

ROOSEVELT WATER ASSOCIATION, INC.

CODE for

Water Main Extensions into Newly Platted Areas

August 2006



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TABLE OF CONTENTS

	Page
1. GENERAL CONDITIONS	4
1.0 DEFINITIONS	4
1.1 BASIC REQUIREMENTS	5
1.2 EXTENSION OF MAINS	6
1.3 PIPE SIZE, TYPE & LOCATION	10
1.4 FIRE HYDRANTS, TEES, GATE VALVES & BLOW-OFF VALVES	10
1.5 EASEMENT REQUIREMENTS	11
1.6 LIABILITY	12
1.7 INSURANCE	13
1.8 INSPECTION	14
1.9 RESPONSIBILITY	14
1.10 ONE-YEAR MAINTENANCE	15
2. INSTALATION	17
3. DUCTILE IRON PIPE	20
4. FITTINGS, VALVES, AND HYDRANTS	22
5. TESTING AND DISINFECTION	24
6. SERVICE CONNECTIONS	27
7. MATERIALS	28
8. SPECIAL PROVISIONS	31
9. ADOPTION	33

APPENDICES

DEVELOPER EXTENSION	32
Application for Water Standard Agreement	52
STANDARD DRAWINGS	
101 Fire Hydrant Assembly (3-21-06)	
102 Typical PRV Installation (3-21-06)	
103 Valve Box and Extension (3-21-06)	
104 Tap and Tees (3-21-06)	
105 One-inch Air and Vacuum Relief Valve (3-21-06)	
106 Blow-off Assembly (3-21-06)	
107 Concrete Anchor Block (3-21-06)	
108 Water Service Detail	

ROOSEVELT WATER ASSOCIATION, INC.

CODE & SPECIFICATIONS

Water Main Extensions into Newly Platted Areas

1. GENERAL CONDITIONS

1.0 DEFINITIONS

As herein used the following terms shall be defined as follows:

- A. “APPROVAL” means approved in writing by the Association Board of Trustees, including written confirmation of a previous verbal approval.
- B. “APPROVED EQUAL” or “EQUAL” shall mean an alternate product or material of equal or better quality and performance, complying with these specifications. Prior to use of any alternate product the Developer shall submit specifications and/or working drawings and descriptive literature to the Association for the approval in writing.
- C. “APPROVED PLAN” shall mean a plan for a proposed subdivision prepared by an engineer licensed in the State of Washington for a Developer that shows all existing and proposed water facilities in accordance with the Water System Plan, and is approved by the Engineer.
- D. “ASSOCIATION” shall mean the Roosevelt Water Association, Inc.
- E. “BOARD” shall mean the Board of Trustees governing the Association under their current by-laws.
- F. “CODE” shall mean this document of specifications or its latest revision.

- G. “DE-AGREEMENT” shall mean a Developer Extension Agreement negotiated between the Association and a prospective Developer based on the standard DE Agreement form prepared by the Association attorney following submittal of a complete ‘Application for Water’ and payment by the Developer of appropriate fees.
- H. “DEVELOPER” shall mean the individual, partnership, corporation or organization owning, or having control, of the property to which water is to be furnished as established by legal documentation.
- I. “ENGINEER” shall mean the Engineer duly appointed or employed by the Roosevelt Water Association, Inc.
- J. “MANAGER” shall mean the Board of Trustees, or the duly authorized representative of the Roosevelt Water Association, Inc.
- K. “MATERIAL” or “MATERIALS” shall, unless otherwise specified, mean anything and every-thing which is manufactured or processed and incorporated into the complete water works.
- L. “SERVICE CONNECTION” shall mean the water service line from the Association water main to the served property including the water meter and appropriate valves installed in accordance with the applicable Standard Plan after payment of all fees and charges, and with authorization by the Association.
- M. “STANDARD PLANS” shall mean the standard plans adopted by the Association and included with the Code showing the details of how appurtenances for the water system shall be constructed.

- N. “VARIANCE” shall mean a deviation from the Water System Plan or the Standard Plans as requested in writing by a Developer and approved by the Association.
- O. “WATER SYSTEM” shall mean the water system belonging to the Roosevelt Water Association, Inc.
- P. “WATER SYSTEM PLAN” (WSP) shall mean the WSP prepared by the Engineer showing the existing and future water facilities for the Association, adopted by the Board, and approved by the State Department of Health.
- Q. “WORK” or “WORKS” shall, unless the context otherwise requires, mean the whole of the work and materials, matters and things required to be done, furnished and performed by the Developer.

1.1 BASIC REQUIREMENTS

- A. All work shall be performed in accordance with the latest edition of the Washington State Department of Transportation/American Public Works Association “Standard Specifications,” together with amendments, except as otherwise amended, modified, or specified herein.
- B. American Water Works Association (AWWA) standards will supplement the “Standard Specifications” where appropriate.
- C. The current Water System Plan shall define the basic concept for future water system improvements.
- D. This Code shall constitute the basic requirements for all extension to the Association water system.

- E. Modifications to this Code, if any, shall be incorporated into the Developer Extension Agreement, or shall be noted as corrections to preliminary drawings, or shall be documented by letter from the Association to the Developer.
- F. In the event of conflicts between the Code, modifications to it, or the “Standard Specifications,” the more stringent requirements as determined by the Manager, shall apply.

1.2 EXTENSION OF MAINS

Developers of property who desire to have the Water System extended to provide service to their property or newly platted areas may construct, or have constructed for them by a utility contractor, such extensions at said Developer’s or owners expense. The Association will not participate in the cost of such extensions. Formal initiation of a project to be constructed consists of filling an application and drawings with the Manager. In order to qualify for Association approval, the proposed project must satisfy all requirement of this Code.

- A. Application Procedure: The Developer or owner, requesting permission to extend the Water System, shall fully complete a standard “Application for Water” in duplicate.
 - 1) Fee: Each application shall be accompanied with a fee in the amount of \$1,000.00 for Short Plats up to four (4) lots. For Plats over four (4) lots the application shall be accompanied with a fee in the amount of \$1,000 plus \$100 for each lot over four (4) lots, or such amount as may subsequently be approved by the Association. This fee is to apply toward the expenses of the Association for the services of their Engineer and connecting the extension to the water system.

- 2) Drawings: Each application shall be accompanied by three sets of drawings of the preliminary plat prepared by a professional engineer employed by the Developer or owner showing the proposed location and details of the construction of proposed improvements. Elevations are required at inlet and the highest and lowest point(s) and along the proposed main. It is recommended that the preliminary drawing conform in general to the requirements for “as-built” drawings hereinafter stated. All drawings shall be prepared in an electronic format acceptable to the Association, such as AutoCAD, and based on survey information provided by a Professional Land Surveyor.
- 3) Variances: The applicant may, by letter accompanying the application, request a variance from the Code requirement where it can be shown the undue hardship would otherwise result.
- 4) Submittal: Application, drawings and requests for variance shall be submitted to the Manager for review.
- 5) Plan Check: The preliminary drawings shall be checked by the Manager and the Engineer. They shall determine whether the plan is adequate and conforms to the overall plan of the Water System.
- 6) Corrections: Any corrections or additions deemed necessary by the Engineer and the Manager will be indicated on the proposed plan and one copy returned to the applicant for correction of the original and resubmission of the three copies of the drawings. When approval of plan is given, one print of the final drawings as approved will be so endorsed and returned to the applicant.

- B. Registered Engineer Required: The design and construction of the water main or mains which are to be connected to the Water System shall be supervised by a Registered Professional Engineer licensed to practice in the State of Washington. The Developer shall be required to engage an Engineer for this purpose. Details and Methods of construction shall conform to these Code specifications as hereinafter outlined.

Inspection of construction will be performed by the Manager before fittings and pipe is backfilled. Responsibility for providing lines and grade and taking measurements for as-built drawings and preparing as-built drawings shall rest upon the Developer's Engineer.

- C. Permits: The Developer shall, at his own expense, procure all bonds, permits, certificates and licenses required for the execution of the Work, and shall comply with and carry on the work subject to all regulations and ordinances made by any County, State or other governmental authority and applicable to the said Work. The Association will provide the necessary County Franchise allowing water mains to be constructed along County roads, but all permits required under that Franchise will be the responsibility of the Developer to acquire. All work must comply with the condition of the County Franchise granted to the Association. Restoration within County-Road rights-of-way shall be to the satisfaction of the County Engineer. Any cost that may be charged to the Association for work done under the Association's permit will be billed to the Developer.

- D. Testing: Upon completion of construction, the mains and appurtenances shall be inspected by the Engineer and/or Manager and shall be tested by the Developer in the presence of the Engineer and/or Manager in accordance with the specifications of this Code and be sampled for disinfection, satisfactory to the Snohomish County Health Department.

- E. As-Built Drawings: As-built drawings of the completed installation of the water main or mains connected to the Water System shall be submitted to the Engineer and be approved by him before the Association shall consider accepting the said main or mains. These as-constructed drawings will be drawn in ink on Mylar or may be non-fading photocopy of such drawing on reproducible film, 24" by 36" in size, subject to the Engineer's approval as to quality. They shall be drawn to scale not larger than 1"=100 feet; nor smaller than 1"=400 feet. The drawings show lot sizes, street dimensions, public road and easement widths and lengths in relation to the property fronting on them. They must show the location of all mains, valves, hydrants and fittings as actually installed. Should questions arise as to the accuracy of the installed water facilities, The Association may require the actual locations to be determined by a Professional Land Surveyor. The distance from road centerline to water mains and all utility poles shall also be given when in right-of-way. When in easement, a tie to the nearest road centerline shall be given at least every 200 feet along the waterline. In conjunction with the Mylar provide the ASSOCIATION with an electronic copy of the drawing.
- F. Conveyances to the Association: Upon completion of the water main or mains to be connected to the Water System, title to said main or mains shall be conveyed to the Association, together with an affidavit that there are not unsatisfied liens or unpaid bills of any kind for any of the materials used in the constructions or installation of said main or mains. Affidavits must be supplied to the Association by the Developer from the Contractor and Developer's Engineer stating that all labor used by them in connection with the installation of said main or mains has been paid and that they, themselves, have been paid in full according to contract.
- G. Acceptance: On completion of construction and testing, all portions of the Work shall be inspected and tested carefully by the Developer who shall

satisfy himself that every item has been completed and all defects made good, that all surplus materials, refuse, dirt or rubbish have been removed, and that the whole Works are in a finished, satisfactory, clean and tidy condition, and ready in all respects for inspection by the Association. The Developer shall then request that an inspection be made.

If the work is found to be satisfactory by the Association, a “Notice of Acceptance” will be issued. When all the Stipulations and requirements, as set forth in the Code, have been fulfilled, the title to said main or mains along with all franchises, permits, easements and affidavits will be accepted, and individual applications for water service from the above-mentioned main or mains will be considered.

1.3 PIPE SIZE, TYPE & LOCATION

- A. Every new water main along County road and private easement served by the Water System shall be at least eight (8) inches in diameter. Developer may request in writing at the time of application, a variance to install six (6) inch-diameter mains for short runs of less than 300 feet unless there is a chance that the water line will be extended in the future or a Fire Hydrant is to be installed on the extension, as determined by the Association. Mains along Country road rights-of-way shall extend to plat boundaries.
- B. The water mains serving the plat shall be laid across the full frontage of all lots before any water service connections will be made to any of said lots.
- C. Water service, with fire protection at 500 gpm minimum and 20 psi residual pressure, shall be provided to each lot of the short plat or subdivision. For residential clusters and properties within the Urban

Growth Area, fire protection at 1,000 gpm minimum and 20 psi residual pressure, shall be provided to each lot of the short plat or subdivision.

- D. All mains shall be constructed of Class 52 ductile-iron pipe, except for stream crossings which shall be Class 53. Materials and details of construction of all extensions and additions to the Water System shall conform to the specifications as hereinafter outlined. In general, all water mains shall be located 9 feet from property line.

1.4 FIRE HYDRANTS, TEES, GATE VALVES & BLOW-OFF VALVES.

- A. Fire Hydrants shall be installed on all extensions of the Water System at the time such extensions are constructed. Hydrants shall be installed as required by the Association to meet Chapter 16.36 Snohomish County Code. All hydrants shall be installed according to the Standard Drawing No 101. In general, all hydrants shall be located 6.0 feet inside the right-of-way line in a 50 or 60-foot right-of-way and 1.0 foot inside the right-of-way line in a 40-foot right-of-way, and within 300 feet of every served lot.
- B. Blow-off Valves shall be installed at the end of all dead-end lines unless a fire hydrant is provided at that point. Blow-off assemblies shall be in accordance with the attached typical drawings.
- C. Gate Valves shall be located at the end of all dead-end lines in which a future extension is anticipated by the Developer or the Association. Gate Valves are required on all branches, at line junctions, and intervals not exceeding 1,500 feet along a main and/or as required by the Association.
- D. Tees and Crosses shall be provided at all street intersections where future extension might develop, or where the Association anticipates a line may be installed for the purpose of improving circulation in the system. Gate

valves with blind flanges may be required for these future extensions at the discretion of the Association.

- E. Combination Air Release and Vacuum Valves shall be installed at all high points deemed necessary by the Manager and in accordance with the typical drawings. Elevations will be indicated at all air release and vacuum valve locations.

1.5 EASEMENT REQUIREMENTS

- A. All easements necessary for the construction and operation of a proposed main shall be obtained by the Developer but shall name the Association as grantee. The minimum width of such easements shall be 20 feet, unless otherwise negotiated.
- B. In general, private easements will not be accepted as it is expected that all construction will take place on land to be deeded to the County for public road purposes.
- C. All easements shall be designated in favor of the Association and shall be recorded with Snohomish County

1.6 LIABILITY

- A. The Developer shall use due care to insure that no person or property is injured and that no rights are infringed upon in the course of the work.
- B. The Developer shall be solely responsible for all damages, be whomsoever claimable, in respect of any injury to persons, or lands, building, structures, fences, livestock, trees, crops, roads, rights-of-way, ditches, and water courses whether natural or artificial, or property of

whatever description, and in respect of any infringement of any right, privilege or easement whatsoever occasioned in the carrying on of the Works or any part thereof, or by any neglect, misfeasance or nonfeasance on his part shall, at his expense, make such provision as may be necessary to ensure the avoidance of any such damage, injury or infringement and to prevent the interruption of, or damage or menace to the traffic on any railway or any public or private road, and to secure to all persons and corporations the uninterrupted enjoyment of all their rights, in and during the performance of the said works.

- C. The Developer shall indemnify and save harmless the Association from and against all claims and demands, loss, costs, damages, action, suits, or other proceedings by whomsoever made, brought or prosecuted in any manner based on, occasioned by, or attributable to any such damage, injury or infringement.

- D. The Developer shall be responsible to observe and enforce all County, State and Federal laws and ordinances applicable to the project, and shall protect and hold harmless the Association and the Association's authorized agents against any suit or liability befalling the Association or its agents due to violation of, or in regard to, any such law or ordinance by the Developer, any contractor or any employee of either.

- E. The Developer shall indemnify and save harmless the Association from and against all losses and all claims, demands, payments, suits, actions, recoveries and judgments of every nature and description brought or recovered against him, and/or the Association, by reason of any act or omission of the said Developer, his agents or employees in the execution of the Work, or in the guarding of it.

1.7 INSURANCE

- A. The Developer shall procure from insurance companies which have an A.M. Best rating of "A minus" or better commercial general liability (“A” or “A plus”), and comprehensive automobile liability insurance against liability to the Developer, the Association, the Association's Engineer and the Association employees for negligent injury to person or property resulting from performance, supervision, or inspection of the work.

- B. The Developer shall also procure from such insurance companies builder's all risk completed value insurance which shall insure against All-Risks including Earthquake, Collapse and Damage resulting from Faulty Workmanship, Material or Design and shall provide coverage for the entire work which is the subject of this Agreement on a 100% completed value basis, and shall include completed work and work in process.

- C. The Association and the Association's Engineer shall be named as additional insured under such policies.

- D. Proof of the existence of such insurance shall be provided to the Association by an endorsement to Developer's policy or policies. The minimum limits of coverage shall be as follows:

General Aggregate	\$ 2,000,000.00
Products - Comp/OPS Aggregate	\$ 2,000,000.00
Personal Injury	\$ 1,000,000.00
Each Occurrence	\$ 1,000,000.00
Automobile Liability	\$ 1,000,000.00

- E. The Association shall be given at least forty-five (45) days written notice of cancellation, non-renewal, material reduction or modification of coverage. Such notice shall be sent by "certified mail."

- F. The coverage as provided by the Developer's insurance policies are to be primary to any insurance maintained by the Association and the Association's Engineer, except with respect to losses attributable to the sole negligence of the Association. Any insurance that might cover this Agreement which is maintained by the Association and the Engineer shall be in excess of the Developer's insurance and shall not contribute with it.
- G. The Developer's insurance policy shall protect each insured in the same manner as though a separate policy had been issued to each. The inclusion of more than one insured shall not affect the rights of any insured with respect to any claim, suit or judgment made or brought by or for any other insured or by or for any employee of any other insured.
- H. The general aggregate provisions of the Developer's insurance policy shall be amended to show that the general aggregate limit of the policies apply separately to this extension.
- I. The Developer's insurance policy shall not contain a deductible or self-insured retention in excess of \$10,000 unless approved by the Association.
- J. The Developer's insurance policies shall contain a provision that the Association has no obligation to report events which might give rise to a claim until a claim has been filed with the Association's Board of Trustees.
- K. Providing coverages in the stated amounts shall not be construed to relieve the Developer from liability in excess of such limits.

1.8 INSPECTION

The Developer shall allow the Engineer and/or Manager access to and provide adequate facilities for access to any part of the Works at all times for inspection, and shall inform the Manager in advance as to where and when certain work will be ready for inspection. No part of the construction shall be covered until inspected by either the Manager or the Engineer, or their inspector designated in writing, and their approval given in writing of the work done.

1.9 RESPONSIBILITY

- A. The Developer shall be responsible for workmanship, materials, and all maintenance and protection of the Works and surfaces, completed or otherwise, until such time as the entire Works have been accepted in writing by the Association as provide herein. The issuance of “Notice of Acceptance” to fulfill the requirements does not in any way relieve the Developer of his obligations of the one-year maintenance period.
- B. The acceptance or the lack of comment on the part of the Manager and/or Engineer, of methods of construction employed by the Developer shall not relieve the Developer of his responsibility for any errors therein and shall not be regarded as an acceptance of responsibility for the Work done by the Developer.
- C. Any of the Work which, during it progress and before final acceptance of the whole Work, becomes damaged from any cause shall be removed and replaced by the Developer at his expense to the satisfaction of the Manager.
- D. The Developer will have on hand a copy of the approved plan and permits at all times while construction is in progress.

1.10 ONE-YEAR MAINTENANCE

- A. The Developer shall maintain all repaved surfaces, main pipes, structures, and equipment provided and/or installed in any particular extensions of the Water System for a period of one year following the date of issuance of the Notice of Acceptance by the Association.
- B. Any repair or replacement required in accordance with the above stipulated maintenance shall be carried out by the Developer or his appointed representative without delay on request of the Manager. In the event that repair or replacement must be carried out immediately to prevent serious damage or loss, the Manager, in the absence of the Developer, may at his own discretion take whatever action is necessary to prevent such loss. This action taken by the Association shall in no way relieve the developer from is financial responsibility.
- C. The Developer shall carry out all repair or replacement to the satisfaction of the Manager and/or Engineer and in accordance with the specifications of this Code. The Developer, at the discretion of the Engineer, may be required to perform tests on repair or replacements as specified for the original Work.
- D. All costs resulting from the necessity to do work required under this maintenance clause, whether done by the Association, the Developer or his representative, shall be borne by the Developer.
- E. The Developer shall make good to the Association all expenses, losses or damages incurred during the maintenance period, in consequence of any such defect, omission, or mistake of the Developer.

2. INSTALLATION

- 2.0 The Developer shall supply all materials, except for individual service meters to complete the water main or mains on any particular extension of the Water System unless otherwise specified in the DE Agreement.
- 2.1 All pipe and accessories shall be laid, jointed and tested under pressure for defects and leakage as specified under the supervision of the Manager. All pipe, blocking and fittings shall not be backfilled until inspection by the Manager.
- 2.2 The water main shall be laid and maintained to the required lines and grades, with fittings, valves and hydrants at the required locations. Spigots shall be centered in bells and all hydrant stems plumb.
- 2.3 All water mains shall be laid at a sufficient depth to allow for a minimum cover of 42 inches below finished grade. The depth shall be measured as shown on the typical drawings. Where future changes in grade are contemplated, the depth shall be increased or decreased on the instruction of the manager.
- 2.4 The trench shall be dug so that the pipe can be laid to the alignment and depth required, and it shall be excavated only so far in advance of the pipe laying safety and traffic requirements permit. The trench shall be so braced and drained that the workmen may work therein safely and efficiently. The discharge of the trench dewatering shall be conducted to natural drainage channels, or drains with sedimentation controls provided as may be required by Snohomish County.
- 2.5 The width of the trench at the bottom shall be sufficient to permit the pipe to be laid and jointed properly and backfill to be placed and compacted properly. The trenches shall be of such extra width, when required, as will permit the convenient placing of timber supports, sheeting and bracing, and handling of special equipment or materials.
- 2.6 Bell holes or coupling holes shall be of sufficient length, width and depth to permit jointing and to prevent the bell or coupling from resting on the bottom of the hole.

- 2.7 The trench shall be excavated to the depth required to provide a uniform and continuous bearing for the pipe on solid ground between bell holes, except that it will be permissible to disturb the bottom of the trench near the middle of each length of pipe for the withdrawal of pipe slings or other tackle. Any part of the bottom of the trench below the specified grade shall be corrected with approved material, thoroughly compacted. The subgrade shall be finished with hand tools, or the Developer may over-excavate and place and compact granular fill.
- 2.8 Proper equipment, tools and facilities shall be used by the Developer for the safe and efficient prosecution of the work. All pipe, fittings, valves, and hydrants shall be carefully lowered into the trench piece by piece with a derrick, ropes or other suitable tools or equipment, so as to prevent damage. In no circumstances shall water main materials be dropped or dumped into a trench.
- 2.9 The interior of all pipes shall be inspected before being laid in the trench and any foreign matter removed from it by swabbing. If the pipe-laying crew cannot lay the pipe without getting earth into it the Manager may require that a tightly woven canvas bag of suitable size be placed over each end of the pipe and left there until the connection is to be made to the adjoining pipe.
- 2.10 The amount of pipe deflection at joints and couplings shall not exceed that recommended by the manufacturer. Copies of the pipe manufacturer specifications will be on hand at the time the pipe is being laid.
- 2.11 When pipe is not being laid, the open ends of pipe already in place shall be closed to prevent trench water from entering the line. This provision shall apply during the noon hours as well as over night. If there is water in the trench, the seal shall remain in place until the trench is pumped dry.

- 2.12 Whenever water is excluded from a pipe, adequate backfill shall be placed on the pipe to prevent it from floating. Any pipe which has floated shall be removed from the trench and be re-laid.
- 2.13 Bedding for pipe and all backfill shall be sand or 5/8-minus gravel. Bedding shall be deposited uniformly by and in the trench to completely surround the pipe without voids on both sides for the full width of the trench and to the mid-diameter of the pipe.
- 2.14 Thrust blocks shall be installed where required in accordance with the Standard Plan.

3. DUCTILE IRON PIPE

- 3.1 Ductile-iron shall be handled so that the coating and lining is not damaged. If any part of the coating or lining is damaged, the repair shall be made by the Developer at his expense to the satisfaction of the Manager.
- 3.2 All lumps, blisters and excess coal tar coating shall be removed from the bell and spigot end of each pipe, and the outside of the spigot and the inside of the bell shall be wire brushed and wiped clean and dry and free from oil grease before being laid.
- 3.3 After placing a length of pipe in trench, the spigot end shall be centered in the bell of the adjoining pipe and the pipe forced home and brought into correct line and grade. The pipe shall be secured with approved backfill material tamped under it except at the bell end. Pipe and fittings which do not permit sufficient and uniform space for joints shall be removed and replaced with pipe and fittings of proper dimensions to ensure such uniform space. Precautions shall be taken to prevent dirt from entering the joint space.
- 3.4 The cutting of pipe for inserting valves, fittings or closure pieces shall be done in a neat and workmanlike manner without damage to the pipe or cement linings and so as to leave the end smooth and at right angles to the axis of the pipe. The cutting of pipe with an oxyacetylene torch shall not be allowed.

- 3.5 Pipe shall be laid with bell ends facing in the direction of laying unless otherwise directed by the Manager.
- 3.6 Whenever it is necessary to deflect pipe from a straight line to avoid obstructions or to plumb valve stems, or where long-radius curves are permitted, the amount of deflection shall not exceed the manufacturer's recommendations. Where necessary, short lengths shall be used.
- 3.7 If mechanical joints are used, the rubber gaskets, glands and bolt shall be installed in accordance with the manufacturer's instructions. Care shall be taken to avoid exposure of rubber gaskets to direct sunlight for excessive periods of time. The gaskets shall be stored in a clean, cool place, protected from sunlight and contamination until ready for installation on the pipe.
- 3.8 Bedding and backfill material shall be sand or 5/8-inch minus gravel. Bedding shall be deposited uniformly by hand in the trench to completely surround the pipe without voids on both sides for the full width of the trench and to the mid-diameter of the pipe.

4. FITTINGS, VALVES AND HYDRANTS

- 4.1 Valves, fittings, plugs, and caps shall be set and jointed to the pipe in the manner heretofore specified for cleaning, laying, and jointing pipe.
- 4.2 A valve box and concrete market post shall be provided for every valve. The valve box shall not transmit shock or strain to the valve and shall be centered plumb over the key nut of the valve per Standard Drawing No 103 Valve Box and Extensions. The box cover shall be flushed with the surface of the finished grade or at such other level as may be directed. Market post shall be painted yellow.

- 4.3 All dead ends on mains shall be closed with cast iron plugs, caps, blow-off valves, or hydrants.
- 4.4 Thrust blocking shall be applied at tees, plugs, caps, and bends, and where changes in pipe diameter occur at reducers or in fittings. The size and shape of thrust blocking are shown on typical drawings.
- 4.5 Thrust blocking shall be of concrete of a mix not leaner than 1 part cement, 2 ½ parts sand, and 5 parts aggregate, having compressive strength of not less than 2,000 psi in 24 hours when using high early strength cement, and 7 days when using standard cement. Blocking shall be placed between solid ground and the fitting to be anchored.
- 4.6 Metal harness of tie rods and pipe clamps shall be used with ring-type couplings to prevent movement when specifically directed by the Engineer. Steel rods and clamps shall be galvanized or otherwise rust-proof.
- 4.7 Hydrants shall be located in a manner to provide complete accessibility, and also that the possibility of damage from vehicles or injury to pedestrians will be minimized. Pumper nozzles shall face the traveled roadway and hydrant barrels shall be rotated if necessary to achieve this position.
- 4.8 Should hydrant extension be required, the Developer will be directed to install same at time of construction.
- 4.9 Each hydrant shall be connected to the main with a 6-inch branch controlled by an independent 6-inch gate valve as shown on the Standard Drawing No 101 Fire Hydrant Assembly.
- 4.10 Hydrant drainage shall be provided at the base of the hydrant by placing coarse gravel or crushed stone mixed with coarse sand as shown on the Standard Drawing No 101 Fire Hydrant Assembly.

- 4.11 If the groundwater table is higher than the hydrant drain, or where otherwise required by the Engineer, the Developer shall plug the hydrant drain. No gravel will then be placed around the drain holes.

5. TESTING AND DISINFECTION

- 5.1 A hydrostatic leakage test shall be conducted after all newly constructed water mains, fire lines, fire hydrants, leads and stubouts have been completely installed and backfilled.

The duration of each leakage test shall be one hour, and the test sections will be subjected to the hydrostatic pressure of 200 psi based on the elevation of the lowest point in the section under test and corrected to the elevation of the test gauge, EXCEPT, no section shall be tested at less than 100 psi.

Leakage is defined as the quantity of water which must be added to the tests section to maintain the specified test pressure after the pipe has been filled with water and the air expelled. Hydrostatic leakage test will be in accordance with DOT/APWA Section 7-11, 3(11) or AWWA C-600 specifications, unless specified otherwise by the Association.

The Developer shall furnish all necessary apparatus and labor to conduct the test.

- 5.2 No pipe installation will be accepted until the leakage is not greater than the number of gallons per hour as determined by the following table:

Leakage Allowance
Gallons per 100 joints per hour

Pipe Diameter (inches)	Test Pressure (psi)				
	100	125	150	200	225
3	0.41	0.45	0.50	0.57	0.61
4	0.54	0.60	0.66	0.76	0.81

6	0.81	0.91	0.99	1.15	1.22
8	1.08	1.21	1.32	1.53	1.62
10	1.35	1.51	1.66	1.91	2.03
12	1.62	1.81	1.99	2.29	2.43
14	1.89	2.12	2.32	2.68	2.82

Evaluated on the basis of 200 psi this leakage is approximately equal to 3.4 gallons per mile of pipe in one hour, for 6-inch-diameter pipe in 18-foot lengths. For 8-inch pipe, the allowance is 4.5 gallons per mile.

Should any test disclose leakage greater than that specified above, the Developer shall, at his own expense, locate, repair, and retest the defective section.

- 5.3 Each test section of pipe shall be slowly filled with water, and the specified test pressure shall be applied by means of a pump connected to the pipe. The pump, pipe connection, and all necessary apparatus and labor for the test shall be furnished by the Developer.
- 5.4 Before applying the leakage test pressure, all air shall be expelled from the pipe. If hydrants or blow-offs are not available at high places, the Developer shall make the necessary taps at point of highest elevation before the test is made and insert plugs after the test has been completed.
- 5.5 Upon completion of the leakage tests, the entire extension and appurtenances shall be disinfected. After a proper set time, all pipe, reservoirs and appurtenances shall be flushed.

Disinfection methods shall comply with Washington State Department of Health standards, as well as American Water Works Association current standards, which are presently as shown below:

AWWA	C-651-86
AWWA	C652-8C

- 5.6 The one-year maintenance period shall not commence until after the conclusion of satisfactory leakage and disinfection tests and a Notice of Acceptance have been received. The one-year maintenance period will commence from the date of the Notice of Acceptance.
- 5.7 Water used to flush, fill, and test an extension will be charged to the Developer at the current water rates, or such revised rate as may be established by the Association from time to time.

6. SERVICE CONNECTION

- 6.1 All installations of service connections will be made by the Association unless specific exemptions are approved by the Association prior to the construction of the extension of main or mains.
- 6.2 The Association shall supply all materials unless specified otherwise in the DE Agreement. These materials shall be complete with jointing materials and accessories necessary to complete the water service connections, to a point one foot outside of the individual lot property line.
- 6.3 Trees, fences, poles, sidewalks, and other property shall be protected. Any damage to such properties resulting from the Developer's operations shall be repaired by the Developer at his own expense.
- 6.4 Except where otherwise approved, all service tapings shall be made with stainless double strap saddle, brass corporation stop, copper pipe or approved substitute including goose neck, meter stop, and meter box. All water service lines shall be installed as shown on the Standard Drawing No 108 Water Service Detail.

All service pipes shall be buried to a minimum of depth of 3 feet.

- 6.5 A service line across County Roads and/or State Highways need not be cased, and shall be known as “Service Connections, Schedule II.”
- 6.6 All service lines shall be subjected to the same hydrostatic tests as required for the new water mains and appurtenances.
- 6.7 The surface, pipe, fittings, and attendant structures shall be maintained as provided for in Section 2.09 of the Specifications.

7. MATERIALS

7.1 Material suppliers must be bona fide waterworks suppliers of reputable service and longevity who are capable and willing to provide a competent service both during the period of installation and during the period of guarantees afforded by the manufacturer of their products. Suppliers shall be identified by the Developer, and the Association shall give its approval of same, before construction begins.

7.2 Ductile iron water pipe shall be manufactured and tested in conformance with the requirements of the following specifications:

ANSI A-21.50

AWWA C-151-76

Pipe shall be cement-lined. Joints may be mechanical or slip type. Extra or special couplings to connect to the existing asbestos-cement pipe shall be provided by, and paid for by, the Developer as needed.

7.3 Cast iron and ductile iron fittings shall be manufactured in accordance with the requirements of the following specifications:

Cast Iron ASA A-21.10

AWWA C110

Ductile Iron ANSI 21.53-88

AWWA C-153

Fittings shall be short-bodied and manufactured for use with the commonly acceptable rubber gaskets used with asbestos-cement water pipe. Flanged fittings shall be provided when required.

- 7.4 Gate vales shall be manufactured and tested in conformance with the requirements of the following specifications:

AWWA C-515

MH 4067

Gate valves shall be iron body, resilient-seated, non-rising stem, only M&H or Mueller gate valves will be used by the Association. Valves shall have two-inch-square operating nut and open counterclockwise when looking down. Valve stems shall have O-ring seals. Valves will be used with rubber ring ductile iron pipe or flanged unless otherwise specified. Valve boxes and extensions shall be installed in accordance with the Standard Drawing No 103 Valve Box and Extension.

- 7.5 Fire hydrants shall be manufactured and tested in conformance with the requirements of the following specifications:

AWWA C-502-85

National Board of Fire Underwriter's Requirements

Fire hydrants shall be as used by the Association, MH 129, and shall also comply with the following requirements: 6" Mechanical joint inlet, 5 1/4" Main Valve opening, center stem with shackle lugs, bury 4', open counterclockwise, nozzles; two 2 1/2" NST and one 4" NST, shackle rods from main to hydrant. Hydrant extension shall be installed when required.

- 7.6 Service saddles shall be double straps stainless, as required, malleable iron, electroplated, with O-ring gaskets. Threads shall be cc pipe threads.

7.7 Service pipe shall be soft annealed copper, type K, manufactured and tested in compliance with the following specifications:

AWWA 7S-CR

Diameter shall mean the inside diameter.

7.8 Meter stops as supplied shall be bronze, angle, and with lock wing, while the connections shall be as follows:

Inlet – copper pipe.

Outlet – meter coupling.

7.9 Meters supplied by the Association shall be manufactured and tested in conformation with the requirements of the following specifications:

AWWA C-700

Meter shall have sealed register, frost protection device, read in cubic feet. One meter connector shall be included.

When an individual service PRV is connected, meter and PRV shall be connected at right angles to each other in the meter box with brass fitting. In this situation length of meters shall be 7-½ inch. Meters shall have a minimum 5/8-inch inlet and ¾-inch outlet. No galvanized fitting will be attached to the Association's fittings.

Service lines shall be ¾-inch diameter copper, or

Service lines shall be plastic 1-inch CTS diameter,

Unless the property owner requests differently

7.10 Meter boxes are indicated by size. Size #1 for ¾ x ¾-inch meters. 1-inch and 1-½ inch service meters shall have size No. 2 boxes.

7.11 Individual service pressure reducing valves shall be equipped with an integral strainer and capable of passing the flow capacity of the meter. PRVs shall be Watts's #U-25 or equal.

- 7.12 A main line pressure reducing stations shall be installed in accordance with the Standard Drawing No 102 Typical PRV Installations. All piping and equipment must be cleaned and painted prior to acceptance. Pressure regulating valves must be set to the pressures indicted by the Engineer and checked with gauges to ensure proper setting.

8. SPECIAL PROVISIONS

- 8.1 Open trenching across County Roads will not be permitted without specific permission from the County Engineer. Water line shall be installed in steel casing pipe with a diameter four (4) inches larger than the outside coupling dimension at all County Road and/or State Highway crossings. Casing may be bored or jacked-in at the Developer's discretion. Casing shall be of sufficient length to extend a minimum of one foot beyond the shoulder of the traveled way.

The top of the casing shall be below the frost line, and top of casing shall not be less than three feet below the road surface. End of the pipe shall extend one foot beyond the edge of the pavement. On other portions of the road right-of-way the top of the main shall have a minimum cover of three feet.

All road crossings shall be done according to the requirements of the County Engineer, and the herein-above provisions do not release the developer from any of the obligations under County requirements. The developer shall be fully and solely responsible to the County for any drainage to the roadway.

- 8.2 After obtaining an acceptable backfilled trench on road shoulders sufficient crushed gravel shall be evenly spread over the area to produce a surfaced shoulder acceptable to the County Engineer. Any damage done to the existing pavement shall be repaired to the satisfaction of the County Engineer at the Developer's expense.
- 8.3 A permit to commence work must be obtained from the County Engineer and must be available to the Associations Inspector at the work site.

- 8.4 Water mains under creeks will use ductile iron restrained joints. Where pipe is to be laid in areas of fill, ductile iron restrained joint gaskets are required, as determined by the Manager (Inspector) or the Association Engineer.
- 8.5 Pressure Reducing Stations shall be constructed in the main lines, when required, in complete accordance with Standard Drawing No 102 Typical PRV Installation. Activation and setting of pressure reducing stations shall not be done unless the Manager (Inspector) or the Association Engineer is present.
- 8.6 All extensions shall be connected to the Association main, or mains, by the use of tapping tees and tapping valves, in such a manner that water service through the Association lines will not be disrupted for a period greater than 6 hours between the hours of 9:00 a.m. and 3:00 p.m. If water service is to be interrupted, a 5 (five) day notice must be given to the Association before work can commence.
- 8.7 Only authorized employee of the Association shall be allowed to shut water off or turn water on to any premises or into any extension of the Water System.
- 8.8 Any connection to the present Association line must be done through a double check valve until proof of water purity is obtained by the Developer. The double check valve must have a current Certification, and must have been checked and certified since the last use. Double check valves that have not been used within one year must be re-certified. A true copy of the certification with inspectors name must be provided to the Association before the connection can begin.

9. ADOPTION

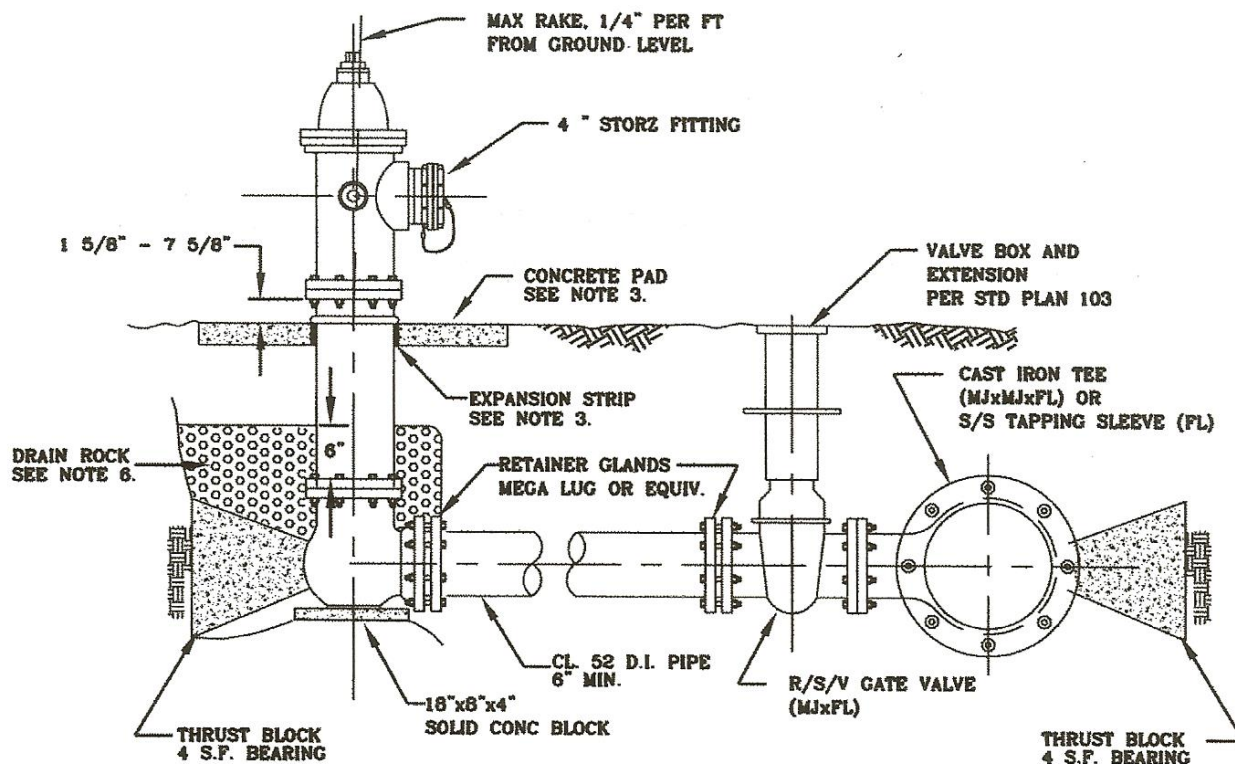
Code has been accepted by the Board of the Roosevelt Water Association and is hereby adopted for use.

Glen E. Allen

President

August 12, 2006

Dated



NOTES:

1. HYDRANTS AND ALL MATERIALS TO BE APWA OR AWWA APPROVED.
2. FIRE HYDRANT SHALL BE M&H NO. 129 WITH 5 1/4" VALVE. TWO 2 1/2" NST HOSE PORTS, AND ONE NST STEAMER PORT FACING STREET. 1-1/4" OPERATING NUT AND CAP NUT FOR 2-1/2" PORTS BREAK-OFF HYDRANT BASE FLANGE.
3. 4" THICK X 3' X 3' CONCRETE PAD WITH 1/2" X 4" EXPANSION STRIP AROUND HYDRANT. HYDRANT SHALL SIT IN THE CENTER OF THE PAD. CONCRETE SHALL BE CLASS 3000.
4. PROVIDE FOR VEHICULAR TRAFFIC PROTECTION WHEN NECESSARY
5. BREAK-OFF FLANGE TO BE 1 5/8" TO 7 5/8" ABOVE GROUND LEVEL.
6. 1/2 CY DRAIN ROCK WRAPPED WITH 6 MIL. POLYETHYLENE SHEETING.
7. FIRE HYDRANTS SHALL BE PAINTED WITH TWO COATS OF HIGH GLOSS RUST-O-LEUM FIRE HYDRANT YELLOW. BONNET AND CAPS USE RUST-O-LEUM FLOW COLOR
8. MECHANICAL JOINTS TO BE WRAPPED WITH 6 MIL. POLYETHYLENE SHEETING.



FIRE HYDRANT ASSEMBLY

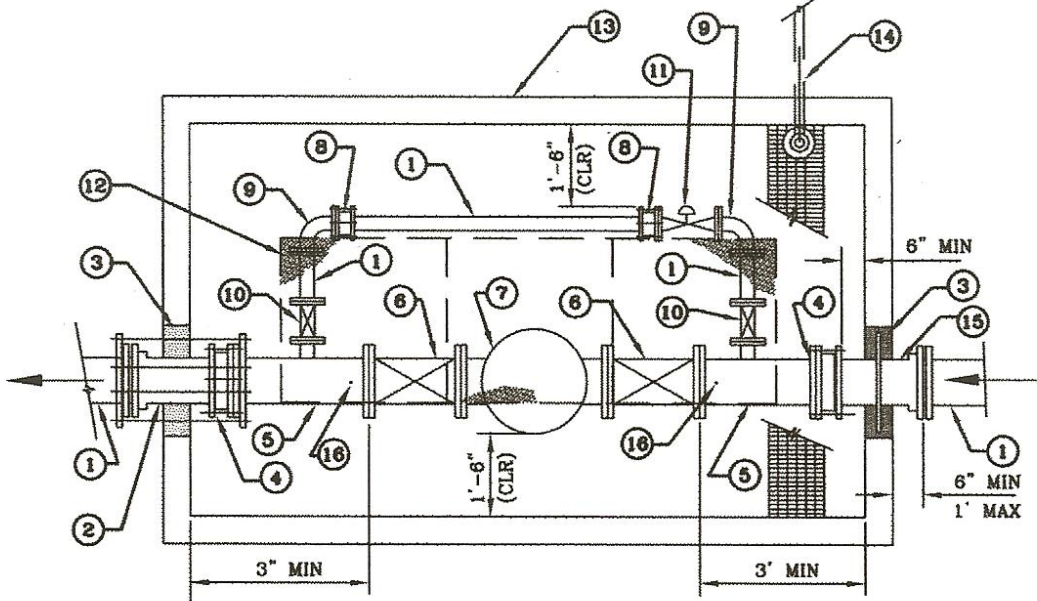
ROOSEVELT WATER ASSOCIATION, INC.

NUMBER

101

DATE

6-22-06



PARTS LIST

- | | |
|---|---|
| ① DUCTILE IRON PIPE CL 52 | ⑩ GV (FLxFL) |
| ② SPOOL (MJxPE) WITH SHACKLE BOLTS TO BE USED IN PRECAST VAULTS | ⑪ PRV (FLxFL) |
| ③ NON-SHRINK GROUT | ⑫ UTILITY VAULT CO LID WITH TRAFFIC LOADED LOCKING STEEL COVERS OR EQUAL. |
| ④ FLANGE COUPLING ADAPTOR (FLxMJ) | ⑬ UTILITY VAULT CO PRECAST VAULT. |
| ⑤ TEE (ALL FL) | ⑭ 2" GRAVITY SUMP DRAIN EXTEND TO DAY-LIGHT OR TO STORM DRAINAGE SYSTEM. |
| ⑥ GV CL 200 (FLxFL) | ⑮ WALL SLEEVE (FLxPE) TO BE USED WITH CAST IN PLACE VAULTS. |
| ⑦ PRV (FLxFL) ASSOCIATION APPROVED | ⑯ 1/4" GAUGE TAPS WITH 1/4" BALL VALVES FOR ISOLATION. |
| ⑧ FLANGE COUPLING ADAPTOR | |
| ⑨ 90° ELL (ALL MJ W/MEGA LUGS) | |

NOTES

- MINIMUM VAULT INSIDE HEIGHT SHALL BE 78".
- MINIMUM CLEARANCE BETWEEN PRV VALVES AND FLOOR SHALL BE 12".
- MINIMUM CLEARANCE BETWEEN HIGHEST PART OF ASSEMBLY AND TOP OF VAULT SHALL BE 24".
- PROVIDE LIQUID FILLED 2 1/2" GAUGES AMETEK SERIES 550L OR EQUAL.
- ALL EQUIPMENT MUST BE RATED FOR SOURCE PRESSURE (OVER 50 PSI).
- PIPING AND VALVES SHALL BE SUPPORTED BY STEEL STANDS.
NUMBER OF AND PLACEMENT OF STANDS TO BE DETERMINED BY ROOSEVELT WATER ASSOCIATION MANAGER ACCORDING TO VALVE SIZE
- BRAND AND TYPE OF PRV AND ACCESSORIES TO BE DETERMINED BY ROOSEVELT WATER ASSOCIATION MANAGEMENT PRIOR TO CONSTRUCTION OR APPROVAL FOR INSTALLATION.



TYPICAL PRV INSTALLATION

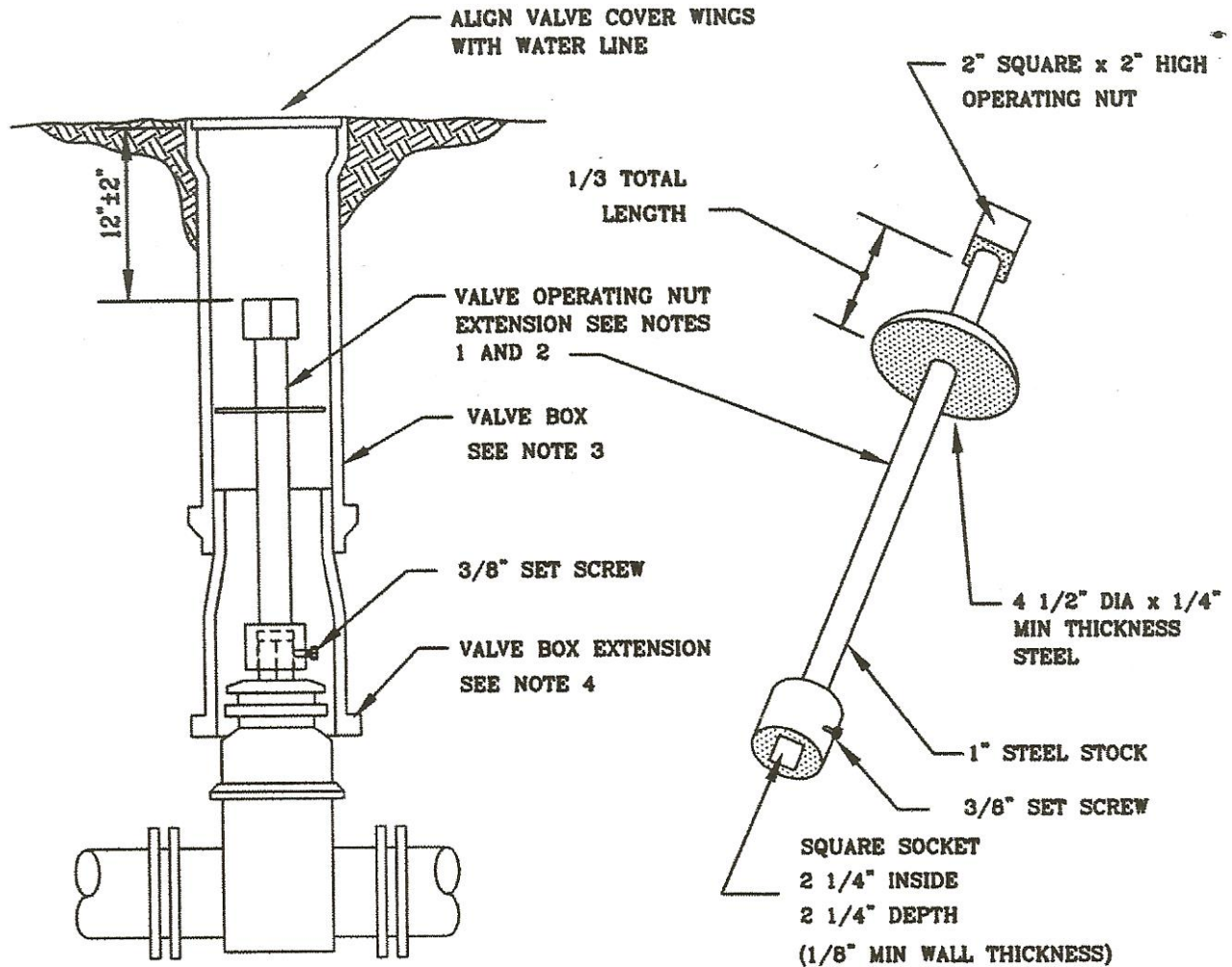
ROOSEVELT WATER ASSOCIATION, INC.

NUMBER

102

DATE

6-22-06



**VALVE BOX AND
EXTENSION**

**VALVE OPERATING
NUT EXTENSION**

NOTES:

- 1 VALVE OPERATING NUT EXTENSIONS ARE REQUIRED WHEN THE VALVE NUT IS MORE THAN THREE (3) FEET BELOW FINISHED GRADE. EXTENSIONS ARE TO BE A MINIMUM OF ONE (1) FOOT LONG. ONLY ONE EXTENSION WILL BE ALLOWED PER VALVE.
- 2 ALL VALVE OPERATING NUT EXTENSIONS ARE TO BE MADE OF STEEL, SIZED AS NOTED, AND PAINTED WITH TWO (2) COATS OF METAL RUST RESISTANT PAINT.
- 3 VALVE BOXES SHALL BE CAST IRON, TWO PIECE UNITS, DESIGNED WITH (LUGS) ON COVER, EQUAL TO "RICH NO. 940" AS MANUFACTURED BY RICH OR SATHER.
- 4 ALL VALVES IN UNPAVED AREAS SHALL HAVE A 2'X 2'X 4" THICK CONCRETE PAD AROUND COVER.



VALVE BOX & EXTENSION

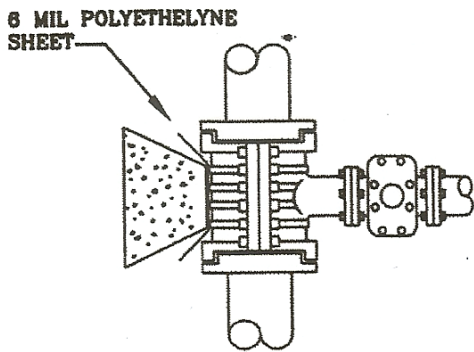
ROOSEVELT WATER ASSOCIATION, INC.

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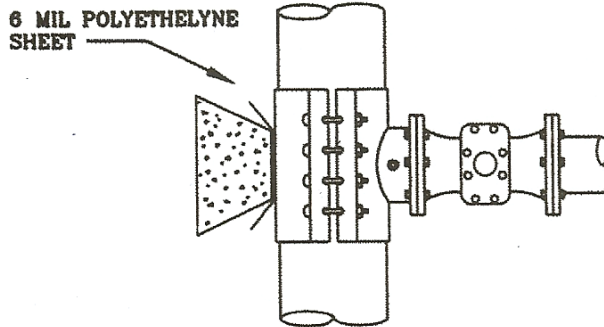
103

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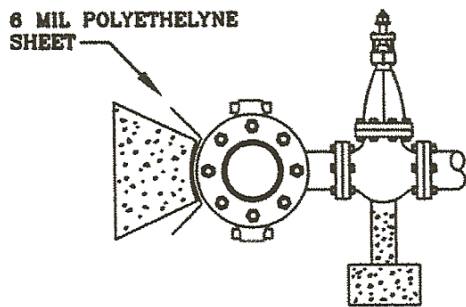
3-21-06



PLAN

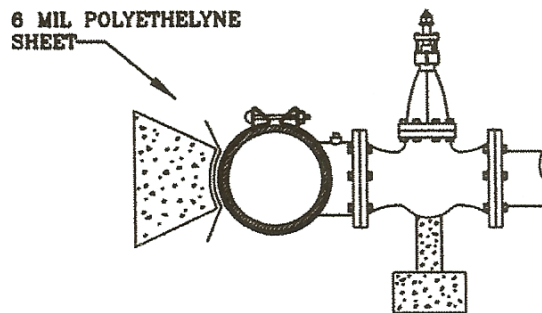


PLAN



ELEVATION

INSTALLED ON ASBESTOS CEMENT PIPE,
CAST IRON PIPE AND DUCTILE IRON
PIPE.



ELEVATION

INSTALLED ON ASBESTOS CEMENT PIPE,
CAST IRON PIPE AND DUCTILE IRON
PIPE.

**CAST IRON TAPPING TEE
MECHANICAL JOINT SLEEVE**

**STAINLESS STEEL
TAPPING TEE**

NOTES:

1. STAINLESS STEEL TAPPING TEES SHALL HAVE FULL CIRCLE SEAL.
2. ALL TEES AND VALVES TO BE WATER TESTED BEFORE TAP.



TAPPING TEES

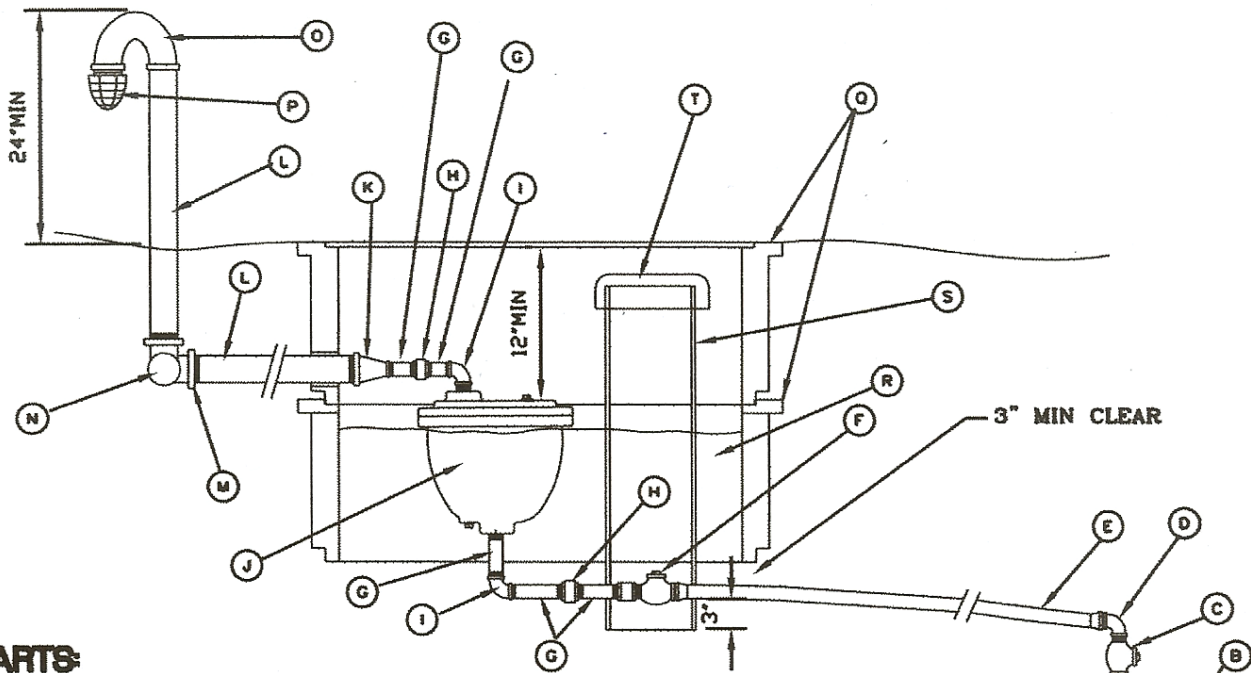
ROOSEVELT WATER ASSOCIATION, INC.

NUMBER

104

DATE

3-21-08



PARTS:

- | | |
|---|--|
| (A) CL 52 DUCTILE IRON PIPE | (K) 2"x1" GALV REDUCER |
| (B) DOUBLE STRAP SERVICE, ROMAC INC. STYLE #202NS | (L) 2" GALV PIPE |
| (C) 1" FORD F400-4 SERIES CORP | (M) 2" STREET ELL (HORIZ) |
| (D) 1" FORD 602-44 ANGLE COUPLING | (N) 2" GALV 90° ELL (VERT) |
| (E) 1" TYPE "K" COPPER TUBING | (O) 2" GALV RETURN BEND |
| (F) 1" FORD B21-444 CURB STOP | (P) GALV BEEHIVE STRAINER GREENBURG P-24-08, FOR 2" PIPE |
| (G) 1" BRASS NIPPLE | (Q) UTILITY BOX CARSON 1730 SERIES, BROOKS SERIES 65T OR FOGTITE NO 2. |
| (H) 1" BRASS UNION | (R) BACKFILL WITH SAWDUST TO BONNET. |
| (I) 1" BRASS 90° ELL | (S) 6" PVC PIPE |
| (J) 1" COMBINATION AIR AND VACUUM RELIEF VALVE APCO 143-C, VALMATIC 201C OR EQUAL | (T) 6" PVC CAP |

NOTES

- AIR-VAC UNIT AND BOX TO BE INSTALLED IN NON-TRAFFIC AREA.
- USE FORD DOUBLE STRAP SERVICE CLAMP OR APPROVED EQUAL ON ALL MAINS
- ALL PIPE FITTINGS BETWEEN MAIN AND UNION, AFTER AIR/VACUUM RELIEF VALVE, SHALL BE BRASS.
- INSTALLATIONS FOR OTHER SIZE AIR/VACUUM RELIEF VALVES SHALL BE INDIVIDUALLY DESIGNED AND WILL REQUIRE APPROVAL BY THE UTILITIES DIVISION.
- PAINT METER BOX LID AND RISER ASSEMBLY (2) COATS SAFETY YELLOW, OIL BASE ENAMEL- HAND BRUSH APPLIED. STENCIL RISER ASSEMBLY WITH "AV" AND SIZE OF AIR/VAC ASSEMBLY ON SIDE FACING ROADWAY IN 2" BLACK LETTERS.
- AIR/VAC RELEASE VALVE ASSEMBLY SHALL BE INSTALLED AT HIGH POINT ON LINE. IF HIGH POINT FALLS IN LOCATION WHERE ASSEMBLY CANNOT BE INSTALLED, PROVIDE ADDITIONAL DEPTH TO CREATE A NEW HIGH POINT.
- CONCRETE VAULT PENETRATIONS SHALL BE CORE DRILLED AND GROUTED.



1" AIR AND VACUUM RELEASE VALVE

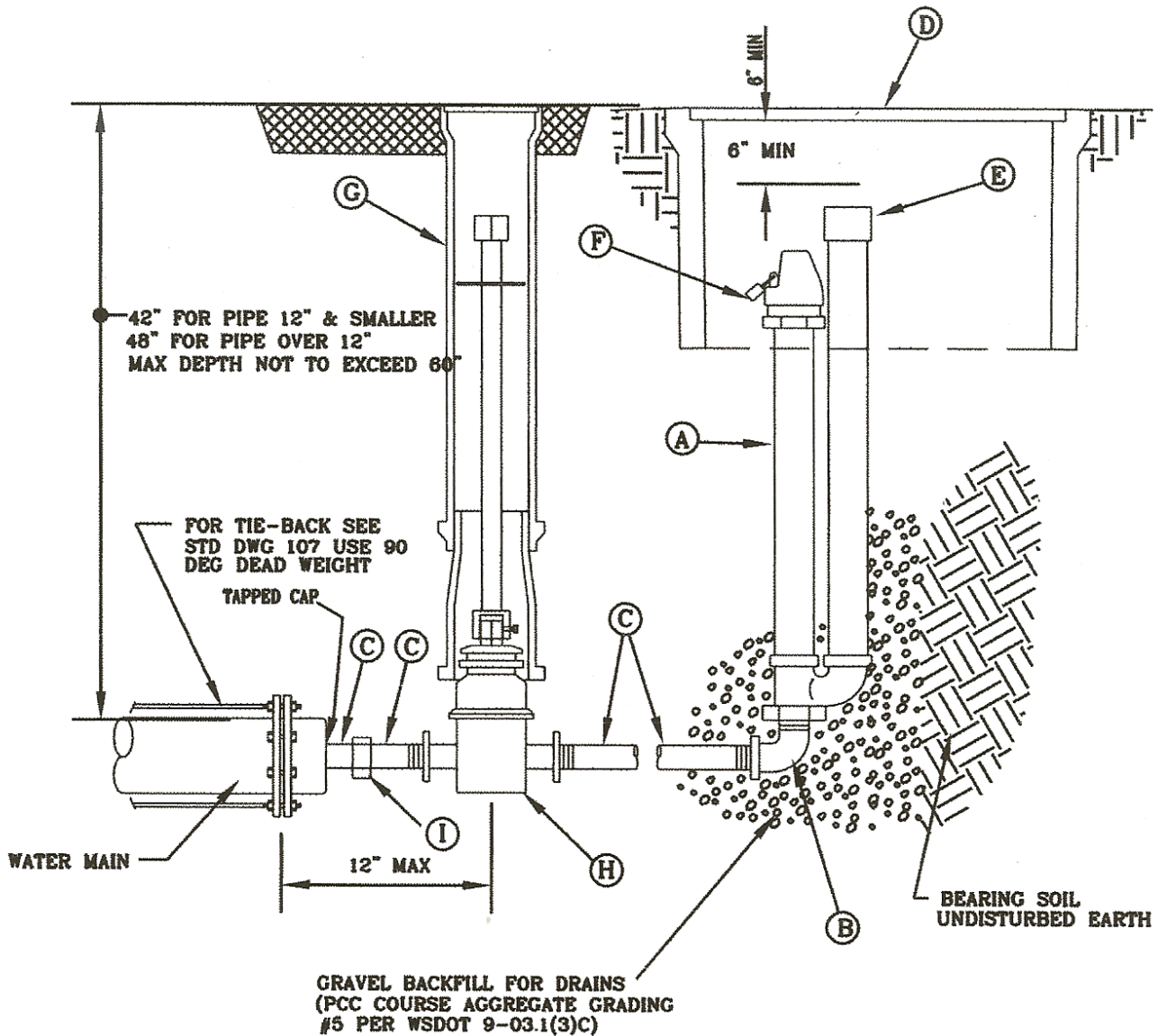
ROOSEVELT WATER ASSOCIATION, INC.

NUMBER

105

DATE

6-22-06



LEGEND:

- (A) MAINGUARD 2" BLOW-OFF HYDRANT
- (B) 2" BRASS STREET "L"
- (C) 2" BRASS NIPPLE
- (D) CONCRETE METER BOX, FOGTITE OR EQUAL
FOGTITE #2 IN NON TRAFFIC AREAS
FOGTITE #2T IN TRAFFIC AND
SIDEWALK AREAS (DIAMOND PLATE FRAME)
- (E) 2" CAP NATIONAL STANDARD THREAD
- (F) LOCK TO BE SUPPLIED BY ROOSEVELT WATER
- (G) VALVE BOX AND EXTENSION PER PER STD DWG 103
- (H) 2" SUPER HEAVY DUTY RESILIENT SEAT GATE VALVE
M&H 3087 OR APPROVED EQUAL
- (I) UNION



BLOW-OFF ASSEMBLY

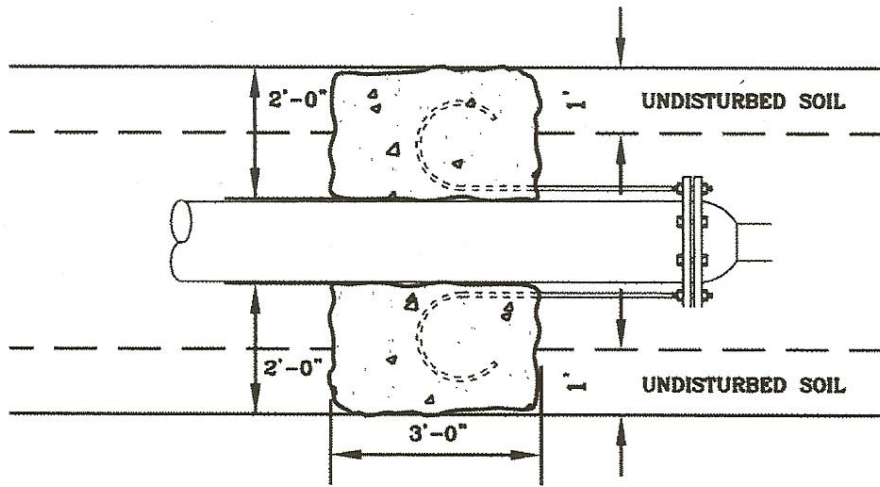
ROOSEVELT WATER ASSOCIATION, INC.

NUMBER

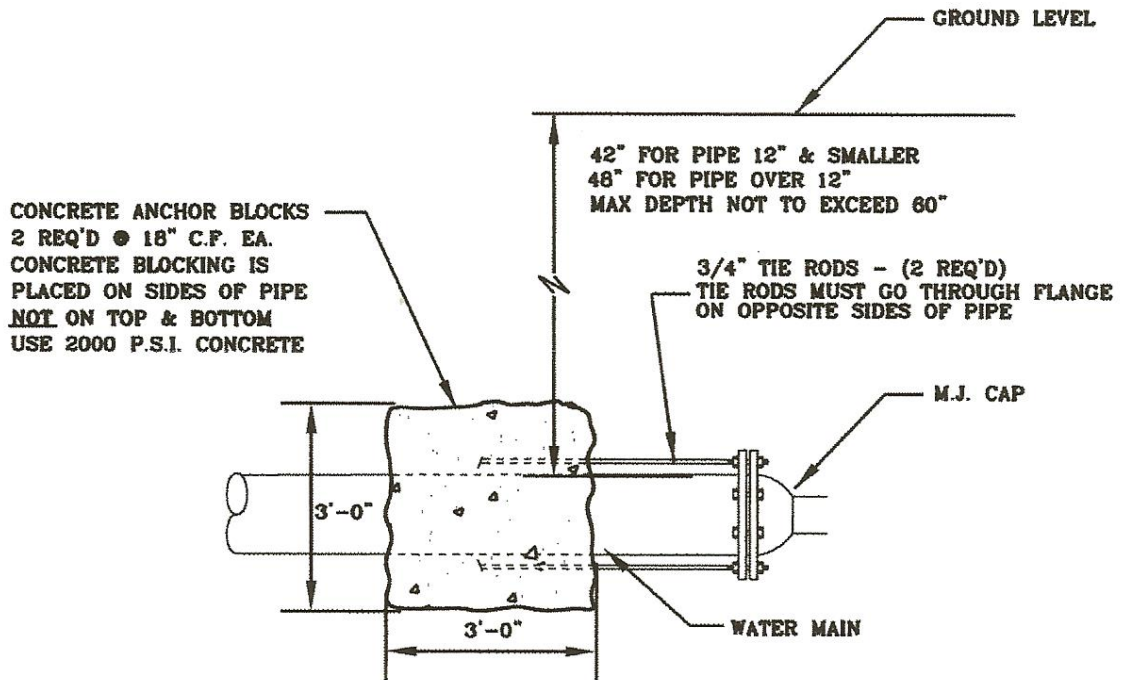
106

DATE

6-22-06



TOP VIEW



SIDE VIEW



CONCRETE ANCHOR BLOCKS

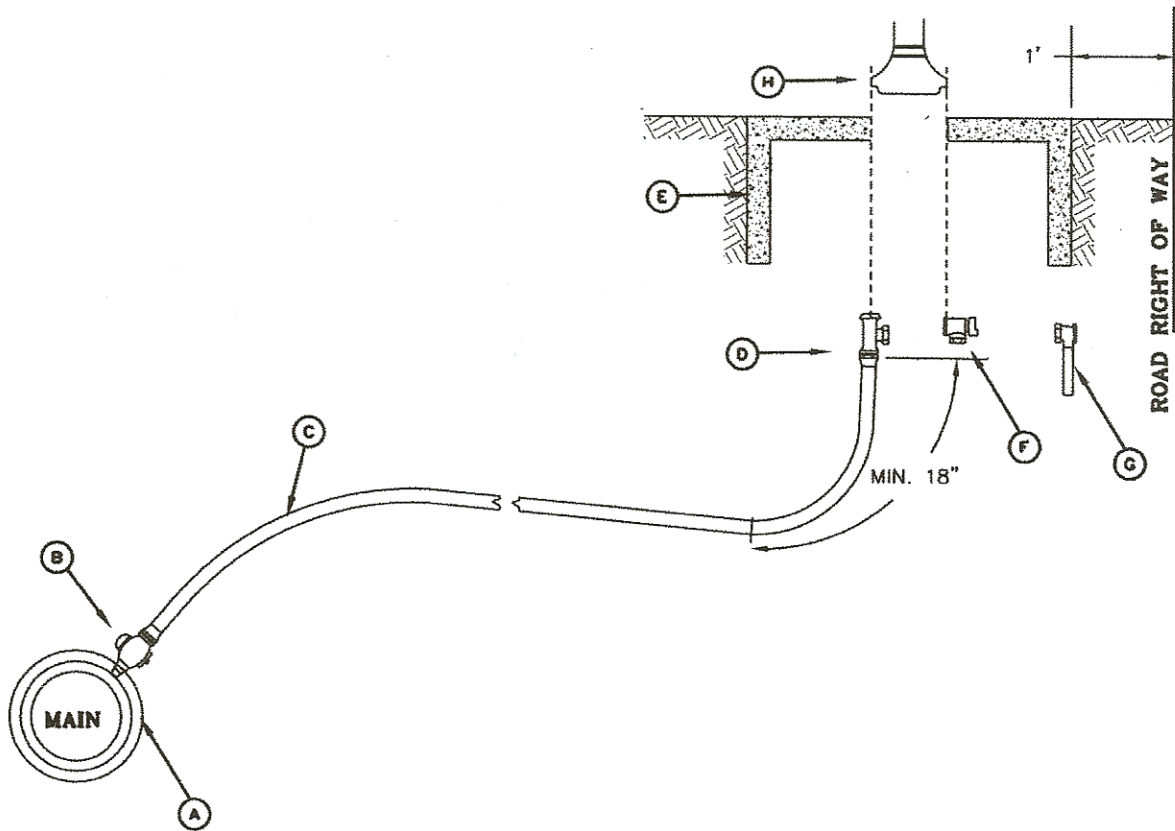
ROOSEVELT WATER ASSOCIATION, INC.

NUMBER

107

DATE

6-22-06



PARTS:

- (A) DOUBLE STRAP SERVICE SADDLE, ROMAC INC. SYTLE #202NS WITH 3/4" CC THREAD.
- (B) 3/4" CORPORATION STOP, EQUAL TO FORD F700-3 WITH CC THREAD.
- (C) 3/4" TYPE K COPPER SERVICE PIPE - LENGTH TO SUIT.
- (D) 3/4" ANGLE METER STOP, EQUAL TO FORD AV21-333W.
- (E) METER BOX PLASTIC 14"x19" WITH LID W/CI READER FOR BOX #1419.
- (F) METER CHECK VALVE WITH SWIVEL NUT, EQUAL TO FORD HA31-323.
- (G) 3/4"x12" BRASS NIPPLE.
- (H) METER, 5/8"x3/4" MASTER METER MMMJ23CFDR.

NOTES

1. SERVICE FROM METER BOX TO HOUSE IS THE RESPONSIBILITY OF THE HOME OWNER.
2. INDIVIDUAL SERVICES REQUIRED FOR EACH LOT.



SINGLE SERVICE CONNECTION (WITH METER)

ROOSEVELT WATER ASSOCIATION, INC.

NUMBER

108

DATE

6-22-06