RICHLAND TOWNSHIP MUNICIPAL AUTHORITY
ALLEGHENY COUNTY, PENNSYLVANIA

Rules and Regulations Governing
Water Service
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THE RICHLAND TOWNSHIP MUNICIPAL AUTHORITY
OF ALLEGHENY COUNTY, PENNSYLVANIA

RULES AND REGULATIONS GOVERNING WATER SERVICE

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THE RICHLAND TOWNSHIP MUNICIPAL AUTHORITY OF ALLEGHENY COUNTY, PENNSYLVANIA

RULES AND REGULATIONS GOVERNING WATER SERVICE

SECTION I - DEFINITIONS

1. **ACCEPTABLE CROSS-CONNECTION:** An acceptable cross-connection is a cross-connection having all of the following characteristics:

   a. The source of the supply other than the lines of the Authority, directly connected, is a source approved by the Pennsylvania Department of Environmental Protection as an acceptable, safe and sanitary source of public water supply and which continues as such at all times when the cross-connection is in existence.

   b. Installed or continued in existence with the knowledge and specific consent of the Authority, and when installed on the premises of a customer or installed by a customer, such consent shall be evidenced by proper written agreements or approval.

   c. Installed or continued in existence and operated at all times in strict compliance with all applicable laws, ordinances, rules and regulations.

2. **AIR GAP:** The unobstructed vertical distance through the free atmosphere between the lowest opening from any pipe or faucet supplying water to a tank, plumbing fixture, or to other devices and the flood level rim of said vessel. An approved air gap shall be at least double the diameter of the supply pipe, measured vertically, above the top of the rim of the vessel; and, in no case less than one inch. When an air gap is used at the service connection to prevent the contamination or pollution of the public potable water system, it is required that an emergency by-pass be installed around the air gap system and an approved reduced pressure principle device shall be installed in the by-pass system.

3. **APPROVED:** Approved shall mean accepted by the Authority as meeting an applicable specification stated or cited in the Rules and Regulations or as suitable for the proposed use. The term "Approved" used in reference to a backflow prevention device shall mean a backflow prevention device that meets the requirements of the American Water Works Association's standard C506-69 and the Foundation for Cross Connection Control and Hydraulic Research of the University of Southern California and is acceptable to the Authority. Competent testing laboratories other than the Foundation for Cross Connection Control may be qualified by the Authority to approve backflow preventers.

4. **AUTHORITY:** The word "Authority," whenever the same appears herein, means the Richland Township Municipal Authority of Allegheny County, Pennsylvania, a body corporate and politic organized and existing under the laws of the Commonwealth of Pennsylvania.

5. **BACKFLOW:** The flow of water or other liquids, mixtures, or substances into the potable water distribution system of the Authority from any source or sources other than its intended source. Back siphonage and back pressure are two types of backflow specifically contemplated by these rules and regulations.

6. **BACKFLOW PREVENTION DEVICE:** Types, uses, advantages, limitations. Three types of devices: reduced pressure zone device (RPZ); double check valve assembly (DCVA); and air gap (AG) which are designed to prevent the occurrence of backflow.

7. **COMMERCIAL SERVICE:** Provision of water to premises where the customer is engaged in trade and/or commerce.

8. **COMMUNITY WATER SYSTEM:** A system which is provided water by the Authority but is not owned or maintained by the Authority with the exception of meters. .

9. **CONTAMINATION:** An impairment of water quality to a degree which creates an actual or potential health hazard such as, but not limited to, chemical poisoning or spread of diseases, or impairs the composition and odor of the water to such an extent that it is considered by said odor or composition to be not acceptable by the Authority for human consumption.

10. **CORPORATION STOP:** A valve attached to the water main to start a service connection, which is used to interrupt flow during installation or maintenance of the service line.

11. **CROSS CONNECTION:** A cross-connection is a physical arrangement whereby a public water supply system is connected with another water system, public or private, in such a manner that a flow of water into such public water supply system from such other water system is possible. Specifically it is the intent of these regulations to regulate any system containing water or substances, the quality and quantity of which cannot be approved by County, State, or Federal Regulatory Agencies.

12. **CURB STOP:** A valve installed in the water service line, accessible for operation from the surface of the ground for routinely interrupting flow through the service line.

13. **CUSTOMER:** The word "customer," as used herein, means the owner or tenant, as defined herein, contracting for or using water service on a single premises; and the word "Customers" means all so contracting for and using service.

14. **CUSTOMER FACILITY:** The pipe, valves and other facilities by means of which water is conducted from the curb stop to the premises, and specifically includes the service line extending from a point of connection to the curb stop to a point inside the walls of the premises or meter box where approved, a stop cock or flared adapter to full-flow valve on the line at this point, connections for the inlet and outlet sides of the meter, a stop and waste cock on the outlet side of the meter and such other facilities.

15. **DATE OF PRESENTATION:** The date upon which a bill or notice is mailed, as evidenced by the United States Postal Service mark.

16. **DISTRIBUTION SYSTEM:** Shall mean the water distribution system that furnishes water for general use, owned and operated by the Richland Township Municipal Authority of Allegheny County, Pennsylvania and is recognized by regulatory agencies as a community potable water supply system

17. **DOMESTIC SERVICE:** Provision of water for residential purposes, including water for sprinkling lawns, gardens (not commercial type) and shrubbery, watering livestock, washing vehicles, and other similar and customary purposes.

18. **DOUBLE CHECK VALVE ASSEMBLY:** A device composed of two independently operating approved check valves with tightly closing shut-off valves on each side of the check valves, and necessary appurtenances for testing. To be approved by the Authority or its designated agent, the device must be readily accessible for maintenance and testing and installed in a location where no part of the device will be subject to outside flooding. The device shall be used on service connections which may be subject to backflow and where there exists a possibility of actual or potential pollution hazard.

19. **FERRULE:** A metal, plastic or rubber ring used to fasten and seal pipe in a compression fitting.

20. **GRUBBING:** The act of digging the ground for removal of stumps, roots, large rocks, etc.

21. **HEALTH HAZARD:** An actual or potential threat of contamination or pollution to the Authority's water system to such a degree or intensity that there would be a danger to the public health of the Authority's water system customers.

22. **INDUSTRIAL SERVICE:** Provision of water to premises for use in manufacturing or processing activities.

23. **INTERCONNECTION:** An interconnection is a plumbing arrangement, other than a cross-connection, by which contamination might be admitted to or drawn into the distribution system of the Authority, or into lines connected therewith used for the conveyance of potable water. For the purposes of these rules and regulations, when the term cross connection is used for regulatory purposes, it shall be meant to include interconnection in all instances.

24. **MAIN EXTENSIONS:** Extensions of distribution pipelines beyond existing facilities and exclusive of service connections.

25. **MAINS:** Distribution pipelines which are located in streets, highways, etc., public ways or private rights of way, and which are used to serve the general public.

26. **METER INSTALLATION:** A meter installation is defined as an installation including one or more meters placed at one or more locations for the purpose of serving one or more premises in a building or a related group of buildings, in a facility or related group of facilities, in an area or a related group of areas, and in such other properties. More than one meter may be provided to allow flexibility of operation, or furnish adequate capacity, or to permit more accurate measurement of water, or due to the physical layout of the property.

27. **METER RATE SERVICE:** Provision of water to premises in measured quantities.

28. **MUNICIPAL OR PUBLIC SERVICE:** Provision of water to a municipal subdivision of the Commonwealth of Pennsylvania or agency thereof, or to other similar public bodies.

29. **NON ESSENTIAL USE OF WATER:** Non essential uses of water include:

a. The use of hoses, sprinklers, or other means for sprinkling or watering of shrubbery, trees, lawns, grass, plants, vines, gardens, vegetables, flowers, or any other vegetation.

b. The use of water for washing automobiles, trucks, trailers, trailer houses, or any other type of mobile equipment.

c. The washing of streets, driveways, parking lots, service station aprons, or office buildings, exteriors of homes, sidewalks, apartments, or other outdoor surfaces.

d. The operation of any ornamental fountain or other structures making a similar use of water.

e. The use of water for filling swimming or wading pools.

f. The operation of any water cooled comfort air conditioning which does not have water-conserving equipment.

g. The use of water from fire hydrants for construction purposes or fire drills.

h. The use of water for commercial farms and nurseries.

30. **NON-POTABLE WATER:** Water which either is not safe for human consumption or is of questionable potability.

31. **OWNER:** The person, whether a natural person, partnership or corporation, in whom is vested ownership, dominion or title, of any premises which is or is about to be supplied with water by the Authority. Whenever used herein, the singular will include the plural, and the plural the singular.

32. **POLLUTION:** The presence of any foreign substance (organic, inorganic or biological) in water which tends to degrade its qualities so as to constitute a hazard or impair the usefulness or quality of the water to a degree which does not create an actual public health hazard, but which does adversely or unreasonably affect such water for domestic use.

33. **POLLUTION HAZARD:** An actual or potential impairment to the potability of the community water system which constitutes a nuisance, is aesthetically objectionable or can cause physical damage to the community water system but would not be dangerous or threatening to public health.

34. **POTABLE WATER:** Water which is safe for human consumption according to recognized state and federal standards.

35. **PREMISES:** A lot or parcel of land owned by the same person(s) including structures, improvements and additions, to which water service is or may be furnished which shall include, but not be limited to, the following:

a. A building under one roof owned or leased by one customer and occupied as one residence or one place of business; or

b. A group or combination of buildings owned by one customer, in one common enclosure, occupied by one family or one organization, corporation or firm, as a residence, place of business, for manufacturing or industrial purposes, as a hospital, church, public or private school, or similar institution, except as otherwise noted herein; or

c. The one side of a double house having a solid vertical partition wall; or

d. Each side or each part of a house or building occupied by one family, even though the water closet and/or other fixtures be used in common; or

e. Each apartment, office, suite of offices, and/or places of business located in a building or group of buildings, even though such buildings in a group are interconnected by a tunnel, passageway, covered areaway, patio, or by some similar means or structure; or

f. A public building devoted entirely to public use, such as a town hall, school house, fire engine house; or

g. A single vacant lot or park or playground; or

h. Each house in a row of houses; or

i. Each dwelling unit in a row of houses, a dwelling unit being defined as a building or portion thereof with exclusive culinary and sanitary facilities designed for occupancy and used by one person or one family (household); or

j. Each individual and separate place of business and/or occupancy located in one building or group of buildings, commonly designated as shopping centers, supermarket areas, and by such other terms; or

k. Each dwelling unit in a public housing development owned and operated by the United States of America, a municipal subdivision of the Commonwealth of Pennsylvania, or an agency or instrumentality of the United States or the Commonwealth of Pennsylvania; by a philanthropic foundation or organization or some such similar body or organization; or operated under private ownership; or

l. Each free standing trailer; or

m. Each trailer park taken as a whole will be considered as a single premises.

36. PRIVATE FIRE PROTECTION: Provision of water to premises exclusively for fire protection.

37. PUBLIC FIRE PROTECTION SERVICE: The furnishing of service through public fire hydrants.

38. PUBLIC WATER SUPPLY SYSTEM: shall be defined as any part of a water supply utility operated by a municipal corporation, company, or individual authorized by written permit issued by the Department of Environmental Protection in accordance with the laws of the Commonwealth of Pennsylvania, to supply water and extend distribution facilities to the public.

39. PUNCH LIST: Deficiency list compiled at the final inspection. Correction of items on the punch list shall satisfy the Owner's requirement for substantial completion.

40. REDUCED PRESSURE ZONE DEVICE: A device that shall incorporate two or more check valves and an automatically operating differential relief valve located between the two check valves, two tightly closing shut-off valves, and equipped with necessary appurtenances for testing. The device shall operate to maintain the pressure in the zone between the two check valves, less than the pressure on the Authority potable water supply system side of the device. At cessation of the normal flow, the pressure between the check valves shall be less than the supply pressure. In case of leakage of either check valve, the differential relief shall operate to maintain this reduced pressure by discharging to the atmosphere. When the inlet pressure is two pounds per square inch or less, the relief valve shall open and vent to the atmosphere, thereby providing an air gap in the device. To be approved by the Authority or its designated agents, the device must be readily accessible for maintenance and testing and installed in a location where no part of the device will be subject to outside flooding. The device shall be used on the service connections which may be subject to backflow and where there is a possibility of contamination that constitutes an actual or potential health hazard.

41. **SERVICE LINE:** The pipe, valves and other facilities by means of which water is conducted from the distribution main to the premises. The service line includes both the Service Line Connection and the Customer Facility.

42. **SERVICE LINE CONNECTION:** (Authority service line) The pipe, valves and other facilities by means of which the Authority conducts water from its distribution mains to the curb stop to be located at the curb line or property line of the premises, and specifically includes the corporation stop or other means of connection to the main, the service line connected to the corporation stop and extending to the point of connection to the curb stop, the curb stop, the service box and such other facilities.

43. **TAPPING:** The process by which the Corporation Stop is connected to the distribution main.

44. **TARIFF OR RATE SCHEDULE:** The entire body of effective rates, rentals, charges and regulations as published and made a part hereof.

45. **TEMPORARY SERVICE:** A service for circuses, bazaars, fairs, construction work, irrigation of vacant property, trailers or trailer camps, and similar uses that because of their nature will not be used steadily or permanently.

46. **TENANT:** The word "tenant," whenever the same appears herein, is anyone occupying the premises under lease from a lessor and obtaining water from the mains of the Authority.

47. **WATERCOURSE:** A channel for conveyance of surface water having defined bed and banks, whether natural or artificial, with perennial or intermittent flow.

48. **WATER HAMMER:** Pressure waves created when the water in a pipeline is abruptly stopped by closing a valve.

49. **WELL-POINTS:** A section of perforated pipe with its lower end pointed for driving into soil.

SECTION II - CONDITIONS OF SERVICE

50. **GENERAL:** The Authority will furnish water and service only in accordance with the currently prevailing and as hereafter revised rates, Rules and Regulations of the Authority, which rates, rules and regulations are made a part of every application, contract, agreement or license entered into between the property owner or customer and the Authority.

The Authority hereby reserves the right, so often as it may deem necessary, to alter, amend, and/or repeal the rates and/or these rules and regulations, or any part; and in whole or in part to substitute new rates, rules and regulations, which altered, amended and/or new rates, rules and regulations, shall forthwith, without notice, become and thereafter be a part of every such application, contract, agreement or license for water service in effect at the time of such alteration, amendment and/or adoption.

SECTION III - APPLICATION FOR SERVICE AND CONTRACTS

51. **APPLICATION FOR SERVICE LINE CONNECTION:** A written application, prepared on the form furnished by the Authority, must be submitted to the Authority for the purpose of requesting water service for each premises or group of premises where an individual service line connection is permitted in accordance with these Rules and Regulations. Said application shall be signed by the owner of the premises and where a tenant is also to be responsible for the charges, by the tenant also. Said application shall also be subject to such water service tapping fee, connection fee and other applicable charges currently in effect. The application, together with the Rules and Regulations of the Authority, shall regulate and control the service of water to such premises. Said application shall be submitted at least two weeks before service line connection is required.

52. **INFORMATION ON APPLICATIONS:** Each applicant for a water service connection and/or water service will be required to complete and sign a form or forms, provided by the Authority.

53. **APPROVAL OF APPLICATIONS:** Applications are merely written requests for service line connections and/or water service. All applications are subject to approval of the Board of the Authority, and are subject to payment of all required fees and compliance with all regulations relative thereto prior to commencement of the work or service requested therein.

54. **APPLICATION/CONTRACT:** The application for water service shall be a binding contract on both the customer and the Authority upon approval by the Authority. Rates for water service shall accrue from the date the water supply service has been completed and water is available to the "premises," with respect to the work and responsibilities of the Authority.

55. **CONTRACTS WITH DELINQUENTS:** No agreement shall be entered into by the Authority with any applicant for water service or water service connection, whether owner or tenant, until all arrears for water, rents, bills for meter repairs or other charges, due from applicant at any premises now or theretofore owned or occupied by him, shall have been paid or until satisfactory arrangements for payment of such unpaid bills shall have been made. Such payments shall include the minimum meter charge for each quarter that service was suspended, but said additional charge shall not exceed the minimum meter charge.

56. **TERM OF CONTRACT:** All contracts covering metered water supply service shall continue in force from month to month or quarter to quarter, subject to the billing period, unless ten days' written notice is given by either party of a desire to terminate the contract. Excepting in the case of delinquent accounts (Section 55), when written notice as aforesaid is given by the customer of a desire to terminate the contract and water is turned off at the curb at the end of any month or quarter, subject to the billing period, no further charge for water service will be made from the date of such turn-off until service is again restored.

57. SPECIAL CONTRACTS: The Authority may require, prior to approval of service, special contracts other than applications under the following conditions:

a. If required by provision in the Schedule of Rates, the duration of the contract to be as specified in the schedule.

b. If the construction of an extension and/or other facilities is necessary.

c. For providing temporary service, including water service for building or other special purposes. Water for building purposes shall be used only from a temporary connection approved by the Authority.

d. For standby or fire protection service.

e. For connections with other qualified utilities or municipal subdivisions.

f. For extensions from the water supply system, whether or not such facilities are to be conveyed to the Authority.

g. If deemed necessary by the Authority.

58. GOVERNMENTAL REGULATIONS A PART OF CONTRACT: All contracts for water service shall be subject to the following provision:

The Contract shall be at all times subject to the laws of the Commonwealth of Pennsylvania and its political subdivisions, the Federal Government and the Rules and Regulations of the Authority.

59. INDIVIDUAL LIABILITY FOR JOINT SERVICE: Two or more parties who join to make application for service shall be jointly and severally liable and shall be sent single periodic bills.

60. NEW APPLICATION UPON CHANGE OF OCCUPANCY OR SERVICE: A new application must be submitted to and approved by the Authority upon;

a. any change in occupancy of the premises where the owner wishes the tenant to be billed directly; or

b. any change (in the size, character, or extent of equipment or operations utilizing water) in the water service to the premises. The Authority may, upon five (5) days written notice to the owner and, if applicable, the tenant, discontinue water service to the premises until the required application has been submitted and approved.

At least seven (7) working days prior to the date of closing on the sale of any premises receiving water service provided by the Authority, the owner shall notify the Authority of the anticipated closing date. Upon receipt of such notice, the Authority shall conduct a final reading of the water meter and issue to the owner a "lien letter" reflecting the status of the owner's water account. The owner shall pay a fee for such "lien letter" as established by the Board of the Authority from time to time.

At the time of the final meter reading as aforesaid, water service to the premises shall be discontinued unless and until the new owner or new tenant shall have made written application for continued water service as required by these rules and regulations.

61. RENEWAL OF SERVICE: Water service will be renewed under a proper application when the conditions under which such service was discontinued are corrected and upon the payment of all charges provided in the Schedule of Rates or Rules of the Authority due from the applicant. The applicant must be present when the water service is physically reinstated.

62. CONDITION OF PLUMBING SYSTEM: The piping and fixtures on the property of the customer are assumed to be in satisfactory condition at the time service facilities are connected and water furnished; and the Authority, therefore, will not be liable in any case for any accidents, breaks, or leakage that are in any way due to the connection with the supply of water, failure to supply the same, or for the freezing of piping and fixtures of the customer, or for any damage to the property which may result from the usage or non-usage of water supplied to the premises.

SECTION IV - DEPOSITS

63. GENERAL: The following general conditions shall apply to deposits in connection with applications for water service:

a. Deposits are required from customers who will receive temporary service in an amount equal to the estimated gross bill for such temporary service period.

b. Deposits for each tenant-occupied premises shall be required with each application for service. Security deposits from tenants shall be applied to the final bill and shall not be subject to refund until the final bill has been paid in full. The deposit for tenant-occupied premises shall be as set forth in the prevailing Schedule of Fees.

c. Deposits shall be required from all applicants who are indebted to the Authority or who have impaired their credit with the Authority in any manner.

In the case of a delinquent customer who has commenced a case under the United States Bankruptcy Code, or any successor statute, the Authority shall require adequate assurance of payment, in the form of a security deposit, for water service

after the required 20-day grace period has expired following the date of such bankruptcy filing**.** The security deposit shall be equal to twice the average quarterly usage for the delinquent customer payable within thirty days of receipt of the deposit notice. The Authority may discontinue water service to the premises if neither the customer nor the bankruptcy trustee provides such security deposit within thirty (30) days after receipt of the deposit notice.

The amount of the deposit and the duration of and terms on which it is to be held shall be within the sole discretion of the Authority, except that such deposit shall not exceed the customer's estimated billings for one (1) year.

d. Deposits will not bear interest.

e. Any customer having a deposit shall pay bills for service as rendered, in accordance with the Rules and Regulations. The deposit shall not be considered as payment on account of a bill during the term the customer is receiving service. Upon the discontinuance of service for any reason set forth in these Rules and Regulations, the Authority may apply the deposit to the payment of an unpaid bill for service and may retain any deposit as security against payment for minimum charges applicable to vacant property if such premises are to be unoccupied.

f. Should a customer desire to discontinue service, the Authority will refund the deposit upon payment in full for all service rendered and upon receipt of a notice to discontinue service, said notice to be rendered in accordance with the conditions set forth herein; except that no refunds will be made until a proper deposit or security is furnished for payment of minimum charges against vacant property or a proper deposit is made by or for a new customer, or such other required deposits are made with the Authority.

g. All new connections to the systems shall be subject to payment of prevailing connection charges and tapping fees. Where there is an existing service line, the premises shall be subject to payment of prevailing connection charges and tapping fees, unless said connections are made pursuant to a contract between the Authority and a private person providing refunds of tapping fees, in which case the tapping fees set forth therein shall be charged.

SECTION V - SERVICE CONNECTIONS

64. INSTALLATION OF SERVICE LINE CONNECTION: The Authority will furnish, install and maintain all service lines from the mains to and including the curb stop and service box which will be placed inside the curb or property line, the said service line connection to be the property of the Authority and to remain under the Authority's control.

Only duly authorized employees or agents of the Authority will be permitted to install a service line connection from the mains of the Authority to the premises of the customer.

The installation of all service line connections is subject to the submission of a written application to the Authority for water service as previously set forth, to such requests being reasonable, to approval thereof by the Authority and to the payment of such charges for the service line connection installation and meter settings as are in effect at the time of the application, said charges to be payable in advance. Where the governmental unit charges a fee for issuing a permit or permits for street or road openings, or for any other reason in connection therewith, the amount of the fee will be charged to the applicant in addition to the other charges.

The Authority reserves the right to defer the installation of service connections during inclement weather until such time as, in the judgment of the Authority, conditions are suitable for an expeditious and economical installation.

The Authority reserves the right to determine the size and the kind of the service line connection.

Any water service line installations performed without prior approval of the Authority will be considered theft of service and will be subject to immediate termination as well as any applicable penalties and charges for water used.

65. MAINTENANCE: SERVICE LINE CONNECTION: All service line connections originally furnished by the Authority will be maintained by and at the cost of the Authority without expense to the customer for repairs, renewals or replacements.

When meter boxes or meter pits are located at the curb, the riser pipes and connections therein will be installed by, and at the expense of, the customer, and no customer or workman shall alter, change or in any way tamper with the meter box, meter, or piping and connections therein, without authorization from the Authority.

Where conditions alter the accessibility of the meter pit, the Authority reserves the right to make proper repairs when not performed by the owner in a reasonable amount of time. All costs for Authority-performed repairs shall be borne by the customer.

Prior to laying of new cement sidewalks, making changes in grade, or other changes in sidewalk construction, the customer shall notify the Authority in order that the Authority may relocate the curb box and meter box, if any, at the proper grade. If such notice is not given and the box or boxes are covered or cemented over, thereby necessitating additional expense to the Authority for finding and relocating the same, the customer shall be billed for such additional expense and the authority will, under no circumstances be responsible for damages to the sidewalk.

In cases where services are frozen, the Authority will at its own expense, thaw out the service connection to the curb stop. The thawing out of the service pipe from the curb stop to the premises shall be done by the customer at his own expense. To avoid a recurrence of freezing, the Authority will make an examination of customer's service line, and if the same is not at a depth of three and one-half feet as required, the Authority shall have the right to require it to be relocated before service is resumed.

66. INSTALLATION-CUSTOMER FACILITY: The customer facility, which is the service line extending from the curb stop to the "premises" and all required connections and appurtenances, shall be installed by, and at the expense of, the customer and shall be performed in accordance with the latest revision of the Allegheny County Plumbing Code and the following requirements:

a. General – Each premises shall be served through a separate service line and through a separate meter, except where physical conditions prevent installation of separate service facilities and meters as determined by the Authority. The installation shall include connection of the service line to the curb stop, extension of the service line from the curb stop to a point within the building wall All facilities inside the building shall be located so as to be readily accessible, protected from freezing and providing proper drainage for the piping in the building. Installation details for the service line connection are illustrated in Standard Detail SD-14 appended to these Rules and Regulations. Where installation within the building being served is not feasible, meter and appurtenances shall be installed in an Authority-provided meter pit at the cost of the customer. The detail for the meter pit and installation is shown in Standard Detail SD-15**.** The installation shall be made by skilled and qualified workmen. The contractor for the customer shall notify the Authority when the customer facility will be installed in order to permit the Authority to schedule its work and install the service line connection.

b. Material and Size - The material for all service lines two inches in size and under shall be Type K soft copper service tubing, Crosslinked Polyethylene (PEXa) municipal water service pipe, or Polyethylene Tubing (PET) SDR 9 Copper Tube Size (CTS).

PEXa service lines shall be manufactured using the high-pressure peroxide method of crosslinking. PEXa pipe shall meet the requirements of AWWA C 904 Cross-linked Pressure Pipe for water service. Pipe shall also conform to the standards ASTM F876, CSA B137.5, NSF 61 and PPI TR-3 and be rated for 200 psi. Pipe shall have a co-extruded UV shield made from UV-resistant high-density polyethylene, color blue. Pipe shall be compatible with cold-expansion compression-sleeve fittings conforming to ASTM F2080 and be approved for use with AWWA C800 fittings.

PET service lines shall be manufactured of high-density polyethylene pipe specifically engineered for the water industry. Pipe shall conform to the standards NSF 14 and 61, AWWA C901 and ASTM D2737.

All PE service lines shall be provided 304 stainless steel insert stiffeners equal to that manufactured by Ford Meter Box Company.

All PE service lines shall include a tracer wire from the curb stop to inside the dwelling.

c. Installation and Testing Requirements

1. Installation - The customer facility must be laid in a straight line, at right angles to the street where possible, at a depth to provide not less than 3-1/2-foot cover, and as necessary to secure proper alignment and to avoid obstacles. The bottom of the trench shall be excavated so as to conform to the curvature of the pipe and afford good bearing surface. Where rock is encountered, the excavation shall be carried below the bottom of the pipe for the distance required and the excavation backfilled with earth or clay well tamped to the proper grade.

   Install in accordance with manufacturer's published installation manual and/or published guidelines and final shop drawings.

   For PE service lines, at connections and fittings, use a plastic pipe cutter to ensure square (90°) and clean cuts, and join pipes immediately or cap ends of pipe to seal from contaminants.

   The joints in all copper tubing and pipe laid underground shall be made using a mechanical coupling of a design and material satisfactory to the Authority . No soldered joints shall be used, and no joints shall be made within a distance of less than five feet from the exterior wall of the premises. All pipe passing through foundation or bearing walls shall be provided with suitable sleeves and the annular space between the sleeve and the pipe made watertight in accordance with Standard Detail SD-14. The sleeves shall be the size specified by the Authority. The installation of ductile iron service lines shall be in complete accordance with the Standard Specifications of the Authority with respect to such work, copies of which are available at the Authority office.

   Where ¾" and 1" service line lengths are less than 100', no couplings will be permitted.

2. Hydrostatic Tests - No service line shall be covered until the service line is filled with water and subjected to a hydrostatic test, this test to be observed by a representative of the Authority.

   The line shall be slowly filled with water, expelled of all air, and the maximum pressure in the Authority system allowed to develop in the service line. All pipe, fittings, valves and joints shall be carefully examined during the test. All materials found defective shall be removed and replaced with sound and satisfactory materials and all leaks completely eliminated.

The Authority exercises the right to require that the small service lines be subjected to a hydrostatic test at normal operating pressure or 100 psi whichever is greater, and will require such a test on all customer facilities over two inches in diameter and on all unmetered service lines, including fire protection lines.

No loss whatsoever due to leakage will be permitted on small service lines. The loss due to leakage shown by tests on service lines two inches in diameter and larger shall not exceed fifty gallons per inch of diameter per mile of pipe per day.

d. Inspection - The Authority shall be notified when the installation is completed, prior to backfilling, so that the service line can be subjected to the aforesaid hydrostatic test in the presence of a representative of the Authority, and an inspection made of both workmanship and materials. The notice shall include such data as the location, the name of the owner and tenant, and the time the work will be ready for inspection.

Water will not be supplied through the customer facility or any related part thereof, or through any service or supply line which has not been inspected in the open trench and approved by the Authority. This regulation applies to both original installation and repairs.

The cost of the inspection of an original installation is included in the Authority's prevailing tapping charge paid by the applicant or customer. In the event that an additional trip is necessary to complete the inspection, a fee will be charged at the prevailing rate established by the Authority at the time of said inspection work. If the inspection indicates failure to comply with the requirements, water service will not be granted until the proper remedial measures have been taken.

67. MAINTENANCE - CUSTOMER FACILITY: All customer facilities, service lines and fixtures installed by the customer shall be maintained by the customer in satisfactory condition. The meters and appurtenances furnished and owned by the Authority and on the property of the customer shall be protected properly and cared for by said customer. All repairs, renewals, replacements or other necessary work required on the aforesaid facilities of the customer, shall be performed by the Authority. Where customer-caused repairs are necessary, they shall be performed at the expense of the customer. All leaks in the service or any other pipe or fixture in or upon the premises supplied must be repaired immediately by the owner or occupant of the premises, under penalty of discontinuance of service by the Authority.

No person shall internally clean the customer facility without first being granted permission by the Authority, and such approval shall be subject to disconnection of the service line at the curb stop before cleaning, protection of the meter, and other related requirements. The operation or use of the curb stop shall be subject to control by Authority employees only.

No person except an authorized agent of the Authority shall be permitted to internally clean the service line between the main and the curb.
Any person(s) who cleans or permits another to clean a service line shall be responsible for any and all damages incurred by the Authority, resulting from such action. The Authority shall in no event be responsible for maintaining any portion of the service line or service line facilities owned by the customer, for damage done by water escaping therefrom, or from lines or fixtures on customer's property; and the customer shall at all times comply with municipal regulations with reference thereto, and make changes therein, required on account of change of grade, relocation of mains, or otherwise.

In cases where service lines are frozen, the Owner shall, at his expense, thaw out the customer facility. To avoid a recurrence of freezing, the Authority will make an examination of the customer facility, and if it is not at a depth of 3-1/2 feet, as required, the Authority shall have the right to require it to be relocated to a depth of 3-1/2 feet at the cost of the customer, before service is resumed.

68. LENGTH OF SERVICE LINE: Where service lines extend 200 feet or more from the curb stop to the structure being served, or where the Authority determines at its sole discretion, the customer is required to purchase from the Authority, at his expense, a frost proof meter pit provided with a suitable cover and in accordance with the Authority's outside meter pit installation detail or shall construct a meter vault, where applicable, subject to approval by the Authority. Said meter pit or vault shall be installed just inside the property line for the premises being served and shall be used for the housing of the meter required for the service of the "premises".

69. PENALTIES: For obstruction of normal operation of the curb stop by obstacles placed over, in or around the curb box, or for tampering with the curb box, fire hydrants (including unauthorized taking of water), water meters and/or the breaking of any Authority seals, any person, partnership, corporation, limited liability company or other entity, upon conviction thereof in an action brought before a Magisterial District Judge in the manner provided for the enforcement of summary offenses under the Pennsylvania Rules of Criminal Procedure, shall be sentenced to pay a fine of not more than $500.00, plus all court costs, and, in default of payment of said fine and costs, to a term of imprisonment not to exceed ninety (90) days. Each day that a violation continues shall constitute a separate offense.

If it appears to the Authority that a violation of any other provision of these Rules and Regulations has occurred, the Authority shall initiate enforcement proceedings by sending an enforcement notice as provided in this section.

a. The enforcement notice shall be sent to the owner of record of the premises on which the violation has occurred, and shall state at least the following:

(1) The name of the owner of record and any other person against whom the municipality intends to take action.

(2) The location of the premises in violation.

(3) The specific violation with a description of the requirements which have not been met, citing in each instance the applicable provisions of the Rules and Regulations.

(4) The date before which the steps for compliance must be commenced and the date before which the steps must be completed.

(5) That the recipient of the notice has the right to appeal to the Board within fifteen (15) days of the date of the enforcement notice and to appear before the Board at the next regularly scheduled authority meeting. Any such appeal shall be in writing and delivered in person or mailed to the Authority at its principal office.

(6) That failure to comply with the notice within the time specified, unless extended by the Board, constitutes a violation, with possible sanctions clearly described.

b. Magisterial District Judges shall have initial jurisdiction over proceedings brought to enforce such violations of these Rules and Regulations.

c. Any person, partnership, corporation, limited liability company, or other entity who or which has violated or permitted the violation of the provisions of these Rules and Regulations shall, upon being found liable therefor in a civil enforcement proceeding commenced by the Authority, pay a judgment of not more than $500.00 plus all court costs, including reasonable attorney fees incurred by the Authority as a result thereof. No judgment shall commence or be imposed, levied or payable until the date of the determination of a violation by the Magisterial District Judge. If the defendant neither pays nor timely appeals the judgment, the Authority may enforce the judgment pursuant to applicable law. Each day that a violation continues shall constitute a separate violation, unless the Magisterial District Judge determining that there has been a violation further determines that there was a good faith basis for the person, partnership, corporation, limited liability company, or other entity violating the Rules and Regulations to have believed that there was no such violation, in which event there shall be deemed to have been only one (1) such violation until the fifth (5^{th}) day following the date of the determination of a violation by the Magisterial District Judge and thereafter each day that a violation continues shall constitute a separate violation.

d. Nothing contained in this section shall be construed or interpreted to grant to any person or entity other than the Authority the right to commence any action for enforcement pursuant hereto.

The imposition of a penalty under these Rules and Regulations shall not prevent the revocation of any permit or license or the talking of other punitive or remedial action where called for or permitted under Pennsylvania law. In addition, the Authority may institute injunctive, mandamus or any other appropriate action or proceeding at law or in

equity for the enforcement of these Rules and Regulations. Any court of competent jurisdiction shall have the right to issue restraining orders, temporary or permanent injunctions, mandamus or other appropriate forms of remedy or relief.

70. SERVICE LINE CONNECTION ON PRIVATE PROPERTY: Service line connections will not be installed on property other than that of the premises to be furnished water.

71. ONE SERVICE CONNECTION FOR EACH CUSTOMER: A service line will be used to supply a single customer only, and no premises shall have more than one service connection except where**,** in the opinion of the Authority, it is impossible or impracticable to furnish an adequate water supply service thereto through one service connection; in which event, the Authority may agree to the installation and use of more than one such connection.

72. SINGLE SERVICE LINE WITH TWO OR MORE CUSTOMERS: Where two or more customers are supplied through a single service line as indicated above, any violation of the Rules and Regulations of the Authority by either or any of said customers, shall be deemed to be a violation by all. Unless said violation is corrected after reasonable notice, the Authority may take such action as can be taken for a single customer, except that such action shall not be taken until the innocent customer who has not violated the Authority's Rules, has been given a reasonable opportunity to attach his service pipe to a separately controlled service connection.

73. OTHER CUSTOMER FACILITY REQUIREMENTS: The Authority reserves the right to require any owner to install on, or in conjunction with, his service pipe such valves, stop cocks, check valves, relief valves, pressure regulator, air chamber, tank, float valve or other apparatus of approved design, when and where, in the Authority's opinion the conditions may require such installation for the purpose of safeguarding and protecting the Authority's property or water supply.

Should the use of water through a service line connection become excessive during periods of peak use, and cause a substantial decrease in pressure in the distribution system of the Authority to the extent that normal water service to other customers is impaired, the Authority exercises the right to require the installation of properly designed and adequate storage facilities on the system of the premises involved

Said facilities shall include all piping, valves, fittings, storage structures, pumps, automatic controls, and other such appurtenances as are required to permit the storage and delivery of water during periods of peak water use on the premises, thereby avoiding a direct use from the system of the Authority during such periods. The basic design of such systems shall be subject to approval by the Authority.

When steam boilers take a supply of water directly from the service pipe, depending upon the hydraulic or hydrostatic pressure in the pipe system of the authority for their supply under working pressure, it will be at the risk of the parties making such attachments, as the Authority will not be responsible for any accidents or damages to which such devices are frequently subject.

House boilers for domestic use must in all cases be provided with vacuum valves to prevent collapsing when water is shut off from the distributing pipes. The Authority will in no case be responsible for accidents or damages resulting from failure to observe this rule or due to conditions in the distributing pipes, or from the imperfect action of any such valves, or due to such other causes.

74. **CHANGE IN LOCATION OF SERVICE LINE CONNECTION:** The customer shall pay for the cost of relocation of all service line connections made at his request or for his convenience.

75. **RENEWAL OF SERVICE LINE:** When renewal of service line from the street main to the curb is found necessary, the Authority will renew said service in the same location as the old one. If the property owner or customer, for his own convenience, desires the new service line at some other location and agrees to pay all expenses of such relocation in excess of the cost of laying the service line in the same location as the old service line, and cutting off and disconnecting the old service line, the Authority will lay the new service line at the location desired.

76. **USE OF CURB STOPS:** Curb stops at the curb line shall not be used by the customer for turning on or shutting off the water supply. The control of the water supply by the customer shall be by means of a separate stop cock located in general, just inside the building wall. Curb stops are for the exclusive use of the Authority.

SECTION VI - METERS

77. **GENERAL:** All meters, unless otherwise indicated, will be furnished and installed by the Authority, subject to the fees currently in effect, and will remain the property of the Authority, and be accessible to and subject to the Authority's control and maintenance. Meters of the fire type will not be installed for general service. A meter will be required for each premises except as otherwise provided herein.

78. **METER SIZE:** The Authority reserves the right in all cases to stipulate the size and type of the meter to be installed on each service line and to require the installation of a larger size meter in any case where the peak use of water places any meter under undue or unusual strain and/or exceeds the recommended water capacity. The Authority also reserves the right to charge the fees currently in effect for the larger meters.

79. **LOCATION:** The location for the meter shall be subject to the approval of the Authority, shall be located at a convenient and accessible point, shall permit control of the entire supply and shall allow proper protection of the meter from freezing or other harm. In the event that the meter is not accessible, measures shall immediately be taken by the customer to make the meter accessible. Continued lack of accessibility to the meter shall result in a discontinuance of water service until the measures indicated above are taken.

No fixture shall be attached to, or any branch made in, the service pipe between the meter and the street main.

In cases where it is not practical to place the meter within a building, the Authority requires the property owner to purchase from the Authority a watertight frost proof meter pit provided with a suitable cover in accordance with the Authority's outside meter pit installation detail. Said meter pit shall be installed just inside the property line for the premises which is being served.

80. INSTALLATION OF METER AND RELATED PIPING: All piping, fittings, valves, check valves, gauges, bolts, nuts, meter pit structures, manholes, other accessories or materials, and the labor for installing the same, used in connection with meter settings within the property line of the premises, shall be at the expense of the applicant. The customer shall employ for this work the services of skilled tradesmen, qualified and approved by the Authority, who shall cooperate with the Authority and install all piping and appurtenances in accordance with the dimensions and requirements for each specific case, so that the meter or meters can be properly installed and connected by the Authority. The meter related piping shall be installed in accordance with the Allegheny County Plumbing Code or any successor regulation.

The customer shall furnish and install on the service line: a full-open valve without waste, the same size as the service line on the street side; pressure regulator and a valve on the outlet side and immediately after the meter. A suitable backflow preventer shall be furnished and installed by the customer at a point between the stop and waste cock or valve and the meter. A safety valve shall be also furnished and installed by the customer at a convenient point in the house piping to relieve excess pressures due to heating of water. The Authority recommends a thermal expansion absorber system also be installed by the customer as a safeguard against failed or non-functioning pressure relief valves. Such installation is illustrated in the thermal expansion absorber detail.

Under certain conditions where there is a demand or necessity for uninterrupted water service, in order to eliminate inconvenience to both the customer and the Authority when repairs to or replacement of the meter is necessary, the Authority may, at its option, require the installation of a battery of two or more meters on the one service line, with a combined capacity approximately equal to the capacity of the single meter requested. Such installations shall be properly valved to control or cut any single meter out of service and permit its removal without interruption of service through the remaining meter or meters. In cases where meters are so installed, or where the Authority requires more than one meter, bills will be rendered separately for each meter, the minimum charges therefore also to apply.

81. MAINTENANCE, CARE AND RESPONSIBILITY FOR DAMAGE: The Authority will maintain all meters at its expense, except the customer is liable and responsible for damage to meters located at the customers premises caused by negligence on the part of the customer. In the event of damage to or malfunctioning of the meter, the customer shall promptly notify the Authority. The Authority will furnish and set another meter to replace the one damaged. The repair costs including replacement parts, labor and transportation charges, testing and reinstallation, shall be the responsibility of the customer.

82. **METER TESTS:** All meters are tested for accuracy before installation and thereafter are periodically tested.

Should the customer at any time doubt the accuracy or correctness of the meter measuring water delivered to the customer's premises, the Authority will, upon a written request of the customer, and if he so desires in his presence or that of his authorized representative, make a test of the accuracy of the meter. When a customer desires, either personally or through a representative to witness the testing of a meter, he may require the meter to be sealed in his presence before removal, which seal shall not be broken until the test is made in his presence. Prior to testing, the customer shall deposit to the Authority an amount sufficient to cover the charge for conducting the test. The amount of the deposit shall be based on the size of the meter being tested in accordance with the prevailing actual charges of the testing agency used by the Authority. Meter sizes of 1-1/2" and over will require on-site testing.

If the meter so tested shall be found to be accurate within the limits herein specified, the deposit shall be retained by the Authority as payment for such test; but if not so found, then the cost thereof shall be borne by the Authority and the deposit returned to the customer.

A report of such tests shall be made to the customer, and a complete record of such tests shall be kept by the Authority. Rates for testing meters not included in the above classification, or which are so located that the cost is out of proportion to the fee specified, will be furnished by the Authority after an estimate has been made to determine the cost. The fee above stipulated shall be payable by the applicant in advance. In the event the meter so tested is found to have an error in registration in excess of five percent (5%), the cost of the test will be borne by the Authority, and the advance fee will be refunded. The bill, based on the last reading of such meter or meters, shall be corrected accordingly. This correction shall apply both for over and under registration.

The Authority reserves the right to remove and test any meter at any time at its own expense and, if such meter is found to be inaccurate, to substitute another meter of the same size in its place, either permanently or temporarily.

83. **CHANGE IN LOCATION OF METERS:** The customer shall pay for the cost of relocation of all meters made at his request or for his convenience including any and all costs borne by the Authority to facilitate relocation.

84. **SEALS:** No seal placed by the Authority for the protection of any meter, valve, fitting or other water connection shall be tampered with or defaced. It shall not be broken except upon authorization from the Authority or in the presence of an Authority representative. Where the seal is broken, the Authority reserves the right to remove the meter for test at the expense of the customer, even though said meter registered accurately.

85. **LEAKS:** Customers are urged to give careful attention to their plumbing and fixtures and make immediate correction of all leaks. No allowance will be made by the Authority for water used, lost, stolen or otherwise wasted through the water meter.

86. **READING AND REGISTRATION OF METERS:** Readings of meter shall be taken monthly or quarterly, at the option of the Authority, and the quantity recorded by the meter shall be taken to be the amount of water passing through the meter, which amount will be conclusive on both the customer and the Authority, except when the meter has been found to be registering inaccurately or has ceased to register. In such cases, the quantity may be determined by the average registration of another meter for a period of at least 20 days, or of the same meter for a period of at least 20 days after it has been repaired, tested and reset; or the quantity consumed during a previous corresponding period may be used as a basis for settlement. If none of these methods can be applied fairly, another method may be used that will be just and reasonable to the Authority and to the customer.

87. **ACCESS TO METER, ETC.:** The Authority, at all reasonable times, shall have access to meters, service connections, and other property owned by it on customer's premises, for the purpose of maintenance, operations and meter reading. Access shall also be provided to Authority personnel for the installation of a radio-read device to the meter to facilitate remote meter reading. The failure to permit reasonable on-site or remote-reading access shall be sufficient cause for discontinuance of service and/or potential surcharge fees for additional meter reading labor.

88. **FAILURE TO PROVIDE ACCESS TO METERS, ETC.:** Should Authority's agent empowered to read meters be unable to obtain on-site or remote-reading access for two consecutive, regular periods of meter reading, the Authority's agent may notify the customer of his default by leaving a notice on the premises that the customer must arrange for access for the Authority meter reader within five days during normal working hours. Should customer fail to make such arrangements for meter reading or radio-read device installation during such period, a notice shall be given, either by registered mail or by delivery to an adult member of customer's household on the premises. Said notice shall advise that water service will be discontinued five days after mailing or service of the notice for lack of on-site accessibility, or surcharge fees will be imposed for failure to allow the installation of a radio-read device, unless customer has ceased to be in default under the terms of these Rules and Regulations. .

89. **NOTIFICATION RELATIVE TO CONDITION OF METER:** The customer shall notify the Authority of damage to, or malfunctioning of the meter, or of the breaking of the seal or seal wire, as soon as he is cognizant of such a condition.

90. **MINIMUM CHARGE:** Every meter is installed subject to a fixed minimum monthly or quarterly charge in accordance with the rates thereof, for which certain quantities of water will be allowed without additional charge. Such minimum charge shall be nonabatable for a nonuser of water, and noncumulative against subsequent consumption. In the case of fractional bills covering less than a month or a quarter, monthly or minimum charges and allowances shall be prorated.

91. SEWAGE DEDUCT METERS: A sewage deduct meter is defined as a secondary water meter, installed down stream of the primary meter, for the purpose of metering water utilized by the customer that will not be discharged to the sanitary sewerage system. Authority personnel shall read both meters, billing the customer on the basis of flow registered by the primary meter. The sewage deduct meter reading is provided by the Authority to the sewage authority or municipality responsible for sanitary sewage billing for subtraction from the primary water meter reading before billing the customer for sanitary sewage.

A written application, prepared on the form furnished by the Authority, must be submitted to the Authority for the purpose of requesting the usage of a sewage deduct meter, together with the fee scheduled from time to time by the Authority. Said application shall be signed by the owner(s) of of the premises, and shall be accompanied by written approval for the deduct meter installation from municipality in which the premises is located and the sewage authority or municipality serving the premises.

Sewage deduct meters are subject to all of the Rules and Regulations of the Authority.

Sewage deduct meters shall be purchased from the Authority and become the property and responsibility of the customer. The cost of all required meter maintenance and repairs shall be borne by the customer.

Installation of the sewage deduct meter shall be performed by the customer or a registered plumber. Installation shall be subject to inspection by Authority personnel and shall not be placed into operation until such inspection is completed. Meter installation and all subsequent plumbing installations shall be in accordance with the requirements of these Rules and Regulations and the Allegheny County Plumbing Code.

The sewage deduct meter shall not be charged a monthly or quarterly minimum usage charge by the Authority. The Authority will not be responsible for meter inaccuracies or resulting disputes between the customer and the sewage authority or municipality responsible for sanitary sewage billing. All such disputes shall be settled between the customer and the sewage authority or municipality responsible for sanitary sewage billing.

SECTION VII - SERVICE

92. DISCONTINUANCE OF SERVICE:

a. By Customer: Any customer may terminate his service contract with the Authority by reason of moving permanently away from the premises, and have his water service discontinued upon giving written notice thereof to the Authority, and upon the lapse of a reasonable time thereafter to permit the Authority to take final meter readings and attend to other details in connection with such discontinuance of service. The customer shall remain liable for water furnished to the premises described in his application until the Authority has received written notice from him and the termination of service has taken effect as stated above.

b. By Authority: Service under any application may be discontinued after due notice for any of the following reasons:

1. For misrepresentation in the application.

2. For the use of water for or in connection with, or for the benefit of, any premises or purposes other than those described in the application.

3. For willful waste of water through improper or substandard pipes, fixtures or otherwise.

4. For failure to maintain in good order the service lines and fixtures owned by the applicant.

5. For tampering with or in any other way interfering with any service pipe, meter, meter box, curb stop, curb box or with any seal on any meter or other fixtures and appliances of the Authority.

6. For continued vacancy of the premises.

7. For refusal of reasonable access to the premises for purposes of inspecting the piping, fixtures and other water system appliances therein, or for reading, caring for, repairing or removing meters.

8. For neglecting or refusing to make or renew advance payments where required or for nonpayment of water service or any other charge accruing under the application.

9. For making or refusing to sever, upon notice, any cross connection between a pipe or fixture carrying water furnished by the Authority and a pipe or fixture carrying water from any other source.

10. For resale of water except where subject to a special agreement.

11. For premises where the demand for water is greatly in excess of past average or seasonal use, or where such excessive demands for water by the premises are or may be detrimental or injurious to, or make inadequate, or in any way impair water service furnished to other customers.

12. For premises where apparatus, appliances or equipment using water is dangerous, unsafe and/or not in conformity with any laws or ordinances.

13. For fraud or abuse.

14. For violation of these Rules and Regulations or other requirements governing the supply of water furnished by the Authority.

15. Failure to adhere to conservation measures in effect due to drought conditions.

c. In the event of discontinuance of service by the Authority, the customer may appeal the termination of service by requesting an administrative hearing with the Board of the Authority or at the discretion of a representative designated by the Authority.

d. The Authority shall termporarily suspend service for customers requesting seasonal disconnection subject to disconnect and reconnection fees. Additionally, minimum charges for all service related fees (including meter charge, minimum usage and capital improvement charge) shall remain applied during temporary disconnection.

93. RENEWAL OF SERVICE AFTER DISCONTINUANCE: Service may be renewed under a proper application when the conditions under which such service was discontinued are corrected and upon the payment of all proper charges or amounts provided in the schedule of Rates or Rules of the Authority.

94. TURN-OFF WITHOUT AUTHORIZATION: The customer shall not turn the water on or off at any corporation stop or curb stop, disconnect or remove the meter, or permit its disconnection or removal without the consent of the Authority.

95. SUSPENSION OF SERVICE DUE TO EMERGENCY OR NECESSITY: The Authority shall have the right, as necessity may arise, in case of breakdown, emergency, or for any other unavoidable cause, to cut off the water supply temporarily in order to make necessary repairs, connections, and other such work. The Authority will use all reasonable and practical measures to notify the customer of such discontinuance of service. In such cases the Authority shall not be liable for any damage or inconvenience suffered by the customer, or any claim against it at any time for interruption in service, lessening of the supply, inadequate pressure, poor quality of water or for any causes beyond its control; such temporary shut-off of the water supply shall not entitle the customer to any abatement or deduction in or from the water service charges, nor the refund of any portion of such service charges paid in advance during or for the time of such shutoff. When a supply of water is to be temporarily cut off, notice will be given, when practicable, to all customers affected by the shut off, stating the probable duration of the interruption of service and also the purpose for which the shut-off is made. Nothing in these Rules contained, however, shall be construed as a guarantee, covenant or agreement of the Authority to give notice of any shut-off due to emergency or otherwise.

96. RESERVE SUPPLY: The Authority shall have the right to reserve a sufficient supply of water at all times in its storage facilities, to provide for fire and other emergencies, or may restrict or regulate the quantity of water used by customers in case of scarcity or whenever the public welfare may require it.

SECTION VIII - PUBLIC FIRE SERVICE

97. APPLICATION FOR FIRE HYDRANT AND LOCATION. A prerequisite to the approval of public fire service by the Authority shall be the submission of plans showing the proposed location of each fire hydrant on the public highway or public property, showing the line and grade of the highway or area, and such other data.

The Authority will determine whether proper service can be furnished at the fire hydrant under normal and ordinary conditions, subject to: the size of the existing street main, the sizes of the lines in the surrounding distribution system, the available pressures, and to such other factors. The municipality will be advised relative thereto.

The entire cost of a fire hydrant installation shall be paid in accordance with the agreement governing its installation. A developer of a housing plan or commercial development or any individual, group, organization, municipality, or any other such organization that requests of the Authority to extend its facilities in order to receive water service, will be required to pay for the entire cost of installing all fire hydrants required by the municipality. The local municipality will determine the number and location of all fire hydrants along the new water line installation and whoever pays for the water line extension will be responsible for all costs associated with the fire hydrant installation.

A fire hydrant installation is intended to include a tee and other fittings required in the main line, a branch 6-inch line extending from the tee placed in the main line to the fire hydrant, a valve in the 6-inch line and a valve box, a standard Authority fire hydrant, proper blocking of the fire hydrant, the tee and other fittings, and such other work as indicated in the Standard Details of the Authority relative to fire hydrant installations.

Each fire hydrant will be subject to the Public Fire Service Charge set forth in the Rate Schedule.

98. HYDRANT DISTANCES: The distances between hydrants shall be subject to a minimum standard set by the NFPA. Deviation from the minimum standard shall be subject to approval by the Authority and the Township Fire Marshall.

99. PENALTY FOR PLACING OBSTRUCTIONS OVER, IN OR AROUND PUBLIC FIRE HYDRANTS: If obstructions are placed over, in or around in such manner as to prevent normal operation of or to result in damage to the fire hydrant, the Authority will notify the governing law enforcement agency for issuance of the appropriate citation. The customer responsible shall pay to the Authority the expenses incurred in removing the obstruction or making repairs caused by such obstruction including the cost of necessary trenching and backfilling, of cutting and replacing pavement, sidewalk or curbing, and of any municipal permit or permits for opening the pavement.

100. MAINTENANCE: All public fire hydrants will be maintained by the Authority at its own cost and expense, provided that any expense for repairs caused by carelessness or negligence of the employees of the particular municipality or a member of the fire department thereof shall be invoiced to the responsible party.

101. **ALLOWABLE USE:** Only persons authorized by the Authority shall take water from any public fire hydrant or hose plug. No public fire hydrant shall be used for sprinkling streets, flushing sewers or gutters or for any other than fire purposes, except with the approval and issuance of a permit by the Authority, said permit being subject to revocation at any time.

102. **CHANGE OF LOCATION:** Whenever a municipality or person or persons desire a change in the location of any fire hydrant, the Authority, upon written notice to do so, will make such a change if determined feasible, at the expense of the municipality or persons or persons.

103. **INSPECTION:** Upon request of the duly authorized officials of any municipality, the Authority will make inspections at convenient times and at reasonable intervals to determine the condition of the fire hydrants, such inspections to be made by a representative of the Authority and a duly authorized representative of the municipality.

SECTION IX - PRIVATE FIRE SERVICE

104. **APPLICATION FOR PRIVATE FIRE PROTECTION SERVICE:** A written application prepared on the form furnished by the Authority must be submitted to the Authority for the purpose of requesting a special fire connection for private fire protection service, said application to be signed by the owner of the premises or his duly authorized agent, said application to be subject to such fees and terms and conditions as are hereinafter set forth and included herein, and to the execution of a contract, which application, together with the Rules and Regulations of the Authority, shall regulate and control the furnishing of such services to such premises, and said application to be submitted at least two months before the service line is required.

The application shall be accompanied by accurate plans showing the proposed fire protection system and appurtenances and showing any other water supply system and appurtenances which may exist on the premises. No fire protection facilities involving the use of Authority water shall be installed at any time and no changes in or additions to said fire protection facilities shall be made without prior approval by the Authority, said fire protection facilities to include all pumping and/or mechanical means of taking water from the Authority system, storage stands and all such facilities. All approvals will be subject to Section X Responsibility for Fire Service and shall be subject to such restrictions and limitations as established by the Authority.

105. **APPROVAL OF APPLICATION:** The application does not bind the Authority to approve the requested special connection. The Authority will make an engineering study at the cost of the applicant of each proposed installation to determine whether such a connection is reasonable and practical, and whether such a connection will in any way endanger the general water service in the vicinity. The Authority reserves the right to refuse approval of an application relative thereto and to make an approval subject to the installation of adequate storage facilities and related appurtenances on the premises thereof, if found necessary in order to permit maintenance of adequate water service to other customers.

106. TERMS AND CONDITIONS: The final approval of an application and furnishing of private fire protection service will be subject to the execution of a contract between the responsible parties and the Authority, containing the following terms and conditions and containing such other terms and conditions as are found necessary:

a. That the applicant agrees to pay all costs associated with review and approval of the application.

b. That the Authority, by its representatives, shall have the right to enter the premises of the applicant at any reasonable time for the purpose of making such inspections as it may deem necessary, and it shall have the right to attach any testing device or use any means which it may elect to ascertain the condition of the pipe and appurtenances and uses made of same.

c. That a separate service connection from the street main up to and including the curb or valve box and control valve shall be installed solely for the purpose of providing fire service and at the expense of the applicant and shall be maintained by the Authority; that all other pipe, fixtures and appurtenances shall be installed in accordance with the requirements set forth relative to service line and/or water main extensions and maintained in good condition by and at the expense of the applicant. Under special circumstances, and at the sole discretion of the Authority, a single service connection with both fire and domestic taps at the structure to be served may be permitted. In such cases, shut-off valves will be provided for both fire and domestic service and shall be outside and readily accessible by Authority personnel.

d. That the applicant shall install at the applicant's expense, a detector device on said service line at such location as may be required by the Authority. Such detector device shall be a dual check valve equipped with external metered by-pass. Such detector device shall be a Febco Model 856 or equal approved by the Authority and shall be subject to the control of the Authority.

e. That the applicant does not contemplate uses of fixtures other than herein stated. If a supply of water for use other than extinguishment of a fire is desired by the applicant, then same shall be taken only through a service pipe separately connected with the street main of the Authority and not connected directly or indirectly with the service pipe contemplated by this application. The Authority may consider approval of alternate designs contrary to this condition, under special service conditions as indicated above in Paragraph c. Any waste of water or use of water for purposes other than the extinguishment of fire through this connection shall be deemed a violation of the terms and conditions of this application and the Rules and Regulations of the Authority.

f. That the applicant shall furnish, attach and make a part hereof, an accurate sketch showing the pipes, valves, hydrants, tank openings and appurtenances contemplated in this application. Such sketch may also show any other water

supply system and pipelines and appurtenances which may exist on the premises. There shall be no connection between such other supply and pipe connected to the Authority's mains.

g. That the rights and obligations of the applicant hereunder shall be further subject at all times to the Rates, Rules and Regulations of the Authority that now exist or which may hereafter be adopted.

h. That the applicant agrees to obtain in advance the approval of the Authority.

i. That, subject to acceptance by the Authority of the completed facilities, the contract shall continue as such until cancelled by written notice, given 30 days in advance, by the applicant to the Authority.

j. That the Authority has the right to discontinue or disconnect said service pipe and terminate the contract, upon written notice given 30 days in advance by the Authority to the applicant, for failure to pay any bill when due or for any violation of any of the terms and conditions of this application, or for any violation of its Rules; and, in emergencies, also has the right, without notice, to shut off all or any part of its facilities and discontinue the service when deemed necessary by the Authority for the purpose of making any repairs, alterations, additions or to prevent possible contamination through cross-connected facilities of the applicant or to prevent negligent or willful waste of water through the facilities of the applicant.

107. GENERAL CONDITIONS - PRIVATE FIRE HYDRANTS: The private fire hydrant or fire hydrants installed on a separate fire service main, subject to all the foregoing requirements, will be subject to rate schedule charges set forth under Private Fire Service, subject to a special contract and to the Rules and Regulations controlling such service.

When a hydrant is to be located within the yard of the customer's premises, the entire installation, from the street main to and including the hydrant, shall be installed at the expense of the customer.

Such connections, where allowed, are to be used solely for the extinguishment of fire and for no other purpose, except upon the written consent of the Authority. Any violation of this provision shall be cause for the cancellation of the contract and discontinuance of the service.

The Authority reserves the right to access and utilize any private fire hydrant, regardless of location, for the purpose of maintaining the water distribution system.

108. COST OF FIRE SERVICE CONNECTION: All service line connections for private fire service, shall be installed by the Authority and the customer will be charged with all direct and indirect costs incurred by the Authority as a result of making said connection. Such costs shall be in addition to tapping fee.

SECTION X – PRIVATE FIRE SERVICE FOR RESIDENTIAL AND MULTI-RESIDENTIAL STRUCTURES

109. RESPONSIBILITY FOR DESIGN: The property owner is solely responsible for the design, installation, functionality, performance or quality of the private fire suppression and/or sprinkler system. The Authority accepts no responsibility or liability for any portion of the sprinkler system and requires a Hold Harmless Agreement be signed by the property owner upon transfer of the service. These Rules and Regulations are solely for the purpose of permitting water to be supplied to such systems while protecting the Authority's potable water supply.

110. GENERAL SERVICE REQUIREMENTS: Currently acceptable fire sprinkler systems are a Stand-Alone Sprinkler System and a Multi-purpose Sprinkler System. A Stand-Alone Piping System is a system that is separate and independent from the domestic supply line connected to other plumbing fixtures. It is a dead-end branch that does not loop or connect at any more than one point. A Multi-purpose Piping System provides domestic water to both fire sprinklers and plumbing fixtures. It can be a looped system with or without dead-end branches. Both the Stand-Alone and Multi-purpose sprinkler systems shall connect to the general service supply line at a tee connection upstream of the meter and backflow preventer.

111. BACKFLOW PREVENTION: For stand-alone systems and multi-purpose systems containing dead ends, a testable double check valve assembly backflow device acceptable to the Authority shall be installed on the customer side of the tee in the general service supply line downstream of all sprinklers and/or plumbing fixtures in accordance with Standard Detail 18. The check valve shall be inspected and tested biannually or on a schedule in accordance with Allegheny County requirements. Inspection and testing shall be performed by a tester certified by Allegheny County and at the customer's expense. A copy of the inspection and testing report shall be provided to the Authority.

SECTION XI - RESPONSIBILITY FOR PUBLIC OR PRIVATE FIRE SERVICE

112. RESPONSIBILITY FOR SERVICE: It is agreed by the parties receiving public fire service, private fire service or any other service, that the Authority does not guarantee any special service, pressure, or capacity of facility other than is permitted by the ordinary and changing operating conditions of the Authority, as the same exist from day to day. It is agreed by the parties receiving service that the Authority shall be free and exempt from any and all claims for injury to any persons or property by reason of fire, water, failure to supply water pressure or capacity.

SECTION XII - BILLS AND PAYMENT

113. PLACE OF PAYMENT: All bills are payable at the Authority office or any pay agency as designated by the Authority.

114. BASIS FOR PREPARATION OF BILLS: All bills for service furnished by the Authority will be based on the published Rate Schedule of the Authority.

Each metered customer served will be subject to a fixed minimum monthly or quarterly charge, consisting of a set quantity of usage allowed based on the size of the meter or meter installation with additional consumption or usage to be billed in accordance with the Rate Schedule. Such minimum charge shall be nonabatable regardless of actual use, and noncumulative against subsequent consumption. In the case of fractional bills covering less than a month or a quarter, monthly or minimum charges and allowances of water shall be prorated. The Authority may assess a capital improvement charge as set by the Board.

The charges for the use of water in excess of the quantities allowed for each size meter will be in accordance with the section Meter Quantity Charges, as set forth in the Rate Schedule, the allowances of water for the minimum charges to be deducted from the quantities set forth in applying the meter schedule.

115. BILLS RENDERED AND DUE: The Authority will make regular meter readings either monthly or quarterly, at its option, and bills will be rendered as soon as practicable after the reading of the respective meters.

All bills are due and payable within 20 days after the date , thereof and a penalty of ten percent (10%) will be added to all bills if not paid within 30 days after the date of the bill. Acceptance or remittance of bills on the last day of this 30-day period shall be determined by the date of receipt by the Authority or its agent.

A delinquent notice may be served by mail, or personal service. Unless the bill is paid within thirty (30) days after service of the delinquent notice service will be discontinued.

The customer shall have the right of an administrative hearing, which hearing shall take place at the regularly scheduled meeting of the Authority following the thirty (30) day period unless otherwise directed by the Authority.

If service is thus discontinued, it will not be restored until all unpaid bills and charges, including the turn-on charge, are paid or until satisfactory arrangements are made for payment. The satisfactory arrangements must include the payment in cash of any turn-on charge currently in effect.

For any check received by the Authority payment which is returned unpaid by the Drawee bank for any reason, the customers account shall be charged bank charges levied against the Authority plus a penalty.

116. **ABATEMENT:** Customers desiring an abatement from water bills due to vacancies shall give written notice at the office of the Authority, requesting the water to be shut off. Abatement will be made of a portion of the charges in proportion to the period when water has been shut off relative to the entire billing period. No adjustments on meter bills will be made for any reason other than incorrect registering of meter.

117. **DELINQUENT ACCOUNTS:** Bills are sent on the first of the month to all monthly and quarterly customers and are due on the 21st of the month. Bills not paid by the 21st shall be subject to a 10% penalty assessed on the previous month's billing less any payments made.

A delinquent notice shall be sent for unpaid bills on the first of the month following the delinquent bill. Payment shall be made within ten days of receipt of the delinquent notice. Bills remaining unpaid after ten days following receipt of the delinquent notice are subject to discontinuation of service by the Authority.

Discontinuation of service will be preceded by a shut-off letter sent at the beginning of the last week of the first month following the delinquent bill. The customer is advised of the shut off in the letter and given the opportunity to appear before the Board at the next regularly scheduled Authority meeting. The actual shut-off date is the Wednesday of the week following the aforementioned Authority meeting. Where tenants receive the shut-off letter, property owners will also receive a copy.

Authority personnel will post the door of the delinquent customer with a disconnection notice indicating that service will be shut off on the following day.

Resumption of service shall be made upon payment of all delinquent charges plus a $50 turn-on fee.

The Authority, at its sole discretion, may delay shut off of service where emergency or other special situations exist.

SECTION XIII - CROSS-CONNECTION, INTERCONNECTIONS AND BACKFLOW PREVENTION DEVICES

118. **PURPOSE AND INTENT:** It is the purpose and intent of these regulations to protect the community potable water system of the Authority from the possibility of contamination or pollution by isolating within its customers private water distribution system or systems, such potential contaminant of the Authority system. It is the intent of this regulation to provide for the maintenance of a continuing program of cross connection control which will systematically and effectively prevent contamination or pollution of the water distribution system of the Authority.

All customers where applicable within the water system of the Authority shall be required to have a program of backflow prevention as a condition precedent to receiving service where there exists a cross-connection in their plumbing fixtures..

Any customer or rate payer of the Authority whose plumbing system necessitates the need for elimination or control of cross-connections shall be required as a condition of receiving service to have a backflow prevention device(s) installed, of such design, size and quantity so as to effectively meet the requirements of Federal and State Clean Water Drinking Acts, their amendments, as well as all county, or municipal health codes and municipal building code requirements.

Any customer or rate payer of the Authority who fails to establish an acceptable backflow prevention system shall have his/her or its service terminated until such time as these regulations are complied with. In that regard, the Authority requires that as a condition of service the customer or rate payer shall install backflow prevention devices as described herein and failure to install same will require and/or cause the Authority to withhold service until such time as the backflow prevention device(s) or some other acceptable system has been installed.

119. BACKFLOW PREVENTION DEVICES:

a. In selecting for use the devices outlined herein, it is vital that the degree of protection provided be commensurate with the degree of hazard present. It is also important that the limitations of each device be understood since the degree of protection provided will depend on the type of backflow prevention device and the maintenance program employed.

   Acceptable backflow prevention devices used for cross-connection control are as follows:

   1. Air Gap

   2. Reduced Pressure Zone Devices*

   3. Double Check Valve Assembly*

   *RPZ's and DCVA's should conform to AWWA Standard C506-78

b. The following list outlines the recommended type of backflow prevention devices which should be installed for the protection of a community water supply. This is a partial list and is not intended to supplant any ordinances or standard developed by the Environmental Protection Agency (EPA), Pennsylvania Department of Environmental Protection (PADEP) or the Allegheny County Health Department (ACHD).

1. Plant or Facility

		Air Gap	RPZ	DCVA
1.	Automatic Car Wash	x	x	
2.	Automatic Plants	x	x	
3.	Auxiliary Water Systems	x	x	
4.	Beverage Bottling Plants			x
5.	Breweries or Distillers	x	x	
6.	Chemical Plants	x	x	
7.	Dairies and Cold Storage Plants			x
8.	Dye Works	x	x	
9.	Film Processing	x	x	
10.	Irrigation Systems	x	x	
11.	Laboratories	x	x	
12.	Laundries			x
13.	Meat Packing and Reduction Plants	x	x	
14.	Metal Plating Plants	x	x	
15.	Paper and Paper Products	x	x	
16.	Petroleum, Gas Processing or Storage	x	x	
17.	Plating Plants	x	x	
18.	Power Plants	x	x	
19.	Rubber Plants	x	x	
20.	Sewage or Storm Water Treatment Plants and Pump Stations	x		
21.	Cross Connections	x	x	
22.	Radioactive Materials Processing or Handling Plants	x		
23.	Manufacturing, Processing, or Fabricating Plants Utilizing Toxic Materials	x	x	
24.	Manufacturing, Processing, or Fabricating Plants Utilizing Non-Toxic Materials			x

2. Buildings

		Air Gap	RPZ	DCVA
1.	Single Family Home			x
2.	Convalescent Home			x
3.	Medical Clinic	x	x	
4.	Medical or Dental Building	x	x	
5.	Multipurpose Commercial Building			x
6.	Office Building			x
7.	Hospitals	x	x	
8.	Home for the Aged			x
9.	Mortuary	x	x	
10.	Morgue	x	x	
11.	Nursing Home			x
12.	Schools			x
13.	Schools with Laboratories	x	x	
14.	Apartment or Hotel with Restaurant			x
15.	Apartment or Hotel			x
16.	Apartment or Hotel with Sewage Ejector	x	x	
17.	Apartment or Hotel with Pump House or Water Storage Tank			x
18.	Public Building (Federal, State or City): Potential Health Threat Potential Pollution Threat Restricted or Classified Facility	x	x	
19.	Restaurant or Food Handling Facility		x	x
20.	Supermarket			x
21.	Buildings with Sewage Ejectors	x	x	

3. Municipal Water Systems

		Air Gap	RPZ	DCVA
1.	Connection of Two Water Systems			x

4. Fire Protection Systems

		Air Gap	RPZ	DCVA
1.	Any System with Pumper Connection			x
2.	Any System with Auxiliary Water Source		x	x
3.	Any System Utilizing Anti-Freeze		x	

120. RESPONSIBILITY: The Authority shall exercise reasonable diligence to insure the customer takes proper precaution in order to protect the community water system from contamination or pollution due to backflow through the water system connection. The Authority or designated agent shall determine the degree of hazard to the community water system, and require, at the customer's expense, installation of an approved backflow prevention device at the water service connection, commensurate with the degree of hazard. The Authority or its designated agent also shall give notice in writing to said customer to install such an approved backflow prevention device at each service connection. The Authority or its agent shall require at the customer's expense annual or more frequent testing, proper maintenance and repair, and adequate records of each test and subsequent repair, including material or replacement parts for each installed and approved backflow prevention device. The customer as a condition of service or continued service must send to the Authority the written test results and/or repair information on forms supplied by the Authority. Failure, refusal, or inability on the part of the customer to install, test, maintain, repair, or keep record of safety devices, shall constitute a ground for the Authority to discontinue the water service of said customer. The testing of backflow prevention devices shall be done only by individuals who are certified by an approved certification agency. The Authority may charge an inspection program management fee which the Board may set from time to time.

121. PROHIBITION OF CROSS CONNECTIONS:

a. No water service connection to any customer shall be installed or maintained by the Authority unless said connection is protected as required by these rules and regulations. Service of water to any customer shall be discontinued by the Authority or its agents if any approved backflow prevention device required by these rules and regulations is: (a) improperly installed or (b) not installed or (c) not regularly tested and maintained, or (d) removed, bypassed, or inaccessible to the Authority's water system personnel or agents for the purpose of inspection or testing. Also, water service to any customer shall be discontinued by the Authority if adequate records of test results for approved backflow prevention devices are not kept and forwarded in writing to the Authority on forms provided by the Authority.

b. Delivery of water shall be discontinued immediately and without notice to the customer if a duly authorized regulatory agency determines that the Authority water distribution system is in immediate danger of being contaminated or polluted.

c. Delivery of water shall not be discontinued until written notice thereof has been given to the customer pursuant to Section VII of these Rules and Regulations.

d. In the case of discontinuance of service for violation of this section of the Rules and Regulations, said notice shall state the conditions or defects which must be corrected and the date on or after which delivery of water will be discontinued which shall not be less than fifteen (15) days nor more than ninety (90) days following the date of mailing of the notice. The Authority or its agent may grant to the customer an extension of an additional period not to exceed ninety (90) days if in the Authority's opinion the customer has exercised due diligence but has been unable to comply with the notice within the time period originally given.

e. The customer's water system shall be opened for inspection at all reasonable times to authorized representatives of the Authority or its agents, to determine the adequacy of backflow prevention device records, whether cross connections or violations of these rules and regulations exist, the degree of hazard to the Authority water distribution system or for the inspection and operational testing of backflow prevention devices. Each customer as a condition of the continued delivery to said customer's premises of community water supply shall be considered as having consented to entry upon said customer's premises by Authority personnel for the purposes stated herein.

f. An approved backflow prevention device shall be installed at the expense of the customer on each service connection after the water meter or immediately inside the building being served, but, in all cases, before the first branch line leading off the service connection lines wherever the following conditions exist:

    1. In the case of the customer having an auxiliary water supply which is not approved by a duly authorized regulatory agency or not acceptable to the Authority, the community water supply shall be protected by installation of an approved backflow prevention device in the customer's service line or lines.

    2. In the case of the customer having any industrial fluids or any other objectional substance being handled in such a manner as to create an actual or potential hazard to the community water system, the community water supply shall be protected by installing an approved backflow prevention device in the customer's service line or lines. This shall include handling of water originating from the community water supply system which has been subject to deterioration in quality.

3. In case of: 1) the premises having one internal cross connection which cannot be permanently corrected; 2) controlled or intricate plumbing and piping arrangements or 3) entry to all portions of the premises is not readily accessible for inspection purposes, making it impracticable or impossible to ascertain whether or not cross connections or the degree of hazard they impose exist, the community water system shall be protected by installing an approved backflow prevention device in the customer's service connection line or lines.

g. The type of backflow prevention device required herein shall depend upon the degree of hazard, as determined by the Authority or its designated agent, which exists as follows:

1. In the case of health hazards as defined in the definitions hereto, a reduced pressure zone device (RPZ) or air gap (AG) shall be installed in the customers service line or lines at the customer's expense.

2. In a case of pollution hazards as defined, a double check valve assembly (DCVA) shall be installed in the customer's service line or lines at the customers expense.

h. All presently installed backflow prevention devices, which do not meet the requirements of an approved device and which can be shown to have been adequately inspected, tested, and maintained, shall be acceptable and approved as long as the Authority is assured that these devices can adequately protect the community water system. If, however, the existing device is moved from its present location, requires more than minimum maintenance, or maintenance will constitute a health hazard, the device must be replaced by an approved device.

i. No customer shall alter, bypass or render ineffective or inoperable any approved backflow prevention device covered by these rules and regulations.

SECTION XIV - GENERAL

122. AVAILABILITY - RULES AND REGULATIONS: Copies of these Rules and Regulations Governing Water Service are available for inspection at the office of the Authority at all times during regular working hours. Copies of these Rules and Regulations are available for purchase in accordance with the current Schedule of Rates and Charges.

123. EFFECTIVE DATE - RULES AND REGULATIONS: These Rules and Regulations shall be in full force and effect upon adoption by the Authority.

124. SEVERABILITY - RULES AND REGULATIONS: The provisions of these Rules and Regulations are severable and if any provision, sentence, clause, section, part or

application thereof shall be held illegal, invalid or unconstitutionality shall not affect or impair any of these remaining provisions, sentences, clauses, sections, parts, or applications. It is hereby declared to be the legislative intent that these Rules and Regulations would have been adopted if such illegal, invalid, or unconstitutional provision, sentence, clause, section, part or application had not been included herein.

125. AMENDMENTS - RULES AND REGULATIONS: These Rules and Regulations can be amended, in whole or in part, at any time and from time to time by the Authority.

126. INSPECTION: Authorized employees of the Authority, identified by proper identification tag, shall have access to the customer's premises at all reasonable hours, for the purpose of turning the water on or off; inspection, repair, and/or replacement of service lines and customer facilities; inspection, setting, reading, repairing and removal of meter; and for all such justifiable purposes.

127. INTERFERENCE WITH AUTHORITY'S PROPERTY: No workmen, owner, tenant or otherwise unauthorized person shall turn the water on or off at any corporation cock or curb cock or break the seals, disconnect or remove the meter, or otherwise interfere with the Authority's property.

For unauthorized operation of street valve, curb stop, service cock or other service connection, the person owning the premises served by the line connected to said street valve, curb stop, service cock or other service connection shall be required to pay all costs required in connection with damage to these facilities.

128. SERVICE OF NOTICES: All notices and bills relating to the Authority or its business shall be deemed to have been properly served if left upon the premises of the customer or if mailed to the customer, directed to, or left at his address as shown on the records of the Authority. The Authority will send all such notices and bills to the address given on the application for water supply until a notice of change, in writing, has been filed with the Authority by the applicant.

All notices of a general character, affecting or likely to affect a large number of customers, shall be deemed to have been properly given or served if advertised in the newspaper designated by the Authority.

129. COMPLAINTS: Complaints relative to the character of the service furnished or the reading of meters or of bills rendered must be made in writing and delivered to the main office of the Authority.

130. SERVICE NOT GUARANTEED: Nothing in these Rules, nor any contract, nor representation, verbal or written, of the Authority or any of its employees shall be taken or construed in any manner to be or constitute a guarantee to furnish a proper quantity of water through any service connections, whether for domestic, commercial, industrial, manufacturing or other general uses, or for public or private fire protection purposes, or for any other special purposes; but the Authority will at all times and under all conditions endeavor to maintain the efficiency of its service.

The Authority shall have the right to temporarily cut off the water supply in the case of breaks, emergencies or for any other reasonable cause, in order to make necessary repairs, connections and do such other work. In such cases, the Authority shall not be liable for any damage or inconvenience or any claim for interruption of service, lessening of supply, inadequate pressure, poor quality of water, and such other reasons.

131. WATER QUALITY TESTS: The Authority is required to comply with the Federal Safe Drinking Water Act.

Should the customer at any time doubt the quality of water delivered to the customer's premises, the Authority will, upon a written request of the customer, and if he so desires in his presence or that of his authorized representative, collect samples and conduct analyses of the samples. The specific analyses to be performed will be selected at the discretion of the Authority and the testing will be performed by a State certified laboratory selected by the Authority.

Prior to testing, the customer shall deposit to the Authority an amount sufficient to cover the charge for conducting the test. The amount of the deposit shall be based on the prevailing actual charges of the testing agency used by the Authority. If the meter so tested shall be found to be accurate within the limits herein specified,

If the water samples, so tested shall be found to be within the limits specified within the Safe Drinking Water Act, the deposit shall be retained by the Authority as payment for such test; but if not so found, then the cost thereof shall be borne by the Authority and the deposit returned to the customer

132. RESTRICTION OF SUPPLY: The Authority reserves the right to restrict the supply of water in case of scarcity or whenever the public welfare may require it, and to reserve a sufficient supply of water at all times in its reservoirs to provide for fire and other emergencies.

133. GROUND WIRE ATTACHMENTS: All customers are forbidden to attach any ground wire or wires to any plumbing which is or may be connected to a service connection or main belonging to the Authority, and the Authority will hold the customer liable for any damage to its property occasioned by such ground wire attachments.

134. WATER HAMMER: No use of water will be permitted which may or does cause water hammer.

135. ACTS OF AUTHORITY EMPLOYEES AND/OR OTHERS: No agent or employee of the Authority shall have the power or right to bind the Authority by any promise, agreement, or representation contrary to these Rules and Regulations.

136. BULK WATER PURCHASE: Bulk water purchase may be authorized by the Authority where temporary water service is necessary. Prior to approval of bulk water purchase, customer shall submit an application for service with the appropriate fee and a deposit for

water to be used. Deposits shall be based on the projected amount of water to be used and any remaining balance from the deposit following termination of water use shall be refunded. Where bulk water is provided through hydrant use, only Authority representatives shall operate hydrants. Hose connections shall be supplied by the customer. All water used will be metered by the Authority.

137. SWIMMING POOLS: The filling of swimming pools through bulk water purchase and other work relative thereto shall be subject to the prior approval of the Authority, notice thereof to be given by the applicant for such approval at least 72 hours in advance of such action.

The filling of swimming pools shall, in general, be subject to the following:

a. The rate of filling shall not be excessive and/or cause any disturbance or serious pressure drop in the Authority system, and be subject to approval of the Authority.

b. The lines extending to and around the swimming pool shall be thoroughly flushed until the water is clear, and if necessary, the water shall be passed through the pool filters prior to discharge into the pool or pools. The pool shall be thoroughly flushed and cleaned before closing of the drain valves.

c. No chlorine shall be added to the pool water during the initial filling, except ahead of the filters, and the filter and recirculating systems shall be maintained in constant use during filling. If no filter system exists, the owner and/or operator must accept full responsibility for causing, through the use of chlorine, the precipitation of iron and manganese and such other constituents, and possibly causing discoloration of the water.

d. No swimming pool shall be filled except through a metered connection unless otherwise approved.

138. MISCELLANEOUS WORK AND SERVICES FURNISHED BY THE AUTHORITY: The cost of repair and/or restoration of Authority facilities damaged due to the actions of others, including the cost of lost water, shall be paid for by those responsible based on the actual charges incurred by the Authority.

All bills for such work and services furnished by the Authority shall be rendered by the Authority and shall be due and payable in accordance with Section XI of these Rules and Regulations.

139. TAPPING FEES: The Authority has established schedules of tapping fees for all connections to main water lines, such fees to vary, subject to the conditions under which the main line or lines have been installed, the locations of the main lines to be subject to the size of the connection and such other factors, as set forth in the schedules of tapping fees.

The tapping fees may vary for each size connection, subject to whether the connection is on a line installed by the Authority and/or others, whether the main line is subject to an agreement with others involving reimbursement conditions as related to connections to the line or lines, whether the main line was installed under an assessment program, and to whether there are any other special conditions.

SECTION XV - WATERLINE EXTENSIONS AND ADDITIONAL FACILITIES

140. GENERAL: No water line extension from existing Authority lines shall be installed, no distribution systems and/or pumping or storage facilities shall be constructed or such other work done, without first having obtained approval from the Authority and where required a permit obtained from the Pennsylvania Department of Environmental Protection (PADEP). The work shall be in accordance with these Rules and Regulations and requirements of the municipal subdivision in which the facilities will be constructed. All such facilities shall be constructed and conveyed at no cost to the Authority.

Prior to any detailed concept or design work occurring, the applicant shall deposit the amount established from time to time by resolution with the Authority and a copy of the property deed indicating ownership of land to be developed. No work shall be commenced by the Authority until an the required deposit has been made.

The applicant shall meet with the Authority Engineer to discuss water service, technical and administrative concepts, Authority's Rules and Regulations and to determine the required additional deposit to be made to the Authority.

The applicant must prepare, at its cost, all Contract Plans and Specifications, Right-of-Way Plans, Contract Documents, Reports and other material, and shall prepare and file any applications relative thereto, and shall pay all fees.

141. LIMIT OF EXTENSION: The extension of a water line includes the entire quantity of pipe and appurtenant facilities required to make a complete installation from the end of the existing Authority system to and across the full frontage of the last property for which the applicant has requested service or of sufficient length such that a perpendicular service connection to the last property is feasible, whichever is the greater distance.

142. APPLICATIONS FOR APPROVAL OF EXTENSIONS AND OTHER WORK AND GENERAL REQUIREMENTS RELATIVE THERETO: Written request must be submitted for the purpose of requesting approval of a water line extension, distribution system, pumping/storage facilities, and/or other work, and the obtaining or furnishing water service therefrom. All such requests shall be subject to the terms and conditions set forth herein and the requirements of the municipal subdivision in which the work will be constructed. The applicant will be required to execute an agreement prepared by the Authority Solicitor. This agreement, together with the Rules and Regulations of the Authority and the requirements of the municipal subdivision, shall regulate and control the construction of all facilities and water service therefrom.

All requests for waterline extensions must be accompanied by plans and profiles, specifications, and a report describing the system in detail. The plans must be stamped with the seal of a Pennsylvania Registered Professional Engineer and must be submitted in triplicate. A review submission must be made to the Authority. A final submission must be made and the plans must be approved by the Department of Environmental Protection, and by all other agencies, including Labor and Industry, etc., as required.

Subsequent to completion of the work, the applicant shall submit as-built plans to the Authority. As-built plans shall include field measurements, dimensions and/or stationing, as well as GPS survey coordinates, depicting the final as-built location and size of all water mains, valves, fittings, fire hydrants, air/vacuum release valves, blow-offs, etc. No service will be furnished until these plans are submitted. As-Built plans shall be submitted electronically in PDF format, along with one (1) 24-inch x 36-inch paper set. Shape files including GPS coordinates shall also be provided.

The plans and profiles shall be prepared on 24 by 36 inches paper, with a 1-inch border on the left hand side and a 1/2 inch border on all other sides. A 3 by 5 inch title box shall be located in the right-hand corner.

143. RESPONSIBILITY FOR COST: The entire cost of all work shall be borne by the applicant except, if approved, for the difference in the cost of facilities required for the proposed use and the cost of more adequate facilities that will permit additional service for other areas, the difference to be determined by the Authority's Engineer in accordance with the Pennsylvania Municipal Authorities Act as amended from time to time of any successor statute.

The cost of such work shall, as a minimum, include the following:

a. The cost of all water lines, of the size required for the project, none to be less than 8 inches in size unless otherwise approved by the Authority, and of all other appurtenances.

b. The cost of connections to existing waterlines.

c. The cost of all grading, landscaping, fencing, and other work if required and approved.

d. The cost of all land and rights-of-way, the rights-of-way and land to be conveyed to the Authority.

e. The payment of a minimum of 10% of the total construction costs or a calculated projection of costs, whichever is higher, to defray all legal, engineering and overhead costs, if the project is to be designed and constructed by the Authority. All such costs must be borne by the applicant. If the project is designed and constructed by the applicant, the applicant must pay in advance the Authority costs involved in the review of the Contract Plans and Specifications, field work, legal work, administrative and such other costs in connection with the project. The Authority will determine the amount of estimated advanced costs.

f. The cost of a resident engineer or inspectors furnished by the Authority to supervise and/or inspect construction of the project or projects, such costs to be the per diem rate currently in effect, plus mileage costs and expenses.

g. The payment of all tapping, and other fees.

144. PAYMENT OF COST: After the initial deposit, the applicant shall deposit with the Authority, prior to the commencement of any work, a sum of money sufficient to pay all estimated costs of work to be performed by the Authority. If the Authority approves the construction by the applicant, through a qualified Contractor, the monies to be deposited shall be sufficient only to cover the cost of engineering, legal and overhead, which costs shall not be less than 10% of the estimated total costs and at no time shall the balance of such deposit be less than $1,000.00. Following acceptance of the project by the Authority, any balance remaining in the developer's account will be refunded minus $250 to remain for the term of the maintenance bond to cover any administrative costs related to maintenance bond issues.

145. FINANCIAL SECURITY: When the Authority accepts dedication of the waterline extension following completion, the Developer shall post financial security to secure the structural integrity and functioning thereof in accordance with the design and specifications as depicted on the plans therefore, for a period of eighteen (18) month from the date of acceptance of dedication. Said financial security shall be in the amount of 15% of the actual cost of installation of said improvements. Said financial security may be in the form of cash, a maintenance bond posted with a bonding company authorized to conduct business in the Commonwealth of Pennsylvania, and /or federal or Commonwealth chartered lending institution irrevocable letters of credit and/or restrictive or escrow accounts in such lending institutions.

146. AGREEMENT: The Applicant shall enter into an agreement with the Authority, prior to the review of construction documents or the execution of any work - the agreement to contain such pertinent conditions as the following:

a. The cost of all work to be borne by the Authority, except as otherwise indicated.

b. The materials and workmanship are to be in accordance with the requirements of the Authority.

c. The highway, streets, alleys, and lanes in which water lines extensions are to be located must be dedicated to public use, the lines and grades thereof established, and the rough grading completed.

d. Any easements or rights of way required for construction and maintenance of work shall be obtained by the Applicant and recorded in the name of the Authority.

e. The ownership of all installations shall be conveyed to and vested in the Authority except as otherwise indicated.

f. The Authority is to have the right to make further extensions beyond or laterally from the main extensions. Arrangements for connections to the waterlines constructed by the Applicant will be defined in the agreement.

g. The payment of refunds to the owner for additional new customers to be subject to such conditions as set forth herein, or as agreed upon, and to a limiting number of years. No refunds are to be made unless from monies received from other consumers for the privilege of obtaining services from the extension covered by the agreement.

h. Such other related requirements.

147. COMPLIANCE WITH DESIGN AND CONSTRUCTION STANDARDS: All work shall be in accordance with the General Specifications for Waterline Construction and other requirements of the Authority and the Department of Environmental Protection.

148. GENERAL PLANS: In the case of a phased Subdivision, the applicant shall submit a general plan on a scale not smaller than 300 feet to 1 inch and, preferably, not larger than 100 feet to 1 inch, covering the entire area of the water district - and of any extension of any modification of any water system. In the case of a phased development all future waterline locations should be indicated. Approval of the site plan by the municipal subdivision in which the project is located must be indicated on a site plan (Erosion and Control, etc.).

These plans must show the boundary line of the municipality or water district to be provided waterlines; all existing and proposed streets, watercourses, and other salient topographic features; contour lines for intervals of not less than 5 nor more than 10 feet; and the surface elevations at street intersections and at points where changes of slope occur. The plans must show clearly the locations of all existing and proposed utilities.

In all cases, the plans must clearly show the size of the waterline, the character of the pipe material, the grades, the elevation at all points, the location of all appurtenances, and such other data.

149. DETAILED PLANS: The applicant shall submit detailed plans accompanying the general plans.

The waterline plans shall consist of plan and profile. All topographic features, rights-of-way, property ownership, utility lines, service connections, construction details, etc. shall be shown on the contract drawings. The plan scale shall be 1"=50' and the vertical scale shall be 1"=10'.

All stream crossings shall be indicated. The applicant shall obtain all required stream crossing permits. The applicant shall also obtain all permits and approvals from the appropriate agencies relative to soil and erosion control. An approved soil and erosion control plan, as required, shall be supplied to the Authority prior to construction.

Particular attention shall be given to any pumping station, pressure reducing, storage tanks or any such facilities. Regardless of the project scope, it is mandatory the applicant hold a predesign meeting with the Authority and its Engineer. In the case of such facility design, the Authority's Engineer at the expense of the applicant will prepare a preliminary design report to be followed by the applicant in the detailed design drawings for the facilities.

All construction documents must be submitted to the Authority for review and approval. Construction specifications shall be in conformance with the Authority's General Specifications for Waterline Construction. The Authority reserves the right to make modifications as required to the construction documents. Final approval drawings must bear the design engineer's stamp of the approval. The review signature of the Authority Engineer and Authority representative shall also appear on each drawing.

The submitted Construction documents must comply, at a minimum, with the following standards:

a. 24 x 36 inch paper with 1 inch border, signed and sealed by a Pennsylvania Professional Engineer.

b. Plan and Profile on same sheet. Plan at minimum scale of 1'=50' and profile at 1"=50' horizontal and 1"=10' vertical.

c. Indicate all utilities and compliance with Act 187.

d. All topographic features with existing and proposed grades at contours no less than 5' foot intervals.

e. All proposed and existing property lines.

f. Separate plan for recording rights-of-way, streets, etc. that will be filed with the County.

g. In the case of a subdivision, a master plan of the water utilities showing phased build out.

h. In the case of a subdivision, a master plan of lots shall be provided to the Authority.

i. If a facility (tank, pump stations, etc.), contract documents must comply, at a minimum with the requirements of PADEP. Drawings shall consist of grading plan, layout, outside piping, flow diagram, hydraulic profile, erosion and sedimentation control plan, mechanical plans, sections and details, architectural plans, sections and details, structural plans, sections and details, electrical plans and single line and control diagrams.

150. REPORT: The application shall be accompanied by an Engineer's report giving a full description of the proposed system and setting forth the basis of design, prepared in accordance with DEP requirements.

The report must include a statement and description of the extent of area which it is proposed to include within the system at the present time, and in the future; the estimated present and future population to be served; the estimated rates or volume of water to be provided for; and such other data and information. Planning Modules, where required, shall be submitted with the report.

Where private fire service, large water demands, high flow rates, etc., exist in the opinion of the Authority special facilities may be required. In special cases the Authority will conduct, at the applicants request, hydraulic tests to ascertain existing conditions. The Authority reserves the right to charge a fee for performance of said testing. The Authority will perform fire flow calculations for all waterline extensions utilizing the Authority's existing water system model to determine the ability of the proposed waterline extension design to provide adequate fire protection. Fire flow calculations shall be performed at the expense of the applicant.

151. GENERAL INSTALLATION REQUIREMENTS: All water lines shall be installed in accordance with the detailed specifications of the Authority, some of the pertinent requirements being as follows:

a. The pipe and fittings shall be double cement-lined ductile iron with push-on joint ends, all in accordance with the applicable Specifications of the American Standards Association and of the class required for the pressure conditions in the area and the installation conditions. The pipe shall not be less than six inches in size except as specifically approved by the Authority.

   Service lines two inches in diameter or smaller shall be Type K soft copper service tubing, Crosslinked Polyethylene (PEXa) municipal water service pipe meeting the requirements of AWWA C 904 Crosslinked Pressure Pipe for water service, or Polyethylene Tubing (PET) SDR 9 Copper Tube Size (CTS); and the corporation cocks, curb stops and curb boxes shall be of the manufacture as approved by the Authority.

b. The valves shall be in accordance with the Specifications of the American Water Works Association and of the same manufacture as the majority of the fire hydrants on the remainder of the comprehensive system, unless otherwise approved.

c. The fire hydrants shall be in accordance with the Specifications of the American Water Works Association and of the same manufacture as the majority of the fire hydrants on the remainder of the comprehensive system, unless otherwise approved.

d. All water lines shall be laid with a minimum depth of cover of 4.0 feet, properly bedded, backfilled, blocked, subjected to a hydrostatic test for leakage and subject to such other requirements. All service lines and service line connections shall be installed in accordance with the detailed Specifications of the Authority.

152. REFUND POLICY: The refund policy of the Authority with respect to water line extensions shall comply with applicable tap fee law then in effect.

153. DEVELOPERS HANDBOOK FOR WATERLINE CONSTRUCTION: The Developers Handbook is provided by the Authority for the purpose of assisting developers through the process of extending waterlines within the Authority's service area. The Handbook includes a Procedural Flow Diagram in order to ease the developers understanding of the service request process. The Handbook contains three sections; Rules and Regulations, Developers Agreement, and Construction Specifications. The Handbook may be purchased at the Authority Office.

APPENDIX A - SPECIFICATIONS FOR WATERLINE CONSTRUCTION

154. INTRODUCTION: These specifications which cover requirements for construction of all of the Authority's standard water line facilities are intended for and apply to all such projects, whether directly contracted with a Contractor(s) by the Authority, or; contracted indirectly through the auspices of a land developer who, in turn, employs a construction Contractor(s). The Rules and Regulations describes and identifies procedural requirements, requirements relative to engineering work, payment of fees, certain facility design criteria and parameters, private water service facility requirements, time restraints, certain terms which will be incorporated in an agreement with the Authority before commencement of construction and other factors relating to the water system facilities desired to be constructed in connection with development.

155. ADMINISTRATIVE REQUIREMENTS: In addition to adherence to the construction specifications contained herein, the applicant shall also submit the following administrative items prior to project acceptance:

a. Certificate of Insurance
b. Shop Submittals (5 sets)
c. Contractor Information Form
d. Maintenance Security
e. Release of Liens

156. INSPECTION OF CONSTRUCTION WORK: All work performed in connection with the extension, modification or improvement of public water facilities shall be required to conform with all Authority Rules and Regulations and shall be inspected during construction by an authorized representative of the Authority. All completed work shall be required to meet the approval of the Authority's engineer and shall be changed, modified, replaced, removed or otherwise corrected by the Contractor to such extent as directed by the Authority's engineer.

The work will be periodically or continually inspected during its progress and when substantially completed, shall be inspected jointly, by the Authority's engineer, Authority and the Contractor, when a punch list of uncompleted or corrective work will be

prepared. After all punch-list items have been taken care of to the satisfaction of the Authority's engineer, the work will be declared complete and, upon acceptance of the dedication of such line extension by the Authority, the eighteen (18) month maintenance period shall commence. During the term of the maintenance period the Contractor shall return when and as required to reconcile any problems resulting from construction, such as water line leakage, mechanical malfunction, drainage, restoration, etc. In addition a maintenance bond inspection shall be made by the Authority at a date between twelve and eighteen months following the date of declaration of completion of construction. The Contractor will be notified in advance of that inspection date and may participate therein.

157. AS-BUILT DRAWINGS: The Contractor shall retain one reasonably clean set of drawings of the proposed improvements at the job, on which he shall note changes in pipe line alignments and elevations and any other changes from the pre-construction approved plans. He shall also reference the locations of the ends of water service lines so that the same may be uncovered and connected at future times. The as-built drawings shall also provide details of valve clusters, fittings, etc., showing reference distances from permanent features. In addition, the Contractor shall provide GPS survey coordinates, depicting the final as-built location of all water mains, valves, fittings, fire hydrants, air/vacuum release valves, blow-offs, etc. Shape files with GPS coordinates shall be provided. The set of prints on which such field information is recorded shall be utilized for transposing that information onto the original drawings.

158. RIGHTS-OF-WAY: The Authority or land developer, whichever the case may be, will have, prior to commencement of construction, acquired the necessary rights-of-way where the line is located; however, if the contractor desires ingress or egress to the proposed pipeline location from other than public roads or streets, it shall be his responsibility to make the necessary arrangements, with the respective property owners involved. The contractor shall make every effort possible to confine his construction activities to the limits of rights-of-way and is advised that he shall be solely responsible for any activities outside of the right-of-way limits. The Authority or land developer, whichever the case may be, shall obtain and pay for all permits required to construct pipelines within roads or highways.

159. LINE AND GRADE: The drawings indicate certain bench marks and topographical features on which the location and construction of the proposed pipeline shall be based. The contractor shall provide any and all additional field surveying required to control either line and/or grade and to assure installation of the facilities according to plans, profiles, and details shown and described on the drawings. Inasmuch as the waterline will operate under pressure, exact control of gradient will not be required, however, pipes shall be installed along the alignment and at the elevations indicated on the drawings.

160. CLEARING AND GRUBBING: The areas along the alignment of the proposed waterline shall be cleared and grubbed to the extent necessary to accommodate the trenching, pipe laying, and backfilling operations; however, the area is not to exceed the limitations of rights-of-way. No trees shall be cut and/or destroyed unless absolutely necessary. Trees in lawn and/or landscaped areas shall not be removed without the consent of the Authority. The contractor shall make such arrangements as may be

necessary for the removal and disposition of the various brush, trees, and other debris as is necessary.

No such materials shall be included with trench backfill, and prior to completion of all contract work, all materials shall be cleaned up, transported and removed from the site.

161. EXCAVATION AND BACKFILL: All pipeline and appurtenances shall be constructed by the open trench excavation method except where boring is called for on the contract drawings. All excavation shall be unclassified and no extra payment shall be made for hand excavation or for the removal of any rock, boulders, stumps, tree roots, shale, muck, masonry, curbing, driveway surfacing or other natural or man-made materials.

Exploratory excavations shall be made at the commencement of construction to identify the elevations and/or configurations of the existing water lines to which connection of proposed pipes are indicated. After exposure at those critical locations or connections, the contractor shall submit changes in alignment or gradient which may require additional work or material to the Engineer for approval before proceeding with the work.

The width of the trenches shall not exceed the outside diameter of the pipe, plus two feet, from the bottom of the respective pipe trench to a horizontal plane located one foot above the top of pipe. In the event that the contractor's methods/activities result in a trench wider than the pipe diameter plus two feet within that pipe zone, he shall install concrete bedding or encasement or shall make such other provisions as may be directed by the Engineer to protect the structural integrity of the pipe.

Where the trench bottom contains satisfactory material the pipe shall be laid on the flat bottom with holes for bells provided to insure that the pipe shall lie flat and be supported for its full length.

Where excavation exposes the bottom of proposed trenches where rock, very soft or other unsatisfactory pipe foundation materials exist, the contractor will be directed to overcut (in the case of rock) or stabilize/overcut (in the case of soft material). The pipe shall be supported on bedding material consisting of concrete sand with a minimum thickness of 6" below the bottom of the pipe barrel; said material shall also be placed on the sides of the pipe and to a horizontal plane located one foot above the top of pipe, identified as the pipe zone with the exception of backfill provisions under pavement areas as described hereinafter. Proper pipe restraint shall be employed where unstable material is encountered during construction.

The excavated material from the trench may be stored along its alignment of rights-of-way obtained for construction purposes. It may not, however, impede traffic flow along the streets and roadways, access to private properties, or access to existing utility lines by the respective utility companies. The temporary storage of excavated material shall also not obstruct or alter the flow of surface water runoff to the detriment of the operation of existing surface water drainage facilities and ditches.

Backfill material utilized for restoration of open trenches excavated through permanent pavements, curbs, driveways or where such structures are undercut by the excavation, and roadway shoulder areas, shall consist of PennDOT approved 2RC or 2A material for the entire backfill to the subgrade of the structure onto the roadway shoulder finish grade. It shall be thoroughly compacted in 6" lifts for the full depth of the trench. The material placed in the pipe zone shall be carefully compacted to avoid displacement of the pipeline, valves, fittings and appurtenances.

At locations outside the pavement areas or roadway shoulder along the pipeline, the backfill material for the full trench depth, shall be selected excavated material which shall be thoroughly compacted and placed in such a manner to avoid disturbance or displacement of the pipe, valves and/or other appurtenances. The backfill material shall contain no rocks or hard shale which have a maximum dimension exceeding two inches. The backfill material may be placed by machine and mounded over the trench width. After settlement has satisfactorily occurred and subject to a time approved by the Authority's representative on the site, the surface shall be restored as required hereinafter for lawns and other improved or cultivated areas.

No material shall be used for backfill at any location which, in the opinion of the Authority's representative, is too wet, frozen, mucky or contains debris, tree stumps, or an excessive amount of rock.

All excess excavated material resulting from the construction of the pipelines, structures and appurtenances shall be removed from the site and disposed at a location and in a manner which shall be the applicant's responsibility to determine.

No more than one hundred feet of trench shall be opened at any one time.

Blasting will not be permitted.

162. EXPLORATORY EXCAVATIONS: The exact location and condition of the existing water lines to which connections are to be made may vary in some respects from the arrangements indicated on the Drawings. Therefore, in those areas where such connections are to be made the contractor shall make appropriate exploratory excavations for the purpose of locating said lines and confirm the materials to be furnished and installed. The Authority's representative will then confer with the contractor regarding the method of construction proposed to be used for performing the contract work in said areas and, if realignment of the proposed pipelines or appurtenances appears possible and/or reasonable without conflicting with the terms set forth elsewhere, said alignment shall be made.

163. WARNING SIGNS, LIGHTS AND BARRICADES: Among streets and at such other locations, a minimum of one lane traffic shall be maintained at all times during construction of this project in order to accommodate traffic as well as emergency fire, ambulance and similar vehicular traffic. Suitable and adequate barricades shall be erected and properly maintained by the applicant at all times during the course of construction

work to clearly and properly caution and protect traffic and pedestrians from open excavations, unstable filled areas, obstructions and other hazards directly or indirectly resulting from the construction activities. Warning signs, barricades and handrails shall be erected and a sufficient number of high intensity warning lights shall be appropriately located for use at night and at other times when visibility is poor.

Where pipe lines and/or other facilities are constructed along State Highways, Township streets, and where construction activities may otherwise impede normal vehicular traffic patterns on said streets, the control of traffic shall be accomplished in accordance with the details set forth in Publication 203A of the Pennsylvania Department of Transportation, the title of which is "Short Term Work Zone Traffic Control Guide".

No open excavations will be allowed overnight. It is mandatory that excavations be closed prior to the completion of the working day and that the roadways be free and accessible to travel. The contractor is required to maintain the level of the trench with the sub-base material until such time as paving is completed. The applicant shall coordinate providing two days advance notification to residents in these areas affected by construction.

164. DEWATERING: All trenches shall be dewatered thoroughly in advance of the pipe installation construction activities. The dewatering operation may be accomplished by the use of pumps, well-points, wells or any combination of those systems, but in any event, the pipeline shall be constructed in a trench which will be required to be free of ground, surface or any other source of water inflow and/or infiltration. The proposed water pipeline may not be used for dewatering purposes under any circumstances and particular care shall be exercised to keep open pipe ends sealed with plugs which are fabricated for that purpose and to prohibit the entrance of any extraneous water. Where dewatering pumps are required to be used sufficient discharge hose and other appurtenances shall be provided so that the water is discharged into storm drains, creeks, streams or other suitable water courses intended for such purposes.

165. EXISTING UTILITY LINES - LOCATION, PROTECTION AND HAZARDS: The plans show those underground water lines, gas lines, electric lines, cable TV lines, telephone lines, sanitary sewers, storm drains, conduits and other similar utility lines and appurtenances for which said location information was either made available to the designer, or was observed in the field. Neither the number of such underground facilities nor their respective types, sizes and/or locations can be assured or guaranteed and it is, therefore, the responsibility of the Contractor to obtain such additional information as is required to properly complete the work in compliance with the specifications, and; to contact the owners of the various utilities in the area prior to starting and during performance of the work in accordance with PA Act No. 287 of 1972 and As Amended by PA Act 187 of 1996 known as the Underground Utility Line Protection Act.

The approximate location of many power and telephone poles along the route of the work is shown on the drawings and the overhead lines supported by all such poles shall be observed and located by the contractor prior to commencement of the work.

The contractor shall be completely and solely responsible and liable for any and all property damages, bodily injuries, financial losses and interruption of service that result from or are attributable to his construction activities and which affect water lines, gas lines, electric lines, telephone lines, drain lines, sanitary and storm sewer lines and all appurtenances and service facilities connected thereto. Restoration of all such damaged or disturbed facilities shall be accomplished immediately after incurrence thereto.

Water, sewer, gas , electric, and telephone service to dwellings or places of business shall be maintained with a minimum of interruption throughout the construction of the work. No such service shall be intentionally interrupted without the approval of the respective utility company concerned, and without first giving due warning to the occupants of said dwelling or business establishment.

Much of the proposed work may be in close proximity to overhead power lines which transmit electric current at high voltages and which, if disturbed or contacted during construction, would be hazardous to construction personnel and/or other persons. The contractor shall, therefore, properly protect such wires, pole supports or other power line appurtenances to avoid disturbance to those facilities, and shall operate all machinery and conduct all other construction activities in a manner which will assure protection of all construction personnel and other persons against said hazards. Work in the vicinity of the existing underground gas lines and appurtenances is also hazardous because, under certain conditions, such materials are flammable and/or explosive and the applicant shall avoid disturbance and/or displacement of those facilities and shall provide all temporary and permanent supports and other required protection to prevent exposure of same to construction personnel and/or other persons. Where such lines are exposed during construction and leakage is detected, water line construction work in those areas shall be immediately suspended, the Authority shall be immediately advised of the condition, and the work shall not resume until all repairs have been properly completed.

166. DUCTILE IRON WATER PIPE: All Ductile Iron pipe to be furnished shall be centrifugally cast in metal molds or sand-lined molds, for water or other liquids as described in the specifications published by the American Water Works Association ANSI/AWWA C151/A21.51. Fittings shall conform to the applicable provisions of ANSI/AWWA/C110. The pipe shall be thickness Class 52 and furnished in 18 or 20 ft. lengths. Joints shall generally be of the push-on type; however, the joints at all fittings and at the fire hydrant assemblies shall be restrained and shall be of the mechanical type Megalug, or approved equal, installed in accordance with manufacturers requirements. Where Megalug restraint is used, shop submittals shall include the calculated restraint length. All fittings shall also be fitted with mechanical joint couplings. The manufacturer shall furnish a sworn statement that the inspection and all of the specified tests have been made and that the results comply with the above stated specification standards.

All pipe and fittings shall be coated and shall be provided with a double cement lining in accordance with the latest revision of the ANSI/AWWA/C104/A21.4 specification.

The push-on type joints shall be of the single rubber gasket type molded to be positioned

in an annular recess in the pipe or fitting and shall compress radially to form a positive seal and shall be shaped so that the gasket is locked in place against displacement. Joints shall conform to those provisions set forth in the ANSI/AWWA/C111/A21.11 specifications, which are applicable to the push-on type. All lubricants and gaskets and any required special tools for construction of the pipeline shall be furnished by the pipe manufacturer. All necessary accessories including lock ring, bolts, etc., shall be furnished and installed to accommodate the restrained and mechanical joints.

Pipe and fittings shall be similar and equal to those products manufactured by Atlantic States Cast Iron Pipe Co., Clow Corporation, American Cast Iron Pipe Company or U.S. Pipe and Foundry Company.

167. INSTALLATION OF THE DUCTILE IRON WATER PIPE: All pipe, valves and hydrants shall be installed in accordance with the alignments, profiles and elevations indicated on the drawings. Exploratory excavation at critical points of crossing and/or possible conflict with other utilities shall be made prior to laying any pipe.

The push-on type ductile iron pipe, fittings and accessories shall be furnished and installed in general accordance with the applicable provisions of Standard ANSI/AWWA/C600 of the latest revision. The trench bottom shall be true and even and bell holes no larger than that required to make connections of the joints shall be provided. Pipe plugs shall be used at all times to protect the pipeline from the entrance of extraneous water, animals, or other foreign material. Joints shall be deflected as required to conform with the alignments shown on the drawings, but in no event shall deflection angles exceed five degrees. Concrete thrust restraints shall be installed at all significant changes in pipeline alignment and wherever pipe fittings are designated; concrete thrust blocks shall be cast in place in the trenches per the details and configurations shown on SD-02. If necessary, the pipe shall be cut in the field to accommodate the alignment and/or the locations of fittings shown on the Drawings. Retainer glands shall be installed where specified by the Authority. Field-Lok gaskets are required where waterline installation occurs within fill areas or where unstable material exists.

All waterline shall be encapsulated with polywrap prior to burial in accordance with the specifications shown under Paragraph 170 of these Standard Specifications.

Care shall be exercised to properly install the gate valves and boxes and the hydrants so that they are readily accessible at the respective elevations of existing ground. The hydrants shall be located in the field where directed by the Authority's representative. Detectable marking tape shall be installed a distance of 2 feet above the top of the pipe. The tape shall contain the wording “Caution Buried Water Line Below”.

After completion of all pipe installation and after sterilization has been accomplished in accordance with procedures outlined for disinfection of the pipe lines, the lines shall be flushed so that all dirt and debris and the sterilization solution will be thoroughly cleaned out of the pipes. Flushing shall be accomplished at a time satisfactory to the Authority and the flushing water shall be conveyed to ditches or creeks in such a manner as to avoid traffic or other hazards, and erosion of public or private properties.

168. POLYVINYL CHLORIDE (PVC) WATER PIPE, COUPLINGS AND JOINING MATERIALS: All polyvinyl chloride (PVC) plastic pipe shall conform to AWWA Specification C-900. Pipe shall meet the requirements of DR 14. All PVC pipe will be approved by the National Sanitation Foundation and have the designation of NSF-PW stamped on the pipe. PVC pipe joints shall be sealed with an elastomeric ring meeting the requirements of ASTM D-2672. Joints shall meet all requirements of AWWA C-900. Fittings shall be ductile iron.

PVC pipe shall be made from class 12454-A or class 12454-B virgin compounds as defined in ASTM D1784. All compounds shall qualify for a rating of 4000 psi (27.58 Mpa) for water at 73.4°F (12°C) per the requirements of PPI TR3.

Rework materials. Clean rework materials generated from the manufacturer's own pipe or fitting production may be used by the same manufacturer for same purposes provided that:

They are the same class of PVC pipe or fitting material as specified by the purchaser.

They comply with all applicable requirements of ASTM D1784 and of this standard.

The finished products are equal in quality to products made from virgin compounds.

The PVC compounds used to make pipe and couplings shall contain no ingredient in an amount that has been demonstrated to migrate into water in quantities considered to be toxic.

PVC compounds or products shall be tested for chemical extractants and certified as suitable for potable-water distribution service by an accredited testing agency acceptable to the purchaser, in accordance with requirements that are not less restrictive than the applicable requirements specified in Section 3 and Section 4 of NSF 14.

Gaskets and lubricants intended for use with PVC pipe and couplings shall be made from materials that are compatible with the plastic material and with each other when used together. The material shall not support the growth of bacteria nor adversely affect the potable quality of the water that is to be transported. One gasket shall be furnished with each length of elastomeric-gasket bell-end pipe and two gaskets shall be furnished with each elastomeric-gasket coupling. Elastomeric gaskets shall be manufactured to conform with the requirements of ASTM F477.

Pipe shall be homogeneous throughout; free from voids, cracks, inclusions, and other defects; and as uniform as commercially practical in color, density, and other physical properties. Pipe surfaces shall be free from nicks and scratches. The joining surfaces of pipe spigots and of integral-bell and sleeve-reinforced bell sockets shall be free from gouges and other imperfections that might cause leakage at joints.

The dimensions and tolerances of the pipe barrel shall conform with the applicable requirements listed Table 1 when measured as specified in ASTM D2122. The wall thickness range e of the pipe barrel at any cross section shall not exceed 12 percent when measured in accordance with ASTM D2122 and when calculated using the following equation:

$$e = \frac{100\,(A-B)}{A}$$

E=wall-thickness range, percent
A=maximum wall thickness measured in any radial cross section
B=minimum wall thickness measured in the same cross section

Elastomeric-gasket bell ends. Wall-thickened and sleeve-reinforced bell-type pipe ends designed for joint assembly using elastomeric seals shall conform with one of the following requirements when measured according to ASTM D2122:

Integral wall-thickened bell end. The minimum wall thickness of the bell, at any point between the ring groove (gasket race) and the pipe barrel, shall conform with the DR requirements for the pipe barrel. The minimum wall thickness in the ring-groove and bell-entry sections shall equal or exceed the minimum wall thickness of the pipe barrel.

Integral sleeve-reinforced bell end. The minimum combined wall thickness of the reinforced bell, at any point between the ring groove (gasket race) and the pipe barrel, shall conform with the DR requirements for the pipe. The minimum wall thickness in the ring-groove and bell-entry sections shall equal or exceed the minimum wall thickness of the pipe barrel.

Sustained pressure. The pipe shall not fail, balloon, burst, or weep, as defined in ASTM D1598, at the applicable sustained pressure listed in Table 2 when tested for 1000 h as specified in ASTM D2241. However, either free-end or restrained –end closures that are free of leaks at maximum pressure may be used.

Burst pressure. The quick-burst strength of pipe, including any integral bell-end, shall meet the applicable minimum pressure requirement listed in Table 3 when tested at 73.4°F ± 3.6°F (23°F ± 2°) in accordance with the specimen and sample sizes, conditioning, and procedural requirements listed in ASTM D1599 during a test time of 60-70 s, specimen failure is not required to demonstrate that minimum quick-burst strength requirements have been met.

Hydrostatic integrity. The pipe, including any integral bell end, shall not fail, balloon, burst, or weep when tested at 73.4°F ± 3.6°F (23°C ± 2°C) in accordance with ASTM D1598.
Flattening. The pipe shall not split, crack, or break when tested by the parallel-plate method as specified in ASTM D2412.

Extrusion quality. The pipe shall not flake or disintegrate when tested by the acetone-immersion method as specified in ASTM D2152.

Standard Lengths. Pipe shall be furnished in standard laying lengths of 20 ft ± 1 in. (6.1 m ± 25 mm), unless otherwise agreed on at time of purchase. A maximum of 15 percent of each pipe size may be furnished in random lengths of not less than 10 ft (3m) each.

Where elastomeric-gasket couplings are to be used, one such coupling of a corresponding size and pressure class shall be furnished with each length of plain-end pipe.

The wall thickness of PVC couplings designed for joint assembly using elastomeric seals shall conform to the DR of the pipe, except in the annular gasket space and coupling entry where the wall thickness shall be at least the minimum wall thickness of the pipe. The quick-burst strength of couplings shall not be less than the minimum burst pressure specified for the pipe with which the couplings are designed to be used when tested as specified in Section G17. Couplings shall not fail, balloon, burst, or weep when tested at 73.4°F ± 3.6° F (23° C ± 2° C) in accordance with Section G17.

Performance Requirements for Elastomeric-Gasket Joints. Bell-end pipe and couplings designed for making PVC joints using elastomeric gaskets to effect the pressure seal shall be tested as assembled joints and shall meet the laboratory performance requirements specified in ASTM D3139. (These are qualifying test requirements to determine proper design and performance of specimen joints.)

All pipe and couplings shall, unless otherwise specified by the purchaser, be prepared for standard commercial shipment. Pipe and couplings that do not comply with the applicable requirements of this standard or that are damaged when received shall be replaced by the manufacturer or supplier at the agreed point of delivery. The manufacturer shall take adequate measures in the production of PVC pipe and couplings to assure product compliance with the requirements of this standard. The pipe and couplings shall be tested in accordance with the requirements of Section G17 at intervals as required herein, unless otherwise specified by the purchaser. The manufacturer shall maintain, for a period of not less than 2 years, a record of all quality-control tests and shall, if requested, submit the pertinent record to the purchaser.

Each standard and random length of pipe shall be proof tested at four times its rated pressure class for a minimum dwell of 5 s. Integral bells, including reinforcement sleeves, if any, or affixed couplings, shall be tested with the pipe. The pipe shall attain ambient temperature before hydrostatic proof testing. When the pipe and couplings are at temperatures higher than 77°F (25°C) at the time of hydrostatic proof testing, the test pressures shall be reduced to the appropriate levels for such temperatures. Each separate coupling shall be proof tested for not less than 5 s at four times the rated pressure class of the pipe with which it is designed to be used. The pipe shall attain ambient temperature before hydrostatic proof testing. When the pipe and couplings are at temperatures higher than 77°F (25°C) at the time of hydrostatic proof testing, the test pressures shall be reduced to the appropriate levels for such temperatures.

When plant inspection is specified by the purchaser, the manufacturer shall provide the purchaser with adequate advance notice of when and where production of ordered materials will start. Plant inspection by the purchaser or the omission of such inspections shall not relieve the manufacturer of the responsibility to furnish materials complying with the applicable requirements of this standard and of the purchaser. Should a manufacturer desire to exclude inspection of proprietary manufacturing processes, the manufacturer shall so advise the purchaser at the time of bid submittal or receipt of purchase order, whichever occurs first. The manufacturer shall make available for the inspector's use, without charge, such tools and assistance as are necessary for inspection and handling of materials.

INSTALLATION OF PVC WATER PIPE: All pipe, valves and hydrants shall be installed in accordance with the alignments, profiles and elevations indicated on the drawings. Exploratory excavation at critical points of crossing and/or possible conflict with other utilities shall be made prior to laying any pipe.

The push-on type pipe, fittings and accessories shall be furnished and installed in general accordance with the applicable provisions of Standard ANSI/AWWA/C900 of the latest revision. The trench bottom shall be true and the PVC pipe shall be bedded in fine sand 6" below the bottom of the pipe barrel; said material shall also be placed on the sides of the pipe and to a horizontal plane located one foot above the top of pipe. Pipe plugs shall be used at all times to protect the pipeline from the entrance of extraneous water, animals, or other foreign material. Thrust restraints shall be installed at all significant changes in pipeline alignment and wherever pipe fittings are designated. If necessary, the pipe shall be cut in the field to accommodate the alignment and/or the locations of fittings shown on the drawings. Do not over insert spigot into bell. Remove bevel before inserting into D.I. fittings and valves. All PVC pipe that is cut to length shall be manually beveled and marked before insertion into the bell end. Thrust restraints shall be placed at all fittings, fire hydrants and other locations indicated on the contract drawings. Concrete blocking shall be installed for all tees, wyes, crosses, plugs and bends of 10º or more. All fittings shall have restrained joints installed. If pipe being used has a bell joint within ten (10) feet of a fitting, a field lok gasket for bell joint restraint shall be used. CONTRACTOR shall utilize M.J. restrained joint retainer glands, equal to Megalug as manufactured by EBBA Iron, Inc. Restrained joint retainer glands shall be provided in addition to concrete thrust restraints.Bell joint restraints shall be installed where indicated on the drawings along the alignment of the water main or if located within ten (10) feet of a fitting. The bell joint restraints shall be as recommended by the PVC pipe manufacturer.

Care shall be exercised to properly install the gate valves and boxes and the hydrants so that they are readily accessible at the respective elevations of existing ground. The hydrants shall be located in the field where directed by the OWNER's representative and as shown on the Contract Drawings.

After completion of all pipe installation and after sterilization has been accomplished in accordance with procedures outlined for disinfection of the pipe lines, the lines shall be flushed so that all dirt and debris and the sterilization solution will be thoroughly cleaned out of the pipes. Flushing shall be accomplished at a time satisfactory to the OWNER

and the flushing water shall be conveyed to ditches or creeks in such a manner as to avoid traffic or other hazards, and erosion of public or private properties. All water flushed from the new waterlines shall be dechlorinated as described in Exhibit A appended hereto.

Laying of Pipe. Pipe and accessories should be inspected for defects and cleanliness before they are lowered into the trench. Any defective or damaged material should be repaired or replaced, and all foreign matter or dirt should be removed from the interior of the pipe and accessories before lowering into the trench. When pipe laying is not in progress, open ends of installed pipe should be closed to prevent entrance of trench water, dirt, foreign matter, or small animals into the line.

All pipe, fittings, valves, hydrants, and accessories should be carefully lowered to prevent damage. Pipe and accessories should never be dropped or dumped into the trench.

Pipe Joint Assembly. The assembly of PVC pipe requires the careful adherence to the proper joint assembly procedures outlined in the contract documents. The following is a suggested procedure:

Confirm that the bell and gasket are free from any foreign material that could interfere with the proper assembly of the pipe joint. Some gaskets are restrained in the bell and should not be removed. Contact the manufacturer for specific information. Confirm that the pipe spigot end is clean. Wipe with a clean, dry cloth around the entire circumference from the pipe end to about 1" (25 mm) beyond the reference mark.

Lubricate the spigot end of the pipe using a lubricant and method of application recommended by the pipe manufacturer. The entire circumference should be lubricated, especially the beveled end of the spigot. Do not lubricate the gasket or the gasket groove in the bell because the lubrication could cause gasket displacement. After the spigot end has been lubricated, it must be kept clean and free of dirt and sand. If dirt or sand adhere to the lubricated end, the spigot must be wiped clean and re-lubricated. If the system is for potable water, the lubricant must be approved for potable water service. Do not use a nonapproved lubricant that may harbor bacteria or damage the gaskets or pipe.

Insert the spigot end into the bell so that it is in uniform contact with the gasket. Push the spigot until the reference mark on the spigot end is flush with the end of the bell. The recommended method for assembly is using a bar and block; however, pullers such as a lever or come-along may also be used. If undue resistance to insertion of the spigot end is encountered or the reference mark does not reach the flush position, disassemble the joint and check the position of the rubber gasket. If it is twisted or pushed out of its seat, clean the gasket, bell, and spigot end and repeat the assembly steps. Be sure both pipe lengths are in proper alignment. If the gasket is not out of position, measure the distance between the reference mark and the spigot end and check it against the correct valves provided by the pipe manufacturer.

When pipe laying is not in progress, the open ends of the installed pipe should be closed to prevent the entrance of trench water into the line. Whenever water is prevented from entering the pipe, enough backfill should be placed on the pipe to prevent floating. Any

pipe that has floated shall be removed from the trench and the bedding restored. The gasketed joint design of PVC pipe allows for the minor discrepancies of not placing pipes to proper grade and alignment. There is, however, no minimum offset requirement in the standards. Known changes in alignment and grade should be accomplished with high-deflection couplers or fittings.

As a practical matter, PVC joints may be offset slightly until the point where the outside diameter of the spigot contacts the inside diameter of the bell. Pipe manufacturers should be consulted for the amount of offset allowed.

To set a fitting in the desired location, it may be necessary to cut the pipe. A square cut is essential to ensure proper assembly. AWWA C900 and C905 pipe can be easily cut with a fine tooth hacksaw, handsaw, or a portable power saw with a steel blade or abrasive discs. Prior to cutting the pipe, the pipe should be marked around its entire circumference to assist in making a square cut.

Use a factory-finished pipe end as a guide to determine the angle and length of bevel. After cutting and beveling, a reference mark must be made on the spigot end to ensure that the joint is properly assembled. The reference mark may be located by using a factory-marked end of the same size pipe as a guide. The reference point may also be located by referring to data provided by the pipe or fitting manufacturer. Installers should be aware that when assembling two different brands of PVC pipe, the reference line position may differ. In this case, the correct reference line for the spigot of Brand "X" is obtained by measuring the insertion depth of an uncut length of Brand "Y". For iron fittings (push-on or mechanical joints), remove all but 1/4" (6 mm) of the factory-made bevel from the spigot end. The PVC pipe spigots should be bottomed in the iron fittings.

PVC does offer the advantage of longitudinal bending to accomplish changes of direction. If the pipe is to be bent, precautions must be taken to ensure straight alignment in the joint. Also, the pipe must meet minimum bending radius requirements at every point.

WIRE CONDUCTOR: Install 12 gauge, solid wire, direct burial, insulated wire as a continuous conductor 6" above the pipe depth with a grounded loop around the hub of each line valve and hydrant valve. Trace wire is required for PVC water lines.

Trace wire for direct bury installations shall be, #12 AWG solid Copper wire with a 30 mil High Density Polyethylene (HDPE) or High Molecular Weight Polyethylene (HMWPE) coating designed for direct burial. Color shall be blue. Direct Bury Wire Nuts (Dryconn DBSR Aqua manufactured by King innovation or approved equal). Direct Bury Lug (DRYconn Direct Bury Lug Aqua as manufactured by King Innovation or approved equal).

Trace wire shall be installed in a continuous fashion. Install trace wire 6" above the water main. Bring trace wire to surface at every valve box. Trace wire shall be brought to the surface at least every one thousand (1,000) feet. Take care not to damage the wire coating. Repair damaged coating with electrical tape.

Connections into existing trace wire, connections into trace wire used during water main bores, connections between one spool of trace wire to another, and other similar connections shall be made using a direct bury wire nut. When connecting trace wire ends together, strip 5/8" of insulation from the end of each wire. Insert the two ends firmly into the direct bury wire nut. Insert the two ends firmly into the direct bury wire nut. Twist the wire nut clockwise while pushing the wires firmly into the nut. Do not over torque. Tie the wires in a knot as shown in the detail below. Connections to trace wire at tees, crosses, and at locations where the trace wire will be brought to the surface shall be conducted using a direct bury lug.

Trace wire shall be brought up in all valve boxes. The trace wire shall be brought to the surface according with Authority specifications**.** Trace wire shall be brought in fire hydrants branch valves per Authority specifications. At all water main end caps, a minimum of 6 feet of tracer wire shall be extended beyond the end of the pipe, coiled and secured for future connections. The end of the tracer wire shall be spliced to the wire of a six pound zinc anode and is to be buried at the same elevations as the water main. At all services a trace wire shall be placed directly above the copper service line attached to the trace wire along the main with a direct bury lug and at the service line adjacent the curb box with a grounding clamp.

All trace wire shall be installation shall be verified by using low frequency (512 Hz or similar line locating equipment. Verification shall be witnessed by Authority personnel or their designated representative. Trace wire shall installation shall be verified upon completion of rough grading and prior to final acceptance of the project.

169. GATE VALVES: All valves shall be furnished with mechanical joints, as indicated and shall conform to the specifications set forth in the ANSI/AWWA C509 standard of the latest revision. The valves shall be installed in the vertical position and at the bury and locations shown on the Drawings. Valves shall be cast iron or ductile iron body, resilient seat, open counterclockwise, with 2" square operating nut, designed for a working pressure of 250 psi. Valves shall be Mueller Catalog No. A 2360-20, Kennedy Catalog No. 1571X or equal. Each valve shall be equipped with a screw type cast iron valve box and cover indicating "Water Service." Lengths of the boxes shall be compatible with the depths of the respective valve installations as shown on the drawings.

170. POLYETHYLENE ENCASEMENT FOR DUCTILE IRON PIPE: All ductile iron pipe and fittings being installed under this contract shall be furnished with polyethylene encasement. The polyethylene encasement shall be high-density, cross-laminated polyethylene film manufactured of virgin polyethylene material conforming to the following requirements of ASTM D1248-89:

Raw Material – Type: III, Class: A (natural color), Grade: P33, Flow Rate: (formerly melt index): 0.4 to 0.5 g/10 min, Dielectric Strength: Volume resistively, 10^{15} ohm-cm, minimum.

Physical Properties – Tensile Strength: 5000 psi (34.6 Mpa) minimum, Elongation: 100 percent minimum, Dielectric Strength: 800 V/mil (31.5 V/pm) thickness, minimum.

Thickness – Film shall have a nominal thickness of 0.004 in. (4 mil). The minimum tolerance on thickness is 10 percent of the nominal thickness.

Tube size or sheet width for each pipe diameter shall be as follows:

NOMINAL PIPE DIAMETER	**POLYETHYLENE WIDTH FLAT TUBE**
6”	16”
8”	20”
12”	27”
16”	33”
20”	41”

The polyethylene encasement shall prevent contact between the pipe and the surrounding backfill and bedding material but is not intended to be a completely airtight or watertight enclosure. All clumps of clay, mud, cinders, and so forth, on the pipe surface shall be removed prior to installation of the polyethylene encasement. During installation, care shall be exercised to prevent soil or embedment material from becoming trapped between the pipe and the polyethylene.

The polyethylene film shall be fitted to the contour of the pipe to effect a snug, but not tight, encasement with minimum space between the polyethylene and the pipe. Sufficient slack shall be provided in contouring to prevent stretching the polyethylene where it bridges irregular surfaces, such as bell-spigot interfaces, bolted joints, or fittings, and to prevent damage to the polyethylene due to backfilling operations. Overlaps and ends shall be secured with adhesive tape, plastic tie straps, or any other approved material capable of holding the polyethylene encasement in place until backfilling operations are complete.

For installations below the water table the CONTRACTOR shall provide for circumferential wraps of the tape or plastic tie straps be placed at 2-ft (0.6-m) intervals along the barrel of the pipe to help minimize the space between the polyethylene and the pipe.

Cut the polyethylene tube to a length approximately 2 ft. (0.6-m) longer than the pipe section. Slip the tube around the pipe, centering it to provide a 1-ft. (0.3-m) overlap on each adjacent pipe section, and bunching it accordian-fashion lengthwise until it clears the pipe ends.

Lower the pipe into the trench and make up the pipe joint with the preceding section of pipe. A shallow bell hole is necessary and shall be made at joints to facilitate installation of the polyethylene tube.

After assembling the pipe joint, make the overlap of the polyethylene tube. Pull the bunched polyethylene from the proceeding length of pipe, slip it over the end of the new length of pipe, and secure it in place. Then slip the end of the polyethylene from the new pipe section over the end of the first wrap until it overlaps the joint at the end of the preceding length of pipe. Secure the overlap in place. Take up the slack width at the top of the pipes to make a snug but not tight fit along the barrel of the pipe, securing the fold at quarter points.

Pipe-Shaped Appurtenances - Cover bends, reducers, offsets, and other pipe-shaped appurtenances with polyethylene in the same manner as the pipe.

Odd-Shaped Appurtenances - When it is not practical to wrap valves, tees, crosses, and other odd-shaped pieces in a tube, wrap with a flat sheet or split length of polyethylene tube by passing the sheet under the appurtenance and bringing it up around the body. Make seams by bringing the edges of the polyethylene sheet together, folding over twice, and taping down. Tape polyethylene securely in place at valve stem and other penetrations.

Repairs - Repair cuts, tears, punctures, or damage to polyethylene with adhesive tape or with a short length of polyethylene sheet or a tube cut open, wrapped around the pipe to cover the damaged area, and secured in place.

Openings in Encasement - Provide openings for branches, service taps, blowoffs, air valves, and similar appurtenances by making an X-shaped cut in the polyethylene and temporarily folding back the film. After the appurtenance is installed, tape the slack securely to the appurtenance and repair the cut and any other damaged areas in the polyethylene, with any resulting damaged areas being repaired as described previously. The preferred method of making direct service taps consists of applying two or three wraps of polyethylene adhesive tape completely around the pipe to cover the area where the tapping machine and chain will be mounted. This method minimizes possible damage to the polyethylene during the direct tapping procedure. After the tapping machine is mounted, the corporation stop is installed directly through the tape and polyethylene. Experience has shown that this method is very effective in eliminating damage to the polyethylene encasement by the tapping machine and chain during the tapping operation. After the direct tap is completed, the entire circumferential area shall be closely inspected for damage and repaired if needed.

Junctions between wrapped and unwrapped pipe-Where polyethylene wrapped pipe joins an adjacent pipe that is not wrapped, extend the polyethylene wrap to cover the adjacent pipe for a distance of at least 3 feet. Secure the end with circumferential turn of tape.

Backfill for polyethylene-wrapped pipe - Use the same backfill material as that specified for pipe without polyethylene wrap, exercising care to prevent damage to the polyethylene wrapping when placing backfill. Backfill material shall be free from cinders, refuse, boulders, rocks, stones, or other material that could damage polyethylene. In general, backfilling practice should be in accordance with the latest revision of ANSI/AWWA C600.

171. HYDROSTATIC TESTING: After the pipeline has been properly constructed and flushed, a hydrostatic test shall be conducted at a pressure of a minimum 150 pounds per square inch at any point of testing. The time period of said test shall not be less than two hours and the pressure shall not vary by more than plus or minus 5 psi during the duration of the test. All air shall be completely expelled from the section of line to be tested prior to application of the test pressure.

No section of pipeline will be accepted if, as a result of the aforementioned hydrostatic test, leakage is greater than an amount determined by the following formula:

$$L = \frac{SD\,(P)^{.5}}{133{,}200}$$

L: Allowable leakage, gallons per hour
S: Length of pipe, tested, feet
D: Diameter of pipe, inches
P: Average test pressure, pounds per square inch

At a test pressure of 150 psi, the above formula results in an allowable leakage of 0.74 gallons per hour per 1000 feet for 8" diameter pipe, 0.55 gph per 1000 feet of 6" diameter pipe.

If the testing of any section of line discloses leakage greater than that amount, the applicant shall, locate the problem and make all necessary repairs and retest until the pipeline conforms with the specified allowance. Any and all visible leaks which are detected shall also be repaired, regardless of the amount of leakage.

172. DISINFECTION: All pipelines constructed shall be disinfected in accordance with the "tablet method" as stipulated in ANSI/AWWA C651-99 attached as Exhibit A in these Standard Specifications. The tablets shall be attached to the inside and at the top of the installed pipes by using an adhesive similar or equal to Permatex No. 1.

The pipeline shall be isolated from the existing system and shall, when the sterilization operation commences, be slowly filled with water at a rate where velocities shall not exceed one foot per second. After the pipeline has been completely filled and all air has been expelled, the water shall be permitted to remain in the pipe for a period of not less than 48 hours. The pipeline shall be flushed clean. The Authority will test the water and if the tests indicate poor water quality the applicant will be required to repeat disinfection of the water line at no cost to the Authority. Improper disposal of highly chlorinated water resulting in environmental damage and consequential fines will be the sole responsibility of the Contractor performing the testing.

All bacteriological testing shall be performed in accordance the AWWA C651-99. All bacteriological testing shall be coordinated with the Authority and shall be at the Contractor's expense.

173. CONCRETE THRUST RESTRAINTS: Concrete blocks shall be cast in place in accordance with the configurations shown on SD-02. Such blocks shall be required to be poured, after installation of the adjacent piping at all fittings installed along the pipeline. The concrete to be used may conform with mix proportions of water, cement, and fine and coarse aggregates utilized locally, however, it shall have a minimum compressive strength of 3,500 pounds per square inch and a maximum slump of five inches. The concrete shall be placed such that it is supported against undisturbed earth along the excavated trench wall and the trench bottom and shall be thoroughly worked and vibrated to insure complete contact with the walls of the fittings being restrained. No trench backfill shall be placed at the locations of the thrust blocks until twenty-four hours after placement, and/or until the Authority's representative on the site has inspected the installation. Retainer glands shall be installed where specified by the Authority.

174. ROADS, WALKWAYS, PAVING AND SURFACE RESTORATION: It is intended that all surfaces occupied, disturbed, damaged or used to accommodate or perform construction work or for access to any part of the site shall be restored, as nearly as is practicable, to the condition existing prior to construction. Signs, drain pipes, curbs, storm ditches and any and all other existing public or private property items shall, where necessary be temporarily removed so that the work can be performed; said items shall, as soon as possible be properly replaced at a location and in accordance with the requirements of the respective owners. Driveway drain pipes shall conform to the specifications and requirements of the municipal subdivision in which the work is performed and shall be a minimum of 12 inches in diameter, galvanized corrugated metal pipe. When necessary to temporarily remove mail boxes so that the work can be performed, the mail box shall be restored in the shortest time to the requirements of the U.S. Postal Services and at the original location together with unrestricted access. When necessary to temporarily remove property pins, they shall be accurately restored to the same location through survey or some other means approved by the property owner.

The contractor shall confine his material storage, excavation, topsoil storage and other work within the rights-of-way provided except when by written agreement between the applicant and the owner of the property through which the right-of-way passes, permission is granted to occupy areas beyond that designated.

When working on public or private highways, streets and alleys, the applicant shall confine his operations as required by the Authorities having jurisdiction.

The contractor shall make his own arrangements with private individuals relative to storing materials or equipment on private lands.

Where the construction work is across, along or through right-of-ways, roadways, streets or alleys, belonging to the State, County, Township or utility companies, the regulations and stipulations set up and required by those agencies shall be observed and all work shall be in conformance with the requirements set forth by that agency. Any and all permits required for opening roadways or streets shall be obtained by the applicant at his own expense. The cost of all inspection required by those Agencies shall be borne by the

applicant. The expense of said permits and inspection shall be paid by the applicant even though the permits and inspection agreements may be issued to, or be between the Authority of the road or utility and the Authority. If the Authority is billed for these permits, or inspection services, the applicant shall reimburse the Authority at the time the bills are paid.

For bituminous paving on State roads, all materials and methods of construction shall comply with the requirements of Pennsylvania Department of Highways Form 408. Section numbers listed in this specification refers to the section of that document.

175. BORING AND CASING: Where boring is employed, the contractor shall be responsible for construction to true line and grade and shall be held fully responsible for protecting against surface subsidence, damage or disturbance to adjacent property and facilities due to his construction operations and shall rectify resultant subsidence, damage or disturbance to the satisfaction of the Engineer.

All sheeting, shoring, bracing, lining, etc., required for construction of shafts, portals, etc., shall be furnished and installed by the applicant and shall conform to the requirements set forth under "Open Excavation". All work relative to the installation of waterlines by the boring method shall be performed in accordance with the regulations set forth under Subpart S, "Tunnels and Shafts, Caissons, Cofferdams and Compressed Air" published as part of the Safety and Health Regulations for Construction by the U. S. Department of Labor.

Where possible, boring operations shall be conducted from the high end of the pipe. The pipe shall at all times follow immediately behind the boring auger at a distance no greater than 2 feet. The method of augering the entire hole and then pushing the pipe through will not be permitted.

All steel carrier or casing pipe required for the installation of waterlines by the boring method shall be black steel pipe conforming to the specifications set forth under ASTM Designation A-53. All joints shall be welded. For eight inch diameter waterlines, the casing diameter shall be 16" inches.

The water pipe within casings shall be securely blocked with casing spacers complete with stainless steel stud washers and hex nuts as manufactured by Cascade Waterworks. A rubber end seal shall be provided on either end of the casing pipe. See SD-09.

176. TOWNSHIP ROAD AND BERM PAVING: All paving and/or berm areas disturbed or damaged as a result of the waterline construction or by other activities of the applicant shall be replaced in a manner to equal or exceed the quality of the existing surfaces and, to the satisfaction of the Authority. The paving and berm restoration shall conform strictly to the standards of Richland Township for pavement work.

All paving removed, damaged or destroyed during the construction of this work shall be replaced by one of the following methods at least equivalent to that existing before

construction. Where damage is within two feet of the curb or edge of roadway, replacement shall be to that curb. The contractor shall guarantee all paving replaced against defect and settlement for a period of eighteen months after the date of the final estimate.

All non-rigid bituminous surface paving shall be restored by neatly and uniformly cutting the edges and placing a base course and a surface course over the trench fill in accordance with requirements of Richland Township's Construction Detail Standards No. 2 and No. 3, where applicable, included with the Standard Detail drawings of this document.

177. RESTORATION AND SEEDING: In lawns and gardens, and in other improved areas (except for streets, roadways, and traveled ways), the top of the backfill material shall be placed to an elevation approximately 4" below the finished ground surface. Commercial topsoil shall then be obtained from a local garden supplier for locations where existing top soil quantities are inadequate, and shall be placed and lightly rolled in the top 4" of all excavated areas and other places where construction equipment and activities have caused damage to the ground surface. The contractor shall reseed all areas disturbed by construction after the topsoil has been properly distributed. The entire area shall then be properly tilled and hand-raked to a smooth, even grade. All seeded areas shall be kept constantly wet to a depth of 3" for 10 days immediately after seeding. All areas which do not show a prompt catch of grass shall then be reseeded as required. In any event, the applicant shall insure a good final stand of grass as specified above and he shall maintain the seeded areas until the lawn as such is free from bare spots and off-color areas and until final acceptance of the entire project.

All lawns and other improved or cultivated areas shall be restored by properly rolling, tilling and hand raking the area disturbed during construction and an application of an approved fertilizer at a rate of 30 lbs. per 1000 square feet shall be made. Grass seed of an approved variety shall be sown by a feeder on a calm day in accordance with suppliers' directions at a rate of not less than 7 lbs. per 1000 square feet. The area shall then be completely covered with peat moss, mushroom manure, or other approved mulch material. The applicant shall be responsible restoration of all settlements and for properly preparing the topsoil, applying fertilizer and mulch and planting the seed, but will not be required to water those restored areas.

178. DISPOSAL OF EXCESS MATERIAL: All excess materials resulting from either and/or both the open excavation and the tunneling, boring and/or jacking operation, which materials are not replaced as backfill, shall be hauled from the site of the work and shall be disposed as determined by the applicant.

179. SHEETING, SHORING AND/OR BRACING: All open trenches for construction of the pipeline shall be constructed in accordance with the provisions of the Occupational Safety and Health Act Regulations, as the same pertain to the shape of trenches above the pipe zone, trench side-wall supports, the construction methods employed, the general protection requirements, the general excavation requirements, the general trenching requirements and the minimum requirements for trench shoring. Those excavations for

the proposed access pits for performance of the tunneling, boring and/or jacking operation shall be similarly constructed except that all such access pits shall be continuously sheeted with steel and/or timber which shall be adequately braced with waling or other supports from the respective pit bottoms to the tops. All sheeting and/or shoring shall be designed by the applicant for the conditions encountered and shall be structurally adequate to withstand the loads to be imposed. Methods of installation shall be compatible with assuring the protection against disturbance of adjacent facilities and/or grounds and the safety of construction and other persons.

Trenches, pits and/or any other excavated and/or backfilled areas where pedestrian or traffic hazards may result during construction or non-construction hours, all be covered with anchored steel plates adequately reinforced for loads which may be sustained and shall be distinctively and clearly marked, barricaded, lighted and detoured to identify the respective hazards.

180. FIRE HYDRANTS: The fire hydrants shall be manufactured in accordance with the Specifications of the American Water Works Association C502, latest revision and shall be Super Centurion 250 Fire Hydrants as manufactured by the Mueller Company or Kennedy K 81A.

The hydrants shall be of the compression type and shall open counter-clockwise. The hydrants shall have an internal diameter of standpipe of at least 6 inches and 5-1/4 inch valve opening, shall have a 6 inch mechanical joint connection and shall be designed for a 4 foot 6 inch bury; that is the 6 inch inlet pipe shall have at least 4 feet of cover. The hydrant shall have two 2-1/2 inch hose nozzles and one 5 inch Harrington Storz connection with cap (up to 125 psi static pressure). The applicant shall be held responsible for threads matching the existing hydrants in the municipality in which the hydrant is located (National Standard Threads required in Richland Township). Hydrant painting shall be as selected by the Authority. Installation shall be as shown in the Supplemental Details SD-01 of this document.

The hydrants shall be furnished with safety flanges for protection in case of collision. All bearings shall be fully bronze mounted and the hydrant shall be constructed so that all working parts can be removed without disturbing the barrel of the hydrants or making any excavation. The hydrants shall be designed so as to be frost-proof and be provided with drains which close when the hydrant is opened and open promptly when the hydrant is closed.

Each hydrant shall be subjected to a hydrostatic test of at least 400 pounds prior to shipment and shall be suitable for operating pressures of 200 pounds. The hydrant shall be given on shop coat of lead chromate primer and two coats of approved paint, the color to be chosen by the Authority.

181. BLOW OFF ASSEMBLY: A blow-off assembly of the size and type indicated on the contract drawings and in accordance with the supplemental details SD-07 and/or SD-08 shall be installed at locations indicated on the drawings.

182. DUST AND MUD CONTROL: Dust control palliatives shall be utilized where and when necessary to maintain roads, berms and other traveled ways. In addition, the accumulation of mud and/or dirt from the excavation, backfill or trenching operations shall be cleaned off the pavements by machine and/or by hand labor as frequently as is necessary in order to properly maintain the street and highways.

183. CONTRACTOR'S OFFICE FACILITIES: The contractor shall provide and make his own arrangements for his field office facilities, change trailers, storage areas, sanitary facilities, etc.

184. CLEAN-UP: Clean-up work shall reasonably follow the installation of the pipe and appurtenances. After all work has been completed, thorough cleaning of the surface of the ground of all disturbed and occupied areas shall be done to the satisfaction of the Authority's representative on the site.

185. MINIMIZING WATER POLLUTION FROM SOIL EROSION: All contractors shall conduct their activities and shall program trenching and restoration operations in such a manner as to minimize pollution of the creeks and ponds from erosion of the freshly excavated and/or backfilled material during periods of excavation and surface water runoff. Applicant shall reduce the area and duration of exposure of all erodible soils by the greatest extent practicable and to that end, hydromulching, reseeding and other specified surface restoration shall be required to closely follow backfilling operations. Where the Engineer so directs in the field, sediment traps, silt sock and/or other means to retard runoff rates shall be installed. Similar holding basins or other sediment trap arrangements shall also be required to be installed at the discharge of dewatering pumps.

Discretion shall be exercised in selecting the number and location of encroachments during construction both in and along the creeks and ponds such that a minimum of disturbance and erosion pollution results.

186. EROSION AND SEDIMENTATION CONTROL DURING EARTH MOVING ACTIVITIES: The detailed requirements pertaining to trenching and other earth moving activities are set forth elsewhere in the Specifications. Earth work will consist of trenching for new pipelines.

Prior to earth moving activities, the contractor shall install the necessary erosion protection devices required as required by the Pennsylvania Department of Environmental Protection or their representative for adequate erosion and sedimentation control.

187. GENERAL REQUIREMENTS RELATING TO CONSTRUCTION MATERIALS: The contractor shall submit shop drawings to the engineer for approval of all proposed pipe, joints, gaskets, valves, hydrants and appurtenances prior to the fabrication and delivery of those products.

At delivery of the materials, the applicant shall deliver to the Authority three (3) sets of bound Operation and Maintenance Manuals, where required, for the materials. The manual shall include a complete part list and a name of all the various components making up the material item. A complete section on the maintenance and care of all material shall be included with the manual.

188. COORDINATION OF WORK WITH THE AUTHORITY: This contractor shall also coordinate its activities with those of the Authority to assure connection to the correct existing waterline and connection with the existing pipe lines at times which are compatible with system operations. Connections to existing pipe lines will be with transition sleeves with tees and other appurtenances. Shut down of waterlines must be coordinated with the Authority at least 48 hours in advance. The contractor is not permitted to operate any valve in the Authority's system.

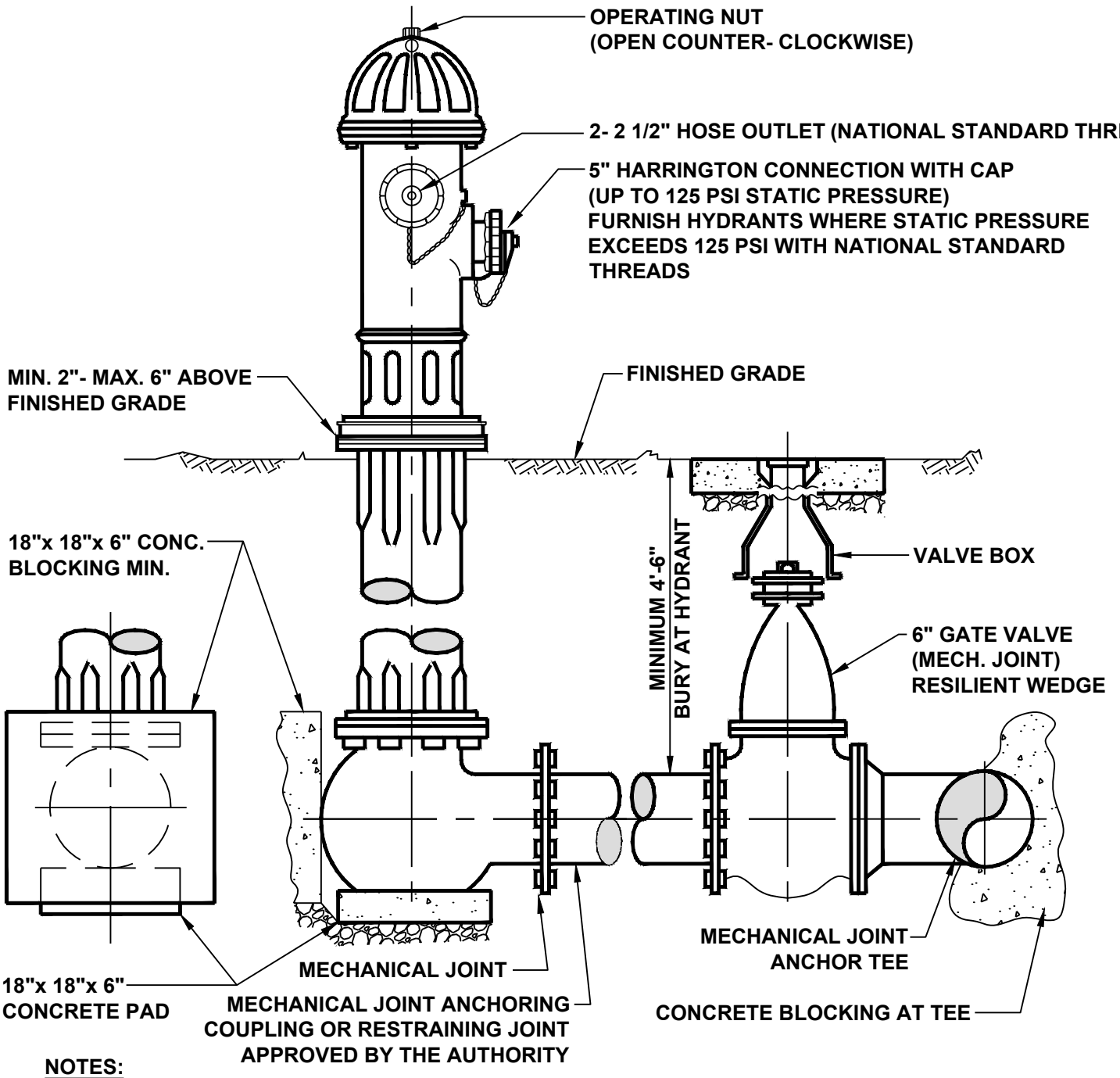
189. NO-LEAD BRASS: Pursuant to the Act, "Reduction of Lead in Drinking Water", enacted on January 4, 2011 by the United States Congress as an amendment to Section 1417 of the Safe Drinking Water Act, any brass part of a pipe, fitting, valve or fixture in contact with potable water shall be composed of a "no-lead brass", specified here as UNS Copper Alloy No. C89520 or C89833, in accordance with the requirements of ASTM B584 and AWWA C-800. This "no-lead brass" alloy shall not contain more than twenty five hundreths of one percent (0.25% or less) total lead content by weight.

Any brass part of a pipe, fitting, valve or fixture not in contact with potable water shall be made of 85-5-5-5 brass as specified here as UNS Copper Alloy C83600 per ASTM B62, ASTM B584 and AWWA C-800.

All brass pipe, fittings, valves or fixtures shall be certified by an ANSI accredited test lab per NSF/ANSI Standard 61, Drinking Water Components – Health Effects, Section 8 or NSF/ANSI Standard 372, Drinking Water System Components - Lead Content. Contractor shall provide proof of certification.

All brass pipe, fittings, valves or fixtures shall be in compliance with the Safe Drinking Water Act and the United States Environmental Protection Agency.

SECTION XVI - STANDARD DETAILS



NOTES:

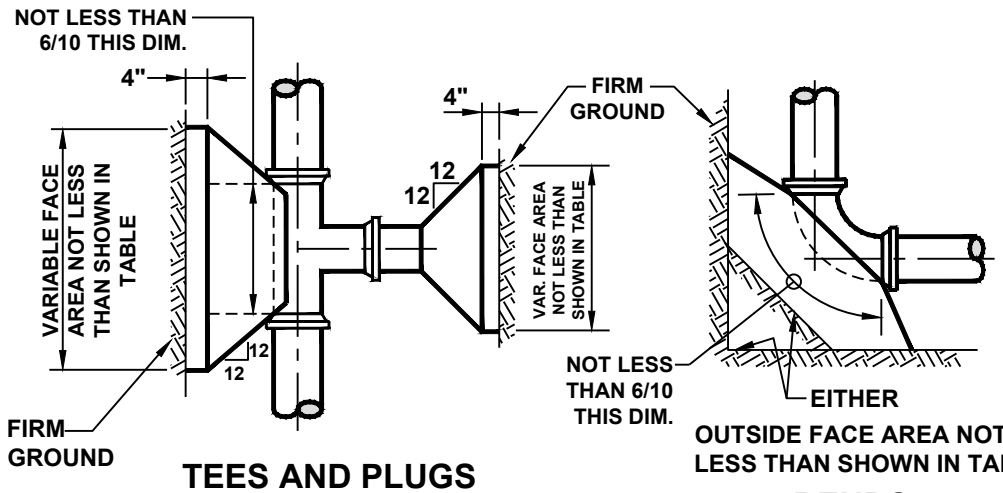
1. IN THE INSTALLATION OF ALL FIRE HYDRANTS IN SLOPING AREAS THE CONTRACTOR SHALL EXCAVATE AROUND ALL SIDES OF THE HYDRANT FOR A DISTANCE OF AT LEAST 18" AND CONSTRUCT A SELF-SUSTAINING DRY STONE WALL IN THE EXCAVATED AREA TO PREVENT EARTH FROM MOVING INTO THE AREA.

2. CONTRACTOR SHALL INSTALL 12 CUBIC FEET OF 3/4" BROKEN STONE OR GRAVEL AROUND THE BASE OF HYDRANT AND COVER THE AGGREGATE WITH 40 MIL. POLYTHYLENE.

3. ALL HYDRANTS PLACED IN EXCAVATED AREAS SHALL BE PROTECTED AND BE MADE COMPLETELY ACCESSIBLE.

4. HYDRANTS SHALL BE PRIME COATED AND RECEIVE TWO FINISH COATS OF PAINT. PAINT SHALL BE EQUAL TO PPG-97-602 SAFETY YELLOW. CAPS AND BONNETS SHALL BE PAINTED WHITE.

RICHLAND TOWNSHIP MUNICIPAL AUTHORITY OF ALLEGHENY COUNTY		FIRE HYDRANT ASSEMBLY
Not to scale	July 2022	Standard Detail SD-01

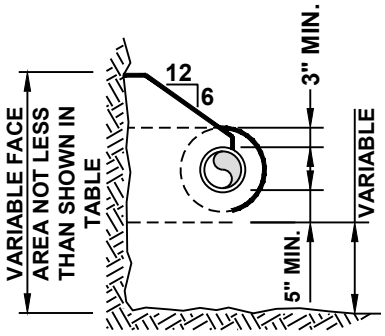


TEES AND PLUGS

BENDS

NOTES:

1. ALL TEES, WYES, CROSSES, PLUGS AND BENDS OF 10° OR MORE SHALL BE BLOCKED AGAINST FIRM EARTH WITH CONCRETE.
2. EARTH PRESSURE FIGURED AT 4000 PSF. IF EARTH ENCOUNTERED WILL NOT WITHSTAND THIS PRESSURE, THE AREA OF THE BLOCK MUST BE INCREASED PROPORTIONATELY.
3. ALL FITTINGS SHALL HAVE RESTRAINED JOINTS INSTALLED.IF THE PIPE BEING USED HAS A BELL JOINT WITHIN TEN (10) FEET OF A FITTING, A FIELD LOK GASKET OR BELL JOINT RESTRAINT SHALL BE USED.



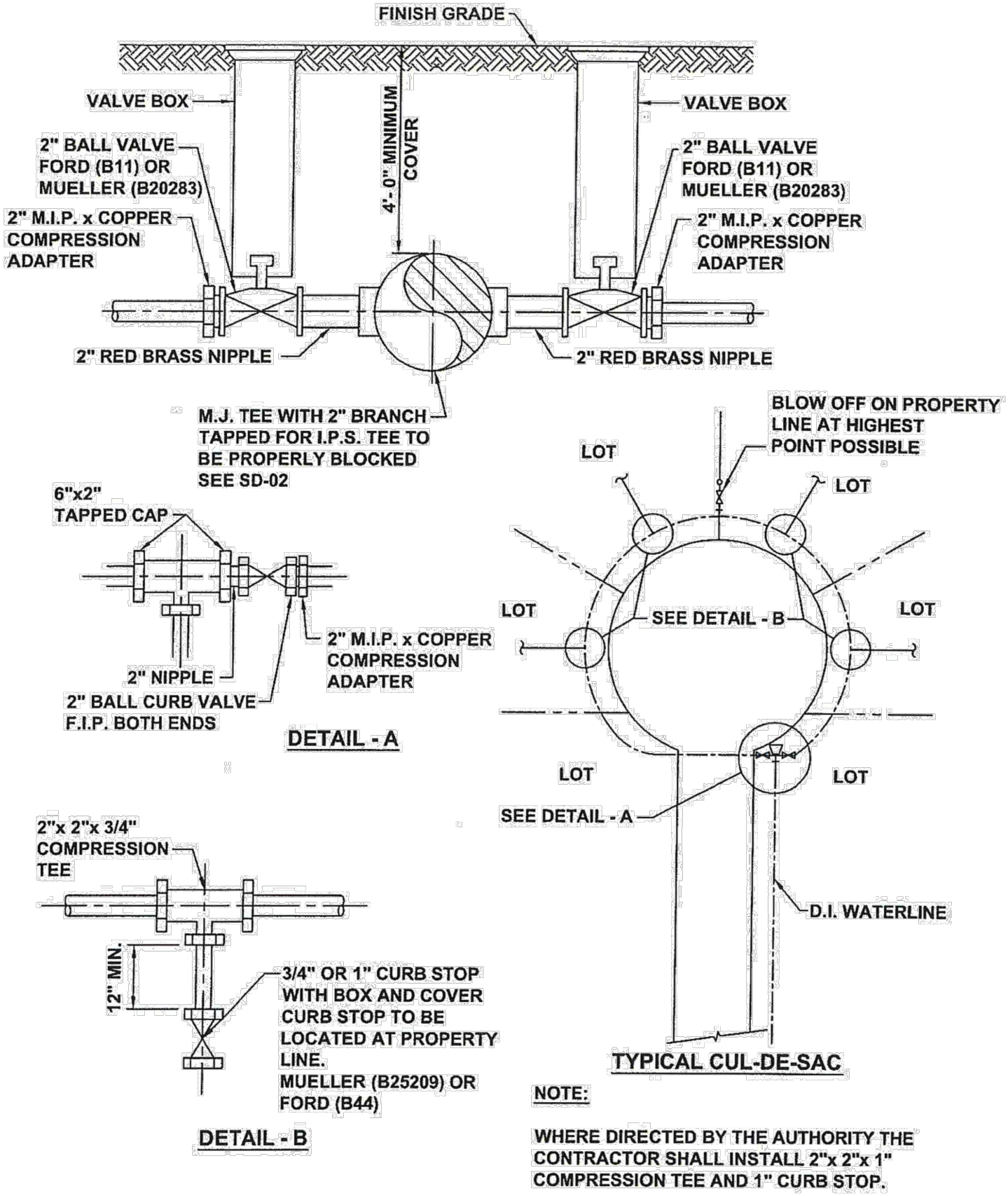
TEES, WYES, AND BENDS

PIPE SIZE (in)	AREA* (sq in)	TOTAL FORCE (lbs)	AREA OF BLOCK IN SQUARE FEET				
			TEES & PLUGS	90 DEGREE BENDS	45 DEGREE BENDS	22 1/2 DEGREE BENDS	11 1/4 DEGREE BENDS
4	19	4,275	1.1	1.5	1.0	1.0	1.0
6	38	8,550	2.2	3.0	1.6	1.0	1.0
8	65	14,625	3.7	5.2	2.8	1.4	1.0
10	97	21,825	5.5	7.7	4.2	2.1	1.1
12	137	30,825	7.7	10.9	5.9	3.0	1.5
14	184	41,400	10.4	14.6	7.9	4.0	2.1
16	238	53,550	13.4	18.9	10.3	5.2	2.7
18	299	67,275	16.8	23.8	12.9	6.6	3.4
20	367	82,575	20.7	29.2	15.8	8.1	4.1
24	523	117,675	29.4	41.6	22.5	11.5	5.9
30	805	96,600	24.2	34.2	18.5	9.4	4.8
36	1152	138,240	34.6	48.9	26.5	13.5	6.9

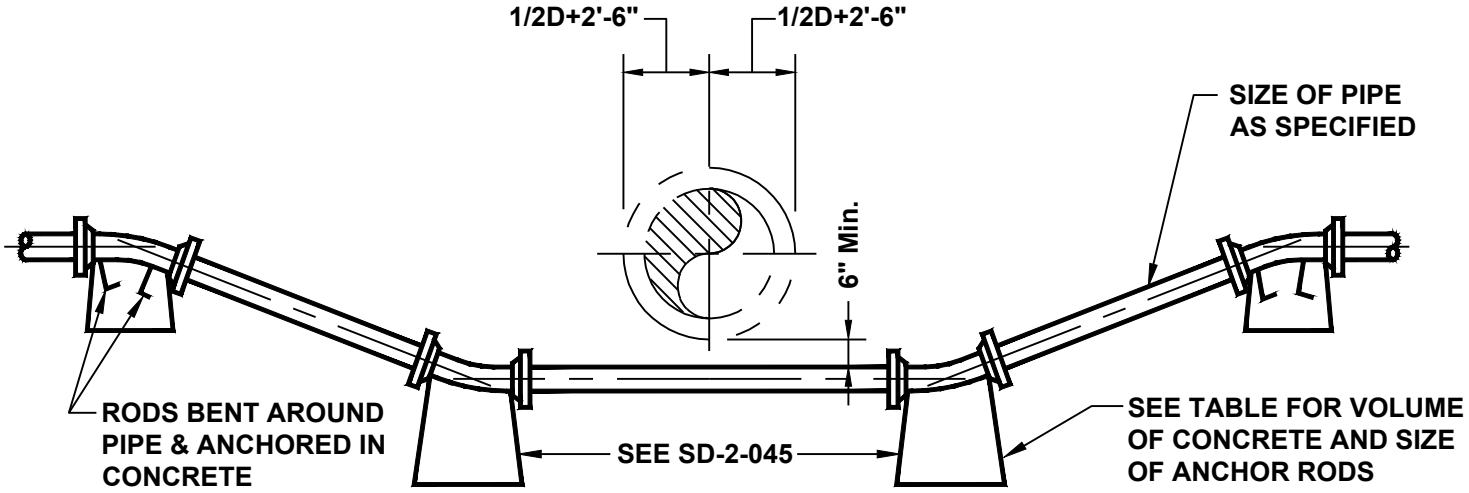
*BASED ON PIPE O.D. AND ROUNDED TO THE NEXT HIGHEST EVEN INCH.

CALCULATIONS ARE BASED ON 225 PSI PRESSURE OR 150 PSI WORKING PRESSURE PLUS 50% INCREASE FOR WATER HAMMER FOR SIZES 4" TO 24" INCLUSIVE. FOR SIZES 30" & 36" THE TABLE IS BASED ON 120 PSI PRESSURE OR 75 PSI WORKING PRESSURE PLUS 50% WATER HAMMER.

RICHLAND TOWNSHIP MUNICIPAL AUTHORITY OF ALLEGHENY COUNTY		CONCRETE THRUST BLOCKING AND JOINT RESTRAINT
Not to scale	July 2022	Standard Detail SD-02



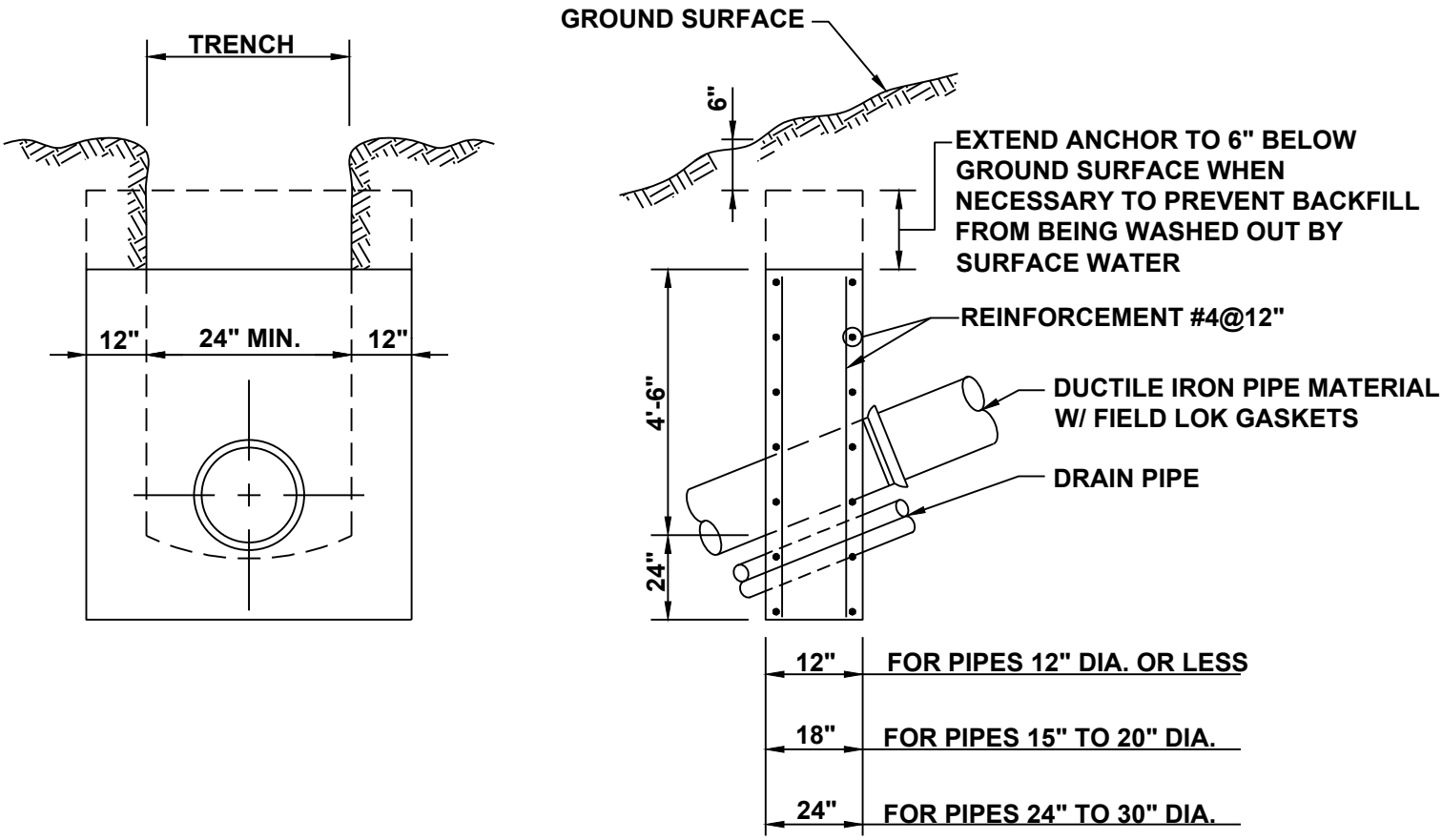
RICHLAND TOWNSHIP MUNICIPAL AUTHORITY OF ALLEGHENY COUNTY		CUL-DE-SAC LOOP INSTALLATION
Not to scale	July 2022	Standard Detail SD-03



NOTE:
THE TABLE IS BASED ON 225 PSI TEST PRESSURE. ALL BLOCKS HAVING LENGTH OF 3'-0" OR MORE TO BE REINFORCED WITH #4 @ 6" PLACED 3" FROM TOP OF BLOCK.

		VOLUME IN CUBIC FEET			SIZE AND NO. OF ANCHOR RODS		
PIPE SIZE	TOTAL FORCE (lbs)	45 DEGREE BENDS	22 1/2 DEGREE BENDS	11 1/4 DEGREE BENDS	45 DEGREE BENDS	22 1/2 DEGREE BENDS	11 1/4 DEGREE BENDS
4	4275	22.7	11.6	5.9	1-#4	1-#4	1-#4
6	8550	45.5	23.3	11.9	2-#4	1-#4	1-#4
8	14625	77.8	39.6	20.3	2-#4	2-#4	1-#4
10	21825	116.1	59.1	30.3	2-#4	2-#4	2-#4
12	30825	164.0	83.5	42.8	2-#5	2-#4	2-#4
14	41400	220.2	112.1	57.5	2-#6	2-#4	2-#4
16	53550	284.9	145.0	73.4	2-#7	2-#5	2-#4
18	67275	357.9	182.2	93.4	2-#7	2-#5	2-#4
20	82575	439.2	223.6	114.7	2-#8	2-#6	2-#4
24	117675	626.0	318.7	183.4	2-#9	2-#7	2-#5

RICHLAND TOWNSHIP MUNICIPAL AUTHORITY OF ALLEGHENY COUNTY		CONCRETE ANCHORS AND METHOD OF LAYING MAINS UNDER OBSTRUCTIONS
Not to scale	July 2022	Standard Detail SD-04

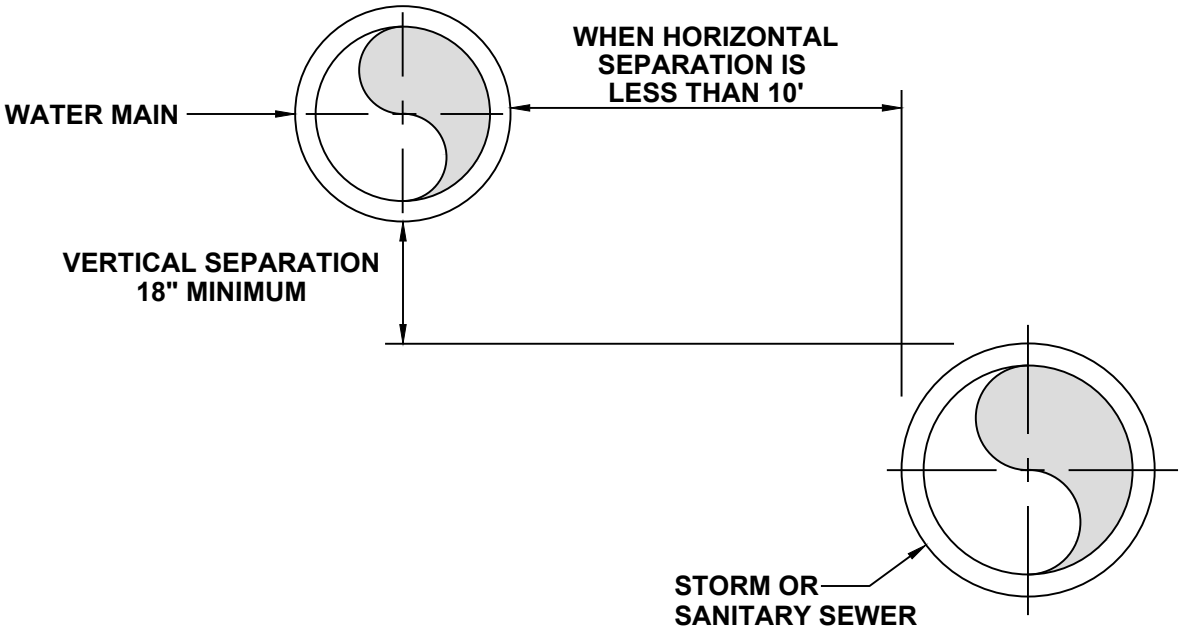


CONCRETE ANCHORS FOR PIPES ON STEEP GRADES

PROVIDE NO ANCHORS ON GRADES LESS THAN 20% UNLESS NOTED
PROVIDE ANCHORS 36' O/C ON GRADES BETWEEN 20% AND 34%
PROVIDE ANCHORS 18' O/C ON GRADES BETWEEN 34% AND 50%
PROVIDE ANCHORS 9' O/C ON GRADES BETWEEN 50% AND 70%

FOR CONDITIONS OTHER THAN SHOWN HEREON ANCHORS SHALL BE PROVIDED AS REQUIRED BY THE CONTRACT PLANS OR ORDERED IN THE FIELD BY THE AUTHORITY'S REPRESENTATIVE.

RICHLAND TOWNSHIP MUNICIPAL AUTHORITY OF ALLEGHENY COUNTY		CONCRETE ANCHORS FOR PIPELINES
Not to scale	July 2022	Standard Detail SD-05

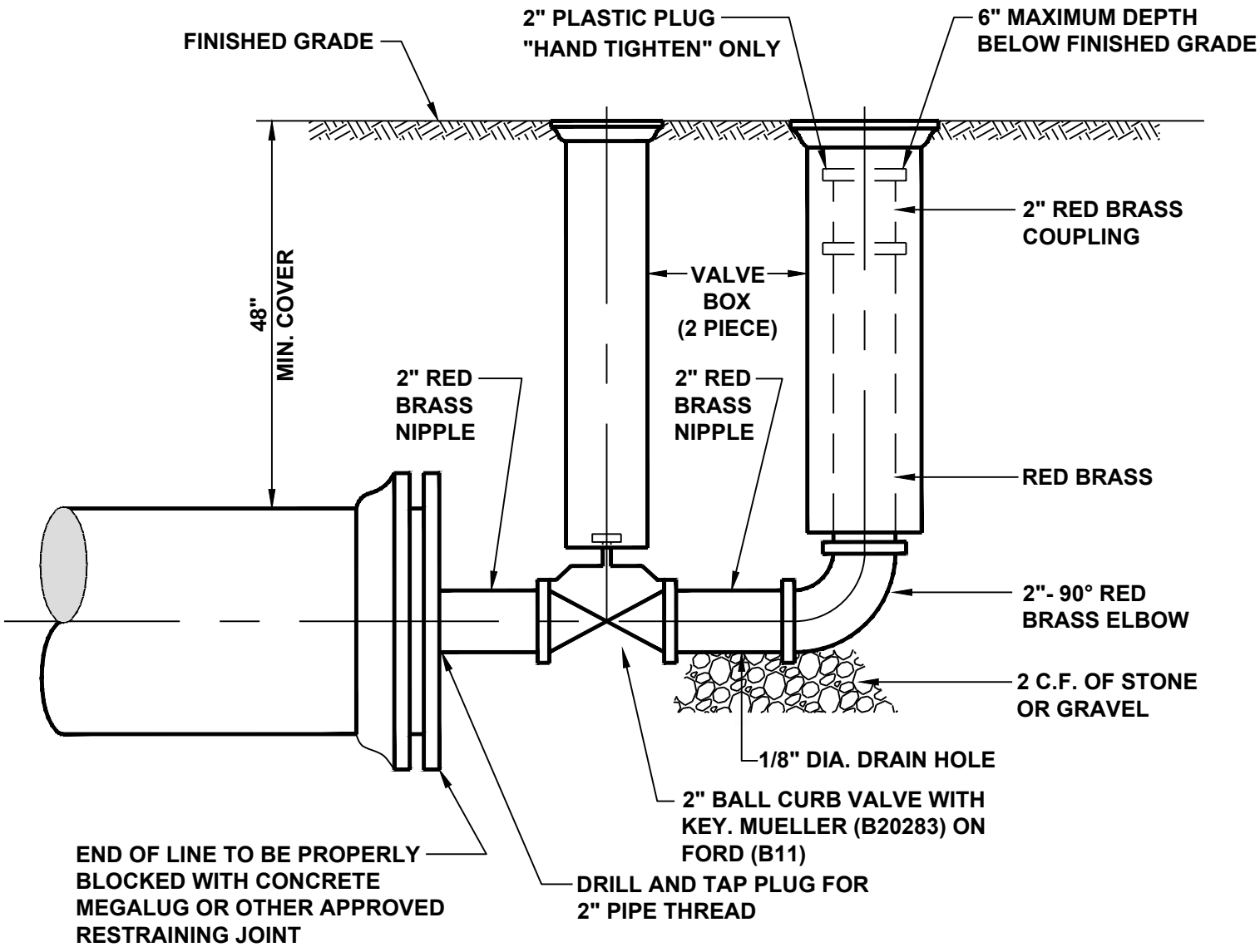


NOTES:

1. WHEN THE HORIZONTAL SEPARATION OF THE WATER MAIN AND SEWER LINE IS LESS THAN 10', THE VERTICAL SEPARATION BETWEEN THE TOP (CROWN) OF THE SEWER LINE AND THE BOTTOM (INVERT) OF THE WATER MAIN SHALL BE AT LEAST 18". SEWER LINE SHALL BE ENCASED IN CONCRETE FOR 10' ON EITHER SIDE OF THE WATER MAIN WHERE SEWER / WATER LINE CROSSINGS OCCUR AND WHERE CONDITIONS PREVENT AN 18" VERTICAL SEPARATION.

2. THERE SHALL BE AT LEAST A 10' HORIZONTAL SEPARATION BETWEEN WATER MAINS AND SANITARY SEWER FORCE MAINS. FORCE MAINS CROSSING WATER MAINS SHALL BE LAID TO PROVIDE A MINIMUM VERTICAL DISTANCE OF 18" BETWEEN THE OUTSIDE OF THE FORCE MAIN AND THE OUTSIDE OF THE WATER MAIN.

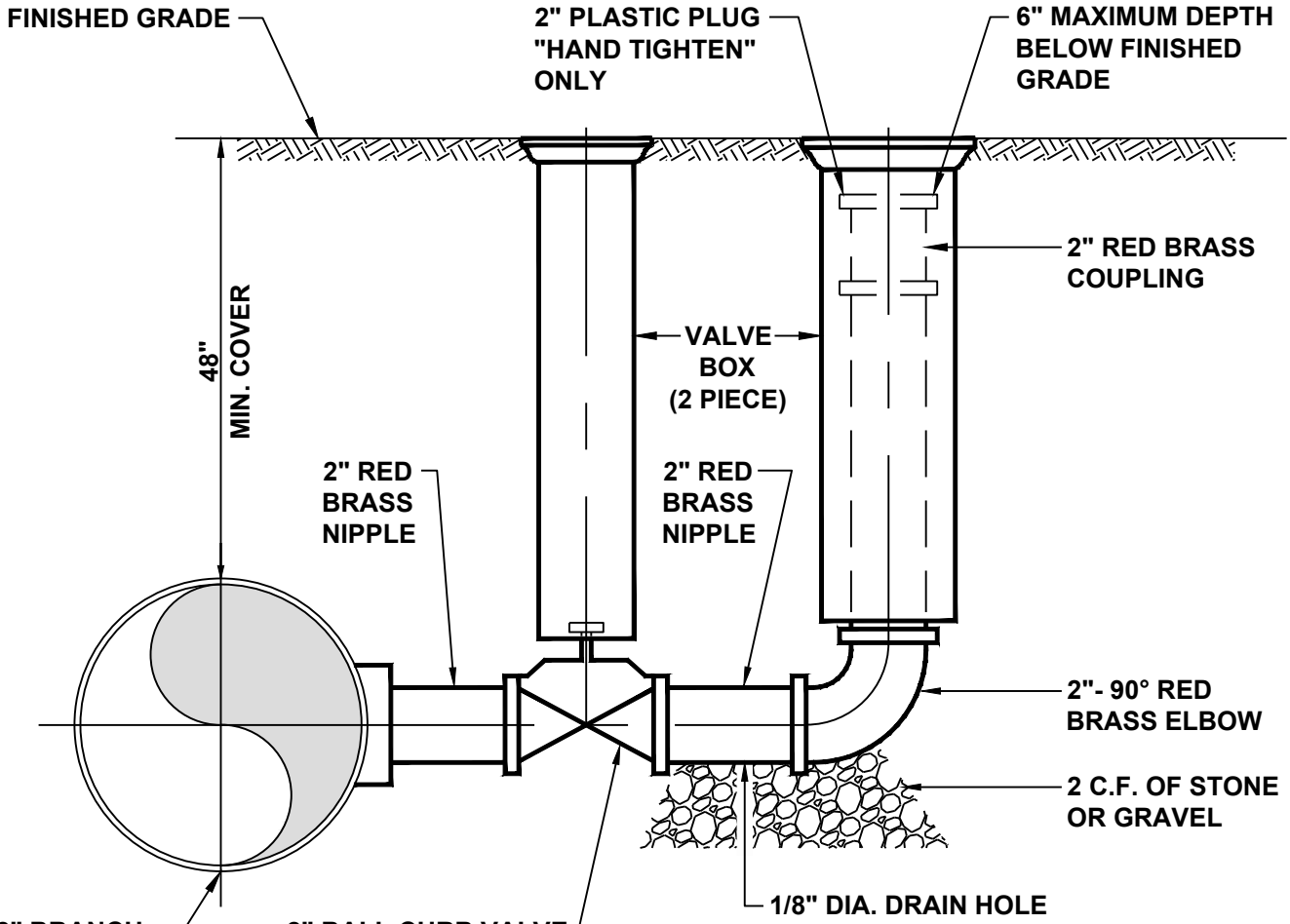
RICHLAND TOWNSHIP MUNICIPAL AUTHORITY OF ALLEGHENY COUNTY		DESIRED DISTANCES BETWEEN WATER AND SEWER PIPES
Not to scale	July 2022	Standard Detail SD-06



NOTE:

1. ALL PIPE AND FITTINGS TO BE RED BRASS.
2. PLACE 2 CUBIC FEET OF STONE UNDER DRAIN HOLE.
3. ALL FITTINGS TO BE WRAPPED IN PLASTIC PRIOR TO CONCRETE BLOCKING.

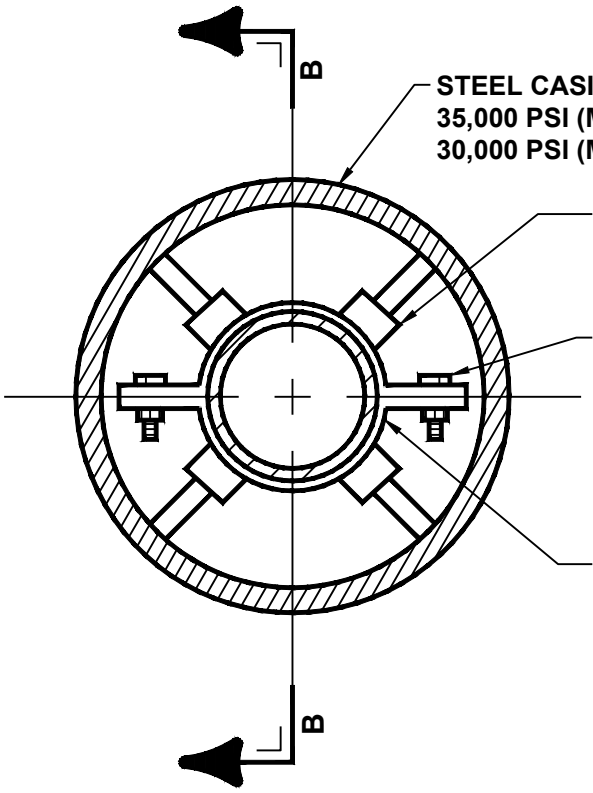
RICHLAND TOWNSHIP MUNICIPAL AUTHORITY OF ALLEGHENY COUNTY		END BLOW OFF
Not to scale	July 2022	Standard Detail SD-07



NOTES:

1. ALL PIPE AND FITTINGS TO BE RED BRASS.
2. PLACE 2 CUBIC FEET OF STONE UNDER DRAIN HOLE.

RICHLAND TOWNSHIP MUNICIPAL AUTHORITY OF ALLEGHENY COUNTY		TYPICAL SIDE BLOW-OFF
Not to scale	July 2022	Standard Detail SD-08



STEEL CASING PIPE ASTM A 53
35,000 PSI (MIN) FOR RR CROSSINGS
30,000 PSI (MIN) FOR HWY CROSSINGS

CASING SPACERS - MUST PROVIDE ELECTRICAL TRANSMISSION INSULATION BETWEEN CASING PIPE AND CARRIER PIPE

STAINLESS STEEL STUD WASHERS & HEX NUTS

D.I.P. CARRIER PIPE WITH FIELD LOK GASKETS.

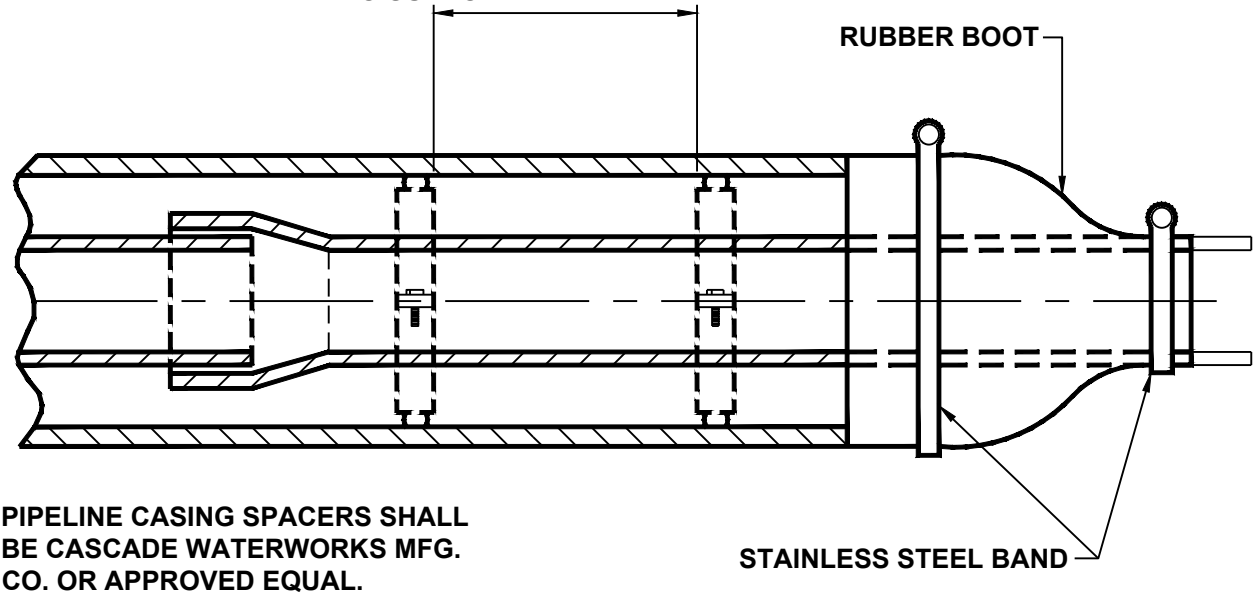
NOTE:
CASING TO BE BORED TO CLEAR PAVING BY 3' MIN.

SECTIONAL PLAN A

WALL THICKNESS OF CASING PIPE

DIAMETER (IN.)	THICKNESS (IN.)
UP TO 16"	1/4"
18" TO 24"	3/8"
26" TO 34"	1/2"
36" TO 42"	5/8"

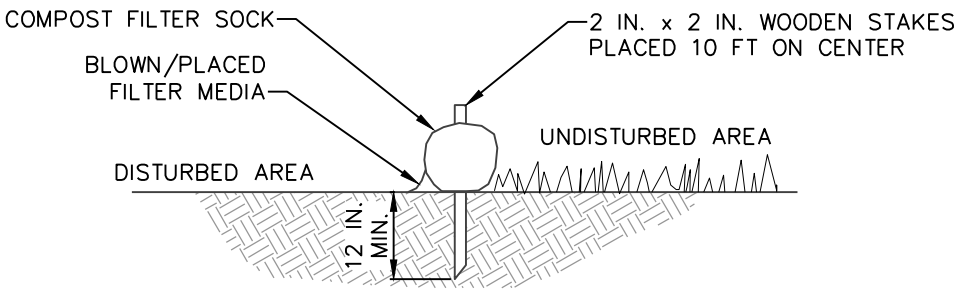
MANUFACTURER RECOMMENDS
10' MAX. SPACING W / END SPACERS
2' FROM END OF CASING OR AS
DIRECTED BY SPACER MANUFACTURER
TO SUPPORT CARRIER PIPE MATERIAL



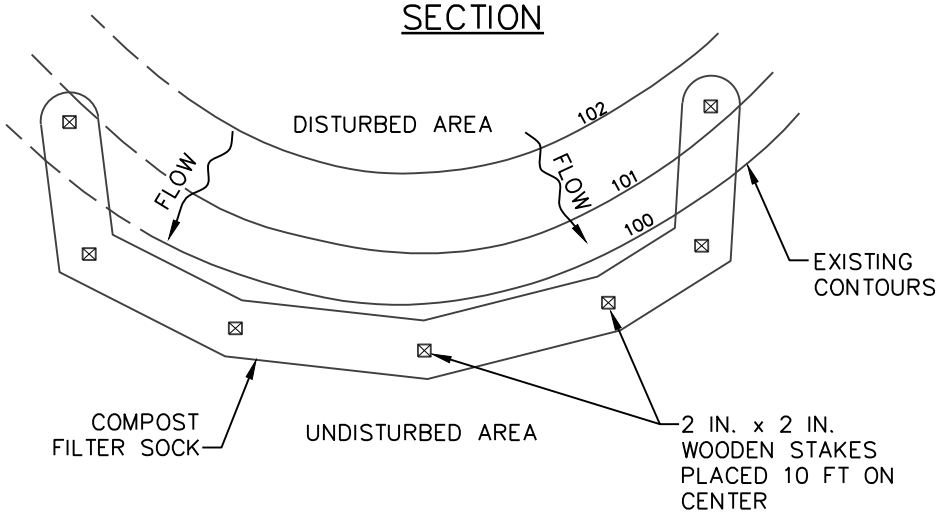
PIPELINE CASING SPACERS SHALL BE CASCADE WATERWORKS MFG. CO. OR APPROVED EQUAL.

SECTION B

RICHLAND TOWNSHIP MUNICIPAL AUTHORITY OF ALLEGHENY COUNTY		STEEL CASING AND D.I. OR PVC CARRIER PIPES INSTALLED BY BORING
Not to scale	July 2022	Standard Detail SD-09



SECTION



PLAN VIEW

NOTES:

SOCK FABRIC SHALL MEET STANDARDS OF TABLE 4.1 OF THE PA DEP EROSION CONTROL MANUAL. COMPOST SHALL MEET THE STANDARDS OF TABLE 4.2 OF THE PA DEP EROSION CONTROL MANUAL.

COMPOST FILTER SOCK SHALL BE PLACED AT EXISTING LEVEL GRADE. BOTH ENDS OF THE BARRIER SHALL BE EXTENDED AT LEAST 8 FEET UP SLOPE AT 45 DEGREES TO THE MAIN BARRIER ALIGNMENT. MAXIMUM SLOPE LENGTH ABOVE ANY BARRIER SHALL NOT EXCEED THAT SPECIFIED FOR THE SIZE OF THE SOCK AND THE SLOPE OF ITS TRIBUTARY AREA.

TRAFFIC SHALL NOT BE PERMITTED TO CROSS COMPOST FILTER SOCKS.

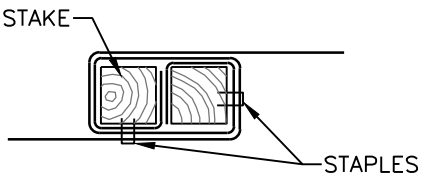
ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT REACHES 1/2 THE ABOVE GROUND HEIGHT OF THE BARRIER AND DISPOSED IN THE MANNER DESCRIBED ELSEWHERE IN THE PLAN.

COMPOST FILTER SOCKS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT. DAMAGED SOCKS SHALL BE REPAIRED ACCORDING TO MANUFACTURER'S SPECIFICATIONS OR REPLACED WITHIN 24 HOURS OF INSPECTION.

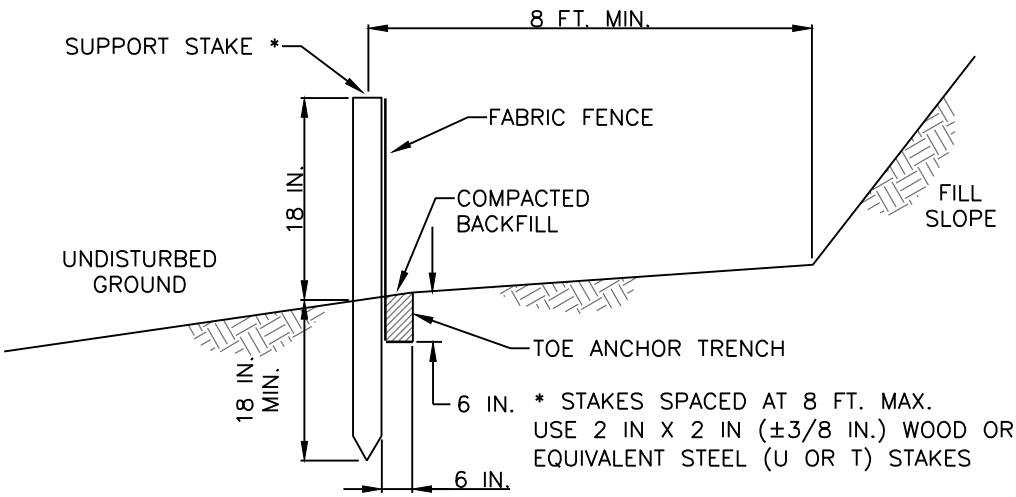
BIODEGRADABLE COMPOST FILTER SOCKS SHALL BE REPLACED AFTER 6 MONTHS; PHOTODEGRADABLE SOCKS AFTER 1 YEAR. POLYPROPYLENE SOCKS SHALL BE REPLACED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.

UPON STABILIZATION OF THE AREA TRIBUTARY TO THE SOCK, STAKES SHALL BE REMOVED. THE SOCK MAY BE LEFT IN PLACE AND VEGETATED OR REMOVED. IN THE LATTER CASE, THE MESH SHALL BE CUT OPEN AND THE MULCH SPREAD AS A SOIL SUPPLEMENT.

RICHLAND TOWNSHIP MUNICIPAL AUTHORITY OF ALLEGHENY COUNTY		COMPOST FILTER SOCK
Not to scale	July 2022	Standard Detail SD-10



JOINING FENCE SECTIONS



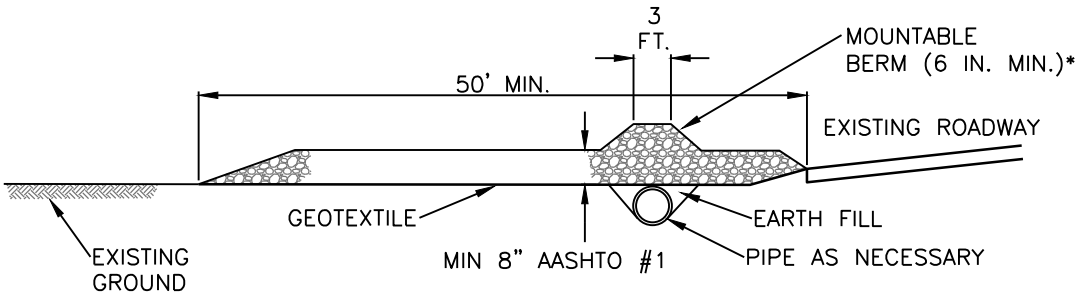
SECTION VIEW

NOTES:

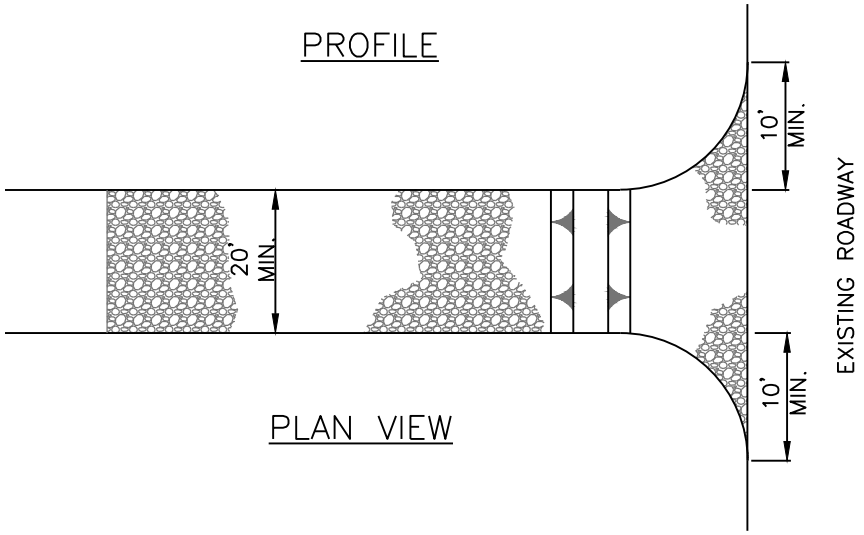
1. FABRIC SHALL HAVE THE MINIMUM PROPERTIES AS SHOWN IN TABLE 4.3 OF THE PA DEP EROSION CONTROL MANUAL.
2. FABRIC WIDTH SHALL BE 30 IN. MINIMUM. STAKES SHALL BE HARDWOOD OR EQUIVALENT STEEL (U OR T) STAKES.
3. SILT FENCE SHALL BE PLACED AT LEVEL EXISTING GRADE. BOTH ENDS OF THE FENCE SHALL BE EXTENDED AT LEAST 8 FEET UP SLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT.
4. SEDIMENT SHALL BE REMOVED WHEN ACCUMULATIONS REACH HALF THE ABOVE GROUND HEIGHT OF THE FENCE.
5. ANY SECTION OF SILT FENCE WHICH HAS BEEN UNDERMINED OR TOPPED SHALL BE IMMEDIATELY REPLACED WITH A ROCK FILTER OUTLET.
6. FENCE SHALL BE REMOVED AND PROPERLY DISPOSED OF WHEN TRIBUTARY AREA IS PERMANENTLY STABILIZED.

STANDARD CONSTRUCTION DETAIL
STANDARD SILT FENCE (18" HIGH)

RICHLAND TOWNSHIP MUNICIPAL AUTHORITY OF ALLEGHENY COUNTY		FILTER FENCE
Not to scale	July 2022	Standard Detail SD-11



PROFILE



PLAN VIEW

* MOUNTABLE BERM USED TO PROVIDE PROPER COVER FOR PIPE

NOTES:

1. REMOVE TOPSOIL PRIOR TO INSTALLATION OF ROCK CONSTRUCTION ENTRANCE. EXTEND ROCK OVER FULL WIDTH OF ENTRANCE.

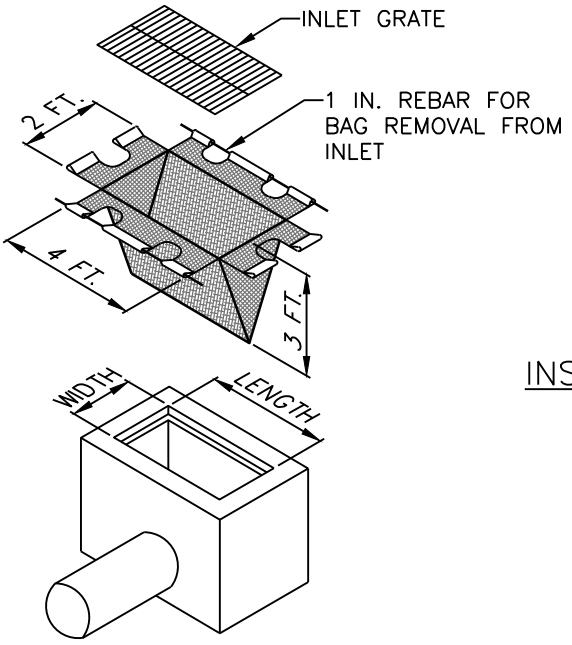
2. RUNOFF SHALL BE DIVERTED FROM ROADWAY TO A SUITABLE SEDIMENT REMOVAL BMP PRIOR TO ENTERING ROCK CONSTRUCTION ENTRANCE.

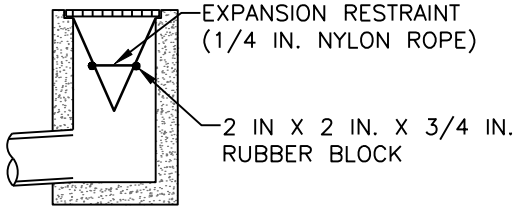
3. MOUNTABLE BERM SHALL BE INSTALLED WHEREVER OPTIONAL CULVERT PIPE IS USED AND PROPER PIPE COVER AS SPECIFIED BY MANUFACTURER IS NOT OTHERWISE PROVIDED. PIPE SHALL BE SIZED APPROPRIATELY FOR SIZE OF DITCH BEING CROSSED.

4. MAINTENANCE: ROCK CONSTRUCTION ENTRANCE THICKNESS SHALL BE CONSTANTLY MAINTAINED TO THE SPECIFIED DIMENSIONS BY ADDING ROCK. A STOCKPILE SHALL BE MAINTAINED ON SITE FOR THIS PURPOSE. ALL SEDIMENT DEPOSITED ON PAVED ROADWAYS SHALL BE REMOVED AND RETURNED TO THE CONSTRUCTION SITE IMMEDIATELY. IF EXCESSIVE AMOUNTS OF SEDIMENT ARE BEING DEPOSITED ON ROADWAY, EXTEND LENGTH OF ROCK CONSTRUCTION ENTRANCE BY 50 FOOT INCREMENTS UNTIL CONDITION IS ALLEVIATED OR INSTALL WASH RACK. WASHING THE ROADWAY OR SWEEPING THE DEPOSITS INTO ROADWAY DITCHES, SEWERS, CULVERTS, OR OTHER DRAINAGE COURSES IS NOT ACCEPTABLE.

STANDARD CONSTRUCTION DETAIL
ROCK CONSTRUCTION ENTRANCE

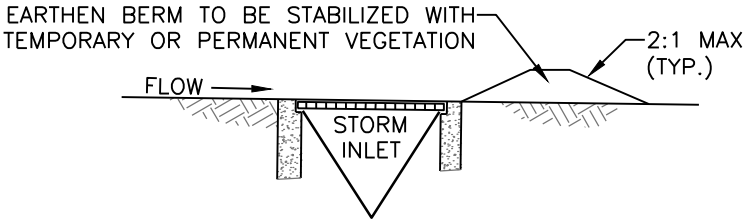
RICHLAND TOWNSHIP MUNICIPAL AUTHORITY OF ALLEGHENY COUNTY		ROCK CONSTRUCTION ENTRANCE
Not to scale	July 2022	Standard Detail SD-12



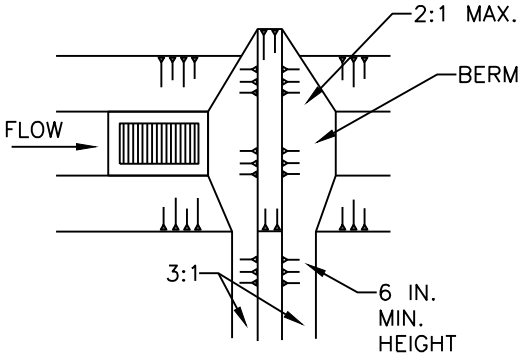


INSTALLATION DETAIL

ISOMETRIC VIEW



SECTION VIEW



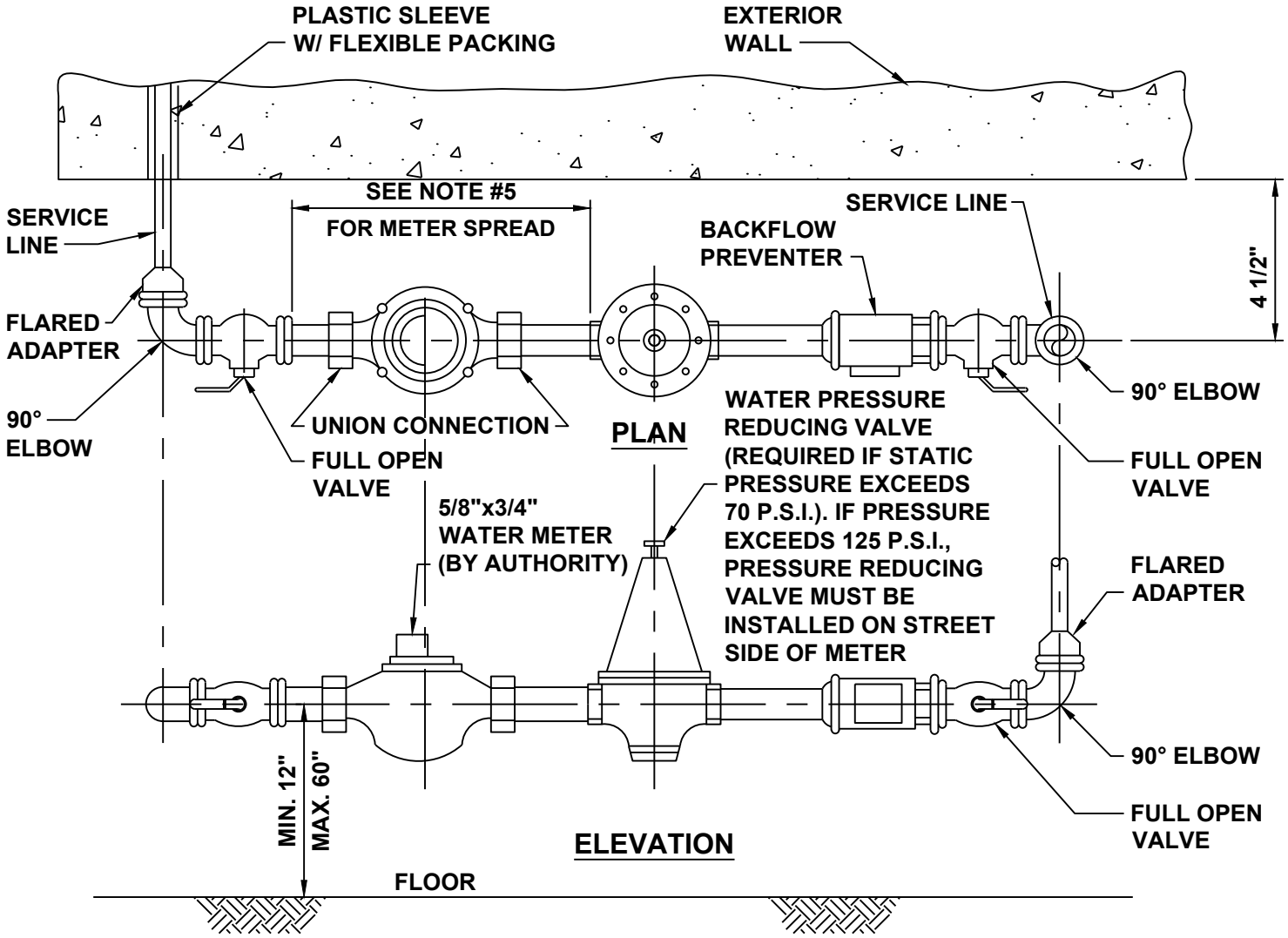
PLAN VIEW

NOTES:

1. MAXIMUM DRAINAGE AREA = 1/2 ACRE.
2. INLET PROTECTION SHALL NOT BE REQUIRED FOR INLET TRIBUTARY TO SEDIMENT BASIN OR TRAP. BERMS SHALL BE REQUIRED FOR ALL INSTALLATIONS.
3. ROLLED EARTHEN BERM IN ROADWAY SHALL BE MAINTAINED UNTIL ROADWAY IS STONED. ROAD SUBBASE BERM ON ROADWAY SHALL BE MAINTAINED UNTIL ROADWAY IS PAVED. EARTHEN BERM IN CHANNEL SHALL BE MAINTAINED UNTIL PERMANENT STABILIZATION IS COMPLETED OR REMAIN PERMANENTLY.
4. AT A MINIMUM, THE FABRIC SHALL HAVE A MINIMUM GRAB TENSILE STRENGTH OF 120 LBS., A MINIMUM BURST STRENGTH OF 200 PSI, AND A MINIMUM TRAPEZOIDAL TEAR STRENGTH OF 50 LBS. FILTER BAGS SHALL BE CAPABLE OF TRAPPING ALL PARTICLES NOT PASSING A NO. 40 SIEVE.
5. INLET FILTER BAGS SHALL BE INSPECTED ON A WEEKLY BASIS AND AFTER EACH RUNOFF EVENT. BAGS SHALL BE EMPTIED AND RINSED OR REPLACED WHEN HALF FULL OR WHEN FLOW CAPACITY HAS BEEN REDUCED SO AS TO CAUSE FLOODING OR BYPASSING OF THE INLET. DAMAGED OR CLOGGED BAGS SHALL BE REPLACED. A SUPPLY SHALL BE MAINTAINED ON SITE FOR REPLACEMENT OF BAGS. ALL NEEDED REPAIRS SHALL BE INITIATED IMMEDIATELY AFTER THE INSPECTION. DISPOSE ACCUMULATED SEDIMENT AS WELL AS ALL USED BAGS ACCORDING TO THE PLAN NOTES.
6. DO NOT USE ON MAJOR PAVED ROADWAYS WHERE PONDING MAY CAUSE TRAFFIC HAZARDS.

STANDARD CONSTRUCTION DETAIL
FILTER BAG INLET PROTECTION - TYPE M INLET

RICHLAND TOWNSHIP MUNICIPAL AUTHORITY OF ALLEGHENY COUNTY		INLET FILTER BAG
Not to scale	July 2022	Standard Detail SD-13



NOTES:

1. PRESSURE REDUCING VALVE SHALL BE WATTS SERIES 25AUB, OR APPROVED EQUAL.

2. BACKFLOW PREVENTER SHALL BE DUAL CHECK VALVE TYPE, WATTS NO. 7, OR EQUAL.

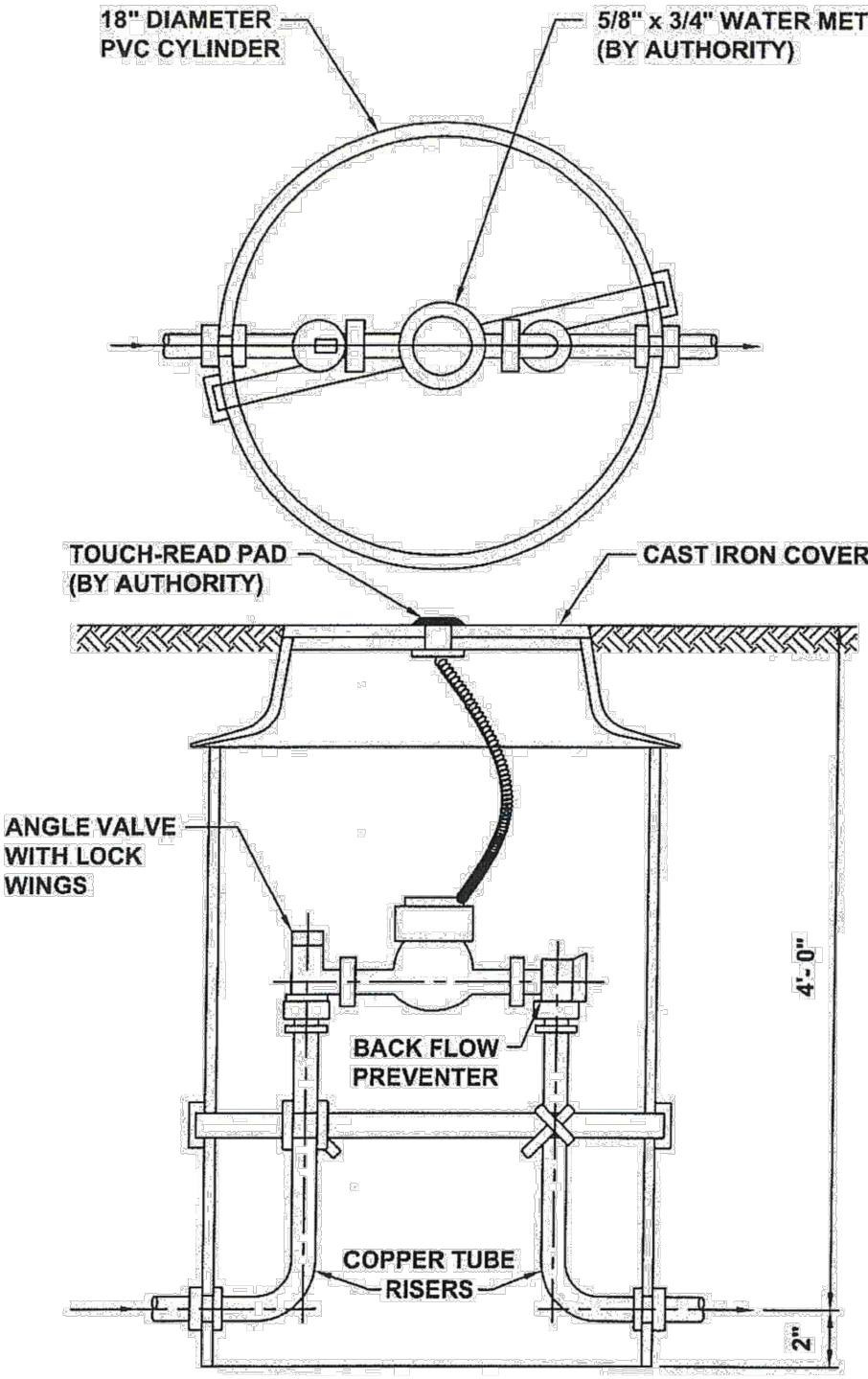
3. ALL NON-RESIDENTIAL CUSTOMERS SHALL HAVE A TESTABLE BACKFLOW PREVENTER INSTALLED. TYPE OF BACKFLOW PREVENTER SHALL BE APPROVED BY AUTHORITY.

4. THIS STANDARD DETAIL ALSO APPLIES TO MULTIPURPOSE FIRE SPRINKLER SYSTEMS THAT DO NOT CONTAIN DEAD ENDS.

5. METER SPREAD REQUIREMENTS:

METER SIZE	METER SPREAD
5/8" x 3/4"	11 3/4"
3/4" x 3/4"	14"
1"	16"

RICHLAND TOWNSHIP MUNICIPAL AUTHORITY OF ALLEGHENY COUNTY		INTERIOR METER SETTING ASSEMBLY
Not to scale	July 2022	Standard Detail SD-14



NOTES:

WHERE STATIC PRESSURE EXCEEDS 80 PSI, WATTS NO. U50, OR EQUAL, PRESSURE REDUCING VALVE SHALL BE INSTALLED.

BACK FLOW PREVENTER SHALL BE ANGLE CHECK TYPE, FOR NO. HA31-323, OR EQUAL.

METER PIT SHALL BE FORD 18" DIAMETER PLASTIC 4 FT. PIT SETTER, OR EQUAL

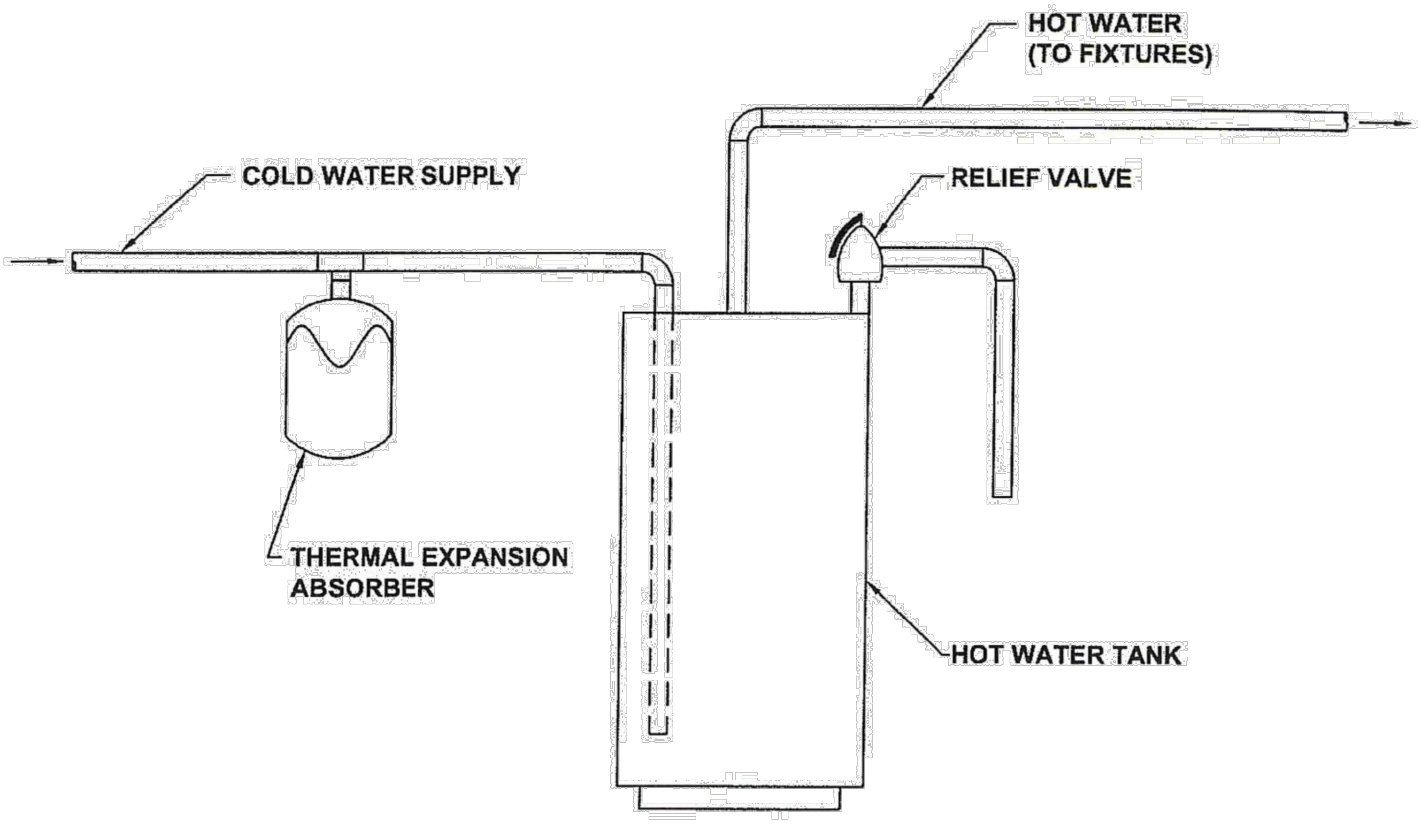
CAST IRON COVER SHALL BE FORD NO. C-3, OR EQUAL, WITH PROVISION FOR TOUCH READ PAD INSTALLATION.

SERVICE LINE CONNECTION FROM WATERLINE TO CURB BOX SHALL BE INSTALLED BY THE AUTHORITY.

WATER SERVICE LINE EXTENSION FROM CURB BOX TO BUILDING, INCLUDING THE METER PIT, SHALL BE INSTALLED BY SKILLED WORKMAN AT THE COST OF THE CUSTOMER IN ACCORDANCE WITH RULES AND REGULATIONS AND DETAILED SPECIFICATIONS OF THE AUTHORITY.

PIPING ARRANGEMENT SET FORTH IN THIS DETAIL SHALL BE UTILIZED FOR ALL MOBILE HOME SERVICES AND WHERE NOT PRACTICAL TO INSTALL METER INSIDE OF BUILDING.

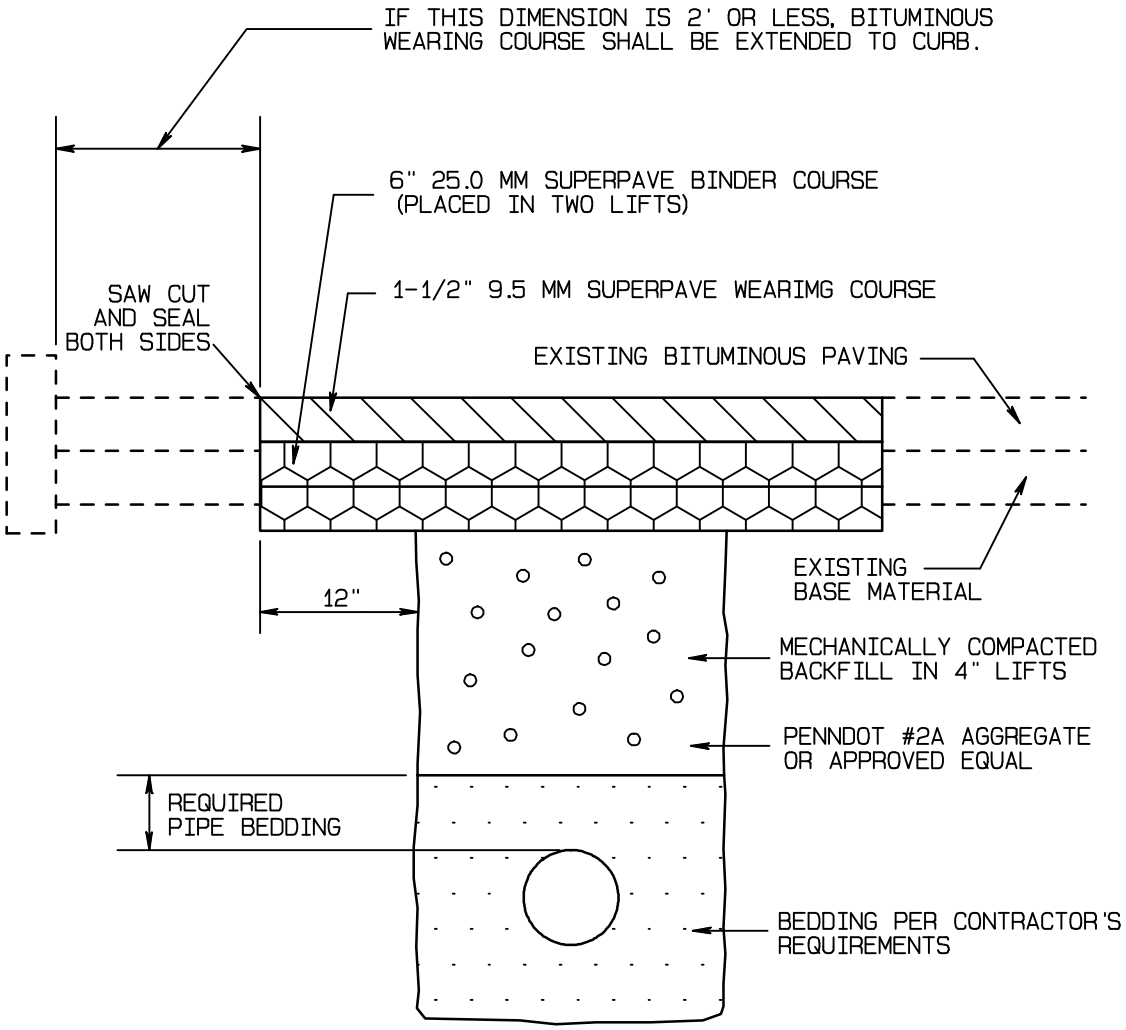
RICHLAND TOWNSHIP MUNICIPAL AUTHORITY OF ALLEGHENY COUNTY		OUTSIDE METER PIT INSTALLATION
Not to scale	July 2022	Standard Detail SD-15



EXPLANATION:

DURING NORMAL WATER USAGE, HOT WATER IS DRAWN FROM THE TANK AND IS REPLACED BY COLD WATER. THE COLD WATER IS THEN HEATED CAUSING THERMAL EXPANSION TO OCCUR. PRESSURE INCREASES UNTIL THE RELIEF VALVE OPENS AND THE EXPANDED WATER IS EXPELLED FROM THE TANK. THE INSTALLATION OF A THERMAL EXPANSION ABSORBER WILL ELIMINATE THIS PROBLEM. THE THERMAL EXPANSION ABSORBER IS A DIAPHRAGM-TYPE, PRE-PRESSURIZED, EXPANSION TANK. THE DIAPHRAGM IS FILLED WITH AIR. AS THE WATER EXPANDS, THE AIR IN THE DIAPHRAGM COMPRESSES MAINTAINING A LOWER SYSTEM PRESSURE. RELIEF VALVES NEAR WASH TUB/ TOILETS ALSO ACCEPTABLE (REFER TO ALLEGHENY COUNTY PLUMBING CODE FOR OTHER ACCEPTABLE RELIEF)

RICHLAND TOWNSHIP MUNICIPAL AUTHORITY OF ALLEGHENY COUNTY		THERMAL EXPANSION ABSORBER
Not to scale	July 2022	Standard Detail SD-16



FOR USE ON OPEN CUTTING OF EXISTING TOWNSHIP ROADS FOR INSTALLATION OF UTILITY LINES, SEWER LINES, WATER LINES, ETC.

NOTES:

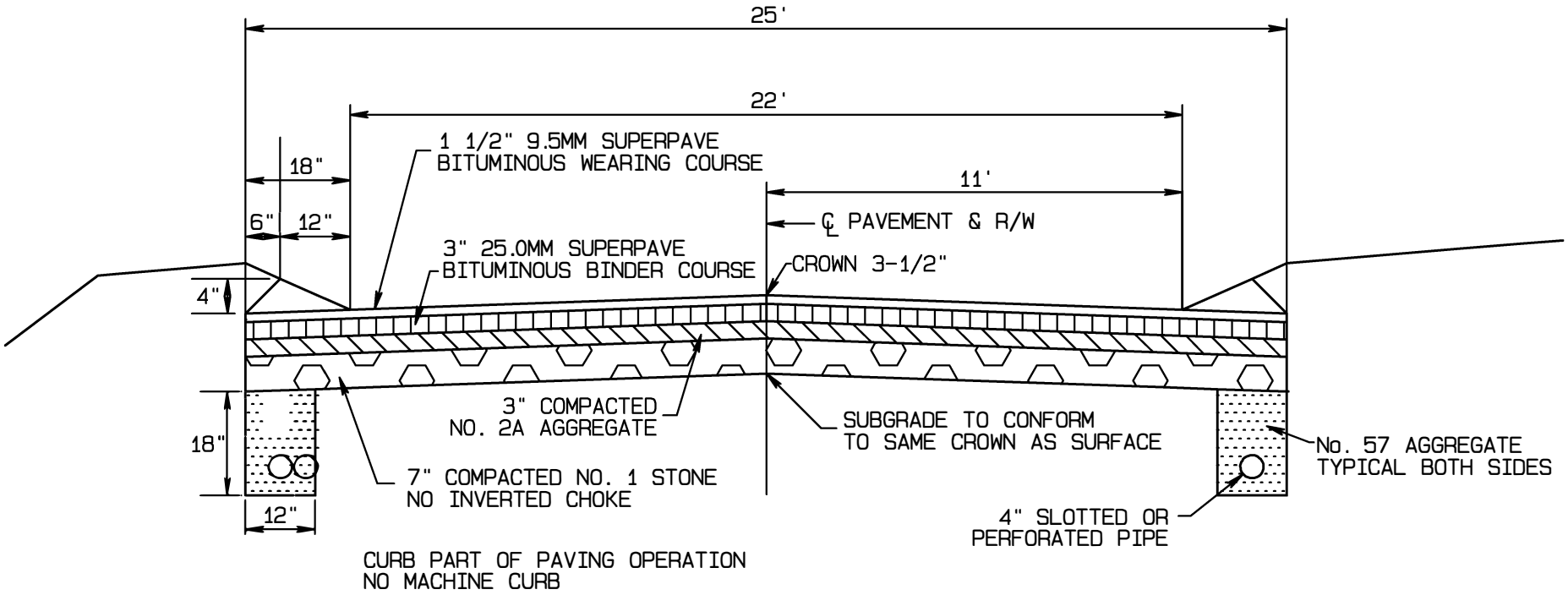
1. APPROVAL MUST BE OBTAINED FROM THE TOWNSHIP PRIOR TO OPEN CUTTING A STREET.
2. BORINGS SHALL BE REQUIRED UNLESS IMPRACTICAL.

RICHLAND TOWNSHIP

CONSTRUCTION DETAIL
STANDARD NO. 16

RESTORATION OF
BITUMINOUS SURFACES

SCALE: NONE	DATE: 06/21/22
SHOUP ENGINEERING INC.	



NOTES:

1. ALL MATERIALS AND METHODS OF CONSTRUCTION SHALL CONFORM TO PENNSYLVANIA DEPARTMENT OF TRANSPORTATION'S SPECIFICATIONS, PUBLICATION 408, CURRENT EDITION.

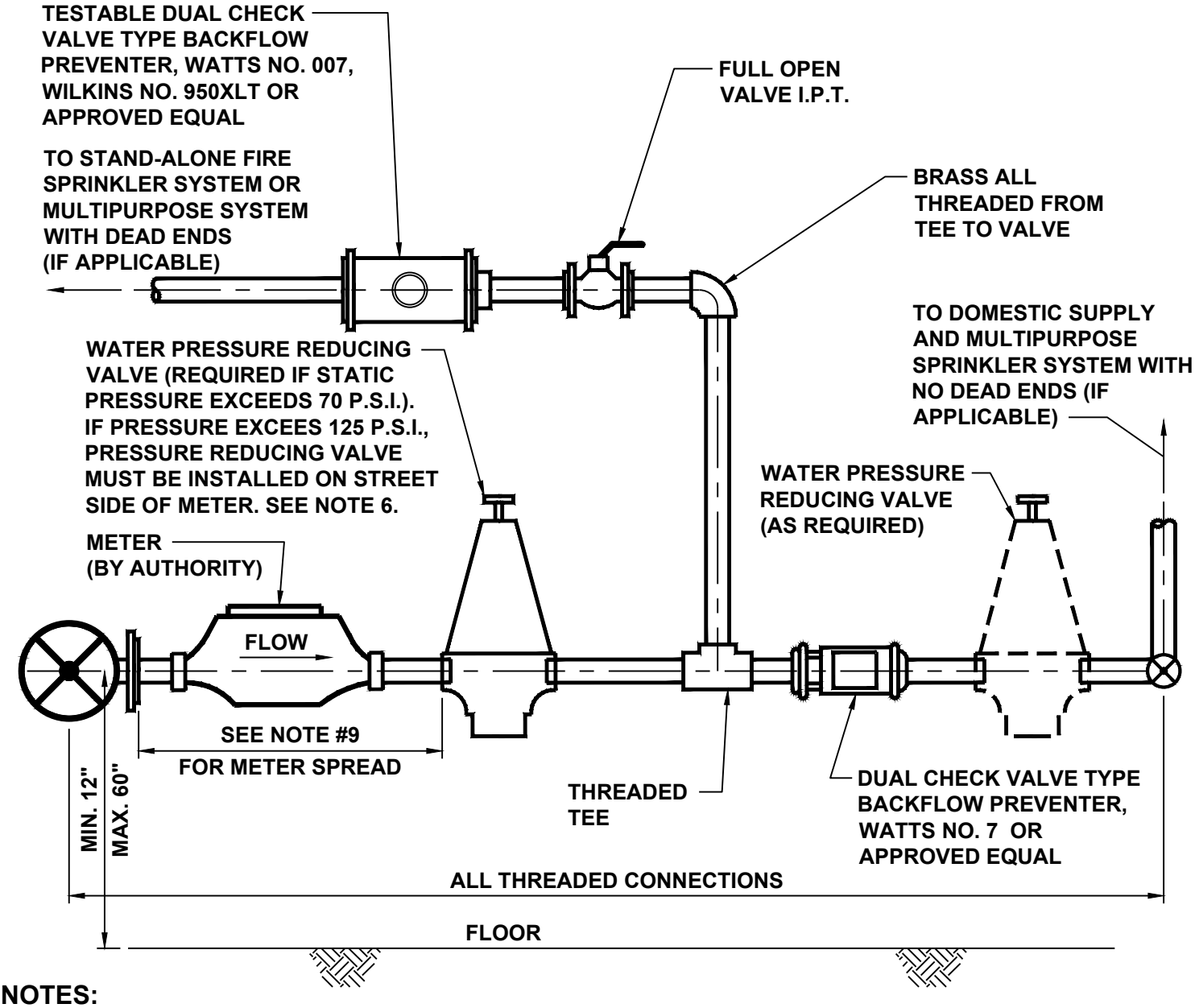
2. A 3/4" WEARING COURSE SHALL BE APPLIED AFTER THE INITIAL BINDER COURSE. THE FINAL 1 1/2" WEARING COURSE SHALL BE APPLIED 24 MONTHS AFTER INITIAL ROAD CONSTRUCTION OR AFTER 90% OF DWELLINGS HAVE BEEN CONSTRUCTED.

RICHLAND TOWNSHIP

BITUMINOUS ROAD WITH AGGREGATE BASE STREETS

SCALE: NONE	DATE: 06/21/22
SHOUP ENGINEERING INC.	

Standard Detail SD-17B

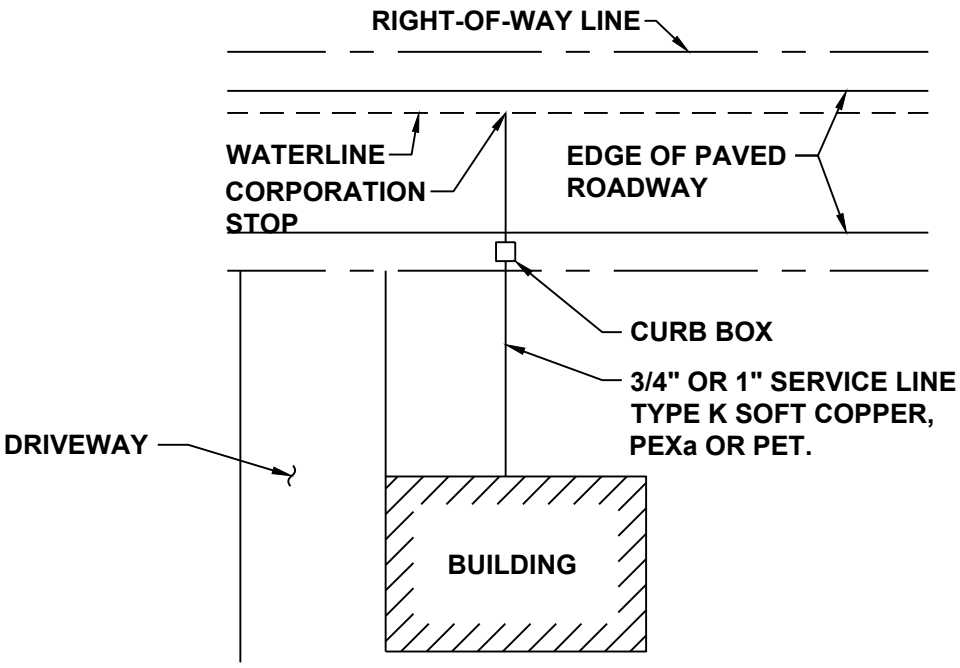


NOTES:

1. METER SETTING NOT TO BE OBSTRUCTED IN ANY WAY.
2. METER SETTING MUST BE COMPLETED BEFORE METER WILL BE SET.
3. BACKFLOW PREVENTION DEVICE MUST BE AUTHORITY APPROVED.
4. BACKFLOW PREVENTION DEVICE INSTALLED AND MAINTAINED BY OWNER.
5. PROVIDE PROPER DRAIN AT METER SETTING
6. PRESSURE REDUCING VALVE SHALL BE WATTS SERIES 25AUB, OR APPROVED EQUAL.
7. ADDITIONAL PRESSURE REDUCING VALVE MAY BE REQUIRED DOWNSTREAM OF SPRINKLER FEED FOR PROTECTION OF DOMESTIC FIXTURES.
8. BACKFLOW DEVICE ON SPRINKLER LINE REQUIRES TESTING ACCORDING TO ALLEGHENY COUNTY REQUIREMENTS.
9. METER SPREAD REQUIREMENTS:

METER SIZE	METER SPREAD
5/8" x 3/4"	11 3/4"
3/4" x 3/4"	14"
1"	16"

RICHLAND TOWNSHIP MUNICIPAL AUTHORITY OF ALLEGHENY COUNTY		RESIDENTIAL SYSTEM W/ FIRE SUPPRESSION FOR STAND ALONE SYSTEMS OR MULTIPURPOSE SYSTEMS WITH DEAD ENDS
Not to scale	July 2022	Standard Detail SD-18



SERVICE LINE CONNECTION GENERAL ARRANGEMENT

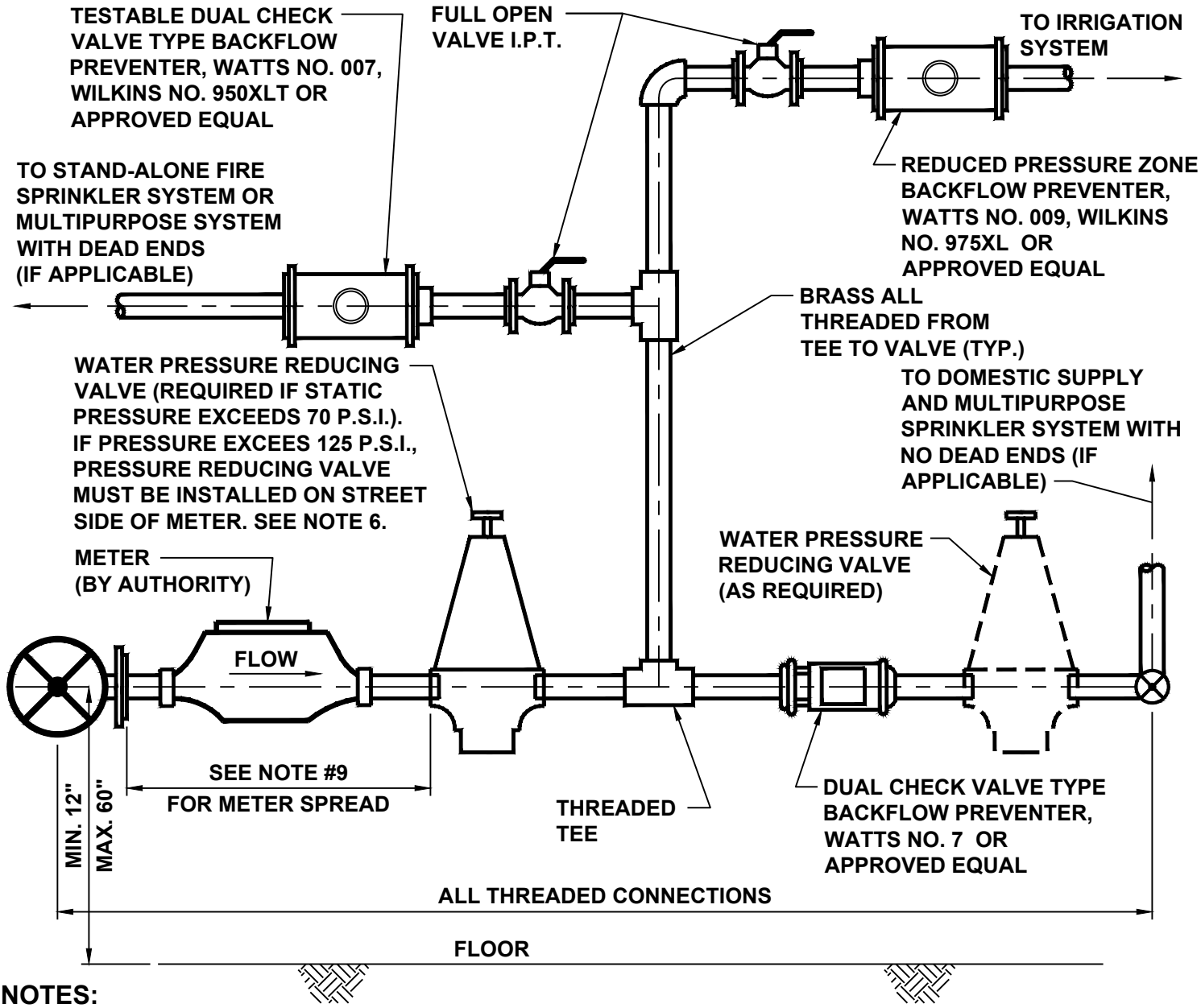
NOT TO SCALE

NOTES:

1. SERVICE LINE CONNECTION FROM WATERLINE TO CURB BOX SHALL BE INSTALLED BY THE AUTHORITY.

2. WATER SERVICE LINE EXTENSION FROM CURB BOX TO METER SHALL BE INSTALLED BY SKILLED WORKMEN AT COST OF CUSTOMER IN ACCORDANCE WITH RULES AND REGULATIONS AND STANDARD SPECIFICATIONS OF THE AUTHORITY.

RICHLAND TOWNSHIP MUNICIPAL AUTHORITY OF ALLEGHENY COUNTY		WATER SERVICE LINE EXTENSION
Not to scale	July 2022	Standard Detail SD-19



NOTES:

1. METER SETTING NOT TO BE OBSTRUCTED IN ANY WAY.
2. METER SETTING MUST BE COMPLETED BEFORE METER WILL BE SET.
3. BACKFLOW PREVENTION DEVICE MUST BE AUTHORITY APPROVED.
4. BACKFLOW PREVENTION DEVICE INSTALLED AND MAINTAINED BY OWNER.
5. PROVIDE PROPER DRAIN AT METER SETTING
6. PRESSURE REDUCING VALVE SHALL BE WATTS SERIES 25AUB, OR APPROVED EQUAL.
7. ADDITIONAL PRESSURE REDUCING VALVE MAY BE REQUIRED DOWNSTREAM OF SPRINKLER FEED FOR PROTECTION OF DOMESTIC FIXTURES.
8. BACKFLOW DEVICE ON SPRINKLER LINE REQUIRES TESTING ACCORDING TO ALLEGHENY COUNTY REQUIREMENTS.
9. METER SPREAD REQUIREMENTS:

METER SIZE	METER SPREAD
5/8" x 3/4"	11 3/4"
3/4" x 3/4"	14"
1"	16"

RICHLAND TOWNSHIP MUNICIPAL AUTHORITY OF ALLEGHENY COUNTY		RESIDENTIAL SYSTEM W/ FIRE SUPPRESSION AND IRRIGATION SYSTEMS
Not to scale	July 2022	Standard Detail SD-20

CONDENSED INSTALLATION STANDARDS

1. GENERAL - Service line extension includes connection of service line to curb stop, service line from curb stop to point within structure housing meter, full open valve same size as service line, pressure regulator (where static pressure is more than 70 psi), a dual check valve, or if required by Authority, a reduced pressure zone backflow preventer, double check backflow preventer and a full open valve. The meter, meter spuds, remote readout system and interconnection wires shall be furnished and installed by the Authority.

NOTE: When static pressure exceeds 125 psi, the pressure-reducing valve MUST be installed on the street side of the meter.

2. SIZE - Minimum size service is 3/4 inch diameter.

3. MATERIALS - Lines to be type K soft copper, crosslinked polyethylene (PEXa) per AWWA C904, or polyethylene tubing (PET) SDR9 CTS, with mechanical coupling joints or double cement lined class 52 ductile iron pipe per ASA No. H21-6, and with push on or mechanical joints per ASA 21.11.

4. INSTALLATION - Lay in straight line at right angles to street, with a minimum of 42 inches cover. Bottom of trench shall be excavated to conform to curvature of pipe and afford uniform bearing service. Do not lay on rock, but excavate a minimum of 6" below the bottom of the pipe and backfill with select earth or clay, well tamped; provide polyethylene wrap if corrosive soil is encountered; do not install joint within 5 feet of structure wall. Where 3/4" and 1" service lines are less than 100 feet, no couplings will be permitted.

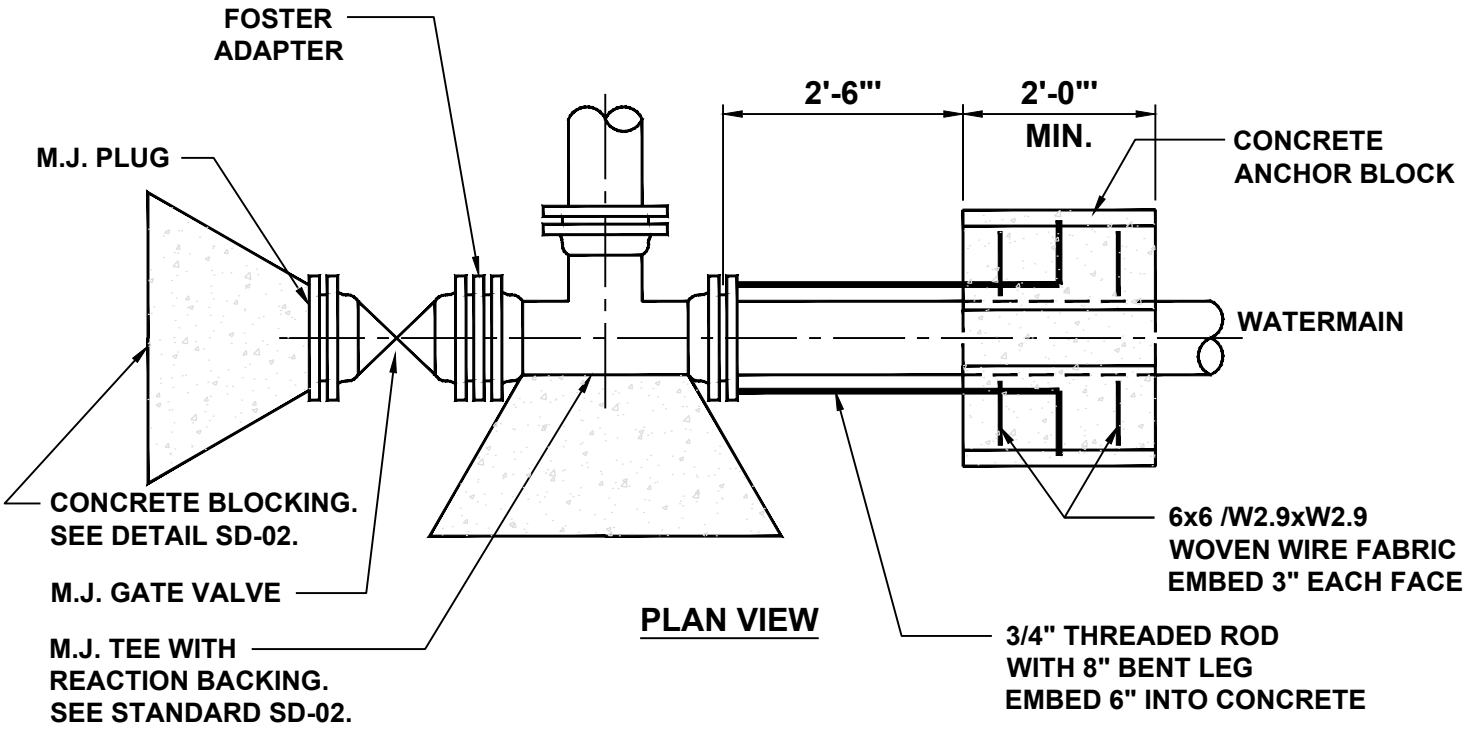
5. METER PITS - Required on all service line extensions 200 feet in length or greater. Must be purchased from Authority. See SD-15 for typical installation.

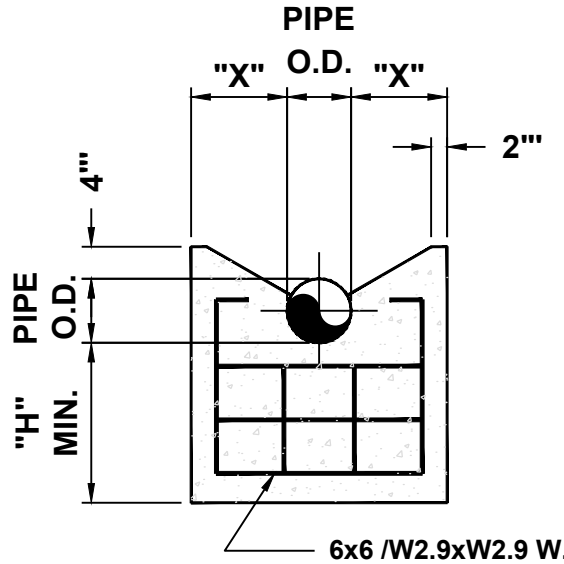
6. WATER PRESSURE REDUCING VALVE - Supplied and maintained by owner. Suitable for a maximum line pressure of 300 psi with a delivery pressure of 40-55 psi. If pressure exceeds 125 psi, valve must be installed on street side of meter. Contact Authority office for water pressure in your area.

7. INSPECTION - Line to remain uncovered until after inspection and observation of hydrostatic testing by Authority; no loss due to leakage is permitted. Notify the Authority (24 hours in advance) of name, location, and time when work will be ready for inspection. Allegheny County Plumbing Division must be contacted when public water is connected to your system.

8. BACKFLOW PREVENTER - Required on all service lines to prevent the backflow of water into the public water system. See SD-14, 18, and/or 20 for typical installation and type of backflow device that is required. All commercial backflow prevention devices, and residential reduced pressure zone (RPZ) devices, shall be tested annually at the customers expense by a certified backflow inspector. All other residential testable backflow prevention devices shall be tested once every two years or on a schedule in accordance with Allegheny County requirements. As a condition of service or continued service, the customer must send to the Authority the written test result and/or repair information on forms supplied by the Authority. Satisfactory test results of the device must be submitted to the Authority according to the schedule indicated in this paragraph.

RICHLAND TOWNSHIP MUNICIPAL AUTHORITY OF ALLEGHENY COUNTY		CONDENSED INSTALLATION STANDARDS
Not to scale	July 2022	Standard Detail SD-21





THREADED RODS REQUIRED

6" - USE 2 THREADED RODS
8" - USE 3 THREADED RODS
10" - USE 3 THREADED RODS
12" - USE 4 THREADED RODS

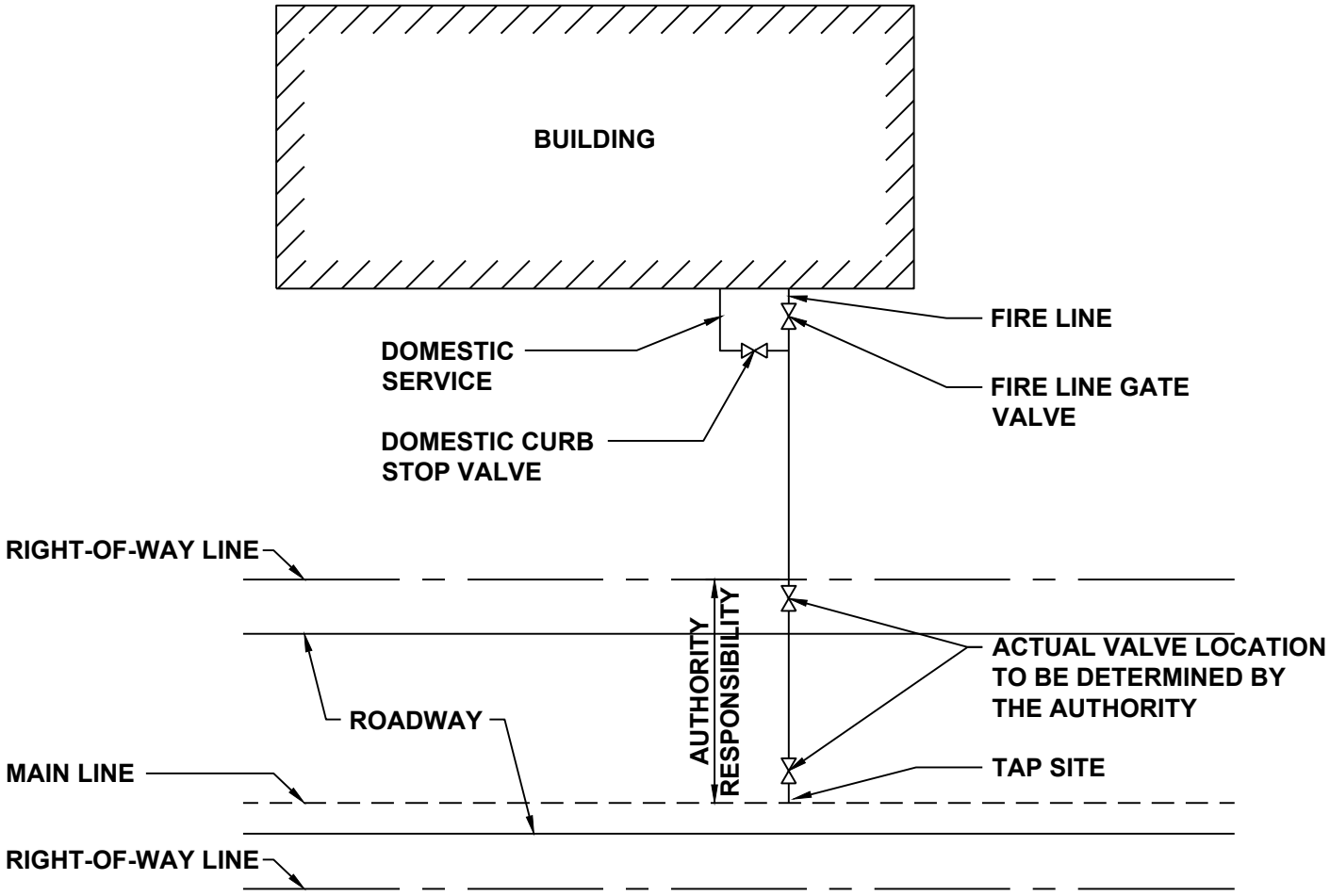
THREADED RODS TO BE EQUALLY SPACED IN CONCRETE DEADMAN.
2" MIN. CLEARANCE TO CONC. FACE.

PIPE O.D.	"X"	"H"
6"	8"	1'-0"
8"	10"	1'-8"
8"	10"	1'-8"
8"	10"	1'-8"

NOTE: MAXIMUM AMOUNT OF SURFACE AREA OF ANCHOR BLOCK FACE TO REST AGAINST UNDISTURBED SOIL AS POSSIBLE.

WRAP WATERMAIN IN PLASTIC WHERE IN CONTACT WITH CONCRETE ANCHOR BLOCK.

RICHLAND TOWNSHIP MUNICIPAL AUTHORITY OF ALLEGHENY COUNTY		TYPICAL END OF WATERLINE DETAIL
Not to scale	July 2022	Standard Detail SD-22



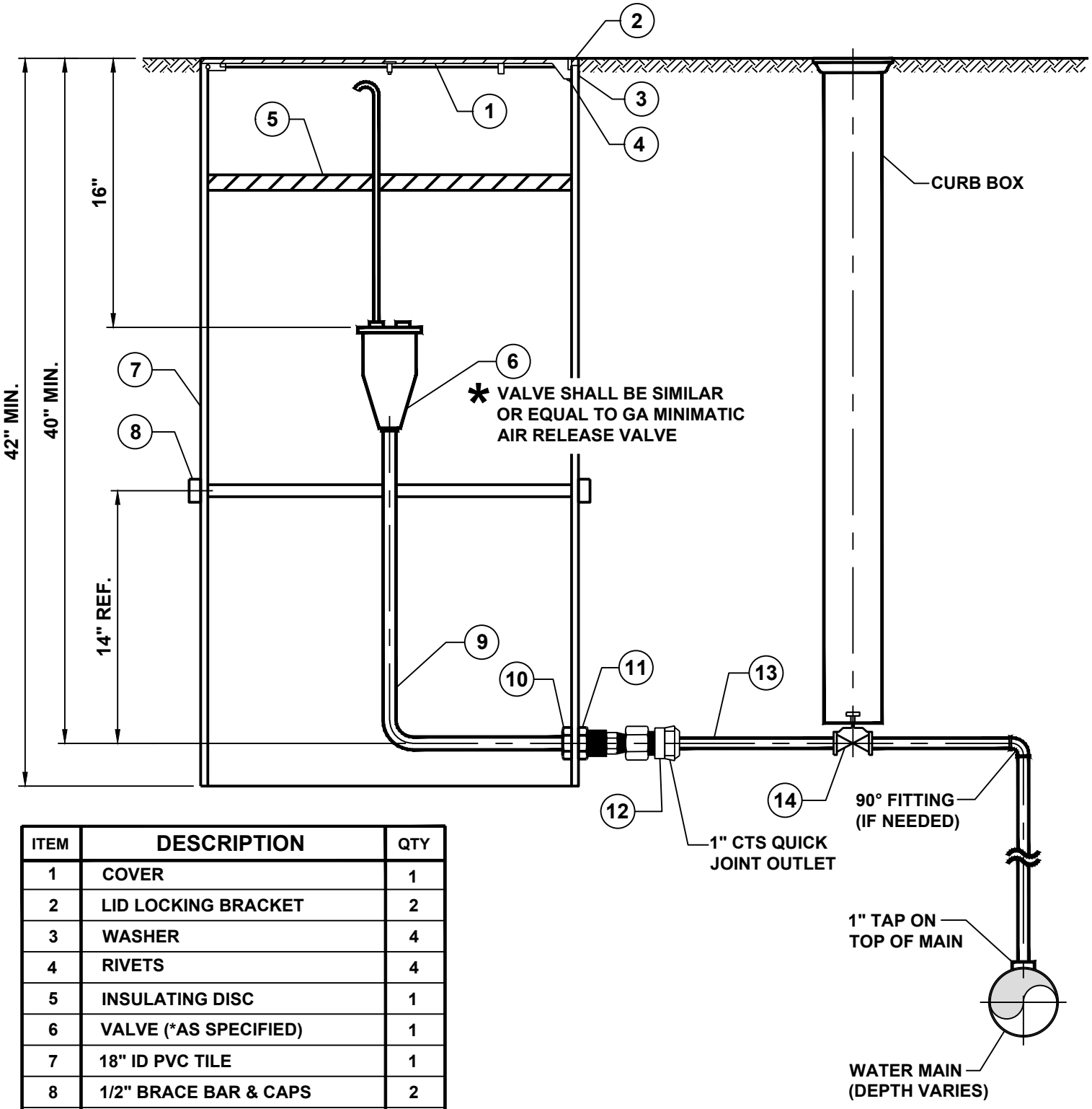
PLAN VIEW OF FIRE AND DOMESTIC SERVICE BY SINGLE TAP

NOT TO SCALE

NOTE:

IN LIEU OF RUNNING TWO SEPARATE SERVICE LINES (ONE FIRE PROTECTION AND ONE DOMESTIC SERVICE) INTO THE BUILDING, THE AUTHORITY WILL PERMIT ONE LINE TO BE INSTALLED FROM THE MAIN LINE TO THE BUILDING. THE DOMESTIC SERVICE WILL THEN BE TAPPED OFF OF THE LINE JUST OUTSIDE OF THE BUILDING (WHERE PRACTICAL) WITH A SEPARATE SHUT OFF VALVE ON EACH LINE. THESE VALVES WILL ALLOW FOR INDEPENDENT SHUT OFF OF EITHER LINE FOR MAINTENANCE SERVICE.

RICHLAND TOWNSHIP MUNICIPAL AUTHORITY OF ALLEGHENY COUNTY		FIRE AND DOMESTIC SERVICE BY SINGLE TAP
Not to scale	July 2022	Standard Detail SD-23



ITEM	DESCRIPTION	QTY
1	COVER	1
2	LID LOCKING BRACKET	2
3	WASHER	4
4	RIVETS	4
5	INSULATING DISC	1
6	VALVE (*AS SPECIFIED)	1
7	18" ID PVC TILE	1
8	1/2" BRACE BAR & CAPS	2
9	1 1/8" OD COPPER TUBE	1
10	OUTLET PIECE	1
11	LOCK NUT	1
12	COUPLING	1
13	1"Ø COPPER	1
14	1" CURB STOP	1

NOTE:

WHERE PVC IS USED FOR THE WATER MAIN, A BRASS SADDLE SIMILAR OR EQUAL TO FORD S902 SHALL BE UTILIZED FOR MAKING THE 1" TAP.

RICHLAND TOWNSHIP MUNICIPAL AUTHORITY OF ALLEGHENY COUNTY		WATER AIR RELEASE OR AIR AND VACUUM VALVE
Not to scale	July 2022	Standard Detail SD-24