**INDIVIDUAL INVENTORY FORM** **NHDHR INVENTORY** DUR0018

**Name, Location, Ownership**

1. Historic name: Oyster River Mill Pond Dam
2. District or area: Durham Historic District (NR and Local)
3. Street and number: Oyster River near Newmarket Road (NH 108)
4. City or town: Durham
5. County: Strafford
6. Current owner: Town of Durham, Stephen Burns and Andrea Bodo

**Function or Use**

7. Current use(s): Dam
8. Historic use(s): Dam

**Architectural Information**

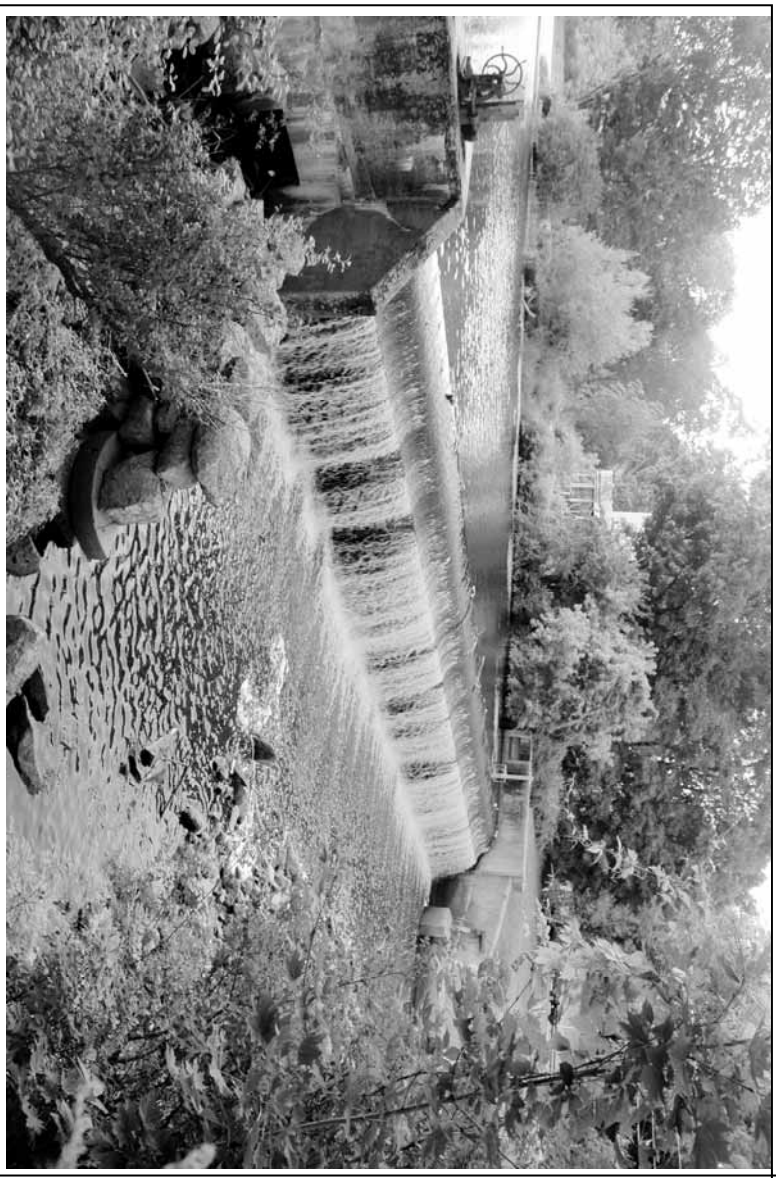
9. Style: Other: Ambursen-type Dam
10. Architect/builder: C.E. Hewitt/D. Chesley
11. Source: bronze plaque
12. Construction date: 1913
13. Source: bronze plaque
14. Alterations, with dates: repairs, fish ladder 1974-75
15. Moved? no ☒ yes ☐ date: N/A

**Exterior Features**

16. Foundation: concrete
17. Cladding: concrete
18. Roof material: N/A
19. Chimney material: N/A
20. Type of roof: N/A
21. Chimney location: N/A
22. Number of stories: N/A
23. Entry location: N/A
24. Windows: N/A

Site Features

25. Setting: small town or village center, waterfront
26. Outbuildings: none
27. Landscape features: pond, river, stonewalls
28. Acreage: less than one acre
29. Tax map/parcel: 5/3-3 (and 6/9-1)



35. Photo #1 Direction: SE
36. Date: August 2013
37. Image file name: DUR0018_01

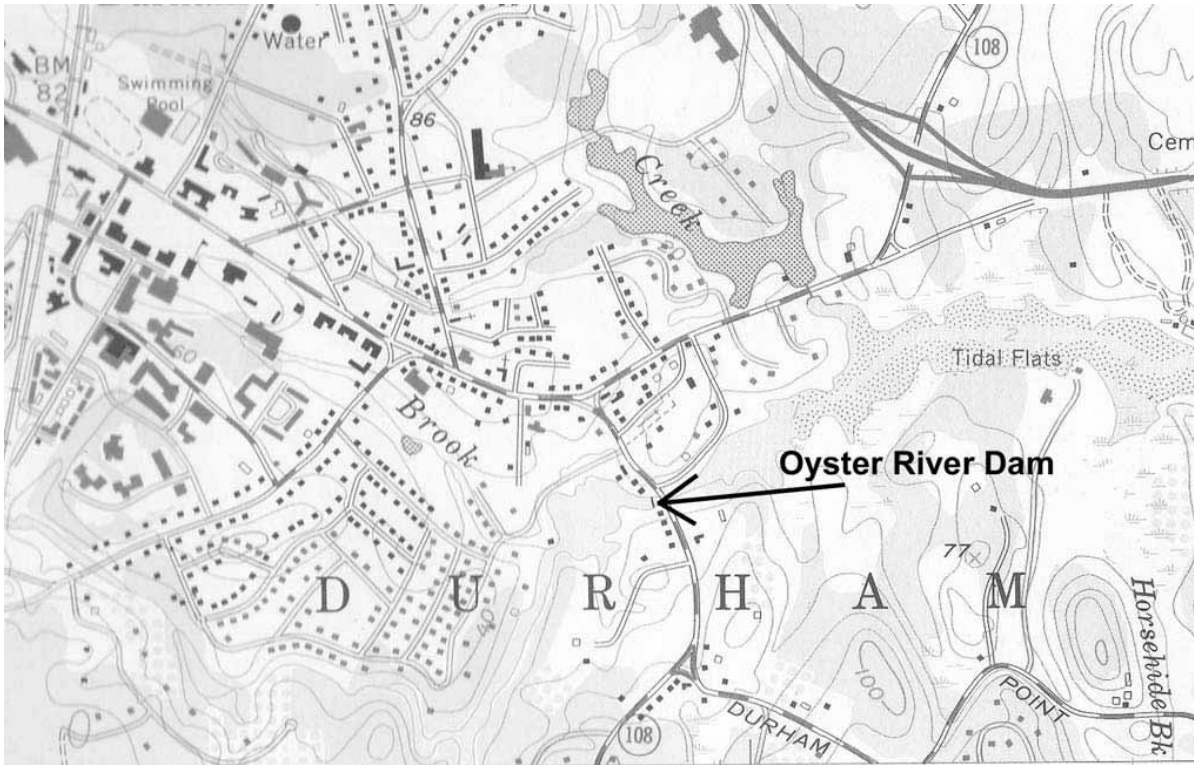
30 UTM reference: zone 19, 343929E, 4777137N

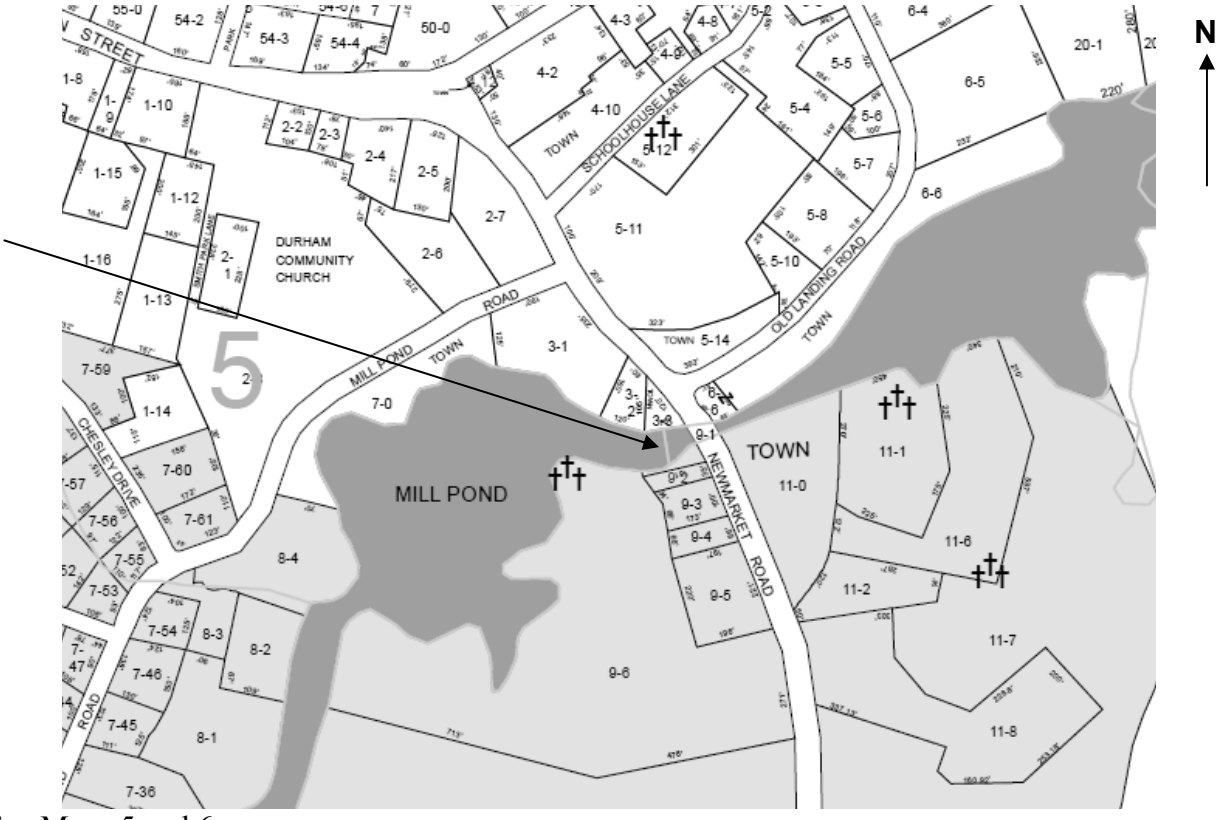
31. USGS quadrangle and scale: Dover, NH West, 1:24000

**Form prepared by**

32. Name: Kari Laprey, Lynne Monroe, after Lord and Bodo 2009
33. Organization: Preservation Company, Kensington, NH
34. Date of survey: August 2013

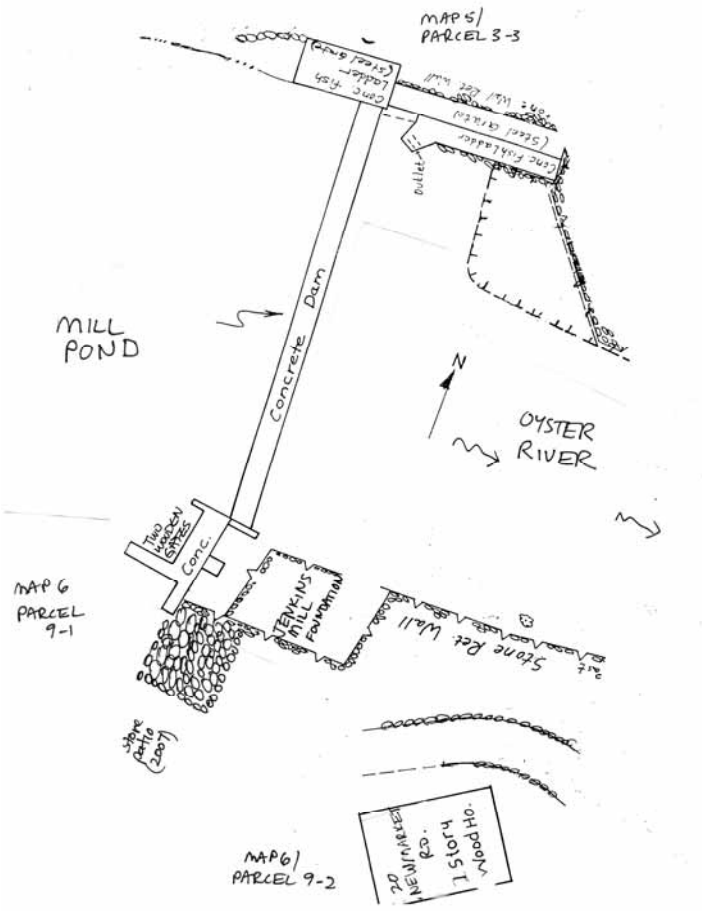
39. LOCATION MAP:




Tax Maps 5 and 6

40. PROPERTY MAPS:

**Methodology**

This NHDHR Inventory form for the Oyster River Mill Pond Dam was prepared for the Town of Durham and the Durham Historic District and Heritage Commission at the time of the dam's 100th anniversary in 2013. The goal is to bring documentation of the Oyster River Dam up to date, in order to qualify for listing in the New Hampshire State Register of Historic Places. A previous NHDHR inventory form for the Dam was submitted to the New Hampshire Division of Historic Resources in 2008, and revised in 2009, by Richard Lord and Andrea Bodo of the Durham Historic Association and Durham Historic District and Heritage Commission. A Determination of Eligibility for the National Register of Historic Places was made on 3/25/2009. Significance was under Criterion C for engineering. Additional information was requested for a determination of significance under Criterion A for historic associations and Criterion D for archaeology. The status of the dam as a contributing structure in the National Register listed Durham Historic District also required clarification. The following inventory form relies heavily on the Lord-Bodo document of 2009, with additional information to address the outstanding questions.

Fieldwork and photography was completed in August 2013. The dam and adjacent shorelines were recorded. New photography meets current digital photographic requirements. Other views of the site in winter and at draw-down are included from various sources. A sketch map was created to show the locations of the dam and mill remains. Original prints of the 2009 photographs are on file at NHDHR. Historic photographs from the collections of the Durham Historic Association include an album documenting the construction of the dam in 1913. Research focused on the dam as a philanthropic project and memorial, and on the background of the engineers and builder. The Durham Public Works Department and the New Hampshire Department of Environmental Services (NHDES) Dam Bureau inspection files provided documentation of maintenance and repairs.

**41. Historical Background and Role in the Town or City's Development:**

*Introduction*

The Oyster River Dam or Mill Pond Dam was built in 1913 to replace an earlier timber dam. Construction of the new dam was funded by Mrs. Edith Congreve Onderdonk (1875-1919) whose family estate "Red Tower" bordered the north side of the Mill Pond. There had been a dam at the Oyster River Falls since the mid-1600s. Mills operated on both banks of the river. For many years, a sawmill stood on the north side and a gristmill on the south. By the early 1900s, the sawmill was gone and the gristmill used for limited purposes. When the old dam washed out in 1912, there was no incentive for the mill owners to rebuild. Mrs. Onderdonk's philanthropy preserved the scenic pond and water power. She dedicated it in memory of her step-father, former Durham benefactor Hamilton Smith, who made his fortune as a hydraulic mining engineer. The new dam was built by local masonry contractor Daniel Chesley and New Hampshire College engineer Charles E. Hewitt, using a buttressed concrete slab dam type like that patented by the Ambursen Hydraulic company in 1903. The dam was owned by Mrs. Onderdonk and her heirs and the Jenkins family had the right to use its waterpower for their mill that stood on the south embankment. In the 1960s, the Town of Durham took over ownership and maintenance of the dam. Repairs were made in 1974-1975, along with installation of a fish ladder at the north abutment. The dam, with its waterfall visible from Route 108 and the scenic Mill Pond it impounds, are well-known local landmarks within the town.

*Geographic Context*

The Oyster River flows in a winding course, west to east through Durham to its outlet in Little Bay. The dam is located at a natural falls, the lowest falls on the river, above the head of tidal waters.

These were known as Oyster River Falls or Durham Falls. The Mill Pond impounded by the dam is upstream to the west and southwest. The dam stands immediately west of the Newmarket Road/NH 108 Bridge.

Newmarket Road has always been a major north-south route through Durham. It connects to Main Street, which is uphill from and roughly parallel to the river. Properties on the south side of Main Street had land that extended down to the Mill Pond historically. Mill Pond Road was built along the north shore of the pond in the 1950s and the shoreline has been a small town-owned park since 1961, a popular site for viewing the swans and ice skating. The Red Tower estate that once bordered the pond now has twentieth century development separating the historic house from the vista it overlooked. The Red Tower mansion stands next to the Durham Community Church at 19 Main Street.

On the west side of Newmarket Road near the dam and bridge are properties associated with the historic mill sites powered from the dam. The yard of 14 Newmarket Road (map/parcel 5/3-2) borders the north bank of the river. The house is set back and the nineteenth century sawmill was located near the shore. The small triangular 0.1-acre parcel (map/parcel 5/3-3) at the north end of the dam was divided from the adjacent property in 1913 and has been owned along with the dam since that time. On the south bank of the river, the land that was the former mill site (map/parcel 6/9-1), along with the right to the water-power from the dam, is under the same ownership as the houses on Newmarket Road to the south (map/parcels 6/9-2 and 6/9-3). 20 Newmarket Road is a modern residence that replaced a 1930s cottage and 22 Newmarket Road is an eighteenth century house.

East of the bridge, below the falls, has always been a waterfront landing place along Old Landing Road. On the hillside above are the historic Three Chimneys Inn in the historic Frost-Sawyer House (17 Newmarket Road) and the smaller Yeaton-Gleason House (17 Old Landing Road). Both sides of the river east of the bridge form a town-owned park (maps/parcel 5/6-6 and 6/11-0). The historic Adams-Sullivan House (National Register listed 1973, a National Historic Landmark) is set back from the road (23 Newmarket Road).

Main Street and Newmarket Road between Madbury Road and Laurel Lane form the Durham Historic District, listed in the National Register of Historic Places in 1980 and designated as a Local Historic District.

*Historical Background*

Timber Dams and Water-powered Mills, 1649-1912

The mills and the riverfront landing and boatyards, now at the southeast edge of downtown Durham, were once the focus of the village center. The first settler Valentine Hill was granted land, including the right to erect a sawmill, at Oyster River Falls in 1649 (Stackpole 1913:71). Hill's home is now incorporated in the Three Chimneys Inn. Mills were located at both ends of the wooden dam. Over the years, the waterpower ran the sawmill and a grist mill, a tannery, blacksmith shop, monument works, shingle mill and cider mill. Oyster River Falls or The Falls was an early name for the community, part of Dover before the Town of Durham was incorporated in 1732 (Thompson 1892:172). At the upper end of the navigable Oyster River, a public landing was established in 1701. Shipbuilding took place nearby. Newmarket Road (NH Route 108) was an early road between the two riverfront settlements. The date of the first bridge is not known, but it was before the 1730s, and was replaced in 1744 by a bridge wide enough for carts to pass (Monroe 1989). Early houses south of the bridge, including the Adams-Sullivan House (23 Newmarket Road) and the Winborn Adams Tavern (20 Newmarket Road), were built around 1750. Neighbors Lt. Col. Adams

and General John Sullivan served during the 1774 raid on Fort William and Mary in New Castle (Hiatt 1980).

Immediately north of the dam, the property that became known as the Runlett House (14 Newmarket Road) also dates from the eighteenth century (Hiatt 1980). In the mid-nineteenth century, Samuel Runlett (1815-1906) secured the mill privilege on the northeast end of the dam. He built a combined sawmill and gristmill in 1860 that stood for about forty years (Thompson 1892: 172). The mill and adjacent property on the south bank was owned by the Jenkins family from before 1800. They had a grist mill and later in the nineteenth century, operated a tannery, cider mill and finally a machine shop in their mill (Durham Historic Association 1985:106; Hurd 1892; Directories 1892, 1900). The Runlett Mill came down shortly after 1900 around the time of its owner's death. The Jenkinses used the waterpower on a limited scale in the early 1900s. Fred E. Jenkins was a machinist with a shop in the old mill until ca. 1920. He also did carpentry and odd jobs (Census 1900, 1910). The timber dam had probably been replaced more than once before it washed out in a flood in 1912.

Smith/Onderdonk Family Background

Funding of the Oyster River Mill Pond Dam in 1913 was part of a tradition of philanthropy to the Town and the University by the Hamilton Smith family whose home, Red Tower, was a major feature of the downtown at the turn-of-the-twentieth century. Mrs. Edith Onderdonk built the new state of the art dam in memory of her step-father Hamilton who died in 1900. The dam preserved the waterfront setting of her property, which was her primary residence in the 1910s, though she traveled frequently.

Born in New York and raised in England, Edith Angela Congreve came to Durham with her mother Alice and step-father Hamilton Smith in 1896, to the estate he created near his family homestead on Main Street. Hamilton B. Smith (1840-1900) was born and raised outside of Louisville, Kentucky, near his father's coal mines in Cannelton, Indiana. He spent time with his grandparents in Durham (18 Main) in the 1850s. Self-taught as an engineer, Hamilton Smith became an expert on hydraulic mining. From California gold mining in the 1870s, he worked for the Rothschilds in Venezuela and then formed his own South African gold and diamond mining firm based in London. Smith was involved in underground railway construction in London and Paris and invested in Alaskan mining. Hamilton Smith and Alice Robinson Jennings Congreve were married in London in 1886. She was the widow of Charles M. Congreve and her daughter Edith Angela was eleven. The Smith and Jennings families had been connected for many years by marriage and by the mine engineering field. After ten years in London, the family returned to the United States where Smith acquired property in 1895 and remodeled an earlier house into a Colonial Revival style mansion (19 Main Street). This became known as "Red Tower" for its paint color and the square tower-like extension on the rear. In 1898, Smith purchased additional tracts of land behind the house, southwest to the Oyster River. The seventy-acre property was landscaped with gardens and lawns near the house. Fields were bordered by woods along the river and there were paths with gazebos and benches (Foster 1907). Associated farm buildings (dairy and herdsman's house) are still extant along Mill Pond Road. Water was pumped up from the pond to a water tower at the back of the house (now gone). The Smiths were supporters of the new local college. In 1897, a donation of $10,000 established the Valentine Smith scholarship for non-resident students. Hamilton Smith enjoyed his home only a few years. He died suddenly in 1900, just before his sixtieth birthday. He was buried near the river and his widow Alice Hamilton Smith erected the stone chapel in his memory. Smith's will bequeathed $10,000 for construction of a public library in Durham, and this was used to build Hamilton Smith Library jointly with the College and Andrew Carnegie in 1907.

Mrs. Smith maintained the Durham home, between travels to Europe. She later established a second residence in Washington, DC. Daughter Edith Angela Congreve was married in Durham in June 1901 to Shirley Onderdonk, an engineer and former business associate of her late step-father. Onderdonk, born in New Jersey, was the son of wealthy construction contractor Andrew Onderdonk (1848-1905). The senior Onderdonk worked on the San Francisco Seawall (ca. 1870), the Canadian Pacific Railway in the 1870s-80s and in 1895 had a contract with the Canadian government to complete sections of the Trent-Severn Waterway. Shirley Onderdonk (1872-1918) was involved in construction of tunnels and subways in New York City. He assisted in construction of the Soulanges Canal (1899) in the Great Lakes, worked on the Jerome Park Reservoir (1906) in the Bronx, and had contracts with the Grand Trunk Railroad. He was also infamous for his affair and rumored marriage to actress "Baroness Blanc" in 1894. The Onderdonks lived in New York and also in Durham, where daughter Alice Hamilton Onderdonk was born in 1902.

Edith and Alice Onderdonk made Durham their primary residence. When Alice Smith died in 1906, Edith Onderdonk inherited the house and its contents, the land and buildings, and the use of the rest of her mother's estate during her lifetime, after which the residue would be divided between Dartmouth and New Hampshire College (UNH). In memory of her mother, Edith Onderdonk gave $16,000 to New Hampshire College for construction of a women's dormitory, and with an additional $10,000 from the State, Smith Hall was built in 1908. The Onderdonks apparently lived separately much of the time (Quinby 2012). Mrs. Onderdonk, but not her husband, was listed as a resident of Durham in the city directories of the period (Census 1910; Dover City Directories). Mrs. Smith left a small bequest to her son-in-law Onderdonk of New York, while willing her estate to her daughter "Mrs. Edith Congreve" (Probate 1906). Edith and Alice Onderdonk traveled extensively. Her financial affairs were handled by advisors (Quinby 2012). They included Hamilton Smith's former partner, wealthy gold mining engineer Henry Cleveland Perkins (1846-1926) of Washington, DC. Perkins was the executor and trustee of the Smith estate and was involved in construction of the Hamilton Smith Library in 1907.

There is no known written documentation of the process by which the Mill Pond Dam was planned or funded in 1912-1913. Family papers were lost or destroyed when the contents of the house were sold in the 1940s. No newspaper accounts of construction have been found and there is no mention of the dam in town reports. Mrs. Onderdonk's level of involvement in the project is unknown. She was away from Durham for extended periods. In the summer of 1912 Mrs. Onderdonk and her daughter traveled in Hong Kong, Japan, etc., returning via Hawaii and then went on to London. In the summer of 1913, they were in France (www.ancestry.com).

Construction of the Oyster River Mill Pond Dam, 1913

When the old timber dam washed out in 1912, the mill pond drained, leaving a muddy swampy shore. The picturesque view overlooked by Red Tower and other Main Street houses and the Congregational Church was lost, and the water level in the river upstream near Smith Chapel dropped. At a time when dam construction was not a municipal activity and the water power was of minimal use for local industry, the funding of a new dam as a philanthropic project by Mrs. Onderdonk seems logical. As a work of engineering, it was a suitable memorial to her step-father. While the dam benefited the citizens of the town, it was privately funded and maintained. It was not deeded to the Town of Durham until later. There is no mention of the project in the Durham annual reports. Durham's other dam of the same period, the Wiswall Dam, was privately built in 1912 by the Newmarket Electric Light and Power Company, and privately owned until 1965 when the Town acquired it for water supply (Preservation Company 2010).

The purchase of mill rights and land adjacent to the Mill Pond dam site by Mrs. Onderdonk dates from November 1912. The purpose of the transactions was to enable Mrs. Onderdonk "to build and maintain a dam so that certain lowlands may be covered in the interest of health and scenic effects and at the same time enable Jenkins to use power to run a mill" (Deed 634:4142). From Samuel Runlett, she acquired a piece of land (about ⅛ acre) bounded by the road, the river, and the land with house (now 14 Newmarket Rd.), plus all of Runlett's right in the water fall, mill dam, mill yard, and water privilege, and the rights of flowage over his land (Deed 366:146). The deed from Fred E. Jenkins gave Mrs. Onderdonk the right to build and maintain and rebuild a dam at the mill privilege on Jenkins land, the right to flow (over his land) and the right to regulate and manage flow over and through the dam. Provided that whenever Jenkins or his heirs and assigns shall have a mill at said mill privilege, they reserved the use of any power that can be produced by the water and the right to regulate flow for using the power to run machinery. The new dam was to be on or about the site of the old dam. Jenkins reserves the right to build a dam if Mrs. Onderdonk does not do so. The deed included any stones, rocks or other material on the site that could be used for building the dam (Deed 369:269). The Pinkham family whose house was downstream gave flowage rights provided the new dam was no more than 6" taller than the old one (Deed 386:415).

Construction of the dam was recorded in a series of undated photographs during 1913, and the photo album was later given to the Durham Historic Association by H. Dean Quinby, grandson of Mrs. Onderdonk. According to the plaque on the dam, the engineer was C.E. Hewitt from the engineering department of New Hampshire College. Because the Ambursen dam was protected by a patent, the Durham dam may have built under a license, granted for a fee by the Ambursen Hydraulic Construction Company of Boston. Hewitt could have designed a dam similar to the Ambursen type, but not identical. He had experience working with the Ambursen Company in 1905. The builder of the dam was Daniel Chesley, the local masonry contractor who constructed the adjacent Durham Falls Bridge for the Town in 1907. Background information on the careers of the engineers and builders is included in the Architectural Description below.

Shared Ownership of the Dam by Onderdonk and Jenkins Families, 1913-1969

Edith Onderdonk died six years after the dam was built, at the age of 44. She was buried with her parents at Smith Chapel. Her husband had died the previous year in New York. Henry C. Perkins was executor and guardian of Alice Hamilton Onderdonk (1902-1978). The funds received by New Hampshire College from the Alice Hamilton Smith estate after Edith's death were used for to build a second women's dormitory in 1920, named Congreve Hall.

Alice Onderdonk owned the Red Tower property, which became a summer home after her 1924 marriage to businessman Henry Dean Quinby Jr. of Rochester, New York. The family visited Durham infrequently and some of the buildings became rental properties, including the main house, which became a men's rooming house, called Tower Tavern.

According to first state dam inspection reports from the 1930s, ownership of the Oyster River Mill Pond Dam was shared by the Jenkins family and Mrs. Alice H. Quinby (NHDES files). When Mrs. Jenkins received a bill for inspection services in 1935, she directed the state to be in touch with Mrs. Quinby of Rochester, New York. The Jenkins machine shop operated until ca. 1920 (Durham Historic Association 1985:106). The mill was vacant by the 1930s (Sanborn 1932), but as late as 1935, the dam powered a 25-hp, 30" Chase turbine (NHDES files). The old mill stood empty for decades before finally collapsing before about 1950. The Jenkins family built a small house in the 1930s (site of 20 Newmarket Road), between the old mill and the adjacent ca. 1740 Winborn Adams Inn (22 Newmarket Road) which they also owned.

Alice Onderdonk lived in Europe with her second husband Lloyd Van da Linda (Quinby 2012). In 1942-1944, Red Tower buildings were sold and the contents of the house were auctioned. The large tract of open land and Oyster River frontage southwest of the house was sold to developers. The family reserved the chapel and about two acres of land around it. Streets and house-lots were laid out as the Red Tower Development and construction of the neighborhood began in the late 1950s. In 1963, Smith Chapel was donated to the Town of Durham. In 1969, the Mill Pond Dam and the small parcel (map/parcel 5/3-3) at the north end were deeded by Mrs. Van da Linda to the Town in February 1969 (Deed 854:436). Mill Pond Road was laid out in the 1950s from Newmarket Road parallel to the north shore of the pond through property owned by the Community Church. The Church deeded a strip of land between the road and the pond to the Town for a public park in 1961.

Town of Durham, 1969-present

According to the dam inspection reports, the Oyster River Mill Pond Dam was in poor condition when the Town took it over. Repairs were combined with construction of a fish ladder by the New Hampshire Fish and Game Department in 1974-75. The Town allocated $18,000 in 1974, plus $8,250 to match federal funding for the fish ladder. The fish-way was designed and built by the Fish and Game Department and built by their construction crews, at the town's expense (Town of Durham 1974).

The Jenkins property south of the dam remained in that family until 1985, when the mill site, cottage and ca. 1740 house were sold to Steve Burns. A new house was built in place of the cottage shortly after (20 Newmarket Road). The property consists of three parcels in the Durham tax records. Lot 6/9-1 is adjacent to the water. The modern house is on map/parcel 6/9-2 and 22 Newmarket Road on map/parcel 6/9-3.

Since the 1970s, there have been minimal repairs to the dam by the Durham Public Works Department. There is evidence of concrete patching and core samples taken for testing. The Oyster River Mill Pond Dam was rated as deficient by NHDES in 1999 and again in 2002. Discussion of the merits of removing or maintaining the dam was on-going for a number of years. In two consecutive springs, 2006 and 2007, major floods were close to hundred-year storm events. The abutment walls were overtopped causing erosion of the banks (VHB 2010:2). Property owner Burns had repairs made to the stone retaining wall and constructed a stone paved drainage area filling a former mill foundation behind the abutment. Recently, the Town of Durham has reaffirmed its commitment to preserving the dam and the Mill Pond.

## 42. Applicable NHDHR Historic Contexts

22. Logging, lumbering and saw mills, 1620-present.

53. Grain farming and grist milling, 1650-present.

97. Engineering in New Hampshire, 1623-present.

107. Local government, 1630-present.

112. Philanthropy, 1850-present.

130. Commerce, industry and trade in New Hampshire village and town centers, 1630-present.

**43. Architectural Description and Comparative Evaluation**

Description

The Oyster River Mill Pond Dam is New Hampshire's earliest known example of an Ambursen-type dam, a design that relies on a series of evenly-spaced concrete buttresses, anchored in the bed of the river, to support a watertight slanted concrete slab upstream. The cast-in-place concrete apron terminates in a slightly overhanging downstream lip beyond the crest or apex. This results in stream-flow in an even sheet of water beyond the toes of the buttresses, creating the characteristic waterfall. The buttresses, especially in early examples of this dam type, have no infill between them, so the ribs and open cells are exposed to view when the water is low.

The Oyster River Mill Pond Dam (Dam No. 071.03), also known as the Durham Falls Dam and locally simply as the Mill Pond Dam, is located about fifty feet upstream from the NH Route 108 Bridge on Newmarket Road. The low-head concrete dam was constructed in 1913 to replace the last of a series of timber dams on the site since the mid-1600s. The dam stands at the fall line, which is the natural head of tide, the dividing point between fresh and brackish water. The Oyster River drains an area of some twenty square miles. The Mill Pond Dam is a run-of-the-river dam, meaning a dam less than 25' high, which spans the width of a river, with minimal reservoir capacity, and during normal conditions has water flowing over the entire spillway. The Mill Pond Dam impounds a narrow irregularly shaped pond with about 1,000' of river channel near the center. The pond covers approximately 9.5 acres. The backwater effects of the pond extend 3,700' upstream. The shallow pond is only around three feet deep, no more than five. At the outlet, the Oyster River drops 18' in elevation (Oyster River Watershed Association 2010). The channel floor above the dam is silt and sand. The downstream channel is scattered with rocks and boulders (NHDES files).

The dam is a concrete hollow cellular gravity dam. It includes concrete spillway, a gated low-level outlet structure at the right abutment and a concrete fish ladder at the left (north) abutment. The dam is about 138' long overall with an open spillway of 101.1' (VHB 2009). The dam is approximately 10' high, 13.7' at the right abutment and 16.2' at the top of the fish ladder. As a head-of-the-tide dam, the downstream face is partially inundated at high tide. The earth at the right abutment is retained by dry-laid stone training walls, part of the old mill foundation. The 1975 Denil fish ladder forms the left downstream training wall (Stephens Associates 2009:1).

The Oyster River Mill Pond Dam retains its original streambed buttresses or ribs, which are the essential elements of the Ambursen type of dam. The eight buttresses, with vertical sides and angled upstream faces, are spaced 145"-180" (12'-15') apart forming nine open cells between. The poured reinforced concrete slab behind the buttresses is continuous, roughly triangular in section, curved at the top with an ogee spillway crest. Rehabilitation of the dam in 1974 included pouring new concrete at the lip of the spillway which had eroded across its length, exposing reinforcing steel in several areas (Durham Historic Association photos). Today, when the water is drawn down, significant concrete cracking, spalling, erosion and efflorescence are visible, along with corroded reinforcing steel in the downstream cells (Stephens Associates 2009).

The concrete fish-way ascends to the top of the dam near the northern riverbank. The fish ladder is perpendicular to the dam, built adjacent to the left downstream embankment. The remains of the older retaining wall behind are now overgrown and filled in. The lower outlet to the fish-way is near the foot of the dam. The top of the structure is covered with metal grid. The walls of the passage extend in a downstream direction at a slight upward angle, then turn ninety degrees at the stream bank and ascend at a ten-degree pitch to a level box, with an exit opening, at the crest of the dam. The two parallel concrete walls of the fish passageway are open to daylight at the top, covered with steel grating. At the north end of the dam, the top of the fish ladder structure bears a bronze tablet

that reads, "1975/Oyster River Fishway/Constructed by/ N. H. Fish & Game Department – Cooperators – Town of Durham and U. S. Fish & Wildlife Service." A second bronze tablet was undoubtedly relocated from the original abutment of the dam when it was rebuilt in 1975. The tablet reads: "This Dam was erected by Mrs. Edith Onderdonk in Memory of Her Father Hamilton Smith – 1913 – Charles Elbert Hewitt Engineer, D. Chesley & Co. Contractors."

The concrete gate structure in the south abutment of the dam has two 4' x 4' low-level gates with outlets at the foot of the dam. The manually operated wooden vertical lift gates have screw-type rack and pinion gate hoists. The left gate is a waste gate, open at the bottom. The right gate discharges to a metal corrugated pipe embedded in concrete, which was part of an old penstock to the mill (Stephens Associates 2009). The gates were repaired in 1974 and remain operable. The right training wall downstream from the south end of the dam is formed by the stone foundations of the former Jenkins mill. Portions of the wall were rebuilt by a stone mason ca. 2007 to repair flood damage.

Site

The dam is set back from NH 108/Newmarket Road at the bridge. Below the dam, upstream from the bridge, the riverbank is rocky and overgrown with vegetation. The stream narrows abruptly from more than 100' below the spillway, to less than 50' where it passes through the concrete box culvert of the bridge. On the far (east) side of the bridge, the river broadens into the tidal estuary. Town park land on either shore is connected by a new pedestrian footbridge.

West of Newmarket Road, land on either side of the river at the dam was historically associated with it. The small parcel at the north end (map/parcel 5/3-3), a triangular 0.1-acre lot bounded by the water (75') and Newmarket Road (120'), was purchased by Mrs. Onderdonk out of the Runlett sawmill property and later transferred to the Town along with the dam. The open grassy site is bordered by the guardrail of Newmarket Road. The concrete fish ladder fills the riverbank between the dam and bridge approach. Trees and shrubs screen the adjacent house (14 Newmarket Road, map/parcel 5/3-2), which is a mid-eighteenth century building associated with the sawmill that stood on the site. Trees shade the yard and the marshy shoreline. The mill was gone by the early 1900s, before the present dam was built. Historic photographs show it was a long rectangular one-story building, extending along the riverbank from above the dam all the way to the road, where an office entrance was located (Durham Historic Association). There were stone foundation walls in place as of ca. 1910 (Ross and House 1996:87). The area was extensively disturbed during construction of the dam in 1913 and was the staging point for repairs in 1974-75. Upstream from the dam, the shore-line below 14 Newmarket Road was historically lined with low stone walls, but these appear to have collapsed into the pond or become overgrown.

The Jenkins Mill site defines the south embankment of the dam. The land and stone walls along the riverbank (map/parcel 6/9-1) are owned in common with the adjacent houses at 20 and 22 Newmarket Road (map/parcels 6/9-2 and 6/9-3). This property does not share ownership of the dam structure, but was the owners were deeded the right to use its waterpower for their mill when the new dam was built in 1913 (Deed 369:269). Part of the stone mill foundation remains standing below the right abutment of the dam. The principal wall is a dry-laid stone wall at right angle to the outer edge of the gate structure. This wall, partially rebuilt ca. 2007, is the same height as the dam, rising from the downstream level to the top of the abutment. It was the back (south) wall of the mill foundation. The walls are dry-laid granite, rectangular slabs and irregular chunks, arranged in rough courses. Broken grindstones from the site's earlier use are incorporated. Below the gate outlet, lower, partially collapsed stone walls form three sides of a rectangular space. The waterworks of the mill were located here. Water entered via a penstock through the west wall and discharged under the

building through the large opening in the north wall. Evidence of the mill machinery remains in the metal millworks, turbines, drive shafts and gears, no longer in-situ, but placed about the landscape of the house. Less visible stone walls line the heavily vegetated riverbank to the east, downstream. The long straight stone retaining wall is shown in site plans and partially visible in winter months. This lower end of the mill foundation is less intact and the area is disturbed next to the road and along the driveway of 20 Newmarket Road to the south.

The dam is susceptible to erosion behind the right abutment, due to overtopping. To prevent the water from scouring the bank, an embankment stabilization plan was carried out in 2007 by the Town and property owner. Behind the downstream training/foundation wall, a 15' x 15' square of stone was laid like a stone patio, with a porous drain beneath. The surface is flat granite chunks, slightly sunken in the middle. Historic photographs show a one-story shed projecting from the southwest corner of the mill in this location (Durham Historic Association). The shed was removed before the rest of the mill (Sanborn 1932; Sanborn ca. 1940).

A mill was located on this property throughout the nineteenth century. This was originally a grist mill and later had other uses. An early tannery stood on the shore of the pond just upstream but this was gone by the 1870s (Chace 1856; Sanford & Everts 1871). Historic photographs show that the Jenkins Mill was a 2½-story building, parallel to the riverbank, with its gable end to the street. The mill had a stone foundation and walls sheathed in clapboards. The ground floor had 6/6 double-hung windows, while the upper sash were 6/3. The building was erected in two sections and there was a brick chimney in the wall between. A cross-gable projecting toward the river was removed before the dam was rebuilt, possibly damaged in the same flooding that destroyed the timber dam.

The 1913 construction photos show the Jenkins Mill in poor condition (Durham Historic Association). The building was repaired and the partially collapsed foundation rebuilt, after the dam was complete. The Jenkins family ran a small machine shop and other businesses for little more than a decade. The mill was vacant by the 1930s (Sanborn 1932). It stood some time before collapsing into the river. The stone walls have been repaired one or more times by the property owner, most recently in 2007.

The Burns House at 20 Newmarket Road was built in the 1980s, a simple 1½-story, gable front, wood-frame house. A 1930s Bungalow cottage stood on the site previously, and before that, there was a small carpenter shop adjacent to the road (Sanborn 1932). The driveway, gardens and landscaping including stone garden walls, and retaining walls between 20 and 22 Newmarket Road, are modern like the house. Open lawn slopes down to the water. The shore of the pond was lined by a low stone wall above the dam, but this is now collapsed or submerged. The entire shoreline upstream is wooded, part of property on map/parcel 6/9-6, which includes extensive frontage on the Mill Pond. The Winborn Adams House at 22 Newmarket Road (6/9-3) is an asymmetrical, 2½-story, 4 x 2 bay house from ca. 1750. This is a central location within the Durham Historic District. Historic houses are located on both sides of Newmarket Road, north and south of the Oyster River dam and bridge.

Ambursen Dam Type

The Oyster River Mill Pond Dam is an Ambursen-style dam and may have been built under a patent license by the Ambursen Hydraulic Construction Company of Boston. It has all the hallmarks of an Ambursen Dam. However, without actual historic documentation of the purchase of plans or license from the Ambursen Company, it cannot be called a true Ambursen Dam. The Ambursen slab and buttress reinforced concrete dam was developed by engineer Nils Frederick Ambursen (1876-1958). Trained in Norway, Ambursen worked for the B.F. Sturtevant Company of Boston from the 1890s. In 1902, he designed for a client in New York, the first concrete slab and buttress dam, using a row

of triangular buttresses to support cast-in-place reinforced concrete slabs, with the weight of the water distributed across the inclined upstream face. A description published in the November 1903 *Engineering News Record* created widespread interest among engineers. Ambursen filed a patent on the new dam and, protected by the monopoly granted by this patent, he incorporated the Ambursen Hydraulic Construction Company of Boston to build or license the construction of dams (Hay 1991:48-50). Ambursen's concrete slab and buttress dam was an advance in engineering and cost-efficiency, requiring less material than the typical solid concrete gravity dam. In 1904, Ambursen patented a curved sloping downstream spillway to carry water from the crest, creating a "shell-dam" with a hollow core between the buttresses. The hollow interior allowed power companies to install the powerhouse directly inside the dam. The Ambursen Hydraulic Construction Company built more than one-hundred dams between 1903 and 1917, mostly in New England. Other engineers adopted variations on the patented design and overall, more than 350 dams of the Ambursen type were built in the U.S. In 1917, Nils Ambursen left to pursue other work, but the company continued in his name.

The Ambursen dam was based on several principals that had been seen in low timber dams that were covered by plank aprons (Turneaure and Russell 1924:381-383). It was the outcome of a period of hydroelectric expansion in the United States beginning in the 1890s and attempts were made to increase capacity of hydroelectric facilities while lowering costs and shortening construction times for new plants.

Ambursen's object was to construct a gravity dam composed of concrete and iron or steel to be used in place of solid masonry dams for savings in material. Labor costs were reduced because the concrete structure was molded on site without requiring specially-skilled labor (Patent 1903). The Ambursen type of dam is composed of a series of regularly spaced buttresses with parallel walls, perpendicular to the face of the dam, placed 15' to 30' apart and anchored in the bed of the stream. The buttresses are roughly triangular in profile, with the upstream edges angled about 45 degrees. The water pressure on the slab that covers the upstream face exerts a strong vertical component, reducing the tendency of the dam to slide in the riverbed or to overturn due to the horizontal thrust of the water (Turneaure and Russell 1924:381-383). Ambursen also developed an improved form of anchor. Iron pins ran half of the height of each buttress and were bored into the bedrock and the ends split. The base for the poured concrete is formed by sheets of metal or woven wire. The concrete slab flooring has iron rods acting as tension members. The downstream cells between the buttresses are protected from buildup of ice, logs and debris, and the curved lip of the spillway directs the water out away from the toe of the dam (Patent 1903).

Engineer and Builder

The engineer responsible for construction of the Mill Pond Dam was C.E. Hewitt of the nearby New Hampshire College of Agriculture and the Mechanic Arts, now the University of New Hampshire. He had experience with Ambursen dams, having built one in 1905. Charles Elbert Hewitt (1869-1934) was a Hanover, New Hampshire, native. He graduated from New Hampshire College (then at Dartmouth) in 1893, and received a Masters in Mechanical Engineering from Cornell in 1895 (Leonard 1922:593; Marquis 1916:537). Hewitt went to work for William M. Sheehan at the Hyer-Sheehan Electric Motor Company and in 1897 they formed Sheehan & Hewitt, electrical engineers specializing in municipal lighting and power plants. In 1904, he incorporated, C.E. Hewitt Company, in New York, a general contracting and engineering firm specialized in municipal lighting. In 1905, C.E. Hewitt Company built a dam on Catskill Creek near Cairo, NY, contracting with the Ambursen Hydraulic Construction Company of Boston for designs for the 27'-high, 210'-long concrete and steel dam (*Engineering News* 1905:99). In 1908, Hewitt moved to Durham and

joined the New Hampshire College faculty as a professor and head of the electrical engineering department. In 1915, the college was divided into three divisions—agricultural, arts and sciences, and engineering—and Hewitt was appointed Dean of the Engineering Division. While in Durham, he continued his interest in municipal and hydroelectric facilities (*The New Hampshire* 1916:1). He also served on the local School Board. During WWI, Hewitt was placed in charge of training of large numbers of soldiers who were sent to the college for instruction (Hewett 1905 IV: 289; UNH 1941: 170, 175, 211-212, 241, 254). The former Shop Buildings at UNH were named in honor of Professor Hewitt in 1942.

Contractor for the Oyster River Mill Pond Dam was the D. Chesley Company of Durham. Daniel Chesley (1859-1953) was an experienced local contractor and stonemason and a successful farmer. Although he initially specialized in granite masonry, Chesley became adept in the use of concrete in the early 1900s (Stackpole 1913:320). Listed in the town directories from 1898 as a stone contractor and stonemason, he advertised in 1905 as stone contractor and builder, with granite quarry on the Dover-Durham Road (now site of Durham Public Works). From 1917, D. Chesley & Co. was listed in directories as contractors in brick, stone masonry, earth work, concrete construction and building moving. At one time, he employed as many as eighty men. Daniel Chesley was responsible for many of the structures built in town during the early 1900s period. In 1907-08, he was the contractor for the adjacent Newmarket Road Bridge (replaced in 1991) built by the Town with State Aid funding. It was a steel I-beam stringer bridge with concrete-filled, granite-faced jack arches. Chesley did work on the abutments and the approach roadways (Monroe 1989:5-8; Town of Durham 1908). Later, in 1914-15, Chesley did work on the Wiswall Bridge elsewhere in town (Town of Durham 1915:13). Daniel Chesley attained recognition as a public servant. He served on the board of selectmen of Durham, as a state representative, and as a state senator in 1913-14 at the time of the dam's construction. In the Senate, Chesley was chosen as chairman of the committee on towns and parishes and was a member of the committees on military affairs, agriculture, the state hospital, and fish and game (Stackpole 1913:320-321).

Comparative Evaluation – Ambursen-type Dams in New Hampshire

Ambursen-type dams attained nationwide popularity during the early to mid-twentieth century. The Oyster River Mill Pond Dam is the oldest of seven Ambursen-type dams known to be extant in New Hampshire (NHDES files). In the order of their construction, the other intact Ambursen-type dams listed in the Inventory of Dams of the Dam Bureau of the New Hampshire Department of Environmental Services (NHDES) are:

Dam No. 096.01, "Grafton Pond Dam," Truell Lake, Bicknell Brook Recreation Area, built 1918, owned by the New Hampshire Water Resources Council.

Dam No. 022.04-05, Pierce Dam on the Contoocook River in Bennington, Hillsborough County, built 1921, owned by Monadnock Paper Mills, Inc.

Dam No. 031.15, Ayers Island Dam on the Pemigewasset River in Bristol, owned by Public Service Company of New Hampshire. This monumental Ambursen-type dam at the Ayers Island Hydroelectric Station is 699' long, built in 1923 and raised in 1932 from 50' to 80' in crest height (Nabstedt 1923:425-428).

Dam No. 134.10, Plant No. 1 or Scytheville Dam on the Mascoma River in Lebanon, built 1926, owned by the City of Lebanon.

Dam No. 178.02, "Caplan" Dam on the Sugar River in Newport, built in 1928, owned by William B. Ruger, Jr.

Dam No. 053.01, Blow-Me-Down Pond Dam at Saint Gaudens National Historic Site in Cornish, built for water supply in 1934, owned by the U.S. National Park Service.

Another dam, the Bearcamp River Dam in Tamworth (now gone) was 20' high and approximately 230' long, built in 1929 to power Tamworth Industries.

Other Dams in Durham

The Oyster River Mill Pond Dam is one of four concrete dams within Durham. The Wiswall Falls Dam built on the Lamprey River the year prior to the Mill Pond Dam by the Newmarket Electric Light and Power Company is a concrete gravity dam, not an Ambursen-type dam. It is included in the Wiswall Falls National Register Historic District. Other local dams are the Durham Reservoir Dam, from the town's first water supply, now owned by the University of New Hampshire. A concrete dam on the Oyster River within the UNH College Woods was built in 1934 with an adjacent water treatment facility (Oyster River Watershed Association 2010:5).

## 44. National or State Register Criteria Statement of Significance

A Determination of Eligibility for the Oyster River Mill Pond Dam was made in 2009 and the following statement clarifies that determination.

The Oyster River Mill Pond Dam is eligible for the State and National Registers of Historic Places under Criterion C in the area of engineering and under Criterion A for associations with local social history. Built in 1913, this is the earliest concrete buttress Ambursen-type dam in New Hampshire and one of seven intact Ambursen-type dams in the state. The Oyster River Mill Pond Dam was funded by local philanthropist Mrs. Edith Angela Congreve Onderdonk, as a memorial to her step-father, Hamilton Smith, a prominent local resident and engineer. Her intent was to maintain the pond for public health reasons and to provide continued waterpower for industry, while also maintaining the landscape of her estate which was a focal point of the town center. The dam contributes to the Durham Historic District, listed in the National Register of Historic Places and designated as a local historic district. The Durham Falls were at the heart of the early village center and the dam creates the Mill Pond and waterfall that are defining elements of the historic setting. Under Criterion D, the property incorporates a historic mill site that could yield information in the area of industry.

Criterion A: The Oyster River Mill Pond Dam played a defining role in local history. Its construction in the early twentieth century was part of a pattern of philanthropic activities and community planning and developed that helped create the University of New Hampshire Campus and Downtown Durham.

The dam, waterfall and pond have been characteristic features of Durham's village landscape from its earliest settlement. When Mrs. Onderdonk chose to replace the washed-out timber dam, she preserved the waterfront setting of the village and retained a sense of its small-scale industrial heritage. The dam maintained the landscape of the Red Tower estate and Smith Chapel upstream, flooding what was otherwise a low-lying swampy area. It allowed the local Jenkins family to continue to produce water-power from the river. The dam and mill pond are a visible reminder of the Smith-Onderdonk family's influence on the early 1900s development of the community. They funded the town and college library, and two women's dormitories, and built the Smith Chapel which is now a local landmark. The dedication of the dam as a memorial to Hamilton Smith reflects his connections to the field of engineering.

It is for state-of-the-art engineering under Criterion C that the 1913 Oyster River Mill Pond Dam has its primary significance.

Criterion B The structure is not eligible under Criterion B for associations with influential persons. It was a memorial to Hamilton Smith, not built during his lifetime. Mrs. Onderdonk's philanthropy played a role in the history of the town under Criterion A, but she herself did not make significant achievements. The distinguished engineers and builders responsible for the dam contribute to its significance under Criterion C, rather than B.

Criterion C The Oyster River Mill Pond Dam is significant under Criterion C for its design and construction value, embodying distinctive characteristics of the Ambursen dam type and concrete slab and buttress method of construction. The Oyster River Mill Pond Dam represents technological advances in dam engineering of the early 1900s. Its builders were familiar with engineering practices and chose the most up-to-date design of the time in adopting the Ambursen type.

The Ambursen design was patented in 1903 by Nils Frederick Ambursen of New York and Massachusetts. Protected by the monopoly granted by this patent, he incorporated the Ambursen Hydraulic Construction Company of Boston to build or license the construction of dams. In the absence of plans or construction records of the Mill Pond Dam, it cannot be confirmed whether a patent fee was paid to Ambursen or if engineer C.E. Hewitt, who had prior experience building an Ambursen dam, adopted elements of the design, but not the exact patented specifications. Dams that exhibit features of an Ambursen dam, but no direct documentation of construction by the company, are correctly termed Ambursen-type.

The Oyster River Mill Pond Dam does have all of the basic structural elements of the Ambursen dam type. The characteristics that make it strongly representative of its type include the evenly spaced downstream buttresses with hollow cells between, and the solid sloping reinforced concrete slab on the upstream side, with curved concrete spillway crest. By definition an Ambursen-style dam is composed of a series of evenly spaced concrete abutments, triangular in profile, spaced 15' to 30' apart and anchored to the bed of the stream by metal tie rods. The upstream edges of the buttresses are angled about 45 degrees and the water pressure on the slab reduces the tendency of the dam to slide in the riverbed. Other benefits of the Ambursen design over the older concrete gravity dam were savings in materials and labor costs, enclosure of all metal in concrete, and the protection of the buttresses from ice and logs by the upstream flooring.

The defining features of the Oyster River Mill Pond Dam are well-preserved. The repairs made in 1974 replaced materials in-kind and preserved the original design. The principal change was the addition of the concrete fish ladder which obscures the downstream north abutment and training wall. Compared to other Ambursen-type dams in New Hampshire, the Oyster River Mill Pond Dam is strongly representative. It is the earliest example and has had minimal alterations. The six other Ambursen-type dams in the state vary widely in size and construction dates.

Criterion D: The Oyster River Mill Pond Dam property includes the Jenkins mill site and foundation walls, which have the potential to yield information about the history of the industrial site powered by the dam. Historic photographs of the Jenkins mill provide documentation of its location and form. Archaeological information obtained from the

site could provide additional information about the mill building that stood on this site for over a century, particular in its later years when water-power was supplied by the existing dam. Historic photographs show the mill foundation and millrace were rebuilt after the new dam was complete and the Jenkins family generated power in subsequent decades, but the extent and nature of the building's use at that time have not been identified. Eligibility under this criterion could be confirmed through further study of archeological deposits.

Historic District: The Oyster River Mill Pond Dam is a key contributing structure in the Durham Historic District, although not specified as such in the National Register of Historic Places Nomination form of 1980. At that time, documentation focused on buildings, and it was not uncommon to overlook structures like the dam and the adjacent bridge (later replaced) and objects like the Sullivan Monument. The dam and millpond were a focus of the village from its earliest settlement. A series of dams stood at this point, but the millpond remained a constant feature. In 1913, the construction of the dam reflects philanthropy by a wealthy local family played key role in the early twentieth century development of Durham and the University. The period of significance for the Historic District spans from the 1600s to after 1900. The exact end date was not specified, but in 1980 the fifty year cutoff for Register eligibility would have been 1930.

### 45. Period of Significance

1913-1963: The Oyster River Mill Pond Dam is significant for its construction, one-hundred years ago, and for its subsequent role as a defining feature of Durham Village until the fifty year cutoff date for National Register eligibility.

### 46. Statement of Integrity

The Oyster River Mill Pond Dam retains integrity and conveys its significance through its physical appearance. Except for the addition of a fish ladder, and repair and reinforcement of the dam in 1974, the structure is essentially unchanged since it was built in 1913. The mill buildings have been gone for more than fifty years. The only evidence is the foundation walls on the south bank and metal machinery lying loose on the site. The dam has integrity of location, spanning the Oyster River immediately west of the Newmarket Road/NH 108 Bridge. The setting includes the millpond above the dam and the nearby houses along the road. The current bridge was built in 1991 to replace the 1907 structure. The north end of the dam has always been the grassy shore in front of the house at 14 Newmarket Road. The stone training wall on the bank remains in place behind the concrete fish ladder. The old Jenkins Mill stood adjacent to the south end of the dam during the first several decades after it was built. The building collapsed ca. 1950. The mill site is now encompassed by the yard of the adjacent late twentieth century house at 20 Newmarket Road. The landscaping and retaining walls are modern except for the walls directly on the riverbank. The dam conveys its historic associations as built by Mrs. Onderdonk to preserve the pond for the Town of Durham. The loss of the adjacent mill diminished its industrial associations. The dam retains integrity of design, materials and workmanship as a reinforced concrete dam of the Ambursen type. The 1974 repairs included rebuilding the lip of the spillway. Some materials were replaced in-kind during the repairs. The fish ladder at the north end of the dam altered the appearance of the embankment but left the historic structure essentially intact.

**47. Boundary Discussion:**

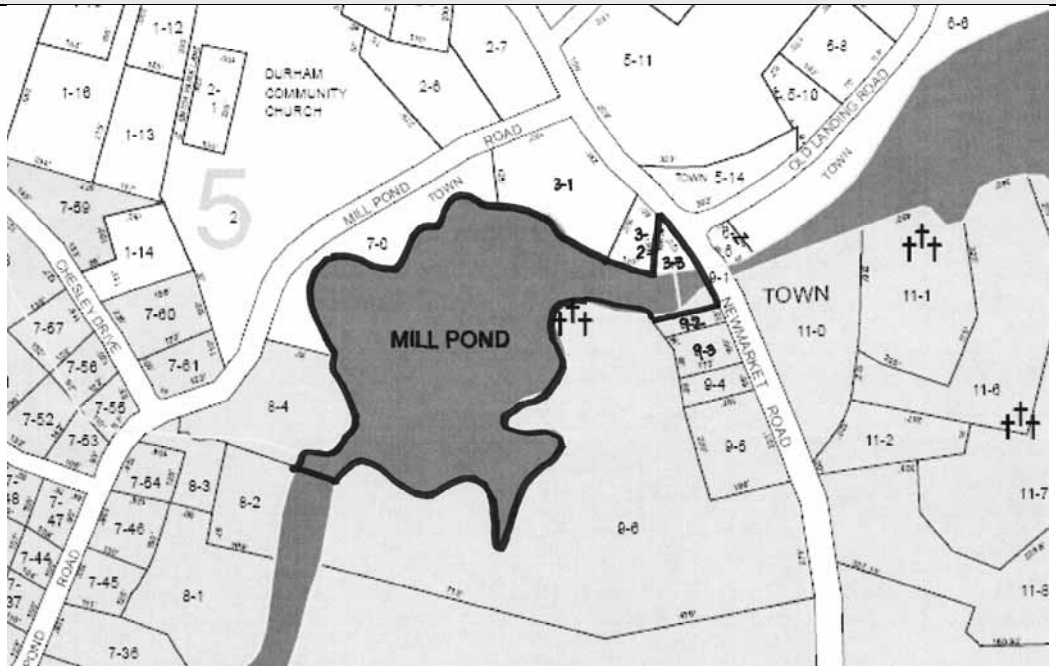
The significant historic resource includes the Oyster River Mill Pond Dam and its immediate surroundings on the riverbank, as well as the Mill Pond that the dam impounds. Adjacent to the dam are parcels historically associated with the structure and the location of historic mill remains. The dam constructed in 1913 was intended to preserve the Mill Pond impoundment for scenic and recreational uses. The pond is significant for providing the setting, which was a key part of the dam's associations. The dam and mill pond are integral to each other. The pond shoreline varies seasonally; the property lines shown on the tax maps are taken as the boundary. The boundary encompasses the land on either side of the dam, based on the legally recorded lot lines shown on Durham tax maps.

Map 5/Parcel 3-3 on the north side of the river is owned by the Town of Durham along with the dam structure. This land was associated with the dam from its construction in 1913 and was transferred to the Town with the dam in 1969. The triangular parcel is bounded by NH 108/Newmarket Road on one side, by the river and dam on the south, and by the property line of 14 Newmarket Road (map/parcel 5/3-2) on the west. The house has not been associated with the dam since the earlier timber dam and sawmill stood on the site in the nineteenth century.

South of the river, the adjacent properties are under common ownership, but are identified as three parcels in Durham tax records. Parallel to the shoreline, map/parcel 6/9-1 was the site of the mill building that had the right to use the water power from the dam as stipulated in the 1912-13 deeds. This parcel encompasses the stone foundation walls of the mill, which contribute to the significance and historic setting of the dam. Associated dwellings, one modern and one historic, are located on map/parcels 6/9-2 and 6/9-3.

The boundary of the eligible property begins on the north bank of the Oyster River at the northwest corner of the Newmarket Road/NH 108 Bridge. The boundary is defined on the northeast by the sidewalk and lot line of map/parcel 5/3-3, 120' to the north corner of the parcel. The east lot line of map/parcel 5/3-2 forms the western boundary to a point on the north shore of the mill pond. The pond shoreline shown on the tax maps forms the boundary, which follows the edges of parcels 5/3-2, 5/3-3 and 5/7-0 in a westerly and southwesterly direction. The eastern lot line of 6/8-4 defines the end of the pond at the inlet from the narrower river. The boundary of the pond crosses the Oyster River and continues east on the edge of property 6/9-6. The winding shoreline of 6/9-6 forms the edge of the pond to the west end of parcel 6/9-1, the historic mill site south of the dam. The boundary of the eligible resource continues east on the south lot line of 6/9-1 to Newmarket Road/NH 101 and turns north on the road, crossing the bridge to the point of beginning.

The boundary of the Oyster River Mill Pond Dam is shown below on Durham Tax Maps 5 and 6.




*Boundary shown on Durham Tax Maps 5 and 6*

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Sanborn Map Company
1932 Durham, NH, Sheet 3 (http://sanborn.umi.com/nh/5327/dateid-000002.htm?CCSI=4221n).

Sanborn Map Company
1932* Durham, NH, Sheet 3, revised to unknown date (http://sanborn.umi.com/nh/5327/dateid-000003.htm?CCSI=4221n).

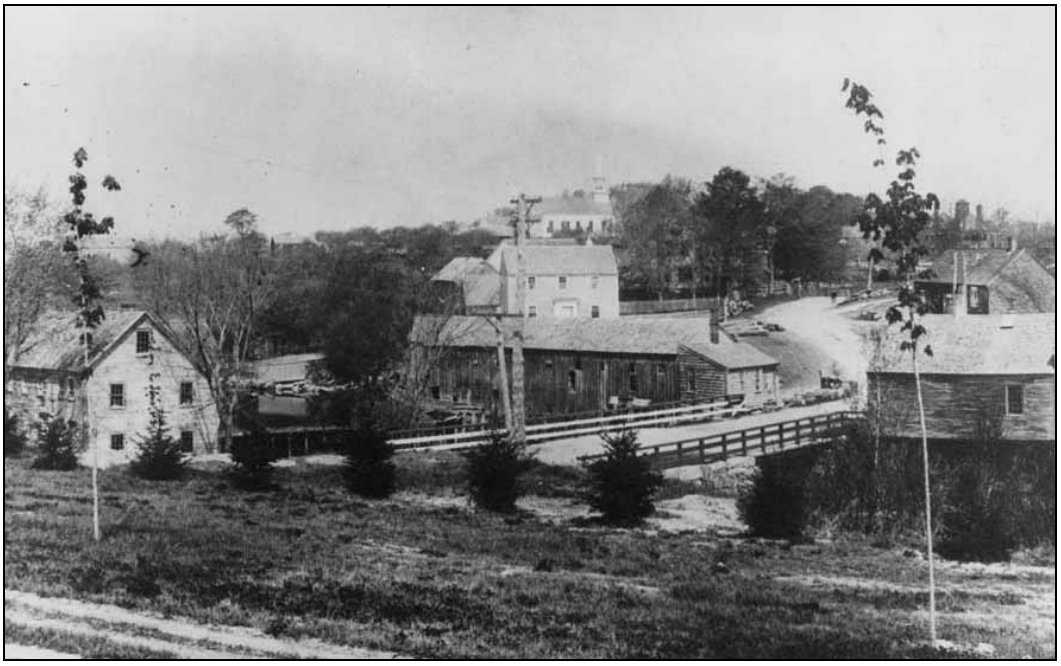
Sanford and Everts
1871 *Atlas of Strafford County, New Hampshire, from Actual Survey*. Philadelphia.

**Historic Photographs**
Collection of Durham Historic Association.

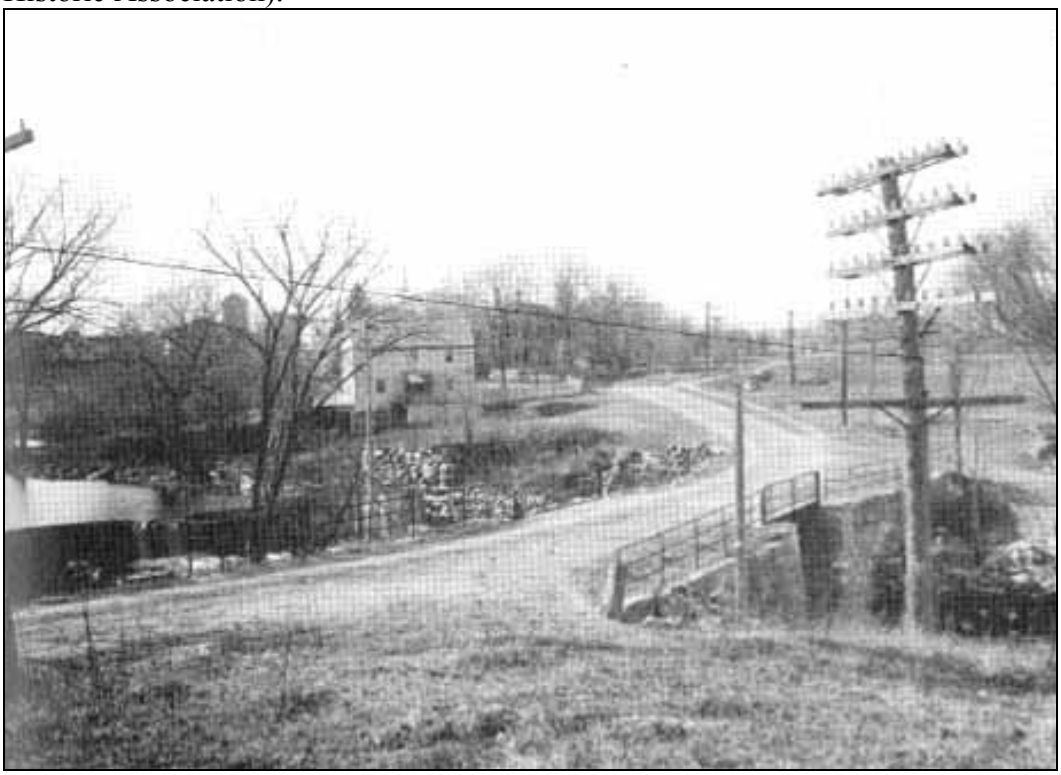
**Surveyor's Evaluation**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| NR listed: | individual | ☐ | NR eligible: | | NR Criteria: | A | ☒ |
| | within district | ☐ | individual | ☒ | | B | ☐ |
| | | | within district | ☒ | | C | ☒ |
| Integrity: | yes | ☒ | not eligible | ☐ | | D | ☒ |
| | no | ☐ | more info needed | ☐ | | E | ☐ |

**Historic Photographs and Plans**



Late nineteenth century view, facing northwest toward bridge. Showing Jenkins Mill left, Runlett Mill center, 14 Newmarket Road and Community Church background, Frost Store right edge (Durham Historic Association).

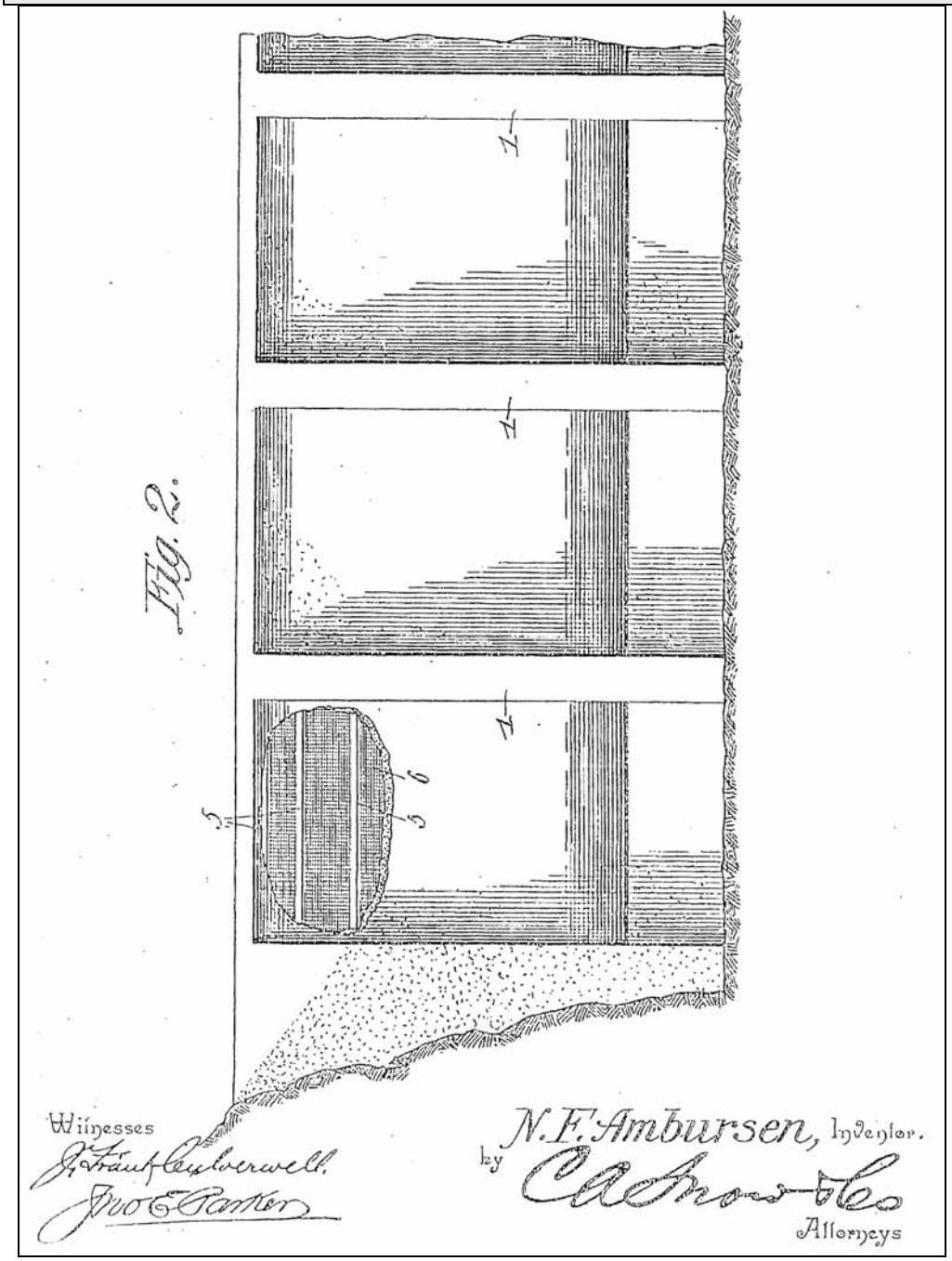


ca. 1910 view of bridge, timber dam at left (Ross and House 1996:87)

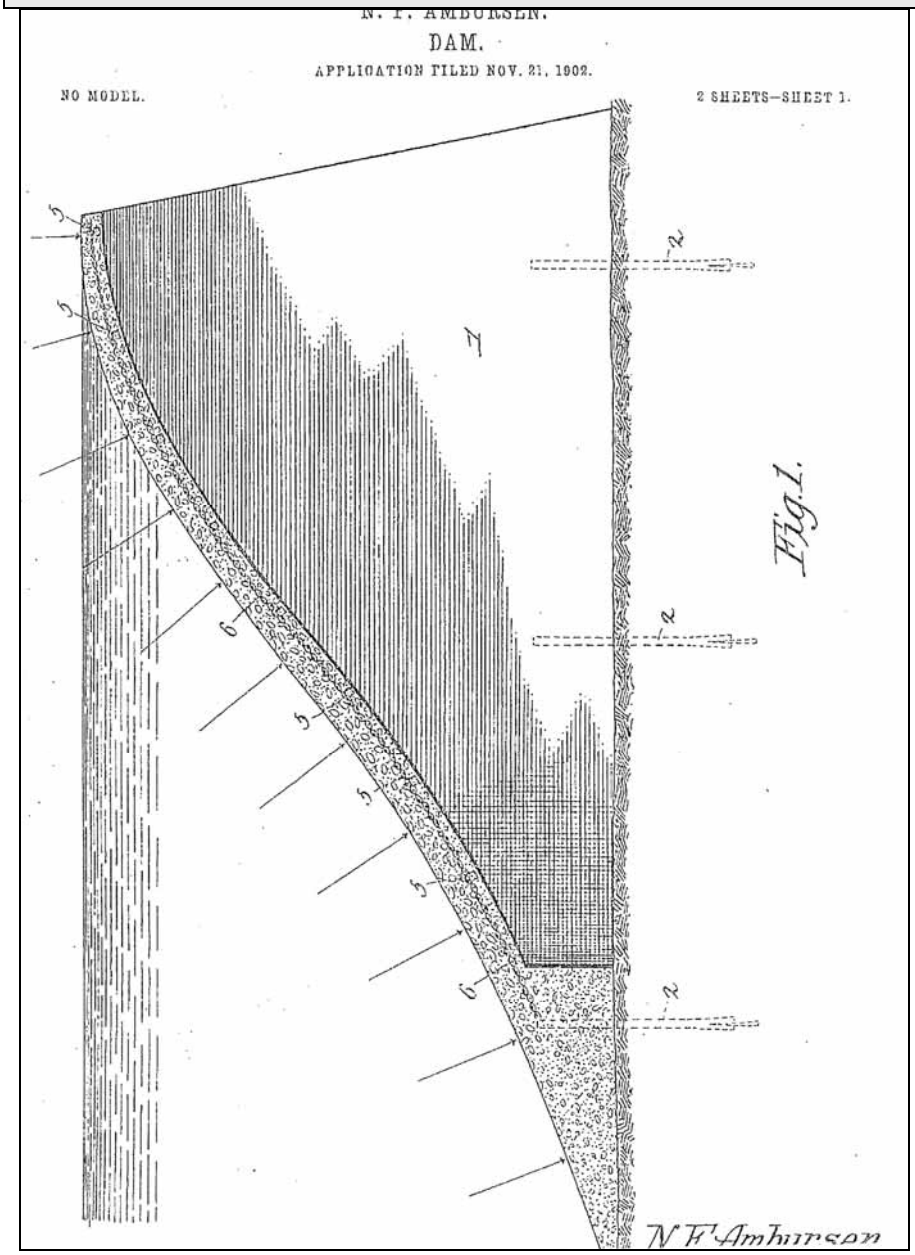
ca. 1907 view from Red Tower on Main Street, facing south toward Smith Chapel. Mill Pond just off left edge (Durham Historic Association).

Looking upstream at bridge, Jenkins Mill and timber dam in rear, Frost Store right (Durham Historic Association).

Jenkins Mill at time of concrete dam construction 1913 (Durham Historic Association)




Plan (Ambursen Dam specifications from the 1903 U.S. patent)

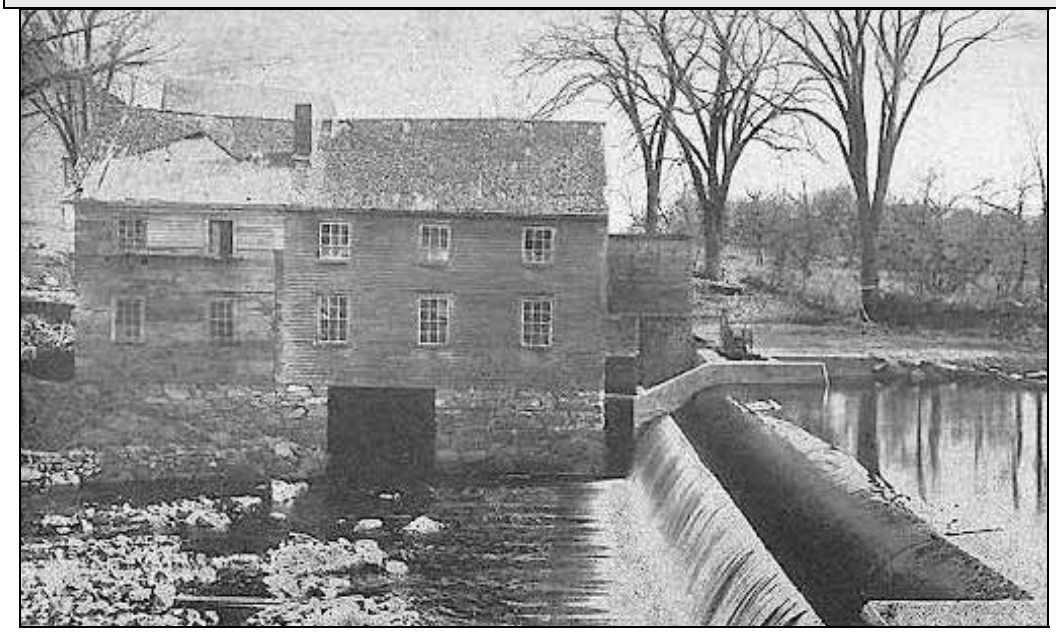



Cross Section (Ambursen Dam specifications from the 1903 U.S. patent)

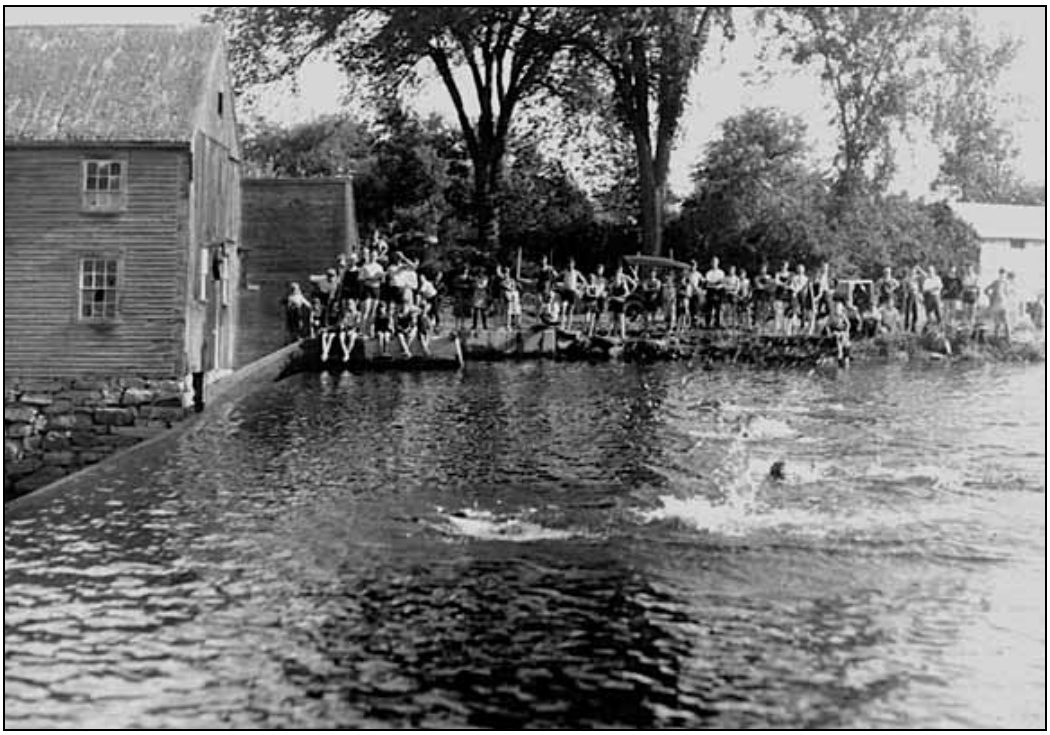
South abutment and spillway construction photographs 1913 (Durham Historic Association)

North abutment 1913 construction, looking toward 14 Newmarket Road (Durham Historic Association).

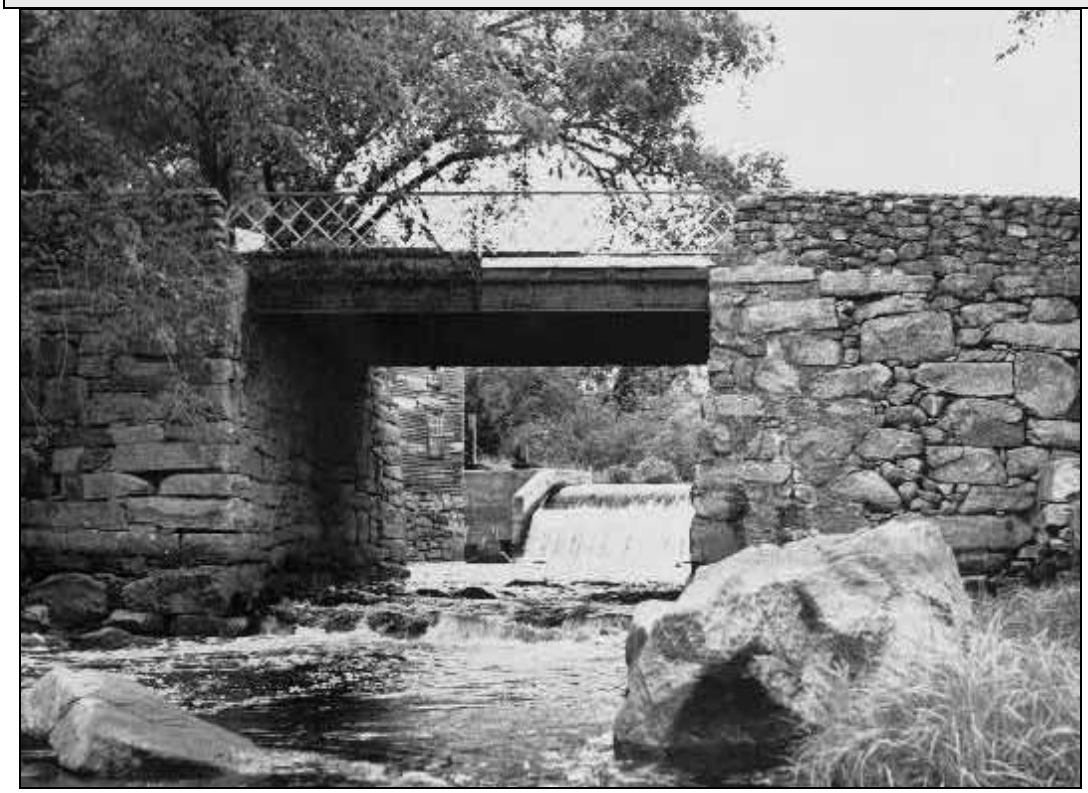
Spillway and gate construction details 1913 (Durham Historic Association).



ca. 1920 postcard showing concrete dam, rebuilt mill foundation (http://commons.wikimedia.org/wiki/File:Old_Mill_%26_Dam,_Durham,_NH.jpg, also Collection Durham Historic Association)

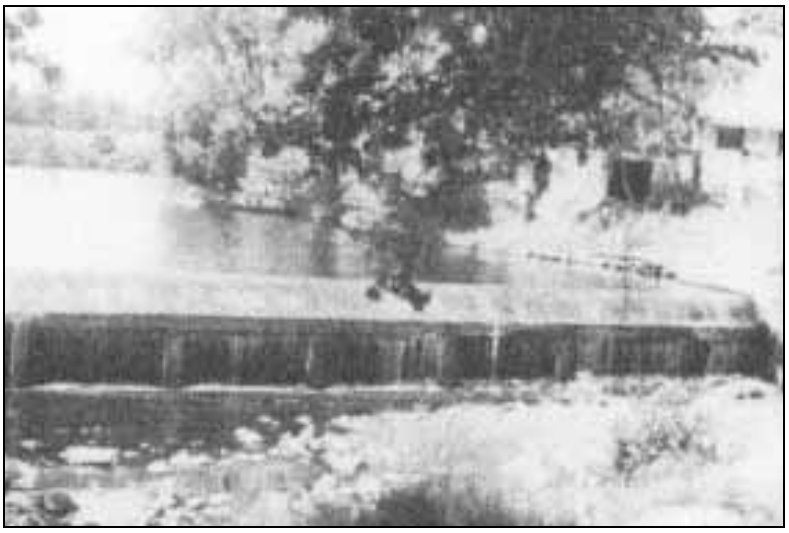



Jenkins Mill and barn of 22 Main Street (Durham Historic Association).

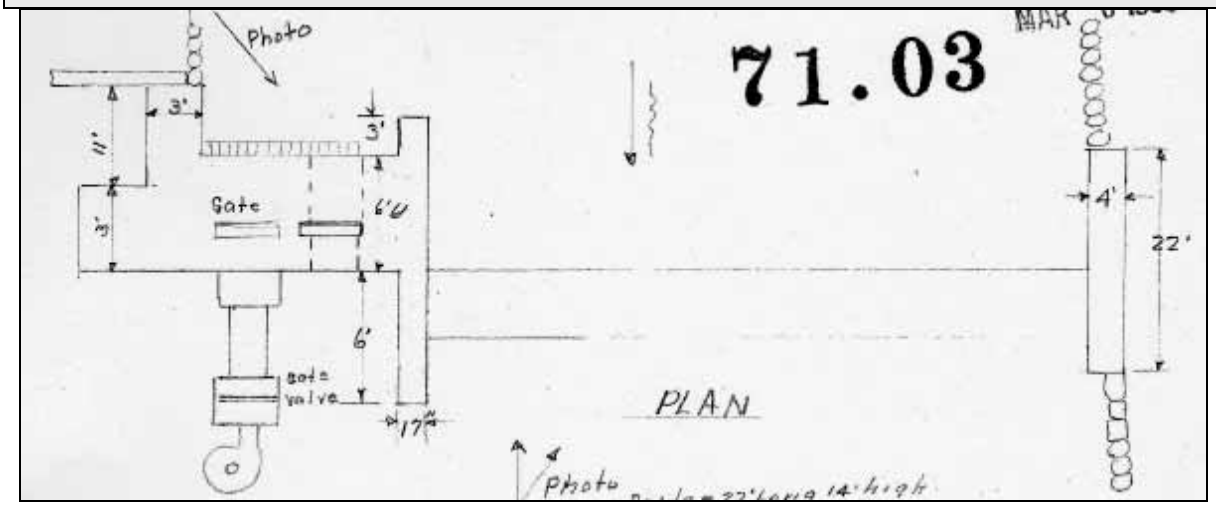


Looking through Newmarket Road bridge toward dam, ca. 1930s view (Durham Historic Association).

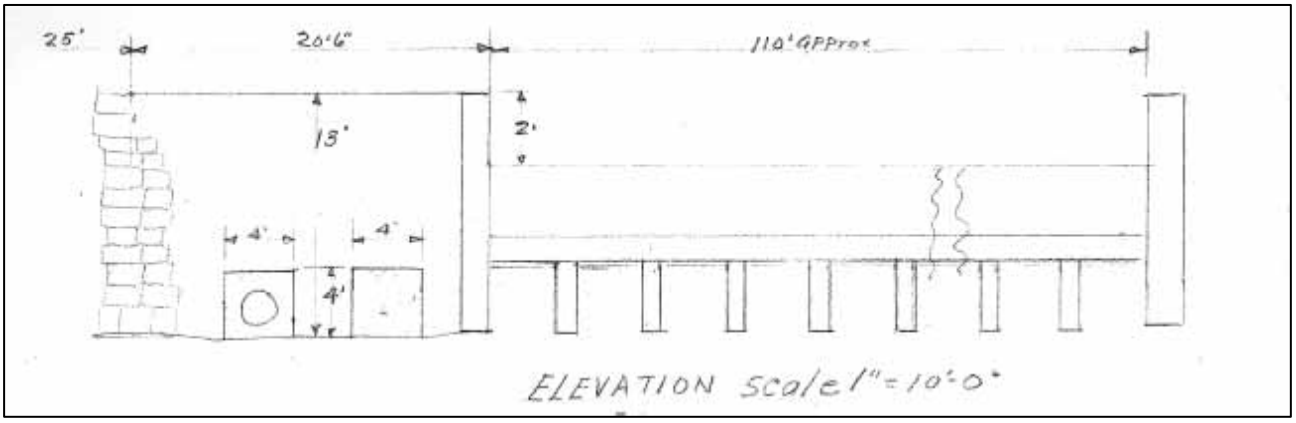
Jenkins Mill 1930s or 40s view
(http://www.treasurenet.com/forums/attachment.php?attachmentid=228349&d=1332348794)



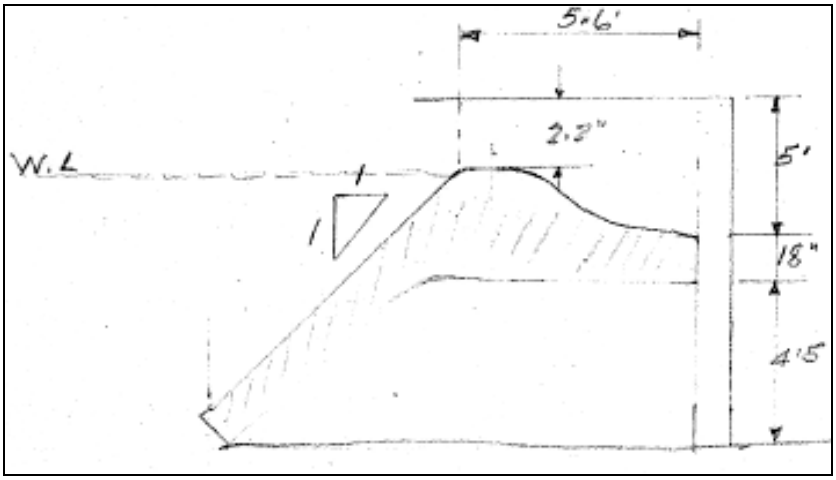
1935 Dam Inspection photos (NHDES)



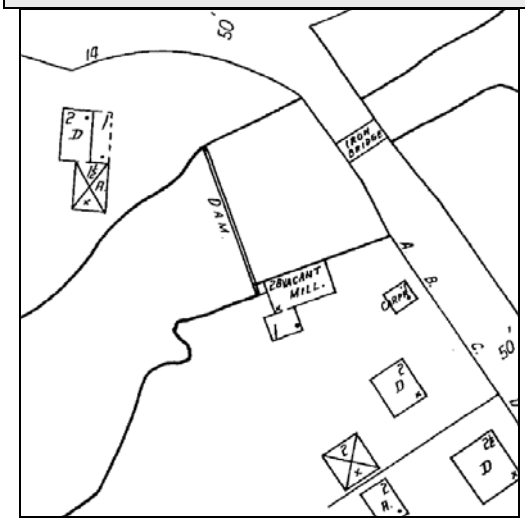
1939 Plan (NHDES)



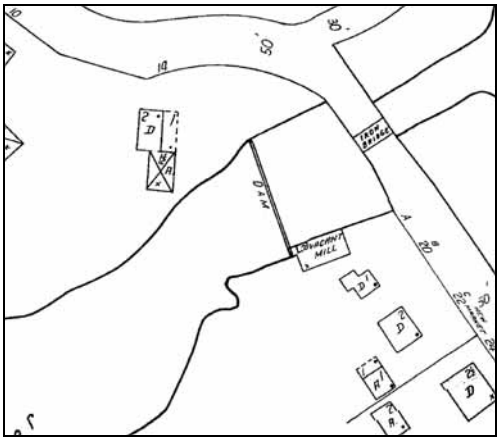
1939 Elevation



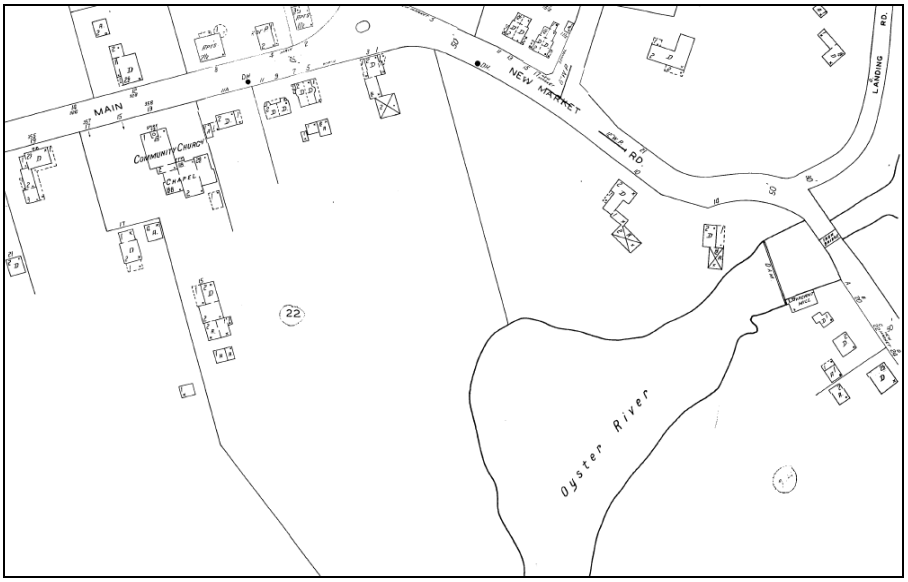
1939 cross section (NHDES)



1932 Sanborn Map detail (http://sanborn.umi.com).



ca. 1940 Sanborn map detail (http://sanborn.umi.com).



ca. 1940s Sanborn Map overview. "Red Tower" on Main Street at right-hand edge (http://sanborn.umi.com/nh/5327/dateid-000002.htm?CCSI=4221n).

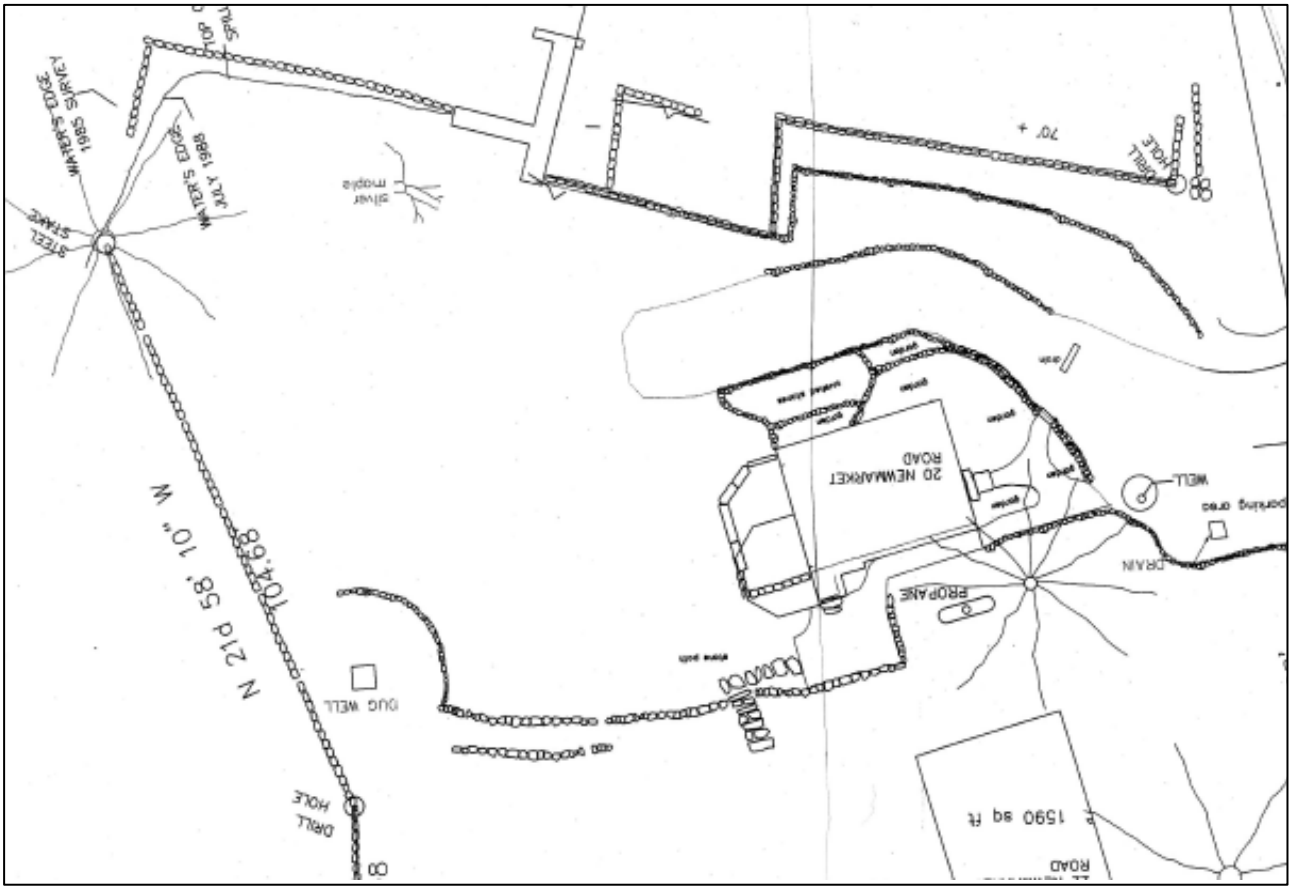
1971 (NHDES)

1974 before repairs, facing SSW (Durham Historic Association)

1974 before repairs, facing SE, showing former Jenkins cottage, site 20 Newmarket Road

1974 construction, facing NNW toward 14 Newmarket Road (Durham Historic Association)

1978 showing newly built fish ladder (NHDES).

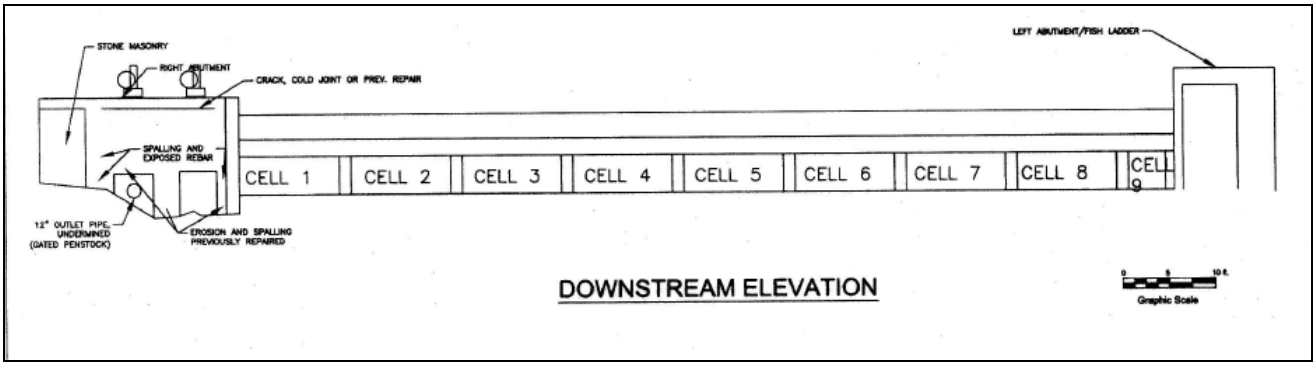



1988 Plan of S. Burns property showing stone walls and newly built house, 20 Newmarket Road

2009 photograph showing mill foundation without foliage, 20 Newmarket Road (VHB 2010).

2013 Detail of mill foundation walls (Bodo).


Drawdown 2008 photo
(VHB 2010 http://des.nh.gov/organization/divisions/water/wmb/coastal/restoration/projects/documents/mill_pond_final_report.pdf).




Stephens Associates 2009

Drawdown November 2009 (VHB 2010).

Recent view looking upstream at Mill Pond (from Bodo)

**Digital Photo Log**

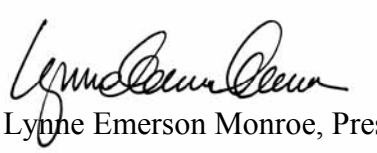
The photos for this project are named:

DUR0018_01 through DUR0018_23

where the first 7 digits are the survey number of the individual property and the last two digits are the photo number.

**Digital Photography Statement**

I, the undersigned, confirm that the photos in this inventory form have not been digitally manipulated and that they conform to the standards set forth in the NHDHR Draft Digital Photo Policy. My camera was set to the following specifications: "fine" image quality (compression ratio 1:4) and "large" image size (3008 x 2000 pixels). These photos were printed using the following: HP Photosmart Pro B9280 printer using HP Vivera pigment inks on HP Premium Photo Paper, glossy. The digital files are housed with Preservation Company in Kensington, NH.



Lynne Emerson Monroe, Preservation Company

**Photo Key**


108
6
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14
108
Oyster River
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17
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1
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22

N

**Current Photographs**

Address: Newmarket Road (NH 108) over the Oyster River Date taken: August 2013

Photo 2: View from north end (parcel 5/3-3), showing top of fish ladder, looking toward mill site (6-9-1)
Direction: SW

Photo 3: spillway from fish ladder Direction: SW

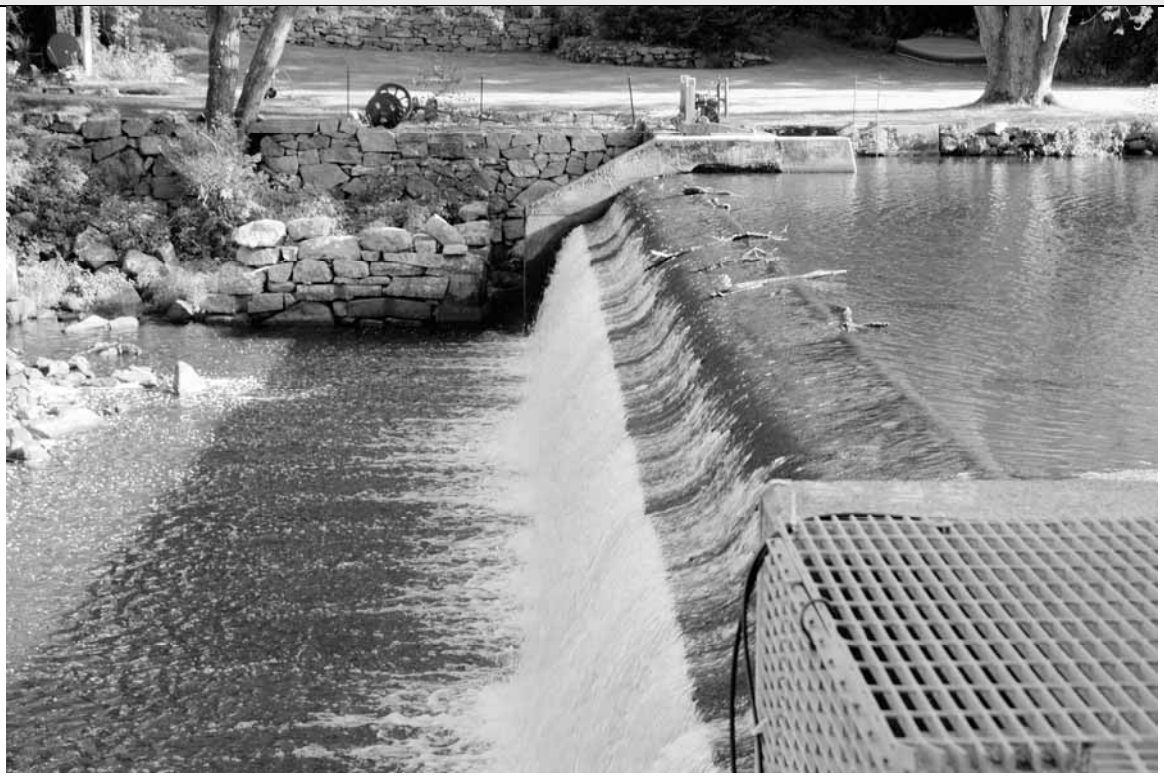

Photo 4: Spillway detail from north abutment/fish ladder Direction: S


Photo 5: Plaque on fish ladder Direction: W

Photo 6: North end of dam, from map/parcel 5/3-3 Direction: SSW

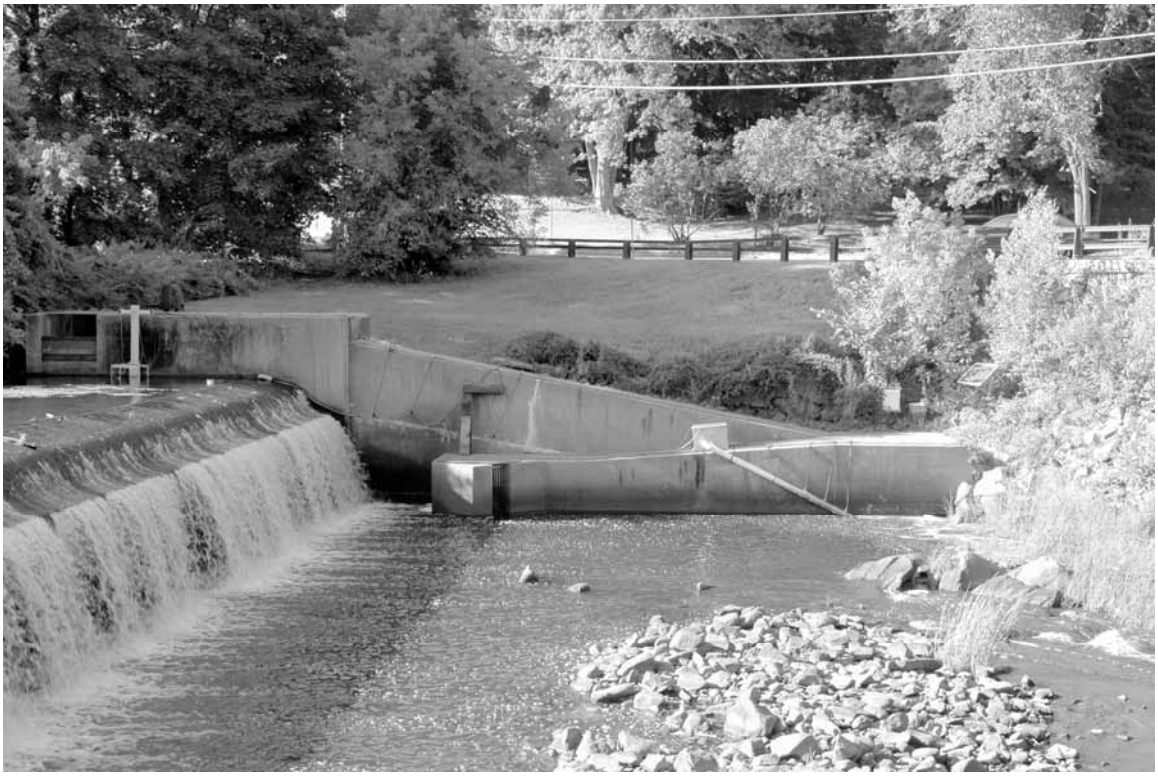

Photo 7: Fish ladder from south end of dam, looking toward map/parcel 5/3-3 Direction: N

Photo 8: From south abutment, facing north Direction: N

Photo 9: Top of spillway Direction: NNE

Photo 10: South abutment and gates Direction: NW

Photo 11: Gates, top of dam looking downstream toward NH 108 Bridge Direction: ENE

Photo 12: Gate lifts Direction: N

Photo 13: gate mechanism Direction: NNE

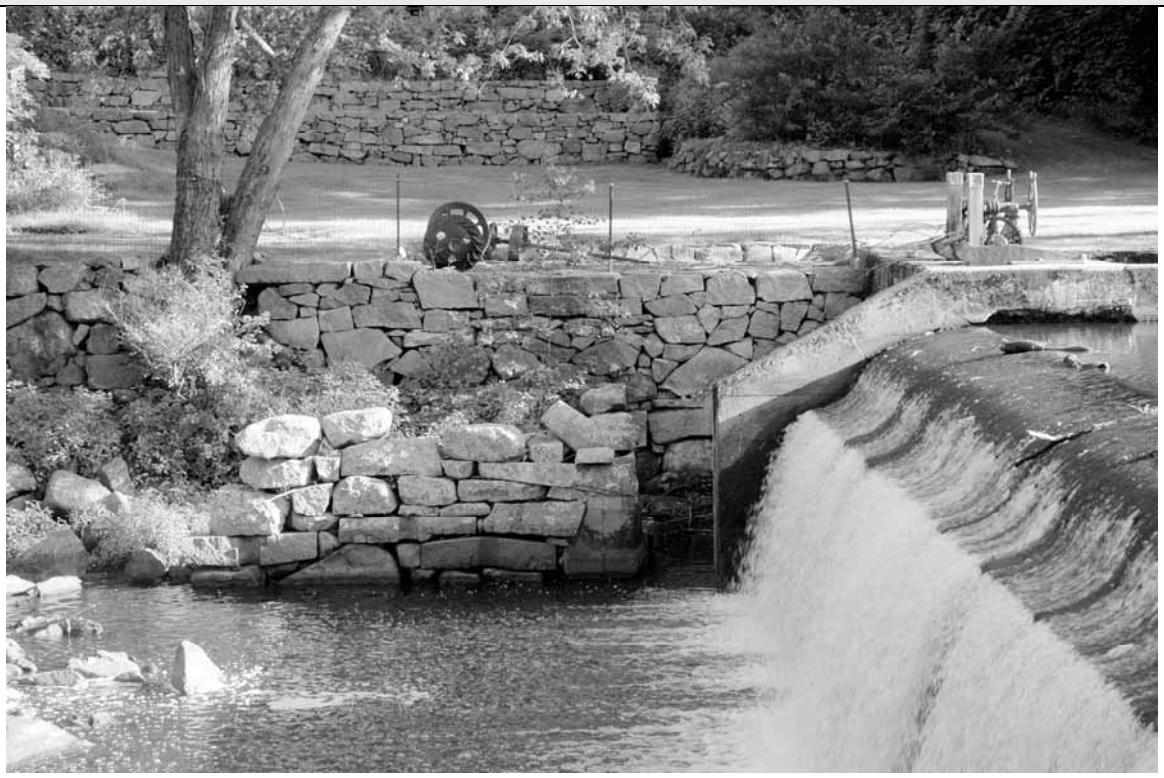

Photo 14: mill foundation, stone walls of 20 Newmarket Road lawn in background Direction: S

Photo 15: Mill foundation, from top of gates, showing former penstock location Direction: ENE

Photo 16: former penstock location Direction: NE

Photo 17: Mill foundation and riverbank, downstream from gates Direction: E

Photo 18: South riverbank, looking downstream Direction: E

Photo 19: Mill foundation, looking toward gates Direction: W

Photo 20: Stone patio drain, mill foundation wall, rebuilt ca. 2007, rear of 20 Newmarket Road in back Direction: SE

Photo 21: stone patio drain, downstream from south abutment, former mill foundation Direction: NW

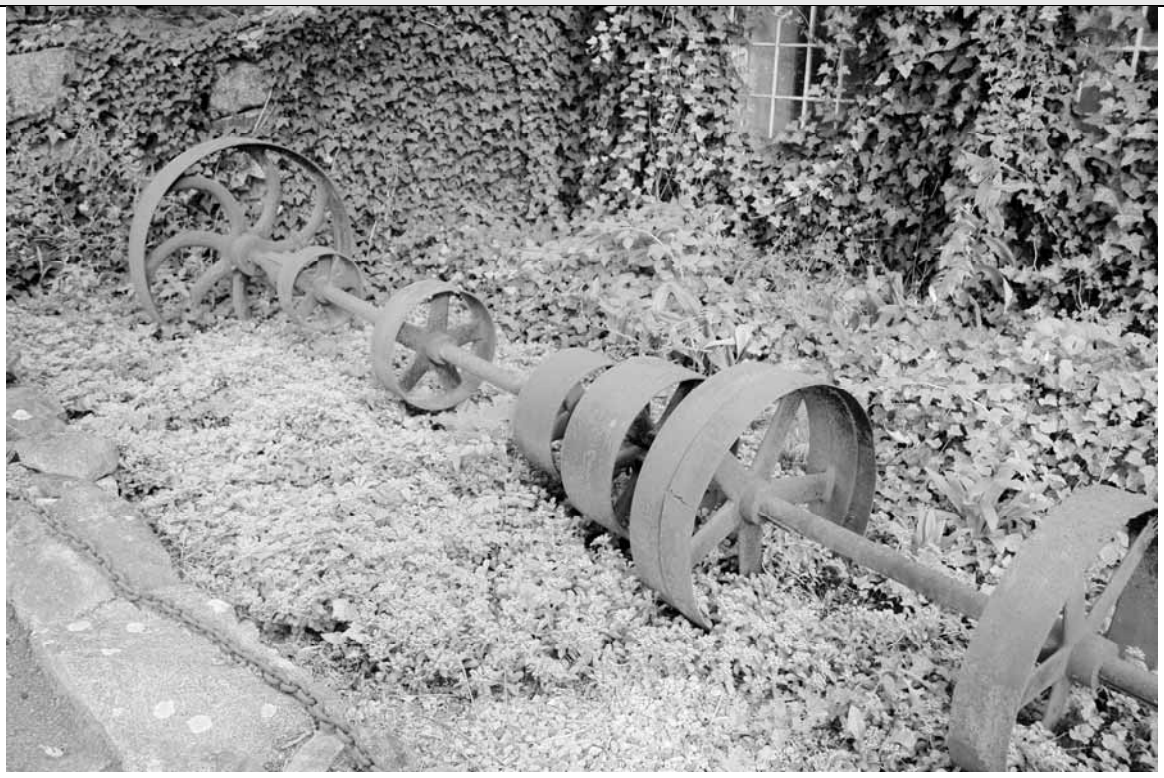

Photo 22: Mill machinery in garden of 20 Newmarket Road Direction: SE

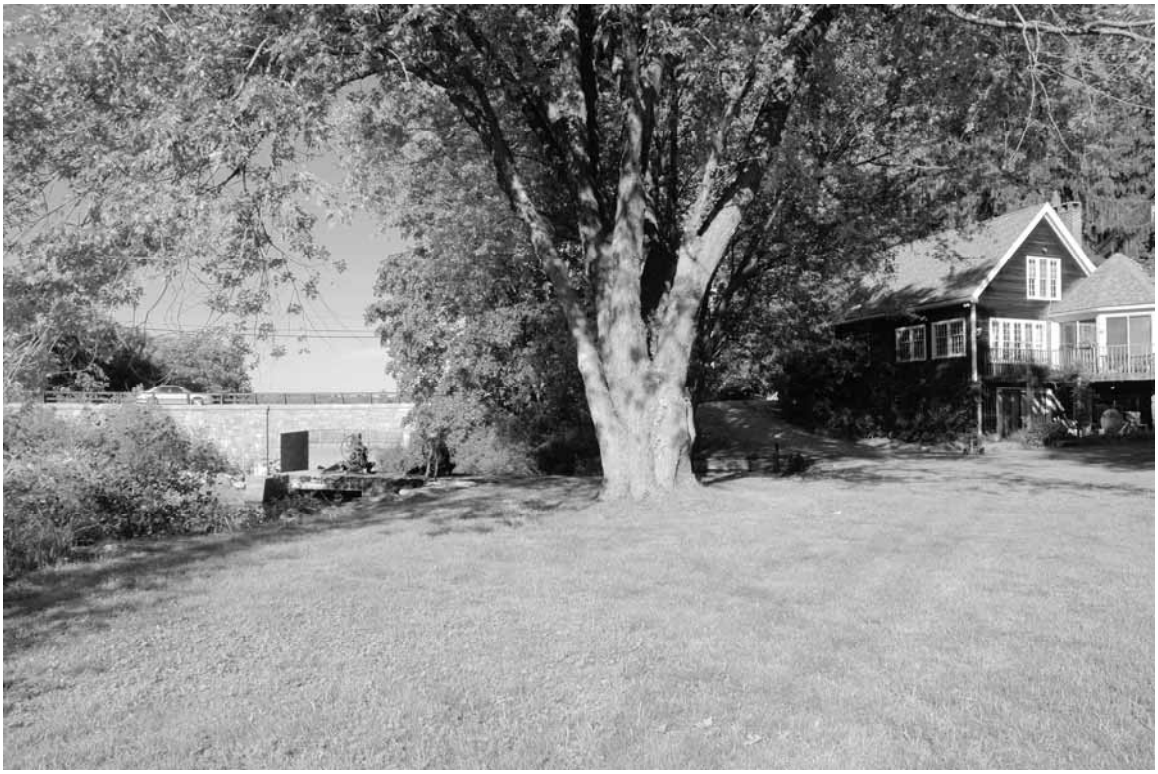

Photo 23: south bank of river, including map/parcels 6/9-1 left, 6/9-2 with 20 Newmarket Road at right
Direction: ESE