SHIRLEY WATER DISTRICT 124 Ayer Road, Shirley, MA. 01464-2518 Tel: 978/425/2245 Fax: 978/425/6669

APPLICATION FOR WATER MAIN EXTENSION

(A SEPARATE APPLICATION MUST BE SUBMITTED FOR EACH TIE-IN)

TO THE BOARD OF WATER COMMISSIONERS OF THE SHIRLEY WATER DISTRICT:
I hereby apply for a water main extension, to supply the premises owned by me on

_____.
(Name of proposed sub-division and/or street to be supplied)

Such extension to be supplied by a eight (8) inch or larger water main and agree to pay, in advance, the appropriate demand fee as prescribed by the Water District.

In addition to the demand fee, I agree to pay for all construction charges, i.e., digging of ditch, installation of main and appurtenances, inspections, materials and labor. I also agree to comply with all Rules and Regulations of the Town of Shirley and the Shirley Water District and to pay for all charges prescribed by them.

As well as this application for water main extension, an application for new water service, and the appropriate demand fee, shall be submitted for each individual water service to be installed.

This agreement is binding on me, my heirs and assigns.

_____
DATE

_____ _____
PRINT NAME SIGNATURE

_____ _____
P.O. BOX OR STREET ADDRESS CITY, STATE & ZIP CODE

PHONE NUMBER: Daytime_____ Evening_____

DEMAND CHARGES:
(check applicable boxes)

[ ]	6.00" PIPE	$45,000.00
[ ]	8.00" PIPE	$60,000.00
[ ]	10.00" PIPE	$70,000.00
[ ]	12.00" PIPE	$80,000.00
[ ]	> 12" PIPE	Determined by Board of Water Commissioners

(DO NOT WRITE BELOW THIS LINE)

APPROVED_____

_____

_____

_____
BOARD OF WATER COMMISSIONERS

Account No._____

SINCE 1903
SHIRLEY
WATER DISTRICT

GENERAL SPECIFICATION REQUIREMENTS FOR WATER MAIN, HYDRANTS & APPURTENANCES

Requests for water main extension shall be made on a form prescribed by the Water District. The appropriate demand charge and detailed site plan of proposed installation, showing location of water mains, valves, hydrants and other appurtenances, shall be submitted with the application. Any person making application for water use having a design in excess of 5,000 gallons per day shall submit a Water Impact Report on the appropriate form prescribed by the Water District.
The Board of Water Commissioner's, at their next scheduled monthly meeting shall determine whether or not the Water District has the resources to supply the proposed extension.

IMPORTANT NOTICE: All materials installed must conform to the Lead Reduction Act of 2014.

PART 1 - PRODUCTS

1.01 PRESSURE PIPE

A. Ductile Iron Pressure Pipes: Ductile Iron Pipe shall be in accordance with AWWA Standard C150 and ANSI A21.51/ AWWA C151, Class 52 and shall have push-on joints where specified. Pipe shall be double-cement lined with seal coat inside and out conforming to ANSI A21.4/AWWA C104. Push-on joints and rubber gaskets.

1.02 VALVES, FITTINGS, CLAMPS

A. Fittings: Fittings shall be ductile iron, 350-psi pressure rating, conforming to ANSI A21.10/AWWA C110 with mechanical joints. Compact ductile iron fittings conforming to ANSI A21.53/AWWA C153 will be acceptable. Joints and gaskets shall conform to ANSI 21.11/AWWA C111.

B. Accessories: Accessories such as gaskets, glands, bolts, nuts, etc., shall be furnished as required to make all piping systems complete.

C. Joint Restrainers: Restrained joints for mechanical joint fittings shall be Megalug or approved equal.

D. Gate Valves: Gate valves shall be of the resilient wedge gate valve design, meeting or exceeding all requirements of the latest version of AWWA C509. The wedge shall consist of a ductile iron casting encased in a bonded-in-place nitrile elastomer covering which forms the resilient sealing surfaces. The valves shall be of the non-rising stem design with sealing accomplished by double "o" rings and shall **open left**. All gate valves shall be designed for a minimum of 150-psi working pressure. Valves shall have mechanical joints and shall be epoxy coated. Valves shall be Clow, Mueller, Waterous, or approved equal.

E. Valve Boxes: Each exterior valve shall be provided with a valve box. Valve boxes shall be cast iron and of the adjustable, telescoping, heavy-pattern type. They shall be so designed and constructed as to prevent the direct transmission of traffic loads to the pipe or valve and shall be made by Quality Water Products, Pioneer, or approved equal.

The box shall be adjustable through 6 in. vertically without reduction of lap between sections to less than 4 in. The top of the box shall be flush with the finished grade. The inside diameter of the box shall be at least 5 1/4 in.

Covers shall be close fitting and substantially dirt-tight. The top of the cover shall be flush with the top of the box rim.

F. Hydrants: All material used in the production of fire hydrants for ordinary service shall conform to AWWA Standard C502. All hydrants shall be Mueller Super Centurion 250 or Waterous Pacer WB-67-250, with 16" upper standpipe, and unless specified by the Water District shall incorporate the following:

Traffic type at ground line
5-1/2' bury
6" mechanical joint
5-1/4" valve opening - valve to open left
2 - 2-1/2" NST hose nozzles
1 - 4-1/2" NST steamer nozzle
1-1/2" operating nut - pentagon shape
6" minimum inside barrel diameter

G. Mechanical Joint Bolt-Through Restraint: Mechanical joint bolt-through restraints shall be used to connect fittings to fittings and valves to fittings. Connect mechanical joint bolt-through restraints to valves, tees, reducers, crosses and bends. Mechanical joint bolt-through restraints shall be made in the U.S.A. of 350 psi rated ductile iron. Mechanical joint bolt-through restraints (Foster Adaptors) shall include all accessories, hardware and gaskets.

1.03 METALLIC INDICATOR TAPE

A. Metallic indicator tape with “CAUTION WATER MAIN BURIED BELOW” shall be placed in trench approximately 3 feet from final grade.

1.04 ACCESSORIES

A. General: Provide anchorage for tees, plugs, caps and bends.

B. Clamps, straps and washers: Steel, ANSI/ASTM A 506.

C. Rods: Steel, ANSI/ASTM A 575.

D. Rod Couplings: Malleable iron, ANSI/ASTM A 197.

E. Bolts: Steel, ANSI/ASTM A 307.

F. Cast Iron Washers: ANSI/ASTM A 126, Class A.

G. Thrust Blocks: 3000 psi concrete.

H. Pipe Lubricant: Suitable for potable water supply.

PART 2 - EXECUTION

2.01 GENERAL

A. No work on Town roads shall begin until a permit for Road Crossing & Pavements Cuts has been obtained and approved by the Town of Shirley DPW Director.

B. Coordinate all waterline work with the Shirley Water District.

C. Shop Drawings, provided by the product manufacturer, shall be submitted for all materials to be installed, to the District for approval.

D. For new sub-divisions, no pipe shall be allowed to be installed until proposed roadways have been brought to within 6-inches of finished grade.

E. No "dead-end" installations will be allowed.

F. Pipe and accessories shall be handled in and stored in such a manner as to insure that the pipe is installed in sound, undamaged condition.

G. The contractor shall furnish slings, straps and/or approved devices to provide satisfactory support of the pipe and fittings when lifted.

H. Pipe shall not be dropped from trucks onto the ground or into the trench.

I. The Contractor shall have on the job site, with each laying crew, all the proper tools to handle and cut the pipe.

J. All connections made to existing water mains shall be made at such time and manner as to cause as little interruption in water service as possible. Coordination of all such work shall be made with the Water District who shall be present when the work is done and shall operate all valves. The Contractor shall notify the Water District 72 hours in advance of such work.

2.02 PIPE LAYING

A. Installation of Ductile- Iron water main shall be in accordance with AWWA Standard C600.

B. The trench bottom shall be prepared by digging at least 6-inches deeper than pipe grade and backfilling to proper grade with a selected sand backfill properly tamped.

C. The trench bottom shall be straight, free of bumps or hollows, and at the proper depth. Any irregularities in the trench bottom shall be leveled off or filled in with a selected sand thoroughly tamped.

D. Where possible, all pipe shall be laid with a minimum of five feet and a maximum of seven feet of cover over the top of the pipe.

E Pipe shall be laid in a dry trench and at no time shall water or any other substance be permitted into the pipe.

F. Blocking under the pipe will not be permitted except where a concrete cradle is proposed, in which case precast concrete blocks shall be used.

G. The pipe shall be bedded in sand, hand tamped and covered with a minimum of 1-foot of sand.

H. During pipe installation and at any time that work is not in progress, the end of the pipe shall have a temporary plug to prevent the entry of animals, earth, water, etc.

I. All pipe laid within 3-feet of a culvert or with less than 5-feet of cover shall be insulated with 2-inch 40 pound density styrofoam material. The insulation shall extend the width of the trench, a minimum of 4-feet above the pipe envelope and on the vertical sides of the trench bottom from the bottom to above the pipe envelope. No pipe shall be laid with less than 5-feet of cover without prior approval of the District Manager.

J. No pipe shall be covered or trench backfilled until inspected and approved by the Water District.

K. Whenever water lines must vertically cross sewers, the line shall be laid at such an elevation that the top of the sewer is at least 18-inches below the bottom of the water line. When the elevation of the sewer cannot be buried to meet the above requirements, protection shall be provided as follows:

1. Where less than 18-inches of vertical separation may be attained, a sewer force main pipe length must be centered at the point of crossing.

2. Adequate structural support for the sewers to prevent excessive deflection of joints and settling on and breaking the water lines.

3. One full length of water pipe shall be centered at the point of crossing so that the joints will be equal distance and as far as possible from the sewer.

L. Water lines shall be laid at least 10 feet horizontally, edge to edge, from sewers, sewer services or manholes. When conditions do not permit a horizontal separation of 10 feet, a water line may be laid closer to a sewer provided that:

1. The bottom of the water line is at least 18-inches above the top of the sewer and a minimum of 5 feet edge to edge horizontally.

2. Where this 18-inch vertical separation cannot be obtained, the sewer shall be constructed of upgraded materials, Blue Brute DR 25 or equivalent with joints that are equivalent to water main standards of construction and shall be pressure tested to assure water tightness prior to backfilling.

M. Separation of water line from Gas Lines, Cable TV Lines, Telephone Lines and Electrical Cables shall be at least 10 feet without exception. All water line crossings of cables shall be at an angle not less than 45 degrees, the cable shall be housed in an iron or steel conduit where possible at least six feet on either side of the water line, and the water line and cable carrying conduit shall be separated by at least 18-inches.

2.03 INSTALLATION OF VALVES AND FITTINGS

A. Sufficient valves shall be provided on water mains so that inconvenience and sanitary hazards will be minimized during repairs. Valves shall be located at not more than 800-foot intervals. Three way valve assemblies shall be located at all existing and new intersections.

B. Valves and boxes shall be set with stem vertical and box vertically centered over operating nut. Valves shall be set on a firm foundation and supported by tamping selected excavated material under and at the sides of the valve. The gate box shall be supported during backfilling and maintained in vertical alignment with the top flush with finish grade.

C. Valves shall be anchored to all tees or fittings with 3/4-inch threaded rods, wherever possible or directed by the Water District.

D. Install couplings and fittings in accordance with manufacturer's instructions.

E. Mechanical joints shall be torqued to a range of 75-90 ft.-lbs.

2.04 INSTALLATION OF HYDRANTS

A. Hydrants shall be provided at each street intersection and at intermediate points between intersections as recommended by the NFBU Office. Generally, hydrant spacing may range from 350 to 500 feet. Exact locations will be determined by the District Superintendent and the Fire Chief.

B. All hydrants shall have a lateral valve installed between the distribution main and hydrant, and shall be installed on a hydrant tee.

C. Hydrants shall be secured to the lateral valve or distribution main by means of rods and/or retainer glands.

D. Ductile iron pipe shall be used for the hydrant stub, between the lateral valve and the hydrant.

E. Hydrants shall be set and bedded on a firm foundation. A drainage pit 3 feet in diameter and 2 feet below and to the rear of the hydrant shall be filled with crushed stone and satisfactorily compacted. During backfilling, additional pea stone, or stone approved by the Water District, shall be brought up around and 6-inches over the drain ports. No hydrant shall be backfilled until inspection has made by the Water District. Each hydrant shall be set in a true vertical alignment and properly braced.

F. Concrete thrust blocks shall be placed between the back of the hydrant inlet and undisturbed soil at the end of the trench. Care shall be taken to insure that concrete does not plug the drain ports.

G. The bury line of the hydrant shall be level with the final grade.

H. Upon completion of installation, the upper barrel shall be rotated until the 4-1/2 inch steamer nozzle is facing the street. Any required extension shall be installed at that time.

2.05 PRESSURE AND LEAKAGE TESTING

A. Prior to filling, testing and disinfecting of new mains, the Contractor, under the supervision of the Water District, shall ensure that the pipe is clean in conformance with ANSI/AWWA C651.

B. Newly installed pipe shall be pressure tested and leakage tested in accordance with AWWA Standard C600.

C. The Contractor shall furnish all labor, pumps, taps, chemicals and other necessary equipment to conduct testing.

D. The tests shall be conducted under the supervision of the Water District who shall judge the success or failure of the work to meet the required standards.

E. In the event that the work fails to meet the required standards as stated herein, the Contractor shall perform such excavation, repair, relaying of pipe and all other work necessary to correct the work, and shall repeat the tests as often as may be necessary and until such time as the required standards are met.

2.06 DISINFECTION

A. After satisfactory pressure and leakage tests have been made, all new, cleaned or repaired water mains shall be disinfected in accordance with AWWA Standard C600.

B. The mains shall be disinfected by the Contractor, under the supervision of the Water District. The approved chlorine dosage shall be introduced into the main through a 1-inch corporation stop installed approximately 1 foot upstream from the valve at the beginning of the job and shall be tested for residual chlorine at a 1-inch corporation stop, or a location specified by the Water District, approximately 1 foot from the downstream valve at the end of the project.

C. Water from an approved source shall be introduced slowly into the main during the application of chlorine. The rate of chlorine mixture flow shall be at least 50 parts per million. When the pipeline has been completely filled with treated water, the main shall be sealed off. Treated water shall be retained in the main for a period of at least twenty-four hours. This procedure shall be repeated until proper disinfection has been achieved.

D. Following acceptance of the disinfection process, and under the direct supervision of the Water District, the chlorinated water shall be flushed from the newly-laid main until such time as the replacement water throughout its entire length shall be equal in quality to that elsewhere in the distribution system. In accordance with AWWA Standard C651, thorough consideration should be given to the impact of discharge of highly chlorinated water to the environment. If there is any possibility that the chlorinated discharge will cause damage to the environment, then a neutralizing chemical, as listed in AWWA Standard C651 shall be applied to the water being discharged.

E. A representative water sample shall be collected of the potable water now present in the new pipeline by the Contractor under the supervision of the Water District. Samples shall be collected at 500-foot intervals at an approved sampling tap. The samples shall be taken to a Massachusetts MassDEP certified laboratory for bacteria analysis. The cost associated with the collection and analysis of the samples shall be born by the Contractor.

PART 3 - FINAL ACCEPTANCE

3.01 GENERAL

A. Newly installed mains, valves, hydrants and appurtenances installed shall be warranteed by the Contractor and be free from defects for a period of one year after acceptance by the Water District.

B. The following requirements shall be met before water will be introduced into the newly laid main:

1. As-built drawings shall be submitted to the Water District accurately showing main, valve, hydrant, and bend locations. Information should include depth of main, measurements from permanent, stationary objects and proximity of main to all other underground utilities.

2. Required construction easements, to the Water District, must be submitted.

3. Pressure and leakage tests shall be submitted to the Water District.

4. Bacteria analysis results shall be submitted to the Water District on a State MassDEP certified form.