

United States Department of the Interior
National Park Service

National Register of Historic Places
Registration Form



This form is for use in nominating or requesting determinations for individual properties and districts. See instructions in How to Complete the National Register of Historic Places Registration Form (National Register Bulletin 16A). Complete each item by marking "x" in the appropriate box or by entering the information requested. If any item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, architectural classification, materials, and areas of significance, enter only categories and subcategories from the instructions. Place additional entries and narrative items on continuation sheets (NPS Form 10-900a). Use a typewriter, word processor, or computer, to complete all items.

1. Name of Property

historic name North Canal HD (2009 Technical Amendment and Boundary Increase)

other names/site number Morehouse Bakery Building

2. Location

street & number roughly bounded by the Merrimack and Spicket rivers, North Canal, and Broadway ☐ not for publication

city or town Lawrence ☐ vicinity

state Massachusetts code MA county Essex code 009 zip code 01840

3. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act of 1986, 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. I recommend that this property be considered significant ☒ nationally ☒ statewide ☒ locally. (☐ See continuation sheet for additional comments.)

Brona Simon
Signature of certifying official/Title
Massachusetts Historical Commission

March 23, 2009
Date

State or Federal agency and bureau

In my opinion, the property ☐ meets ☐ does not meet the National Register criteria. (☐ See continuation sheet for additional Comments.)

Signature of certifying official/Title

Date

State or Federal agency and bureau

4. 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

Patrick Anderson

5/8/2009

5. Classification**Ownership of Property**

(Check as many boxes as apply)

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

(Check only one box)

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

Number of Resources within Property

(Do not include previously listed resources in the count.)

Contributing	Noncontributing	
44	21	building
		sites
19	2	structures
		objects
63	23	Total

Name of related multiple property listing

(Enter "N/A" if property is not part of a multiple property listing.)

N/A

Number of contributing resources previously listed in the National Register

Great Stone Dam, 1977

70 - North Canal HD 1984, North Canal, 1975

6. Function or Use**Historic Functions**

(Enter categories from instructions)

COMMERCE/TRADE

EDUCATION

TRANSPORTATION

INDUSTRY/PROCESSING/EXTRACTION

Current Functions

(Enter categories from instructions)

DOMESTIC

COMMERCE/TRADE

SOCIAL

RECREATION and CULTURE

TRANSPORTATION

INDUSTRY/PROCESSING/EXTRACTION

LANDSCAPE

VACANT

7. Description**Architectural Classification**

(Enter categories from instructions)

Greek Revival, Late Victorian, Italianate, Second

Empire, Romanesque, Mixed, Commercial style

Materials

(Enter categories from instructions)

foundation Brick, Granite

walls Brick, Shingle

roof Asphalt, Synthetics, Slate

other Steel, Concrete

Narrative Description

(Describe the historic and current condition of the property on one or more continuation sheets.)

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Continuation Sheet

North Canal Historic District
2009 Technical Amendment and Boundary Increase
Lawrence (Essex), MA

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DESCRIPTION

The purpose of this nomination is to expand the boundary of the 1984 National Register nomination of the North Canal Historic District to include the Morehouse Bakery and to bring the information on the previously listed buildings up to date. The technical amendment portion of the nomination integrates new information and changes into the text of the original nomination. A section on the Morehouse Bakery has been added at the end of sections 7 and 8. Two structures—the North Canal and the Great Stone Dam—were individually listed in the National Register of Historic Places in 1975 and 1977, respectively. The period of significance has been expanded to 1959 to incorporate resources that have become contributing properties in the last 50 years. The district continues to retain integrity and to fulfill criteria A and C at the local, state, and national levels of significance. The Morehouse Bakery contributes to the district's significance.

The North Canal Historic District encompasses a mile-long, 60-acre tract of buildings, streets, bridges, hydraulic structures, and a canal, all developed starting in 1845 with the construction of the North Canal locks and wasteways. It was the industrial heart of a new manufacturing city intended to accommodate 30,000 people inhabiting 3,000 acres on the north side of the river—one of the largest and best-planned projects of its kind ever undertaken in America at that time. The district contains 63 contributing resources, most of which are commercial or industrial buildings; several mills have been rehabilitated for use as housing. The district has 23 noncontributing resources. Some parcels have been redeveloped and others remain vacant. Vacant lots are listed on the accompanying data sheet as V in the resource column and are not counted in this technical amendment.

Over the decades, until the 1920s, the district's built environment evolved steadily with additions, removals, renovations, and new construction centered on manufacturing, storage, and distribution buildings, as well as scientific laboratories and water treatment facilities. Between 1950 and the late 1990s, as the intensity of usage diminished, several buildings were demolished. Since the North Canal Historic District was listed in 1984, two new buildings have been constructed within its boundaries: a large four-story parking garage (Museum Square Garage, Map 24-I, 365 Canal Street) and a large three-story office building (Fenton Judicial Center, Map 24, 361 Canal Street). Both were built in 1994-1995 to the designs of architects Andrea Leers and Jane Weinzapfel. In addition, Lawrence Heritage State Park (Map 34) was created in 1985 and a major renovation of Washington Mills Building No. 1 (Map 27) was completed in 2007.

Until 1845, what is now the historic district was riverbank farmland in the town of Methuen. It was first reconfigured and built out (some of it on dredged "new" land) according to the plans of the property owner and developer—the Boston-based Essex Company—whose partners envisioned a new industrial city that would feature large brick textile factories powered by water from a new canal, streets, bridges, and residential structures. From 1845 forward, the district was the focus of construction that was driven by consistent design control and a unified social and aesthetic vision, carried out by Charles S. Storrow on behalf of the Essex Company.

The North Canal (1848, Map 1), running parallel to the Merrimack River, was the original source of mechanical power and was the anchor for the new city and its main streets. About a block north of the district are the retail and office buildings of Essex Street; at the western end is Broadway; and near the eastern edge are Prospect Street and the Spicket River, a tributary of the Merrimack. Canal and Island streets run along portions of the canal, and other roads and railroad tracks and spurs run through the district. Canal Street was both residential and industrial: double rows of elms once rose over its boarding houses and mills.

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The period of significance for the amended historic district runs from 1845 to 1959. The last phase of mill construction occurred in the 1920s. Together, the buildings of the district present a chronology of the development of industrial architectural styles and technological advances. The earliest industrial buildings are gable-roofed structures of thick-coursed granite rubble; the latest are flat-roofed and built of fireproof reinforced concrete with acres of floor space designed for dozens of huge looms. While most buildings in the district are relatively unaltered and in fair to good condition, additions or enclosures of corrugated metal or frame construction are common.

The district's buildings were used for the manufacture of cloth (cotton, woolen, and duck), paper, baked goods, locomotives, and mill machinery and equipment. The first power source, the Great Stone Dam (1848, Map 2), is intact, and the canal's penstocks and raceways are still in place. Although the mill sites were rebuilt continually, later buildings and additions have neither destroyed the relationships of the mills to the canal nor supplanted good examples of architecture from each historic phase within the district. Impressive changes in scale—from boardinghouses to large factories—are highly visible and not obscured by infill building, affording good views of the buildings along the North Canal from the Broadway Bridge (now Edward O'Leary Bridge, Map 72) and the Union Street (Duck) Bridge (Map 54). Among advances evident in mill design are the change from water to steam power, the introduction of wide looms, alterations required by fire insurance companies, ventilation and humidification systems, and the introduction of bathrooms, electricity, and reinforced concrete.

Bridges

Within the North Canal Historic District, thirteen bridges cross the North Canal and the Merrimack River: eight metal-truss bridges, three concrete or steel-beam bridges, one stone arch, and one open-spandrel concrete arch. The eight truss bridges are of varied truss types, including some experiments in patented truss design, the Moseley and lenticular trusses. The bridges span the transition from pin-connected to the riveted construction of the late 1880s. Contrasting with the pin-connected bridges is the 1887 Union (Duck) Bridge (Map 54), designed by the civil engineer George L. Vose (1831-1910). Of the many bridges fabricated by the Boston Bridge Works, this five-span Warren-truss design is one of the earliest to replace pinned connections with riveted gusset plates and flanges.

Of the 20th-century bridges in the district, the most significant is the 1,500-foot, open-spandrel, concrete-arch Central Bridge (now Joseph W. Casey Bridge, Map 18), which was built across the Merrimack in 1918. Designed by New York consulting engineer Benjamin H. Davis (1883-1927), this is one of only eight open-spandrel examples in the state. Its original parapet walls and 26 lamp standards were removed in 1972.

The following description of representative buildings and other resources is organized geographically from west to east, as the Merrimack River flows.

THE UPPER ISLAND: Broadway to Amesbury Street

At the Upper Island, between the Broadway Bridge (now O'Leary Bridge, Map 72) and Central Bridge (now Casey Bridge, Map 18), are the northerly footings of the Great Stone Dam (Map 2) and portions of two large mill complexes

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that form a nearly continuous brick façade along the southern edge of the canal (Map 4 and 9). The **Pacific Mills Cotton Weave Shed and Office** (Map 4) building incorporates a smokestack that has become a landmark of the area. Running parallel to the Merrimack River, the **North Canal** (Map 1) was completed in 1848. It is 5,330 feet in length and ranges in width from 100 feet at the **gatehouse** (Map 2-I) to 60 feet at the Spicket wasteway, where it empties. Water enters the canal from the Essex Company millpond above the dam. The canal is 12 feet deep at the head and 13 feet at the wasteway. In section, the canal is trapezoidal, with 4-foot retaining walls of random coursed granite blocks along its full length. The granite rubble bottom is sealed with clay puddle. Several mills continue to use the canal's water, which delivers an average of 4,000 cubic feet of water per second. Running parallel to the canal and 80 feet to the south is a line of sheet pilings. A navigation lock at the head of the canal has been removed. A set of three navigation locks at the end of the canal has been filled in.

The **Great Stone Dam** (Map 2) was completed in 1848 at Bodwell's Falls, where the Merrimack drops five feet. Footed on a bluestone bedrock ridge, the dam was built to pond up 30 feet of water. The dam face is constructed on a trench of huge granite blocks, eight feet by eighteen feet, laid in hydraulic cement and dowelled to the riverbed and to each other. The dam varies in height from 30 feet to 41 feet and in thickness from 35 feet at the base to 13 feet at the top. With its wing-walls of dressed granite, the dam is 1,629 feet in total length. A 900-foot section spans the river; a 405-foot north wing connects to the **North Canal**, and a 324-foot south wing connects to the South Canal (outside the district), which was built in 1865. Other than the south wing addition, a concrete fish-way built in 1917, and a hydroelectric plant begun in 1978, both on the south side of the river (outside the district), the dam has not been altered.

The wood-frame **gatehouse** (Map 2-I), completed in 1848, has 24 gates, now electrically operated, which control the amount of water entering the sluiceways. The exterior is clapboard, with seven windows along each side. Greek Revival features include wide pilasters at the corners, returns at the eaves, and an entry transom. The 1845 Greek Revival-style **North Canal Gatekeeper's House** (Map 3, Photo 1) still stands, along with the ca. 1860s **North Canal Barn** (Map 3-I). The grounds around the house feature a variety of original landscape details, such as granite walls and steps.

The Pacific Mills

Due to the size of the Pacific Mills complex, the buildings often carry the name "Upper or "Lower" Pacific, a geographical designation that places them within their respective mill yards.

Immediately to the east across Broadway is the flat-roof, five-story **Upper Pacific Storehouse #5** (Map 5). Built ca. 1860, it is the oldest of the remaining buildings of the once-extensive Pacific Mill Yard. Its small, asymmetrically placed windows with granite sills are typical of warehouse construction. The upper story has heavy corbelling between small attic windows. The southern portion of the storehouse was razed. Fragments of the 1852 granite **Pacific Cotton Mill** (Map 4-I, Photo 2) stand east of the Upper Pacific Storehouse.

The large brick **Cotton Mill Weave Shed and Office** (Pacific Mills, Map 4), constructed in 1890, runs for 300 feet along the Canal. This flat-roof, two-story building was one of the last additions to the Pacific Mills cotton complex. Large windows with brick arches and granite sills were retained in a 1980s renovation. A tall, octagonal smokestack was constructed when steam power was introduced. The weave shed and office building, designed by Hiram F. Mills, now encloses this once-freestanding chimney. Of the penstock racks that channeled water into the turbines, two are intact in

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the canal wall. The office section—connected to the western end of the weave shed—was designed by Boston architect George Moffette, Jr., and built in 1887 for the Pacific Mill Company. The two-story office rests on a high dressed granite foundation; round-arched Renaissance windows distinguish it from the functional treatment of the attached weave shed. Two buttresses, decorated with vertical brick panels, are carried above the decorated brick cornice. The buttresses flank the now-altered entry.

The Pacific Mills cotton complex, constructed on the north side of the North Canal in the 1890s, is largely intact: the **Pacific Worsteds Mill #10** (Map 14), a six-story, flat-roof brick structure built in 1888-9, and the **Upper Pacific Storehouse #7** (Map 15, Photo 7), a seven-story brick structure built in 1896, are situated between Methuen and Canal Streets on a site once occupied by Pacific Mills boarding houses. The adjacent **Upper Pacific Cotton Yarn Mill #5** (Map 11, Photo 6), built in 1902, is distinguished by molded brick entryways. The one-story **Upper Pacific Yarn Mill** of 1896 (Map 13) is one of the last additions to the Upper Pacific complex. All are of standard, flat-roofed, brick mill construction.

At the eastern edge of the Upper Island, the **Atlantic Mill Co. Spinning Mill #5** (Map 9), built ca. 1906 as a weaving shed, stands on the site of a large structure that the Essex Company built in 1846 for the Atlantic Mill Company as the second mill in Lawrence. Earlier Atlantic Mill buildings have been razed, many in 1918 when the **Central Bridge** (now Joseph W. Casey Bridge) was built. The surviving spinning mill has a flat roof, large segmental-arch windows, and undecorated brick piers.

At the intersection of Canal and Amesbury Streets is the **Atlantic Cotton Mills Boarding House** (Map 17, Photo 10). Built in 1847, it was originally part of an extensive complex of company-owned housing along Canal Street, and it is one of two boardinghouses extant in the district. The seven-bay, pitch-roof redbrick structure has a granite rubble foundation. Five pedimented dormers light the attic; six original chimneys are intact. Rectangular window openings, with granite sills and lintels, contain six-paned double-hung sashes. The building is used for retail and residential purposes. One bay of the ground floor was remodeled for retail space ca. 1928; a concrete-block two-story addition extends from the west end of the boarding house.

THE MIDDLE ISLAND: Amesbury Street to Union Street

The Middle Island, between the **Central Bridge** (now Casey Bridge) and the **Union Street (Duck) Bridge**, contains an early Bay State boardinghouse, a railroad shed from the 1870s, and extensive complexes of the Lower Pacific and Washington-American Woolen Company mills and their related powerhouses and boilers. Here the district's northern boundary runs to Essex Street, encompassing the Essex Company offices, a public school, and a stable. Many industrial structures stand along the banks of the Merrimack River and the North Canal edges, abutting each other in continuous facades dating from several decades of mill development.

Lower Pacific Mills

Situated near the **Central Bridge** (now Casey Bridge), the **Lower Pacific Worsteds Mill** (Map 20) was built in 1864 on the so-called Central Mill site of the Essex Company. Originally two stories high and used as a worsteds woolen mill, the

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building was enlarged in 1877 by two more stories and a mansard roof. It retains triple-sash windows, but the mansard roofs were replaced with a flat roof, probably in 1908, when the building was enlarged to its present 150 foot-by-350 foot footprint. The original east and west elevation fenestration (double windows recessed in prominent bays) has been altered by the blocking-up of many windows; the canal-facing facade has a projecting six-bay central pavilion with tall segmental-arch windows; office entrances are distinguished in prominent brick arches carried by brick piers. The Lower Pacific complex includes a brick one-story **Boiler House and Engine Room** (Map 21), built in 1885 to the designs of mill architect Charles T. Main, and retains both its hip roof surmounted by a monitor roof, and its octagonal stack. To the west of this building is a portion of the 1883 brick **Lower Pacific Cotton Mill** (Map 19), while a section of the west wall of the earlier Pacific Mills (**Ruin**, map #19-I) stands at the west of the mill yard.

The brick five-story, 100 feet -by-275 feet **Lower Pacific Finishing Mill** (Map 22), built in 1911, is connected to the worsted mill by a bridge, and abuts the Washington Mills-American Woolen Company complex at the west. Located at the corner of Appleton Street and Canal Street, the 1870s **Lower Pacific Bridge** (Map 25) is an eight-panel, Pratt-style truss bridge, 20 feet wide and spanning 90 feet. The vertical members are stamped "PHOENIX IRON WORKS, PHILADELPHIA."

The 1882 five-story brick **Lower Pacific Finishing and Packing Mill** (Map 23, Photo 9) is identified by the words "LOWER PACIFIC MILLS" set in granite on the north wall of the bell tower. The prominent buttressed bell tower/stair tower has a pyramidal roof with weathervane, which covers an open belfry. Ornamental ironwork is set into the opening; granite stringcourses and thick lintels over narrow, glazed windows enhance the fortress-like appearance of the tower. The main office entrance leads to an elaborate staircase, and the hall immediately beyond the entry has a coffered ceiling and woodwork, which contrasts with the functional treatment of the mill spaces beyond.

Bay State Mills, Washington Mills, American Woolen Company

The Washington Mills Company factories (built after 1899, part of the American Woolen Company) and related structures occupy the site of the 1846 Bay State Woolen Mills. The 1886 **Washington Mills Building #1** (Map 27, Photo 13) is a five-story plus basement, flat-roofed structure, with uniform rows of segmental arched windows built over a portion of an 1848 mill. The date 1886 is set in granite under the open belfry of the stairtower/bell tower below a granite stringcourse. The stair tower is differentiated from the mill's uniform fenestration by paired round-arched windows. In 2006-2007, the Architectural Heritage Foundation and the Bank of America CDC renovated this building to house 155 loft-style apartments. The renovation, completed according to the designs of Durkee, Brown, Viveiros and Werenfels Architects, included preservation of all façade elements, replacement of windows, and the addition of a steel-and-glass entryway on the canal side of the building.

To the south of this building is the flat-roofed 1886-87 **Washington Mills Co. Building #6 (River Mill)**, (Map 32, Photo 15), a 475 feet-by-93 feet seven-story brick building of utilitarian design. Boston's Lockwood, Greene & Company, leading mill engineers, supervised the 1886-1887 reconstruction of an earlier mill. The stair tower breaks the uniform facade of segmental-arch windows between brick piers. A 100 feet-by-233 feet one-story, steel-frame, brick-faced addition was added at the north end in 1953.

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Across the canal is the ten-story **American Woolen Company Storehouse #10** (Map 29, Photo 14), designed by Charles T. Main and built in 1919 of brick and reinforced concrete on the site of storehouses and boardinghouses of the Washington Mill Company. The latter had been absorbed in 1899 by the American Woolen Company, which built its distinctive Georgian Revival **American Woolen Company Office** in 1900 (Map 31). Its entry, centered in the rusticated first story, has two splayed engaged columns and two freestanding rusticated columns. With prominent keystone-arch fenestration, this is one of the most style-conscious buildings in the district. As of 2008, this building is vacant and for sale.

Just to the north, at the northwest corner of Methuen and Mill Streets, stands the **Morehouse Bakery** (Map 33, Photos 23-28), which comprises the boundary increase to the present nomination. The building consists of a main block three stories high (constructed in 1907) and two smaller garage additions to the west, one two stories high (1917) and the other one story in height (1931). A full architectural description is presented at the end of Section 7. The Morehouse Bakery stands to the northwest of the **Homeland Security Citizenship Center** (Map 80), which is being constructed on a site formerly occupied by an American Woolen Company Storehouse (1900), which was demolished to make way for the new building.

On the north side of the canal, the **Bay State Woolen Mills Boarding House** (Map 30), designed by Phineas Stevens and built in brick ca. 1847, has a pitched roof and stands on a granite rubble foundation. The eleven-bay facade has rectangular window openings with granite sills and six-pane double-hung sash windows. The boarding house is now the Essex National Heritage Area Visitor's Center and a museum for the **Lawrence Heritage State Park**, situated directly north of the building (Map 34).

Among the most architecturally notable mills is the **Pemberton Manufacturing Company Main Mill** (Map 42, Photo 17), built in 1860-1861 to the designs of Theodore Voelkers, an architect trained in Germany. This five-story woolen mill, built on the site of the 1853 Pemberton Mill that collapsed in 1860, has Romanesque windows, a trap-door monitor in the main pitch roof, and a crenellated cornice; the prominent stair towers have gambrel roofs. Its foundation incorporates part of the foundation of the collapsed 1853 mill.

A three-story, flat-roofed **Pemberton Company Office and Warehouse #3** (Map 35), built ca. 1890, is situated immediately opposite the mill and was connected to the main mill by a railroad bridge. A ca. 1880 square, flat-roofed brick **Pemberton Manufacturing Company Stable** (Map 37) is immediately east of the storehouse. Although the Methuen Street facade has been altered, the building retains a large rear entry and details such as prominent brick hood moldings at the east elevation. (Photo 16)

Lawrence Duck Mills

The 200 feet by 40 feet 1853 **Lawrence Duck Company Mill #3** (Map 44, Photo 17) was much altered over time, with additions and renovations through 1896. In 1906, Charles T. Main supervised its remodeling.

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Walton School

At the northern edge of the District between Newbury and Essex Streets is the Italianate brick Walton School (Map 36). Built ca. 1860 by the City of Lawrence, the Walton School has a pitched roof and ornamental detail in a raised-panel pattern terminating in a fanlight at the west elevation. Ornamental iron cresting has been removed from the hip-roofed pavilion, but a prominent round-arched entry with brick hood molding and corbel stops is an unaltered original feature.

Essex Company Office and Yard

The Essex Company Offices and Yard (Map 39), which includes five attached red brick, flat-roofed structures dating from 1883-1884, is an intact complex of utilitarian buildings designed by Hiram Mills, chief engineer of the Essex Company. They have corbelled cornices and granite trim. The complex includes an office, carpenter shop, foundry, garage, and storage building, and is surrounded by a red brick wall from 1884.

THE LOWER ISLAND: Union Street to Prospect Street

The Lower Island includes the North Canal's easterly terminus, where its waters flow into the Spicket and Merrimack Rivers, and the Essex Company's 1848 Lawrence Machine Shop, paper mills, foundries, and the woolen and cotton mills built by the Everett and Kuhnhardt Mill Companies.

To accommodate the lengthy Everett Mills and the paper mill site to the east, the district continues north to General Street and runs south along the Spicket River. Across the Canal, along Island Street, smaller structures occupy an asphalt paved surface, which gives way at the eastern point to river grass and brush, contrasting with the turf of the preceding mile along the Canal.

Everett Cotton Mills

When built in 1909, the Everett Mills Company Weaving and Spinning Mill #5 (Map 46) was the largest cotton mill in existence. The six-story, 780 feet long building has twelve acres of floor space. The flat-roofed mill is actually two buildings joined by a central pavilion; the north structure has a footprint of 460 by 100 feet, and the south is 32 by 75 feet. Its arched, multi-paned windows are recessed between brick pilasters that terminate in a corbelled cornice. The central pavilion is composed of granite ashlar piers which carry a four-story, round-arched, entry flanked by granite capped pilasters. A granite-trimmed clock is centered over the arcade, and the words "Everett Mills" are set in granite over the entry arch. The original Everett Company doors, accessing the mill and the former machine shop, are intact.

Essex Company Machine Shop (later Everett Cotton mills)

East of the main Everett factory is the large, four-story Essex Company Main Mill #1 (Map 48, Photo 19), built in 1846 for the manufacture of railroad locomotives, tools, water turbines, textiles, and other machinery. The original building has ochre-colored walls of fieldstone and granite rubble. It was sold in 1857 to the Everett Mills Corporation, by which it was converted to a cotton mill and substantially enlarged. The 405 feet by 65 feet building has a steeply pitched roof

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interrupted by skylights. Three stair towers are evenly spaced along the western facade. A two-story forge shop once stood east of the machine shop, but has been demolished in recent years. The only remnant of the forge and its attached boiler room is a 125-foot circular smokestack, constructed of granite, which stands alone and is original to ca. 1846. To the south is the site of the Everett Mill Company Cloth Room (Map 51), which was demolished in recent years. The site is currently used for parking.

The 1863 Everett Mills Storehouse #6 (Map 52, Photo 19) was built as a weaving mill. Originally a two-story building with gable roof, clerestory windows on the south side, and dormers on the north, it was enlarged by a third story in 1946. Among later additions to the complex was the 237 feet by 107 feet four-story brick Everett Mills Company Weaving Mill #4. Built in 1892 and torn down in recent years, the site of Everett Mills Company Weaving Mill #4 (Map 49) appears on the datasheet as a vacant parcel. Another Everett Mills Storehouse (Map 53), seven stories in height, with a footprint measuring 150 feet by 50 feet, was built in 1905 on the banks of the Spicket River and remains today. The Everett Mills Company Weaving and Spinning Mill #5 (map 46, Photo 18), built in 1909, was at the time the world's largest mill. A six-story, heavily buttressed brick building, it contained twelve acres of floor space under its flat roof. It features a granite-trimmed central pavilion and clock.

G.E. Kuhnhardt Woolen Mills

The six buildings of the George E. Kuhnhardt Woolen Mills were built between 1880 and 1916 on the site of the old Lawrence Mills. The three-story, flat-roofed Kuhnhardt Woolen Mill #1 & Office (Map 55), built in brick ca. 1890, has a corner tower with an open belfry and has undergone a recent interior renovation to serve as a commercial building and home to Cambridge College. The adjoining ca. 1890 Mill #2 (Map 55) and freestanding two-story ca. 1896 Kuhnhardt Woolen Shop and Boiler House (Map 56) are executed in red pressed brick. (Photo 20)

Hamblet Foundry

The Hamblet Machine Company (Map 60) complex includes an 1859 wood-frame section built by the Webster-Dustin Machine Company, manufacturers of mill machinery. In 1899, the Hamblet Company, a manufacturer of machinery for paper mills, purchased the buildings, which were altered after a fire in 1902. The hip-roofed office portion fronting on Island Street was added in 1925.

Lockkeeper's House Site

Now a vacant lot (Map 65), this is the site of the ca. 1848 North Canal Lockkeeper's House. It was a center-entrance, Greek Revival-style, two-story frame building standing on a granite rubble foundation. It was demolished in 1984.

Russell Paper Company

The granite-rubble ca. 1853 Lawrence Pump & Engine Company (Map 68) has exposed reinforcing rods and brick-trimmed segmental arch windows. This building was once adjoined by the wooden ca. 1875 Russell Paper Company Storehouse (Map 67). That storehouse may be the basis for the noncontributing building on that site today. Clad in industrial-style shingles, it is impossible to observe any original details, and it appears to date to the 1970s.

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Spicket Penstock and Prospect Street Bridge

The **Spicket Penstock** (Map 69) was built in 1855 to carry canal water to paper-mill turbines on the Spicket River. The original wooden penstock was rebuilt in 1899 and 1913 in steel and concrete. The penstock is spanned by the 1855 **Prospect Street Bridge** (Map 70).

BOUNDARY INCREASE

Morehouse Bakery Building

The **Morehouse Bakery Building** (Map 33), utilitarian in style and half a city block in size, is a 40,000 square foot brick, multiple-build manufacturing and warehousing structure. The earliest portion was erected in 1907 and subsequently enlarged in 1914, 1924, 1929, and 1931. The building's architecture and materials are consistent with other large manufacturing buildings in the District, and it has features in common—cornice, arched windows, brickwork, and a street-line footprint. While the Morehouse Bakery Building has a two-story and a one-story addition at its western side, the main structure, built 1907-1924, is three stories high, stylistically (but not always formally) unified, and made up of three separate builds, fronting a total of 100 feet on Methuen Street and 78 feet on Mill Street. (Photo 23)

The original building is high-studded and taller than some other three-story buildings, and its fenestration and modestly projecting cornice (about two feet from the façade wall) contribute to its sense of verticality. Its horizontal expanses of common-bond red brick are well balanced by its many windows, which, at the second and third stories, are large, well spaced, and nearly symmetrical (the easternmost windows in each floor are spaced somewhat farther from their neighbors than are the rest of the windows). The building's doorways are strictly utilitarian. On the Methuen Street side, an arched doorway, which served as a loading dock for wagons and trucks, occupies the fifth bay in the first floor. Otherwise, the first-floor fenestration is identical to that of the floors above. At grade level, aligned with the windows above, are small arched "eyebrow" windows that admit sunlight into the basement. The wooden roof cornice projects sufficiently to afford some protection from rain and to emphasize its beveled modillions.

On its eastern elevation, the Morehouse Bakery building of 1907 carries on the regular and bold fenestration of the southern elevation, maintaining harmony of form and detail above the first floor. At the first floor level, however, the building's fenestration is irregular; there is evidence of bricked-in doorways and windows as well as the original personnel entrance. (Photo 28) Assuming all openings are original, the first floor of the eastern elevation of the building was irregular and contrasted sharply with the southern elevation, an instance of the artlessness that was typical of the design of utilitarian buildings. It should be noted that, on both of these elevations, large horizontal portions of the brickwork are different in color from other portions of the brick wall, indicating areas in which painted signage was erased.

The first addition occurred in 1914 (per building permits). Attached to the west side of the earlier portion on Methuen Street, it is similar in form and style to the original building. It is common-bond red brick (all brickwork is consistent in

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color here), three stories in height, four bays, with an entry at the first floor. It is harmonious with but not identical to the 1907 building. Where they abut, there is a clear seam in the brickwork, and there is a large vertical expanse of brick that separates the westerly bay of the 1907 fenestration from the easterly bay of the 1914 addition. The buildings have identical fenestration patterns and cornice line. (Photo 26)

The three-story building campaign was completed in 1924, with an addition on Mill Street, adjoining the north side of the 1907 building and fronting 33 feet with four bays added to the eastern elevation. This addition bears only an uneasy resemblance to its neighbor, although at the third-floor level and the cornice they are perfectly harmonious. At the first and second floors, this building is quite distinct from the original building. Here, at the second story, the fenestration is rhythmic: two regular-sized windows flank two doublewide windows that contain two sets of sash windows each. As with the rest of the building, the window openings were laid up in shallow triple-header arches, with granite sills. On the first floor, the opposite rhythm is found: two doublewide arched windows flank two doors that are roughly as wide as the third-floor windows. (Photo 27)

On the north side elevation, this addition's fenestration is not symmetrical, in part because here the building overlooked an alleyway. The openings are consistent in style and detail with the other windows of the building, but each story relates more to itself than to the story above or below.

In 1929, a section was added on the west elevation of the building, fronting on Methuen Street. At two stories, this brick six-bay addition was joined in 1931, on its west end, by a one-story brick garage addition, five bays on Methuen Street to the south. (Photo 24) There are two skylights in the roof of the two-story 1929 addition and four in the roof of the 1931 one-story addition.

The 1929 section, at the second floor, has windows of the size, shape, details, and spacing of the 1914 building, but this does not suffice to connect the two builds visually. The 1929 cornice is without elaboration and begins abruptly above the window arches; it is totally unrelated to the much-higher cornices of 1907-1924 with their fasciae, projecting eaves, and modillions. At the first story, the 1929 addition has four large, rectangular garage door openings for vehicles, firehouse style. Its westerly elevation, visible only at the second story, has ten bays, extending the full depth of the 1907-1924 building. The simple cornice is found here, and the window openings, lacking arched heads, are finished with straight lintels.

The one-story 1931 section is a stylistic departure from the rest of the building. A slightly protruding pavilion with a stepped pedimented parapet that conceals a flat roof and four skylights dominates the southern elevation. At its ground floor, this section has various openings: one large garage door to the east; then two rectangular windows (large but of different sizes) with multi-paned fixed windows with cement sills; then two more such windows, of the same size as each other; and finally a combination window and door, in which the upper half-window might be said to serve as a transom. Above the openings is a belt course; the frieze of the pediment has a panel of herringbone decorative brickwork. The west elevation has two doors and a three-story industrial smokestack, laid up as a rectangular brick chimney, embedded in the southern end of the west elevation. Attached to the northern half of the west elevation is a concrete-block shed.

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Archaeological Description

One ancient Native American site is located in the district and evidence of additional sites is expected. Sixteen Native sites are known in the general area (within one mile). Most known sites are located on riverine terraces along the Merrimack River or one of its several tributaries located in the area. Site 19-ES-0182 is located in the northwest corner of the district, opposite the western terminus of the North Canal. The site is recorded as a village site. No artifacts are presently associated with the site. That site, first identified by Warren K. Moorehead in 1931, then recorded in the Massachusetts Archaeological Society site inventory in 1940 by Ripley P. Bullen, was incorporated into the Inventory of Historic and Archaeological Assets of the Commonwealth in 1968. No records exist that indicate the site was ever systematically tested, indicating site boundaries are approximate only. Written records available for this site originally locate it on the south side of Essex Street at Mullaney Park. Archaeological reconnaissance of the site, however, conducted by Russell Barber in the 1970s identifies the site on the north side of Essex Street. Given the above information, the lack of site examination-level testing, and the proximity of the Merrimack River, site 19-ES-0182 appears focused in the area around the Broadway and Essex Street intersection and could easily extend into the district.

Environmental characteristics of the district, prior to 19th-century historic development, represented locational criteria (slope, soil drainage, proximity to wetlands) that were favorable for the presence of Native sites. The district presently occupies a level to moderately sloping riverine terrace with southern aspect in close proximity to wetlands. The entire district lies within 1,000 feet of the Merrimack and Spicket Rivers. The Merrimack River forms most of the southern boundary of the district with the North Canal, paralleling the Merrimack River near the northern boundary of the district. The confluence of the Spicket and Merrimack Rivers is located at the eastern end of the district. A detailed soil survey of the area identifies the entire district as urban land or areas where soils have been altered or obscured by urban works and structures. Buildings, industrial areas, paved areas, and railroad yards cover nearly 75% of the land surface. Some small areas of natural soils are included. Regional soil distributions, however, present a description of soil characteristics that may reflect conditions prior to historic development. Those studies describe excessively drained sandy and loamy soils formed in glacial outwash deposits as characteristic of the area.

Given the information presented above, the potential for locating significant ancient Native American sites in the North Canal Historic District was high prior to historic development of the area. Site 19-ES-0182 may have extended into the western portion of the district, and undisturbed environmental characteristics of the district represent locational criteria that are favorable for the presence of Native sites. Historic urban/industrial development of the district, however, has altered soil stratigraphy and surface conditions of the area to the point that any ancient Native American resources that were present have been destroyed. Deeply buried features and isolated concentrations of artifacts may survive; however, the overall site integrity and context have been destroyed. A low potential exists for the recovery of significant ancient Native American resources in the North Canal Historic District.

A high potential exists for the recovery of significant historic archaeological resources in the North Canal Historic District. Prior to 1845, what is now the historic district was riverbank farmland in the town of Methuen. No structures, objects, or potential sites have been identified from this period. Beginning in 1845, however, numerous potential

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historic archaeological sites exist in the district as land was reconfigured, with dredged “new” land and dams, locks, gates, and waterways constructed to provide waterpower and building sites for residential and industrial structures and the infrastructure needed to support those developments. Industrial-related construction occurred in several phases from the 1840s to the early 20th century, with the last phase of mill construction in the 1920s. Throughout that development, mill sites were rebuilt continually, often resulting in earlier buildings and structures being demolished, and at times, being incorporated into later structures. Successive stages of rebuilding mill sites also indicate the potential for stratified sites. Structural evidence of buildings, waterpower-related structures, and occupational-related features may survive in most areas of the proposed historic district.

While the original Great Stone Dam (1848), North Canal (1848), and related penstocks and raceways are still in place, archaeological testing may identify important structural, stratigraphic, and artifactual evidence relating to their construction and operation. Historic research, combined with archaeological survey and testing, may identify additional waterways that existed between the canal and the mills and between the mills themselves.

In the Upper Island locale from Broadway to Amesbury Street, structural evidence may survive from several mill buildings, boardinghouses, and a bridge. Structural evidence may exist for parts of the extant Upper Pacific Storehouse #5 (ca. 1860) on Broadway, where the southern portion of the storehouse was demolished. Structural evidence may also survive from the 1852 granite Pacific Cotton Mill east of the Upper Pacific Storehouse and a large mill building built by the Essex Company in 1846 for the Atlantic Mill Company as the second mill in Lawrence. The previous site is now occupied by the Atlantic Mill Company Spinning Mill No. 5 (1906) on Canal Street. Bridge footings and/or abutments may survive from an earlier bridge located between the Upper Pacific and Atlantic Mills near the site of the existing Upper Pacific Bridge (1864).

Archaeological evidence of company-owned boardinghouses might also survive in the Upper Island locale. The extant Upper Pacific Storehouse #7 (1896) is located between Methuen and Canal Streets on a site once occupied by Pacific Mills boardinghouses. Archaeological evidence of company-owned boardinghouses may also survive in the vicinity of the extant Atlantic Cotton Mills Boarding House (1847), originally part of an extensive complex of company-owned housing along Canal Street, and one of two surviving boardinghouses in the district.

Mid 19th- to early 20th- century industrial sites may also survive in the Middle Island area of the district located from Amesbury Street to Union Street. Structural evidence may survive from the so-called Central Mill site of the Essex Company now occupied by the Lower Pacific Worsted Mill (1864) on Canal Street near the Central Bridge (now the Casey Bridge). Portions of two mill buildings may survive to the west of the Lower Pacific Boiler House and Engine Room on Canal Street. Structural evidence may survive with surviving portions of the Lower Pacific Cotton Mill (1883). A section of the west wall of the earlier Pacific Mills is also extant, indicating the potential for additional structural survivals of the Pacific Mills. Archaeological evidence of the Bay State Woolen Mills (1846) may survive on the site of the extant Washington Mills Company Factories built in 1899 as part of the American Woolen Company. The Bay State Woolen Mills was the first mill to become operational in the district. Structural evidence of the Pemberton Mill (1853) that collapsed in 1860 may also survive on Canal Street. The foundation of the existing Pemberton Manufacturing Company Main Mill (1860-1861) is reported to incorporate portions of the foundation from the collapsed 1853 mill. Archaeological evidence may survive from the American Woolen Company Storehouse (1900), demolished to make way for the existing Homeland Security Citizenship Center (2008).

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The Morehouse Bakery Building (1906-1931), the subject of the boundary increase aspect of this nomination, is located in the Middle Island area of the historic district. Prior to construction of the Morehouse building, the land at the corner of Mill and Methuen Streets had never been developed, since the Essex Company prohibited construction on the south side of Essex Street until the northern side had been built out. Given the previous statement, no buildings were demolished for construction of the original Morehouse Bakery Building. Later additions, however, resulted in several building demolitions prior to construction of the additions. In 1914, a three-story addition to the west side of the building resulted in the demolition of the loaving shed. The latter structure was added to the original building shortly after its construction in 1907. During the 1924 addition, two three-story structures and a two-story barn were demolished to make way for the addition. Three row houses were also demolished in 1931 to make way for a one-story garage, the final section of the complex.

In the Lower Island area from Union Street to Prospect Street, several industrial-related buildings continued to be demolished in recent years. Structural evidence may survive from the Essex Company forge shop that originally stood east of the machine shop off Union Street. The only remnant of the forge and attached boiler room to survive is the 125-foot granite smokestack (ca. 1846). Archaeological evidence of the Everett Mill Company Cloth Room may survive south of the smokestack. The cloth room site is now used for parking. Archaeological evidence may also survive from the Everett Mills Company Weaving Mill #4 (1892), demolished in recent years. Structural evidence may survive from the North Canal Lockkeeper's House (ca. 1848) on Island Street. The Lockkeeper's House has been demolished and is now a vacant lot.

While the discussion presented above identifies several potential sites of buildings located within the various mill complexes in the district, additional potential mill sites also exist. Archaeological evidence of barns, stables, outbuildings, and occupational-related features (trash pits, privies, wells) also should exist with extant buildings and at archaeological sites. At industrial sites, industrial trash dumps where manufacturing waste was deposited may represent occupational related features. At domestic sites such as boardinghouses and lockkeeper's houses, occupational-related features may include more characteristic trash pits, privies, and wells. Archaeological evidence of public utilities (electric, water, sewers, etc.) may also survive in the district.

(end)

8. Statement of Significance**Applicable National Register Criteria**

(Mark "x" in one or more boxes for the criteria qualifying the property for National Register listing.)

- ☒ **A** Property is associated with events that have made a significant contribution to the broad patterns of our history.
- ☐ **B** Property is associated with the lives of persons significant in our past.
- ☒ **C** Property embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction.
- ☐ **D** Property has yielded, or is likely to yield, information important in prehistory or history.

Criteria Considerations

(Mark "x" in all the boxes that apply.)

Property is:

- ☐ **A** owned by religious institution or used for religious purposes.
- ☐ **B** removed from its original location.
- ☐ **C** a birthplace or grave.
- ☐ **D** a cemetery.
- ☐ **E** a reconstructed building, object, or structure.
- ☐ **F** a commemorative property.
- ☐ **G** less than 50 years of age or achieved significance within the past 50 years.

Narrative Statement of Significance

(Explain the significance of the property on one or more continuation sheets.)

9. Major Bibliographical References

(Cite the books, articles, and other sources used in preparing this form on one or more continuation sheets.)

Previous documentation on file (NPS): HPCA #18072

- ☐ 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 # _____

Areas of Significance

(Enter categories from instructions)

ARCHITECTURE

ECONOMICS

COMMUNITY PLANNING & DEVELOPMENT

ENGINEERING

ETHNIC HERITAGE

INDUSTRY

SOCIAL HISTORY

Period of Significance

1845-1959

Significant Dates

N/A

Significant Person

(Complete if Criterion B is marked above)

N/A

Cultural Affiliation

N/A

Architect/Builder

Charles Bigelow; Charles Storrow; Gilmore Carpenter;

George Moffette, Jr.; Thomas W.H. Moseley; (cont.)

Primary location of additional data:

- ☐ State Historic Preservation Office
- ☐ Other State agency
- ☐ Federal agency
- ☐ Local government
- ☐ University
- ☐ Other

Name of repository:

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STATEMENT OF SIGNIFICANCE

NOTE: The purpose of this nomination is to expand the boundary of the of the North Canal Historic District (NRDIS 1984) to include the adjacent Morehouse Bakery building and to bring the information on the previously listed buildings up to date. Two structures—the **North Canal** and the **Great Stone Dam** -- were individually listed in the National Register of Historic Places in 1975 and 1977, respectively. The technical amendment portion of the nomination integrates new information and changes into the text of the original nomination. A section on the Morehouse Bakery, which contributes to the district's significance, has been added at the end of sections 7 and 8. The district's period of significance has been expanded to 1959 to incorporate resources that have become contributing properties in the last 50 years.

Since the North Canal Historic District was listed in 1984, two new buildings have been constructed within its boundaries: a large four-story parking garage (**Museum Square Garage**, Map 24-I, 365 Canal Street) and a large three-story office building (**Fenton Judicial Center**, Map 24, 361 Canal Street). Both were built in 1994-1995 and designed by architects Andrea Leers and Jane Weinzapfel. In addition, **Lawrence Heritage State Park** (Map 34) was created in 1985, and a major renovation of **Washington Mills Building No. 1** (Map 27) was completed in 2007. The district continues to retain integrity and to fulfill criteria A and C at the local, state, and national levels of significance.

The North Canal Historic District, on the north side of the Merrimack River, is at the industrial heart of the city of Lawrence, a Massachusetts municipality that was created from parts of Andover and Methuen. Portions of these communities were purchased in 1845 by a group of Boston industrialists headed by the wealthy merchant and congressman Abbott Lawrence, from whom the city takes its name. Incorporated in 1853, Lawrence became one of the largest and best-planned mill cities ever undertaken in America.

The mills, factories, boardinghouses, locks, dams, and bridges are significant for their association with the 19th-century development of Lawrence as a major industrial city, and with the businessmen, inventors, architects, and engineers connected with the development of the mills over a 100-year period. Three of the engineers associated with the development of buildings and projects in the district—Charles S. Storrow, Hiram F. Mills, and Charles T. Main—are featured in the *Dictionary of American Biography*.

The area embodies the distinctive characteristics of mid 19th- to early 20th-century industrial architecture and represents a distinguishable entity from that period. The district has enduring fame as both the producer of millions of yards of textiles over the course of 100 years, and as the site of the triumph of science and technology over a devastating disease, typhoid fever. Other historic events that occurred within the district include the infamous collapse of the Pemberton Mill in 1860—a disaster that led to reforms in industrial safety—the “Bread & Roses Strike” of 1912, and the Lawrence Strike of 1919. Both worker's strikes were seminal events in industrial labor history and in the women's rights movement.

From 1845 onward, the district was the focus of construction that was informed by consistent design control and a unified social and aesthetic vision. Its proximate model was the mill town of Manchester, New Hampshire, developed in the 1830s. In addition, many investors had been involved in developing the nearby mill city of Lowell twenty years earlier. In 1845, the Essex Company, developers of the mill city, purchased 4,313 acres of land north and south of the river from Methuen and Andover landowners. Charles S. Storrow (1809-1904), a Paris-trained engineer, became the company's treasurer. In

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addition, Storrow was hired to act as master planner and on-site manager. Storrow, an 1829 graduate of Harvard, studied engineering under Loammi Baldwin before going to France in 1830-1831. In the 1830s he was the chief engineer for the building of the Boston & Lowell Railroad, the first in the state; and he worked from 1835-1845 as its manager before coming to the Essex Company. Storrow was the author of *Treatise on Water-Works* (1835) based on his study of the Lowell mills.

Storrow's vision informed every aspect of the creation of the North Canal area between 1845 and 1860, including construction of the dam, locks and canal, lumber dock, machine shop, mechanics and operatives' tenements, a paper mill, and the large factories of the Atlantic, Pacific, Pemberton, and Lawrence Duck mill companies. In designing and building the North Canal (Map 1) and the Great Stone Dam (Map 2), Storrow incorporated new technologies and applied ideas from other Merrimack River industrial towns. A notable innovation in mill city building was Storrow's incorporation of railroad spurs into the plan. He laid out a grid of 60 square blocks, from the Merrimack River to the mill island formed by the construction of the North Canal. Storrow's system of functional zoning is evident today: much of the Essex Company housing was concentrated on the first two blocks north of the canal; a retail district was assigned to Essex Street (its north side was built up first); and a residential-institutional district was arranged around the town common. Residential lots, platted in other parcels owned by the Essex Company, were sold at auctions in 1846, 1847, and 1855. Deed restrictions specified building height and construction relative to the area and the use of the building.

Charles Storrow was unique among 19th-century developers in moving on-site and becoming an inhabitant of the city as it was being built. His success was capped by his election in 1853 as Lawrence's first mayor. In approaching this massive project he saw "the elements of society ready to be molded into a good or evil shape, nothing to pull down, all to build up," and he was concerned both for the Essex Company's interests and for the working conditions and comfort and welfare of the residents. Many of the population were recent immigrants from Ireland, escaping the potato famine: by 1848, one in three mill operatives in Lawrence had been born in Ireland.

As the focus of Lawrence's early industrial development, the first textile mills, factories, and boardinghouses were located in the district site on the canal lots leased or purchased from the Essex Company. The land between Methuen Street and the canal, and along the canal island between Broadway (the Essex Turnpike of 1804) and the Spicket River, was built up with factories. Along the North Canal of the Merrimack, newly developing textile-manufacturing technology came together with favorable market conditions, a large supply of labor, and large-scale industrial investment. The area was well serviced: a sewer system and a reservoir were provided by the Essex Company, gas light was introduced in 1848, and regular passenger train service on the Boston & Maine Railroad was established in 1849.

In addition to its crucial importance in the areas of urban planning, hydraulic engineering, textile manufacturing, immigrant settlement, feminism, and the labor movement, the district has great significance in the field of public health. The water that drove the looms in the mills also killed people through the transmission of typhoid fever, a water-borne disease. The Lawrence Experimental Sanitation Station, which stood on Island Street (not extant, map #64), was dedicated to ending the worldwide scourge of typhoid fever. The first research facility of its kind in the country, it began operations in 1886 in quarters lent to the Massachusetts State Board of Health by the Essex Company.

On the plan created by Charles Storrow, the groundwork was laid for the later development of North Canal industries between 1845 and 1860. In contrast to the engineering of the canal, which permitted adaptation as technology improved, the first generation of tall, narrow factories were later replaced by large fireproof buildings.

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The first substantial building to be constructed along the canal was the formidable 1846 Essex Company Main Mill #1 (Map 48), designed by Charles Bigelow. The four-story fieldstone-and-granite factory was part of a complex (no longer standing) that included a forge, a foundry, and a boiler house and that produced locomotives, mill machinery, and engines. The Main Mill is distinguished by its ochre-colored walls, small-paned windows, and outside stair towers. Fire regulations later prohibited the use of pitched roofs on stone factories. It was designated as a National Civil Engineering Landmark in 1975.

In 1846, the Bay State Mills and Atlantic Cotton Mills companies purchased mill sites and mill power rights from the Essex Company. Both developments were planned as large-scale endeavors: the Bay State Mill Company buildings (no longer standing) were erected at cost by the Essex Company and supervised by Col. Phineas Stevens, and included three pitched-roof brick woolen mills surrounded by a row of three- to five-story buildings. In addition, four blocks of brick boarding houses, each block with 36 boarders, were built on the other (northerly) side of the Canal between Jackson and Newbury Streets. Unlike nearby Lowell, Lawrence's boardinghouses were not gender segregated. Today the Bay State Woolen Mills Boarding House (Map 30) serves as the Essex National Heritage Area Visitor's Center and as a museum for the Lawrence Heritage State Park (Map 34).

The waterpower created by the Great Stone Dam and North Canal was enhanced by the later introduction of water turbines, far more powerful and efficient than the earlier breast wheels. By the 1860s, steam power largely replaced water power, dictating changes in the extant mills and in the design of new mills. The Great Stone Dam Gatehouse (Map 2-1) and the North Canal Gatekeeper's House (Map 3) are significant markers at the western terminus of the canal. The lock keeper's house (now a vacant lot, Map 65), which marked the eastern end the North Canal, was demolished after 1984.

In 1846, at the Upper Island, the Atlantic Cotton Company built two of four planned mills and added a third in 1852. Machinery was supplied by the Lawrence Mechanics Shop. Charles Bigelow, Essex Company Engineer, supervised the construction of the mills and associated waterpower structures, wheel pits, and waterways. Atlantic workers were housed in six blocks of boardinghouses located on Canal and Methuen Streets, between Hampshire and Lawrence Streets. The first opened in 1847 and was reportedly the first brick dwelling erected in the city. With these two early narrow, multistory textile mills and their boardinghouses, the architectural character of Lawrence's mill complexes and its nearby housing was established. The surviving boardinghouses show a preference for simplicity of design in the gable returns with corbel tables and the granite-trimmed window and door openings. Their details and silhouettes echo those of the nearby mills and reflect the early "corporate style" of Manchester and Lowell. The small scale of the Bay State Boarding House (Map 30) and Atlantic Cotton Mills Boarding House (Map 17) contrasts sharply with the later mill developments around them.

In 1852-1853, the Essex Company's engineer, Charles Bigelow, supervised the construction of the six-story Lower Pacific Cotton Mill (partially extant, Map 19). Built of coursed granite rubble, the mill was first used for production of ladies' dress goods. A continuous row of two- and three-story buildings enclosed the mill. An early manufacturer of worsted goods, the Pacific would eventually become the largest of the mill complexes, producing 65 million yards of cotton and worsted goods annually by 1877. In 1853, the Essex Company designed and constructed the Pemberton Mill to produce cotton and woolen goods while workers' housing went up on the other (northerly) side of the canal. In 1860, the Pemberton Mill collapsed and burned, killing 88 people. This tragedy, which received nationwide media coverage, spurred an interest in safety regulations for industrial buildings. The Pemberton Manufacturing Company Main Mill (Map 42) was built in 1861 on the same site.

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The Romanesque design of this mill is among the most distinct in the district. The five-story, pitched-roof building has a corbel table in the gable end, mansard-roof stair towers at the east and west elevations, a trap-door monitor roof, and round-top arched windows in the north and south elevations. To the east, the **Lawrence Duck Company Mill #3** (Map 44) was built in 1853-1854 by the Essex Company. The Everett Mill Company purchased the bankrupt **Essex Company Main Mill #1** (Map 48) in 1857 and converted it to a cotton mill with the addition of several new structures.

The mill owners' willingness to diversify among cotton, woolen, and worsted-wool and to experiment with production techniques would be a key to the long-term success of the city. In addition, it allowed the industry to survive business failures and financial collapses. The Bay State Mills, known for their "Bay State Shawls," were closed in the Panic of 1857, but reopened in 1859 under the ownership of the Washington Mills. In 1869, under the leadership of E.R. Mudge, the Washington Mills installed worsted machinery imported from France and thus became the first producer of all-woolen worsted goods in the United States. In addition to textile manufacturing, factories began manufacturing paper, as well as machinery for the paper and textile industries. The Pacific Mills Company also sponsored a variety of innovations, including ring-spinning spindles and the Wade bobbin-holder. Its management opened a library and founded a relief fund for the benefit of its employees.

The financial Panic of 1857, Charles Storow's move to Boston in 1860, the Pemberton Mill collapse in 1860, and the outbreak of the Civil War in 1861 mark the end of Lawrence's first major period of growth, in which the population rose to 17,600 by 1860. Women and children made up a substantial portion of the workforce throughout the 19th century.

1860-1885

This period is significant for the increase in size of the workforce, mill buildings, and company structures. Between 1860 and 1875, Lawrence's population nearly doubled, growing from 17,639 to 34,916. The 1860 Italianate-style **Walton School** (Map 36) was built to meet the need for public schools for the district's large boardinghouse population.

Prior to the Civil War, the Pacific Mills were the largest producer of worsted woolens in the nation. Thereafter, encouraged by the protective tariffs on imported cloth, new technological developments, mass-market potential, and Civil War demand, other local manufacturers turned to worsteds, and Lawrence became the world's largest maker of worsted woolen goods. Diversification sustained the Lawrence textile industries through the post-Civil War years and through periods of fluctuating demand until the depression of 1893.

By 1860, the mill owners were no longer building pitch-roofed, stonewalled factories, but had come to favor slow-burning or fire-resistant construction, consisting of plank design, flat-roofed, heavy-timber-framed masonry-clad structures. Fire insurance companies were partially responsible for the change in mill construction standards, encouraging the adoption of floors and flat roofs of heavy plank and the elimination of concealed spaces within the mill. Better light and ventilation improved conditions for workers, but long working hours prevailed. Safety was also addressed by the introduction of sprinkler systems in 1875. Changes in design were also accompanied by a switch from waterpower to coal-fired steam power. By the mid-1880s, electricity was being introduced.

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In 1864, the Pacific Mills built the two-story **Lower Pacific Worsted Mill** (Map 20), the last major mill to be developed along the North Canal. Also known as the Central Pacific Mill, the 450-foot long building (with a 150-foot addition in 1908) accommodated new jacquard looms. The four-story mill (enlarged by two stories in 1877) was the first of a series of new buildings and improvements on the Pacific site. Its architectural treatment is typical of large post-Civil War mills.

Representative of the large brick mills and related structures of the period is the five-story 1882 **Lower Pacific Finishing and Packing Mill** (Map 23), whose outstanding architectural feature is the corner bell tower with its ornamental ironwork and corbelled opening as well as the finial-topped pyramidal roof. The **Lower Pacific Boiler House and Engine Room** (Map 21), built in 1885, was designed by superintendent Charles T. Main (1856-1943), who became Lawrence's leading mill architect and, eventually, president of the American Society of Mechanical Engineers (1918-1919). Main, a native of Marblehead and third-generation ropewalk mechanic, graduated from MIT in 1876 and worked as a draftsman before taking a job in 1881 as an engineer at Lower Pacific Mills, where he oversaw the complete rebuilding of the main mill and its power plants and the rearrangement of all machinery. In 1886, he published *Notes on Mill Construction*; in 1887, he became superintendent; in 1891, he went into private practice as consulting engineer and designer of mill buildings. In 1893, he formed a Boston-based partnership lasting until 1907, at which point he founded the Boston engineering firm of Charles T. Main, Inc., which was in operation as recently as 2007. Starting in 1899, Main supervised construction of all new plants for the new American Woolen Company. Main's distinguished career extended into the 1930s. In addition to work on mills his firm designed nearly 80 hydroelectric plants. He was very active and highly honored in his profession; MIT's Charles T. Main Textile Research Laboratory is named for him.

1885-1912

By 1880, Lawrence boasted more than 40,000 residents; by 1910, it had 86,000, of whom 41,300 came from 51 countries: 6,700 Italians, 4,300 Russians, and 2,100 Turks had joined the Irish, English, Scotch, Germans, and French Canadians. By 1905, Lawrence had the highest percentage of foreign-born citizens in the state, at 46%.

Extant buildings along the canal show the impact of changes in the 1880s and 1890s: new fire regulations, new forms of power (including electricity), and larger manufacturing equipment. By the turn of the century, conglomerates dominated the once-decentralized ownership of the mills. As companies expanded, development jumped across the canal, and boardinghouses were razed for the construction of new weave sheds and storehouses.

Wider mills, accommodating the heavier machinery of the 1880s onward, replaced the narrow structures of the previous decades. The wider buildings required larger windows for improved light and advanced heating systems to compensate for heat loss. The introduction of reinforced concrete to mill design at the turn of the century marked the final phase of 60 years of evolution of mill construction in the district.

During the last half of the 19th century, new mill sites were developed and old ones rebuilt. Boardinghouses north of Canal Street were razed for the construction of new mills and storehouses, and mill operatives found housing farther from the workplace. The three-decker apartment house appeared in Lawrence at the turn of the century; larger tenements of four or more units absorbed the growing population. Lawrence struggled with a high death rate and numerous public health problems, largely arising from tenement overcrowding.

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In 1893, during a national depression, all Lawrence mills temporarily ceased production with the reduction of protective tariffs and the consequent influx of cheap foreign goods. Recovery over the following years saw a peak of wages and output in 1909 and the rise of the conglomerates, notably the American Woolen Company. Although the North Canal remained the center of Lawrence's textile and paper industry, the south bank of the Merrimack was the site of a large amount of new development, including the mammoth Wood Mills (1905-1906), Ayer Mills (1908-1909), and Prospect Mills (1909). At the same time, the Arlington Mills were built to the east along the Spicket River.

In the 1880s and 1890s, cast-iron and timber construction methods were abandoned in favor of fire-retardant construction techniques, with large wall areas given to windows. In the period from 1880 to 1925, a utilitarian architectural style prevailed. The flat-roofed, large-windowed weaving sheds and storehouses of the late 19th century have uniform facades of segmental-arched or rectangular windows deep-set between undecorated brick piers or pilasters. The 1890 **George Kuhnhardt Woolen Mill #1** (Map 55), typical of this style, has a tower that remains one of the landmarks of the district.

The Pacific Mills were constructed in pressed red brick in the flat-roofed, utilitarian style favored by fire insurance companies. At the Pacific Mills Upper Canal Site, the new Renaissance Revival office of 1886-1887 and the utilitarian weave shed of 1890 prefigured the widespread razing of boardinghouses for new mills and storehouses built north of the canal. Improvements to the Pacific Mills complex included an 1895 Worsted Mill (now the site of the Fenton Judicial Center, Map 24) and the 1911 **Lower Pacific Finishing Mill** (Map 22). The Pacific Mills of the last decade of the 19th century were outfitted with the "plenum" ventilation, heating, and humidification system developed by B. F. Sturtevant of Boston. Vertical brick flues were built on top of exterior brick piers, carrying warmed air throughout the mill. Heaters and blowers were located in the basement.

In 1886-1887, the Washington Mills Company rebuilt on the original Bay State Woolen Mill site with a three-building complex (Map 26, 27, 32) that included a 250 foot chimney which was the second tallest in New England. Two of the mills, 400 feet long and 104 feet in width, were first thought to be too wide, but soon were exceeded by other structures. The Washington Mills had the largest woolen mill in the United States until the 1890s, when manufacture shifted to worsteds.

When the conglomerate American Woolen Company, led by William M. Wood, absorbed the Washington Mills in 1899, Charles T. Main began a campaign of construction and reconstruction on a larger scale, utilizing new materials and techniques. Between 1909 and 1925, the company built a reinforced concrete addition to the Washington Worsted Mill. This building, the **American Woolen Company Mill #7** (Map 28), was among the first large-scale applications of reinforced concrete along the canal. The new material offered fire protection, durability, lightness, freedom from vibration, and lower insurance rates. Steel provided the tensile strength and allowed greater areas to be devoted to windows. The expansion allowed the Washington Mills to increase production of men's wear: by 1920, the company employed 6,500 persons, and the parent American Woolen Company owned 50 mills and employed 35,000 persons.

The Pemberton and Lawrence Duck Mills remained smaller-scale operations, but added to their physical plants. The Pemberton Mills constructed two storehouses on Canal Street opposite the main mill, including the ca. 1890 **Pemberton Office and Warehouse #3** (Map 35). Until its closing, the **Duck Mill** (Map 44) continued producing their specialty cotton duck, used particularly in sails.

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In the 1890s, the Everett Cotton Mills began a series of improvements on the Essex Company Machine Shop yard that culminated in the 1909 construction of the monumental six-story, 650 feet by 75 feet **Everett Mills Company Weaving and Spinning Mill #5** (Map 46). The last of the large-scale brick mills to be constructed along the canal, it retains its integrity, including its landmark granite-trimmed central pavilion and clock.

At the turn of the 20th century, the district began to see product diversification, including the manufacturing of paper and large-scale wholesale baking. Paper manufacture in Lawrence was dominated by the William Russell Company, which expanded from a Prospect Street site to property in the district east of the Everett Mills. By applying Volker's patented process for using wood pulp, the firm became a leading manufacturer of coated papers for books and periodicals, including, for many years, the *National Geographic* magazine. Champion International Paper Company purchased the Russell firm in 1900. The buildings of the 1½-acre complex (Map 71) were contaminated and in ruins by the 1980s and have since been cleared to make way for the Gateway Project—the City of Lawrence's plan for developing the area as a gateway to downtown.

The **Morehouse Bakery Building** (Map 33) was built in 1907 (with later additions) as a wholesale baking firm. The entire business operations of the company—from administration to production to transportation—were consolidated under one roof. The bakery operated here continuously until 1976, employing many people who might not have found work otherwise—especially in view of the massive textile-manufacturing strikes of 1912 and of 1919 and subsequent faltering of the textile industry. In addition to its importance as an employer, the Morehouse Bakery made bread by the ton, feeding many people in Lawrence and the Merrimack Valley. The bakery also made cakes and doughnuts that were distributed throughout the regional market of eastern Massachusetts and into New Hampshire.

From its inception, the bakery was a modern operation that made early use of gas-powered trucks to establish reliable distribution throughout eastern Massachusetts and southern New Hampshire. In addition, the entire process of bread-making here was well documented by the young daughter of the owner in the 1920s, providing a vivid and accessible history.

John D. Morehouse and Charles W. Smith founded the company in 1900 and did business on Essex Street before purchasing the corner lot here in 1906. The firm stayed in family hands until it was sold in 1965 to Seaboard Flour Corporation, which operated the bakery until 1976.

The building contractor in 1907 was Ephraim A. Peabody & Son, a firm run by E.A. Peabody (1832-1916), then 75 years old, a local masonry contractor who had built other notable buildings in Lawrence and environs, including the YMCA building (NRDIS), Saint Laurence's Church and the Bay State Building (NRDIS). His sons John and Charles had joined him in the firm just before they won the contract to build the Morehouse Bakery.

The land at the corner of Mill and Methuen streets had never been developed because the Essex Company prohibited construction on the south side of Essex Street until the northern side had been built out. The Morehouse Baking Company did not own the adjoining parcels at the time of construction. To the west of the site was a three-story tenement building and there were other structures to the north of the site, per the atlas of 1876. After the main building went up in 1907, the company added a one-story, wooden loaving shed to the west side of the building, and a one-story wooden garage to the

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west side of the shed (per 1912 atlas). In 1914, the firm hired A.W. Lang & Company, masonry contractors, to build the three-story addition on the west side of the original building, on the site of the loaving shed. By 1924 another expansion was needed, so the buildings to the north—two three-story structures and a two-story barn—were razed to make way for the addition. This addition was built by E.A. Peabody & Sons, contractors, who would also construct the 1929 two-story garage section as well. Three row houses were demolished in 1931 to make way for a one-story garage, the final section of the complex.

The Morehouse Baking Company remained in business for three generations of ownership, employed hundreds, fed millions, and outlasted the neighboring textile manufacturers. As a successful enterprise that made a major, long-term contribution to the manufacturing history of the district, the Morehouse Bakery Building may well have been the best and last of its kind.

In addition to product diversification, the turn of the 20th century brought major advancements in sanitation. The work of Hiram F. Mills (1836-1921) and his team in defeating typhoid fever in the 1880s and 1890s had a major impact on the development of sanitary standards in mill complexes, and this earned him recognition as the father of American sanitary engineering. Typhoid fever was a recurring plague of the 19th century, caused by drinking water contaminated with human waste. Mills, a hydraulic and sanitary engineer, was a Maine-born graduate of Rensselaer Polytechnic Institute in 1856 and the son of a physician. His early career was spent in designing and supervising the construction of tunnels and dams, and by 1868 he had opened an office in Boston. He consulted as chief engineer for mill companies in Lowell and in Lawrence, where, among other things, his flow experiments produced greater turbine power.

As consulting engineer to the Boston Metropolitan Water & Sewage Board, he developed a great interest in clean water, that led to his work at the Lawrence Experimental Sanitation Station, which stood on Island Street (not extant, map #64). In 1887, Mills and his team developed the model for microbial filtration as applied to an existing large urban area. Previously only a theory, the “intermittent dosing” technique—in which river water was pumped to an elevated reservoir and released to return to the riverbed through the soil—was first applied in Lawrence. It eventually resulted in an 88% decrease in deaths from typhoid fever across the state.

The research work of Mills, published in 1890 by the Massachusetts Department of Health, gave the world a definitive account of soil-microbial activity as a destroyer of sewage bacteria, and cleared the way for sanitary engineers to treat water in urban environments everywhere. The original laboratory, built on Island Street in 1886, had been demolished by 1950. The original filter beds were abandoned, although photographs of them exist. In 1952-1953, a new laboratory and office structures were built outside of the district on the south bank of the Merrimack River near the footing of the dam. The original site—now a vacant lot—is part of the City of Lawrence’s plan to develop the area as a gateway to downtown.

1912-1945

After 1912, the North Canal mill area mirrored the economic changes occurring in the New England textile industry. The standard of living was rising; the workers were demanding better wages and conditions, demands that were heavily resisted by the textile industry. There had been little labor-union activity in the wool industry since 1881, when the manufacturers’ attempt to reduce wages had resulted in a strike. In 1912, the now-famous “Bread and Roses” strike transpired in Lawrence,

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hastened by the 54-hour workweek law passed by the state legislature, which reduced work hours for men as well as the intended group of women and children. The strike activities, including violent demonstrations, lasted from January 10th to March 14th and involved 27,000 operatives. Lawrence's newest immigrant workers, including Italians and Syrians, gave large support to the strike, which produced a general wage increase and drew national attention to child labor issues as well as workers' poor living conditions.

The first two decades of the 20th century were marked by steep fluctuations in the profitability of the textile industry. The Pacific Mills bought the Atlantic Cotton Mills—whose spinning machinery had gone into operation in 1849—at an auction in 1913. Other Lawrence manufacturers were adding new buildings and renovating old ones simultaneously. During World War I, wages increased and work hours were reduced as production zoomed due to wartime demands, especially for blankets and uniforms. In 1918, the Central Bridge (now the Joseph Casey Bridge, Map 18) opened and electricity was added to the city streets—both developments reflected the fact that Lawrence's population was increasing and that the city had become the unrivaled world leader in the manufacture of worsteds. The strike of 1919, led largely by women, resulted in the adoption of a 48-hour workweek and a 10% pay increase. It also raised the national socio-political awareness of the power of women in the workplace, a change of consciousness that helped lead to the enactment of women's suffrage. Strikes in 1922 and 1925 led to further improvements in working conditions.

The postwar boom in consumer markets led to expansion of textile operations and new storehouse construction for the American Woolen Company designed by Charles T. Main. Adjoining the Worsted Mill (1886) the company built the large Washington Mills Company Building #6 (River Mill, Map 32) in 1887 and the American Woolen Company Mill #7 (Map 28) in 1922. With this expansion, the Washington Mills were able to increase their production of menswear. Reinforced concrete and glass were the exterior materials used on the flat-roofed, ten-story American Woolen Company Storehouse #10 (Map 29) in 1919, the last of the large mill buildings to be constructed along the canal.

Throughout the 1920s, worsted woolen goods remained the leader in textile manufacturing, followed by cottons, though the Atlantic Cotton Mills closed its doors in 1926. Paper manufacturing continued as a flourishing business along the North Canal at the site of the Russell/Champion International Paper Co. Mills (not extant, map 71). One of a half-dozen Lawrence firms to manufacture papermaking machinery, an important subsidiary industry, was the Hamblet Machine Company on Island Street (Map 60).

The Great Depression, beginning with the stock market crash in 1929, had a negative impact on Lawrence's manufacturing jobs. Long-standing companies that had not been well managed went under, starting with the Everett Cotton Mills and the Pemberton Mills. Others cut back on production and employment, trying to find a level of production that could be sustained while still making a profit. Throughout the 1930s, as everywhere else in the nation, Lawrence experienced hard times. The workers struck in 1931 but could not bring about concessions from the owners, whose businesses were faltering badly. The Works Progress Administration (WPA), the largest of President Roosevelt's New Deal agencies, came to the rescue of many unemployed mill workers. Hourly wages prevailed for anyone who needed a job, most involving public improvements, including construction of highway and road projects, public buildings, and public utilities.

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At last, in the late 1930s, the market began to return for worsteds. America's burgeoning involvement in World War II created an ongoing need for large quantities of blankets, uniforms, and tents, and this demand transformed Lawrence into a boomtown once again. Throughout the war, Lawrence factories hummed with activity as production levels soared. By 1945, Lawrence had reached historic highs of employees (25,843), wages paid (\$55 million), and the value of the goods produced (\$221.7 million).

1945-present

As soon as World War II ended, the mill owners, awash in profits, began making plans to move their manufacturing facilities south. They had long used the possibility of such a move as a threat to New England workers, for the southern states' right-to-work laws and lower standard of living meant less expenditure for the manufacturers. However, previously the South had relatively poor infrastructure, and without the necessary roads, highways, trains, bridges, and tunnels, they could not get the materials in or the product out in an efficient and cost-effective manner. The Federal Government's investment in infrastructure through WPA projects had transformed many regions in the South, and the manufacturers had noticed. Mill owners also wished to avoid making large capital investments in renovating older Lawrence buildings when they could build more efficient plants from scratch. Manufacturing remained in Lawrence through the 1940s, but in the 1950s operations rapidly moved southward. In 1957, the Pacific Mills, the last great Lawrence textile concern, closed its doors. Other, smaller companies stayed in business, but by 1962 the number of Lawrence factory workers stood at 13,000, only half of the number employed in 1946.

Alternate industries have occupied some of the mills, but most of the former industrial space has remained vacant. Several buildings within the historic district boundary were demolished in the 1950s and 1960s, as well as a few others since the district was originally listed in 1984. Despite these losses, the integrity of the district remains. As textile manufacturing declined, the Morehouse Bakery Company and its successor continued to produce and sell bakery products until 1976.

In the 1980s, developers began to see the district as an attractive locale for targeted development projects. Historic buildings have been rehabilitated for retail and residential purposes, raising the level of awareness of the district's history and the value of its architectural integrity. In 1985, the Lawrence State Heritage Park (Map 34) was created and the former Bay State Woolen Mills Boarding House (Map 30) was renovated as a Park Visitor Center with excellent interpretive exhibits (architect: Robert A. Zarelli, 1985). In 1995 the Museum Square Parking Garage was constructed (Map 24-I) and the large three-story Fenton Judicial Center was erected (Map 24).

Archaeological Significance

Historic archaeological resources described above may contribute important architectural, technological, and social information responsible for the 19th-century development of Lawrence as one of America's leading planned textile centers.

Historical research combined with archaeological survey and testing may locate evidence of agricultural land use in the district prior to 1845, a period when the district was characterized as riverbank farmland. Remnants of stone walls, animal pens, and agricultural-related outbuildings may exist within the boundaries of the proposed district.

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Cartographic research combined with archaeological testing may also help to identify the original land surfaces in the district. Historic maps and soil coring may help identify portions of the district that have been reconfigured with future building sites created by dredged "new" land.

Historical and archaeological resources may contribute important information related to the evolution of waterpower technologies in the district and its relationship with industrial evolution. Historical and archaeological research may identify design components and construction techniques used to build the Great Stone Dam and North Canal, both sources for the district's mechanical power. Similar research combined with careful and detailed mapping may also identify the complex system of mill canals that delivered water to the mills, and then returned it to the Merrimack and Spicket Rivers. Historical and archaeological research may also contribute important information related to the evolution of waterpower technologies in the district from the use of overshot wheels to turbines. Important information may also exist that identifies the adaptive reuse of waterpower resources as direct systems of waterpower changed to the use of steam then electrical power.

Historical and archaeological research may also contribute important information related to the manufacturing technologies used at individual mills. Detailed analysis of industrial trash deposits may contribute information related to the evolution of cotton and wool textile technologies used at mills in the district and the objects that were manufactured. Information related to tool making and machinery manufacture may also exist at mill sites and related archaeological features associated with the Essex Company (ca. 1846), one of the earliest mills in the district.

Historical and archaeological research at extant boarding houses and archaeological sites may contribute important information on the social, cultural, and economic characteristics of factory workers and the relationship between company owners and their workers. Structural evidence of outbuildings and detailed analysis of the contents of occupational-related features may contribute important information related to worker family structure in boarding and tenement houses, ethnicity, and methods of supplementing wages earned in factories. Some level of subsistence farming and/or husbandry and cottage industries may have been employed by factory workers at their homes to increase food supplies and create additional income. Historical and archaeological information may also exist that indicates the extent that workers were dependant on company stores for food and other goods and services.

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NorthCanalHD(2009Tech.Amend./BI)
Name of Property

Essex, MA
County, State

10. Geographical Data

Acreage of Property 60 acres

UTM References See continuation sheet.

(Place additional UTM references on a continuation sheet)

1. 19 323400 4730040
Zone Easting Northing

2. 19 323600 4730540
Zone Easting Northing

3. 19 324200 4730280
Zone Easting Northing

4. 19 322420 4729860
Zone Easting Northing

— See continuation sheet

Verbal Boundary Description

(Describe the boundaries of the property on a continuation sheet.)

Boundary Justification

(Explain why the boundaries were selected on a continuation sheet.)

11. Form Prepared By

name/title Sarah Hansen, Architectural Heritage Foundation, with Betsy Friedberg, NR Director, MHC

organization Massachusetts Historical Commission date March 2009

street & number 220 Morrissey Boulevard telephone 617-727-8470

city or town Boston state MA zip code 02125

Additional Documentation

Submit the following items with the completed form:

Continuation Sheets

Maps

A **USGS map** (7.5 or 15 minute series) indicating the property's location.

A **sketch map** for historic districts and properties having large acreage or numerous resources.

Photographs

Representative **black and white photographs** of the property.

Additional items (Check with the SHPO or FPO for any additional items)

Property Owner

(Complete this item at the request of the SHPO or FPO.)

name Morehouse Bakery Building LLC c/o Architectural Heritage Foundation

street & number 45 School Street telephone

city or town Boston state MA zip code 02108

Paperwork Reduction Act Statement: This information is being collected for applications to the National Register of Historic Places to nominate properties for listing or determine eligibility for listing, to list properties, and to amend existing listings. Response to this request is required to obtain a benefit in accordance with the National Historic Preservation Act, as amended (16 U.S.C. 470 et seq.).

Estimated Burden Statement: Public reporting burden for this form is estimated to average 18.1 hours per response including the time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding this burden estimate or any aspect of this form to the Chief, Administrative Services Division, National Park Service, P.O. Box 37127, Washington, DC 20013-7127; and the Office of Management and Budget, Paperwork Reductions Project (1024-0018), Washington, DC 20503.

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Verbal Boundary Description

The boundaries of the North Canal Historic District (Boundary Increase) are delineated with a red line on the attached map entitled, "North Canal Historic District." They are also outlined in pencil on the accompanying assessor's maps. The bridges crossing the canal that are listed on the district data sheet are included in their entirety.

Justification

Revised boundaries for the North Canal Historic District (Boundary Increase) were selected to include the remaining industrial manufacturing building that was previously left outside the district. Other lots surrounding the district were evaluated to determine if their inclusion was appropriate. One block north, along Essex Street, is the Essex Street National Register District that does not relate to the current district. East of the district, across the Spicket River and along Prospect Street, are residential areas with houses primarily from the late 19th century through the 1970s. The southern boundary is the Merrimack River. To the west of the district, across Broadway, are several industrial mill buildings that do not relate to the district. Set back from the street are a number of commercial structures dating to the 1980s that do not relate historically or physically to the district.

(end)

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PHOTOGRAPHS

Photographer: Sarah Hansen, AHF

Photos 1-22 are supplementary images of previously listed properties in the North Canal HD. Photos 23-28 are images of the Morehouse Bakery Building boundary increase.

1. East elevation of Gate Keeper's House (map 3)
2. Pacific Cotton Mill, south elevation (map 4-I)
3. Pacific Cotton Mill, Atlantic Mill Co. Spinning Mill #3 (map 4-I, 8, 9), looking north
4. Family Service Inc., north elevation (map 6)
5. 454 North Canal Street, north elevation (map 7)
6. Upper Pacific Cotton Yarn Mill #5 Storehouse, looking south (map 11, 12)
7. Upper Pacific Storehouse #7, south elevation (map 15)
8. Central Bridge Approach, looking southeast (map 18-I)
9. Lower Pacific Finishing and Packing Mill, Washington Mills Bridge, north elevation (map 23, 76)
10. Atlantic Cotton Mills Boarding House, Central (Casey) Bridge, south and east elevations (map 17, 18, 18-I)
11. Fenton Judicial Center, Lower Pacific Bridge, Washington Mills Bridge, looking north (map 24, 24-I, 25, 76)
12. American Woolen Company Dye House, Washington Mills Building #1, south elevation (map 26, 27)
13. Washington Mills Building #1, north elevation (map 27)
14. American Woolen Company Storehouse #10, Bay State Woolen Mills Boarding House, looking north (map 29, 30)
15. Washington Mills Company Building #6 (River Mill), north elevation (map 32)
16. Pemberton Company Office and Warehouse #3, Stable, south and east elevation (map 35, 37)
17. Pemberton Manufacturing Company Mail Mill, Lawrence Duck Company Mill #3, Pemberton Mill Bridges, north and west elevation (map 42, 44, 77, 78)
18. Everett Mills Company Weaving and Spinning Mill #5, south and west elevation (map 46)
19. Everett Mill Storehouse #6, Essex Company Mill #1, south and west elevation (map 52, 48)
20. George Kunhardt Woolen Mill #1, Woolen Shop and Boiler House, and Mill #9, looking west (map 55, 56, 58)
21. Broadway Bridge (O'Leary Bridge), looking north (map 72)

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- 22. Pemberton Mill Bridge, Washington Mills Company Building #1, Pemberton Manufacturing Company Main Mill (map 32, 42, 77)
- 23. Morehouse Bakery, southeast corner
- 24. Morehouse Bakery, southwest corner
- 25. Morehouse Bakery, north elevation
- 26. Morehouse Bakery, south elevation
- 27. Morehouse Bakery, east and north elevations
- 28. Morehouse Bakery, east elevation

**North Canal
District Data Sheet**

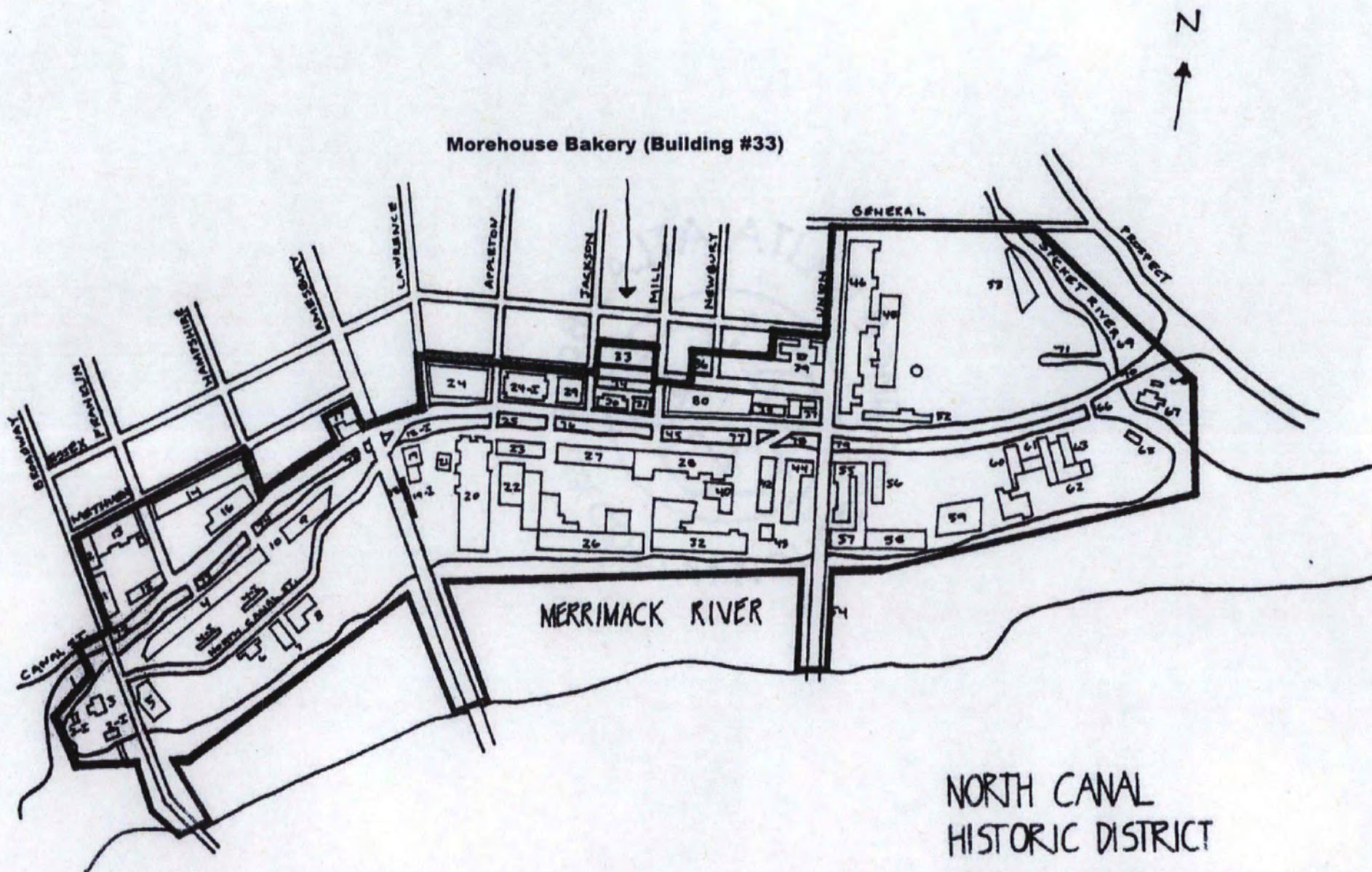
Lawrence (Essex), MA

Map #	Street Number	Property Address	Historic Name	Date	Maker	Construction	Resource Type	Status
1		Along Canal Street	North Canal	1848	Charles Bigelow	Random coursed granite	B/NR 1975	C
2		Memmack River & MA 28	Great Stone Dam	1848	Charles Storrow & Gilmore Carpenter	Bluestone, Granite	B/NR 1977	C
2 - I		Broadway at Canal Street	Gatehouse at Great Stone Dam	1848	Charles Storrow	Wood Frame	B	C
3		Broadway	North Canal Gate Keepers House	1945		Wood Frame	B	C
3-I		Broadway	N Canal Barn	1848		Wood Frame	B	C
4	468	Canal Street	Upper Pacific Cotton Mill Weave Shed and Office	c. 1890, office 1887	George Moffette, Jr. (office)	Brick	B	C
4-I	468	Canal Street	Pacific Cotton Mill - Fragments (possible turbine houses)	1852		Brick	St	C
5	0	Broadway	Upper Pacific Storehouse #5	c. 1860	Charles Bigelow	Warehouse	B	C
6	430	N. Canal Street	Family Service, Inc.	1960		Brick	B	NC
7	454	N. Canal Street	New England Dough	1959		Brick and Slate	B	C
8	444	Canal Street	Kid Start	1955		Brick	B	C
9	400	Canal Street	Atlantic Mill Co. Spinning Mill #5	c. 1906		Brick	B	C
10		Between Hampshire and Franklin Streets	Site of Upper Pacific Bridge	1864	Thomas W.H. Moseley			V
11	1	Broadway	Upper Pacific Cotton Yarn Mill #5 Storehouse	1902		Brick	B	C
12	7	Broadway	Garage - former Goodyear store	c. 1890s		Brick	B	C
13	2	Methuen Street	Upper Pacific Yarn Mill	1896		Brick	B	C
14		Methuen Street	Upper Pacific Worsted Mill #10	c.1889		Brick	B	C
15	2	Franklin Street	Upper Pacific Storehouse #7	1896		Brick	B	C
16	433	Canal Street	New England Telephone	c. 1950		Brick	B	NC
17	401-403	Canal street	Atlantic Cotton Mills Boarding House	1847	Charles Storrow	Brick	B	NC
18		Foot of Amesbury Street	Central Bridge (now Joseph W. Casey Bridge)	1918	Benjamin Davis	Reinforced Concrete	St	C
18-I		Foot of Amesbury Street	Central Bridge Approach	1918	Benjamin Davis	Reinforced Concrete	St	C
19	300	Canal Street	Lower Pacific Cotton Mill	1883		Brick	B	C
19-I		Canal Street	Ruin	1883		Brick and Granite	St	C
20	300	Canal Street	Lower Pacific Worsted Mill	1864, 1877, 1908		Brick	B	C
21	300	Canal Street	Lower Pacific Boiler House & Engine Room	1885	Charles T. Main	Brick	B	C
22	300	Canal Street	Lower Pacific Finishing Mill	1911		Brick	B	C
23	300	Canal Street	Lower Pacific Finishing & Packing Mill	1882		Brick	B	C
24	361	Canal Street	Fenton Judicial Center	1995		New Construction	B	NC
24-I	365	Canal Street	Museum Square Garage	1995		New Construction	B	NC
25		Appleton & Canal Streets	Site of Lower Pacific Bridge	1870	Phoenix Iron Works	Vacant Lot		V
26		Canal Street	American Woolen Company Dye House	1887	Lockwood, Greene & Company	Brick	B	C
27	270	Canal Street	Washington Mills Building #1	1886/2007	Lockwood, Greene & Company/Durkee, Brown, Viveiros & Werenfels	Brick	B	C
28	250	Canal Street	American Woolen Company Mill #7	1887	Lockwood, Greene & Company	Brick and Concrete	B	C
29		Jackson & Canal Streets	American Woolen Company Storehouse #10	c. 1919	Charles T. Main	Brick	B	C
30	Two	Jackson Street	Bay State Woolen Mills Boarding House	1865		Brick and Stucco	B	C
31	1	Mill Street	American Woolen Co. Office	1900		Brick	B	C
32	250	Canal Street	Washington Mills Co. Building #6 (River Mill)	1887		Brick	B	C
33	5 to 9	Mill Street	Morehouse Bakery	1906-1931	E.A. Peabody & Son (1907, 1924, 1929); A.W. Lang & Company (1914)	Brick	B	C
34	One	Jackson Street	Lawrence Heritage State Park	1985		Brick	St	C
35	246	Canal Street	Pemberton Co. Office & Warehouse #3	c. 1890		Brick	B	C
36		Methuen Street	Walton School	c. 1860		Brick	B	C
37	6	Methuen Street	Pemberton Co. Stable	c. 1880		Brick	B	C
38	6	Methuen Street	Site of Pemberton Co. Stable addition	c. 1960		Vacant Lot		V
39	6	Essex Street	Essex Co. Offices and Yard	1883-1884	Hiram Mills	Brick and Wood fram	B/ NR 1979	C
40	250	Canal Street	Site of American Woolen Co. Power Plant	1923		Vacant Lot		V
41	250	Canal Street	Site of Bay State Mills Railroad Shed	1848		Vacant Lot		V

**North Canal
District Data Sheet**

Lawrence (Essex), MA

Map #	Street Number	Property Address	Historic Name	Date	Maker	Construction	Resource Type	Status
42	216	Canal Street	Pemberton Manufacturing Co. Main Mill	1860-61	Theodore Voelkers	Brick	B	C
43		Canal Street	Pemberton Mill Picker House	c. 1850		Brick	B	NC
44	4	Union Street	Lawrence Duck Company Mill #3	1853	Charles Bigelow/(Addition) Charles T. Main	Brick	B	C
45		Mill And Canal Streets	Washington Mills Canal Bridge	1923		Steel	St	C
46	15	Union Street	Everett Mills Co. Weaving & Spinning Mill #5	1909	William Hartley Dennett	Brick	B	C
47			Everett Storehouse #8	1900		Brick	B	C
48		Union Street	Essex Company Main Mill #1	c. 1846	Charles Bigelow	Brick	B	C
49	70	General Street	Everett Mill Co. Weaving Mill #4	1892		Brick	B	C
50	70	General Street	Site of Everett Mill Co. Mill Picker House & Extension	1892		Vacant Lot		V
51	70	General Street	Site of Everett Mill Co. Cloth Room	1892		Vacant Lot		V
52	183	Canal Street	Everett Mill Storehouse #6 (original Cotton Weaving Mill)	1863, 3rd Floor 1946		Brick	B	C
53	1	Canal Street	Everett Mills Storehouse	1905		Brick	B	C
54		Between Union and South Union Streets	Union (Duck) Bridge	1887	Warren Truss & George L. Vose-Boston Bridge Works	Steel and wood	St	C
55	60	Island Street	George Kuhnhardt Woolen Mill No. 1 & Office	c. 1890		Brick	B	C
56		Island Street	George Kuhnhardt Woolen Shop & Boiler House	c. 1896		Brick	B	C
57	50	Island Street	George Kuhnhardt Woolen Mill #4	1896-1899		Brick	B	C
58	51	Island Street	George Kuhnhardt Woolen Mill #9	1896-1899		Brick	B	C
59	50	Island Street	George Kuhnhardt Woolen Warehouse	1896-1899		Brick	B	C
60	30	Island Street	Hamblet Machine Company	1859		Wood Frame	B	C
61	30	Island Street	Ferrous Technology	1960		New Construction	B	NC
62	30	Island Street	Ferrous Technology	1978		New Construction	B	NC
63	30	Island Street	Ferrous Technology	1940		Metal	B	C
64		Island Street	Site of Lawrence Experimental Sanitation Site	1886		Vacant Lot		V
65		Island Street	Site of North Canal Lockkeeper's House	1848		Vacant Lot		V
66		North Canal Street	Locks And Wasteway	1845			St	C
67	1	Marston St	Russell Paper Storehouse	c. 1875			B	NC
68	1	Marston St	Lawrence Pump & Engine Co.	c. 1853		Wood Frame	B	C
69		Below Prospect Street Bridge	Spicket Penstock	c. 1855, rebuilt 1899, 1913	Charles Storrow		St	C
70		Canal Street, Near Spicket Wasteway	Prospect Street Bridge	c. 1855	Charles Storrow		St	C
71	21	Canal Street (at Spicket River)	Site of Russell, Later Champion International Paper Co. Mills	c. 1870		Vacant Lot		V
72		Broadway	Broadway Bridge (Edward O'Leary Bridge)	c. 1854		Steel	St	C
73		Franklin Street	North Canal Railroad Bridge	c. 1850		Steel & Brick	St	C
74		Canal, between Franklin & Hampshire	Upper Pacific Pedestrian Bridge	1849		Steel & Concrete	St	C
75		Amesbury	Pedestrian Bridge	Late 19th century		Steel & Wood	St	C
76	270	Canal Street	Washington Mills Building No. 1 Bridge	2007		Steel	St	NC
77		Canal Street	Pemberton Mill Bridge	c. 1902		Steel & Wood	St	C
78		Canal Street	Pemberton Mill Bridge II	Early 20th century		Steel	St	C
79		Union Street	Union Street Bridge (FWP)	1939	Federal Works Progress Administration	Concrete	St	C
80		Canal and Mill Streets	US Citizenship Center	2008-2009	US Department of Homeland Security	Brick veneer	B	NC



NORTH CANAL HISTORIC DISTRICT

MAP NUMBERS CORRESPOND TO
DISTRICT DATA SHEET

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

NATIONAL REGISTER OF HISTORIC PLACES
EVALUATION/RETURN SHEET

REQUESTED ACTION: NOMINATION

PROPERTY North Canal Historic District (Boundary Increase)
NAME:

MULTIPLE
NAME:

STATE & COUNTY: MASSACHUSETTS, Essex

DATE RECEIVED: 3/26/09 DATE OF PENDING LIST: 4/15/09
DATE OF 16TH DAY: 4/30/09 DATE OF 45TH DAY: 5/09/09
DATE OF WEEKLY LIST:

REFERENCE NUMBER: 09000280

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: N NATIONAL: Y

COMMENT WAIVER: N

☒ ACCEPT ☐ RETURN ☐ REJECT 5/8/2009 DATE

ABSTRACT/SUMMARY COMMENTS:

RECOM./CRITERIA Accept

REVIEWER Patrick Adams

DISCIPLINE Historian

TELEPHONE _____

DATE 5/8/2009

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

If a nomination is returned to the nominating authority, the nomination is no longer under consideration by the NPS.



Photo 1
Map 3

North Canal District
Essex County, MA
East elevation of

Gate Keepers House

Ritz, PO1010 07/15/08

0665340, MAL Lawrence Essex County-North



Photo 2
Map 4-I
North Canal District
Essex County, MA
South elevation

Ritz, 20161 07/15/08

0665340, MA_Laurence Essex County_North



Photo 3

Map 4-I, 8, 9

North Canal District
Essex County, MA

Looking north - from L to R:

Map 4-I, Map 8, Map 9 in distance

Ritz, R0121, 07/15/08

G665340, MALLaurence Essex County North



Photo 4
Map 6
North Canal District
Essex Canty, MA
North elevation

Ritz, Price 07/15/08

0665340, M.Laurence Essex County-North



Photo 5

Map 7

North Canal District

Essex County, MA

North Elevation

Ritz, 20161, 07/15/08

6665340, MALL Lawrence Essex County North



Photo 6

Map 11, 12

North Canal District

Essex County, MA

Looking south from L to R:

Map 12, Map 11

Ritz,

016

07/15/08

0665340, MALL Lawrence Essex County North



Photo 7

Map 15

North Canal District

Essex County, MA

South elevation

Ritz, R016600 0x15/08

0665340, MALLawrence Essex County-North



Photo 8
Map 18-1
North Canal District
Essex County, MA
Looking Southeast

Ritz, R. 61, 07/15/08

G665340, MA-Lawrence Essex County-North



Photo 9

Map 23, 76

North Canal District
Essex County, MA

North elevation of Map 23.
Bridge is Map 76.

Ritz, R. 6th 07/5/10

G665340, MAL Lawrence Essex County North



Photo 10

Map 17, 18, 18-1

North Canal District

Essex County, MA

View of south and east
elevations of Map 17. Bridges
in foreground are 18 and 18-1.



Photo 11
Map 24, 24-1, 25, 76
North Canal District
Essex County, MA

Looking north. Bridge on L is
Map 25, bridge in foreground is
Map 76. Buildings from L to R:
Map 24, Map 24-1.



Photo 12

Map 26, 27

North Canal District

Essex County, MA

View of south elevation of Map 27.

Map 26 in foreground.



Photo 13

Map 27

North Canal District

Essex County, MA

North elevation

Ritz, R0163 07/25/08

0665340, MA_Lawrence Essex County_North



Photo 14

Map 29, 30

North Canal District

Essex County, MA

Looking north, from L to R: Map 29,
Map 30.

Ritz, R0501, 07/15/08

G665340, MAL Lawrence Essex County-North



Photo No. 15

Map No. 32

North Canal District

Lawrence, Essex County, MA

Description: North elevation of Map 32.

Ritz, R0161, 0715/01

0665340, MALawrence_Essex County-North



Photo No. 16

Map No. 35, 37

North Canal District

Lawrence, Essex County, MA

Description: South and east elevation of
Map 35. Map 37 on R.

Ritz, R0161, 07/15/08

0665340, MA_Lawrence_Essex_County_North



Photo No. 17

Map No. 42, 44, 77, 78

North Canal District

Lawrence, Essex County, MA

Description: North and West elevation of Map 42.

Building on L is Map 44. Tall bridge is
Map 78, bridge in foreground is Map 77.



Photo No.18

Map No.46

North Canal District

Lawrence, Essex County, MA

Description: South and West elevation of Map 46.

Ritz, R0161, 07/25/08

0665340, MA-Lawrence-Essex County-North



Photo No. 19

Map No. 48, 52

North Canal District

Lawrence, Essex County, MA

Description: South and West elevation of Map 52.

Stone mill in background is Map 48.



Photo No. 20

Map No. 55, 56, 58

North Canal District

Lawrence, Essex County, MA

Description: Looking West - from L to R: Map 58,
55, and building at L in the foreground is
Map 56.

0665340, MA Lawrence, Essex County, North

Ritz, 001654, 07/5/00



Photo No. 21

Map No. 72

North Canal District

Lawrence, Essex County, MA

Description: Looking North, Map 72.

Ritz, R0161, 07/19/08

0665340, MA-Lawrence Essex County-North



Photo No. 22

Map No. 32, 42, 77

North Canal District

Lawrence, Essex County, MA

Description: Bridge is Map 77, Map 32 is
building on L, Map 42 on R.



Morehouse Bakery
Essex County, MA
SE corner



Morehouse Bakery

5-9 Mill St.

Essex County, MA

SW corner



Morehouse Bakery
5-9 Mill St.
Essex County, MA
N Elevation



Morehouse Bakery
5-9 Mill St.

Essex County, MA
S Elevation

26



Morehouse Bakery
59 Mill St.

Essex County, MA

East/^{90 North} elevation



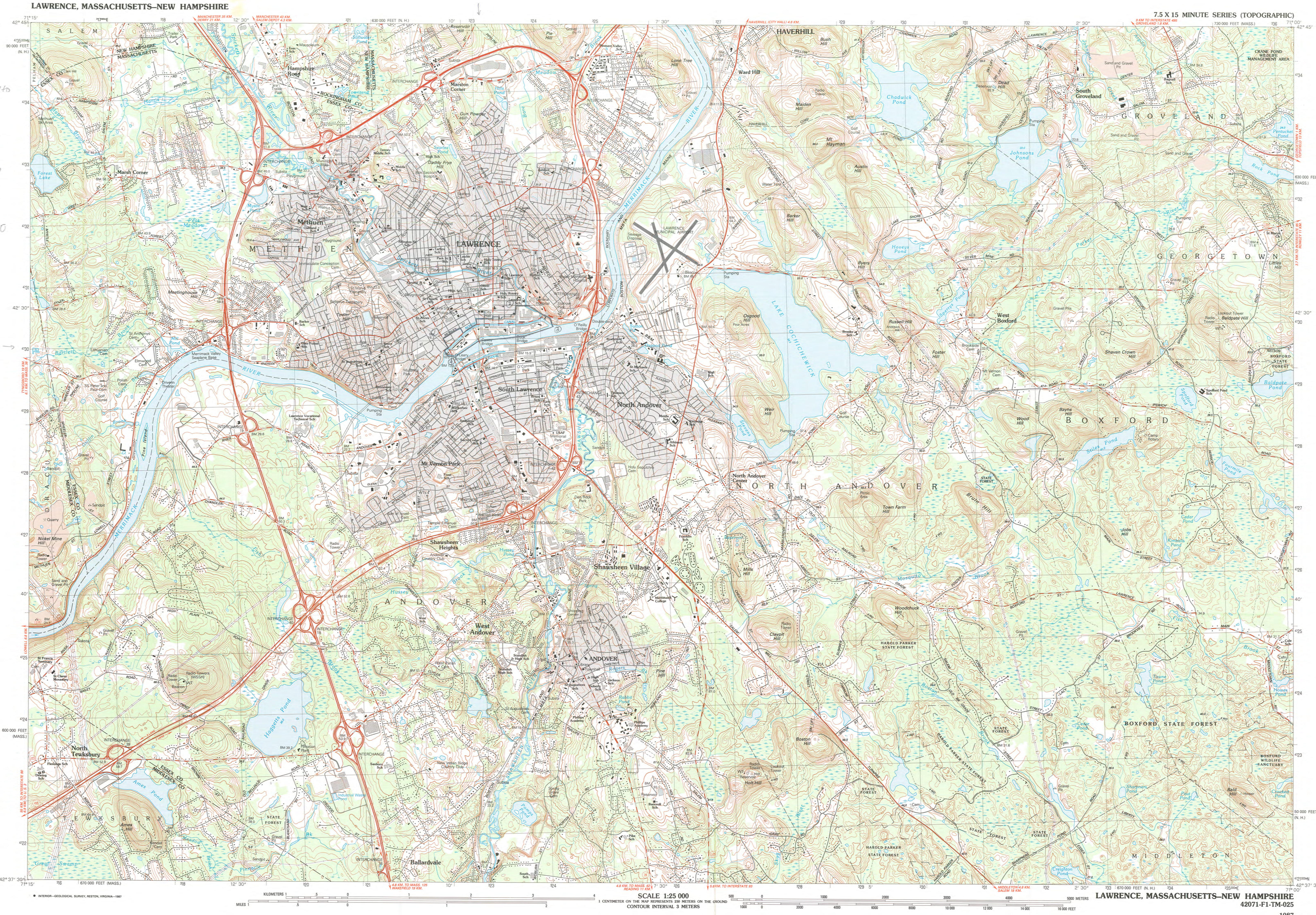
Morehouse Bakery
5-9 Mill St.

Essex County, MA

East Elevation

28

NORTH CANAL 140
1. 322400
4730040
2. 323600
4730540
3. 324200
4730280
4. 322420
4729860



North Canal 140
42071-F1-TM-025

Lawrence

MASSACHUSETTS-
NEW HAMPSHIRE

1:25 000-scale metric
topographic map

7.5 X 15 MINUTE QUADRANGLE
SHOWING

- Contours and elevations in meters
- Highways, roads and other manmade structures
- Water features
- Woodland areas
- Geographic names

GEOLOGICAL SURVEY

1987

Produced by the United States Geological Survey
in cooperation with the Massachusetts Department
of Public Works

Control by USGS, NOS/NOAA, and Commonwealth of
Massachusetts agencies

Compiled by photogrammetric methods from aerial photographs
taken 1978. Field checked 1979. Map dated 1987.
The west half of this area also covered by 7.5-minute
1:24,000-scale map; Lawrence dated 1966.
The east half of this area supersedes South Groveland
1:24,000-scale map dated 1966.

Projection and 1000-meter grid: Universal
Transverse Mercator, zone 19.
10,000-foot grid ticks based on Massachusetts coordinate system,
mainland zone, and New Hampshire coordinate system.
1927 North American Datum.
To place on the projected North American Datum 1983,
move the projection lines 6 meters south and
41 meters west as shown by double corner ticks.
There may be private inholdings within the boundaries of
the National or State reservations shown on this map.

CONTOUR INTERVAL 3 METERS
NATIONAL GEODETIC VERTICAL DATUM OF 1929
CONTINGENT ELEVATIONS SHOWN TO THE NEAREST 0.1 METER
OTHER ELEVATIONS SHOWN TO THE NEAREST 0.5 METER

THIS MAP COMPLES WITH NATIONAL MAP ACCURACY STANDARDS

CONVERSION TABLE		DECLINATION DIAGRAM	ADJOINING MAPS		
Meters	Feet		1	2	3
1	3.2808		1	2	3
2	6.5617		4	5	6
3	9.8425		7	8	9
4	13.1234				
5	16.4042				
6	19.6850				
7	22.9659				
8	26.2467				
9	29.5275				
10	32.8084				

To convert meters to feet
multiply by 3.2808
To convert feet to meters
multiply by 0.3048

UTM grid convergence
(EN) and magnetic
declination (MN)
at center map
Diagram is approximate

FOR SALE BY U. S. GEOLOGICAL SURVEY
DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092

Topographic Map Symbols

Primary highway, hard surface	
Secondary highway, hard surface	
Light-duty road, hard or improved surface	
Unimproved road, trail	
Roads meter: Interstate, U. S. State	
Railroad, standard gage; narrow gage	
Bridge, drawbridge	
Footbridge; overpass; underpass	
Build-up area: only selected landmark buildings shown	
House; barn; church; school; large structure	
Boundary:	
National, with monument	
State	
County, parish	
Civil township, precinct, district	
Incorporated city, village, town	
National or State reservation; small park	
Land grant with monument; land section corner	
U. S. public lands survey: range, township, section	
Range, township, section line: location approximate	
Fence or field line	
Power transmission line, isolated tower	
Dam; dam with lock	
Cemetery; grave	
Campground; picnic area; U. S. location monument	
Woodlot; water well; spring	
Mine shaft; prospect; adit or cave	
Control: horizontal station; vertical station; spot elevation	
Contours: index; intermediate; supplementary; depression	
Disturbed surface: strip mine; lava, sand	
Bathymetric contours: index; intermediate	
Perennial lake and stream; intermittent lake and stream	
Rapids, large and small; falls, large and small	
Submerged marsh, marsh, swamp	
Land subject to controlled inundation; woodland	
Scrub; mangrove	
Orchard; vineyard	

LAWRENCE (ESSEX) MA
NORTH CANAL HD
2009 BOUNDARY INCREASE

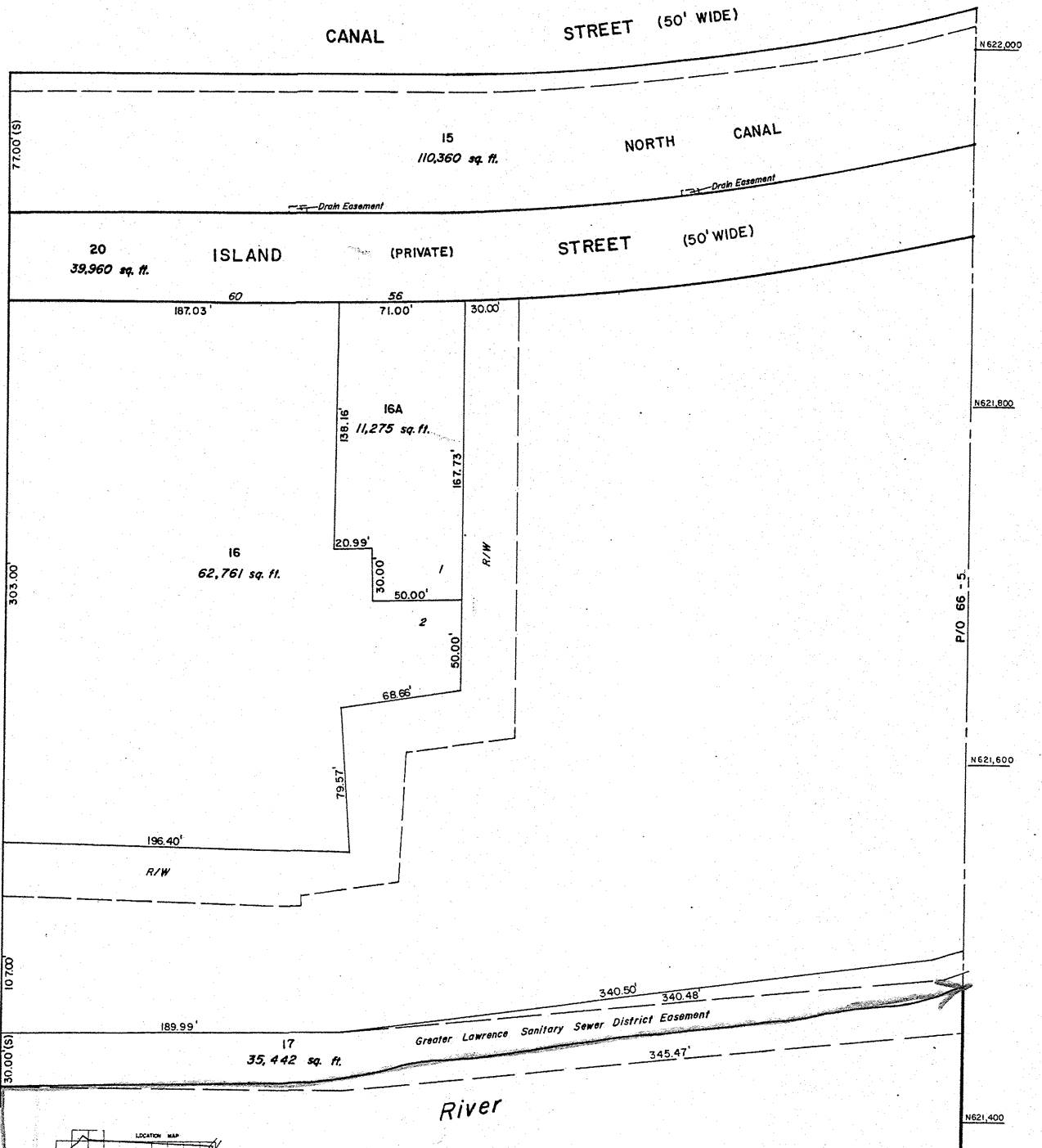
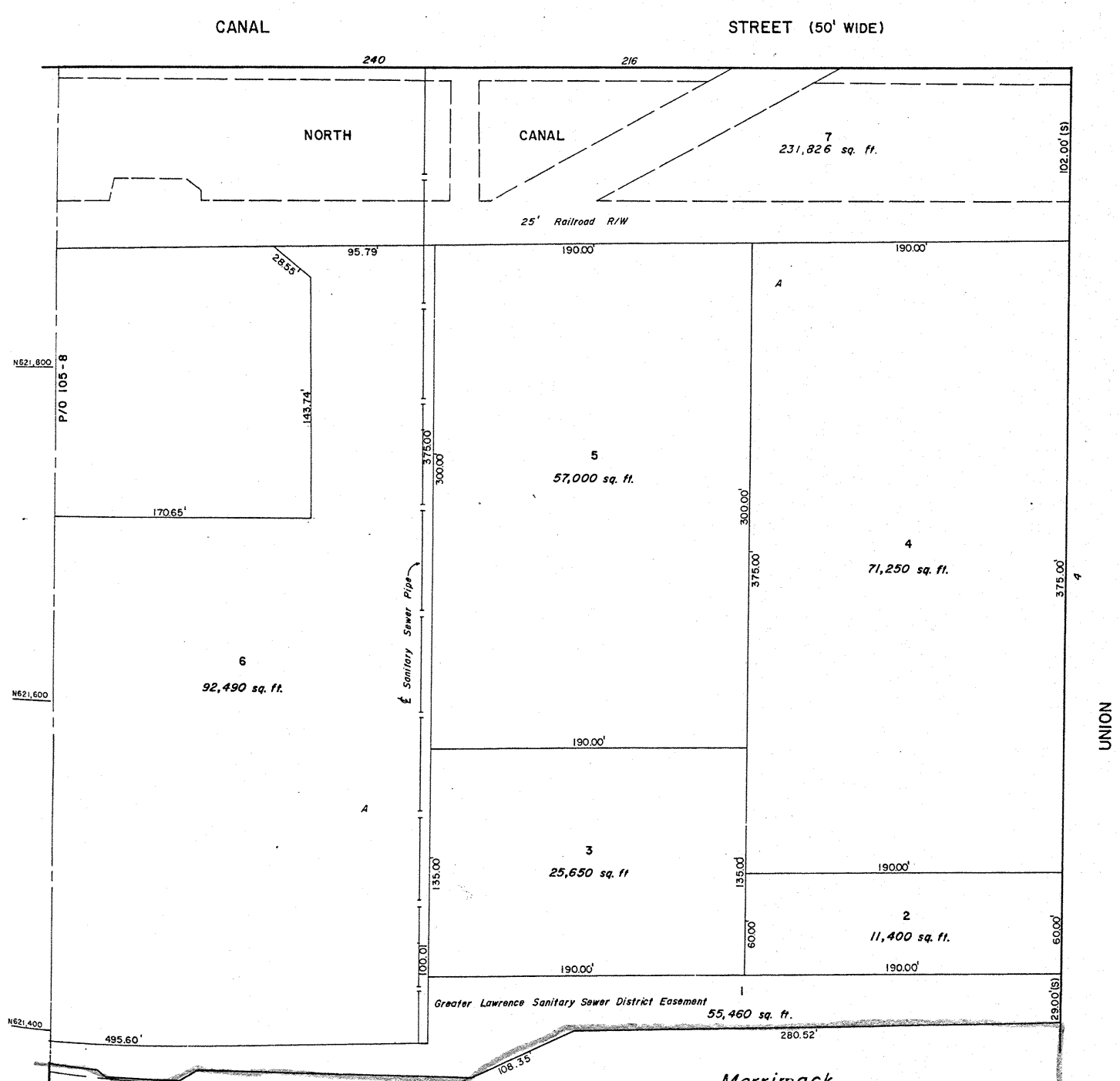
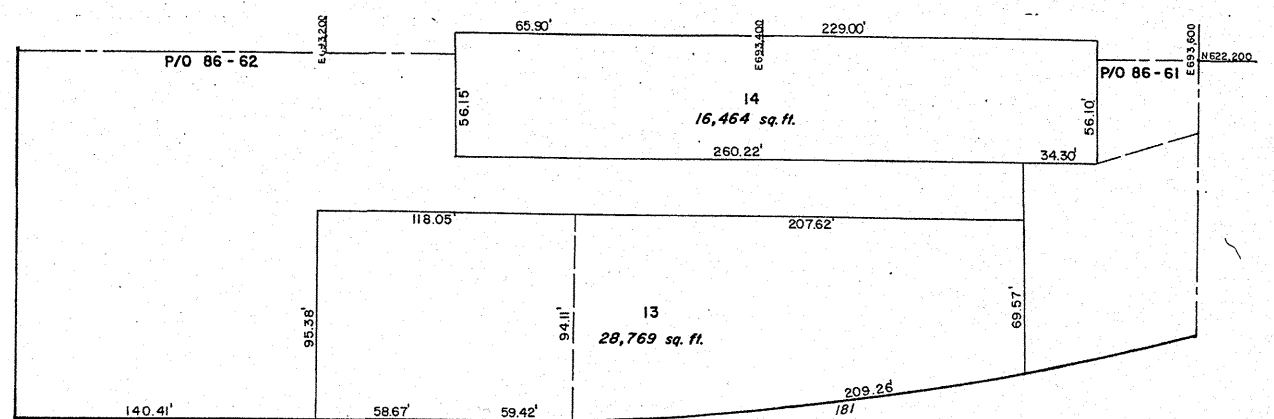
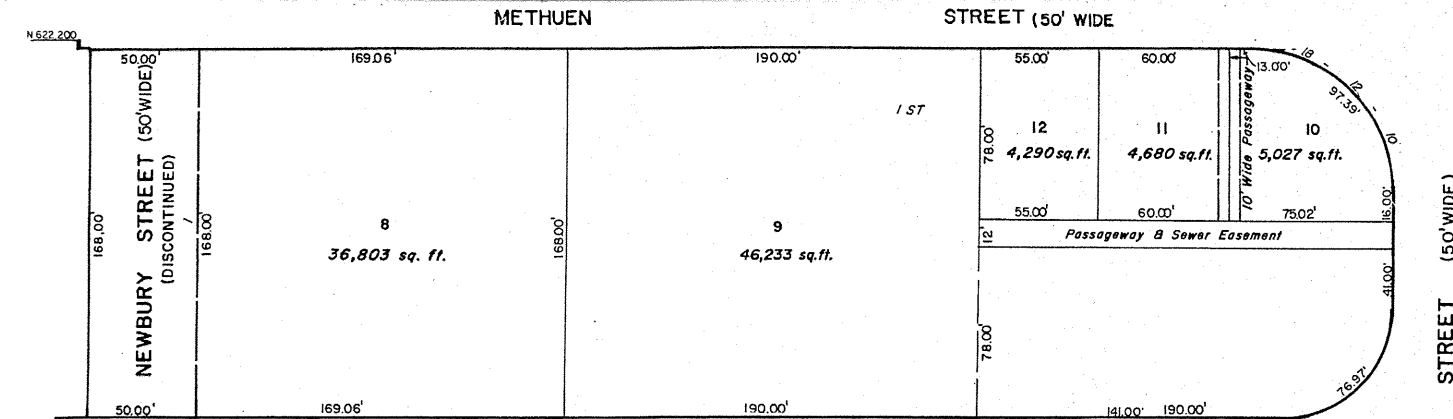
map 1 of 14

LAWRENCE (ESSEX) MA

NORTH CANAL HD

2009 BOUNDARY INCREASE

Map 2 of 14



LEGEND

PARCEL NUMBERS 2
MATCH LINE

For Assessment Purposes
Not to be used for Conveyances

DATE OF AERIAL PHOTOGRAPHY 4-20-79
DATE OF COMPLETION 9-22-80
DATE OF REVISIONS 11-6-80 11-90
1-1-84 1-1-91
6-8-85 1-1-92
1-1-86 1-1-96
1-1-87 1-1-97
1-1-88 1-1-04

SCALE
0 20 40 80 120 160 200 240 FEET
0 5 10 20 40 60 METERS

200 FOOT GRID BASED ON MASSACHUSETTS COORDINATE SYSTEM - MAINLAND ZONE
LAWRENCE VERTICAL DATUM = MEAN SEA LEVEL PLUS 5.08 FEET

TAX MAP
CITY OF LAWRENCE
ESSEX COUNTY, MASSACHUSETTS
PREPARED BY
JAMES W. SEWALL COMPANY, OLD TOWN, MAINE

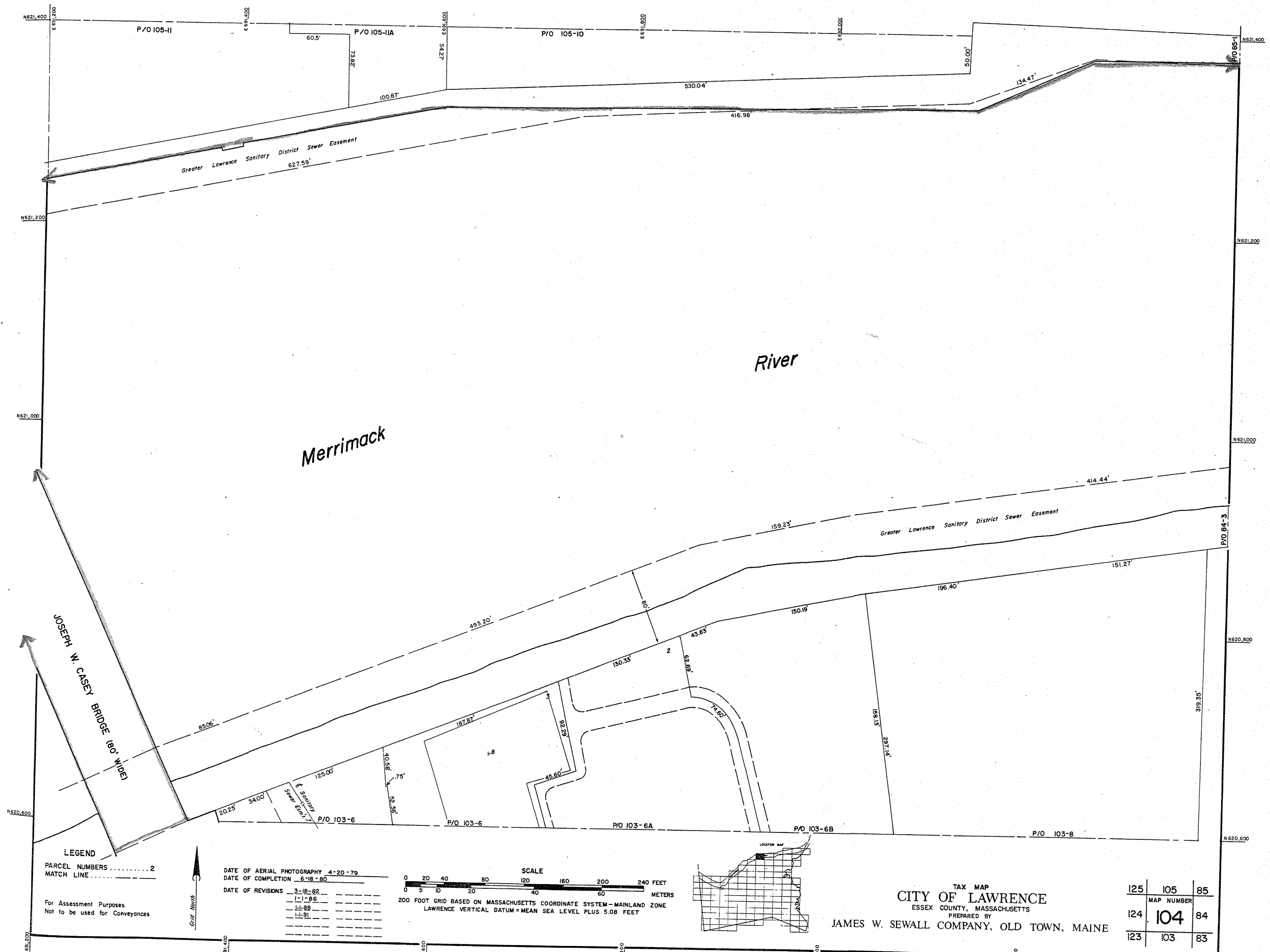
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105	85	66
104	84	65

LAWRENCE (ESSEX) MA

NORTH CANAL HD

2009 BOUNDARY INCREASE

map 3 of 14

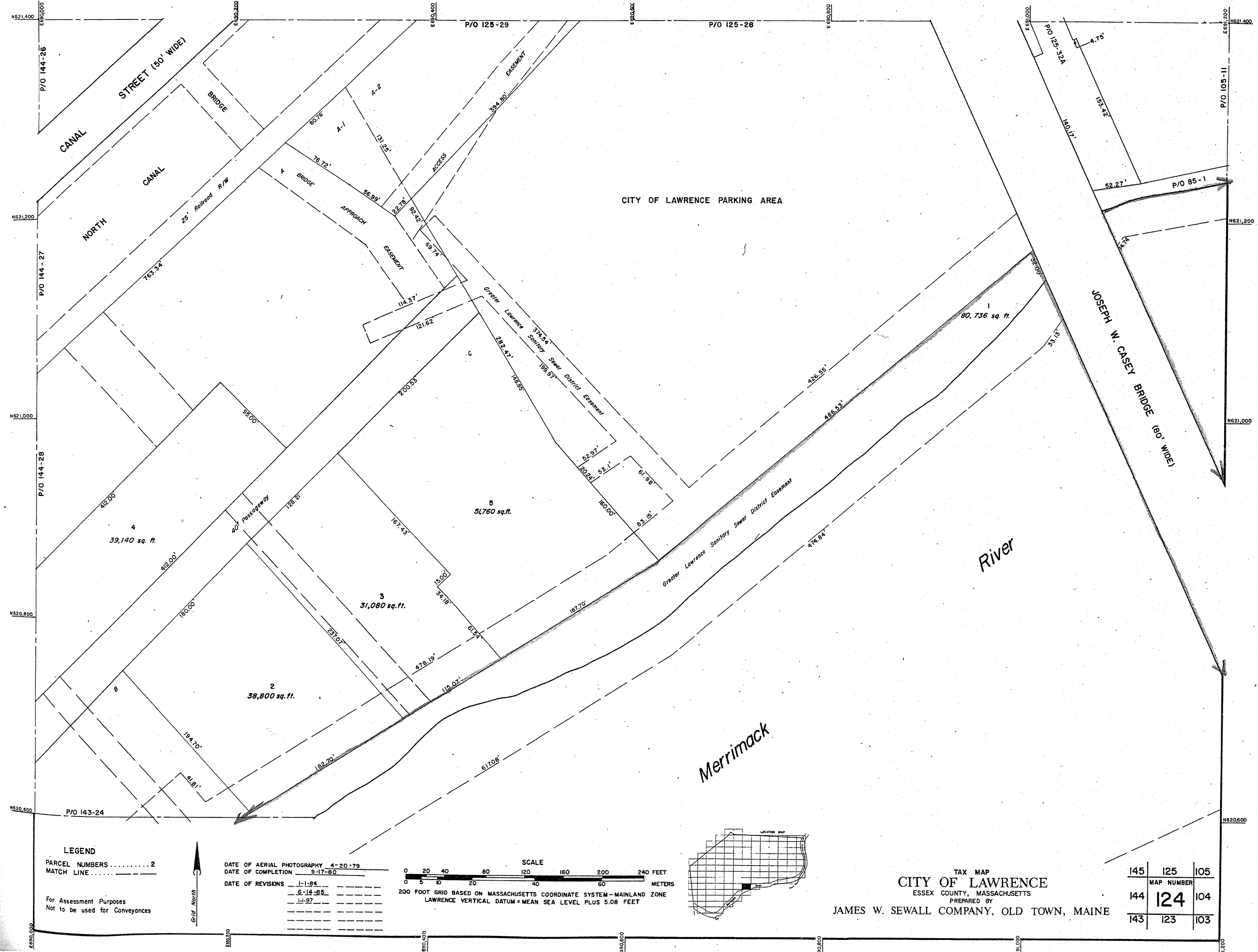


LAWRENCE (ESSEX) MA

NORTH CANAL HD

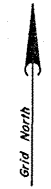
2009 BOUNDARY INCREASE

Map 4 of 14

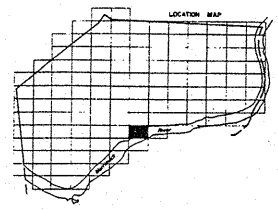
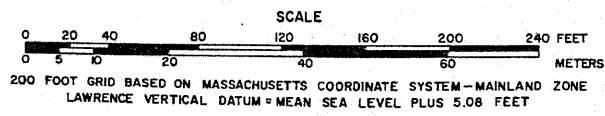


LEGEND
PARCEL NUMBERS 2
MATCH LINE

For Assessment Purposes
Not to be used for Conveyances



DATE OF AERIAL PHOTOGRAPHY 4-20-79
DATE OF COMPLETION 9-17-80
DATE OF REVISIONS
1-1-84
6-14-85
1-1-87



TAX MAP
CITY OF LAWRENCE
ESSEX COUNTY, MASSACHUSETTS
PREPARED BY
JAMES W. SEWALL COMPANY, OLD TOWN, MAINE

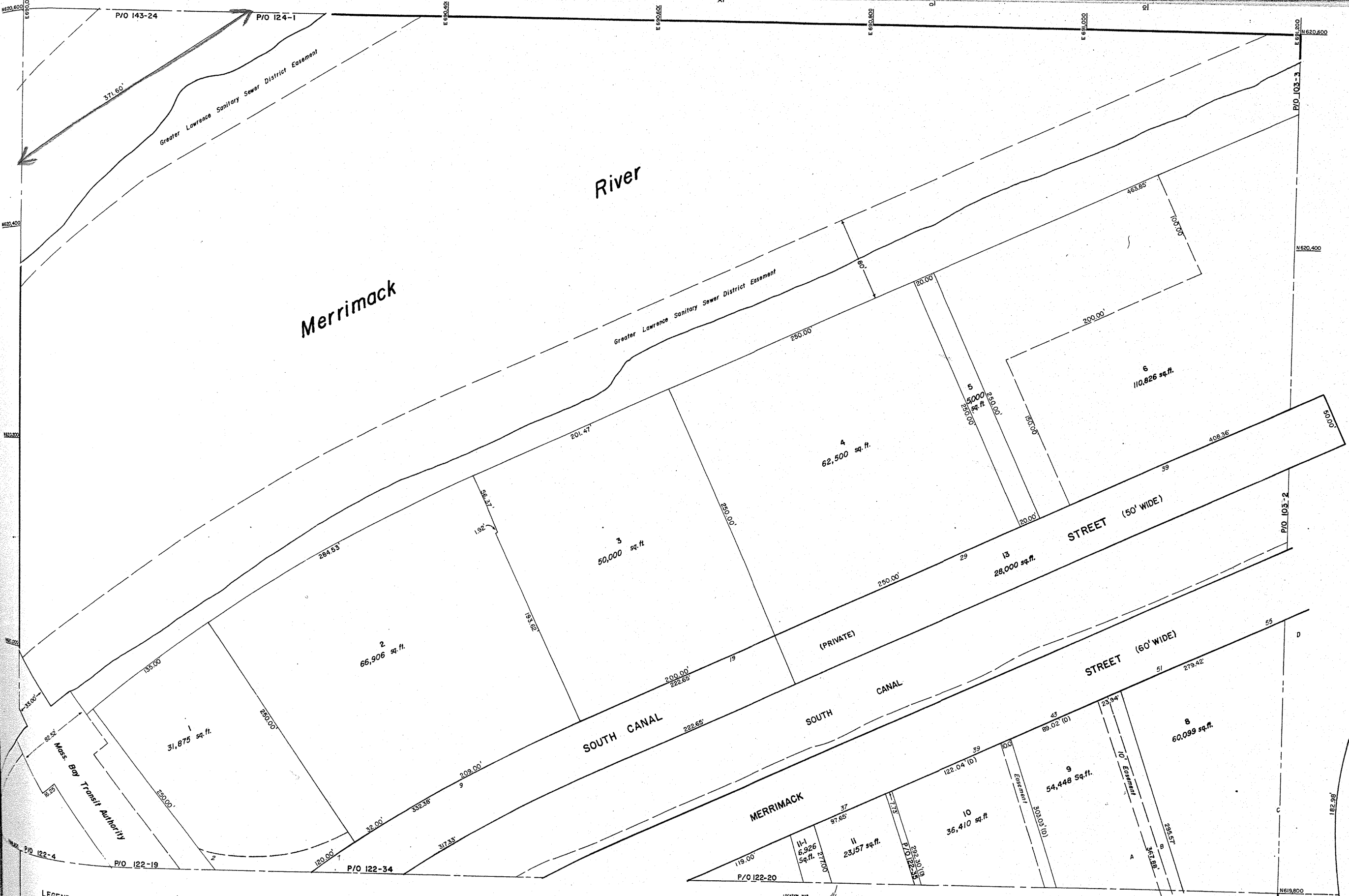
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MAP NUMBER		
144	124	104
143	123	103

LAWRENCE (ESSEX) MA

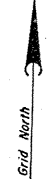
NORTH CANAL HD

2009 BOUNDARY INCREASE

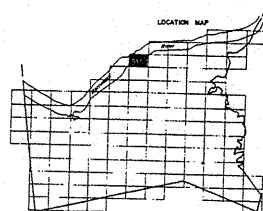
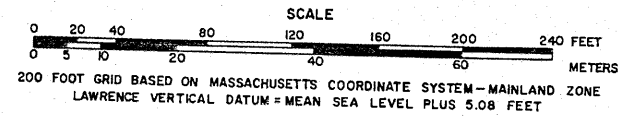
map 5 of 14



LEGEND
PARCEL NUMBERS 2
MATCH LINE
For Assessment Purposes
Not to be used for Conveyances



DATE OF AERIAL PHOTOGRAPHY 4-20-79
DATE OF COMPLETION 6-24-80
DATE OF REVISIONS
11-5-80 11-97
1-1-84 1-1-01
5-6-85
1-1-86
1-1-92
1-1-96



TAX MAP
CITY OF LAWRENCE
ESSEX COUNTY, MASSACHUSETTS
PREPARED BY
JAMES W. SEWALL COMPANY, OLD TOWN, MAINE

144	124	104
143	123	103
142	122	102

MAP NUMBER

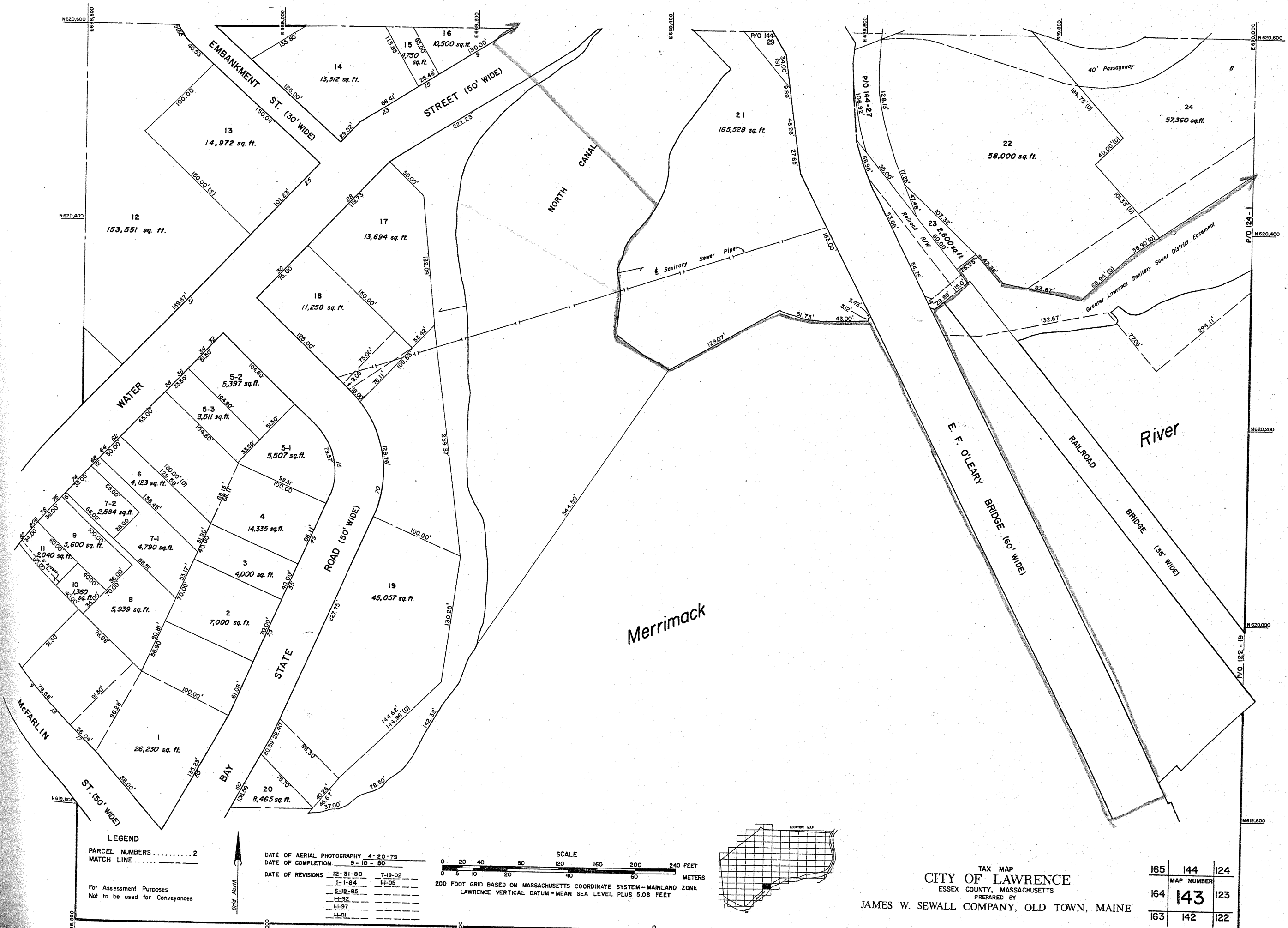
PARKER ST.
(60' WIDE)

LAWRENCE (ESSEX) MA

NORTH CANAL HD

2009 BOUNDARY INCREASE

map 6 of 14

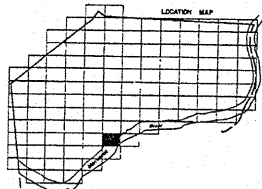


LEGEND
PARCEL NUMBERS 2
MATCH LINE

For Assessment Purposes
Not to be used for Conveyances

DATE OF AERIAL PHOTOGRAPHY 4-20-79
DATE OF COMPLETION 9-16-80
DATE OF REVISIONS 12-31-80 7-19-02
1-1-84 1-1-05
6-18-85
1-1-92
1-1-97
1-1-01

SCALE
0 20 40 80 120 160 200 240 FEET
0 20 40 80 120 160 200 METERS
200 FOOT GRID BASED ON MASSACHUSETTS COORDINATE SYSTEM—MAINLAND ZONE
LAWRENCE VERTICAL DATUM = MEAN SEA LEVEL, PLUS 5.08 FEET



TAX MAP
CITY OF LAWRENCE
ESSEX COUNTY, MASSACHUSETTS
PREPARED BY
JAMES W. SEWALL COMPANY, OLD TOWN, MAINE

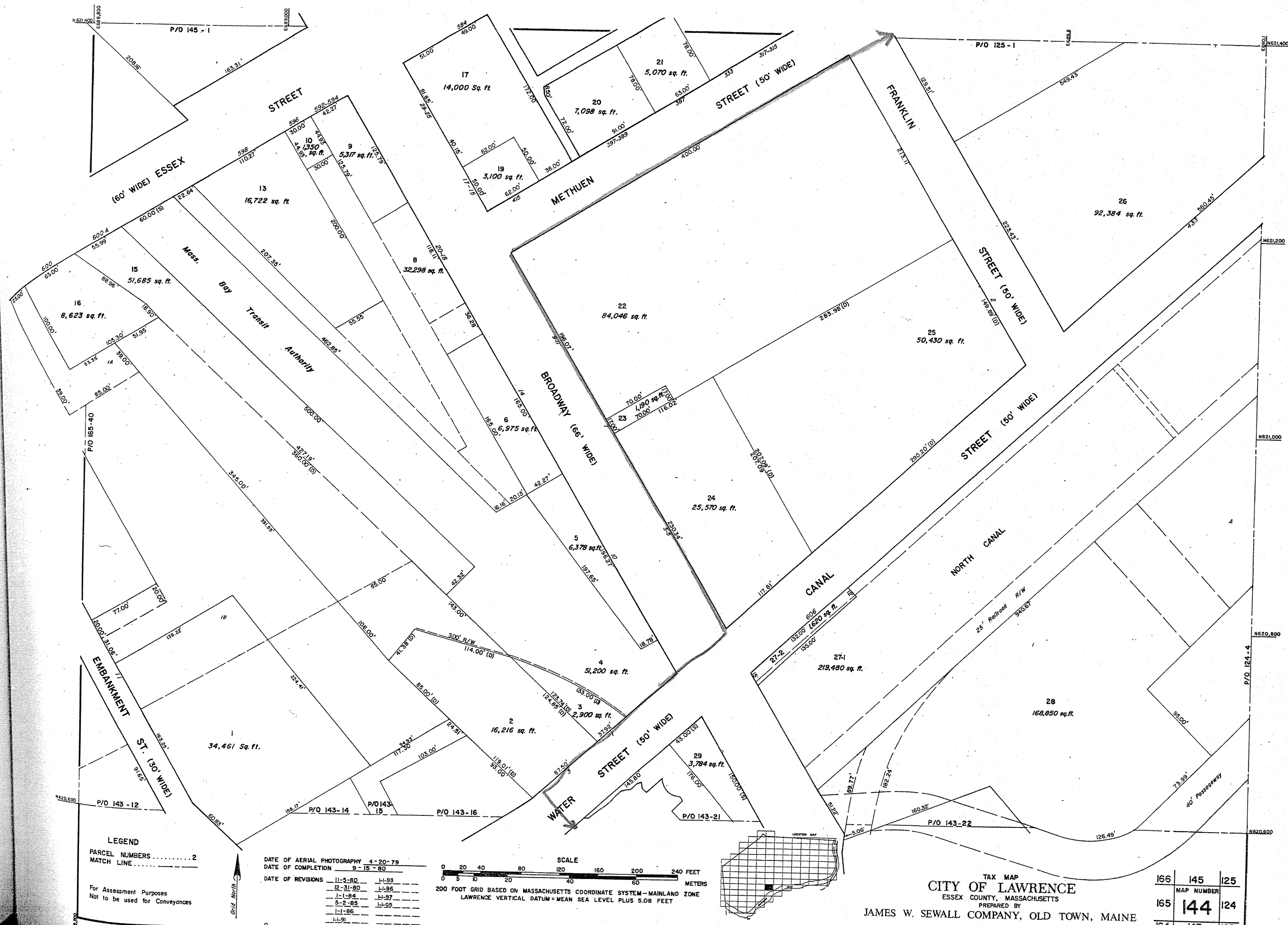
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LAWRENCE (ESSEX) MA

NORTH CANAL HD

2009 BOUNDARY INCREASE

map 7 of 14

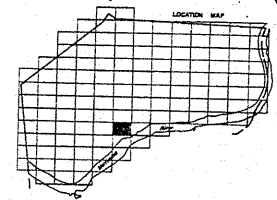


LEGEND
PARCEL NUMBERS 2
MATCH LINE

For Assessment Purposes
Not to be used for Conveyances

DATE OF AERIAL PHOTOGRAPHY 4-20-79
DATE OF COMPLETION 9-15-80
DATE OF REVISIONS
11-5-80 1-1-91
12-31-80 1-1-91
1-1-84 1-1-91
5-2-85 1-1-91
1-1-86 1-1-91

SCALE
0 20 40 80 120 160 200 240 FEET
0 5 10 20 40 60 METERS
200 FOOT GRID BASED ON MASSACHUSETTS COORDINATE SYSTEM-MAINLAND ZONE
LAWRENCE VERTICAL DATUM=MEAN SEA LEVEL PLUS 5.08 FEET



TAX MAP
CITY OF LAWRENCE
ESSEX COUNTY, MASSACHUSETTS
PREPARED BY
JAMES W. SEWALL COMPANY, OLD TOWN, MAINE

166	145	125
165	144	124
164	143	123

LAWRENCE (ESSEX) MA

NORTH CANAL HD

2009 BOUNDARY INCREASE

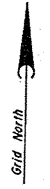
map 8 13 14



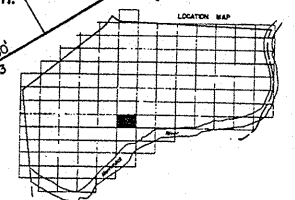
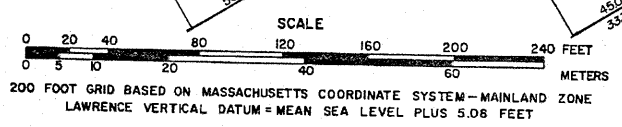
NORTHERN ESSEX COMMUNITY COLLEGE

LEGEND
PARCEL NUMBERS 2
MATCH LINE

For Assessment Purposes
Not to be used for Conveyances



DATE OF AERIAL PHOTOGRAPHY 4-20-79
DATE OF COMPLETION 9-15-80
DATE OF REVISIONS
11-5-80 L-86
4-29-85 L-87
1-1-86 L-89
1-1-91 L-90
1-1-92 L-95
1-1-93



TAX MAP
CITY OF LAWRENCE
ESSEX COUNTY, MASSACHUSETTS
PREPARED BY
JAMES W. SEWALL COMPANY, OLD TOWN, MAINE

167	146	126
MAP NUMBER		
166	145	125
165	144	124

LAWRENCE (ESSEX) MA

NORTH CANAL HD

2009 BOUNDARY INCREASE

map 9 of 14

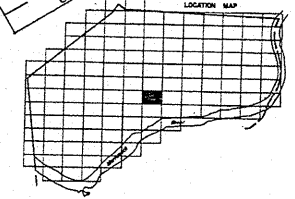
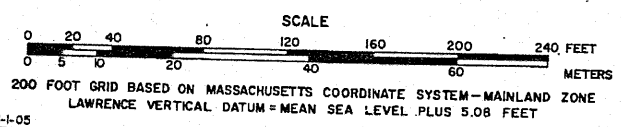
Assessor's maps

(need boundaries)

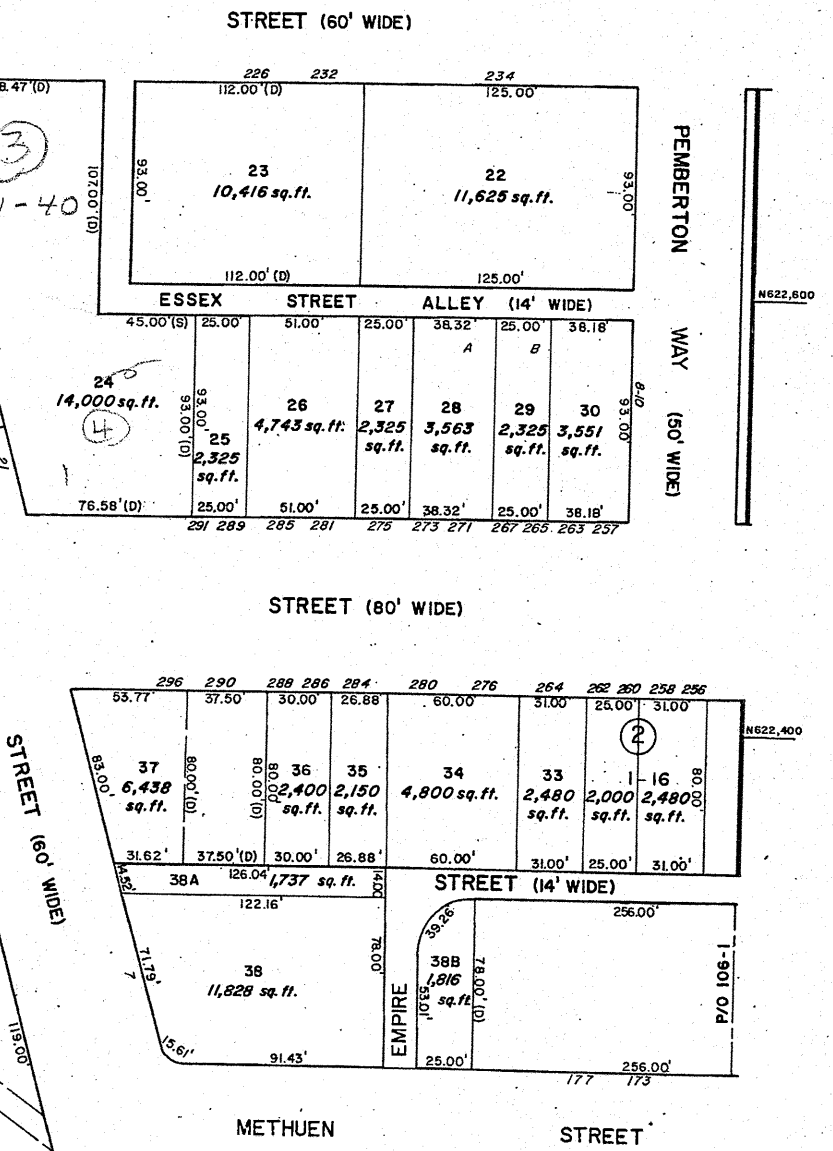


LEGEND
PARCEL NUMBERS.....2
MATCH LINE.....
For Assessment Purposes
Not to be used for Conveyances

DATE OF AERIAL PHOTOGRAPHY 4-20-79
DATE OF COMPLETION 9-18-80
DATE OF REVISIONS
11-6-80 1-1-88
3-18-82 1-1-91
12-31-82 1-1-92
4-26-85 1-1-95
1-1-86 1-1-00
1-1-87 1-1-04



TAX MAP
CITY OF LAWRENCE
ESSEX COUNTY, MASSACHUSETTS
PREPARED BY
JAMES W. SEWALL COMPANY, OLD TOWN, MAINE



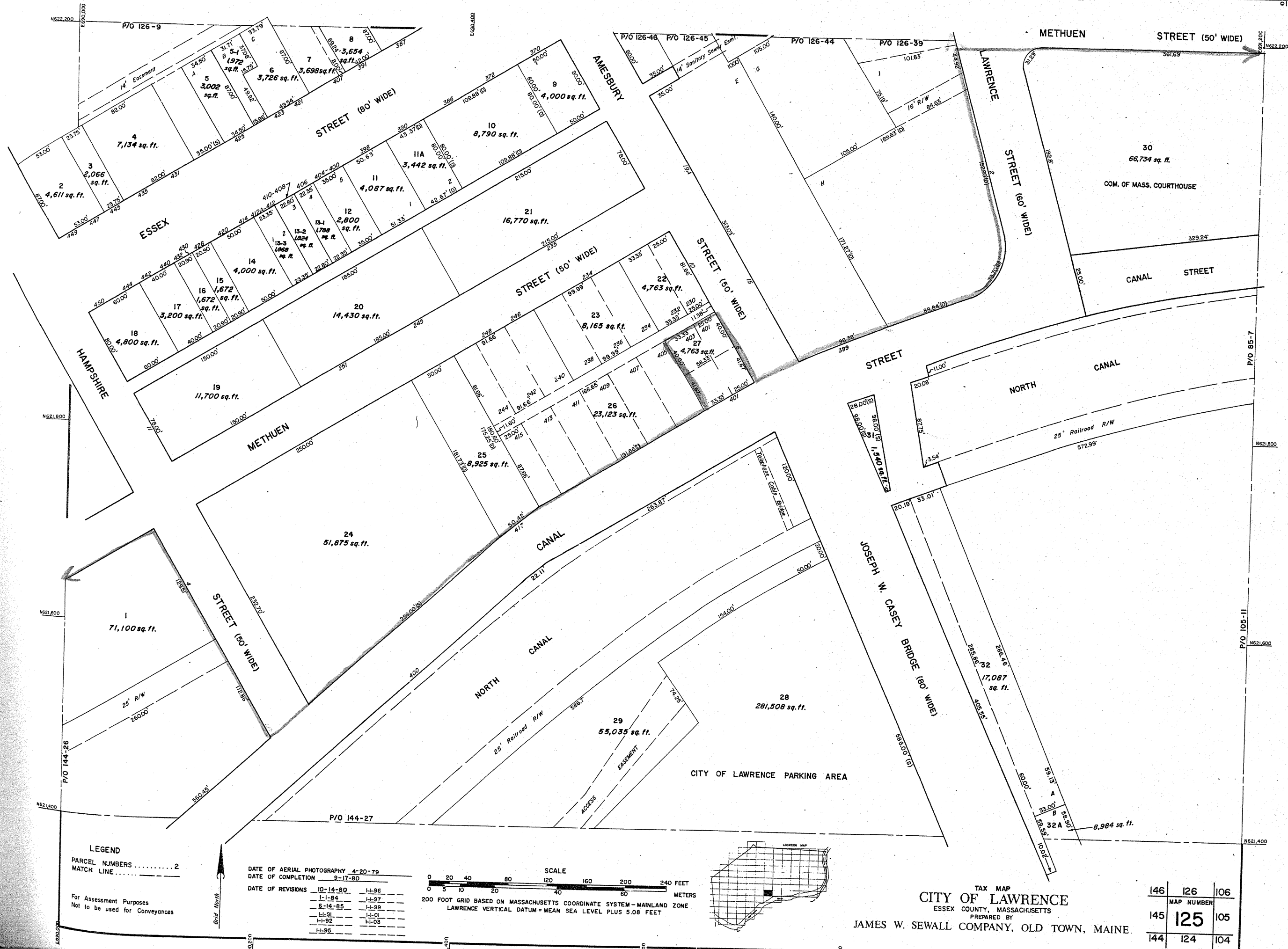
147	127	107
146	126	106
145	125	105

LAWRENCE (ESSEX) MA

NORTH CANAL HD

2009 BOUNDARY INCREASE

map 10 of 14

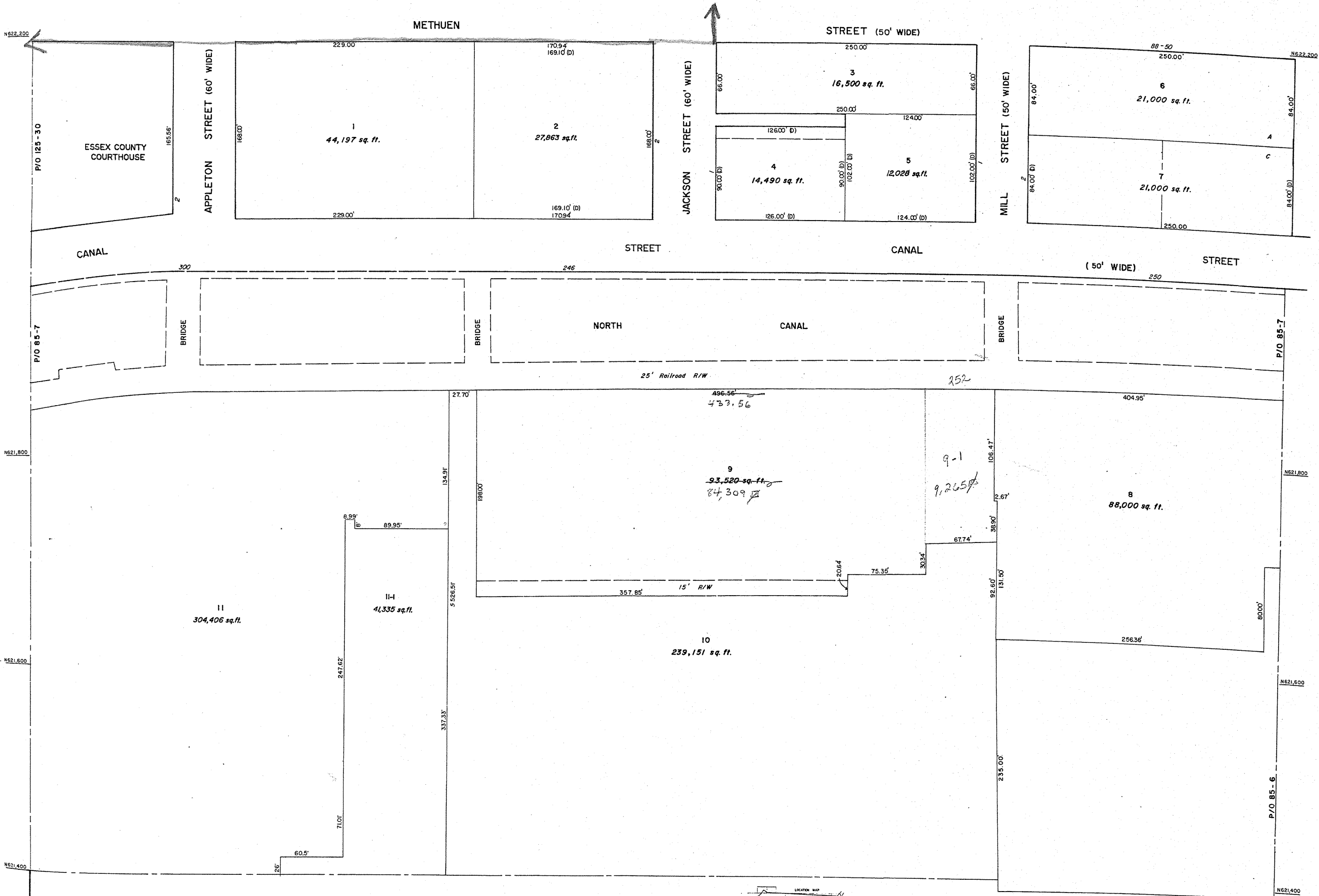


LAWRENCE (ESSEX) MA

NORTH CANAL HD

2009 BOUNDARY INCREASE

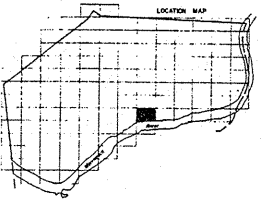
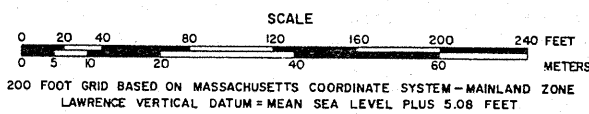
map 11 of 14



LEGEND
PARCEL NUMBERS 2
MATCH LINE

For Assessment Purposes
Not to be used for Conveyances

DATE OF AERIAL PHOTOGRAPHY 4-20-79
DATE OF COMPLETION 9-11-80
DATE OF REVISIONS
11-5-80 11-96
1-1-84 1-1-97
1-1-87
1-1-88
1-1-91
1-1-92



TAX MAP
CITY OF LAWRENCE
ESSEX COUNTY, MASSACHUSETTS
PREPARED BY
JAMES W. SEWALL COMPANY, OLD TOWN, MAINE

126	106	86
125	105	85
124	104	84

LAWRENCE (ESSEX) MA

NORTH CANAL HD

2009 BOUNDARY INCREASE

map 12 of 14

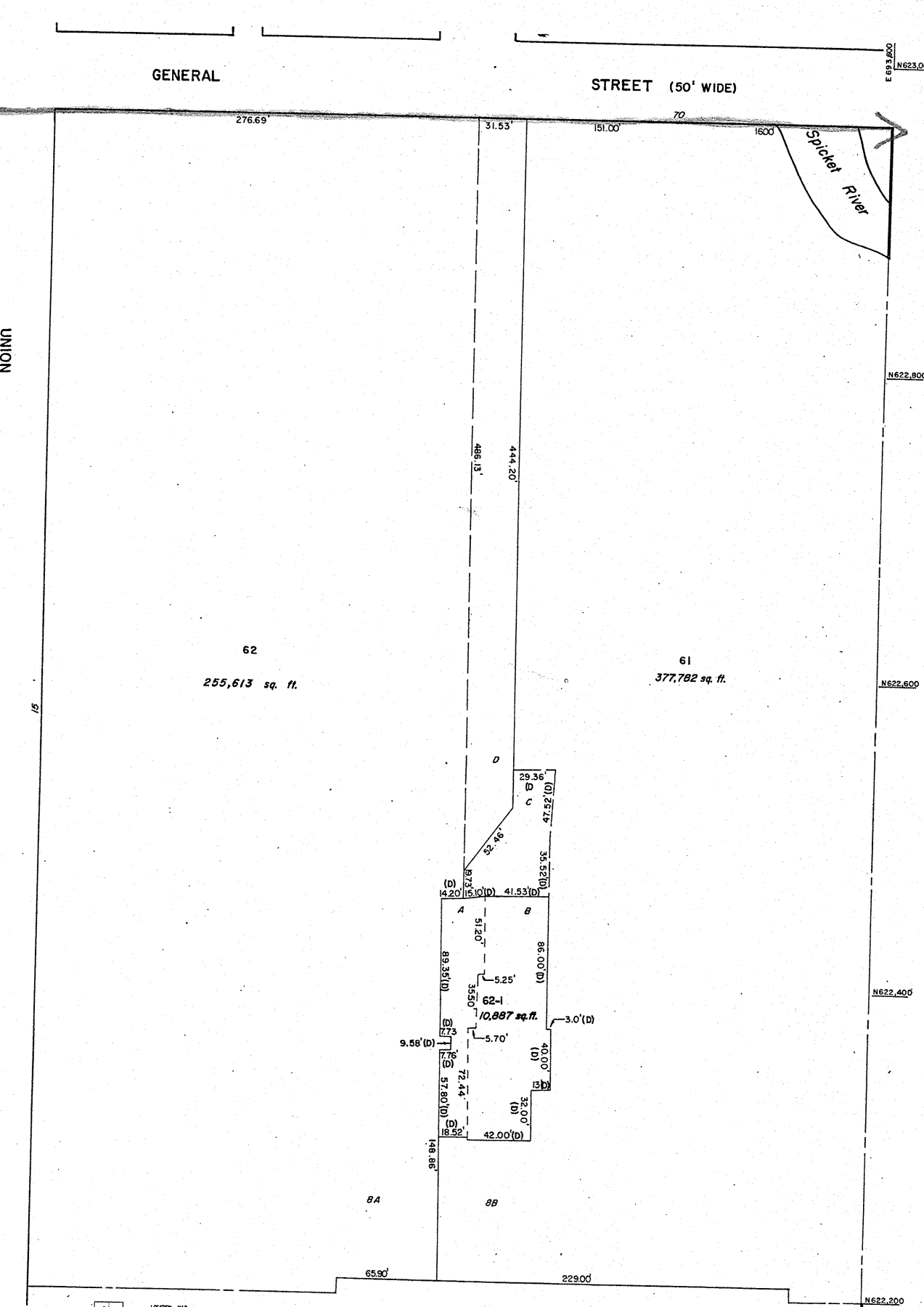
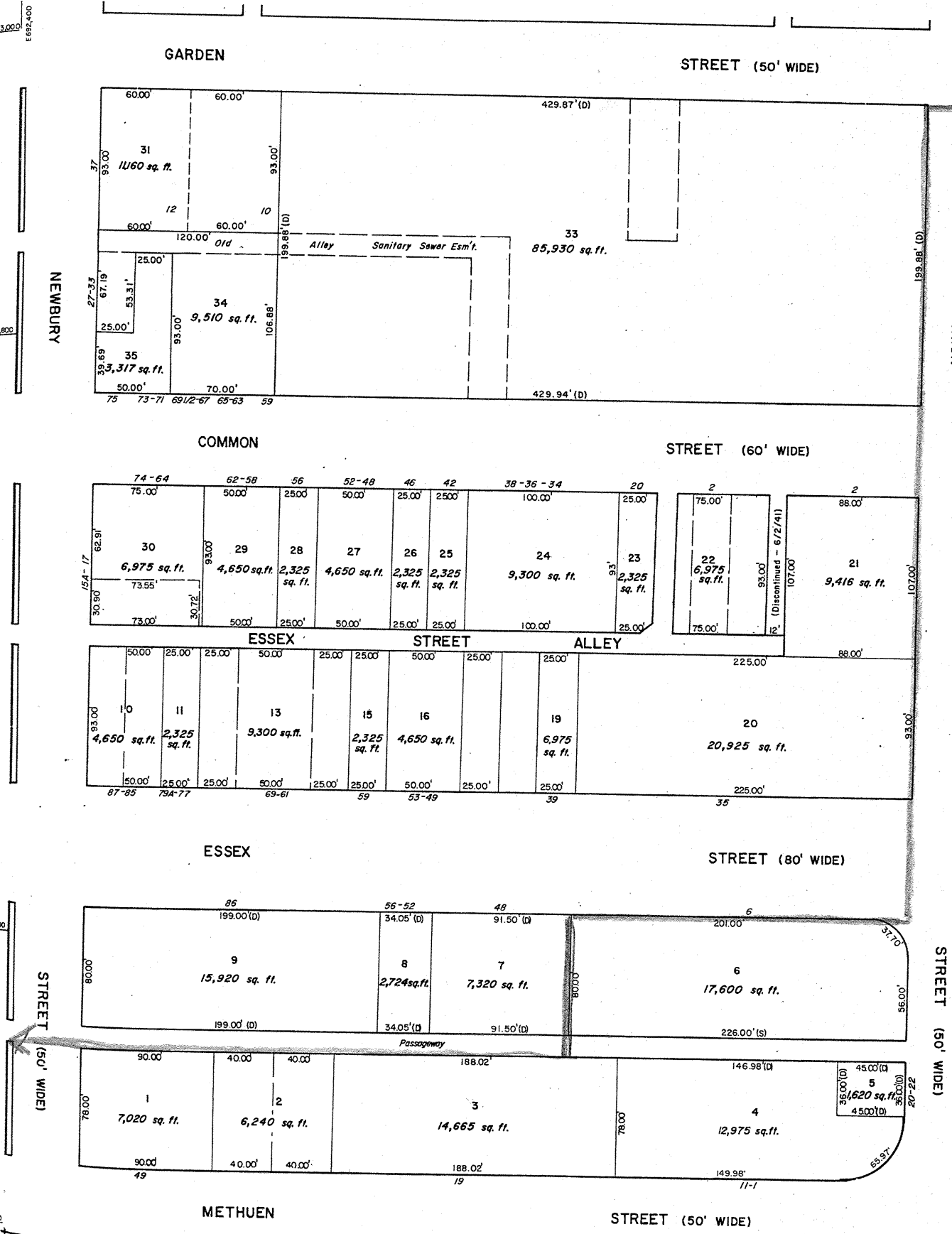
LAWRENCE (ESSEX) MA

NORTH CANAL HD

2009 BOUNDARY INCREASE

map 13 of 14

N623,000
E692,400
N622,800
N622,400
N622,200
N622,000
N621,800
N621,600
N621,400
N621,200
N621,000
N620,800
N620,600
N620,400
N620,200
N620,000
E692,400
E692,200
E692,000
E691,800
E691,600
E691,400
E691,200
E691,000
E690,800
E690,600
E690,400
E690,200
E690,000



LEGEND

PARCEL NUMBERS 2

MATCH LINE

For Assessment Purposes
Not to be used for Conveyances

DATE OF AERIAL PHOTOGRAPHY 4-20-79

DATE OF COMPLETION 9-22-80

DATE OF REVISIONS

11-6-80	1-1-95
12-31-80	1-1-96
12-31-82	1-1-97
1-1-86	1-1-99
1-1-88	1-1-06
1-1-90	

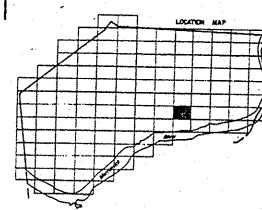
SCALE

0 20 40 80 120 160 200 240 FEET

0 5 10 20 40 60 METERS

200 FOOT GRID BASED ON MASSACHUSETTS COORDINATE SYSTEM—MAINLAND ZONE

LAWRENCE VERTICAL DATUM = MEAN SEA LEVEL PLUS 5.08 FEET



TAX MAP

CITY OF LAWRENCE

ESSEX COUNTY, MASSACHUSETTS

PREPARED BY

JAMES W. SEWALL COMPANY, OLD TOWN, MAINE

107	87	68
106	86	67
105	85	66

LAWRENCE (ESSEX) MA

NORTH CANAL HD

2009 BOUNDARY INCREASE

map 14 of 14



The Commonwealth of Massachusetts

March 23, 2009 William Francis Galvin, Secretary of the Commonwealth
Massachusetts Historical Commission

Mr. J. Paul Loether, Chief
National Register of Historic Places
Department of the Interior
National Park Service
1201 Eye Street, NW, 8th floor
Washington, DC 20005

Dear Mr. Loether:

Enclosed please find the following nomination form:

North Canal HD, Lawrence (Essex), MA
2009 Technical Amendment and Boundary Increase

The nomination has been voted eligible by the State Review Board and has been signed by the State Historic Preservation Officer. The owners of the property were notified of pending State Review Board consideration 30 to 45 days before the meeting and were afforded the opportunity to comment.

Sincerely,

Betsy Friedberg
National Register Director
Massachusetts Historical Commission

enclosure

cc: Sarah Hansen, Architectural Heritage Foundation
Robert Booth
Jonas Stundza, Lawrence Historical Commission
Michael J. Sullivan, Mayor, City of Lawrence
Lesly Melendez, Planning Board