



WENHAM WATER DEPARTMENT

STANDARD  
SPECIFICATIONS FOR  
WATER MAIN EXTENSIONS

MARCH 31, 1994

## DEFINITIONS AND RESPONSIBILITIES:

**WENHAM BOARD OF WATER COMMISSIONERS:** The elected officials of the Town of Wenham who shall direct the operation of the Wenham Water Department.

**WENHAM WATER SUPERINTENDENT:** The official appointed by the Board of Water Commissioners, who is the authorized representative of the Board of Water Commissioners and is directed to inspect all work for compliance with these and all other Wenham Water Department specifications, regulations, rules, and policies as set forth by the Board of Water Commissioners.

**INSPECTOR:** The water superintendent, or other representative of the Wenham Board of Water Commissioners who is acting within the scope of particular duties entrusted to him to ensure that department specifications, regulations, rules and policies are followed.

**OWNER:** The owner of the property shall be the person who holds a properly executed deed to the property, as recorded at the Town of Wenham Assessor's Office.

**CONTRACTOR:** The contractor shall be a person, business, or corporation who is employed by and/or under contract with the owner of the property to do any work incidental to these regulations.

**WATER SERVICE LINE:** A pipe which brings water from the "Street" to the "Water User", which serves less than three property owners, regardless of size or use.

**WATER SYSTEM EXTENSION:** A pipe which brings water to one or more "Water Service Lines", which serves three or more property owners, regardless of size or use.

**ANSI:** ANSI refers to the American National Standards Institute.

**AWWA:** AWWA refers to the American Water Works Association.

**PROPERTY OWNER:** The property owner shall be solely responsible for all work, payments, permits, maintenance and liabilities associated with the installation and maintenance of "Water Service Lines" and/or "Water Systems Extensions" located on his/her property. This liability will remain in effect until:

1. The property becomes an "Accepted Street" by the Town of Wenham or,
2. In the case of a minor street, or other unaccepted way, the Wenham Water Department will accept ownership of a "Water System Extension" after a period of five years from the date of completion, and ONLY IF THE WATER DEPARTMENT IS GRANTED AN EASEMENT from the owner.

**CONTRACTOR:** Any and all contractors and sub-contractors working on behalf of the owner shall be responsible to the owner of the property, and the owner is responsible to the Water Department.

**WENHAM WATER DEPARTMENT:** The Wenham Water Department shall bear no responsibility or liability for work done by property owners or contractors

during water installations. Any work done on private property shall be the sole responsibility of the owner, and any work done by the owner, or his contractor, in any public way shall be the responsibility of the owner.

## PURPOSE:

The purpose of these specifications is to set up a standard practice for work and/or improvement involving the Wenham Water System. The owner shall perform, or cause to be performed, all the items of work stipulated in these specifications and as shown on any and all plans approved for the project, as well as any modifications or changes to original plans as may be required by conditions in the field and as directed by the inspector. The owner and contractor shall do such additional extra and incidental work as may be considered necessary to complete the work in a substantial and acceptable manner and, when completed, they shall leave the work in a neat and finished condition satisfactory to the Board of Water Commissioners. Further, the owner and contractor shall follow the directions of the Board of Water Commissioners and their agent, as given from time to time, during the progress of the work under the terms and conditions of these specifications. Any work done, or materials ordered which deviate from these specifications, without prior approval, shall be at the owner's risk. No changes shall be made in specifications without written approval of the Board of Water Commissioners. The work to be performed under these specifications include the tapping of water mains, laying of water mains, the installations of Gate Valves and Boxes, Fire Hydrants, House Services, Tee's, Bends, and any other appurtenance to provide water for domestic use and fire protection, all to be completed in a satisfactory manner. A finished record plan shall be provided for the Wenham Water Department showing any and all valves, tee's, bends, and services, along with ties to their location.

## BEFORE ANY WORK IS STARTED:

1. The property owner shall complete a service and/or extension application.
2. The owner shall submit the name of any and all contractors to be used, for approval by the Water Superintendent.
3. No excavation shall be permitted without the owner first obtaining a "Dig Safe Number".
4. The Water Superintendent shall be given a three day notice before any work commences, and he shall have full power to determine when the work is to be done.
5. No work will be performed without first obtaining approval of the inspector and giving him notice on each day that work is to be performed.
6. No work shall commence without appropriate traffic control warning signs and/or uniformed police officers, when required by the Water Superintendent or the Wenham Police Department.

No pipe, hydrant, valve, service line or any other appurtenance shall be buried without approval by the inspector. All conduits, pipes, cables or other structures uncovered during excavation shall be protected and if damaged, shall be repaired or replaced in an acceptable manner at the owner's expense. At no time shall any person turn on or off the water in any main, service pipe, fire hydrant or other appurtenance without authority of the Wenham Water Department, except that fire hydrants may be used by firefighters in the discharge of their official duties. No connection or tapping of water mains shall be done except by approval by the Wenham Water Superintendent or his assistant, and then only

under his supervision. The property owner shall keep himself/herself informed of all rules and regulations made from time to time by the Wenham Water Department, and nothing in this specification shall be construed as authorizing any installation or maintenance thereof except in strict conformity with all Federal, State, and Municipal laws, ordinances and regulations. The owner shall be responsible for all claims for injuries and/or damage resulting from his or his agents acts or neglects in doing the work and shall indemnify and save the town and its agents harmless against all suits, claims or liabilities of every nature arising at any time out of or in consequence of the acts of the owner, builder, contractor, subcontractor or employee in the performance of the work covered by these specifications and/or failure to comply with the terms and conditions of these specifications. Conditions encountered at the site which may be at variance with the requirements as set forth within, shall be referred to the Water Superintendent, who will determine the methods and operations to be followed. Water main extensions and appurtenances, and water service lines will not be approved or put in service if installed on property not belonging to the owner, unless a legally executed easement is granted to the owner and/or the Town of Wenham. The inspection of the work shall not relieve the owner of any of his obligations as herein prescribed. Failure to reject any defective work and/or materials shall not in any way prevent later rejection when such defects are discovered, nor obligate the Wenham Water Department to make final acceptance.

No person except the authorized employees of the Wenham Water Department will be allowed to install, remove or repair any water meter. After the water meter has been installed, the property owner shall be responsible for any damage sustained by the meter, as the town retains ownership of the water meter, and will make any repairs necessary. The location selected for the meter shall be reasonably accessible for repair, and shall not be installed in an area subject to freezing and/or damage.

Fire hydrants may NOT be used by the owner, contractor, sub-contractor or anyone other than Water Department employees for landscaping, irrigation, planting, pool filling, masonry work, trench puddling, street sweeping, hot topping or any purpose other than fire fighting, without the written consent of the Water Superintendent.

#### **MATERIAL:**

ALL MATERIALS SHALL CONFORM TO THE APPROPRIATE AWWA SPECIFICATIONS AND BE NEW AND UNUSED.

**WATER MAINS:** Water mains over two inches in diameter shall be cement lined ductile iron, minimum thickness class 52, bell & spigot ends, with "push-on" rubber gaskets (Alternate: flanged ends) and shall conform to ANSI/AWWA C151/A21.51 and C104/A21.4. Water Mains, two inches and under shall be type "K" copper

**WATER MAIN FITTINGS:** All tee's, crosses, bends, reducers, couplings, caps, plugs, etc. shall be cement lined ductile iron, short body design with mechanical joint ends, and shall conform to ANSI/AWWA C153/A21.53. Hydrant tee's shall be cement lined ductile iron "anchoring tee's", with all mechanical joints. Tapping sleeves shall be full mechanical joint type, with flanged outlet for the valve. (alternate: Full circle stainless steel, with flanged outlet for the valve)

**WATER MAIN VALVES:** All valves shall be fully epoxy coated, ductile iron, resilient seat design, with mechanical joints (except tapping valves shall be flange by mechanical) capable of bubble tight shut off in either direction and shall conform to AWWA C509 and C550. All valves shall open right. All stems

shall be non-rising (NRS) and shall be sealed with at least two replaceable "O" ring.

**FIRE HYDRANTS:** All fire hydrants shall conform to AWWA C502 and shall be one of the following brands:

1. American Darling model B62B, 5 1/2' bury, open left, with two 2 1/2" N.S.T. outlets, one 4 1/2" N.S.T. outlet, six inch mechanical joint shoe, and a breakable traffic coupling.
2. A.P. Smith model H-205, 5 1/2' bury, open left, with two 2 1/2" N.S.T. outlets, one 4 1/2" N.S.T. outlet, six inch mechanical joint shoe, and a breakable traffic coupling.
3. VALVE BOXES: Valve boxes shall be 2 piece sliding type with a round cover marked "WATER".
4. WATER SERVICES: All water services two inches in diameter and less shall be installed following the "Town of Wenham Water Board Standard Specifications for the Installation of Domestic Water Service" dated 1988. Water Services over two inches shall be installed following these specifications.

#### **LOCATIONS:**

The location of all water mains and appurtenances shall be approved by the water superintendent before any work is started. Water Mains shall be located within the proposed street layout, and as close to the edge of the paved area as practical. Valves shall be installed at the connection to an existing water pipe, at intervals along the water main not exceeding 700 feet, at all tees, branches, crosses, and for all fire hydrants. Fire hydrants shall be located along all six inch and larger water mains at intervals not exceeding 500 feet, and within 300 feet of hydrants on existing water mains. Whenever practical, fire hydrants shall be located at street intersections. All fire hydrants shall be placed within the proposed street layout, no less than four feet, nor more than eight feet from the edge of the paved area and shall not be located in areas subject to vehicular damage. All dead end water mains shall end with a fire hydrant connected to an anchoring tee on the main line. The tee shall have the down stream side stopped by a plug, cap or valve.

#### **TRENCHING:**

Trenches shall be dug of sufficient depth so that the pipe shall have a minimum of five feet of cover from the proposed finished grade. Where ledge or large rocks are encountered, the trench shall be excavated deep enough so that a minimum of six inches of fine bedding material can be placed in the bottom of the trench. Where muck or unstable trench bottom is encountered, the trench shall be excavated deep enough so that sufficient crushed stone can be placed at the bottom to stabilize the pipe. The trench shall be kept clear of water at all times, and at no time shall the water pipe be used to drain the trench. All trenches shall be so excavated and/or shored to ensure worker safety and to prevent cave-ins.

#### **INSTALLATIONS:**

All pipe, hydrants, valves and fittings shall be kept as clean as possible before, during, and after installation. The ends of all uncompleted lines shall be tightly closed with valves or plugs at all times when work is not in progress. No trench water or debris shall be permitted to enter the system. All valves, fittings and fire hydrants shall be placed on a solid base so that settling will not occur and shall have proper thrust restraint installed at

every bend, sweep, tee, dead-end or any other change in direction. Fire hydrants shall have a minimum 1 cubic yard drainage pit, filled with 1" stone in order to allow the hydrant to drain properly and to keep dirt and debris from the drain hole. Valve and hydrants shall be kept tightly closed during installation. Pipe shall be installed at the bottom of the trench, on a firm base. All ductile iron water mains and their appurtenances shall be installed in accordance with AWWA C600.

#### **BACK-FILLING:**

All water mains and their appurtenances shall be installed and backfilled using ANSI/AWWA C150/A21.50, laying condition two (Flat bottom trench; hand backfill lightly consolidated to the center of the pipe). No stone larger than two inches shall be placed within one foot of the pipe, except when used as a thrust restraint. No large rocks, organic material, or water saturated material etc. shall be used for backfilling material. The Inspector may require that existing material be replaced with clean gravel at the owner's expense. Any trench in the existing roadway or shoulder area shall be mechanically compacted in one foot lifts. A temporary patch of at least two inches of cold patch shall be installed in the roadway and left for a period of at least 30 days, unless otherwise directed by the Superintendent of Streets. For the permanent patch, the existing material shall be excavated to the depth of the adjacent surface, but not less than two inches, and surfaced with bituminous concrete and thoroughly compacted in layers not exceeding two inches, using infra-red heat treatment. The owner shall be responsible for maintenance of the trench for a period of one year. Fire hydrants shall be held plumb and straight during backfilling and shall be compacted sufficiently so that it will remain plumb and straight. When backfilling is complete, the traffic coupling shall be no more than one inch below, nor more than six inches above the finished grade. Gate boxes shall be centered over the operating nut of the valve and held straight during backfilling. The bottom flange of the gate box shall be installed two inches above the valve body to prevent the transmission of shock and stress to the valve. Care shall be taken to ensure that gate boxes remain free of debris during backfilling. The upper portion of the gate box shall overlap the bottom portion of the gate box a minimum of six inches. The top of the gate box shall be set within 1/2" of the finished, paved grade, but in no instance shall the top protrude above the pavement.

No water main, fire hydrant or water service shall be turned on by anyone other than water department employees. Water mains will not be filled until the backfill has been in place for at least two days to allow for sufficient support. All valves and hydrants shall be opened fully prior to filling the system to allow air to escape. The system shall be filled very slowly to allow the maximum amount of air to be released. The system will then be flushed to remove any debris and un-expelled air. All new water mains shall be pressure tested in accordance with AWWA C600, section 4.1 and section 4.2, at a minimum pressure of 150 pounds per square inch for a duration of at least ninety minutes. No water main will remain in the on position until a successful pressure test is conducted. All newly installed water mains shall be disinfected with a 50 ppm chlorine residual in accordance with AWWA C651. The water system shall be completely flushed of all chlorine before the bacteria sample is taken.

## ACCEPTANCE:

No water main will be placed in service, or left turned on, until a negative bacteria test and a successful pressure test report are received by the Water Superintendent

The owner may petition the Wenham Water Department for acceptance of a water main extension only after the following conditions have been met as a minimum:

1. A written, successful pressure test report.
2. A written, successful bacteria test report.
3. A completed "As Built" plan, showing the street and lot layout, and the location of all water mains, water services, valves, hydrants, tees, bends, reducers, service connections, and shut-off boxes. The exact location of all valves, corporations and curb stops shall be drawn with ties to permanent structures.
4. All finish grading and paving is completed and all valve boxes, service boxes and fire hydrants are set at the proper height.
5. The inspector has completed a final inspection of all facilities.
6. All fees and charges due the Wenham Water Department have been paid in full.