Memorandum

CITY OF SAINT PAUL

TO: St. Paul Heritage Preservation Commission
FROM: Amy Spong, Historic Preservation Specialist
RE: Island Station Historic Significance Evaluation Study
380 Randolph Avenue (437 Shepard Road)
DATE: March 25, 2013

BACKGROUND

In August 2012, the City Council passed Resolution 12-1609 preserving the status quo and protecting the City's planning process pursuant to Minn. Stat. Section 452.355, Subd. 4 pending the adoption of the Great River Passage amendment to the City's Comprehensive Plan and completion of an Historic Significance Evaluation Study, for the area commonly known as the Island Station Power Plant. The final City Ordinance 12-55 was adopted in October of 2012.

In December 2012, the Departments of Parks and Recreation and Planning and Economic Development obtained Landscape Research to complete an historic evaluation of Island Station and determine whether the property meets National Register of Historic Places criteria and City of St. Paul criteria for local designation as a St. Paul Heritage Preservation Site.

The Great River Passage Plan was reviewed by the HPC and the adopted resolution requested some language be edited with respect to historic evaluation of the Island Station. Specifically, the Plan should recommend that a designation study be completed for Island Station. The Plan also envisions adaptive reuse and activating the site.

REPORT FINDINGS

The attached report concludes the property does not meet National Register criteria and does meet criteria one and seven for listing as a St. Paul Heritage Preservation Site. The report provides an evaluation of the property's history and context within the development of St. Paul. Access to the site for photo documentation was not available and according to the owner's representative, the interior has been abated to prepare for redevelopment of the site. The Report addresses integrity of the site which is defined as a property's ability to convey its significance. The property's exterior and site integrity was classified as fair while the interior integrity is unclear. Although, according to the owner's representative major interior mechanical equipment has been removed.

HPC DUTIES

Chapter 73 of the City Legislative Code list two duties of the HPC as surveying and designation of sites. The HPC is to conduct a continuing survey of all areas, places, buildings, structures or similar objects in the city which the commission, on the basis of information presented or available, has reason to believe are or will be eligible for designation as heritage preservation sites. The HPC shall also recommend to the mayor

and city council areas, buildings, objects or districts to be designated as heritage preservation sites in the city along with programs for preservation.

The HPC is to use the seven criteria cited in the Legislative Code in 73.05(a) when considering making recommendations for designation. The following criteria are:

> *(1) Its character, interest or value as part of the development, heritage or cultural characteristics of the City of St. Paul, State of Minnesota, or the United States.*
> *(2) Its location as a site of a significant historic event.*
> *(3) Its identification with a person or persons who significantly contributed to the culture and development of the City of St. Paul.*
> *(4) Its embodiment of distinguishing characteristics of an architectural or engineering type or specimen.*
> *(5) Its identification as the work of an architect, engineer, or master building whose individual work has influences the development of the City of St. Paul.*
> *(6) Its embodiment of elements of architectural or engineering design, detail, materials or craftsmanship which represent a significant architectural or engineering innovation.*
> *(7) Its unique location or singular physical characteristic representing an established and familiar visual feature of a neighborhood, community or the City of St. Paul.*

If a designation study is commenced Legislative Code 73.05 requires the HPC to conduct a public hearing, to communicate intentions with the state historical society, and to obtain comments on the proposed designation and consistency with the City Comprehensive Plan by the planning commission.

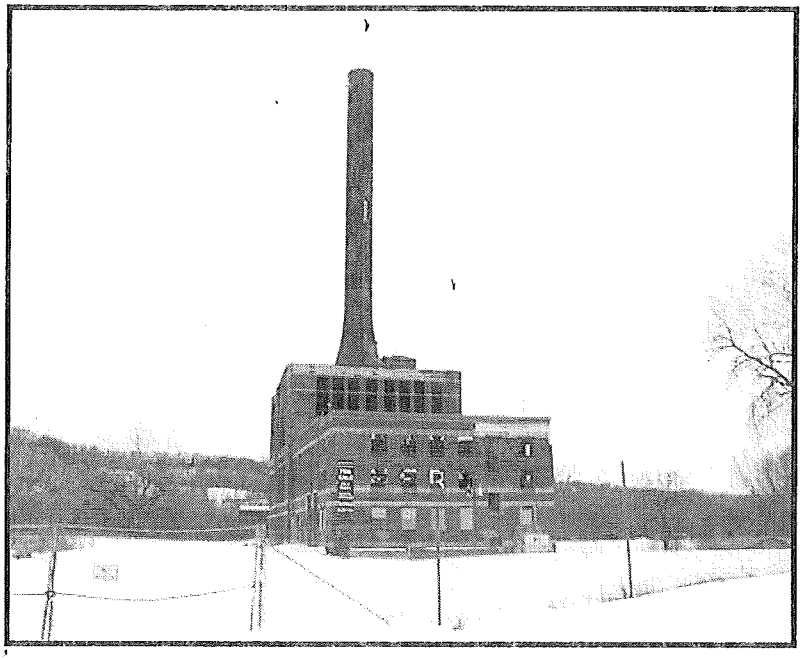
HPC REVIEW
Upon acceptance of the report and its recommendations by the HPC, staff will forward the report to the State Historic Preservation Office requesting concurrence with both the National Register criteria and St. Paul designation criteria recommendations.

In addition, if the HPC commences a designation study and process, the HPC review will focus on the criteria, the building's history, the level of significance and the integrity (the ability of the property to convey the building's significance).

St. Paul Gas Light Company Island Station

437 Shepard Road (380 Randolph Avenue)
St. Paul, Ramsey County, Minnesota

Historic Significance Evaluation Study
Undertaken Pursuant To
City of Saint Paul Ordinance No. 12-55



Prepared for the
Department of Planning and Economic Development
and
Department of Parks and Recreation
St. Paul, Minnesota

by

Landscape Research LLC
St. Paul, Minnesota

Final Draft Report

March 15, 2013

St. Paul Gas Light Company Island Station

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Historic Significance Evaluation Study
Undertaken Pursuant To
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Prepared for the
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St. Paul, Minnesota

by

Carole S. Zellie M.S., M.A.
Amy M. Lucas M.A.
Landscape Research LLC
St. Paul, Minnesota

Final Draft Report
March 15, 2013

Management Summary

In December 2012 the City of St. Paul contracted with Landscape Research LLC (Landscape Research) to conduct a Historic Significance Evaluation Study of the St. Paul Gas Company's Island Station at 437 Shepard Road (380 Randolph Avenue). The property is located in Section 12 of Township 28N R23W, about two miles upstream from downtown St. Paul. It is in Planning District 9 (known as the West 7th/Fort Federation Community Council). Carole S. Zellie and Amy M. Lucas of Landscape Research conducted the research and prepared an interim report memorandum and the draft and final reports. This study was conducted in response to Ordinance 12-55, Preserving the status quo and protecting the City's planning process pursuant to Minn. Stat. § 452.355, Subd. 4 pending the adoption of the Great River Passage amendment to the City's Comprehensive Plan, for that area of the City commonly known as the Island Station Power Plant.

The study had two objectives. The first was to determine if the former electric-steam plant meets one or more criterion for designation as a heritage preservation site by the St. Paul Heritage Preservation Commission (HPC). The second was to determine if the plant meets one or more criterion for listing in the National Register of Historic Places (NRHP). The property was the subject of a previous NRHP nomination draft and a subsequent opinion of non-eligibility by the State Historic Preservation Office (SHPO). Therefore, the current study determined if there is new information that would suggest other areas of significance.

The consultants developed the historic context, "The St. Paul Gas Light Company and Electric-Steam Power Generation in Early Twentieth-Century St. Paul" to assist in evaluating the significance of the property. Research to determine if the plant is potentially eligible for local designation or for listing in the NRHP focused on primary source material contained in various local archives, including original plans and construction photographs at the Northwest Architectural Archives at the University of Minnesota and Northern States Power records.

The St. Paul Gas Light Company Island Station has been a landmark at the river's edge since 1924. The plant was designed to meet the company's need for increased electric production and incorporated new pulverized-coal technology. The plant's overall contribution to the development of public utilities and electric power generation in St. Paul does not have a high level of historical significance, however. Due to its short-term use, reported extensive loss of interior equipment, poor condition and fair integrity it no longer conveys the operation and engineering significance of the facility. It therefore does not possess the level of historic significance and integrity to be eligible for listing in the National Register of Historic Places.

At the local level, the property meets St. Paul Heritage Preservation Criterion 1 for its association with planning for the development of St. Paul during the early 1920s, a key period of neighborhood and economic growth. It also meets Criterion 7 for the qualities of setting and physical character that embody its significance as a prominent local landmark.

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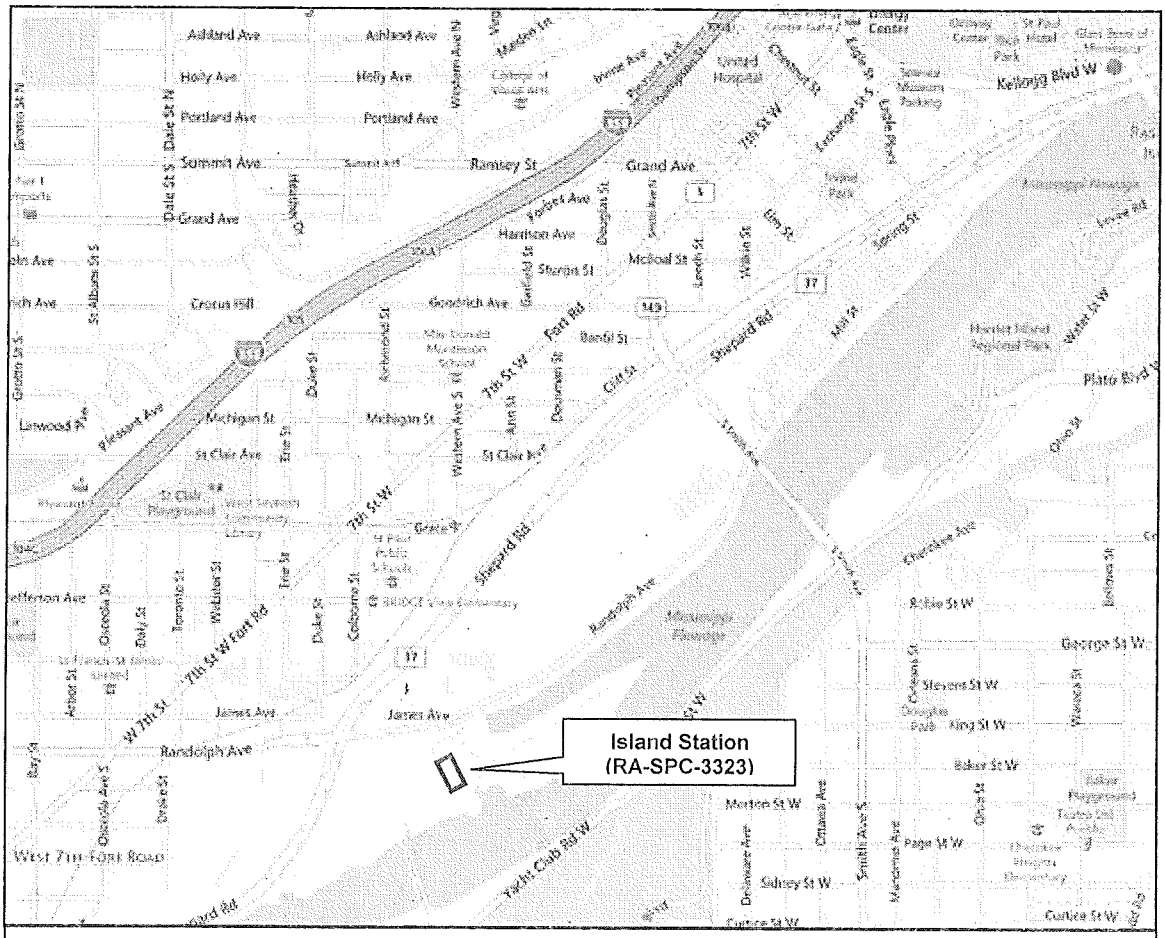

St. Paul Gas Light Company Island Station
St. Paul Heritage Preservation Commission Designation Study
437 Shepard Road (380 Randolph Avenue)
St. Paul, Ramsey County, Minnesota

LR Landscape Research LLC

Map Source: City of St. Paul

Figure 1
Location Map

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Cover Photo: Island Station, looking south, February 27, 2013, Landscape Research LLC.
All historic photos from Minnesota Historical Society collections unless noted.
Northwest Architectural Archive (NWAA)

1.0 INTRODUCTION AND OBJECTIVES

In December 2012 the City of St. Paul contracted with Landscape Research LLC (Landscape Research) to conduct a Historic Significance Evaluation Study of the St. Paul Gas Company's Island Station at 437 Shepard Road (380 Randolph Avenue). Amy M. Lucas and Carole S. Zellie of Landscape Research conducted the research and prepared an interim report memorandum and the draft and final reports. This study was conducted in response to Ordinance 12-55, Preserving the status quo and protecting the City's planning process pursuant to Minn. Stat. § 452.355, Subd. 4 pending the adoption of the Great River Passage amendment to the City's Comprehensive Plan, for that area of the City commonly known as the Island Station Power Plant.

The study has two objectives. The first is to determine if the electric-steam generating plant meets one or more criterion for designation as a heritage preservation site by the St. Paul Heritage Preservation Commission (HPC). The second is to determine if the plant meets one or more criterion for listing in the National Register of Historic Places (NRHP). The property was the subject of a previous NRHP nomination draft and a subsequent opinion of non-eligibility by the State Historic Preservation Office (SHPO). Therefore, the current study determines if there is new information that would suggest other areas of significance.

The historic context, "Electric-Steam Power Generation in Early Twentieth-Century St. Paul and the St. Paul Gas Light Company" was developed to assist in evaluating the significance of the property (Section 5.0).

2.0 METHODS

Research to determine if the plant is potentially eligible for local designation or for listing in the NRHP focused on primary source material contained in various local archives, including original plans and construction photographs at the Northwest Architectural Archives at the University of Minnesota and Northern States Power records including the *Annual Reports* at the Minnesota Historical Society. *Current-Gas,* a publication for the employees of St. Paul Gas and Electric Company, the *Byllesby Monthly News,* and articles published in the *St. Paul Pioneer Press (SPPP), St. Paul Dispatch (SPD)* and *St. Paul Daily News (SPDN)* were consulted. Engineering periodicals were also reviewed.

Recent studies of electric power plants, including the Phase I Architectural History Evaluation and Area of Potential Effect Scoping for the High Bridge Combined Cycle Project (Bradley 2004) and the Phase II Architectural History Evaluation for the Riverside Station Plant Demolition Project (Stark 2005) provide comparative information. They include a discussion of the "functional importance" versus "historical significance" of public utility facilities that is useful to the current study.

2.1 Fieldwork

As of March 1, 2013, the consultants were not able to access the property due to health and safety hazards (Tim Pinsen, personal communication, 2/7/2013). The property was photographed from the fenced perimeter and file photographs from various sources were used for other exterior views. The building owner provided photographs of the interior taken in February 2013.

2.2 Evaluation

St. Paul Heritage Preservation Commission and National Register of Historic Places criteria were used to assess the significance of the property. The seven criteria for local heritage preservation designation are based on the four National Register criteria, but provide a broader approach to evaluate significance within the context of St. Paul's development.

2.2.1 St. Paul Heritage Preservation Commission Criterion (City of Saint Paul Legislative Code 73.05(a)) state the following considerations shall apply with respect to designation within the City of Saint Paul for any area, place, building, structure or similar object.

1. Its character, interest or value as part of the development, heritage or cultural characteristics of the city of St. Paul, State of Minnesota, or the United States.

2. Its location as a site of a significant historic event.

3. Its identification with a person or persons who significantly contributed to the culture and development of the City of St. Paul.

4. Its embodiment of distinguishing characteristics of an architectural or engineering specimen.

5. Its identification as the work of an architect, engineer, or master builder whose individual work has influenced the development of the City of St. Paul.

6. Its embodiment of elements of architectural or engineering design, detail, materials or craftsmanship which represent a significant architectural or engineering innovation.

7. Its unique location or singular physical characteristic representing an established and familiar visual feature of a neighborhood, community or the City of St. Paul.

2.2.2 National Register of Historic Places Criterion (NPS 1995).

The quality of significance in American history, architecture, archeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:

A. That are associated with events that have made a significant contribution to the broad patterns of our history; or

B. That are associated with the lives of significant persons in or past; or

C. That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

D. That have yielded or may be likely to yield, information important in history or prehistory

3.0 PREVIOUS STUDIES

This property has been the subject of several surveys or studies since plant decommissioning in 1973.

In 1981 the "Historic Sites Survey of Saint Paul and Ramsey County" recorded the plant. Surveyors Patricia A. Murphy and Susan W. Granger did not make a recommendation regarding its local significance, other than to note "interesting brick detailing" and vacant condition.

In their survey report, *Historic Sites Survey of Saint Paul and Ramsey County, 1980-1983,* Murphy and Granger included the property as an "additional site of major significance" in a list of District 9 sites (Murphy and Granger 1983:96). The building was also noted as significant under the category "Public Utility Buildings" (Murphy and Granger 1983:373).

In 1984 Gary Phelps prepared a draft National Register of Historic Places Nomination for the "St. Paul Gas Light Company's Island Station" (Phelps 1984). This nomination, which included historic context development for the St. Paul Gas Light Company, was prepared on behalf of the property owner, John L. Kerwin (Phelps 1984). The nomination recommended that the property was eligible for the NRHP but did not evaluate it under specific criteria.

In 1984, a SHPO memorandum reviewed the Phelps nomination and evaluated it under NRHP criterion A, B, and C. The SHPO found that the property did not meet the NRHP criteria for eligibility (SHPO 1984).

In 2003 the City of St. Paul prepared an Environmental Assessment Worksheet (EAW) for the SpringPointe Development boat access and private marina (City of St. Paul 2003). This project was within a mixed residential/commercial project that proposed 200 condominiums and 20,000 square feet of commercial space. The EAW noted that the Island Station was determined not eligible for listing in the NRHP (City of St. Paul 2003:21).

The proposed replacement of the coal-fired High Bridge Power Plant (1924) at 501 Shepard Road with a natural gas-fired 2-on-1 combined cycle system required preparation of a *Phase I Architectural History Evaluation and Area of Potential Effect Scoping Study* as part of the Site Permit application (Bradley 2004). This study, which included historic context development for electric power generation in St. Paul and the metropolitan area, recommended that the NSP plant was not eligible for listing in the NRHP due to lack of significance (Bradley 2004:25).

The *High Bridge Plant Effects Study* was completed in 2006 (Stark 2006). This and the previous study noted that the Island Station had been recommended by the SHPO as not eligible for listing in the NRHP (SHPO 1984).

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4.0 PROPERTY DESCRIPTION

This study updates the NRHP nomination draft (1984) with new description and significance statements for Island Station as well as additional historic context and property evaluation information. The 1984 draft did not recommend a period of significance or areas of significance that are aligned with specific NRHP criteria. When it was prepared 29 years ago, the building exterior and interior were relatively intact and likely possessed good historic integrity.

4.1 Property Location and Setting

The St. Paul Gas Light Company Island Station Plant at 437 Shepard Road (380 Randolph Avenue, formerly 1 Ross Road; RA-SPC-3323) is located in Section 12 of Township 28N R23W, about two miles upstream from downtown St. Paul. It is in Planning District 9 (known as the West 7th/Fort Federation Community Council). The electric-steam plant occupies the foot of a peninsula on the west side of the Mississippi River about 100 feet from the shoreline. This peninsula was originally the 6-acre Ross Island and was reached by a wood bridge (razed). The west half of the island is now infilled in part by ashes sluiced out of the plant furnaces (Figure 2; Westbrook 1983:33).

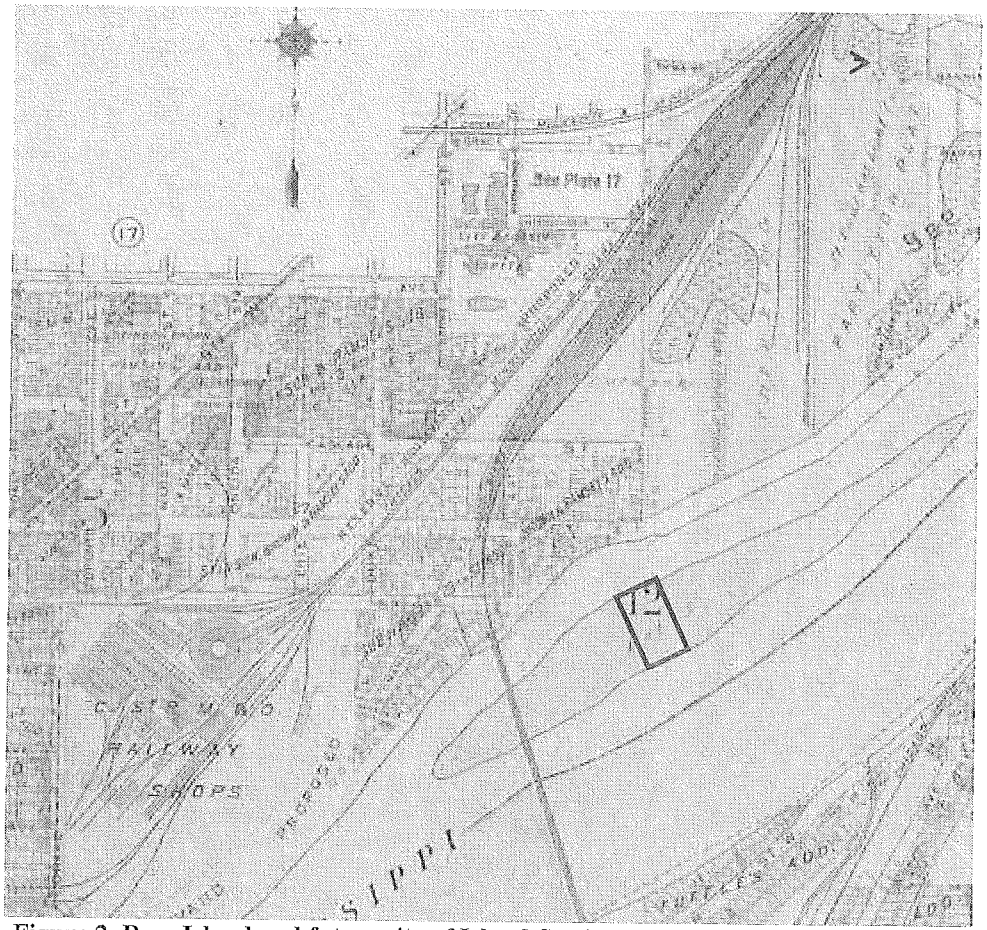

Figure 2. Ross Island and future site of Island Station. Plat Book of the City of Saint Paul, Minnesota (G. M. Hopkins 1916). The St. Paul Gas Light Company's Gas Storage facility (ca. 1914, razed) was located on what is now Xcel Energy's High Bridge Generating Station property (see arrow).

At the time of construction, the plant was part of an industrial district that included the Chicago, St. Paul, Minneapolis and Omaha Railroad shops (1882-) and stockyard and meatpacking facilities. Its own gas storage tank (ca. 1914) stood northeast of the plant near the NSP High Bridge Plant (1924) then also under construction (Figure 2). During the 1930s, development of the 9-Foot Channel by the U. S. Army Corps of Engineers facilitated barge traffic and the 1937 construction of the Shell Petroleum and Socony Vacuum Oil company tank farms (*SPD* 16 March 1937; Phelps 1984:8-5). The area immediately downriver under the High Bridge was part of Little Italy, an Upper Levee immigrant community.

The riverfront site provided an ideal river water supply for plant condensers and a good rail connection for coal delivery. The site was originally served by a Chicago, St. Paul, Minneapolis & Omaha Railway spur line elevated on wood trestles (Figures 3, 4, 17). The Omaha Swing Bridge Number 15 (1915) is located immediately west of the plant.

A "Study for the Arrangement of the Grounds" prepared by landscape architect George Nason in April 1924 shows a landscaped service court and forecourt for parking and circulation placed on the east and north sides of the building (NWAA). A lawn was planted on the bottom of the land that sloped away from the river, and coal storage was placed along the river's edge.

Today, despite visual competition from the bulk of the downriver High Bridge (1987) and Excel High Bridge Generating Station (2008), the historic Island Station plant remains a prominent landmark visible from many points along the river.

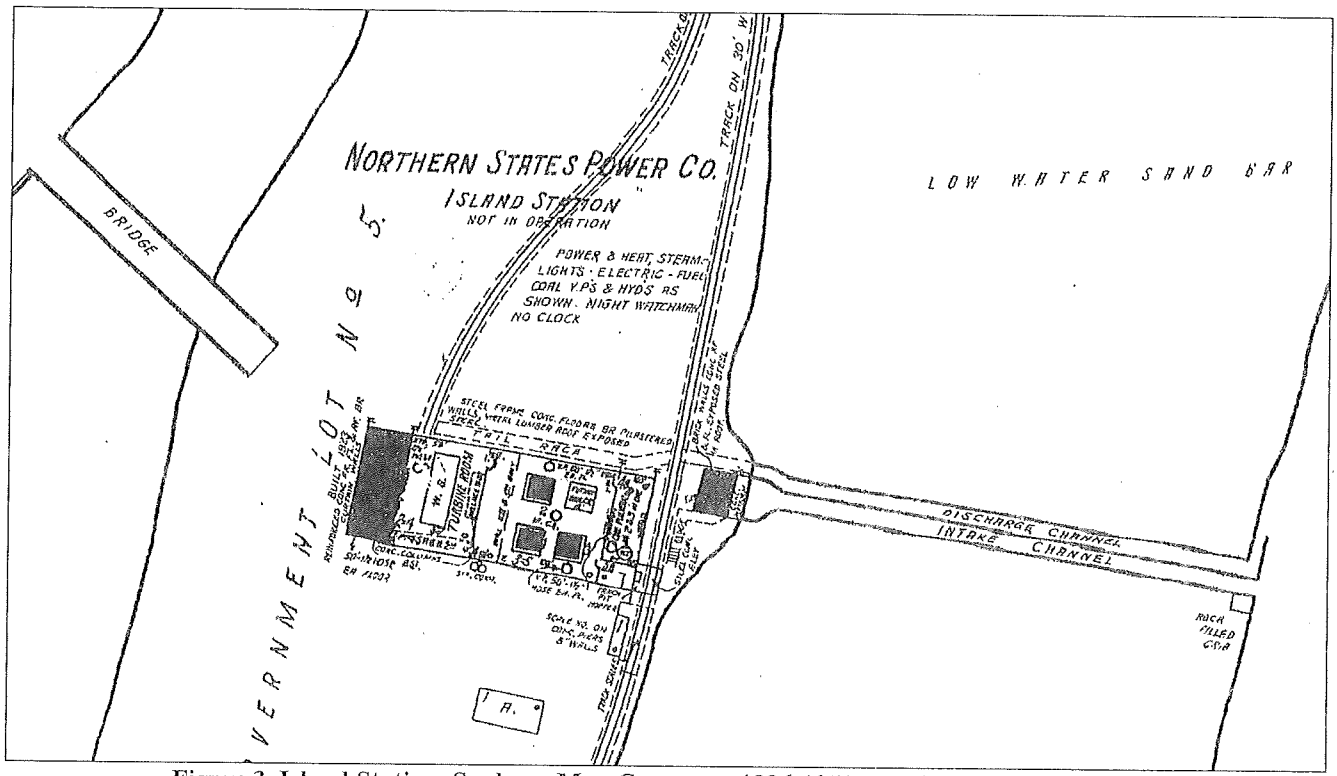

Figure 3. Island Station, Sanborn Map Company, 1926-1951, vol. 1, Sheet 34. Detail of plant and site.

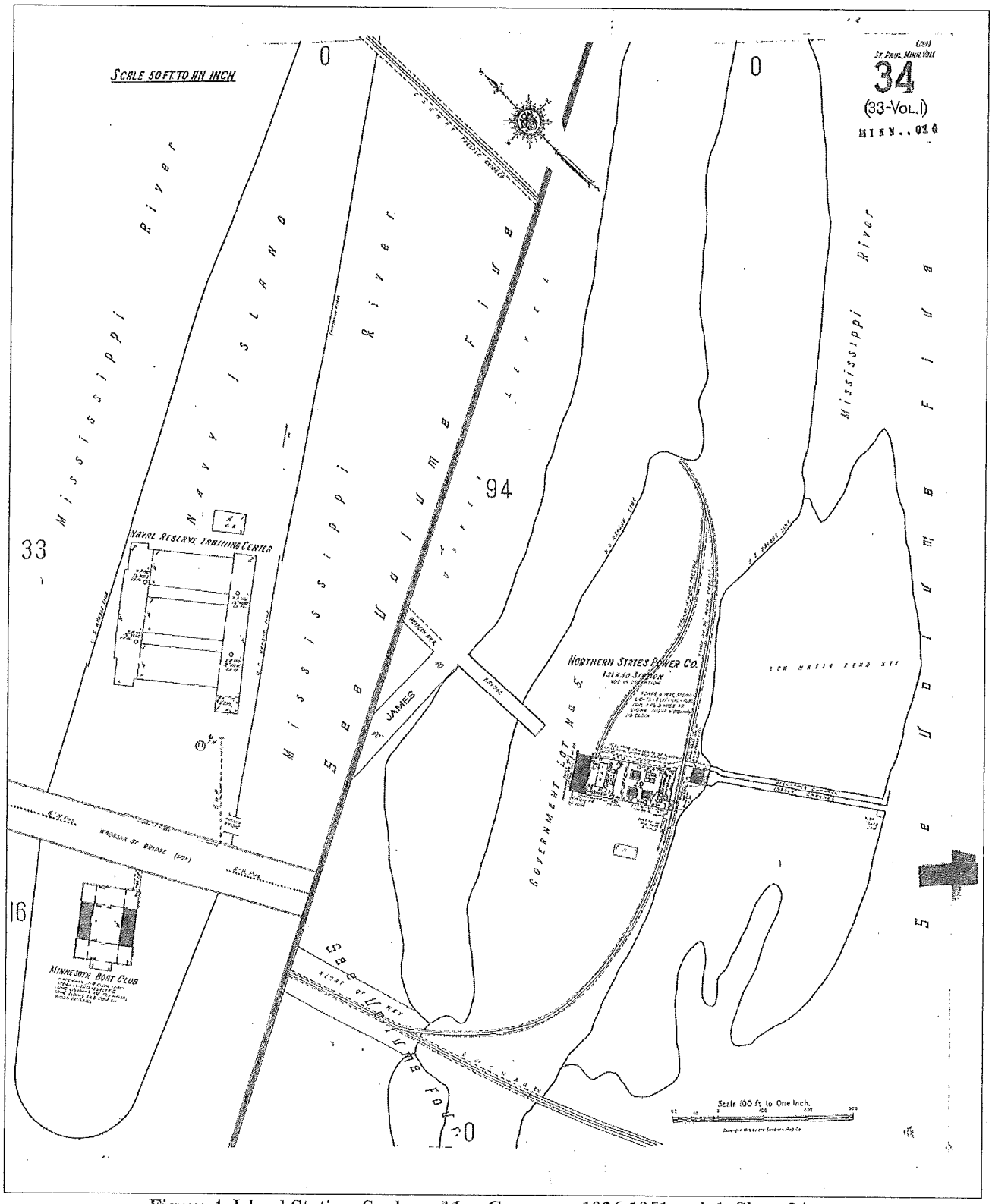

Figure 4. Island Station, Sanborn Map Company, 1926-1951, vol. 1, Sheet 34.

4.2 Island Station Engineers and Architects: Toltz, King & Day

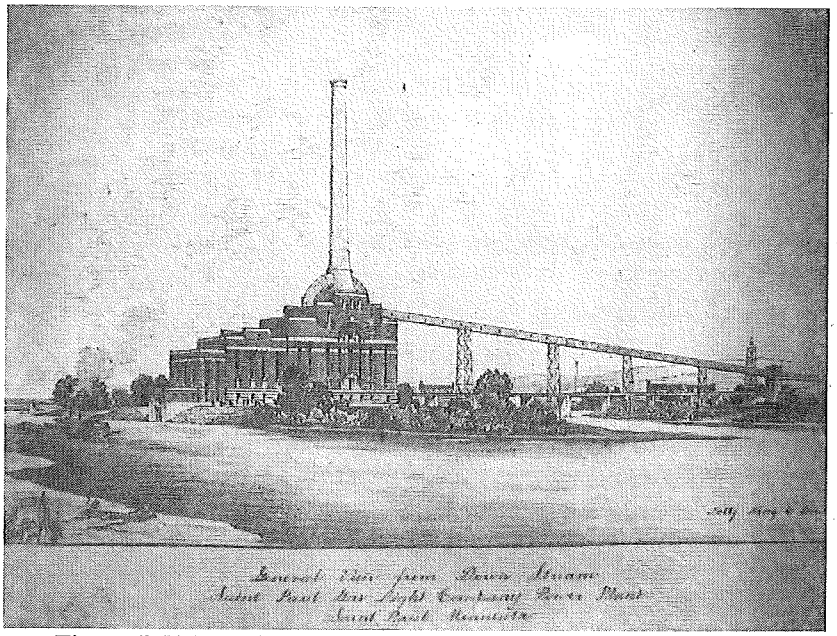

Figure 5. Toltz, King and Day, "Saint Paul Gas Light Company Power Plant," General View, 1923. (NWAA)

The selection of Toltz, King & Day brought a highly experienced firm to the task of designing the $1.6 million plant (Figure 5). The St. Paul firm was founded in 1910 by civil engineer Maximilian Toltz (1857-1932) and structural engineer Wesley E. King (1879–1959). Architect Beaver Wade Day (1884-1931) joined the firm in 1919. In 1956, the firm changed its name to Toltz, King, Duvall, Anderson, and Associates, with the addition of Arndt Duvall, Gerald Anderson, and employees of the firm. Lathrop calls them "One of the most important architecture and engineering firms in Minnesota." He notes, "the company grew into one of the largest and most successful in the Twin Cities, designing and constructing many bridges, power plants, and commercial buildings of all types" (Lathrop 2010:213). The firm is now TDKA.

Toltz was an 1877 graduate of the Royal Academy of Science and Engineering in Berlin. He arrived in St. Paul in 1882 after working in Germany, Switzerland, and Canada. He was chief engineer with the St. Paul, Minneapolis, and Manitoba Railway (later the Great Northern Railway). King was a 1905 graduate of the University of Minnesota with previous experience with the Bridge Department of the Great Northern. Day was a North Dakota native and graduated from the University of Pennsylvania in 1908. His previous experience was with the office of architect Allen Stem of St. Paul (1908-1919; NWAA).

During the period when Island Station was in design and under construction, the firm completed many types of projects in the Upper Midwest, including factories, power plants, schools, courthouses, and railroad and office buildings. They were lauded for bridge design, including the multi-span, reinforced concrete, 1,500-foot-long Robert Street Bridge in St. Paul (1926; NRHP). Notable engineering and/or architectural commissions include the Como Park Conservatory (1915; NRHP), Hamm Building (1920, staff architect Roy Childs Jones, NRHP); Stearns County Courthouse and Jail (1920; NRHP); structural work for the St. Paul Union Depot (1923; NRHP), and the Krank Building (1926; NRHP). About the time of the Island Station project, the firm was also completing the Flaxilinum Insulation Company Power Plant in St. Paul (1923), the Louis F.

Dow Company Building in St. Paul (1923), the First Merchants State Bank in Fargo, North Dakota (1924), and the Moorhead, Minnesota Power Plant (1925; NWAA).

George Grant Construction was hired for Island Station foundation work, and Siems, Helmers and Schaffner were general contractors. Construction took place between March 1, 1923, and November 24, 1924, when the plant was placed in service (Phelps 1984:8-3; *SPPP* 24 April 1925).

4.3 Exterior Description

The following description is based on very limited exterior building inspection (see Section 2.1); completion photographs, ca. 1923-24; architectural plans by Toltz, King & Day on file at the Northwest Architectural Archives. Much of the following description was developed for the "Island Power Plant National Register Nomination (Draft)," on file, State Historic Preservation Office, St. Paul (Phelps 1984). The building is oriented southeast; for purposes of this description the river-facing elevation is described as "south" and the elevation facing Shepard Road is "north."

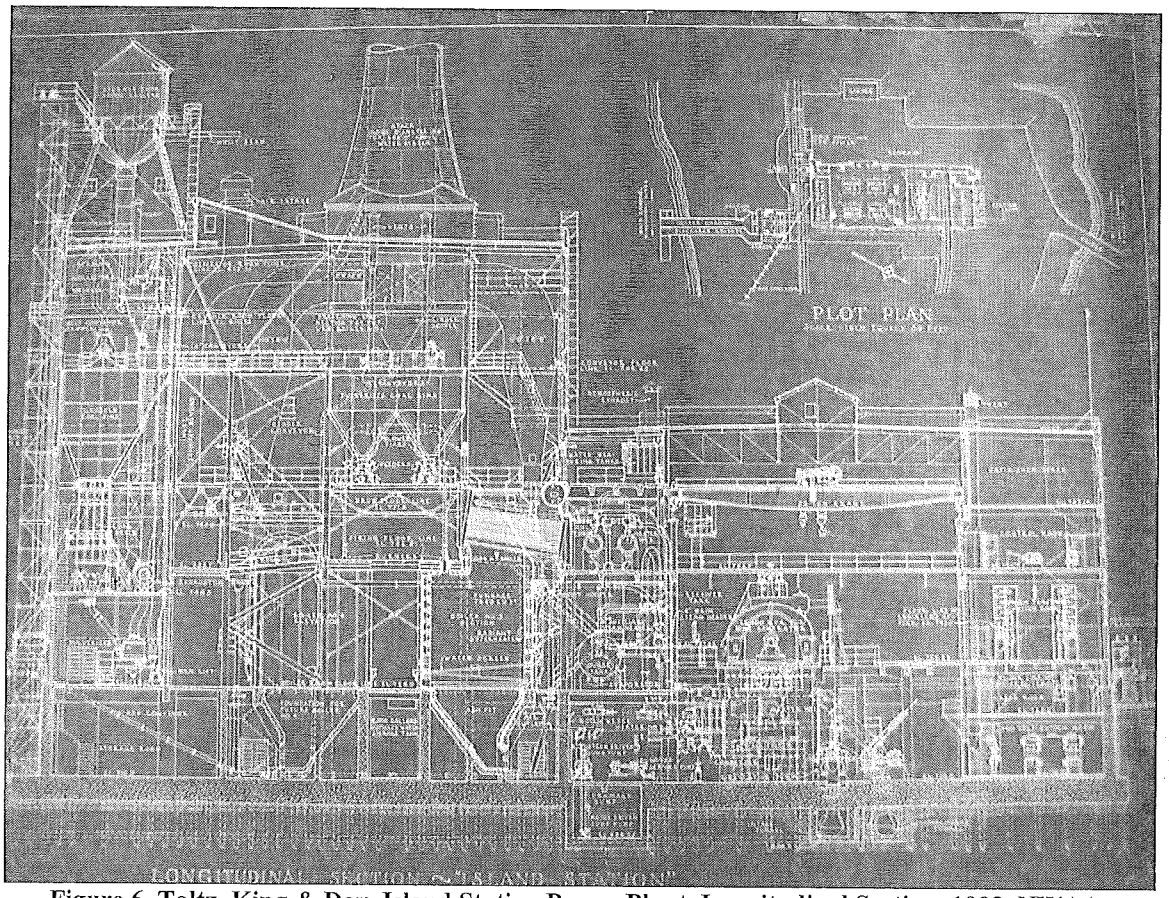

Figure 6. Toltz, King & Day, Island Station Power Plant, Longitudinal Section, 1923. NWAA.

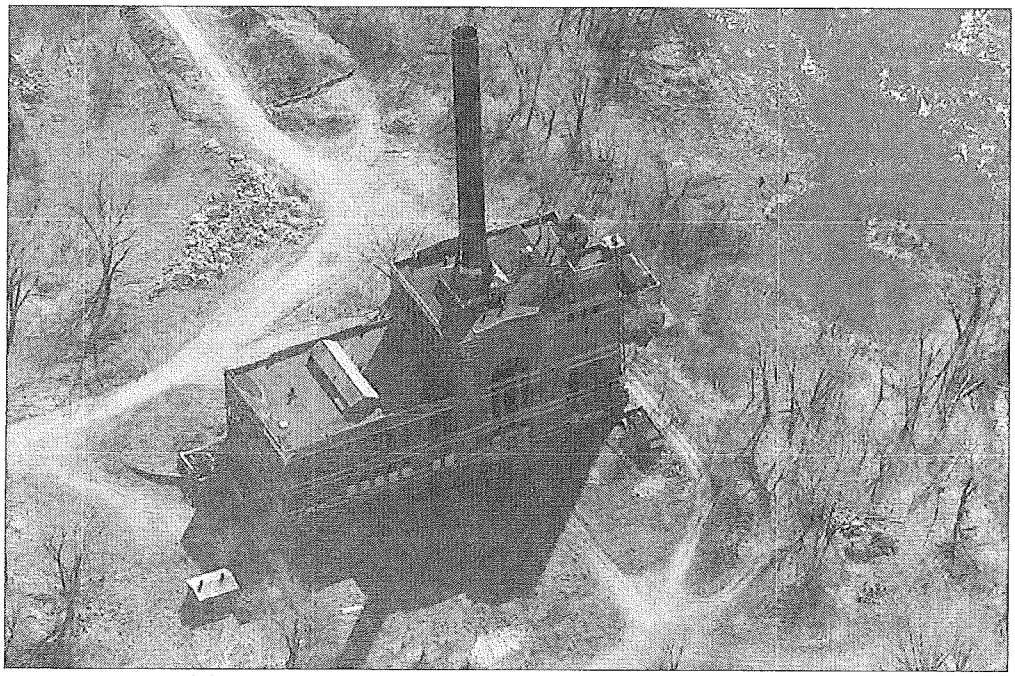

Figure 7. Island Station, looking northeast, 2012. (Bing)

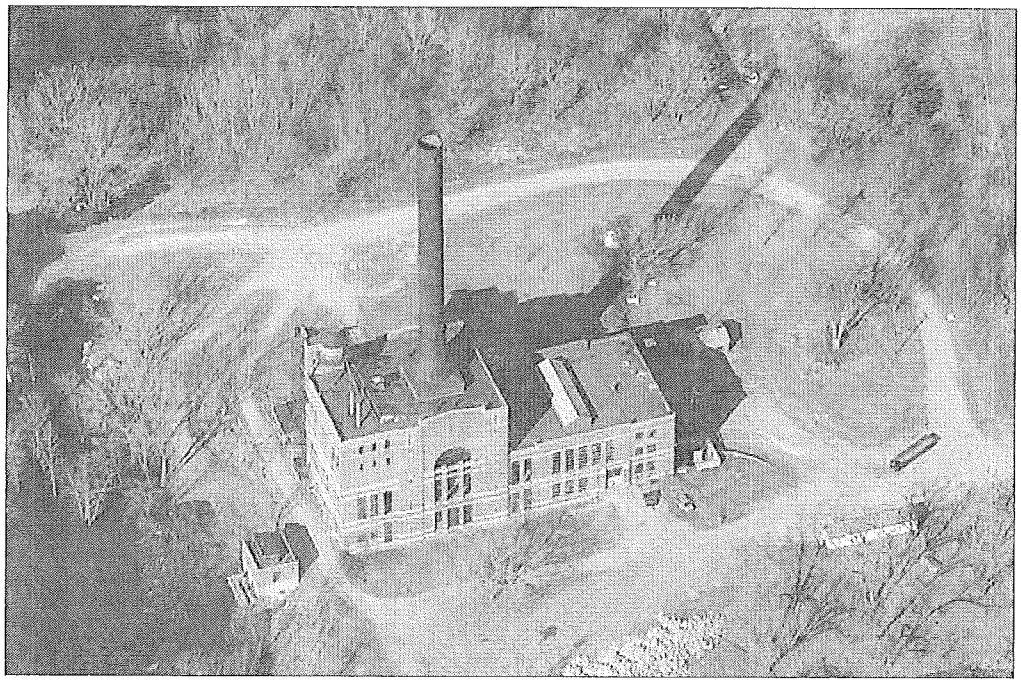

Figure 8. Island Station, looking northwest, 2012. (Bing)

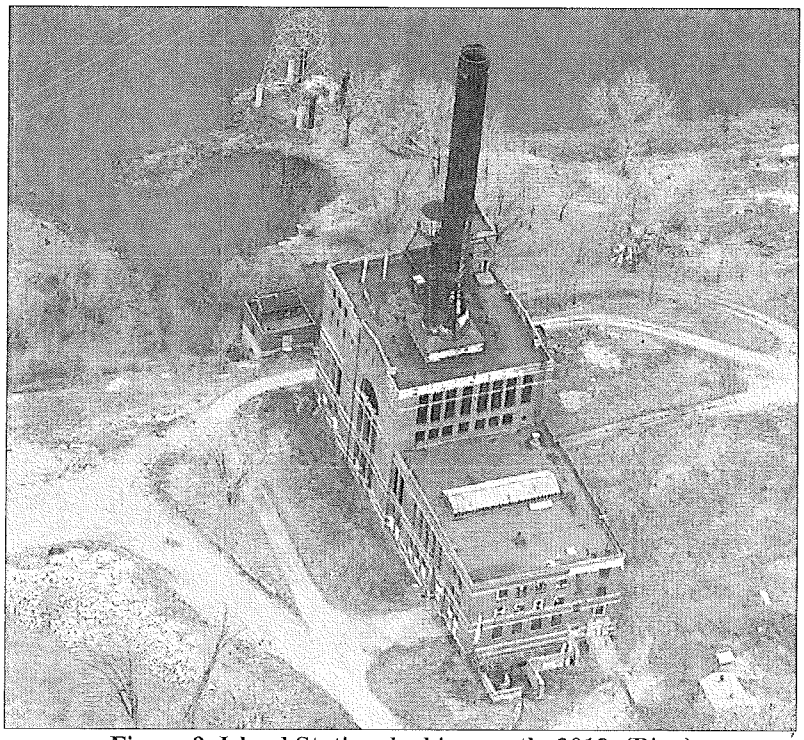

Figure 9. Island Station, looking south, 2012. (Bing)

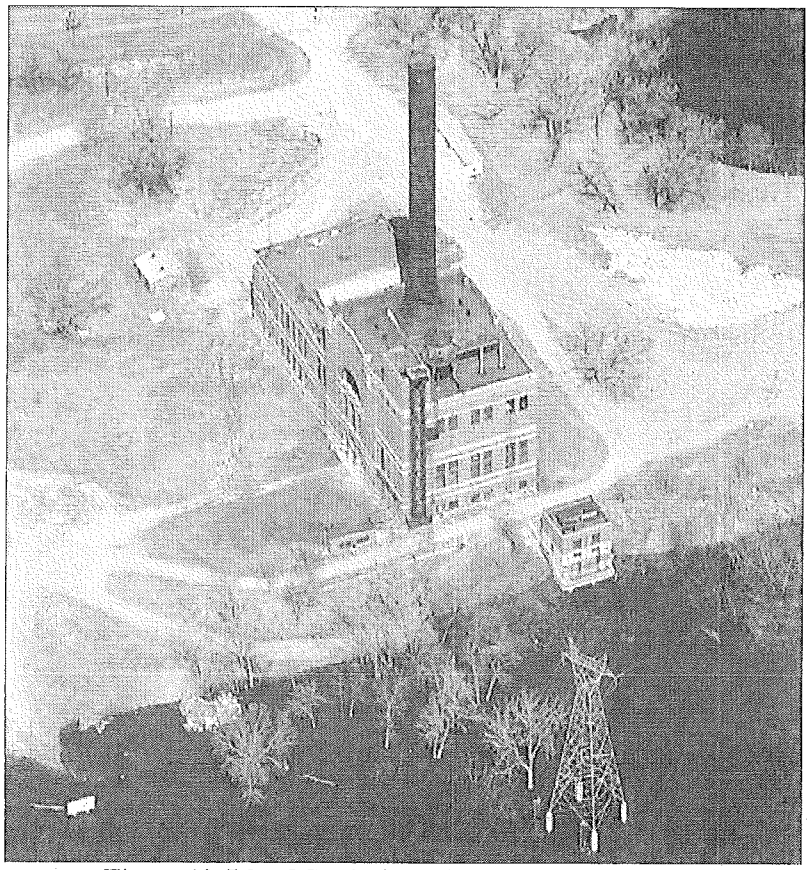

Figure 10. Island Station, looking north, 2012. (Bing)

The plant structure rests on a concrete slab supported by more than 1,400 wooden piles. A one-foot poured concrete base slab surmounts four feet of concrete reinforced with 140 tons of steel that comprises the plant foundation. Sidewalls of reinforced concrete 24 inches thick rise from the second slab 19 feet on the river-facing (south) elevation and 24.5 feet on the north elevation. A waterproof membrane covered these walls and was protected by a backfilled, four-foot brick wall.

The building is 227 feet long and 89 feet wide, with a stepped roofline 97.6 feet high running horizontally from the river 134 feet to near the center of the plant. Here it drops vertically to 61.7 feet and runs horizontally to the building's north terminus. No major alterations have been made to original dimensions.

The building exterior is articulated as four sections—coal preparation and pulverizing at the south end, followed by boiler, turbine, and switching sections—corresponding to four interior areas of operation. The exterior is clad in hard burned red brick laid in five-course American bond, with curtain walls of sand-lime faced brick. Each of the four sections are linked by paired white stone beltcourses at three levels.

Most of the building is framed in structural steel; only the switching section is reinforced concrete. The switching section is 30 feet long; the turbine section is 89 feet; the boiler section is 107 feet, and the coal preparation plant is 27 feet. The boiler section and coal preparation plant are 97.6 feet high.

The exterior elevations are united by white stone trim edging the parapet and white stone beltcourses that integrate grouped windows of varying heights and dimensions. On the north elevation corresponding to the switching section there are six bays with square windows divided by beltcourses. On the lateral walls of the switching section, two bays of four windows each are similarly divided. The sashes in this section were Lupton sidewalls with central pivoting ventilators operated from the floor by a chain and spring catch (Phelps 1984:7-1). Here, and elsewhere throughout the building, there has been extensive loss of glazing although some metal sash remains. The extent of missing glazing and exterior trim could not be verified during the study.

A smooth stone enframement surrounds a pair of glazed doors at an entry at the northwest corner of the switching section. A shallow, pitched stone cornice above the entry is surmounted by a stone-trimmed window. The entry is accessed by concrete steps.

Shallow brick piers on the east and west elevations separate the switching section from the turbine room. Five bays filled with multi-paned Pond-wire ribbed windows are bisected by a deep beltcourse and brick panels. On the east side of the plant, two of the bays are filled by a large set of double doors allowing rail access. A shallow parapet wall edges the roofline of the switching section and turbine room; a gable-roofed monitor placed perpendicular to the building's long axis contained three-way prism patent windows.

The boiler section is adjacent to the turbine section of the building and rises nearly 35 feet above the turbine section. It is crowned by a riveted 6-gauge cold rolled steel smokestack lined with common brick. The 289-foot stack, erected by Wilhelm Bros Boiler and Manufacturing Company of Minneapolis, has a maximum diameter of 25 feet and is 15.5 inches in diameter at its top. The rise above the turbine section is accentuated by a brick-banded, round-arch window formerly filled with multi-paned glazing. Slender brick piers rising from the building foundation to the base of the arch divided (missing) panels of multi-paned windows. The sashes in these windows

were also Lupton types with pivoting ventilators. Gun-slit window openings with stone sills accent the piers framing the arch. A trio of three gun-slit windows surmount the arch below a stone-trimmed, slightly pitched parapet wall.

The coal preparation plant occupies the south end of the structure adjacent to the boiler section. Its east and west elevations are comprised of three bays, each filled with rectangular windows at the central and lower level. The upper story is illuminated with small gunslit windows. The bays in the central level are filled with paired rectangular windows, and the upper and lower level bays are filled with paired square windows.

A rectangular brick hopper house for coal storage stands on the roof at the southeast corner of the building. A bucket from a vertical skip hoist with a 130-foot lift attached filled the hopper. A 30,000-gallon storage tank is adjacent to the hopper house. The tank furnished water for plant service and fire protection. Water came from an eight-inch, 300-foot-deep artesian well and was pumped by three Cameron centrifugal pumps.

The south elevation facing the river has four bays. The window openings in the west bay are obscured by a lift extending to the roof. The remaining three bays are filled with paired windows separated by beltcourses.

The material and condition of the existing roof is unknown. The original roof consisted of Barrett's 4-ply, 20-year specific pitch and gravel roofing on a reinforced base. The base for the roof varied. In the turbine section and coal preparation plant, the base consisted of a reinforced gypsum slab poured in place over sheet rock supported by 25-pound standard rails resting directly on cross channels of steel. The base in the boiler room was a concrete slab because calcination of gypsum was feared from breeching radiation. The switching section was built on a reinforced concrete slab base (Phelps 1984:7-2; 7.3).

Interior Plan

The work flow began at the river on the south side of the building where coal was loaded and next proceeded through the coal preparation and pulverizing plant to the boiler section, and then into the turbine section. The switching section controlled the electrical equipment and generation. Water for the condensers received from the intake canal was screened with a traveling water screen in the brick and concrete screen house on the riverbank, and run through a tunnel to the condenser.

The switching section was comprised of five levels. The first contained auxiliary switching equipment; level two, the cable room; level three, the high tension switch room; level four, the control room, battery room, and switchboard repair shops. Level five was unfinished and unoccupied.

The main office was placed between the second and third levels, and the operating engineer's office had windows looking into the turbine room. The first, second, third, and fifth level had unfinished walls, while the control room was finished with salt-glazed brick walls, quarry tile floor, and a plaster ceiling.

The turbine room had only two levels. The upper level contained a 25,000-kw turbo-generator unit and a Whiting four-motor electric overhead 50-ton crane with a 60-foot span and 56-foot lift. The room was finished with a 10-foot wainscoting of salt-glazed brick and steel-clay buffed brick laid to the ceiling. Quarry tile covered the floor. The lower level of the turbine section contained

the room and related condenser equipment along with boiler feed pumps. A light well was placed on each side of a generating unit. A mezzanine subway grating floor around the generating unit supported water heaters, high pressure traps, oil cooler storage, the air ejector, and settling tanks. Irving's Iron Works of New York City produced the subway grating.

The boiler section had five levels or floors serviced by a Lee-Hoff Company 4,000-pound-capacity combined freight and passenger elevator. The first floor or basement contained the ash pits and two 18,000-gallon distilled water storage tanks placed between the ash pits. The second level housed the boiler combustion chambers, evaporator, surge tank, and steam headers. The third or "firing" floor contained boiler meters, master gauges, master and feeder controls, burners, water reservoirs, last stage heaters, condenser and feed water lines, and the boiler room foreman's office. Feeders, feeder blowers, test-coal weighers, and water measuring tanks were found on the fourth floor. The pulverizing fuel conveyors were on the fifth level. The pulverized coal storage bins were suspended between the fourth and fifth levels.

The coal handling and preparation plant had four floors. The basement was devoted to storage and the remaining levels were divided with one fifth of the space consumed by stairways, the coal foreman's office, locker and washrooms, a skip hoist, crushers, and feeders. Most of the second level contained the pulverizers with the exhausters and driers placed above the third level. The fourth level held the crushed-coal belt conveyor, cyclone collectors, and pulverized screw conveyors (Phelps 1984:7-2).

A gable-roofed metal garage of unknown date is located northwest of the plant. There is a brick scale house and car puller near the southwest corner of the building.

4.3.1 Plant Operation

The workflow is documented in drawings and contemporary descriptions of the plant. Much of the following summary was developed for the NRHP Draft Nomination (Phelps 1984) and is supplemented with information from original plans and contemporary engineering journals. Some of the equipment described in 1984 is reported to have been subsequently removed.

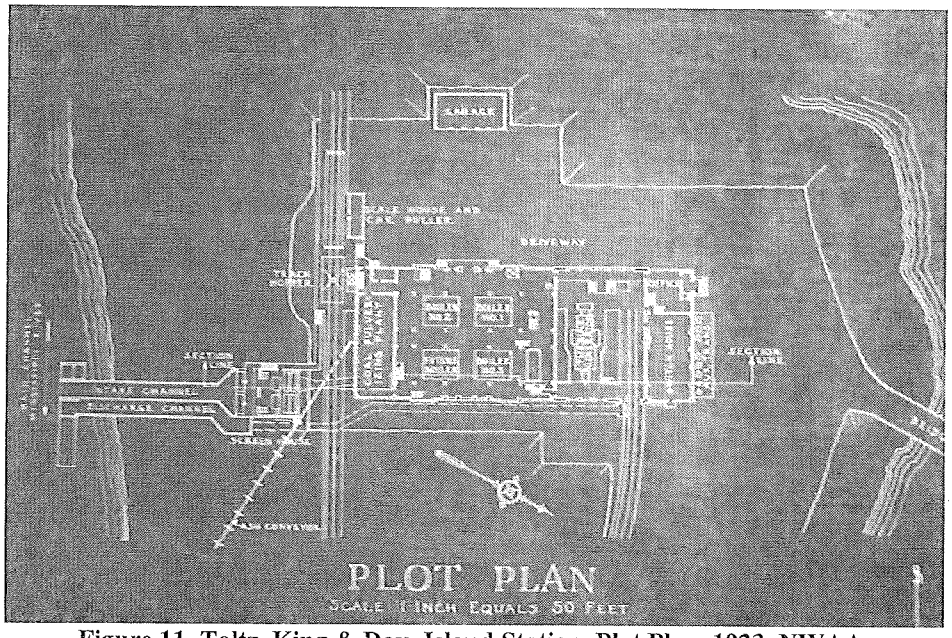

Figure 11. Toltz, King & Day, Island Station, Plot Plan, 1923. NWAA.

A steam-powered turbine, fueled by burning pulverized coal, generated electricity. Coal was delivered over a five-pile bent railroad trestle with switch connections to the Chicago, St. Paul, Minneapolis and Omaha line. The spur wrapped in a semi-circle around the south side of the building and followed along the east side with a wishbone switchback to the turbine room. A motor-driven cable car puller moved drop-bottom coal cars to a track scale on the east side of the building. Coal was next dumped into a concrete pit where it was delivered by the bucket attached to a 130-foot Beaumont Company Lift to a hopper on the roof of the coal preparation plant. A reciprocating feeder took the coal from the hopper to a belt over a pulley-type magnetic separator to a "grizzly." The fine coal was separated in the grizzly and the coarse coal passed over on its way to a crusher. Conveyors transferred the fine and crushed coal to three 200-ton coal storage bins. (Before coal entered the coke oven, it was screened to 2 inches or less.) Once sized, different types were mixed and pulverized by the crusher to fit through a 1/8-inch screen. The Island Station crusher had 1.5- inch pyramid teeth.

Coal from the bins next descended directly through two Lopuco "Wood type" driers fed by flue gas from the boiler and returned to the flue by a parallel duct. The dry coal was gravity-fed to the Raymond-impact, low-side pulverizers at a rate of six tons per hour. A low-pressure air system picked up the fine pulverized coal and elevated it 80 feet to collectors where the air was removed. The pulverized coal next dropped from the collectors to a screw conveyor, which took the pulverized coal to three, 75-ton capacity storage bins. These bins were placed above three Heine-type "M.C." cross-drum, three-pass, inclined baffle-water tube boilers (Phelps 1984:7-2).

Boiler Construction

Each boiler contained 520 tubes, 20 feet in length and 3½ inches on diameter with a total heating surface of 10,440 square feet. The boilers were designed for 325 pounds of pressure, which gave a total steam temperature of 650 degrees F. The boilers were fed by water from either the artesian well or from an intake tunnel running from the river on the east side of the plant. A hopper bottom chamber below the boilers had a volume of 10,420 cubic feet separated into a 2,680 cubic foot ash pit and a 7,440 cubic foot combustion chamber. The entire combustion chamber was contained in a steel casting lined with 22 inches of fire brick and silocell. Burners entered the combustion chamber vertically.

A Lopuco duplex screw feeder removed coal from the 75-ton storage bins and delivered it to mixing chambers supplied with air by two low pressure blowers. The air and coal were mixed by revolving paddles and blown through Lopulco burners into the combustion chamber. A Girtanner jet conveyor removed ashes and refuse from the combustion chamber and deposited on the river flat.

Steam from the boilers powered the turbine attached to the generator. The turbine was a Westinghouse straight-flow reaction type with low-pressure blading designed for bleeding at four points. It operated at 275 pounds of pressure with 650 degrees F. total steam temperature and was cooled by air drawn from a condenser room. Also, water cooled the turbine's oil before being dumped. The Westinghouse generator with a 25,000-kw capacity connected directly to the turbine.

A Westinghouse two-pass surface condenser with a cooling surface of 25,000 square feet received steam directly from the turbine. Condenser cooling water came from the main channel of the river. Two LeBlanc two-stage steam jet surface condenser type air ejectors removed air, and the condenser water ran back to the river. The intake and outtake tunnels to and from the condenser had parallel gates to permit recirculation of the water to keep channels free from ice.

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5.0 HISTORIC CONTEXT:
The St. Paul Gas Light Company and Electric-Steam Power Generation in Early Twentieth-Century St. Paul

At the time of Island Station's completion in 1924, the St. Paul Gas Light Company had been associated with gas and electric production for more than 40 years. Emerson McMillin & Co. and its American Light and Traction Company of New York had owned the St. Paul firm since 1895. The company's name, however, had remained unchanged since 1856. The original charter granted the right to construct a coal gasification plant to supply the City of St. Paul and its citizens with illuminating gas for lamps and street lights.

The manufacturing process for gas was well understood in the United States by the late eighteenth century, and the first gas company was incorporated in Baltimore, Maryland in 1816 (Hershmann 1948:78). Coal gasification plants converted raw coal into gas piped to customers through gas mains installed in city streets.

5.1 Pioneer Period, 1856-1882

The prominent incorporators of the St. Paul Gas Light Company were Alexander Ramsey, Edmund Rice, Charles Oaks, William L. Banning, and Joseph (James) Hoy. Ramsey, who served as the first company president, was the first territorial governor of Minnesota and Rice was a member of the 1851 territorial legislature and also president of the St. Paul and Pacific Railway. Oaks would become a partner in the St. Paul banking firm Borup and Oaks, and Banning was a Philadelphia legislator, banker, and lawyer. Hoy, a resident of Trenton, New Jersey, was a partner with Gregory A. Perdicaris in Perdicaris & Hoy, gasworks contractors (Trenton City Directory 1859: 167). Henry Sibley, Minnesota's first governor, became company president in 1867 and served until his death in 1891 (Meyer 1957:10).

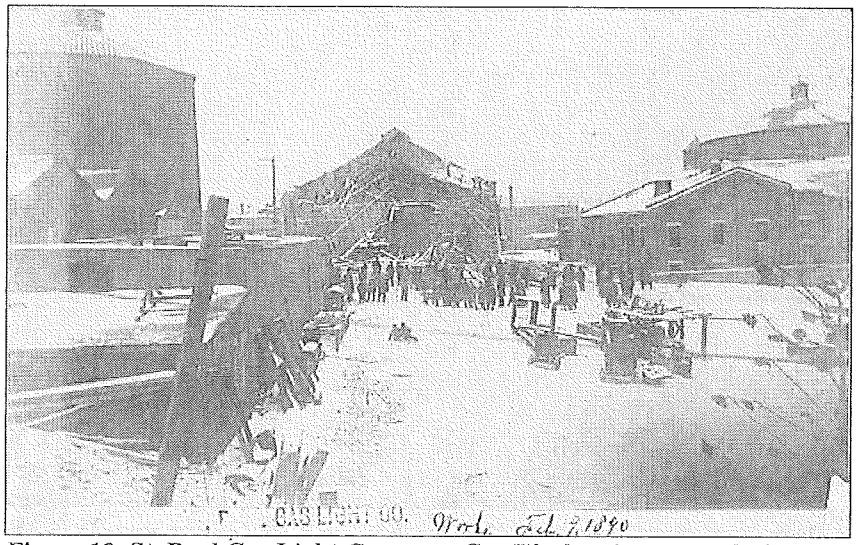

Figure 12. St. Paul Gas Light Company Gas Works after an explosion, 5th and John streets, February 9, 1890.

Perdicaris and Hoy constructed the company's gas works at 5th and John streets in 1857. The plant was put in operation during a severe point in the Panic of 1857 (Meyer 1957:8; Williams 1876:381). The facility produced about 15,000 cubic feet of gas per day and initially served fewer than 100 customers (*SPPP* 4 Dec 1924). The plant complex included a 30- by 54-foot generating

room, a 27- by 29-foot purifying house, a 13- by 13-foot office and meter room, and a 40,000-cubic-foot storage tank. The City of St. Paul contracted with St. Paul Gas Light Company to supply 155 gas lamps, but only 60 were installed by 1861 (Phelps 1984:8; Meyer 1957:8). The firm struggled through the 1860s and early 1870s, despite extension of the initial system of gas mains to the old State Capitol and along St. Peter and Summit Avenues (Phelps 1984:8). Business increased, however, and by 1873 there were 160 street lamps. Gas mains reached up Fort Road to Ramsey Street and by 1879 the company operated "20 miles of mains, generated 25 million cubic feet of gas, consumed over 3,500 tons of coal and employed 25 to 40 men depending on the season" (Phelps 1984:8-1).

During the poor economy of the early 1870s, one characterized by financial depression and industrial bankruptcies yet a need for improved public works and utilities, investors in firms such as St. Paul Gas Light Company managed to capture lucrative government contracts. Under the leadership of Henry Sibley, the St. Paul Gas Light Company "acquired both exclusive privileges in city contracting and virtually unlimited powers to determine where and when businesses and residences received wrought iron pipe, gas fittings, and gas and steam services" (Willis 2005:155).

5.2 Electric Service: 1882

The St. Paul Gas Light Company expanded into electric service in 1882, when it acquired an electric arc generator from the Fuller Electric Company of Brooklyn, New York (Meyer 1957:8). In 1885 the St. Paul Gas Light firm built an electric generating plant on Hill Street. This short street extended from Eagle Street and Kellogg Boulevard across a parcel now occupied by the Science Museum (Sanborn 1885:27b; Meyer 1957:9). The area surrounding the plant was occupied by foundries and other riverfront industries. In 1894 the company began a series of acquisitions, beginning with the franchise of the East Side Electric Company. Also in 1894, they acquired the Edison Electric Light and Power Company's seven-year-old plant at College and Cedar Streets (Meyer 1957:8; Sanborn 1904 Sheet 458). In 1896, they purchased the franchise of the West Side Electric Company (Meyer 1957:10). Through this period they offered both alternating and direct current to their customers (Meyer 1957:9).

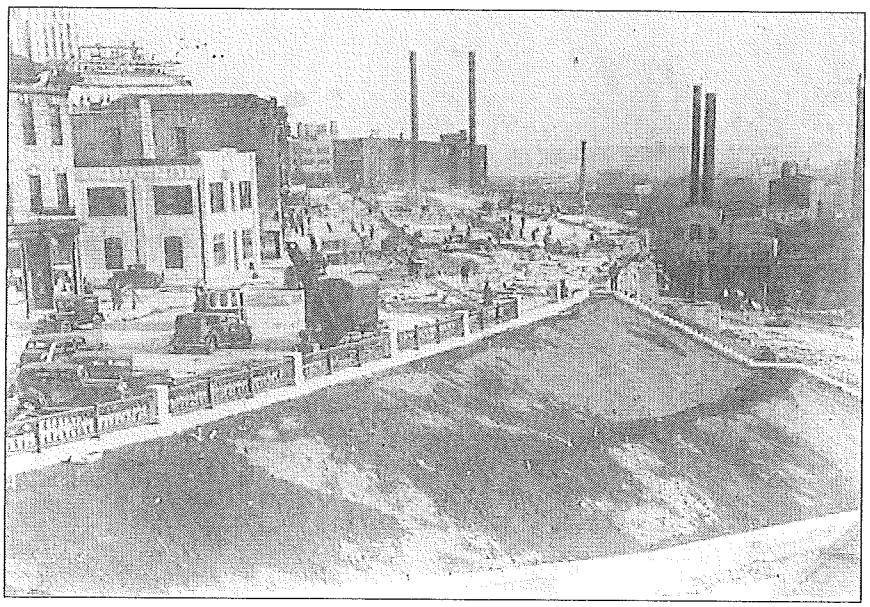

Figure 13. Hill Street Station (1885), at far right below Kellogg Boulevard, 1938.

Company offices occupied a number of locations, including 4th and Jackson streets (1860-1891) and the New York Life Building (1891-1896); between 1919 and 1925 the office was located at 6th and Cedar (Meyer 1957:10).

Downtown St. Paul was served by several other small firms, including the St. Paul Light, Heat and Power Company and the Economy Steam Heat Company. They each provided several large business blocks. St. Paul Light, Heat and Power, on 4th Street between Wabasha and Cedar, was acquired by St. Paul Gas Light in 1894 and was known as the 4th Street Station (Meyer 1957:9). The Hill and 4th Street stations supplied both alternating and direct current and the Hill Street station supplied 500-volt direct current for the St. Paul City Railway (Meyer 1957:9). Hill also served as a steam heating plant, and steam mains and electric cables were tunneled through the sandstone underlying the plant and downtown area (Meyer 1957:9).

Concurrently, the company's customer base for gas expanded with the development of consumer appliances such as stoves. Street light service also initially expanded but gas was gradually being replaced by arc electric systems. In 1884 St. Paul had a total of 905 public street lamps, of which 45 were electric, 345 gas, and 515 oil (Phelps 1984:8-1).

In 1891 company ownership was transferred from local control to financier Henry Villard of New York. In 1893, return to local ownership was headed by Crawford Livingston, James J. Hill, William R. Merriam, and H. M. Byllesby (Meyer 1957:10). This lasted only until 1895, when the company turned over 8,000 of 15,000 company shares to Emerson McMillin & Co. of New York (*Minneapolis Tribune* 2 Nov 1894:6). Emerson McMillin & Co. was among national firms that, like H. M. Byllesby's, consolidated small local energy suppliers into large conglomerates. American Light and Company, an Emerson McMillin & Co. subsidiary formed in 1900, controlled the St. Paul Gas Light Company after that date.

Wrangling over gas rates with customers and the State Board of Equalization and local municipalities was common. In 1894, for example, company president Crawford Livingston defended the Minneapolis Gas Light Company's rates, noting "the popular impression is, I think, that nearly every one uses gas; it is like that other mistaken idea about gas companies, that they are robbers and thieves . . . (*Minneapolis Tribune* 9 Jan 1894:3; 3 Oct 1905:2).

By 1897 the St. Paul Gas Light Company had installed a total of 3,362 street lamps and a number had been abandoned because of conversion to electricity. In 1901, the company unsuccessfully attempted to recover damages from the City of St. Paul on the cost of setting lamps that had been discontinued (St. Paul Gas Light Co. v. St. Paul 1901:181).

5.3 Electrical Expansion, 1900-1925

Electrical capacity increased in 1900 with construction of the St. Croix Power Company's hydroelectric plant at Apple River Falls, Wisconsin (Morton 1900:879). Power was transmitted 28 miles to the St. Paul Gas Light Company's new Cedar Street Substation at 381 Cedar Street between 5th and 6th streets (Phelps 1984:8-2). The Wisconsin plant, like the St. Paul Gas Light Company, was controlled by the American Light and Traction Company of New York. The substation allowed the St. Paul company to connect with a 25,000-volt line from the Wisconsin plant; Meyer notes that the three miles of line extending from Cedar Street were composed of lead-covered cables, one insulated in paper and the other in rubber. He described these as "the highest voltage cables in use anywhere in the world for a number of years" (Meyer 1957:10-11; American Institute of Electrical Engineers 1900:834).

In this period, "although some large buildings in St. Paul had combination steam heat and electric plants and provided electricity to the immediate area, the St. Paul Gas Light Company had no significant competition" (Bradley 2004:10). This would end in 1910, when Consumers Power purchased the Northern Heating and Electric Company, a St. Paul firm that owned a steam plant at 76 Kellogg Boulevard known as the 3rd Street Station (Westbrook 1983:31; Phelps 1984:2).

Although the St. Croix Power Company's plant provided additional electrical capacity, by 1913, it was calculated that nearly 25 percent of the power was lost in transmission (Phelps 1984:8-2). Possibly, with its focus on gas, "some observers noted" that the St. Paul Gas Light Company "did not push the electric business vigorously enough" (Phelps 1984:8-2). This statement, however, does not seem compatible with the investment made in a new plant during 1922-24.

Gas Utility Development

St. Paul Gas Light Company's gas customer base expanded with the growth of the city. In 1914, the National Gas Association sponsored a conference at the Minneapolis Armory that exhibited "new inventions, new ideas, the improvements for lighting, heating and power by gas." More than 14,000 square feet of space featured exhibits for the "housekeeper, the merchanter or the manufacturer . . . including thousands of different lamps, heaters, bake ovens, furnaces, and engines" (*Minneapolis Morning Tribune* 29 No. 1914:D10).

A conflict arose in 1910 over location of a gas storage facility on a 20-acre tract near Randolph Avenue southwest of the High Bridge; the site was deemed by the City Council to be too close to the city's general hospital (*SPPP* 3 Nov 1910). The ordinance prohibiting the facility was repealed in 1913 and the structure was erected (Phelps 1984:8-2; Figures 2, 14, 17).
At this time, 343 miles of gas mains lined St. Paul and annual sales were 1.23 billion cubic feet (Phelps 1984:8-2). The company may have eyed expansion of its gas capacity: in 1915 the Western State Coke Company announced that it would build a gas plant on a 50-acre tract in the St. Paul Midway. One source noted, "it is asserted that gas will be furnished to the St. Paul Gas Light Company" (*Minneapolis Morning Tribune* 30 Sept 1915:11). This became the Koppers Coke Plant at 1000 Hamline Avenue (razed 1979).

5.4 H. M. Byllesby & Company and Northern States Power

H. M. Byllesby established Byllesby & Co. in 1902. With his partners, H. M. Byllesby's purpose "was to purchase small struggling utility companies and transform them into well-run operations" (Bradley 2004:8). In 1910 Byllesby led the merger of the Washington County Light and Power Co. and the Stillwater Gas and Electric Co. into the Consumer's Power Company (Meyer 1957:12). Northern States Power was initially a holding company and financier for the subsidiary Consumer's Power. Prior to reorganization in 1916 and adoption of the name Northern States Power, Consumer's Power expanded across southern Minnesota to Faribault and Mankato, Minnesota, to Galena, Illinois, and northwest to Fargo, North Dakota. In 1912 Consumers Power acquired the Minneapolis General Electric Company. In 1915, the company relocated its general office from Chicago to Minneapolis. During this period they also constructed transmission lines to its market areas and added two units to their Riverside plant in Minneapolis. A 4,000-kw steam turbine was added to the 3rd Street Station (Meyer 1957:11).

Reorganization in 1916 included adoption of the name Northern States Power Company and financial restructuring. Byllesby & Co. remained the parent of NSP (Meyer 1957:157; Bradley 2004:9). In this period, St. Paul Gas Light Company continued to provide electric power to St. Paul, along with NSP. St. Paul Gas Light, with the larger customer base, purchased power from

NSP, but NSP limited the amount to 15,000 kw. Meyer characterized the competition between the firms as intense (1957:12, 13).

Such consolidation was typical of the early twentieth century across the United States. The many small independent electric companies that proliferated during the late nineteenth century were incorporated into larger firms resulting in more economy of scale. Across the river in Minneapolis, by 1893 the Minneapolis General Electric Company (MGE) absorbed the Minnesota Brush Electric Company, the West Side Power Company and the Minneapolis Electric Light and Power Company as well as properties of the Minneapolis Electric Subway Company (Meyer 1957:3; Stark 2005:8).

5.5 NSP High Bridge Plant

In 1922 NSP announced plans for a new High Bridge Plant because the demand for power taxed all of its facilities, including those at the Riverside Plant and Main Street Station in Minneapolis as well as its 3rd Street Steam Plant in St. Paul (Bradley 2004:10). The $5,000,000 plant, designed by the Byllesby Engineering & Management Corporation, was part of an $ 80,000,000, 10-year-development program that would triple the amount of power available to the Twin Cities (Bradley 2004:10, 20). Transmission lines linked the new plant and existing plants, allowing them to act as reserve suppliers and ensuring cost saving and continuity of service. The High Bridge Plant was one of six placed in service by Byllesby & Co. in 1924, including those in Oklahoma and Washington (*Byllesby Monthly News* Feb 1925:cover).

Bradley observes, "Simplicity, economy, and convenience, rather than the use of the newest and most expensive equipment, guided planning for the [NSP] plant. Its design drew upon standard plans for spaces and equipment arrangements adopted by Byllesby & Co. The engineers decided to use mechanical stokers instead of the newer pulverized coal system to feed the boilers" (Bradley 2004:21).

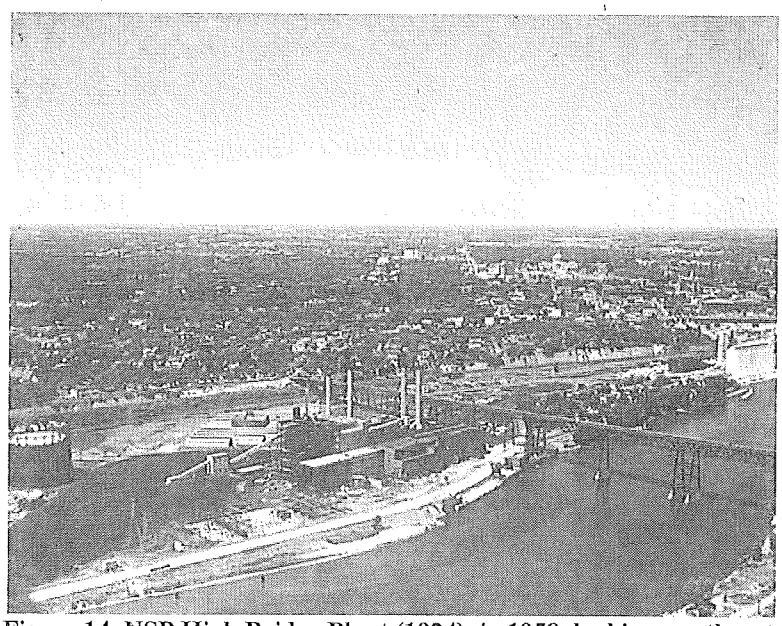

Figure 14. NSP High Bridge Plant (1924), in 1958, looking northeast.

5.6 Island Station Power Plant

Growth of the St. Paul Gas Light Company had been hampered by direct competition from NSP as well as the limit set on electric power that could be purchased from NSP. Phelps notes, "although the Gas Light Company still possessed a majority of St. Paul customers its facilities were unable to meet customer demand. Consequently it began to buy power from NSP through a connection between NSP's Third Street Station and the Hill Street Station. Squabbles arose between the two companies over the power contract," resulting in limits on the amount of power available for sale (Phelps 1984:2-8).

In 1922 the St. Paul Gas Light Company hired Toltz, King & Day to produce plans for its new 25,000-kw Island Station steam plant less than a mile from the NSP High Bridge Plant. Unlike the NSP facility, it was designed to burn pulverized coal, a new technology for steam generation developed in the United States. By 1918, the City of Milwaukee's use of pulverized coal at its 200,000-kw Super-Power Station caught the attention of a national and international audience. Such pulverized fuel was also employed for stationery boilers, steam locomotives, steamships, cement kilns, and many types of steel-manufacturing furnaces (Harvey 1920:89-91). Island Station was designed to burn lignite coal, which was believed to be eight to ten percent less expensive than burning lump coal (*SPPP* 27 Aug 1924).

In 1918, the *EMF Electrical Year Book* noted that pulverized or powdered coal was being used in several large installations, "notably in Milwaukee and Seattle" (EMF 1918: 566). Pulverized coal provided "closer control and better mixing of fuel and air" (EMF 1918: 566). Coal was pulverized to a flour-like fineness, and injected into the furnace under high pressure along with heated air. Preparation of coal for pulverizing required extensive equipment, which limited the use of pulverized coal to large boiler rooms.

However, the high cost of the initial installation, difficulty disposing and removing the molten ash and eliminating ash dust, and danger of explosion were among potential problems of the new technology (Harvey 1920:94). Because of the additional cost of building a pulverized coal plant, one English engineer speculated in 1920 that until more plants giving "successful and economical results" in England and in Europe were seen in operation, the "real expansion and general use of pulverized coal will perhaps be somewhat slow" (Harvey 1920:95).

Neverthless, the *St. Paul Pioneer Press* described pulverized coal as one of the "latest advances in steam engineering" (*SPPP* 4 Dec 1924). Wesley King of Toltz, King & Day predicted, "the plant will be one of the most modern in the United States, representing engineering practice not found in more than ten steam-electric plants in the country" (*SPD* 29 May 1923). According to the *St. Paul Dispatch,* the initial construction was to be the first unit of a plant planned to eventually produce 100,000 kw.

Construction took place between March 1, 1923, and December 1, 1924, when the plant was placed in service (Phelps 1984:8-3; *SPPP* 24 April 1925). Construction cost was estimated at between $1,125,000 and $1,500,000 (*SPPP* 21 Dec 1924). The company boasted, "fifty-two million gallons of water, more than twice as much as the entire city uses through the city water department, passes through the new Island plant" (*SPPP* 21 Dec 1924).

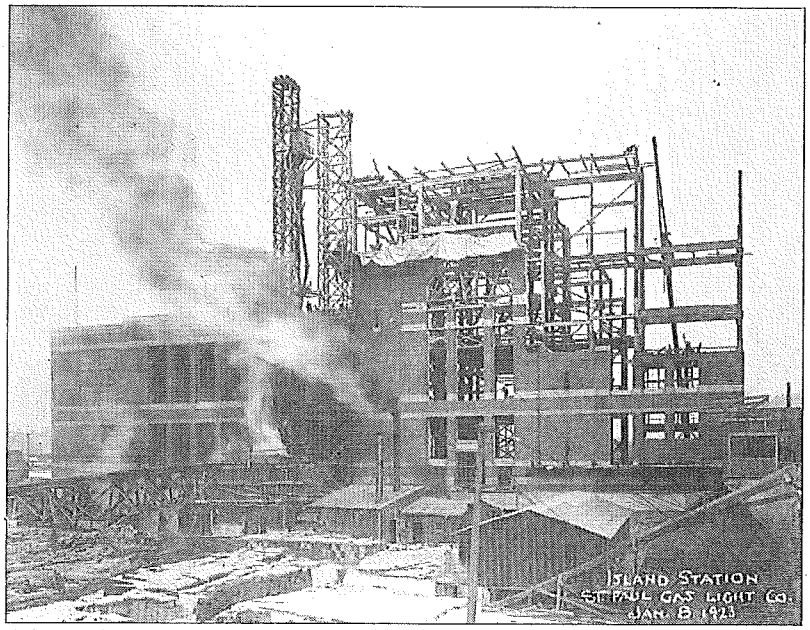

Figure 15. Island Station construction, looking east, January 8, 1923.

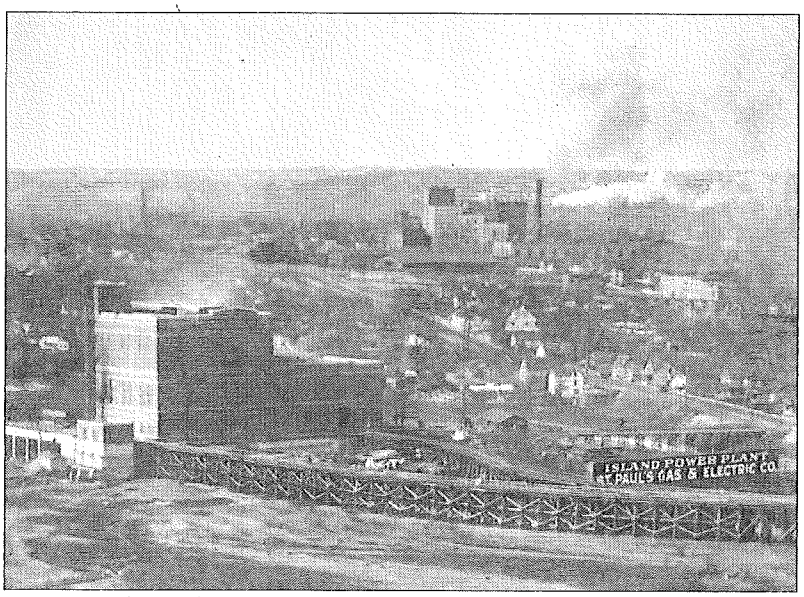

Figure 16. Island Power Plant Station construction, looking northwest, ca. 1924. (NWAA)

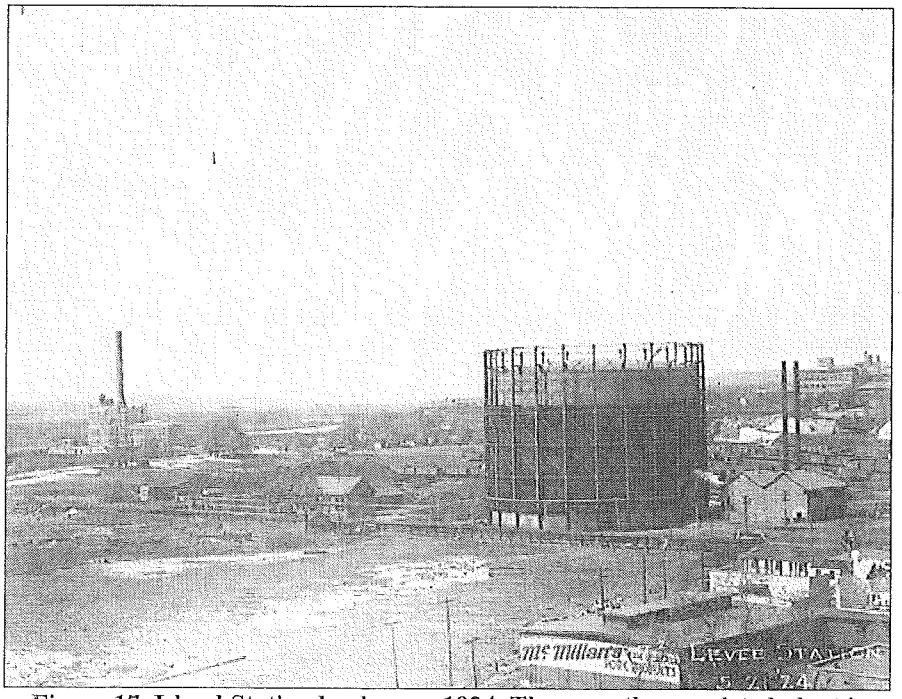

Figure 17. Island Station landscape, 1924. The recently completed plant is in the background at right; the St. Paul Gas Light Company gas storage facility is in the foreground, along with the McMillan pork packing plant.

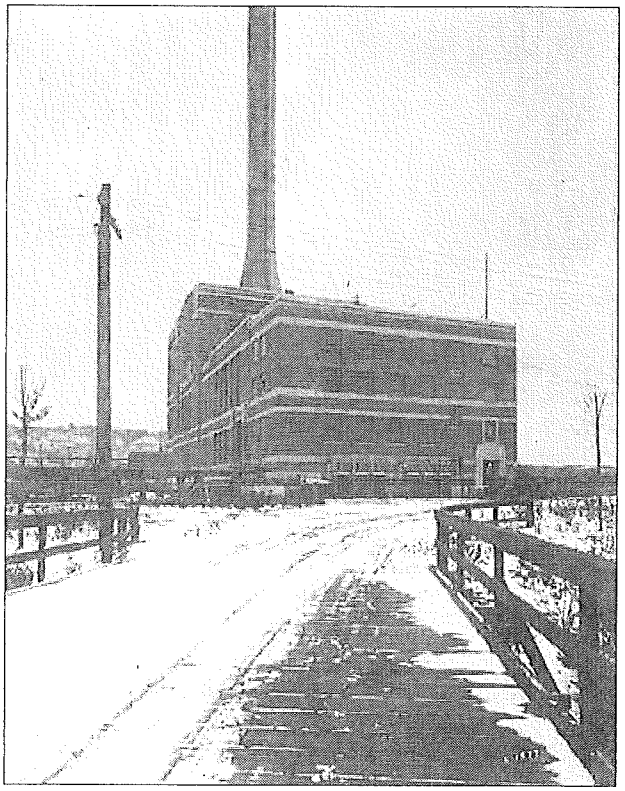

Figure 18. Island Station from plant bridge, looking south, 1924.

In 1924 the company claimed 47, 933 electric customers and 58, 694 gas customers in St. Paul, calling itself "St. Paul's Gas and Electric Company" (*Current-Gas* 1924; *SPPP* 24 April 1925). At the time, the company was characterized as supplying a city of 257,000 "all of the gas service and approximately 70 percent of the electric light and power service" (Phelps 1984:8-3). It employed more than 800 workers, and maintained more than 700 miles of electric lines (*SPD* 4 Dec 1924).

In 1925, its gross earnings were $5,347,165 and net earnings totaled $1,676,741.00 (Phelps 1984:8-3). In April 1925, construction began on the St. Paul Gas Light Company Service Building and Warehouse at Rice and Atwater streets. Also designed by Toltz, King & Day, it was "necessitated by the company's rapid growth" (*Current-Gas* 1925). Other company advertisements featuring the new facility exclaimed "For Better Service and a Bigger St. Paul."

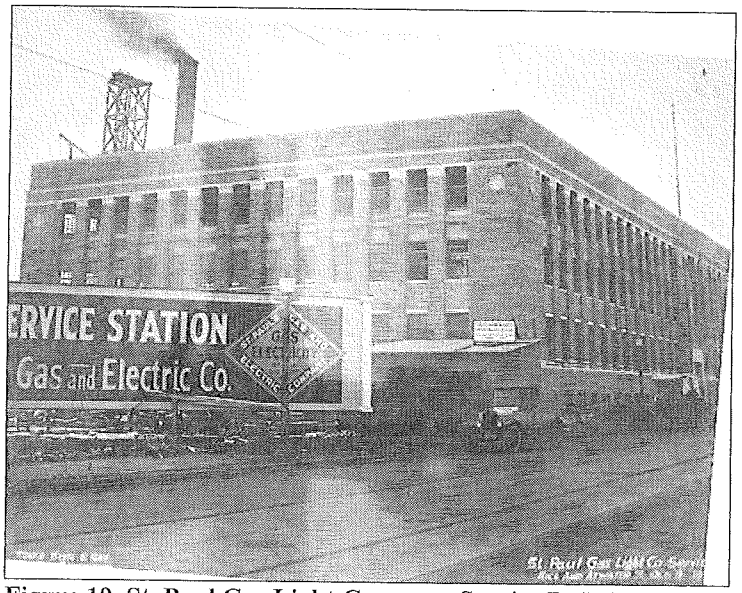

Figure 19. St. Paul Gas Light Company Service Building (1925), Rice and Atwater streets. (NWAA)

At the same time, plans were underway for the construction of a hydropower plant at the High Dam opposite the proposed Ford automotive plant, and the *St. Paul Dispatch* announced that the Island Station Plant and NSP plants, as well as "other numerous other important plants beginning to take form, lent "absolute assurance that St. Paul is on the verge of a great era of industrial development unparalleled in its history" (SPD 27 Dec 1922:1).

On December 31, 1925, NSP acquired the St. Paul Gas Light Company. This was part of NSP's acquisition of a number of small Minnesota power companies, and part of their strategy to purchase, rehabilitate, and build public utility properties. A total of 42 companies were acquired in seven years during the 1920s under Byllesby's leadership (Meyer 1957:150). Between 1926 and decommissioning in 1973 it was used a "subsidiary power plant to supplement increased consumer demand" (Phelps 1984:8-4). Rail coal delivery was replaced by truck shipments from the NSP stockpile.

5.7 The St. Paul Gas Light Company and the Growth of Early Twentieth-Century St. Paul Neighborhoods

> Public utilities before they will increase their output and expend large sums of money to building plants must feel very certain that the future of the city will justify such action. Two splendid examples of confidence in the future of the city are the power plants of the St. Paul Gas Light Company and the Northern States Power Co. Both of these companies foresee a healthy future for St. Paul.
>
> "Evidences of Progress Seen in Every Section of City as Previous Records are Broken," *St. Paul Daily News* 24 August 1924.

St. Paul was built on the foundation of what boosters termed the "Gateway to the Northwest." Throughout the late nineteenth and early twentieth centuries, nine railroads operating twenty-three lines and the Mississippi River funneled agricultural and manufactured products from the hinterland into the city's elevators, warehouses, and factories (*SPPP* 17 Dec 1922:3). Despite a weak economy in the early 1920s, growth as a banking, livestock, manufacturing and warehousing center continued: by December 1922, the *St. Paul Pioneer Press* reported that the freight business was surging and deposits in financial institutions climbed $15 million along with retail business growth (*SPPP* 17 Dec 1922:2). The percentage of construction for manufacturing purposes rose from 10 percent in 1920 to 57 percent in 1923 (*SPDN* 24 Aug 1924). The steep increase in population during the late nineteenth century (from 41,473 in 1880 to 133,156 in 1890, for example), had tempered between 1910 and 1920 following World War I. Population growth resumed during the 1920s, rising from 234,698 in 1920 to 271,606 in 1930.

The decision to expand the American Light and Traction Company's St. Paul Gas Light subsidiary with the new Island Station electric-steam plant was supported by what the *St. Paul Pioneer Press* called "the Dawning of General Prosperity" (*SPPP* 23 Dec 1922). Nearly 900 manufacturing plants produced $250 million in products for U. S. and international markets. Printing and publishing, boots and shoe manufacture, dairy and livestock products, furs, and foundries and machine shops accounted for much of the total. The *Pioneer Press* reported that at the end of 1922 "there was a renewed confidence in business on the part of manufacturers and jobbers" (*SPPP* 23 Dec 1922).

In 1923, amidst reports that a $5-billion dollar building boom was forecast for the United States, St. Paul newspapers outlined the need for more electricity, especially to fuel electric conveniences (*SPPP* 4 March 1923:7). "The public wants electricity," noted one writer, outlining the demand for improved illumination and labor-saving appliances such as electric ranges and ironing and washing machines (*SPPP* 4 March 1923:7). The builders of new homes, according to the *Pioneer Press*, were taking an interest in the homes "they are about to construct, and making intensive studies of the situation as regards wiring and electrical equipment; they are becoming electrically-wise" (*SPPP* 4 March 1923:7).

The installation of electric streetcar lines and public utilities traced the development of the city's neighborhoods. In 1920, 17 percent of the city's population lived within a mile of downtown; by 1930, this figure fell to 11 percent (Zellie and Peterson 2001:18). In October 1923 it was reported that about 200 building permits for dwellings had been issued per month over the past 20 months, with a corresponding surge in telephone and utility installations. Home ownership continued its gradual increase, with 46 percent of residents owning homes (*SPPP* 12 Oct 1923:8).

Neighborhood retail interests in the outlying sections of the city, housing "grocers, meat dealers, druggists and small dry goods merchants" were housed in new buildings, with "up-to-date

lighting systems and window displays that add greatly to the attractiveness of the neighborhood" (*SPPP* 17 Dec 1922:5). Also in late 1923, newspaper reports of new construction in the western section of the city praised the "New District" around the Ford Motor Company's new plant for transportation and utility improvements that were transforming a "wilderness" into a "city-like section" (*SPPP* 21 Oct 1923:9). This area is now Highland Park. The company was granted a temporary permit for use of the high dam, the first step in the process of hydroelectric plant-building, on March 3, 1923 (McMahon 2007:11). With construction of the plant, 8,000 jobs were predicted to increase the city's population by 25,000 (*SPDN* 24 Aug 1924).

The plant spurred what was called the "greatest building campaign in the history of the Twin Cities" and several thousand building lots were platted around the automotive plant nucleus at Ford Parkway and Mississippi River Boulevard. Realtor Den E. Lane was the leader in marketing the area, putting more than 600 acres on the market in 1925. The prospect of such development and thousands of new customers was likely a leading factor encouraging the American Light and Traction Company and its St. Paul Gas Light Company subsidiary to invest in its new plant, although the investment would prove to be short-lived. In August 1924 Island Station advertised in the *St. Paul Daily News* with photographs of the new plant and captioned, "our city is growing, added demands are being made for service—we are prepared to meet these demands and in addition hereto assure our patrons of the best of service" (*SPDN* 24 Aug 1924).

5.8 Island Station, 1925-2012

NSP acquired Island Station in December 1925 and operated it on a standby basis. NSP's need for increased electrical power during and after World War II was met by their enlargement of the High Bridge and Riverside plants, and by addition of the Black Dog plant as well as additional substations and transmission lines (Meyer 1957:157; Bradley 2004:9).

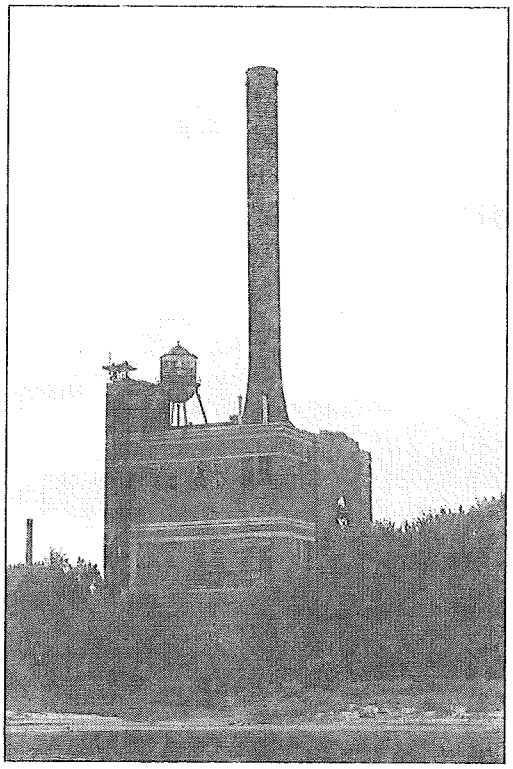

Figure 20. Island Station, looking northwest, 8/17/12. (Christine Boulware)

NSP decommissioned Island Station in 1973. In 1985 John Kerwin purchased the property and initially proposed a phased development including a 100-unit rental conversion, 20 townhouses, and some commercial use (Barge 1985:14). He also converted a portion of the plant into artist studio space. Island Station LLC purchased the property in 2003 and SpringPointe Development Inc. proposed a 235-unit condominium with a 20-slip marina. The project stalled and Breckner River Development LLC purchased the plant in 2003. Current plans are for redevelopment of the site. In October 2012, the St. Paul City Council adopted an interim ordinance prohibiting issuance of City permits pending the current study of the station's historic significance and the adoption of the Great River Passage Master Plan by the City Council. In the interim, the plant building and river setting have been the focus of significant public attention as the site is a component of the City of St. Paul's *Great River Passage: A Master Plan for Saint Paul's 17 Miles of Mississippi River Parklands* (City of St. Paul 2012).

In recent years, Island Station has been the subject of many University of Minnesota College of Design architecture and landscape architecture student design studios (Ross 2009; Traucht 2009). It is also the focus of blogs and online photographic essays by interested community members and the subject of frequent press updates.

6.0 EVALUATION OF SIGNIFICANCE

St. Paul Heritage Preservation Commission and National Register criteria were used to assess the significance of Island Station. Statements of the findings of the research and historic context development are provided below each criterion.

At Island Station, the St. Paul Gas Light Company, with Toltz, King & Day, produced a power plant that utilized the area's first application of pulverized coal technology. The large boiler area is testament to the requirements of the pulverization process. One of its designers called it "one of the most modern in the United States, representing a feature not found in more than ten steam-electric plants in the country" (*SPD* 29 May 1923). The plant is otherwise a fairly standard rendition of an electric steam-plant, albeit with a pair of handsome arched windows. The potential utility of the Island Station facility was never fully realized because of its relegation to standby status.

Concurrently, at the High Bridge Plant, Northern States Power, with the Byllesby Engineering & Management Corporation, produced a plant that reflected principles of "simplicity, economy, and convenience, rather than the use of the newest and most expensive equipment . . . The engineers decided to use mechanical stokers instead of the newer pulverized coal system to feed the boilers" (Bradley 2004:21).

Recent studies evaluating the significance of the High Bridge Power Plant (1924, Bradley 2004) and the Riverside Station Power Plant (1911; Stark 2005) distinguish between functional capacity and historical significance. Bradley notes, "virtually all public utility facilities have functional importance. However, only some hydroelectric and steam power generating plants have been landmark events in the electric power industry" (Bradley 2004:23; Stark 2005:24). The Niagara Falls hydropower plant and the Hoover Dam, for example, have historical significance on a national scale, while most historically designated properties achieve significance at the state or local level. Bradley and Stark found that the functional significance of a power plant "may rise to the level of historical significance where the presence of the plant made a significant contribution to the urbanization or industrialization of specific locations" (Stark 2005:25).

6.2 National Register of Historic Places Criteria

The quality of significance in American history, architecture, archeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:

A. That are associated with events that have made a significant contribution to the broad patterns of our history; or

Island Station was part of the St. Paul Gas Light Company's effort to remain competitive in St. Paul in a rapidly consolidating industry. At the time of plant construction, the firm was controlled by the American Light and Traction Company, a subsidiary of owner Emerson McMillin & Co. of New York. The builders of the plant did anticipate the potential for the city's commercial and industrial expansion as well as residential development, but the facility was only operated on a full-time basis for about one year because it was consolidated into the competitive NSP operation. As a part-time, supplemental plant it became part of NSP's effort to expand and modernize their power supply and did not make a significant contribution to the growth of the city. Island Station is therefore not eligible for listing in the NRHP under NRHP Criterion A.

B. That are associated with the lives of significant persons in or past; or

The founders of the St. Paul Gas Light Company were significant in the early gasworks development of St. Paul (1856-) and in its electrical utility development (1882-) but the company passed out of local ownership after 1895 when Emerson McMillin & Co. of New York acquired a majority interest. Emerson McMillin & Co. was among national firms that, like H. M. Byllesby's, consolidated small local energy suppliers into large conglomerates. American Light and Traction Company, an Emerson McMillin & Co. subsidiary, controlled the St. Paul Gas Light Company. Island Station would therefore be considered not eligible for listing in the NRHP under NRHP Criterion B.

C. That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

Island Station does not appear to have received special recognition in the engineering press, but local newspaper articles praised its use of pulverized coal, a fairly new fuel technology tested in other American cities including Milwaukee. In this way it represented advancement of this one aspect of local power plant design, especially as compared to its contemporary neighbor, the NSP High Bridge Plant (1924). Pulverized coal was already a well-developed technology, however. For this reason, the Island Station would be considered not eligible under NRHP Criterion C.

The design of the plant, by noted architecture and engineering firm Toltz, King & Day, appears to have solved functional needs but does not have distinctive characteristics of a type, period, or method of construction. Overall, there is not a strong case for eligibility as defined by NRHP Criterion C.

D. That have yielded or may be likely to yield, information important in history or prehistory

The property is recommended as not eligible for listing in the NRHP under Criterion D.

6.3 St. Paul Heritage Preservation Commission Criteria

St. Paul HPC Criteria 1 through 6 correlate with NRHP Criteria A through D, and with findings of eligibility noted above. St. Paul HPC Criterion 7 outlines significance as related to location, physical characteristics, and city identity.

1. Its character, interest or value as part of the heritage or cultural characteristics of the City of St. Paul, State of Minnesota, or the United States.

Island Station represented the St. Paul Gas Light Company's attempt to compete with NSP at a time when acquisition and consolidation of such companies was standard practice. St. Paul Gas Light Company became the city's chief gas supplier, but was never its leader in electric power production. The investment in this plant and its new coal pulverization technology, and in a Service Center at Rice and Atwater Streets (1925), demonstrates the company intended to expand production to meet increasing demand. Investment in this plant did not actually result in a significant contribution to power generation in St. Paul, because after acquisition by NSP it was only used in a standby capacity.

The planning and construction of this plant, however, is associated with the city's early 1920s neighborhood growth. This was based on reinvigorated railroad, warehousing, retail, and manufacturing interests, and corresponding demand for housing supplied with many types of electrical equipment. This included widely advertised, labor-saving household devices. As detailed in St. Paul's Historic Context, "Residential Real Estate Development: 1880-1950" (Zellie and Peterson 2001) and in "The St. Paul Gas Light Company and the Growth of Early Twentieth-Century St. Paul Neighborhoods" (Section 5.7), the early 1920s were an exceptional period for new housing and neighborhood infrastructure, particularly in the western half of the city including the Highland Park area.

Therefore, Island Station is recommended as meeting HPC Criterion 1 for its association with the growth of St. Paul and its neighborhoods during an important period of economic development.

2. Its location as the site of a significant historic event.

This criterion does not appear to have direct applicability to this property.

3. Its identification with a person or persons who significantly contributed to the culture and development of the City of St. Paul.

The founders of the St. Paul Gas Light Company were significant in the early development of the City of St. Paul, but the company passed out of local ownership after 1895 when Emerson McMillin & Co. of New York acquired a majority interest. Emerson McMillin & Co. was among national firms that, like H. M. Byllesby's, consolidated small local energy suppliers into large conglomerates. American Light and Traction Company, an Emerson McMillin & Co. subsidiary, controlled the St. Paul Gas Light Company. Therefore, it is recommended as not meeting HPC Criterion 3.

4. Its embodiment of distinguishing characteristics of an architectural or engineering type or specimen.

Toltz, King & Day (now TDKA) were responsible for the design of many power plants and other industrial structures in St. Paul and across the Midwest during the 1920s. Although designed to utilize pulverized coal, an innovative engineering feature, the building is fairly typical of power plant design in this period. Interior equipment that would have represented engineering significance has reportedly been removed or partially destroyed. Therefore, it is recommended as not meeting HPC Criterion 4.

5. Its identification as the work of an architect, engineer, or master builder whose individual work has influenced the development of the City of St. Paul.

Toltz, King & were a leading firm with notable St. Paul buildings, including architectural and/or engineering commissions for a number of properties listed on the NRHP. Despite its graceful arched windows in the boiler section, this utilitarian commission, however, follows a plan and design that was standard for such facilities. Therefore, it is recommended as not meeting HPC Criterion 5.

6. Its embodiment of elements of architectural or engineering design, detail, materials or craftsmanship which represents a significant architectural or engineering innovation.

The primary innovative aspect of this power plant design centered on the use of pulverized coal and the installation of integral coal pulverizing equipment, the first in St. Paul and the immediate area. With the apparent loss of interior power generation equipment there is loss of historic integrity and significance, however. Therefore, it is recommended as not meeting HPC Criterion 6.

7. Its unique location or singular physical characteristic representing an established and familiar visual feature of a neighborhood, community or the City of St. Paul.

Island Station and its 289-foot smokestack are prominent landmarks against the downtown St. Paul skyline and upriver landscape of bluffs and bottomland forest. The vacant building, which declines in condition each passing year, is a well-known local landmark. Since decommissioning in 1973 the building and its setting have inspired artists, designers, explorers, students, neighbors, developers, and all those who imagine the possibilities of the place. Other NRHP eligibility and St. Paul HPC designation criteria do not provide a way to address the importance of the building in the public's imagination. Therefore, it is recommended as meeting HPC Criterion 7.

6.4 Integrity

Island Station has been vacant since 1973. The building appears to be in very poor condition. It retains fair exterior historic integrity, with extensive areas of missing glass or sash, sections of missing masonry, and graffiti. The surrounding site also retains fair historic integrity, despite removal of railroad trestles and other site circulation. Overall, integrity of design, materials, setting and feeling has been diminished. Access to the building interior and exterior was not available during the study due to hazardous conditions. According to the owner's representative, major interior mechanical equipment has been removed (Tim Pinsen, personal communication, 2/7/13).

6.5 Recommendations

The St. Paul Gas Light Company Island Station has been a landmark at the river's edge since 1924. The plant was designed to meet the company's need for increased electric production and incorporated new pulverized coal technology. The plant's overall contribution to the development of public utilities and electric power generation in St. Paul does not have a high level of historical significance, however. Due to its short-term use, reported extensive loss of interior equipment, poor condition and fair integrity it no longer conveys the operation and engineering significance of the facility. It therefore does not possess the level of historic significance and integrity to be eligible for listing in the National Register of Historic Places.

At the local level, the property meets St. Paul Heritage Preservation Criterion 1 for its association with planning for the development of St. Paul during the early 1920s, a key period of neighborhood and economic growth. It also meets Criterion 7 for the qualities of setting and physical character that embody its significance as a prominent local landmark.

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