

NORWICH WATER POWER COMPANY, CANAL SPILLWAY HAER No. CT-147-C
West bank of Shetucket River,
between Thirteenth and Fourteenth Streets
Greenville Section
Norwich
New London County
Connecticut

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PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD

National Park Service
Northeast Region
Philadelphia Support Office
U.S. Custom House
200 Chestnut Street
Philadelphia, P.A. 19106

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HAER No. CT-147-C

Location: West bank of Shetucket River,
between Thirteenth and Fourteenth
Streets
Greeneville section, Norwich
New London County, Connecticut

USGS Norwich Quadrangle
UTM Coordinates: 18.745900.4602540

Date of Construction: 1923

Engineer: Chandler and Palmer

Present Owner: City of Norwich, Connecticut
City Hall
Norwich, Connecticut 06360

Present Use: Overflow protection for canal

Significance: The canal spillway is of historical
interest as part of an early 20th-
century program of improvements to the
dam, headgates, and canal of the
Norwich Water Power Company. The
reinforced-concrete structure provided
a replacement for the original 1882
spillway, as well as a substantial
bridge for the access road to the dam
and headgates. The canal, originally
laid out in 1829, was still important
in the early 20th century as a source
of water and waterpower for the
numerous factories along its banks.

Project Information: This documentation was undertaken in
1994-1996 in accordance with a
Memorandum of Agreement among the
Federal Energy Regulatory Commission,
the Connecticut State Historic
Preservation Office, and the Advisory
Council on Historic Preservation. The
associated dam will be modified to
accommodate a fish passage.

Bruce Clouette
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Description

Part of the waterpower facility formerly operated by the Norwich Water Power Company, the spillway is located immediately downstream from an 1882 dam and headgate structure and forms part of the east wall of the power canal, separating it from the Shetucket River. At the spillway, the water in the canal is held back by a reinforced-concrete retaining wall (called a "core wall" on the plans) that is 13 feet high and 6 feet wide at the base, with the width tapering on the river side to 2 1/2 feet at the top. The spillway extends 105 feet between walls of large-scale granite rubble that define the headgate bulkhead on the north and the canal embankment on the south. The top of the spillway wall is 20 feet above the level of the river and 3 1/2 feet below the top of the canal embankment.

Water passing over the wall cascades over two sloping shelves or aprons built of reinforced-concrete slabs. The first is 16 feet wide and creates a drop of about 4 feet at its edge; the second, varying in width from about 12 feet to 24 feet, provides a drop of about 14 feet to the river, where the bottom is protected by a wide apron of horizontal timber sheathing.

Extending across the spillway is a bridge for the access road to the dam and headgates. The bridge is 12 feet wide and is carried on a series of 13 piers. The piers are 3 feet high and 12 inches wide and are spaced 8 1/2 feet on center. In addition to carrying the bridge, the piers also provide support for flashboards which can be installed in a groove in the retaining wall. Plans show the original deck as wooden planks nailed to timber stringers spanning the piers; this has been replaced by the present concrete-slab deck.

Historical Background and Technological Significance

The function of the canal spillway is to set an upper limit to the level of water in the canal. The spillway allows the operation of the system during periods of high water by providing a way for water to flow out of the canal in a controlled manner, rather than rising up the canal's embankments and thereby posing the danger of washouts. Without such a feature, referred to as a "waste weir" when the present dam was built in 1882, the canal could not safely be used when the water level behind the dam was higher than normal.

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The waste weir or spillway as originally built in 1882 was about the same size as the present one, but it appears it had only one step built into it rather than the present two-tier design. Its material and design are not evident from historical descriptions, plans, or views. In 1915, the dam was substantially rebuilt, including the top several courses of timber cribbing, and all of the timber apron at the downstream base of the dam was replaced, including, presumably, the apron in front of the spillway (the permit application for that project did not specifically address the spillway).

The structure dates from 1923. In that year, the engineering firm of Chandler and Palmer prepared plans for a new canal spillway for the Norwich Water Power Company, reusing only the stonework of the old spillway's sidewalls and perhaps the front wall of the lower apron. It is not known what prompted the replacement; however, the 1915 project was undertaken because of substantial deterioration of the dam's timber components, so it seems likely that the original spillway may have reached the end of its lifetime as well. The new spillway provided an exceptionally strong retaining wall for the canal (the new reinforced-concrete "core wall" shown on the plans), a structurally sound bridge for the access road, and perhaps better long-term erosion control by providing two drops to break the fall of the overflowing water rather than one.

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