

# **North Pecos Water & Sanitation District**

## **Engineering Standards, Rules & Regulations**



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**INDEX OF ENGINEERING STANDARDS, RULES & REGULATIONS OF THE NORTH PECOS  
WATER AND SANITATION DISTRICT**

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**ENGINEERING STANDARDS, RULES, & REGULATIONS  
OF  
THE NORTH PECOS WATER AND SANITATION DISTRICT**

**PREAMBLE**

**Water – Engineering Standards, Rules and Regulations**

The North Pecos Water and Sanitation District (hereinafter referred to as “The District”) purchases all potable water, which it eventually distributes through its mains and water system to the inhabitants of the District from the Denver Water acting by and through its Board of Water Commissioners.

At present, the relationship between the District and Denver Water is governed by a Master Meter Distributor’s Contract which was entered into on February 24, 1966, and most recently updated on September 3, 2020.

By virtue of this contract, Denver Water furnishes water to master meters located within the District and thereafter, the District is responsible for the construction, reconstruction, improvement, location, relocation and maintenance of all distribution facilities, except customer service lines and appurtenances thereto and hereinafter defined.

Also, by reason of this contract, the District is obligated to abide by the rules, regulations and engineering standards promulgated by the Denver Water. The District is also obligated to enforce these rules, regulations, standards and directives, which govern the use of water in the District’s contract service area in order to maintain and preserve the purity and safety of the water supply.

Therefore, consistent with the rules, regulations, standards and directives of the Denver Water Board, as from time to time promulgated and amended, the District has adopted the same engineering standards, rules and regulations which regulate the construction of water facilities within the District and the use of water within the District in order to prohibit waste of this precious commodity and prevent actual or potential contamination. The District has also established engineering standards, rules and regulations which prohibit use of the water and other construction related practices which do or may potentially damage the District’s water distribution facilities, cause injury to the District’s employees, personnel, subcontractors or independent contractors and affect the purity and safety of the water available for consumption, except as may be specifically indicated herein.

These engineering standards, rules and regulations may be revised, amended or added to from time to time at the discretion of the Board of Directors of the District. Such revisions, amendments or additions shall be binding and in full force and in effect from and after the date of adoption by the Board of Directors of the District.

Occasionally when special circumstances exist and when such special circumstances do not affect or potentially affect the purity and safety of the water supply, the Board of Directors of the District may grant written variances from these engineering standards, rules and regulations. Notwithstanding the grant of any variance by the Board of Directors of the District, the District shall not be restricted or limited in the exercise of its lawful powers to protect the health, safety and welfare of all of its inhabitants.

## **Sewage – Engineering Standards, Rules and Regulations**

The District does not own or operate any wastewater treatment facilities. All sewage effluent collected from the inhabitants of the District is transported by the District’s sewer mains and appurtenances thereto to the Metro Wastewater Reclamation District – hereinafter “Metro Wastewater” – for treatment and disposal.

The District is a member and under contract with Metro Wastewater and, as such, is obligated to adhere to and enforce all wastewater effluent limitations adopted by Metro Wastewater.

The District is also obligated to comply with and enforce any and all rules and regulations and other directives relating to the operation and maintenance of wastewater collection–facilities and effluent collected therein promulgated and amended from time to time by the Environmental Protection Agency (EPA) of the federal government and the Colorado Department of Public Health and Environment (CDPHE) and other state and federal regulatory agencies. These regulations are necessary to avoid and prohibit environmental contamination and to protect and conserve the health, safety and general welfare of all inhabitants of the District, the District’s employees and personnel and independent contractors or subcontractors who render services within the District’s boundaries as well as the treatment facilities owned and operated by Metro Wastewater.

Therefore, in order to comply with Denver Water, Metro Wastewater and CDPHE rules, regulations, standards and directives, as well as internal rules, regulations and standards adopted by the District, the District through its Board of Directors has adopted the following rules, regulations and engineering standards in order to regulate the location, construction, maintenance, and operation of District owned and customer constructed wastewater facilities as follows:

1. Restricting what discharges may be contributed to the wastewater collection system of the District, including but not limited to effluent limitations, rate of flow, strength, and other discharge parameters.
2. Discharge of human and domestic waste.
3. Discharge of industrial waste.
4. Discharge of contaminated waste, which is or potentially may be toxic or hazardous to the District’s system, its personnel, contractors or subcontractors and the treatment facilities operated by Metro Wastewater.
5. Discharge of ground water.
6. Discharge of local, state or federally regulated waste and effluent.
7. Wastes, which require pretreatment, prior to discharge to the District’s wastewater collection system.

8. Pretreatment regulations and requirements.
9. Testing and sampling of potential effluent discharges prior to actual discharge.
10. Construction of sewer main extensions.
11. Location of sewer mains and other wastewater discharge facilities and all appurtenances thereto.
12. Permit requirements, including but not limited to, pretreatment requirements and industrial permitting and regulation.
13. Independent connection requirements.
14. Construction standards relating to sewer main construction.
15. The use of materials in the construction of sewer mains and extensions.
16. Specifications for the construction of sewer service lines and appurtenances thereto.
17. Specifications regarding tapping procedures and materials related thereto.
18. The use of licensed contractors to construct all facilities.
19. The requirement of bonding contractors who perform work or render services on the District's wastewater collection facilities.
20. Inspection and testing of wastewater facilities.
21. Construction and use of, operation and maintenance of interceptors and separators.
22. Inspection and testing of all constructed wastewater facilities prior to placement in use.
23. Potential use of cesspools and septic systems.
24. Confined space entry procedures.

25. Prohibited practices including effluent discharge limitations on regulated and non-regulated substances.

26. Sewer rates, fees, charges and tools.

These engineering standards, rules and regulations shall apply to the installation, operation and maintenance of sewer facilities within the control of the District.

These engineering standards, rules and regulations may be revised, amended or added to from time to time at the discretion of the Board of Directors of the District. Such revisions, amendments or additions shall be binding and in full force and in effect from and after the date of adoption by the Board of Directors of the District.

Occasionally when special circumstances exist and when such special circumstances do not affect or potentially affect the quality and quantity of the wastewater, the Board of Directors of the District may grant written variances from these engineering standards, rules and regulations. Notwithstanding the grant of any variance by the Board of Directors of the District, the District shall not be restricted or limited in the exercise of its lawful powers to protect the health, safety and welfare of all of its inhabitants.

## **Section I – Policy, Purpose and General Provisions**

### **1. – Policy: Engineering Standards, Rules and Regulations**

The following Engineering Standards, Rules and Regulations are hereby adopted by the Board of Directors of the District for and on behalf of the District. These Engineering Standards, Rules and Regulations are deemed necessary for the health, safety and general welfare of the inhabitants of the District and for convenience of the District and its Board of Directors and other personnel in the management, control and supervision of the business affairs of said District.

These engineering standards, rules and regulations are subject to change by the Board of Directors without notice. The Board of Directors of the District may, from time to time enlarge upon, delete, change or amend the engineering standards contained herein at any time, during a regular or special meeting of the Board.

All District mains must be in dedicated streets or acceptable dedicated and recorded easement areas.

### **2. – Purpose**

#### **2.1. Sewer System**

The sanitary sewer system installed in the District is for the purpose of conveying human and domestic waste and the system is not for the purpose of conveying industrial waste except as herein specifically provided, nor is said systems to be used as a drainage system for lowering the water table or carrying away drainage waters.

#### **2.2. Water System**

The water system installed in the District is for the purpose of distributing potable water to the District's customers. The system does not store, treat or artificially alter the pressure of the water purchased from Denver Water.

### **3. – General Provisions**

#### **3.1. Pre-Existing Conditions Meeting Current Standards**

It is recognized by the District that certain customer-owned water and/or wastewater services, facilities and appurtenances thereto do not meet the current requirements of the District as set forth in the revised Rules, Regulations and Engineering Standards of the District. It is further recognized that the District, in order to preserve and protect the health, welfare and safety of the

District's inhabitants, customers and personnel, is required to periodically update its Engineering Stands, Rules and Regulations.

Fairness, however, dictates that customer and inhabitants of the District be adequately notified of the required changes, modifications and/or replacements to their water and/or wastewater facilities and appurtenances thereto mandated by the revised Engineering Standards, Rules and Regulations of the District, together with a notification of the time period when these modifications, changes or replacements must be implemented by the customer or inhabitant at his, her or its sole cost and expense.

Therefore, with the exception of all instances wherein cross-connection control must be implemented; a change or modification is mandated by a Federal, State, County or Municipal Program, Ordinance, Rule or Regulation; and, all other instances wherein the health, safety, and welfare of the District's inhabitants and customers or personnel is at risk, all customer owned water and or wastewater services, facilities and appurtenances thereto which are found to be deficient, in that they do not meet the requirements set forth in the Engineering Standards, Rules and Regulations of the District now existing or as the same may be amended hereafter, shall be brought current by the owner of the property whereon they are situated upon the first to occur of any one or more of the following events:

1. Change of ownership of the property where the facilities exist, no matter how such change of ownership shall occur or be caused.
2. Any construction, reconstruction, remodeling or improvement upon the property where the water and/or wastewater services, facilities or appurtenances are located.
3. Any change of use or the addition of a new or expanded use of the subject property where the facilities, services or appurtenances are located.
4. Any change in the methodology of operation implemented by a commercial or industrial occupant of the property where the facilities, services or appurtenances are located.



## **Section II – Definitions**

As used in these Engineering Standards, unless the context shall otherwise require, the words defined in this section shall be the meanings herein ascribed:

### **2.1 – Abbreviations and Acronyms**

All references to documents or specifications shall be the latest addition or revision thereof

1. AASHTO: American Association of State Highway and Transportation Officials
2. AC: Asbestos Cement Pipe
3. ANSI: American National Standards Institute
4. ASTM: American Society for Testing and Materials
5. AWWA: American Water Works Association
6. CI: Cast Iron Pipe
7. DI: Ductile Iron Pipe
8. ISA: Instrument Society of America
9. MJ: Mechanical Joint
10. NEC: National Electrical Code
11. NEMA: National Electrical Manufacturers Association
12. PVC: Polyvinyl Chloride Pipe (Plastic Pipe)
13. SAE: Society of Automotive Engineers

#### 14. SFRE: Single Family Residential Equivalent

### **2.2 – Definitions (change in formatting)**

1. Applicant: Any person, association, corporation, entity or government agency desiring water or sewer service for premises under their control and who have made requests for such service(s) from the District
2. Collection System: Sewer mains of 18-inch and smaller diameters with all appurtenant facilities including manholes, lift stations and meter stations receiving sewage flows from the District's customers and transporting these flows to the Metro Wastewater Reclamation District facilities
3. Contractor: Any person, firm or corporation licensed by the District and qualified as therein set forth to perform work and furnish materials for the facilities of the District
4. Distribution System: Water mains of 18-inch and smaller diameter together with all appurtenant and necessary valves, fire hydrants, taps, meters, service pipes, and associated materials, property and equipment receiving potable water from conduits or transmission mains and distributing it to individual consumers within the District
5. Distributor: An entity that is located outside the City and County of Denver yet inside the service area that has a contract with Denver Water for the delivery of potable water and does not comingle such water with potable water from any other source
6. District: The North Pecos Water and Sanitation District
7. Inspector: The person and/or agents appointed or contracted by the Board of Directors of the District, who shall see to the enforcement of the Engineering Standards, Rules and Regulations contained herein
8. Main Extension: Extensions to the water distribution system or wastewater collection system that are becoming part of the facilities that the District will own, maintain and control
9. Service Line: All pipe, fittings, and appurtenances of the licensee for conveying water from distribution mains to the premises or conveying wastewater from the users' premises to the collection system. The water service line shall include the service line and all appurtenances, including the meter and meter pit. The dividing point between the District-owned water mains and the property owner/customer owned service lines shall be defined as the connection on the corporation stop tapped into the water main or the discharge side of the valve closest to the District-owned water main. At the dividing point, water irrevocably leaves the common, public system and enters the privately owned facilities to serve individual premises. Property owners shall own all equipment on the property owner's side of the corporation stop tapped into the water main.

10. Sewer Main or Collection Main: An 18-inch or smaller pipe along public streets, appropriate right of way or in designated easement areas used for carrying sewage discharged by customer to Metro Wastewater Reclamation District facilities
11. Single Family Residential Equivalent: The standard or measurement used by the District for the purpose of evaluating the quantity of sewer waste entering the District's wastewater collection system from any property served by the District (Acronym: SFRE)
12. Tap: The physical connection to a distribution main which, together with an appropriate license, affix and allow water service to individual consumers or a physical connection to the collection system which allows sewer service to individual users
13. Transmission Main: A 16-inch or larger diameter pipe receiving potable water from a conduit and supplying it to the distribution system

## **Section III – General Main Extension Policy**

### **3.1 – Extension Agreement**

No water main or sewer main shall be constructed by the District for a user unless the user has first entered into a formal extension agreement with the Board. An agreement is not required as long as the contractor intends to construct the extension with its own resources and provided that the contractor certifies, in writing to the District, that such main extension shall be constructed in accordance with the Engineering Standards, Rules and Regulations of the District.

### **3.2 – Application for Water Main or Sewer Main Extension**

For water and sewer main extensions constructed by the Applicant, plans and specifications shall be submitted to the District as defined in the Rules and Charges section, along with a deposit to cover estimated expenses incurred by the District for the legal and engineering review, administrative personnel, and physical inspection of the main extension to ensure compliance with these rules and regulations. All such costs incurred by the District, including without limitation legal and engineering review, administrative personnel, and physical inspection, shall be reimbursed by any Applicant for special considerations, such as inclusions, exclusions, main extension / enlargements, variances, line replacement or line relocation. For water main extensions, after review and plan acceptance by the District the District shall sign the Denver Water Distributor Conditional Water Plan Approval Application. It is then the Applicant's duty to submit the District approved plans and the Distributor

Conditional Water Plan Approval Application to Denver Water and obtain their approval of the design.

### **3.2.1 – Easement Requirements for Water Main or Sewer Main Extensions**

The original easement document shall be delivered to the District fully executed by the property owner and notarized by a licensed notary. It shall be submitted on single-sided paper, 8 1/2 wide by 11 inches tall. Water main easements shall be prepared on the most current forms approved for use by Denver Water. For sewer main easements, applicants should contact the District for the appropriate form to submit. All easements required by or pertaining to water main or sewer main extensions must be insured in the amount of \$15,000.00. Such policy shall be issued by a title company acceptable to the District. The initial application shall include and be accompanied by a title commitment for review by the District's attorney. It is the applicant's responsibility to remove or obtain subordination of all title impediments objected to by the District.

## **Approval of Design Plans Required**

1. Plans for all water main extensions and sewer main extensions of the facilities of the District shall be submitted to the District.
2. Construction plans and specifications shall be prepared by a professional engineer, with current Colorado registrations, and shall comply with the minimum construction specifications set forth in these Engineering Standards, Rules and Regulations and the minimum requirements of Denver Water, as the same may be amended from time to time.
3. Prior to the commencement of the construction, all plans and specifications must be approved by the District and by all other reviewing agencies having jurisdiction over the matter. It shall be the responsibility of the design Engineer of the project to ascertain which additional reviewing agencies are to be contacted for approval and to submit the design to any necessary agencies to receive approval. Review by the District is for the District's information and does not guarantee that either the content or format conforms to any other reviewing agencies requirements, **or is correct and sufficient as to dimensions, details, quantities, slope or construction procedure and safety protocols. Rather the District's review and approval is solely for the purpose of ensuring general compliance with the District's Engineering Standards and Rules, and the District disclaims any responsibility for the design or construction of the project.**
4. After the applicant has received all necessary approval, the applicant shall, at the applicant's own costs and expense, install the proposed facility or shall employ a licensed contractor to install such facility. The facility shall be installed in accordance with the approved plans and specifications.

## **3. – Performance and Maintenance Bond**

A Performance and Maintenance Bond equal to one-hundred percent (100%) of the construction costs shall be furnished on all water main and sewer main extensions.

## **4. – Acceptance by the District**

Before any water mains or sewer mains are accepted by the District for taps, the applicant shall by appropriate instrument convey by duly approved instruments of conveyance the ownership of the lines and appurtenances and all rights pertaining thereto, and all necessary easements, to the District, free and clear of all liens and encumbrances objectionable to the District, and shall provide a title policy insuring all easements in the amount of \$15,000.00, proof of payment of all premiums and lees, and also provide a bond satisfactory to the District to cover all maintenance for one (1) year from the date of acceptance of the facilities by the District.

## **5. – Oversize Mains**

The District may, at its options, require the construction of water mains or sewer mains larger than the minimum sizes specified by usual engineering standards. The District shall participate in the cost of installing such oversized lines to the extent that such costs exceed the cost of a corresponding water main or sewer main of the minimum size necessary to serve the customer for its facility. The District shall not participate in the cost of installing water mains, which are oversized where a single subdivision or development requires mains larger than the minimum sizes specified in these engineering standards.

## **6. - Plans and Specifications**

The minimum acceptable standards for plans and specification are described in detail in Section IV for sewer and V for water.

## **Section IV – Rules Pertaining to Wastewater Facilities**

### **4.1 – Independent Connections**

The sewer service of each house, dwelling, building, store, premise and other structure, which is connected to the wastewater collection system operated by the District, shall have an independent, separate and distinct connection with the aforesaid wastewater collection system, except in the case of motels, condominiums, townhomes, and apartments.

### **4.2 – Repair and Maintenance of Sewer Service Lines**

Each property owner shall be responsible for maintaining the entire length of his sewer service line from the wye, or connection to the District's main, to its terminus in the structure being served. Leaks or breaks in the service line shall be repaired by the property owner within seventy-two (72) hours of notification of such

conditions by the District. If satisfactory progress for repairing said leak or break has not been accomplished within the same period, the District may, at the property owner's expense cause satisfactory repairs to be made, and the cost of such repairs, if unpaid, shall be a lien upon the property.

### **4.3 – Prohibited Practices**

#### **4.3.1 Storm and Industrial Water Prohibited**

No person shall cause to be discharged any storm water, surface water, ground water, roof run-off, subsurface drainage, or cooling water into any wastewater collection system owned, operated or maintained by the District, except as specifically allowed herein.

#### **4.3.2 Damaging Substances Prohibited**

No person shall cause to be discharged into any wastewater collection system owned or operated by the District, any wastes including but not limited to, oil and grease and any other substance, chemical or compound or derivative thereof which is capable of causing damage to the sewer pipelines or appurtenances, obstructing the flow of said sewers, or causing damage or hazard to structures, equipment and personnel in the sewage works.

#### **4.3.3 Automotive Washing Facilities**

No service station, gas station wash facility or other motor vehicle cleaning facility shall be connected to the wastewater collection system operated by the District unless a special permit therefore is obtained from the District in accordance with Section 4.11 (below) of these Engineering Standards, Rules and Regulations.

#### **4.3.4 Unlawful Damage**

No person shall willfully, intentionally, or recklessly break, damage, destroy, uncover, deface or tamper with any structure, appurtenance of equipment which is a part of the wastewater collection system operated by the District. The District may exact penalties, file appropriate civil actions for damages sustained, which shall include the recovery of its attorney fees and costs, and may file criminal charges against persons or entities violating this provision.

#### **4.3.5 Violations**

Any person violating these Engineering Standards, Rules and Regulations shall become liable to the District for any expense, loss or damages occasioned by reason of such violation, including its reasonable attorney fees and costs incurred as well as all other injunctive relief and recompense provided by the law.

#### **4.3.6 Swimming Pools – Unlawful Connection**

No public or private swimming pool shall be connected to any wastewater collection system operated by the District unless a special permit therefore is obtained from the District.

### **4.4 – Cesspool and Septic Tanks - Connection Prohibited**

No connection to the sanitary sewerage system owned and operated by the District shall be permitted when the property owner's service line extends through or extends from a cesspool or septic tank.

In such case, the District reserves the right under Section 32-1-1006 of the Colorado Revised Statutes, 2018, as amended, whenever necessary for the protection of the public health, to require the owner to connect the premises in accordance with the Colorado state plumbing code to the sewerage system of the District within twenty (20) days after written notice is sent by Registered Mail and provided that a District owned and maintained

sewer main is within four hundred (400) feet of the owner's premises. In the event that the owner of the premises fails or refuses to commence connection of his premises to the sewer main within such twenty (20) day period, the Board of Directors of the District may thereafter cause its personnel or its contractor to connect the premises to the sewer main of the District. Thereafter the District shall have a perpetual lien on and against the premises for the cost of making the connection, and any such lien may be foreclosed or enforced in any manner as provided by the laws of the State of Colorado.

## **4.5 – Industrial Waste Collection and Pretreatment Resolution**

The District signed a Delegation of Pretreatment Agreement with Metro Wastewater on May 8, 2007 to become effective July 1, 2007. This agreement delegates issues pertaining to industrial waste collection, pretreatment, permitting, and enforcement to Metro Wastewater. A copy of the complete agreement contract is available for review at the District office during regular business hours.

## **6. – Construction Specification – Wastewater Main Extensions**

### **4.6.1 Procedures Required**

Any person desiring to construct a wastewater main extension within the boundaries of the District shall, prior to the commencement of the construction thereof, make application for review of an Extension Agreement with the District as provided in these Engineering Standards, Rules and Regulations.

### **2. Minimum Specifications**

The following specifications of the District shall be complied with:

- a) All wastewater mains shall be PVC pipe meeting the requirements of the ASTM D3034.
- b) All sizes of PVC pipe shall be SDR35 or better, and shall have the ASTM specification, nominal diameter, and manufacturer's trademark imprinted on the outside of the pipe.
- c) All joints shall be O-Ring or Gasket type joints used in a bell and spigot type connection. Bell will be cleaned of all debris prior to another section of pipe being laid.
- d) All pipe will be laid in accordance with ASTM D2729-17 Standard Specifications for PVC wastewater pipe and fittings.
- e) All new underground facilities, including wastewater mains and laterals up to the structure or building being served, installed on or after August 8, 2018, must be installed with tracer wire that is electronically locatable when installed.
- f) Cement mortar joints shall not be permitted.
- g) All wastewater main extensions shall be installed insufficient length to enable the furthest upstream connection to be made at 900 to the sewer main at least five feet from and not directly into a manhole.
- h) All extension mains shall terminate in manholes.

- i) All wastewater main extensions shall be a minimum of eight (8) inches inside diameter.
- j) No wastewater main extension for 8-inch pipe or portion thereof shall be constructed at gradient of less than 0.4 percent unless prior written approval from the engineering consultant of the District is first obtained.
- k) All sewer pipelines shall be bedded in Type A (squeegee) or greater bedding material to a point 12-inches above the top of the pipe. Such bedding shall extend a minimum of five (5) inches below the flow line of the pipe. Bedding and pipe zone material shall be clean, free draining, poorly graded, unfrozen, non-friable, rounded (not crushed) squeegee with no clay balls or organic material present.
- l) All wastewater pipelines shall be cleaned and tested after construction. Lines shall be flushed clean and visually inspected for alignment and damage. A leakage test shall be performed to check that the pipe is water tight. A water filled exfiltration test or low-pressure air test may be used. In areas of high ground water, the District may allow an infiltration type test if ground water levels are a minimum of two feet above the pipe. All air testing will conform to ASTM C-828-76 T of its latest revision unless otherwise approved. Exfiltration leakage shall not exceed 100 gallons per inch diameter per mile, per day of sewer line.

Manholes shall also be tested for water tightness by plugging the incoming and outgoing pipes and filling the barrel sections with water. The test shall be made before backfilling so any leaking can be seen. All visible leaking shall be repaired. A manhole vacuum test may be substituted for the manhole leak test described above. The vacuum test shall conform to the following parameters:

- (i) After the manhole piping and top are sealed, a vacuum of ten (10) inches of mercury shall be drawn on the manhole
- (ii) The time shall be measured for the vacuum to drop nine (9) inches of mercury
- (iii) The manhole shall pass if the time for the vacuum reading to drop from ten (10) inches of mercury to nine (9) inches of mercury meets or exceeds the values in the table below

Minimum Test Times Allowed



(Time in Seconds)

42" diameter	48" diameter	60" diameter	72" diameter
13	15	20	25
17	20	26	33
21	25	33	41
25	30	39	49
29	35	46	57
34	40	52	67
38	45	59	73
42	50	65	81
46	55	72	89
51	59	78	97
55	64	85	105
59	69	91	113
63	74	98	121

- (iv) Manholes shall be constructed of precast concrete rings and shall conform to the standards of ASTM Specification C478 as a minimum. Bases shall be poured in place. To allow for settling, joints shall be placed in all pipelines connected to manhole within eight (8) inches of the pipeline's connection to the manhole base or barrel.
- (v) The top section of the standard manhole shall be an eccentric cone. Flat top manholes may be allowed on shorter manholes at the discretion of the District. Each manhole shall include a grade adjustment section greater than six (6) inches and less than twenty-four (24) inches, made from concrete grade rings. The ring and cover used shall be equal to the Neenah R-1706 cast iron ring and cover. Cast iron grade adjustment rings will not be allowed.
- (vi) Each manhole shall have aluminum steps on sixteen (16) inch centers. Steps will be constructed of steel reinforced plastic manhole steps – black, press-fit (PF) design and shall be neatly aligned in the manhole.
- (vii) All PVC pipes penetrating the concrete base shall be installed with a water tight gasket.

## **7. – Construction Specification – Sewer Service Pipelines**

### **7.1. Compliance Required**

No wastewater service lines shall be connected to any wastewater pipeline belonging to or serviced by the District unless the following minimum specifications are complied with.

**7.2. Minimum Specifications for Sewer Service Lines**

- a) All sanitary sewer service lines shall be of not less than four (4) inch inside diameter pipe throughout their entire length.
- b) For larger or more complex facilities, the minimum size for sanitary sewer service pipe line shall be approved by the District’s Engineer with reference to the applicable provisions of the latest revision of the Uniform Plumbing Code.
- c) All sanitary sewer service lines shall be laid on a straight grade, without pockets or low spots
- d) Cleanout apertures shall be provided on all sanitary sewer service lines at intervals not exceeding one-hundred (100) feet.
- e) Minimum grade shall be as follows:

Pipe Size	Gradient
4-inch	1/8-inch per foot
6-inch	0.64%
8-inch	0.40%

- f) Saddle taps on mains shall be connected by means of a gasket and clamp system. No glued taps allowed. Saddles shall be at least half (1/2) the outside diameter of the main and held in place by at least two (2) stainless steel clamps.
- g) In addition to the above requirements, all sewer service pipelines shall conform to the specifications for sewer mains set forth in Section 4.6, except squeegee is allowed for bedding.

**8. – Inspection**

No trench or other excavation shall be backfilled until an inspection has been made by the District Inspector and said Inspector has acknowledged compliance with the provisions of these Engineering Standards, Rules and Regulations.

- 1. Installation of all main extensions and wastewater lines shall be inspected and approved by the District Inspector
- 2. The Inspector shall have access to all work and the Contractor shall arrange to have the Inspector present during the installation of all fittings and testing. Any work done in the absence of the Inspector or backfilled prior to inspection shall be exposed for thorough inspection if so ordered by the Inspector.

3. Any work not accepted by the Inspector shall be redone until compliance with these Engineering Standards, Rules and Regulations is achieved.
4. All appropriate permits shall be maintained on the job site and shall be obtained prior to commencement of construction.
5. All materials used shall be subject to the inspection and approval of the Inspector.
6. The Contractor shall give at least forty-eight (48) hours notice to the District's Inspector prior to starting construction and/or prior to commencing work or portions thereof requiring inspection.

## **4.9 – Minimum Plans and Specification Requirements**

Detailed plans and specifications for main extensions shall be submitted to the District for approval. All plans and specifications submitted shall be in strict compliance with the requirements contained herein and shall adequately provide for any special conditions, which may exist with regard to the individual project. The design and location of all facilities shall comply with the Board's master plan. No work shall commence on any facilities until the plans and specifications for construction thereof are approved in writing by the District. The submittal for approval by the District shall consist of three (3) copies of the plans and specifications for the project. The plans shall bear the seal and signature of the designing Engineer. All final plans shall contain at least the following information:

### **4.9.1 Plan View Containing or Showing**

- a) Location and dimensions of dedicated streets, easements and rights of way, including the legal description of the property to be served.
- b) Lots or properties to be served.
- c) All existing or proposed curb and gutter.
- d) All existing or proposed utilities.
- e) All existing or proposed obstructions, such as vaults, catch basins, and traffic islands.
- f) The proposed alignment of the sewer mains and appurtenances.

### **4.9.2 Centerline Profile of the Sewer Main Route Construction Showing**

- a) Official street grades.
- b) Existing ground line.
- c) Any proposed or existing crossing of the existing and proposed utilities.
- d) Lengths and slopes between adjacent manholes and invert elevations of all pipes flowing in and out of manholes.
- e) Sizes and types of pipelines proposed.

#### **4.9.3 All Plans Shall**

- a) Be made from actual field surveys referenced to land corners or their official survey control points.
- b) Be drawn to a minimum scale of one (1) inch equals fifty (50) feet (1" = 50') horizontal and one (1) inch equals five (5) feet (1" = 5') vertical. A larger scale may be required to adequately show specific details of mains, connections and other installations.
- c) Show sufficient adjacent area to depict the relation of new facilities to existing facilities.
- d) All existing or proposed curb and gutter.
- e) All existing or proposed utilities.
- f) All existing or proposed obstruction, such as vault catch basins, and traffic island.

#### **4.9.4 The Specifications Shall**

- a) State that the trench shall be excavated and the pipe exposed for inspection at any location on the project if so ordered by the Inspector.
- b) Include detailed specifications for installing the pipelines that describe as a minimum the excavation, installation of pipe, backfill of pipe and testing of pipe procedures required by the designing Engineer. The Engineer shall not rely on specifications of other entities by reference to insure proper installation but shall specifically state his requirements.

#### **4.9.5 Errors in Engineering**

- a) All plans and specifications submitted to the District for a main extension shall be prepared by, or under the direct supervision of a Professional Engineer registered in Colorado. All submitted plans and Engineer submitting such plans and specifications shall conduct field surveys. Approval by the District shall, in no manner, relieve the Professional Engineer of responsibility for errors or omissions in plan specifications or field surveys. Any errors in the same shall be corrected by the Professional Engineer to the satisfactions of and at no expense to the District.

#### **4.9.6 Surveying**

- a) For construction purposes, elevation, grade and alignment of all mains shall be established by a land surveyor that is licensed to practice in the State of Colorado, or under the direct supervision or control of a surveyor licensed to practice in the State of Colorado. It is the responsibility of the licensed surveyor to set the alignment and elevations of the sewer main as shown on the approved drawings. Approval of the staked alignment and elevations by the Inspector does not relieve the surveyor of the responsibility for field errors. Under no circumstances shall pipe be installed without the use of line and grade stakes set by the surveyor.

#### **7. As Built Drawings**

The contractor shall correct drawings to whatever changes are made in the field. "As built" drawings shall be provided to the District, in CAD and hard copy format. There shall be a minimum requirement that manhole covers be tied with two (2) dimensions to local prominent features so that location can be quickly re-established. Distances between major facilities shall be

shown.

## **10. – Easements and Right Of Way**

All wastewater lines and water lines shall be installed in dedicated rights-of-way or insured private property easements of a minimum width of 30-feet.

## **11. – Interceptors and Separators**

### **1. Interceptors Required**

Interceptors for oil, grease, sand and other substances harmful or hazardous or potentially harmful or hazardous to the wastewater collection system owned, maintained and operated by the District shall be required for all automotive repair facilities, gasoline stations with grease racks, grease pits or work racks, automotive vehicle washing facilities, restaurants, hotel kitchens, cafeterias, clubs and other establishments, wherein hot food is prepared and disposed of, commercial laundry facilities and establishments, factories where oily and/or flammable liquid wastes are produced, hospitals, slaughter houses, bottling establishments and such other commercial buildings and facilities as the District shall from time to time determine to be necessary in order to provide for the continued integrity of the District's wastewater collection system and its component parts including its operations and maintenance by the employees of the District or its contractors or subcontractors.

### **2. Separators Required**

Separators for oil, grease, sand and other substances harmful or hazardous or potentially harmful or hazardous to the wastewater collection system owned, maintained and operated by the District shall be required for all automotive repair facilities, gasoline stations with grease racks, grease pits or work racks, automotive vehicle washing facilities, restaurants, hotel kitchens, cafeterias, clubs and other establishments wherein hot food is prepared and disposed of, commercial laundry facilities and establishments, factories where oily and/or flammable liquid wastes are produced, hospitals, slaughter houses, bottling establishments and such other commercial buildings and facilities as the District shall from time to time determine to be necessary in order to provide for the continued health, safety and welfare of the inhabitants of the District and/or to provide for the continued integrity of the District's wastewater collection system and its component parts including the operation and maintenance of the system by the employees of the District or its contractors or subcontractors.

### **3. Interceptors and Separators – Not Required**

Interceptors and separators shall not be required for individual dwelling units or private residences unless a commercial business as described in Section 4.11.1 or 4.11.2 of this provision is being actively carried on for gain or profit.

### **4. Construction Specifications – Interceptors and Separators**

- a) Automotive Repair Facilities, Gasoline Stations, Automotive Vehicle Washing Facilities. For all industries described in the within referenced classification, all interceptors and separators shall comply with the following minimum engineering standards:
  1. Minimum detention time shall be 20 minutes.
  2. A two-compartment tank of minimum 300 gallon capacity with a vent, access ports, water seal, and maximum height of outlet pipe above the floor of 18-inches.
  3. Oil and grease retention capacity of two times the rated flow.

4. Readily accessible for cleaning.
- b) Restaurants, Hotel Kitchens, Cafeterias, Clubs and other Establishments wherein hot food is prepared and/or disposed of. For all industries described in the within referenced classification, the interceptor and separator servicing said industry shall comply with the following minimum engineering standards:
1. Minimum detention time shall be 20 minutes.
  2. A two-compartment tank of minimum 300 gallon capacity with a vent, access ports, water seal and maximum height of outlet pipe above the floor of 18-inches.
  3. Grease retention capacity of two times the rated flow.
  4. Located as close to the grease source as is practical.
- c) Commercial Laundry Facilities. The interceptor and separator servicing the industry in this classification shall comply with the following minimum engineering standards:
1. Minimum detention time shall be 20 minutes
  2. A two-compartment tank of minimum 300 gallon capacity with a vent, access ports, water seal and maximum height of outlet pipe above the floor of 18-inches.
  3. Provided with a removable wire basket that is designed to catch solids ½ inch and larger, such as string, rags, buttons, etc.
- d) Factories Where Oils and/or Flammable Liquid Waste Are Produced. All interceptors and separators servicing industries within this classification shall comply with the following minimum engineering standards:
1. Minimum detention time shall be 20 minutes.
  2. A two-compartment tank of minimum 300 gallon capacity with a vent, access ports, water seal and maximum height of outlet pipe above the floor of 18-inches.
  3. Minimum depth of tank below discharge drain shall be two (2) feet.
  4. Specific design shall address separation of light liquid products.
- e) Hospitals. An interceptor and separators servicing an industry within this classification shall comply with the following minimum engineering standards:
1. Minimum detention time shall be 20 minutes.
  2. A two-compartment tank of minimum 300 gallon capacity with a vent, access ports, water seal and maximum height of outlet pipe above the floor of 18-inches.
  3. Provided with a removable wire basket that is designed to catch and medical solid wastes such as syringes, dressings, etc.

- f) Slaughterhouses. An interceptor and separator servicing an industry within this classification shall comply the following minimum engineering standards:
  - 1. Minimum detention time shall be 20 minutes.
  - 2. A two-compartment tank of minimum 300 gallon capacity with a vent, access ports, water seal and maximum height of outlet pipe above the floor of 18-inches.
  - 3. Separator design shall specifically address the capture of solid waste such as feathers, entrails, or other material likely to cause clogging.
  - 4. Grease retention capacity of two (2) times the rated flow.
  
- g) Bottling Establishments. An interceptor and separator servicing an industry within this classification shall comply with the following engineering standards:
  - 1. Minimum detention time shall be 20 minutes.
  - 2. A two-compartment tank of minimum 300 gallon capacity with a vent, access ports, water seal and maximum height of outlet pipe above the floor of 18-inches.
  - 3. Interceptor design shall specifically address the separation of broken glass and other solids.
  
- h) All Other Commercial Establishments. All interceptors and separators servicing an industry falling within this classification shall comply with the following minimum engineering standards:
  - 1. Minimum detention time shall be 20 minutes.
  - 2. A two-compartment tank of minimum 300 gallon capacity with a vent, access ports, water seal and maximum height of outlet pipe above the floor of 18-inches.
  - 3. May apply for exclusion of interceptor/separator requirement as determined by the District.

**4.11.5 Design, Size, Type and Location of Interceptors and Separators – Approval Required**

- a) All interceptors and separators must be designed by a professional and licensed engineer, holding a current license in the State of Colorado.
- b) Prior to installation, the design, size, type, and location of all interceptors and separators must be approved in writing by the engineer of the District. However, review and approval by the engineer of the District shall not represent that the system meets the specific design criteria of the owner for the purposes for which the system is constructed.
- c) Before any design of an interceptor and/or separator is approved, drawings of the same with all pertinent engineering information and documentation shall be submitted by the owner or the owner’s contractor to the engineer of the District for approval and comments.
- d) Interceptors and Separators may be rated and approved for their efficiency as directed by the

engineer for the District in accordance with generally accepted engineering practice and principals.

- e) No interceptor or separator shall hereinafter be installed in any facility of building within the confines of the District which does not comply in all respects with the design, type, model, size and location approved by the engineer for the District.
- f) All installation of interceptors and separators shall be completed by a licensed plumber and contractor and the same shall be installed in accordance with the Uniform Plumbing Code in effect in the State of Colorado at the time of such installation including all amendments hereto.
- g) Subsequent to the installation of the interceptor and separator, the same shall be inspected by the Manager of the District and/or the District's engineer in order to ensure compliance with the Engineering Standards, Rules and Regulations of the District and the engineering requirements specified by the engineer of the District, prior to being placed into service.

#### **4.12 – Abandonment of Existing Sewer Tap and Sewer Service Lines**

- a) A sanitary sewer tap shall be deemed to be abandoned by the District and therefore subject to excavation and removal by the District, at the sole cost and expense of the owner of the real property to which the sanitary sewer tap is allocated, if:
  - 1. The owner of the real property to whom the sanitary sewer tap permit was granted or his, her, or its successors in interest has failed to connect the same to a sanitary sewer service line servicing a facility on his, her or its property within a period of three (3) years from the date said sanitary sewer permit was granted by the District; and/or in the alternative,
  - 2. The owner of the real property to whom the sanitary sewer tap is allocated for a period of three (3) years or longer has failed to pay on a current basis, the minimum sanitary sewer service base fees chargeable by the District and associated with said sanitary sewer tap, as the same may be modified or amended from time to time.
- b) Sewer service lines should be excavated at the main and removed at the tap point. In cases where a factory wye exists, the service line shall be removed and a watertight expandable compression type plug should be installed. In cases where excavation may cause large interruptions to traffic or other extenuating circumstances exist, as determined by the District, the customer or contractor may consider asking to be allowed to do a trenchless cured-in-place internal plug. Internal capping without excavation is not standard and will only be considered on a case-by-case basis.

If exposing the main reveals a poorly constructed service connection that is not sound and watertight, then the service line pipe should be completely removed and a gasket type full circumference clamp should be installed around the mainline.

In cases where the services are going to be maintained on a standby basis with the minimum service fees (: removed and combined into one paragraph) paid sewer service lines should be excavated at the property line and a watertight compression plug shall be installed into the service line. The end of the pipe should be marked by burying a 4" x 4" post against the plug and sticking out of the ground directly above the plug. The buried post shall be painted safety orange and project a minimum of 12" or one (1) foot above the grade of the



surrounding terrain. Should the post be damaged, it is the responsibility of the property owner to replace the post, accurate in location.

## **4.13 – Increase or Decrease in Size of Sewer Tap**

### **4.13.1 Increase In Size Of Sewer Tap**

- a) Any customer of the District who was initially granted a valid sewer tap permit by the District, and who has continuously owned and maintained said sewer tap up to the date of the application, as herein defined, may request an increase in the size of the sewer tap presently servicing his, her, or its property. Such application shall identify with particularity the reason for such requested adjustment, along with the size of the sewer tap needed to facilitate and accomplish the customer's needs.

Following the receipt of such request, the District's personnel and/or engineers shall review the application of the customer with respect to the following:

1. The size of the sewer tap requested and the ability of the new sewer tap to meet all engineering requirements incidental to the customer's prospective usage. Review and consideration shall also be given to the effect and impact, if any, the grant of such new sewer tap by the District will have or potentially have on the flow, loadings and pipe capacity of the District's sewer mains and appurtenances thereto.
2. The tapping procedures to be utilized by the customer, or customer's contractor or subcontractor in the installation of the new sewer tap.
3. The ability of the customer, the customer's contractor or subcontractor to comply with all of the engineering rules, regulations, and standards of the District and the rules, regulations and engineering standards of Metro Wastewater and any and all other governmental or quasi-governmental entities which may be affected or potentially affected.

### **4.13.2 Decrease In The Size Of A Sewer Tap**

- a) Any customer of the District who was initially granted a valid Sewer Tap Permit by the District and who has continuously owned and maintained said sewer tap up to the date of application, as herein defined, may request a decrease in the size of the sewer tap presently servicing his, her, or its property. Such request shall identify with particularity the reason for such adjustment, along with the size of the sewer tap needed to facilitate and accomplish the customer's needs and usages.

- b) Following the receipt of such request, the District's personnel and/or engineers shall review the application of the customer with respect to the following:

1. The size of the sewer tap requested and the ability of the new sewer tap to meet all engineering requirements incidental to customer's prospective usage. Review and consideration shall also be given to the effect and impact, if any, the grant of such new sewer tap by the District will have or potentially have on the flow, loadings and pipe capacity of the District's sewer mains and appurtenances thereto.
2. The tapping procedures to be utilized by the customer, or customer's contractor or subcontractor in the installation of the new sewer tap.

3. The ability of the customer of customer's contractor or subcontractor to comply with all of the Engineering Rules, Regulations and Standards of the District and the Rules, Regulations and Engineering Standards of Metro Wastewater and any and all other governmental or quasi-governmental entities which may be affected or potentially affected.
- c) The customer acknowledges and understands that the customer shall receive no credit, refund or other monetary adjustment in system development fees or connection charges by reason of the reduction of the size of the sewer tap servicing the customer's property.

**Section V – Rules Pertaining to Water Distribution Facilities**

## **5.1 – Independent Connections**

The water system of each house, dwelling, building, store, premise and other structure connected to the water distribution system operated by the District shall be separate and independent from that of every other house, dwelling, building, store, premise and structure. The water service of each house, dwelling, building, store, premise and other structure which is connected to the water distribution system of the District shall have an independent, separate and distinct connection with the aforesaid water distribution system of the District, except in the case of motels, condominiums, and apartments.

## **5.2 – Location of Water Meters, Water Meter Pit and Appurtenances Thereto; Duties and Responsibilities of Maintenance, Repair and Service of Water Service Lines and Appurtenances Thereto; Irrevocable License Granted to District**

### **5.2.1 – Location of Water Meter and Water Meter Pit**

- a.) New Construction – For all new construction and installation of water meter pits and water meters from and after the date of the adoption of this Amendment to the Rules of the District Pertaining to Water Distribution Facilities, on July 9, 1996, all water meters and water meter pits shall be located and constructed within the confines of the legal boundaries of the lot, parcel or tract of real property to be served by the water meter and service so installed.
- b.) Existing Facilities – Consistent with Section 1.3 – General Provisions, Subsection 1.3.1 – Pre-Existing Conditions Meeting Current Standards, as contained in the Engineering Standards, Rules and Regulations of the District, the District shall have the right to require the property owner, at his, her or its sole cost and expense, to relocate any pre-existing water meters and water meter pits to a prior agreed upon location within the confines of the legal boundaries of the lot, parcel or tract of real estate to be served by the water meter and water service so installed.

### **5.2.2 – Duties and Responsibilities of Property Owner/Customer as to Construction, Maintenance, Repair and Service of Water Service Lines and all Appurtenances Thereto**

The property owner/customer of the District shall have the following duties with respect to the initial construction, and thereafter the maintenance, repair and service of water service lines, and all appurtenances thereto: The property owner/customer shall be responsible for compliance with the location parameters of the water meter pit and water meter specified in Section 5.2.1 above.

- a) The property owner/customer shall be solely responsible for the initial cost of initial cost of installation or reinstallation, by a licensed and bonded contractor, of the water service line from the District water main to the building, dwelling or structure being served.
- b) The property owner/customer shall be solely responsible for the repair, maintenance and service of all water service facilities (except the water meter after one (1) year of use) which are located within the confines of the legal boundaries of the lot, parcel or tract of real estate

being served including, but not limited to the water meter pit and cast iron lid or cover servicing the facility.

### **5.2.3 – Duties and Responsibilities of the District as to Repair, Maintenance and Service of Certain Water Service Facilities**

The District shall have the following duties and responsibilities with respect to the maintenance, repairs and service of certain defined water service facilities:

- a) After the expiration of a period of one (1) year after the completion of the installation or reinstallation of the water service facilities, and the continuous use of said facilities, the District assumes the responsibility for the repair and maintenance of the water service line from the District's main through the curb valve; provided, however, said curb valve is located between the meter pit and the District's main outside of the legal boundaries of the lot, parcel or tract of real estate being serviced.
- b.) In the case where no curb valve has been installed or where the curb valve is not installed between the District's main and the meter pit outside of the legal boundaries of the lot, parcel or tract of real estate being serviced, the District's responsibilities and duties as to maintenance and repair shall terminate at the property owner/customer's lot line or legal boundary wherein the water service line enters the lot, parcel or tract of real estate being serviced.
- c.) The District, from and after the date of installation, assumes the responsibility for the maintenance, repair and/or replacement of the water meter consistent with its water service meter inspection, repair and/or replacement changes and rates.

### **5.2.4 – Property Owner's Grant of an Irrevocable License to the District to Perform its Duties and Responsibilities**

As a condition to the acquisition of water from the District and to the continuation of such water service to the lot, parcel or tract of real estate being served, the Property Owner, for itself, its customers, agents and all of their successors and assigns, irrevocably grants to the District a license to enter in and upon the property of the Property Owner being served for the purpose of allowing the District's personnel or its contractors or subcontractors to perform their duties and responsibilities hereunder including, but not limited to:

- a) The performance of its duties and responsibilities under this Section of the Rules Pertaining to Water Distribution Facilities.
- b) The exercise of the District's rights as to inspection of the Property Owner's water service line facilities to ensure the Property Owner's compliance with the Engineering Standards, Rules and Regulations of the District, as now existing of hereafter amended.

- c) The enforcement of all of the Engineering Standards, Rules and Regulations of the District, as now existing or hereafter amended.
  
- d) The performance of any and all work required of the District by reason of the failure of the property owner to perform said work on a timely basis which is deemed necessary by the District, in its discretion, to provide for and conserve the health, welfare and safety of the District's inhabitants, the District's personnel and the District's water distribution facilities and all appurtenances thereto.
  
- e) The property owner, for itself, its customers, agents, successors assigns and acknowledges that the grant of this irrevocable license to the District, and its exercise by the District and its personnel, shall not be construed as a waiver or partial waiver of any and all protection provided to the District as a governmental entity of the State of Colorado, under the Colorado Governmental Immunity Act, Section 24-10-101, et seq., of the Colorado Revised Statutes, as not existing or as hereafter amended.

## **5.3 – Prohibited Practices**

### **5.3.1 – Damage**

No person shall willfully or intentionally break, damage, destroy, uncover, deface or tamper with any structure, appurtenance or equipment which is part of the water distribution system of the District.

### **5.3.2 – Taps on Firelines**

No taps shall be allowed on firelines.

## **5.4 – Construction Specifications – Watermain Extensions**

### **5.4.1 – Procedures Required**

Any person desiring to construct a waterline extension to the facilities of the District shall, prior to the commencement of the construction thereof, obtain approval of plans therefore, which plans shall be prepared in accordance with the Engineering Standards set forth herein.

### **5.4.2 – Material Specification (MS)**

All pipeline materials installed into the water distribution system shall comply with the minimum standards defined in the section. The District adopts the latest version of the Engineering Standards of the Denver Water Department operating by and through its Board of Water Commissioners, Denver, Colorado, except as modified in this section.

- a.) All Ductile Iron Pipe (DIP), of all sizes, will be Class 52 or greater.

- b.) All Polyvinyl Chloride Pipe (PVC) waterlines, of all sizes, will be C900 DR-14 or greater.
- c.) All fire hydrants will be Mueller Fire Hydrants Model 423, open right.
- d.) All valves will be open right.

#### **5.4.3 – Interruption of Service**

- a.) If any work, repair, replacement or maintenance will require valves servicing the District’s water distribution system to be closed and such work has the potential to cause an interruption of water service to the District’s customers, the entity performing the work, repair, replacement or maintenance shall be obligated to notify, in writing, each District customer so affected forty-eight (48) hours in advance of said proposed interruption.

Each written notice shall be hand delivered to each residence or structure so affected. If the occupant cannot be personally contacted, the written notice shall be posted on the door of the residence or structure.

- b) The local Fire Department for the affected area shall be notified forty-eight (48) hours in advance. A description of the boundaries of the affected area and the location of all fire hydrants in that area shall be provided to the Fire Department.
- c) The duration of a scheduled interruption shall be less than eight (8) hours unless written permission is received from the District. The District shall review each request for a scheduled interruption of longer than eight (8) hours on a case-by-case basis. The installer must submit a written plan to receive an approval for an interruption longer than eight (8) hours. The plan shall describe how and when the interruption will occur and what alternate means of water supply will be provided for the affected customers. Approval by the Board or the District’s Manager must be received, in writing, before interruptions will be allowed to take place.

### **5.5 – Inspections**

No trench or other excavation shall be backfilled until an inspection has been made by the District Inspector and said Inspector has acknowledged compliance with the provisions of these Engineering Standards, Rules and Regulations.

1. Installation of all main extensions shall be inspected and approved by the District Inspector.
2. The Inspector shall have access to all work and the contractor shall arrange to have the Inspector present during the installation of any and all pipe and appurtenances to the water main and any and all testing or flushing related to the water main. Any work done in the absence of the Inspector and buried in violation of his or her orders that it be left visible for inspection, shall be exposed for thorough inspection, if so ordered by the Inspector.
3. Any work not accepted by the Inspector shall be redone until compliance with these Engineering Standards, Rules and Regulations is achieved.

4. All appropriate permits shall be maintained on the job site and shall be obtained prior to commencement of construction.
5. All materials shall be subject to the inspection and approval of the Inspector.
6. The contractor shall give at least forty-eight (48) hours notice to the District's Inspector prior to starting construction and/or prior to commencing work or portions thereof requiring inspection.
7. The contractor shall have and maintain on the job site, a full size set of drawings that were approved by both the District and Denver Water.

## **Section VI – Water Engineering Standards**

The District has adopted Denver Water’s Engineering Standards for all water system development with the exception of material requirements as follows:

1. All Ductile Iron Pipe (DIP) must be Class 52 or greater.
2. All Polyvinyl Chloride Pipe (PVC) must C900 DR-14 or greater. This includes all sizes.
3. The District primarily uses Mueller Fire Hydrants Model 423, open right.
4. All valves will be open right.

Denver Water’s Engineering Standards can be viewed on their website at:

<https://www.denverwater.org/contractors/construction-information/design-standards/engineering-standards>