NEW SHOREHAM UTILITY STANDARDS WATER COMPANY

SECTION B

WATER REQUIREMENTS

WATER SYSTEM

1. PART 1 - GENERAL

1.1 DESCRIPTION OF WORK:

A. The Contractor shall obtain all Town permits necessary to complete the installation of a water system. The work consists of furnishing and installing water pipe, pipe fittings and specials, valves, valve boxes, hydrants, water service connections, connections of existing and new piping, miscellaneous metal for strapping piping, underground line markers, accessories, miscellaneous and appurtenant work for providing construction as directed, complete in place tested, disinfected and accepted.

1.2 SPECIAL REQUIREMENTS:

A. The Superintendent of the Block Island Water Company shall be notified twenty-four (24) hours in advance to inspect construction, witness testing and taking water samples.

1.3 SUBMITTALS:

A. Contract Drawings: Submit three (3) sets of drawings of proposed water system or water service to the Water Superintendent for review.

B. Record Drawings: At completion of project, submit record drawings of installed water system or water service piping showing a minimum of three ties from permanent installations such as poles, hydrants, etc., for valves, bends and service connections at main, property line and dwelling unit and distances.

2. PART 2 - PRODUCTS

2.1 IDENTIFICATION:

A. Underground-Type Line Markers for Non-Metallic Pipings:
Manufacturer's standard permanent detection tape, bright colored, continuous-printed polyethylene tape with a metallic core for easy detection of non-metallic underground installations, intended for direct-burial service; not less than 6" wide x 4 mils thick. Provide blue detection tape with black printing reading "CAUTION WATER LINE BURIED BELOW" as manufactured by Seton or equal.

B. Underground-Type Line Markers for Metallic Pipelines: Manufacturer's standard permanent, bright colored, continuous-printed polyethylene tape, intended for direct-burial service; not less than 6" wide x 4 mils thick. Provide blue tape with black printing reading "CAUTION WATER LINE BURIED BELOW" as manufactured by Seton or equal.

2.2 PIPE AND PIPE FITTINGS:

A. Ductile-Iron Piping: Piping shall be double cement lined ductile iron slip on joint pipe, pressure rating of 350 psi, Class Thickness No. 52, or as shown on Contract drawings, in accordance with ANSI/AWWA C151/A21.51, WW-P-421d and ANSI/AWWA C150/A21.50.

1. Fittings: Fittings, 4" through 12", shall be ductile iron, short body, conforming to ANSI/AWWA C153/A21.53. Fittings over 12 inches shall meet all requirements of ANSI/AWWA C110/A21.10 and ANSI/AWWA C111/A21.11. Fittings shall have an asphaltic outside coating in accordance with ANSI/AWWA 153/A21.53. Fittings shall be double cement lined and seal coated with ANSI/AWWA C104/A21.4 and listed by an approved certifying agency as conforming to requirements of ANSI/NSF61.

2. Restrained Joint Pipe and Fittings:

a. Mechanical joint restraints shall be incorporated in the design of the follower gland and shall include a restraining mechanism which, when actuated, imparts multiple wedging action against the pipe, increasing its resistance as the pressure increases. Flexibility of the joint shall be maintained after burial. Glands shall be manufactured of ductile iron conforming to ASTM A 536-80. Restraining devices shall be of ductile iron heat treated to a minimum hardness of 370 BHN. Dimensions of the gland shall be such that it can be used with the standardized mechanical joint bell and tee-head bolts conforming to ANSI/AWWA A21.11 and ANSI/AWWA C153/A21.53 of latest revision. Twist-off nuts shall be used to insure proper actuating of the restraining devices. The mechanical joint restraint device shall have a working pressure of at least 250 psi with a minimum safety factor of 2:1 and shall be EBAA Iron, Inc. MEGALUG or equal.

WATER SYSTEM

B. Couplings shall be furnished with corrosion-proof vinyl coating on middle ring and followers.

C. Polyvinyl Chloride (P.V.C.) Piping: Piping shall be Class 150 conforming to AWWA C900 standard specification and the pipe shall have integral bell and spigot joints through 12". The P.V.C. pipe shall be supplied in lengths not in excess of 20 feet. Each pipe shall have cast on it; nominal size, AWWA pressure class, dimension production record code and seal of testing agency that verified the suitability of the pipe material for portable water.

1. Fittings: The fittings shall be cast-iron or ductile iron compiling to the requirements stated under "Ductile-Iron Piping" with mechanical joint restraints.

2. Mechanical joint restraint shall be incorporated in the design of the follower gland. The restraint mechanism shall consist of a plurality of individually activated gripping surfaces to maximize restraint capability. Glands shall be manufactured of ductile iron conforming to ASTM A536-80. Dimensions of the gland shall be such that it can be used with the standardized mechanical joint bell and tee-head bolts conforming to ANSI/AWWA A21.11/C111 and ANSI/AWWA A21.53/C153 of latest revision. Twist-off nuts, sized same as tee-head bolts, shall be used to insure proper actuating of restraining devices. The mechanical joint restraint shall have a working pressure of at least 100 psi with a minimum safety factor of 2:1 and shall be EBAA Iron, Inc., MEGALUG^{R} or equal. The length of upstream and downstream piping requiring mechanical joint restraint from a fitting shall be in accordance with the manufacturer's requirements.

3. When it is required to restrain PVC push-on joints adjacent to restrained fittings, a harness restraint device shall be used. This harness restraint shall be split to enable installation of the restraint after the spigot has been installed into the bell. The restraint shall consist of three major parts: the first part being a split ring that fits behind the bell; the second part being a split restraint ring that installs on the spigot; the third part being a number of tie bars to connect parts one and two to facilitate joint restraint. All of these components shall be cast of ductile iron conforming to ASTM A536-80. The restraint ring shall consist of a plurality of individually activated gripping surfaces to hold the spigot and maximize restraint capability. The harness restraint shall have a working pressure of at least 100 psi with a minimum safety factor

of 2:1 and shall be EBAA Iron, Inc., MEGALUG[R], Series 1100HV or equal.

2.3 FLEXIBLE COUPLINGS:

A. Where flexible couplings are to be installed, they shall be Dresser, Skinner, Smith Blair or equal for Class 52 Ductile Iron Pipe. Coupling shall be furnished with corrosion-proof vinyl coating on middle ring and followers. Adapters shall conform to the manufacturers specifications.

2.4 STRAP RODS:

A. For purpose of anchoring pipe or fittings shall be 3/4" round steel or wrought iron. Clamps shall be not less than 2" wide and 3/8" round. Clamps and rods are to be protected against corrosion by heavy coat of bituminous asphalt varnish after final assembly. Where pipe or fittings will be exposed under normal conditions, joints shall be sufficiently restrained so as to prevent blow off of pipe or fittings or movement of same during normal use.

2.5 THRUST BLOCKS:

A. Concrete for thrust blocks shall be 3000 psi.

2.6 HYDRANTS:

A. Fire hydrants: Fire hydrants shall be in accordance with the requirements of the latest "Standard Specification for Fire Hydrants for Ordinary Water Works Service" as adopted by the American Water Work Association, Specification AWWA C502-64, as manufactured by Mueller Centurion, Size 4½ inch. Hydrants shall meet the specific requirements and exceptions of the aforementioned specifications as follows:

1. Hydrants shall be so constructed that if accidentally broken off at top, i.e., above grade, the top section can readily be replaced without closing any valves outside the hydrant, and without excavation.

2. Hydrants shall be unsuitable to set in a trench 4'-6" deep, that being the distance from the ground surface to the underside of the 6" pipe connecting with the hydrant. Hydrant extension pieces, barrel type shall be furnished for depths exceeding 4'-6" as directed by the Superintendent.

3. Hydrant drain outlet shall be surrounded with not less than two (2) cubic feet of washed stone or crushed gravel.

4. Hydrants shall open **LEFT**, hydrant head shall have arrow to indicate opening direction.

5. Hydrants furnished shall be complete, i.e., with no additional fittings or conveniences (other than replacement parts) to be purchased by the Town.

6. Contractor shall paint exposed portion of hydrants with a field coat of red paint and a finish coat of high grade oil paint in colors to be selected by the Town. Below ground, hydrants shall be coated with pitch tar varnish of same composition as AWWA specifications for tar coated pipe.

B. Hydrant Wrench: One hydrant wrench shall be provided to the Town. The wrench shall be pentagonal non-adjustable and specifically for use with hydrants.

2.7 VALVES:

A. Gate Valves: Gate valves for buried service shall be manufactured in accordance with American Water Works Association Standard Specifications for Gate Valves for Ordinary Water Works Service, AWWA designation C509 of latest revision, as manufactured by Kennedy, Darling or equal. Resilient seated gate valves shall consist of an encapsulated disc with elastomer seat, non-rising stem designed for 175 psi working pressure for valve diameters 12" or smaller and shall open **LEFT**.

B. Tapping Valves: Tapping valves shall be vertical gate valves meeting the requirements of AWWA C500, as manufactured by Kennedy, Darling, or equal. The valves shall be double disc, parallel seat wedge design and design rated for 200 psi minimum working pressure. The valves shall be flanged inlet and mechanical joint outlet, inlet flange shall be ASA-125 lb. with protruding aligning lip to register with the counter bore of the tapping sleeve.

C. Valve Boxes: Valve boxes shall be two piece, buffalo type, adjustable of the sliding type, round body, heavy pattern, with at least ten inches of overlap of top section over the other and with flanged top section. The castings shall be made of gray cast-iron, true to pattern and free from flaws. They shall be thoroughly coated with an asphaltum varnish, inside and out. The covers shall have the word "WATER" cast in the top. At the completion of the work, valve boxes shall be set plumb and flush with the road surface.

D. Valve Key: The Contractor shall furnish one standard valve operating key to the Town.

2.8 INSULATION OF UNDERGROUND PIPING:

A. Foamglass Insulation: ASTM C552 "Spec. for Cellular Glass Thermal Insulation" shall be 3" thick as manufactured by Pittsburgh Corning Corporation.

B. Jacketing: The jacketing shall be Pittwrap Jacketing as manufactured by Pittsburgh Corning Corporation.

C. Asphalt Coating: Pittcote 300 finish by Pittsburgh Corning Corporation.

D. Reinforcing Fabric: PC Fabric 79 by Pittsburgh Corning Corp.

E. Strapping Tape: Glass fiber reinforced, 1" wide, Scotch Brand No. 880 by 3M.

F. Bore Coating: Hydrocal B-11 by U.S. Gypsum.

2.9 SERVICE CONNECTIONS:

A. Polyethylene Pipe and Tubing: Polyethylene pipe and tubing shall meet the requirements of the latest revision of the following standards: ASTM D-1248, ASTM D-2239, ASTM D-2737, ASTM D-3350 and AWWA C901. The PE pipe and tubing shall be rated for a maximum working pressure of 160 psi.

B. Corporation Stops: Corporation stops shall be all bronze construction and at least equal to American Water Works Standards. Corporation stops shall be of heavy pattern, full size waterway, solid plug, hand ground and shall be Mueller H-15000 or Red Hed Figure 438 & A.

C. Curb Stops: Curb stops shall be all bronze ground key type stop and equal to American Water Works Association Standards as manufactured by Mueller or Red Hed. The Contractor shall furnish to the Town, two (2) socket wrenches suitable for operating curb stops. One end of wrench handle shall have a socket of proper size and shape to remove curb stop box cover nuts.

D. Service Saddles: Service saddles for PVC pipe shall be nylon coated (12 mils) double strap-stainless steel. The body shall be ductile iron conforming to ASTM-A536. The straps shall be stainless steel Type 304, as well as, studs, nuts and washers. The gasket shall resist oil, natural gas, acids alkalies, hydrocarbon fluids and water.

E. Curb Boxes: Curb boxes shall be of cast-iron of one of the standard makes, sliding, New England Style, inside cover, with upper section 1-1/4" or larger, and shall be coated with asphaltum varnish, inside and out. They shall have round covers with the word "WATER" cast thereon. Boxes shall be adjustable for a maximum bury of 4 feet-6 inches. Cover shall be attached to box with locknuts or lock lugs.

2.10 GRAVEL BASE:

A. Gravel shall be free of foreign material such as loam, silt, clay and vegetable matter and meet the following requirements:

Passing 1¼-inch sieve	100%
Passing ¼-inch sieve	30-65%
Passing No. 40	5-50%
Passing No. 100	0-10%

2.11 BEDDING MATERIAL:

A. The bedding material shall be crushed stone consisting of durable crushed rock or durable crushed gravel stone, free from ice, snow, sand, clay, loam or other deleterious material. The crushed stone shall conform to the requirements of 100-percent passing the 3/4-inch screen, 10 to 50-percent passing the ½-inch screen, 0 to 20-percent passing the 3/8-inch screen and 0 to 5-percent passing the No. 4 sieve.

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2.12 SAND BLANKET:

A. The sand shall be free from ice, snow, roots, sod, rubbish, and other deleterious or organic matter. The sand blanket shall conform to the requirement of 100-percent passing the ½-inch screen, 85 to 100-percent passing the 3/8-inch screen, 60 to 85-percent passing the No. 4 sieve, 35 - 60-percent passing the No. 16 sieve, 10 to 35-percent passing the No. 50 sieve and 2 to 10-percent passing the No. 100 sieve.

2.13 BACKFILL:

A. Backfill shall be excavated material free-draining clean granular soil suitable for backfill. Up to 20-percent of backfill material may be rock-like materials not to exceed 0.05 cubic feet in volume, not more than 6-inches in length. The backfill shall not contain any debris, pavement, frozen material, organic matter, or peat.

3. PART 3 - EXECUTION

3.1 EARTHWORK:

A. Cutting Pavement: Excavations made on pavement shall be made in a careful manner so as to cause the least amount of damage to the pavement. Pavement shall be saw cut prior to trench excavation. Pavement and/or cement concrete will be cut 12" either side of the maximum allowable trench width. Any damage to the cut line due to the excavations, backfilling or removal of temporary pavement shall be re-cut to neat lines. The width of pavement removed shall be kept as narrow as practicable. Existing pavement and base course disturbed or damaged shall be replaced by the Contractor to match existing pavement and base course. Excavated pavement shall not be mixed with other excavated material which is to be used as backfill, and shall be removed immediately from the site of the work.

B. Trench Excavation: Trenches shall be excavated to lines and grades shown on the drawings and shall include the removal of materials such as clay, pavements, sand, gravel, soft or disintegrated rock, which in the opinion of the Superintendent can be removed without blasting or drilling, and boulders less than 1 cubic yard in volume. Wherever rock is encountered in trench excavation, rock shall be removed by a method acceptable to the Superintendent to the lines and grades indicated on the plans, or to a minimum depth of 6" beneath the pipe barrel. Final decision as to suitability of excavated material for use as backfill or fill shall be made by the Superintendent. If in the judgment of the Superintendent the excavated material is unsuitable, the Contractor shall import bank run gravel to make up the deficiency.

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C. Excavation Support System: The Contractor shall furnish, put in place, maintain and remove, as required and/or necessary for safe and proper construction in accordance with OSHA regulations, all excavation support systems which may be required to support the sides of the excavation, preventing damage to persons, adjacent property and structures.

D. Pumping and Dewatering: The Contractor shall furnish all pumps, equipment, power and attendance to maintain and operate such pumping and dewatering systems consisting of any means and devices, including spare units in case of breakdown, which accomplish the removal and prompt disposal of all water entering the excavation. The pumping manner, method or both shall be sufficient such that the natural state of the soil is not significantly disturbed and that groundwater is controlled at levels which will permit all work to be performed in dry conditions.

E. Excavation and Backfill for Pipes:

1. The width of the trench shall be held to a minumum consistent with the space required to permit satisfactory jointing of the pipe and tampering of the bedding and backfill material under and around the pipe. In general, the maximum trench width shall be the pipe diameter plus two feet or a minimum width of three feet, whichever is greater. If necessary, sheeting and/or shoring shall be used to prevent overcutting at the level of the top of the pipe and to maintain the trench sides. The trench bottom should be smooth, level and all large stones or rocks lying on or protruding from the trench bottom shall be removed.

   Over-excavation shall be refilled in six (6) lifts with approved granular material and compacted to 95-percent maximum density.

2. Where unsuitable material is encountered at the trench bottom, the material shall be excavated to a stable bottom and refilled with compacted bedding material in 6-inch lifts.

3. Backfill from the centerline of the pipe to the height 2-feet above the pipe shall be sand blanket material placed evenly the full width of the trench and compacted. The remainder of the trench shall be backfill material and compacted in 12-inch layers. Cushion and backfill material shall be compacted to 95-percent maximum density by tamping and compacting in layers (1-foot maximum) to achieve the required compaction.

WATER SYSTEM

3.2 IDENTIFICATION MARKERS:

A. Install identification marker two (2) feet above top of pipe or in accordance with requirements of state in which project is located.

3.3 INSPECTION:

A. All pipe, fittings, valves and hydrants shall be carefully inspected for defects immediately prior to placing in the trench.

3.4 INSTALLATION OF PIPE:

A. Each pipe shall be handed into the trench carefully and in a workmanlike manner. The Contractor shall furnish all slings and straps to permit satisfactory support of all parts of pipe when it is being handled. The Contractor shall take all necessary precautions to prevent movement of pipe in the event of the trench flooding. Any length of pipe broken or damaged shall be replaced.

B. Ends of pipe shall be thoroughly cleaned before joint is made. The surface of the joint shall be painted with required lubricant applied in accordance with the manufacturer's direction. The lubricant shall be of type recommended by pipe manufacturer. Pipes shall be jointed in strict accordance with pipe manufacturer's directions and work shall be done by skilled workmen.

C. No pipe or fittings shall be laid in water or on a frozen trench bottom or when the trench conditions or the weather are unsuitable for such work. All joints shall be checked by feeler ring gauge to insure proper positioning of rubber gaskets.

3.5 FITTINGS:

A. Fittings of the proper type shall be furnished and installed wherever shown on the drawings and as required by the Block Island Water Company.

B. The fittings shall be supported on cement blocks to prevent settlement and resulting shear action to attached pipes. Cement blocks at fittings shall remain in place. At all plugged tees the plug shall be strapped to tee.

C. Bends and tees shall be installed in the mains where shown on the contract drawings. Vertical bends where shown on the drawings shall be anchored in both directions with pipe-clamps and tie-rods. All other fittings shall be equipped with proper sized thrust blocks poured against undisturbed

earth. The Contractor shall provide the necessary tie rods and clamps. Tie rods and clamps shall be as manufactured by the Grinnel Company, Inc. or equal.

3.6 RESTRAINED JOINTS:

A. Fittings and bends may be restrained through the use of mechanical joints with MEGALUGS or with thrust blocks. If mechanical joints with Mega Lugs are utilized, the required length upstream and downstream pipe shall be restrained based on the manufacturer's recommendation.

B. Thrust blocks shall be of sufficient size as shown in the details to prevent movement or the pipe shall in all cases be poured against undisturbed earth. Where thrust blocks are in contact with the pipe, concrete shall be kept clear of pipe joints.

C. Concrete thrust blocks shall be constructed at all underground cast-iron fittings that results in a change of direction of pipe line. Thrust blocks shall be of bearing size indicated on the drawings.

3.7 INSTALLATION OF VALVES:

A. Each valve shall be equipped with a gate box set vertically with top even with finished grade.

3.8 METHOD OF INSTALLING SERVICES:

A. Services shall be installed by open cut method. Under no circumstances will tunneling under surfaced roadways be permitted.

3.9 SERVICE TAPS:

A. Taps for service connections shall be made with a standard tapping machine, using a sharp tap, the threads of which shall have the same taper as the taper of the threads on the corporation stop. Service taps shall be of the size directed by the Superintendent.

3.10 COUPLINGS AND CONNECTIONS:

A. All couplings for service piping and connectors to corporation and curb stops shall be flared tube or compression type.

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3.11 HYDRANTS:

A. Hydrants shall set straight and true on a firm base. Bury shall be 4'-6" to centerline of inlet. Each hydrant shall be equipped with a thrust block, drain connection, and gravel drainage pocket all as shown on the contract drawings. The Contractor shall supply the necessary 3/4" threaded to copper fittings and 3/4" Type K soft copper tubing to install the hydrant drain connections.

3.12 DEFLECTION:

A. Wherever curves are negotiated by deflecting successive lengths of pipe the deflection of each length of pipe shall not exceed 3 degrees, or as recommended by manufacturer.

3.13 INSULATION OF UNDERGROUND PIPING:

A. Insulation and jacket shall be installed in accordance with written manufacturer's installation procedures. Prior to backfilling, roofing felt shall be placed over the Pittcote 300 coatings.

3.14 FIELD QUALITY CONTROL:

A. Testing:

1. The pipe line shall be tested with potable water, both for strength and tightness as specified below. The Contractor shall furnish all labor and equipment necessary for tests. Tests shall be made by sections, between main line valves, one section at a time. Water for testing will be available from the existing water system and will be furnished without charge. Water shall not be wasted.

2. Air shall be expelled by filling the main slowly and permitting air to escape at high points. Air bleeder shall be installed in location directed by the Superintendent.

3. The pipe shall be filled with water and kept full for a period of not less than twenty-four (24) hours preceding the test and until there is no leakage observable which the section under tests is subjected to system's normal static pressure. Normal static pressure shall be an average for the area.

4. Pressure shall be applied and maintained by means of a pressure pump and a by-pass on which a water meter and pressure gauge are mounted. Observations shall be made and metered water readings taken at varying pressures up to 175 lbs. per square inch Not less than 150 lbs. pressure shall be maintained for a period of one hour.

5. Any defective joints shall be immediately repaired, and any cracked or otherwise defective pipe shall be replaced by the Contractor and the test repeated. As soon as satisfactory "test for strength" has been obtained, the by-pass with water meter and pressure gauge shall be left in service, and the section shall remain under a pressure of not less than 100 lbs. per square inch until the leakage in the entire section does not exceed ten (10) gallons per day per mile of pipe per inch of nominal pipe diameter. In no case shall leakage tests be for less than four hours. Pipe sections under test shall be isolated from the existing system with plugs and blocking to avoid any cross connection during disinfection and testing.

6. In the event the leakage exceeds the above stated maximum allowable, the Contractor shall take such steps as are required and necessary, or as directed by the Superintendent, to reduce leakage to below the allowable maximum amount and shall replace any and all defective joints or piping and the test shall be repeated until the leakage requirements are complied with.

7. All visible leaks shall be repaired in any event.

8. The contractor shall make all necessary arrangements for obtaining supply, furnish all pumps, piping, hose, installing corporation cocks if necessary, etc., and remove same, except corporation cocks, when work is completed. All work shall conform to AWWA C600.

B. Flushing of Main:

1. After testing and prior to disinfection the main shall be well flushed through the several hydrants.

C. Sterilization of Mains:

1. Before the system is put into service and generally at the time pipe is tested, the pipe and appurtenances shall be sterilized by introducing into the system a quantity of chlorine solution such as will result in a minimum residual chlorine content of 50 PPM of free chlorine in the water contained in the pipe being sterilized. The main shall be filled with water with chlorine being introduced gradually (care being taken to get all air out of the main), and allowed to stand for at least 24 hours. Just before the system or any part of system is placed in service, it shall be flushed out as may be necessary, until tests show that system or part thereof is reasonably free of objectionable bacteria, or excess chlorine content and suitable for carrying potable drinking water. All work shall conform to AWWA C601.

2. After sterilization of the system or any part of the system is completed, an agent of the State of Rhode Island Dept. of Health, Environmental Health Services Division, or an approved laboratory will take samples of water from the sterilized main and if tests of such samples are satisfactory, main will be approved for use. In the event that such tests are not satisfactory, the main shall be re-sterilized to the extent that tests are approved.

3.15 TEMPORARY BYPASS PIPING AND SERVICES:

A. Piping, Valves and Hydrants:

1. All pipe and appurtenances used in providing the temporary bypass service piping shall be in good condition and adequate to withstand at least 1-1/2 times the normal water working pressures and all other conditions of use. The pipe and other materials shall provide adequate watertightness.

B. Temporary Bypass Piping and Services:

1. The Contractor shall provide temporary valved bypass piping and services as required to satisfactorily provide adequate fire protection in accordance with the Fire Department and serve all water customers serviced by the section of water main that is out of service during the performance of the work under this contract.

In general, bypass pipe shall be 2-inch diameter. Dead-end bypass lines shall be provided with valves and piping for blowoffs and bleeding. The Contractor shall provide temporary building service connections to every building served by the section of water main taken out of service. Temporary building service connections shall extend from the 2-inch bypass pipe and shall be of adequate size to satisfactorily provide adequate water to the building being serviced.

2. In general, all temporary piping and services shall be provided in such a manner as to protect it from damage and to insure uninterrupted supply, and shall be located out of traveled ways where practicable, in locations where it will cause the least obstruction and inconvenience, and where it will be least subject to damage.

3. The Contractor shall furnish all work and fittings and make all necessary connections required to supply the bypass pipes (including services) with water from hydrants or existing water mains.

4. All temporary building service connections shall extend from the bypass pipe and terminate at the connection to the building plumbing. Temporary building services shall include all necessary hoses, pipes, valves and fittings, of approved size, required to service consumers. The Contractor shall make the actual connection and disconnection to the consumer's building plumbing, and shall coordinate his work with the Town of any building to be serviced so that there will be the least amount of inconvenience to the Town.

5. Once put in use, all temporary piping and services shall be maintained until the new water main is placed and in service. Any interruptions, whether caused by frost, physical damage, or otherwise, shall be immediately corrected, and the service restored or replaced without additional payment.

C. Disinfection:

1. All temporary bypass lines, services and connections shall be disinfected just before being placed into service.

D. Disconnection and Removal of Temporary Piping:

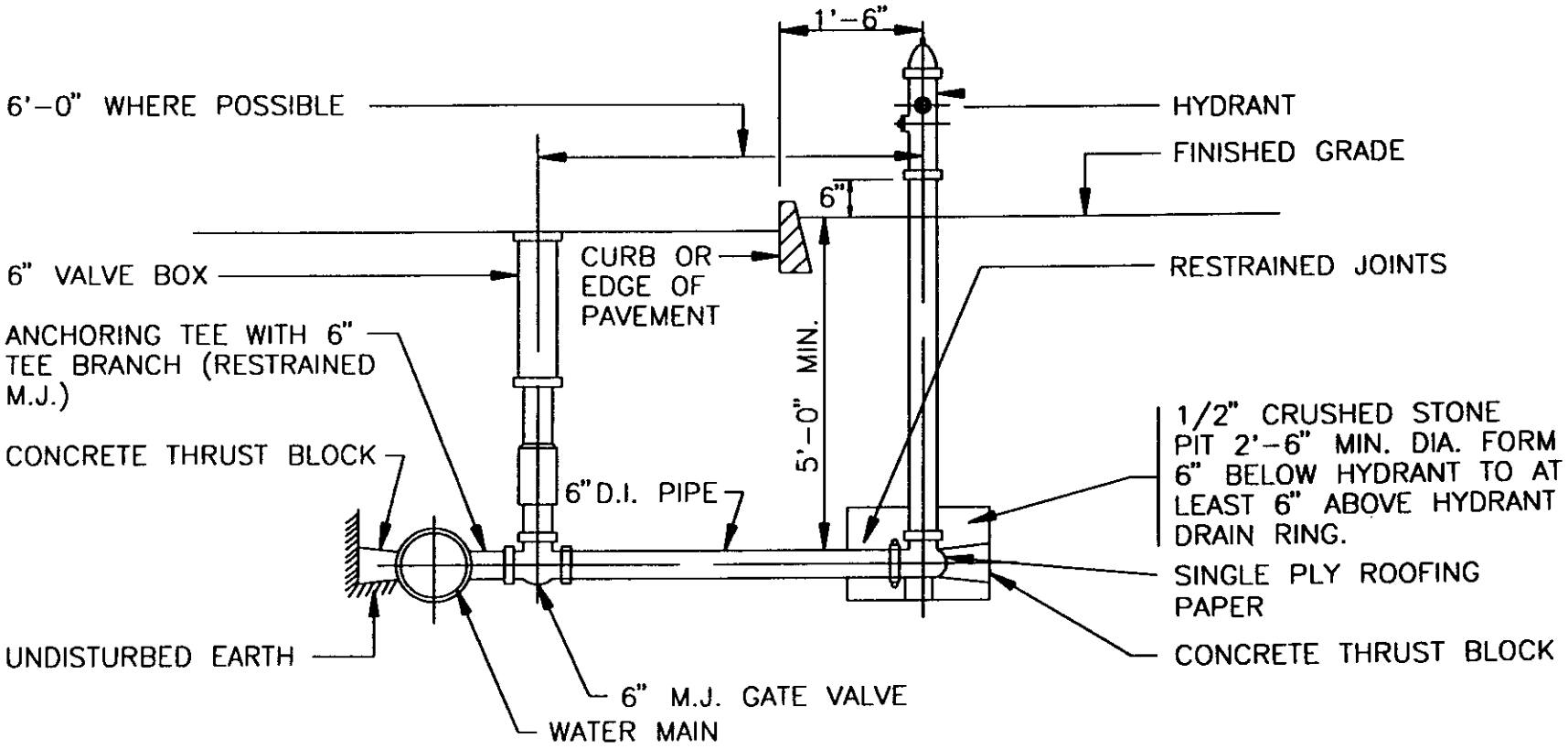
1. After the new water main is accepted and placed in service, and permanent service to consumers has been restored, and when approved, the Contractor shall remove all temporary bypass piping and building service connections, and all other temporary work, as directed; place temporary paving as required; restore to their original condition all walks, drives, curbs, grassed areas and such other parts which have been disturbed as a result of the Contractor's operations.

E. Protection:

1. The Contractor shall be responsible for taking and providing all necessary and required precautionary measures at all times during the installation and removal of the temporary bypass service piping and building service connections, to prevent any contamination of the water supply, water mains and service piping, and for the protection of public health and safety.

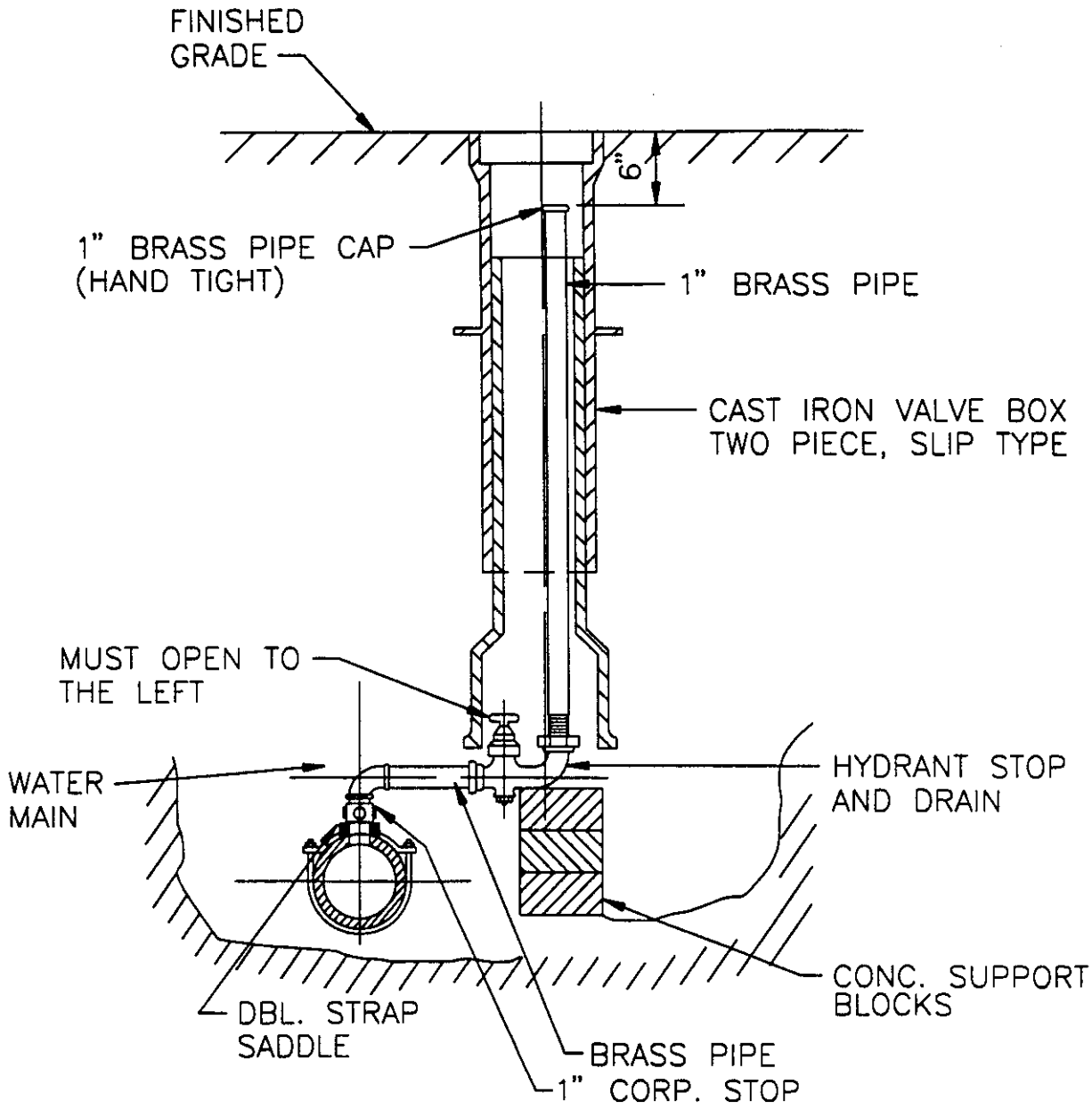
END OF SECTION

Town of New Shoreham
Water Regulations



TYPICAL HYDRANT DETAILS

Date: 11-94 | NOT TO SCALE | FIG: W-1

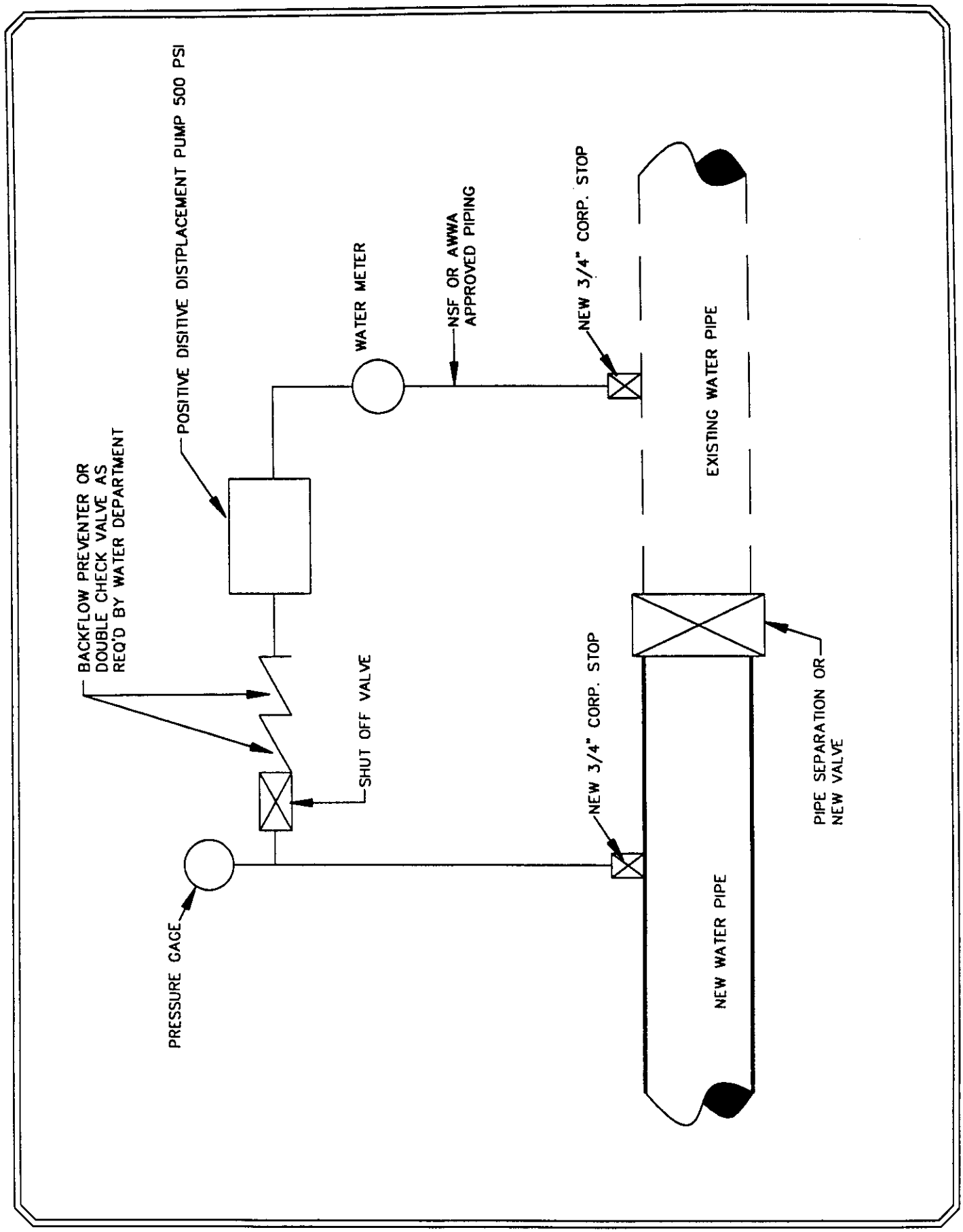


AIR RELEASE ASSEMBLY

Town of New Shoreham
Water Regulations

AIR RELEASE ASSEMBLY

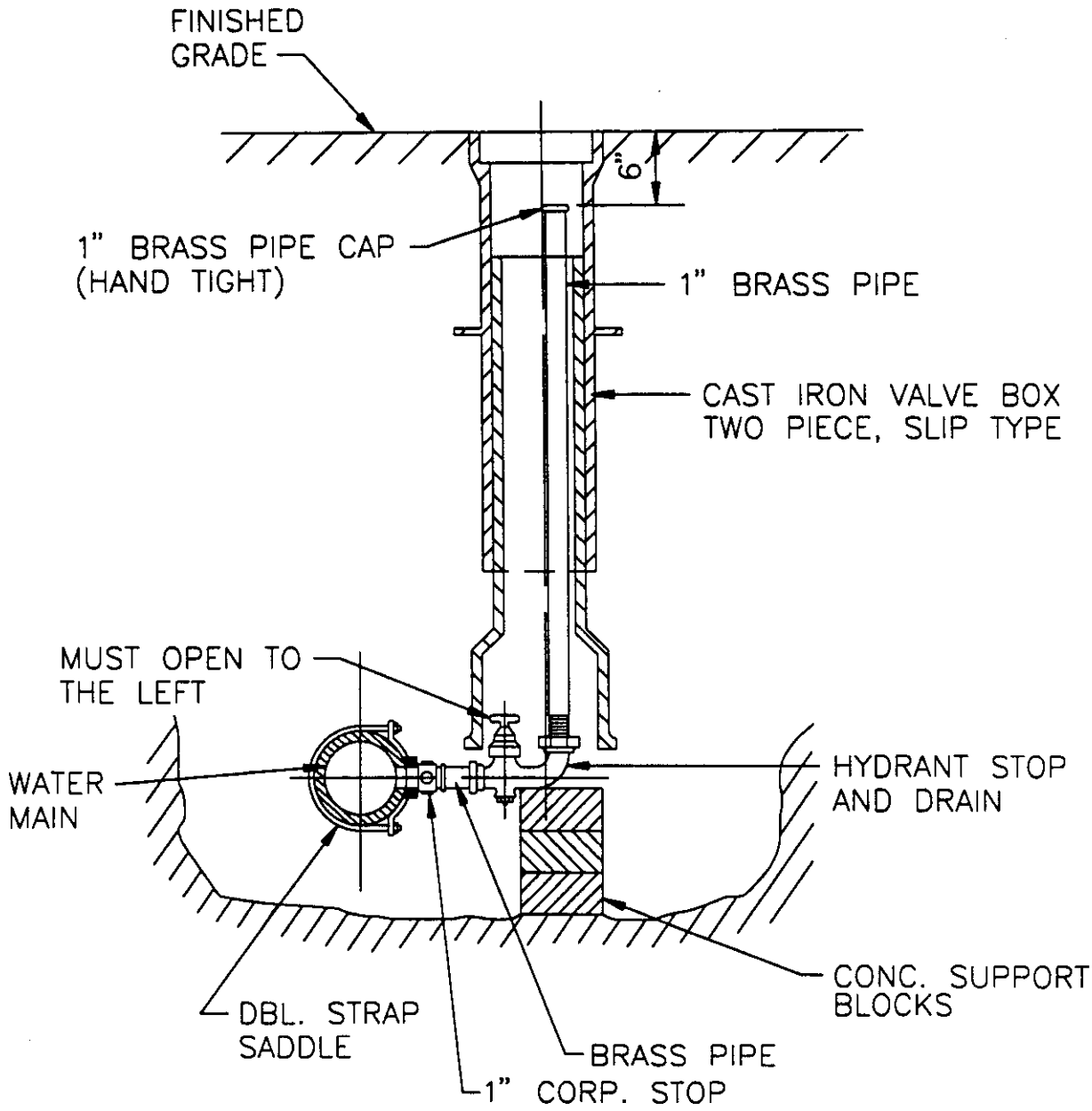
Date: 11-94 | NOT TO SCALE | FIG: W-2



Town of New Shoreham
Water Regulations

WATER TESTING DETAIL

Date: 11-94 | NOT TO SCALE | FIG: W-3

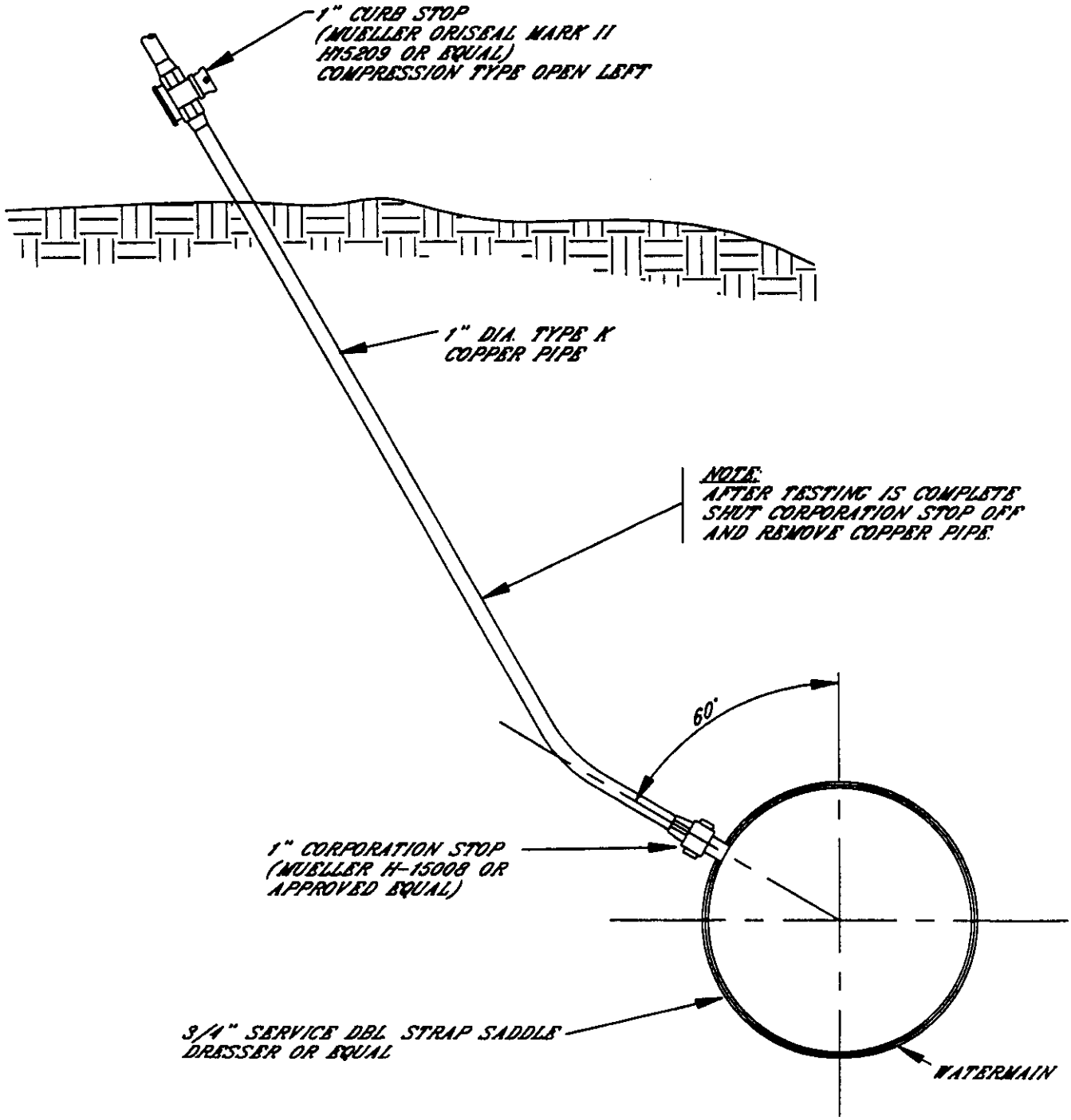


PERMANENT BLOWOFF CONNECTION DETAIL

Town of New Shoreham
Water Regulations

PERMANENT BLOW-OFF CONNECTION DETAIL

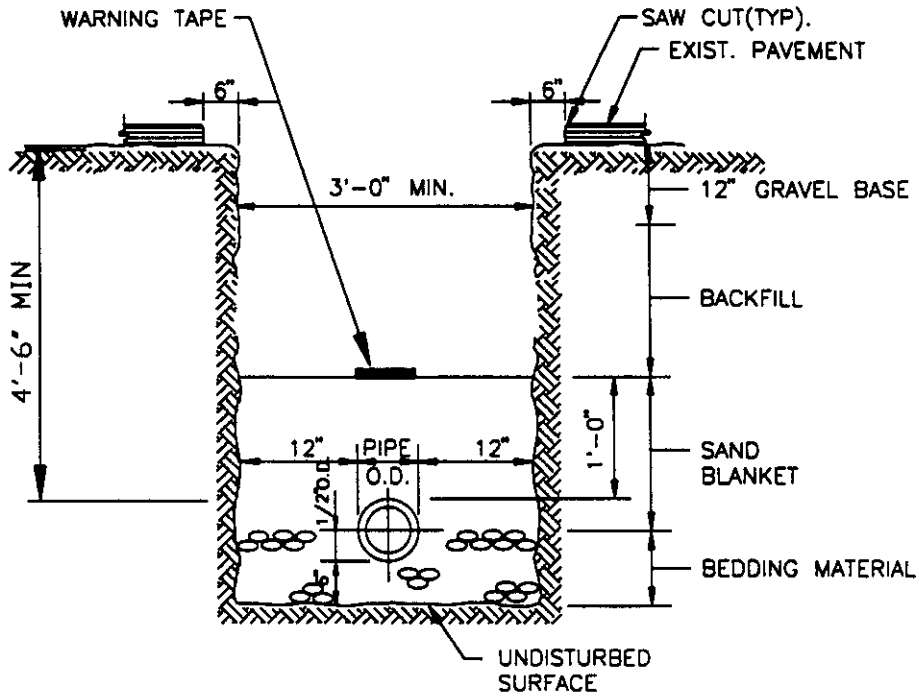
Date: 11-94 | NOT TO SCALE | FIG: W-4



Town of New Shoreham
Water Regulations

TEMPORARY BLOW-OFF DETAIL

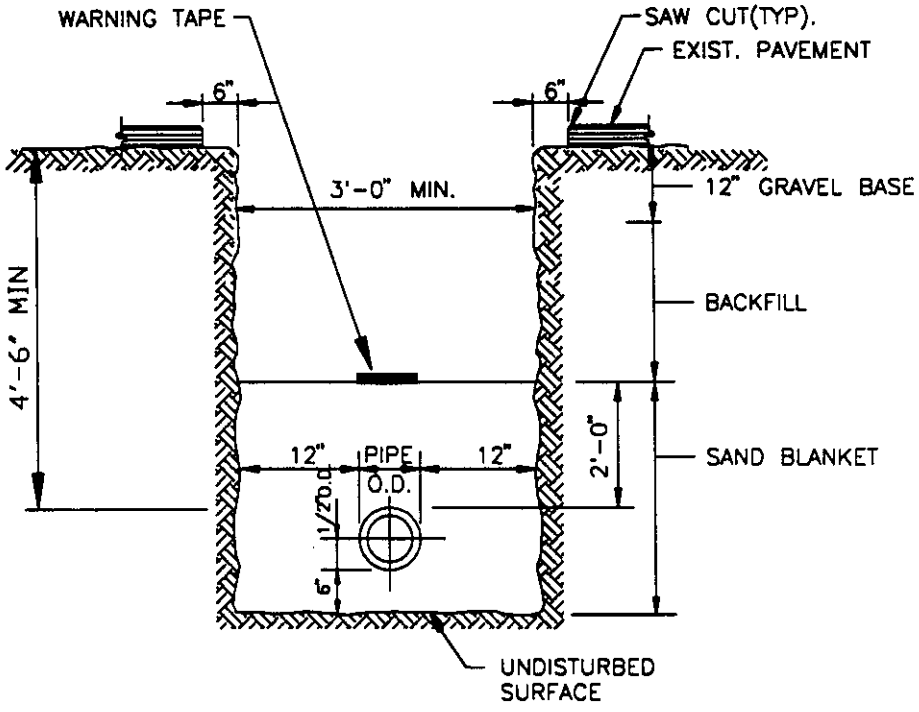
Date: 11-94 | NOT TO SCALE | FIG: W-5



Town of New Shoreham
Water Regulations

WATER SERVICE TRENCH DETAIL

Date: 11-94 | NOT TO SCALE | FIG: W-6



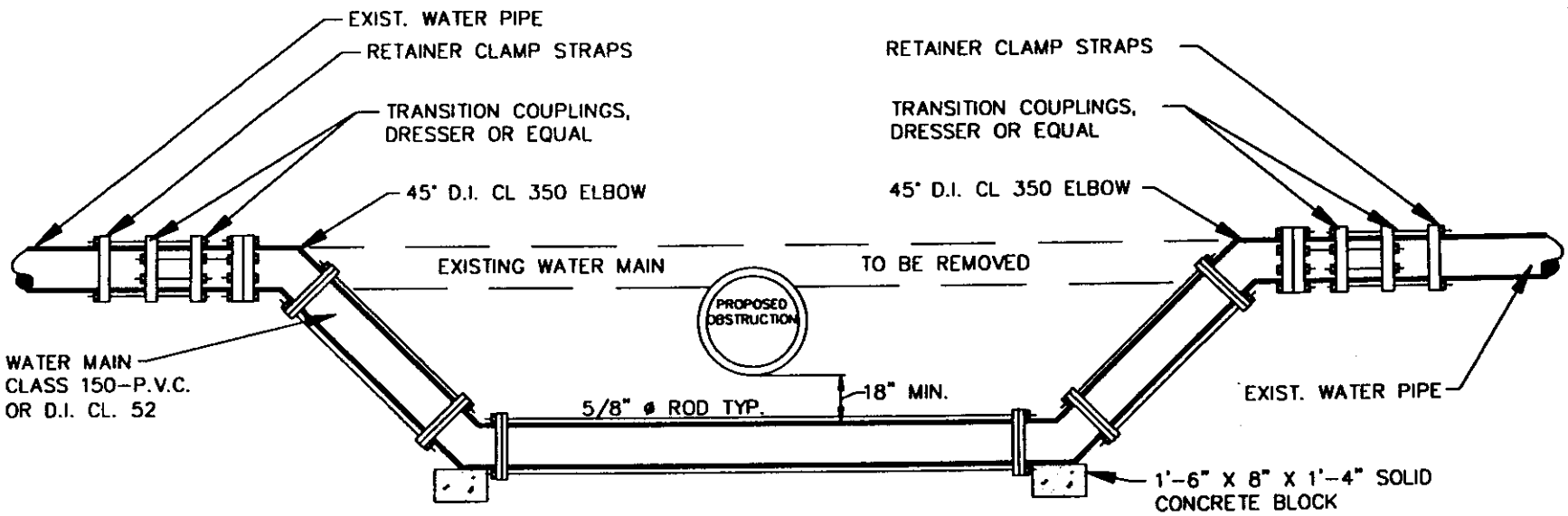
Town of New Shoreham
Water Regulations

WATER MAIN TRENCH DETAIL

Date: 11-94 | NOT TO SCALE | FIG: W-7

Town of New Shoreham
Water Regulations

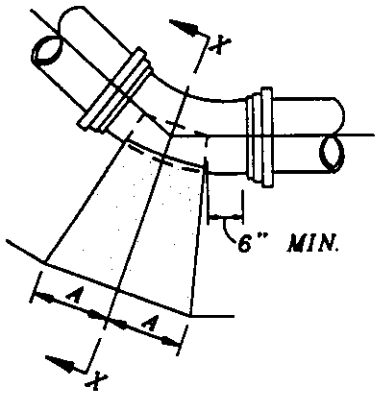
FOR TRENCH SPECIFICATIONS REFER TO:
"TYPICAL PIPE BEDDING AND TRENCH DETAILS"



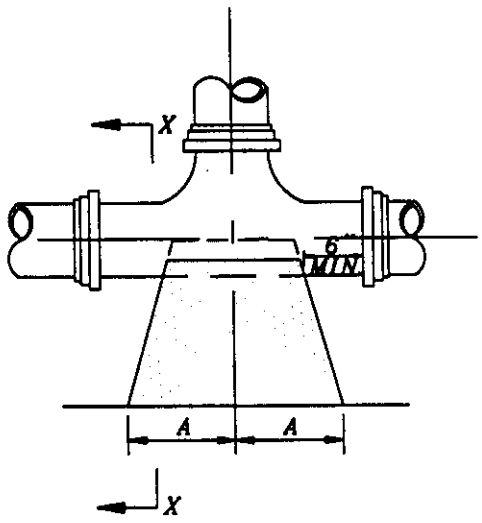
NOTE:
ALL RODS TO BE 5/8" DIAMETER
AND COATED WITH BITUMISTIC

WATER MAIN HORIZONTAL OR VERTICAL RELOCATION

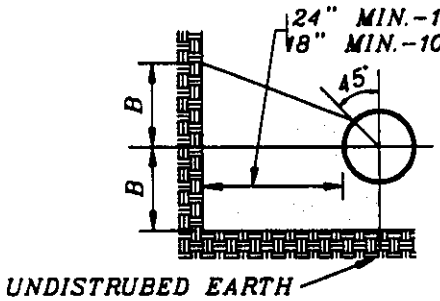
Date: 11-94 | NOT TO SCALE | FIG: W-8



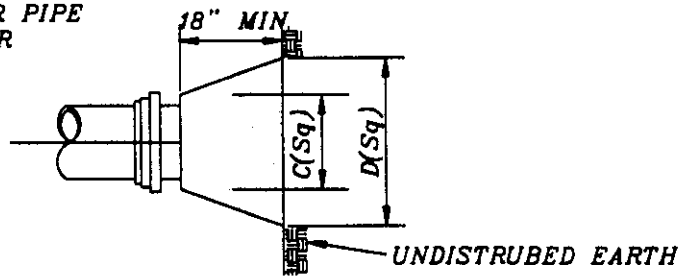
PLAN
BENDS



PLAN
TEES



SECTION X-X
BENDS & TEES



PLAN & ELEVATION
PLUGS

TYPE	SIZE	1/4 BENDS		1/8 BENDS		1/16 BENDS		TEES		PLUGS	
		A	B	A	B	A	B	A	B	C	D
TYPE 1 4000 PSF SOIL	6"	5"	10"	6"	8"	3"	8"	8"	8"	10"	15"
	8"	12"	12"	8"	10"	5"	9"	9"	12"	12"	20"
	10"	16"	14"	10"	12"	6"	10"	11"	14"	14"	25"
	12"	19"	16"	12"	14"	8"	11"	14"	16"	16"	30"
	14"	23"	18"	14"	16"	10"	12"	16"	18"	18"	34"
	16"	26"	20"	16"	18"	11"	13"	18"	20"	20"	38"
TYPE 2 2000 PSF SOIL	6"	16"	10"	9"	10"	6"	8"	10"	12"	10"	21"
	8"	22"	13"	12"	13"	8"	10"	13"	16"	12"	29"
	10"	26"	17"	14"	17"	10"	13"	16"	20"	14"	36"
	12"	29"	21"	16"	21"	11"	16"	18"	24"	16"	41"
	14"	35"	24"	19"	24"	12"	20"	22"	27"	18"	48"
	16"	38"	27"	21"	27"	12"	24"	24"	30"	20"	54"

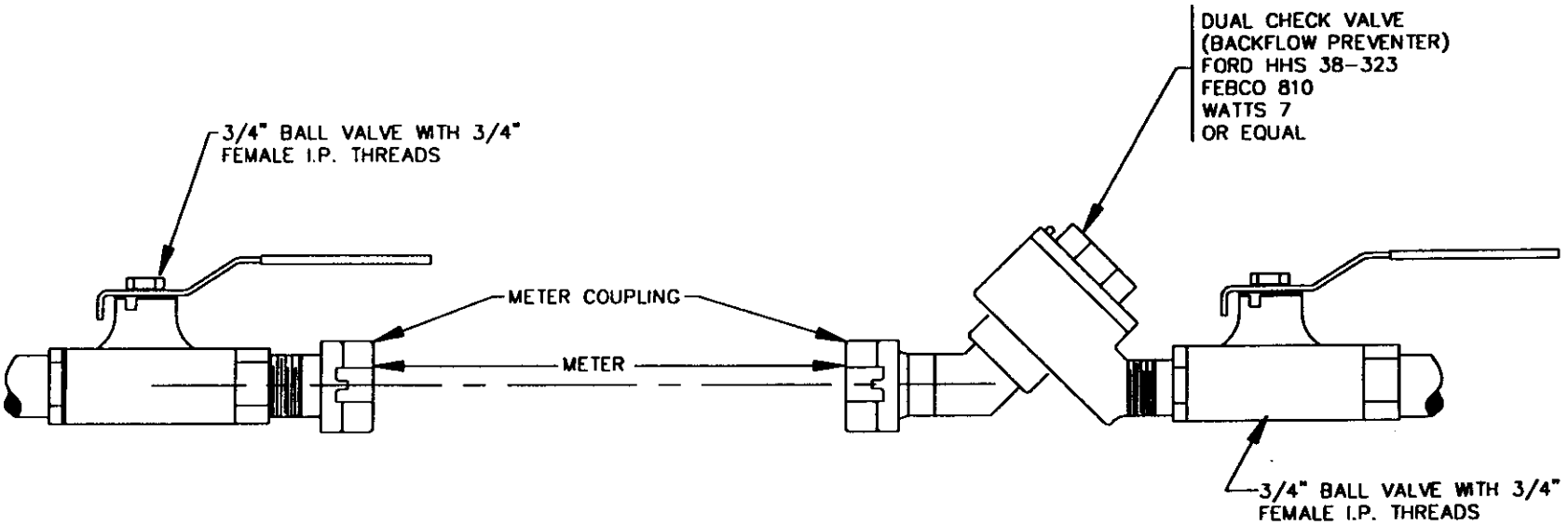
THRUST BLOCKS

Town of New Shoreham
Water Regulations

THRUST BLOCKS

Date: 11-94 | NOT TO SCALE | FIG: W-9

Town of New Shoreham
Water Regulations



NOTE: METER TO BE INSTALLED BY THE TOWN OF NEW SHOREHAM WATER COMPANY

TYPICAL RESIDENTIAL WATER METER INSTALLATION

Date: 11-94 | NOT TO SCALE | FIG: W-10

Town of New Shoreham
Water Regulations

TYPICAL WATER MAIN AND SERVICE DETAIL

Date: 11-94 | NOT TO SCALE | FIG: W-11