

United States Department of the Interior
National Park ServiceNational Register of Historic Places
Registration Form

JAN 16 1990

This form is for use in nominating or requesting determinations of eligibility for individual properties or districts. See instructions in *Guidelines for Completing National Register Forms* (National Register Bulletin 16). Complete each item by marking "x" in the appropriate box or by entering the requested information. If an item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, styles, materials, and areas of significance, enter only the categories and subcategories listed in the instructions. For additional space use continuation sheets (Form 10-900a). Type all entries.

1. Name of Property

historic name Middleborough Waterworks
other names/site number _____

2. Location

street & number East Grove Street at Nemasket River and Wareham Street at Barden Hill Road
city, town Middleborough N/A not for publication
state Massachusetts code MA county Plymouth N/A vicinity
code 023 zip code 02346

3. Classification

Ownership of Property

- ☐ private
☒ public-local
☐ public-State
☐ public-Federal

Category of Property

- ☒ building(s)
☒ district
☐ site
☒ structure
☐ object

Number of Resources within Property

Contributing	Noncontributing
<u>1</u>	<u>1</u> buildings
	<u>0</u> sites
<u>3</u>	<u>1</u> structures
	<u>0</u> objects
<u>4</u>	<u>2</u> Total

Name of related multiple property listing: _____

Number of contributing resources previously
listed in the National Register 0

4. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act of 1966, as amended, I hereby certify that this
☒ nomination ☐ request for determination of eligibility meets the documentation standards for registering properties in the
National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60.
In my opinion, the property ☒ meets ☐ does not meet the National Register criteria. ☐ See continuation sheet.

Signature of certifying official Valene A. Talmage
Executive Director, Massachusetts Historical
State Historic Preservation OfficerDate 1/2/90
Commission;

State or Federal agency and bureau _____

In my opinion, the property ☐ meets ☐ does not meet the National Register criteria. ☐ See continuation sheet.

Signature of commenting or other official _____

Date _____

State or Federal agency and bureau _____

5. National Park Service Certification

I, hereby, certify that this property is:

- ☒ entered in the National Register.
☐ See continuation sheet.
☐ determined eligible for the National
Register. ☐ See continuation sheet.
☐ determined not eligible for the
National Register.

☐ removed from the National Register.☐ other, (explain:) _____

Signature of the Keeper

Date of Action 03-02-90

6. Function or Use

Historic Functions (enter categories from instructions)

Industry / WaterworksGovernment / Public Works

Current Functions (enter categories from instructions)

Industry / WaterworksVacant / Not in useGovernment / Public Works**7. Description**

Architectural Classification

(enter categories from instructions)

Queen AnneNo Style

Materials (enter categories from instructions)

foundation Brick Concrete, Stonewalls Reinforced Concrete, BrickWood Shingleroof Slateother Brick, wood, BrownstoneRubblestone, Cement, Tile

Describe present and historic physical appearance.

The Middleborough Waterworks is a complex of buildings and structures located on two parcels of land approximately three quarters of a mile apart. The oldest part of the waterworks is the original pumping station and stone- and brick-lined well constructed in 1885 a few yards from the east bank of the Nemasket River at East Grove Street. A second contributing structure, the deferrization plant, was built eighty yards to the east of the station in 1913. The third structure, a 162-foot-high reinforced concrete watertower tank, was constructed on Barden Hill in 1915. Despite the forest which surrounds the tank, the structure, some eighty feet higher than the trees, has been a prominent landmark of the town ever since it was built. Two additional structures are considered noncontributing for the purpose of this nomination: a modern (1975) garage for maintenance vehicles adjacent to the pumping station, and a 1970 steel standpipe, located next to the watertower tank.

The Nemasket River portion of the nomination includes the entire eight-acre lot owned by the town of Middleborough. This low-lying area encompasses part of a natural wetland and has remained relatively unchanged since the pumping station and treatment plant were constructed. Although the Barden Hill property owned by the town is a 5.3-acre lot, only a 20,000-square-foot parcel including the tower and standpipe is proposed in this nomination.

The pumping station, designed by the Boston architect Ernest N. Boyden, is a single-story, brick Queen-Anne style building with a slate hipped roof. The building consists of two principal rooms, an engine room (24 x 28 feet) and a boiler room (20 x 31 feet). Opposite cross gables above the engine room provide added height for that section of the building as well as an opportunity for architectural embellishment. Each of the cross gables is ornamented with a sunburst and bracketed collarbeam above a shingled field with a central semi-circular window. At the opposite end of the principal roof hip, above the boiler room, a slated ventilator is located above a small gablet beneath the ridge. A square brick chimney rises from the south end of the station, while at the southwest corner of the building there is a small one-story filter pump room (14 x 17 feet in plan), added as a low-level pump station to supply the deferrization plant in 1913. The eaves are lined with a brick dentilated cornice. Below the cornice, greatest architectural attention

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was given to the engine room windows, a triple set of double-hung sash set between a common brownstone lintel and sill. The north facade of the engine room incorporates a pair of double doors, over which a broad brownstone lintel is carved with the date "1885." On the east facade, the principal entrance and flanking 6/6 windows are set within segmental brick-arched openings with brownstone sills.

A wood-frame coal storage building, removed in 1975, extended between the pumping station's boiler room and the stable/maintenance building (replaced in 1975 by the present garage; see below). The platform scale, used to weigh the amount of coal delivered to the boilers, is still in place outside the door to the boiler room.

The circular well, located approximately sixty feet to the northwest of the station, is twenty-six feet deep and twenty-two feet in diameter. The original was lined with rubblestone work laid in a dry bond. This in turn was lined with brickwork one foot thick in cement mortar. The brick lining begins at a level about three feet above the floor of the well, thus leaving an annular strip of dry stone masonry through which water can percolate. By this construction, engineer Percy Blake noted, "any surface water which finds its way through the meadow must pass through the clean gravel to a level three feet above the bottom of the well before it can enter the latter" (First Report, p. 18). Blake wrote that the water naturally stood about seventeen feet deep in the well "and is of such great purity that grains of sand on the bottom can be clearly seen." The well retains its original octagonal wooden well-cover, which, with a small ventilator at the top, stands approximately ten feet above the ground.

The deferrization plant, for the treatment of water for excess iron, was built in 1913 on ground slightly higher than the pumping station, about eighty yards to the east. It consists of five parts: trickler, settling basin, filters, regulator house, and filtered water basin.

These are arranged on the slope of the hill to treat water in a gravity flow. Highest on the slope is the "trickler," an open concrete tank, thirty feet in diameter and approximately fifteen feet high containing six to ten feet of coarse coke. Over the coke, water is discharged through a number of sprinkling nozzles. The water passes through the coke, is collected, and passes through a pipe to the settling basin, a concrete room approximately twenty-six feet square, roofed in concrete and covered in earth to prevent freezing. Here takes place the primary coagulation and precipitation of the ferric hydrate and heavier solids. Two filter compartments, concrete chambers with groined vaults, were constructed adjacent to the settling basin, a concrete room approximately 26 feet square, with a total area of one tenth of an acre. Like the settling basin, they are covered with earth and appear only as a mound when viewed from the pumping station. At the bottom of the

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chambers are laid tile drains, covered with a foot of gravel, supporting in turn three feet of medium-sized sand. After passing through the filter compartments, the water passes through a regulator house, a small brick structure about eighteen feet square, in which are located the valves and gauges for operating and regulating the filters. The final chamber is the filtered water basin, capable of holding 42,000 gallons of water. This circular basin holds the filtered water until it is returned to the pumping station and pumped to the storage tanks on Barden Hill.

The capacity of the deferrization plant was expanded in 1939 with the construction of two additional filter compartments opposite the original filters. In addition to increasing the capacity, the new sand beds allowed more time for cleaning the filters before they had to be returned to use. In most respects, these chambers are identical to the original filters.

The third structure of the Middleborough Waterworks is the reinforced concrete watertower tank constructed on Barden Hill in 1915. As distinct from a standpipe, which stores a column of water, the Barden Hill storage tank consists of a forty-one foot diameter tank whose base is one hundred feet from the ground. The tank is supported by a tower, of the same diameter as the tank so that from a distance the structure appears to resemble a standpipe. The tank is sixty-four feet deep from the underside of its dome to the inside of its hemispherical bottom, giving the chamber a capacity of 508,000 gallons. The bottom of the tank is delineated on the exterior by a reinforced concrete balcony 108 feet above the ground, supported by concrete brackets.

Access to the balcony is through a steel stairway in the inside of the tower, which is lit by window openings at intervals. Twelve pilasters line the face of the tower as high as the balcony, adding to the stability of the structure and relieving the plain aspect of the cylinder. The tank was in use until 1970, when the adjacent five million gallon steel standpipe was completed. Since then, cracks in the surface of the concrete have admitted moisture, causing the collapse of portions of the balcony.

The present garage, a noncontributing building adjacent to the pumping station, was built in 1975 and houses the plant's maintenance vehicles. The timber-frame structure, constructed with timbers from the former George Shaw Varnish Works on the oppositeside of East Grove Street, replaced an earlier wood-frame stable and blacksmith shop on the site. The new building, sheathed in wood shingles, repeats approximately the same footprint and massing as the former structure.

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Archaeological Description

While several prehistoric sites have been recorded for the Middleborough area, surprisingly little is known about the relationship between these sites seasonally and through time. Sites in this area can contribute to a better understanding of the settlement and subsistence relationships between major riverine sites along the Taunton River, interior lakeside sites such as Assawompset lake and secondary drainage such as the Nemasket River.

Historic archaeological remains described above have the potential for providing detailed engineering information on some of the earliest water treatment facilities for iron in the United States. Existing engineering features and construction features no longer visible can provide information on late 19th and early 20th century waterworks construction technique and details of modifications to the system since its design.

(end)

8. Statement of Significance

Certifying official has considered the significance of this property in relation to other properties:

☐ nationally ☒ statewide ☒ locallyApplicable National Register Criteria ☒ A ☐ B ☒ C ☐ DCriteria Considerations (Exceptions) ☐ A ☐ B ☐ C ☐ D ☐ E ☐ F ☐ G

Areas of Significance (enter categories from instructions)

ArchitectureCommunity Planning & DevelopmentEngineering

Period of Significance

1885 - 1921

Significant Dates

Cultural Affiliation

N/A

Significant Person

Architect/Builder

Blake, Percy M.; Boyden, Ernest N.;Weston, Robert Spurr; Sampson, Georgefaunce, Q. A.;

State significance of property, and justify criteria, criteria considerations, and areas and periods of significance noted above.

The Middleborough Waterworks, a late 19th century pumping station with early 20th century ancillary structures, possesses integrity of location, design, materials, workmanship, and association. The pumping station and original well are significant as an intact engineering complex designed by the prominent waterworks engineer Percy M. Blake. Architecturally, the station is significant as a well-detailed, intact example of the work of the Boston architect Ernest N. Boyden. The deferrization plant, completed in 1913 to the designs of Robert Spurr Weston, is one of the earliest examples in the United States of a water treatment plant for iron removal; it remains in service with few modifications. The Tower Tank, constructed of reinforced concrete in 1915, was the first such tank in Massachusetts to be constructed of that material and held to be the highest in the world at the time of its construction. The tower has been out of service since 1970. Included within the boundaries of the discontinuous district are two noncontributing structures: a five-million-gallon standpipe constructed in 1970, and a concrete and brick maintenance garage, constructed in 1975. The period of significance of the Middleborough Waterworks spans the years from the pumping station's construction in 1885 to 1921, when the water department was reorganized and electric pumps replaced the original steam equipment. The Middleborough Waterworks meets criteria A and C of the National register of Historic Places at the State and Local levels.

Middleborough is an inland town of Plymouth County, thirty-five miles south of Boston and fifteen miles west of Plymouth, the county seat. In area, the town is the second largest town in the Commonwealth after Plymouth. Much of the town consists of low-lying wetlands, the town center itself, once known as "Four Corners", being established on higher ground at the intersection of Colonial routes from Plymouth and Boston. Located within the large Taunton River watershed of southeast Massachusetts, the town is bisected by the Nemasket River, a Taunton River tributary which flows north out of Assawompset Pond, skirts the elevated plateau of Four Corners, and joins the Taunton at

☒ See continuation sheet

9. Major Bibliographical References

- "Concrete Standpipes," Journal of the New England Water Works Association 29 (June 1915), pp. 184-201.
- "Design and Construction of World's Highest Reinforced Concrete Water Tower-Tank, Middleboro, Mass.," Engineering and contracting 44 (22 December 1915), pp. 473-475.
- Kingsbury, Francis H., "Public Ground Water Supplies in Massachusetts," Journal of the New England Water Works Association 50 (June 1936), pp. 149-196.
- Middleborough. Report of the Water committee of the Town. April 9, 1884.
- Middleborough water commissioners. Annual Reports.
- Romaine, Mertie E., History of the Town of Middleborough, Massachusetts (New Bedford: Reynolds-DeWalt, 1967).
- Sampson, George A., "Reinforced-Concrete Tower Tank at Middleborough, Mass.," Engineering News 74 (26 August 1915), pp. 392-394.

☒ See continuation sheet

Previous documentation on file (NPS):

- ☐ preliminary determination of individual listing (36 CFR 67) has been requested
- ☐ previously listed in the National Register
- ☐ previously determined eligible by the National Register
- ☐ designated a National Historic Landmark
- ☐ recorded by Historic American Buildings Survey # _____
- ☐ recorded by Historic American Engineering Record # _____

Primary location of additional data:

- ☒ State historic preservation office
- ☐ Other State agency
- ☐ Federal agency
- ☐ Local government
- ☐ University
- ☐ Other

Specify repository:

Massachusetts Historical Commission

10. Geographical Data

Acreage of property 8.5 acres

UTM References

A 19 342680 4638690
Zone Easting Northing

C

B 19 341590 4638200
Zone Easting Northing

D

☐ See continuation sheet

Verbal Boundary Description

Pumping Station: The property boundary consists of the 8-acre lot identified as lot 9 on Assessor's Maps U68 and U73 of the Middleborough Assessor's Office.

Water Tower Tank: The nominated parcel consists of 20,000 square feet at the northeast corner of lot 51 (approximately 125 x 160 feet in size), as delineated on the attached Assessor's Maps U64 and U69.

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Boundary Justification

Pumping Station: The property boundaries are those historically associated with the operation of the pumping station and its treatment plant, purchased from the previous owner in 1884. **Water Tower Tank:** The nominated parcel includes only the cleared area around the tank and modern standpipe. The remainder of lot 51 is wooded and has never been associated with any aspect of the waterworks.

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11. Form Prepared By

name/title Peter H. Stott w/ Betsy Friedberg, NR Director
organization Massachusetts Historical commission date June 15, 1988
street & number 80 Boylston Street telephone 617-727-8470
city or town Boston state MA zip code 02116

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the northern boundary of the town. Bog ore from Assawompset Pond and the waterpower of the Nemasket River supplied an important 18th-century iron works, and in the early 19th century, the iron industry together with the new cotton mills on the Nemasket provided significant industrial employment. By 1850 the village center had become an important railroad junction, on lines to Boston, Taunton, Fall River, and Cape Cod. The manufacture of shoes, as well as straw and woolen goods, were the largest employers in the third quarter of the century, and the town's population reached 5,237 in 1880, making it the third largest municipality in the county after Plymouth and the city of Brockton.

The need for a reliable town water supply had been the subject of debate in the town since the end of the Civil War. Both New Bedford (1869) and Fall River (1874) had constructed surface water supplies after the war. Taunton, by then a city of over 20,000 inhabitants, was the first of Middleborough's neighbors to build a ground-water system, constructing filter galleries in 1876. Taunton's action may have prompted Middleborough, for two years later the town engaged Percy M. Blake of Hyde Park to recommend a solution to the town's major water supply requirements. Although no action was taken at the time, Blake would later be rehired to produce detailed plans for the system that was eventually built.

Percy M. Blake (1850-1933) was one of the leading engineers of his field. A native of Mansfield, Blake's earliest experience was in the engineering office of Cushing Farnum of Providence. In the early 1870s, he was assistant engineer under General G. K. Warren, then designing harbor and river improvements. By the end of the decade, he had gone into business as a consulting hydraulic engineer in Boston. Among Blake's works were systems for Dedham (1881), Norwood (1885), Andover (1890), and Manchester (1892). By the time of his retirement, about 1919, he had designed more than twenty separate waterworks systems throughout New England.

In the early 1880s, the lack of a convenient water supply became a frequent embarrassment to manufacturers, dictating unexpected shutdowns. It was the financial impact, however, that was the real impetus in getting the town to take action. In the fall of 1883, insurance companies, recognizing the seriousness of Middleborough's lack of water, increased insurance rates on businesses throughout the village between 25 and 100 percent, until such time as adequate service could be assured. Immediately, a town Water Committee was appointed, and early in 1884 Blake was re-engaged. The engineer produced detailed plans and an estimate of the cost. Once the committee had accepted Blake's report, they drafted a bill for the legislature, which was voted, and signed by the Governor on March 6, 1884. The Act, "for the supply of the town of Middleborough with water or to authorize the Middleborough Fire District to Furnish a Water Supply" (Chapter 59 of the laws of 1884), gave the town ninety days in which to accept the bill; if they failed to do so, the Fire District

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was authorized to accept the act. The town did not act within the specified time, and in consequence, it was the Middleborough Fire District which built the town's first water system.

On Blake's recommendations, the present pumping station lot, a field of approximately nine acres along the Nemasket River, was purchased from James Cole. The station, designed by Ernest Boyden, was constructed by Q. A. Faunce of Quincy, Massachusetts. The building was completed late in 1885. The duty trials for the pumping engines were conducted January 7-8, 1886. The two engines installed were compound condensing duplex pumping engines furnished by the Deane Steam Pump Company of Holyoke, each with a nominal capacity of 600 gallons per minute.

The Deane Steam Pump Company was only one of several manufacturers of steam pumping equipment that had appeared since Henry Worthington installed the first direct-acting pump for waterworks service in Savannah, Georgia. His first duplex pump was installed in 1860 in the Mystic Water Works of Charlestown, Massachusetts. As the price of coal declined and the efficiency of steam equipment improved, large numbers of communities and private water companies in eastern Massachusetts began to construct water-supply systems. Middleborough's system was typical, although among the earliest of the smaller systems in Plymouth County. Systems for Brockton (1880) and Whitman (1883) preceeded Middleborough's, although the succeeding five years also saw new systems constructed in Kingston (1886), Abington and Rockland (a joint system in 1887), Bridgewater (1888), and Marshfield (1888). Between 1881 and 1900, more than 250 separate water supply systems were built across the state.

The new pumping station was the most visible element of the town's new water-supply system. Pumping stations built before the First World War, like city halls and schools, were representative of civic pride, and were often lavishly appointed. Name architects, like Ernest N. Boyden (1852-1918), were often employed, and even small stations, of which Middleborough's was typical, were solidly built, usually of brick with stone trim, a slate roof, and the characteristic ventilator over the boiler room. Little is known of Boyden's work, beyond several private and multi-family residences in Boston. He was, however, also the architect for the 1884 Wellesley Waterworks pumping station, a simpler version of the Middleborough station. Both display a high hipped roof with an ornamental ventilator and gablet at one end of the ridge.

The new water supply, which the station represented, made possible the rapid expansion of the town's population. Between 1885 and 1910, Middleborough grew by almost sixty percent, a faster growth rate than in any other 25-year period to that time. Nearly eight miles of pipe were installed in 1885; by 1910, there were more than nineteen miles, supplying 88 percent of the fire district and 56 percent of the town's population, together with the majority of manufacturers. "The success of our works," the water commissioners noted in

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1893, "has been greater than the most sanguine advocate dared predict," with "constantly increasing number of water tankers and the steady growth of the village." After the construction of the waterworks, several firms constructed plants along Cambridge Street, including the Murdock Parlor Grate Company (relocating from Carver), the Clark & Cole box factory (from the Nemasket River), and Carlton Maxim's planing mill.

By 1902, the station was pumping nearly 88 million gallons of water annually, up from a mere 17 million gallons in the first full year of operation in 1886. In the latter year, the pumps had averaged only an hour and forty minutes running time. By 1905, the pumps were in operation more than seven hours per day. The increase had introduced sharply higher amounts of iron in the water. By 1910, analysis often showed the amount of iron to be three times the permissible limit.

To solve this problem, the town enlisted the services of a consulting sanitary engineer, Robert Spurr Weston (1869-1943). Weston was one of several hydraulic and sanitary engineers responsible for the introduction of important European innovations in water works technology into the United States. Born in Concord, New Hampshire, Weston studied at MIT for two years, following it with practical experience at the Massachusetts Board of Health's Lawrence Experiment Station. In 1896 and 1897, he studied at the University of Berlin. The Germans were at this time among the leading sanitary engineers. After Salbach's discovery that groundwater could be freed from iron with aeration followed by filtration through gravel or sand, the first deferrization plant had been built in Charlottenburg in 1874. Thereafter, many large German cities had constructed such plants, including Berlin, Hamburg, Breslau, and Dresden. Weston returned to the United States in 1897, helping to construct treatment plants in North Carolina, Pennsylvania, Wisconsin, and other locations.

The first Massachusetts plant was built in the town of Reading in 1896. This plant only employed the application of alum and lime to the water, without aeration. The second and third plants, built in 1913 for the towns of Middleborough and Cohasset under Weston's direction, were the first in Massachusetts to employ aeration and coke filtration. (Weston was assisted by George A. Sampson, responsible two years later for the design of the water tower tank, and thereafter partner with Weston in the firm of Weston & Sampson.)

Water was turned into the new filtration beds September 20, 1913. "Within 24 hours," the water commissioners wrote in their annual report, "the consumers were rejoicing in a quality of water that they had not had for a long time. . . . The filtration system installed seems to be a success from every standpoint."

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Although the quality of water was now assured, the quantity was still insufficient. Since 1885, the town mains had been supplied from a 230,000-gallon steel standpipe on Forest Street. By the early 20th century, both its capacity and condition were proving inadequate. Although it provided sufficient pressure for residential purposes, it was entirely inadequate for fire protection, and direct pumping from the station into the mains was necessary. Two serious fires in 1905 emphasized the inadequacy of the hose pressure, by then insufficient to break the window glass of the burning buildings. These events increased the conviction that a larger storage reservoir was required.

Direct pumping also pushed up the cost of operating the pumping station. Under a state labor law, the station now was required to be manned by three eight-hour shifts of two men each, at least one of whom had to be a licensed engineer. This added considerably to the cost of running the station. In addition, inspections of the standpipe in 1911 and 1913 indicated that it was no longer safe to continue its use without major repairs.

Joseph Beals (1834-1909) had foreseen the need for a new storage reservoir at an early stage. Beals had been a water commissioner since the organization of the Board, serving at various times as clerk and superintendent. Recognizing the need for a new tower, in 1895 he saw to it that the town purchased the high ground on Barden Hill.

Both standpipes and elevated storage tanks were considered for Barden Hill, in both steel and reinforced concrete. A standpipe of the necessary height, 160 feet, would have provided a capacity three times the required 500,000 gallons, as well as requiring substantially greater initial investment. Elevated tanks of steel and concrete had roughly similar costs, and in the end, the choice was based on maintenance and aesthetics. A concrete structure would not require painting, and such a structure could also be designed as an ornament of the landscape.

Construction of the tank took place between April and October of 1915. The contract for the work was awarded to the Hennebique Construction Company of New York. The Boston engineer Thomas F. Sorsby acted as resident engineer for the project engineer, George A. Sampson. Ground was broken for the structure on Barden Hill April 26, 1915, and work was completed six months later. As a tribute to the former water commissioner, the Board had a bronze tablet placed over the door of the tower with the inscription: "Dedicated to Joseph Eber Beals, a Builder. 'His Works Service Him.'"

One of the most unusual features of the tank was the reinforced concrete hemispherical bowl of the tank bottom. Although the shape had been used for many years in elevated steel tanks, the shape had never yet been formed out of reinforced concrete. According to engineer George Sampson, use of the bowl

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instead of a more conventional flat bottom offered a 47% increase in capacity for the same height of vertical wall; it was practically self-cleaning; and, the enormous stresses of a flat-bottom tank were replaced by a better distribution of stresses in the bowl. The hemispherical bottom was poured continuously to make a monolithic bowl up to the point where it became a part of the supporting tower. The tower was put into service October 24, 1915, and a week later the bowl began to leak. At a large increase in cost, a new bottom was installed, and the tower was put back into service in January 1916. No major problems were encountered after that time, although the tower was waterproofed under Sampson's direction in 1929 after seepage had been observed.

The Middleborough tower tank was the first such tank in Massachusetts to be constructed of reinforced concrete, but the state had already been one of the pioneers in the use of reinforced concrete in waterworks structures. Beginning in 1899, reinforced concrete had been used in the construction of standpipes, when the first in the United States was constructed at Little Falls, New Jersey. The first Massachusetts standpipe at Fort Revere, in Hull (1903), was followed in quick succession by similar tanks in Attleboro (1904), Waltham (1906), and Bondsville (1908). By 1914, of the forty-two concrete standpipes constructed in North America, nineteen were located in Massachusetts.

George A. Sampson, engineer responsible for the design and construction of the standpipe, was a native of Middleborough, where he was born in 1881. After graduation as a civil engineer from Dartmouth in 1903, he served on water projects in the west and midwest. He was associated with Robert Spurre Weston in the design of Middleborough's deferrization plant. In 1915, he joined Weston as a partner in the firm of Weston and Sampson, consulting engineers of Boston, with which firm he was associated for the remainder of his life. He died in Newton, Massachusetts, in 1966.

The first major change to the system occurred in 1921, when the water department was reorganized, in large part because of the changeover in town government. In May of that year, then Superintendent Alvin Hawes resigned and his duties were assumed by the new Town Manager, Harry J. Goodale. The following August a committee was appointed to investigate conditions at the pumping station and make a report.

The waterworks committee carefully analyzed the department and found conditions "very bad." The cost of operating the steam equipment was excessive, and the conditions of the water meters was such that income was far below what it should have been. The committee's principal recommendation was the installation of electric pumps. Other water systems had already taken that course, and in addition, the municipally owned electric light plant would be able to furnish power to the pumping station at cost. Acting on the

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committee's recommendation, the town voted \$14,000 to install new electric pumping equipment. The steam plant was not dismantled, but retained on standby until 1949.

Since World War II, Middleborough's water-supply system has continued to expand. A 500,000-gallon water tank was constructed in 1946-1947 to supplement the concrete tower tank, and in 1949, the first two additions to the system's pumping facilities, "Rock 1" and "Rock 2," went on line in the southern part of the town. Today, in addition to the original 1885 pumping station, there are nine other stations and a tenth under construction. Daily demand averages two million gallons per day, and the system has a storage capacity of 5.5 million gallons. Although the concrete watertower tank is no longer used, both the pumping station and treatment plant remain important, functioning parts of Middleborough's water-supply system.

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Sampson, George A., "The Middleboro, Mass. Reinforced Concrete Water Tower Tank," Journal of the New England Water Works Association 30 (June 1916), pp. 251-259.

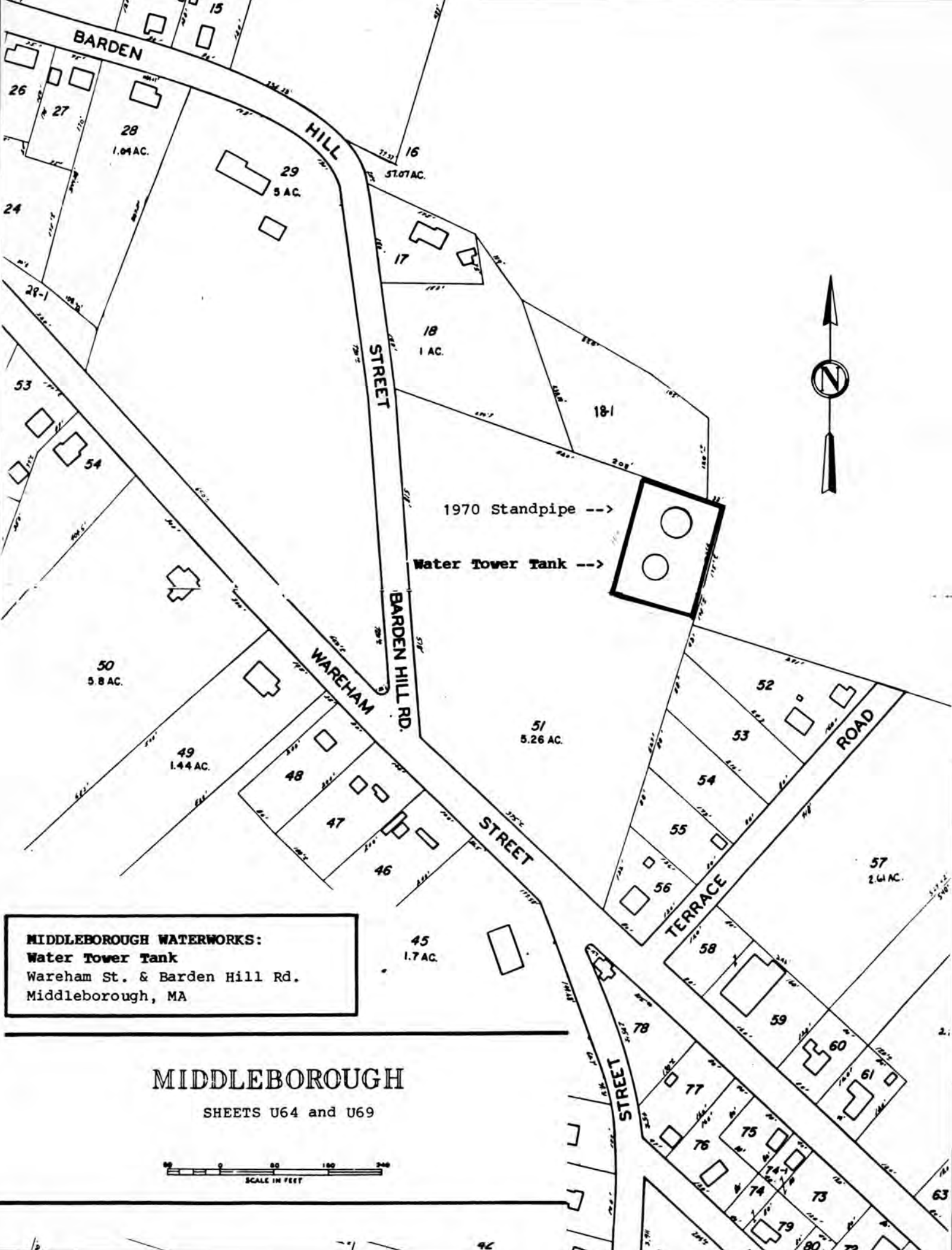
Sears, Walton H., "Pumping Water — An Historical Review," Journal of the New England Water Works Association 49 (June 1935), pp. 119-148.

Sterling, Clarence I., Jr. and John B. Belknap, "Iron in the Ground Water Supplies of Massachusetts," Journal of the Boston Society of Civil Engineers 19 (January 1932), pp. 1-20.

Tinkham, Richard E., "The Historical Background of the Concrete Water Standpipe," three-page typescript (c. 1985??), by the Chief Operator of the Middleborough Waterworks. Courtesy of the Author.

Weston, Robert spurr, "Some Recent Experiments in the Deferrization and Demanganization of Water," Journal of the New England Water Works Association 28 (March 1914), pp. 27-59.

Weston, Thomas, History of the Town of Middleboro, Massachusetts (Boston: Houghton Mifflin, 1906).



BARDEN HILL

HILL

STREET

BARDEN HILL RD.

WAREHAM

STREET

TERRACE

ROAD



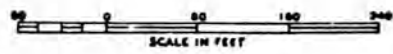
1970 Standpipe -->

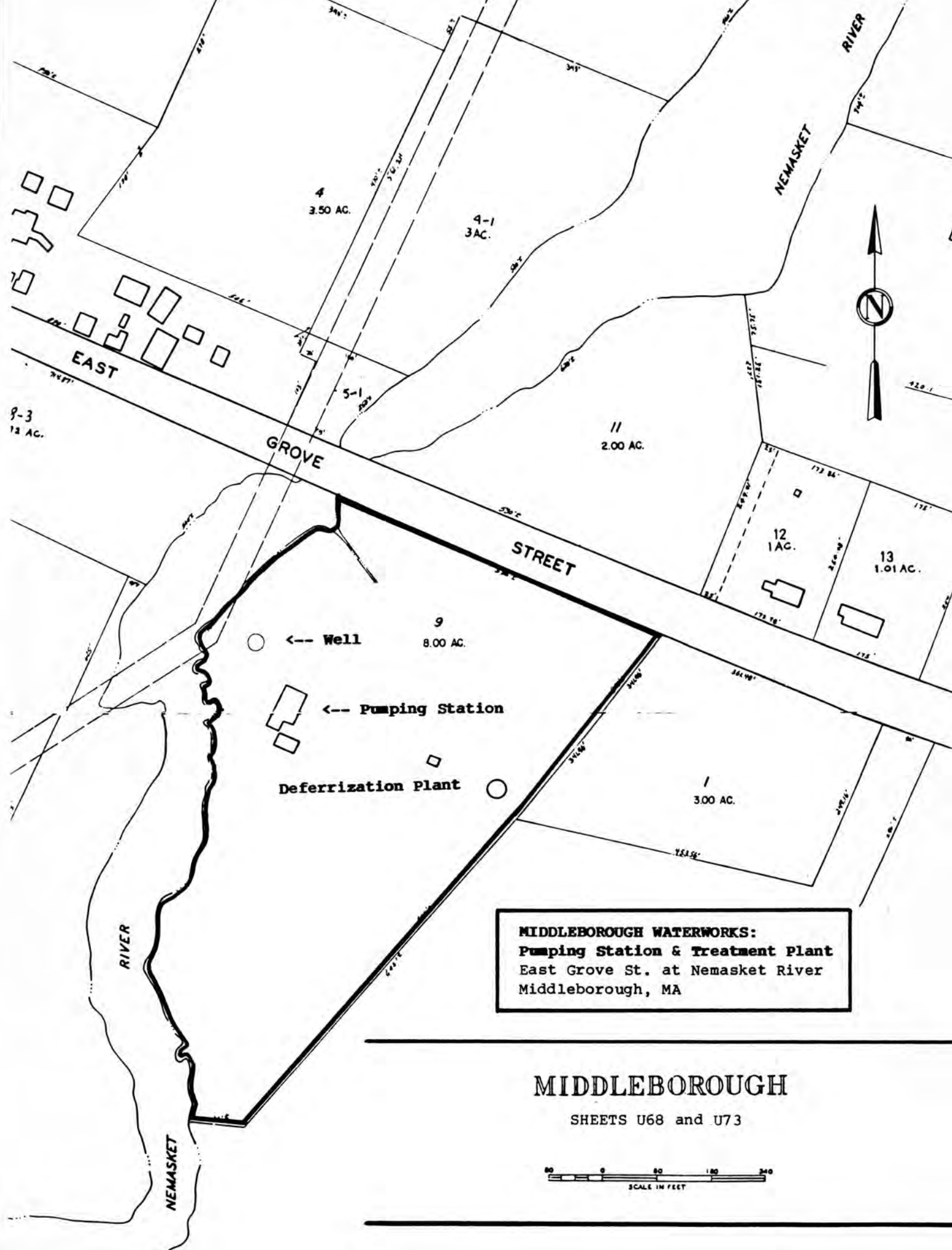
Water Tower Tank -->

MIDDLEBOROUGH WATERWORKS:
Water Tower Tank
Wareham St. & Barden Hill Rd.
Middleborough, MA

MIDDLEBOROUGH

SHEETS U64 and U69

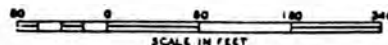




MIDDLEBOROUGH WATERWORKS:
Pumping Station & Treatment Plant
East Grove St. at Nemasket River
Middleborough, MA

MIDDLEBOROUGH

SHEETS U68 and U73



United States Department of the Interior
National Park Service

National Register of Historic Places
Continuation Sheet

Section number _____ Page _____

SUPPLEMENTARY LISTING RECORD

NRIS Reference Number: 90000129

Date Listed: 03/02/90

Middleborough Waterworks
Property Name

Plymouth MA
County State

N/A
Multiple Name

This property is listed in the National Register of Historic Places in accordance with the attached nomination documentation subject to the following exceptions, exclusions, or amendments, notwithstanding the National Park Service certification included in the nomination documentation.

Barth R. Savage
Signature of the Keeper

3/02/90
Date of Action

=====

Amended Items in Nomination:

Section 3: Classification--Category of Property

The property is classified appropriately as a district, not as building(s), district and structure, as indicated.

This information was confirmed with Ann Tait, MASHPO, by telephone.

DISTRIBUTION:

National Register property file
Nominating Authority (without nomination attachment)

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

NATIONAL REGISTER OF HISTORIC PLACES
EVALUATION/RETURN SHEET

REQUESTED ACTION: NOMINATION

PROPERTY Middleborough Waterworks
NAME:

MULTIPLE
NAME:

STATE & COUNTY: MASSACHUSETTS, Plymouth

DATE RECEIVED: 1/16/90 DATE OF PENDING LIST: 2/01/90
DATE OF 16TH DAY: 2/17/90 DATE OF 45TH DAY: 3/02/90
DATE OF WEEKLY LIST:

REFERENCE NUMBER: 90000129

NOMINATOR: STATE

REASONS FOR REVIEW:

APPEAL: N DATA PROBLEM: N LANDSCAPE: N LESS THAN 50 YEARS: N
OTHER: N PDIL: N PERIOD: N PROGRAM UNAPPROVED: N
REQUEST: N SAMPLE: N SLR DRAFT: Y NATIONAL: N

COMMENT WAIVER: N

☒ ACCEPT ☐ RETURN ☐ REJECT 3/2/90 DATE

ABSTRACT/SUMMARY COMMENTS:

Technologically, historically and architecturally significant late 19th-century pumping station with concomitant early 20th-century ancillary structures reflecting a common response to the dire need for municipal water supply systems during this period. Subsequently, the water supply system spurred population growth and economic expansion.

RECOM./CRITERIA Accept A+C
REVIEWER Savage
DISCIPLINE Architectural History
DATE 3/2/90

DOCUMENTATION see attached comments Y/N see attached SLR Y/N

CLASSIFICATION

☐ count ☐ resource type

STATE/FEDERAL AGENCY CERTIFICATION

FUNCTION

☐ historic ☐ current

DESCRIPTION

☐ architectural classification
☐ materials
☐ descriptive text

SIGNIFICANCE

Period Areas of Significance--Check and justify below

Specific dates Builder/Architect
Statement of Significance (in one paragraph)

☐ summary paragraph
☐ completeness
☐ clarity
☐ applicable criteria
☐ justification of areas checked
☐ relating significance to the resource
☐ context
☐ relationship of integrity to significance
☐ justification of exception
☐ other

BIBLIOGRAPHY

GEOGRAPHICAL DATA

☐ acreage ☐ verbal boundary description
☐ UTM's ☐ boundary justification

ACCOMPANYING DOCUMENTATION/PRESENTATION

☐ sketch maps ☐ USGS maps ☐ photographs ☐ presentation

OTHER COMMENTS

Questions concerning this nomination may be directed to

Signed _____ Phone _____

Date _____



MIDDLEBOROUGH WATERWORKS:

PUMPING STATION

EAST GROVE ST. AT NEMASKET RIVER

MIDDLEBOROUGH, MASS.

VIEW LOOKING SOUTHWEST

DATE: JUNE 1988

PHOTOGRAPHER: PETER STOTT

BOX 356, NEWTON HIGHLANDS, MA 02161

pict. 1 of 2



MIDDLEBOROUGH WATERWORKS:

WATER TOWER TANK

Wareham St. & Barden Hill Road.

Middleborough, MA

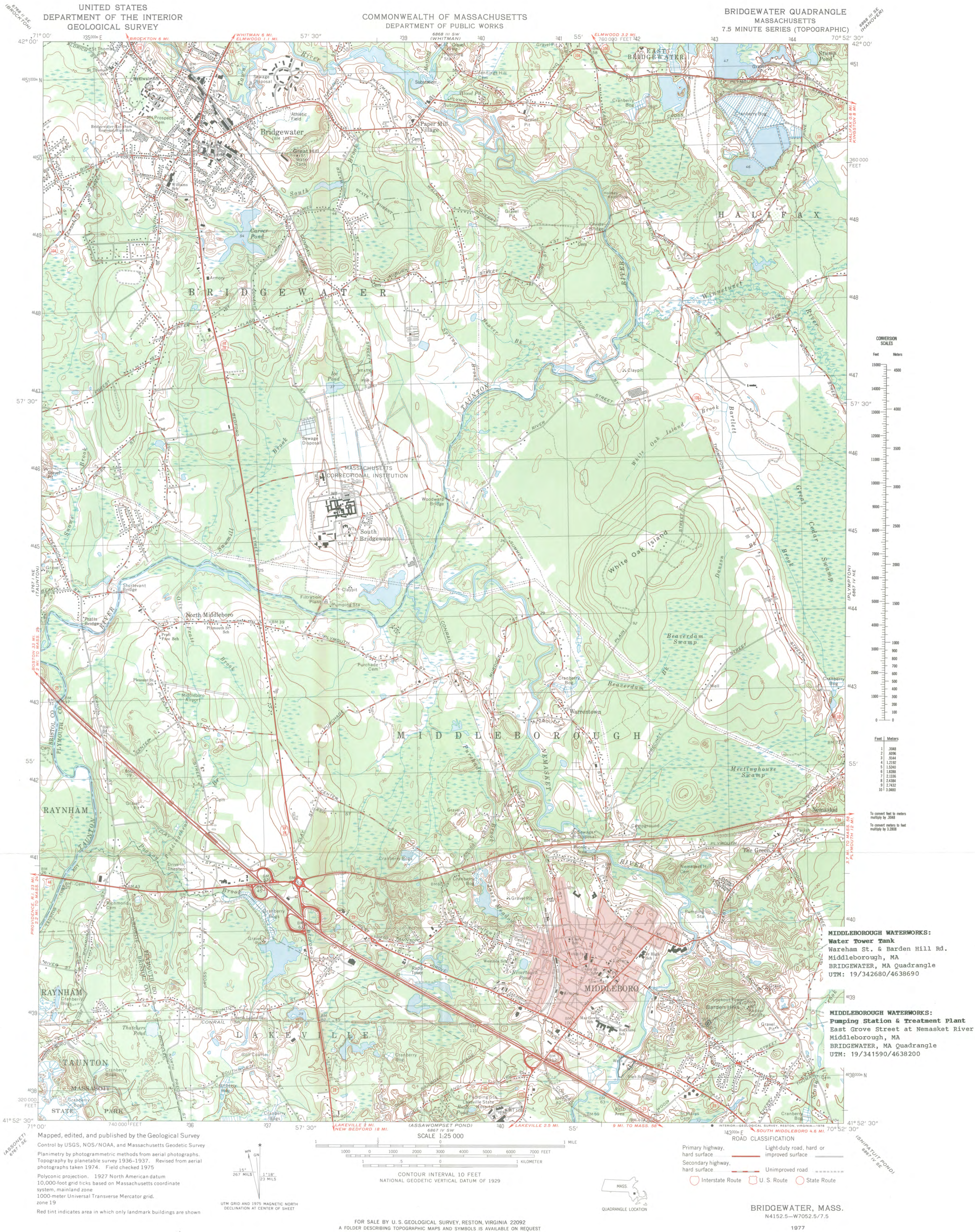
VIEW LOOKING NORTHEAST.

Photographer: PETER STOTT

Box 356, Newton Highlands, MASS 02161

Date: JUNE 1988

pic. 2 of 2





December 28, 1989

Carol Shull
National Register of Historic Places
Department of the Interior
National Park Service
P.O. Box 37127
Washington, DC 20013-7127

JAN 16 1990

Dear Ms. Shull:

Enclosed please find the following nominations:

Central Square Historic District, Main and Inman Streets, Central Square and
Massachusetts Avenue, Cambridge (Cambridgeport) (Middlesex County),
Massachusetts;

Middleborough Waterworks, East Grove Street at Nemasket River and Wareham
Street at Barden Hill Road, Middleborough (Plymouth County), Massachusetts.

The nominations have been voted eligible by the State Review Board and have
been signed by the State Historic Preservation Officer. Owners were notified
of pending State Review Board consideration 30-75 days before the meeting and
were afforded the opportunity to comment. Comments received to date are
attached to the nomination form.

Sincerely,

Anne E. Tait
Acting National Register Director
Massachusetts Historical Commission

Enclosure: