DESIGNATION REPORT

Gowanus Canal Flushing Tunnel Pumping Station and Gate House

Landmarks Preservation Commission

Designation Report
Gowanus Canal Flushing Tunnel Pumping Station and Gate House
October 29, 2019

Designation List 515
LP-2638

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Gowanus Canal Flushing Tunnel Pumping Station and Gate House

LOCATION

Borough of Brooklyn
201 Douglass Street (aka 196 Butler Street)

LANDMARK TYPE

Individual

SIGNIFICANCE

Built in the early 20th century to house the mechanical systems needed to flush the Gowanus Canal, the Gowanus Canal Flushing Tunnel Pumping Station and Gate House represent one of the most important infrastructure projects in Brooklyn.

Gowanus Canal Flushing Tunnel Pumping Station and Gate House
Sarah Moses, 2019

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Gowanus Canal Flushing Tunnel Pumping Station and Gate House

201 Douglass Street (aka 196 Butler Street), Brooklyn

Designation List 515
LP-2638

Built: 1909-11
Architect: Arthur L. L. Martin; Edwin J. Fort, Chief Engineer, Brooklyn Bureau of Sewers

Landmark Site: Borough of Brooklyn, Tax Map Block 411, Lot 14 in part beginning at the northwest corner of the Gowanus Canal, running southerly along the west side of the Gowanus Canal to the southern property line of lot 14, westerly along the southern property line of lot 14 to the western property line of lot 14, northerly along the western property line of lot 14 to a point on a line extending westerly from the northern building line of the Gowanus Canal Flushing Tunnel Pumping Station, easterly along said line and the northern building line of the Gowanus Canal Flushing Tunnel Pumping Station continuing to a point on a line parallel to and 13 feet distant from the eastern building line of the Gowanus Canal Flushing Tunnel Pumping Station; southerly along said line to a point on a line extending westerly from the northwest corner of the Gowanus Canal, easterly along said line to the point of beginning.

Calendared: June 25, 2019
Public Hearing: September 24, 2019

On September 24, 2019, the Landmarks Preservation Commission held a public hearing on the proposed designation of the Gowanus Canal Flushing Tunnel Pumping Station and Gate House as a New York City Landmark and the proposed designation of the related Landmark Site (Item No.4). The hearing was duly advertised in accordance with the provisions of the law.

The Commission received support for the proposed designation from 14 people including representatives of the owner, the Department of Environmental Protection; Councilmember Brad Lander; Gowanus Landmarking Coalition; Historic Districts Council; New York Landmarks Conservancy; The Municipal Art Society of New York; Society for the Architecture of the City; Friends and Residents of Greater Gowanus (FROGG); and Park Slope Civic Council. No one spoke in opposition. In addition, the agency received 33 e-mails in support of designation for the Gowanus Canal Flushing Tunnel Pumping Station and Gate House.

Summary

Gowanus Canal Flushing Tunnel Pumping Station and Gate House

Built between 1909 and 1911, the Gowanus Canal Flushing Tunnel Pumping Station and Gate House were constructed to house the vital mechanical equipment used to flush pollutants from the waters of the Gowanus Canal. The pumping station and gate house reflect the monumental classicism favored for civic structures of the time. Executed in brick with limestone trim, the sophisticated design draws from ancient and Renaissance precedents to give these sturdy vernacular buildings an appearance worthy of their important role in the infrastructure of the Gowanus Canal.

First proposed in the 1840s, the Gowanus Canal runs from Gowanus Bay to its terminus just south of Butler Street and was completed after the Civil War. It was originally presumed that the twice-daily ebb and flow of the tides would maintain water quality within the canal, but it was quickly determined that this method was insufficient to handle the effluent from storm water, sanitary sewer run-off, and waste from canal-side businesses. In 1904, after several failed proposals it was announced that the Brooklyn Bureau of Sewers would build a tunnel linking the canal to Buttermilk Channel. As proposed by Edwin J. Fort, who became Chief Engineer of the Bureau of Sewers, a large propeller was to be used to create a flushing action that would draw the polluted water from the canal and replace it with cleaner water from Gowanus Bay.

To house the pumping equipment Arthur L. L. Martin, architect of the Bureau of Sewers, designed two buildings; the pumping station housed the pump, motor, and northern sluice gate, while the smaller gate house contained the southern sluice gate.

The pumping station opened with much fanfare on June 21, 1911 and continued to provide the vital function of pumping foul water from the canal into Buttermilk Channel until the 1960s when the mechanism failed. The pumping station remained dormant for 30-years until the City's Department of Environmental Protection reactivated the flushing tunnel in 1999 at which time the flow was reversed in order to bring oxygenated water to the head of the canal. The flushing tunnel underwent a second upgrade between 2009 and 2014 at which time the tunnel was inspected and repaired and the single motor and propeller was replaced with three vertical turbine pumps. Today, the well-preserved facility remains in active use as part of the system that maintains the water quality of the Gowanus Canal.

Building Description

Gowanus Canal Flushing Tunnel Pumping Station and Gate House

Description

Located on the southern portion of the lot adjacent to the head of the Gowanus Canal, the brick and limestone Gowanus Canal Flushing Tunnel Pumping Station and Gate House reflect the monumental classicism favored for civic structures of the time combined with decorative elements inspired by the Secessionist movement. The rectangular pumping station has a prominent gambrel roof with its gable end facing the canal. Each of its four facades feature a classical tripartite arrangement delineated by limestone elements and brickwork. Embellished with abstracted ornament from ancient and Renaissance precedents, the pumping station's significant features include its gambrel roof form, masterful brickwork, corbeling, monumental arches, pendants with stylized finials, keystones, and other classically-inspired motifs. All multi-light windows possess hinged awning windows for ventilation. To its south, the smaller gate house features narrow bands of windows, a hipped roof, and a corbeled brick cornice reflecting similar but restrained features of the pumping station.

PUMPING STATION

Primary (South) Facade

The south facade is three bays wide and is articulated by a trio of over-scaled arched openings with metal-framed, multi-light windows. Each bay is recessed from the plane of the exterior wall. The center arch drops through the limestone capped water table and provides the main entrance to the structure. The entrance retains its historic fluted lintel and multi-light tympanum. Brick archivolts spring from each of the paneled stone imposts and are decorated by a monumental keystone. Below the building's stepped parapet is a decorative corbelled brick cornice topped by a double dentil course and stone coping. Above the parapet, the slate-clad gambrel roof is punctuated by three metal-clad shed dormers and a skylight at the roof ridge.

Alterations

Facade repointed, some brick replaced; stone step at entrance removed, sill lowered; door glazing replaced with opaque 16-light panels; projecting panel removed from transom; pipes; conduit; lower three tiers of window lights replaced with opaque glass; roof patched; dormers reclad and windows replaced with louvered vents; leaders and gutters replaced; lightning rods on roof; signage

East Facade

The east facade which faces the head of the Gowanus Canal is dominated by a single over-scaled arched opening flanked by smaller flat-arched windows with flared brick lintels and stone keystones at the first story and blank windows at the second. This ensemble, which rests on a stone sill course, is recessed from the plane of the wall and framed by a decorative brickwork band that follows the contours of the facade. The brick archivolt with its contrasting stone keystone includes an integrated dentil course and springs from paneled imposts. Within the arch is a variation on a classical aedicule executed in brick with stone pediment which contains a dedicatory plaque dated 1988.[1] Additional decoration is provided by two brick pendants with stylized finials and corbels.

Alterations

Facade repointed; some window lights replaced; stone plaques with roundels added

North Facade:

Like the south facade, the north facade has over-scaled arched openings with stone sills, multi-light metal-frame windows, gambrel roof, and metal-clad shed dormers. Blocked from public view, the treatment of the decorative elements is simpler. The arched openings are flush with the plane of the wall and the brick lintels are undecorated except for the stone keystones.

Alterations

Facade repointed; arched windows partially altered to accommodate louvered vents; westernmost arch incorporated into new building to the north; dormers resided, windows replaced with louvered vents; flashing at roofline replaced; lightning rods on roof; leaders; pipes; conduits

West Facade

Like the east facade, the partially visible west facade has a central arched window flanked by smaller windows with flared lintels with keystones and a parapet following the gable of the gambrel roof, and appears intact.

GATE HOUSE

Located to the south of the pumping station the gate house is a square, one-story brick building with hipped roof topped by a louvered cupola, both clad in slate. Except for the north elevation which includes the entrance, the building's facades are identical featuring fenestration set high in the wall above a brick band course incorporating the limestone sills. The fenestration of each facade includes a triple window with brick mullions flanked by small windows all with flared brick lintels and awning windows. Below the roof is a corbelled brick cornice similar to that of the pumping station.

Alterations

Roof and cupola roof replaced; facade repointed; doors replaced; pipe, multiple conduits, security panel; metal pole with light on north elevation; left panel of central window on west elevation replaced with louvered vent

Site

The site has been repaved in brick. The non-historic raised concrete walkway with stone curbs around the perimeter of the pumping station has lights embedded in the paving on the south and east; the walkway around the gate house has concrete curbs and embedded drains. Decorative elements include non-historic short, decorative cast-iron light stanchions on the corners of the walkways and at the entrance of the pumping station; non-historic decorative lampposts and landscaped flower beds; and a non-historic metal perimeter fence with double-leaf gate.

History and Significance

Gowanus Canal Flushing Tunnel Pumping Station and Gate House

Early History of the Area[2]

The Gowanus Canal Flushing Tunnel Pumping Station and Gate House are located within Brooklyn's Gowanus neighborhood, which extends from around Baltic Street south toward the Gowanus Expressway and from Bond Street east toward Fourth Avenue. Before the arrival of European colonists, this area was occupied by the Canarsee, one of several Algonquin-speaking groups comprising the Lenape people, whose territory extended from the Upper Hudson Valley to Delaware Bay. The Canarsee lived in loosely organized, relatively autonomous groups in seasonal campsites and farming communities, moving with the seasons to obtain their food supply of seafood in the spring, bean and maize crops in the fall, and small game in the winter. They developed an extensive network of trails throughout Brooklyn, including one from the present Atlantic Terminal area to Gowanus Bay.

"Gowanus" is a Munsee word of uncertain meaning. The area's central geographic feature was Gowanus Creek, a tidal estuary originating near the present-day intersection of Third Avenue and Baltic Street and meandering southward through marshlands into Gowanus Bay. Estuaries like Gowanus Creek were vital to the Canarsee, providing access to the shoreline and its abundant shellfish. Native American sites have been identified in the area, including a campsite just east of the canal head where pottery, clay pipes, and arrowheads have been found; the Gowanus Houses just west of the canal occupy the former site of the village of Werpos.

In 1609, Englishman Henry Hudson, backed by the Dutch East India Company, explored the river that now bears his name and opened the region to Dutch colonization. Although the Canarsee initially traded with Dutch and English settlers as they had with other Native groups, the colonists quickly overtook them and were displacing them by the 1640s. Never large in number, the Canarsee were devastated by armed conflict and the introduction of European diseases, as well as by land agreements based on European concepts of property ownership that were completely foreign to them.[3] The few remaining Canarsee left the region entirely by the 1700s.

At the time of the American Revolution, Gowanus was largely agricultural, with much of its labor performed by enslaved people of African descent. Along the shore of Gowanus Bay, colonists had erected several tide mills, which released water impounded during high tide to grind grains into flour and meal. The area played a key role in the Battle of Long Island (also known as the Battle of Brooklyn), the first major conflict of the Revolutionary War and the largest waged in North America up to that time. In August of 1776, thousands of British troops mustered at Gravesend Bay with the goal of capturing New York City and crushing the nascent rebellion. One of the few routes leading to New York was the Gowanus Road, located around present-day Fifth Avenue. At the Vechte-Cortelyou House (demolished) on the Gowanus Road near 3rd Street, a small contingent of Maryland troops suffered severe casualties in battling the British forces and allowing Washington and his army to escape northward and survive.

Development of the Gowanus Canal[4]

The 1825 opening of the Erie Canal vaulted New York to preeminence among the nation's commercial

ports and set off economic booms in both New York City and Brooklyn. Formerly a small settlement centered around the Fulton Ferry landing, Brooklyn grew from 7,000 residents in 1820 to nearly 100,000 by 1850. During this period, its entire waterfront between Greenpoint and Red Hook was built up with docks and warehouses, and row houses spread southward and eastward from Brooklyn Heights into new neighborhoods like Boerum Hill. Brooklyn was chartered as a city in 1834, and in 1839 the city extended the street grid to its outermost areas, providing a blueprint for its future growth. By this time, land speculation and the filling of marshlands were already occurring west of Gowanus Creek, in Red Hook, which was later transformed into a major grain-handling center with the opening of Atlantic Basin on Buttermilk Channel in 1846.

Although the Gowanus area remained rural into the 1840s, Red Hook's development, as well as the recent opening of Green-Wood Cemetery and completion of the first bridge across Gowanus Creek, focused attention on the creek and its 1,700 acres of surrounding wetlands. To real estate speculators and developers, the marshlands were worse than useless; unable to be built upon, they were also thought to generate unhealthy air that impeded development throughout the surrounding area. Draining the Gowanus marshes, the *Brooklyn Daily Eagle* argued, would remove the "miasma which hangs about Prospect Hill and other portions of the city, making them liable to intermittent fevers and other diseases; and thus shutting them out from improvement."[5] In 1847, at the request of Brooklyn's Common Council, the prominent hydraulic engineer David B. Douglass formulated plans for a permanent drainage canal emptying into Gowanus Bay. This self-cleaning canal would either extend through Brooklyn to Wallabout Bay, or connect to a parallel canal with locks and gates that would permit its periodic flushing.

Douglass' proposal was rejected in favor of a much cheaper one from the developer of Atlantic Basin, Daniel Richards. Approved by the Brooklyn Common Council and authorized by the state legislature in 1849,[6] the Gowanus Canal, as Richards' waterway would be known, roughly followed the path of Gowanus Creek, extending northward from Gowanus Bay to around 6th Street, where it turned eastward before again turning northward around Second Avenue. Unlike Douglass, Richards saw no need for a flushing mechanism, expecting tidal action to keep the canal clean. His waterway would be an industrial as well as drainage canal, navigable by barges and other small vessels and containing several large commercial basins, one of which would be located at the site of the flushing tunnel pumping station and gate house. "The introduction of this class of shipping into this section of our city would cause to spring to life much new enterprise, and introduce a lively business along the line of the canal," predicted Richards, who envisioned the canal's banks lined with "cheap warehouses, sheds and yards, for deposit and storage of heavy coarse goods, as also lumber, coal, brick, stone and wood yards, as well as manufactories."[7]

Despite the adoption of Richards' plan, no formal mechanism was created for its implementation, and by the end of 1849 it was decided not to proceed.[8] The canal's construction, left up to local landowners, proceeded haphazardly through the 1850s.[9] Central to the canal's completion would be the railroad magnate, financier, and speculator Edwin C. Litchfield, who had acquired the old Dutch farms between 1st and 9th streets, stretching from the canal eastward to what is now Prospect Park, in the early 1850s. Litchfield directed much of the filling, grading, and paving work along the east side of the canal; politically savvy and powerful, he was instrumental in creating a state commission to improve 3rd Street through the heart

of his property between the canal and his new villa, Grace Hill.[10] Although work on the canal stagnated during the Civil War, it accelerated starting in 1866 with the founding of Litchfield's Brooklyn Improvement Company to develop private docking facilities there. In 1867, the state chartered the Gowanus Canal Improvement Commission, made up of local elected officials and businessmen, which was to be responsible for widening and deepening the canal and building some 12,000 feet of docks.[11]

Industry along the Gowanus[12]

As the canal neared completion in the late 1860s, area streets continued to be paved and opened and Daniel Richards' long-delayed vision of an urban waterway lined with industrial businesses began to be realized. By 1869, about a dozen firms had established themselves along the canal; most dealt in bulk goods, as would be typical of the Gowanus throughout its history. Several lumber yards, a stone yard, a sawmill, and factories making doors, blinds, and drainpipes were already operating on the Gowanus, which would play a key role in Brooklyn's late-19th- and early-20th-century building boom as a major entry and distribution point for building supplies. In 1872, the New York and Long Island Coignet Stone Company, a pioneering manufacturer and marketer of concrete block in the United States, moved to a five-acre site adjoining the canal's 4th Street Basin and began building its office (a designated New York City Landmark), one of the country's first concrete buildings.[13] By the early 1870s, the canal had become the center of Brooklyn's coal trade. Most dealers of building supplies and other bulk goods operated out of wood-framed structures, few if any of which survive.

By 1880, more than 30 industrial firms had settled along the canal as Gowanus developed into one of Brooklyn's busiest industrial neighborhoods. Manufactured goods, including tinware, furniture, chemicals, paint, paper, and textiles, as well as food and tobacco items, were produced in robust brick structures generally located a block or more from the canal.

Pollution and the Gowanus Canal

Owners of the land around Gowanus Creek as early as the 1850s asked the City of Brooklyn for help to alleviate the constant flooding during storms. The first effort to drain excess water was a culvert built at Bond Street in 1851. Other storm drains followed at Smith and Sackett streets, making them some of the earliest storm sewers in Brooklyn.[14] With a growing population the state authorized the construction of a sewer system in Brooklyn for the removal of both household waste and storm water in 1857.[15]

Once the canal was constructed, several factors rapidly contributed to a polluted condition: topography, residential development, and industrial waste. By 1908 seven sewers emptied directly into the canal including two separate outflows for the Greene Avenue storm water sewer at the head of the canal and at Bond Street.[16] Another source of pollution was the waste from canal-side chemical firms, coal and gas suppliers, brick and lumber yards, and the boats and barges that plied the waterway. Furthermore, the design of the canal itself contributed to the problem. Based on the Richards plan, the canal as completed was landlocked except for the outlet at Gowanus Bay several miles from its terminus at Butler Street and it was early discovered that the twice-daily tidal changes were insufficient to clean the canal.[17] The resulting build-up of sewage in the canal, particularly at its head, was described in by the *Brooklyn Daily Eagle* in 1877 as "very vile… a nuisance that is seriously affecting the health of South Brooklyn people."[18] By 1886 the canal was so choked with filth that it created a navigational issue for waterborne traffic.[19]

To alleviate the problem, several remediation

schemes were proposed in the years prior to the construction of the flushing tunnel but rejected as impractical or too costly. In the 1880s, a proposal was put forth to place a lock at the canal's midpoint to contain water received during high tide which later, following the ebb tide, would be released to flush the lower section of the canal. This scheme was rejected as a hindrance to navigation and shipping. A proposal to build a tunnel to Wallabout Bay on the East River to create a continuous flow of water was rejected due to cost. In 1889, a commission investigating the pollution of the canal went so far as to propose filling it in, stating that "while the canal is a source of great profit to less than 100 persons, firms, or corporations … it is detrimental to health...."[20]

In 1890, the City of Brooklyn purchased a large plot of land at the head of the canal, extending southwesterly from the corner of Butler and Nevins streets that became the location of the outflow of the Greene Avenue storm water sewer and later the pumping station and gate house.[21] It was hoped that runoff emptying directly into the canal from the Greene Avenue storm water relief sewer (1891-99) would help clean the canal; but, like the tides, the runoff was insufficient for flushing and material brought into the canal with the storm water contributed to the existing problem.[22]

Gowanus Canal Flushing Tunnel Pumping Station and Gate House

To find a workable solution, Edwin J. Fort of the Bureau of Sewers for the Borough of Brooklyn investigated the pumping systems in use in other cities including Chicago and Milwaukee. The Milwaukee pumping system had been developed in 1887 by Edwin Reynolds, superintendent of the Edward P. Allis Company, for the purpose of cleaning the sewage from the Milwaukee River by pumping water through a 2,534-foot-long tunnel from Lake Michigan into the river. Fort appears to have been particularly influenced by the Reynold's plan, adopting features such as the 12-foot diameter of the tunnel and the engine-driven four-bladed propeller.[23]

As a result Fort and his team proposed a pumping system consisting of a 6,280-foot-long flushing tunnel between the head of the canal and Buttermilk Channel, the waterway separating Governors Island from Brooklyn, and a pumping station to operate it. Plans for the tunnel were announced in early 1905. Designed by the Bureau of Sewers, construction of the 12-foot diameter tunnel[24] began in April 1906 but little progress was made in the first year since "the structure as designed did not contemplate the method of construction chosen."[25] The contractor, John Pierce Co. of Manhattan, then adopted the pneumatic shield method frequently used for subaqueous tunneling and construction progressed. By 1909 the tunnel was completed.[26]

Pumping of the flushing tunnel would be accomplished by means of a four-bladed propeller powered by a 400-horse power Westinghouse electric motor. The motor and propeller were housed in separate pits and connected by a steel drive shaft. For purposes of maintenance, the wheel pit where the propeller was housed could be isolated by the closure of two motorized sluice gates and excess water drawn off through a drainage pit.[27] As originally planned, river water was to be pumped into the canal to flush effluent down to the bay. The flow was reversed after Chief Engineer Edwin J. Fort convinced borough officials that flushing canal water directly into Buttermilk Channel would clean the waterway more efficiently since the head of the canal is the location of the principal sources of pollution and that as laden boats nearly all travel toward the head of the canal, the current created in this direction would aid traffic.[28]

In July 1909 New Building (NB)

applications were submitted by architect Arthur L. L. Martin on behalf of the Bureau of Sewers for the two pumping station buildings. The 67-foot by 53-foot, 43.5-foot tall brick and limestone pumping station (or power house) to house the motor pit, drainage well, and northern gate valve and the nearly square (24.75-foot by 25.5-foot) gate house to house the wheel pit and southern gate valve.[29] Bids were opened in 1910 and by February 1911, the contractors Fox, Hennessey & Co. had enclosed the buildings and the installation of the machinery begun.[30] Completed and online by June 1911, the long suffering residents of South Brooklyn celebrated the opening of the flushing tunnel on June 21, 1911 with ceremonies, speeches, and a parade of barges down the canal. As a symbol of the water's expected return to purity, Jennie Haviland, Miss Gowanus, tossed lilies into the canal.[31] After adjusting the machinery and temporarily operating it only on the ebb tide to allay the concerns of waterfront business owners about increased pollution in Buttermilk Channel and the East River, the Gowanus Canal Flushing Tunnel Pumping Station went into nearly full-time operation. However, it was only partially successful as storm and waste water continued to flow into to the canal during rain storms and toxic silt built up.

Edwin J. Fort and Arthur L. L. Martin

The development of the Gowanus Canal Flushing Tunnel Pumping Station and Gate House was the responsibility of two men, Edwin J. Fort, Chief Engineer, and Arthur L. L. Martin, architect of the Brooklyn Bureau of Sewers.[32]

Edwin J. Fort was born in Illinois in 1868. He served as a draughtsman for the Department of the Interior, District of Washington and as a civil engineer in Niagara Falls, NY before settling in Brooklyn. He served the Borough of Brooklyn becoming the assistant engineer to Harry Asserson in 1904. In 1906 he was appointed Engineer of Design and in 1907 succeeded Asserson as Chief Engineer. Fort left Brooklyn in 1918 to take the position of City Manager of Niagara Falls, which he held until 1924. Returning to the New York Metropolitan area, he was listed in the 1930 census as city supervisor of Englewood, NJ and appears to have later returned to service with New York City before retiring in 1939. As a civil engineer he was recognized for his knowledge of sewer design. In addition to his professional work he was a founding member and onetime president of the Brooklyn Engineers' Club.[33]

Arthur L. L. Martin (1875-1954) was born in Florida and raised in Brooklyn where he is listed as an architect as early as 1899. He held various positions within the New York City civil service working for the Board of Estimate and Apportionment and Department of Education as well as the Bureau of Sewers for the Borough of Brooklyn. While working for the Bureau of Sewers he was responsible for the design of several buildings including the pumping station at the Gowanus Canal and another at Avenue V and 10th Street (extant). In addition to his career as an architect, Martin served in the New York Guard rising to the rank of Captain during World War I; at the time of his death he had the rank of Lt. Colonel.[34]

Neoclassical Style and the design of the Pumping Station and Gate House[35]

The Neoclassical (sometimes referred to as Classical Revival) style came to prominence in the United States at the end of the 19th century and remained popular for use in both public and residential buildings until the 1950s. It reflected a renewed interest in classical forms and design elements derived primarily from ancient Greek and Roman precedents as well as those of the Renaissance. Although normally seen in large public buildings like the New York Public Library, Low Memorial

Library at Columbia University, and Grand Central Terminal (all designated New York City Landmarks) whose classical origins are clearly identifiable, on the small utilitarian Gowanus Canal Flushing Tunnel Pumping Station and Gate House these elements have been abstracted to their basic forms. Nevertheless, the use of these Neoclassical elements underscored the civic importance of this municipal infrastructure project.

Arthur L. L. Martin's sophisticated design for the pumping station provides a sense of classical monumentality to this building. Executed in brick with limestone trim and details, the building's long southern facade features a trio of arched brick openings decorated with brick moldings and geometric keystones and recessed within the plane of the wall. In lieu of the traditional modillioned and bracketed cornice is a row of brick corbels suspended below a double row of dentils. On the shorter, gable ends, the central arched window with over-scaled keystone is balanced by two smaller windows. Unique to Martin's design is the wide brick band with decorative brick border that follows the contours of the facade from the base to the roof where it runs below the parapet. Two large pendants reminiscent of the Secessionist style bracket the brick and limestone parapet.

The design of the gate house is simpler. The use of brick and limestone and the corbelled cornice link it visually to its larger neighbor but the fenestration has been reduced to a narrow row of windows on three of the four elevations.

Later History

The flushing tunnel pumping system operated until the 1960s when the propeller's drive shaft was broken. Over the next three decades the waters of the Gowanus Canal stagnated as the flushing tunnel and pumping station remained offline. The repairs to the equipment were delayed in part by the city's fiscal crises.[36] Although the mechanical equipment remained off-line, the property at the head of the canal was upgraded in the late 1980s with the construction of a new building on Butler Street (since replaced) and the rehabilitation of the exteriors and roofs of the pumping station and gate house.[37]

In 1994 city officials initiated the first of two renovation efforts to return the system to full use. Completed in 1999 the $10 million project included dredging 2,000 tons of polluted material from the head of the canal and installing a new electric motor, propeller, and sluice gates. Operating around-the-clock, the pumping system with a new 600 horsepower electric motor was expected to draw 200 million gallons of oxygenated water a day from Buttermilk Channel to improve water quality in the canal.[38]

In 2009, the New York City Department of Environmental Protection (DEP) began a complete overhaul of the tunnel and pumping system that was completed in 2014. The single pump was replaced by three vertical turbine pumps, the tunnel itself was drained for inspection and repair, and, in the wake of Hurricane Sandy, various measures were taken to protect the systems from future floods. To further improve the environment around the canal the DEP announced plans for storm sewers on Third Avenue in Park Slope to reduce the storm water runoff into the canal and to construct curbside gardens or bioswales that would absorb additional storm water.[39]

In 2010, the Gowanus Canal was declared a Superfund site by the federal government. The cleanup includes the dredging of approximately 600,000 cubic yards of contaminated sediment from the canal starting at its head, and additional dredging in two of the turning basins; once dredged, the areas will be capped with clean materials. In addition, retention tanks are to be constructed at the upper and middle reaches of the canal to reduce the volume of

sewage discharged from the combined sewer overflows in that area.[40]

In 2019, the Department of City Planning released a draft zoning proposal for the area that would support "mixed-use growth with affordable houses, areas to maintain and grow Gowanus' commercial and industrial businesses" as well as new parks and public spaces.[41]

Conclusion

The Gowanus Canal Flushing Tunnel Pumping Station and Gate House are the visible representatives of the complex infrastructure associated with the Gowanus Canal. Designed and built at the turn of the 20th century to flush its heavily polluted waters, the Gowanus Canal Flushing Tunnel Pumping Station and Gate House remain largely unchanged since their opening in 1911. Their distinguished design exemplifies the successful synthesis of classically-influenced architectural elements to create a sophisticated design for a functional building.

Endnotes

[1] This plaque commemorates state and federal participation in the improvements made to the Gowanus Canal Pumping Station in the 1980s including the rehabilitation of the historic buildings and the construction of a service building (since replaced) and wall along Butler Street (since rebuilt). The project received an award for Excellence in Design by the NYC Design Commission in 1986. "Design Commission- Fifth Annual Design Awards," (https://www1.nyc.gov/site/designcommission/past-awards/design-awards-5.page, accessed September 19, 2019)

[2] Portions of this section are adapted from Landmarks Preservation Commission (LPC), *Sunset Park South Historic District Designation Report (LP-2622)* (New York: City of New York, 2019), 9-10. Other sources include Richard W. Hunter, *National Register of Historic Places Eligibility Evaluation and Cultural Resources Assessment for the Gowanus Canal* (Northern Ecological Associates, Inc., 2004), 2-1 to 2-57; and Joseph Alexiou, *Gowanus: Brooklyn's Curious Canal* (New York: New York University Press, 2015).

[3] Although European settlers considered their "purchases" of property from Native Americans to be outright acquisitions, the European concept of holding title to land was foreign to the Lenape, who considered these transactions as customary exchanges of gifts smoothing the way for settlers' temporary use of the land for camping, hunting, fishing, and the cultivation of crops.

[4] Sources for this section include Hunter and Alexiou.

[5] Cited in Alexiou, 114.

[6] "Gowanus Canal," *Brooklyn Daily Eagle*, Feb. 7, 1849, 3; "An Act to Authorise [sic] the Construction of a Canal in the City of Brooklyn, for Drainage and Other Purposes," *Laws of the State of New-York, Passed at the Seventy Second Session of the Legislature, Begun the Second Day of January and Ended the Eleventh Day of April 1849, at the City of Albany*. (Albany: Gould, Banks & Gould, 1849), 112-113 (Google Books, accessed August 7, 2019).

[7] Cited in Alexiou, 114.

[8] "Gowanus Canal," *Brooklyn Daily Eagle*, December 11, 1849, 3.

[9] Edward Fiske the owner of most of the surrounding property, commenced construction in 1853. "Opening of the Gowanus Canal and Other Improvements," *Brooklyn Daily Eagle*, June 1, 1853, 2; Alexiou, 126.

[10] Litchfield's villa, designed by Alexander J. Davis and built between 1853 and 1857, is now within Prospect Park. It predated the park's construction and was designated as a New York City Landmark in 1966.

[11] Alexiou, 168-69; "Improvement of the Gowanus Canal," *Brooklyn Daily Eagle,* July 31, 1867, 3; "The Gowanus Canal Improvement," *Brooklyn Daily Eagle*, February 17, 1868, 2.

[12] Sources for this section include Hunter and Alexiou; and M. Dripps, *Map of the City of Brooklyn* (New York: M. Dripps, 1869).

[13] LPC, *New York and Long Island Coignet Stone Company Building Designation Report (LP-2202)* (New York: City of New York, 2006), prepared by Matthew A. Postal.

[14] Alexiou, 126.

[15] James Pugh Kirkwood, *The Brooklyn Water Works and Sewers, a Descriptive Memoir* (New York: D. Van Nostrand, 1867), 71. (Google books, accessed August 7, 2019)

[16] "A Change for Gowanus," *New-York Tribune,* April 12, 1908, C6; A second outflow into the canal was added at Degraw Street in 1902-04 under Chief Engineer Henry R. Asserson. Hunter, 2-50, 2-52.

[17] "The Flushing System for the Gowanus Canal, Brooklyn," *Engineering Record* 64 (August 19, 1911), 212.

[18] "Very Vile: The Disgusting Condition of Gowanus Canal," *Brooklyn Daily Eagle*, September 3, 1877, 4.

[19] Hunter, 2-50.

[20] Cited in Alexiou, 250.

[21] Kings County, Office of the Register, Deeds and Conveyances, Liber 1944, p. 435 (February 6, 1890); Liber 1944, p. 433 (February 6, 1890).

[22] *Engineering Record* (August 19, 1911), 212; "Littleton Is to Start Plan to Cleanse Gowanus," *Brooklyn Daily Eagle*, October 13, 1905, 3; Hunter, 2-50, 2-52.

[23] "The Milwaukee River Flushing Station: A National Historic Mechanical Engineering Landmark. Milwaukee, WI." (S.L: American Society of Mechanical Engineers, 1992), 4-6.

[24] The route of the tunnel followed Degraw Street from the East River to Hoyt Street, then north to Butler Street then east to the canal. After encountering problems, the contractor John Pierce Co. opted to use a pneumatic system with a shield that allowed the tunnel to be excavated and constructed. "The Littleton Plan for Flushing Gowanus Canal," [illus.] *Brooklyn Daily Eagle*, January 26, 1905, 4; "Getting Ready to Build Plant to Flush Gowanus," *Brooklyn Daily Eagle*, October 19, 1905, 8; "Littleton Is to Start Plan to Cleanse Gowanus," *Brooklyn Daily Eagle*, October 13, 1905, 3; "Gowanus Tunnel Started," *Brooklyn Daily Eagle,* June 18, 1906, 5.

[25] Brooklyn (New York, NY), Office of Brooklyn Borough President, *Annual Report of the President of the Borough of Brooklyn for the Year Ending December 31, 1906,* (New York: Martin B. Brown, printer, 1908), 355.

[26] Brooklyn (New York, NY), Office of Brooklyn Borough President, *Annual Report of the President of the Borough of Brooklyn for the Year Ending December 31, 1907* (New York: Martin B. Brown Press, [1908]), 356, 361; Brooklyn (New York, NY), Office of Brooklyn Borough President, *Annual Report of the President of the Borough of Brooklyn for the Year Ending December 31, 1908* (New York: Martin B. Brown Press, [1909]), 414; "Personal News and Trade Gossip," *Real Estate Record and Builders' Guide,* November, 19, 1910, 837. For a full description of the tunnel construction see "The Flushing Tunnel for the Gowanus Canal in Brooklyn, N.Y," *Engineering Record* 57 (January 11, 1908), 32-35.

[27] *Engineering Record* 64 (August 19, 1911), 212-214.

[28] "Work on Degraw St. Tunnel," *Brooklyn Daily Eagle,* July 16, 1908, 22; *Annual Report of the President of the Borough of Brooklyn…1907*, 367.

[29] Department of Buildings, Borough of Brooklyn, New Building (NB) Applications 4642-1909 (Gate House) and 4643-1909 (Power House, or Pumping Station).

[30] "Municipal Work," *Real Estate Record and Builders' Guide,* April 30, 1910, 967; "Machinery Installed to Free the Gowanus Canal of Filth," *Brooklyn Daily Eagle,* February 17, 1911, 1; "Steers Worried Over Hold-up of Contract," *Standard Union*, June 12, 1910, 1.

[31] The celebrations also included other improvements in the area including Atlantic Basin and the Fourth Avenue subway then under construction. "South Brooklyn Day Is Celebrated with Parades and Speeches," *Brooklyn Daily*

Eagle, June 21, 1911, 1-2.

[32] Chief Engineer Fort is cited in various articles as responsible for the design of the entire project; however, Arthur L. L. Martin's name appears on the New Building applications on file at the Brooklyn Department of Buildings as the architect of record.

[33] Ancestry.com, *U.S. Passport Applications, 1795*-1925 [database on-line] (Lehi, UT: Ancestry.com Operations, 2007); Ancestry.com, *U.S., Register of Civil, Military, and Naval Service, 1863-1959* [database on-line] (Provo, UT: Ancestry.com Operations, 2014); Brooklyn Engineers' Club, *Proceedings for 1914* (Brooklyn: The Club, 1915), 10-11; "E. J. Fort Honored by City Colleagues," *New York Times,* May 24, 1939, 24; "Falls to Have New City Manager, Belief," *Buffalo Evening News,* November 13, 1923, 3; "The Ralph Avenue Sewer System," *The Municipal Engineers Journal* (3rd quarter, 1921), 130.2, 130.4; United States Census records, 1900-1930.

[34] Ancestry.com, *U.S. World War I Draft Registration Cards, 1917-1918* [database online] (Provo, UT: Ancestry.com Operations, 2005); "Annual Report of the Adjutant-General of the State," *New York Legislative Documents,* 142nd Sess. (Albany: J. B. Lyon, 1919), 289; Brooklyn City Directories, 1899, 1900, 1904, 1906; *The City Record*, Supplement January 31, 1923[?], 279, January 31, 1931, 24; "Col. A. L. Martin," *Asheville Citizen-Times,* June 11, 1954, 2; New York State Census, 1892, 1905; *Real Estate Record and Builders' Guide*, February 28, 1914, 401; United States Census records, 1880, 1920-40.

[35] "Neoclassical style," Cyril M. Harris, *American Architecture: An Illustrated Encyclopedia (*New York: W. W. Norton, 1998), 224.

[36] Brooklyn (New York, NY), Office of Brooklyn Borough President, *Annual Report of the President of the Borough of Brooklyn for the Year ending December 31, 1911*, (New York: Clarence B. Nathan, [1912]), 229, 231; New York City, Department of Environmental Protection, "City Activates Gowanus Canal Flushing Tunnel," press release, April 30, 1999 (http//www.nyc.gov/html/dep/html/press_releases/99-28pr.shtml, accessed May 2, 2017).

[37] Gowanus Pumping Station Reconstruction and Construction of New Works [application 15409], 1985, New York City Public Design Commission Archives

[38]New York City, Department of Environmental Protection, "City Activates Gowanus Canal Flushing Tunnel," press release, April 30, 1999.

[39] New York City, Department of Environmental Protection, "Department of Environmental Protection Re-Activates Gowanus Canal Flushing Tunnel After Four-Year $177 Million Upgrade," press release May 29, 2014 (https://www.nyc.gov/html/dep/html/press_releases/14-048pr.shtml, accessed May 2, 2019).

[40] U.S., Environmental Protection Agency, "Gowanus Canal, Brooklyn, NY Cleanup Activities," (https://cumulis.epa.gov/supercpad/SiteProfiles/index.cfm?fuseaction=second.cleanup&id=0..., accessed September 9, 2019).

[41] New York City, Department of City Planning, "City Planning Unveils Zoning Proposal to Codify Vision Developed with Community and Elected Officials for Inclusive Growth and Expanded Economic Opportunities in a Green Gowanus." (https://www1.nyc.gov/site/planning/about/pres-releases/pr-20190130.page, accessed September 9, 2019)

On the basis of a careful consideration of the history, the architecture, and the other features of these buildings and site, the Landmarks Preservation Commission finds that the Gowanus Canal Flushing Tunnel Pumping Station and Gate House have a special character and a special historical and aesthetic interest and value as part of the development, heritage, and cultural characteristics of New York City.

Accordingly, pursuant to the provisions of Chapter 74, Section 3020 of the Charter of the City of New York and Chapter 3 of Title 25 of the Administrative Code of the City of New York, the Landmarks Preservation Commission designates as a Landmark the Gowanus Canal Flushing Tunnel Pumping Station and Gate House and designates Borough of Brooklyn Tax Map Block 411, Lot 14 in part, beginning at the northwest corner of the Gowanus Canal, running southerly along the west side of the Gowanus Canal to the southern property line of lot 14, westerly along the southern property line of lot 14 to the western property line of lot 14, northerly along the western property line of lot 14 to a point on a line extending westerly from the northern building line of the Gowanus Canal Flushing Tunnel Pumping Station, easterly along said line and the northern building line of the Gowanus Canal Flushing Tunnel Pumping Station continuing to a point on a line parallel to and 13 feet distant from the eastern building line of the Gowanus Canal Flushing Tunnel Pumping Station; southerly along said line to a point on a line extending westerly from the northwest corner of the Gowanus Canal, easterly along said line to the point of beginning, as its Landmark Site.

Gowanus Canal Flushing Tunnel Pumping Station and Gate House, 201 Douglass Street, 1911

Brooklyn Daily Eagle photographs, Brooklyn Public Library, Brooklyn Collection

Pumping Station, South elevation
Sarah Moses, November 2019

Entrance detail
Sarah Moses, November 2019

Pumping Station, East elevation
Marianne Percival, November 2019

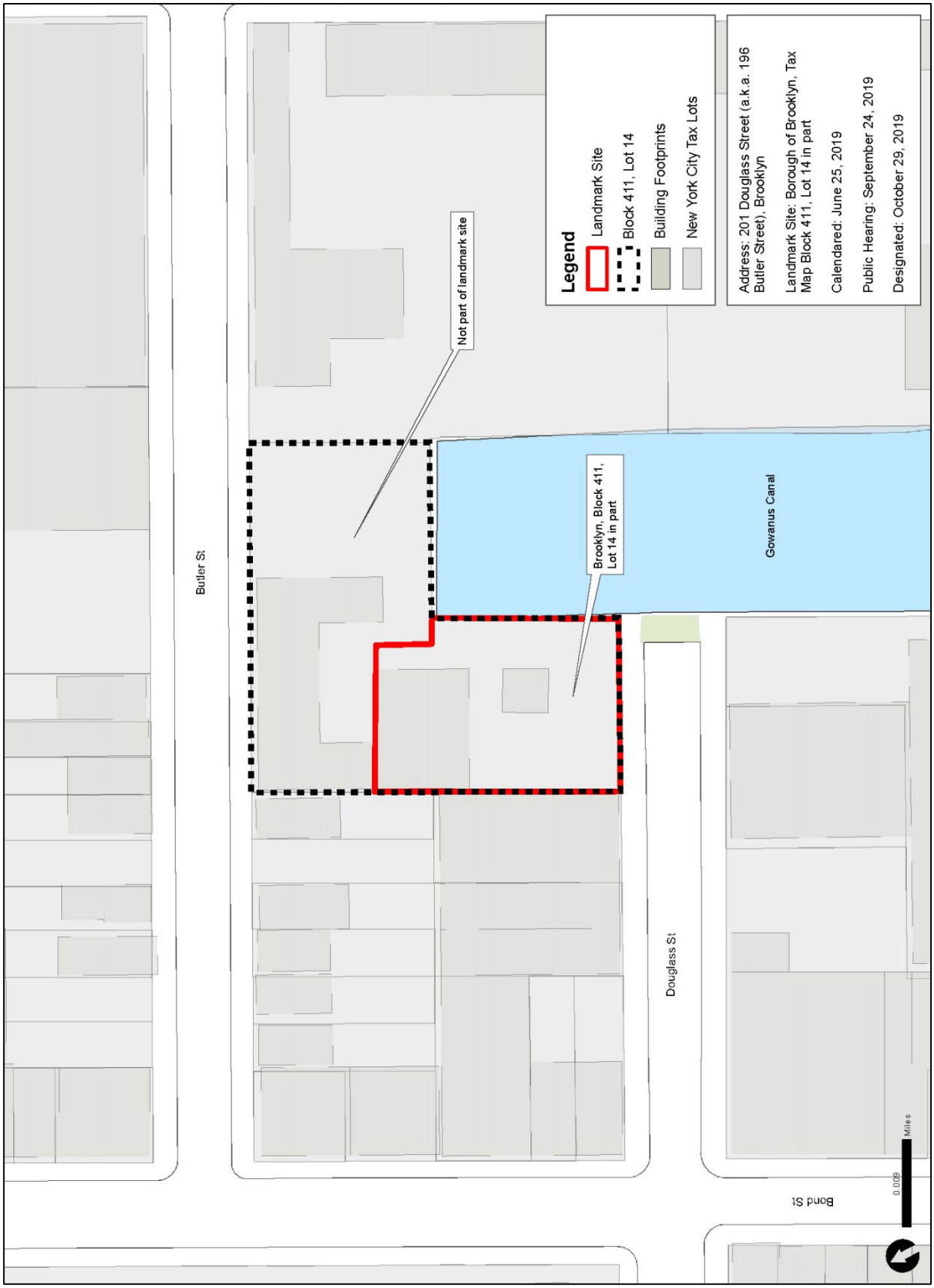
Dedicatory plaque
Marianne Percival, November 2019

Pumping Station, North elevation
Sarah Moses, November 2019

Window detail, North elevation
Marianne Percival, November 2019

Gate House, North and East elevations
Marianne Percival, November 2019

Gate House, West and South elevations
Sarah Moses, November 2019


Legend
Landmark Site
Block 411, Lot 14
Building Footprints
New York City Tax Lots
Address: 201 Douglass Street (a.k.a. 196 Butler Street), Brooklyn
Landmark Site: Borough of Brooklyn, Tax Map Block 411, Lot 14 in part
Calendared: June 25, 2019
Public Hearing: September 24, 2019
Designated: October 29, 2019
Not part of landmark site
Brooklyn, Block 411, Lot 14 in part
Gowanus Canal
Butler St
Douglass St
Bond St
0 600
Miles