

**Resolution Number 2019-12-05**

RESOLUTION  
OF THE  
BOARD OF DIRECTORS  
OF THE  
GREATROCK NORTH WATER AND SANITATION DISTRICT  
ADOPTING RULES AND REGULATIONS  
(2019 Reissuance)

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WHEREAS, the Greatrock North Water and Sanitation District (the “District”) was organized in accordance with and pursuant to §§ 32-1-101, *et seq.*, C.R.S. for the purpose of providing water and storm drainage facilities and services to properties within and without its boundaries; and

WHEREAS, pursuant to § 32-1-1001(1)(m), C.R.S., the District’s Board of Directors (the “Board”) is empowered to adopt, amend and enforce rules and regulations of the District; and

WHEREAS, on May 2, 2017, the Board adopted Rules and Regulations, which Rules and Regulations incorporated all prior revisions adopted by the Board and were reissued as of such date, and which have been subsequently amended by separate resolution since their original adoption (collectively, the “Prior Rules and Regulations”); and

WHEREAS, the Board has determined that updates to the Prior Rules and Regulations are necessary; and

WHEREAS, the Board desires to replace the Prior Rules and Regulations and adopt new Rules and Regulations (2019 Reissuance) (the “Rules and Regulations”) in this Resolution.

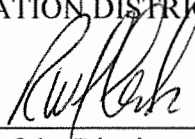
NOW, THEREFORE, be it resolved by the Board as follows:

Section 1. ADOPTION OF RULES AND REGULATIONS (2019 REISSUANCE).  
The Board hereby adopts the Rules and Regulations, as set forth in **Exhibit A**, attached hereto and incorporated by this reference. The Rules and Regulations shall become effective as of the date of this Resolution.

*[Remainder of Page Intentionally Left Blank. Signature Page Follows].*

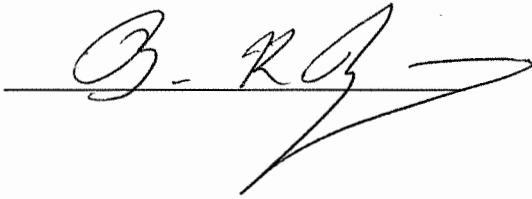
ADOPTED this 3<sup>rd</sup> day of December, 2019.

GREATROCK NORTH WATER AND  
SANITATION DISTRICT



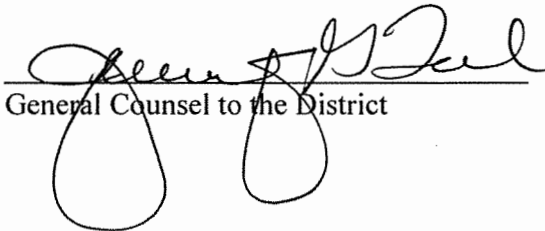
\_\_\_\_\_  
Officer of the District

ATTEST:



APPROVED AS TO FORM:

WHITE BEAR ANKELE TANAKA & WALDRON  
Attorneys at Law



\_\_\_\_\_  
General Counsel to the District

*[Signature Page to Resolution No. 2019-12-05: Adopting Rules and Regulations (2019  
Reissuance)]*

EXHIBIT A  
Rules and Regulations (2019 Reissuance)



# **RULES AND REGULATIONS**

**GREATROCK NORTH  
WATER AND SANITATION DISTRICT**

**Reissued December 3, 2019**

***This Reissuance of the Rules and Regulations Replaces and Supersedes any and all Previous Versions of the Rules and Regulations.***

GNWSD Reissuance: 2019-12-03



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APPENDIX D	FORM OF TEMPORARY CONSTRUCTION EASEMENT



**GREATROCK NORTH WATER AND SANITATION DISTRICT  
RULES AND REGULATIONS**

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**ARTICLE 1. TITLE, SCOPE AND GENERAL CONDITIONS**

- 1.1 TITLE.** These Rules and Regulations shall be referred to herein as the Rules and Regulations.
- 1.2 PURPOSE.** The purpose of these Rules and Regulations is to provide acceptable standards of design and construction for all improvements connecting to the District's facilities, including water systems and facilities.
- 1.3 PUBLIC HEALTH, SAFETY AND WELFARE.** It is hereby declared that the Rules and Regulations hereinafter set forth serve a public interest and are necessary for the protection of the health, safety, prosperity, security and general welfare of the residents and Property Owners of the District.
- 1.4 SCOPE OF RULES AND REGULATIONS.** These Rules and Regulations shall be treated and considered as the comprehensive rules and regulations governing the operations and management of the District. Any and all prior rules and regulations of the District shall be deemed specifically superseded hereby. The Board of Directors has determined to adopt these Rules and Regulations in order to assist the District, operations, engineering, and management staff in implementing the decisions and policies of the Board. It is intended that any Person desiring to transact business with the District as a Property Owner or Developer of property or a resident within the boundaries of the District shall comply with these Rules and Regulations. It is further intended that the District Manager and the management staff shall utilize these Rules and Regulations as a tool for assuring uniform treatment to Persons within the District and fair response to issues that confront the District. The District Manager shall provide copies of these Rules and Regulations to any Person who requests them. Electronic copies shall be provided at no cost. Paper copies shall be provided for at the then-current copy cost or as otherwise determined by the Board. No Person shall be entitled to any exemption from the applicability of these Rules and Regulations due to the failure of that Person to become familiar with policies and standards of the District contained herein, and in supplements hereto.
- 1.5 APPLICABILITY.** These Rules and Regulations shall apply to the construction, alteration, removal, or repair of District facilities. These Rules and Regulations shall apply to District contracts, customer/owner contracts, owner/Developer contracts and private contracts. All work on District water systems shall comply with these Rules and Regulations, including the applicable Standard Detail Drawings in Appendix B.
- 1.6 DISTRICT REPRESENTATION.** The District may appoint an engineer, construction inspector, manager or District employee, agent or consultant to act on its behalf with respect to these Rules and Regulations.

## GREATROCK NORTH WATER AND SANITATION DISTRICT RULES AND REGULATIONS

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- 1.7 RULES OF CONSTRUCTION.** These Rules and Regulations are promulgated pursuant to statute in the exercise of the Board's discretion to provide a tool for management of the District and for the orderly provision of essential services. It is intended that these Rules and Regulations shall be liberally construed to effect the general purposes set forth herein, and that each and every part hereof is separate and distinct from all other parts. No refusal, failure or omission of the Board or its agents to apply or enforce these Rules and Regulations shall be construed as an alteration, waiver or deviation from these Rules and Regulations or from any grant of power, duty or responsibility or any limitation or restriction upon the Board of Directors or the District by virtue of statutes now existing or subsequently amended, or under any contract or agreement existing between the District and any other entity. Nothing contained herein shall be so construed as to prejudice or affect the right of the District to secure the full benefit and protection of any law now in effect or subsequently enacted by the Colorado General Assembly pertaining to the governmental or proprietary affairs of the District. The Board reserves the right to construe any provision hereof in its sole discretion in order to effectuate lawful purposes of the District and to attempt to ensure orderly and non-discriminatory treatment of all Persons subject to these Rules and Regulations now or in the future. In all circumstances, these Rules and Regulations shall be construed in the broadest sense possible to enable the District to perform its functions in accordance with law.

The Rules and Regulations must be complied with by all Persons absent receipt of a proper written waiver approved by the Board. It is the responsibility of each resident and Property Owner to obtain and read the Rules and Regulations of the District as adopted and enforced by the District. No Person shall obtain, by virtue of the Rules and Regulations, any right or cause of action against the District or its management arising as a result of the enforcement or lack of enforcement of the Rules and Regulations by the District.

- 1.8 CONFLICTS.** In case of any conflict between any provision of these Rules and Regulations, the District shall be entitled to resolve such conflict in its own favor at the District's sole discretion, it being the intention of the Board that these Rules and Regulations shall be construed or interpreted by the District in such a manner so as to maximize the ability of the District to govern and manage the District and its facilities.
- 1.9 GENERAL POLICIES.** The District articulates herein its rules, regulations, and policies for the provision of public services and facilities, and for management and operation of the same. From time to time, the Board of Directors adopts official policies of the District. On occasion, such policies are reflected in official "resolutions" or "policies" of the Board of Directors. Additional exhibits may be added to these Rules and Regulations from time to time either by modification of these Rules and Regulations or by the addition of new exhibits. Additional

## GREATROCK NORTH WATER AND SANITATION DISTRICT RULES AND REGULATIONS

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policies may also be found in the minutes of the District's Board meetings. To the extent any policy found in minutes of the Board meetings pre-date and conflict with any resolution of the Board, the resolution shall be deemed to supersede the minutes, unless the Board determines otherwise, after such conflict is brought to the attention of the Board. To the extent policies found in the minutes of meetings post-date resolutions of the District and conflict with such resolutions, the policy stated in the minutes shall be binding unless the Board determines otherwise after such conflict is brought to the attention of the Board. The District shall have the right, at all times, to repeal and re-enact resolutions of the Board unless any resolution specifically states that it is irrevocable. A number of informal policies of the District may exist which are known to the District Manager and the Board of Directors. In any case where a Person has questions about District policies, questions may be directed to the District Manager who has the authority to respond, or who may refer such requests to the Board. In all circumstances, the Board of Directors retains the authority and responsibility for the policies of the District.

- 1.10 ALTERNATE MATERIALS AND METHODS OF CONSTRUCTION.** The provisions of these Rules and Regulations are not intended to prevent the use of materials or methods of construction not specifically prescribed by these procedures. The District will require that sufficient evidence or proof be submitted to substantiate quality and suitability of alternates. Alternate materials or methods shall not be used without written approval of the District.
- 1.11 AMENDMENT, MODIFICATION & WAIVERS.** The Board shall retain the power to amend these Rules and Regulations as it deems appropriate. Neither notice of such amendments nor public hearing shall be required to be provided by the District prior to exercising its amendment, modification or waiver powers. The District has the power to revise its Rules and Regulations from time to time either by formal action of the Board or by implication and has the authority to waive the application of its Rules and Regulations to its own activities, or to the activities of others. Supplemental policies of the District may be adopted from time to time in order to assist the Board and its management staff in managing the affairs of the District. When possible, copies of such policies shall be attached hereto. Additional documents affecting these Rules and Regulations may be added by Board resolution from time to time. The Board, or the District Manager acting on instructions of the Board, shall have the sole authority to waive, suspend or modify these Rules and Regulations. Any Person claiming the benefit of such waiver, suspension or modification shall be required to obtain a written waiver signed by the District Manager. Such waiver shall not be deemed an amendment of the Rules and Regulations. No waiver shall be deemed a continuing waiver.
- 1.12 TESTS.** The contractor shall perform testing as required by these Rules and Regulations. In cases where there is insufficient evidence of compliance with the

## GREATROCK NORTH WATER AND SANITATION DISTRICT RULES AND REGULATIONS

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provisions of these Rules and Regulations, or evidence that any material or construction does not conform to these Rules and Regulations, the District may direct the contractor to perform additional testing as required to demonstrate compliance. Test methods will be as specified by these Rules and Regulations or by other recognized test standards. If recognized and accepted test methods do not exist, the District will determine test procedures.

- 1.13 TESTING.** All testing will be performed by a testing agency approved by the District. A copy of all test reports shall be submitted directly to the District by the testing agency. The contractor shall pay all costs associated with the testing.
- 1.14 LIABILITY.** The liability of the District and its employees is controlled and limited by the Colorado Governmental Immunity Act, §§ 24-10-101, *et seq.*, C.R.S. The District assumes no responsibility for contractors constructing facilities for private Developers, whether or not the District has consulted with the Developer or inspected any such construction and whether or not such facilities may eventually be conveyed to the District for the maintenance of facilities and for their safety commences only when such facilities are actually conveyed to the District. Consultants to the District, including but not limited to the District Engineer and the District Operator, likewise assume no responsibility for the safety or sufficiency of any construction or work conducted by or for a private Developer. Where the District contracts with any contractor, the particular obligations of the District to that contractor shall be specified in the contract.
- 1.15 PROHIBITED ACTIONS.** No Person shall construct, alter, repair, interfere or improve any District facilities, or permit the same, and such acts shall be a violation of these Rules and Regulations.
- 1.16 EMERGENCY WORK.** Contractors hired by the District to perform emergency work such as repair of pipeline leaks, shall comply with all applicable sections of these Rules and Regulations, including insurance requirements. To ensure that contractors performing emergency work comply with the insurance requirements of these Rules and Regulations, only pre-approved contractors will be allowed to perform emergency work within the District. Contractors performing emergency work shall not be required to obtain a permit prior to performing the work.
- 1.17 INSURANCE REQUIREMENTS.** The contractor shall not commence work pursuant to any permit until s/he has obtained all insurance required by these Rules and Regulations, nor shall the contractor allow any subcontractor to commence work until all similar insurance required of the subcontractor has been obtained and approved. All contracts with the District, and for work performed by or for the District, shall contain the following clauses:
- 1.17.1 PUBLIC LIABILITY AND PROPERTY DAMAGE INSURANCE.**  
The contractor shall carry Comprehensive General Liability and Auto

## GREATROCK NORTH WATER AND SANITATION DISTRICT RULES AND REGULATIONS

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Liability insurance in the amount specified. All subcontractors shall be required to carry Comprehensive General Liability and Automobile Liability insurance in an amount equal to that required of the contractor. All insurance shall name the District as an additional insured.

The contractor agrees that it will indemnify and hold harmless the District, the District's Engineer and all of its consultants, agents and employees from any loss, cost, damage, expense and liability including attorneys' fees, by reason of property damage, personal injury, or both, arising out of or as a result of the contractor's work, or any negligent act or negligent failing to act, or on account of the use of improper or defective materials, or on account of any poor workmanship or on account of any act of omission or commission in connection with the performance of work by contractor, its employees, agents and subcontractors. In any and all claims by or against the District, the District's Engineer and its consultants, agents and employees, the indemnification obligation of this paragraph shall not be limited by any required policy of insurance

**1.17.2 PROOF OF INSURANCE.** Prior to the commencement of any work, the contractor shall furnish to the District certificates of insurance to prove that all required insurance is in force and shall require any subcontractor to submit similar evidence before undertaking work under this contract. Each insurance policy shall contain a clause providing that it shall not be canceled or materially altered without ten (10) days' written notice to the District. The District reserves the right to review the insurance coverage and to deny a permit if, in the District's sole discretion, such coverage is not adequate. Neither acceptance by the District of any insurance supplied by a contractor or subcontractor, nor failure to deny a permit due to inadequacy of insurance, shall relieve the contractor or subcontractors of their obligation to maintain the required insurance in full force during the period of time work is performed under the permit.

**1.17.3 COVERAGES.** Contractors performing work for or on behalf of the District, shall provide the following minimum insurance coverage and limits.

### General Liability

General Aggregate	<u>\$5,000,000</u>
Personal & Advertising Injury	<u>\$2,000,000</u>

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Each Occurrence

\$2,000,000

In order to ensure that there are no impaired aggregates, a per job aggregate is required.

Such insurance shall include coverage for contractual liability, personal injury and broad form property damage, and shall include all major divisions of coverage and be on a comprehensive basis including, but not limited to:

- a. premises operations;
- b. personal injury liability without employment exclusion;
- c. blanket contractual;
- d. broad form property damages, including completed operations;
- e. medical payments;
- f. products and completed operations;
- g. independent consultants coverage; and
- h. coverage inclusive of construction means, methods, techniques, sequences, and procedures, employed in the capacity of a construction consultant.

All coverages shall be continuously maintained to cover all liability, claims demands and other obligations assumed by the contractor pursuant to this contract. A claims-made policy may satisfy these insurance requirements, provided that the necessary retroactive dates and extended reporting periods are procured by the contractor to maintain such continuous coverage.

### **Automobile Liability**

Comprehensive, owned, hired

\$500,000 (combined  
single limit).

Excess Liability (umbrella form)

\$1,000,000

(Each Occurrence)

\$1,000,000 (Aggregate)

### **Worker's Compensation**

Covering all employees of the Contractor involved with the performance of the work or services being performed, with policy amounts and coverage in compliance with the laws

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of the jurisdiction in which the work or services will be performed.

### **Fidelity Coverage**

Contractors shall secure and maintain a fidelity bond in favor of the District covering the Contractor and its employees and agents who may provide or be responsible for the provision of services where such activities contemplate the responsibility for money or property of the District. Such bond shall protect the District against any fraudulent or dishonest act which may result in the loss of money, securities, or other property belonging to or in the possession of the District. Said bond shall be in an amount as determined by the District and from a surety acceptable to the District.

### **Professional Liability**

Professionals, including, but not limited to, engineers, shall provide professional liability insurance.

(Each Occurrence)	<u>\$1,000,000</u>
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All coverages must include coverage extensions to cover the indemnification obligations contained in any agreement entered into with the District for the work or services to the extent caused by or arising out of bodily injury or property damage.

The District reserves the right to increase the required coverages and limits set forth herein depending on the specific project or requirements of other governmental entities. Further, the District, through its Board or District Manager, may reduce or eliminate the coverages set forth herein depending on the services to be provided.

- 1.18 EMPLOYMENT ELIGIBILITY.** All contractors performing work for or on behalf of the District shall be in compliance at all times with the E-Verify Program (formerly known as the Basic Pilot Program) as defined in § 8-17.5-101, C.R.S. All District-owned contracts shall include the following language, which shall be agreed to by all contractors:

“The Contractor hereby states that it does not knowingly employ or contract with illegal aliens and that the Contractor has participated in or has attempted to participate in the E-Verify

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Program (formerly known as the Basic Pilot Program) (as defined in §8-17.5-101, C.R.S.) in order to verify that it does not employ any illegal aliens. The Contractor affirmatively makes the following declarations:

(A) The Contractor shall not knowingly employ or contract with an illegal alien who will perform work under the public contract for services contemplated herein and will participate in the E-Verify Program or Department Program (as defined in §8-17.5-101, C.R.S.) in order to confirm the employment eligibility of all employees who are newly hired for employment to perform work under the public contract for services contemplated herein.

(B) The Contractor shall not knowingly enter into a contract with a subcontractor that fails to certify to the Contractor that the subcontractor shall not knowingly employ or contract with an illegal alien to perform the services contemplated herein.

(C) The Contractor has confirmed the employment eligibility of all employees who are newly hired for employment to perform work under the public contract for services through participation in either the E-Verify Program or the Department Program.

(D) The Independent Contractor is prohibited from using either the E-Verify Program or the Department Program procedures to undertake pre-employment screening of job applicants while this Agreement is being performed.

(E) If the Contractor obtains actual knowledge that a subcontractor performing the services under this Agreement knowingly employs or contracts with an illegal alien, the Contractor shall be required to:

(1) Notify the subcontractor and the District within three (3) days that the Contractor has actual knowledge that the subcontractor is employing or contracting with an illegal alien.

(2) Terminate the subcontract with the subcontractor if within three (3) days of receiving the notice required above the subcontractor does not stop



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employing or contracting with the illegal alien; except that the Contractor shall not terminate the contract with the subcontractor if during such three (3) days the subcontractor provides information to establish that the subcontractor has not knowingly employed or contracted with an illegal alien.

(F) The Contractor shall comply with any reasonable request by the Department of Labor and Employment made in the course of an investigation that such Department is undertaking pursuant to the authority established in §8-17.5-102, C.R.S.

(G) If the Contractor violates a provision of the Agreement pursuant to §8-17.5-102, C.R.S., the District may terminate the Agreement. If the Agreement is so terminated, the Contractor shall be liable for actual and consequential damages to the District.”

**1.18.1 FAILURE TO COMPLY WITH EMPLOYMENT ELIGIBILITY PROVISIONS.** The District may, at any time without recourse, terminate any contractor or contract which does not agree to or does not abide by the terms of the E-Verify Program. Contractors performing work for or on behalf of the District shall require all sub-contractors to abide by the same terms.

**END OF ARTICLE 1.**

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## ARTICLE 2. DEFINITIONS AND ABBREVIATIONS

**2.1 DEFINITIONS.** Whenever the following terms are used in these Rules and Regulations, they will be defined as follows:

- **Board of Directors** or **Board** shall mean the governing body of the District.
- **Developer** shall mean any developer, builder, property owner, resident, user, customer or party other than the District.
- **District** shall mean the Greatrock North Water and Sanitation District.
- **District Attorney** or **Attorney** shall mean the person or entity engaged by the District to serve as its general legal counsel. Where appropriate and/or applicable, the term District Attorney or Attorney shall also mean special legal counsel engaged by the District for specialized matters including, but not limited to, water matters, condemnation matters or litigation matters.
- **District Engineer** or **Engineer** shall mean the person or entity engaged by the District to serve as its engineer.
- **District Manager** or **Manager** shall mean the person or entity engaged by the District to serve as its manager.
- **District Operator** or **Operator** shall mean the person or entity engaged by the District to serve as its operator.
- **Fees and Charges** shall mean those fees, rates, tolls, penalties and charges assessed by the Board of Directors and set forth in Appendix A of these Rules and Regulations or subsequent resolutions assessing, increasing, decreasing or otherwise changing the fees, rates, tolls, penalties and charges set forth in Appendix A of these Rules and Regulations. Any references in these Rules and Regulations to fees, rates, tolls, penalties or charges, or any combination thereof, which are not otherwise defined as Fees and Charges shall have the same meaning as Fees and Charges.
- **Person** shall include any Developer and any Property Owner.
- **Property Owner** shall include all owners of real property, customers, users, residents, leaseholders, and other recipients of District services.

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- **Rules and Regulations** shall mean the body of directions, provisions, and requirements contained herein, describing the method or manner of construction, and the quality of materials furnished.
- **Schedule of Fees and Charges** shall mean the schedule of Fees and Charges set forth in Appendix A of these Rules and Regulations or subsequent resolutions assessing, increasing, decreasing or otherwise changing the fees, rates, tolls, penalties and charges set forth in Appendix A of these Rules and Regulations.
- **Standard Detail Drawings** shall mean the standard detail drawings set forth in Appendix B of these Rules and Regulations or subsequent resolutions modifying in any way the Standard Detail Drawings.

### 2.2 ABBREVIATIONS.

- **AASHTO** shall mean the American Association of State Highway and Transportation Officials.
- **ACI** shall mean the American Concrete Institute.
- **AISC** shall mean the American Institute of Steel Construction.
- **ANSI** shall mean the American National Standards Institute.
- **APWA** shall mean the American Public Works Association.
- **ASA** shall mean the American Standards Association.
- **ASTM** shall mean the American Society for Testing and Materials.
- **AWG** shall mean the American Wire Gauge.
- **AWWA** shall mean the American Water Works Association.
- **BPR** shall mean the Bureau of Public Roads.
- **CDPHE** shall mean the Colorado Department of Public Health and Environment
- **CDOT** shall mean the Colorado Department of Transportation.
- **FCC** shall mean the Federal Communications Commission.
- **gpcd** shall mean gallons per capita per day.

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- **gpm** shall mean gallons per minute.
- **GRC** shall mean galvanized rigid conduit.
- **IMSA** shall mean the International Municipal Signal Association.
- **IPCEA** shall mean the Insulated Power Cable Engineers Association.
- **ITE** shall mean the Institute of Transportation Engineers.
- **MGD** shall mean million gallons per day.
- **NEC** shall mean the National Electrical Code.
- **NEMA** shall mean the National Electrical Manufacturers Association.
- **NFPA** shall mean the National Fire Protection Association.
- **PVC** shall mean polyvinyl chloride.
- **psi** shall mean pounds per square inch.
- **TCP** shall mean Traffic Control Plan.
- **UBC** shall mean the Uniform Building Code.
- **UPC** shall mean the Uniform Plumbing Code.
- **UL** shall mean Underwriters Laboratories, Inc.
- **USDA** shall mean the United States Department of Agriculture.

**2.3 TERMS.** Whenever, in these Rules and Regulations, the words “as ordered”, “as directed”, “as required”, “as permitted”, “as allowed”, or words or phrases of like import are used, it will be understood that the order, direction, requirement, permission, or allowance of the District is intended.

The words “approved”, “reasonable”, “suitable”, “acceptable”, “accepted”, “properly”, “satisfactory”, or words of like effect and import, shall mean approved, reasonable, suitable, acceptable, accepted, properly or satisfactory in the judgment of the District.

Whenever the word “District” is used in these Rules and Regulations, it shall mean the Greatrock North Water and Sanitation District or its designated representative.

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- 2.4 SPECIFICATIONS BY REFERENCE.** All specifications, i.e., ASTM, ACI, etc. made a portion of these Rules and Regulations by reference shall be the latest edition.

Throughout these Rules and Regulations, any section referenced shall include all sub-sections of that section. Any portion of these Rules and Regulations may be applicable to any other section.

**END OF ARTICLE 2.**

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**ARTICLE 3. DESCRIPTION OF THE DISTRICT**

- 3.1 PURPOSE OF THE DISTRICT.** The District was organized with the authority to provide certain services and facilities to residents and Property Owners within the District as well as to users outside the District's boundaries. The District is a quasi-municipal corporation and political subdivision of the State of Colorado and, as such, exercises certain governmental powers for the benefit of its constituents. Pursuant to its Service Plan, the District has the authority to provide water and storm drainage facilities and services. The District has the power to tax properties within its boundaries and to impose fees, rates, tolls, penalties or charges for services available from or provided by the District. The District derives its power from Colorado law and from its Service Plan. The Service Plan contains general information about the facilities, services and powers of the District and may be amended from time to time to deal with the evolving needs of the District. The District has the authority to construct facilities and improvements for District services as it deems expedient in accordance with the authority granted to the District in its Service Plan. The District's Service Plan is an "enabling document" granting to the District certain powers and authorities. The Service Plan does not impose upon the District any responsibility which it is not required to accept pursuant to state law or which it does not specifically accept by official decision of the Board.
- 3.2 THE GOVERNING BODY.** The District is governed by an elected Board of Directors. The Board consists of five individuals who, as residents or Property Owners within the District, are qualified to serve as directors. Directors are generally elected to four-year terms at elections held in May of even-numbered years. The Board elects from its membership a president, vice-president, treasurer, and appoints a secretary.
- 3.3 DISTRICT BOARD MEETINGS.** Meetings of the Board of Directors are subject to the "Sunshine Law" of the State of Colorado and are open to the public. From time to time the Board meets in "Executive Session" to receive legal advice or to discuss ongoing contract negotiations, litigation matters or other legally privileged matters. Executive sessions are held in accordance with Colorado law and are closed to the general public. Minutes of meetings are prepared for each meeting and, after approval by the Board, are available for public inspection. The District's policy is not to tape record its meetings and it does not attempt to maintain a verbatim transcript of its discussions.
- 3.4 DISTRICT MANAGEMENT.** The District is managed by a professional management staff engaged by the Board. The District Manager oversees the day-to-day administration of the District and operation of District facilities. All employees and consultants of the District serve at the will of the Board. The District Manager operates within approved guidelines established by the Board

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and exercises only that discretion which is granted by the Board as necessary for day-to-day operations and for implementation of Board decisions and policies.

- 3.5 DISTRICT SERVICES AND FACILITIES.** In general terms, the District attempts to provide the water and storm drainage services and improvements within the District. The District's Service Plan provides a general description of those facilities. Reference is made to the Service Plan for general descriptions of services and facilities, which may be provided by the District. The District has powers of eminent domain to condemn private properties for public use.
- 3.6 FEES, RATES, TOLLS, PENALTIES AND CHARGES.** The District has the statutory authorization to impose fees, rates, tolls, penalties and charges for services and facilities provided by the District. The failure of a Property Owner or Developer to pay such fees, rates, tolls penalties or charges creates a perpetual lien on the benefitted property and the District has a statutory right to foreclose on that lien. The District exercises such power for the overall benefit of the District and reserves the right to exercise its discretion on a case-by-case basis in determining whether to claim a lien and foreclose it. Development fees, service charges, miscellaneous fees and other applicable fees, rates, tolls, penalties or charges shall be in the amounts stated in the Schedule of Fees and Charges and any fee resolution adopted by the Board of Directors. The Board of Directors may increase or decrease the fees, rates, tolls, penalties or charges set forth in the Schedule of Fees and Charges at any time pursuant to Colorado law by adoption of a resolution setting forth the same which, upon adoption, unless otherwise provided, shall be deemed to have replaced in its entirety the Schedule of Fees and Charges without further action of the Board of Directors to formally amend the Rules and Regulations. Following efforts to collect overdue payments of any fee, rate, toll, penalty or charge assessed by the District under these Rules and Regulations and/or Colorado law, the District may certify any unpaid fees to the County Treasurer for collection in the same manner as those for taxes pursuant to the provisions of §32-1-1101(1)(e), C.R.S. Alternatively, the District may elect to initiate foreclosure proceedings as allowed by § 32-1-1001(1)(j), C.R.S., as amended. The District shall, in each such case, be entitled to assess all legal fees, costs of collection and a foreclosure penalty against the subject property in an amount set forth in the Schedule of Fees and Charges, which penalty shall be payable in full upon assessment and shall be included in the lien then being foreclosed. Payment of said foreclosure penalty and any and all other fees outstanding against the subject property shall be a precondition to the resumption of District services.
- 3.6.1 COLLECTION PROCEDURES.** The procedures for the collection of any outstanding fee, rate, toll, penalty and charge shall be pursuant to the District's then-current Collections Resolution. In the event the District's Collections Resolution is no longer in effect or is otherwise

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deemed invalid, the procedures for the collection shall be in accordance with Colorado law.

- 3.7 DISTRICT FACILITIES.** Systems constructed or accepted by the District shall be operated and maintained by the District pursuant to these Rules and Regulations. Systems constructed by a Person other than the District shall be conveyed to the District in accordance with the provisions set forth herein.

- 3.7.1 CONSTRUCTION STANDARDS.** The Developer agrees to design, construct, and complete the improvements to be conveyed to the District in substantial conformance with the design standards and specifications established and in use by the District, the Colorado Department of Public Health and Environment (CDPHE), and Adams County, as appropriate, and as approved by the District's Engineer or Operator. The District will use its contract operations personnel to provide observation and review during construction and conduct field reviews and generate written punch lists of any deficiencies found. All District personnel or assigned agents shall have access to the construction site and constructed activity at all times.

- 3.7.1.1 Review of Construction Plans, Construction Activity, and Field Review/Punch List.** The District will perform a field review of all improvements to verify that facilities were installed in accordance with the approved construction plans. The construction plans will be submitted for review and approval by the District with signatures of the District Manager and District Engineer on the cover sheet. The District will only sign paper copies of the construction plans and will retain 5 sets of plans for the District. The Developer shall submit additional construction sets for signatures as necessary for obtaining permits from other agencies, contractor use, file copies, record drawings, etc. Contractors shall have a set of signed construction plans on site during construction. The plan review will consist of at least one full review of the construction plans with comments to be addressed and resubmittal of the revised plans for review. Additional revisions and resubmittals may be required due to issues from external sources and/or unresolved issues with the District that may occur. The construction review will consist of at least one field review at the end of construction and testing plus random field observations during construction and the frequency of those observations determined by the District. The Developer shall reimburse the District for all fees and costs associated with plan reviews, construction observation, field reviews, punch lists, etc.



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**3.7.2 APPLICATION FOR INITIAL ACCEPTANCE OF IMPROVEMENTS.** Upon completion of the improvements (or portion thereof which, in the reasonable opinion of the District based upon advice from its engineers and legal counsel, constitutes a discrete subsystem or component of a larger improvement or structure that may be separately acquired), the Developer shall submit the following materials in form and substance reasonably satisfactory to the District:

- a. A description of the improvements to be accepted by the District.
- b. Copies of all invoices, statements and evidence of payment thereof, including lien waivers from suppliers and subcontractors.
- c. Evidence that any and all real property interests necessary to permit the District's use and occupancy of the improvements have been granted, or, if permitted solely in the discretion of the District, assurance acceptable to the District that the Developer will execute or cause to be executed such instruments as shall satisfy this requirement.
- d. A complete set of electronic and 24" by 36" mylar reproducible "as-built" drawings of the improvements which are certified by a professional engineer registered in the State of Colorado showing accurate size and location of all improvements. Such drawings shall be in form and content reasonably acceptable to the District. To the extent such improvements are being dedicated to other governmental entities, said drawings shall not be required until such time as the improvements are finally accepted by the governmental entity. Where improvements are being acquired as discrete subsystems or components, this requirement may be satisfied upon final completion of the improvements of which the subsystem or component is a part.
- e. A form Bill of Sale or other instrument of conveyance (in form and substance acceptable to the District in its reasonable discretion) by which the improvements (or component part or subsystem) are conveyed to the District or other governmental entity.
- f. Assignment of any and all warranties with respect to the improvements or any components thereof.
- g. Any and all operation and maintenance manuals for the improvements and any components thereof.
- h. Information and documents required pursuant to these Rules and Regulations.
- i. Such additional information as the District may reasonably require.

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**3.7.3     DISTRICT REVIEW, CERTIFICATION PROCEDURES AND INITIAL ACCEPTANCE LETTER.** Following receipt of the materials described in Section 3.7.2, hereof, the District's Engineer or other appropriate design professional shall inspect the improvements for compliance with applicable design and construction standards and shall issue an Engineer's Certification in form and substance reasonably acceptable to the District stating that the improvements are fit for their intended purpose and that they (or their individual components and/or subsystems, if applicable) were constructed using the appropriate and required quantities. In the event the District's Engineer or other appropriate design professional reasonably determines that corrective work must be completed before the Engineer's Certificate can be issued, the Developer shall promptly be given written notice thereof and an opportunity to dispute and/or complete such corrective work. Upon completion of any and all corrective work to the District Engineer's full and complete satisfaction, the Engineer's Certificate shall thereafter be issued. Subject to the receipt of a satisfactory Engineer's Certificate and satisfaction of any other conditions reasonably required by the District, the District will evidence its intention to accept the improvements by issuing an "Initial Acceptance Letter." The Initial Acceptance Letter may contain any additional conditions or qualifications deemed reasonably necessary and fit for the District's acceptance of the improvements.

**3.7.4     CONVEYANCE OF IMPROVEMENTS.** Upon receipt of the Initial Acceptance Letter, the Developer shall convey the improvements to the District. The improvements shall not be deemed accepted by the District until all requirements set forth in this Section 3.7 have been met to the District's full and complete satisfaction. Until such time, the Developer shall be and shall remain responsible and liable for the improvements in all respects.

**3.7.1.1 Bill of Sale.** At no cost to the District, the Developer shall convey the improvements to the District by means of a bill of sale in a form acceptable to the District.

**3.7.1.2 Property Interests.**

**3.7.4.2.1     Easement.** Concurrent with the conveyance of a bill of sale for the improvements, and at no cost to the District, the Developer shall grant to the District a permanent, non-exclusive easement for the property on which or in which the improvements lie. Such easement shall be a minimum of thirty feet (30') in width and shall be in a form acceptable to the District.

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**3.7.4.2.1.1** The Developer shall use its best efforts to obtain the easements required herein from all Property Owners. If, after use of its best efforts, the Developer is unable to secure the required easements, the Developer may request that the District obtain the required easements in accordance with the provisions of Section 3.7.5, below; however, any and all costs associated with the District's work to obtain such easements shall be paid by the Developer from the Inclusion Fee, if still applicable, or, alternatively, the Developer shall remit to the District funds sufficient to allow the District to obtain the easements prior to any work commencing. If at any time prior to the District's receipt of the required easements the funds on deposit are depleted, the District's Manager shall request additional funds from the Developer prior to work resuming. Any remaining funds on deposit with the District after the easements have been obtained shall be refunded to the Developer in full.

**3.7.4.2.2 Fee Simple Absolute.** In lieu of an easement pursuant to Section 3.7.3.2.1, above, and at no cost to the District, the Developer may grant to the District title to the property on which or in which the improvements lie in fee simple absolute by means of a special warranty deed, which grant shall be free and clear of all liens and encumbrances on the property.

**3.7.4.2.3 Dedications by Plat.** In the event the Developer desires to dedicate an easement or ownership interest to, for, on, over, through or under any tract or parcel to the District by plat, the District shall be a signatory on the plat or shall provide a separate letter of acceptance for the tract or parcel. In no event shall the Developer unilaterally dedicate or transfer an easement or ownership interest to, for, on, over, through or under any tract or parcel to the District by plat.

**3.7.4.2.4 Ingress and Egress to Improvements.** At no cost to the District, the Developer shall convey any necessary licenses or easements, whichever the District shall require in its sole discretion, to permit ingress and egress by the District and its agents to the area.

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**3.7.4.2.5 Title Insurance Policy.** The Developer agrees to provide the District with a title commitment for the area being conveyed to the District. At the District's election, the Developer shall provide the District, at the Developer's sole cost and expense, a title insurance policy in the District's name to insure the District from any defects in title.

**3.7.5 WARRANTY PERIOD.** The Developer shall enter into a warranty agreement with the District and/or shall provide a warranty bond for the warranty period. The Developer shall guarantee and warrant that all workmanship, materials, and equipment furnished, installed, or performed for the accomplishment of the improvements will be of good quality and new, unless otherwise required or permitted by the District. The Developer shall further warrant that the improvements will conform to all requirements of the Rules and Regulations and the applicable building code and all other applicable laws, ordinances, codes, rules and regulations of any governmental authorities having jurisdiction over the improvements. All materials are subject to the satisfaction and acceptance of the District.

The Developer shall further warrant all of the work and the workmanship, equipment and materials for a period of one (1) year from the date of completion and acceptance of the improvements by the District. The Developer will immediately correct or replace any work that is defective or not conforming to the Rules and Regulations at its sole expense to the reasonable satisfaction of the District. The Developer's warranty shall run with the land and shall be enforceable by the District and its successors and assigns against the Developer, its successors and assigns.

The Developer shall promptly notify the District of any work, whether by the Developer, its subcontractors or any third parties, which the Developer believes to be defective or not conforming with the Rules and Regulations.

The Developer shall, at its expense, obtain all permits, licenses, and other consents required from all governmental authorities, utility companies and appropriate parties under any restrictive covenants in connection with its work. The Developer shall comply with all of the terms and conditions of all permits, licenses and consents.

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The Developer, at its expense, shall promptly repair or remedy to the satisfaction of the District all damage or loss to any property (including the work, utilities, concrete, asphalt, fixtures, landscaping and any other part of the improvements or the development of which the improvements are a part) caused in whole or in part by the Developer or any subcontractor.

**3.7.6 FINAL ACCEPTANCE OF IMPROVEMENTS.** At or around eleven (11) months, but no more than one (1) year, after the Initial Acceptance Letter, the District Engineer or other appropriate design professional shall inspect the improvements for compliance with applicable design and construction standards and shall issue an Engineer's Certification in form and substance reasonably acceptable to the District stating that the improvements are fit for their intended purpose and that they (or their individual components and/or subsystems, if applicable) were constructed using the appropriate and required quantities. In the event the District Engineer or other appropriate design professional reasonably determines that corrective work must be completed before the Engineer's Certificate can be issued, the Developer shall promptly be given written notice thereof and an opportunity to dispute and/or complete such corrective work. Upon completion of any and all corrective work to the District Engineer's full and complete satisfaction, the Engineer's Certificate shall thereafter be issued. Subject to the receipt of a satisfactory Engineer's Certificate and satisfaction of any other conditions reasonably required by the District, the District shall evidence its intention to finally accept the improvements by issuing a "Final Acceptance Letter" at which point the District will become fully responsible for the ongoing operation and maintenance of the Improvements.

**3.7.7 EASEMENTS SOUGHT BY DISTRICT.** The District shall negotiate the procurement of easements with Property Owners in good faith. All easement agreements shall be substantially in the form set forth in Appendix D. Unless otherwise determined to be necessary by the District's Engineer or Operator, all easement areas shall be thirty feet (30') in width.

**3.7.7.1 Initial Discussions with Property Owner.** Upon determination that an easement is necessary for public improvements, the District's Engineer shall prepare a legal description and drawing of the proposed easement area. A District representative shall initiate negotiations with the Property Owner from whom an easement is desired. Such initiation shall be in the form of a letter to the

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Property Owner, which letter shall include a copy of an easement agreement, legal description and drawing of the proposed easement area, and shall invite the Property Owner to discuss the conveyance of the easement. Any revisions to the form easement agreement set forth in Appendix D shall be approved by the District's attorney and, if substantive and/or necessary, the Board of Directors.

**3.7.7.2 Compensation for Easement.** Pursuant to § 32-1-1001(1)(f), C.R.S., it shall be the District's policy that the District shall not pay more than fair market value for real property interests, including easements, necessary to the functions or the operation of the District. In the event a Property Owner disputes the fair market value of the easement area, the Property Owner may obtain an appraisal at the Property Owner's expense. The District shall also be permitted to obtain its own appraisal for the easement area at its own expense but shall not be required to do so. Upon review of the appraisals, the District's Board of Directors, in its sole discretion, shall make a determination as to whether the amounts reflected in the appraisals represents a fair market value acceptable to the District. If such amount is acceptable, then the easement agreement may be finalized. In the event the amount is unacceptable, then the District may elect to abandon its quest for the easement or may proceed with condemnation proceedings for the easement area pursuant to the provisions of Section 3.7.7, below.

**3.7.7.3 Finalization of Easement Agreement.** Upon successful negotiation of an easement agreement with the Property Owner, the Property Owner shall execute the easement agreement, which signature shall be notarized, and shall deliver the easement agreement to the District. Upon receipt of the fully executed agreement, the District shall tender to the Property Owner the negotiated compensation in immediately available funds. The District shall then record the easement agreement in the real property records of the Adams County Clerk and Recorder's Office. A copy of the fully executed and recorded easement agreement shall be provided to the Property Owner upon return from the Adams County Clerk and Recorder's Office.

**3.7.8 TEMPORARY CONSTRUCTION EASEMENTS.** The District shall negotiate the procurement of temporary construction easements (also known as rights of entry) with Property Owners in good faith. All temporary easement agreements shall be substantially in the form set

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forth in Appendix E. Unless otherwise determined to be necessary by the District's Engineer or Operator, all temporary construction easement areas shall be fifty feet (50') in width. The procurement of temporary construction easements shall be conducted in the same manner as established for the procurement of easements, as set forth in Section 3.7.5, above.

**3.7.9 CONDEMNATION PROCEDURES.** After negotiating in good faith with the Property Owner, in the event negotiations for easements or other property interests have failed, the District may elect to proceed with condemnation proceedings for the desired property interest in accordance with Colorado law.

**3.7.10 GEOGRAPHIC INFORMATION SYSTEM ("GIS") DATA.** In conjunction with the conveyance of all improvements and property interests set forth in this Section 3.7, the Developer shall provide the District with GIS layers and data in electronic format for the location of all improvements, specifically including, but not limited to, meters, meter boxes, valves, curb stops, taps, buildings, ponds, tanks and service lines, as well as GIS layers and data for associated property interests.

**3.8 DISTRICT OWNERSHIP.** All improvements constituting any part of the District's system shall be the sole property of the District unless otherwise specifically agreed by the District. Notwithstanding that customers shall be entitled to receive service from the District pursuant to these Rules and Regulations, no legal or equitable ownership in District systems or improvements shall be deemed to exist in favor of any Person or entity other than the District.

**3.9 RIGHT OF ENTRY.** The District Manager, the District Engineer, the District Operator, employees of the District or other personnel authorized by the District Manager bearing proper credentials and identification, shall be permitted by all Property Owners within the District to enter upon all properties or appurtenances for the purpose of installation, replacement, repair, maintenance, inspection or observation reasonably necessary in connection with the services and facilities provided by the District. The granting of Right of Entry by the Property Owner is a condition precedent and a condition subsequent to the provision of services by the District. Refusal to permit such access to District personnel in the performance of their duties may result in discontinuation of services to the property in question, or cause additional charges to the Property Owner for increased costs or damages sustained as a result of refusing the Right of Entry.

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**3.10 RULES CONCERNING DISTRICT SERVICES AND FACILITIES**

**3.10.1 ENTITLEMENT TO DISTRICT SERVICES.** District Services will be provided by the District to all customers subject to these Rules and Regulations. No Person who fails to pay applicable Fees and Charges or who fails to provide evidence that appropriate fees have been paid for the benefit of such Person shall be entitled to continued service. It shall be incumbent upon the applicant for District services to furnish satisfactory evidence of payment of applicable Fees and Charges whenever the District requests such evidence. Notwithstanding that a Person has paid appropriate Fees and Charges for service, no Person shall be entitled to receive continued District services if property taxes or other Fees and Charges due from such Person have become delinquent. District services shall be suspendable or revocable at the District's discretion upon non-payment of any valid Fees and Charges owing to the District or any other violation of these Rules and Regulations. In the event of non-payment, the Property Owner shall be given not less than five (5) days advance notice in writing of the revocation, such notice to be determined as of the date of mailing.

**3.10.1.1 Hearing on Discontinuation of Service.** In the event the District enforces its right to suspend or revoke service, the Property Owner may request an informal hearing with the Manager pursuant to the complaint procedures outlined in Section 3.11, below, and such discontinuation of service shall be delayed until the Manager hears and replies to the complaint. If the Property Owner is dissatisfied with the Manager's initial determination, the Property Owner may request a formal hearing as provided for in Section 3.11.3; however, such request for a formal hearing shall not delay immediate discontinuation of service in the District's discretion.

**3.10.1.2 Disconnection or Reconnection of Service.** Any Property Owner receiving District services may voluntarily discontinue service. Disconnection of service shall require the termination of water service to the property by the Manager or its designee, in accordance with the standards of these Rules and Regulations. Disconnected properties will no longer be subject to monthly service charges commencing on the date of disconnection. Disconnected properties shall become immediately subject to any then-current Availability of Service Fees and shall be liable for a prorated share of such fee for the calendar year. Any Property Owner desiring to resume District services shall apply for a Reconnection of Service. The disconnection or reconnection of



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District services shall be subject to fees provided for in the Schedule of Fees and Charges.

**3.10.2 EXTENSIONS OF DISTRICT SERVICES.** Developers desiring the extension of existing District water line(s) shall be required to bear the cost of such extensions to a location specified by the District, which will ensure uninterrupted mainline operations when subsequent line extensions are required. The process of design or extensions is normally simultaneous with platting and land use activities.

**3.10.2.1 Design.** The Developer shall be responsible for preparing the design of extensions and distribution lines as directed by the District and as needed for extension of service. The District will review and comment or direct any needed changes to the design which must be approved by the District's Engineer prior to becoming eligible to commence construction.

**3.10.2.2 Developer Construction.** Except as provided in Section 3.10.2.3, below, the Developer shall contract with a contractor acceptable to the District for the completion of such work, subject to the requirements of these Rules and Regulations. Prior to commencing construction, the Developer shall deposit with the District ten percent (10%) of the total estimated cost of the work to cover oversight, inspection, review and unanticipated costs incurred by the District for the work. The Developer shall comply with all provisions of these Rules and Regulations, specifically including, but not limited to, the provisions and requirements set forth in Sections 3.7.3, 3.7.4 and 3.7.8 hereof for the ultimate conveyance of improvements to the District. All requirements set forth in these Rules and Regulations, specifically including, but not limited to, those set forth in Sections 3.7.3, 3.7.4 and 3.7.8 hereof, shall be completed to the District's full satisfaction by no later than one hundred twenty (120) days after the final completion date for the construction of the water line(s). In the event the requirements set forth herein are not completed to the District's full satisfaction within that time period, the District may elect to refuse acceptance of the improvements or impose a penalty on the Developer in an amount sufficient to cover the District's administrative, engineering, management and legal fees associated with the delay, plus 10%.

**3.10.2.3 District Construction.** In lieu of constructing the water line extension itself, the Developer may request that the District construct the improvements. In such event, at the time of the request, the Developer shall deposit funds with the District in an

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amount equivalent to the estimated costs of the extension, which cost shall include, but not be limited to, engineering, administrative, management, legal, construction and other related costs, plus ten percent (10%), and the District shall perform the work either directly or through contract. If the final cost of the extension exceeds the deposit, the Developer shall pay any deficit to the District within ten (10) business days of the dated date of the written notice from the District of the deficit. In no event shall the Developer be connected to the District's facilities until the deficit is paid in full. In the event the final costs of the extension is less than the deposit, the District shall refund the Developer the excess amount within thirty (30) days of the final payment date for the improvements. In the event the water line extension requires additional facilities, such as wells, pump stations or other regional facilities, the District may require that the District construct the improvements pursuant to this provision with costs to be paid by the Developer, as set forth herein.

**3.10.2.4 Cost Sharing for Extensions or Oversizing.** Where improvements are extended or oversized such that additional future services are further extended, expected from the extension or otherwise benefitted from the oversizing of the improvements, then the initial Developer installing the extension or oversized improvements may request that the District require a reimbursement agreement with future Developers in order to potentially recover partial funding costs from the benefitting parties. The reimbursement agreement will specify the terms and the basis for reimbursement and will not require the District to track funds for any period greater than twenty (20) years from the date of the reimbursement agreement. In order to request a reimbursement, the Developer, at the completion of the initial extension, shall file a statement of verified costs for the improvements with the District which must be reviewed and approved by the District. Reimbursements to the Developer from future Developers are not assignable to others and shall be limited to the Developer who provided the initial deposit for the improvements.

**3.10.3 INFRASTRUCTURE CONSTRUCTION AND CONVEYANCE AGREEMENTS.** Developers desiring the construction of District improvements for District ownership, operation and maintenance or for ownership by other entities shall be required to enter into an infrastructure construction and conveyance agreement with the District outlining the general nature of the expected improvements and setting

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forth the terms of deposits, off-site improvements, conveyance of the improvements and other matters. The Board shall approve the final agreement.

**3.10.4 WILL SERVE LETTERS.** The Adams County land use planning process requires Developers to obtain a written commitment from the District, commonly known as Will Serve Letters, to provide water services to the property subject to the land use application. The Board shall approve all new Will Serve Letters. Will Serve Letters may contain certain conditions or provisions related to the District's commitment to serve the property based on the level of agreements established with the District. The District will consider a request for service after a meeting with the Developer, receipt and review by the District of the Land Use Plan and any special definition of service needs which may be required by the District. The term Land Use Plan shall refer to any concept plan, preliminary plan, PUD or final plat, depending on the level of County Planning review anticipated. The District Manager may update or revise a Will Serve Letter for any non-substantive changes once it has been originally approved by the Board; provided, however, that any substantive changes to the Will Serve Letter shall be approved by the Board.

**3.10.5 DISTRICT SERVICES TO PERSONS OUTSIDE THE DISTRICT BOUNDARIES.** Charges for District services to Persons outside the District boundaries shall be determined in the sole discretion of the Board of Directors. It is expected that charges for District services for Persons owning property or residing outside the District's boundaries shall equal at least the actual cost of District services, plus, at a minimum, the estimated mill levy payments and other Fees and Charges for which such property would be responsible if it were included in the District. In every case where the District furnishes services to Persons owning property or residing outside the District boundaries, the District reserves the right to discontinue service when, in the judgment of the Board of Directors, it is in the best interest of the District to do so, except as may be limited by written agreement.

**3.10.5.1 Notice of Service Discontinuation.** In the event the District enforces its right to discontinue service to Persons outside the District's boundaries, the District shall provide 45 days' notice to that Person. The notice shall set forth the date, time and location of a hearing regarding service discontinuation. At the hearing, the Board of Directors shall consider all evidence presented regarding the service discontinuation and shall make a determination to discontinue service, continue service with additional conditions or continue service under

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the existing written agreement, which determination shall be made in its sole discretion.

**3.10.6 INCLUSION OR EXCLUSION OF PROPERTY.** Owners of property located outside the boundaries of the District may propose inclusion (annexation) of such property into the District. All requests for inclusion of property within the boundaries of the District shall be made pursuant to the provisions of § 32-1-401, *et seq.*, C.R.S. Persons who own property within the boundaries of the District may seek to have their property excluded from the District. All requests for exclusion of property shall be considered pursuant to the provisions of § 32-1-501, *et seq.*, C.R.S.

### **3.10.6.1 Inclusion Procedures.**

**3.10.6.1.1 Petition for Inclusion.** An owner of property located outside the boundaries of the District wishing to include property into the District shall submit to the District a petition for inclusion meeting the requirements of § 32-1-401, *et seq.*, C.R.S. The owner is referred to in these Rules and Regulations as the "Petitioner". A Petitioner desiring the District to provide the form of petition for inclusion to him/her shall pay an Application Fee in the amount of Five Hundred Dollars (\$500), which Application Fee shall be non-refundable and shall not be credited toward the Initial Deposit, and the Initial Deposit set forth in the Schedule of Fees and Charges, and more particularly described in Section 3.10.6.1.2 below, to the District at the time of such request. A Petitioner desiring to meet with the District and/or the District's consultants prior to formal submission of a petition shall pay a pre-inclusion fee to the District in the amount of One Thousand Dollars (\$1,000) to pay for all administrative costs associated with such meeting. Any remaining funds on deposit with the District will either be: 1) returned to the potential Petitioner upon determination not to proceed with an inclusion into the District; or 2) credited toward the Initial Deposit described in Section 3.10.6.1.2 below.

**3.10.6.1.2 Inclusion Fee.** Concurrent with the submission of a fully executed petition for inclusion, the Petitioner shall remit to the District's Manager the Initial Deposit in the amount set forth in the Schedule of Fees and Charges to pay for all costs associated with the processing of the inclusion. The Initial Deposit shall be non-refundable

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under all circumstances. All costs, specifically including, but not limited to, legal, management and engineering costs and fees shall be applied to the Initial Deposit. When the amount of the Initial Deposit is Two Thousand Dollars (\$2,000), the District's Manager shall notify the Petitioner in writing and request that an Incremental Refundable Deposit in the amount set forth in the Schedule of Fees and Charges be remitted to the District. All work on the inclusion shall continue until the Initial Deposit is exhausted. In the event an Incremental Refundable Deposit is not received by the District's Manager by the time the Initial Deposit is exhausted, the District's consultants, including legal, management and engineering, shall cease all work until an Incremental Refundable Deposit is remitted to the District's Manager, at which time work shall resume. When the amount of any Incremental Refundable Deposit is Two Thousand Dollars (\$2,000), the District's Manager shall proceed in the same manner as set forth above for obtaining additional Incremental Refundable Deposits. Upon completion of the inclusion process, which process specifically includes the adjudication of water rights, any unused portions of the Incremental Refundable Deposit shall be refunded to the Petitioner.

**3.10.6.1.3 Inclusion Agreement.** A Petitioner seeking to include property into the District shall enter into an inclusion agreement with the District setting forth the conditions of inclusion. The inclusion agreement shall comply with the provisions of these Rules and Regulations and shall be substantially in the form provided by the District's Attorney. Any material deviations from the District's form inclusion agreement shall be approved by the District's Board prior to a public hearing on the petition for inclusion as provided in Section 3.10.6.1.4, below.

**3.10.6.1.3.1 Dedication of Water Rights.** The District is the exclusive provider of water service within its boundaries. The District does not own or control sufficient proprietary water resources to provide water service to developing areas in the District. The District requires the dedication of additional water rights to support the District's acquisition and development of new water supplies as a condition to the right to obtain water service.

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Because other water supplies are not currently accessible to the District, it has developed a water production system that is highly dependent on Denver Basin groundwater. Although Denver Basin groundwater is a reliable and accessible resource, it is a finite resource that is being mined by the District and other regional water users. Hydrological studies of the Denver Basin indicate that the cost of production will increase at an accelerating rate as the aquifers are drawn down. Eventually, production from the Denver Basin will cease to be economical. A prudent water dedication policy must provide for a dedication requirement that accounts for the projected decline in the yield from the Denver Basin aquifers. Accordingly, new connections to the municipal water system must be supported by a sufficient dedication of Denver Basin groundwater and the payment of a fee to fund the acquisition and development of the replacement renewable water supply. The water resources funded by this fee are supplemental to the Denver Basin groundwater supplies, which currently enable the pumping of the District's Denver Basin and alluvial ground water wells.

**3.10.6.1.3.2** Concurrent with the execution of the inclusion agreement, the Petitioner shall execute, deliver, grant and convey to the District, a special warranty deed conveying all water and water rights, including, but not limited to, tributary, nontributary and not nontributary water rights, groundwater, surface water, ditches and ditch rights, wells and well rights, reservoirs and reservoir rights, whether decreed or undecreed, permitted or unpermitted, vested, perfected, condition or inchoate, underlying, associated with or appurtenant to the inclusion property, and, to the extent applicable, adjacent rights-of-way to the District. The water rights referred to herein shall also include, but are not limited to, the groundwater in the Denver, Dawson, Arapahoe and Laramie-Fox Hills aquifers underlying, appurtenant to or associated with the inclusion property.

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**3.10.6.1.3.3 Adjudication of Water Rights.** If the water rights referenced in Section 3.10.6.1.3.1 above are not otherwise adjudicated at the time of conveyance to the District, or have an augmentation plan for the water rights, the District shall adjudicate the water rights and obtain an augmentation plan and all costs associated with such adjudication and augmentation plan shall be applied toward the Inclusion Fee, whether Initial Deposit or Incremental Refundable Deposit. Alternatively, the Petitioner may adjudicate the water rights at its sole cost and expense; provided, however, such adjudication process shall be reviewed and approved by the District's water attorney as to form, purpose and sufficiency and all costs associated with such review, and mediation of any deficiencies identified therein, shall be applied toward the Inclusion Fees on deposit with the District's Manager. The District shall be named as co-applicant in all applications for water rights adjudications.

**3.10.6.1.3.4 Renewable Water Resource Fee.** In order to defray the cost incurred by the District in the acquisition and development of renewable water resources, there is imposed a renewable water resource fee as a condition to the right to connect to the municipal water system. The renewable water resource fee is set forth in the Schedule of Fees and Charges.

**3.10.6.1.3.5 45-Day Notice to Adams County Board of County Commissioners.** The District's Service Plan requires the District to provide the Adams County Board of County Commissioners with notice of any inclusions into the District's boundaries pursuant to and in accordance with § 32-1-207(3), C.R.S. The District shall provide notice to the Adams County Board of County Commissioners at or about the same time as the notice of public hearing set forth in Section 3.10.6.1.4, below, is published. No inclusion shall become effective until the forty-five (45)-day period prescribed in § 32-1-207(3), C.R.S., lapses.

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**3.10.6.1.3.6 Conveyance of Improvements and Property Interests to District.** The Petitioner shall be responsible for the construction and conveyance to the District of all water lines and related improvements and property interests necessary to serve the inclusion property, as specified in Section 3.7 of these Rules and Regulations.

**3.10.6.1.3.7 Development-Specific Requirements.** The District may require the Petitioner to complete development-specific improvements or conditions necessary to serve the inclusion property. Such conditions shall be included in the inclusion agreement.

**3.10.6.1.4 Public Hearing on Inclusion.** Notice of public hearing on the petition for inclusion shall be published in accordance with §§ 32-1-401, *et seq.*, C.R.S. No petition for inclusion may be withdrawn after the date of publication without the consent of the Board. The District shall advise the Petitioner of the date, time and location for the public hearing on the petition for inclusion. The public hearing on the petition shall be conducted in accordance with the provisions of §§ 32-1-401, *et seq.*, C.R.S., and the District shall grant or deny the petition, in whole or in part, with or without conditions at the public hearing. In its sole discretion, the Board may continue the public hearing.

**3.10.6.1.5 Effective Date of Inclusion.** After approval by the Board of the inclusion of the property at the public hearing, and after the lapse of the 45-day notice requirement specified in Section 3.10.6.1.3.4, above, the District's Attorney shall process the necessary documents to obtain an order from the Adams County District Court ordering the inclusion of the property into the District. Upon receipt of a certified order for inclusion, the order shall be recorded in the real property records of the Adams County Clerk and Recorder's Office and the inclusion of the property shall become effective. All continuing obligations of the Petitioner set forth in the inclusion agreement shall remain in full force and effect until fully satisfied in accordance with the terms thereof. The District's Attorney shall provide the Petitioner with a copy of the fully executed and recorded order for inclusion for its records.



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**3.10.6.1.6 Updating of District's Map.** After the effective date of inclusion of the property into the District, the Petitioner shall be responsible for all costs associated with updating the District's boundary map, in accordance with § 32-1-306, C.R.S., which map shall be updated by the District's Engineer on an annual basis, by no later than January 1 of each year, in accordance with the standards and specifications of the Division of Local Government. Such costs shall be deducted from the Inclusion Fee set forth in Section 3.10.6.1.2 above. In the event more than one property includes into the District within a calendar year, each property shall pay an equal share of the mapping costs.

**3.10.7 TAMPERING.** No Person shall alter, obstruct or interfere with the District's facilities or improvements without first obtaining a written authorization from the District in advance of such alteration, obstruction or interference, which written authorization shall be granted by the District in its sole discretion and which may be withheld for any reason deemed reasonable or appropriate by the District in its sole discretion. Any Person who violates the provisions of this Section shall be prosecuted to the fullest extent provided by law.

**3.10.7.1 Notification to Property Owner of Tampering.** Upon discovery that a District facility or improvement has been altered, obstructed or interfered with, the District shall advise the Property Owner of such alteration, obstruction or interference by posting a notice on the property and requesting that such alteration, obstruction or interference be removed, corrected or remedied within forty-eight (48) hours of posting of the notice, or by such sooner date as specified therein by the District due to the particular circumstances involved. If such alteration, obstruction or interference is not removed, corrected or remedied within forty-eight (48) hours (or other specified time period) of the posting of the notice, the District shall remove, correct or remedy the alteration, obstruction or interference and all costs associated therewith shall be charged to the Property Owner. In the event the alteration, obstruction or interference is such that it would be unsafe, unreasonable or otherwise inappropriate for the Property Owner to remove, correct or remedy, then no notice will be posted on the property and the District shall remove, correct or remedy the situation in its sole discretion and all costs associated therewith shall be charged to the Property Owner.

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**3.10.7.2 Penalties for Tampering.** Upon discovery that a District facility or improvement has been altered, obstructed or interfered with, the District shall impose a penalty upon the Property in the amount set forth in the Schedule of Fees and Charges. The penalty shall be imposed regardless of whether the alteration, obstruction or interference is cured by the Property Owner within the specified time period set forth in the notice posted on the property. Any administrative costs associated with the tampering and penalties will also be charged.

**3.10.7.3 Prosecution for Tampering.** Pursuant to § 18-4-506.5, C.R.S., any Person who, in any manner, alters, obstructs or interferes with any meter provided for measuring or registering the quantity of water passing through that meter without the knowledge and consent of the District commits a class 2 misdemeanor. Further, any Person who connects any pipe, tube, stockcock, wire, cord, socket, motor or other instrument or contrivance with any main, service pipe or other medium conducting or supplying water to any building without the knowledge and consent of the District commits a class 2 misdemeanor. The District's Board and/ or Manager shall determine whether to press charges against the Person violating these provisions. Any and all costs associated with pressing charges against the Person responsible shall be charged to the property.

**3.10.7.3.1 Involvement of Law Enforcement.** In the event the alteration, obstruction or interference requires access to a Property Owner's property or if the District's Manager or Operator believes the safety of the District's contractors or employees is in jeopardy, the District shall have the Adams County Sheriff accompany the contractor and/or employee to the property to remedy the alteration, obstruction or interference. Any and all costs associated with pressing charges against the Person responsible shall be charged to the property.

**3.10.8 VIOLATIONS.** Any Person violating any of the provisions of these Rules and Regulations shall become liable to the District for any expense, loss or damage occasioned by reason of such violation, and upon non-payment thereof, shall be assessed a penalty in an amount set forth in the District's Schedule of Fees and Charges, which penalty shall be a lien upon the violator's property as permitted by § 32-1-1001, C.R.S., as amended, or a lien upon the Property to which the violator

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was providing services at the time of the violation in question, whichever the District Manager deems appropriate. In the event the District determines to revoke or suspend District services to any Person or entity for violation of any of the provisions of these Rules or Regulations, the District shall not be liable for any claim for damage resulting therefrom.

- 3.10.9 TAX-EXEMPT PROPERTIES AND PAYMENTS IN LIEU OF TAXES (PILOT).** The District provides water facilities and services to all properties within its boundaries. The District has financial obligations to its creditors and residents which it must maintain in order to continue to finance its facilities and, in turn, provide water services to the District's Property Owners. As a result, any properties converting from a taxable status to a non-taxable or tax-exempt status shall be required to enter into an agreement with the District whereby the property pays a fee to the District in an amount equal to or greater than the amount they would have paid had they paid taxes. Such agreement shall be required in order to receive water services from the District.

### **3.11 HEARINGS**

- 3.11.1 APPLICABILITY.** The hearing and appeal procedures established by this Section shall apply to all complaints concerning the interpretation, application or enforcement of the Rules and Regulations of the District as they now exist or may hereafter be amended. The hearing and appeal procedures established by this Article shall not apply to complaints arising out of the interpretation of the terms of District contracts or complaints which arise with regard to personnel matters which shall be governed exclusively by the District's personnel rules as the same may be amended from time to time.
- 3.11.2 COMPLAINTS.** Complaints concerning the interpretation, application or enforcement of Rules and Regulations of the District must be presented in writing to the District Manager or such representative as s/he may designate. Upon receipt of a complaint, the District Manager or designated representative, after a full and complete review of the allegations contained in the complaint, shall take such action and/or make such determinations as may be warranted and shall notify the complainant of the action or determination by mail within fifteen (15) days after receipt of the complaint. Decisions of the District Manager which impact the District financially will not be binding upon the District unless approved by the Board at a special or regular meeting of the Board.

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**3.11.3 HEARING.** In the event the decision of the District Manager or his/her representative is unsatisfactory to the complainant, a written request for formal hearing may be submitted to the District Manager or such hearing officer as the District Manager may appoint within twenty (20) days from the date written notice of the decision was mailed. A deposit in an amount set forth in the Schedule of Fees and Charges shall be made with the District along with the request for the hearing. This amount shall be retained by the District to cover the costs of the hearing until the final decision following such hearing. The amount shall be refunded to the complainant if the District Manager renders a final decision in favor of the complainant. Upon receipt of the request, if it be timely and if any and all other prerequisites prescribed by these Rules and Regulations have been met, the District Manager or hearing officer shall conduct a hearing at the District's convenience but in any event not later than fifteen (15) days after the submission of the request for formal hearing. The formal hearing shall be conducted in accordance with and subject to all pertinent provisions of these Rules and Regulations. Decisions of the District Manager which impact the District financially will not be binding upon the District unless approved by the Board of Directors at a special or regular meeting of the Board.

**3.11.4 RULES.** At the hearing, the District Manager or hearing officer shall preside. The complainant and representatives of the District shall be permitted to appear in Person, and the complainant may be represented by any Person of his/her choice or by legal counsel.

The complainant or his/her representative and the District representatives shall have: the right to present evidence and arguments; the right to confront and cross-examine any Person; and the right to oppose any testimony or statement that may be relied upon in support of or in opposition to the matter complained. The District Manager or hearing officer may receive and consider any evidence which has probative value commonly accepted by reasonable and prudent Persons in the conduct of their affairs.

The District Manager or hearing officer shall determine whether clear and convincing grounds exist to alter, amend, defer or cancel the interpretation, application and/or enforcement of the Rules and Regulations that are the subject of the complaint. The decision shall be based upon evidence presented at the hearing. The burden of showing that the required grounds exist to alter, amend, defer or cancel the action shall be borne by the complainant.

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- 3.11.5 FINDINGS.** Subsequent to the formal hearing, the District Manager or hearing officer shall make written findings and an order disposing of the matter and shall mail a copy thereto to the complainant not later than fifteen (15) days after the date of the formal hearing.
- 3.11.6 APPEALS.** In the event the complainant disagrees with the findings and order of the District Manager at the formal hearing, the complainant may, within fifteen (15) days from the date of the mailing of the findings and order by the District, file with the District a written request for an appeal thereof to the Board of Directors. The request for an appeal shall set forth with specificity the facts or exhibits presented at the formal hearing upon which the complainant relies and shall contain a brief statement of the complainant's reasons for the appeal. In response, the District shall compile a written record of the appeal consisting of: (1) a transcript of the proceedings at the formal hearing; (2) all exhibits or other physical evidence offered and reviewed at the formal hearing; and (3) a copy of the written findings and order. The Board shall consider the complainant's written request and the written record on appeal at the next regularly scheduled meeting held not earlier than ten (10) days after the filing of the complainant's request for appeal. Such consideration shall be limited exclusively to a review of the record on appeal and the complainant's written request for appeal. No further evidence shall be presented by any party to the appeal and there shall be no right to a hearing *de novo* before the Board of Directors.
- 3.11.7 BOARD FINDINGS.** The Board of Directors shall make written findings and an order concerning the disposition of the appeal presented to it and shall cause notice of the decision to be mailed to the complainant within thirty (30) days after the hearing. The Board of Directors will not reverse the decision of the District Manager or hearing officer unless it appears that such decision was contrary to the manifest weight of the evidence made available at the formal hearing.
- 3.11.8 NOTICES.** A complainant shall be given notice of any hearing before the District Manager, the hearing officer or before the Board of Directors by certified mail at least seven (7) calendar days prior to the date of the hearing, unless the complainant requests or agrees to a hearing in less time. When a complainant is represented by an attorney, notice of any action, finding, determination, decision or order affecting the complainant shall also be served upon the attorney.

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**3.11.9 OTHER REMEDIES AVAILABLE AT LAW OR IN EQUITY.**

The Board, its District Manager or District Attorney, each in its direction, shall have all rights and remedies afforded under Colorado law to enforce these Rules and Regulations, including, but not limited to those set forth herein and to pursue all remedies available at law or in equity.

**END OF ARTICLE 3.**

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**ARTICLE 4. CONDITIONS OF THE WORK**

**4.1 WORKING HOURS.** All work completed under these Rules and Regulations shall be performed during Regular Working hours - 8:00 A.M. to 4:30 P.M., Monday through Friday. The contractor shall not perform work outside of Regular Working Hours or on Saturday, Sunday or any District holiday without the prior written consent of the District.

**4.2 EMERGENCIES.** When, in the opinion of the District, an emergency arises due to work under these Rules and Regulations and immediate action is necessary to protect public or private interests, the District may, with or without notice to the contractor or the Developer, perform the required work to mitigate the emergency. The contractor or Developer will pay for the cost of such work. The performance of emergency work by the District shall not relieve the contractor of responsibility for damages resulting from the performance of work under these Rules and Regulations.

In the event of an emergency that threatens loss of life or extensive damage to the work or to adjoining property, the Developer or contractor is authorized to take the necessary action to prevent such loss or damage.

**4.3 DAILY CLEANUP.** At all times during construction, the contractor shall maintain the site, partially finished structures, material stockpiles and other like areas in a reasonable state of order and cleanliness.

**4.4 FINAL CLEANUP.** Upon completion of the work, the contractor shall remove from the project area all surplus and discarded materials, rubbish and temporary structures and shall leave the project area in a neat and presentable condition. The contractor shall restore all work that has been damaged by his/her operations.

The contractor shall inspect the interior of all manholes, vaults and catch basins within the construction limits for construction materials, dirt, stones or other debris resulting from the activities of the contractor, and shall remove all debris found.

**4.5 AUTHORITY OF DISTRICT.** The District will have the authority to stop the work whenever it may be deemed necessary by the District. The District will resolve all questions that arise as to the quality and acceptability of materials furnished, work performed, interpretation of the plans and specifications and acceptable fulfillment of the requirements of these Rules and Regulations.

**4.6 AUTHORITY AND DUTIES OF INSPECTOR.** The District inspector will inspect and accept or reject all work completed and all material furnished. Inspections may extend to any part of the work and to the preparation, fabrication

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or manufacture of the materials. The inspector is not authorized to revoke, alter or waive any requirements of these Rules and Regulations. Notwithstanding the foregoing, the inspector shall be permitted to temporarily modify, change or amend specific elements of the design drawings in consultation with the District Engineer, the District Operator and/or Manager if certain field conditions dictate such a deviance from the design drawings as may be in the best interest of the District under those specific circumstances.

The inspector shall not act as foreman or perform other duties for the contractor nor interfere with the management of the work performed by the contractor. Instructions or advice given by the inspector will not be binding upon the District or release the contractor from fulfilling the terms of these Rules and Regulations.

The presence or absence of the inspector will not relieve the contractor of the responsibility of complying with these Rules and Regulations.

The inspector will at all times have reasonable and safe access to the work and the contractor shall provide proper facilities for such access. See, Article 3.9, Right of Entry.

- 4.7 CONTRACTOR'S RESPONSIBILITY FOR WORK.** The contractor shall be responsible for controlling and supervising the work. It shall be the responsibility of the contractor to ensure that all work is constructed in accordance with these Rules and Regulations.
- 4.8 REMOVAL OF UNACCEPTABLE WORK.** Work that does not conform to these Rules and Regulations will be considered unacceptable work. Unacceptable work shall be immediately removed and replaced or otherwise corrected by the contractor at its own expense. If the contractor fails to remove and replace the unacceptable work within a reasonable time, the District may, in its sole discretion, remove and replace the unacceptable work, which removal and reparation shall be charged fully to the contractor.
- 4.9 SCHEDULING OF WORK.** Work shall be accomplished in accordance with a schedule approved by the District. Deviations from the approved schedule shall be made only with written approval of the District.
- 4.10 SAMPLES AND TESTS.** Sampling and testing will be in accordance with standard practices unless methods and procedures are otherwise set forth in these Rules and Regulations.

The contractor shall furnish all samples, tests and reports required by the District to determine compliance of materials with these Rules and Regulations. The contractor may be required to furnish a written statement identifying the origin, composition and process of manufacture of a material.



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- 4.11 STORAGE OF MATERIALS.** Materials shall be stored in a manner that insures the preservation of their quality and suitability for the work. Materials shall be stored only in locations approved by the District.
- 4.12 DEFECTIVE MATERIALS.** Materials not in conformance with requirements of these Rules and Regulations will be considered defective and will be rejected. Rejected materials shall be removed from the work site within twenty-four (24) hours.
- 4.13 LOCAL LAWS, ORDINANCES AND CODES.** The contractor shall comply with all current federal, state and local laws, codes and ordinances pertaining to the work being performed. The contractor shall obtain all necessary permits and approvals prior to commencement of the work.
- 4.14 PUBLIC CONVENIENCE AND SAFETY.** The contractor shall erect the appropriate barricades, signs, or other safety measures, provide for adequate drainage around the work, and take other necessary precautions to safeguard the work and the public.
- 4.15 FIRE HYDRANTS.** Fire hydrants shall remain visible from the street and accessible to the Fire Department at all times. No obstructions shall be placed within ten feet (10') of a fire hydrant.
- 4.16 LOCATION OF EXISTING UTILITIES.** The contractor shall have all underground utilities located by the appropriate utility company prior to commencing work, all in accordance with the Utility Notification Center of Colorado ("UNCC") regulations, §§ 9-1.5-101, *et seq.*, C.R.S., as amended from time to time. The contractor shall avoid unnecessary exposure of underground utilities and shall protect underground utilities from damage due to performance of the work. The contractor shall not hinder or interfere with any Person engaged in the protection or operation of underground utilities.

The District will locate existing underground water facilities, including its treated and untreated water lines and water services lines from the treated water main to meter pits. In the case of the Rocking Horse Farms subdivision, the District will locate water services lines from the treated water main to property lines. The contractor shall request location of District facilities at least forty-eight (48) hours prior to commencing excavation. Excavation shall not begin until the District has located pipelines and other facilities.

- 4.17 PROTECTION AND RESTORATION OF PROPERTY AND SURVEY MONUMENTS.** The contractor shall prevent damage to public or private property adjacent to the work. The contractor at his/her expense shall restore property damaged by the contractor's operations. At least seventy-two (72) hours

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prior to commencing work, the contractor shall give written notice to owners of property that may be affected by the contractor's operations.

The contractor shall protect and preserve existing survey monuments. Monuments disturbed or removed by the contractor shall be referenced and replaced by a Professional Land Surveyor registered in the State of Colorado, at the contractor's expense.

- 4.18 USE OF EXPLOSIVES.** When blasting is permitted, the contractor shall use the utmost care to protect life and property. Blasting will be permitted only when approved in writing by the District. A licensed blasting contractor shall perform blasting.

Excessive blasting or overshooting will not be permitted. The District may order discontinuance of any method of blasting which leads to overshooting, is dangerous to the public, or destructive to property or to natural features.

- 4.19 PROTECTION OF STREAMS, LAKES AND RESERVOIRS.** The contractor shall meet all requirements of Adams County and the CDPHE. The contractor shall take the necessary precautions to prevent pollution of streams, lakes and reservoirs with fuels, oils, bitumen's, calcium chloride or other harmful materials. Contractor operations shall be conducted in a manner that prevents or minimizes the release of silt or other materials to drainages, streams, lakes and reservoirs. An erosion control plan shall be submitted to the District for approval prior to starting work.

- 4.20 DUST CONTROL.** The contractor shall meet all requirements of Adams County and the CDPHE. The contractor shall take the necessary steps to control dust arising from operations connected with the work. Sprinkling with water or other approved methods shall control dust.

- 4.21 TRAFFIC CONTROL, BARRICADES AND WARNING SIGNS.** A Traffic Control Plan ("TCP") shall be required for all work performed within a road right-of-way. The TCP shall provide safe methods for movement of pedestrians and motorists traveling through the work zone, and a safe work area for all workers engaged in construction activities. The TCP shall show the location, spacing, scheduling and usage of advance warning signs, barricades, pavement markings and other control devices. All control devices shall be installed and maintained in accordance with Adams County requirements and the *Manual of Uniform Traffic Control Devices* ("MUTCD").

The TCP shall be submitted to the District for approval. Work shall not be commenced until the District approves the TCP.

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**4.21.1 SCALED DRAWING.** The TCP shall include a scaled drawing showing the project area and the streets affected by the project. The drawing shall include the following information:

- Location and spacing of properly planned traffic control devices.
- The duration of construction activities.
- The name and phone numbers of the contractor's designated traffic control supervisor.
- Special notes or information pertaining to traffic control operations.

The contractor shall be responsible for furnishing, erecting and maintaining traffic control devices required by the approved TCP, throughout the duration of the contract, including periods of suspension. Work shall be properly barricaded and lighted at all times.

**4.21.2 CONDITIONS FOR STREET CUTS.** When street cuts are required for water facilities construction, the following conditions shall be met to minimize interference with traffic:

- An Underground & Above Ground Utility Permit has been obtained from Adams County for infrastructure within a County right of way.
- Street service cuts shall be open only between 8:30 a.m. and 4:00 p.m.
- Two-way traffic shall be maintained at all times around the construction area to the extent possible.

**4.22 USE OF DISTRICT WATER.** The contractor may purchase, when available, reasonable amounts of water from the District for construction purposes. Water shall be obtained at points designated by the District. All water obtained from the District's system shall be in accordance with the Schedule of Fees and Charges. The contractor shall use a hydrant meter with a backflow prevention device if source of water is an existing hydrant. Assembly shall be in accordance with the Standard Detail Drawings set forth in Appendix B, with the meter and backflow device fully supported. Where the source of water is not a hydrant, a backflow device and appropriate meter shall be used.

**4.23 MAINTENANCE OF DRAINAGE.** The contractor shall not prevent or obstruct the flow of water in street gutters or natural drainages, and shall utilize proper

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methods to maintain the flow of surface water while work is in progress. Contractor shall prevent flow of sediment into storm sewers and natural drainages.

- 4.24 INTERRUPTION OF SERVICES.** Before starting work, the contractor shall plan and coordinate for the disconnection or interruption of all services including water, sewer, cable T.V., telephone, gas, and electric power. Disconnections or interruptions shall be made in accordance with the regulations of the utility that controls the supply of the service.

District approval shall be obtained a minimum of forty-eight (48) hours prior to disconnection or interruption of water service. Twenty-four (24) hours prior to the interruption of service, the contractor shall provide written notice to all users whose service will be interrupted. No line shall be shut down for more than a four (4) hour period at one time.

- 4.25 EQUIPMENT OPERATED ON STREETS.** Only pneumatic-tired equipment shall be permitted to operate over paved surfaces. The contractor shall be responsible for damage to the street surface resulting from its operation in accordance with the standards and specifications of the County of Adams or other governing body of jurisdiction.

- 4.26 MATERIAL SUBMITTALS.** The contractor shall submit detailed information, specifications and drawings for each type of material or equipment proposed for incorporation into the work. The information submitted shall be in sufficient detail to demonstrate compliance with these Rules and Regulations. Materials and equipment shall not be incorporated into the work until approved by the District.

- 4.27 OPERATION OF DISTRICT SYSTEMS.** Only District personnel shall operate District systems. Developers, contractors, private owners and other Persons shall not operate District facilities including, but not limited to, valves, fire hydrants, pumps and other system components.

- 4.28 RESTRICTIONS ON EXCAVATIONS FOR SERVICE LINES.** Excavation for installation of service lines to a single structure will not normally be permitted during the period from December 1 through March 31 of each year. The District may adjust the no-excavation period based on actual weather conditions. Persons wishing to perform excavation during this period will be required to furnish the District with a bond in an amount set forth in the District's Schedule of Fees and Charges, as security for repairs which may be required due to damage to the District's existing facilities.

**END OF ARTICLE 4.**

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**ARTICLE 5. APPROVALS AND INSPECTIONS**

- 5.1 APPROVAL OF APPLICATIONS.** The application, plans, specifications, insurance certificates and other data submitted by an applicant will be reviewed by the District. If the District finds that the work described in an application conforms to the requirements of these Rules and Regulations and that all required fees have been paid, the application will be approved.
- 5.1.1** When the District approves an application for work for which plans are required, the District Manager or the District Engineer will endorse the plans in writing. The endorsed plans and specifications shall not be changed, modified, or altered without authorization from the District.
- 5.1.2** The approval of an application will not be construed to be an approval of any violation of the provisions of these Rules and Regulations. The approval of an application based on submitted plans, specifications or other data shall not prevent the District from requiring the correction of errors in said plans, specifications and other data, or from stopping construction operations which are in violation of these Rules and Regulations.
- 5.2 APPROVED PLANS.** The contractor shall keep one full-size copy of the District endorsed plans on site at all times during the work. The District shall have access to the contractor's District endorsed plans at all times during the work.
- 5.3 INSPECTIONS.** All construction work covered by these Rules and Regulations shall be subject to inspection by the District.
- 5.3.1** It shall be the responsibility of the Person performing the work to notify the District that such work is ready for inspection. Each request for inspection shall be filed at least 24 working hours before such inspection is required unless otherwise required by these Rules and Regulations. It shall be the responsibility of the Person requesting inspections to provide access for proper inspection of the work.
- 5.3.2** The District will give the contractor written notice of deficiencies noted during an inspection, and may order further construction to cease until all deficiencies are corrected. No partial inspections will be allowed unless prior written approval has been given by the District.
- 5.4 ADDITIONAL INSPECTIONS AND REINSPECTIONS.** The District may make or require additional inspections if necessary to ascertain compliance with the provisions of these Rules and Regulations.

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- 5.4.1** Reinspection fees may be assessed when work requested to be inspected is incomplete, or when work does not comply with these Rules and Regulations.
- 5.4.2** Reinspection fees may also be assessed when approved plans are not readily available to the inspector or for failure to provide access at the scheduled time of inspection. When reinspection fees have been assessed, no additional inspection of the work will be performed until the required fees have been paid.

**END OF ARTICLE 5.**

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**ARTICLE 6. PLANS AND SPECIFICATIONS**

- 6.1 GENERAL.** A Registered Professional Engineer, licensed to practice in the State of Colorado, shall prepare plans, computations and specifications for work covered by these Rules and Regulations.
- 6.2 SUBMITTAL REQUIREMENTS.** The District shall review all construction plans for conformance with these Rules and Regulations. Engineering design shall remain the responsibility of the design engineer.
- 6.2.1** Three (3) paper copies and one (1) electronic copy of the plans, specifications and engineering computations shall be submitted to the District for review. One (1) set of paper documents will be returned with review comments.
- 6.2.2** Four (4) sets of full-size construction plans shall be submitted to the District for signature. The prints shall be signed and sealed by the design engineer. After signature by the District, two (2) of the signed sets shall be returned to the Developer and the District shall retain two (2) sets. The contractor shall keep one of the sets returned to the Developer on the job for the duration of the project.
- 6.2.3** Upon completion of the work, the Developer shall submit two (2) sets of annotated as-built construction plans for review by the District. Upon approval of the as-built records by the District, the design engineer shall submit one set of as-built mylars, 4 mil thickness, double matte reversed, 22" x 34" format, and one set of as-built records, signed and sealed by the design engineer.
- 6.3 GENERAL PLAN REQUIREMENTS.** Plans and specifications shall be drawn to scale and shall have sufficient clarity to indicate the location, nature, and extent of the work proposed.
- 6.3.1** Each set of construction drawings shall include an overall utility drawing showing water, sanitary sewer, and storm sewers included in the project. The overall utility drawing shall show all of the pipe sizes, locations, connections to existing facilities and other pertinent information that would add to the overall understanding of the project.

The following items shall be shown on all plans:

- Title Block (lower right-hand corner preferred).

- All work shall be constructed to the Greatrock North Water and Sanitation District Rules and Regulations. This drawing has been reviewed and found to be in general compliance with these Rules and Regulations and other District requirements. THE ENGINEERING DESIGN AND CONCEPT REMAINS THE RESPONSIBILITY OF THE PROFESSIONAL ENGINEER WHOSE STAMP AND SIGNATURE APPEAR HEREON.

**6.4 PLAN SHEET REQUIREMENTS.** All plan sheets shall contain the following information:

- GNWSD Reissuance: 2019-12-03



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**6.5 PROFILE SHEET REQUIREMENTS.** All profile sheets shall contain the following information:

- Vertical and horizontal grids with scales.
- Ground surface existing (dotted) and proposed (solid).
- Existing utility lines where crossed.
- Existing manhole/vault invert/floor and rim elevations.
- Waterline, including top pipe references.
- Crossings of other utilities.

**6.6 WATER SUPPLY CONSTRUCTION DETAILS.** In addition to the requirements listed above, water supply construction plans shall include the following items:

- Water mains.
  - Diameter (nominal).
  - Length.
  - Materials used and types of joints.
  - Pressure class designation.
  - Location dimensions.
- Fittings.
  - Tees.
  - Crosses.
  - Reducers.
  - Bends.
  - Plugs.
  - Blow-offs.
- Valves.

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- Fire Hydrants.
- Plan, profile and complete details for off-site transmission mains, pump stations, special valves, and vaults, tanks, etc.
- Service connections (meter pits or stub-in terminations).
- Complete material list.

**6.7 SPECIFICATIONS AND SUPPORT DOCUMENTATION.** The following shall be included with submitted construction plans:

- Reference on plans to District Rules and Regulations.
- Reference on plans to other agency Rules and Regulations that are required or proposed.
- Where reference to other commonly available Rules and Regulations will not suffice, copies of specifications are to be provided.
- Copies of written approval from other affected agencies as required.
- Soils and other test data.

**6.8 RECORD DRAWINGS.** Record drawings (“as-builts”) shall be prepared and submitted to the District for all construction work performed by a contractor for the District or performed by a Developer. The specific requirements and procedures for each type of project

### **6.8.1 DEVELOPER FUNDED PROJECTS.**

- Submit two (2) sets of paper record drawings to the District for review. The record drawings shall include all changes made during construction to the original approved plans. The changes shall be annotated so that the changes are apparent on the plans. The District will review the drawings and provide comments to be addressed and if revised drawings are required to be resubmitted.
- After the District has reviewed the drawings and found them acceptable, the Developer will submit three (3) sets of full size (22” x 34”) paper copies to the District and a CD with the electronic files in the latest AutoCad and PDF formats of the

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original approved construction plans and the record drawing plan set.

### **6.8.2 DISTRICT FUNDED PROJECTS.**

- The contractor shall submit a copy of the approved and issued construction plans with redlined record drawing notes recorded during construction.
- The design engineer for the project shall prepare record drawings from the contractor supplied notes on the plans. The drawings will be reviewed by District staff and comments provided to the design engineer.
- Three (3) sets of paper copies and AutoCad and PDF electronic files will be produced for the project by the design engineer for the project.

**END OF ARTICLE 6.**

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**ARTICLE 7.     RESERVED FOR FUTURE USE**

**END OF ARTICLE 7.**

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**ARTICLE 8. WATER SUPPLY FACILITIES**

**8.1 GENERAL PROVISIONS**

**8.1.1 APPLICABILITY.** All water main construction within the District and all water service line construction connecting to the District's water mains shall be designed and constructed in accordance with these Rules and Regulations. The requirements stated herein shall apply to new water system construction and to repairs, upgrades, and expansions of existing facilities.

**8.1.2 REFERENCES.** All references cited in these Rules and Regulations as the Denver Water Board Specifications shall mean the latest edition of the Engineering Standards of the Board of Water Commissioners of Denver, Colorado.

**8.2 TAPPING EXISTING WATER MAINS.** All residential service line taps shall be wet taps. The shutdown of any portion of the water system will be allowed only when uncontrolled circumstances do not permit a wet tap. The District shall approve any shut down of the water system in writing.

A contractor who specializes in the type of work being performed shall perform tapping of all mains. The District shall be notified forty-eight (48) hours prior to the commencement of any tapping work.

**8.3 TRENCHING, BACKFILLING AND COMPACTING.** Trenching, backfilling and compacting shall be performed in accordance with all applicable portions of Article 15, Site Work and Earthwork.

**8.4 CROSS CONNECTION CONTROL.** All facilities served by the District's water system shall comply with the provisions set forth in Exhibit A, Cross Connection Control.

**8.5 WATER CONSERVATION DEVICES.** All facilities served by the District's water system shall utilize water conservation devices as specified in Exhibit B, Water Conservation Standards.

**8.6 MATERIALS**

**8.6.1 PIPE.** All pipes for water main construction shall be ductile iron or Polyvinyl Chloride (PVC).

Ductile iron pipe shall be in conformance with AWWA C151 pressure class 350 for pipe sizes 4-inch through 64-inch. Class designation shall be as shown on the approved plans or as designated by the District for

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each individual project. Ductile iron pipe shall have a standard cement mortar lining in conformance with AWWA C104, and an asphaltic outside coating per AWWA C151. Each pipe shall be marked with the weight, class designation, and size. Ductile iron pipe shall be polyethylene encased per Section 8.6.14.

PVC pipe shall be in conformance with AWWA C900 DR 18 (235 psi) for sizes 4-inch through 12-inch and AWWA C905 DR 25 (165 psi) for sizes 14-inch through 48-inch.

**8.6.2 JOINTS.** Buried pipelines shall have mechanical or push-on joints in conformance with AWWA C111. Buried fittings and valves shall have mechanical joints in conformance with AWWA C111. Exposed piping, valves, and fittings, in vaults and manholes, shall have flanged joints in conformance with AWWA C115. Buried ductile iron joints shall be polyethylene encased per Section 8.6.14.

**8.6.3 FITTINGS.** Fittings for ductile iron or PVC pipe shall be in conformance with AWWA C110. Class designation shall be compatible with the pipe class designated for the project. A standard thickness cement mortar lining for ductile iron pipe shall be applied in conformance with AWWA C104. All ductile iron fittings shall receive a bituminous outside coating approximately one (1) mil thick. Buried ductile iron fittings shall be polyethylene encased per Section 8.6.14.

**8.6.4 GATE VALVES.** Gate valves in sizes four inches (4") to twelve inches (12") shall be of the iron body, non-rising bronze stem, and resilient-seated type conforming to AWWA standard C509 and the specific requirements outlined.

Gate valves shall provide zero leakage at working pressures up to two hundred (200) psi in either direction. Valves shall open left (counter-clockwise). Valves shall be furnished with a two-inch (2") square operating nut for buried locations, and with a hand wheel operator for exposed locations. End connections shall be furnished with all necessary joint materials. Valves shall have a full opening flow-way of equal diameter to the nominal size of the connecting pipe.

Coatings shall be in conformance with AWWA C550 and the following specific requirements. Internal ferrous metal surfaces shall be fully coated, holiday free, to a minimum thickness of four (4) mils. The coating shall be a two-part thermosetting epoxy suitable for field over coating and for touchup with the same coating material without special surface preparation or extreme heat. The supplier shall furnish detailed performance tests of adhesion, hardness and abrasion resistance of the

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furnished coatings. Coating shall have a successful record of performance in valves, pipe or other allied equipment, for a minimum of ten (10) years.

- 8.6.5 BUTTERFLY VALVES.** Valves having a nominal diameter greater than twelve inches (12") shall be geared butterfly valves designed for direct burial and shall conform to AWWA specification C504, Class 150-B. Valves shall be of the tight closing rubber seat type with rubber seats that are bonded to the valve body. Metal to metal sealing surfaces shall not be permitted. Valves shall be bubble tight at one hundred fifty (150) psi rated pressure with flow in either direction. Valve discs shall rotate ninety degrees (90°) from the fully open position to the fully closed position. Coatings shall conform to standards specified above for gate valves. Valve bearings shall be sleeve-type corrosion-resistant, and self-lubricating with the load not to exceed twenty-five hundred (2500) psi.

Manual operators shall have worm gearing or traveling nut operating in a lubricating bath. The required maximum input force on a hand wheel or chain wheel shall be not more than eighty (80) pound pull to develop the required operator seating torque. Manual operators shall comply with AWWA C504. Hand wheel operators in structures shall be furnished with a direct valve position indicator. Buried valves shall be rated for underground installation. Valves shall open left (counter-clockwise).

- 8.6.6 PRESSURE REDUCING/SUSTAINING VALVES (PRV/PSV).** PRV/PSVs shall maintain a constant downstream pressure regardless of fluctuations in demand. When the upstream pressure becomes equal to the spring setting of the pressure sustaining control, the valve shall throttle to maintain a constant inlet pressure. If the downstream pressure is greater than the upstream pressure, the valve shall close automatically to prevent return flow. The valve shall be equipped to provide for slow opening and closing by means of independent, field adjustable opening and closing speed controls.

Valves shall be a hydraulically operated, diaphragm-actuated, globe or angle pattern valve. Valves shall have a resilient, synthetic rubber disc, having a rectangular cross section, contained on three and one-half sides by a disc retainer and forming a tight seal against a single removable seat insert. The diaphragm assembly containing a valve stem shall be fully guided at both ends by a bearing in the valve cover and an integral bearing in the valve seat. The diaphragm assembly shall be the only moving part and shall form a sealed chamber in the upper portion of the valve, separating operating pressure from line pressure. This

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diaphragm shall consist of nylon fabric bonded with synthetic rubber and shall not be used as a seating surface. Packing glands and stuffing boxes are not acceptable. There shall be no pistons operating the valve or pilot controls.

Valve design shall allow the repair of all internal parts through the top flange without removing the valve from the pipe.

The pressure reducing pilot control shall be direct-acting, adjustable, spring-loaded, normally open diaphragm valve, which closes when downstream pressure exceeds the spring setting. The pressure-sustaining pilot shall be a direct-acting adjustable, spring-loaded, normally closed diaphragm valve, which opens when upstream pressure exceeds the spring setting.

The end details shall be 125 ANSI B16.1 in order to meet the pressure ranges required.

The main valve body and cover shall be made of cast iron conforming to ASTM A48. The main valve trim shall be Bronze (ASTM B-61) or 303 Stainless Steel. The pilot controls material shall conform to ASTM B-61 Bronze.

Pressure reducing/pressure sustaining valves shall be as manufactured by OCV Control Valves, Cla-Val Company, or approved equal.

**8.6.7 FIRE HYDRANTS.** Hydrants shall be the Manufacturer's latest design, manufactured and tested in compliance with AWWA C502, "Dry-Barrel Fire Hydrants". Fire hydrants shall be Waterous 5 1/4 Pacer, WB-67-250 Traffic Model, rated at two hundred fifty (250) psi or equivalent manufacturer's model. Hydrants shall include bronzed bushed shoe providing bronze to bronze seating for the main valve, complete with O-rings for sealing, and a bronze shaft coupling.

Hydrants shall be "Traffic" type with replaceable "Breakable" units six inches (6") above the ground line for minimizing repairs due to traffic damage.

The buried portion of the hydrant shall be given a bituminous coating in accordance with AWWA C151. All ferrous metal parts shall be coated in accordance with AWWA C550. The upper exposed section of the hydrant above ground shall be given a prime coat of synthetic red lead primer Type IV-TFP-86a followed by one shop coat, 10 mil DFT, of heavy duty alkyd enamel paint. Paint color shall be red.



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Hydrants shall have a five and one-quarter inch (5¼") main valve opening with a six-inch (6") mechanical joint end. Each hydrant shall be equipped with a four and one-half inch (4½") pumper nozzle and with two, two and one-half inch (2½") hose nozzles with National Standard threads. Hydrant valve shall open counter clockwise from a standard operating nut. Hydrant bury shall be a minimum of five feet six inches (5'6") in areas without curb and gutter, and six feet (6') in areas with curb and gutter. Fire Hydrants shall be six inches (6") above final grade or back of sidewalk and have a distance of no less than three feet (3') in circumference clear of all obstructions around the fire hydrant. Longer hydrants shall be provided if required by specific grading conditions. Refer to Standard Drawing No. GRN-1W.

An affidavit stating that all hydrants furnished comply with all applicable provisions of AWWA C-502 standards as modified or supplemented herein shall be forwarded to the District.

**8.6.8 VALVE BOXES.** The manufacturer of valve box components shall be experienced in the design and manufacture of valve boxes, and shall be regularly engaged in the manufacture of valve boxes. The manufacturer shall have produced valve boxes, which have given successful service for a period of at least five (5) years.

- Valve box parts shall be made of gray cast iron in compliance with the requirements of ASTM A48 or ASTM A 126.
- Valve boxes shall be complete with bases and accessories.
- Valve box shall be of sufficient length capable of reaching from the pipe to at least one inch (1") above the final ground elevation.
- Extension pieces shall be those recommended by the manufacturer.
- Valve boxes shall be the three-piece adjustable screw type. The following patterns are acceptable:
  - Mueller screw-type 5½" H-10357 with No. 160 oval base.
  - Tyler screw-type six inch (6") cast iron valve box assembly series 6860 with No. 160 oval base.
- The operating nut depth shall not exceed five feet (5'). If the depth of the operating nut is to be deeper than five feet (5') then an extension shall be attached to the operating nut. The extension

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shall extend to be a minimum of eight inches (8") from finished grade.

- The operating nut shall be centered in the valve box and turn freely.
- The word "WATER" shall be embossed with large letters across the lid for potable water installations only.

**8.6.9 COMBINATION AIR RELEASE VALVES.** Combination air release valves shall be designed to exhaust large volumes of air when the system is filled with water and to allow large volumes of air to enter the pipeline when the system is drained. The air and vacuum relief portion of the valve shall have a discharge orifice area, which is equal to or greater than the valve inlet. The valve shall also be capable of venting small quantities of entrained air, which may accumulate at high points in the pipeline during system operation. Entrained air shall be vented under pressure by means of a small, independently controlled orifice. The combination air release valve shall be designed for a minimum working pressure of one hundred fifty (150) psi.

The combination air release valve body, cover and baffle shall be cast iron conforming to ASTM A48 or ASTM A126. The valve float shall be stainless steel conforming to ASTM A240. The float retainer, outlet orifice plug, float cushion retainer, restraining screws and internal lock nuts and washers shall be stainless steel conforming to ASTM A276. The float cushion and outlet orifice seat shall be synthetic Buna-N rubber manufactured in compliance with ASTM SB800.

The combination air release valves shall be VENT-O-MAT RBX, or approved equal.

**8.6.10 BLOW-OFF ASSEMBLY.** The standard blow-off shall be through a two inch (2") ball valve with a two inch (2") valve operating nut, box, piping and cover. All piping shall be threaded copper and valves shall be brass. Galvanized piping or fittings shall not be allowed. The blow-off pipe shall be no deeper than four inches (4") from the top of the valve box. For valve box standards refer to Article 8.6.8 of these Rules and Regulations. Refer to Standard Drawing Number GRN-2W for blow-off detail.

**8.6.11 VAULTS.** Vaults shall be pre-cast or cast-in-place concrete and shall be constructed in accordance with these Rules and Regulations. Pre-cast vaults shall be designed so that joints and corners are waterproof.

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Vaults shall be waterproofed after construction by use of sealants, epoxies, or other approved methods.

Vaults shall be designed to resist all lateral and vertical loads imposed. Vault roofs shall be designed to support the overhead fill, any surcharge and an H-20 traffic loading.

- 8.6.12 SUMP PITS FOR VAULTS AND MANHOLES.** Gravel sumps shall be provided in all vaults. In areas where groundwater is anticipated, the gravel sump shall be replaced with a concrete sump to prevent entry of groundwater into the vault. In areas where groundwater is anticipated, the vault shall be designed with adequate safety features against floating. Developer's engineer shall submit buoyancy calculations to District Engineer for review and approval.

A gravity drain line or sump pump shall be provided when a concrete sump is utilized.

- 8.6.13 VENT PIPES.** Vent pipes shall be installed in all vaults and pits. Installations that contain electrical equipment shall have a blower attached to the vent system. Vent pipes shall be field located at the nearest intersection of the street property line and the side lot line.

Above ground vent pipe shall be six inch (6") nominal diameter galvanized steel pipe, Grade 40, conforming to A.S.T.M. Standard Designation A 53. The vent screen shall be a three-fourths inch (3/4") No. 9-11 flattened expanded galvanized metal screen. Below ground vent pipe shall be six inch (6"), scheduled 40 PVC with glued joints. A PVC glued joint by standard pipe thread female adapter shall be used to connect the steel pipe to the PVC pipe at ground level. Refer to drawing number GRN-5W and GRN-5AW.

- 8.6.14 POLYETHYLENE ENCASEMENT MATERIAL.** Polyethylene encasement material shall conform to the most current AWWA C105.

Twenty-four inch (24") flat width tubing shall be used with four inch (4"), six inch (6"), and eight inch (8") diameter pipe. Thirty inch (30") flat width tubing shall be used with all twelve inch (12") diameter pipes. Thirty-six inch (36") flat width tubing shall be used for sixteen inch (16") diameter pipe. Fifty-two inch (52") flat width tubing shall be used with twenty inch (20") and twenty-four inch (24") diameter pipe.

Harness rods shall be covered by four inch (4") flat width polyethylene tubing. The entire joint shall be covered by a cigarette-wrap of forty-eight inch (48") wide polyethylene sheet material over each set of lugs.

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Irregular shaped valves and fittings shall be covered with flat forty-eight inch (48") wide polyethylene sheet material.

The polyethylene seams and overlaps shall be wrapped and held in place by means of two inch (2") wide plastic-backed adhesive tape. The tape shall be Polyken #900 (polyethylene), Scotchrap #50 (polyvinyl) or equal. The tape shall be such that the adhesive will bond securely to both metal surfaces and polyethylene film.

- 8.6.15 MECHANICAL JOINT RESTRAINTS.** Mechanical joint restraints shall be MEGALUG as manufactured by EBAA Iron Sales, Inc., or approved equal.
- 8.6.16 BEDDING MATERIALS.** Bedding materials shall be in accordance with Article 15.4.1, Pipe Bedding Materials, of these Rules and Regulations.
- 8.6.17 CONCRETE.** Concrete shall conform to Article 21, Concrete Work, of these Rules and Regulations.

**END OF ARTICLE 8.**

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## ARTICLE 9. DESIGN CRITERIA

- 9.1 GENERAL.** Water distribution systems shall comply with the requirements of these Rules and Regulations for water main and service line construction and may include special criteria established by the District for the overall hydraulics of the water utility system. Special criteria shall be outlined at pre-design meetings scheduled, as determined necessary by the District.
- 9.2 DESIGN FLOW REQUIREMENTS.** The design of the water distribution system shall be based on the following water demands:

### UNIT WATER DEMANDS FOR FUTURE LAND USE

Land Type	Avg. Demand	Max. Day/ Avg. Day	Peak Hr./ Max Day
Residential	150 GPCD* 1650	2.6	1.5
Commercial	GPD/Acre 1650	2.6	1.5
Industrial	GPD/Acre 3060	2.6	1.5
Park	GPD/Acre	2.6	1.5

\*Gallons per Capita/Day

People / EQR = 2.7

**Minimum fire flow shall be as noted below:**

- Residential 1,500 GPM
- Multifamily/Apartment 3,000 GPM
- Industrial/Commercial 3,500 GPM

- 9.3 OPERATING PRESSURE REQUIREMENTS.** All areas shall be designed to have a maximum static head of three hundred (300) feet (one hundred thirty [130] psi) and a minimum static head of one hundred feet (100') [forty-three (43) psi]. Distribution systems shall also be designed to maintain a twenty (20) psi residual pressure during a maximum day plus fire flow event, and a forty (40) psi residential residual during peak hour residential flows. The maximum pressure drop from static head to maximum day plus fire flow, or peak hour residential flow, shall not exceed thirty (30) psi.

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- 9.4 FIRE HYDRANT LOCATIONS.** All structures shall be located within three hundred feet (300') of a fire hydrant, as measured along an approved fire vehicle access.

In residential areas, fire hydrants shall be spaced a maximum of five hundred feet (500') apart as measured along edge of street or street curb line and at an overall spacing that will average not less than one (1) hydrant to two hundred thousand (200,000) square feet throughout an individual subdivision. Where blocks are over eight hundred feet (800') in length, intermediate hydrants shall be placed in the center of the blocks. A hydrant shall be placed in the end of each cul-de-sac over three hundred feet (300') in length. Fire hydrants shall be located on the northeast corner of intersections whenever possible.

In business, commercial, and industrial areas, hydrants shall be spaced not more than three hundred feet (300') apart.

Fire hydrant locations and spacing shall be as approved by the District and the Greater Brighton Fire Protection District.

- 9.5 FIRE LINE TO NON-RESIDENTIAL AREA.** The Property Owner shall maintain all fire lines extending from the valve on the District water main. Valves on newly constructed fire lines shall be located on the tee at the main line. Fire lines shall be used exclusively for fire protection. Domestic water taps or irrigation taps shall not be allowed on a fire line.

- 9.6 DISTRIBUTION SYSTEM LAYOUT.** Distribution mains and lateral lines shall be located as indicated on the approved plans. Minimum pipeline diameter for lateral lines shall be eight inches (8"). At dead-ends less than three hundred feet (300') long six inch (6") diameter pipe may be used.

Dead ends shall be minimized by looping whenever possible. Lines at ends of long cul-de-sacs shall be looped along lot lines to adjacent streets. Dead ends shall be provided with a permanent blow-off or fire hydrant. Mains and laterals shall be extended to the boundaries of filings and completely across the frontage of individual lots.

- 9.7 VALVE SPACING.** The maximum spacing for valves in all distribution mains and lateral lines shall be six hundred feet (600'). Intermediate valves shall be installed where blocks exceed six hundred feet (600') in length. Valves shall also be placed at each fire hydrant and permanent blow-off.

Four-way and three-way street intersections shall require four (4) and three (3) valves respectively, one located on each extended property line. For a succession of short blocks perpendicular to the direction of the distribution main, and without residential or commercial services between intersections, one of the mainline

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valves at an intersection may be omitted, provided the six hundred foot (600') maximum spacing requirement is maintained.

Valves shall be placed at each end of a line running through an easement on private property, on each side of a major creek or channel crossing, and on each side of a distribution line that provides service to a hospital, school or large industrial user.

- 9.8 COMBINATION AIR VALVES.** Combination air valves shall be installed at each high point in all distribution mains and laterals. Combination air valves shall be installed in pre-cast manholes or vaults fitted with air vents open to the atmosphere. .
- 9.9 BLOW-OFF ASSEMBLIES.** Provisions shall be included in the design to allow for the flushing of distribution mains and lateral lines at all low points in the system, at all dead ends, or at any point noted on the approved plans. The blow-off assembly shall be installed perpendicular to and on the downhill side of the main or line and shall drain to the nearest gutter line or drainage channel.
- 9.10 PIPE.** Pipe class shall be per Section 8.6.1.
- 9.11 HYDRAULIC DESIGN.** Distribution mains and lateral lines shall be designed using the Hazen-Williams friction coefficients and maximum head losses noted below. The given head losses shall apply at peak hourly flows.

**Maximum Head Loss by Pipe Size**

Pipe Size	Hazen-Williams Friction Coefficient		Max. Head Loss
	Ductile Iron Pipe	PVC Pipe	
6" - 12"	C-100	C-150	2' per 1,000'
14" - 16"	C-110	C-150	2' per 1,000'
20"	C-130	C-150	1.5' per 1,000'
Over 20"	As directed by the District	C-150	TBD

All pipes shall be designed to have a maximum velocity of ten feet (10') per second at maximum day flow plus fire flow.

- 9.12 LOCATION OF WATER MAINS.** Water mains shall be located twelve feet (12') north or east of the centerline of the street unless otherwise approved by the District.

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At street intersections, valves shall be located at extension of the property lines.

Fire hydrant gate valves shall be connected to the main with a swivel tee. Water mains shall extend to the boundary line of the property or subdivision served. A main serving one (1) lot shall extend across the entire frontage for that lot. Mains serving a subdivision shall extend to the center of boundary streets, to boundary lines or to the outside of paved areas as noted on the approved plans.

- 9.13 MINIMUM DEPTH.** All pipes shall be installed with a minimum of five feet (5') and a maximum of ten feet (10') of cover from finished grade of street to the top of the pipe.
- 9.14 CORROSION PROTECTION SYSTEMS.** Polyethylene wrap shall be used on all cast iron or ductile iron pipe, fittings, rods, and appurtenances per AWWA C-105. If soil resistivity is less than one thousand (1,000 ohm-cm), a corrosion protection system shall be designed by a corrosion engineer.
- 9.15 SERVICE CONNECTIONS.** Refer to Article 11, Water Service Lines of this section for service line requirements and specifications.

**END OF ARTICLE 9.**



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**ARTICLE 10. WATER MAIN CONSTRUCTION**

**10.1 GENERAL.** All work shall conform to applicable portions of the most current AWWA C600, Installation of Ductile Iron Water Mains and Appurtenances, or AWWA C605 – Underground Installation of Polyvinyl Chloride (PVC) Pressure Pipe and Fittings for Water, and to the pipe manufacturer's recommendations, or as modified in the Rules and Regulations herein.

**10.2 PIPE INSTALLATION.** The contractor shall provide proper equipment, tools and facilities required for convenient performance of the work. All pipe, fittings, valves, and hydrants shall be carefully lowered into the trench in such a manner as to prevent damage to pipe materials and to protect coatings and linings. Under no circumstances shall pipe or fittings be dropped or dumped into the trench; any pipe or fittings that are dumped shall be removed from the work site and shall not be used.

All pipe and fittings shall be carefully examined for cracks and other defects immediately before installation in final position. The groove in the bells of ductile iron pipe shall be full and continuous. Defective pipe or fittings shall be tagged and removed from the job site within twenty-four (24) hours. All foreign matter or soil shall be removed from the interior and ends of pipe and accessories before they are lowered into position in the trench.

Precautions shall be taken to prevent foreign material, including trench water, from entering the pipe. During construction, no debris, tools, clothing, gravel or other foreign materials shall be placed in the pipe. The contractor shall provide and maintain adequate equipment to properly remove and dispose of all water entering the trench or other part of the work. At times when pipe laying is not in progress, the open ends of pipe shall be closed by means of a water tight plug.

Cutting of pipe for inserting valves, fittings, or closures pieces shall be done in a neat and workman-like manner without damage to the pipe or lining. Cuts shall result in a smooth end, at right angles to the axis of the pipe. Pipe ends shall be smooth and beveled with a file or other tools according to the pipe manufacturer's recommendations.

Rubber gaskets shall be lubricated and installed according to the manufacturer's recommendation. Extreme care shall be used to keep joints clean during assembly.

Ductile iron pipe, fittings and appurtenances shall be protected with polyethylene film wrap per the most current AWWA standard C-105. Miscellaneous steel or other ferrous pipe for blow-offs, etc., shall be similarly protected.

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After installation of the polyethylene protective wrap, pipe shall be secured in place by installation of bedding material, up to the spring line of the pipe.

**10.3 ALIGNMENT AND GRADE.** Field survey parties under the supervision of a registered land surveyor shall determine alignment and grade of the pipe and the location of fittings, valves, and hydrants. The required minimum depth of cover between the top of the pipe barrel and the finished street grade shall be five feet (5'). The water main shall be laid to the required lines and grades with fittings, valves, and hydrants at the required locations.

**10.4 THRUST BLOCKS.** Thrust blocks shall be constructed at all bends and fittings which require support due to unbalanced line thrust, and which are not otherwise restrained. Care shall be taken not to block outlets or to cover bolts, nuts, clamps or other fittings or make them inaccessible. A bond breaker shall be placed between the pipe and the thrust block to aid in ease of future removal. Thrust blocks shall bear against undisturbed earth. Mechanical restraints shall be required to anchor the fittings to the main if a thrust block cannot bear against undisturbed earth. Formwork for thrust blocks and anchors shall be constructed using wood forms. Wood forms shall be removed before backfilling.

Newly placed thrust blocks shall be allowed to set, undisturbed, for a minimum of twenty-four (24) hours prior to backfilling, tamping or compacting.

**10.5 MECHANICAL JOINT RESTRAINTS.** Mechanical joint restraints shall be used at all bends and fittings where thrust blocks cannot be used due to existing field conditions or where mechanical joint restraints are specifically required. Mechanical joint restraints shall be installed at the following locations:

- Fire hydrants.
- Fire sprinkler connections.
- Domestic connection.
- Vertical bends.
- Vertical offsets.
- Where it is not feasible or possible to place concrete against undisturbed soil.
- Where the bearing capacity of the soil is not sufficient to provide adequate restraint.
- Harness rods may be used only when the use of thrust blocks or a mechanical joint restraint is not feasible. Harness rods shall be used only at locations shown on the District approved plans.

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- 10.6 SETTING VALVES AND HYDRANTS.** Immediately prior to the installation of a valve or hydrant, the valve or hydrant shall be carefully inspected; the interior shall be thoroughly cleaned; and the valve or hydrant shall be operated as many times as necessary to determine that all parts are in proper working order with the valve seating properly and the hydrant drain valve operating properly. Valves and hydrants shall be set plumb, in a vertical position and securely braced in place.

Each hydrant shall have a six inch (6") gate valve on the inlet line and shall be connected to the main by a six inch (6") ductile iron, polyethylene wrapped pipe. The gate valve shall be connected directly to a swivel tee installed in the main.

Hydrants shall be set six inches (6") above the established finished grade, with hose nozzles parallel to the curb or centerline of the street, and the pumper nozzle facing the curb or street. In areas with curb and gutters, the pumper nozzle shall be located at least six inches (6") behind the curb or sidewalk.

Valves shall be provided with valve boxes centered and plumb over the operating nut of the valve. The boxes shall be supported by the soils and isolated from the valve to prevent any shock or stress being transmitted to the valve. Valve boxes shall be maintained in position during backfilling. Valve box covers may be set to sub grade elevation to prevent damage during street construction, and adjusted to finished grade at the time of paving.

Hydrants shall be provided with a drainage pit with nine (9) square feet of surface area and two feet (2') of depth below the barrel of the inlet. Pits shall be backfilled with three-quarter inch (3/4"), washed, crushed rock to a level six inches (6") above the barrel drain hole. A concrete thrust block shall be provided at the bowl of each hydrant (as shown on Standard Drawing No. GRN-1W) and shall be placed so as to not obstruct the barrel drain hole. Hydrants and valves shall be backfilled to the ground surface as specified in Article 15, Site Work and Earthwork, of these Rules and Regulations.

- 10.7 TEST STATIONS.** Underground pipeline test stations shall be installed at the locations shown on the approved plans. Underground pipeline test stations shall be installed where corrosion protection systems are used.
- 10.8 PLUGGING OF DEAD ENDS.** Refer to Article 9.9.
- 10.9 FILLING AND VENTING THE LINE.** Only District personnel shall operate valves. Pipelines shall be slowly filled with water and all air expelled from the pipe. All hydrants, air and vacuum relief valves, and other vents shall be open during the filling of pipelines. Where hydrants or other permanent vents are not available in the line, the contractor shall install the required temporary vents. The rate of filling pipelines shall not exceed the venting capacity.

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### **10.10 DISINFECTION AND FLUSHING MAINS.** Disinfection and flushing shall be performed in accordance with AWWA C651, "Standard for Disinfecting Water Mains".

The basic disinfection procedure for new water mains consists of:

1. Inspecting all materials to be used to ensure the integrity of the materials.
2. Preventing contaminating materials from entering the water main during storage, construction, or repair and noting potential contamination at the construction site.
3. Removing, by flushing or other means, those materials that may have entered the water main.
4. Chlorinating any residual contamination that may remain, and flushing the chlorinated water from the main.
5. Protecting the existing distribution system from backflow caused by hydrostatic pressure test and disinfection procedures.
6. Documenting that an adequate level of chlorine contacted each pipe to provide disinfection.
7. Determining the bacteriological quality by laboratory test after disinfection.
8. Final connection of the approved new water main to the active distribution system.

Place the calcium hypochlorite granules in the main during construction (optional), completely filling the main from a temporary, backflow-protected connection to the existing distribution system, or other approved supply source, flowing at a constant measured rate into the newly installed water main. The potable water shall be chlorinated so that after twenty-four (24) hours holding period in the main there will be a free chlorine residual of not less than ten (10) mg/L.

Following chlorination, the main shall be thoroughly flushed until the water runs clear with no chlorine residual in excess of that carried in the existing system. The contractor shall take the necessary precautions to prevent any chlorine solution or residual flow into existing water facilities or receiving waters and shall assume responsibility for any damages caused by heavily chlorinated water. Water mains shall not be placed in service or tapped until successful chlorination and bacteriological testing have been performed.

After final flushing and before the new water main is connected to the distribution system, two consecutive sets of acceptable samples, taken at least twenty-four (24) hours apart, shall be collected from the new main. At least one set of samples shall be collected from every one thousand two hundred feet (1,200') of the new water main, plus one set from the end of the line and at least one set from each branch. All samples shall be tested for bacteriological quality in accordance with *Standard Methods for the Examination of Water and Wastewater*; and shall

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show the absence of coliform organisms. District personnel will take samples for bacteriological testing. If the test fails, the line shall be re-flushed and retested at the Contractors expense. If check samples also fail to produce acceptable results, the main shall be re-chlorinated until satisfactory results are obtained, at the Contractors expense. The District will require at least forty-eight (48) hours' notice for testing. No Testing/Samples on Mondays or Fridays.

### **10.11 DISINFECTION OF WATER STORAGE FACILITIES.** Disinfection and flushing shall be performed in accordance with AWWA C652, "Standard for Disinfection of Water-Storage Facilities."

Water and chlorine shall be added to the storage facility in amounts such that the solution will initially contain 50 mg/L available chlorine and will fill approximately five percent (5%) of the total storage volume. This solution shall be held in the storage facility for a period of not less than six (6) hours. The storage facility shall then be filled to the overflow level by flowing potable water into the highly chlorinated water and held full for twenty-four (24) hours. Following this procedure, and subject to satisfactory bacteriological testing and acceptable aesthetic quality, the free chlorine residual in the storage facility shall be reduced to a concentration appropriate for distribution (not more than two (2) mg/L) by completely draining the storage facility and refilling with potable water, or by a combination of additional holding time and blending with potable water having a low chlorine concentration.

Chlorine shall be added to the storage facility by one of the three following methods. The actual volume of the fifty (50) mg/L chlorine solution shall be such that, after the solution is mixed with filling water and the storage facility is held full for twenty-four (24) hours, there will be a free-chlorine residual of not less than two (2) mg/L.

1. Liquid-Chlorine shall be introduced into the water filling the storage facility in such a way as to give a uniform chlorine concentration during the entire filling operation. Portable chlorination equipment shall be carefully operated and shall include a liquid chlorine cylinder, gas-flow chlorinator, chlorine ejector, safety equipment, and an appropriate solution tube to inject the high concentration chlorine solution into the filling water. The solution tube shall be inserted through an appropriate valve located on the inlet pipe and near the storage facility such that the chlorine solution will mix readily with the inflowing water.
2. Sodium hypochlorite shall be added to the water entering the storage facility by means of a chemical-feed pump, or shall be applied by hand-pouring into the storage facility and allowing the inflowing water

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to provide the desired mixing.

When a chemical-feed pump is used, the concentrated chlorine solution shall be pumped through an appropriate solution tube so as to inject the high-concentration chlorine solution at a rate that will give a uniform chlorine concentration in the filling water.

When the sodium hypochlorite is poured into the storage facility, the filling of the storage facility shall begin immediately thereafter or as soon as any removed manhole covers can be closed.

3. Calcium hypochlorite granules or tablets broken or crushed to sizes not larger than one quarter of one inch ( $\frac{1}{4}$  ") maximum dimension may be poured or carried into the storage facility through the cleanout or inspection manhole in the lower course or level of the storage facility, into the riser pipe of an elevated tank, or through the roof manhole. Before flowing water into the storage facility, the granules or tablet particles shall be placed inside. The granules or tablets shall be located so that the inflowing water will ensure a current of water circulating through the calcium hypochlorite, dissolving it during the filling operation. The calcium hypochlorite shall be placed only on dry surfaces unless adequate precautions are taken to provide ventilation or protective breathing equipment.

Bacteriological Sampling and Testing shall be performed after the chlorination procedure is completed and before the storage facility is placed in service, water from the full facility shall be sampled and tested for coliform organisms in accordance with the latest edition of *Standard Methods for Examination of Water and Wastewater*. The testing method used shall be either the multi-tube fermentation technique or the membrane filter technique.

It is recommended during the disinfection operation that samples be taken from water inflowing to the storage facility to determine if coliforms are present in the typical potable water source.

If the test for coliform is negative, then the storage facility may be placed in service. If the test shows the presence of coliform bacteria, then the situation shall be evaluated by a qualified engineer. In any event, repeat samples shall be taken until two consecutive samples are negative, or the storage facility shall again be subjected to disinfection.

- 10.12 LEAKAGE TESTING.** Pressure and leakage tests shall be conducted in accordance with AWWA C600 and C605. Test pressure shall be the greater of working pressure plus fifty (50) psi or one hundred fifty (150) pounds per square

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inch, measured at the high point of the section being tested. The maximum length of line to be tested shall be one thousand feet (1,000'). All joints in connections shall be watertight within tolerances set forth in AWWA C600. Any leakage that is discovered by observation or tests shall be located and corrected by the contractor. Pressure and leakage tests shall not be conducted until the line has been disinfected. Please refer to AWWA standard C-600, "Installation of Ductile Iron Pipe Water Mains and their Appurtenances."

- 10.13 TRACE WIRE.** Trace wire shall be installed on all water main pipeline. Trace wire test stations are to be located at all blow offs, and fire hydrants. Wire shall be a minimum of 12 AWG. After installation there shall be a minimum of twelve inches (12") of slack wire available in the test box or valve box. Refer to detail drawing GRN-24W for location of wire and box.
- 10.14 TRENCHING.** Trenching for water lines shall be separated horizontally at least ten feet (10') apart. Trenches shall remain open after taps are made until the District's operations personnel can inspect all installations. Water service lines shall be a minimum of five feet (5') deep. Common trenching is not allowed unless approved in writing by the District.

**END OF ARTICLE 10.**

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## **ARTICLE 11. WATER SERVICE LINES**

### **11.1 GENERAL**

The Owner shall strictly adhere to all of the District's Rules and Regulations that pertain to water service line connections. Exceptions to the District's Rules and Regulations may be made only upon application in writing to the District Manager.

Jumpers are not allowed in the District. Water use is prohibited without the use of a meter or without prior written permission from the District. If this provision is violated, the Owner of the offending service shall be immediately assessed a fine per incident as set forth in the District's Schedule of Fees and Charges.

Reminders:

- A Water Connection Permit is required before any digging can take place.
- If at any time a problem or questions occurs, please be sure to contact the District for instructions before proceeding with a connection.
- Any variances must be requested in writing and approved by the District.

### **11.2 GENERAL REQUIREMENTS**

**11.2.1 SERVICE SIZE.** Water services shall be adequately sized to meet the requirements of the facility being served. The minimum size water service shall be three-quarters of an inch ( $\frac{3}{4}$ ").

The service line and meter shall be sized according to AWWA manual M22: "Sizing Water Service Lines & Meters" and shall be approved by the District on the basis of:

- Number of units serviced.
- Number of fixtures.
- Length of service line.
- Total GPM required.
- Annual consumptive demand.



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The District may require the installation of a meter a size smaller than the service pipe in cases where the full capacity of a previously used service pipe is not required.

Service lines shall be of the same type material from beginning to end, unless the appropriate insulator is installed at the junctions of dissimilar metals and unless approved by the District.

Service lines shall be the same size as the corporation stop unless written permission is given by the District.

**11.2.2 WATER SERVICE LINE LOCATIONS.** District approval of service line locations is required for all services. Water service lines at the curb stop shall be no deeper than five feet six inches (5'6"). Water service lines shall be a minimum of two feet (2') from the property line. If any portion of the service line is to be located under a hard surface, such as driveway, then the service line will be sleeved in SDR-35 pipe, or if joint trenching is approved by the District.

**11.2.3 METERS.** Meters (Badger Meter Model 35 (3/4-inch)) will be furnished and installed by the District. The District will furnish the meter, register/encoder (Badger Meter Model HR-E), and transmitter (Badger Meter Model ORION CE) for all services. All other service line components such as pipe, fittings, meter pits and meter setters, shall be furnished and installed by the Developer. The charge for District furnished meters is set forth in the District's current Schedule of Fees and Charges.

Water meters shall be set when the Property Owner requests water for the structure. Meter installation shall be requested from the District at least twenty-four (24) hours in advance. Note: If the meter cannot be installed due to improper preparation, a fee shall be assessed for each return for installation as set forth in the District's Schedule of Fees and Charges. If the building is occupied prior to a meter set, a fine shall be assessed as set forth in the District's Schedule of Fees and Charges. Meter sets in cold months must have a heat source available.

The District will supply and maintain the water meter, which fee is paid at the time of connection. It is the Owner's responsibility to ensure that the water billing address is correct and bills are paid promptly. The Owner shall notify the District of any change of ownership or of any change of billing responsibility.

**11.2.4 LOCATION OF METERS AND TRANSMITTERS.** Meters for all new services in the District shall be installed in a meter pit and shall not

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be located within the structure. Transmitters shall be mounted to the meter pit lid. All meter set locations will be approved by the District and will not be covered in any way at any time as to allow the District total access for repairs.

**11.2.5 METER SIZE.** Meters shall be of the same size as the corporation stop.

Meters in sizes three inches through six inches (3" - 6"), regardless of type of installation, shall be compound type meters. Compound meters shall consist of two (2) meters, one (1) to measure small flows and the other to measure large flows. The two (2) meters may be assembled in one (1) case or in separate cases coupled together.

A bypass line shall be required for all meters one and one-half inch (1½") and larger. Bypass lines shall contain an independent control valve and shall contain no tees, plugs, or other outlets through which water could be withdrawn. Please refer to drawing GRN-10BW.

**11.2.6 CURB STOPS.** Curb stops/ball valves shall be installed on all service lines to provide a means to shut off the service line. The curb stop and curb stop box shall be located as shown on the standard details. Curb stops shall be buried a minimum of four feet six inches (4'6") and a maximum of five feet six inch (5'6"). The curb stop box shall be a minimum of two inches (2") and a maximum of four inches (4") above final grade or back of sidewalk and will not be covered in any way at any time as to allow the District total access for repairs.

**11.2.7 PRESSURE REGULATORS.** A pressure regulator, adjustable from twenty-five to seventy-five (25 -75) psi, shall be installed on all service lines in which normal operating pressure exceeds fifty (50) psi. For services with inside meter settings (Rocking Horse Farms subdivision only), the pressure regulator shall be installed between the meter yoke and a downstream valve. For services with outside meter settings, the regulator shall be located within the structure between two isolation valves. The operation, maintenance, and replacement of the pressure regulator is the responsibility of the Property Owner.

**11.2.8 PRESSURE BOOSTER SYSTEMS.** In locations where the District's water distribution system is not capable of providing adequate pressure to certain individual lots, the District may require installation of pressure booster systems within the affected houses. Generally, booster systems will not be allowed when the service pipeline can be at sufficient size to not impact pressure and flow. Booster systems will be required when static pressure at the meter is less than forty-three (43)

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psi. Booster systems will be sized to provide adequate flow and will generally consist of a booster pump and a pressure tank. The District shall approve booster systems prior to installation. The Property Owner shall be responsible for the operation and maintenance of the pressure booster system, including all costs associated with said operation and maintenance.

In lieu of a pressure booster system, the District may require installation of a pipeline from a higher pressure zone to serve houses with pressure less than forty-three (43) psi.

**11.2.9 SERVICE LINE STUB-INS.** Service line stub-ins shall extend behind any other utilities, such as gas and electric lines. Water services shall be in a separate trench and shall be a minimum of ten feet (10') from sewer service lines. Water service lines shall be a minimum of eighteen inches (18") above any sanitary sewer crossing.

**11.2.10 SERVICE LINE TAPS.** Direct tapping of the main will be permitted for three-quarters of an inch ( $\frac{3}{4}$ ") taps in ductile iron pipe with a diameter of eight inches (8") or greater. All other taps shall be made using the specified tapping saddle and conform to AWWA C105, C600, C-605, and C-800.

All three-quarters of an inch ( $\frac{3}{4}$ ") taps shall be wet taps, using a double strap tapping saddle with corporation stop and three-quarters of an inch ( $\frac{3}{4}$ ") K-copper tubing. A curb stop shall be installed two feet (2') inside the property line and two feet (2') off the property line. Meters shall be installed outside except in the Rocking Horse Farms Subdivision. For those meters installed inside a structure, the location shall be approved by the District.

**11.2.11 LIABILITIES OF PROPERTY OWNER.** The Property Owner shall be liable for any and all damage resulting from the breakage, leak or other failure of any water improvements installed beyond the meter pit to and into the residence, building or other structure. In the event that such water improvements require repairs, replacement or removal, such work shall be the responsibility of the Property Owner and the Property Owner shall bear all costs associated therewith.

**11.2.11.1 Rocking Horse Farms Subdivision.** For residences, buildings or other structures located within the Rocking Horse Farms Subdivision which have meters installed within the residence, building or other structure, such Property Owner shall be liable for any and all damage resulting from the breakage, leak or other failure of any

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water improvements installed beyond the curb stop to and into the residence, building or other structure. In the event that such water improvements require repairs, replacement or removal, such work shall be the responsibility of the Property Owner and the owner/Property Owner shall bear all costs associated therewith.

**END OF ARTICLE 11.**

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**ARTICLE 12. SERVICE LINE EQUIPMENT AND MATERIALS**

- 12.1 SERVICE LINE PIPE AND FITTINGS.** Service lines shall be seamless copper tube or ductile iron pipe. Service line materials shall conform to one of the following specifications:

Seamless copper tube, Type K (soft), shall be used for service lines three-quarters of an inch to three inches ( $\frac{3}{4}$ " - 3").

Ductile iron pipe may be used for three-inch (3") service lines, and shall be used for all service lines larger than three inches (3").

Pipe fittings for DIP service lines shall be cast-iron, mechanical joint in compliance with Article 8.6.3, Fittings, of these Rules and Regulations.

Underground service line valves and fittings for Type K copper service lines shall be all brass construction in accordance with the latest version of AWWA C800. Fittings used inside a building or a meter vault [two-inch (2") meter and larger] may be of the sweat copper type.

- 12.2 CORPORATION STOPS.** Corporation stops shall be no-lead brass products containing no more than 25 percent (25%) total lead content by weight and shall be manufactured in accordance with AWWA C800 with AWWA taper thread on the inlet side. The outlet connection shall be flare type. Style shall be Ford FB600, or approved equal. All corporation stops will have a dielectric coupler installed to isolate the copper from the corporation stop. In all service line installations, the corporation stop shall be insulated from the copper service line.
- 12.3 CURB STOPS.** Curb stops/ball valves shall be no-lead brass products containing no more than 25 percent (25%) total lead content by weight with flared outlets. Styles shall be Ford catalogue number B22-333-NL, Mueller part number B25204N, or approved equal. Curb stop shall be buried no deeper than five feet six inches (5'6") from top of curb stop box.
- 12.4 CURB STOP BOXES.** Curb stop boxes shall be of cast iron construction coated with black asphaltic bituminous paint, arch base, screw style design, with "WATER" lid and brass pentagon lock. The curb stop box shall be Sigma VB795E with components "30T" and "39B", or approved equal. Curb stop boxes shall be installed a minimum of two inches (2") and a maximum of four inches (4") above final grade.
- 12.5 PRESSURE REGULATORS.** A pressure regulator (Watts Model 25AUB) shall be a part of the water service line installation where static pressures are anticipated to exceed 50 pounds per square inch. Refer to Article 11.2.7.

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**12.6 METER COUPLINGS.** Meters one and one-half inches (1½") and larger shall be provided with a coupling to allow for the removal of the meter without disturbing the pipe. Couplings shall be Ford LOK-PAK Meter Couplings or approved equal.

**12.7 METER SETTERS.** Meter setters shall be of an all copper and brass construction and shall have a positive one-quarter turn shut-off valve on the inlet side of the setter with padlock wings. Provide a nine-inch (9") meter setter for meter installation. Meter setter shall contain a dual check valve, or other backflow prevention device as determined acceptable by the District, on the downstream side of the setter. Vertical meter settings for inside-house installation shall be Ford CHSS-333-NL, or approved equal. Vertical meter settings for outside-house (meter pit) installation shall be Ford Series 80 Copper Setter VBHH83-12W-44-33-NL, or approved equal. Meter yoke shall contain a single check valve (or other backflow prevention device as determined by the District) on the downstream side of the yoke. Provide a nine-inch (9") meter yolk for meter installation.

The water meter setter shall provide a continuous, electrically conductive path around the water meter. If a bonding jumper is required, it shall be made of copper with fittings suitable for the bonding jumper and the water pipe material. The meter setting installation shall be in compliance with the NEC, Articles 100, 250-81, 250-94, 250-112 and 250-115(a)

**12.7.1 OUTSIDE METER SETTINGS WITH TRANSMITTERS.** Outside meters shall be installed in a horizontal position and housed in a meter pit. Transmitters shall be located in the meter pit lid.

**Meter settings for meters larger than one inch (1") shall be installed per Denver Water standard details.**

**12.8 VALVES FOR USE WITH METERS.** Gate or ball valves three inches (3") and smaller to be used with copper service pipe shall be brass, with non-rising stems and solid wedge disc. Gate valves shall meet the requirements of AWWA Standard C800. Valves shall be Nebco #T22 or approved equal.

Valves larger than three inches (3") for use with ductile iron service pipe shall be gate valves conforming to Article 8.6.4, Gate Valves, of these Rules and Regulations

**12.9 TAPPING SADDLES.** Water service tapping saddles for service lines two inches (2") in diameter and smaller shall be bronze with double straps and AWWA taper threads. Single strap saddles shall not be permitted.

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Tapping saddles being used shall be Ford 202B (ductile iron pipe), Ford 202BS (PVC pipe), or approved equal

- 12.10 METER PITS AND COVERS.** The meter pit shall consist of a 24-inch nominal diameter by 48-inch high cylinder of plastic with at least two (2) units. The 36-inch high base unit shall have two (2) doghouse cutouts three inches (3") side by four inches (4") high and located 180 degrees apart to accommodate the service line pipe. The 12-inch high top unit shall have a tapered design to support the meter pit dome with a 20-inch nominal diameter.

The base and top units shall be produced using high density polyethylene regrind and virgin resins in a series of laminated walls with white interior coating. The outer wall shall be laminated to the interior wall to result in a total wall thickness of no less than 0.5 inches.

The assembled meter pit shall be able to bear a 20,000-pound vertical load when distributed evenly over the top rim of the top unit. The base unit shall have molded flanges at the bottom and near the top to resist settling and provide resistance to deformation from lateral loads during backfilling. Grade adjustment rings from the same manufacturer shall be used to raise the top of the pit to grade or accommodate the plumb pit to angled grades.

The base unit shall be Sigma RMP2436-W, or approved equal. The top unit shall be Sigma RMP24-FB-EX12-W, or approved equal.

The meter pit dome assembly shall consist of the meter pit dome housing, the meter pit lid, and the inner frost lid.

The meter pit dome housing shall be made of grey cast iron in accordance with ASTM A48, Class 35B, meeting H20 loading standards. It shall have a nominal diameter 20-inch bottom diameter that tapers to a nominal 12-inch diameter opening at the top with a height of 10 inches. The dome housing shall have an inside lip to support an inner frost lid and an upper lip to accommodate the locking mechanism of the meter pit lid.

The meter pit lid shall be a cap type lid and shall be grey cast iron in accordance with ASTM A48, Class 35B. The cast iron lid shall have a center hole that is two inches (2") in nominal diameter to accept the transmitter device. The lid shall be furnished with a ductile iron worm-gear locking bolt with a pentagonal brass nut. The words "WATER METER" shall be cast on the meter pit lid.

The inner frost lid shall be molded of high-density polyethylene. The frost lid shall be 12-inch diameter (nominal) and at least 1/8-inch thick. The frost lid shall be dish-shaped with a recess that is three inches (3") deep with five (5) 1/4-inch

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diameter drainage holes. There shall be a 1/4-inch wide notch the full width of the top lip for transmitter wire and a lifting handle that projects two inches (2") inward with a 5/8-inch or larger hole.

The meter pit dome housing shall be Sigma MBSW3D-2-35, or approved equal. The meter pit lid shall be Sigma MBSW3DPTH1-35, or approved equal. The inner frost lid shall be Sigma MBSW3D-FL, or approved equal.

Meter pits shall be two to four inches (2" - 4") above final grade and will not be covered in any way at any time as to allow the District total access for repairs

- 12.11 COMPOUND METERS.** Compound meters shall conform to Denver Water Board Specifications Section MS-17.

Specifications shall be furnished upon request for meters larger than six inches (6") or for installations where the service requirements require a meter other than the type specified above.

- 12.12 METER CHECK VALVES.** Check valves shall be required for all meters one and one-half inches (1½") and larger. Reduced pressure principle backflow preventers may be required where conditions exist that could cause a flow of water from the property to the main.

- 12.13 SERVICE LINE EXTENSION.**

**12.13.1 EXCAVATION, BEDDING AND BACKFILL.** Excavation, bedding and backfill shall be performed in accordance with Article 15, Site Work and Earthwork, of these Rules and Regulations.

**12.13.2 SERVICE LINE TAPS.** Tapping shall be performed after the water main has passed pressure and bacteriological tests.

Service line taps shall be made under full line pressure. Taps shall be made in the upper half of the main at the ten o'clock or two o'clock positions. The tap shall be made on the same side of the main as the water meter.

Service taps shall have a minimum separation of eighteen inches (18") and shall be no closer than eighteen inches (18") to a coupling or bell. After the tap has been completed, polyethylene wrap and the bedding shall be repaired or replaced. Upon completion of all service taps, a visual inspection shall be made by the District to check for leakage. If any leakage exists which cannot be corrected by tightening the corporation stop, upon approval by the District, a repair saddle may be used.



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No partial inspections for water service will be permitted without prior approval to the excavation by the District.

**12.13.3 OUTSIDE METER SETTINGS WITH TRANSMITTERS.** Outside meters shall be installed in a horizontal position and housed in a meter pit. Transmitters shall be located in the meter pit lid.

**12.13.4 INSIDE METER SETTING AND TRANSMITTERS.** Inside meter settings shall be installed in a manner which will allow free access and adequate room for inspection and maintenance and will protect the meter from freezing. Meters installed inside of buildings shall be not more than eighteen inches (18") from the wall through which the service pipe enters the building. The meter yoke shall have a minimum of one foot (1") clearance from all surrounding obstructions. All fittings shall be brass or copper.

Inside meter settings shall not be allowed in crawl spaces, closets or other locations that are not easily accessible. Meter sizes one and one-half inches to two inches (1½" - 2") installed inside buildings shall be provided with a floor drain.

Transmitters shall be installed in an approved location.

**END OF ARTICLE 12.**

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**ARTICLE 13. PUMPING FACILITIES**

- 13.1 GENERAL.** In locations where the District's water distribution system is not capable of providing adequate water pressure to a development area, the District may require the construction of a pumping facility in order to provide proper service. The District may not approve the installation of a pumping facility where, in the opinion of the District, such an installation would have an adverse effect on the operation, or future operation, of the District's water system. The Developer shall provide the District with a set of design calculations and blue-line drawings for review and acceptance by the District. Drawings shall conform to Article 6 Plans and Specifications, of these Rules and Regulations.

The pumping facility shall satisfy all requirements of the CDPHE and of these Rules and Regulations. The Developer shall prepare a set of "as built" drawings of the pumping facility in accordance with Article 6 Plans and Specifications of these Rules and Regulations. Upon completion of the pumping facility, the contractor shall also provide the District with two (2) paper copies and one (1) electronic copy of an "Operation & Maintenance Manual" for the facility.

**13.2 DESIGN CRITERIA**

- 13.2.1 GENERAL.** The District on a case-by-case basis will establish specific design criteria for water pumping facilities. Prior to commencing design, the Developer and his/her engineer shall meet with the District to develop design criteria for the project.

- 13.2.2 PUMPS AND PUMP STATION.** Pump stations shall have a minimum of two (2) pumps and shall be capable of pumping the peak design flow with one pump out of service. All pumping equipment of the same size shall be manufactured and supplied by the same company.

The station shall be sized to accommodate all pumps, electrical equipment and controls required to operate the facility. The station shall be lighted, heated and well ventilated, and if required shall be designed for easy expansion. The architectural finish of the station shall blend with that of the surrounding architecture.

A standby diesel generator, capable of operating the entire station for a minimum of four (4) hours, shall be provided and shall be located outside of the building in an all-weather enclosure.

- 13.2.3 CONTROLS AND TELEMETRY.** Pump operation shall feature automatic sequencing of the pump operation to balance pump wear.

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A telemetry system shall be incorporated at the pump station into the system for control monitoring and reporting. The system shall be capable of differentiating between varieties of emergency conditions including high and low pressures, pump failures and power failure. The telemetry system shall be compatible with the District's system and will be reviewed and accepted by the District prior to installation.

- 13.2.4 SITE IMPROVEMENTS.** Six foot (6') high vinyl coated chain link fence with barbed wire shall be installed around the perimeter of the pump station site. Upon completion of the pump station construction, all disturbed areas within the site shall be fertilized, seeded, and mulched in accordance with Article 20.7, Site Restoration, of these Rules and Regulations. Depending on site location, landscaping improvements may be required by the District.

**END OF ARTICLE 13.**

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**ARTICLE 14.    RESERVED FOR FUTURE USE**

**END OF ARTICLE 14.**

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**ARTICLE 15. SITE WORK AND EARTHWORK**

**15.1 GENERAL.** Site work shall consist of demolition and removal of structures and obstructions; clearing and grubbing; overlot grading; subgrade preparation; removal of topsoil; site preparation; excavation and embankment; excavation, trenching, bedding and backfill of pipelines and service lines; excess excavation; borrow; and restoration and cleanup. All site work and excavation shall comply with the requirements of these Rules and Regulations.

**15.2 DISPOSAL.** The contractor shall make all necessary arrangements for suitable disposal locations. If disposal will be at other than established dump sites, the District may require the contractor to furnish written permission from the Property Owner on whose property the materials will be placed.

**15.3 COMPACTION TESTING.** Compaction testing shall be performed by a consulting engineering or geotechnical firm at the contractor's expense. Final soils compaction reports shall be prepared and signed by a Registered Professional Engineer who is registered in the State of Colorado. Reports shall be submitted to the District within one (1) week of testing.

**15.4 MATERIALS**

**15.4.1 PIPE BEDDING MATERIALS.** Bedding material for water lines shall be a clean, well-graded sand or squeegee sand and shall conform to the following limits when tested by means of laboratory sieve

**15.4.2 WELL-GRADED SAND**

Sieve Size	Total Percent Passing By Weight (%)
3/8"	100
No. 4	70-100
No. 8	36-93
No. 16	20-80
No. 30	8-65
No. 50	2-30
No. 100	1-10
No. 200	0-3

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**15.4.3 SQUEEGEE SAND**

Sieve Size	Total Percent Passing By Weight (%)
3/8"	100
No. 200	0-5

Bedding material for PVC pipe shall meet the gradation of the Colorado Department of Transportation (CDOT) "No. 67 Coarse Aggregate" as specified in the CDOT "Standard Specifications for Road and Bridge Construction".

Bedding for underdrain pipe shall be three-quarters of an inch (¾") washed gravel.

**15.4.4 STRUCTURE BACKFILL MATERIAL.** Imported structure backfill (Class I) shall meet the general gradation of "Class 1 Structure Backfill Material" as specified in Section 703.08 of the CDOT "Standard Specifications for Road and Bridge Design". On site Class 2 structure backfill shall meet the requirements of Section 703.08 of the CDOT Specifications.

**15.4.5 ASPHALT PAVING.** Asphalt pavement shall conform to Section 401 of the CDOT Specifications.

**END OF ARTICLE 15.**

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**ARTICLE 16. DEMOLITION AND REMOVAL OF STRUCTURES AND  
OBSTRUCTIONS**

- 16.1 GENERAL.** The contractor shall remove, wholly or in part, and satisfactorily dispose of all foundations, signs, structures, fences, old pavements, abandoned pipelines, traffic signal material and any other obstructions that are designated for removal. All salvageable material will be clearly marked by the District and shall be removed without unnecessary damage, in sections or pieces that may be readily transported. Materials so removed shall be stored in locations approved by the District. Materials to be salvaged may include, but shall not be limited to, manhole frames and covers, inlet grates, fence material, handrails, culverts, guardrail, walkway, roadway and parking appurtenances and irrigation systems and appurtenances. The contractor will be required to replace any materials lost from improper storage methods or damaged by negligence.

Where portions of structures are to be removed, the remaining parts will be prepared to fit new construction. The work will be done in accordance with plans and in such a manner that materials to be left in place will be protected from damage. The contractor at his/her expense will repair any damage to portions of structures that are to remain in place. Reinforcing steel, projecting from the remaining structure, will be cleaned and aligned to provide bond with new extension. Dowels are to be securely grouted with approved grout. Depressions resulting from the removal of structures, footings, and other obstructions, shall be filled and compacted with clean fill materials so as to eliminate hazards of cave-in, accumulation and ponding of water.

Immediately following demolition and removal of rubbish from the site, the contractor shall grade the site by filling, compacting, and leveling the site to existing adjacent grades.

- 16.2 REMOVAL OF PIPE.** Unless otherwise provided, all pipe will be carefully removed and cleaned; every precaution will be taken to avoid breaking or damaging the pipe. Pipes to be re-laid shall be removed and stored in a manner that prevents loss or damage before relaying.

Any temporary water line put in by the Developer, whether for the Developer or the District, for any reason will be removed after the use of the line is complete. If the Developer wishes to leave the line in place he/ she will need to have the temporary line surveyed into the as-builts for that area and take sole ownership and responsibility for the temporary line. This may include but is not limited to responding to locate requests by UNCC or any other party requesting information on the temporary line.

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Where culverts are to be left in place and plugged, the ends will be filled with Class III concrete. Culvert ends are to be sufficiently filled to prevent future settlement of embankments.

When removing manholes, catch basins and inlets, any live line connected with these items will be properly reconnected, and satisfactory bypass service will be maintained during such operations.

- 16.3 REMOVAL OF PAVEMENTS, SIDEWALKS, AND CURBS.** Concrete or asphalt that is to remain shall be cut to straight, true line with a vertical face. Concrete or asphalt shall be cut with a saw. The sawing shall be done carefully, and the contractor at his/her expense shall repair all damage to the concrete or asphalt that is to remain in place. The minimum depth of saw cuts in concrete shall be two inches (2").

The contractor shall be responsible for the cost of removal and replacement of all over breakage as determined by the District.

**END OF ARTICLE 16.**



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**ARTICLE 17. SITE PREPARATION**

**17.1 GENERAL.** The contractor shall complete all work necessary to satisfactorily prepare the site as shown on the accepted drawings and as specified herein. Following this preparation, the site shall be in such a condition as to easily continue with the next operation. Site preparation includes clearing, grubbing, grading, tree and shrub removal, and native grass stripping and removing and disposing of all debris. This work will also include the preservation from injury or defacement of all vegetation and objects not designated for removal.

**17.2 CLEARING.** Branches on trees or shrubs will be removed as indicated on the plans. Branches of trees extending over the road bed will be trimmed to give a clear height of twenty feet (20') above the road bed surface. All trimming will be done by skilled workmen and in accordance with good tree trimming practices.

All objects, trees, stumps, roots and other objects designated for removal shall be removed to a minimum of two feet (2') below subgrade.

Except in areas to be excavated, stump holes and other holes from which obstructions are removed shall be backfilled with suitable material and compacted in accordance with these Rules and Regulations.

The contractor shall strip areas where excavation or embankment is to be made. Stripping shall include the removal of material such as brush, roots, sod, grass, residue of agricultural crops, sawdust, and other vegetable matter from the surface of the ground.

Clearing shall be performed in a careful and orderly manner that protects adjoining property, the public and workmen. Damage to streets, parking lots, utilities, plants, trees, buildings or structures on private property, or to bench marks, survey monuments and construction staking due to clearing operations shall be repaired and restored to its original condition by the contractor at his/her expense.

**17.3 TOPSOIL.** The contractor shall salvage within the project limits, or acquire when needed, loose friable loam reasonably free of admixtures of subsoil, refuse, stumps, roots, rocks, brush, weeds, heavy clay, toxic substances or other material which would be detrimental to the proper development of vegetative growth.

Topsoil shall not be placed until the areas to be covered have been properly prepared and grading operations in the area have been completed. Topsoil shall be placed and spread at locations and to the thickness shown on the plans and shall be keyed to the underlying material.

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**END OF ARTICLE 17.**

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## ARTICLE 18. EARTHWORK

- 18.1 GENERAL.** This work shall consist of excavation, fill, backfill, disposal, shaping or compaction of all material encountered within the limits of the project. Work shall be performed to the line and grade indicated on the approved plans.

Excavation, dewatering, sheeting, and bracing shall be carried out in such a manner as to eliminate any possibility of undermining or disturbing the foundation of any existing structures or any work previously completed.

Refer to Article 20.5, Trench, Backfilling and Compacting, of this Article for requirements for trenching, backfilling and compacting.

The District may require the contractor to provide an earthmoving diagram and haul routes.

## 18.2 DEFINITIONS

- Bedding Material shall mean material that is installed under and around pipelines.
- Borrow shall mean backfill or embankment material which must be acquired from designated borrow areas.
- Proof Rolling shall mean the application of test loads over a subgrade surface by means of a heavy pneumatic-tired vehicle to locate weak areas in subgrade.
- Rock shall mean rock formations that cannot be excavated with a D-9 tractor in good repair with a single hydraulic ripper.
- Stabilization Material shall mean material that is to be placed in areas of over excavation, of unsuitable insitu material, or in areas of high water table to stabilize the insitu material.
- Structure Backfill shall mean earthen material that is installed around and over any structure.
- Structure Excavation shall mean excavation materials over an area extending three feet (3') out from the outer most bottom edge of a proposed structure, up to existing grade or top of proposed grade.
- Suitable Material shall mean any earthen material consisting of on-site or similar non-organic sands, gravels, clays, silts and mixtures thereof

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with a maximum size of six inches (6"). Bedrock that breaks down to specified soil types and sizes during excavation hauling and placement may be considered suitable material.

- Unclassified Excavation shall mean excavation of all materials encountered.
- Unsuitable Material shall mean any earthen material containing vegetable or organic silt, topsoil, frozen materials, trees, stumps, certain man made deposits, or industrial waste, sludge or landfill, or other undesirable materials.

**18.3 GRADING TOLERANCES.** All earthwork shall be carried out in such a manner that final grades shall conform to those indicated on the approved plans. Final grades shall not vary from the design elevations by more than 0.1 feet. In addition, positive surface drainage shall be provided on the entire site so that no depressions or ponds are formed, regardless of depth. It shall be the contractor's responsibility to insure that all portions of the site drain as shown on the accepted plans.

Grading shall be performed in conjunction with all of the necessary clearing, grubbing, stripping, filling, and compacting operations to the satisfaction of the District.

Grading shall be done by approved means. Areas adjacent to structures and other areas inaccessible to heavy grading equipment shall be graded by manual methods.

**END OF ARTICLE 18.**

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**ARTICLE 19. EXCAVATION**

- 19.1 GENERAL.** Excavated areas shall be graded in a manner that will permit adequate drainage, will not disturb material outside the limits of slopes and will be within the tolerances noted in Article 18.3, Grading Tolerances, of this Article. Suitable material removed from the excavation shall be used for the construction of embankments, for backfilling, and for other approved purposes.

The contractor shall dispose at his/her expense of all unsuitable or surplus material.

Water pumped or drained from the work shall be disposed of in an approved manner.

- 19.2 STRUCTURE SUBGRADES.** If the material at or below the depth to which excavation for structures would normally be carried is unsuitable for the required installation, it shall be removed to such widths and depths as directed by the District and shall be replaced with stabilization material.

Unauthorized over excavations shall be refilled to grade with Class 1 structure backfill material.

If the surface of the subgrade is in an unsuitable condition for proceeding with construction, the contractor shall, remove the unsuitable material and replace it with concrete, structure backfill, or other approved material.

- 19.3 PROTECTION OF EXISTING STRUCTURES AND UTILITIES.** Existing poles, pipes, wires, fences, curbs, property line markers and other structures that must be preserved in place without being temporarily or permanently relocated, shall be carefully supported and protected from damage by the contractor. In case of damage, the contractor shall notify the Property Owner. Unless Property Owners wish to make the repairs themselves, the contractor shall repair all damage.

The utility company shall locate all utility lines well ahead of the work. All such locations shall be plainly marked by coded paint symbols on pavement or by marked stakes in the ground.

All existing utility services shall be supported by suitable means to prevent damage during construction activities.

- 19.4 EXCAVATED MATERIAL.** Excavated material shall be stockpiled in locations to minimize the impact on traffic, driveways and adjoining properties. Excavated material shall not be deposited on private property unless written consent of the Property Owner(s) has been filed with the District.

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Excavated materials shall not be removed from the site or disposed of by the contractor except as approved by the District.

Suitable excavated material shall be used as backfill, fill for embankments, or other parts of the work.

Surplus material shall be disposed of by contractor in accordance with Section 15.2 of these Rules and Regulations.

**19.5 PROOF ROLLING.** Proof rolling may be required to determine whether certain areas of subgrade meet compaction requirements. Where required by the District, proof rolling shall be carried out as designated, with a heavy rubber tired proof roller with a minimum weight of fifty (50) tons or a single axle dump truck loaded to provide an equivalent wheel loading.

Subgrade found to be unacceptable during proof rolling shall be scarified and recompacted at the proper moisture content.

**END OF ARTICLE 19.**

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### ARTICLE 20. FILLS AND EMBANKMENTS

- 20.1 GENERAL.** Earth fills shall be constructed in accordance with this Section, including placing and compacting of all embankment material, and all related work required to ensure proper bond of materials with previously placed embankment.

Material shall not be placed in any section of embankment until the foundation for that section has been cleared, stripped and dewatered and compacted in accordance with these Rules and Regulations.

The suitability of each part of the foundation for placing embankment material thereon and of all materials for use in the embankment construction shall be as determined by the District. Materials shall be placed and compacted in approximately horizontal layers of the specified thickness. The thickness of each layer shall not exceed six inches (6") before compacting.

- 20.2 PLACEMENT OF FILL MATERIAL.** After subgrade has satisfactorily been prepared, the fill material shall be placed and compacted thereon and built-up in successive layers until the required elevation is reached. Fill materials shall be a homogenous mixture of stockpiled suitable material. Fill shall be placed within the lines and grades shown on the accepted plans. Fill material shall not be placed on frozen surfaces, and shall not contain snow, ice or other frozen materials.

The contractor shall maintain the embankment in a manner satisfactory to the District until the District has given final acceptance of all work.

Excavated materials too wet for immediate compaction, shall be dried to the proper moisture content.

- 20.3 COMPACTION REQUIREMENTS.** Fills and embankments less than ten feet (10') in height shall be compacted to ninety-five percent (95%) of maximum density (AASHTO T 99). Fills and embankments ten feet (10') and greater in height shall be compacted to one hundred percent (100%) of maximum density. Moisture content will be maintained within plus or minus two percent ( $\pm 2\%$ ) of optimum moisture during compaction.

**20.4 STRUCTURE BACKFILL**

- 20.4.1 MATERIALS.** Structure backfill material shall be used to backfill reinforced concrete structures. Class 1 backfill material shall be used when on-site excavated material does not meet the requirements for Class 2 backfill.

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- 20.4.2 PLACEMENT OF BACKFILL MATERIAL.** Backfilling shall consist of placing materials in horizontal, uniform layers brought up uniformly on all sides of the structure. The thickness of each layer of backfill shall not exceed six inches (6") before compacting to the required density.

Areas adjacent to structures and other areas inaccessible to mobile compaction equipment shall be compacted with suitable power-drive hand tampers or other acceptable devices.

Backfill material shall not be deposited against the back of concrete abutments, concrete retaining walls, or the outside of cast-in-place concrete structures until the concrete has developed its full twenty-eight (28) day strength.

Unless otherwise indicated on the approved plans, sheeting and bracing used in making the structure excavation shall be removed prior to backfilling.

- 20.4.3 COMPACTION REQUIREMENTS.** Structure backfill shall be compacted to a density of not less than ninety-five percent (95%) of maximum density determined in accordance with AASHTO T 99 (Standard Proctor). When structure backfill occurs in roadways, backfill shall be compacted to one hundred percent (100%) of maximum density.

- 20.4.4 BORROW.** In case an insufficient quantity of material is available on site for completion of the necessary embankment and structure backfill operations, the contractor shall furnish approved backfill material from off site.

### **20.5 TRENCHING, BACKFILLING AND COMPACTING**

- 20.5.1 GENERAL.** This work shall consist of furnishing all labor, materials, tools and equipment for trenching, bedding, backfill and compaction for all underground utilities. Excavations shall be made to lines and grades shown on the approved plans. Except as specifically approved by the District, trench excavation shall be made by the open cut method to the depth required to construct the pipelines as shown on the approved plans. All trench excavation shall be unclassified.

Surface materials such as concrete and asphalt shall be disposed of separately from the underlying soil; base course and gravels that are to be salvaged shall be stockpiled and protected from contamination.



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Unsuitable materials shall be disposed of in accordance with these Rules and Regulations.

Excavated material that meets the requirements for backfill material shall be stockpiled in a safe manner, at a sufficient distance from the banks to avoid overloading.

Excavation shall not be permitted to advance more than one hundred fifty feet (150') ahead of pipe laying and two hundred feet (200') in advance of the backfill operations. Trenches shall not be left open overnight.

**20.5.2 CONNECTIONS TO EXISTING FACILITIES.** Prior to the connection of a new utility line to an existing facility, the contractor shall expose the existing facility at the point of connection to verify the elevation and materials of construction. The District shall be notified a minimum of two (2) working days before such an investigation is performed. The contractor shall also expose existing utilities that cross new construction to allow for verification of elevation and materials of construction.

**20.5.3 TRENCH EXCAVATION FOR PIPELINES AND SERVICE LINES.** Trenches shall comply with the requirements of the Occupational Safety and Health Administration (OSHA) "Safety and Health Regulations for Construction". Sheet piling and shoring shall be utilized where required to prevent any excessive widening or sloughing of the trench.

Excavated material shall not be placed nearer than two feet (2') from the sides of the trench. Heavy equipment shall not be used or placed near the sides of the trench unless the trench is adequately braced.

The width of the trench shall comply with the requirements set forth in these Rules and Regulations and shall permit the pipe to be laid and joined properly. The allowable trench width at the top of the pipe shall not exceed the outside diameter of the pipe barrel plus twenty-four inches (24"), nor be less than the outside diameter of the pipe barrel plus twelve inches (12").

If the width of the lower portion of the trench exceeds the maximum width herein stated, the contractor, at his/her expense, shall furnish and install special pipe embedment or concrete encasement to protect the pipe from the additional loading. The pipe manufacturer shall determine the type and quantities of special pipe embedment, using trench-loading criteria based upon saturated backfill weighing one

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hundred twelve (112) pounds per cubic foot and allowance for truck and other superimposed live loads.

**20.5.3.1 REMOVAL OF WATER.** The contractor shall provide and maintain at all times ample means and devices with which to remove and properly dispose of all water entering the trench excavation. Water shall be disposed of in a suitable manner without damage to adjacent property or without being a nuisance to public health and convenience. Water level in the trench shall be maintained a minimum of six inches (6") below the pipe.

Well points, sumping or any other acceptable methods that will insure a dewatered trench shall accomplish dewatering. All dewatering methods shall be subject to the approval of the District.

**20.5.4 PREPARATION OF FOUNDATION FOR PIPE LAYING.** When the excavation is in firm earth, care shall be taken to avoid excavation below the established grade plus the required specified over depth to accommodate the pipe bedding material.

When soft or otherwise unsuitable foundation material is encountered in the bottom of the trench, the unsuitable material shall be removed and replaced with stabilization material to provide a suitable foundation for the pipe.

Stabilization material shall meet the gradation of "No. 4 Coarse Aggregate" as specified in Section 703.02 of the CDOT "Standard Specifications for Road and Bridge Construction".

**20.5.5 BEDDING FOR PIPELINES AND SERVICE LINES.** Bedding material shall be placed to uniformly support the entire pipe barrel. Bedding material shall be placed to a depth of twelve inches (12") above the top of all PVC pipe (Class B Alternative Bedding) and to the spring line of ductile iron pipe (Class B Bedding). Service lines shall have four inches (4") of bedding above and below the service line.

**20.5.6 BACKFILL FOR PIPELINES AND SERVICE LINES.** Trench backfill shall be placed in loose six inch (6") lifts and each lift thoroughly consolidated by tamping or vibrating.

Hydro hammers shall not be used until the trench backfill has been placed and compacted to within three feet (3') of the finished grade by

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the lift method. Large rollers, tractor drawn equipment or hydro hammers, shall not be used within eighteen inches (18") of the pipe

Flooding or jetting of trenches will not be permitted.

Bracing installed to prevent cave-ins will be withdrawn in a manner that will maintain the desired support during the backfill operations. Driven sheet pilings will be cut off at or above the top of pipe, and the portion below the cut-off line will be left in the ground.

Backfill material that shows signs of visible frost will not be allowed to be used as backfill for pipelines or service lines.

- 20.5.7      COMPACTION.** Trench backfill shall be compacted to a density of not less than one hundred percent (100%) of maximum density determined in accordance with AASHTO T 99 (Standard Proctor). The moisture content shall be maintained within plus or minus two percent ( $\pm 2\%$ ) of optimum moisture during compaction.

Pipes outside the roadway prism or sidewalk and not subject to traffic loads or heavy loads for a period of two (2) years shall be backfilled in layers as described above but shall be compacted to approximately the density of the surrounding earth.

- 20.5.8      COMPACTION TESTING.** Trench backfill shall be tested at a rate of at least one (1) test per two hundred (200) cubic yards of backfill material, but not less than one (1) test per two hundred fifty feet (250') of trench. The testing shall be performed at various depths and locations. Additional testing shall be performed around items such as structures, manholes, valve boxes. One compaction test shall also be performed for each four service lines.

- 20.5.9      MAINTENANCE OF BACKFILL.** Backfill shall at all times during construction be maintained to the satisfaction of the District. Access across trenches for driveways and streets shall be maintained free of hazards to traffic or pedestrians.

### **20.6      PAVEMENT REPLACEMENT**

Pavement cuts shall be repaired using an approved hot mix asphalt concrete. If a permanent patch cannot be installed within twenty-four (24) hours, the contractor shall place a temporary, cold mix, asphalt patch immediately after completing backfill and compaction.

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**20.7 SITE RESTORATION.** The surface grade and condition of all un-surfaced areas disturbed by construction activities shall be restored immediately following construction. The contractor shall replace all sod, trees, shrubbery, sprinkler systems, fences, and any other items disturbed by construction activities. All other areas disturbed during construction grading operations shall be re-vegetated with native grasses. Seeding shall be performed immediately upon completion of construction. The contractor shall maintain all planted materials or seeding until its growth is established.

All roadway surfacing, curbing, sidewalks and gutters will be restored or replaced to a condition equal to that before the work began.

**END OF ARTICLE 20.**

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## ARTICLE 21. CONCRETE WORK

**21.1 GENERAL.** This section covers concrete work performed in conjunction with work on District water systems. Engineering, plans, licenses, permits, inspection, warranties and acceptance shall be as detailed in these applicable Rules and Regulations.

**21.2 STANDARDS.** All concrete work shall meet the requirements of ACI 301, "Specification for Structural Concrete", and ACI 347, "Guide to Formwork for Concrete".

**21.3 SUBMITTALS.** The contractor shall submit the following items for District approval:

- Concrete mix design.
- Reinforcing shop drawings and bar schedules.
- Batch tickets from each concrete truck showing the following information:
  - Weight and type of cement.
  - Weights of fine and coarse aggregates.
  - Weight (in gallons) of water including surface water on aggregates.
  - Quantity (cubic yards) per batch.
  - Times of batching and discharging of concrete.
  - Name of batch plant.
  - Name of contractor.
  - Type.
  - Name and amount of admixture.
  - Date and truck number.

## 21.4 DESIGN CRITERIA

**21.4.1 MIX DESIGN.** Concrete shall conform to the following requirements:

### Concrete Requirements

Minimum Compressive Strength	4000 psi
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Minimum Cement	6 Sacks / cubic yard
Maximum Water/Cement Ratio	0.46 by weight
Slump	2-4 Inches
Air Entrapment	4-8% by volume

**21.4.2 REINFORCEMENT CLEARANCES**

Unless otherwise shown on the plans, the minimum clear cover for reinforcing steel shall be:

Location	Minimum Clear Cover
Bottom bars in soil bearing foundations and slabs	3 inches
Bars adjacent to surfaces exposed to weather on earth backfill:	
For bars more than 3/4" in diameter	2 inches
For bars less than 3/4" in diameter	1-1/2 inches
Interior Surfaces	
Slabs,walls,joints with 1 3/8" diameter or smaller	3/4 inches

**21.5 MATERIALS**

**21.5.1 GENERAL.** Concrete shall be composed of Portland cement, aggregate, and water, and shall be reinforced with steel bars or steel wire fabric where required. No admixture other than air-entraining agents, fly ash, and water reducing agents shall be used without written permission of the District.

**21.5.2 CEMENT.** All cement used in concrete work shall be Portland cement conforming to the requirements of ASTM C-150, II or IIA.

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- 21.5.3 FLY ASH.** Fly ash may be substituted for a portion of the cement. Fly ash shall conform to the requirements of ASTM C 618.F.
- 21.5.4 WATER.** Water for concrete shall be clean and free from sand, oil, acid, alkali, organic matter, or other deleterious substances.
- 21.5.5 ADMIXTURES.** Air-entraining admixtures shall conform to the requirements of ASTM C-260.
- 21.5.6 FINE AGGREGATE.** Fine aggregate shall be composed of clean, hard, durable, uncoated particles of sand, free from injurious amounts of clay, dust, soft or flaky particles, loam, shale, alkali, organic matter, or other deleterious matter. Fine aggregate shall be well graded from course to fine and when tested by means of laboratory sieves shall meet the following grading requirements:

Sieve Size	Percent Passing (%)
3/8"	100
#4	95-100
#8	80-100
#16	45-80
#30	25-60
#50	10-30
#100	2-10

Fine aggregates for concrete shall conform to the requirements of ASTM C-33.

- 21.5.7 COARSE AGGREGATE.** Coarse aggregate shall consist of broken stone or gravel composed of clean, hard, tough and durable stone and shall be free from soft, thin, elongated or laminated pieces, disintegrated stone, clay, loam, vegetable, or other deleterious matter. Coarse aggregate shall be well graded and when tested by means of laboratory sieves shall meet the following grading requirements:

Sieve Size	Percent Passing (%)
2"	100
1-1/2"	95-100

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3/4"	35-70
3/8"	10-30
#4	0-5

Coarse aggregates for concrete shall conform to the requirements of ASTM C-33.

**21.5.8 MIXING.** Concrete shall be continuously mixed or agitated from the time the water is added until the time of use and shall be completely discharged from the truck mixer or truck agitator within one and one-half (1½) hours after batching.

**21.5.9 REINFORCING STEEL.** Reinforcing bars shall conform to ASTM A615, Grade 60. Welded wire fabric shall comply with ASTM A-185 or ASTM A-497.

**21.5.10 JOINT FILLER MATERIAL**

Joint materials shall conform to AASHTO Specifications according to type as follows:

Concrete joint sealer, hot-poured elastic	M 173
Preformed expansion joint filler (Bituminous Type)	M 33
Preformed sponge rubber and cork expansion joint fillers Preformed expansion joint fillers	M 153
Preformed expansion joint fillers nonextruding & resilient bitum.	M 213

**21.6 CONCRETE CONSTRUCTION**

**21.6.1 FORMWORK.** Forms shall be used to confine the concrete and shape it to the required lines. Forms shall have sufficient strength to withstand the pressure resulting from placement and vibration of the concrete. Forms shall be constructed so that the finished concrete shall conform to the shapes, lines, grades and dimensions indicated on the plans. Forms shall be made from plywood, coated plywood or steel.



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Forms shall not be disturbed until the concrete has hardened sufficiently to permit their removal without damaging the concrete or until the forms are not required to protect the concrete from mechanical damage. Minimum time before removal of forms after placing concrete shall be one (1) day for vertical formed surfaces. Forms supporting the underside of beams and slabs shall not be removed until the concrete has attained the specified twenty-eight (28) day strength.

- 21.6.2 REINFORCING STEEL.** Before being positioned, all reinforcing steel shall be thoroughly cleaned of mill and rust scale and of coatings that will destroy or reduce the bond. Where there is delay in depositing concrete, reinforcement shall be reinspected and, if necessary, cleaned.

Reinforcing steel shall be accurately placed and secured against displacement by using suitable tie wire or clips at bar intersections. Reinforcing steel shall be supported by metal chairs or spacers, precast mortar blocks or metal hangers. Splicing of bars will not be permitted, except where shown on the approved plans.

- 21.6.3 PLACING CONCRETE.** Before depositing concrete, debris shall be removed from the space to be occupied by the concrete. Concrete shall not be placed until all forms and reinforcing steel have been inspected and accepted by the District.

Concrete shall be handled from the mixer to the place of final deposit as rapidly as possible by methods which prevent separation or loss of ingredients. The concrete shall be deposited in the forms as nearly as practicable in its final position. Concrete shall be placed in a manner that will avoid segregation and shall not be dropped freely more than five feet (5').

Concrete shall be compacted by internal vibration. Vibrators shall not be used to move or spread the concrete.

- 21.6.4 JOINTS.** Non-bituminous joint filler shall be placed at the spacing shown on the accepted plans. Bituminous type shall be used for concrete paving where joint sealers are not specified.

Expansion joint material shall be provided at the following locations and shall be in place prior to the placing of concrete:

- At each end of curb return.
- At both edges of driveway.

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- Between back of sidewalk and driveway slab or service walk.
- Every fifty feet (50') in sidewalk.

Contraction joints shall be spaced as follows:

- Not more than ten feet (10') nor less than five feet (5') on center in curb and gutter and combination curb-walk.
- Not more than ten feet (10') nor less than five feet (5') on center in sidewalk.
- At least two (2) joints, equally spaced at not greater than ten foot (10') intervals in driveways.
- As directed by the District.

**21.6.5 FINISHING.** Exposed faces of curbs and sidewalks shall be finished to true-line and grade as shown on the plans. Surface shall be floated to a smooth finish. Sidewalk and curb shall be broomed. After completion of brooming and before concrete has taken its initial set, all edges in contact with the forms shall be tooled with an edger having a three-eighths inch (3/8") radius.

No dusting or topping of the surface or sprinkling with water to facilitate finishing will be permitted.

Immediately following the removal of the forms, all fins and irregular projections shall be removed from all surfaces. Surface defects, including tie holes shall be patched. The surface shall be left sound, smooth, even, and uniform in color.

**21.6.6 CURING.** Fresh concrete shall be adequately protected from weather damage and mechanical injury during the curing periods. The curing process shall be started as soon as possible after concrete placement and finishing and shall continue for a minimum of seven days. The following curing procedures may be used:

- Ponding (for slabs or footings).
- Spraying with a membrane curing compound.
- Wet burlap, earth, or cotton mats.
- Waterproof paper or polyethylene plastic cover.

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- 21.6.7 COLD WEATHER CONCRETING.** Concrete placement during cold weather shall conform to the requirements of ACI 306.

Concrete placed in cold weather shall be protected from extreme temperatures as follows:

A temperature of at least fifty degrees Fahrenheit (50°) shall be maintained for the first seventy-two (72) hours after placement.

After the first seventy-two (72) hours and until the concrete is seven (7) days old, it shall be protected from freezing temperatures.

Concrete adjacent to heaters or salamanders shall be insulated from direct heat of the unit that may dry it out prior to being properly cured.

Temperatures shall be measured by maximum and minimum thermometers furnished by the contractor and installed adjacent to the concrete.

Concrete slabs shall not be placed, regardless of temperature conditions, if the supporting ground is frozen or contains frost.

- 21.6.8 HOT WEATHER CONCRETING.** The placement of concrete in hot weather shall comply with ACI 305.

- 21.6.9 BACKFILLING.** Backfill shall not be placed against concrete structures until the concrete has attained its specified twenty-eight (28) day strength.

- 21.6.10 TESTING.** All concrete shall be sampled and tested by an approved testing agency. Test reports shall include the exact location of the work at which the batch represented by a test was deposited. The report of the strength test shall include detailed information on storage and curing of specimen prior to testing, the project number, and the location of the concrete (curb, manhole, inlet, sidewalk, paving, etc.). All test reports shall bear the seal and signature of a Professional Engineer registered in the state of Colorado and competent in the field of concrete testing.

One series of strength tests shall be taken per fifty (50) cubic yards (or fraction thereof) of the concrete placed per day. Slump tests and air tests shall be performed on each truckload of concrete.

**END OF ARTICLE 21.**

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**ARTICLE 22. CROSS CONNECTION CONTROL**

**22.1 CROSS CONNECTION CONTROL CRITERIA**

**22.1.1 GENERAL.** Cross-connections of any type that may permit a backflow of water from a supply other than that of the District into the District's potable water system, are strictly prohibited. A cross-connection shall mean any temporary or permanent connection to the District's potable water system that is unprotected.

Backflow prevention system designs for new construction shall be submitted to the District for approval. The District shall inspect and test all devices that are installed. All systems and applications shall be in strict accordance with the CDPHE Cross-Connection Control Manual and Article 12 of the Colorado Primary Drinking Water Regulations. In the event there is a conflict between the Manual and these specifications, the more stringent requirements shall apply.

**22.2 TYPES OF CROSS CONNECTION CONTROL DEVICES.** The design, installation and maintenance of all cross-connection control devices shall be the sole responsibility of the Customer. The following standards shall apply to cross-connection control devices:

**22.2.1 AIR GAP (AG).** An Air Gap is defined as the unobstructed vertical distance through the free atmosphere between the lowest opening from any pipe or faucet supplying water to a tank, plumbing fixture, or other devices and the flood level rim of said vessel. The air-gap shall be at least double the diameter of the supply pipe, measured vertically, above the top of the rim of the vessel; and, in no case, less than two inches (2"). When an air-gap is used at the service connection to prevent the contamination or pollution of the public potable water system, an emergency bypass shall be installed around the air-gap system and an approved reduced pressure principle device shall be installed in the bypass system. All air-gaps shall be permanently constructed with rigid piping. Flexible hose or tubing shall not be acceptable for an air-gap.

**22.2.2 DOUBLE CHECK VALVE ASSEMBLY (DCVA).** Double check valve assemblies shall consist of an assembly of two independently operating approved check valves with tightly closing shut-off valves on each side of the check valves, plus properly located test cocks for the testing of each check valve. The entire assembly shall meet the design and performance specifications and approval of a recognized and

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approved testing agency for backflow prevention devices. These devices shall be readily accessible for in-line maintenance and testing.

- 22.2.3 PRESSURE VACUUM BREAKER WITH INTERNAL CHECK VALVE (PVB).** Pressure vacuum breaker assemblies shall consist of at least one check valve, vacuum relief, inlet and discharge shutoff and properly installed test cocks. The pressure vacuum breaker shall have a vacuum relief valve that is internally loaded, normally by means of a spring. The PVB shall be installed a minimum of twelve inches (12") above the highest outlet or overflow level on the nonpotable system. Vacuum breakers shall not be installed more than five feet (5') above the ground. Adequate room shall be made available for maintenance and testing.
- 22.2.4 ATMOSPHERIC VACUUM BREAKER (AVB).** An atmospheric vacuum breaker is a device that allows air to enter the water line when the line pressure is reduced to a gauge pressure of zero or below. The atmospheric vacuum breaker is designed to prevent back-siphonage only. It is not effective against backflow due to back pressure and shall not be installed where it will be under continuous operating pressure for more than twelve (12) hours in any twenty-four (24) hour period. Poppets of all atmospheric vacuum breakers shall be precision fitted to insure positive closure. An AVB shall be installed downstream of the last shutoff valve and a minimum of six inches (6") above the highest outlet or overflow level on the nonpotable system. Vacuum breakers shall not be installed more than five feet (5') above the ground.
- 22.2.5 REDUCED PRESSURE PRINCIPLE DEVICE (RPPD).** A reduced pressure principle device is an assembly of two (2) independently operating approved check valves with an automatically operating differential relief valves between the two (2) check valves, shut-off valves on either side of the check valves, plus properly located test cocks for the testing of the check and relief valves. The entire assembly shall meet the design and performance specifications and approval of a recognized and approved testing agency for backflow prevention assemblies. The device shall operate to maintain the pressure in the zone between the two (2) check valves at a level less than the pressure on the public water supply side of the device. In case of leakage of either of the check valves the differential relief valve shall operate to maintain the reduced pressure in the zone between the check valves by discharging to the atmosphere. When the inlet pressure is two (2) pounds per square inch or less, the relief valve shall open to the atmosphere. These devices must be readily accessible for in-line

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maintenance and testing and must be installed in a location where no part of the device will be submerged.

The device shall not be installed where the pressure can be maintained above the device's rated capacity. When the RPPD is located within a structure, it is recommended that a drain pipe be provided under the relief valve port of the device. An approved air gap between the port and the drain is required. All manufacturers' recommendations for the device shall be followed.

**22.3 HOSE BIBBS.** Hose bibbs shall be directional with built in backflow preventor. Hose bibbs will also have a drain down feature built in the unit.

**22.4 APPLICATION OF DEVICES.** The type and complexity of the cross connection control device shall be determined by the Customer's Engineer in accordance with the CDPHE Cross Connection Control Manual. All applications shall be submitted to the District for review and approval. The determination of the type of device required shall be based on the degree of hazard caused to the public from contamination. The applications listed below may be used as a guideline but are not to be construed as the sole determining factor in selecting a device.

### **22.4.1 RESIDENTIAL IRRIGATION SYSTEMS (3/4 TO 1 INCH)**

A single Pressure Vacuum Breaker prior to all valves within a system (including Solenoid valves).

Atmospheric Vacuum Breakers with single check valves downstream of every valve, including solenoid valves and gate valves for each zone.

### **22.4.2 COMMERCIAL IRRIGATION SYSTEMS (1-1/2" AND LARGER)**

Systems shall have a Reduced Pressure Principle Device. Solenoid Valves or Gate Valves can be downstream of the RPP.

In systems with dual water supplies, injection systems for pesticides or fertilizer, or booster pumps, a Reduced Pressure Principle Device shall be required.

### **22.4.3 FIRE PROTECTION SPRINKLERS FOR BUILDINGS**

On systems that have siamese connections, antifreeze, additives, booster pumps or dual feeds, a Reduced Pressure Principle Device shall be required.

## GREATROCK NORTH WATER AND SANITATION DISTRICT RULES AND REGULATIONS

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Systems that have no other source of connection except for the single main into the structure may use a Double Check Valve Assembly installed.

**22.4.4 SWIMMING POOLS.** Swimming Pools shall have a Reduced Pressure Principle Device, or an air gap. However, any system, which has a booster pump, or chlorine feed system that is dependent on a booster pump, shall have a Reduced Pressure Principle Device.

**22.4.5 STOCK TANKS.** Stock Tanks shall have a Reduced Pressure Principle Device on an Air Gap.

**22.4.6 SOLAR SYSTEMS.** All two-fluid solar systems, whether utilized for space heat or domestic hot water preheat, shall be protected against the possible backflow of substances into the potable water distribution system as follows:

- In the case of a domestic hot water heating application where a primary circulation fluid is used to absorb heat from the solar collectors and is deemed to have an inherent toxicity, the exchange of heat from the circulation fluid to the potable water shall be done by way of an approved double-walled exchanger.
- In the case of a two-fluid space heating application, with or without domestic hot water preheat capabilities, there shall be no connection, direct or indirect, between the primary circulation medium and the potable system. The exchange of heat between the storage medium and potable water shall be accomplished through the use of an approved double-walled exchanger.
- In the case of a single-fluid solar domestic hot water heating system which utilizes draindown design for freeze protection, drain lines from the system shall be extended to an approved, properly trapped and vented receptor with a visible air gap of at least three (3) times the diameter of the drain line with a fixed minimum air gap of two inches (2") above the flood level of the receptor.
- In the case of a solar air heating system that utilizes a fan coil unit to exchange heat from the hot air to preheat water for domestic uses, no backflow preventors will be required at the potable connection. However, if the fan coil unit utilizes drain-down freeze protection, the drain from the exchange coil shall conform to the requirements of the single-fluid drain solar domestic hot water systems.

## GREATROCK NORTH WATER AND SANITATION DISTRICT RULES AND REGULATIONS

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**22.4.7 BOILERS.** Boilers shall have an air gap or Reduced Pressure Principle Device.

**22.4.8 HOSPITALS, MORTUARIES AND MEDICAL BUILDINGS.** Hospitals, mortuaries and medical buildings shall have a Reduced Pressure Principle Device.

**22.4.9 STRUCTURES 40+ FEET HIGH.** Structures larger than forty feet (40') in height measured from the water main to the highest fixture within the structure.

- A structure with no internal Booster Station shall have a Double Check Valve Assembly.

A structure with a Booster Station or storage reservoir shall have a Reduced Pressure Principle Device

**22.4.10 INDUSTRIAL OR COMMERCIAL BUILDINGS.** The required cross-connection or back-flow prevention device shall be determined by the District. The type and location of the device shall be shown on the drawings.

**22.5 APPROVED CROSS CONNECTION CONTROL DEVICES.** The District Engineer shall insure correct models and sizes and approve all Cross Connection Control Devices. The term "Approved Cross Connection Control Device" shall mean a device that has been manufactured in full conformance AWWA C510 or AWWA C511 and has met the laboratory and field performance specifications of the Foundation for Cross Connection and Hydraulic Research of the University of Southern California.

### **22.6 TESTING BACKFLOW PREVENTION DEVICES**

**22.6.1** Backflow prevention devices shall be tested when installed and at the request of the District, no more frequently than annually. Testing shall be performed by a Certified Cross-Connection Control Technician. Testing shall be paid for by the Property Owner. Any and all testing of backflow prevention devices shall be supported by a written report from the Certified Cross-Connection Control Technician. The District shall maintain copies of the reports submitted by Property Owners. If a backflow prevention device is found to be insufficient during testing, the Property Owner shall repair or replace the backflow prevention device of same kind or as approved by the District within thirty (30) days. If a backflow prevention device that has been found to insufficient is not repaired or replaced within thirty (30) days, the



**GREATROCK NORTH WATER AND SANITATION DISTRICT  
RULES AND REGULATIONS**

---

District shall cease service to the property until the backflow prevention device is repaired or replaced.

**END OF ARTICLE 22.**

## GREATROCK NORTH WATER AND SANITATION DISTRICT RULES AND REGULATIONS

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### ARTICLE 23. WATER CONSERVATION STANDARDS

**23.1 COMPLIANCE.** All improvements within the District shall comply with the following water conservation standards.

- Kitchen and lavatory faucets shall have aerators, laminar flow devices, or other fixtures that restrict flow to a maximum of 2.2 gallons per minute. No in-line flow control washers, orifices or other such fittings are permitted.
- Shower heads shall be constructed so as to limit flow to a maximum of approximately 2.2 gallons per minute. No in-line flow control, washers, orifices, or other such fittings are permitted.
- All residences, parks, median strips, landscaped public areas and landscaping surrounding condominiums, townhomes, apartments, commercial establishments, developed nonurban areas and industrial parks shall utilize an automatic irrigation system.
- Irrigation systems, either manual or automatic, shall only be operated between the hours of 11:00 p.m. to 12:00 a.m. and 12:00 a.m. to 12:00 p.m. Usage outside of this period shall be subject to fines as set forth in the Schedule of Fees and Charges. The District will consider written requests for waivers for irrigation outside of this period for the establishment of new vegetation. Written waivers issued by the District shall identify the expiration of the waiver period.

**END OF ARTICLE 23.**

**GREATROCK NORTH WATER AND SANITATION DISTRICT  
RULES AND REGULATIONS**

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**APPENDIX A**

**SCHEDULE OF FEES AND CHARGES**

**GREATROCK NORTH WATER AND SANITATION DISTRICT  
RULES AND REGULATIONS**

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**APPENDIX A**

**SCHEDULE OF FEES AND CHARGES**

Adopted and Approved  
May 7, 2019

**SYSTEM DEVELOPMENT FEE (All Developments Other than Hayesmount Estates, Homestead Heights and Ridgeview Estates)**

\$ 12,300

This fee is a one-time contribution per single-family residential equivalent unit ("EQR") required of new Customers (or existing Customers having change of use) to be used for capital investment in Regional Facilities and the organization of the District. Regional Facilities shall include the wells, treatment (including the water treatment facility and two evaporation ponds), storage, transmission, mechanical and electrical components, instrumentation and control components constructed, installed and/or acquired by the District on or before September 5, 2017. Regional Facilities shall not include site specific infrastructure or facilities or transmission lines extending from the Regional Facilities to a subdivision. The System Development Fee shall be due within five (5) business days of the issuance of a building permit by the County for each lot.

Fees for the following tap sizes will be calculated at the stated EQR values multiplied by the SDF amount stated above:

¾" Size	1 EQR
1" Size	1.67 EQR
1½" Size	3.33 EQR
2" Size	6.67 EQR
3" Size	16.67 EQR
4" Size	33.33 EQR
Larger than 4"	As Determined by District

**SYSTEM DEVELOPMENT FEE (Hayesmount Estates)**

\$ 21,300

The System Development Fee for Hayesmount Estates is a one-time contribution per single-family residential equivalent unit ("EQR") required of new Customers (or existing Customers having change of use) to be used for capital investment in Regional Facilities and the organization of the District. Regional Facilities for Hayesmount Estates shall include wells, treatment (including the water treatment facility and current/future concentrate evaporation ponds), water storage tanks, transmission, mechanical and electrical components, and instrumentation and control components constructed, installed, acquired, or planned by the District for its public water system. Regional Facilities for Hayesmount Estates shall not include site specific infrastructure (i.e. distribution system improvements (waterlines)) within the subdivision or connected to another subdivision's infrastructure (waterlines). The System Development Fee shall be due within five (5) business days of the issuance of a building permit by the County for each lot.

Appendix A - I

GRNWSD Reissuance: 2017-05-02  
Resolution Amending Rules and Regulations, 2017 Issuance, 2019-05-01

## GREATROCK NORTH WATER AND SANITATION DISTRICT RULES AND REGULATIONS

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Fees for the following tap sizes will be calculated at the stated EQR values multiplied by the SDF amount stated above:

¾" Size	1 EQR
1" Size	1.67 EQR
1½" Size	3.33 EQR
2" Size	6.67 EQR
3" Size	16.67 EQR
4" Size	33.33 EQR
Larger than 4"	As Determined by District

### SYSTEM DEVELOPMENT FEE (Homestead Heights II (a/k/a Country Club Ranchettes) and Ridgeview Estates)

\$ 21,900

The System Development Fee for Homestead Heights II (a/k/a Country Club Ranchettes) and Ridgeview Estates is a one-time contribution per single-family residential equivalent unit ("EQR") required of new Customers (or existing Customers having change of use) to be used for capital investment in Regional Facilities and the organization of the District. Regional Facilities for Homestead Heights II (a/k/a Country Club Ranchettes) and Ridgeview Estates shall include wells, treatment (including the water treatment facility and current/future concentrate evaporation ponds), water storage tanks, transmission, mechanical and electrical components, and instrumentation and control components constructed, installed, acquired, or planned by the District for its public water system. Regional Facilities for Homestead Heights II (a/k/a Country Club Ranchettes) and Ridgeview Estates shall not include site specific infrastructure (i.e. distribution system improvements (waterlines)) within the subdivision or connected to another subdivision's infrastructure (waterlines). The System Development Fee shall be due within five (5) business days of the issuance of a building permit by the County for each lot.

Fees for the following tap sizes will be calculated at the stated EQR values multiplied by the SDF amount stated above:

¾" Size	1 EQR
1" Size	1.67 EQR
1½" Size	3.33 EQR
2" Size	6.67 EQR
3" Size	16.67 EQR
4" Size	33.33 EQR
Larger than 4"	As Determined by District

### SYSTEM DEVELOPMENT FEE (Country Club Ranchettes Filing No. 2)

\$ 24,400

The System Development Fee for Country Club Ranchettes Filing No. 2 is a one-time contribution per single-family residential equivalent unit ("EQR") required of new Customers (or existing Customers having change of use) to be used for capital investment in Regional Facilities and the

Appendix A - 2

GRNWSD Reissuance: 2017-05-02  
Resolution Amending Rules and Regulations, 2017 Issuance, 2019-05-01

## GREATROCK NORTH WATER AND SANITATION DISTRICT RULES AND REGULATIONS

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organization of the District. Regional Facilities for Country Club Ranchettes Filing No. 2 shall include wells, treatment (including the water treatment facility and current/future concentrate evaporation ponds), water storage tanks, transmission, mechanical and electrical components, and instrumentation and control components constructed, installed, acquired, or planned by the District for its public water system. Regional Facilities for Country Club Ranchettes Filing No. 2 shall not include site specific infrastructure (i.e. distribution system improvements (waterlines)) within the subdivision or connected to another subdivision's infrastructure (waterlines). The System Development Fee shall be due within five (5) business days of the issuance of a building permit by the County for each lot.

Fees for the following tap sizes will be calculated at the stated EQR values multiplied by the SDF amount stated above:

¾" Size	1 EQR
1" Size	1.67 EQR
1½" Size	3.33 EQR
2" Size	6.67 EQR
3" Size	16.67 EQR
4" Size	33.33 EQR
Larger than 4"	As Determined by District

### TAP INSPECTION FEE

\$150

This fee is intended to cover the cost of the District's inspection of the physical tap and of the Customer's Service Line, entering the tap location on the District's as-built drawing set, and other ancillary services needed in connection with a new tap.

### MONTHLY WATER SERVICE CHARGES

Base Rate (0 gallons)	\$ 48.00 flat rate
40,000 gallons	\$ 4.50 per 1,000 gals.
40,001 + gallons	\$ 10.00 per 1,000 gals.

LATE CHARGE	\$ 15.00
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### RENEWABLE WATER RESOURCE FEE

Meter Size	SFE	GPM	Fee*
5/8 & ¾	0.67	20	\$9,936
¾	1	30	\$14,830
1"	1.67	50	\$24,766
1.5"	3.33	100	\$49,384
2"	6.67	200	\$98,916
3"	16.67	500	\$247,216

Appendix A - 3

GRNWSD Reissuance: 2017-05-02  
Resolution Amending Rules and Regulations, 2017 Issuance, 2019-05-01

**GREATROCK NORTH WATER AND SANITATION DISTRICT  
RULES AND REGULATIONS**

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4"	33.33	1000	\$494,284
6"	66.67	2000	\$988,716

\*Fee structure based on Town of Castle Rock Municipal Code, 2012 Renewable Water Resource Fees, Chapter 4.04, Water Dedication Code.

Credit against the renewable water resource fee may be granted in consideration of the dedication of tributary water or surface water rights on such terms and conditions acceptable to the District Board.

Payment of the renewable water resource fee shall be assessed in accordance with the schedule of rates in effect as of the date of inclusion. Payment of the renewable water resource fee shall be a condition to issuance of the issuance of a water tap.

AVAILABILITY OF SERVICE CHARGE

50% of Monthly Water Service Charge  
Base Rate

Assessed on each parcel of land established by a recorded final subdivision plat located within the District's boundaries and where the lot line of which is located within one hundred feet (100') of a water line which is installed and ready for connection. Charge assessed and due on same schedule as Monthly Water Service Charge.

INSPECTION FEES

Service Line / Meter Pit Inspection	\$	180.00
Meter Installation	\$	180.00
Other Inspection	\$	180.00

REINSPECTION FEE OR RETURN VISIT FEE

\$ 180.00

METER COST

Current cost to District

WATER TURN ON/TURN OFF

\$ 90.00 each on/off  
(Customer Requested)

MISCELLANEOUS FEES:

CONSTRUCTION WATER FEE

\$ 50.00 / month

District shall make construction water available to homebuilders, from the date a building permit is pulled until a meter is installed at a flat monthly rate.

FIRE HYDRANT METER FEES

Meter Assembly Rental Deposit	\$	2,000.00 (refundable)
Monthly Fee	\$	10.00 / 1,000 gallons

Appendix A - 4

GRNWSD Reissuance: 2017-05-02  
Resolution Amending Rules and Regulations, 2017 Issuance, 2019-05-01

## GREATROCK NORTH WATER AND SANITATION DISTRICT RULES AND REGULATIONS

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### FORMAL INCLUSION HEARING FEE

\$ 1,000.00 / application fee

Plus all costs of publication of notices and engineering, management and attorneys; fees incurred by District in processing the inclusion.

### INCLUSION FEE

Initial Deposit

\$ 10,000.00

Non-refundable

Incremental Refundable Deposits of

\$ 5,000.00

For actual time and expenses incurred over the \$10,000 initial deposit, including but not limited to costs of publication of notices and engineering, management and attorneys' fees.

### TRANSFER OF SERVICE FEE

\$ 175.00/occurrence

Fee due and owing upon transfer of account from one responsible party and/or account holder to another.

### PLAN REVIEW FEES

Actual Time and expenses incurred by District

\$ 1,500.00 / minimum fee

### PENALTY FEES / FINES:

#### Excavation During Non-Excavation Period - Bond

\$ 5,000.00

December 1 through March 31 of each year. The District may adjust the no-excavation period based on actual weather conditions. The bond is security for repairs which may be required due to damage to the District's existing facilities.

#### Installation of any non-metered device

\$ 2,000.00 / occurrence

Installation of any device (i.e., "jumper") to allow for circumvention of the District's monitoring or delivery systems shall constitute unauthorized tampering and the use of the District water system shall be subject to a penalty fee. Such fines shall, until paid, constitute a lien upon the subject property, pursuant to Section 32-1-1001, C.R.S.

#### Irrigating with Domestic Water<sup>1</sup> - First Offense

\$ 1,000.00

#### Irrigating with Domestic Water - Second Offense

\$ 2,000.00

& Flow Restrictor will be installed

Irrigating with Domestic Water<sup>1</sup> - Disconnection of Service. Service not to be reinstated until all fees, including penalties, are paid in full.

#### Failure to Possess Rules and Regulations

\$ 1,000.00 / occurrence

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<sup>1</sup> In a dual domestic and irrigation water service area.





**GREATROCK NORTH WATER AND SANITATION DISTRICT  
RULES AND REGULATIONS**

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**APPENDIX B**

**STANDARD DETAIL DRAWINGS**

# DETAIL TABLE OF CONTENTS

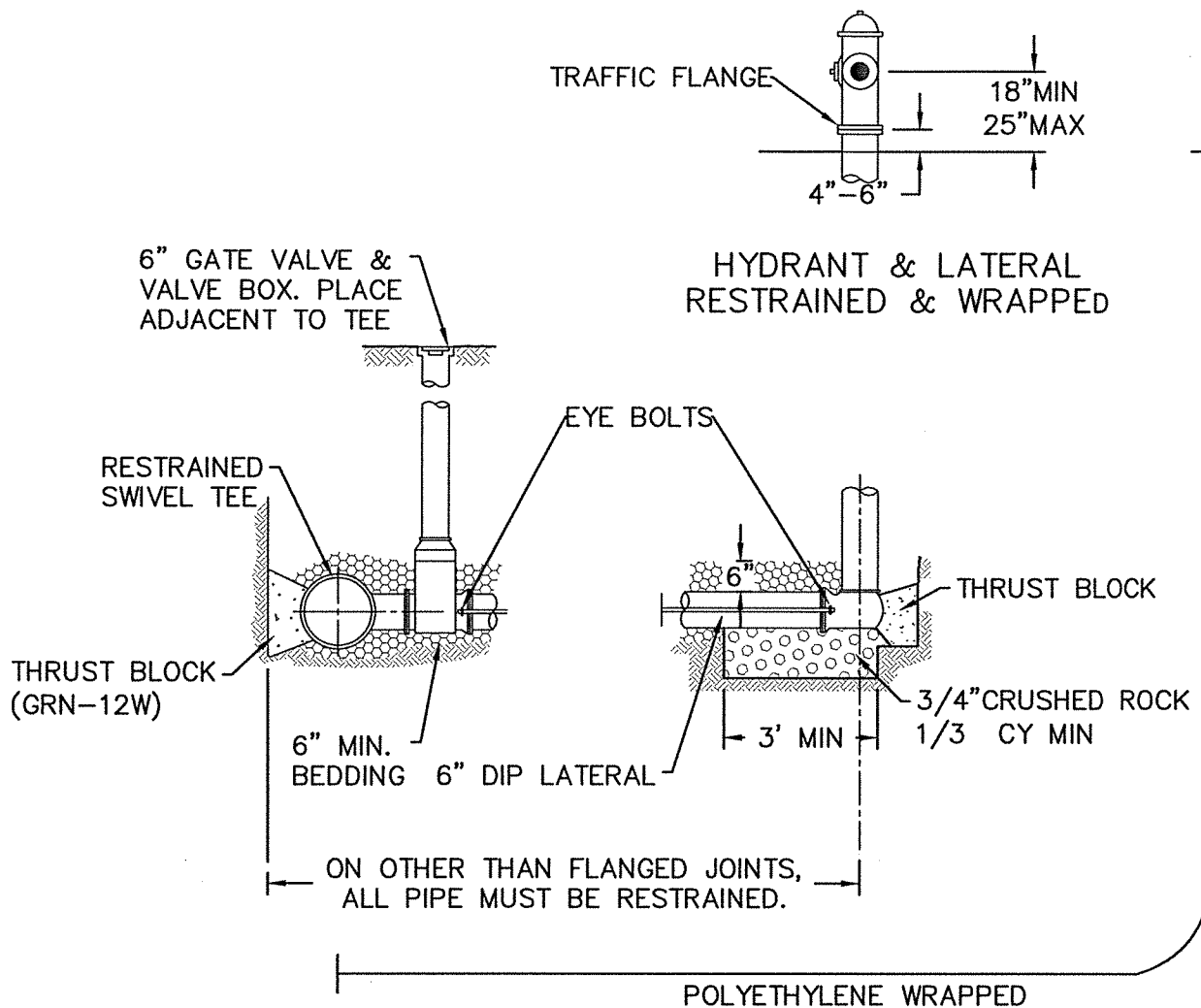
SHEET NUMBER	SHEET TITLE	REVISION NUMBER
GRN-1W	TYPICAL FIRE HYDRANT AND ASSEMBLY	1
GRN-2W	BLOWOFF DETAIL	1
GRN-3W	COMBINATION AIR VALVE AND MANHOLE	1
GRN-4W	COMBINATION AIR VALVE AND MANHOLE SECTION A-A	1
GRN-5W	COMBINATION AIR VALVE AND MANHOLE SECTION B-B	1
GRN-6W	PRESSURE REDUCING VAULT-PLAN VIEW	1
GRN-7W	PRESSURE REDUCING VAULT-PROFILE VIEW	1
GRN-8W	PRV VAULT SCHEDULE	1
GRN-9W	AIR VENT PIPE INSTALLATION AND DETAIL-OPEN FIELD	1
GRN-10W	AIR VENT DETAIL-RESIDENTIAL	1
GRN-11W	6 INCH DIAMETER AIR VENT PIPE SCREEN	1
GRN-12W	THRUST BLOCKS-HORIZONTAL BENDS DETAIL	1
GRN-13W	RESTRAINED JOINTS AT VERTICAL BENDS	1
GRN-14W	GATE VALVE DETAIL	1
GRN-15W	POLYETHYLENE WRAP	1
GRN-16W	CARSONITE MARKER POST	1
GRN-17W	METER PIT DETAIL	1
GRN-18W	DIRECT BURY BUTTERFLY VALVE INSTALLATION	1
GRN-19W	BUTTERFLY VALVE INSTALLATION-ELEVATION VIEW	1
GRN-20W	BUTTERFLY VALVE INSTALLATION-PLAN VIEW	1
GRN-21W	LENGTH OF RESTRAINED PIPE	1
GRN-22W	PIPE BEDDING DETAILS	1
GRN-23W	FLANGE LUG DETAIL	1
GRN-24W	TRACER WIRE DETAIL	1

DATE  
03/13

GREATROCK NORTH WATER AND SANITATION DISTRICT

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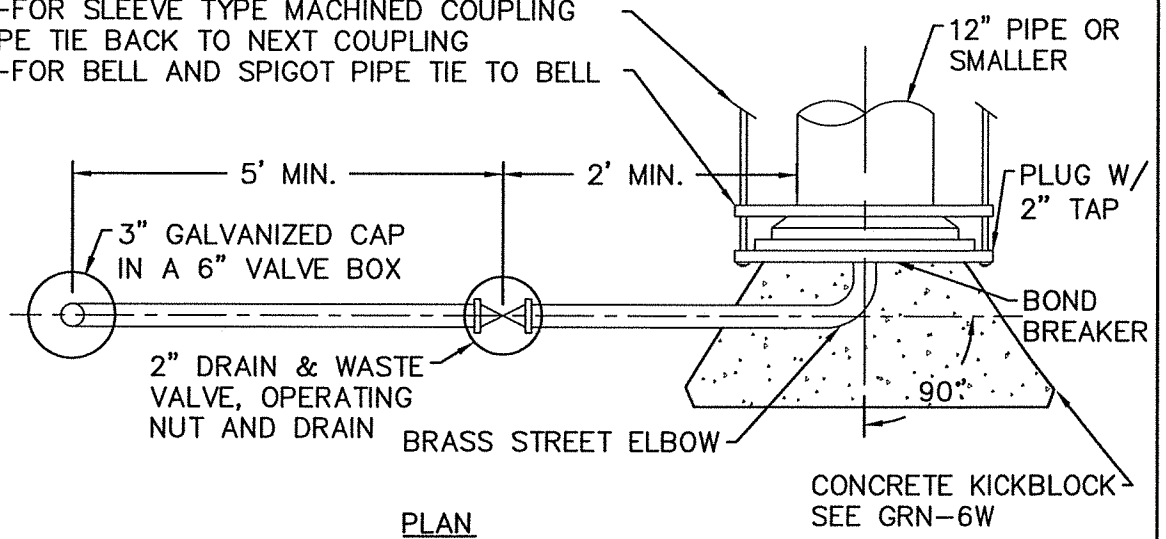
NOTES:

1. TOTAL VOLUME OF HYDRANT PIT SHALL BE A MINIMUM OF 1 C.Y. OF 3/4" CRUSHED ROCK.
2. HYDRANT SHALL BE SET 7'-0" FROM EDGE OF PAVEMENT WHERE NO CURB EXISTS OR 4'-0" FROM BACK OF CURB, WITH A MINIMUM OF 2' SEPARATION FROM PROPERTY LINE
3. WEEP HOLES ON HYDRANT BARREL SHALL NOT BE BLOCKED.

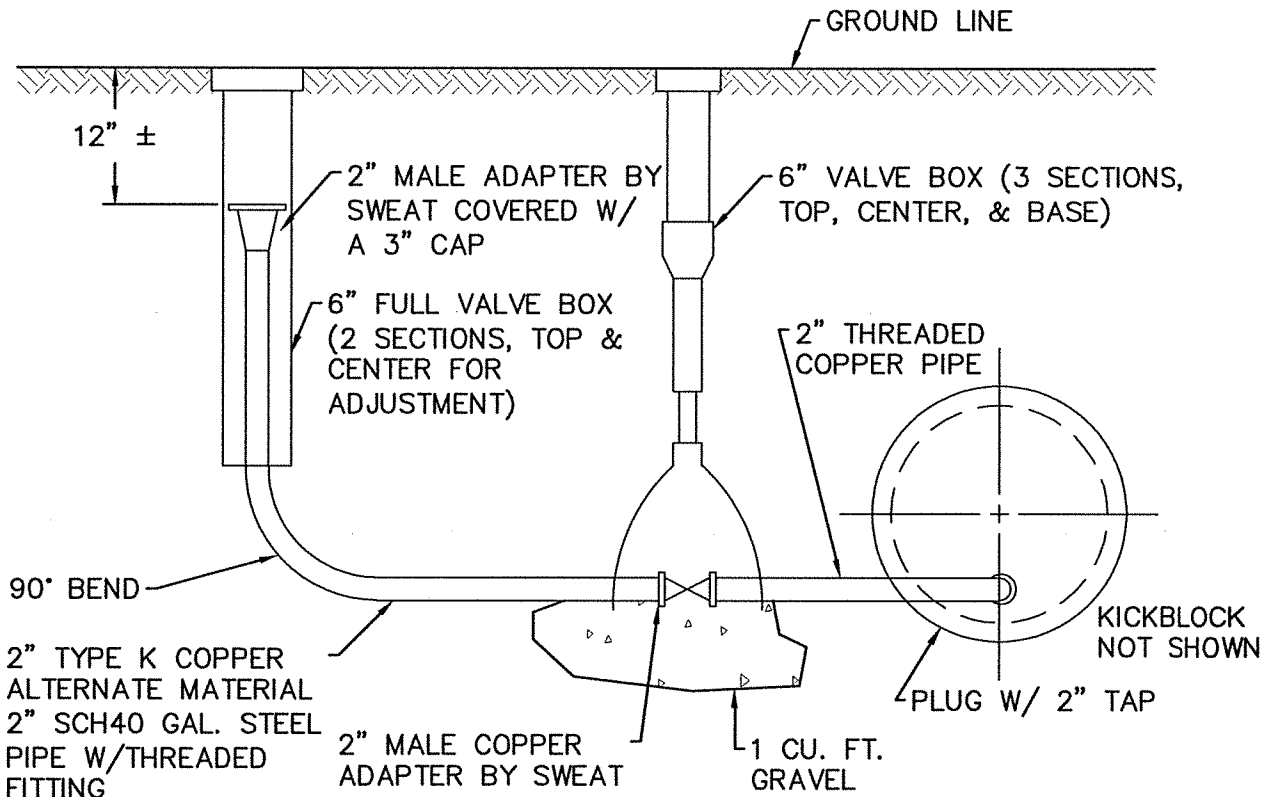
NOT TO SCALE

DATE 03/13	GREATROCK NORTH WATER AND SANITATION DISTRICT	GRN-1W
	TYPICAL FIRE HYDRANT AND ASSEMBLY	

NOTE:  
 PLUG SHALL BE MECHANICALLY RESTRAINED:  
 A-SEE GRN-23W FOR REQ'D LENGTH TO BE RESTRAINED  
 B-FOR SLEEVE TYPE MACHINED COUPLING  
 PIPE TIE BACK TO NEXT COUPLING  
 C-FOR BELL AND SPIGOT PIPE TIE TO BELL

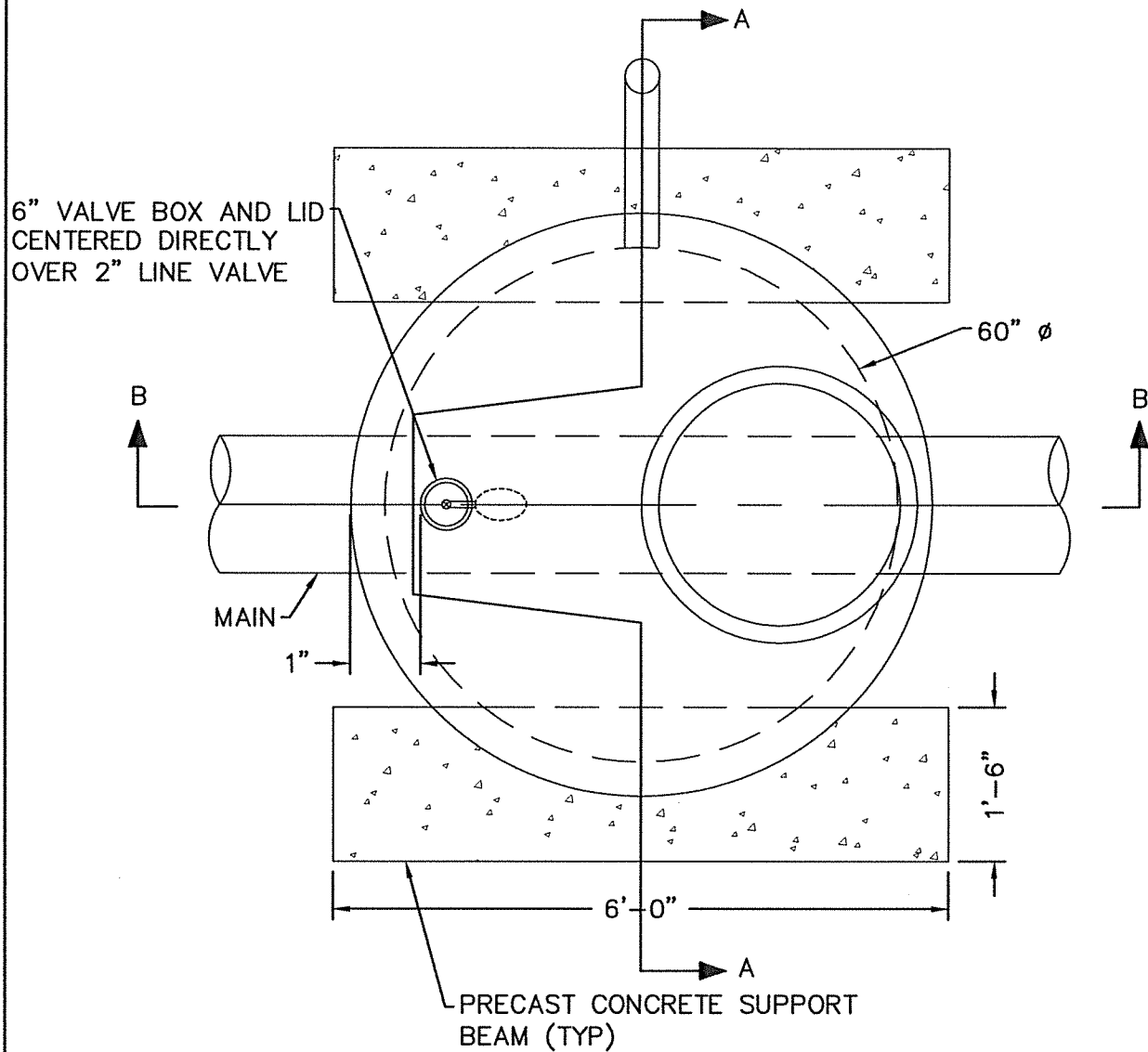


PLAN



ELEVATION

DATE 03/13	GREATROCK NORTH WATER AND SANITATION DISTRICT	GRN-2W
	BLOWOFF DETAIL	

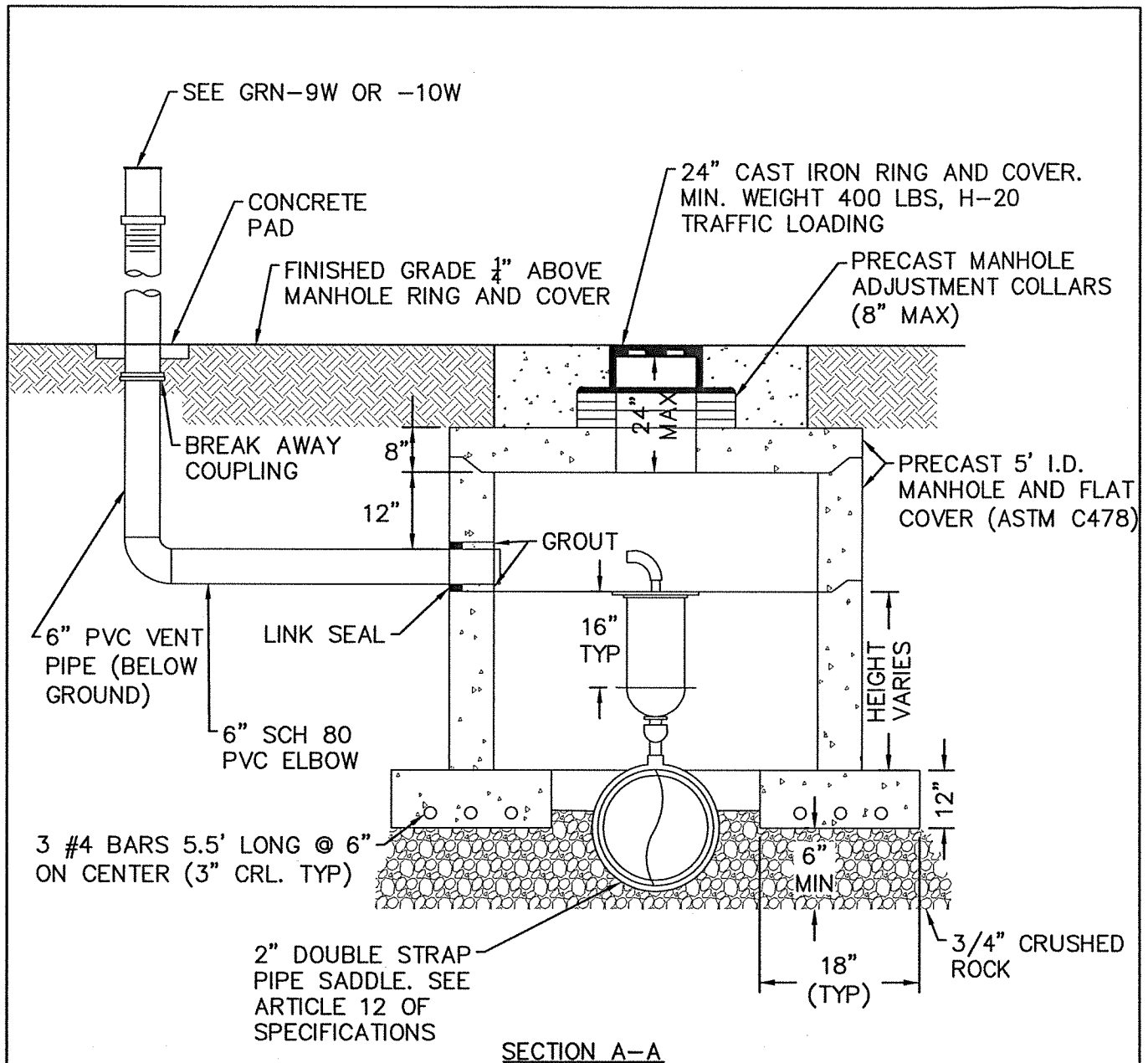


PLAN

NOTE:

FOR SECTION A-A, SEE GRN-4W  
FOR SECTION B-B, SEE GRN-5W

DATE 03/13	GREATROCK NORTH WATER AND SANITATION DISTRICT	GRN-3W
	COMBINATION AIR VALVE AND MANHOLE	



(VALVE BOX NOT SHOWN)  
NTS

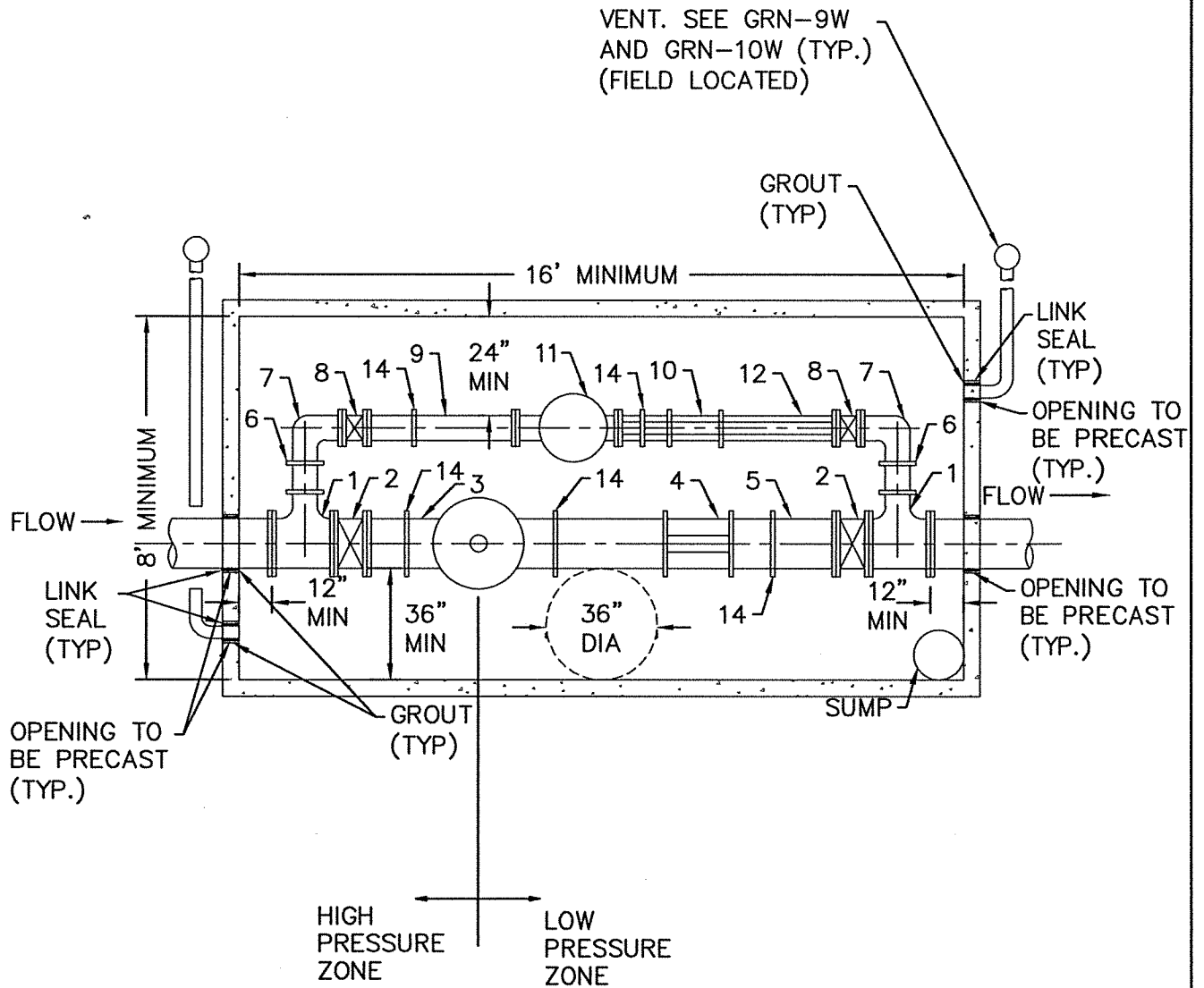
IRRIGATION NOTE:

WHERE AIR VALVE IS INSTALLED ON AN IRRIGATION MAIN, MANHOLE COVER AND VALVE BOX LID SHALL BE IN CONFORMANCE WITH THE REQUIREMENTS OF THE IRRIGATION SYSTEM

DATE 03/13	GREATROCK NORTH WATER AND SANITATION DISTRICT	GRN-4W
	COMBINATION AIR VALVE AND MANHOLE	

DATE 03/13	GREATROCK NORTH WATER AND SANITATION DISTRICT	GRN-5W
	COMBINATION AIR VALVE AND MANHOLE	





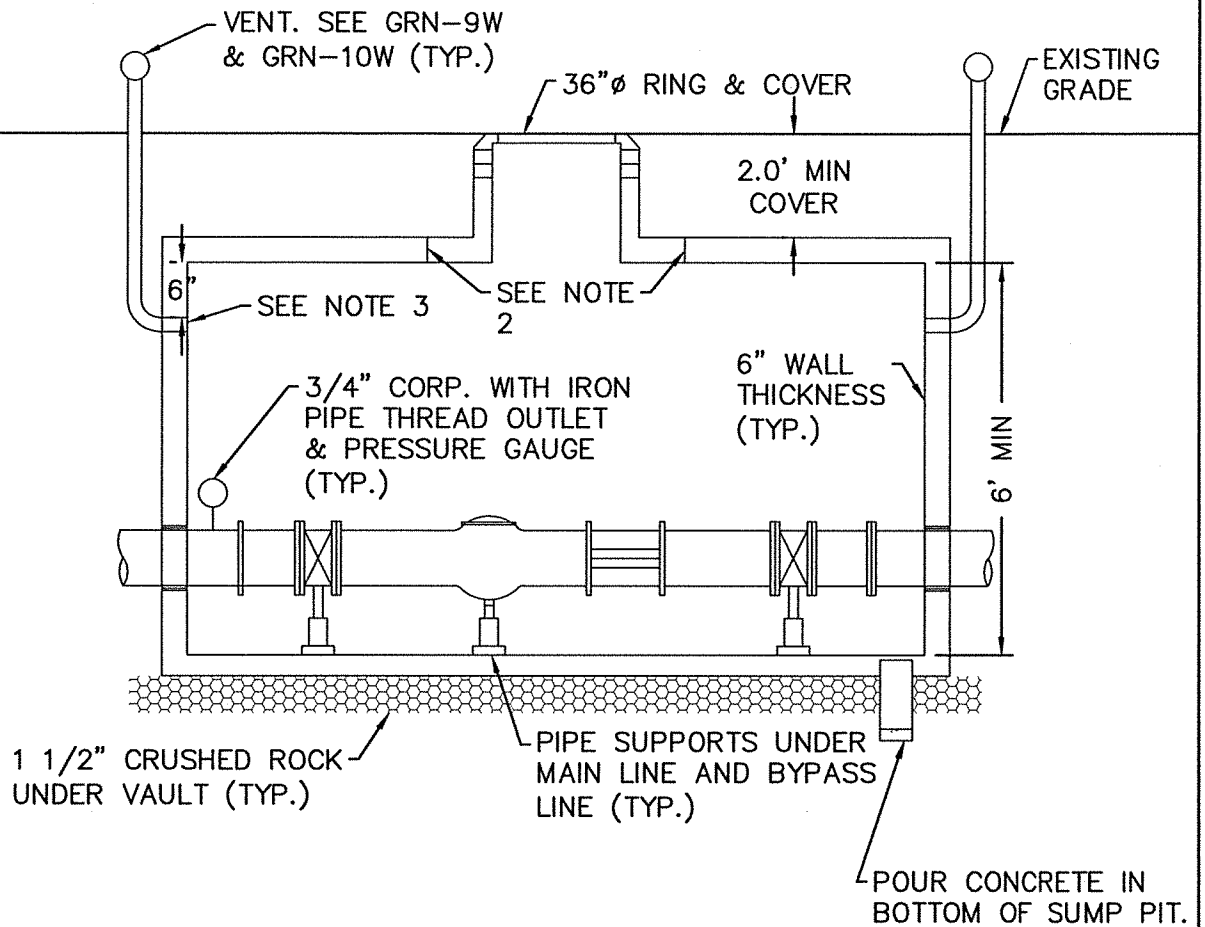
FOR SCHEDULE OF PIPING SEE DETAIL GRN-8W

DATE  
03/13

GREATROCK NORTH WATER AND SANITATION DISTRICT

PRESSURE-REDUCING  
VAULT-PLAN VIEW

GRN-6W



**NOTES:**

1. EXTERIOR CONCRETE SURFACES SHALL BE DAMP-PROOFED IN ACCORDANCE WITH THE SPECIFICATIONS.
2. VAULT LID SHALL HAVE A REMOVABLE SECTION (MIN. 6' WIDE) WITH LIFTING RING.
3. CONNECT GALVANIZED SCREEN TO VENT PIPE WITH HOSE CLAMP AROUND PIPE. (TYP.)

DATE  
03/13

GREATROCK NORTH WATER AND SANITATION DISTRICT

PRESSURE REDUCING  
VAULT—PROFILE VIEW

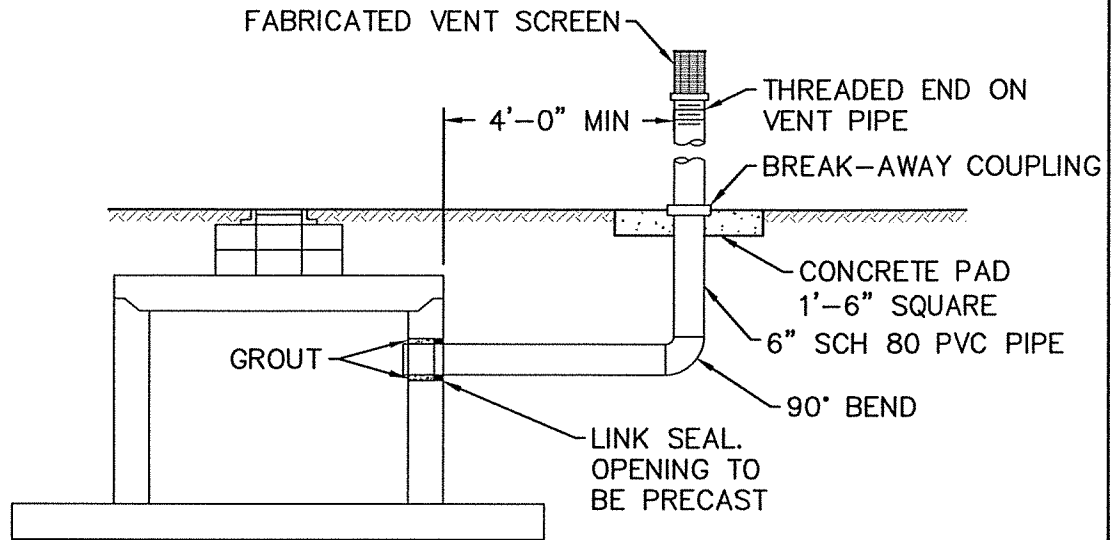
GRN-7W

# PRV VAULT PIPING SCHEDULE

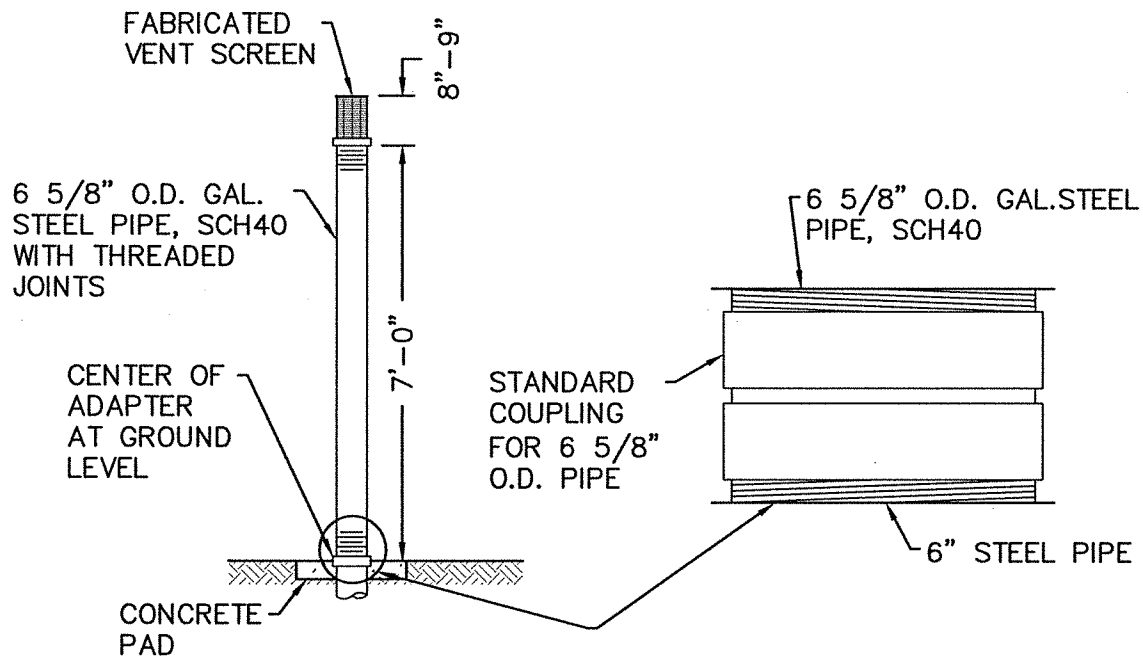
1. 4" X \*" TEE (FL X FL X FL)
  2. \*" GATE VALVE (FL X FL)
  3. \*" PRESSURE REDUCING / SUSTAINING VALVE  
SEE 8.6.6 OF SPECIFICATIONS
  4. \*" DRESSER COUPLING
  5. \*" SPOOL (FL X PE)
  6. 4" SPOOL
  7. 4" 90° BEND (FL X FL)
  8. 4" GATE VALVE (FL X FL)
  9. 4" SPOOL (FL X FL)
  10. 4" DRESSER COUPLING
  11. 4" PRESSURE REDUCING / SUSTAINING VALVE  
SEE 8.6.6 OF SPECIFICATIONS
  12. 4" SPOOL (FL X PE)
  13. ALL FITTINGS AND PIPING WILL BE PAINTED  
"PRECAUTION BLUE" ENAMEL
  14. HDG PIPE SUPPORT
- \*" = SIZE TO BE DETERMINED BY MAIN PIPELINE

DATE 03/13	GREATROCK NORTH WATER AND SANITATION DISTRICT	GRN-8W
	PRV VAULT SCHEDULE	

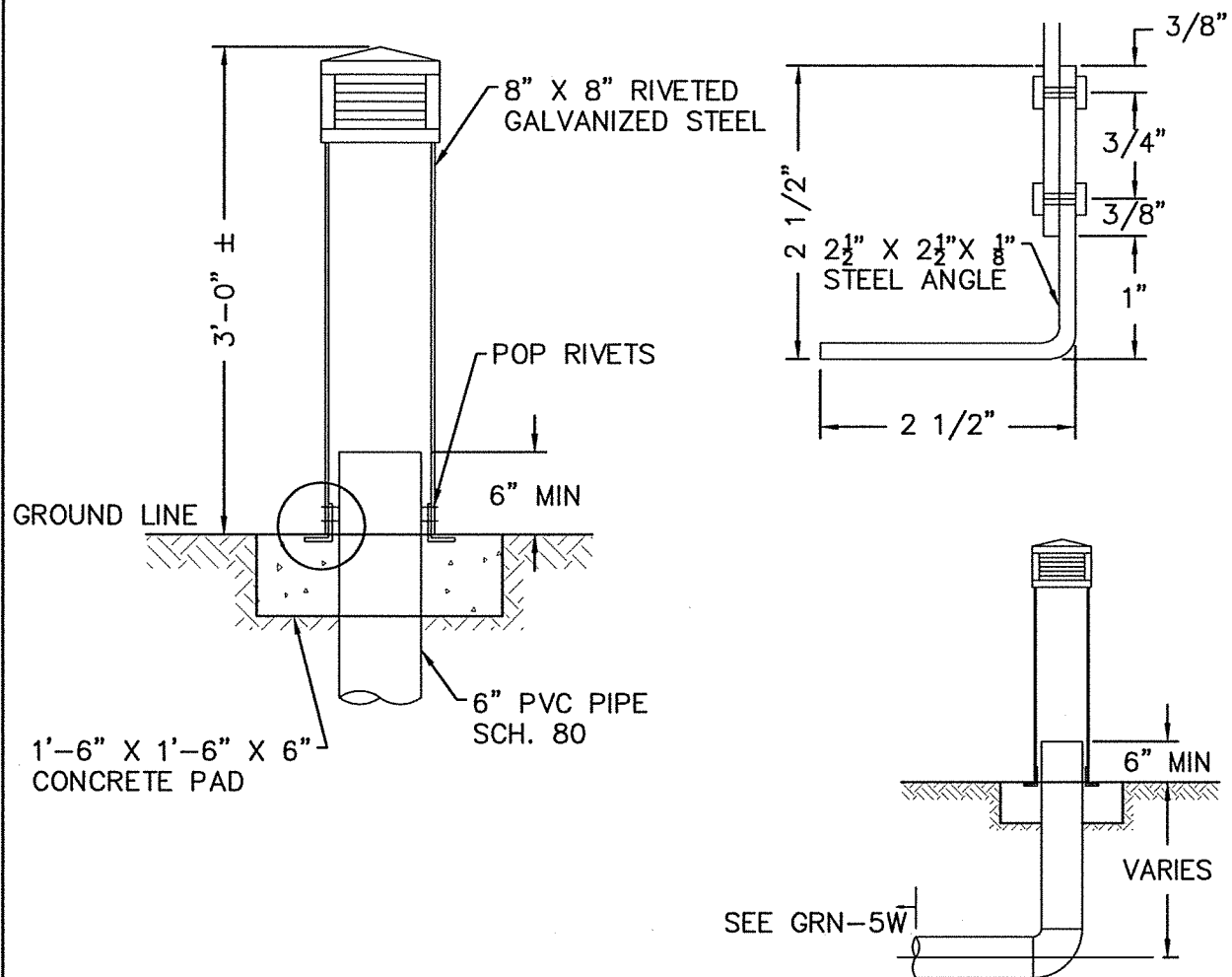
NOTE:  
VENT PIPES TO BE  
LOCATED AS DIRECTED BY  
THE DISTRICT.



VENT PIPE INSTALLATION



DATE 03/13	GREATROCK NORTH WATER AND SANITATION DISTRICT	GRN-9W
	AIR VENT PIPE INSTALLATION AND DETAIL-OPEN FIELD	

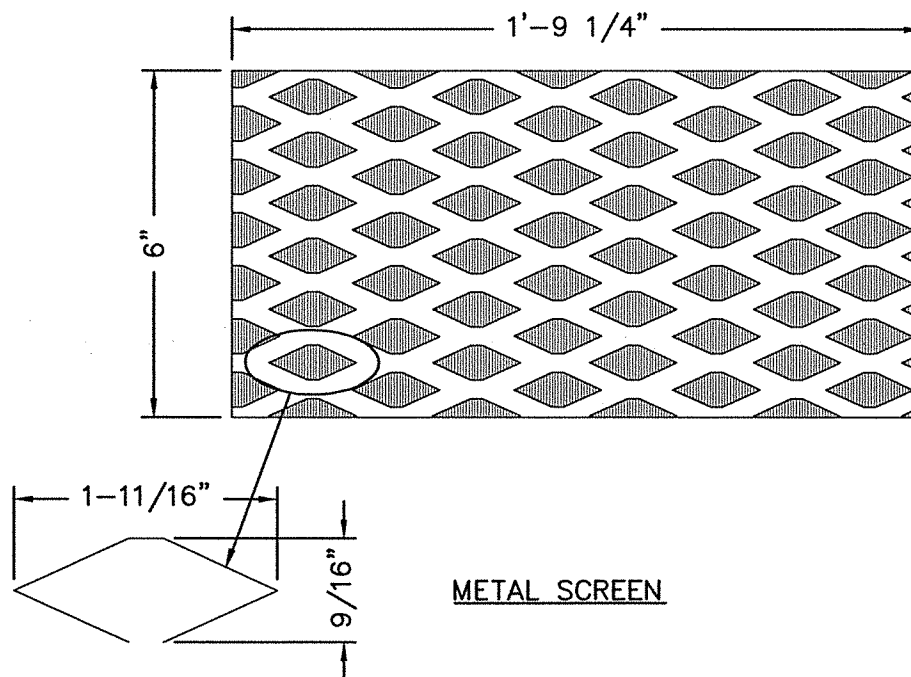
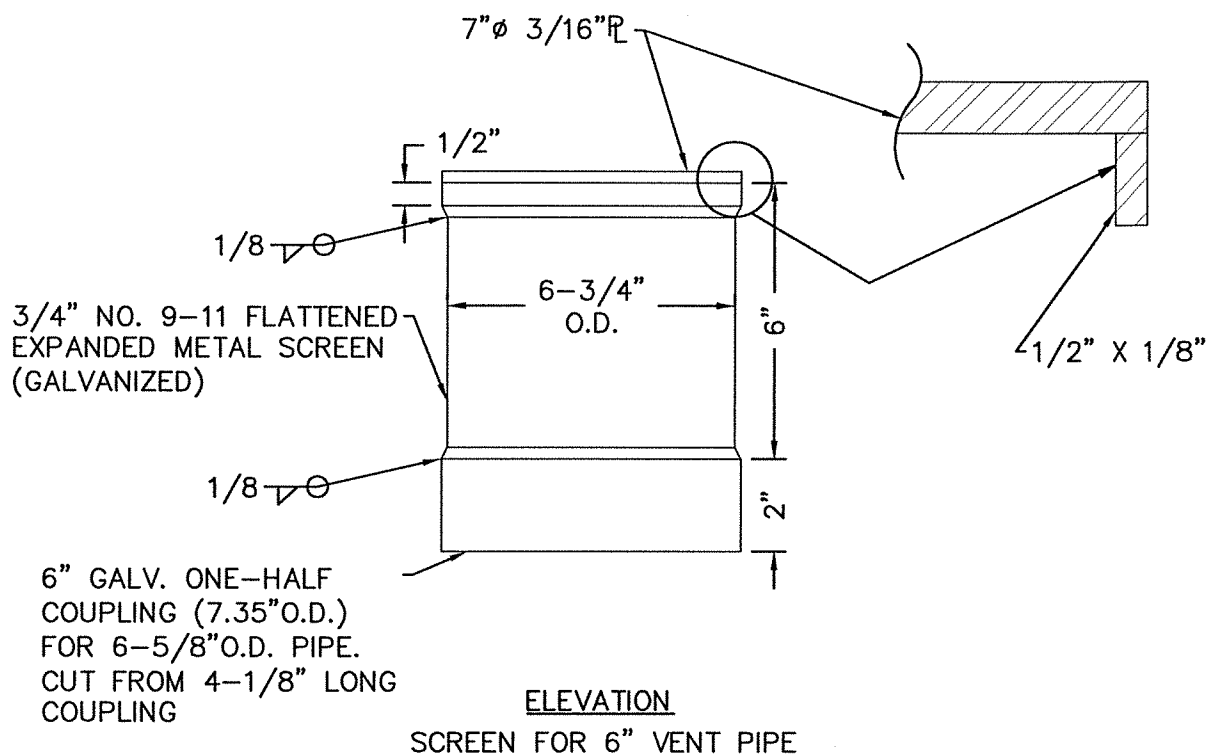


DATE  
03/13

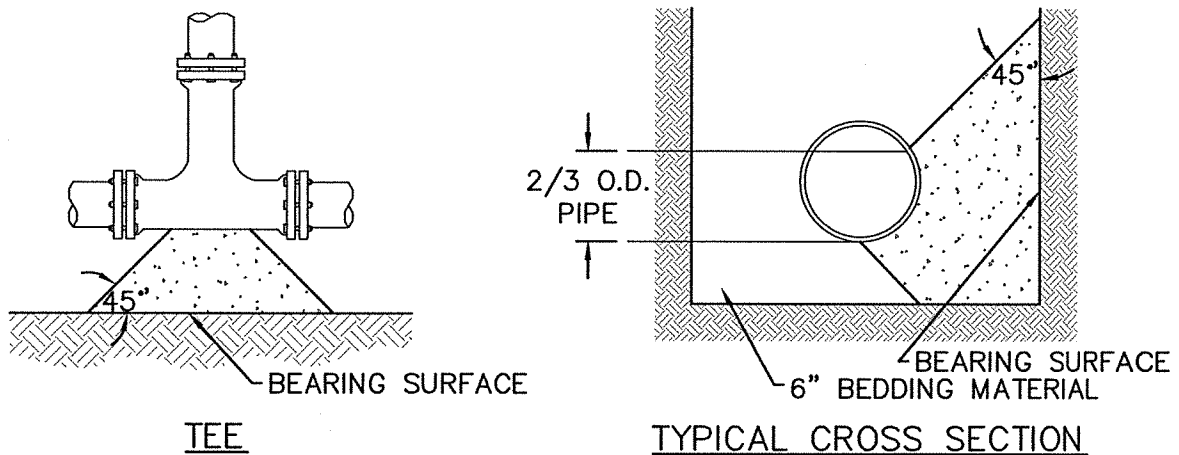
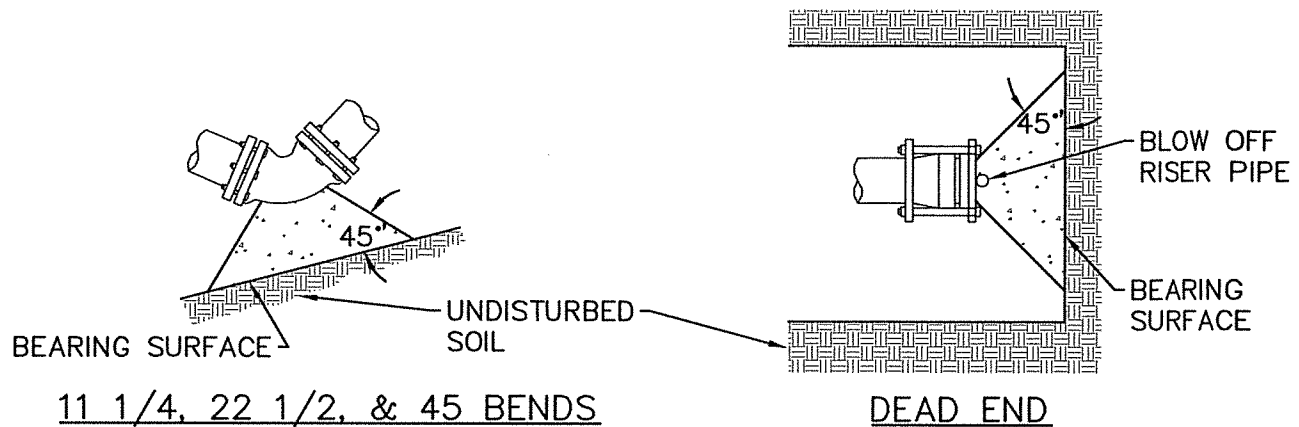
GREATROCK NORTH WATER AND SANITATION DISTRICT

AIR VENT  
DETAIL-RESIDENTIAL

GRN-10W



DATE 03/13	GREATROCK NORTH WATER AND SANITATION DISTRICT	
	6" DIAMETER VENT PIPE SCREEN	GRN-11W



MINIMUM BEARING SURFACE AREA  
(IN SQUARE FEET)

SIZE OF PIPE	BENDS				TEE OR DEAD END
	11 1/4°	22 1/2°	45°	90°	
4"	2.00	2.00	2.00	2.00	2.00
6"	2.00	2.00	2.25	4.25	3.00
8"	2.00	2.00	4.00	8.00	5.25
12"	2.00	4.25	8.25	12.00	11.00
16"	3.50	6.50	12.50	23.00	16.50
20"	5.00	10.00	19.50	35.50	25.00

NOTES:

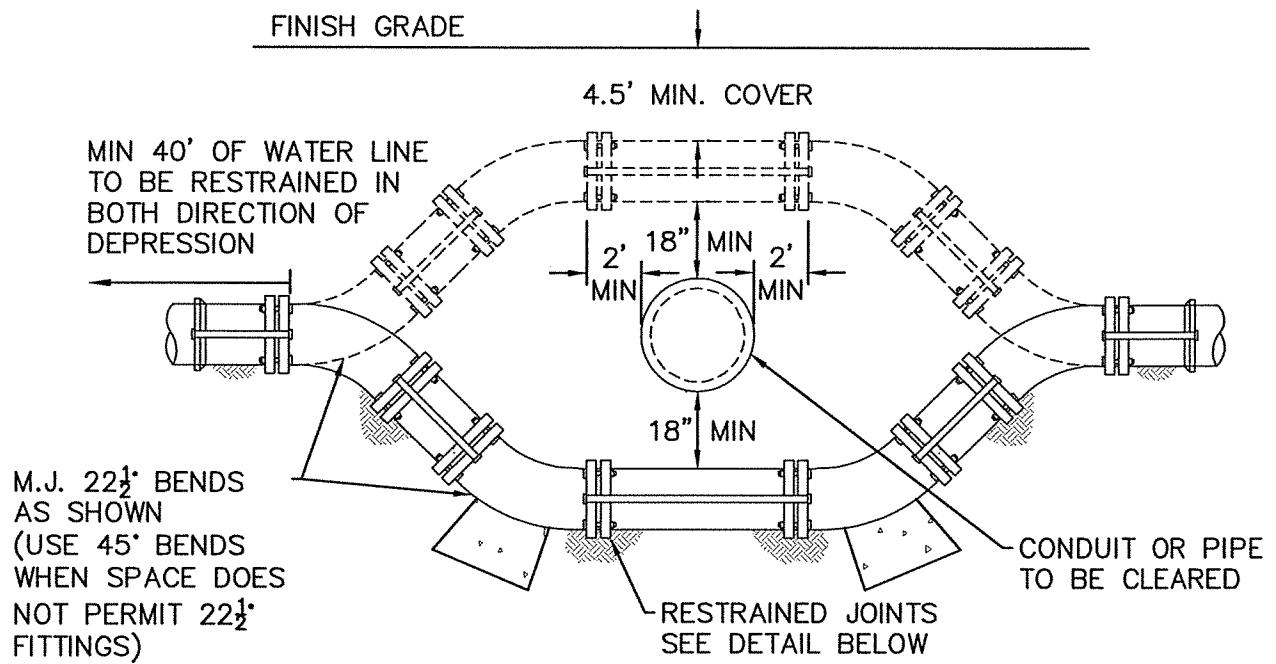
1. PLACE 4 MIL. POLYETHYLENE BETWEEN CONCRETE AND FITTING (CONCRETE SHALL NOT INTERFERE WITH JOINT.).
2. MINIMUM CONCRETE THICKNESS SHALL BE 12 INCHES.
3. THE HORIZONTAL DIMENSION OF THE BEARING AREA SHALL BE BETWEEN 0.8 AND 1.25 TIMES THE VERTICAL DIMENSION.
4. THRUST BLOCK ORIENTATION SHALL BE SUCH THAT THE CENTER OF THE FITTING CORRESPONDS WITH THE CENTER OF THE THRUST BLOCK.
5. THE MINIMUM ALLOWABLE ANGLE (EITHER VERTICAL OR HORIZONTAL) SHALL BE 45 DEGREES.

DATE  
03/13

GREATROCK NORTH WATER AND SANITATION DISTRICT

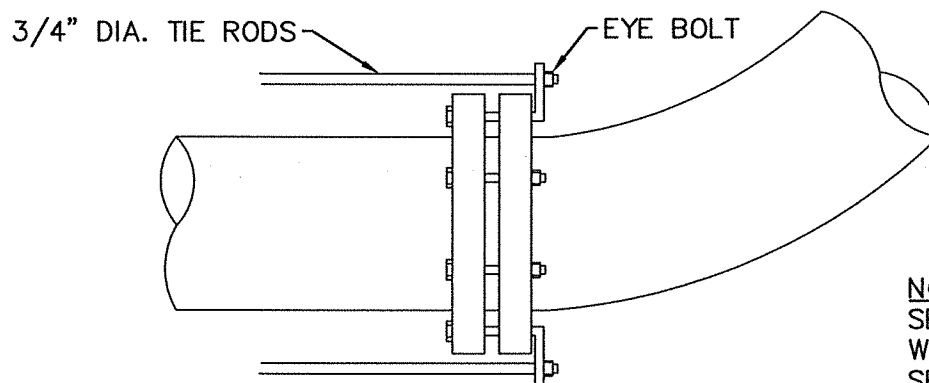
THRUST BLOCKS—  
HORIZONTAL BENDS DETAIL

GRN-12W



TYPICAL DETAIL FOR WATER LINE DEPRESSION

4", 6", 8", 10", 12" DIAMETERS



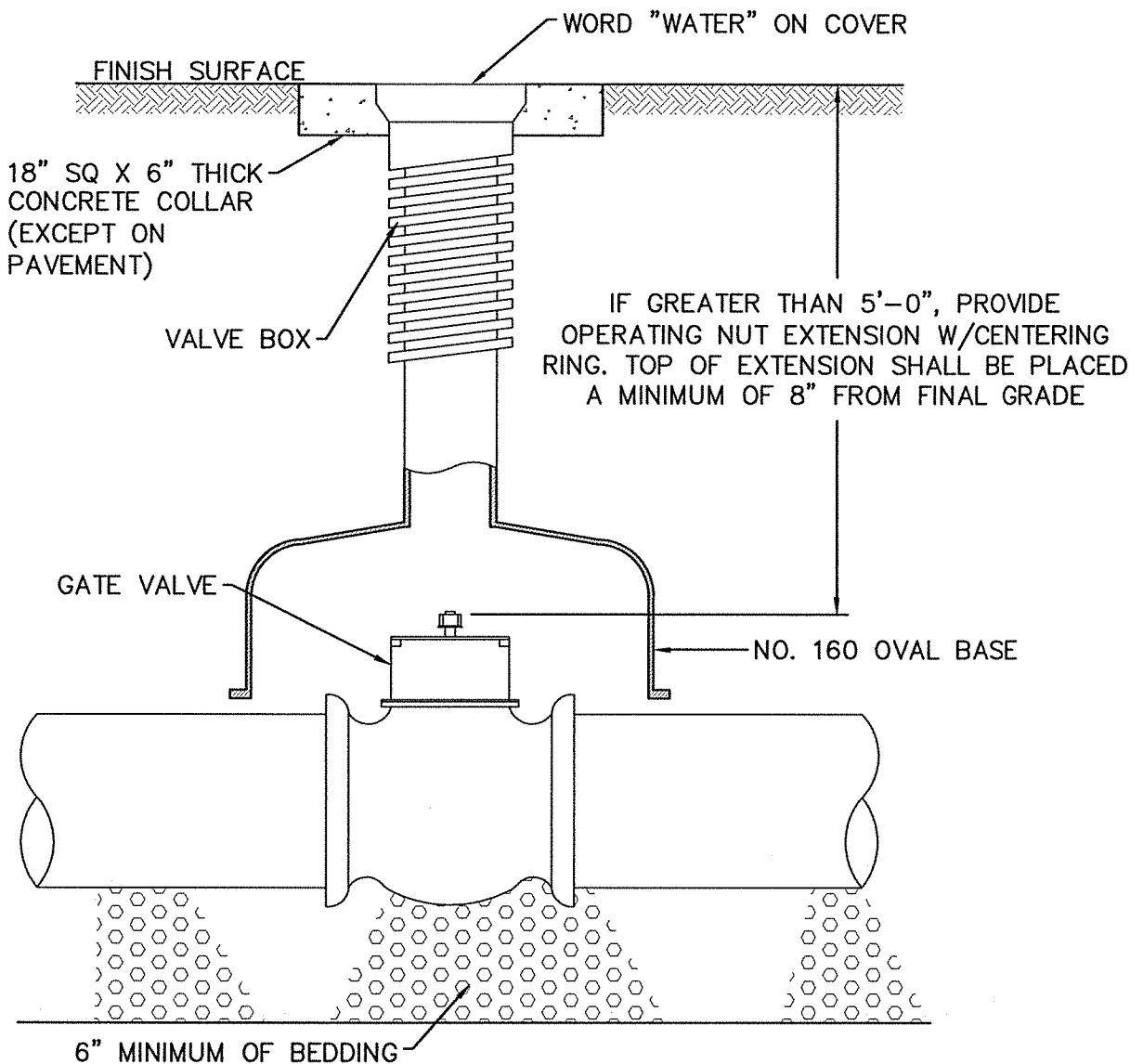
NOTE:  
SEE GRN-6SW FOR CROSSING WITH STORM OR SANITARY SEWER

TYPICAL RESTRAINED JOINTS

MAY USE MEG-A-LUGS OR RODDING

DATE 03/13	GREATROCK NORTH WATER AND SANITATION DISTRICT	GRN-13W
	RESTRAINED JOINTS AT VERTICAL BENDS	

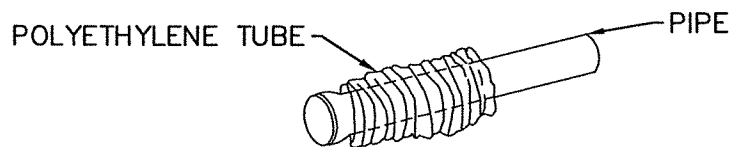




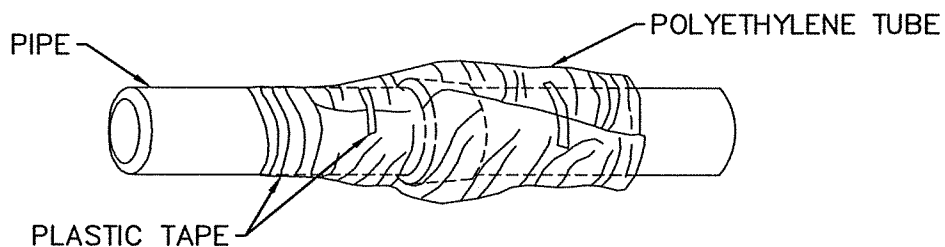
**NOTES:**

1. FITTINGS SHALL BE WRAPPED WITH 8 MIL MINIMUM THICKNESS POLYETHYLENE
2. GATE VALVES SHALL BE PER 8.6.4 OF THE SPECIFICATIONS
3. VALVE BOX SHALL BE PER 8.6.8 OF THE SPECIFICATIONS

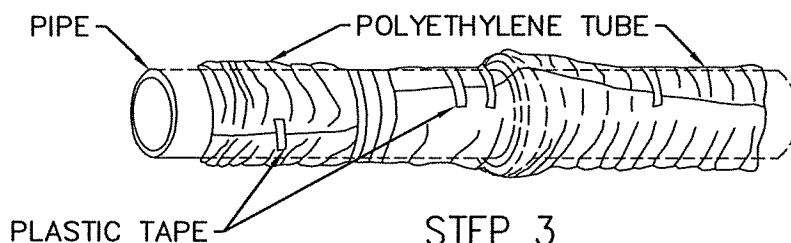
DATE 03/13	GREATROCK NORTH WATER AND SANITATION DISTRICT	GRN-14W
	GATE VALVE DETAIL	



STEP 1



STEP 2

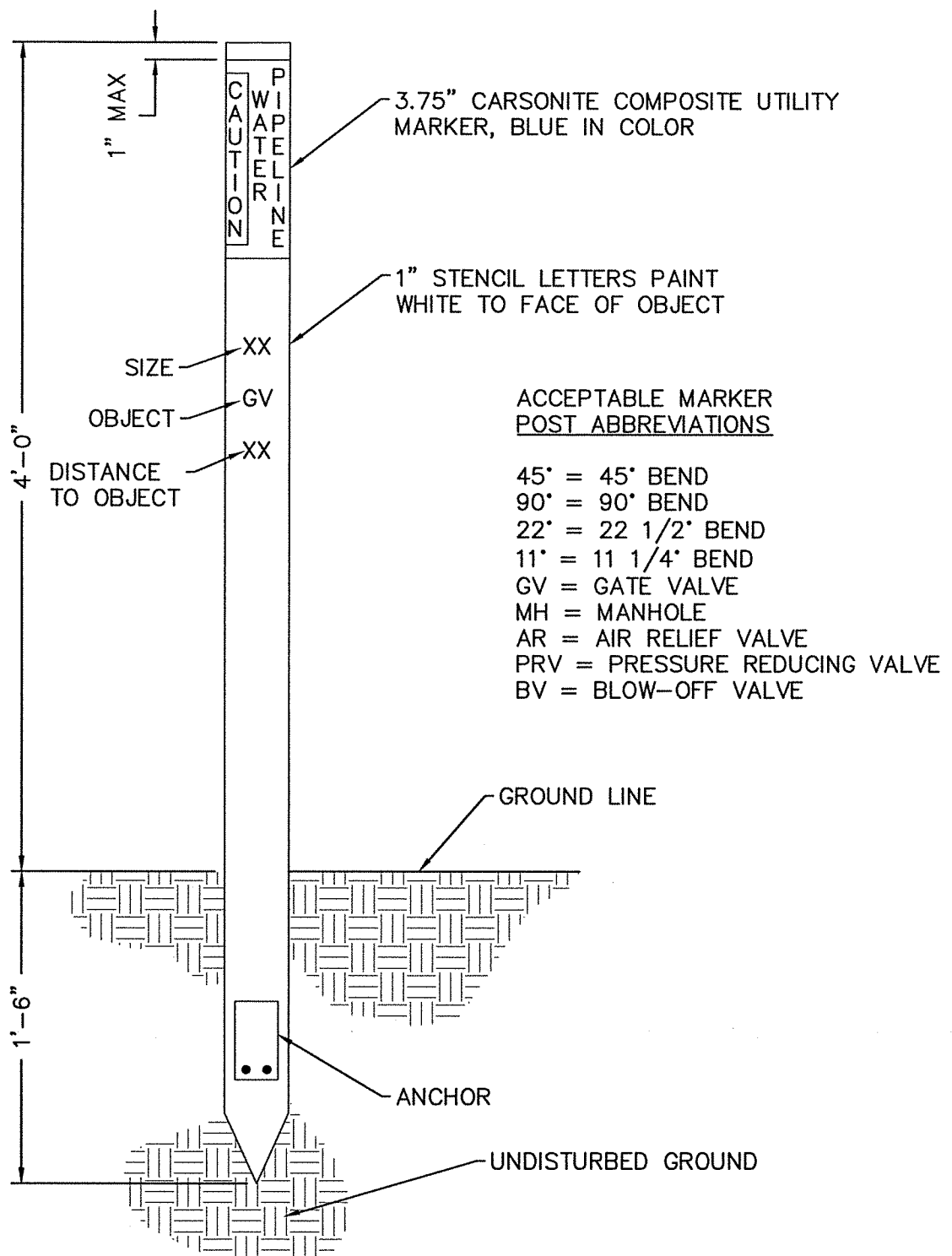


STEP 3

## FIELD INSTALLATION—POLYETHYLENE WRAP

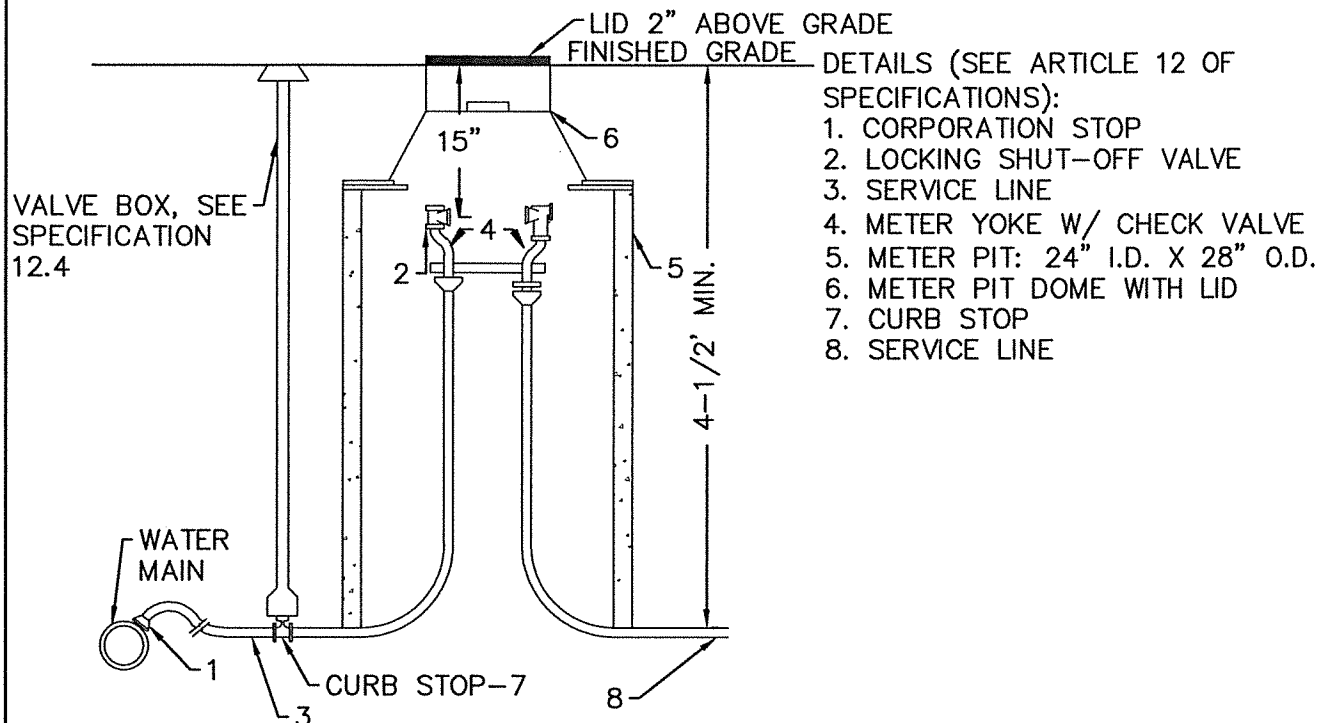
- STEP—1 PLACE TUBE OF POLYETHYLENE MATERIAL AROUND PIPE PRIOR TO LOWERING PIPE INTO TRENCH
- STEP—2 PULL THE TUBE OVER THE LENGTH OF THE PIPE. TAPE TUBE TO PIPE AT JOINT. FOLD MATERIAL AROUND THE ADJACENT SPIGOT END AND WRAP WITH THREE CIRCUMFERENTIAL TURNS OF TWO-INCH WIDE PLASTIC TAPE TO HOLD PLASTIC TUBE AROUND SPIGOT END
- STEP—3 ADJACENT TUBE OVERLAPS FIRST TUBE AND IS SECURED WITH PLASTIC ADHESIVE TAPE. THE POLYETHYLENE TUBE MATERIAL COVERING THE PIPE WILL BE LOOSE. EXCESS MATERIAL SHALL BE NEATLY DRAWN UP AROUND THE PIPE BARREL, FOLDED INTO AN OVERLAP ON TOP OF THE PIPE AND HELD IN PLACE BY MEANS OF PIECES OF THE PLASTIC TAPE AT APPROXIMATELY THREE TO FIVE FOOT INTERVALS

DATE 03/13	GREATROCK NORTH WATER AND SANITATION DISTRICT	
	POLYETHYLENE WRAP	GRN—15W



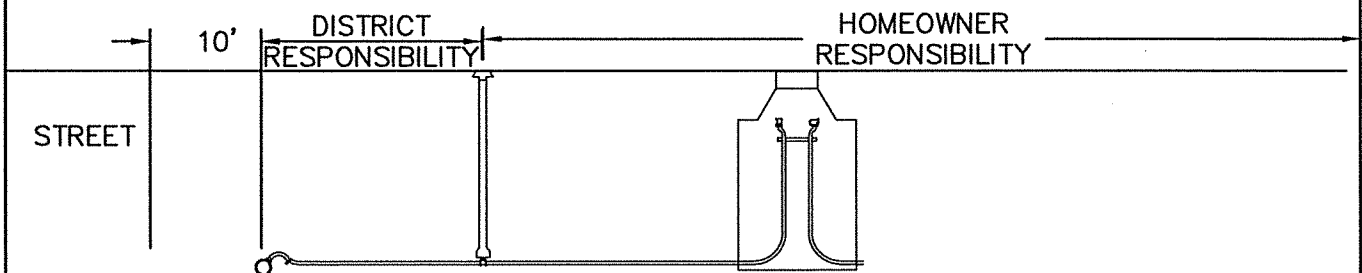
NOTE:  
 1. MARKER TO BE USED IN LOCATIONS AS DIRECTED BY THE DISTRICT

DATE 03/13	GREATROCK NORTH WATER AND SANITATION DISTRICT  CARSONITE MARKER POST	GRN-16W
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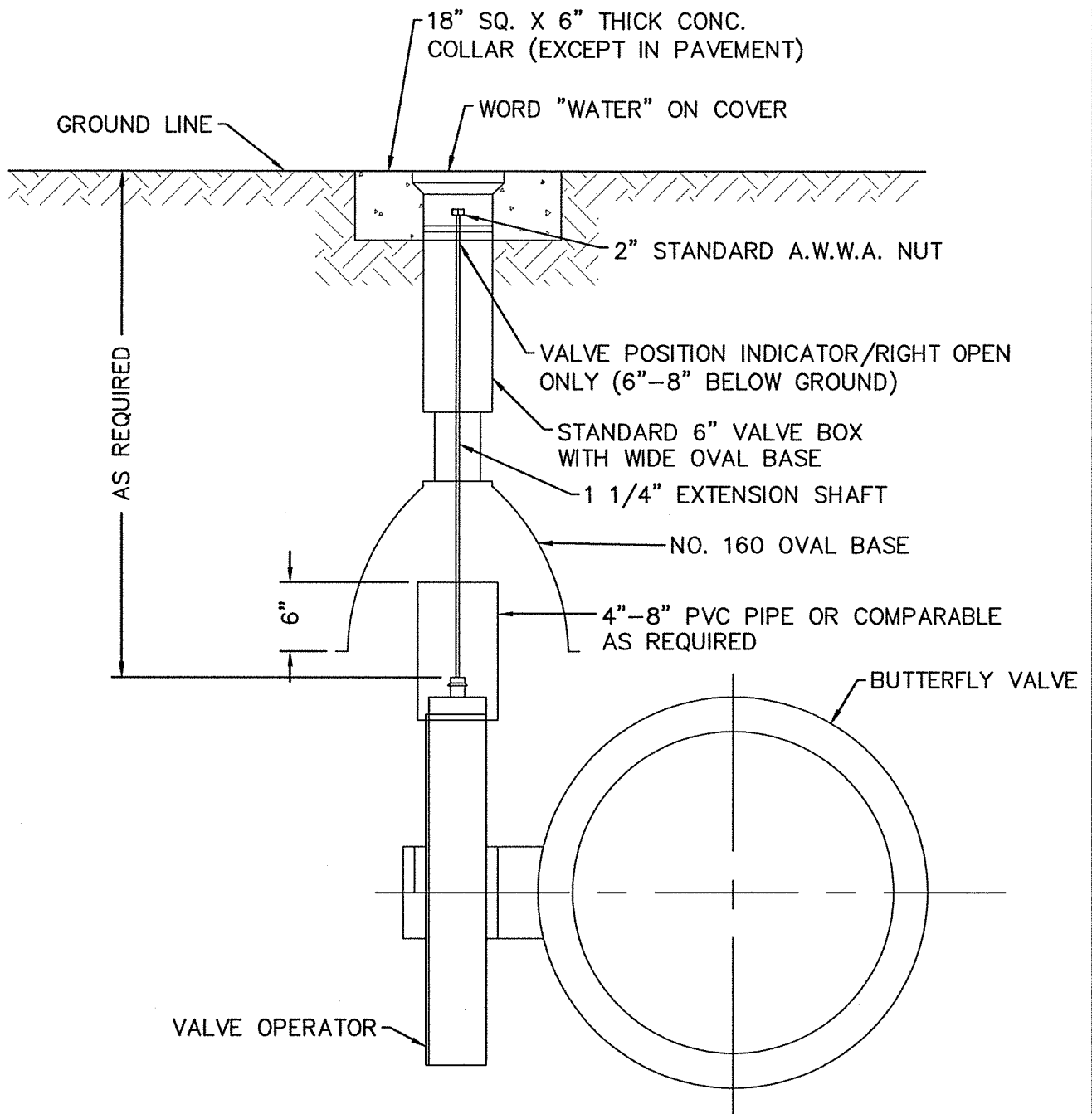


**NOTES:**

1. WATER METER FURNISHED AND INSTALLED BY GREATROCK NORTH WATER & SANITATION DISTRICT.
2. SERVICE LINE MUST HAVE MINIMUM COVER OF 4.5 FEET.
3. WATER DISTRICT PERSONNEL SHALL INSPECT THE SERVICE LINE FROM THE CURB STOP TO THE HOUSE (24 HR. NOTICE REQUIRED FOR INSPECTION).
4. ALL METER PITS SHALL BE STAKED FOR FINISH GRADE IF INSTALLATION PROCEEDS CONSTRUCTION.
5. THE DEPTH OF THE YOKE BELOW THE METER PIT LID IS CRITICAL DIMENSION.
6. NO BENDS PERMITTED IN SERVICE LINE BETWEEN TAP AND 5' BEYOND OUTLET SIDE OF METER. NO CHANGES IN PIPE DIAMETER OR CONNECTIONS OF ANY TYPE ARE PERMITTED IN THE SERVICE LINE UNTIL 5 FEET OR MORE FROM THE OUTLET SIDE OF METER PIT.
7. CHECK VALVE MAY BE INSTALLED INSIDE HOUSE DOWNSTREAM OF SHUTOFF VALVE IN LIEU OF YOKE.



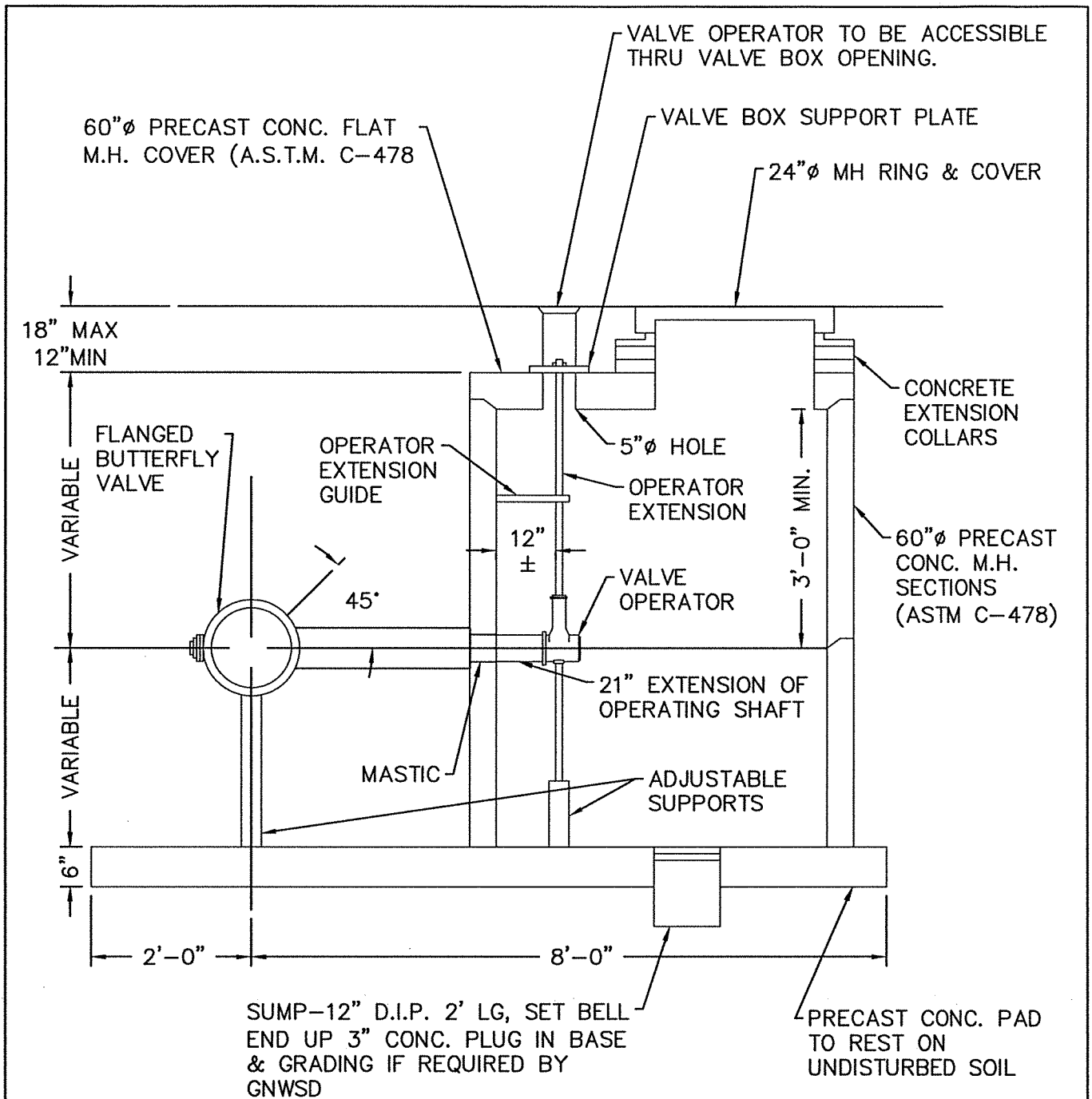
DATE 03/13	GREATROCK NORTH WATER AND SANITATION DISTRICT	GRN-17W
	METER PIT DETAIL	



**NOTE:**

THE VALVE BOX SHALL NOT BE PLACED DIRECTLY ON THE SOIL PIPE. THIS TYPE OF INSTALLATION IS USED FOR 20" AND SMALLER VALVES ONLY. BUTTERFLY VALVE AND OPERATOR SHALL BE POLYETHYLENE WRAPPED

DATE 03/13	GREATROCK NORTH WATER AND SANITATION DISTRICT	GRN-18W
	DIRECT BURY BUTTERFLY VALVE INSTALLATION	

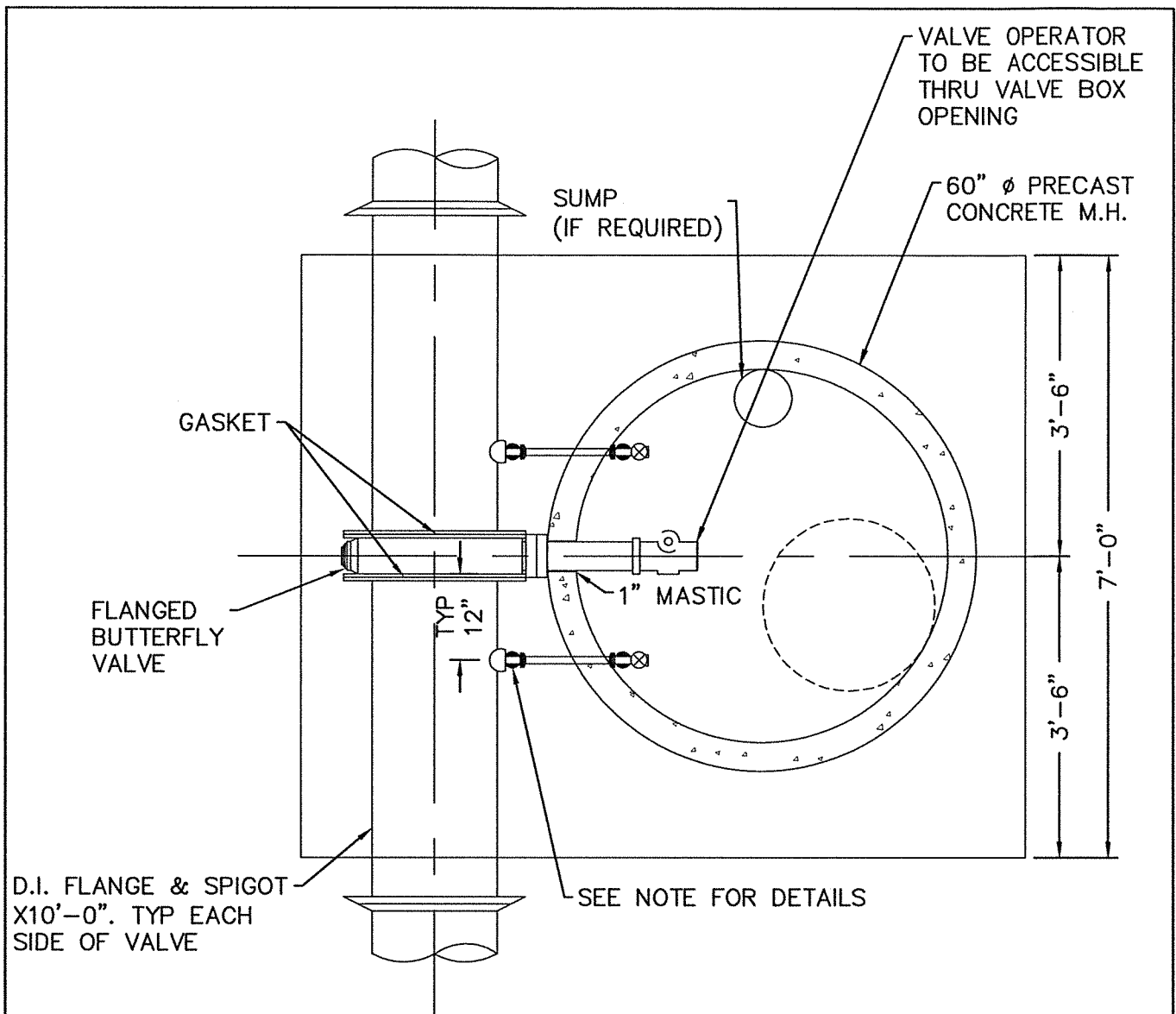


# ELEVATION

## NOTE:

1. PIPE AND VALVE SHALL BE POLYETHYLENE WRAPPED

DATE 03/13	GREATROCK NORTH WATER AND SANITATION DISTRICT	GRN-19W
	BUTTERFLY VALVE INSTALLATION: ELEVATION VIEW	

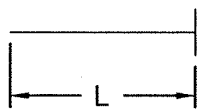


NOTE:

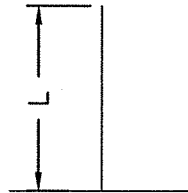
- 1 1/4" MUELLER CORP. STOP-MUELLER H-15000 & FIELD TAP (D.I.P ONLY)
- FOR STEEL PIPE 1 1/4" THREADED OUTLET, 1 1/4" THREADED
- CORP. STOP-MUELLER H-15025
- 1 1/4" COPPER TUBING TYPE "K"
- 1 1/4" COUPLING-MUELLER H-15425
- 1 1/4" THREADED GATE VALVE
- 1 1/4" AIR & VACUUM VALVE
- (ONE EACH SIDE OF VALVE)

PLAN

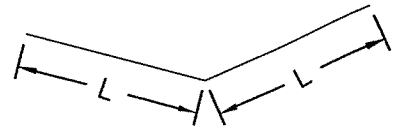
DATE 03/13	GREATROCK NORTH WATER AND SANITATION DISTRICT	GRN-20W
	BUTTERFLY VALVE INSTALLATION: PLAN VIEW	



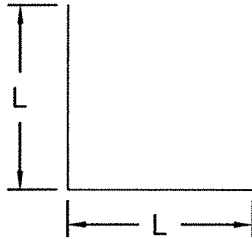
DEAD END



TEE



BENDS



90° BEND



VALVE

ROD DIAMETER, GRADE, & LENGTH OF  
RESTRAINED PIPE

NOMINAL PIPE ø	4"	6"	8"	12"	16"	20"	24"
FITTING	L	L	L	L	L	L	L
90° BEND, TEE, DEAD END	30'	45'	60'	86'	108'	132'	155'
VALVE	30'	45'	60'	86'	108'	132'	155'
45° BEND	9'	13'	18'	25'	32'	39'	45'
22 1/2° BEND	2'	4'	5'	7'	8'	10'	12'
11 1/4° BEND	2'	2'	2'	2'	2'	3'	3'

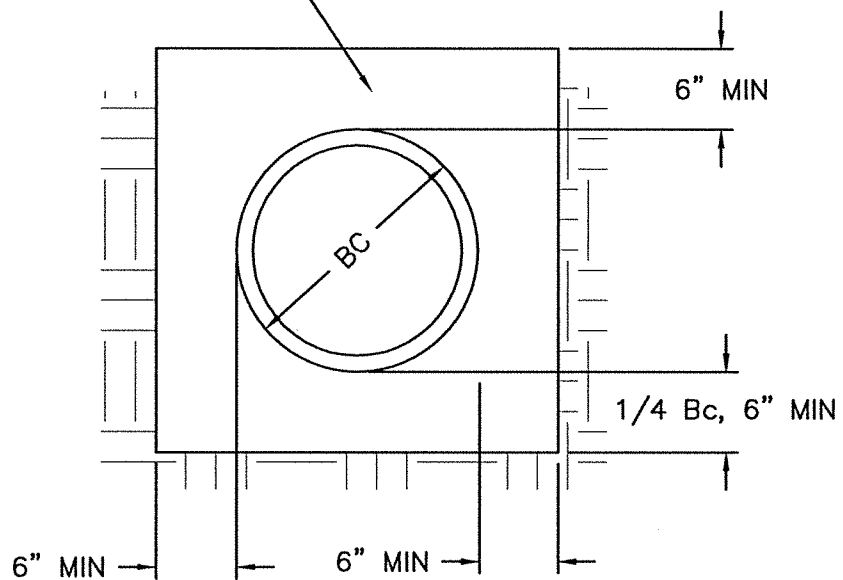
NOTES:

1. LENGTH OF RESTRAINED PIPE MEASURED EACH WAY FROM VALVES AND BENDS.
2. MINIMUM 4.5' GROUND COVER REQUIRED.
3. BASED ON 150 POUNDS PER SQUARE INCH WORKING PRESSURE.
4. CROSSES MUST BE RESTRAINED IN ALL DIRECTIONS
5. WHEN REDUCERS ARE USED ON A VALVE INSTALLATION THE LENGTH OF THE RESTRAINT SHALL BE BASED ON THE SIZE OF THE PIPE, NOT THE SIZE OF THE VALVE
6. WHEN INSTALLING VALVES ON EXISTING MAINS 12" AND SMALLER, USE MECHANICAL JOINT RESTRAINTS IN ACCORDANCE WITH MS-29 ON INSTALLED VALVES AND ASSOCIATED FITTINGS. REMOVE ALL PUSH-ON JOINTS WITHIN THE EXCAVATION. LENGTH OF RESTRAINED PIPE GIVEN ABOVE DOES NOT APPLY.

DATE 03/13	GREATROCK NORTH WATER AND SANITATION DISTRICT	GRN-21W
	LENGTH OF RESTRAINED PIPE	



BEDDING MATERIAL

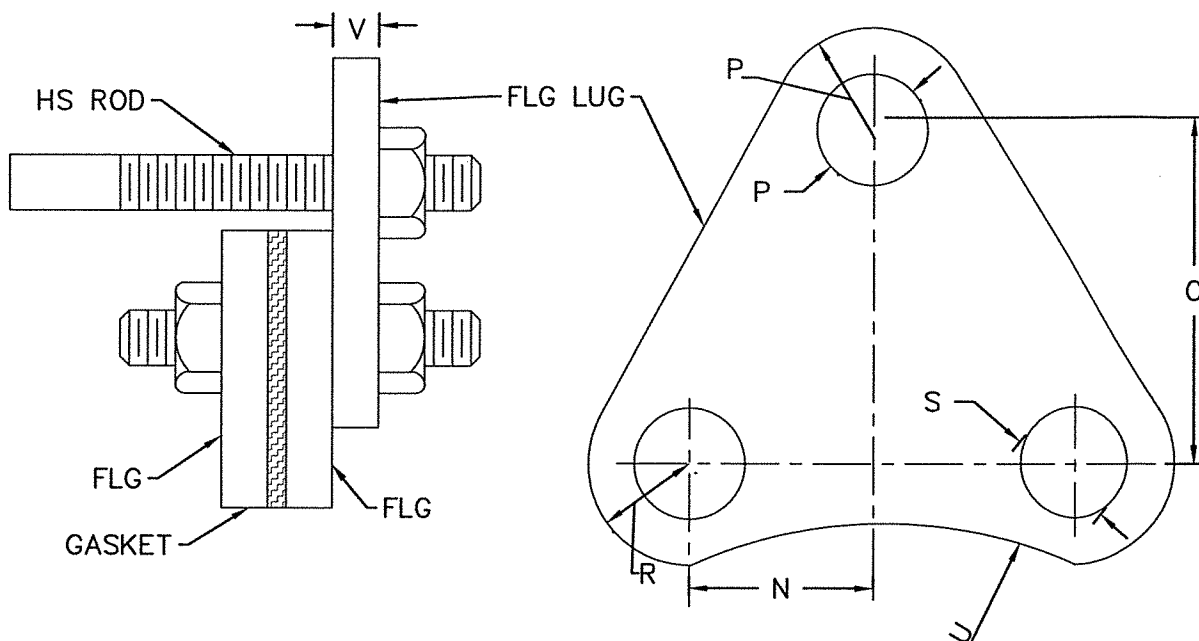


DATE  
03/13

GREATROCK NORTH WATER AND SANITATION DISTRICT

PIPE BEDDING  
DETAILS

GRN-22W

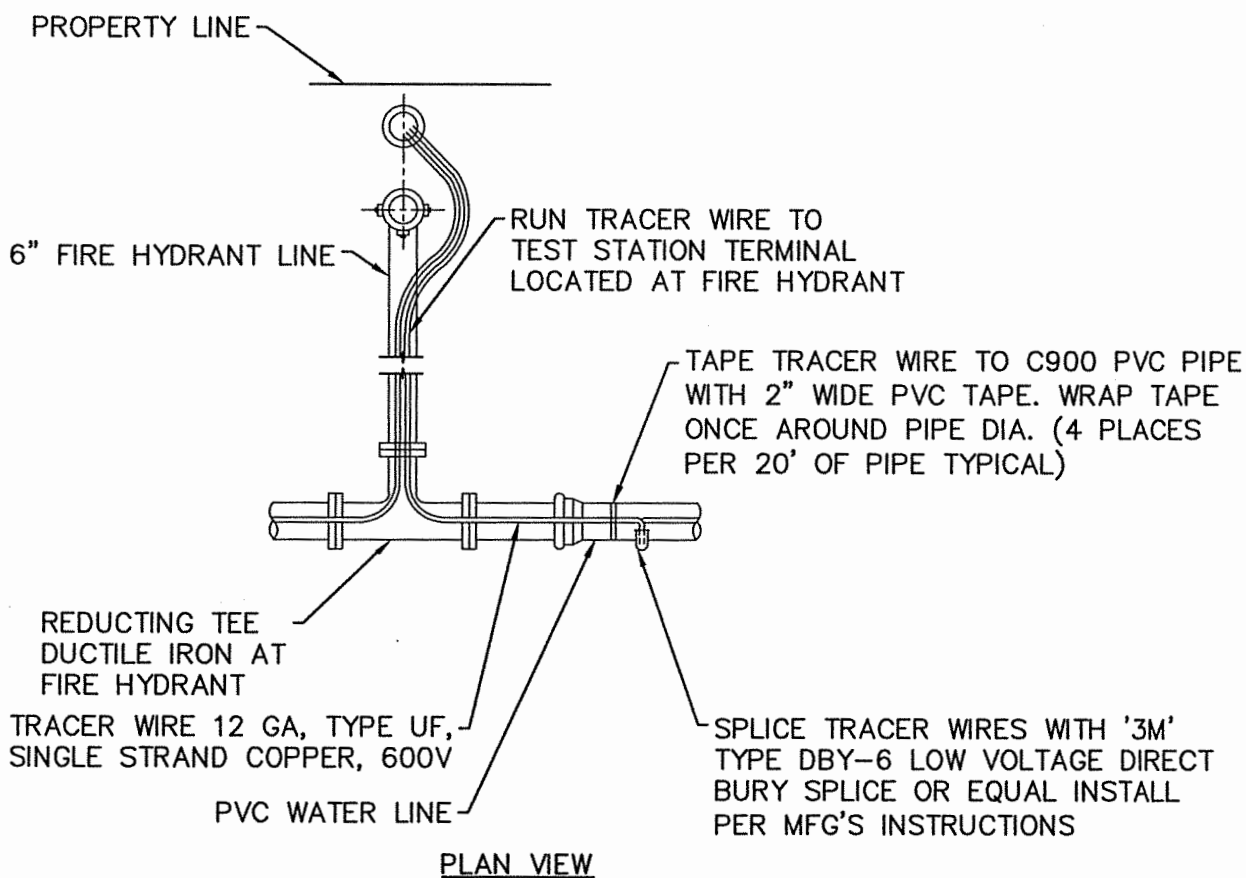
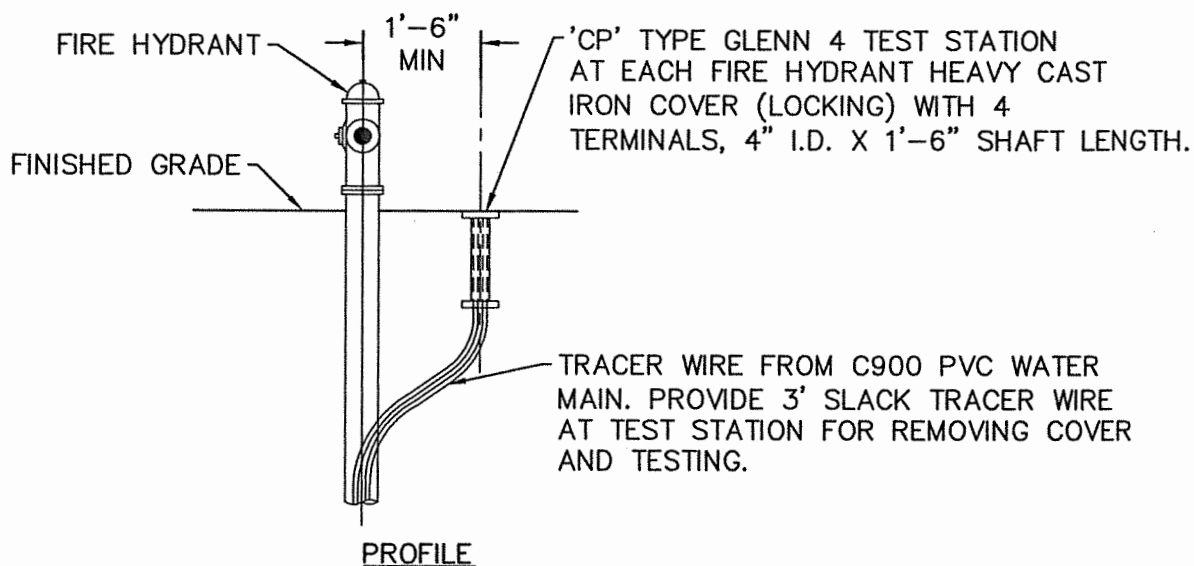


**DIMENSIONS**  
(IN INCHES)

NOMINAL PIPE $\phi$	N	O	HS RODS		R	S	U	V	NOMINAL PIPE $\phi$
			P	ROD $\phi$					
3	2 1/8	2 9/16	5/8	1/2	3/4	5/8	2 3/8	3/4	3
4	1 7/16	2	5/8	1/2	3/4	5/8	3 1/8	3/4	4
6	1 13/16	2 1/16	5/8	1/2	7/8	3/4	4	3/4	6
8	2 1/4	2 1/4	5/8	1/2	7/8	3/4	5 1/8	3/4	8
10	1 7/8	2 1/16	3/4	5/8	1	7/8	6 1/4	3/4	10
12	2 1/4	2 5/16	7/8	3/4	1	7/8	5 7/8	1	12
16	2 1/8	2 7/16	1 1/8	1	1 1/8	1	9 5/8	1 1/8	16
20	2	2 5/8	1 1/4	1 1/8	1 1/4	1 1/8	11 3/8	1 1/4	20

**NOTE:**  
STEEL FOR FLANGE LUG SHALL BE ASTM A 36

DATE 03/13	GREATROCK NORTH WATER AND SANITATION DISTRICT	GRN-23W
	FLANGE LUG DETAIL	



PVC WATER MAIN TRACER WIRE INSTALLATION DETAIL

DATE 03/13	GREATROCK NORTH WATER AND SANITATION DISTRICT	GRN-24W
	TRACER WIRE DETAIL	

**GREATROCK NORTH WATER AND SANITATION DISTRICT  
RULES AND REGULATIONS**

---

**APPENDIX C**

**EASEMENT AGREEMENT FORM**

UTILITY EASEMENT AGREEMENT  
(Greatrock North Water and Sanitation District)

---

For and in consideration of the sum of \_\_\_\_\_ Dollars (\$\_\_\_\_.00) and other good and valuable consideration, the sufficiency and receipt of which are hereby acknowledged, \_\_\_\_\_, whose address is \_\_\_\_\_ (the "Grantor"), hereby grants, bargains, sells and conveys to the GREATROCK NORTH WATER AND SANITATION DISTRICT, a quasi-municipal corporation and political subdivision of the State of Colorado, whose address is c/o Special District Management Services, Inc. 141 Union Boulevard, Suite 150, Lakewood, Colorado 80228 (the "District"), its successors and permitted assigns, a non-exclusive easement (the "Easement") to construct, reconstruct, repair, replace and/or remove certain water improvements and appurtenances thereto (the "Improvements"), in, to, through, over, under and across certain parcels of real property located in Adams County, Colorado, as more particularly described and shown in **Exhibit A**, attached hereto and incorporated herein by this reference (the "Premises"). Such Easement is granted by the Grantor and is accepted by the District pursuant to the following terms and conditions:

1. The District, its agents, successors and permitted assigns, shall have and exercise the right of ingress and egress in, to, through, over, under and across the Premises for any purpose necessary for the construction, reconstruction, operation, use, maintenance, repair, replacement and/or removal of the Improvements.

2. The Grantor, its successors and assigns, shall not construct or place any structure or building, street light, power pole, yard light, mailbox or sign, whether temporary or permanent, or plant any shrub, tree, woody plant, nursery stock, garden or other landscaping design feature on any part of the Premises, except with the prior written consent of the District. Any structure or building, street light, power pole, yard light, mailbox or sign, whether temporary or permanent, or any shrub, tree, woody plant, nursery stock, garden or other landscaping design feature of any kind situated on the Premises as of the date of this Easement or thereafter, except where the District has consented thereto, may be removed by and at the sole expense of the District in the District's exercise of its rights hereunder, without liability to the District therefor. Any structure or building, street, sidewalk, street light, power pole, yard light, mailbox or sign, whether temporary or permanent, or any shrub, tree, woody plant, nursery stock, garden or other landscaping design feature of any kind placed on the Premises by Grantor, its successors and assigns, subsequent to the date hereof without the District's consent may be removed by the District at the expense of Grantor, its successors or assigns, without liability to the District.

3. The District shall have the right to enter upon the Premises and to survey, construct, reconstruct, operate, use, maintain, repair, replace and remove the Improvements, and to remove objects interfering therewith, including but not limited to those items placed on the Premises under paragraph 2 hereof. In addition, the District shall have the right to use so much of the adjoining premises of the Grantor, its successors or assigns, during surveying, construction, reconstruction,

use, maintenance, repair, replacement and/or removal of the Improvements as may be reasonably required; provided, however, that such activities shall not interfere unreasonably with Grantor's, its successors' or assigns' use and enjoyment of such adjoining premises. The District and its permitted assignees and licensees shall repair any damage caused to any adjoining premises and the improvements thereon, and shall be liable for any injury to person or damage to property, to the extent arising out of the District's, its permitted assignee's or licensee's use of the Easement.

4. The District shall have and exercise the right of subjacent and lateral support to whatever extent is necessary for the operation and maintenance of the Improvements. It is specifically agreed between and among the parties that, except as provided in this Easement, the Grantor, its successors and assigns, shall not take any action which would impair the lateral or subjacent support for the Improvements. The Grantor, its successors and assigns, shall have and exercise the right of subjacent and lateral support to whatever extent is necessary for the operation and maintenance of any improvements on property adjoining the Premises. It is specifically agreed by and between the Grantor and the District that, except as provided in this Easement, the District shall not take any action which would impair the lateral or subjacent support for such improvements. This paragraph is not intended to prohibit the development of the private property located adjacent to the Premises.

5. It is expressly acknowledged and agreed that the District shall have the right and authority to assign the Easement to any appropriate local governmental entity or to any public utility provider, including but not limited to all rights to use, and all obligations associated with, the Easement as are granted to and assumed by the District herein, subject to such assignee assuming the obligations set forth herein. The District shall have the right and authority to grant temporary construction easements to any appropriate local governmental entity or public utility provider for purposes of construction, reconstruction, operation, use, maintenance, repair, replacement and/or removal of the Improvements, subject to all of the terms and conditions of this Easement.

6. The District agrees that at such time and in the event that the Improvements or Easement described herein are abandoned by the District and any permitted assignee, the Easement will terminate automatically and the real property interest represented by the Easement will revert to the Grantor, its heirs, successors and/or assigns.

7. The Grantor covenants and agrees with the District that the Grantor has full power and lawful authority to grant, bargain, sell and convey the Easement and that the Premises are free and clear from all former and other grants, bargains, sales, liens, taxes, assessments, encumbrances and restrictions of whatever kind or nature, except matters of record. The Grantor further promises and agrees to warrant and forever defend the District in the exercise of the District's rights hereunder against any defect in the Grantor's title to the Premises and the Grantor's right to make the grant herein described, except matters of record.

8. Each and every one of the benefits and burdens of this Easement shall inure to and be binding upon the respective legal representatives, administrators, successors and permitted assigns of the Grantor and the District.

9. The Grantor, its successors and assigns, reserve the right to grant further easement interests in the Premises to other grantees so long as such interests and uses are not inconsistent with, or unreasonably interfere with, the use of the Premises and benefits of this Easement by the District, its successors and permitted assigns, as described herein.

10. The rights and responsibilities set forth in this Easement are intended to be covenants on the Premises and are to run with the land.

11. This Easement shall be recorded in the real property records of Adams County.

12. This Easement may be executed in several counterparts, each of which shall be deemed an original, and all of which together shall constitute one and the same instrument.

*[Remainder of page intentionally left blank].*





DISTRICT:  
GREATROCK NORTH WATER AND SANITATION  
DISTRICT

\_\_\_\_\_  
President

STATE OF COLORADO                    )  
  ) ss.  
COUNTY OF ADAMS                    )

Subscribed and sworn to before me on this \_\_\_\_ day of \_\_\_\_\_ 20\_\_, by  
\_\_\_\_\_ as President of the Greatrock North Water and Sanitation  
District, a quasi-municipal corporation and political subdivision of the State of Colorado.

[SEAL]

\_\_\_\_\_  
Notary Public

My commission expires \_\_\_\_\_

## **EXHIBIT A**

The Premises

**GREATROCK NORTH WATER AND SANITATION DISTRICT  
RULES AND REGULATIONS**

---

**APPENDIX D**

**TEMPORARY CONSTRUCTION EASEMENT FORM**

**RIGHT OF ENTRY**  
**Greatrock North Water and Sanitation District**

---

\_\_\_\_\_ (the "Grantor") hereby grants permission to the GREATROCK NORTH WATER AND SANITATION DISTRICT, a quasi-municipal corporation and political subdivision of the State of Colorado (the "Temporary Occupant"), to enter upon the property as shown on **Exhibit A**, attached hereto and incorporated herein (the "Property") for the purpose of constructing and installing various public improvements, including, but not limited to, water facilities and improvements, and all of the activities associated therewith, subject to all the terms and conditions set forth in this Right of Entry. Such Right of Entry shall not be deemed a possessory right, but shall be merely a non-exclusive right of temporary access to the Property.

1. As consideration for this authority, the Temporary Occupant shall pay the Grantor the sum of \_\_\_\_\_ Dollars (\$\_\_\_\_.00), due upon execution of this Right of Entry agreement.

2. The term of this Right of Entry shall commence on \_\_\_\_\_ and shall terminate at 11:59 P.M. on \_\_\_\_\_, unless otherwise extended by mutual agreement of the parties hereto.

3. During the term of this Right of Entry agreement, the Temporary Occupant agrees to maintain the Property in an orderly condition. Upon the expiration of this Right of Entry, the Temporary Occupant shall restore the Property to the condition which existed prior to entry of the Temporary Occupant, or to such lesser condition as may be approved by the Grantor, in writing, and shall repair any damage resulting from entry on the Property in connection with this Right of Entry agreement.

4. The Temporary Occupant, at its sole cost and expense, shall comply with all federal, state, local and police requirements, regulations, ordinances and laws respecting the Property and the activities of the Temporary Occupant, conducted thereon, shall be solely responsible for any fines, fees or costs relating to the same, and shall not interfere with other parties entering the Property on behalf of the Grantor.

5. This Right of Entry agreement may be executed in several counterparts, each of which shall be deemed an original, and all of which together shall constitute one and the same instrument.

6. Nothing herein shall be construed as a waiver of the rights and privileges of the Temporary Occupant pursuant to the Colorado Governmental Immunity Act, §§ 24-10-101, *et seq.*, C.R.S., as amended from time to time.

7. This Right of Entry agreement shall be recorded in the offices of the County Clerk and Recorder for the County of Adams, Colorado.

*[Remainder of page intentionally left blank].*



DISTRICT:  
GREATROCK NORTH WATER AND SANITATION  
DISTRICT

\_\_\_\_\_  
President

STATE OF COLORADO                    )  
  ) ss.  
COUNTY OF ADAMS                    )

Subscribed and sworn to before me on this \_\_\_\_ day of \_\_\_\_\_ 20\_\_, by  
\_\_\_\_\_ as President of the Greatrock North Water and Sanitation  
District, a quasi-municipal corporation and political subdivision of the State of Colorado.

[SEAL]

\_\_\_\_\_  
Notary Public

My commission expires \_\_\_\_\_

EXHIBIT A

The Property