Tidal Reservoir Inlet Bridge
West Potomac Park at Ohio Drive, S.W., spanning the inlet of the Tidal Basin
Washington
District of Columbia

HAER No. DC-9A

PHOTOGRAPHS
WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Historic American Engineering Record
National Park Service
Department of the Interior
Washington, DC 20013-7127

HAER
DC
WASH,
574-A-

HISTORIC AMERICAN ENGINEERING RECORD

TIDAL RESERVOIR INLET BRIDGE

HAER NO. DC-9-A

Location: West Potomac Park at Ohio Drive spanning the inlet of the Tidal Basin.

UTM: 18/323000/4305240
Quad: Washington West, D.C.

Dates of Construction: 1908-1909. Altered 1926, 1970, 1986.

Architect: Nathan C. Wyeth

Engineer: Col. Spencer Cosby, Army Corps of Engineers

Present Owner: National Capital Park Region
National Park Service

Present Use: Vehicular and pedestrian traffic bridge linking East Potomac Park with West Potomac Park.

Significance: The Tidal Reservoir Inlet Bridge is a successful blending of engineering designs and necessities while achieving the height of aesthetics. The tidal gates of the inlet control and regulate the water received from the river according to the tidal action and the pressure exerted or not exerted on the tidal gates. As a focal point of Potomac Park, the Tidal Reservoir Inlet Bridge contributed to the monumental design of the Capital City. Its configuration adheres to the park design concept that a bridge should blend into a park setting effectively so as not to detract from the park. The bridge was also designed to include a roadway at a time automobile traffic was only beginning to appear. The design of the bridge shows the influence of the Neo-Classical style with ornate details such as gargoyles and classical balustrades.

Historian: Mary Kendall Shipe, 1988

The idea for the Tidal Reservoir Inlet Bridge originated with the initial plans for the reclamation of the Potomac flats, a long term project that began in the 1880s. After the reservoir outlet was completed in 1889, the engineers decided to "let the necessity of inlet gates be determined by experience."[1] It was not until 1907 that action was taken towards building an inlet bridge. The inlet bridge was the "last engineering work of the [reclamation] project."[2] Colonel Charles Bromwell, the Officer in Charge of Public Buildings and Grounds, noted the necessity of a "connection" (or roadway) over the inlet. Furthermore, the Engineer District of D.C. had decided by 1907 that inlet gates were needed because of excessive siltage in the reservoir. The River and Harbor Act of 1907 made the construction of inlet gates official. Enough attention to Bromwell's suggestion about a bridge was taken so that additional funds were acquired by 1908 to combine the inlet gates with a bridge.

Begun in April,1908,[3] construction of the Inlet Bridge used a cofferdam set in place after dredging and employed the same equipment and tools used in the construction of the reservoir outlet. Carter and Clarke, a Washington, D.C. based contracting company, drove the 1,184 pilings. J.B. Kendall supplied steel for reinforcement. G.W. Manufacturing and Co. of New York City provided the gates and the operating mechanisms at a cost of $8,997. Colonel Spencer Cosby and later Major Jay Morrow, both of the Army Corps of Engineers, supervised the construction of the Inlet Bridge and employed day labor for the construction. Completion of the project required a period of three years with the final cost of the structure totaling $120,000.

The architect of the bridge, Nathan C. Wyeth, employed the use of "ornamental concrete" with exposed aggregrate facing on this reinforced concrete structure. The Inlet Bridge measures 184 feet in length with a twenty-five foot width of road further widened by a seven foot three inch sidewalk on each side. The central span, which contains a lock, breaks the architectural line of the bridge. Two pairs of concrete piers adorn the removable central span which is forty-six feet eight inches by twenty-six feet. The central span section projects out several feet from the rest of the bridge on the Potomac River side. A pair of concrete piers rests at each end of the bridge. A concrete balustrade with an open circle pattern connects the piers on each side of the bridge; the balustrade follows the line that projects outward in the center. An iron railing has replaced the central span section of the balustrade.

The fixed span on either side of the central span contains two round-headed

---

[1] Peter Hains, "Reclamation of Potomac Flats at Washington, D.C.," ASCE Transactions, January 1894, p. 75.

[2] Kress-Cox Associates, Inc., Historic Structure Report: Tidal Basin Inlet Bridge (Washington, D.C., May, 1976), p. 18.

[3] "Inlet Bridge Ready," Washington Evening Star, 4 August 1909, p. 8.

arches. The concrete surface looks like masonry through the use of scoring. Within each arch are two smaller arches. The architectural treatment on the river elevation is a cover for the curtain gate machinery platform underneath. On the basin elevation, the tidal gates did not require a cover. The two concrete piers on either side of the central span on this side contain niches which hold bronze fountains. The water from these fountains runs through the piers out to the other side through the mouths of two grotesque figures (cast-concrete heads) which have concrete drip (or splash) panels underneath them for the waste water to drain down.

The present deck of the bridge is reinforced concrete. It originally consisted of stone flooring covered by macadam pavement.

The bridge consists of wooden tidal gates and steel curtain gates. The tidal gates work automatically according to the level of the tide (the same as the outlet bridge). They open during flood tide and close during ebb tide, flushing the water through the basin to the outlet. The curtain gates were to be used to close the basin during floods to prevent siltage from "turbid" waters. Located on the Potomac River side, they could be lowered by machinery for use.

An interesting feature of the bridge is the lock that is located in the central span. The lock allowed the passage of small craft in and out of the basin. Above the lock was a "lift draw" mechanism which was a removable floor system. This would take a couple of hours to operate in order to allow the passage of larger vessels such as dredgers or presidential boats into the basin. Authority to utilize this feature was limited to the chief engineer. The lift draw mechanism was probably never operated,[4] and it was eventually replaced with a fixed span in 1985.

The bridge was installed with liquid chlorine dispensers in the arches in 1918. These dispensers would chlorinate the tidal basin water for the public bathing beach (now the site of the Jefferson Memorial) that was in use from 1918 to 1925.[5]

Bronze lighting standards were a specific element of Nathan Wyeth's design of the bridge since they complimented the design and style of the bridge. The standards were placed on top of the four concrete piers on the central lock span in 1912. The final design for the lighting standards was a collaboration between John Williams, Inc., and Wyeth. The Roman Bronze Works of New York manufactured the standards at a cost of $2,130. They consisted of 100 candle power standards and "alabasterine" white glass globes. After their installation in 1912, the bridge was complete.

---

[4] Kress-Cox Associates, Inc., p. 65.

[5] The Tidal Basin beach was closed over the issue of racial integration. (Kress-Cox Associates, Inc., p. 34.)

From the beginning, the inlet bridge was not only a functional structure on its own[6] but also an integral link to the larger entity surrounding it: Potomac Park. The bridge reflects the principles of landscape architecture and park design which were promoted by the McMillan Commission of 1901 for the Mall area that included Potomac Park. Since it was located at a point of high visibility in the park, it was "essential that it be an aesthetically pleasing design."[7]

There were many activities that occurred in West Potomac Park which the inlet bridge facilitated by its construction. Colonel Cosby constructed a bandstand in 1909 near the bridge. The opening of the bridge provided easy access to the new bandstand. The President's wife, Mrs. William Howard Taft, "promoted building a fine bandstand"[8] and arranged a number of concerts after its fabrication. The Inlet Bridge facilitated other activities in the park including the cherry blossom viewing and the establishment of a public bathing beach. Because the amount of vehicular traffic across the bridge could not be properly calculated at the time of its construction, the problem of increased traffic resulting in traffic jams from the above mentioned activities arose by the late teens.[9] There was an attempt at solving the problem in 1922 by establishing one-way traffic on the bridge which was only a temporary solution. In 1926, the bridge was widened from twenty-five feet to thirty-two feet because the traffic flow had increased to more than the bridge could handle.

At the time of the construction of the Inlet Bridge, the Army Corps of Engineers held a strict rein over bridge construction in Washington, D.C. They regulated construction by power given to them under the Act of 1884 and the River and Harbor Act of 1899.[10] Despite the utilitarian nature of the Army Corps of Engineers construction methods, the engineers had become receptive to the combination of engineering and aesthetics in their bridge design.

By the first decade of the twentieth century, the European appreciation of memorial and monumental construction was well established in the city of

---

[6] Functioning of the Inlet Bridge included use as roadway, inlet gates, lock, and passage for small craft.

[7] Kress-Cox Associates, Inc., p. 52.

[8] Alberta Powell Graham, Washington, The Story of Our Capital (New York: Thomas Nelson and Sons, 1953), p. 97.

[9] "Traffic Rule May Break Bridge Jam," Washington Evening Star, 11 April 1922, p.2.

[10] The Act of 1884 was the first general law for regulation of bridge construction by the Army Corps of Engineers. The River and Harbor Act of 1889 stated that it was unlawful to construct a bridge over navigable waters without congressional authorization or without approval of the Chief of Engineers and Secretary of War. See Joanna Zangrado, Monumental Bridge Design in Washington, D.C. (Washington, D.C.: George Washington University, 1974), p. 27.

Washington, D.C. "The durable, safe, and historical"[11] form for a bridge in D.C. was the masonry arch. Stylistically, these arches were designed in the Neo-Classical style. Both the arch and the style derived from classical precedents. The Inlet Bridge conformed in style and form to the prevailing monumental scheme for structures at this time.

The Inlet Bridge exemplifies bridge construction of its period. As evidenced by the description of the bridge, it successsfully combines aesthetic considerations with utilitarian purposes. The Army Corps of Engineers closely supervised its construction. They chose an architect whose work represented the Neo-Classical revival style: Nathan C. Wyeth. Wyeth had established a notable career as a prestigious architect in D.C. by the early 1900s and his reputation continued with subsequent works such as the Key Bridge at Georgetown. He graduated from L'Ecole des Beaux Arts in 1899. The school's imprint on Wyeth is obvious in design elements of the Inlet Bridge. The gargoyles, fountains, splash panels, lighting standards and balustrade pattern are all derived from the Neo-Classical style. It is noted that "the major influence on leading architects from 1880 to 1920 was L'Ecole des Beaux Arts."[12] Despite a pattern of constructing purely functional structures, the engineers involved in the project (Cosby, Morrow and Bromwell) accepted the importance of aesthetics treatments in bridge design. They expressed the belief that the bridge required an aesthetic design since it was a focal point of Potomac Park. By the late 1890s, park bridges had begun to receive attention from a design perspective;[13] the Army Corps of Engineers endorsed this attention through their selection of Wyeth as designer of the Inlet Bridge.

Throughout its history, the bridge has undergone a number of alterations beginning in 1926 with the widening of the structure to thirty-two feet. The 1926 alteration included the replacement of one of the sidewalks with a bridle path and the placement of steel I beams underneath the roadway. The lighting standards were removed at this time. Between 1969 and 1971, other alterations took place including the removal and replacement of the tidal gate spans. From 1985 to 1986, the bridge underwent major repairs. Most noteworthy was the replacement of the removable lock span with a fixed reinforced concrete span. (The removable lock span was probably never used.) At this time, general restoration of the bridge occurred: the replacement of deteriorating sections, cleaning of the entire structure, general maintenance.[14]

---

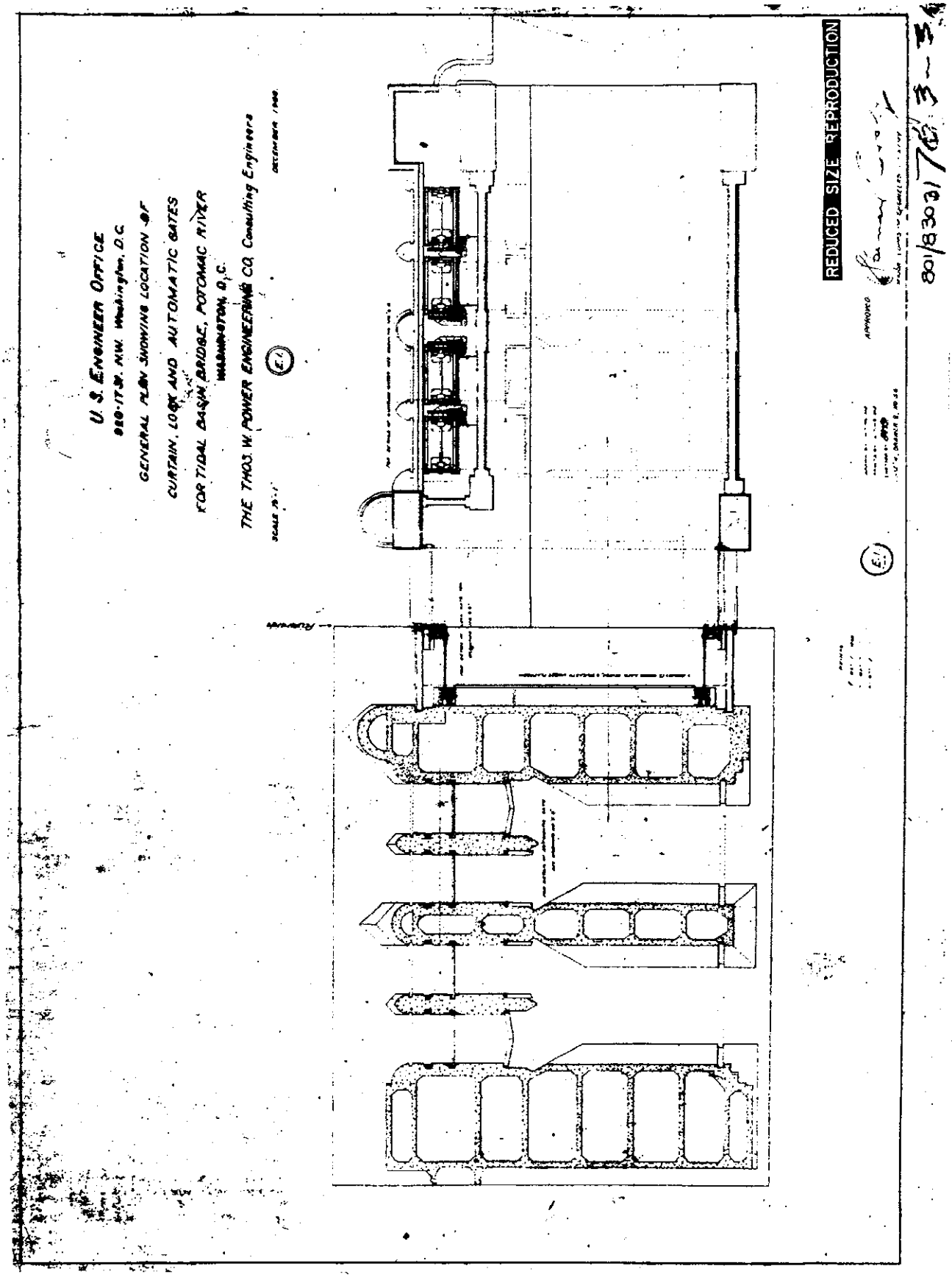
[11] Zangrado, p. 189.

[12] Ibid., p. 215.

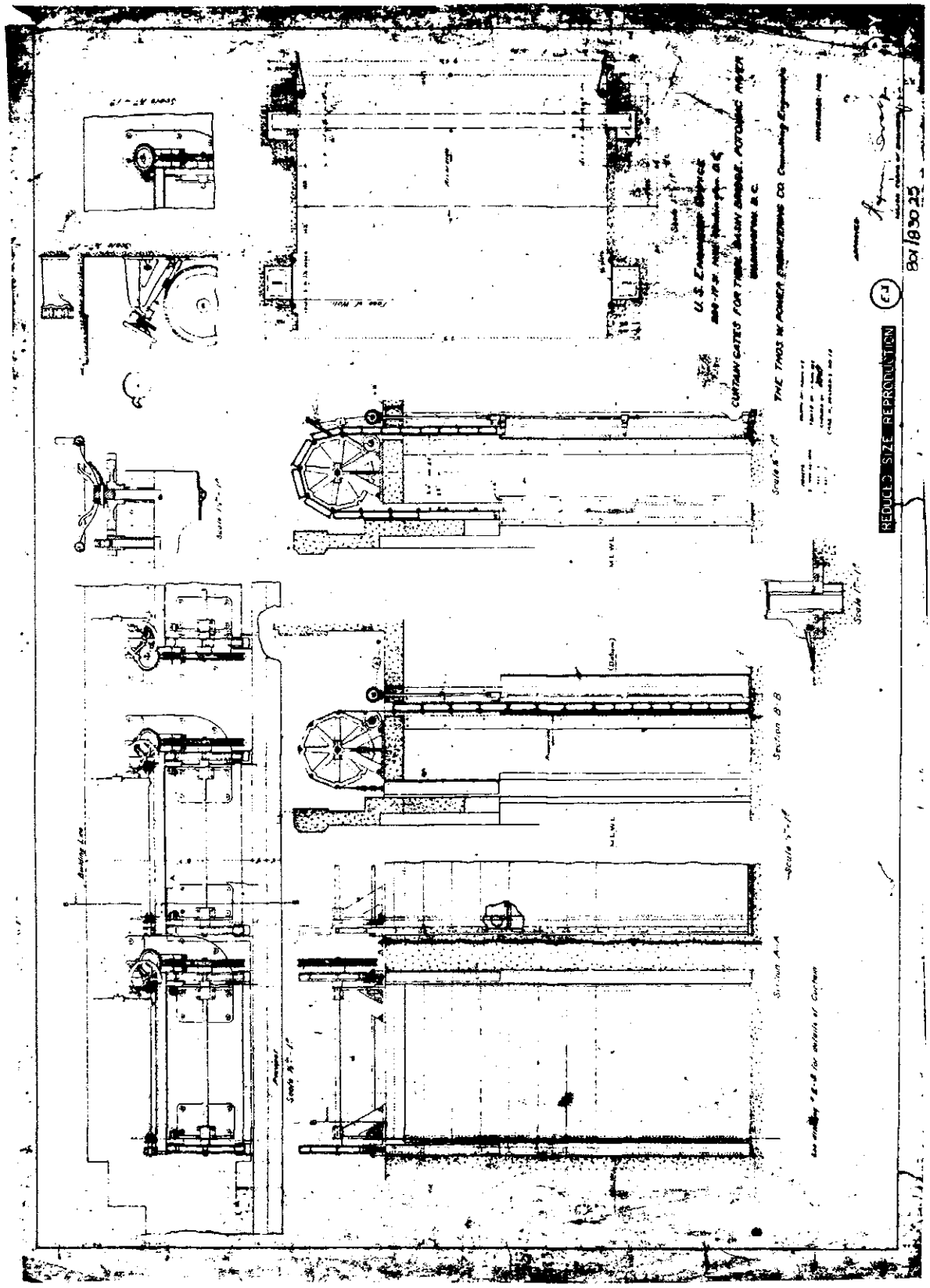
[13] Ibid., p. 25.

[14] Drawings of repairs and restoration enacted at this time show specific outlines and details of the work. The gargoyles were stolen when they were being cleaned, and replaced with a substitute configuration of a man's face. (Federal Highway Administration, "Final Construction Report, Project No. 32B1," National Capital Parks, Central, 1987.)

"General Plan"--Drawing Files, National Capital Region, National Park Service



"Curtain Gates..."--Drawing Files, National Capital Region, NPS



BIBLIOGRAPHY

"Bids to Widen Bridge Over Park Inlet Opened." Washington Evening Star, 20 April 1926, p. 24.

"Bridging Tidal Basin." Washington Evening Star, 22 July 1909, p. 2.

Chappell, Gordon. Historic Resource Study: East and West Potomac Parks. Denver Service Center, National Park Service, June 1973.

Cowdrey, Albert E. A City for the Nation. Washington, D.C.: Office of Administrative Services, May 1979.

Federal Highway Administration. "Final Construction Report, Project No. 32B1," National Capital Parks, Central, 1987.

Gatchel, Theodore Dodge. Rambling Through Washington. Washington, D.C., 1932.

Graham, Alberta Powell. Washington, The Story of Our Capital. New York: Thomas Nelson and Sons, 1953.

Hagner, Alexander E. Some Remarks on the History and Uses of Potomac Park. Washington, D.C.: Government Printing Office, 1902.

Hains, Peter. "Reclamation of Potomac Flats at Washington, D.C." ASCE Transactions, January 1894.

"Improvement of Potomac Flats, Washington." Scientific American, September 1891.

"Inlet Bridge Ready." Washington Evening Star, 4 August 1909, p. 8.

Kress-Cox Associates, Inc. Historic Structure Report: Arlington Memorial Bridge. Washington, D.C., May, 1986.

Kress-Cox Associates, Inc. Historic Structure Report: Tidal Basin Inlet Bridge. Washington, D.C., May 1986.

"May Be Opened This Week." Washington Evening Star, 25 July 1909, p. 1.

National Archives and Records Service. Washington: Design of the Federal City. Washington, D.C.: Acropolis Books, 1981.

Olszewski, George J. History of the Mall. Eastern Service Center: Office of History and Historic Architecture, National Park Service, March 1970.

Phillips, Angus. "Inlet Gates of Tidal Basin Blamed for Stagnant Water." Washington Post, 4 April 1978, D1.

"Potomac Dredged." Washington Evening Star, 18 July 1935. (Tidal Basin Vertical

File, Martin Luther King Library.)

Report of the Chief of Engineers, "Inlet Bridge" [photograph] 1910. (Bridge File, Martin Luther King Library.)

"River Park Plans." Washington Evening Star, 4 August 1910, p. 2.

"The Filled Up Channels." Washington Evening Star, 10 June 1889, p. 5.

The Improvement of the Park System of D.C. Washington, D.C.: Government Printing Office, 1902.

"The New Bridge." Washington Evening Star, 18 May 1909, p. 8.

"Traffic Rule May Break Bridge Jam." Washington Evening Star, 11 April 1922, p. 2.

Washington Evening Star, 15 July 1909, p. 3.

"Washington: The Development and Improvement of the Park System." American Architect, February 1902.

Zangrado, Joanna. Monumental Bridge Design in Washington, D.C. Washington, D.C.: George Washington University, 1974.

ADDENDUM TO:
TIDAL RESERVOIR, INLET BRIDGE
(Tidal Basin, Inlet Bridge)
Ohio Drive, spanning the Inlet of the Tidal Basin
Washington
District of Columbia

HAER No. DC-9-A

REDUCED COPIES OF MEASURED DRAWINGS

HISTORIC AMERICAN ENGINEERING RECORD
National Park Service
U.S. Department of the Interior
1849 C St. NW
Washington, DC 20240