

Town of Pinedale Construction Standards

June 12, 2017

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1. General

1.1 Purpose.

The purposes for establishing minimum construction standards for all phases of sewer line, water line and street construction within the Town are for the purpose of ensuring proper, correct and safe construction of all phases of sewer line, water line and street construction within the Town and to ensure and maintain the health, safety and general welfare of the residents of the Town.

1.2. Abbreviations.

As used in this chapter, the following abbreviations apply:

- A. "AASHTO" means the American Association of State Highway and Transportation Officials.
- B. "ASTM" means the American Society for Testing and Materials.
- C. "AWWA" means the American Water Works Association.
- D. "DSC" means deep service connection.
- E. "mg/l" means milligrams per liter; approximately the same as parts per million.
- F. "OSHA" means Occupational Safety and Health Administration.
- G. "psi" means pounds per square inch pressure. In these standards it refers to gauge pressure which sets atmospheric pressure at zero.
- H. "PVC" means polyvinyl chloride.
- I. "SDR" means standard dimension ratio. The outside diameter of a pipe divided by the wall thickness. It is the same mathematical definition as "dimension ratio" (DR).

1.3. Contractor defined.

"Contractor," as used in this chapter, means whoever is in responsible charge for the construction.

1.4. Reference to standard specifications.

When other specifications such as AWWA, ASTM and AASHTO are referred to, the latest revision of these specifications shall apply.

1.5. Standards adopted.

The 2015 Edition of the "Wyoming Public Works Standard Specifications" hereby is adopted by the Town for the purpose of prescribing minimum standards and specifications for all phases of sewer line, water line, and street construction within the Town, a copy of which is on file in the Town Hall for inspection.

1.6. Amendments to standards.

The minimum construction standards for all phases of sewer line, water line and street construction within the Town adopted by § 180-5 shall have such amendments, modifications, additions or deletions as the Town Council of the Town shall, from time to time, adopt by ordinance.

1.7. Filing of standards and amendments.

At least one copy of the minimum construction standards adopted by § 180-5, and any ordinance providing for amendments, modifications, additions or deletions in such minimum construction standards adopted by the Town Council, shall be maintained on file in the office of the Town Engineer where they shall be available for public inspection during the normal office hours of the Town Engineer. One copy of each ordinance providing for amendments, modifications, additions or deletions in such minimum construction standard shall be kept with each copy of such minimum construction standards and made available for public inspection at the same time as and in the same manner as such minimum construction standards.

2. Requirements Generally

2.1 In-state contractor preference.

If a project is financed by the Town, and no federal funds are involved, Wyoming law provides that in-state contractors shall have a five-percent preferential over out-of-state contractors.

2.2 Approval of plans before start of work.

No work on a project within the Town limits may begin until the Town has approved the final plans.

2.3 Acceptance of work.

No work shall be accepted by the Town which does not meet the minimum standards set out in this chapter.

2.4 Inspection requests.

At least a twenty-four-hour notice is required to allow the Town inspector to schedule inspections.

2.5 Completion of work before final approval.

Final approvals will not be given until all phases of the work are complete.

2.6 Underground utility acceptance.

All underground utilities shall be completed, tested and accepted before installation of surface improvements.

2.7 As-built drawings.

Upon completion of the project, as-built drawings must be submitted. The drawings shall include measurements from stationary above-grade objects such as fire hydrants and power poles to pipelines, valves, manholes and related items in order to simplify location in the field.

2.8 Frozen ground conditions.

- A. Because of frozen ground conditions, connections to the public water supply system, connections to the public sanitary sewer system, and all trench excavation and backfill operations on any public street or alley are prohibited after November 1 of each year.
- B. The prohibition against connections and trenching operations shall remain in effect until the Public Works Supervisor or his designee determines that frozen ground conditions no longer exist and notice of such is posted at the Town Hall. Nothing in this section shall prohibit emergency repairs to water or sewer lines made with consent of the Public Works Supervisor.

2.9 Safety and care of contractor.

The contractor shall at all times safely guard property and utilities involved in construction from injury or loss. He shall at all times safely guard and protect his own

work, and that of adjacent property, from damage. The contractor shall replace or make good any such damage, loss or injury incurred during construction.

3. Sanitary Sewers

Sanitary sewers are for sewage flow only, discharge of sump pumps, water runoff from buildings and surfaces is not permitted.

3.1 Materials.

Rubber gasket-type fittings as manufactured by the pipe supplier shall be used on sanitary sewers.

3.2 Pipe material.

Sewer pipe for gravity lines may be of any of the following materials unless otherwise specified by the Town. Minimum diameter for gravity sewer mains shall be eight inches.

- A. PVC sewer pipe. Polyvinyl chloride plastic sewer pipe shall be made specifically for the conveyance of sanitary sewerage and other liquids by gravity or pressure. Gravity sewer pipe shall meet the requirements of ASTM D 3034, and shall have an SDR of 35. All pipe shall have elastomeric gasket-type joints.
- B. Two-walled trussed plastic pipe with rubber ring joint. Two-walled trussed plastic pipe shall be composed of two concentric thermoplastic tubes integrally braced across the space between the two tubes, and with the resultant annular space completely filled with portland cement perlite concrete to form a unit solid wall. Thermoplastic material shall be rigid ABS plastic conforming to ASTM D 1788; Type I, Grade 1 or 2; or Type IV, Grade 1 except minimum deflection temperature shall be 180° F. Fittings shall be manufactured specifically for use on the two-wall pipe as specified with a rubber ring gasket and shall provide securely fastened and tightly sealed joints. Gaskets shall conform to ASTM C 433.
- C. Ductile iron pipe. Ductile iron pipe for sanitary sewers shall conform to AWWA C 151 for casting requirements and AWWA C 150 for thickness design. The pipe shall be bituminous coated. Pipe connections shall be bell and spigot with rubber rings or mechanical joint.

3.3 Depth of cover.

Minimum depth of cover shall be three feet for sanitary sewer lines.

3.4 Trench preparation.

Trenches for sanitary sewers shall be constructed to line and grade. Where rock or hard pan is encountered, place four inches of one-inch-minus granular material below the pipe. The bottom of the trench shall be of stable material. Where groundwater is encountered, the bottom shall be stabilized with granular material of one inch maximum particle size. Bell holes shall be excavated at each joint so that the bell hangs free, allowing the barrel of the pipe to rest on the bottom of the trench.

3.5 Laying pipe.

- A. Inspect all pipe and fittings prior to lowering into trench to ensure no damaged or defective materials are being used. Clean ends of pipe thoroughly and remove any foreign matter. Avoid any physical damage to the pipe. Remove all damaged pipe from the job site.
- B. Pipe shall be laid true to line and grade. Pipe-laying shall proceed upgrade with spigot ends pointing in direction of flow. Clean the inside of the joint immediately before joining the pipe. Install pipe in accordance with the manufacturer's recommendations for the type of pipe being used.
- C. After the joint has been made, check pipe for alignment and grade. The trench bottom shall form a continuous and uniform bearing and support for the pipe between joints. Place sufficient pipe zone material to secure the pipe from movement before the next joint is installed. At all times, when laying operations are not in progress, close and block the open end of the last section. Plug or close off any open connection with temporary plugs.

3.6 Water line crossings.

Where sanitary sewer lines cross water lines, and the sewer pipe is above the water main or less than 18 inches clear distance vertically below the water main, construct the crossing by the following method:

- A. Replace existing sewer with a twenty-foot length of SDR 21 PVC or ductile iron water pipe centered on the intersection with the water main. Maintain ten-foot clear distance between any joint in the sewer line and any joint in the water line. Use approved adaptors for joints between the replaced pipe and the existing

sewer pipe. Place select granular bedding around water pipe and up to the spring line of the sewer pipe in six-inch lifts, compact to 95% of maximum density, according to AASHTO T-99-C.

3.7 Services.

3.7.1 Materials.

Any material specified in § 180-21 may be used in sewer services. Pipe and fittings may have solvent-welded joints if PVC or truss pipe is used. Four-inch PVC shall have an SDR of 33.5.

3.7.2 Size.

Sewer services shall use pipe with a minimum diameter of four inches. No main line taps over four inches shall be permitted. Larger taps shall require a manhole and the service shall be considered a main line covered by applicable specifications.

3.7.3 Slope.

Four-inch sewer service pipe shall have minimum slope of 1/8 inch per linear foot.

3.7.4 Connection to mains.

- A. All service extensions from new mains shall be made from a service wye, as shown in Drawing S-4, on file in the office of the Town Engineer.
- B. Service lines constructed of material other than the sewer main, but otherwise meeting Town approval and requirements, shall be mated to the sewer main pipe wye with an adaptor made especially for this purpose. Service lines stubbed out but not used shall be sealed and marked as shown on Drawing S-5, on file in the Town Engineer's office.
- C. Service extension located where the main line does not have a wye shall be constructed with a saddle wye.
- D. Service connections to existing clay pipe shall be made with a vitrified clay saddle wye or a rubber seal PVC saddle wye. If a PVC saddle is used, the saddle wye shall have a nominal diameter one or two inches larger than the clay main. The hole in the main shall be drilled or carefully scored and chipped. If the main is cracked or broken while constructing the connection hole, the damaged length of main shall be replaced. The material used to replace a broken main shall be vitrified clay pipe or any material listed in § 180-21. Connections shall be adaptors made for this purpose. The saddle wye shall be strapped to the main wye with two stainless steels clamps.

3.7.5 Deep service connections.

All sewer service connections where there is a near vertical rise above the sewer line main shall be as shown on Drawing S-6, on file in the Town Engineer's office. All DSC shall be highlighted on the record drawings.

3.7.6 Sewer service termination.

All related sewer connections to the structure being demolished shall be sealed in a manner so as to prevent accidental or intentional infiltration or seepage of ground- or surface water or placement of other foreign matter into the Town's sewer system. The adequacy of the sealing method shall be determined by the Water Commissioner or Town employee acting on behalf of the Water Commissioner.

3.8 Manholes.

Provisions on work related to manholes specified elsewhere:

- A. Trenching and backfill (Article VI of this chapter);
- B. Concrete (Article VII of this chapter).

3.8.1 Materials.

Manhole materials shall be as follows:

- A. Base. Precast or poured in place:
 - a. Concrete, 3,000 psi minimum;
 - b. Reinforcement, Grade 40 ASTM A 615;
- B. Barrel and cone. ASTM C-478. Cone to be eccentric;
- C. Steps. Provide OSHA-approved steps on manholes deeper than three feet;
- D. Frame and lid. Heavy-duty cast iron designed for traffic. Minimum weight of lid shall be 160 pounds. The lid shall make 100% contact with the frame and shall have "sewer" cast in the top in raised letters. There shall be no vent holes in the lid;
- E. Seal. Horizontal joint shall be sealed with a mastic-type waterproof seal.

3.8.2 Installation.

- A. In-line manholes shall be constructed a maximum of 400 feet apart. Wherever the sewer line changes horizontal or vertical alignment, pipe size or material, a manhole shall be constructed at the connection. Sewer extensions more than 300 feet from a manhole, or any other extensions as directed by the Town Engineer, shall end in a manhole.

- B. Bases shall be installed on stable soil. If the soil at the manhole location is unstable, the base shall be placed on a six-inch minimum layer of three-fourths-inch-minus gravel. The floor shall be shaped to drain into the manhole invert. The manhole invert shall be constructed with a smooth transition and with no sharp edges or rough sections which tend to obstruct flow.

3.8.3 Testing.

If requested by the Town Engineer, the manholes shall be hydrostatically tested by the exfiltration method. A maximum leakage of 0.2 gallon per hour per foot of head above the invert will be allowed.

3.9 Cleanouts.

3.9.1 Cleanouts: materials.

Cleanout materials shall be of the same size and material as the pipe it is connected to.

3.9.2 Installation.

- A. Cleanouts shall be Type II as detailed on Drawing S-7, on file in the Town Engineer's office, except that cleanouts installed on private property may omit the concrete block at the option of the owner. The Type I cleanout is for temporary purposes and shall be installed only when an extension of the service line is anticipated within two years. When the service line is extended, the Type II cleanout shall be substituted.
- B. Cleanouts shall be installed every 75 feet for service lines in excess of that length, and at all bends in excess of 30°, as shown on Drawing S-7, on file in the Town Engineer's office, regardless of service line length. Cleanouts shall also be installed at the property line as soon as ground conditions permit on each service line which is dug up for repair or replacement or is connected to a sanitary sewer main on or after February 20, 1986.
- C. Special backfill requirements are as shown on Drawing S-7, on file in the Town Engineer's office.

3.9.3 At sewer terminus.

When a sewer extends less than 150 feet beyond a manhole, it may end with a cleanout. Extensions more than 150 feet long, or any extension as directed by the Town Engineer, shall end in a manhole. Cleanouts shall be constructed as shown on Drawing S-7, on file in the Town Engineer's office. Type II shall be used in all travelled ways and on permanent installations where an extension is not anticipated within two years. When

the sewer main is to be extended, the temporary Type I cleanout may be used and later removed when the line is extended.

3.10. Testing.

3.10.1 Materials.

The contractor shall supply all test materials needed.

3.10.2 Equipment.

- A. The contractor shall furnish all necessary testing equipment and perform the tests in a manner satisfactory to the Town Engineer. Any arrangement of testing equipment which will provide observable and accurate measurements under the specified conditions will be permitted.
- B. Gauges for air testing shall be calibrated with a standardized test gauge set at the start of each testing day. The calibration shall be witnessed by the Town Engineer.

3.10.3 Time.

Testing of sections of the constructed sanitary sewer for final acceptance will not be performed until all service connections, manholes and backfilling are completed between the stations to be tested.

3.10.4 Failures.

Any section of line failing any of the required tests shall be repaired or rebuilt at the contractor's expense prior to the Town's acceptance.

3.10.5 Pipe alignment.

Sewer lines shall be laid in straight alignment and on grade between manholes so that when a bright light is placed in the end of the sewer pipe, it can be seen from the adjoining manhole by looking through the sewer pipe.

3.10.6 Deflection.

Internal deflection of sanitary sewers shall not exceed 5% of the internal diameter. Testing for excessive deflection will generally be performed on 25% of the sewer lines. If deflections in excess of 5% are found, all lines may be tested. Sewer lines shall be tested by pulling a "go/no-go" gauge which is 95% of the pipe diameter through the line. If the gauge cannot pass through the line, the line shall be repaired.

3.10.7 Hydrostatic and air.

All sewers, manholes and appurtenances shall successfully pass a hydrostatic or air test prior to acceptance and shall be free of visual defects. Use either method of testing, except that when, because of grade, the hydrostatic head at the downstream manhole would be greater than 20 feet for a hydrostatic test, the air test shall be used.

3.10.8 Infiltration.

The contractor shall determine the height of the water table at the time of the test by exploratory holes, as approved by the Town Engineer. When the groundwater table is a minimum of five feet higher than every section of pipe in the test section, the infiltration method may be used. The infiltration rate is determined by plugging the upstream manhole in the test section, and then measuring the flow through the downstream manhole by the use of a weir or other device. The pipe and joints shall sustain a maximum leakage of 0.001 gallon per hour per inch diameter per foot of pipe.

3.10.9 Exfiltration.

- A. Water may be introduced into the test section in advance of the test period to allow for saturation. A section of sewer line shall be prepared for testing by plugging the upstream side of a downstream manhole and all openings in the upstream manhole except the downstream opening. Only one section (manhole to manhole) shall be tested at a time. Then the upstream manhole shall be filled to an elevation of five feet above the top of the pipe at the upstream end of the test section or five feet above the existing groundwater elevation, whichever is greater. If the manhole is not deep enough to accommodate the required head, a temporary device shall be constructed to achieve the proper depth.
- B. At the beginning of the test, the elevation of the water in the upper manhole shall be carefully measured from a point on the manhole rim. After a period of four hours, or less with the approval of the Town Engineer, the water elevation shall be measured from the same point of the manhole rim. The amount of water loss shall then be calculated, or enough water shall be measured into the upper manhole to restore the water to the level existing at the beginning of the test. This amount shall be taken as the total leakage, and shall not exceed 0.001 gallon per hour per inch diameter per foot of pipe, plus an additional allowance of 0.2 gallon per hour per foot of head above the invert for any manhole in the test section.

3.10.10 Air.

Determine the height of the groundwater over the test section at the time of the test. After all openings in the test section are plugged, introduce air slowly into the pipe. When the pressure in the line is five psi higher than the back pressure due to groundwater (0.433 psi per foot of water above the invert), maintain this pressure for at least two minutes to allow the temperature to stabilize. Then shut off the air supply allowing the pressure to drop. Clock the time required for the pressure to drop from 3.0 to 2.5 psi above the groundwater back pressure. The line shall pass the test if the time required for the 0.5 psi drop is greater than those shown as follows:

Time Requirements for Air Testing

Pipe Diameter (inches)	Time (minutes: seconds)
4	2:32
6	3:50
8	5:06
10	6:22
12	7:39
15	9:35

For larger dimensions use: Time in seconds = 38.5 x pipe diameter
in inches.

3.10.11 Subsequent failure.

Infiltration of groundwater in an amount greater than specified in this article following a successful hydrostatic or air test as specified shall be considered as evidence that the original test was in error or that subsequent failure of the pipeline has occurred. The contractor will be required to correct such failures should they occur within the warranty period of one year.

3.11. Grease Traps.

Grease trap installation. All buildings constructed or remodeled, where such remodeling cost exceeds \$10,000, for use as schools, restaurants, cafes or any other place where cooking is done and food prepared for the public, other than private dwelling units, are required to provide grease traps or interceptors. All such traps or interceptors shall be of a type and capacity approved by the Town, and shall be located as to be readily and easily accessible for cleaning and inspection. In the maintaining of these interceptors, the owner shall be responsible for the proper cleaning and removal and disposal by

appropriate means of the captivated material and shall maintain records of the dates and means of cleaning and disposal which are subject to review by the Town.

4. Water

4.1 Mains.

4.1.1 Pipe materials.

Water mains will be constructed out of ductile iron pipe. The pipe shall conform to AWWA C 150 for thickness design. It shall have cement mortar lining conforming to AWWA C 104 and shall be bituminous coated. The minimum size of water mains shall be six inches. Pipe connections shall be bell and spigot with rubber rings or mechanical joint. Joints shall have ground straps, wedges (three minimum) or metal-tipped gaskets to provide electrical continuity throughout the line.

4.1.2 Fittings.

Fittings shall conform to AWWA C 110 and be cement mortar lined.

4.1.3 Valves.

- A. Gate valves. All gate valves shall conform with AWWA C 500 standard for iron body gate valves. All exposed gate valves shall include an operating disc or wheel mounted for convenient operation. All buried gate valves shall have a standard two-inch operating nut and open clockwise. In addition, all buried gate valves shall be installed in a valve vault, as shown in Drawings W-4 and W-5, on file in the Town Engineer's office. The vault shall not bear directly upon the pipe, but upon the thrust block. A minimum of 1/2 inch clearance between the vault and the pipe shall be maintained. The word "water" shall be cast into the lid.
- B. Check valves. Check valves shall be constructed with heavy cast iron, steel or bronze body with a bronze or stainless steel seat ring, and complete, noncorrosive cushion chamber. They shall absolutely prevent the return of water through the valve when the inlet pressure decreases below the delivery pressure. The valve must be tight seating and operate without hammer or shock. The seat must be renewable and replaceable without special training or special tools unless the tools are provided by the manufacturer of the valve. The flow area of the valve shall exceed the cross-sectional area of the specified pipe.

4.1.4 Fire hydrants.

Hydrants shall be in accordance with AWWA C 502, with a cast-iron body, fully bronze mounted, suitable for working pressures of 150 pounds per square inch. Hydrants shall be constructed in a manner permitting withdrawal of internal working parts without disturbing the barrel or casing. Hydrants shall be of five-and-one-half inch valve size with a six-inch flanged shoe and six-inch gate valve. Hydrants shall be watertight when the upper portion of the barrel is broken off. The direction of opening shall be cast on the head of the hydrant. Two two-and-one-half-inch nozzles threaded with National Standard fire hose threads and one four-and-one-half-inch pumper port shall be furnished. Hydrant caps shall be securely chained to the barrel. Hydrants shall be painted one coat of primer and two finishing coats of approved red paint in accordance with the manufacturer's recommendation, subject to the Town Engineer's approval.

4.1.5 Looping of water mains.

All extensions of Town water mains shall be looped, and there shall be no dead-end extensions of mains. Where looping would be impractical, the Town Council, in its sole discretion, may grant an exception to this requirement and may impose any conditions on such exception as the Town Council may deem appropriate.

4.1.6 Layout; support.

All pipe shall be laid and maintained to the required lines and grades. Fire hydrants shall be spaced so that there is at least one hydrant within a three-hundred-foot radius from any point on the area served. Fittings, valves and other appurtenances shall be at the required locations with joints centered, spigots home, and all valves and hydrant stems plumb. Temporary support, adequate protection, and maintenance of all underground utilities encountered in the progress of the work will be furnished by the contractor at his own expense. Where the grade or alignment of the pipe is obstructed by existing utility structures, the obstruction shall be permanently supported, relocated or removed by the contractor in cooperation with the owners of the utility structure.

4.1.7 Laying.

Pipe shall be laid directly into the trench bottom containing coupling holes and shaped to provide continuous contact with the pipe between coupling holes. All foreign matter or dirt shall be removed from the interior of the pipe before lowering it into the trench. The pipe shall be kept clean by means approved by the Town Engineer during and after laying. When pipe laying is not in progress, the open ends of the installed pipe shall be closed by approved means to prevent entrance of trench water into the line. Pipe will be joined in accordance with the manufacturer's recommendation, subject to the Town Engineer's approval for the size and type of pipe being used.

4.1.8 Reaction anchoring.

Thrust blocks shall be provided as shown on the drawing, or other approved means provided for preventing pipe movement at all push on or mechanical joint fire hydrants, plugs, trees and crosses, bends deflecting 11 1/4° or more, reducers and valves installed in piping subject to internal hydrostatic pressure in excess of 13 psi.

4.1.9 Sanitary sewer crossings.

Where water lines cross sanitary sewer lines, and the sewer pipe is above the water main or less than 18 inches clear distance vertically below the water main, the crossing shall be constructed by the following method:

- A. Replace the existing sewer with a twenty-foot length of SDR 21 PVC or ductile iron water pipe centered on the intersection with the water main. Maintain a ten-foot clear distance between any joint in the sewer line and any joint in the water line. Use approved adaptors for joints between the replaced pipe and the existing sewer pipe. Place select granular bedding around the water pipe and up to the spring line of the sewer pipe in six-inch lifts, compact 95% of maximum density, according to AASHTO T-99C.

4.2 Services

4.2.1 Materials.

Water-service materials shall be as follows:

- A. Pipe.
 - a. Ductile iron pipe. Service lines three inches and larger may be of ductile iron pipe conforming to AWWA C 151.
 - b. Copper tubing. Service lines may be constructed of Type K seamless copper tubing conforming to ASTM B 88. Compression-type fittings shall be used with copper tubing.
- B. Tap. Cast iron and ductile iron mains may be tapped directly with corporation threads. Taps into any old existing steel pipe will require a tapping saddle.
- C. Corporation stops. Corporation stops shall be bronze or red brass threaded in accordance with AWWA C 800.
- D. Curb stops. Curb stops shall be bronze with compression fittings. Curb stops shall be installed in an adjustable curb box with a stationary rod.

4.2.2 Installation.

Services shall be installed as shown on the drawing on file in the Town Engineer's office. When tapping a line the drill shavings shall be prevented from entering the main line. The curb stop box caps shall be installed within 1/4 inch of finished grade.

4.2.3 Water meter installations

- A. All new installations of water service and remodeling requiring a building permit within the areas served by the municipal water system of the Town of Pinedale shall require the installation of a backflow prevention device, which device must be obtained from the Town. The device is to be obtained at the time a building permit is issued and is to be installed at the expense of the customer. The installation must pass inspection by the Town and is subject to periodic inspection by the Town. All required maintenance and repair of a properly installed device will be the responsibility of the Town.
- B. At the time of installation of any backflow prevention device as required by this section, a pressure relief valve also must be installed, which valve must be obtained from the Town. The device is to be obtained at the time a building permit is issued and is to be installed at the expense of the customer. All required maintenance and repair of a pressure relief valve will be the responsibility of the customer.
- C. All new installations of water service and remodeling requiring a building permit within the areas served by the municipal water system of the Town of Pinedale shall require the installation of a water meter, which meter must be purchased from the Town. The device is to be obtained at the time a building permit is issued and is to be installed at the expense of the customer. All new water services shall have the related water meter installed in a pit located on the subject property. All expenses associated with the installation, including but not limited to cost of water meter, labor, materials and equipment, shall be at the expense of the landowner. The installation must pass inspection by the Town and is subject to periodic inspection by the Town. All required maintenance and repair of a properly installed device will be the responsibility of Town.
- D. Instructions and specifications for installation of the backflow prevention device, pressure relief valve, and water meter will be provided at the time the items are delivered to the customer.
- E. The backflow prevention device and water meter must be installed in such a way as to prevent freezing and to provide access for periodic inspection and maintenance.

2.2.4. Yard Hydrants.

All yard hydrants shall have an approved backflow prevention device placed between the yard hydrant and the Town water service. Existing yard hydrants not having such approved backflow prevention device shall be retrofitted with such a device or removed at the direction of the Town at the property owner's expense. A failure to remove a noncompliant existing yard hydrant after direction by the Town may result in water service being shut off by the Town. Any disconnection shall follow the procedure set out in § 460-14. The Town shall approve any backflow device used in all water systems.

4.2.5. Disconnect.

All related water connections to the structure being demolished shall be sealed in a manner so as to prevent accidental or intentional infiltration or seepage of ground- or surface water or placement of other foreign matter into the Town's water system. The adequacy of the sealing method shall be determined by the Water Commissioner or Town employee acting on behalf of the Water Commissioner.

4.3 Testing and disinfection.

4.3.1 Chlorine.

Chlorine shall be granular or tabular calcium hypochlorite, liquid sodium hypochlorite or liquid chlorine (gas at atmospheric pressure).

4.3.2 Pressure testing.

- A. All newly installed water mains and services on new mains shall be pressure tested. The test shall be performed in accordance with AWWA C 600 except allowable leakage will be 0.00008 gallon per inch diameter per foot of pipe per hour. The test shall be made at 150 pounds per square inch and shall be at least two hours in duration.
- B. When a new main is tested all services on the main shall be in place and they shall be shut off at the curb stop. At points where pressure reaction and movement may occur, the pipe shall be properly blocked or braced. Where permanent blocking is not required, the contractor shall furnish and install temporary blocking during the test period.
- C. All leaks will be corrected and defective material replaced by the contractor. When a new service line is installed on an existing line, all the connections shall be visibly free of leakage at the Town's pressure.
- D. The contractor shall supply all materials and labor necessary to test the system. The pressure gauge shall be calibrated to the satisfaction of the Town Engineer.

4.3.3 Flushing.

- A. Sections of pipe to be disinfected shall first be flushed to remove any solids or contaminated material that may have become lodged in the pipe. If no hydrant is installed at the end of the main, then a tap should be provided large enough to develop a velocity of at least 2.5 feet per second in the main.
- B. One two-and-one-half-inch hydrant opening will, under normal pressures, provide this velocity in pipe sizes up to and including twelve-inch. Taps required by the contractor for air release, chlorination or flushing purposes shall be provided by him as a part of the construction of the water main.

4.3.4 Mains.

Before being placed into service, all new mains with services in place shall be chlorinated.

- A. Application of chlorine. Chlorine shall be applied in accordance with AWWA C 601 to give a dosage of not less than 50 mg/l available chlorine in the pipe. Valves shall be manipulated so that the strong chlorine solution in the line being treated will not flow back into the line supplying the water. Check valves may be used if desired.
- B. Contact period. Treated water shall be retained in the pipe at least 24 hours. After this period, the chlorine residual at pipe extremities and at other representative points shall be at least 25 mg/l.
- C. Chlorinating valves and hydrants. In the process of chlorinating newly laid pipe, all valves or other appurtenances shall be operated while the pipeline is filled with the chlorinating agent.
- D. Final flushing. Following chlorination, all treated water shall be thoroughly flushed down the newly laid pipe at its extremity. It shall be flushed until the replacement water throughout its length shows, upon testing, a chlorine residual not in excess of that normally carried in the system.
- E. Testing for bacteria. After final flushing but before the water line is put into service, the Town Engineer will arrange for the taking of water samples and have them tested for bacteria. Should the test show more than one coliform bacteria colony for each 100 milliliters of sample, the chlorination procedure shall be repeated.

4.3.5 New services.

When a new service is installed on an existing main, enough granular or tabular calcium hypochlorite shall be added into the service line at the corporation stop to provide 50 parts per million available chlorine in the pipe. When the installation is complete, the corporation stop shall be opened to allow the piping to fill and then closed. After a

period of one hour the line shall be flushed through the facility serviced until the chlorine residual is less than or equal to the Town's conforming residual.

5. Streets, Sidewalks, Curb, and Gutter

5.1 Related provisions; scope.

- A. Provisions on related work specified elsewhere in this chapter include cast-in-place concrete (Article VII of this chapter).
- B. This article covers the furnishing, installation and repair of streets and related items wherever required by the Town.

5.2 Concrete.

Concrete shall be used in sidewalks, curb and gutter, and shall conform to Article VII of this chapter.

5.3 Asphaltic pavement.

Asphaltic pavement materials shall be as follows:

- A. Oil. Oil shall conform to AASHTO M 81 or AASHTO M 82.
- B. Aggregate. The aggregate used for the base and chip coat shall be of good quality clean crushed gravel meeting the following gradation requirements:

Sieve Designation	Percent Passing	
	Base	Chip Coat
1 1/2 inches	100%	
1 inch	95% to 100%	
3/4 inch	—	100%
1/2 inch	—	95% to 100%
No. 4	45% to 65%	0% to 15%
No. 8	33% to 53%	0% to 7%
No. 200	3% to 12%	0% to 2%

5.4 Workmanship.

All street construction as required by the Town shall comply with Drawings R-1 through R-9, on file in the Town Engineer's office, and shall comply with the workmanship provisions set forth through § 180-81.

5.5 Curb and gutter.

- A. The minimum grade of curbs and gutters will be 0.3% or 0.003 feet per foot slope. Alignment variance shall not exceed 1/4 inch each side from center line. Continuous length is preferred, from a minimum of eight feet to a maximum of 50 feet. Expansion joint material 1/2 inch thick is required at not more than fifty-foot intervals. A three-foot-wide by four-inch-thick mat of two-inch-minus crushed gravel shall be placed prior to setting curb forms or slip forming. The gravel shall be compacted to 95% optimum density as determined by AASHTO T-99-C. Curb and gutter shall be given a fine brush finish, with brush strokes parallel to expansion joints.
- B. Backfill in areas where lawns and plantings exist shall be selected topsoil placed to a minimum depth of three inches.
- C. Backfill shall be placed within five working days after curing of the curb is completed.
- D. Excavated areas adjacent to driveways and other improvements shall be replaced in kind.

5.6 Sidewalks.

- A. Walks shall be placed on a two-inch-thick mat of three-fourths-inch-minus crushed gravel. The gravel shall be compacted to 95% optimum density as determined by AASHTO T-99-C. Walks shall have a light broomed finish and troweled joints at five-foot intervals. Expansion joint material 1/2 inch thick is required at intervals not to exceed 50 feet. Walks on residential streets shall have a minimum width of four feet; collector and arterial street walks shall have a minimum width of five feet.
- B. Backfill in areas where lawns and plantings exist shall be selected topsoil placed to a minimum depth of three inches.
- C. Backfill shall be placed within five working days after curing of the walk is completed.
- D. Excavated areas adjacent to driveways and other improvements shall be replaced in kind.

5.7 Pavement laying.

Pavement shall be constructed using the inverted penetration method described in this section or a plant-mix asphalt approved by the Town Engineer.

- A. All material found to be unsuitable by the Town Engineer shall be removed from the area designated for roads. In no case shall material deemed unsuitable to the Town Engineer be allowed in or under the embankment. The stripping of unsuitable material shall be in addition to 12 inches of scarification and to a depth determined by the Town. Soil shall then be brought to within 4% of optimum moisture content and compacted to 95% of optimum density as determined by AASHTO T-99.
- B. Subbase material shall be placed to an elevation four inches below finished grade. The material shall be compacted to 95% of optimum density at 4% of optimum moisture in successive layers of not more than eight inches loose depth for the full width of the cross-section.
- C. Spread one-inch-minus crushed gravel uniformly four inches thick and compact to 95% of optimum density as determined by AASHTO T-99-C. Apply MC 70 oil heated to a temperature between 120° F. and 200° F. at a rate of 0.4 gallon per square yard. The MC 70 oil may be applied only when the air temperature is above 40° F.
- D. Allow the oil to cure for two days and then apply the RC 800 oil heated to a temperature between 175° F. and 250° F. at a rate of 0.3 gallon per square yard. The air temperature must be above 50° F. at the time of application. Apply a chip coat of one-half-inch-minus gravel at a rate of 30 pounds per square yard. Roll the gravel into the oil to fill the voids and leave a smooth surface with no slick spots. Finished grades shall be within 0.1 feet of planned grades.

5.8 Two-inch surfacing

5.8.1 Materials.

- A. Prime coat. Liquid asphalt for use as a prime coat under asphalt concrete shall be MC-70 liquid asphalt conforming to AASHTO M 81 or M 82. This will conform to Grading W of the Wyoming Highway Department, Section 703.06.
- B. Hot-plant mix. Hot-plant mix with maximum five-eighths-inch aggregate, conforming to the Standard Specifications for Road and Bridge Construction of the Wyoming Highway Department.
- C. Asphalt cement. Asphalt cement shall be 85-100 penetration paving asphalt conforming to AASHTO M20, or as specified by the Town Engineer.
 - a. Construction coat material shall meet the gradation requirements below:

Sieve Size	Percent Passing
1/2 inch	100%
3/8 inch	95% to 100%
No. 4	10% to 30%
No. 8	0% to 15%
No. 200	0% to 2%

- b. When required, blotter material shall conform to the following gradation requirements:

Sieve Size	Percent Passing
3/4 inch	100%
No. 4	60% to 100%
No. 200	0% to 16%

5.8.2 Procedure.

"Asphalt pavement" means furnishing and placing asphalt over compacted base course material in the street as stipulated in this section and § 180-85.

- A. Existing pavement shall be trimmed to a straight line, removing any pavement that has been damaged or broken, or is unsound, to provide a smooth edge for joining the new pavement. After the base course has been compacted, apply prime coat at 0.30 to 0.35 gallons per square yard to the surface of the base course and to the edges of the existing pavement. After the prime coat has set, but before it loses its adhering properties, place the hot-plant mix asphalt concrete on the prepared base over the street to the depth designated on the construction drawings. Spread and level the asphalt with hand tools or by use of a mechanical spreader, depending upon the area to be paved. Bring the asphalt concrete to the proper grade and compact by rolling or hand tamping where rolling is impossible.
- B. Roll with power rollers capable of providing compression of 30 pounds per linear inch. Begin the rolling at the edges of the pavement. Overlap the existing surface at least one-half the width of the roller and progress toward the center of the resurfaced area. Overlap each preceding tract by at least 1/2 the width of the roller and make sufficient passes over the entire area to produce the desired results. The finished surface of the new paving shall be flush with the existing surface and shall conform to the applicable workmanship requirements of the Wyoming State Highway Department.

5.8.3 Inspection and testing.

All workmanship and materials shall be subject to inspection and testing by the Town Engineer. Materials and equipment required for testing shall be provided at no additional cost, prior to and/or during construction.

5.9 Resurfacing

All streets within the Town previously constructed using the inverted penetration and chips method shall be resurfaced with a second coat as determined by the Town Council in accordance with the minimum standards set forth in §§ 180-87 and 180-88.

5.9.1 Materials.

Resurfacing materials shall be as follows:

- A. Oil. Oil shall conform to AASHTO-M-81 or AASHTO-M-82.
- B. Aggregate. The aggregate used for the chip coat shall be of good quality, clean crushed gravel meeting the established gradation requirements set forth in § 180-77B.

5.9.2 Procedure.

Existing pavement shall be trimmed to a straight line, removing any pavement that has been damaged, broken or is unsound, to provide a smooth edge for joining the new payment. The surface to be overlaid shall be swept and/or washed clean before surfacing material is to be spread. To spread the surface coat, first apply RC-800 oil, heated to a temperature between 175° F. and 250° F. at a rate of 0.30 gallons per square yard. The air temperature must be above 50° F. at the time of application. Apply a chip coat of one-half-inch-minus gravel at a rate of 30 pounds per square yard. Roll the gravel into the oil to fill all voids and leave a smooth surface with no slick spots. The finished grade shall be within 0.10 foot of planned grades.

5.10 New subdivision and addition streets

With the growth of the Town and the increasing maintenance cost for chip and seal streets, it is necessary for the Town to require asphalt pavement of new streets to provide better streets with less maintenance costs to the Town. All new streets within new subdivisions in Town and all new additions to the Town shall have paved roads in accordance with the minimum standards set forth through § 180-91.

5.10.1 Materials.

Materials for the streets described in § 180-89 shall be as follows:

- A. Prime coat. Liquid asphalt for use as a prime coat under asphalt concrete shall be MC-70 liquid asphalt conforming to AASHTO-M-81 or M-82. This will conform to Grading W of the Wyoming Highway Department, Section 703.06, as amended.
- B. Hot plant mix. Hot plant mix shall be of maximum 5/8 inch aggregate, conforming to the Standard Specifications for Road and Bridge Construction of the Wyoming Highway Department.
- C. Asphalt cement. Asphalt cement shall be 85-100 penetration paving asphalt conforming to AASHTO-M20, or as specified by the Town Engineer.
- D. Gradation.

- a. Construction coat materials shall meet the gradation requirements specified as follows:

Sieve Size	Percent Passing
1/2 inch	100%
3/8 inch	95% to 100%
No. 4	10% to 30%
No. 8	0% to 15%
No. 20	0% to 2%

- b. When required, blotter materials shall conform to the following gradation requirements:

Sieve Size	Percent Passing
3/4 inch	100%
No. 4	60% to 100%
No. 200	0% to 16%

5.10.2 Workmanship.

All streets shall be constructed with a Type B asphalt pavement having a minimum of two-inch mat surface and meeting the workmanship provisions set forth in §§ 180-81 through 180-85.

6. Trench Work

6.1 Scope.

This article covers trenching and surface restoration for underground pipelines and appurtenances.

6.2 Materials.

Select granular soil free from organic material, rocks, clods and frozen lumps greater than one inch in any dimension shall be used for granular bedding material.

6.3 Trenching and bedding.

All trenching and bedding shall be as shown on Drawing W-1, on file in the Town Engineer's office. No pipe shall be laid in standing water. Water shall be pumped out or otherwise removed until pipelaying is completed and backfilling has begun. Any pipeline crossing federal, state or county highways shall be constructed only after any required permits are obtained. In addition, the Class A backfill method outlined in § 180-96 shall be modified as needed to comply with the appropriate agency's requirements as to construction method and/or backfill material, compactive effort and surface treatment.

6.4 Backfill and compaction.

Backfilling and compaction of all trenches and excavation shall be Class A or Class B as outlined in §§ 180-96 and 180-97, and as shown on Drawing W-1, on file in the Town Engineer's office. Cleanouts require special consideration as detailed on Drawing S-7, on file in the Town Engineer's office.

6.5 Class A mechanical compaction backfill.

Procedure for Class A backfill, mechanically compacted, shall be as follows:

- A. The entire depth of the trench, including the pipe zone of all pipelines placed within the traveled way, including parking areas, within the Town rights-of-way and other special designated areas shall have Class A compaction.
- B. Trenches requiring Class A compaction shall be compacted in six-inch layers. The backfill material for each layer shall be evenly wetted with enough water to assure it being within plus or minus 2% of its optimum moisture content and shall be thoroughly compacted by hand-operated or mechanically operated means to a density of at least 90% of its standard maximum density (as determined by AASHTO designation T-99-C). The initial portion of Class A backfill shall consist

of granular bedding material placed and compacted carefully around, and to a twelve-inch depth over, the pipe to assure adequate material is provided for bedding and pipe support. This material shall be carefully placed, and shall consist of selected well-graded granular material not to exceed one inch in size.

- C. Within the traveled way, the top eight inches shall be backfilled with compacted three-fourths-inch gravel. Outside the traveled way, the top eight inches may contain native material removed by excavation; provided, however, that no soft or highly compressible soils shall be used. The work will not be considered complete until all backfilling has been accomplished. The surface shall be smoothly graded and finished to match existing material and grade, or as otherwise specified. See Article V, street specifications. All excess material, including excavated rocks and boulders, shall be disposed of in an approved area designated by the Town Engineer. If final settlement is in excess of 1/4 inch below the surrounding undisturbed pavement, additional work will be required to complete the backfill to grade and refinish as previously stipulated.

6.6 Class B water settling backfill.

The procedure for Class B backfill, water settling, shall be as follows:

- A. The entire depth of the trench, including the pipe zone, or all pipelines placed outside the traveled way, including nongraded or nonparking areas within the Town rights-of-way, may be compacted by water settling; provided, however, that water settling shall not be permitted in any trench where the native soil does not consist of sands, gravels, sandy gravels or silts, or otherwise free-draining granular materials.
- B. Trenches outside the traveled way where impervious materials such as clays or clayey loams are encountered shall be backfilled in accordance with Class A compaction, except that the lift thickness may be increased to 12 inches and the compactive effort may be reduced to 80% of standard maximum density.
- C. Class B backfill shall be placed in three distinct operations:
 - a. The initial portion of Class B backfill shall consist of granular bedding material placed around and to a twelve-inch depth over the pipe to assure adequate material is provided for bedding and pipe support. This material shall be carefully placed and shall consist of selected well-graded granular material not to exceed one inch in size.
 - b. The second portion of backfill may be carefully placed by machine, or hand, and shall consist of excavated and borrow material as necessary to completely overfill the trench. A water jet with sufficient volume and pressure shall be inserted vertically in the trench fill at a spacing not to exceed the trench depth, and worked in an up-and-down motion to completely saturate

the trench backfill throughout its depth at each location. Considerable settlement of the fill should occur during this operation.

- c. The third phase shall include the placing of additional material to slightly overfill the settled trench to compensate for settlement, and light compaction with rubber-tired or other rolling equipment. This material shall be free-draining graded granular soil or silty clayey soil that does not contain excess moisture. The third phase shall be delayed until settlement has occurred from the previous water jetting operation. The surface shall be smoothly graded and all excess material, including excavated rocks and boulders, removed from the site. If final settlement is in excess of two inches below the surrounding undisturbed soil, additional work will be required to complete the backfill to grade and refinish as previously stipulated.

7. Cast in Place Concrete

7.1 Materials.

Materials for cast-in-place concrete shall be as follows:

- A. Aggregate shall be in accordance with ASTM designation C 33. Maximum size shall not be more than $1/5$ the minimum dimension between forms, nor more than $3/4$ the minimum clear spacing between reinforcing bars, no larger than three inches.
- B. Cement shall be portland cement in accordance with ASTM C 150, Type II.
- C. Water shall be clean and free from mud, oil, organic matter and other deleterious substance.
- D. Air entraining agent shall conform to ASTM C 260.
- E. Reinforcing bars shall be ASTM A 615, grade 40.

7.2 Ready-mix.

Ready-mixed concrete is preferred. Ready-mixed concrete shall be mixed and delivered in accordance with ASTM C 94.

7.3 Mix proportions.

All concrete shall contain not less than six sacks of cement per cubic yard and 5% to 7% entrained air. Maximum slump is four inches. Concrete shall develop a twenty-eight-day strength of not less than 3,500 psi when sampled and tested in accordance with ASTM C 31 and C 39.

7.4 Preparation and pouring.

Prior to placing concrete, all debris shall be removed from conveying equipment and the space to be occupied by the concrete. Forms shall be wetted or oiled. Concrete shall be deposited as near to the final position as possible, and shall be vibrated to reduce air pockets and close snugly against forms and embedded materials.

7.5 Cold weather protection.

If the surrounding air temperature is below 40° F. at the time of placement, all concrete shall have a temperature between 50° F. and 90° F., and shall be maintained at a temperature not less than 45° F. for at least 72 hours or for as much time as is necessary to ensure a proper rate of curing of the concrete. Salts or other chemicals shall not be used to prevent freezing.

7.6 Curing.

Protection against the loss of moisture from the surface of the concrete shall be accomplished by keeping the surface continuously wetted for seven days. Approved curing compounds may be used in place of continuous sprinkling of water. In no case shall curing compounds be applied to surfaces that will be bonded to new concrete later.

8. Drainage

8.1 Authority.

Pursuant to W.S. § 15-1-103(a)(xli) of the 1977 republished edition of the Wyoming State Statutes (or any amendments thereto), to protect the health, safety and welfare of the present or future population in areas within Town, construction and/or development of any property within the corporate limits of the Town which does not make provisions for adequate drainage of stormwater, floodwater runoff, subwater or standing surface water may be prohibited.

8.2 Review required.

Building permits for single-family dwelling units, remodeling or additions thereto, in an approved subdivision, require no drainage review unless unusual building site

conditions are encountered as determined by the Town Engineer. All other building projects which incorporate off-street parking or other features which could affect area drainage will be subject to review by the Town's Engineer.

8.3 Planning and design criteria.

The applicant/developer, unless excluded under § 196-2, is responsible for and shall contact the Town Engineer prior to proceeding with a building permit, subdivision plat, development plan or PUD, for the purpose of discussing any requirements of the project and establishing planning and designing criteria for that project.

8.4 Application; minimum requirements.

- A. The applicant shall furnish any information as may be required by the Town Engineer to evaluate the development proposal(s). The Town may reject or withhold approval of any building permit, subdivision plat, development plan or planned unit development (PUD) if any applicant fails or refuses to provide information requested by the Town to evaluate site conditions. The Town shall not approve any building permit, subdivision plat, development plan or planned unit development (PUD) unless the applicant provides for adequate drainage of stormwater, floodwater runoff, subwater (to a depth of 2 1/2 vertical feet below finished grade) or standing surface water. The stormwater or floodwater drainage system shall be separate and independent of the Town's sanitary sewer system. Drainage systems, where required, shall be approved by the Town's Engineer.
- B. References to the term "floodwater or stormwater runoff" also include subwater (to a depth of 2 1/2 feet below finished grade) or standing surface water.

8.5 Pipe or ditch location.

The applicant may be required to transmit by pipe or open ditch any spring, subwater or surface water that may exist either previous to or as a result of construction or development. Such drainage facilities shall be located within the road right-of-way where feasible, or in perpetual unobstructed easements of sufficient width and depth to accommodate anticipated drainage flows as determined by the Town Engineer.

8.6 Public stormwater facilities.

- A. When a public storm sewer facility is accessible, the applicant shall install drainage facilities to connect to existing public storm sewer facilities. If no public storm sewer facilities are located within 500 feet of the site boundary, adequate provisions shall be made for the disposal of stormwater runoff, subject to the Town Engineer's specifications.
- B. If a connection to a public drainage facility will eventually be provided, as determined by the Town, the applicant shall make arrangements for future stormwater disposal by a public stormwater drainage facility at the time final construction or plat approval is given by the Town. Provisions for such connection shall be incorporated into a performance guarantee agreement with appropriate surety.

8.7 Upstream drainage areas.

The applicant's drainage facility shall be large enough to accommodate potential runoff from the entire upstream drainage area, whether inside or outside the applicant's property. The applicant shall provide sufficient information to the Town Engineer so that the Town Engineer can determine the size of the drainage facility necessary to adequately transmit or retain stormwater or floodwater runoff generated by upstream drainage areas in their current state and runoff for the proposed development.

8.8 Downstream drainage areas.

The applicant shall provide sufficient information to the Town Engineer so that the Town Engineer may evaluate the effects of the proposed construction or development combined with flows generated by upstream drainage areas on downstream drainage facilities to determine appropriate improvements required to adequately handle anticipated stormwater or floodwater runoff. The Town shall withhold approval of any building permit, subdivision plat, development plan or PUD permit until such drainage provisions have been made by the applicant.

8.9 Special site conditions.

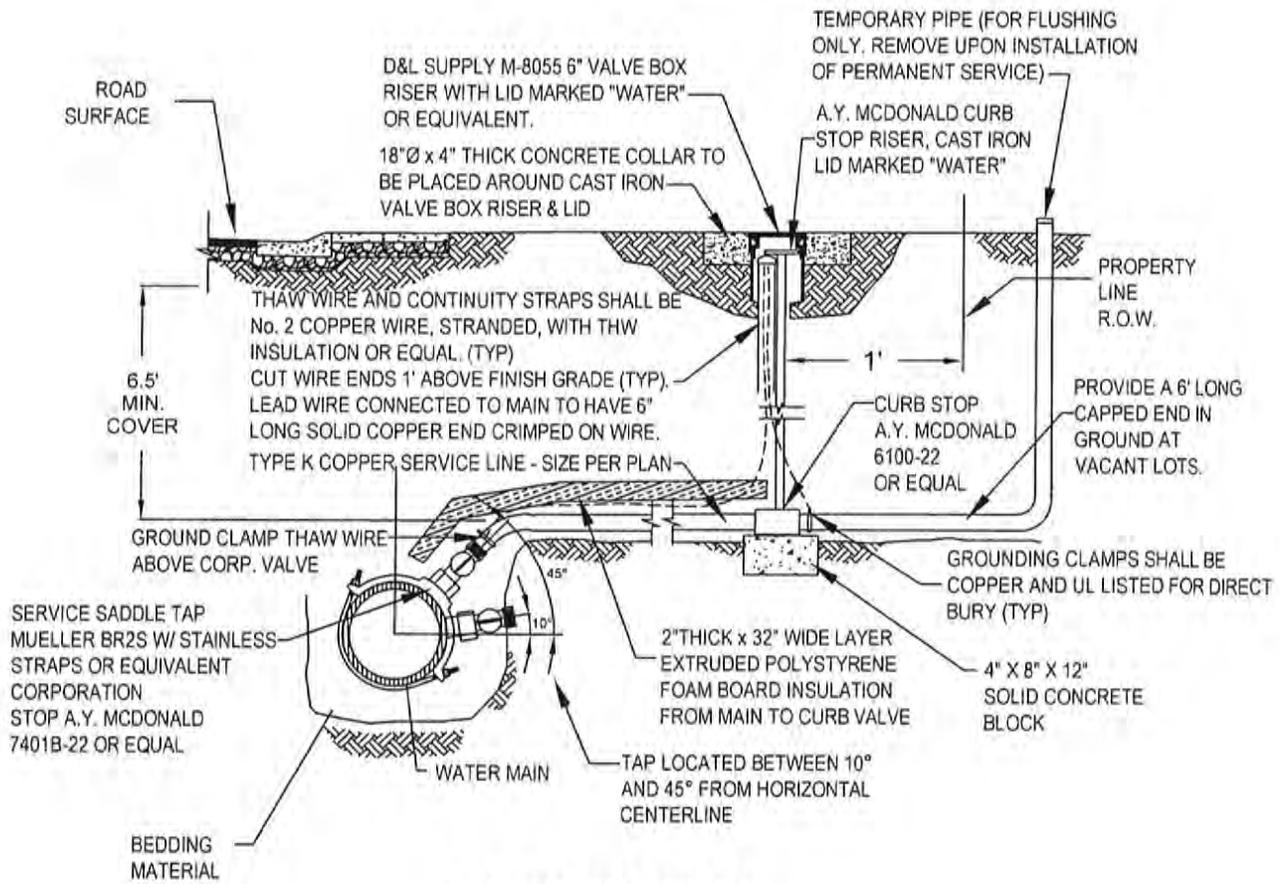
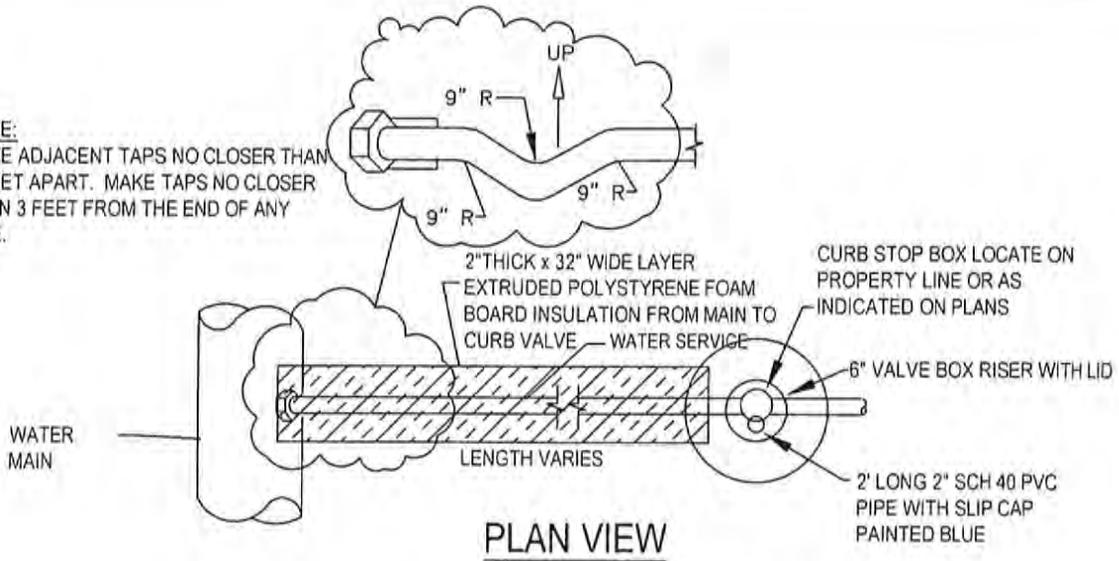
Whenever a building permit application, subdivision plat, development permit application or PUD application is submitted for an area which is subject to subwater conditions and/or inadequate drainage, the Town may require, as a condition of

approval, the applicant to fill, compact and grade the affected area(s) of the property to a height sufficient to place the elevation of streets, lots, improvements and other features high enough to provide adequate drainage. Filling, compacting and grading criteria shall be established by the Town Engineer.

8.10 Easements.

The applicant shall provide a perpetual stormwater drainage right-of-way of sufficient size, as determined by the Town's Engineer, across property outside road lines to a natural watercourse or other drainage facility. Low-lying areas subject to flooding or overflowing during storm periods shall be preserved and maintained as open space. In establishing drainage easements, the applicant shall provide sufficient access to the drainage easements to allow the Town access to and working space within the drainage easement for maintenance purposes.

NOTE:
MAKE ADJACENT TAPS NO CLOSER THAN 3 FEET APART. MAKE TAPS NO CLOSER THAN 3 FEET FROM THE END OF ANY PIPE.



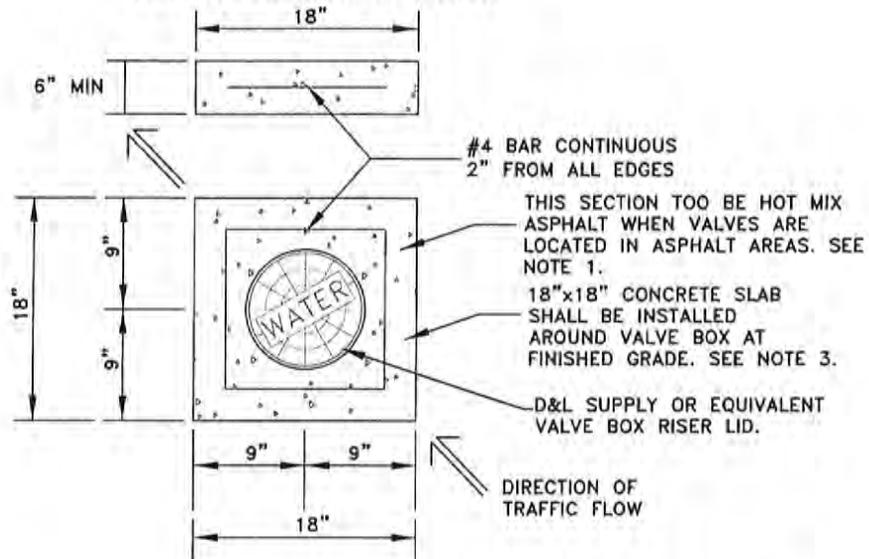
TYPICAL WATER SERVICE W/ THAWING & INSULATION DETAIL
NOT TO SCALE

SPEC. REF. 1
Town of Pinedale
Construction Specifications
2017

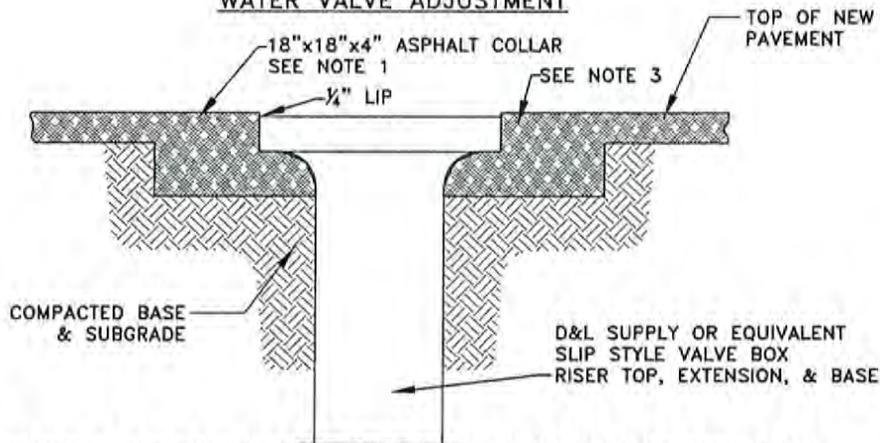


TOWN OF
PINEDALE
WYOMING 35

**WATER VALVE
NON-ASPHALT INSTALLATION**



WATER VALVE ADJUSTMENT



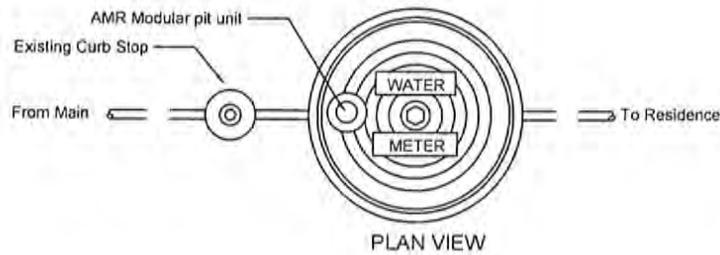
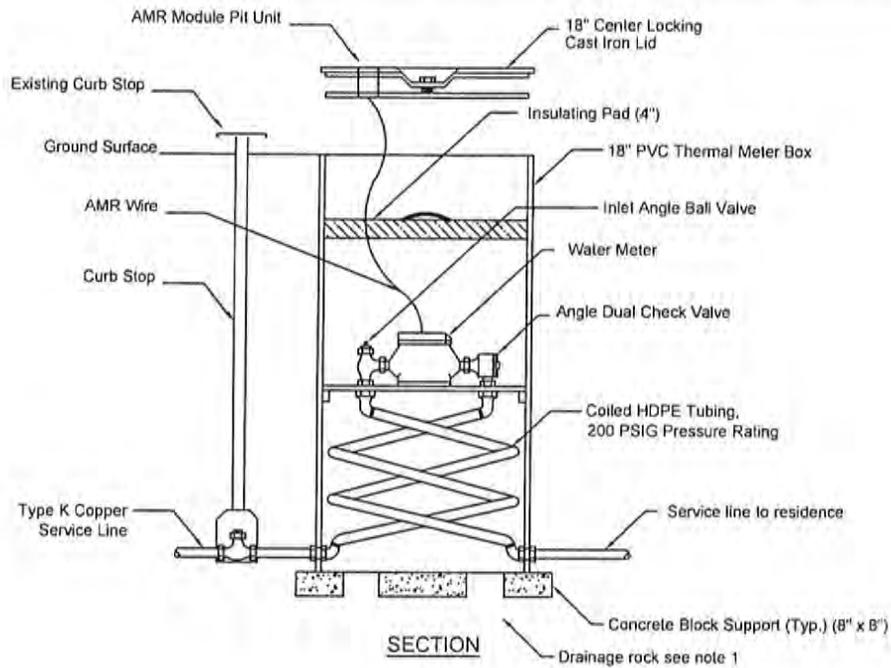
NOTES:

- 1.) WATER VALVES IN ASPHALT SECTIONS. ADJUST WATER VALVES UPWARD OR DOWNWARD AS REQUIRED. FINAL ADJUSTMENT SHALL MADE DURING HOT MIX PAVING OF ASPHALT STREETS AND/OR SECTIONS; CONTRACTOR SHALL ADJUST VALVE RISER TO FINAL GRADE WHILE ASPHALT IS HOT; ANY IMPERFECTIONS TO ROAD SURFACE (I.E. GRADES, HUMPS, BUMPS, ETC.) SHALL BE RAKED OUT OF THE ASPHALT WHILE HOT PRIOR TO ROLLER COMPACTION.
- 2) NO PAYMENT SHALL BE MADE FOR ADJUSTMENT OF NEW VALVES TO FINAL GRADE.
- 3.) WATER VALVES IN NON-ASPHALT SECTIONS. A CONCRETE COLLAR SHALL BE POURED AROUND VALVE RISER(S) TO THE PLAN VIEW SHOWN ABOVE WHEN VALVES ARE NOT IN HOT MIX ASPHALT SECTIONS. THESE MAY INCLUDE BUT ARE NOT LIMITED TO VALVES IN SIDEWALKS, MISC. CONCRETE, NATURAL SOILS, ETC.
- 4) WATER VALVE BOX RISERS SHALL BE SLIP STYLE. CONTRACTOR IS RESPONSIBLE FOR ALL RISER MATERIALS NECESSARY TO ADJUST THE WATER VALVE TO FINAL GRADE. THIS INCLUDES BUT NOT LIMITED TO SLIP BASE, SLIP TOP, SLIP EXTENSIONS, RISERS, AND LIDS. ANY LENGTH ADJUSTMENT TO SLIP SECTIONS SHALL BWE NEATLY SAWCUT. ANY SLIP SECTION WITH CRACKS, IRREGULAR CUTS OR BREAKS WILL BE REJECTED.

**WATER VALVE
ADJUSTMENT DETAIL
NOT TO SCALE**

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Town of Pinedale
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2017





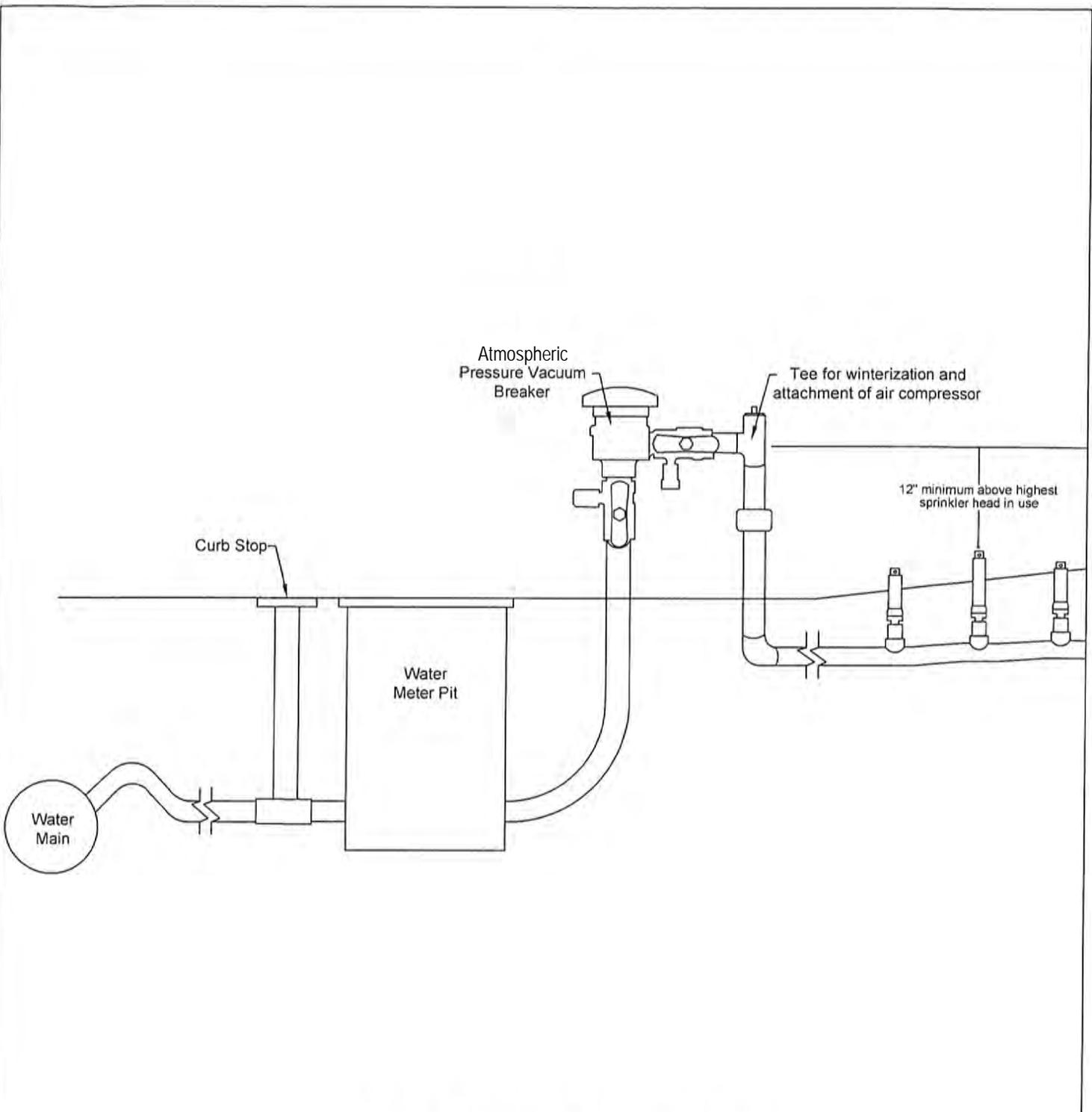
NOTE:

1. THE METER PIT SHALL BE BEDDED IN 3/4" MAX CLEAN DRAIN ROCK UNLESS ALTERNATE APPROVED BY ENGINEER.
2. INSTALL NEW SERVICE LINE AS REQUIRED WITH THE MIN. COVER SHOWN. EXCAVATE AS NECESSARY TO PROVIDE AS ACCEPTABLE WATER TIGHT CONNECTION AND SMOOTH TRANSITION WITHOUT KINKS ETC. BETWEEN NEW AND EXISTING SERVICE LINES.
3. METER PIT NOT ALLOWED WITHIN DRIVEWAY OR SIDEWALK
4. FINISH ELEVATION OF METER PIT SHALL ALLOW FOR DRAINAGE WAY FROM PIT.
5. METER SHALL BE INSTALLED WITHIN TOWN RIGHT OF WAY IF POSSIBLE. IT SHOULD NOT BE LOCATED UNDER A FENCE OR BEHIND A PROPERTY OWNER FENCE.

WATER METER PIT DETAIL
NO SCALE

SPEC. REF. 3
Town of Pinedale
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2017

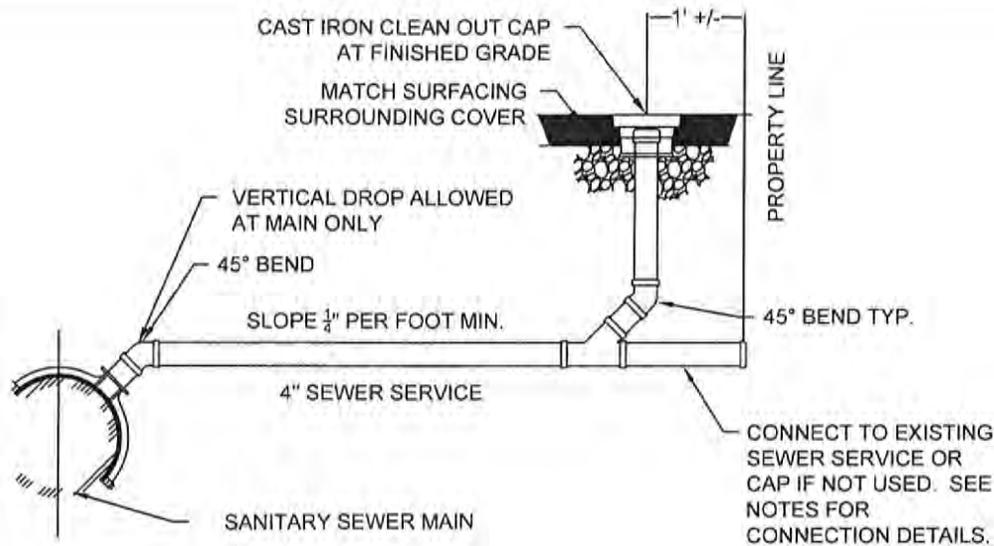




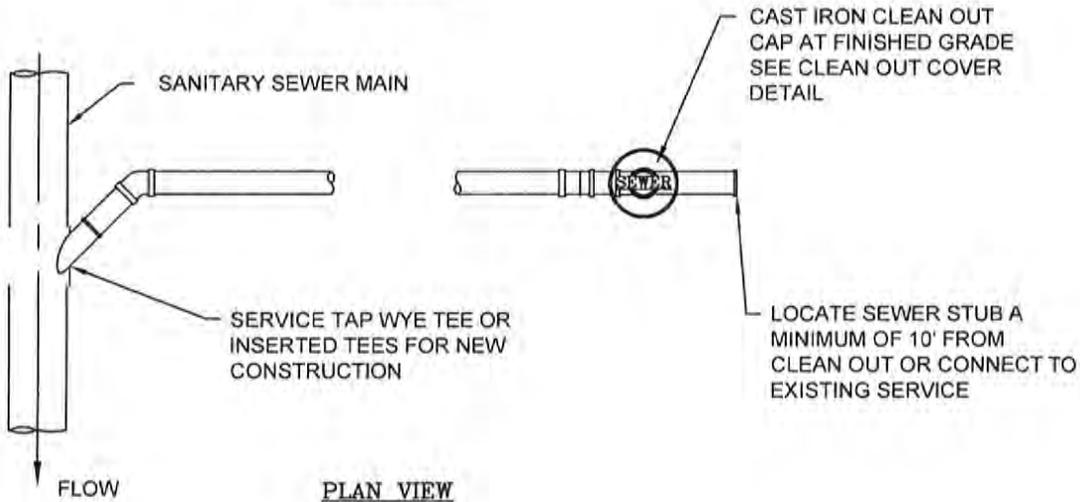
WATER METER PIT AND IRRIGATION
SERVICE DETAIL

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ELEVATION



PLAN VIEW

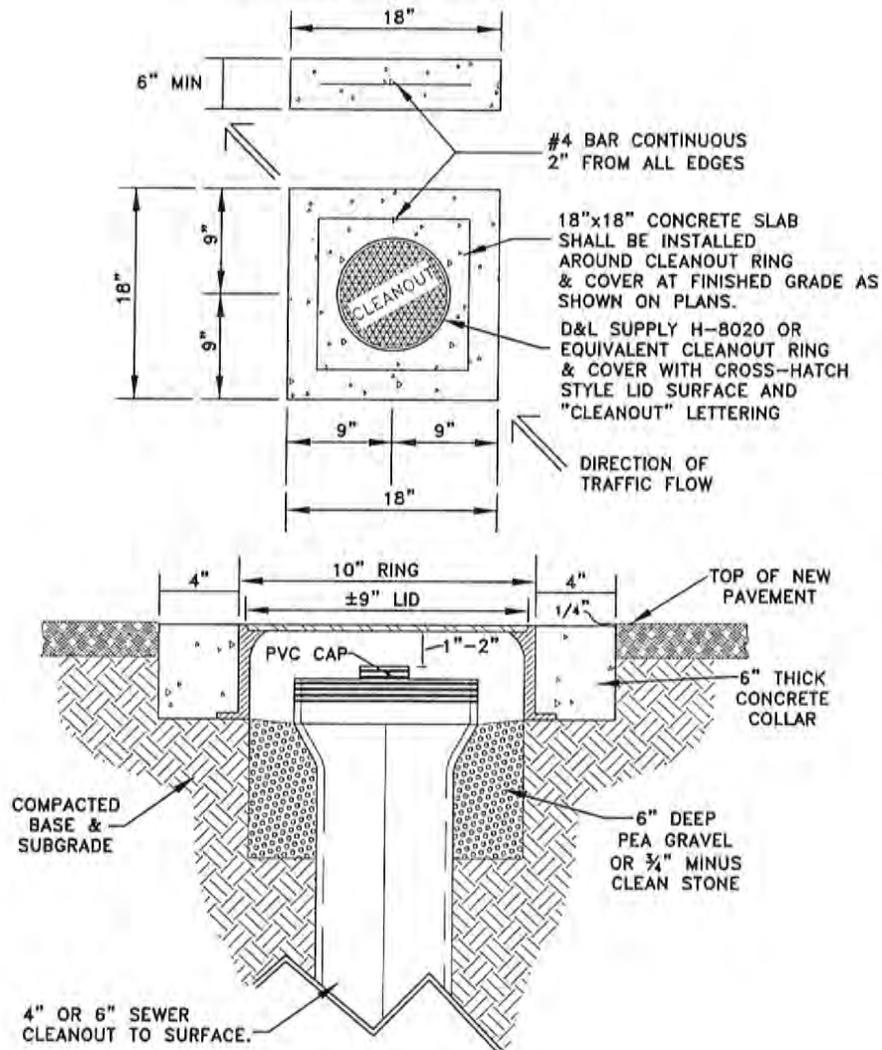
NOTES:

1. ALL SEWER MAINS AND SERVICES SHALL BE BEDDED IN 3/4" MAX CLEAN DRAIN ROCK UNLESS ALTERNATE APPROVED BY ENGINEER.
2. ALL SEWER MAINS AND SERVICES SHALL BE SDR 35 PVC PIPE.
3. PVC TO PVC/ABS SERVICE CONNECTIONS SHALL REQUIRE SMITH-BLAIR 226 FULL CIRCLE CLAMP OR EQUIVALENT.
4. PVC TO VCP SERVICE CONNECTIONS SHALL REQUIRE FERNCO 1002 SERIES COUPLING OR EQUIVALENT.
5. NO HORIZONTAL BENDS ALLOWED IN SEWER SERVICE BETWEEN MAIN AND CLEAN OUT EXCEPT AT WYE CONNECTION AS SHOWN. CLEANOUT IS REQUIRED ON ANY BEND GREATER THAN 11.25° UF NEEDED AS FIELD CONDITIONS REQUIRE AND APPROVED BY THE ENGINEER.

SEWER SERVICE DETAIL
NO SCAFF



**SEWER CLEANOUT
LOCATED IN ASPHALT OR CONCRETE
(CONCRETE INSTALLATION SHOWN)**



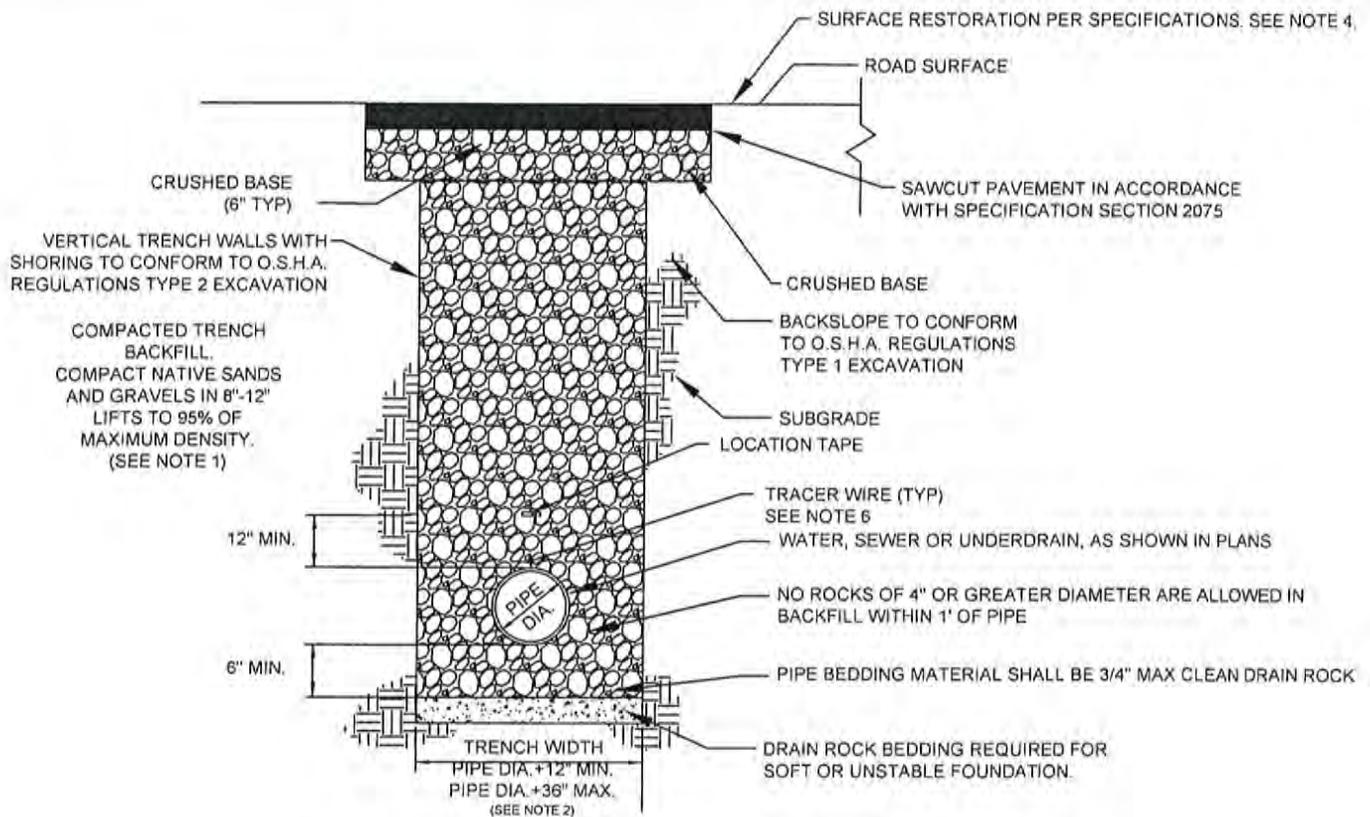
NOTES: (CONCRETE INSTALLATION SHOWN)

- 1.) CLEANOUTS IN ASPHALT SECTIONS. ADJUST UPWARD OR DOWNWARD AS REQUIRED. FINAL ADJUSTMENT SHALL BE MADE DURING HOT MIX PAVING OF ASPHALT STREETS AND/OR SECTIONS; CONTRACTOR SHALL ADJUST RING TO FINAL GRADE WHILE ASPHALT IS HOT; ANY IMPERFECTIONS TO ROAD SURFACE (I.E. GRADES, HUMPS, BUMPS, ETC.) SHALL BE RAKED OUT OF THE ASPHALT WHILE HOT PRIOR TO ROLLER COMPACTION.
- 2.) CLEANOUTS IN CONCRETE SECTIONS. A CONCRETE COLLAR SHALL BE POURED AROUND RING TO THE PLAN VIEW SHOWN ABOVE WHEN CLEANOUTS ARE NOT IN HOT MIX ASPHALT SECTIONS. THESE MAY INCLUDE BUT ARE NOT LIMITED TO CLEANOUTS IN SIDEWALKS, MISC. CONCRETE, DRIVEWAYS, ETC.
- 3.) PAYMENT FOR CLEANOUT RING & COVERS SHALL BE INCLUDED AS PART OF THE BID SCHEDULE UNIT PRICE FOR EACH SEWER SERVICE INSTALLATION. PAYMENT FOR SEPARATE CLEANOUT RING & COVER ONLY SHALL BE MADE PER THE BID SCHEDULE UNIT PRICE OR AS AN EXTRA ITEM AS ENGINEER/OWNER DEEMS APPROPRIATE.

**SEWER CLEANOUT COVER
INSTALLATION DETAIL
NOT TO SCALE**

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NOTES:

1. TRENCH BACKFILL MUST BE 1/2" TO 1-1/2" DRAIN ROCK. MATERIAS SHALL BE APPROVED BY TOWN DEPARTMENT OF ENGINEERING AND ZONING OR DEPARTMENT OF PUBLIC WORKS.
2. WHERE TRENCH PASSES THROUGH EXISTING PAVEMENT, THE PAVEMENT SHALL BE CUT IN ACCORDANCE WITH SPECIFICATION SECTION 2075-3.01.
3. PROVIDE 12" MINIMUM HORIZONTAL CLEARANCE BETWEEN PIPE WALLS FROM MULTIPLE PIPES INSTALLED IN SAME TRENCH. MATCH INVERT ELEVATIONS UNLESS OTHERWISE SPECIFIED.
4. PAVED ROAD SURFACING SHALL BE CUT AND REPLACED WITH A MINIMUM WIDTH OF 4'.
5. PAVEMENT SMOOTHNESS WHEN COMPLETE MUST BE APPROVED BY TOWN DEPARTMENT OF ENGINEERING AND ZONING OR DEPARTMENT OF PUBLIC WORKS.

TYPICAL WATER, SEWER, TRENCH AND DEWATERING DETAIL
NO SCALE

SPEC. REF. 7

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