Locke.

Designers – William Lorenzo Locke and Charles Watson Croasdill, Jr.

William Lorenzo Locke, was born on January 22, 1879 in Watertown, Middlesex County, Massachusetts, the son of Henry W. Locke and Jennie Merrill. In 1900, he graduated from Tufts University School of Engineering located in Medford, MA. A few years later on September 14, 1904, he married Sara Alvera Dyer with whom he had two sons, William and Henry. It is unknown exactly when Locke started working for S&W, but by 1908, Locke had been made S&W's Superintendent of Construction on the Houghton County Traction Company's railway extension in Michigan. Just as that project was completed, he was transferred in November 1909 to work on S&W's Galveston-Houston Interurban Project in Texas. By 1910, the U.S. Census indicated that he and his family resided in Helena, Montana likely working on S&W's Hauser Lake Dam, replacing an earlier failed dam. Late in 1910, the Tufts College graduate magazine noted that Locke was now connected with the Seattle, WA district office of S&W located in the White Building. By 1912, Locke was placed in charge of S&W's transmission line construction for the Big Creek Plant of the Pacific Light and Power Company in California. By late 1914, he was made superintendent of construction in the S&W Seattle office and by early January 1915, moved to Seattle to assume charge of the company in that territory. It is Locke who approved the GTSP Pump House, et al design. In 1961 Mrs. William L. Locke (Sarah) established The William L. Locke Scholarship at Tufts University. The scholarship was to provide financial assistance to junior or senior student in the Department of Civil Engineering.

Charles Watson Croasdill Jr. was born on October 3, 1886 in Philadelphia, Pennsylvania to Charles Watson Croasdill and Emeline Carter Snyder.[13] In 1900 C. W. Croasdill Jr. was noted living with his parents and siblings at 801 S. 49th Street, in Philadelphia, the oldest of 5 children.[14] In 1910, he was listed as 22 years of age and a Civil Engineer in the railroad industry still living with his parents and siblings at 4124 Powelton Avenue in Philadelphia.[15] Interestingly, in the 1910 Census for Seattle, King County, Washington, Croasdill is also listed as a "draughtsman" and "boarder" living at 1413 Queen Anne Avenue.[16] No historical information was found about where he was educated. By 1912, he married Helen W. Maxwell and the following year was working for Stone & Webster.[17] Croasdill drafted the drawings for the GTSP Pump House. It appears that he remained with S&W for only a few years, since his 1917-18 draft Registration Card listed him as living at 5719 18th Avenue NE in Seattle and working as a mechanical engineer for the Hofius Steel and Equipment Company also in Seattle. Between 1920 and 1940, Croasdill lived at 4751 19th Avenue East with his wife and 2 children.[18] Tragically, he and his wife ended their lives on the same day in 1972.[19]

Reinforced Concrete Use Early 1900s

The Pump House appears to be constructed of reinforced concrete although drawings do not specifically identify the construction materials or method used. While it is documented that the GTSP was designed and constructed by Frank B. Gilbreth (1868-1924), it is unlikely he was involved in the construction of the Pump House. Gilbreth was an advocate of a "fast track" construction process which was used for the GTSP and was an early example of reinforced concrete construction. Advertisements in trade journals show that Gilbreth had offices in New York City and San Francisco. The San Francisco office was opened in 1906 due to opportunities after a major earthquake. Gilbreth resigned from construction work in 1912, and he and his wife, Lillian, founded the consulting firm Gilbreth Inc. which focused on management consulting. They developed the term "Scientific Management" as they studied the working habits of factory workers and administrative workers in a wide range of industries.

While Gilbreth invented a portable gravity concrete mixer, patented in 1899, he was not the only person developing methods for constructing reinforced concrete structures. Ernest L. Ransome, an engineer and architect, pioneered reinforced concrete structural systems such as the twisting of reinforcing steel bars which improved bonding with the concrete. The Trussed Concrete Steel Company (a.k.a. Truscon) was founded and patented in 1903 by Julius Kahn. His brother, the architect Albert Kahn, employed the "Kahn system" in designs for factories throughout the United States. During the period, 1905-1910, more reinforced concrete buildings were built in the United States for their fireproof abilities, but articles from the period indicate that in order to reduce construction costs wood sash windows were installed in many structures. This may also be the case at the Pump House with its double-hung wood sash windows. It was not until the early 1910s that steel sash windows began to be manufactured in the United States.

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[13] (Bureau of Vital Statistics, 1935), (Bureau of Vital Statistics, 1942), (U.S. Census Bureau, 1910)
[14] (U.S. Census Bureau, 1900)
[15] (U.S. Census Bureau, 1910)
[16] (U.S. Census Bureau, 1910)
[17] (NARA, 1917)
[18] (U.S. Census Bureau, 1920) (U. S. Census Bureau, 1930), (U. S. Census Bureau, 1940)
[19] (Seattle Times, 1972)

Reinforced Concrete Use in Seattle

Many buildings in Seattle began to be constructed with reinforced concrete in the early 1900s. Early examples were comprised of reinforced concrete frames including structural steel. In the early 1900s, site-mixed concrete was used for cast-in-place reinforced concrete construction. An early example of full cast-in-place reinforced construction is the Volunteer Park Reservoir Gate House (a.k.a. valve house) which was constructed in 1901 in conjunction with the adjacent reservoir. The Gate House included Beaux Arts or Eclectic Classical stylistic influences such as arched window openings which were embellished with simulated stone courses, dentilled overhanging cornices and a centered, and projecting entrance bay which featured an arched opening within a rusticated surround.

The Zindorf Apartments, constructed in 1909, were noted in the Seattle Times as the first cast-in-place reinforced apartment building constructed in the city. This four-story building included 71 apartments and the façade included an arched entrance and art tile surface treatment. The Frink Park bridge, also constructed in 1909, used cast-in-place concrete construction and included decorative balustrade walls, containing trefoil openings.

The Landmark nomination form for the Lake Union Generating Plants (1987) stated that the Lake Union Steam Plant (1914-1921) exemplifies a "considerable advancement in construction technology in Seattle.". The Hiram M. Chittenden Locks were constructed during the same time period as the Pump House (1914-1917) and included twelve buildings constructed of reinforced concrete for operations, offices and workshops. These were designed in the Second Renaissance Revival Style and included entablatures, belt molds, curved mansard roof forms and base in a classical tradition. Specific examples include the Administration Building, constructed 1914-1915, where each exterior facade had three bays, a decorative concrete parapet, and the ground story included arcuated windows and central pedimented doorways made of concrete panels; and four Operating Houses (1914), which were single-story concrete structures measuring 14 by 21 feet and topped by rectilinear domed concrete roofs and design treatments on the lower exterior walls.

Pump House Site Alterations[20]

As power demand increased during the World War I era, PSTL&P expanded its generating capabilities at the GTSP. Site plans indicate that two valves were located to the northeast of the Pump House but it was not indicated if this included a surrounding structure. Sometime between 1926 and 1936, the concrete and corrugated metal siding Valve House was built to house gate valves. The reason for constructing this structure is not indicated in historical records found to date. In 1947, PSTL&P sold the northern portion of Tract 11 to the Seattle Concrete Pipe Company, leaving the southern portion with its current boundaries (Figure 3).

In 1952 SCL made repairs to the wood piling bulkhead at the Pump House site (Figure 20) and removed a fuel oil dock that extended perpendicular from the Pump House and had been used to supply oil to the 8" pipeline to the GTSP. Approximately 20 feet of the north bulkhead and 38 feet of the south bulkhead are located on Port of Seattle property. The Port of Seattle has reported that due to creosote, a hazardous material, which was commonly used in the wood for the bulkheads, more than 90 bulkheads and similar structures have been removed along the Duwamish Waterway.

[20] (Historic American Engineering Record (HAER), 2009), 64.

Brief History of Seattle City Light[21]

Seattle's 1869 charter authorized the municipal government to provide street lighting, and its first coal gas-powered streetlights were lit on December 31, 1873. In 1886, the Seattle Electric Light Company acquired a permit for street lighting, and several years later Seattle became the fourth city in the world to establish an electric "street railway" system. Other light plants in operation on the Pacific Coast were in San Francisco, Portland and at some of the sawmills on Puget Sound, notably the Port Blakely and Port Madison mills. By the early 1890s, there were four electric light companies and two of them merged to form the Union Electric Company in Seattle, which soon dominated the local market. These "neighborhood electric companies," served a small circle of customers because direct current (DC) power could be transmitted only short distances. Electric plants at this time followed a pattern of plants in the eastern United States, they were located in towns and cities no more than 10 miles from the consumers, and they were usually steam powered. Other smaller operators established local steam plants, and over the years either merged or reorganized themselves to compete. Alternating current (AC) technology made it possible to serve larger areas away from a generating station.

By 1900 Stone & Webster, in conjunction with prominent Seattle resident Jacob Furth, consolidated operations of virtually all the existing lighting, traction, and related subsidiary businesses in Seattle (nearly 20 locally-based utility companies) as the Seattle Electric Company (SEC), who built the GTSP (1906-07) and was predecessor of Puget Sound Power & Light (PSP&L). By 1902, the SEC acquired a 50-year franchise to operate a private electric utility system within the City of Seattle; they also obtained a franchise from the city for the street railway system, gaining the firm exclusive rights to operate the system. Despite opposition and concerns about private utility monopolies and the SEC, the consolidated system was improved and extended under the new management.

Populist political sentiment and support for a municipal utility system continued to grow and in 1902, Seattle residents approved a $590,000 bond issue to develop a hydroelectric facility on the Cedar River, inaugurating public power. In 1905, under the direction of James Delmage (J. D.) Ross (1872–1939) and City Engineer R.H. Thomson, Seattle built its first Cedar River plant, some 30 miles southeast of the city, and began to generate power from the first municipally-owned hydroelectric project in the country.

On April 1, 1910, a City Charter amendment created a separate Light and Power Department. The department's second superintendent, J.D. Ross, begin a long period of leadership in 1911. The benefits of hydro power over steam power production were apparent to customers who received low rates from the new department. However, until 1914, the City had only one plant and transmission line. As a result, it continued to struggle with service interruptions. The Lighting Department constructed a Hydro House on the southeast edge of Lake Union in 1912 and the adjacent Lake Union Steam Plant incrementally in 1914, 1918, and 1921 as auxiliary facilities. It also completed a masonry dam on the Cedar River in 1914 and continued to search for another hydropower site. When the privately-owned PSTL&P attempted to block the City of Seattle from developing such a site, the federal government revoked the private utility's access to the Skagit River in late 1917, allowing instead development of its hydro power by Seattle.

In the early years, the City of Seattle Lighting Department and SEC had a controlled connection between their systems, and at times they would share power distribution. This cooperation ended in 1912 when S&W merged its SEC with the Seattle-Tacoma Power Company (Snoqualmie Falls), Pacific Coast Power

[21] This section excerpted from (Wickwire, 2001) except for areas as noted.

Company, Puget Sound Power Company, and Whatcom County Railway and Light Company. The new corporation – Puget Sound Traction, Light & Power (PSTL&P) – soon established regional electrical service throughout western Washington. Within the city limits, the relationship between the public and private power entities became one of bitter rivalry while consumers continued to benefit from low rates.

Between 1920 and 1940, City Light experienced an enormous amount of growth as it sought to meet growing demand for electricity. In the 1920s, the increased number of residential accounts held by the Light Department reached nearly 40 percent, while the population increased less than 17 percent. In September 1936, the construction of City Light's Skagit River's Diablo Power Plant was finished and resulted in an increased power output at the Gorge Powerhouse with the addition of 33,000 kW to its capacity.

After the end of the Second World War, SCL acted on plans it had prepared the previous decade for additional transmission lines, substations and unit load center equipment in anticipation of increasing demands for electricity by new residential, commercial and industrial customers. Building upon the decisions made in 1943 when the Seattle City Council resolved to buy Puget Sound Power & Light[22] (PSP&L) properties when the company's urban franchise expired in 1952, Seattle voters narrowly approved a proposition in November 1950, supporting municipal acquisition of private power assets within city limits and thereby unifying service under the Department of Lighting.

In March 1951, the City agreed on a price for all PSP&L's Seattle properties, including its distribution system, but excluding the hydro plants. Under this agreement, Seattle acquired three transmission substations, ten distribution substations, and the GTSP with its Pump House, Valve House, discharge flume and intake pipeline. Seattle had finally become the city's sole supplier. Some of these facilities were integrated into the existing City Light system and upgraded, or eventually mothballed and later demolished/sold. The steam plant was retained but remained in limited use, with its last production run during the winter of 1952-53, during a major water shortage. The steam plant was integrated into the growing electrical power generation system but had effectively become a back up to the system.

Pump House Property Sale[23]

In 2010, SCL sold the Georgetown Pump House and Valve House property to SPR for open space, park, and recreation purposes. The 2000 Parks Levy, as proposed by Ordinance #120024 and approved by Seattle voters on November 7, 2000, provided the funds for acquisition of the property for development of a new neighborhood parks and green spaces.[24] Included in the transfer of this property was the condition that a determination be made if it met the City's definition of a Landmark under Seattle Municipal Code 25.12.

[22] Traction was dropped from the name in the 1940s.

[23] https://www.seattle.gov/parks/find/parks/georgetown-pump-station

[24] http://clerk.seattle.gov/~archives/Ordinances/Ord_123352.pdf

IV. LIST OF PHOTOGRAPHS

V. PHOTOGRAPHS

Photo 1 – Context View to Pump House
8th Avenue South looking north across the Duwamish Waterway
(Source: Seattle City Light, May 2017)

Photo 2 – Context View to South, East Side of Pump House
8th Avenue South looking to southwest. Valve House to the right
(Source: Seattle Parks and Recreation, 2019)

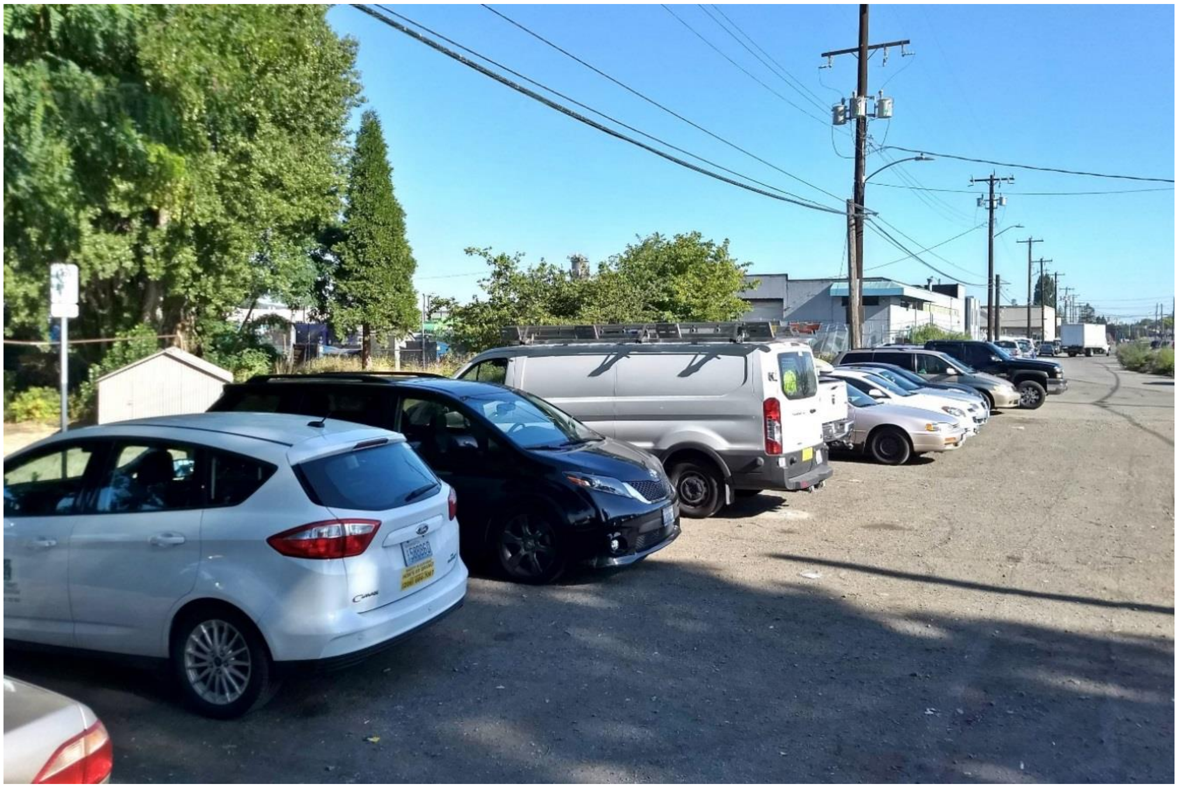

Photo 3 – Context View to North, East Side of Pump House
View along 8th Avenue North, Valve House to left
(Source: Seattle Parks and Recreation, 2019)

Photo 4 – Context View to North, from 8th Avenue South Street End
Duwamish Waterway to the left, bulkhead, shoreline, and southwest and southeast elevations
(Source: Seattle Parks and Recreation, 2019)

Photo 5 – Southwest and Southeast Elevations
(Source: Seattle Parks and Recreation, 2019)

Photo 6 – Southeast and Northeast Elevations
Valve House in foreground
(Source: Seattle Parks and Recreation, 2019)

Photo 7 – Northwest and Southwest Elevations
(Source: Seattle Parks and Recreation, 2019)

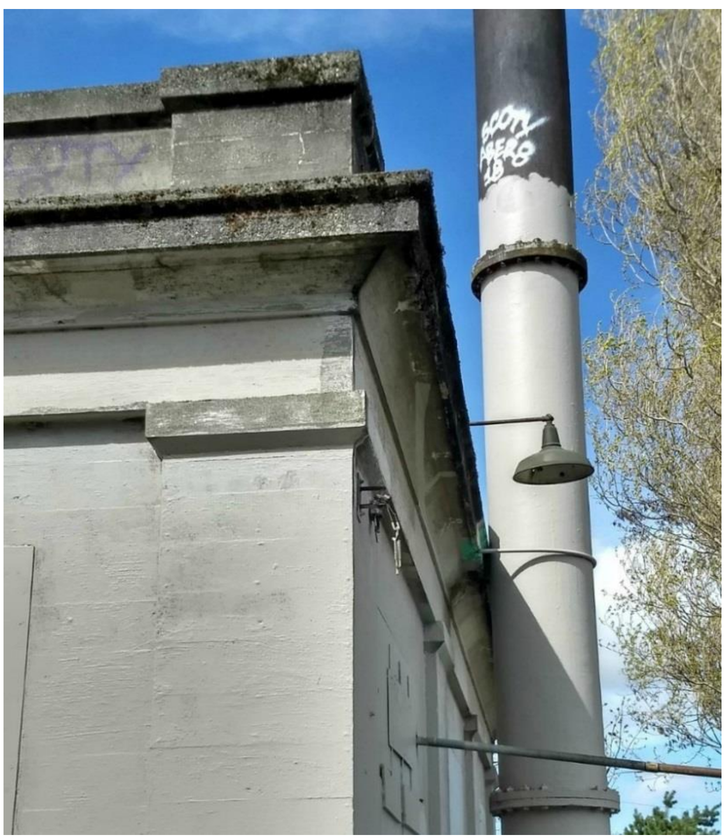

Photo 8 – Cornice Detail, Southeast Elevation
(Source: Seattle Parks and Recreation, 2019)

Photo 9 – Pump House Interior, View from Entry Platform to Northwest Wall
(Source: (Historic American Engineering Record (HAER), 2009), WA 1-69)

Photo 10 – Pump House Interior, View from North Window to Southwest Wall
(Source: Seattle Parks and Recreation, 2019)

Photo 11 – Pump House Interior, View from North Window to Ceiling
(Source: Seattle Parks and Recreation, 2019)

Photo 12 – Pump House Interior, View to Northwest Corner
(Source: (Historic American Engineering Record (HAER), 2009), WA 1-69)

Photo 13 – Pump House Interior, View from Landing to Southwest Wall
(Source: (Historic American Engineering Record (HAER), 2009), WA 1-69)

Photo 14 – Valve House Interior, View to Southeast Entrance
Gate Valve Stem Lower Left Corner
(Source: Seattle Parks and Recreation, 2019)

Photo 15 – Valve House Interior, View to Northeast Corner
(Source: Seattle Parks and Recreation, 2019)

Photo 16 – Valve House Interior, View of Gate Valves and Cast Iron Pipelines
Top Part of Right Gate Valve Stem Sawn Off
(Source: Seattle Parks and Recreation, 2019)

Photo 17 – GTSP Southeast Elevation
(Source: Seattle City Light Collection, 2018)

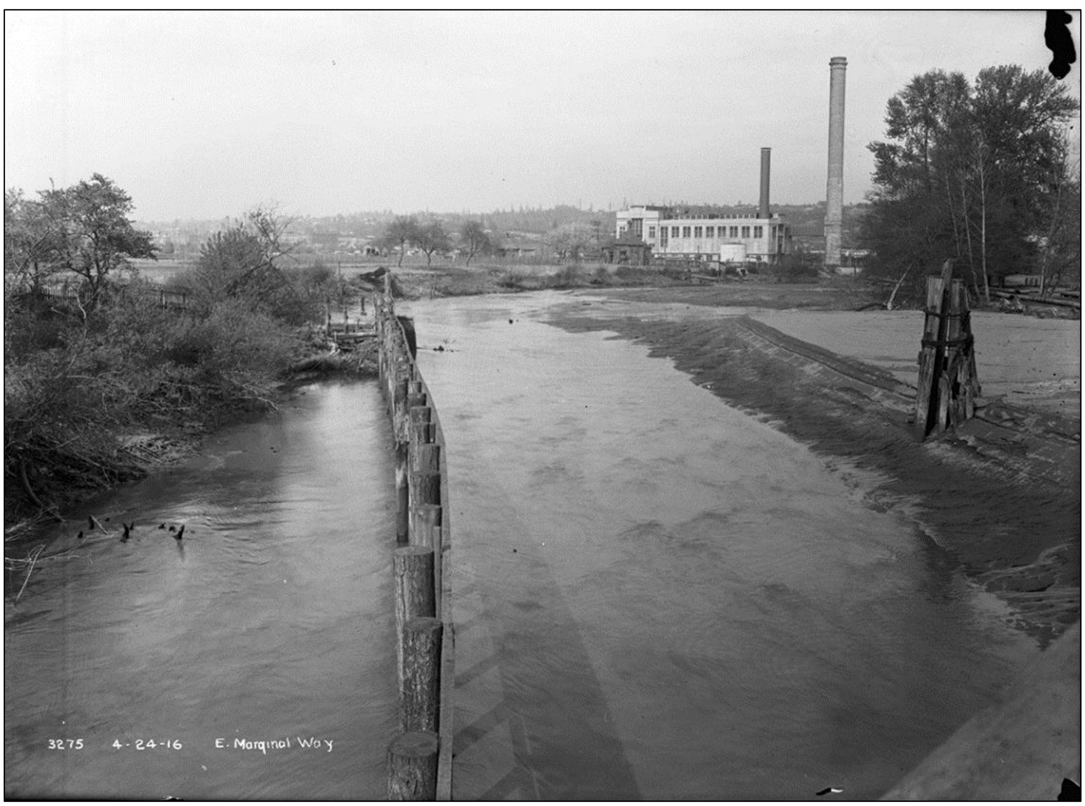

Photo 18 – Duwamish River, April 1916
View to northeast towards GTSP
(Source: Seattle Digital Archive)

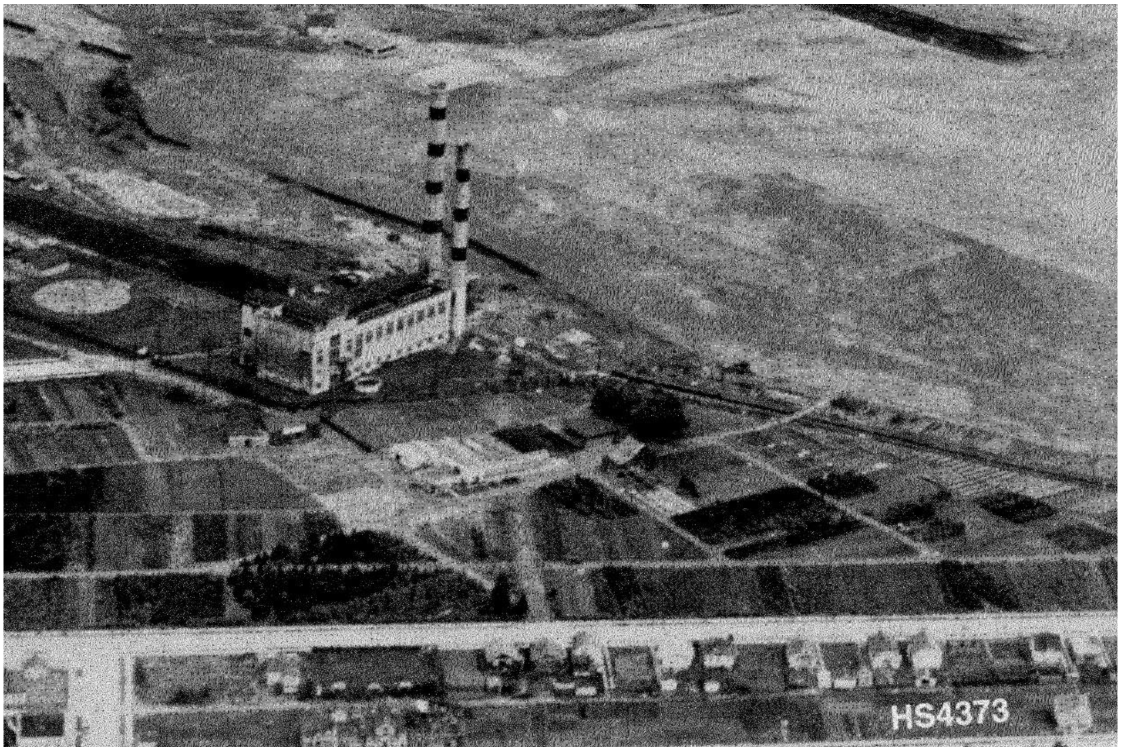

Photo 19 – Aerial View of GTSP, 1933
Former Duwamish River channel (filled-in) to right of the smokestacks
(Source: Seattle City Light Collection)

VI. LIST OF FIGURES

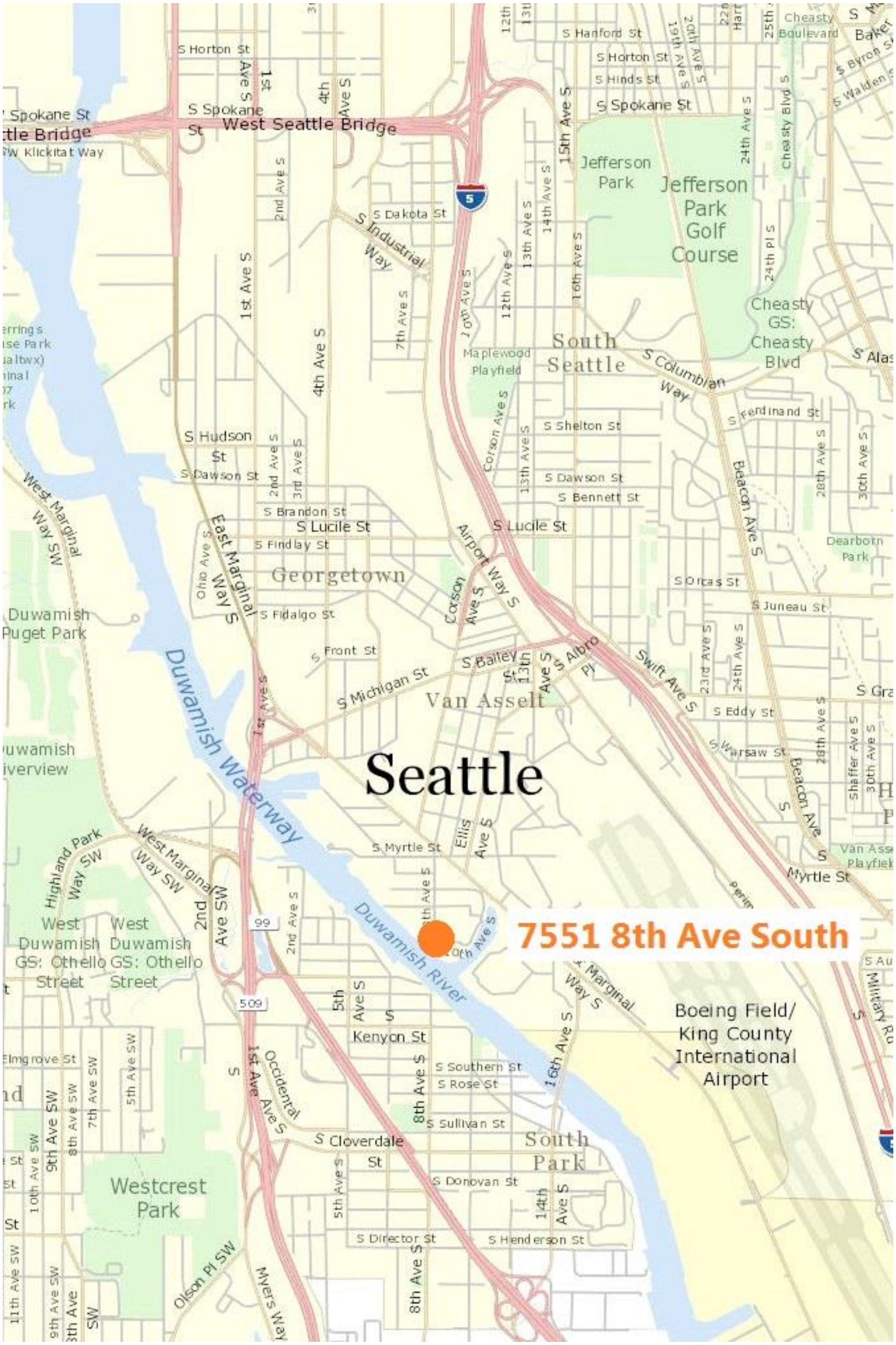

Figure 1 – Location Map, Pump House Site
(Source: King County Imap, 2019)

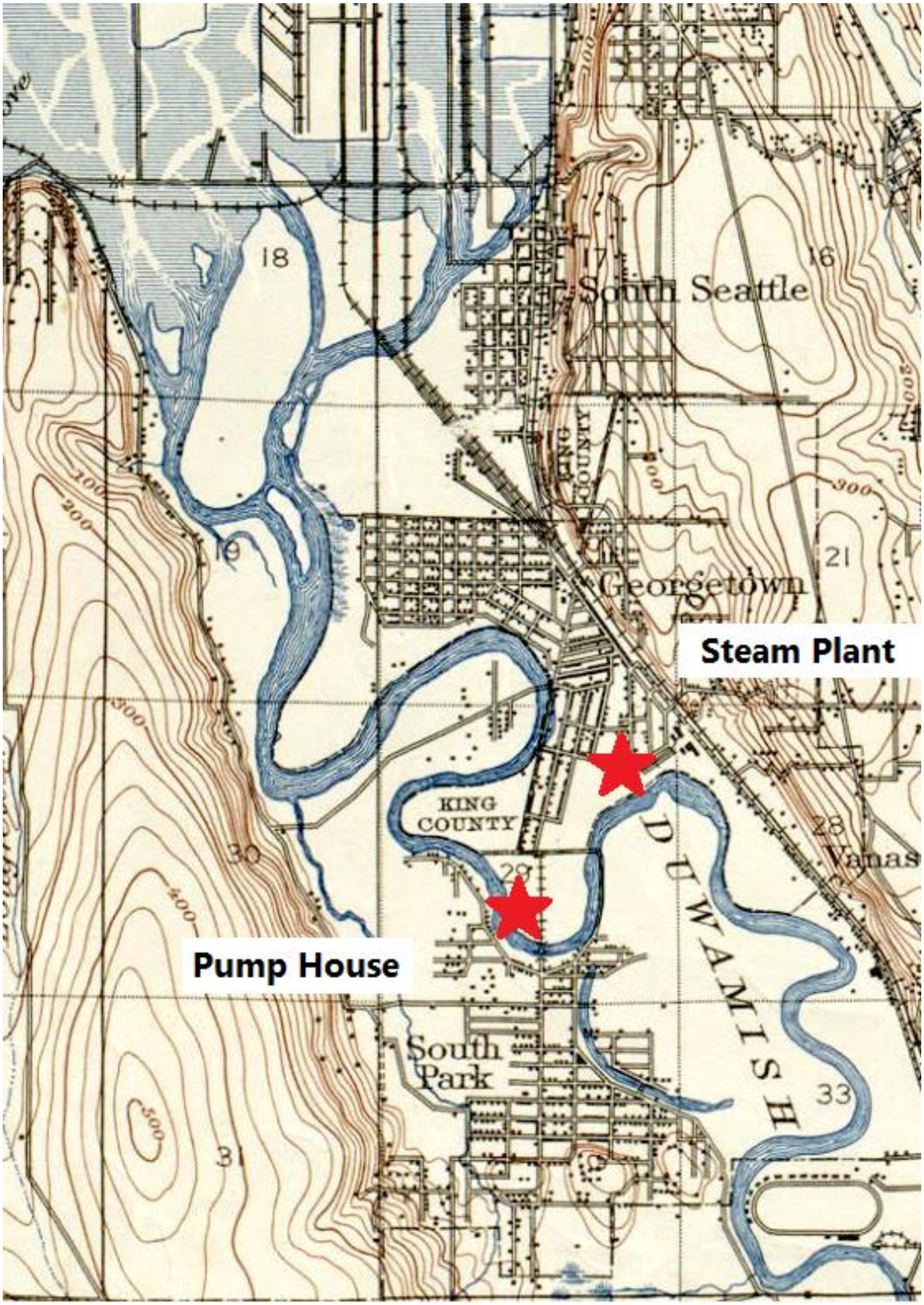

Figure 2 – Pump House & Steam Plant Sites, 1908
(Source: USGS, Seattle Quadrangle, 1908)

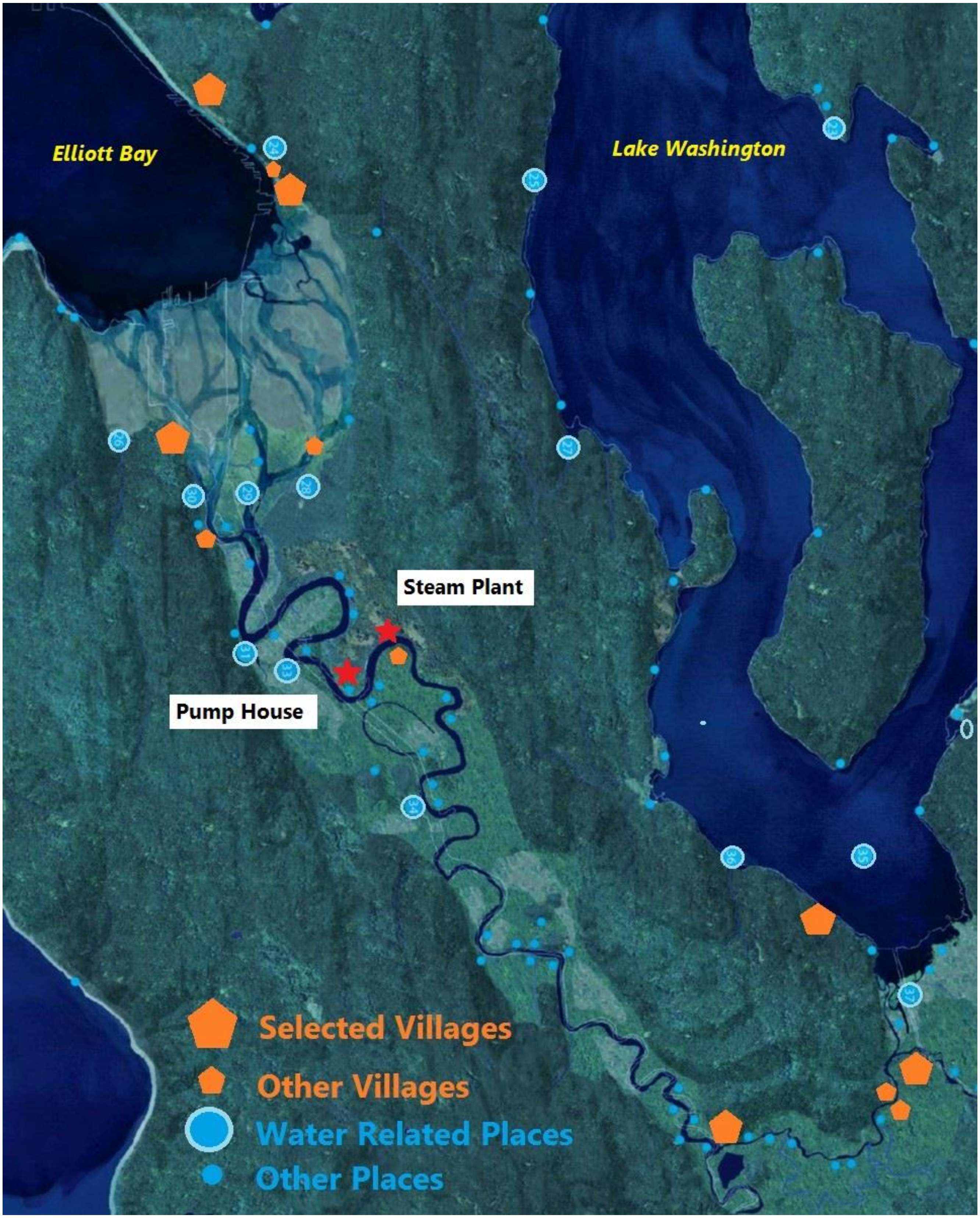

Figure 3 – Selected Indigenous Villages & Water Related Places
(Source: Waterlines Project Map, The Burke Museum of Natural History and Culture, 2016)

Figure 4 – Site Aerial Photo
(Source: King County Imap, Image 2019)

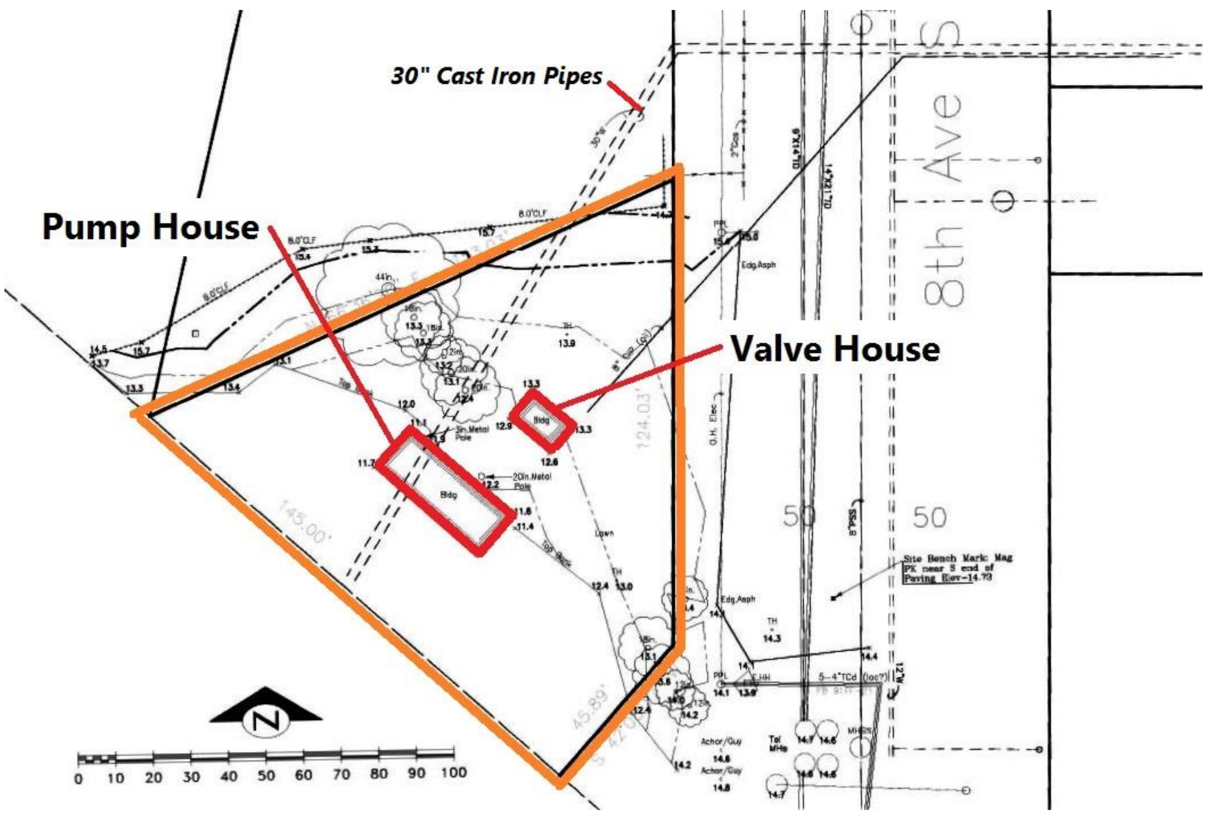

Figure 5 – Site Survey, 2008
(Source: Seattle Parks and Recreation, 2008)

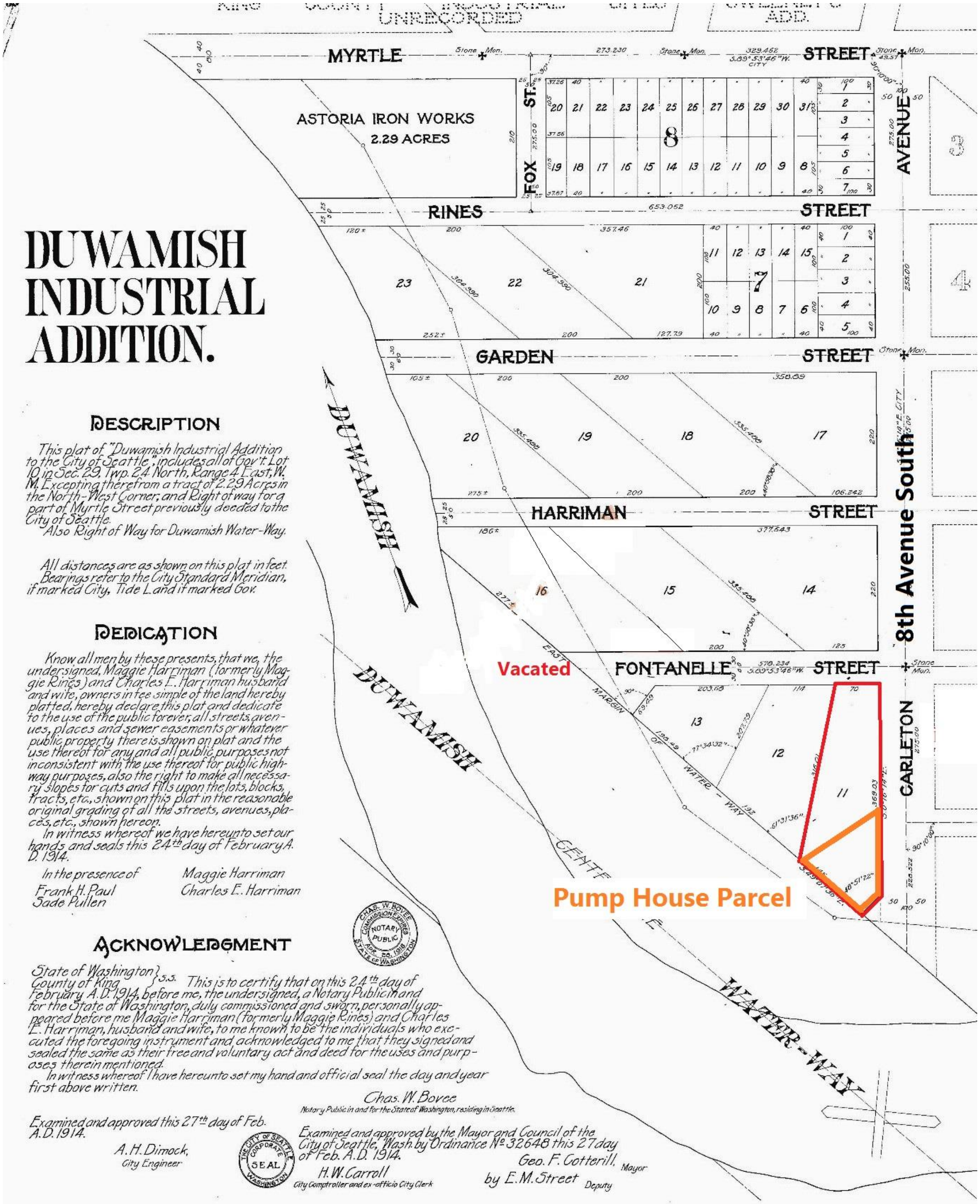

Figure 6 –Duwamish Industrial Addition Plat, 1914

Original land purchase by PSTL&P outlined in red

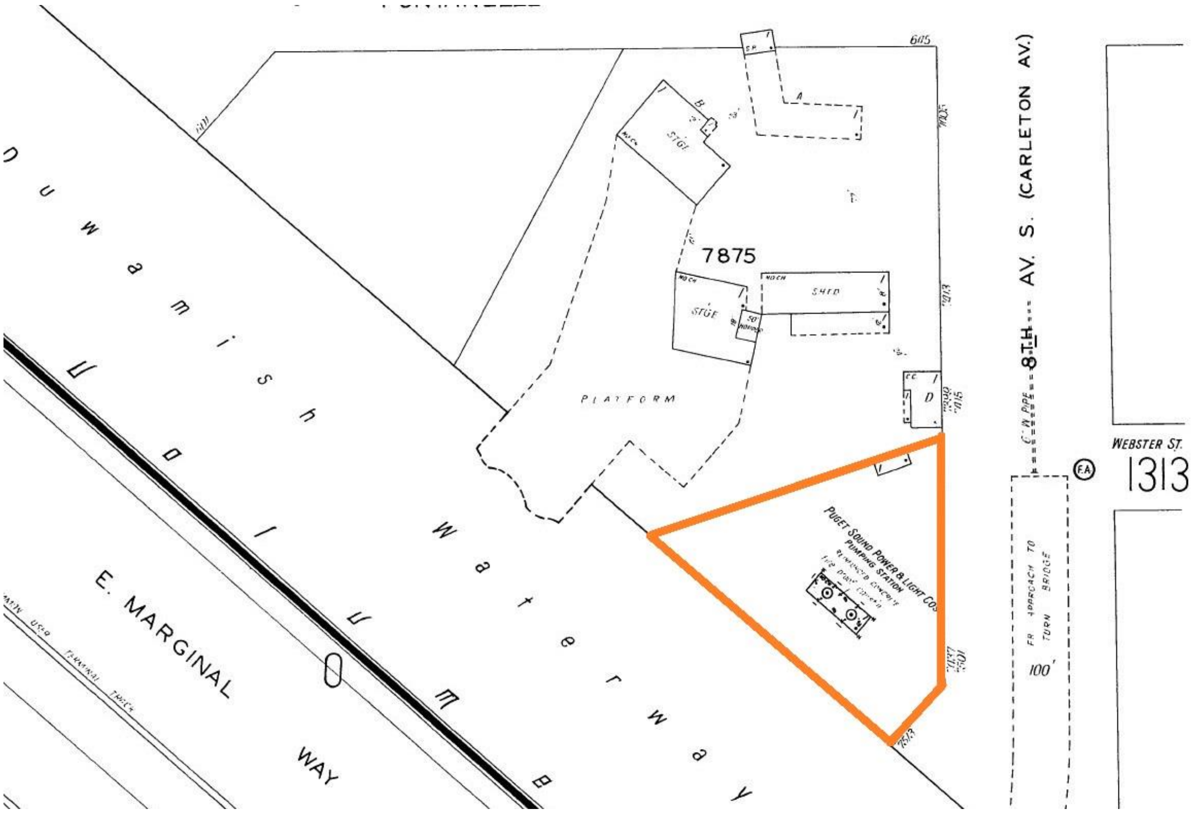

Figure 7 – Seattle Sanborn Map, Pump House Parcel, 1929
(Source: Sanborn Fire Insurance Map, Seattle, 1929)

Figure 8 –Aerial Photo, Pump House Parcel, 1936
(Source: King County Imap, 1936)

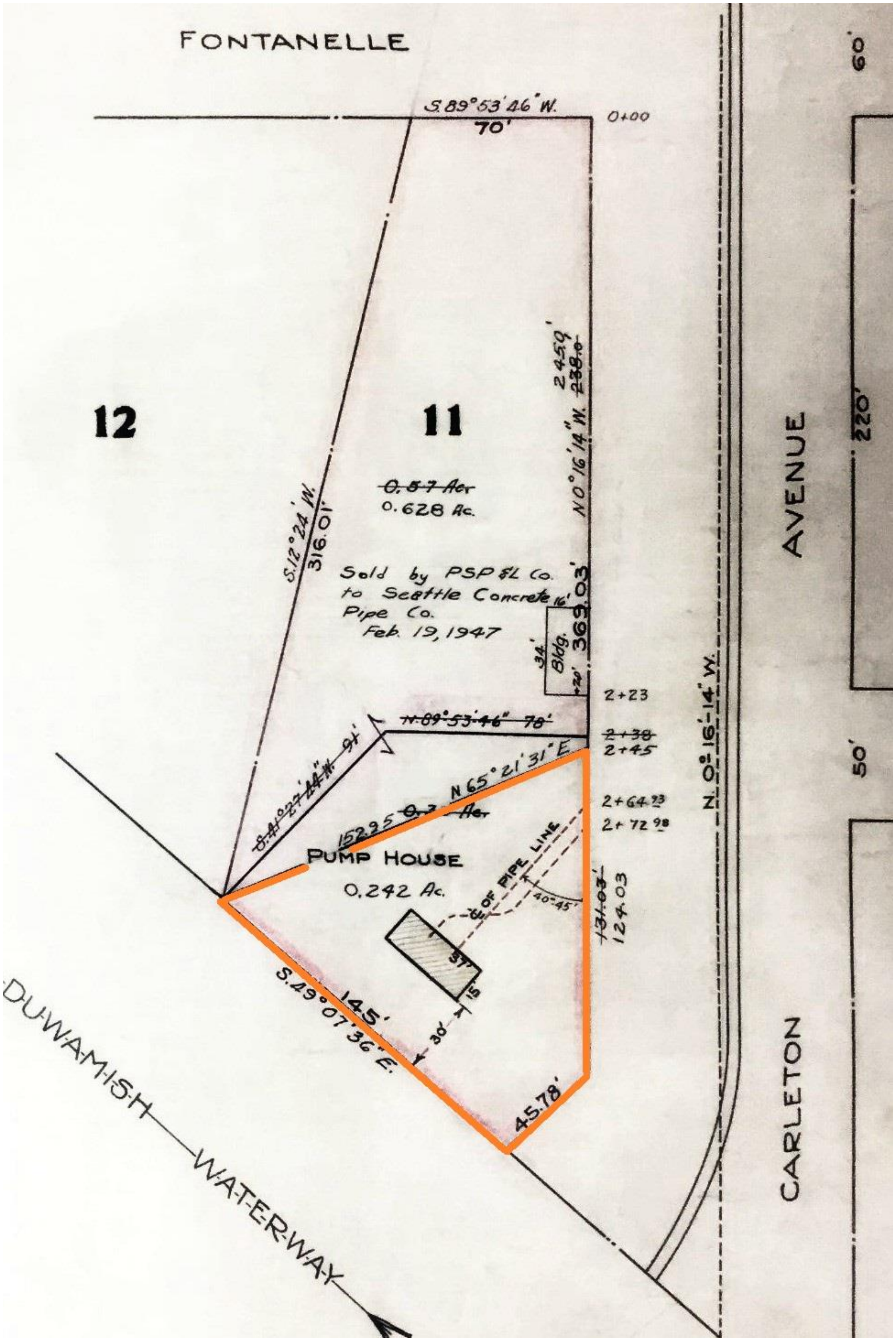

Figure 9 –Tract 11, Duwamish Industrial Addition Plat, 1947

Most of Tract 11 sold by PST&LC in 1947, Pump House parcel with orange boundary.
(Source: Seattle City Light Collection, 2018)

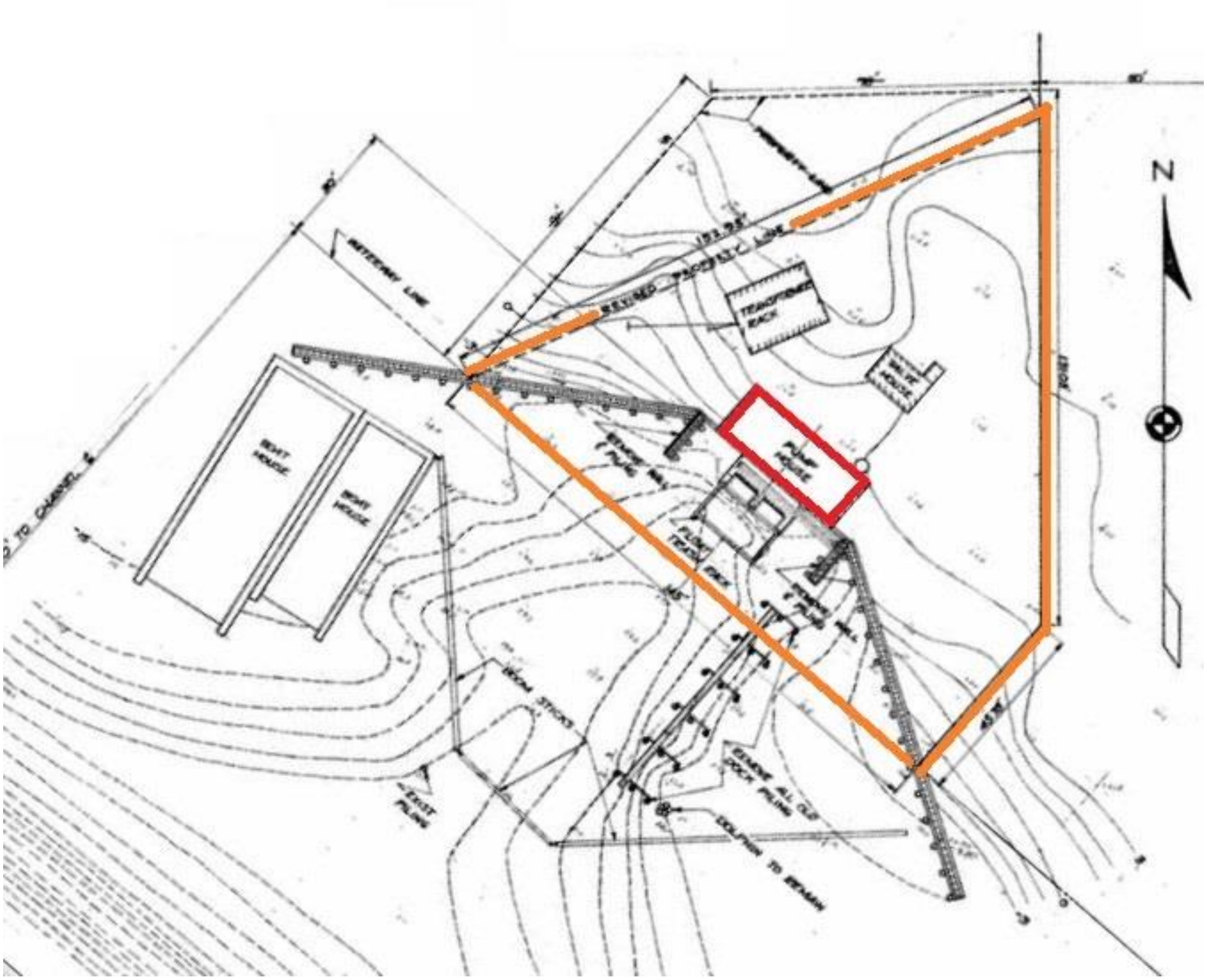

Figure 10 – Site Plan Detail, 1952
(Source: Seattle City Light Collection, D-18013.)

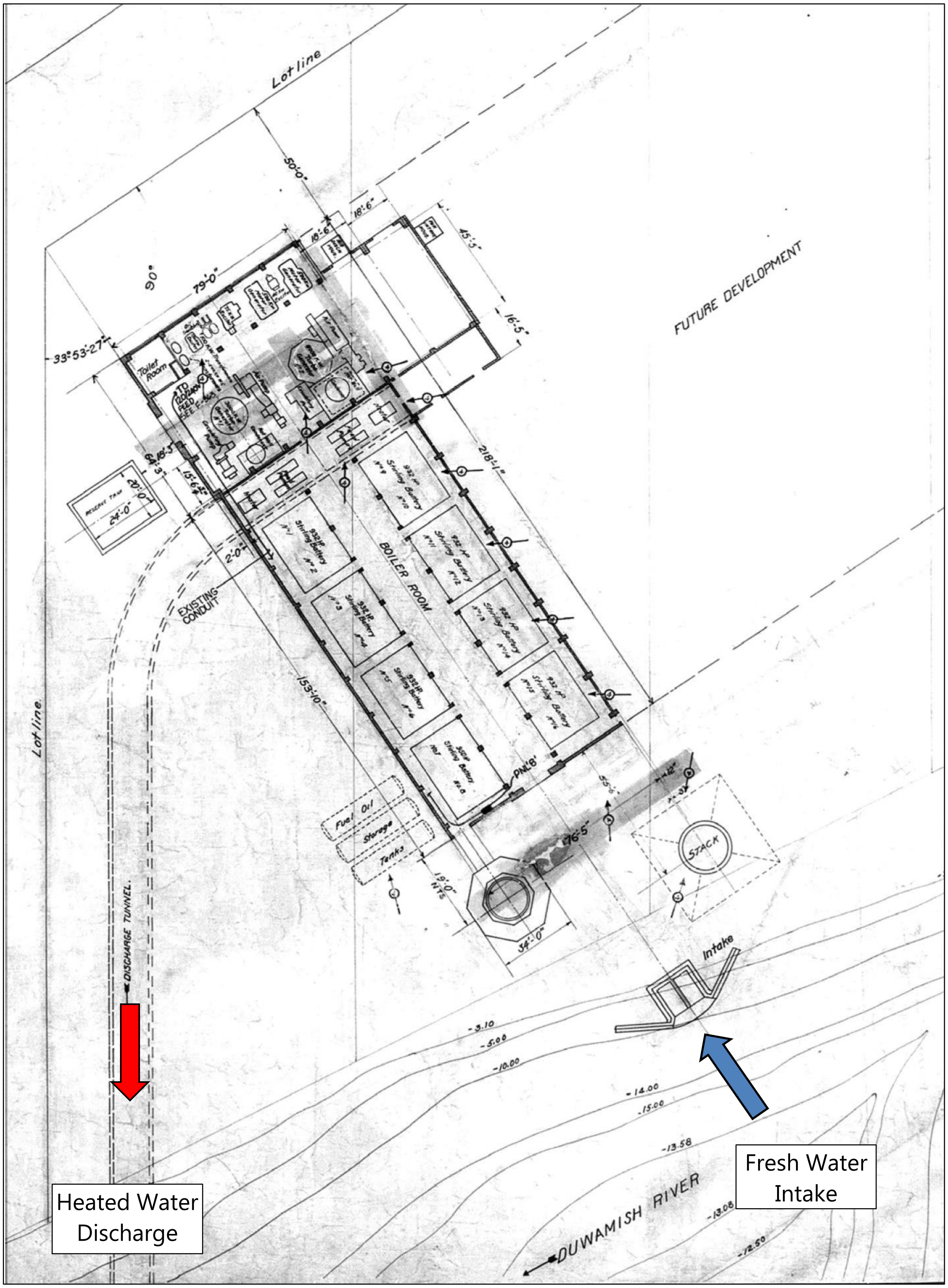

Figure 11 – GTSP Water Intake and Discharge, 1915
(Source: Seattle City Light, 1915)

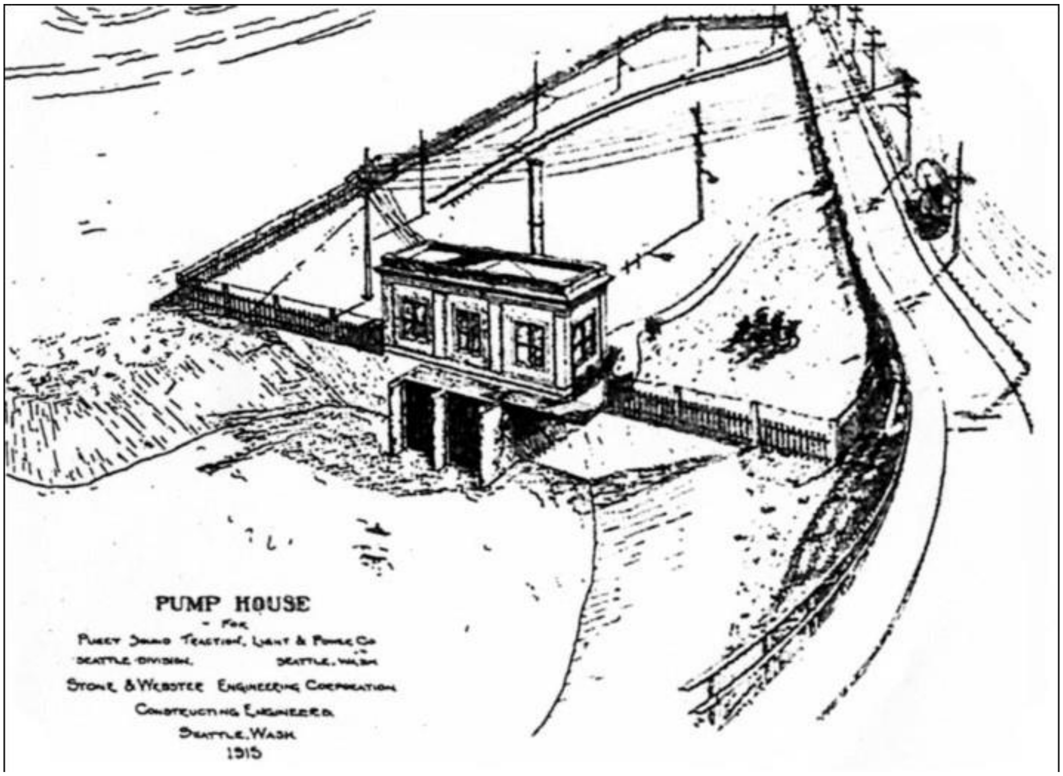

Figure 12 – Illustration of Proposed Pump House, 1915
Note 8th Avenue bridge approach to right (southeast) of Pump House.
(Source: Puget Sound Electric Journal, November 1915)

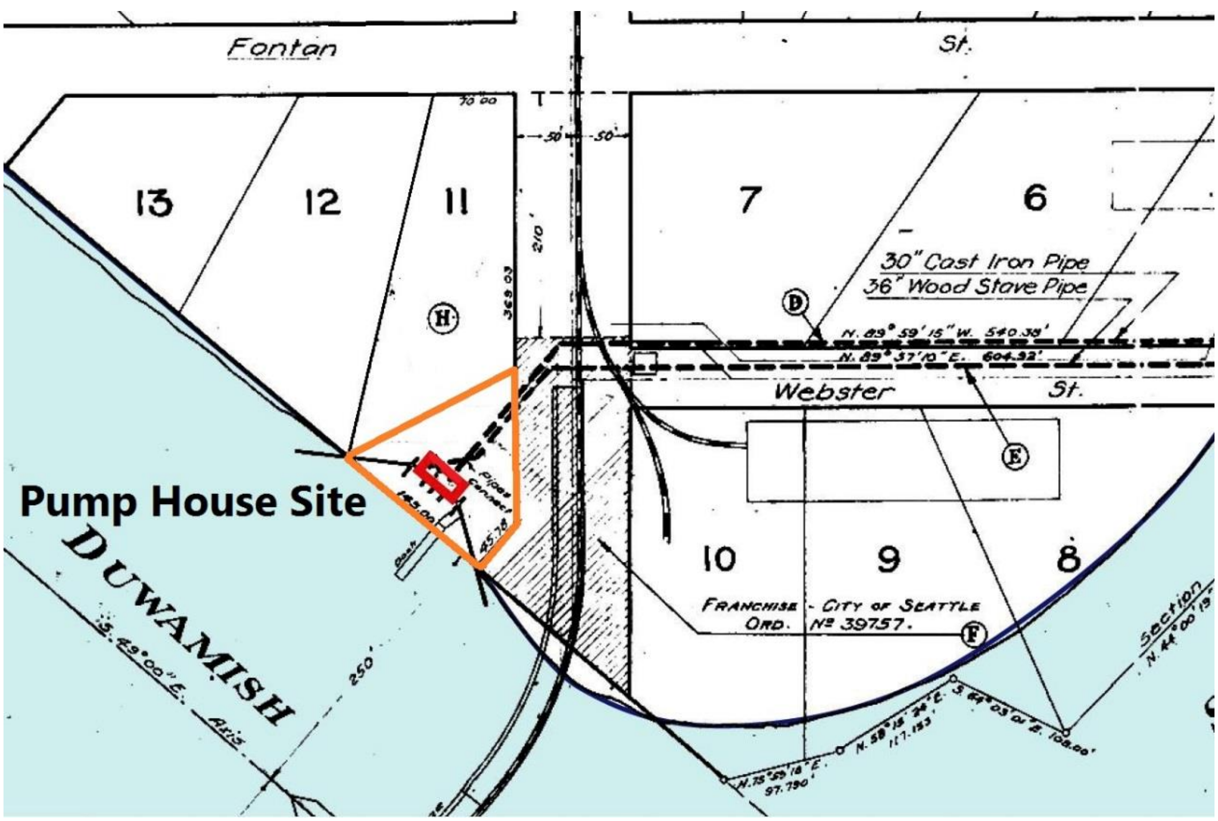

Figure 13 –Water Pipeline Site Plan, March 1921
(Source: (Seattle City Light, 1921)

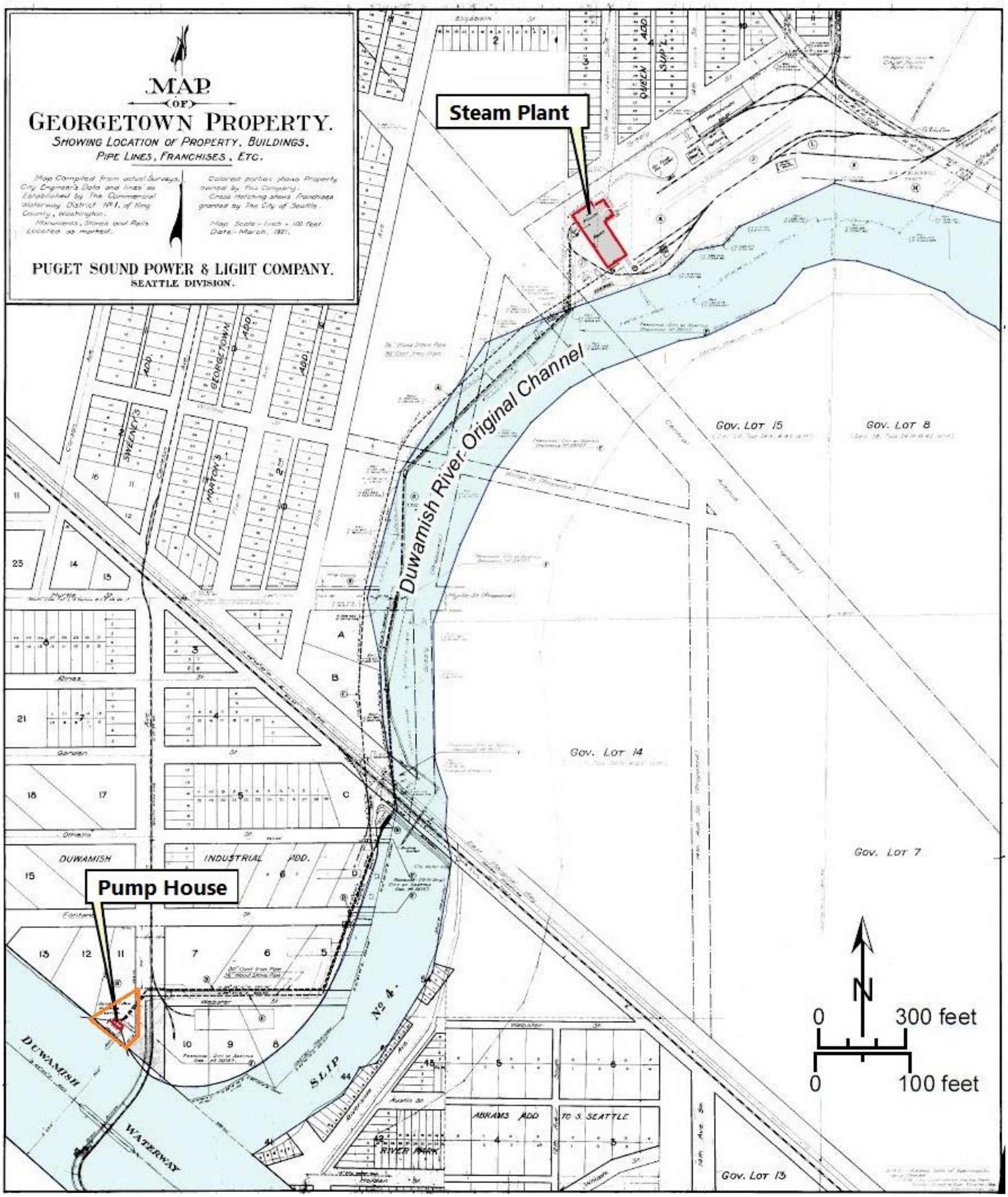

Figure 14 – PSTL&P Georgetown Properties, March 1921

Illustrating relationships between the GTSP, Pump House and pipelines, original Duwamish riverbed superimposed over filled lands

(Source: Seattle City Light, 1921)

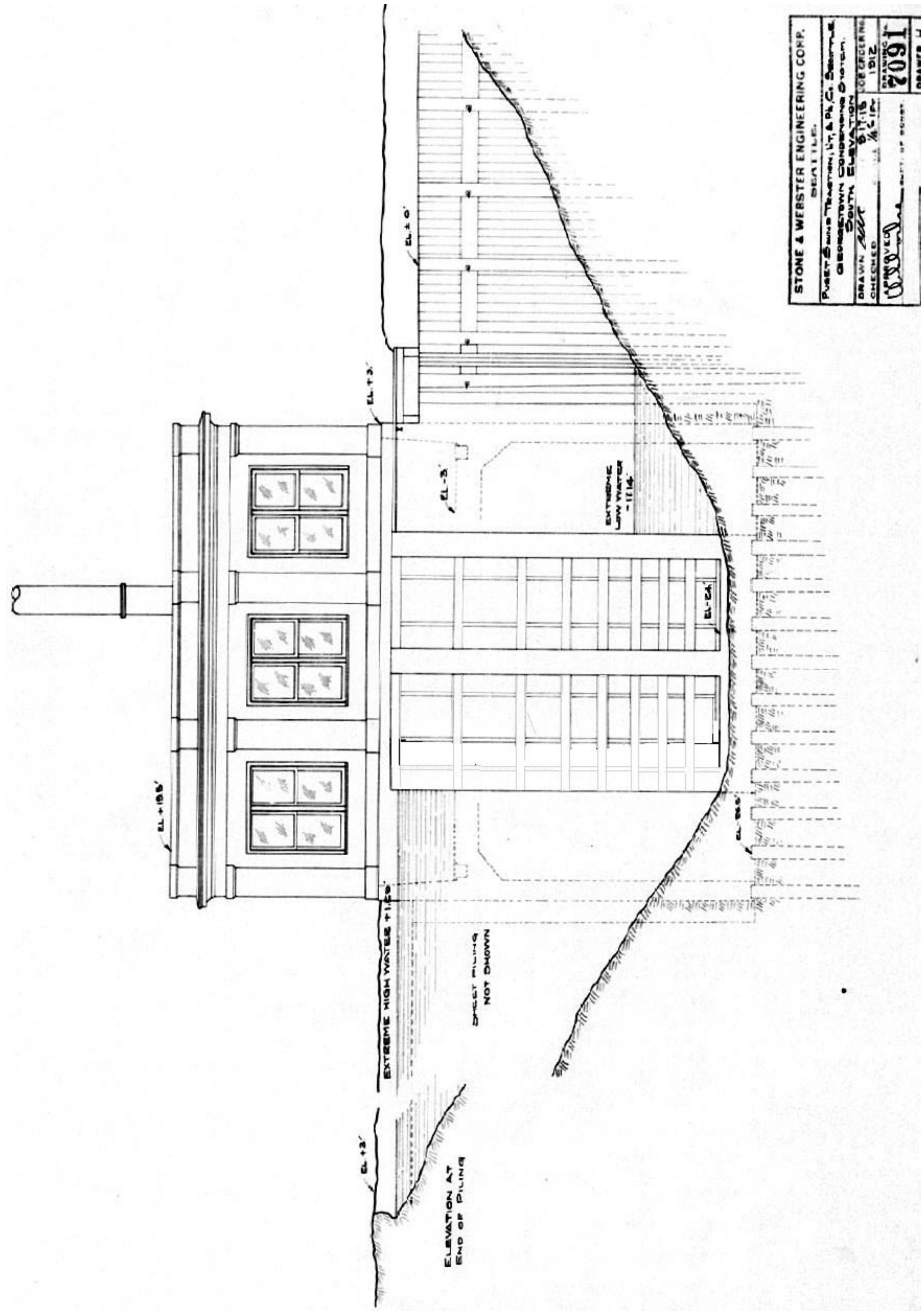

Figure 15 – PSTL&P Georgetown Condensing System, Southeast Elevation
Source: (Seattle City Light, 1915)

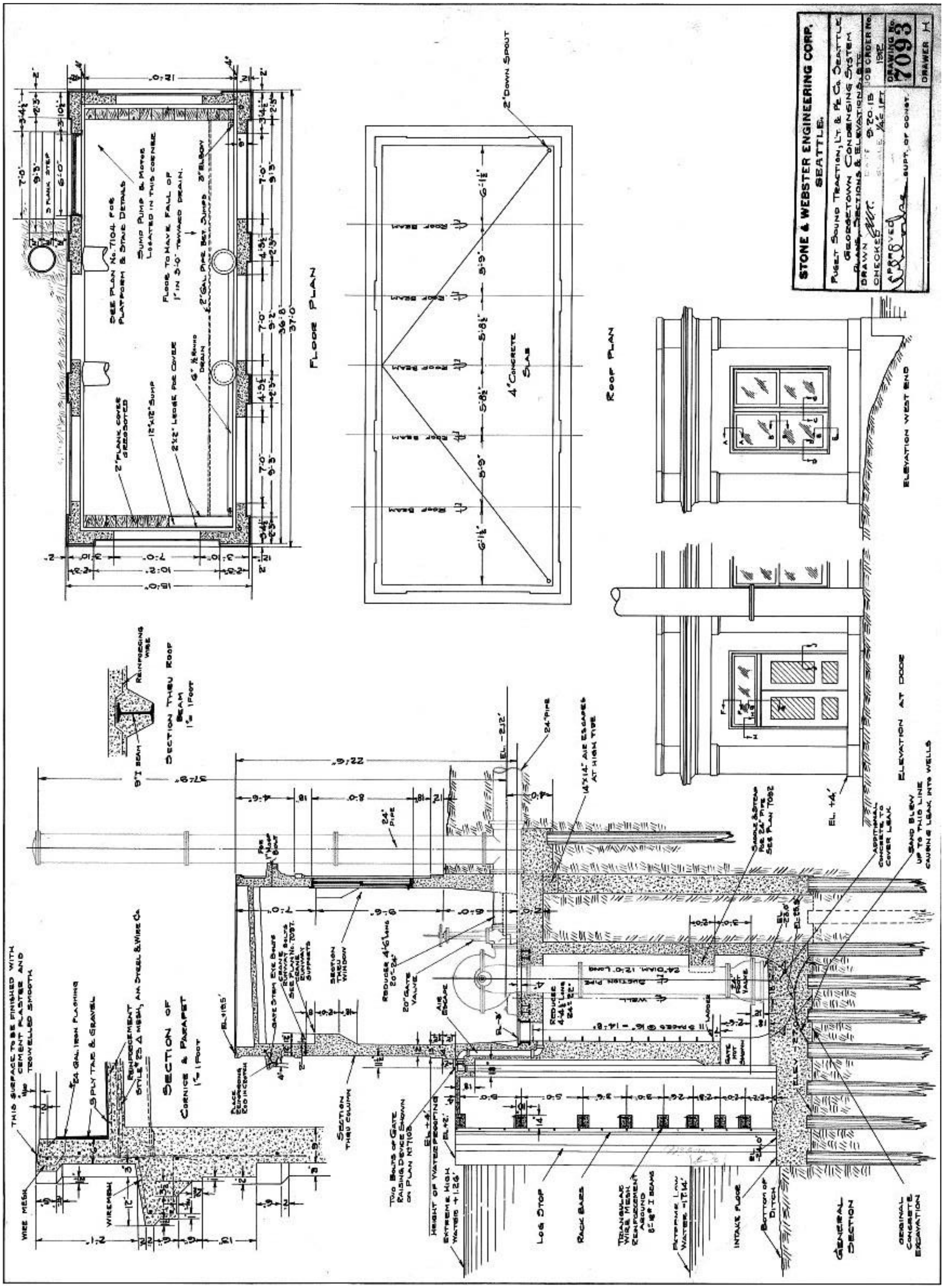

Figure 16 – PSTL&P Georgetown Condensing System, Plans, Sections and Elevations
Source: (Seattle City Light, 1915)

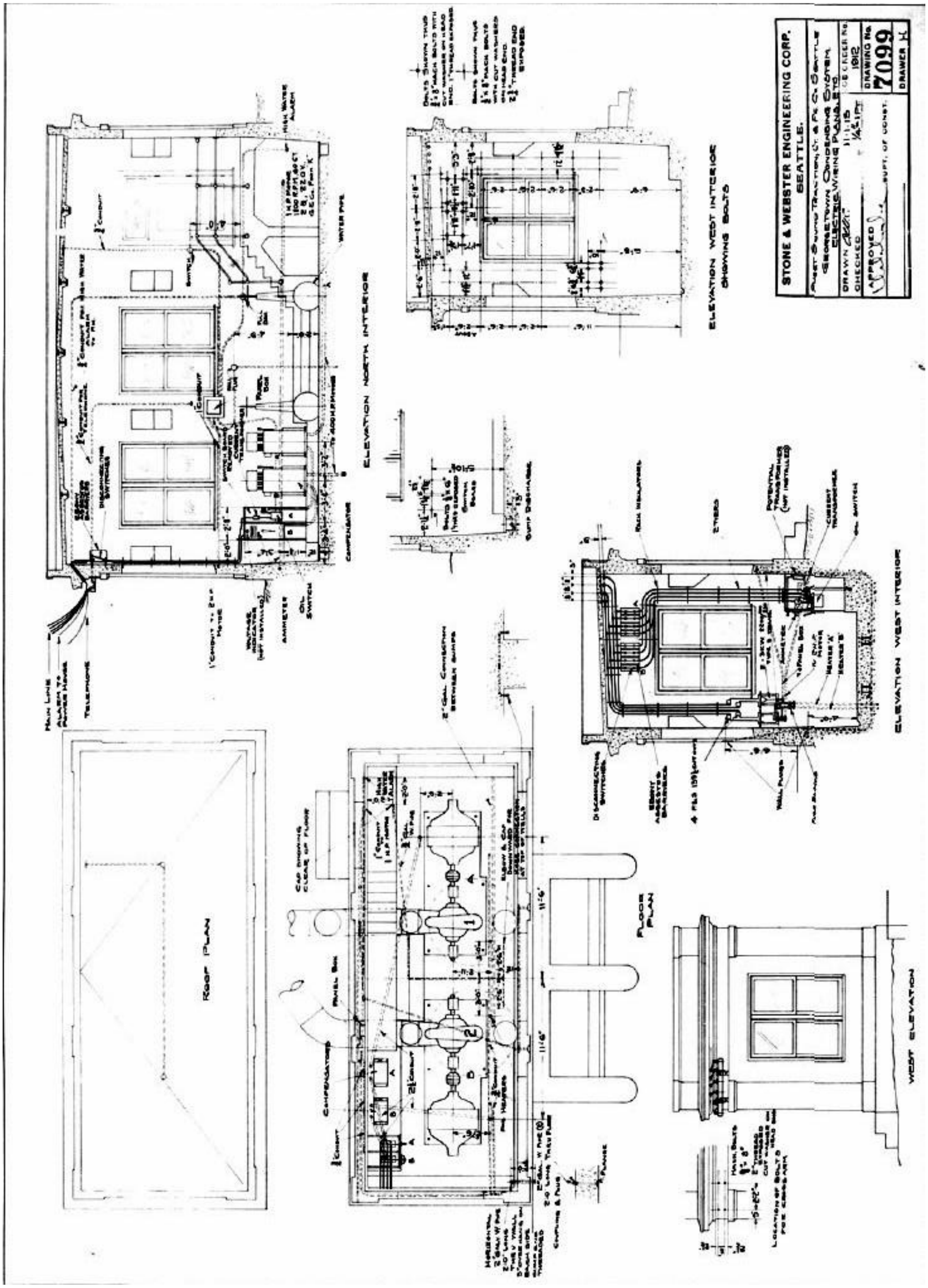

Figure 17 – PSTL&P Georgetown Condensing System, Electric Wiring Plans, Etc.

Source: (Seattle City Light, 1915)

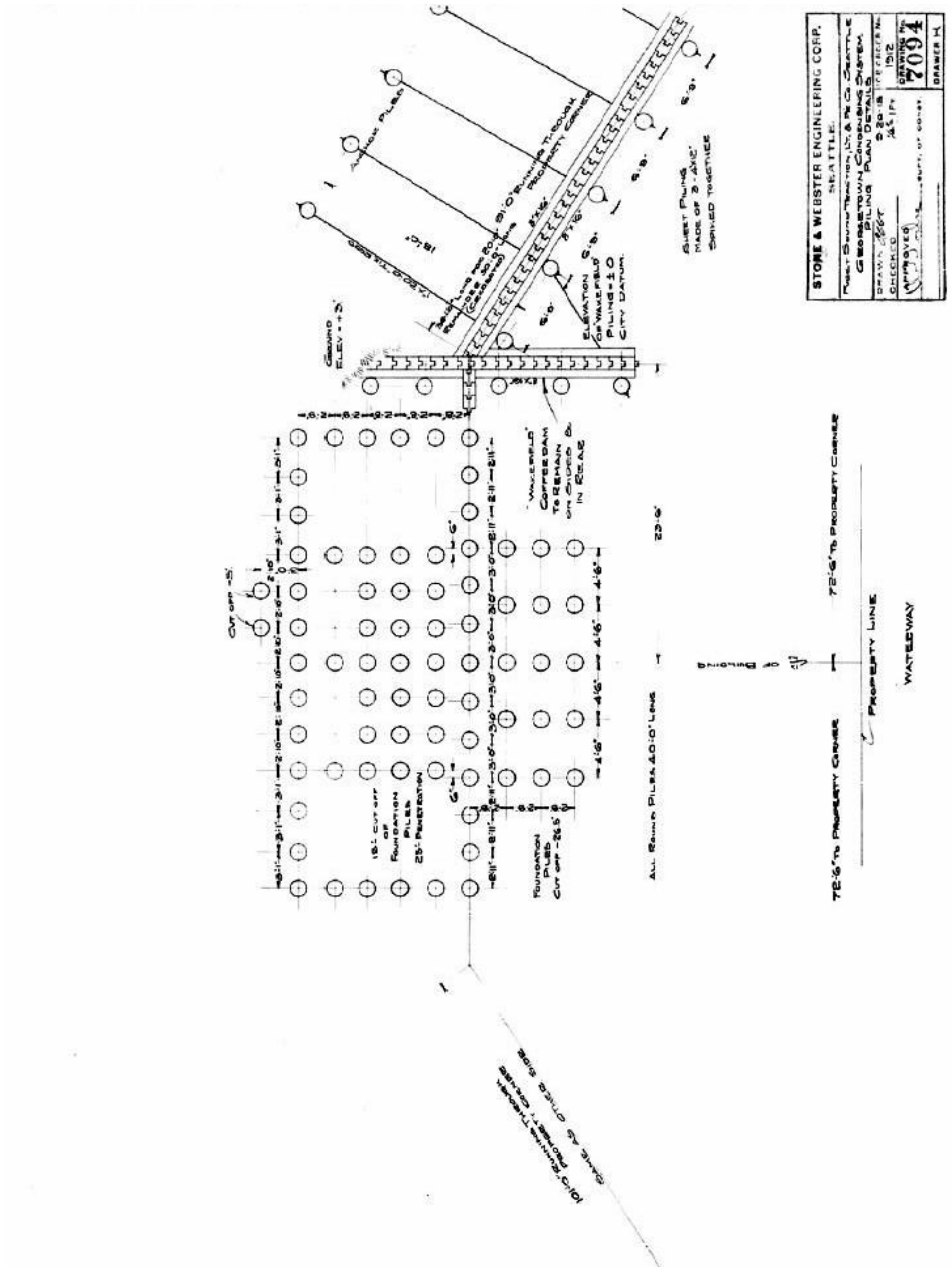

Figure 18 – PSTL&P Georgetown Condensing System, Piling Plan Details
Source: (Seattle City Light, 1915)

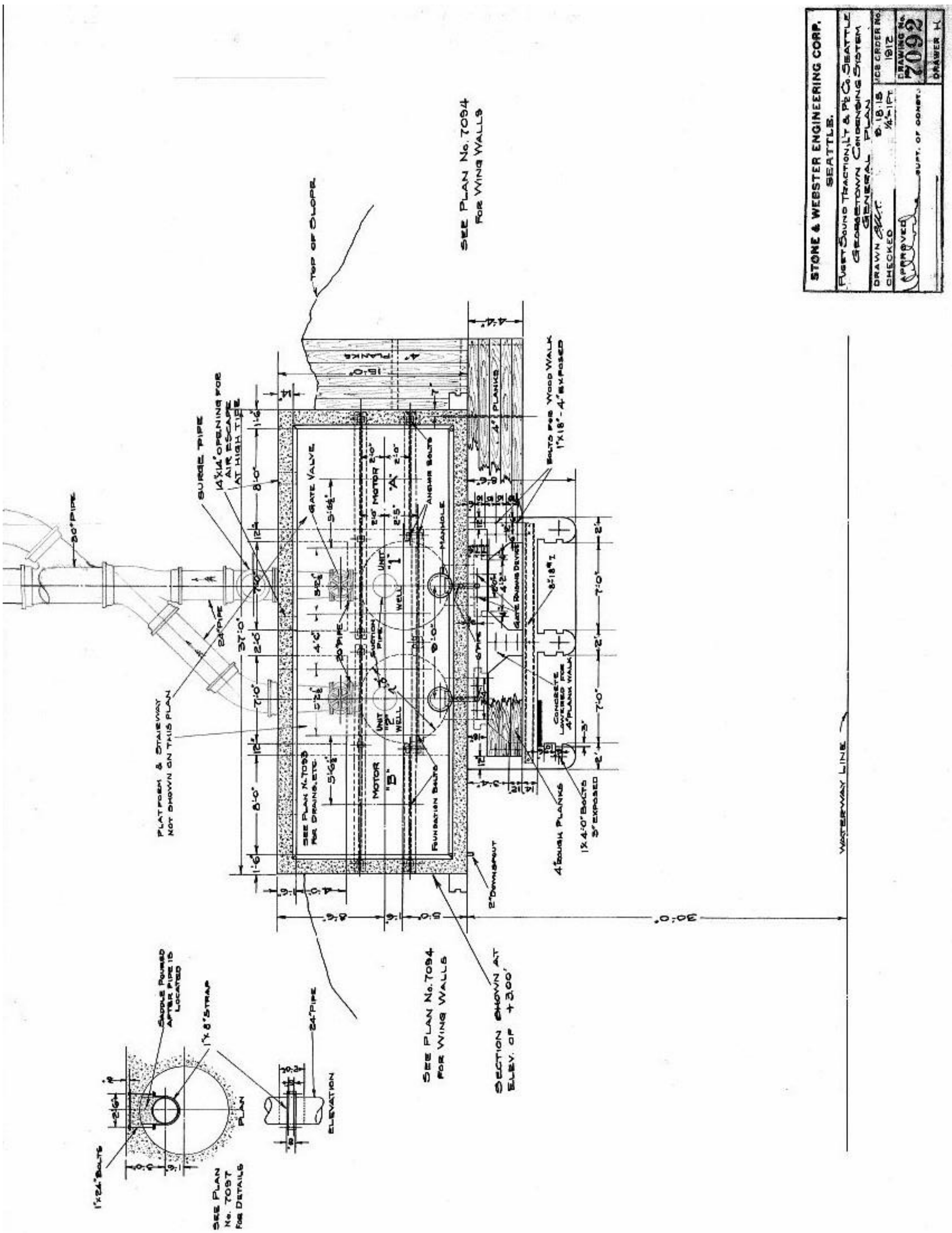

Figure 19 – PSTL&P Georgetown Condensing System, General Plan
Source: (Seattle City Light, 1915)

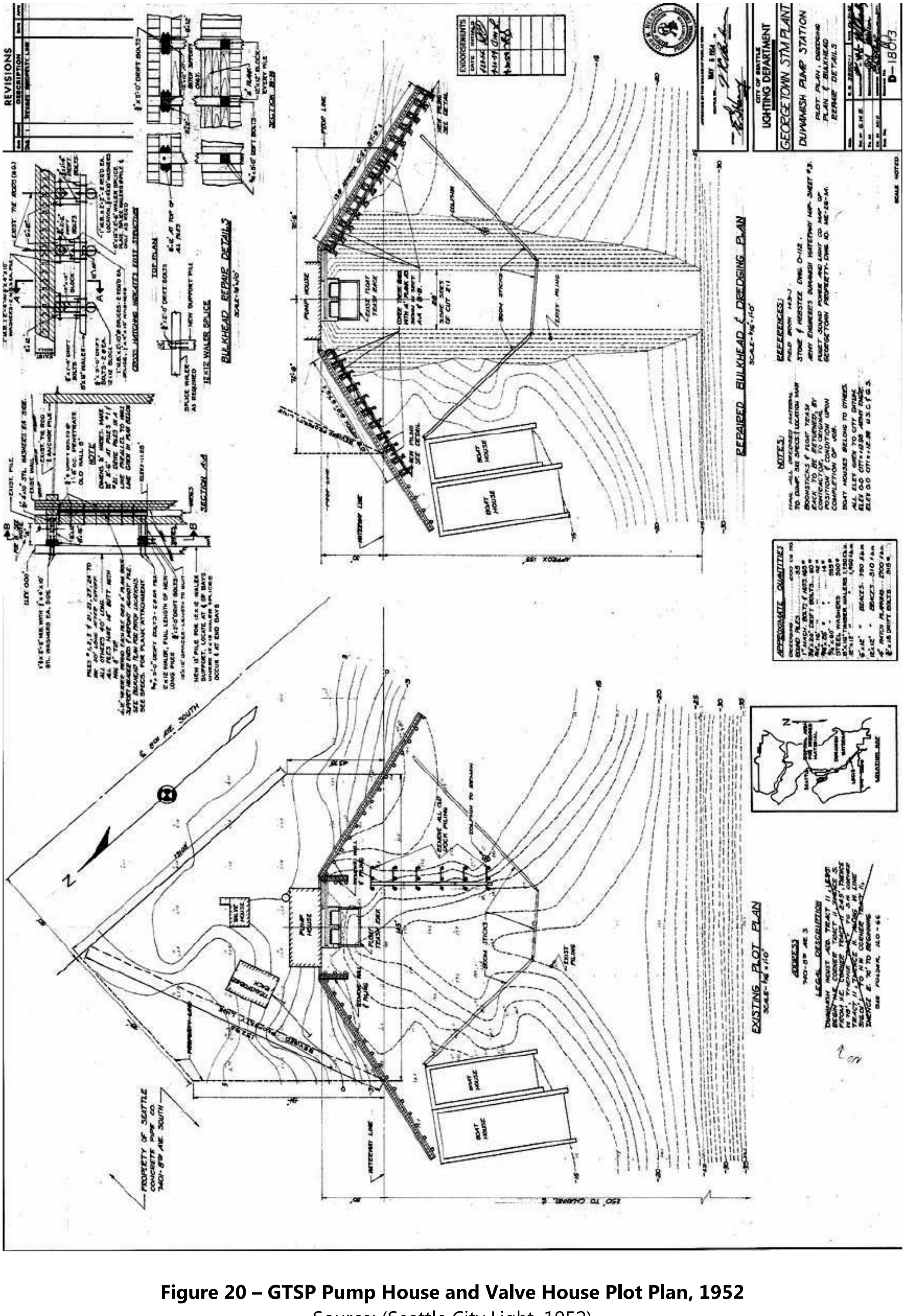

Figure 20 – GTSP Pump House and Valve House Plot Plan, 1952

Source: (Seattle City Light, 1952)

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