

Brecksville Dam

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Executive Summary

In 1951, the Ohio Department of Public Works oversaw the construction of the Brecksville Dam. American Steel & Wire Company, the lessee of several miles of the Ohio & Erie Canal including the Brecksville Dam and Canal Feeder complex, funded the project. The new dam is constructed approximately 120 feet north of the location of the original Brecksville Dam and there is a possibility that sections of the original crib dam may still be extant, submerged in the river's slackwater pool.

The Brecksville Dam Feeder Complex, which consists of the dam, head gates, and canal feeder channel, is a significant cultural landscape component to the functioning of the Ohio & Erie Canal. Since 1827, the Brecksville Feeder Complex has "charged" the canal with water and provided hydraulic power for industries north to Cleveland. The Brecksville Feeder Complex remains an important canal engineering feature on one of the few remaining watered sections of the Ohio & Erie Canal.

Historical Background

The Brecksville Feeder Channel was one of only two feeder channels located in the Cuyahoga Valley and it was also responsible for the watering of the canal from Brecksville, Ohio north to Locks 43 and 44 in Cleveland's flats. According to the Historic Structure Report prepared for the Ohio & Erie Canal in the Cuyahoga Valley, the first reference to the construction of the dam is found shortly after the initial operation of the canal. In the rush to open the first section of the O&E Canal from Cleveland to Akron, there was insufficient water supply to operate the canal. There was a real need to get the canal operational to raise investment capital to complete the entire 308 miles of the system down to Portsmouth, Ohio.

The interruptions to canal operation and navigation during the initial summer of operation, 1827, caused immediate efforts to complete the improvements to have a sufficient amount of water in the system. In 1828, plans were made to construct two “feeders” in the Cuyahoga Valley. One feeder was built near Lock 21 (Old Portage) and another was built just south of Lock 36 in the Pinery Narrows area of the Cuyahoga Valley. The “Pinery Dam” as it became to be called is what we call today the Brecksville Dam.¹

In July 1827, a temporary feeder connecting to the Cuyahoga River was constructed to enter the canal below Lock 36 at the “Pinery” while plans were being developed for a permanent feeder complex. On July 26 a contract was let to Henry R. Burnham to build a permanent dam and feeder that would become known as the “Pinery Feeder Dam Complex” at that same location. According to the terms of the contract, Burnham would,

Construct a dam across the Cuyahoga River near the head of the first rapids below the mouth of Chippewa Creek, & a feeder from thence to the canal below the lock [No. 36] ... The walls of the head or guardgates to be built of stone masonry in the same manner as to the kind of work as lock walls are required to be built on the Canal, the dam to be formed by timber bolted to the rock at the bottom of the river...²

The Pinery Feeder and Dam Complex were completed to a point that it was operational during the fall of 1827. The original contract with Burnham must have been canceled and a new contract was let to William Brown and Merrick Sawyer to finish the construction of the complex. By the publication of the *Eleventh Annual Report of the*

¹ *Sixth Annual Report of the Board of Canal Commissioners*, January 17, 1827 [1828], Kilbourn, *Public Documents*, 275-276.

² Articles of Agreement between Henry R. Burnham and Alfred Kelley, July 26, 1827, “Contracts,” Record of the Department of Public Works of Ohio, Series 1231, Ohio Historical Society.

Board of Canal Commissioners in January 1833 the Pinery Feeder complex was completed. The Commissioners write,

Immediately below lock no. thirty six, north of Portage summit, seventeen miles from Cleveland, a copious and constant supply of water is introduced from the Cuyahoga by means of a feeder of twelve miles in length, called the "Pinery Feeder." The surface of the rock which forms the bed of the river having about the same elevation, as the water line of the level, into which the feeder is introduced, the dam at its head is required to be of no greater elevation than is necessary to divert the proper quantity of water from the river into the canal, and is formed by bolting timbers to the rock. Besides furnishing water for navigation, this feeder furnishes a large quantity which may be used for hydraulic purposes, both at Cleveland and the intermediate locks, round which an ample stream constantly flows from one level to another. ³

Flooding in 1856-57 took a serious toll on the canal's infrastructure, including the Pinery Feeder Dam. In 1857, the state rebuilt the west half of the Pinery Feeder Dam.

In 1875, approximately half of the Pinery Feeder Dam was rebuilt. According to state reports, the slope of the dam was re-sheeted and the stone abutment on the one side of the dam was replaced.⁴ In 1877, the Pinery Feeder, including the large sluice and wasteway, were rebuilt. Again, flooding in 1884 took its toll on the Pinery Feeder and Dam and sections were repaired from flooding damage.

The earliest canal survey map that shows the Pinery Dam and Feeder is the 1892 Map of the Ohio Canal survey map. The dam appears on the map as a V-shaped structure facing south, toward the northerly flow of the Cuyahoga River. The map indicates that the center section on the dam contained a structure called on the map a "fish chute." The alignment of the dam appears to be further south, closer to the head gates, than the existing dam (See Attachment 1).

³ *Eleventh Annual Report of the Board of Canal Commissioners*, January 22, 1833.

⁴ *Thirty-Seventh Annual Report of the Board of the Public Works of Ohio*, December 1875, 19.

In 1902, the Pinery Feeder Dam was raised one foot to catch additional water. From 1905 to 1909, the Ohio Board of Public Works undertook a substantial rehabilitation project on the Northern Division of the Ohio & Erie Canal, from Cleveland to Newark, Ohio. The Pinery Dam and Feeder complex was rebuilt by state forces.

In 1905, the Pinery Feeder Dam, Sluice and Weirs, and Head gates of the Pinery Complex. The sluice and weirs of the Pinery Feeder were rebuilt at a cost of \$2,015.62. The head gates of the dam were rebuilt at a cost of \$1,096.19. The dam at Brecksville was repaired for approximately \$266.69. Apparently, the rehabilitation on the dam was minimal and probably only consisted of a re-cribbing of the structure (See Attachment 2).

The Pinery Dam and Feeder Complex experienced damage from the Flood of 1913. One of the two scenes of maximum flooding damage on the Ohio & Erie Canal in the Northern Division was the Portage Summit at Akron north to Brecksville. Between these two points, a distance of 16 miles, the canal was destroyed. The sub-sector from Brecksville to Cleveland was considered salvageable, because it had a good supply of water and furnished it to “several important industrial establishments.”⁵

Whether the dam and head gates were substantially rebuilt immediately after the Flood of 1913 is not known. In 1916, the dam appears on a state survey map of canal properties and apparently was functioning. The Cuyahoga County Engineers built the Brecksville-Northfield High Level Bridge in 1930-31. The bridge spans both the Ohio & Erie Canal prism and the Brecksville Feeder, suggesting the dam still provided a water source for the canal.

⁵ *Seventy-Fifth Annual Report of the Board of Public Works, 1913, 5.*

The next major improvements made to the Brecksville Dam and head gates occurred between 1949 and 1954 and were conducted by American Steel & Wire Company, which was part of United States Steel.

In October 1943, American Steel & Wire entered into a lease agreement with the State of Ohio (Department of Public Works) to lease the “surplus water not needed for navigation in the Ohio Canal between Stations 136+00 and 777+00 of G.F. Silliman’s Survey of the Ohio Canal.”⁶ This segment includes several locks, two aqueducts, and the Brecksville Feeder Complex. The hydraulic rights were critical to the operation of American Steel & Wire (AS&W) Company’s “Cuyahoga Works” in Cuyahoga Heights, Ohio. As a result, AS&W performed routine maintenance on the canal’s structures to assure a consistent flow of water in the canal. In 1949, AS&W replaced the Brecksville Dam head gates with a new, reinforced concrete head gate complete with new control valves.⁷ Two years later, AS&W replaced the dam.

In 1951, the lease between American Steel & Wire (AS&W) Company and the Ohio Department of Public Works was amended for the construction of a “new concrete dam and embankments.” According to the amended lease, AS&W made an expenditure of \$95,000 for the construction of the dam.⁸ Cuyahoga Valley National Park has a complete set of the 1951 construction plans entitled *Construction Plans of Brecksville Diversion Dam, Cuyahoga and Summit Counties, Ohio*. The contractor on the project is not known at this time.

The “new” Brecksville Dam is located approximately 120 feet north of the original crib dam. According to the construction plans, the crib dam was to be left *in-situ* with only a 20-foot breach to allow water to flow through (see Attachment 3). The top elevation of the crib dam is

⁶ A copy of the Lease of Water and Canal Lands, 8 December 1970, is located in HS-100 file.

⁷ See HS-100 “Flat File” for a copy of the AS&W drawings of the “Ohio Canal Inlet Gates.”

89 feet; one foot lower than the new dam. It is not known if parts of the crib dam remain submerged in the slackwater pool and an investigation should be conducted to determine if sections of the crib dam are extant.

From 1952, American Steel & Wire continued to maintain the Brecksville Dam and head gate until the late 1980s. In 1988, the Ohio Department of Natural Resources transferred the Ohio & Erie Canal lands within the Cuyahoga Valley National Park to the National Park Service.

⁸ *Lease of Water and Canal Lands between Ohio Department of Public Works and American Steel & Wire Company*, HS-100 File.