

CHAPTER 13

Municipal Utilities

Article I Rate Reduction Program

- Sec. 13-1 Definitions
- Sec. 13-2 Purpose
- Sec. 13-3 Requirements for qualification
- Sec. 13-4 Application for utility reduction
- Sec. 13-5 Amount of utility rate reduction
- Sec. 13-6 Rules and regulations

Article II Sewer System

- Sec. 13-21 Construction standards
- Sec. 13-22 Development costs
- Sec. 13-23 Sewer connection required
- Sec. 13-24 Sewer service application
- Sec. 13-25 Service lines
- Sec. 13-26 Easements
- Sec. 13-27 Sanitary pretreatment requirements
- Sec. 13-28 Fees and payments
- Sec. 13-29 Owner's responsibility for compliance
- Sec. 13-30 Service lines; demolished buildings
- Sec. 13-31 Unauthorized use of sewer system
- Sec. 13-32 Repairs and maintenance
- Sec. 13-33 Vandalism
- Sec. 13-34 Penalty
- Sec. 13-35 Immunity from suit

Article III Water System

- Sec. 13-51 Construction standards
- Sec. 13-52 Development costs
- Sec. 13-53 Water connection required
- Sec. 13-54 Water service application
- Sec. 13-55 Service lines
- Sec. 13-56 Easements
- Sec. 13-57 Water meters
- Sec. 13-58 Fees and payments
- Sec. 13-59 Miscellaneous
- Sec. 13-60 Owner's responsibility for compliance
- Sec. 13-61 Resumption of services
- Sec. 13-62 Service lines; demolished buildings
- Sec. 13-63 Unauthorized use of water
- Sec. 13-64 Pollution of Town water supply
- Sec. 13-65 Repairs and maintenance
- Sec. 13-66 Vandalism
- Sec. 13-67 Penalty
- Sec. 13-68 Immunity from suit
- Sec. 13-69 Providing treated water for commercial resale purposes
- Sec. 13-70 Sale of water for private use other than through service lines
- Sec. 13-71 Water Conservation Program
- Sec. 13-72 Water conservation measures
- Sec. 13-73 Special permits

Sec. 13-74 Enforcement of water conservation measures

Article IV Construction Standards and Specifications

Division 1 General Provisions

Sec. 13-81 Scope
Sec. 13-82 General
Sec. 13-83 Definitions and abbreviations
Sec. 13-84 Drawings, specifications and calculations requirements
Sec. 13-85 Acceptance of pipeline system by Town
Sec. 13-86 Notice before commencement of work
Sec. 13-87 Traffic control
Sec. 13-88 Rejected materials
Sec. 13-89 Contractor's responsibility
Sec. 13-90 Safety requirements
Sec. 13-91 Easements
Sec. 13-92 Protection of existing facilities

Division 2 Design Criteria

Sec. 13-111 Preliminary submittals
Sec. 13-112 Water main design criteria
Sec. 13-113 Sanitary sewer design criteria

Division 3 General Specifications for Both Water Main and Sanitary Sewer Construction

Sec. 13-131 Trench excavation
Sec. 13-132 Bedding materials
Sec. 13-133 Backfilling and compaction of backfill
Sec. 13-134 Surface restoration
Sec. 13-135 Water for construction
Sec. 13-136 Grade stakes
Sec. 13-137 Installation of water and sewer taps in trenches opened for installation or extension of water or sewer mains

Division 4 Standards and Specifications for Water Main Construction

Sec. 13-151 General
Sec. 13-152 Materials
Sec. 13-153 Installation
Sec. 13-154 Testing and disinfection of water mains
Sec. 13-155 Water services

Division 5 Standards and Specifications for Sanitary Sewer Construction

Sec. 13-171 General
Sec. 13-172 Materials
Sec. 13-173 Installation
Sec. 13-174 Testing of sanitary sewer construction
Sec. 13-175 Sanitary sewer service lines

Article V Cross-Connection and Backflow Prevention Control

Sec. 13-191 Scope
Sec. 13-192 Definitions
Sec. 13-193 Unlawful acts
Sec. 13-194 Plan approval
Sec. 13-195 Installation
Sec. 13-196 Inspection
Sec. 13-197 Admission to property
Sec. 13-198 Requirements
Sec. 13-199 Management plan
Sec. 13-200 Testing

- Sec. 13-201 Maintenance and replacement of backflow prevention devices
- Sec. 13-202 Recordkeeping
- Sec. 13-203 Hazard identification
- Sec. 13-204 Enforcement; remedies
- Sec. 13-205 Rights of appeal

ARTICLE I

Rate Reduction Program

Sec. 13-1. Definitions.

The following words, terms and phrases, when used in this Article, shall have the meanings ascribed to them in this Section:

Applicant means a low-income senior resident or disabled resident of the Town who has submitted an application to participate in the utility rate reduction program.

Disabled individual means any person who has a physical impairment from a physiological or neurological condition or a disability attributable to mental retardation, cerebral palsy or epilepsy which prevents the exercise of normal physical function.

Household means two (2) or more persons related by blood or marriage living together under one (1) roof. Any person who pays property taxes on a home or dwelling unit shall not be considered to be a part of any household other than that person's own dwelling unit.

Income means total income, including but not limited to salaries, wages, tips, employee compensation, interest, dividends, business or farm income, rents, royalties, social security benefits, public and private pension payments, annuities, support money, cash, public assistance and relief, veterans' benefits (except service-connected disability payments), workers' compensation and unemployment compensation benefits.

Low-income means having an income that is below one hundred eighty-five percent (185%) of the federal poverty guidelines established each year by the United States Department of Health and Human Services and published in the Federal Register.

Owned means possessed of the legal incidents of ownership irrespective of whether the applicant's name appears on the record for the property.

Senior resident means a resident of the Town who is sixty-two (62) years of age or older by July 1 of the year in which the application was submitted. (Ord. 369, 1994; Ord. 682 §1, 2010)

Sec. 13-2. Purpose.

There is hereby enacted a water and wastewater utility rate reduction program to provide relief from Town utility bills for qualified low-income senior and/or disabled residents of the Town. It is the purpose of this program to reduce amounts representing a portion of utility bills charged by the Town to qualified low-income senior and/or disabled residents. This program is intended to apply to qualified owners of property who reside on the property or resident tenants of the property who are responsible for the utility bills for the property. (Ord. 369, 1994; Ord. 682 §1, 2010)

Sec. 13-3. Requirements for qualification.

In order to be entitled to a utility rate reduction under this program, the applicant must meet all of the following applicable requirements:

(1) The applicant or spouse, if living together, must be a senior resident or be a disabled individual resident as defined in this Article. No more than one (1) application shall be submitted or acted upon in connection with any single property in the Town.

(2) The applicant must be a resident of the Town as of July 1 of the year in which the application is submitted.

(3) All utility bills for the property occupied by the applicant must be paid current.

(4) The property occupied by the applicant must receive water, wastewater or both services from the Town.

(5) Any applying household shall have a combined annual income which shall not exceed, for its size, one hundred eighty-five percent (185%) of the federal poverty guidelines established each year by the United States Department of Health and Human Services and published in the Federal Register.

(6) Any applying household or member thereof shall be in full compliance with all provisions of this Article and shall not be in default upon the terms of any obligation, contract or other agreement with the Town. (Ord. 369, 1994; Ord. 385 §1, 1994; Ord. 653 §1, 2008; Ord. 682 §1, 2010)

Sec. 13-4. Application for utility reduction.

Utility rate reductions under this program shall be made to persons qualified for such reductions upon written application made to the Town on forms to be provided by the Town. Such applications shall be made between August 1 and December 31, inclusive, of each year for which a reduction is to be made, with the exception of the 1994 calendar benefit year, which shall be made between January 1 and May 30, 1994. (Ord. 369, 1994; Ord. 435 §1, 1996)

Sec. 13-5. Amount of utility rate reduction.

The amount of utility rate reduction hereunder shall be the waiver of base fees for water and wastewater for a residential single unit. An applicant shall be entitled to a rate reduction only for those utility services received and shall pay for metered water and/or sewer usage at the current rates. (Ord. 369, 1994)

Sec. 13-6. Rules and regulations.

The Town, with the approval of the Town Administrator, shall have the power to formulate and promulgate rules and regulations for the administration of this utility rate reduction program not inconsistent with this Article. (Ord. 369, 1994; Ord. 435 §1, 1996)

Secs. 13-7—13-20. Reserved.

ARTICLE II

Sewer System

Sec. 13-21. Construction standards.

Construction of all sewer collection lines, service lateral lines and appurtenances shall be done in accordance with Article IV of this Chapter. (Ord. 346 §1, 1992; Ord. 435 §1, 1996)

Sec. 13-22. Development costs.

(a) Any person desiring to connect to the Town sewer system to service his or her private property, such connection requiring an extension of the Town sewer system, shall pay the entire cost of extension of the Town sewer service to his or her property. Ownership of all sewer main lines so extended along with any other improvements made to the sewer main collection system shall be transferred to the Town upon construction acceptance.

(b) Any and all engineering fees incurred by the Town associated with any sewer project shall be reimbursed by the owner/applicant to the Town.

(c) In the event the applicant has installed a sewer main extension that may serve other users or if the Town has determined that oversizing of a line is necessary, the Town may, at its discretion, enter into an agreement with the applicant to enable the applicant to recover a portion of the cost overage of such installation as future connections are made.

(d) All measuring or mechanical appliances or devices that are attached to or used in connection with the Town's sewer system shall meet all standards and requirements established by the Town. In those instances where the Town Administrator deems it more efficient to do so, he or she may require individuals or entities seeking to connect to or use the Town's sewer system to purchase measuring or mechanical appliances or devices from the Town. In those instances where the Town provides measuring or mechanical appliances or devices to those seeking to connect to or use the Town's sewer system, the Town shall charge twenty percent (20%) in addition to the cost of such appliances or devices to compensate the Town for the time and expenses involved in acquiring and providing such appliances or devices. (Ord. 346 §2, 1992; Ord. 564 §1, 2002)

Sec. 13-23. Sewer connection required.

All structures that are required to have sewer service and are on lots located within two hundred (200) feet of an operational sewer collection main of the Town shall be required to connect to and to use the Town's sewer system within three (3) years of written notification by the Town. Upon written application by the property owner and an inspection by a certified engineer paid for by the homeowner, the Board of Trustees may grant variances to this requirement based upon the following criteria:

(1) Grade or site characteristics which makes a practical sewer connection difficult or impossible. Mechanical pumping of sewage may be required.

(2) Any private septic system that, following an inspection by a Town-approved engineer, is found to be in good working order, may continue to be used for a period of time designated by the Board of Trustees or until the home is sold. However, if during the term of the variance, such septic system needs to be revitalized, expanded or improved in any manner other than regular maintenance or pumping or if, as a result of inspection or otherwise, the septic system is determined to have failed, then the private septic user shall be required to connect to the municipal sewer system as soon as possible, but in any event within six (6) months of the date notification of such failure is mailed to the property owner and/or user.

(3) No existing private septic system may be used or modified to serve additional users or for additional purposes.

(4) If there is no existing utility easement in place at or before the date connection is required, the Board of Trustees may waive the requirement of connection until such easement is in place, if it finds unusual or extreme hardship or expense would be suffered or incurred by the property owner in obtaining a satisfactory easement, provided that such hardship or expense was not created or caused by such property owner or their predecessors in interest.

(5) Any variance granted by the Board of Trustees pursuant to the provisions of this Section shall be subject to such terms and conditions as the Board of Trustees deems appropriate, including but not limited to the length of time such variance shall remain in effect or whether annual testing or other review of a septic system by the Town or its designee will be required. (Ord. 346 §3, 1992; Ord. 435 §1, 1996; Ord. 618 §1, 2006; Ord. 629 §1, 2007)

Sec. 13-24. Sewer service application.

(a) An application shall be initiated to the Town requesting a sewer tap into the Town sewer system. The fee for obtaining sewer service shall include a plant investment fee (P.I.F.) and a mechanical connection fee (connection fee), as required in Section 13-28 below.

(b) All fees shall be paid in full before a building permit will be issued. Once sewer service connection is approved, a work order shall be issued to the Public Works Department authorizing a sewer tap. A record of all such permits shall be maintained by the Town. As a minimum, each application shall contain:

- (1) The name of the person for whose benefit such permit is to be granted;
- (2) Identification of the property and property owner for which such permit is to be granted;
- (3) The size of the tap;
- (4) The estimated point at which such tapping is to be done;
- (5) The location on the structure to which the sewer is to be connected;
- (6) The contemplated types of effluent;
- (7) The location of sewer cleanouts; and

(8) The use of the property to which the property is to be put, residential, multifamily residential, commercial or industrial, and a description of any commercial or industrial use.

(c) No person shall uncover, make any connections with an opening into, use, alter, disturb or tamper with any public sewer line or appurtenances thereof, without first obtaining a written permit from the Town. All construction or excavation activity occurring in a public right-of-way must be approved by the Public Works Department and a right-of-way permit must be issued by the Town.

(d) All costs and expenses directly due or incidental to the installation and connection of the sewer line shall be paid by the property owner. The property owner having a sewer line installed shall indemnify the Town from any loss or damage that may be directly or indirectly due to said installation.

(e) All connections to the sewer system shall be made by a duly authorized employee of the Town or a qualified contractor who shall give twenty-four-hour notification of intent to begin and shall be supervised by the Public Works Department of the Town.

(f) Upon completion of the tap, a complete description of the exact location of the tap and service line shall be provided by the property owner to the Town. The description shall include the legal description of the property served, and distances from at least two (2) established property corners and/or permanent, obvious features of the surrounding properties. This data shall be posted to the Town utility map. Failure to provide this data will result in the Town assessing a fee against the owner and the property to fund the research, including the cost of digging and surveying if necessary to provide this data for the Town records.

(g) Billing and collection of user fees shall begin upon payment of the plant investment fees and shall be billed to the owner by the Town as set forth herein.

(h) Alteration or extension of plumbing within any building inside the corporate limits of the Town shall be approved and authorized by a permit issued by the Building Department. All building classifications shall be determined by the Building Department as outlined in Article IV, below, and any other ordinances, requirements or regulations as adopted and amended by the Town.

(i) Only one (1) property and one (1) use on the property shall be served by each sewer service line. Extensions of a single sewer service line to one (1) or more multiple buildings or uses on the same platted lot is prohibited if sewer is required for each structure under any Town ordinance. A separate sewer service line is required for each separate building and each separate use on a single lot, except where specific exception is granted by the Board of Trustees. Any properties, uses or buildings on a single lot which are currently being served jointly by a single sewer service line shall be brought into conformance with the requirements of this Section within one hundred eighty (180) days of the date of passage of the ordinance codified herein by the property owner.

(j) Any additional demands created by an extension of the plumbing may require a larger service size as determined by the Town's ordinances and in Article IV, below. If a larger service is required, the property owner shall pay the difference between the cost of the existing and the new larger plant investment fee, monthly rates and installation.

(k) Extensions of the plumbing from an existing tract or lot to another tract or lot shall not be permitted, even if all such properties are commonly owned. Subdivisions of separate parcels shall require an additional and separate P.I.F., connection fee and sewer service line to be obtained and constructed for each parcel.

(l) Upon payment of a P.I.F. and connection fee, a tap shall be assigned to a property for which it was purchased and shall not be transferable to another property.

(m) The Town shall sell a sewer tap only to persons obtaining a building permit. In the event no building occurs within twelve (12) months or the building permit expires, the Town shall be entitled, at its option, to repurchase the tap at the same P.I.F. and connection fee paid to the Town, at any time thereafter, by giving written notice to the purchaser of the tap or the then-owner of the property. (Ord. 346 §4, 1992; Ord. 435 §1, 1996)

Sec. 13-25. Service lines.

(a) The property owner of any premises upon which sewer service is provided shall maintain and repair all sewer service lines and their fixtures from the sewer main into his or her structure so as to prevent any leakage or damage. Any such leakage and damage shall be immediately repaired at the property owner's expense.

(b) Upon written notice, the Town may terminate sewer service to the property if the property owner fails to immediately stop all such leakage or to repair a damaged sewer service line.

(c) The property owner shall be responsible for all damage to the sewer system resulting from failure to properly maintain or repair his or her individual service line and appurtenances. Said owner shall pay for all costs of repair to damaged public property estimated by the Town. (Ord. 346 §5, 1992; Ord. 435 §1, 1996; Ord. 539 §1, 2001)

Sec. 13-26. Easements.

(a) Each owner of the property served by the Town sewer system shall grant to the Town an easement for any new construction of sewer service lines running through private property. Such easement shall include an easement for access by the Town to inspect and/or service, maintain and/or repair any sewer service line and any portion thereof. An easement agreement in a form acceptable to the Town shall be signed by the property owner and a copy shall be filed and maintained by the Town. Compensation for easements may be negotiated by the Board of Trustees for easements of sewer mains or lines serving more than one (1) property.

(b) If an easement for a service line through public or private property is necessary to gain access to a Town sewer main, the property owner of the property to be connected shall be required to submit a copy of the written easement to the Town prior to any excavation of said property. (Ord. 346 §6, 1992; Ord. 435 §1, 1996)

Sec. 13-27. Sanitary pretreatment requirements.

Where deemed necessary as determined by the Public Works Foreman, a property owner shall provide, at his or her own expense, such preliminary pretreatment as may be necessary to reduce

objectionable characteristics of wastewater, or to control quantities and rate of discharge. (Ord. 346 §7, 1992)

Sec. 13-28. Fees and payments.

(a) Fees.

(1) Sewer user fees. Sewer user fees shall consist of a monthly available service fee ("base fee") which shall be assessed for each tap and each building served and for each separate use on the property with a three-fourths-inch tap. Taps larger than three-fourths ($\frac{3}{4}$) of an inch may be assessed a base fee higher than the three-fourths-inch base fee. Base fees shall be billed whether the property is actually connected to the Town sewer system or is required by this Article or any prior ordinance of the Town to be connected to the system. In addition to the base fee, a monthly sewer usage fee ("usage fee") shall be charged to each property with a water meter. The usage fee shall be for the amount of water consumed since the last meter reading, as established by the water meter for such structure or unit.

a. If multiple units are served by the same tap, they shall be assessed the related multiple number times the base fee for the tap size used.

b. Any building with one (1) or more users shall be assessed a base fee rate for each separate use on the property.

c. The Town will bill the property owner at least quarterly for sewer service. Commercial meters may be read more often and billed on a different schedule than residential meters. Failure by the Town to so notify a sewer user shall not constitute a waiver of any fee or charge imposed by this Article. It shall be the owner's responsibility at all times to provide the Town, in writing, with a current billing address. Unless written notice of a billing address signed by the property owner is received by the Town, the Town will send bills to the address shown in the records of the County Treasurer.

d. Properties that are sewer service only and do not have a water meter shall be assessed twice the base fee or the amount established by resolution of the Board of Trustees, whichever is greater.

(2) Sewer plant investment fees. Tap sizes used for determining plant investment fees shall be based upon a needs analysis derived from the International Plumbing Code as adopted and amended by the Town. Plant investment fees shall be charged according to the needs analysis and payment accepted only at the time of a building permit. In the event connection is made to the Town's sewer system without having paid the sewer plant investment fee in advance of such connection, the owner of the property shall pay to the Town a PIF penalty fee in addition to the sewer plant investment fee in effect at the time such connection is discovered by or disclosed to the Town. If the owner fails or refuses to pay such penalty as well as the sewer plant investment fee, the Town may summarily terminate water service to the property without further notice. The amount of the penalty provided for in this Paragraph shall be as established by resolution of the Board of Trustees.

(3) Tapping fees. Tapping fees shall be charged in accordance with a fee schedule adopted and which may be amended by resolution of the Board of Trustees.

(4) Out-of-Town users. Out-of-Town users will be assessed one hundred fifty percent (150%) of the in-Town user fees, plant investment fees and tapping fees, or the amount established by resolution of the Board of Trustees, whichever is greater.

(5) Town labor, equipment and materials. Fees for use of Town labor, equipment and purchase of materials shall be as follows:

a. Town labor, per person, per hour at the rate established by resolution of the Board of Trustees.

b. Town equipment is billed at the rate established by resolution of the Board of Trustees.

c. Materials supplied by the Town are billed at cost plus twenty percent (20%).

(b) Meters.

(1) Water meters and remote water meter readouts must be easily accessible and readable. If access or readability is impaired, the property owner, at his or her own expense, shall be required to relocate the meter and remote device to a location that will allow the Public Works Department to obtain meter readings. Failure to comply with this requirement within fifteen (15) days of official notification of inaccessibility or unreadability shall result in water meter rates being charged at a flat rate fee of two (2) times the past billing or the amount established by resolution of the Board of Trustees, whichever is greater. If the readability issues are not corrected within three (3) months, a fifteen-day shut-off notice will be posted.

(2) Water meters must be in working order. If the water meter is broken, the property owner, at his or her own expense, shall be required to fix or replace the meter and/or remote device. Failure to comply with this requirement within sixty (60) days of official notification of a broken meter shall result in water meter rates being charged at a flat rate fee of two (2) times the past billing or the amount established by resolution of the Board of Trustees, whichever is greater. Prior to this time, the user will be charged the same as his or her past billing.

(3) If any meter fails to register in any billing period and has not been temporarily disconnected by notification to the Town, the owner shall be charged according to the average quantity of water used in a similar period as shown by the meter when in order.

(c) Billing.

(1) Billing for sewer service and any other notices relating to the sewer services are effective on the date that they are deposited in the mail addressed to the last known address of the owner as shown on the records of the Town.

(2) Any owner who, at the time of passage of the ordinance codified herein, has property connected to the Town sewer system and who has not received bills from the Town for sewer

service, or who has not paid plant investment fees or tap fees for such connection, will be billed and shall be responsible for payment for such past sewer service as follows:

a. The base fee for the thirty-six-month period immediately preceding the date of passage of the ordinance codified herein;

b. A usage fee for the thirty-six (36) months immediately preceding passage of the ordinance codified herein;

c. Any unpaid connection fees and PIF;

d. Such owners shall include those persons whose properties are connected to the Town sewer system but: 1) whose property has no record of billing or payment with the Town; or 2) who has tapped into the Town sewer system without permission;

e. All fees and charges which accrue and remain unpaid after the date of the ordinance codified herein; and

f. Nothing herein shall limit the time or charges for which the Town may assess and demand payment of fees and charges in the event of the unlawful or unauthorized tapping of a sewer main without the Town's approval.

(d) Delinquencies, penalties and collection. An account shall be delinquent if not paid within thirty (30) days of mailing the bill. In the event an account is delinquent, the Town may initiate the following late fee, interest and collection procedures:

(1) The Town shall assess interest on any delinquent amounts on a monthly basis in the amount of one and one-half percent (1.5%) per month or eighteen percent (18%) per annum.

(2) Thirty (30) days delinquent. The Town shall assess a late fee in an amount established by resolution of the Board of Trustees and shall mail, by regular mail, to the property owner at its billing address, a notice of delinquency. The notice shall notify the property owner that he or she has thirty (30) days from the date of said notice to pay the total amount due, including accumulated charges, fees and interest, in full, in cash or certified funds.

(3) Sixty (60) days delinquent. If the delinquency and all accumulated charges are not paid in full within thirty (30) days of the date of notice provided under Paragraph (2) above (sixty [60] or more days delinquent from the original due date), the Town shall assess a late fee in an amount established by resolution of the Board of Trustees and shall send a certified letter for the total amount due, including all accumulated charges, fees and interest. The certified letter shall notify the owner that he or she has thirty (30) days from the date of the letter to pay the total amount due, in full, in cash or certified funds.

(4) Ninety (90) days delinquent. If the delinquency and all accumulated charges are not paid in full within thirty (30) days of the date of the certified letter provided under Paragraph (3) above (ninety [90] or more days delinquent from the original due date), the Town shall assess an administrative fee in an amount established by resolution of the Board of Trustees and may pursue any or all of the following:

a. The Town may terminate water service to the property. At least fifteen (15) days prior to such termination, the Town shall post written notice of termination upon the property and mail notice of termination by regular mail to the property owner. To avoid termination, the owner must pay the Town, in cash or certified funds, the entire amount due. If service is terminated as provided herein, the owner must pay a reconnection fee in an amount established by resolution of the Board of Trustees.

b. The Town may file a lien against the served property for all delinquent fees, charges, interest and penalties, as well as a County Lien Recording Fee, as established by resolution of the Board of Trustees. All such amounts due constitute a lien which is prior and superior to all other liens, claims, titles and encumbrances, whether prior in time or not, and shall remain a lien on the property from the date such fees are delinquent until the same are paid. The failure of the Town to record such lien with the County Clerk and Recorder shall not affect the validity or enforceability of the Town's statutory lien rights or any other remedies the Town may have to collect the amounts due and owing. The property owner shall be liable for all sewer services furnished and fees and charges for said property. The lien against the property or liability against the owner may be enforced by the Town by action of law or an action to enforce the lien. The Town shall in no event be required to look to any person other than the owner of the real property served by the sewer system.

c. The Town may certify all due and unpaid fees, charges, interest, penalties and amounts to the County Treasurer for collection in the same manner as other general taxes upon such property are collected.

(5) No payment plans for payment of delinquencies over time to delay enforcement shall be authorized.

(6) No error or mistake in Town records or billings, past or present, shall constitute an estoppel or waiver or otherwise prevent the Town from billing, collecting or enforcing the correct amount of any amount owed.

(7) No change in ownership or occupancy shall affect the application of this Section or any of the provisions of this Section, and the failure of any owner to learn that he or she purchased any property against which a lien for sewer service or tap fee exists shall in no way affect the lien against any property for such payment in full or be the basis for any claim of any kind whatsoever against the Town for refusing to turn on sewer service until charges are paid in full.

(8) Record of payments. The Town will maintain records of all sewer fees and charges paid and an up-to-date record of delinquent charges, in accordance with accepted accounting procedures.

(e) In the sole discretion of the Board of Trustees, the Town may agree to provide sewer service to real property located outside the Town limits. All other provisions of this Section, including but not limited to the remedies available to the Town in the event of nonpayment, shall apply to real property located outside the Town limits that is provided sewer service by the Town.

(f) Responsibility of owner. Each property owner with real property within the limits of the Town shall:

- (1) Determine whether his or her property has sewer service provided by the Town.
- (2) Determine whether the owner is receiving billings from the Town for all sewer service provided to the owner's property.
- (3) Provide written notice to the Town within thirty (30) days of billing if the owner believes the Town's billing is incorrect.
- (4) If the owner's property is connected to the Town sewer system but is not receiving any billing, provide written notice to the Town of such fact and how long he or she has been receiving such sewer service. In such case, the Town may bill and collect from the owner for such past sewer charges and fees at such rates as are set forth in this Article and in the manner set forth hereinabove for billing collection of sewer service charges and fees. (Ord. 671 §1, 2009; Ord. 725 §6, 2013)

Sec. 13-29. Owner's responsibility for compliance.

The owner of each property which is required to be connected to the Town sewer system by this Article shall do all things required by this Article to connect his or her property to the Town sewer system in compliance with the requirements of this Article within one hundred eighty (180) days of passage of the ordinance codified herein. If the property owner fails to connect his or her property to the Town sewer system when required by this Article, or otherwise fails to comply with any requirements of this Article, the Town may, at its option, do one (1) or more of the following:

- (1) Have such work performed at the owner's expense and bill and collect the expense of such work in the same manner as provided in Section 13-28 above for sewer user fees; and/or
- (2) Terminate water service to the affected properties as provided in Section 13-28. (Ord. 346 §9, 1992; Ord. 435 §1, 1996)

Sec. 13-30. Service lines; demolished buildings.

Service lines not attached to a building or structure are not permitted. When a building or structure becomes demolished or abandoned, service lines shall be terminated at the main within thirty (30) days. All costs shall be borne by the owner of the property previously served by the line. (Ord. 346 §10, 1992)

Sec. 13-31. Unauthorized use of sewer system.

No person shall cause any substance to be placed into any portion of the Town sewer system which shall tend to fill up or obstruct the flow of sewer in the system, or that shall tend to pollute the effluent therein. No person shall cause or permit any hazardous substance regulated by state or federal law to be placed in the sewer system. (Ord. 346 §11, 1992)

Sec. 13-32. Repairs and maintenance.

The Board of Trustees reserves the right to temporarily suspend sewer service in any main or branch line of the municipal sewer system for the purpose of repair and maintenance of the system at any time. (Ord. 346 §13, 1992)

Sec. 13-33. Vandalism.

No person shall damage, injure, deface, impair or tamper with any part of the municipal sewer system or appurtenance thereof. (Ord. 346 §14, 1992)

Sec. 13-34. Penalty.

Any person found guilty of intentionally violating the provisions of this Article shall be guilty of a misdemeanor and upon conviction thereof shall be punished as set forth in Section 1-72 of this Code. (Ord. 346 §15, 1992; Ord. 435 §1, 1996)

Sec. 13-35. Immunity from suit.

The Town, its agents and employees shall be immune from any suit, obligation or claim for damages resulting from or arising out of, directly or indirectly, any act or failure to act under this Article. (Ord. 346 §16, 1992)

Secs. 13-36—13-50. Reserved.

ARTICLE III

Water System

Sec. 13-51. Construction standards.

Construction of all water distribution lines, service lateral lines and appurtenances shall be done in accordance with the Nederland Water and Sanitary Sewer Standards and Specifications as adopted and amended. (Ord. 345 §1, 1992; Ord. 435 §1, 1996)

Sec. 13-52. Development costs.

(a) Any person desiring to connect to the Town water system to serve his or her private property shall pay the entire cost of extension of the Town water service to his or her property if such connection requires an extension of the Town water distribution main. Ownership of all water main lines so extended along with any other improvements made to the water main distribution system shall be transferred to the Town upon construction acceptance.

(b) Any and all engineering fees incurred by the Town associated with any water distribution main extension shall be reimbursed by the owner/applicant to the Town.

(c) In the event the applicant has installed a water distribution main extension that may serve other users or if the Town has determined that oversizing of a main is necessary, the Town may, at its discretion, enter into an agreement with the applicant to enable the applicant at or prior to the date of installation to recover a portion of the cost overage of such installation as future connections are made.

(d) All measuring or mechanical appliances or devices that are attached to or used in connection with the Town's water system shall meet all standards and requirements established by the Town. In those instances where the Town Administrator deems it more efficient to do so, he or she may require

individuals or entities seeking to connect to or use the Town's water system to purchase measuring or mechanical appliances or devices from the Town. In those instances where the Town provides measuring or mechanical appliances or devices to those seeking to connect to or use the Town's water system, the Town shall charge twenty percent (20%) in addition to the cost of such appliances or devices to compensate the Town for the time and expense involved in acquiring and providing such appliances or devices. (Ord. 345 §2, 1992; Ord. 564 §2, 2002)

Sec. 13-53. Water connection required.

All structures which are required to have water service and which are on lots that are located within two hundred (200) feet of an operational water distribution main of the Town shall be required to connect to and use the municipal water system. The Board of Trustees may grant variances to this requirement based upon the following criteria:

(1) No additional wells shall be constructed in the Town unless the Board of Trustees has determined that service to an area is technically or financially unfeasible. Any engineering determination shall be either conducted or reviewed by the Town's engineers and the Board of Trustees at the applicant's expense.

(2) Any private well in existence and being used as of March 4, 1986, may continue to be used until such time as the well would need to be recased, redrilled, expanded or improved in any manner other than regular maintenance. At such time, the private well user shall be required to connect to the municipal water supply.

(3) Any private well in existence as of March 4, 1986, shall not serve additional users or purposes other than those which it is currently serving.

(4) Any property which can reach a Town water distribution main within two hundred (200) feet through an existing utility easement or a public street or road shall be required to connect to the Town water system. When an easement or public street or road does not exist, the Board of Trustees may waive this requirement if it finds undue hardship or expense will be incurred to acquire a private easement which is adequate to extend the water service to the property. (Ord. 345 §3, 1992; Ord. 435 §1, 1996)

Sec. 13-54. Water service application.

(a) An application to extend water services shall be initiated to the Board of Trustees, requesting a water tap into the Town water system. The fee for obtaining water service shall include a plant investment fee (P.I.F.) and a mechanical connection fee (connection fee), as required in Section 13-58 below.

(b) All P.I.F. and connection fees shall be paid in full before a building permit will be issued. Once water service is granted, a work order will be issued to the Public Works Department authorizing a water tap. A record of all such permits shall be maintained by the Town. As a minimum, each application shall contain:

(1) The name of the person for whose benefit such permit shall be granted;

- (2) Identification of the property and property owner for which such permit shall be granted;
- (3) The size of the tap;
- (4) The estimated point at which such tapping is to be done;
- (5) The location on the structure to which the water is to be connected; and
- (6) The contemplated use of the water, whether it is residential (single-family or multifamily), commercial or industrial, including a detailed description of a commercial or industrial use.

(c) No person shall uncover, make any connections with or opening into, use, alter or disturb any water line, hydrant or other part of the Town's water system or appurtenances to that system without first obtaining a written permit from the Board of Trustees. All construction or excavation activity occurring in a public right-of-way must be approved by the Public Works Department and a right-of-way permit be issued by the Town prior to beginning any such construction or excavation. Any other provisions of this Code notwithstanding, due to the substantial risk to the public's health and safety posed by violations of this Section, any person found guilty of violating this Section shall be fined in the amount of five hundred dollars (\$500.00) for a first offense and in the amount of one thousand dollars (\$1,000.00) for each second or subsequent offense. In addition, such violator shall pay restitution to the Town for any damage to the Town's water system or any appurtenances thereof and for any water illegally taken from the Town. Nothing in this Section shall be construed to limit or interfere in any manner with the ability of authorized personnel to connect to the Town's water system for the purpose of emergency fire fighting.

(d) All costs and expenses directly due to or incidental to the installation and connection of a water service line, including corporation valves, curb valves, curb boxes, service line shutoff valves, water meters and remote meters, shall be paid by the property owner connected or connecting to the Town's water system. The property owner having a water service line installed shall indemnify the Town from any loss or damage that may be directly or indirectly due to said installation.

(e) All connections to the Town water system shall be made by a duly authorized employee of the Town or a qualified contractor, approved in advance by the Town, who shall give twenty-four-hour notification of his or her intent to begin, and shall be supervised by the Public Works Department. A qualified contractor, approved in advance by the Town, shall install all service line shutoff valves, water meters and remote water meters. The Town shall inspect and approve such installation.

(f) For a three-fourths-inch or a one-inch tap, the Town shall provide, at the property owner's expense, the corporation valve, curb valve, curb box, service line shutoff valve, water meter and remote meter readout to ensure uniformity of parts used in the installations. For taps greater than one (1) inch, the property owner shall purchase the aforementioned items and said items shall be approved by the Public Works Department prior to installation.

(g) Upon completion of the tap, a complete description of the exact location of the tap, corporation valve, curb valve and service line shall be provided by the property owner to the Board of Trustees. The description shall include the legal description of the property served, distances from at least two (2) established property corners and/or permanent, obvious features of the surrounding

properties. This data shall be posted to the Town utility map. Failure to provide this data will result in the Town assessing a fee against the owner and the property to fund the research, including the cost of digging and surveying, if necessary, to provide this data for the Town records.

(h) Charging for and collection of user fees shall begin upon payment of the plant investment fees and will be billed to the owner by the Town as set forth herein.

(i) Alteration or extension of plumbing within any building inside the corporate limits of the Town shall be approved and authorized by a permit issued by the Building Department. All building classifications shall be determined by the Building Department as outlined in the Nederland Water and Sanitary Sewer Standards and Specifications, and any other ordinances, requirements or regulations as adopted and amended by the Town.

(j) Only one (1) property and one (1) use of the property shall be served by each water service line. Extensions of a single water service line to one (1) or more multiple buildings or uses on the same platted lot is prohibited if water is required for each structure under any Town ordinance. A separate water service line and tap is required for each separate building and each separate use on a single lot, except where specific exception is granted by the Board of Trustees. Any properties, uses or buildings on a single lot which currently are being served jointly by a single water service line shall be brought into conformance with the requirements of this Section within one hundred eighty (180) days of the date of passage of the ordinance codified herein by the property owner.

(k) Any additional demands created by an extension of plumbing may require a larger meter or service size as determined by the Town's ordinances and the Nederland Water and Sanitary Sewer Standards and Specifications. If a larger service is required, the property owner shall pay the difference between the cost of the existing and the new larger plant investment fee, monthly rates and installation.

(l) Extensions of the plumbing from an existing tract or lot to another tract or lot shall not be permitted, even if all such properties are commonly owned. Subdivisions or separate parcels shall require an additional and separate P.I.F., connection fee and water service line to be obtained and constructed for each parcel.

(m) Upon payment of the P.I.F. and connection fee, a tap shall be assigned to a property for which it was purchased and shall not be transferable to another property.

(n) The Town shall sell a water tap only to persons obtaining a building permit. In the event no building occurs within twelve (12) months or the building permit expires, the Town shall be entitled, at its option, to repurchase the tap at the same P.I.F. and connection fee paid to the Town, at any time thereafter, by giving written notice to the purchaser of the tap or the then-owner of the property. (Ord. 345 §4, 1992; Ord. 546 §1, 2001; Ord. 670 §1, 2009)

Sec. 13-55. Service lines.

(a) The property owner of any premises upon which water service is provided shall maintain and repair all water service lines and their fixtures from the water main into his or her structure so as to prevent any leakage or damage. Any such leakage or damage shall be immediately repaired at the property owner's expense.

(b) Upon written notice, the Board of Trustees may, in addition to other remedies provided in this Article, terminate water service to the property if the property owner fails to immediately stop all such leakage or to repair a damaged water service line.

(c) The property owner shall be responsible for all damage to the water system resulting from failure to properly maintain or repair his or her individual service line and appurtenances. Said owner shall pay for all costs of repair to damaged public property and for water loss estimated by the Town.

(d) Discharge of water to prevent freezing service lines or water mains is prohibited unless specifically authorized in writing by the Board of Trustees.

(e) Curb boxes and shutoff valves shall be kept accessible and in good repair at all times by the property owner. If the Town expends time or materials turning on or off water supply to a property, or repairing any leaking or damaged water service line or portion thereof, all costs incurred by the Town shall be paid by the property owner to the Town as water service charges and billed, collected and enforced as set forth in Section 13-58 below. (Ord. 345 §5, 1992; Ord. 539 §2, 2001)

Sec. 13-56. Easements.

(a) Each owner of property served by the Town water system shall grant to the Town an easement for any new construction of water service lines running through and across his or her property. Such easement shall include an easement for access by the Town to inspect and/or service, maintain and/or repair any water service line, corporation valve, curb box, water shutoff valve, water meter and/or remote meter readout, and any portion thereof. An easement agreement in form acceptable to the Town shall be signed by the property owner and a copy shall be filed and maintained by the Board of Trustees. Compensation for easements may be negotiated by the Board of Trustees for easements for water mains or lines serving more than one (1) property.

(b) If an easement for a service line through public or private property is necessary to gain access to a Town water main, the property owner of the property to be connected shall be required to submit a copy of the written easement to the Board of Trustees prior to any excavation of said property. (Ord. 345 §6, 1992)

Sec. 13-57. Water meters.

(a) The Town will maintain a record describing each meter installation to include the meter type and location, tap size and use type, installation date, the building and use which is to be served and certification of inspection.

(b) Meters will be read at least quarterly by a designated representative of the Town. Commercial meters may be read more often and billed on a different schedule than residential meters.

(c) User fees for water services and usage shall be the responsibility of the owner of the property and will be billed and assessed only to the owner of the property, regardless of any agreement between the owner or any other party for reimbursement.

(d) No person shall tamper with, alter or deface a water meter. Any person who shall tamper with, alter or deface a water meter shall be charged with a misdemeanor.

(e) No person shall knowingly misrepresent water meter readings. Any person knowingly misrepresenting water meter readings shall be charged with a misdemeanor. (Ord. 345 §7, 1992; Ord. 435 §1, 1996; Ord. 671 §2, 2009)

Sec. 13-58. Fees and payments.

(a) Fees.

(1) Water user fees. Water user fees shall consist of a monthly available service fee ("base fee") which shall be assessed for each tap and each building served and for each separate use on the property with a three-fourths-inch tap. Taps larger than three-fourths ($\frac{3}{4}$) of an inch may be assessed a base fee higher than the three-fourths-inch base fee. Base fees shall be billed whether the property is actually connected to the Town water system or is required by this Article or any prior ordinance of the Town to be connected to the system. In addition to the base fee, a monthly water usage fee ("usage fee") shall be charged to each property with a water meter. The usage fee shall be for the amount of water consumed since the last meter reading, as established by the water meter for such structure or unit.

a. If multiple units are served by the same tap, they shall be assessed the related multiple number times the base fee for the tap size used.

b. Any building with one (1) or more users shall be assessed a base fee rate for each separate use on the property.

c. The Town will bill the property owner at least quarterly for water service. Commercial meters may be read more often and billed on a different schedule than residential meters. Failure by the Town to so notify a water user shall not constitute a waiver of any fee or charge imposed by this Article. It shall be the owner's responsibility at all times to provide the Town, in writing, with a current billing address. Unless written notice of a billing address signed by the property owner is received by the Town, the Town will send bills to the address shown in the records of the County Treasurer.

d. As of January 1, 2009, all water users must have a water meter pursuant to Section 37-97-103, C.R.S. The property owner, at his or her own expense, shall be required to provide a water meter and remote device. Failure to comply with this requirement within sixty (60) days of official notification of a missing meter shall result in the water base fee and user rates being charged at a flat rate fee of two (2) times the past billing or the amount established by resolution of the Board of Trustees, whichever is greater. Prior to this time, the user will be charged the same as his or her past billing. If a meter is not installed within six (6) months, a fifteen-day shut-off notice will be posted.

(2) Water plant investment fees. Tap sizes used for determining plant investment fees shall be based upon a needs analysis derived from the International Plumbing Code as adopted and amended by the Town. Plant investment fees shall be charged according to the needs analysis and payment accepted only at the time of a building permit. In the event connection is made to the Town's water system without having paid the water plant investment fee in advance of such connection, the owner of the property shall pay to the Town a P.I.F. penalty fee in addition to the water plant investment fee in effect at the time such connection is discovered by or disclosed to

the Town. If the owner fails or refuses to pay such penalty as well as the water plant investment fee, the Town may summarily terminate water service to the property without further notice. The amount of the penalty provided for in this Paragraph shall be as established by resolution of the Board of Trustees.

(3) Tapping fees. Tapping fees shall be charged in accordance with a fee schedule adopted and which may be amended by resolution of the Board of Trustees.

(4) Out-of-Town users. Out-of-Town users will be assessed one hundred fifty percent (150%) of the in-Town user fees, plant investment fees and tapping fees or the amount established by resolution of the Board of Trustees, whichever is greater.

(5) Town labor, equipment and materials. Fees for use of Town labor, equipment and purchase of materials shall be as follows:

a. Town labor, per person, per hour at the rate established by resolution of the Board of Trustees.

b. Town equipment is billed at the rate established by resolution of the Board of Trustees.

c. Materials supplied by the Town are billed at cost plus twenty percent (20%).

(b) Meters.

(1) Water meters and remote water meter readouts must be easily accessible and readable. If access or readability is impaired, the property owner, at his or her own expense, shall be required to relocate the meter and remote device to a location that will allow the Public Works Department to obtain meter readings. Failure to comply with this requirement within fifteen (15) days of official notification of inaccessibility or unreadability shall result in water meter rates being charged at a flat rate fee of two (2) times the past billing or the amount established by resolution of the Board of Trustees, whichever is greater. If the readability issues are not corrected within three (3) months, a fifteen-day shut-off notice will be posted.

(2) Water meters must be in working order. If the water meter is broken, the property owner, at his or her own expense, shall be required to fix or replace the meter and/or remote device. Failure to comply with this requirement within sixty (60) days of official notification of a broken meter shall result in water meter rates being charged at a flat rate fee of two (2) times the past billing or the amount established by resolution of the Board of Trustees, whichever is greater. Prior to this time, the user will be charged the same as his or her past billing.

(3) If any meter fails to register in any billing period and has not been temporarily disconnected by notification to the Town, the owner shall be charged according to the average quantity of water used in a similar period as shown by the meter when in order.

(c) Billing.

(1) Billing for water service and any other notices relating to the water services are effective on the date that they are deposited in the mail addressed to the last known address of the owner as shown on the records of the Town.

(2) Any owner who, at the time of passage of the ordinance codified herein, has property connected to the Town water system and who has not received bills from the Town for water service, or who has not paid plant investment fees or tap fees for such connection, will be billed and shall be responsible for payment for such past water service as follows:

a. The base fee for the thirty-six-month period immediately preceding the date of passage of the ordinance codified herein;

b. A usage fee for the thirty-six (36) months immediately preceding passage of the ordinance codified herein;

c. Any unpaid connection fees and PIF;

d. Such owners shall include those persons whose properties are connected to the Town water system but: 1) whose property has no record of billing or payment with the Town; or 2) who has tapped into the Town water system without permission;

e. All fees and charges which accrue and remain unpaid after the date of the ordinance codified herein; and

f. Nothing herein shall limit the time or charges for which the Town may assess and demand payment of fees and charges in the event of the unlawful or unauthorized tapping of a water main without the Town's approval.

(d) Delinquencies, penalties and collection. An account shall be delinquent if not paid within thirty (30) days of mailing the bill. In the event an account is delinquent, the Town may initiate the following late fee, interest and collection procedures:

(1) The Town shall assess interest on any delinquent amounts on a monthly basis in the amount of one and one-half percent (1.5%) per month or eighteen percent (18%) per annum.

(2) Thirty (30) days delinquent. The Town shall assess a late fee in an amount established by resolution of the Board of Trustees and shall mail, by regular mail, to the property owner at its billing address, a notice of delinquency. The notice shall notify the property owner that he or she has thirty (30) days from the date of said notice to pay the total amount due, including accumulated charges, fees and interest, in full, in cash or certified funds.

(3) Sixty (60) days delinquent. If the delinquency and all accumulated charges are not paid in full within thirty (30) days of the date of notice provided under Paragraph (2) above (sixty [60] or more days delinquent from the original due date), the Town shall assess a late fee in an amount established by resolution of the Board of Trustees and shall send a certified letter for the total amount due, including all accumulated charges, fees and interest. The certified letter shall notify the owner that he or she has thirty (30) days from the date of the letter to pay the total amount due, in full, in cash or certified funds.

(4) Ninety (90) days delinquent. If the delinquency and all accumulated charges are not paid in full within thirty (30) days of the date of the certified letter provided under Paragraph (3) above (ninety [90] or more days delinquent from the original due date), the Town shall assess an administrative fee in an amount established by resolution of the Board of Trustees and may pursue any or all of the following:

a. The Town may terminate water service to the property. At least fifteen (15) days prior to such termination, the Town shall post written notice of termination upon the property and mail notice of termination by regular mail to the property owner. To avoid termination, the owner must pay the Town, in cash or certified funds, the entire amount due. If service is terminated as provided herein, the owner must pay a reconnection fee in an amount established by resolution of the Board of Trustees.

b. The Town may file a lien against the served property for all delinquent fees, charges, interest and penalties as well as a County Lien Recording Fee, as established by resolution of the Board of Trustees. All such amounts due constitute a lien which is prior and superior to all other liens, claims, titles and encumbrances, whether prior in time or not, and shall remain a lien on the property from the date such fees are delinquent until the same are paid. The failure of the Town to record such lien with the County Clerk and Recorder shall not affect the validity or enforceability of the Town's statutory lien rights or any other remedies the Town may have to collect the amounts due and owing. The property owner shall be liable for all water services furnished and fees and charges for said property. The lien against the property or liability against the owner may be enforced by the Town by action of law or an action to enforce the lien. The Town shall in no event be required to look to any person other than the owner of the real property served by the water system.

c. The Town may certify all due and unpaid fees, charges, interest, penalties and amounts to the County Treasurer for collection in the same manner as other general taxes upon such property are collected.

(5) No payment plans for payment of delinquencies over time to delay enforcement shall be authorized.

(6) No error or mistake in Town records or billings, past or present, shall constitute an estoppel or waiver or otherwise prevent the Town from billing, collecting or enforcing the correct amount of any amount owed.

(7) No change in ownership or occupancy shall affect the application of this Section or any of the provisions of this Section, and the failure of any owner to learn that he or she purchased any property against which a lien for water service or tap fee exists shall in no way affect the lien against any property for such payment in full or be the basis for any claim of any kind whatsoever against the Town for refusing to turn on water service until charges are paid in full.

(8) Record of payments. The Town will maintain records of all water fees and charges paid and an up-to-date record of delinquent charges, in accordance with accepted accounting procedures.

(e) In the sole discretion of the Board of Trustees, the Town may agree to provide water service to real property located outside the Town limits. All other provisions of this Section, including but not limited to the remedies available to the Town in the event of nonpayment, shall apply to real property located outside the Town limits that is provided water service by the Town.

(f) Responsibility of owner. Each property owner with real property within the limits of the Town shall:

(1) Determine whether his or her property has water service provided by the Town.

(2) Determine whether the owner is receiving billings from the Town for all water service provided to the owner's property.

(3) Provide written notice to the Town within thirty (30) days of billing if the owner believes the Town's billing is incorrect.

(4) If the owner's property is connected to the Town water system but is not receiving any billing, provide written notice to the Town of such fact and how long he or she has been receiving such water service. In such case, the Town may bill and collect from the owner for such past water charges and fees at such rates as are set forth in this Article and in the manner set forth hereinabove for billing collection of water service charges and fees. (Ord. 671 §3, 2009; Ord. 725 §7, 2013)

Sec. 13-59. Miscellaneous.

(a) In cases of unusual and extreme hardship because of circumstances beyond the control of the owner and unique to the owner's property, an applicant may request the Board of Trustees to consider, and the Board of Trustees may grant, a delayed payment schedule of fees as established by resolution of the Board of Trustees. An administrative fee shall be assessed for each application in the amount as set forth in Section 4-151 (nonrefundable) whenever the delayed payment is requested by the applicant. In the discretion of the Board of Trustees, the administrative fee may be reduced or waived where the fee would impose an undue hardship on the applicant, or the administrative fee may be increased where the processing and/or monitoring of the delayed payment plan will require an unusual amount of administrative time. Any unpaid balance due shall be considered a lien upon the property as provided for in Section 13-58 above. Such unpaid balance may be collected by the Town as set forth in Section 13-58 above, and the Town may discontinue water service as set forth therein.

(b) All active water taps of the Town water system shall be required to have a water meter and a remote water meter readout of a type specified by the Nederland Water and Sanitary Sewer Standards and Specifications as adopted by the Town, and shall be installed and maintained in accordance with those standards. The meter and associated plumbing shall be maintained at the expense of the property owner. Initial installation and all modifications to the water meter and remote water meter shall be performed by the Town and the meter shall be kept sealed. The Town shall charge the cost of the meter and/or remote meter and installation and repair to the owner. Reimbursement for such cost may be billed, collected and enforced by the Town as set forth in Section 13-58 above.

(c) Only one (1) water meter and remote water meter is allowed per tap. (Ord. 345 §9, 1992; Ord. 435 §1, 1996; Ord. 582 §5, 2003)

Sec. 13-60. Owner's responsibility for compliance.

The owner of each property which is required to be connected to the Town water system by this Article shall do all things required by this Article to connect his or her property to the Town water system in compliance with the requirements of this Article within one hundred eighty (180) days of passage of the ordinance codified herein. If the property owner fails to connect his or her property to the Town water system when required by this Article, or otherwise fails to comply with any requirement of this Article, the Town may, at its option, do one (1) or more of the following:

(1) Have such work performed at the owner's expense and bill and collect the expense of such work in the same manner as provided in Section 13-58 above for water user fees; and/or

(2) Terminate water service to the affected properties as provided in Section 13-58 above. (Ord. 345 §10, 1992; Ord. 435 §1, 1996)

Sec. 13-61. Resumption of services.

After termination of water services, such services shall not be resumed until all delinquent payments are made on the affected property, together with the delinquent charges as provided in this Article. Thereupon, water services shall be restored to the affected property. (Ord. 345 §11, 1992)

Sec. 13-62. Service lines; demolished buildings.

Service lines not attached to a building or structure are not permitted. When a building or structure becomes demolished or abandoned, service lines shall be terminated at the main within thirty (30) days. All costs shall be borne by the owner of the property previously served by the line. (Ord. 345 §12, 1992)

Sec. 13-63. Unauthorized use of water.

No person shall procure water from any hydrant or any service line or main. No person shall use the water from any part of the water works without a Town permit, nor shall any person without lawful authority open any fire plug, stopcock, valve or other fixture pertaining to such works. No water from fire plugs shall be used by any person other than authorized personnel or agents designated in writing by the Town. A person violating any provision of this Section shall be charged with a misdemeanor. (Ord. 345 §13, 1992)

Sec. 13-64. Pollution of Town water supply.

No person shall cause any substance to be placed into any reservoir, stream, trench, pipe or drain that is used in or necessary for the construction, maintenance or operation of the Town water supply which shall tend to fill up or obstruct the flow of water in such stream, trench, pipe or drain, or tend to contaminate the water therein. (Ord. 345 §14, 1992)

Sec. 13-65. Repairs and maintenance.

The Town reserves the right to temporarily suspend water service in any main or service line of the municipal water system for the purpose of repair and maintenance of the system at any time without notice. (Ord. 345 §15, 1992; Ord. 435 §1, 1996)

Sec. 13-66. Vandalism.

No person shall damage, injure, deface, tamper with or impair any part of the municipal water system or appurtenances thereof, including but not limited to the water shutoff valves, water meters and remote water meters. (Ord. 345 §16, 1992)

Sec. 13-67. Penalty.

Any person found guilty of intentionally violating the provisions of this Article, shall be guilty of a misdemeanor and upon conviction thereof shall be punished as set forth in Section 1-72 of this Code. (Ord. 345 §17, 1992; Ord. 435 §1, 1996)

Sec. 13-68. Immunity from suit.

The Town, its agents, officials, and employees shall be immune from any suit, obligation or claim for damages resulting from or arising out of, directly or indirectly, any act or failure to act under this Article. (Ord. 345 §18, 1992; Ord. 435 §1, 1996)

Sec. 13-69. Providing treated water for commercial resale purposes.

(a) No water shall be provided for the purpose of commercial resale, except in compliance with the provisions of this Section.

(b) No water shall be provided for the purpose of commercial resale until a fee in the amount equal to the plant investment fee (tap fee) applicable to a one-inch line for an out-of-Town water user has been paid. This fee is a one-time fee and is not required each time water is obtained.

(c) Water for commercial resale may be obtained only by connection at the Town Water Treatment Plant or such other place as may be designated from time to time by the Board of Trustees. Such connection shall be made only under the supervision of a Town employee and only after payment of a connection fee in the amount of one hundred dollars (\$100.00).

(d) Due to the importance of protecting the integrity of the Town's water system, and notwithstanding any other provisions of this Code regarding fines or penalties, any person found guilty of violating this Section shall be fined in the amount of five hundred dollars (\$500.00) for a first offense and in the amount of one thousand dollars (\$1,000.00) for each second or subsequent offense. In addition, such violator shall pay restitution to the Town for any damage to the Town's water system or any appurtenances thereof and for any water illegally taken from the Town. (Ord. 545 §1, 2001)

Sec. 13-70. Sale of water for private use other than through service lines.

In the sole discretion of the Board of Trustees, the Town may agree to provide water for private, noncommercial use of individual water users other than through a water service line. Any such water shall be provided subject to the following limitations:

(1) Water may be obtained only by connection at the Town Water Treatment Plant or such other place as may be designated from time to time by the Board of Trustees. Such connection shall be made only under the supervision of a Town employee.

(2) A fee shall be collected for such water in the amount of fifty dollars (\$50.00) per one hundred (100) gallons or any part thereof, with the minimum fee being fifty dollars (\$50.00).

(3) Due to the importance of protecting the integrity of the Town's water system, and notwithstanding any other provisions of this Code regarding fines or penalties, any person found guilty of violating this Section shall be fined in the amount of five hundred dollars (\$500.00) for a first offense and in the amount of one thousand dollars (\$1,000.00) for each second or subsequent offense. In addition, such violator shall pay restitution to the Town for any damage to the Town's water system or any appurtenances thereof and for any water illegally taken from the Town. (Ord. 544 §1, 2001)

Sec. 13-71. Water Conservation Program.

(a) Application. The Water Conservation Program set forth in this Article shall apply to all users of water supplied through the Town water system, including, without limitation, customers of any water and sanitation district or any public or private water supply company to which the Town supplies water.

(b) Notice. The Town Administrator may implement the Water Conservation Program adopted pursuant to this Article after twenty-four (24) hours' public notice, or upon publication in a newspaper of daily circulation in the Town, whichever occurs first, whenever in the Town Administrator's reasonable judgment such measures are necessary to maintain, conserve, replenish or protect the water supply of the Town. The Town Administrator, with the consent of the Board of Trustees, shall determine the extent and duration of any water conservation measures implemented. (Ord. 679 §1, 2010)

Sec. 13-72. Water conservation measures.

(a) The Town Administrator may prohibit or restrict the use of water from the Town water system or from any other source of water owned by the Town.

(b) The Town Administrator may impose water conservation measures, including, without limitation, the following:

(1) Restrictions limiting water which may be used for lawn irrigation or other purposes outside a residence, apartment, commercial or industrial building or any other structure on a schedule established by the Town Administrator.

(2) Restrictions on filling swimming pools.

(3) Restrictions on vehicle washing, including, without limitation, the restriction that vehicles may be washed only with a bucket or a hose running with an automatic shut-off nozzle but not with any free-running hose.

(4) Restrictions on the hours during which water may be utilized for outside irrigation of laws, gardens or landscaping.

(5) A moratorium on out-of-Town water permits under which no new permits to take or use water from the Town water system to serve property located outside the Town's corporate limits are issued.

(6) If the Town Administrator imposes a moratorium on out-of-Town water permits, the Town Administrator may, upon recommendation of the Director of Public Works, permit special requests to the Board of Trustees and only upon a written finding of extreme hardship resulting in immediate danger to life or property. The Town Administrator may impose such reasonable conditions upon the grant of any exception authorized herein as the Town Administrator deems advisable.

(c) Before any water conservation measure is adopted, implemented or otherwise imposed by the Town Administrator, such measure shall be approved by the Board of Trustees. (Ord. 679 §1, 2010)

Sec. 13-73. Special permits.

(a) When water conservation measures are in effect pursuant to Section 13-72 above, the Director of Public Works may issue special permits to authorize additional water use as follows:

(1) For watering newly sodded lawns, each day for a period not exceeding fourteen (14) consecutive days;

(2) For watering newly seeded lawns, each day for a period not exceeding twenty-five (25) consecutive days;

(3) For periodic watering of outside stock at nurseries, greenhouses and stores;

(4) When there are circumstances that do not permit a water user to deliver three-fourths ($\frac{3}{4}$) of an inch of water per week on landscaped grounds of the user's premises, if the water user submits a plan describing the area to be served and the method to be used to deliver an adequate amount of water; and

(5) For water schedules otherwise prohibited, in cases of a clear and present hardship.

(b) An applicant for a special permit shall pay the special permit fee established by resolution of the Board of Trustees pursuant to Section 4-151 of this Code and apply in writing on forms provided by the Town that contain the following information: the reasons for requesting the permit; the period of time for which the permit is requested; the area or address of the premises to which such permit applies; for requests for additional watering times, a plan describing the area for which the permit is requested and a description of the method to be used to deliver an adequate amount of water to the area; and such other applicable information as the Director of Public Works may reasonably request in order to review the application.

(c) The application shall be submitted to the Director of Public Works, who shall review all requests for special permits and approve, deny or conditionally approve each request. If the Director of Public Works denies the application or approves it with conditions, the applicant may, within five (5) days of receiving the decision, request a hearing before the Town Administrator. The Town Administrator shall hear the applicant's appeal within seven (7) days of receiving the request and

render a decision thereon as soon as practical thereafter. The Town Administrator's decision shall constitute the final decision of the Town.

(d) The holder of each special permit shall post the permit in a conspicuous place on the premises to which the permit applies so that it is readily visible from the street in front of or abutting the premises.

(e) No person who holds a special permit shall transfer that permit from the premises for which the permit is issued to any other premises or location. Any attempt to do so voids the permit.

(f) If any person holding a permit under this Section violates any condition of the permit, the Director of Public Works may revoke the permit, after affording the permittee an opportunity for a hearing before the Town Administrator. Before such hearing, the Director may suspend the permit for up to twenty (20) days if the Director finds that the public health, safety and welfare requires such suspension.

(g) The Town Administrator may establish such additional procedures as deemed necessary for the review and processing of special permit applications.

(h) The Town Administrator may establish a moratorium on the issuance of some or all of the special permits authorized by this Section. (Ord. 679 §1, 2010)

Sec. 13-74. Enforcement of water conservation measures.

No owner and no occupant of a premises receiving municipal water shall fail to comply with the provisions of Section 13-55 of this Chapter, concerning the repair and maintenance of water service lines and fixtures, and Sections 13-71 through 13-73 above. Violations of the provisions of these sections during any time when water conservation measures have been imposed by the Town Administrator pursuant to Section 13-72 are subject to imposition of the following penalties:

(1) Administrative charges:

a. For a first violation within a twelve-month period, the Director of Public Works shall notify the owner in writing of the violation and that a fifty-dollar water waste charge is due, payable and collectable pursuant to the provisions of this Chapter within ten (10) days of the date of the notice.

b. For a second violation within a twelve-month period at the same premises, the Director of Public Works shall notify the owner in writing of the violation and that a one-hundred-dollar water waste charge is due, payable and collectable pursuant to the provisions of this Chapter within ten (10) days of the date of the notice.

c. For a third or any subsequent violation within a twelve-month period at the same premises, the Director of Public Works shall notify the owner in writing of the violation and that a three-hundred-dollar water waste charge is due, payable and collectable pursuant to the provisions of this Chapter within ten (10) days of the date of the notice.

d. The notice of the water waste charge shall be served no later than thirty (30) days after the Director of Public Works learns of the violation and the identity of the owner of the property. Service shall be upon the owner of the property in person or by first-class or certified mail addressed to the last known owner of the property on the records of the County Assessor. The Director may send copies of the notice to such occupants of the property or agents of the owner as the Director deems useful. The notice shall advise the owner of the right to a hearing under Subparagraph e. below and that, if payment of the water waste charge is not received by the Town or a hearing requested within the ten (10) days, the water waste charge, together with a fifteen-dollar administrative processing fee, will appear on the next regular water bill.

e. The owner of the property notified of a water waste charge, or any agent of the owner authorized in writing by the owner, may file a written request for a hearing regarding the factual basis for imposing the charge with the Town Administrator within ten (10) days of the date of the notice. The request must identify the notice being appealed by attaching a copy or otherwise identifying it, and shall contain the name, address and telephone number of the person to whom notice of the date, time and place of the hearing should be given. Filing occurs when the Town Administrator receives the request. The Town bears the burden of establishing the factual basis for imposing the water waste charge by a preponderance of the evidence and, if that basis is established, the Town Administrator shall order the charge paid within ten (10) days, subject to the fifteen-dollar administrative fee and the collection procedures of this Chapter if not paid within that time. Failure to request a hearing within the time provided or attend any such hearing constitutes a waiver of the right to such hearing and a determination of all issues then existing as supporting the factual basis for imposing the water waste charge.

(2) Additional remedies: After three (3) notices of a water waste charge have been served upon an owner pursuant to this Section within any twelve-month period, in addition to or in lieu of a further notice of a water waste charge, the Director of Public Works may, in his or her discretion:

a. Cut off water: Suspend water service to the premises for a period of time not to exceed thirty (30) days after giving notice and an opportunity for a hearing before the Town Administrator. The owner of the premises is responsible for paying the charges required for termination of service and for resumption of service before service, if suspended, is resumed. The Director may reduce the period of suspension or hold a threatened suspension in abeyance if the owner presents and implements a plan acceptable to the Director to prevent further violations; and

b. Criminal penalties: Prosecute violators in Municipal Court pursuant to the provisions of Article IV of Chapter 1 of this Code and the normal procedures of a Municipal Court prosecution.

Proof of evidence: In order for the Director to proceed under this Paragraph, it is sufficient that the Director prove, by a preponderance of the evidence, that the three (3) predicate notices were properly served and that they were for alleged violations which all took place within twelve (12) months of each other. (Ord. 679 §1, 2010)

Secs. 13-75—13-80. Reserved.

ARTICLE IV

Construction Standards and Specifications

Division 1 General Provisions

Sec. 13-81. Scope.

The purpose of these Water Main and Sanitary Sewer Specifications is to set forth the criteria to be used in the design and construction of water mains and sanitary sewers to be accepted by and dedicated to the Town. (Ord. 435 §1, 1996)

Sec. 13-82. General.

The provisions stipulated in this Section are general in nature and shall be considered as applicable to all parts of these standards and specifications, including any supplements and revisions. All water mains, sanitary sewers and appurtenances shall be designed by or prepared under the direct supervision of a registered Professional Engineer, licensed to practice in the State. All drawings, specifications and calculations submitted to the Town for review shall be signed by a licensed Professional Engineer and shall bear his or her registration number and seal. He or she shall be responsible for the overall adequacy of design and shall include additional provisions not covered in these standards and specifications where required to provide proper functioning and construction for conditions encountered. (Ord. 435 §1, 1996)

Sec. 13-83. Definitions and abbreviations.

(a) Whenever the following words, phrases or abbreviations appear in these specifications, they shall have the following meanings:

Consultant means a person, partnership or corporation duly registered as a professional engineer according to state statutes who is hired by the Contractor and is empowered to act as his or her agent.

Contractor means a person, partnership or corporation in overall charge of a development or who subsequently becomes owner of properties for which the water mains and sanitary sewers are being designed and installed. The contractor shall be or shall employ persons duly licensed in the State for construction of water mains and sanitary sewers.

Director means the Director of Public Works or his or her authorized representatives acting on behalf of the Town. The Director shall have the authority to ascertain that all design and construction of facilities are equal to or better than the minimum requirements set forth in these specifications.

Guest house means an accessory building which is physically detached from a single-family dwelling unit, is serviced through the same utility meters or connections as the principal use, and is intended for occupancy only by guests of the family residing in the single-family dwelling. Kitchen facilities are not allowed.

Inspector means an authorized representative of the Director assigned to make detailed inspections of compliance with these standards and specifications.

Town ordinances means the official adopted ordinances of the Town.

Water mains and *sanitary sewers* mean any pipe intended to serve two (2) or more service connections.

(b) Wherever the words *as directed, as required, as permitted* or words of like meaning are used, it shall be understood that the direction, requirement or permission of the Director is intended. Similarly, the words acceptable and satisfactory shall refer to acceptance by the Director.

(c) Whenever references are made to *standard specifications, methods of testing materials, codes, practices and requirements*, it shall be understood that the latest revision of said references shall govern unless a specific revision is stated. Wherever any of the following abbreviations appear, they shall have the following meaning:

<i>Abbreviation</i>	<i>Meaning</i>
<i>ANSI</i>	American National Standards Institute
<i>ASTM</i>	American Society for Testing and Materials
<i>AWWA</i>	American Water Works Association
<i>NFPA</i>	National Fire Protection Association

<i>Abbreviation</i>	<i>Meaning</i>
<i>COSHA</i>	Colorado Occupational Safety and Health Administration
<i>OSHA</i>	Occupational Safety and Health Administration
<i>UBC</i>	International Building Code, International Conference of Building Officials, latest edition
<i>UPC</i>	International Plumbing Code, International Association of Plumbing and Mechanical Officials, latest edition
<i>USGS</i>	United States Geological Survey

(d) Wherever the words *these specifications* or words of similar connotation are used, it shall be understood that reference is made to the Town Water Main and Sanitary Sewer Standards and Specifications. (Ord. 435 §1, 1996)

Sec. 13-84. Drawings, specifications and calculations requirements.

(a) Drawings. All drawings for proposed water main and sanitary sewer construction shall be submitted to the Town for review and acceptance. Three (3) copies of drawings shall be submitted on 24" x 36" sheets; clean, clear and free from objectionable background. Overall plan shall be submitted along with individual plan and profile sheets.

(1) Overall plan drawings. Overall plan drawings shall contain the following:

- a. Title of proposed development.
- b. Location of streets and all street names labeled.
- c. Location of all lot lines for lots to be served and for adjacent lots.
- d. Block and lot numbers.
- e. Ties to range, township, section or property line.
- f. USGS datum and benchmark tied to Town datum. Include benchmark description.
- g. Vicinity map.
- h. Location of all proposed and existing easements and/or rights-of-way, with appropriate dimensions.
- i. Topography shall be indicated using two-foot vertical contour lines and USGS datum.
- j. Scale and north arrow.
- k. Existing and proposed utilities; including type, size and location of utilities with reference to property lines.
- l. Existing and proposed pipe size, material and classification.
- m. Water and sewer service lines location; including size and materials.
- n. Location of water service meters.
- o. Angles at alignment changes.
- p. Soil test boring locations, when applicable.
- q. Scale of the overall plan shall be between 1" = 20' and 1" = 50'.
- r. Traffic control plan for all proposed construction affecting existing roadways.

(2) Individual plan and profile drawings. In addition to the requirements for the overall plan drawings, individual plan profile drawings shall contain the following:

- a. Stationing on both plan and profile of all fittings, valves, service connections or tees, fire hydrants and manholes for proper control and future location.
- b. Dimensions, grade, existing ground elevation and proposed finished street grade for water mains.
- c. Dimensions, slope, manhole rim elevations, invert elevations into and out of manholes, existing ground elevation and proposed finished street grade for sanitary sewers.

d. Scales: horizontal – 1" = 20'; vertical – 1" = 5'.

(b) Specifications. The standards and specifications contained herein shall be the minimum technical specifications for construction of water mains and sanitary sewers. The consultant shall be responsible for determining the need for additional provisions not covered by these standards and specifications. The consultant shall submit, along with drawings for proposed water main and sanitary sewer, technical specifications that are part of contract documents for proposed construction of water mains and sanitary sewers. Where conflicts or ambiguities between these standards and specifications and those contained in contract documents for the proposed construction, the more stringent requirements shall govern as determined by the Director.

(c) Calculations. If, in the opinion of the Director, review of proposed construction drawings and specifications indicate that the proposed design does not meet the requirements of these standards and specifications, detailed design calculations for the proposed utilities may be required to be submitted by the consultant to the Director for review.

(d) Review and acceptance of drawings and specifications. Prior to the contractor beginning any construction on a water main or sanitary sewer, all construction drawings and specifications shall be accepted by the Director and the Water and Sewer Board. The Contractor shall allow time for review and shall coordinate his or her submittals with scheduled Water and Sewer Board meetings. The Director shall review said drawings, specifications and calculations and return them with either a letter of acceptance or a letter designating necessary revisions required to receive acceptance. Upon presentation of drawings and specifications revised in accordance with the letter designating revisions, the Director will accept the drawings and specifications without undue delay if such revisions are completely acceptable.

(e) Soils report. It shall be the responsibility of the consultant to determine the extent of evaluation of soils conditions. The Town reserves the right to require a complete soils report to be prepared for a development if subsurface abnormalities are suspected. If such a report is required, it shall be prepared by a registered Professional Engineer and shall contain adequate information to evaluate water main and sanitary sewer design submittals.

(f) Effective date. Construction drawings and specifications accepted by the Director shall be effective for a period not to exceed twenty-four (24) consecutive months from the official date of acceptance. After this period, the drawings and specifications shall be subject to further review by the Director to bring those portions of the drawings and specifications that are unconstructed into compliance with current Town standards and specifications.

(g) Changes to accepted drawings and specifications. Should circumstances warrant changes to the accepted drawings or specifications, the proposed revision shall be submitted to and acceptance shall be obtained from the Director. No work shall proceed on that portion of the project being revised until said revisions are submitted and accepted. Minor deviations from the drawings or specifications shall be by written permission from the Director or the Inspector.

(h) Record drawings. Prior to water main or sanitary sewer installation being placed in operation, two (2) sets of copies and one (1) reproducible Mylar set of record drawings, verifying all final elevations, utility locations and service locations and reflecting any and all changes to the original construction drawings shall be submitted to the Director. Record drawings shall be certified

as-recorded and signed by a registered Professional Engineer, licensed to practice in the State. Information recorded and certified as-recorded may be checked at random by a licensed surveyor hired by the Town. If drawings are submitted as record drawings and are found to be just copies of the original construction drawings without recorded information, or if the information contained on the record drawings does not agree with that checked by a surveyor hired by the Town, the engineer certifying the record drawings shall pay all costs associated with verifying information contained on the record drawings. (Ord. 435 §1, 1996)

Sec. 13-85. Acceptance of pipeline system by Town.

(a) The water main or sanitary sewer pipeline system shall be placed into operation or be released for service connections only after all required backfilling and surface restoration and all required cleaning, testing and inspection have been completed, record drawings have been submitted and accepted, and written permission has been granted by the Director. However, final acceptance of the system shall not take place for a warranty period of two (2) years from the date written permission is granted for placing the system into operation. During the two (2) year period, any defects in the system resulting from defective materials, poor workmanship, or any other cause attributable to the Contractor responsible for the construction of the system shall be corrected at the contractor's expense, and to the satisfaction of the Director.

(b) The Director may internally photograph a sanitary sewer line prior to final acceptance. Any defects revealed by this photography shall be corrected by the contractor. (Ord. 435 §1, 1996)

Sec. 13-86. Notice before commencement of work.

The contractor shall notify the Director at least twenty-four (24) hours before beginning any water main or sanitary sewer construction. If, for any reason, work should stop on a project during any stage of construction for a period of more than one (1) normal work day, it shall be the responsibility of the contractor to notify the Director, at least twenty-four (24) hours prior to any resumption of work on the project. If the contractor intends to work extended shifts, double shifts or hours other than the normal workday of Town personnel, he or she shall notify the Director at least twenty-four (24) hours prior to such extension, except in the event of an emergency. The contractor shall notify the Town Volunteer Fire Department twenty-four (24) hours prior to temporarily placing any fire hydrants out of service. (Ord. 435 §1, 1996)

Sec. 13-87. Traffic control.

The contractor shall be required to provide adequate construction signing, flagmen and barricades to warn vehicular and pedestrian traffic of work in progress and divert traffic as may be required during the course of construction. All signing shall be subject to the acceptance of the Director. When specifically authorized by the Director, portions of streets shall be allowed to be closed to traffic for construction. However, the contractor shall make every attempt to keep the time of closure of such streets to a minimum. It shall be the responsibility of the contractor to notify the Town Police and Volunteer Fire Departments twenty-four (24) hours prior to the closure of any street. (Ord. 435 §1, 1996)

Sec. 13-88. Rejected materials.

All materials installed shall be free of defects. Any defective or damaged materials found in the construction or on the construction site shall be marked and removed from the site. In the event the contractor fails to remove rejected materials from the construction site within a reasonable length of time, the Director may arrange for such removal at the expense of the contractor. (Ord. 435 §1, 1996)

Sec. 13-89. Contractor's responsibility.

It shall be the responsibility of the contractor to read and fully comply with all the provisions of these standards and specifications and all laws and regulations that apply to local and state agencies. (Ord. 435 §1, 1996)

Sec. 13-90. Safety requirements.

All water main and sanitary sewer installation in the Town shall be subject to current OSHA and COSHA safety requirements. It shall be the responsibility of the contractor to fully comply with these regulations and to provide the safety requirements for the contractor, his or her employees and the public during the time of construction. (Ord. 435 §1, 1996)

Sec. 13-91. Easements.

(a) Permanent. All water mains and sanitary sewers shall be installed in public rights-of-way. If it is impossible to place the water main or sanitary sewer in the public rights-of-way, permanent easements shall be obtained. All permanent easements shall be a minimum of twenty (20) feet wide and shall be mutually exclusive for the Town water main, sanitary sewer or storm drainage utilities.

(b) Construction easements. It shall be the responsibility of the contractor to determine the adequacy of the public right-of-way or permanent easement. If the contractor determines that a temporary construction easement is required to perform the work, it shall be the contractor's responsibility to obtain these easements. Any damage to property, either inside or outside the limits of easements, shall be the responsibility of the contractor. The contractor shall remove, protect and replace all fences or other items encountered on public or private property. Before final acceptance shall be authorized by the Director, the contractor shall be required to furnish the Town with written releases from property owners or public agencies where side agreements or special easements have been made by the contractor or where the operations of the contractor, for any reason, have not been kept within the permanent or temporary construction rights-of-way. (Ord. 435 §1, 1996)

Sec. 13-92. Protection of existing facilities.

(a) General. The contractor shall notify all utility companies and others affected by the work, prior to commencement of work in order to insure that services will not be interrupted during construction. The contractor shall be liable for all damages to existing structures and property, public or private, and he or she shall save the Town harmless from any liability or expense for injuries, damages or repairs to such facilities.

(b) Responsibility for repair. Should any utility be damaged in the construction operations, the contractor shall immediately notify the owner of such utility, and unless authorized by the owner of

the utility, the contractor shall not attempt to make repairs. In the event that, during construction it is determined that any underground utility conduit, including sewers, water mains, gas mains, drainage structures and electrical conduit, and any aboveground utility facilities are required to be relocated, the contractor shall notify the utility owner well in advance of his or her approach to such utility so that arrangements with the Town and/or owners of the affected utility can be made to complete the relocation without delay of the work. (Ord. 435 §1, 1996)

Secs. 13-93—13-110. Reserved.

*Division 2
Design Criteria*

Sec. 13-111. Preliminary submittals.

(a) General. A preliminary report and plan drawing shall be submitted to, reviewed by, and accepted by the Director prior to preparation of final water main and sanitary sewer construction drawings and specifications. Acceptance of these preliminary submittals shall constitute only a conceptual approval and shall not be construed as acceptance of specific design details.

(b) Report. The report shall include the following information:

(1) The estimated maximum and average water demand in gallons per minute (GPM) required for the developed area. The estimated maximum water demand shall be included for both the consumptive use and for the estimated required fire flow to meet the UBC Standards and the recommendations of the NFPA Handbook, latest edition, for the type of building assumed to be built.

(2) If the development is to include irrigation services, the approximate maximum irrigation water demand in GPM must be submitted separately.

(3) The initial and ultimate area, in acres, which could be served by the proposed sanitary sewer.

(4) The estimated population densities and total population to be served by the proposed sanitary sewer.

(5) The estimated quantity and quality of any commercial and/or industrial wastewater to be discharged to the sanitary sewer system.

(6) Average and peak wastewater design flow rate for the proposed development area and infiltration allowance for proposed sanitary sewer.

(7) If alternate methods of providing water and sanitary sewer services are possible, the report shall provide an evaluation of the alternative methods.

(8) Any additional information that would affect the Town's ability to provide water and sanitary sewer service to the proposed area.

(c) Preliminary plan drawing. The preliminary plan drawing shall include the following information:

(1) The proposed methods of achieving the desired water and sanitary sewer services. Alternate methods of providing desired services, if possible.

(2) A preliminary plan drawing of the development showing lots and rights-of-way, USGS contours and benchmarks, existing utilities and fire hydrants within four hundred (400) feet of the proposed development, the legal boundaries of the property to be developed, the approximate boundaries of all adjacent properties, and any unusual existing and proposed features, such as creeks and drainage facilities which might influence the location of underground utilities, a general layout of the proposed water main, fire hydrant and sanitary sewer locations, and phasing of construction, if appropriate. (Ord. 435 §1, 1996)

Sec. 13-112. Water main design criteria.

(a) Flow.

(1) The minimum size of service for a single-family dwelling shall be three-fourths ($\frac{3}{4}$) inch in diameter.

(2) Peak daily commercial and industrial water demand shall be as accepted by the Director.

(3) The minimum size of all water mains shall be six (6) inches. Larger sizes shall be required as needed to provide proper water distribution and fire protection. Should the Town decide that due to anticipated future development, the diameter of the water main should be larger than that required by the contractor seeking acceptance of his or her drawings and specifications, the Town shall pay the difference in engineering and construction costs between the larger diameter water main and the water main required by the contractor.

(4) Water mains shall be sized to provide fire protection flow to meet the UBC Standards and the recommendations of the NFPA Handbook, latest edition, for the buildings to be served.

(b) Pressure. All water mains shall be designed to have a maximum static head of two hundred fifty (250) feet (108 psig), a minimum static head of one hundred (100) feet (43 psig), to maintain a twenty-psig residual pressure during required fire flow, and to maintain a forty-psig residual pressure in residential areas during peak residential flows.

(c) Location and cover. Water mains shall be generally placed south and west of street centerlines. A minimum of seven (7) feet of cover from the top of the pipe to the final finished grade shall be maintained over all existing and proposed water mains.

(d) Looping requirement. Water mains shall be designed through a subdivision or development so that a continuous loop is provided for an alternate source of supply.

(e) Separation. Water main crossings of sanitary and storm sewers shall be designed and constructed in accordance with the following:

(1) Horizontal separation. Water mains shall be located at least ten (10) feet horizontally from any existing or proposed sanitary sewer, storm sewer or sewer manhole. The distance shall be measured from outside-of-pipe to outside-of-pipe.

(2) Vertical separation. Whenever a sanitary or storm sewer must cross under a water main, the sewer shall be designed and constructed such that the top (crown) of the sewer is at least eighteen (18) inches below the bottom invert of the water main. When the elevation of the sewer cannot be varied to meet this requirement, the water main shall be relocated to provide this vertical separation and reconstructed with mechanical joint ductile iron pipe, or encased with concrete for a distance of ten (10) feet on each side of the sewer. One (1) full length of water main shall be centered over the sewer so that both joints on the water main will be as far from the sewer as possible. Concrete encasement shall be constructed to conform with the standard concrete encasement detail in these standards and specifications and shall be subject to the acceptance of the Director. When a water main passes under a sanitary or storm sewer, adequate structural support shall be provided for the sewer to prevent damage to the water main. The water main shall be encased with concrete for a distance of ten (10) feet on each side of the sewer. One (1) full length of water main shall be centered under the sewer so that both joints on the water main will be as far from the sewer as possible. When a water main passes under a storm sewer and seven (7) feet of cover between the top of the water main and the bottom of the storm sewer is not maintained, the water main shall be insulated to prevent freezing. Insulation requirements shall be determined by the consultant and accepted by the Director.

(3) When local conditions prevent horizontal and vertical separation as stipulated above, both the water main and sewer shall be constructed of mechanical joint ductile iron pipe and may be pressure tested to assure water tightness, if required by the Director.

(f) Water main crossings of drainage ways including natural creeks, irrigation and drainage ditches and flood channels.

(1) Where a water main crosses under a drainage way, the minimum depth of cover shall be four and one-half (4.5) feet from the top of the water main to the bottom of the drainage way. Backfill for the trench of the water main crossing shall be brought to within one and one-half (1.5) feet of the proposed finished grade of the drainage way and one (1) foot of medium-sized rip-rap or river rock material shall be added. The final six (6) inches of backfill above the rip-rap shall consist of a material that approximates the existing drainageway bottom.

(2) Where the water main crosses under Middle Boulder Creek or Beaver Creek, it shall be placed in a concrete encasement. All concrete encasement shall be constructed to conform with the standard detail of these standards and specifications and subject to acceptance of the Director. The concrete encasement shall extend a horizontal distance beyond the top of the creek bank on both sides of the creek of not less than the vertical distance from the top of the bank to the bottom of the encasement.

(3) Where the water main crosses under Middle Boulder Creek or Beaver Creek, and the creek is contained in a culvert, the minimum depth of cover over the water main shall be four and one-half (4.5) feet. The concrete encasement shall extend a horizontal distance beyond both outside edges of the culvert of not less than the vertical distance from the ground surface to the bottom of

the encasement, minus the outside vertical dimension of the culvert. In no case shall the encasement extend less than five (5) feet beyond each side of the culvert.

(4) Where water main fittings and elbows are used to lower the water main to cross under a drainageway, the fittings and elbows shall not be located less than twenty (20) feet from either end of the concrete encasement.

(5) All water main crossings under a drainageway shall comply with the United States Army Corps of Engineers stream crossing permit requirements.

(g) Water main pipe and fittings.

(1) Pipe. All water mains shall be ductile iron pipe and shall be designed, manufactured and furnished according to the following criteria:

- a. Meet AWWA Standard Specification C-151, as amended. Iron grade of pipe shall be 60-42-10.
- b. The joint shall be either push-on joint single gasket or mechanical joint single gasket.
- c. Minimum thickness shall be Class 50.
- d. Cement mortar lined according to AWWA C-104.
- e. Polyethylene wrapped in accordance with AWWA C-105. Minimum thickness of polyethylene wrapping shall be eight (8) mils.
- f. Pipe furnished shall have a normal laying length of eighteen (18) or twenty (20) feet.

(2) Fittings. All fittings shall be ductile iron and shall be designed, manufactured, and furnished according to the following criteria;

- a. Meet AWWA C-110 or ANSI A21.10 for mechanical joints and AWWA C-111 or ANSI A21.11 for push-on joint. The rubber joint gasket shall conform to the requirements of AWWA C-111, as amended.
- b. Valves and fittings shall be Class 200.
- c. Fittings shall be wrapped in polyethylene when used with polyethylene wrapped pipeline.

(h) Valves and valve boxes.

(1) Valves shall be located, where possible, at a point on the water main which would be intersected by the extension of a property line.

(2) The maximum spacing between valves shall not be greater than six hundred (600) feet.

(3) Where there are connections to other water mains, all connecting mains shall also be valved at the connection. If the connecting main is eight (8) inches or larger in diameter, there shall be two (2) valves at a tee-type connection and three (3) valves at a cross-type connection.

(4) All isolation valves shall be resilient seat gate valves, manufactured in accordance with AWWA C500, as amended, and shall be equipped with two-inch square operating nuts.

(5) Valve boxes five and one-half (5½) inches in diameter of the three-piece screw type shall be provided for all valves. The word "water" shall be cast in the valve box covers. Valve boxes shall be centered and plumb over the wrench nut of the valve and shall allow at least six (6) inches of adjustment above and below specified depth of cover over pipe.

(6) If the road surface above a valve is gravel, the valve box cover shall be located four (4) to six (6) inches below the gravel surface. If the valve is located below a paved road surface, the valve box cover shall be located at grade.

(7) Where practical, valves associated with tees and crosses at intersections shall be placed in line with the intersection right-of-way lines.

(8) No valve shall be placed in a position where vehicles may be parked on top of them on a routine basis.

(9) Valves shall be placed at each fire hydrant and at all permanent blow-offs.

(10) Air and vacuum release valves. All water mains shall have combination automatic air and vacuum release valves installed at each high point on the line, as determined by the Director. Air and vacuum release valves shall be installed in concrete manholes or vaults fitted with air vents open to the atmosphere and in accordance with the standard detail for air and vacuum release valves.

(11) Blow-off valves. A one-inch permanent blow-off assembly is required at the end of mains extended into cul-de-sacs. Temporary two-inch blow-off assemblies shall be installed in those portions of the water mains which could not be chlorinated, flushed or tested by other means. Permanent blow-off assemblies shall be installed at each high point in all water mains twelve (12) inches in diameter or larger. Blow-off valves may be fire hydrants for lines smaller than twelve (12) inches. Blowoff assemblies shall consist of all valves, pipe and material necessary to install the blow-off complete in place, and shall be constructed in accordance with the standard detail for blow-off installation.

(12) Pressure-reducing and pressure-regulating valves. Pressure-reducing and pressure-regulating valves shall be of the type capable of maintaining preadjusted downstream pressures with varying rates of flow and upstream pressure without causing water hammer, and shall be installed in concrete valve vaults of sufficient size to provide adequate maintenance and operation. They shall be installed at locations as required to maintain pressure within acceptable ranges and may be required at the discretion of the Director.

(i) Fire hydrants.

(1) In residential areas, fire hydrants shall be located so that in no case would a hose longer than three hundred (300) feet be required to reach any part of an area covered by the hydrant. One (1) hydrant shall always be in sight of least one (1) other hydrant. Closer spacing of hydrants may be required in business and high density residential areas.

(2) All hydrants shall stand plumb. Nozzles shall be parallel with, or at right angles to, the fire hydrant main line. Hydrants shall be set to established grade, with nozzles at least eighteen (18) inches above the ground.

(3) Each hydrant shall be connected to the water main with a six-inch ductile iron branch controlled by an independent six-inch gate valve and valve box located adjacent to the tee on the water main. The valve shall be located at, or within three (3) feet of, the tee from the main water line. The branch line and hydrant shoe shall have tie-rods and be wrapped with polyethylene. The main water line tee shall be thrust blocked.

(4) Hydrant drainage. A drainage pit three (3) feet in width and three (3) feet deep shall be excavated below each hydrant and completely filled with washed rock (as designated on the typical fire hydrant and assembly detail), under and around the shoe of each hydrant to a level six (6) inches above the top of the pipe lateral offsets.

(5) Six-inch ductile iron manufactured offsets maybe used on ductile iron branch lines to allow proper elevation setting of the hydrant shoe.

(6) All plugs, bends, reducers, tees and fire hydrants shall be anchored by rods and clamps in accordance with the details on the typical fire hydrant and assembly detail.

(7) Fire hydrants shall be red-colored Mueller Centurian A-423 conforming with AWWA Standard C502, as amended. Hydrants shall be three-way, two-hose (2½-inch) and one pumper (4½-inch) nozzle, with "National Standard Screw Threads for Fire Hose Couplings and Fittings," as amended, published by the Insurance Services Office. Hydrant valves shall be opened by turning left (counterclockwise). Inlet connection to the water main for the valve shall be six (6) inches, mechanical joint.

(j) Thrust blocks. All plugs, tees, bends and hydrants shall be provided with thrust blocks. The thrust blocks shall be placed between the undisturbed earth of the trench wall and the fitting; the backing shall be so placed that the pipe and fitting joints will be accessible for repair. The fitting shall be protected from concrete by eight-mil-thick polyethylene. Thrust block, type and strength of concrete and dimensions shall be in accordance with the thrust block detail.

(k) Concrete vaults and valve manholes. All valve manholes, air relief and vacuum valve vaults, pressure reducing valve vaults, meter vaults and other vaults shall be precast or poured-in-place concrete. Design of vaults and valve manholes shall be for traffic loading and shall include aluminum rungs, sump pit, cast iron rings and covers of a pattern acceptable to the Director with the word water cast thereon. All vaults and valve manholes shall be watertight and all joints, pipe openings and other places where infiltration could exist shall be sealed from the outside of the vault or manhole with a mastic waterproof seal. All inside joints shall be grouted.

(l) Water services.

(1) Each residential, commercial or industrial structure shall be served by a separate water service line and meter, except for guest houses. Water service shall be located ten (10) feet south or west of sewer services. Water service line shall be installed in a continuous straight line and shall enter the property at the center of the lot, unless otherwise shown and dimensioned on the accepted construction plans.

(2) No water taps shall be made prior to hydrostatic testing and acceptance of water mains.

(3) Water service line installation shall be in accordance with AWWA Standard C-800, or as otherwise determined by the Director.

(4) All service lines shall consist of corporation stops, curb stops, the meter and service pipeline. Service lines of diameter two (2) inches and smaller shall be Type K (soft) copper. All water service lines shall have minimum cover specified in the UPC.

(5) Cross-connections. There shall be no physical connection between any water service line, inside or outside of any property or building, and any pipes, pumps, hydrants or tanks where any unsafe or contaminated water including steam condensation or cooling water could be discharged or drawn into the water system.

(m) Water meters and appurtenances.

(1) All water meters shall be installed on the interior of the residential, commercial or industrial building unit in a freeze-proof location, with a remote register installed on the exterior of the building at eye level in a location easily accessible as determined by the Director. Meters shall be of the same size as the service line between the water main and the meter. All water meters, regardless of size, connected to a property owner's water utility system, shall be furnished by and remain the property of the property owner.

(2) No outside meters or meter pits shall be allowed unless otherwise accepted by the Director.

(3) Water meters shall comply with AWWA Standard C700-77 for accuracy, capacity, pressure loss and dimensions.

(n) Pipe thawing materials.

(1) A thaw cable shall be installed at each valve box on the water main, shall extend from the lid of the valve box to the water main, and shall be connected to the pipe using a thermite weld.

(2) All water main pipe joints shall be bonded. Joint bonds shall be connected to the pipe using a thermite weld. (Ord. 435 §1, 1996)

Sec. 13-113. Sanitary sewer design criteria.

(a) Flow.

(1) The average sewage flow shall be determined by the following:

a. Residential areas. On a basis of three and two-tenths (3.2) people per residence and one hundred (100) gallons per day per person.

b. Multi-family areas. On a basis of three hundred (300) gallons per day per living unit.

c. Commercial areas. Usage shall be based on engineered design. In no case shall a basis of less than two thousand five hundred (2,500) gallons per day per acre be used unless sufficient supporting analyses can be presented.

d. Industrial areas. Usage shall be based on engineered design. In no case shall a basis of less than five thousand (5,000) gallons per day per acre be used unless sufficient supporting analyses can be presented.

(2) The average sewage flow shall be multiplied by a peak factor to obtain the peak sewage flow. Peak factors shall be as follows:

<i>Sanitary Sewer Diameter</i>	<i>Peak Factor</i>
10-inch and smaller	4.0
12-inch and 15-inch	3.5
Larger than 15-inch	3.0

(3) The sewage flow used for design of sanitary sewers shall be the sum of the peak sewage flow (average flow multiplied by peak factor) and the flow due to infiltration and flows from existing and projected future upstream sanitary sewers. The flow due to infiltration shall be based upon a minimum of two hundred (200) gallons per inch diameter per mile of pipe per day multiplied by the total length of pipe in miles and the pipe diameter in inches. Actual requirements for existing sanitary sewer lines that are tributary to those under design shall also be included.

(4) Sanitary sewers fifteen (15) inches in diameter and smaller shall be designed to convey the design flow at a maximum flow depth of one-half ($\frac{1}{2}$) of the pipe diameter. Sanitary sewers eighteen (18) inches in diameter and larger may be designed to convey the design flow up to a maximum flow depth of three-quarters ($\frac{3}{4}$) of the pipe diameter.

(5) Roof drains, foundation drains, surface drainage, cooling water and other storm water connections to sanitary sewers are prohibited.

(b) Location and cover.

(1) Sanitary sewers shall be generally placed five (5) feet south of the centerline in east-west streets and five (5) feet east of the centerline in the north-south streets.

(2) All sanitary sewer manholes shall be located to be accessible to sewer maintenance and cleaning vehicles currently utilized by the Town.

(3) The minimum depth of cover for sanitary sewers shall be seven (7) feet from finished grade to the top of pipe. Sanitary sewers shall be designed deep enough to prevent freezing and

backup. Where possible, sewers shall be installed deep enough to accommodate all future extensions and connections that can be foreseen.

(4) Sanitary sewers shall cross below water service lines and water mains and shall be constructed to provide a separation of at least eighteen (18) inches between the bottom of the water main and the top of the sanitary sewer. Sanitary sewers shall be constructed at least ten (10) feet horizontally from any water main or its appurtenances, measured from outside-of-pipe to outside-of-pipe. When local conditions prevent a vertical or horizontal separation as described above, the sanitary sewer and water main shall be constructed as specified in Section 13-112 above regarding separation.

(c) Size, alignment and slope.

- (1) No sanitary sewer shall be less than eight (8) inches in diameter.
- (2) Individual dwelling or building sanitary sewer service lines may be six (6) inches or four (4) inches in diameter, provided that hydraulic capacity is not exceeded.
- (3) Sanitary sewers shall be designed so that the pipeline between any two (2) adjacent manholes is on a straight line.
- (4) Material changes, changes in slope and changes in pipe size shall occur at manholes only.
- (5) All slopes between manholes shall be uniform.
- (6) Slopes shall provide mean velocities no less than two (2) feet per second at the design flow rate. Minimum slopes for sanitary sewers based upon the Manning equation with $n = 0.013$ shall be:

<i>Size of Sanitary Sewer (inches)</i>	<i>Minimum Slope (foot/foot)</i>
8	0.004
10	0.0028
12	0.0022
15	0.0015
15	0.0015

(7) When it is necessary to design or install sanitary sewers with a slope greater than that required to achieve a maximum velocity of ten (10) feet per second at the design flow rate, anchoring of sanitary sewer pipe shall be required. Concrete collars shall be provided as detailed in the anchoring detail.

(d) Crossings. Sanitary sewer crossings of drainage ways shall conform to the requirements for water main crossings of drainage ways as outlined in Section 13-112.

(e) Encasement and casings.

(1) Concrete encasements shall be installed on sanitary sewers under the following conditions: where sewers are too shallow to sustain traffic or other loads; where horizontal movement of sewer may be experienced; at potable water main crossings; at all locations where infiltration may occur; and at any location designated by the Director. Concrete encasements shall be designed and constructed in accordance with the standard detail for concrete encasements.

(2) Pipe casings for sanitary sewers shall be used where borings under rights-of-way are required by the using agency. All casings shall conform with the standard pipe casing detail and shall be subject to the acceptance of the Director.

(f) Sewer pipe, fittings and joints.

(1) Rigid polyvinylchloride pipe (PVC). All PVC pipe shall be manufactured in accordance with the requirements of ASTM D-1784, Rigid Poly (Vinyl Chloride) and Chlorinated Poly (Vinyl Chloride) Compounds and D 3034-SDR 35, Type PSM Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings, as amended. Pipe and fitting markings shall include the appropriate ASTM Designations and Bell Classification Numbers (12454-B or 12454-C or other acceptable classifications), name or trademark of manufacturer, and nominal diameter. Pipe joint assemblies shall be bell and spigot with an O-ring rubber gasket.

(2) Ductile iron pipe. Ductile iron pipe shall be bell and spigot pipe, centrifugally cast and shall conform to ANSI A21.51 AWWA Specification C-151-76, as amended. All ductile iron pipe used for sanitary sewer line construction shall contain a PVC lining according to ANSI A21.4 and AWWA C-104. Class of pipe shall be Class 50 unless a higher class is required for strength.

(g) Manholes.

(1) All manholes shall be a minimum of forty-eight (48) inches in diameter and shall be installed at the upper end of each sanitary sewer line, at all changes in slope, size, alignment or pipe material and at all road intersections. Manholes installed in midblock shall be aligned with the extension of property lines. Manholes shall conform to the manhole standard detail.

(2) Manholes shall be located in areas which are not subject to flooding from surface runoff.

(3) Manholes shall be installed at distances not greater than four hundred (400) feet.

(4) All dead-end manholes, where future sewer extension is anticipated, shall have sanitary sewer pipe laid through the manhole a maximum of one (1) pipe length and plugged with a plug acceptable to the Director.

(5) A monitoring manhole shall be constructed on the sanitary sewer service lines of all industrial users as determined by the Director. The monitoring manhole shall contain provisions for installation of a permanent wastewater flow monitoring device and a platform for supporting an automatic wastewater sampling device.

(6) Manholes may be either precast concrete or cast-in-place and shall conform to the manhole standard detail. Precast manhole risers and cones shall be manufactured in conformity with

ASTM C478, as amended, and shall be so marked by the manufacturer. Manhole access openings shall be twenty-four (24) inches or greater.

(7) The base on all manholes shall be a minimum of eight (8) inches thick, and the overall outside dimensions of the base shall be one (1) foot greater than the outside dimensions of the manhole constructed thereon.

(8) Where a second sanitary sewer line enters a manhole, the invert on the second sewer line shall enter the manhole at least two-tenths (0.2) foot higher, or match crowns of pipe with different size pipe, than the invert of the outlet sewer line. In no case shall a second sewer line be allowed to intersect with the outlet line at an angle less than ninety (90) degrees. If alignment and slope allow, the sewer main shall be laid through the manhole. A minimum drop of two-tenths (0.2) foot shall be required from invert to outlet.

(9) All manholes located outside of dedicated streets rights-of-way shall be designed and constructed with a locking-type cover and the manhole ring shall be bolted to the manhole frame.

(10) Manhole frames and covers shall be solid four-hundred-pound cast iron, twenty-four-inch inside diameter, acceptable to the Director. Covers with more than one (1) lifting hole shall not be acceptable. The lifting notch shall not allow surface water to enter the manhole.

(11) If the road surface above a manhole cover is gravel, the cover shall be located four (4) to six (6) inches below the gravel surface. If the manhole is located below a paved road surface, the manhole cover shall be located at grade.

(12) Individual sanitary sewer service lines shall not be allowed to connect directly to manholes unless otherwise accepted by the Director. No sanitary sewer service line shall connect to the main sewer line closer than five (5) feet from the uphill manhole.

(13) All cement used in concrete and mortar for constructing manholes shall conform to ASTM C150, Type II, as amended.

(14) Inlet and outlet pipes shall be joined to the manhole with a gasketed flexible watertight connection or any watertight connection arrangement acceptable to the Director that provides for differential settlement to take place between the sanitary sewer pipe and manhole wall.

(15) The invert of the lowest pipe entering a manhole shall be at least eight (8) inches above the top of the base slab so that the sewer flow channel in the manhole may be installed and shaped. The flow channel through manholes shall be made to conform in shape, slope and smoothness to minimize hydraulic losses through the manhole section. Cut pipe shall not extend beyond the inside face of the manhole wall.

(16) Drop manholes. Drop manholes shall be avoided whenever possible. No drop greater than one-tenth (0.1) foot or that drop required for change in pipe size will be allowed, unless more than two (2) feet, on the average, extra excavation depth for the sanitary sewer is required to avoid creating a drop manhole. Drop manholes shall be constructed exactly as regular manholes, except that the manhole base shall be extended upstream far enough to form a base for the concrete encasing the sewer pipe drop entering the bottom of the drop manhole. The drop entering the

manhole shall be completely encased in concrete up to the spring line of the pipe of the main sanitary sewer line. A cleanout shall be placed in the manhole at the level of the main sanitary sewer line. All drop manholes shall be completely lined with coal tar epoxy, except for PVC drop sections. Drop manholes shall conform to the drop manhole standard detail.

(h) Sanitary sewer services. Each building or structure shall be served by a separate sanitary sewer service line connected to a sanitary sewer main. The service line shall be perpendicular to the main sewer line while in the public right-of-way. (Ord. 435 §1, 1996)

Secs. 13-114—13-130. Reserved.

Division 3

General Specifications for Both Water Main and Sanitary Sewer Construction

Sec. 13-131. Trench excavation.

(a) General. Excavation for water main and sanitary sewer pipelines, fittings and appurtenances shall be by open trench to the depth and alignment shown on the accepted construction drawings. Where depth of trench and conditions allow, tunneling, boring or jacking may be permitted when tunneling, boring or jacking methods of construction are submitted to and accepted by the Director. When jacking is permitted, only persons experienced in that work, using suitable equipment, shall perform the jacking operation.

(b) Limit of excavation. Except by written permission of the Director, the maximum length of trench permitted to be open at any one (1) time shall be four hundred (400) feet, or the distance necessary to accommodate the amount of pipe installed in a single day, whichever is smaller. This distance shall be the collective length at any location, including open excavation, pipe laying and appurtenances, construction and backfill which has not been temporarily resurfaced. No trench shall be left open at any time that the contractor is not on the job site engaged in construction operations.

(c) Trench width. The overall trench width shall not be more than sixteen (16) inches nor less than twelve (12) inches wider than the largest outside diameter of the pipe to be laid therein, measured at a point twelve (12) inches above the top of the pipe, exclusive of branches. Excavating and trenching shall be true to line so that a clear space of not more than eight (8) inches or less than six (6) inches in width is provided on each side of the largest outside diameter of the pipe in place. For the purpose of this Section regarding trench width, the largest outside diameter shall be the outside diameter of the bell, on bell and spigot pipe. All trenching sizes shall be in accordance with the bedding details. In the event that the maximum trench widths previously specified are exceeded either through accident or otherwise, and if the Director determines that the design loadings of the pipe will be exceeded, the contractor shall be required to either use a higher class bedding or use a pipe of stronger class. Cost of such remedial measures shall be at the contractor's expense.

(d) Bracing excavations. All excavations shall be properly sloped or supported in the manner as required by OSHA Federal Register Volume 37, No. 243, Sub-Part P, Section 1926. 652, as amended, or as required by COSHA laws as may be necessary to protect life, property and the work. Shoring shall be designed by a professional engineer registered to practice in the State. Shoring design shall be submitted to the Director for acceptance. In the event that the sidewalls of the trench are sloped to

meet safety requirements, the sloping shall terminate at a depth not less than twelve (12) inches above the top of the pipe barrel, and from that point down the trench width shall be limited to that previously specified.

(e) Trench bottom excavation. The trench bottom shall be excavated to a depth as specified in the bedding materials section of these standards and specifications unless otherwise specified by the consultant and accepted by the Director. Before the pipe is laid, the trench bottom shall be graded by backfilling with bedding material to provide uniform bearing and support for the entire length of pipe. A continuous trough shall be excavated to receive the bottom quadrant of the pipe barrel, and bell holes shall be provided at each joint to permit the jointing to be performed properly and to permit the pipe to be uniformly supported.

(f) Unsuitable trench bottoms. Where unsuitable foundation bedding material is encountered in the trench bottom, such material shall be removed to a depth acceptable to the Director. The unsuitable material shall be replaced with bedding material and compacted as specified in the bedding materials section to provide a suitable foundation for the pipe.

(g) Over-excavating for rock. When rock or hard clay is encountered in the trench bottom, the trench shall be over-excavated to a depth of six (6) inches below the bottom of the pipe. The over-excavated material shall be replaced with an acceptable bedding material and compacted as specified in the bedding materials section.

(h) Over-excavating for unstable trench conditions. When unstable conditions are encountered in the trench bottom, the trench shall be over-excavating to a depth of six (6) inches below the bottom of the pipe. The over-excavated material shall be replaced with trench stabilizing material as specified in the bedding materials section.

(i) Dewatering.

(1) The contractor shall provide and maintain, at all times during construction, ample means and devices with which to divert surface water and to promptly and properly dispose of all water entering the trench or water and sewer utility structure excavation. Pipe trenches or structure excavation shall be kept free from water during excavation, construction, pipe laying and jointing. The method of dewatering shall maintain a water surface below the bedding material.

(2) Dewatering shall be accomplished by the use of well points, sump pumps, rock or gravel drains placed below subgrade foundations or subsurface pipe drains.

(3) The contractor shall dispose of the water in a suitable manner without damage to adjacent property, without being a menace to public health or without causing a public inconvenience or nuisance. The water shall not be drained into work completed or under construction. Trench water shall not be allowed to enter any sewer lines either by gravity or by pumping. All manholes under construction shall be sealed tightly to prevent water from excavation or groundwater from entering the sanitary sewer system.

(4) The dewatering operation shall continue until such time that it is safe to allow the water table to rise in the excavation. Pipe trenches shall contain enough backfill to prevent pipe flotation.

(j) Grading and stockpiling. The contractor shall control stockpiling and grading of trench excavation material in a manner that shall not endanger the work and that shall avoid obstructing sidewalks, driveways and fire hydrants. Grading and stockpiling shall prevent water from running into excavations. Satisfactory provisions shall be made for street drainage at all times.

(k) Pipe clearance in rocks. Ledge rock, boulders and stones larger than twelve (12) inches in their greatest dimension shall be removed from the trench to provide a clearance of at least six (6) inches between the bottom or side of the pipe and/or appurtenances and the rock. (Ord. 435 §1, 1996)

Sec. 13-132. Bedding materials.

The pipe shall be carefully bedded as shown in the bedding details. The minimum support for the pipe except for PVC sanitary sewer pipe shall be Class C bedding unless otherwise required by the Director. PVC sanitary sewer pipe shall be a minimum of Class B bedding.

(1) Class A bedding (concrete cradle). Class A bedding shall be defined as that method of bedding in which the lower one-half (1/2) of the pipe is set in nonreinforced concrete. The minimum thickness of concrete under the lowest part of the conduit shall be one-eighth (1/8) of the outside pipe diameter, but not less than six (6) inches. The concrete shall extend upward around the pipe to the spring line of the pipe barrel. The width of the concrete cradle shall be at least equal to the outside pipe diameter plus eight (8) inches. Class A bedding shall be used when designated on the accepted construction drawings, or as determined by the Director.

(2) Class B bedding (granular foundation). Class B bedding shall be defined as that method of bedding in which the pipe is set on compacted granular material supporting the lower one-half (1/2) of the pipe barrel. The trench shall be excavated to a depth below the established grade equal to one-eighth (1/8) of the outside pipe diameter, but not less than four (4) inches. In rock excavation, the minimum depth of bedding material for Class B bedding shall be six (6) inches. Class B bedding shall be used for PVC sanitary sewer pipe or as determined by the Director.

a. Compacted granular material. Compacted granular material shall be a well-graded gravelly material meeting the following requirements and compacted to ninety percent (90%) of maximum dry density as determined by ASTM D698:

<i>Square Mesh Sieve Size</i>	<i>Total Passing by Sizes (%) by Weight</i>
1"	100
3/4"	90 to 100
3/8"	20 to 55
#4	0 to 10
#8	0 to 5

b. Uniform graded material. Uniform graded material shall be placed over and around the sides of the pipe to a depth of at least twelve (12) inches above the top of the pipe to prevent pipeline damage from larger stones. This uniform graded material shall consist of on-site acceptable material with rocks no larger than two (2) inches in the longest and largest

dimension, compacted in maximum six-inch lifts to a maximum dry density of ninety percent (90%), as designated by ASTM D698.

(3) Class C bedding (granular foundation). Class C bedding shall be defined as that method of bedding in which the pipe is set on compacted granular material supporting the lower quadrant of the pipe barrel. The trench shall be excavated to a depth below the established grade equal to one-eighth ($\frac{1}{8}$) of the outside pipe diameter, but not less than four (4) inches. Uniform graded material as described under Class B bedding shall be placed over and around the sides of the pipe to a minimum of at least twelve (12) inches to prevent pipeline damage from larger stones.

(4) Trench stabilizing material. Trench stabilizing material shall consist of washed rock of one and one-half ($1\frac{1}{2}$) inches in diameter. (Ord. 435 §1, 1996)

Sec. 13-133. Backfilling and compaction of backfill.

(a) General.

(1) In general, backfill material shall be that material excavated from pipeline trenches on the site that is free from frozen materials and large amounts of organic or other objectionable materials. When the on-site excavated material is not satisfactory for use as backfill, as determined by the Director, or whenever there is a shortage of satisfactory backfill material from any acceptable on-site source, the contractor shall furnish all necessary suitable backfill material and shall dispose of the condemned excavated material.

(2) Unless otherwise specified, all excess backfill material shall be disposed of off the rights-of-way and public property by the contractor at his or her expense.

(3) Backfilling shall proceed immediately after each joint of pipe is laid in order to protect the pipeline.

(4) Backfill material shall be placed around the pipe and compacted as specified below. The remainder of the trench shall be filled in one (1) or more lifts with acceptable backfill material in such a manner so as not to damage the pipe or to cause any misalignment of the installed pipeline.

(5) Moisture density testing.

a. In-place moisture density tests shall be performed as directed by the Director to ensure that trench backfill complies with specified requirements. The contractor shall employ, at the contractor's expense, a recognized testing laboratory acceptable to the Director to perform soil testing and inspection service for quality control testing during backfill operations. Where backfill compaction does not meet moisture and density test requirements, and after backfill has been removed as directed by the Director and the situation corrected, additional tests shall be performed as directed until compaction meets or exceeds requirements, with the cost borne solely by the contractor.

b. Number of tests. At a minimum, in-place moisture density tests shall begin at a point one and one-half (1.5) feet above the top of pipe and shall be performed in two-foot intervals to finished grade. Tests shall be performed a minimum of once every one hundred (100) feet of

pipeline and a minimum of once between every manhole, water or sewer utility structure or pipe outlet, along the trench, or as determined by the Director. Final acceptance of the water main or sanitary sewer line by the Town shall be contingent upon satisfactory compaction results. No testing of the water main or sanitary sewer line shall be allowed until satisfactory compaction is obtained.

(b) Backfill material and compaction.

(1) Uniform graded material. Uniform graded material shall consist of material previously specified and shall be compacted as previously specified.

(2) Remaining backfill material and compaction. Material used to backfill the trench above uniform graded material shall consist of material which has been excavated from the trench with no rubbish, frozen material, broken pavement, other debris, stones or other consolidated material greater than two (2) inches in diameter, organic muck or other materials considered unacceptable by the Director. Clay and similar material with a plasticity index in excess of twenty (20) shall not be considered suitable for backfilling trenches located in streets, roads, highways or thoroughfares. Remaining backfill material shall be deposited in layers in maximum of eight-inch lifts and compacted by surface or internal vibrators, or hand or power tampers. The remaining backfill material shall be compacted to a minimum of ninety percent (90%) of maximum density as determined by ASTM D698. If the piping installation is within a roadway or within ten (10) feet of a roadway or structure, the material shall be compacted to a minimum of ninety-five percent (95%) of maximum density as determined by ASTM D698.

(3) Select borrow material. If the existing material excavated from the trench is found to be unacceptable for backfill, or if insufficient quantities of on-site material are available for backfill, select borrow material shall be imported for remaining backfill. Select borrow material shall be a well-graded mixture of sound mineral aggregate particles containing sufficient, proper quality bonding material to secure a firm, stable foundation when placed and compacted in the trench. When tested with laboratory sieves, the material shall meet the following gradation requirements:

<i>Sieve Size by Weight</i>	<i>Total Passing by Sieves (%)</i>
4"	100%
#10	80%
#200	15% to 15%

It shall be the responsibility of the contractor to locate material meeting this specification, and to secure acceptance of the Director before such material is delivered to the project. Select borrow material shall be compacted as specified for remaining backfill material.

(c) Maintenance of backfill. All backfill shall be maintained in a satisfactory condition, and all places showing signs of settlement shall be filled and maintained during all construction phases and for a period of two (2) years following the date the water main or sanitary sewer pipeline system is placed into operation. When the contractor is notified by the Director that any backfill is hazardous, he or she shall correct such hazardous condition at once. (Ord. 435 §1, 1996)

Sec. 13-134. Surface restoration.

(a) Pavement, curb, gutter, sidewalk, drainage culverts, headwalls or other street improvements destroyed, removed or damaged during construction shall be repaired or replaced to a condition equal to that prior to construction, to the same elevation and alignment, to the satisfaction of the Director. The subgrade for all restored surfaces shall be thoroughly compacted by a method of compaction acceptable to the Director. The cost of restoration work and removal of all debris from the site of the work shall be at the expense of the contractor.

(b) Natural or artificial groundcover destroyed, removed or damaged during construction shall be reseeded and shall have erosion control provided to restore the groundcover to a condition equal to that prior to construction, to the same elevation and alignment, to the satisfaction of the Director. (Ord. 435 §1, 1996)

Sec. 13-135. Water for construction.

Water for construction purposes, testing and the flushing of new water mains and sanitary sewers is available from the Town municipal water distribution system. The contractor shall make arrangements with the Director before utilizing any water. All valves connected to fire hydrants shall be operated in accordance with the instructions of the Director. All water used for construction shall be metered by a meter supplied by the Town. Water used for construction shall be paid for by the contractor. (Ord. 435 §1, 1996)

Sec. 13-136. Grade stakes.

The consultant shall provide grade stakes for all water main and sanitary sewer line installation. These stakes shall locate the respective water main or sanitary sewer alignment location and elevation. The maximum distance between stakes shall be twenty-five (25) feet. All water main fittings, valves and appurtenances shall be staked for location and elevation. All manholes shall be staked for centers, line and elevation. (Ord. 435 §1, 1996)

Sec. 13-137. Installation of water and sewer taps in trenches opened for installation or extension of water or sewer mains.

(a) At any time when a trench has been constructed or opened for the purpose of constructing, installing or extending a water or sewer main beneath a road that is paved or has been designated to be paved, to the extent the owners of property adjacent to such trench or the right-of-way through which such trench has been constructed, have paid for or otherwise acquired water or sewer taps, the owners of such water or sewer taps shall be, at the property owner's expense, required to install such taps while the trench is open and to extend the service lines from such tap to the property line.

(b) At any time when a trench has been constructed or opened for the purpose of constructing, installing or extending a water or sewer main beneath a road that is unpaved and has not been designated to be paved, to the extent the owners of property adjacent to such trench or the right-of-way through which such trench has been constructed, have paid for or otherwise acquired water or sewer taps, the owners of such water and sewer taps shall be encouraged to install such taps while the trench is open, at the expense of the property owner.

(c) All installations of water or sewer taps shall be performed under the supervision of Town personnel. (Ord. 543 §1, 2001)

Secs. 13-138—13-150. Reserved.

Division 4
Standards and Specifications for Water Main Construction

Sec. 13-151. General.

All water main construction within the Town and for future connection to the Town water system shall be performed according to these specifications. These specifications include the furnishing and installation of all water main piping, valves, valve boxes, fire hydrants, related appurtenances and water services necessary to complete the water mains. Excavation, bedding and backfill of trenches for water main shall comply with the requirements detailed in the general specifications for both main and sanitary sewer construction section. All work, including correction work, shall be inspected by the Director or the Inspector, who shall have the authority to halt construction when it does not adhere to these specifications or standard construction practices. Should any portion of these specifications be violated, the Director or Inspector shall order further construction to cease until all deficiencies are corrected. All work shall be performed in accordance with the latest revision of the AWWA Specifications referenced herein. (Ord. 435 §1, 1996)

Sec. 13-152. Materials.

(a) Material handling and storage. Pipes, fittings, valves and appurtenances shall be loaded and unloaded or otherwise handled in such a manner as to minimize the possibility of damage prior to installation. All materials to be used for water main construction shall be stored at the construction site in such a manner as to prevent damage and to assure that these materials are kept as clean as possible prior to installation.

(b) Ductile iron pipe and fittings. Ductile iron pipe shall be manufactured, furnished and installed in strict accordance with the standard specifications and criteria detailed previously in Section 13-112 of this Article. Each length of pipe shall be plainly stamped, indelibly marked or color coded as to length, weight, class and type, and bear the manufacturer's trademark or name. Pipe and fitting interior and exterior shall be provided with a coating of coal tar epoxy material approximately one (1) mil thick. Coating shall be continuous and smooth, neither brittle when cold nor stick when exposed to sunlight, and strongly adherent to pipe at all temperatures.

(c) Gate valves. Gate valves shall conform to the specifications contained in Section 13-112. Gate valves shall conform to a minimum working pressure of one hundred fifty (150) psig. The consultant shall evaluate the pressure requirements for specific locations, shall require higher pressure classification where necessary and shall submit such evaluation to the Director for acceptance. Valve seats, discs and stem shall be constructed of bronze. Stem seals shall be with two (2) O-rings, each of which shall be designed to allow replacement under full line pressure when the valve is in the full open position. Valves shall open left (counterclockwise). Extension stems with a two-inch, square operating nut and support for the upper end of the extension shall be provided for all valves installed more than five (5) feet deep. The stem shall be of adequate length to allow the operating nut to be no

more than five (5) feet below the finished grade. The extension stem shall be mechanically connected to the operating nut. All gate valves shall have mechanical joint ends.

(d) Fire hydrants. Fire hydrants shall comply and be manufactured in accordance with the specifications detailed in Section 13-112. Hydrants shall operate under one hundred fifty (150) psig working pressure and shall be cast iron and bronze mounted. The consultant shall evaluate the pressure requirements for specific locations, shall require higher pressure classification where necessary and shall submit such evaluations to the Director for acceptance.

(e) Air and vacuum release valves. Air and vacuum release valves shall be provided as specified in Section 13-112, shall automatically release air from water lines when the water lines are being filled with water, and shall admit air into the lines when water is being withdrawn in excess of the inflow. Valves shall be iron body, with bronze trim. Floats shall be stainless steel. Two-inch gate valves shall be installed on the stem between the water main and relief valve as shown on the standard detail for air and vacuum release valves. Pipe and fittings used in the relief valve systems shall be galvanized steel, standard weight, and the connection shall be threaded. Gate valves shall be bronze and threaded, and shall have hand wheels.

(f) Pressure-reducing and pressure-regulating valves. Pressure-reducing and pressure-regulating valves shall be as specified in Section 13-112 and shall be of the flanged, globe body, fully bronze mounted, external pilot operated, piston type meeting the following requirements: fully powered by water from the water pipeline in which they are installed; not dependent upon diaphragms, levers or springs for piston movement or positioning; have a piston position indicator rod firmly attached to the piston and passing through a stuffing box and valve top for external, visual piston position indication; be designed and constructed so as to facilitate repairs and internal dismantling without removal of valve from pipeline; be furnished with renewable leather-cup power piston seals; flanged cast iron body shall be Class 250; be constructed of new, first-quality materials and components throughout; be constructed so as to provide easy access to the pilot to allow pilot removal while the main valve is under pressure; be furnished with all necessary pilots, blocking valves, needle valves, strainers and control piping; be capable of being operated from above ground by use of two-inch-square valve keys. Pressure-reducing and pressure-regulating valves shall have gate valves and pressure gauges on both upstream and downstream sides and shall have bypasses with smaller pressure-reducing and pressure-regulating valves to handle minimum flows as determined by the Director. The consultant shall evaluate the pressure requirements for specific locations of pressure-reducing and pressure-regulating valves, shall require higher pressure classification where necessary, and shall submit such evaluations to the Director for acceptance.

(g) Rods and clamps. All water main elbows, plugs, reducers, fire hydrants and appurtenances shall be provided with tie rods and clamped in accordance with the standard details. Rods and socket clamps shall be used on ductile iron pipe systems. Where mechanical joint ductile iron pipe is used, rods may be bolted through the joint bolt holes. Number and size of rod shall be as indicated in the standard details.

(h) Pipe thawing materials.

(1) Wire. No. 2 AWG wire for joint bonding shall be bare, single-conductor, stranded copper. No. 250 MCM wire for thaw cable shall be single-conductor, stranded copper with six-hundred-volt TW insulation.

(2) Thermitic weld materials. Thermitic weld welder, sleeve and cartridge shall be sized per manufacturer's recommendations for pipe diameter and wire sizes. Thermitic weld materials shall be Cadweld by Erico Products, Inc.; Thermoweld by Continental Industries, Inc.; or equivalent. (Ord. 435 §1, 1996)

Sec. 13-153. Installation.

(a) General; laying of pipe.

(1) All pipe and pipe fittings shall be carefully loaded into the trench by means of a hoist, ropes or other suitable tools or equipment in such a manner to prevent damage to the water main materials and protective coatings and linings. Under no circumstances shall water main materials be dropped or dumped into the trench. All pipe and pipe fittings shall be carefully examined for cracks or other defects immediately before installation. Every precaution shall be taken to prevent foreign material from entering the pipe while it is being placed in the trench. During pipe laying operations, no debris, tools, clothing or other material should be placed in the pipe. As each length of pipe is placed in the trench, the spigot end shall be centered in the bell and the pipe forced on and brought to correct line and grade. Precautions shall be taken to prevent dirt from entering the joint space.

(2) At times when pipe laying is not in progress, the open ends of the pipe shall be closed by a water tight plug or other means acceptable to the Director. If water is in the trench, the plug shall remain in place until the trench is completely dewatered.

(3) Where pipe is laid at a grade of ten percent (10%) or greater, the laying shall start at the bottom of the grade and shall proceed upward with the bell ends of the pipe upgrade. The cutting of pipe for inserting valves, fittings or closure pieces shall be performed in a neat and workmanlike manner without damage to the pipe or cement lining and so as to leave a smooth end at right angles to the axis of the pipe. Flame cutting of pipe by means of an oxygen-acetylene torch shall not be allowed. No pipe shall be laid when, in the opinion of the Director or the Inspector, trench conditions are unsuitable.

(4) Ductile iron pipe shall be installed in accordance with AWWA C-600.

(5) Trench excavation, bedding, backfill and compaction testing shall be performed as specified in the general specifications for both water main and sanitary sewer construction sections.

(b) Jointing of mechanical joint pipe.

(1) Cleaning and assembly of joint. The last eight (8) inches of the outside spigot and inside bell of mechanical joint pipe shall be thoroughly cleaned to remove oil, grease, grit, excess coating and other foreign matter from the joint and then painted with gasket lubricant. The ductile iron gland shall be slipped on the spigot under the pipe with the lip extension of the gland toward the socket, or bell end. The rubber gasket shall be painted with the gasket lubricant and placed on the spigot end with the thick edge towards the gland.

(2) Bolting of joint. The entire section of pipe shall be pushed forward to seat the spigot end of the bell. The gasket shall then be pressed into place within the bell. Care shall be taken to locate the gasket evenly around the entire joint. The cast iron gland shall be moved along the pipe into position for bolting, all of the bolts inserted, and the nuts screwed finger-tight. All nuts shall be tightened with a torque limiting wrench. The torque for various sizes of bolts shall be as follows:

<i>Bolt Diameter (inches)</i>	<i>Range of Torque (foot - pounds)</i>
5/8	40 - 60
7/8	60 - 90
1	70 - 100
1¼	90 - 120

Nuts spaced one hundred eighty (180) degrees apart shall be tightened alternately in order to produce an equal pressure on all part of the gland. Maximum allowable deflection of mechanical joint pipe shall be as specified in AWWA C-600 or by the pipe manufacturer, whichever is less.

(c) Jointing push-on pipe.

(1) Cleaning and assembly of joint. The inside of the bell or coupling and the outside of the spigot end shall be thoroughly cleaned to remove oil, grit, excess coating and other foreign matter. The circular rubber gasket shall be flexed inward and inserted in the gasket recess of the bell socket, or the coupling end of the pipe.

(2) A thin film of gasket lubricant shall be applied to either the inside surface of the gasket or the outside of the spigot end of the pipe or both. Gasket lubricant shall be supplied by the pipe manufacturer and submitted to the Director for review.

(3) The spigot end of the pipe shall be placed into the bell or coupling end, without touching the ground with the spigot end after cleaning. The joint shall then become completed by forcing the spigot end to the bottom of the socket. Pipe shall be marked with a depth mark to ensure that the spigot end is inserted to the full depth of the joint. Field-cut pipe lengths shall be marked by painting of file mark. The spigot end shall be ground or filed to resemble a manufactured pipe end. Complete assembly instructions shall be provided by the pipe manufacturer.

(4) Permissible deflection on push-on joint. Whenever it is desirable to deflect push-on joint pipe in order to form a long radius curve, the amount of deflection shall not exceed the maximum limits specified in AWWA C-600 or the pipe manufacturer, whichever is less.

(d) Installation of water main appurtenances.

(1) Valve boxes and valve vaults. A valve box or valve vault shall be provided for every valve as specified in Section 13-112 of this Article. The valve box cover shall be installed flush with the surface of the finished pavement or embedded in an eighteen-inch square by six-inch thick concrete pad when placed in an area that is not paved, in accordance with the specifications in Section 13-112.

(2) Valves shall be set and joined to pipe in the manner specified for cleaning, laying and joining ductile iron pipe. In instances where the valve is to be installed adjacent to a tee or cross-fitting, there shall be at least an eighteen-inch length of pipe, but never more than a twenty-four-inch length of pipe between the valve and the fitting. The valve shall have the interior cleaned of all foreign matter before installation. Valves shall be inspected in the open and closed positions prior to installation to ensure that all parts are in working condition.

(e) Fire hydrants. Hydrants shall be installed as detailed in the specifications for Section 13-112.

(f) Pipe thawing materials. The electrical connection of joint bonding wire and thaw cable to ductile iron pipe shall be by the Thermite Weld method. Joint bonds shall be eighteen (18) inches long. Wires shall be provided with formed sleeves attached with a hammer die as recommended by the welder manufacturer. Before the connection is made, the pipe shall be cleaned to bare metal by making a two-inch-by-two-inch window in the coating and then filing or grinding the pipe to produce a bright metal surface. After the connection is made, it shall be coated with a coat of cold-applied coal-tar mastic and a thermite weld cap applied as shown on the thermite weld and joint bond detail. Any damage to the pipe lining shall be repaired according to the pipe lining applicator's recommendations. (Ord. 435 §1, 1996)

Sec. 13-154. Testing and disinfection of water mains.

(a) Leakage test.

(1) The contractor shall perform a leakage test on all newly installed sections of water main. The contractor shall provide all necessary equipment to perform the test under the observation of the Director. Equipment shall include some accurate means of measuring in gallons and tenths of gallons the amount of water pumped into the main during the test. At least twenty-four-hour notice shall be given by the contractor to the Director prior to performing the test.

(2) The duration of each leakage test shall be two (2) hours, during which time the pipe section shall be subjected to a constant hydrostatic test pressure of one hundred fifty (150) psig.

(3) Leakage shall be defined as the quantity of water that must be supplied into the newly laid water main, or any valved section thereof, to maintain the specified leakage test pressure after the air in the pipeline has been expelled and the pipeline has been filled with water. The pipe installation shall not be accepted if the leakage is greater than that determined by the following formula:

$$L = \frac{ND\sqrt{P}}{3700}$$

For mechanical joints and push-on joints, "L" is the allowable leakage in gallons per hour; "N" is the number of joints in the length of pipeline tested; "D" is the nominal diameter of the pipe in inches; and "P" is the average test pressure during the leakage test, in pounds per square inch.

(4) If any leakage test of pipe discloses leakage greater than that specified in the above formula, the contractor shall, at his or her own expense, locate and repair the defective joints or

pipeline until the leakage test meets the standards set forth within these specifications. The Town shall not be responsible for any test failures that result from components of the existing water system that the contractor elects to use in these tests. The use of such components are at the contractor's risk, and the contractor shall repair any damages that result.

(b) Disinfection of water main. Upon completion of construction of new or repaired or extensions of existing water mains, and prior to placing the water distribution system or portion thereof into operation, all waterlines, valves, hydrants and appurtenances shall be thoroughly flushed and disinfected, using a chlorine gas mixture or hypochlorite and water mixture applied in amounts sufficient to produce a dosage of fifty (50) mg/l, and in accordance with AWWA Standard Specifications C-601, as amended, and in accordance with the requirements of the Colorado Department of Health. Chlorine dosage shall be retained in the line at least twenty-four (24) hours, after which time the residual at the end of the line and at other representative points in the line shall be at least ten (10) mg/l. If the residual at the end of twenty-four (24) hours is less than ten (10) mg/l, the entire disinfection operation shall be repeated. (Ord. 435 §1, 1996)

Sec. 13-155. Water services.

(a) General. Water services shall be designed and constructed in accordance with the specifications contained in Section 13-112 of this Article. The installation of water taps on the water main shall be performed by the Public Works Department personnel and shall be installed at the time of water main construction, after the main has been tested and accepted by the Director. Excavation for water main taps shall be performed by the contractor. At no time shall a contractor place water service line taps on a water main. The consultant shall provide grade stakes for both horizontal and vertical location of all service stop boxes. These grade stakes shall also locate the stop box at a point five (5) feet behind the property line. The contractor shall be responsible for bedding, backfill, compaction and maintenance of water service line trenches. Water services shall conform to the water service line and meter installation standard detail.

(b) Connections.

(1) Service water lines two (2) inches or smaller in diameter shall be connected to the water main by means of a bronze corporation stop of the same size as the service line. Service line pipe larger than two (2) inches in diameter shall be connected to the main by a tee connection (wet tap). No underground joints shall be allowed in the copper service pipeline between corporation stop and curb stop. Care shall be taken to properly install water service lines so that enough slack is in the service lines to protect against pullout problems. Water mains shall be tapped at a forty-five-degree angle above the horizontal center line of the water main on the same side of the pipe as the building to be served.

(2) Tapping of water mains may require excavating bedding material and cutting or removing part of the corrosion protective polyethylene wrapping. After taps are made, the wrapping shall be repaired or replaced by the contractor installing the service line in such a manner as to protect both the service line and the water main. Service taps shall have a minimum separation of twenty-four (24) inches and be no closer than twenty-four (24) inches to a coupling. No more than four (4) service taps shall be permitted on any one (1) joint of pipe.

(c) Service saddles, corporation stops and curb stops.

(1) Service saddles. Water service saddles shall be bronze casting with double silicone bronze straps, Series 183-0 as manufactured by R.H. Baker and Company; Type 323 by Smith-Blair, Inc., or an acceptable equal.

(2) Corporation stops. Corporation stops shall be AWWA taper thread to copper connection of pack joint and shall be a Ford Type F-600 or an acceptable equal.

(3) Curb stop. A curb stop or valve of the same size as the service pipe and conforming to the following standard shall be installed on every service line between the water main and the meter at a point at or near the property line. Curb stops shall be compression to compression connections and shall be Ford ball valves, B44666M (1½-inch), B44-777M (2-inch) or acceptable equal. The curb stop service box shall be a cast iron box, extension type. The curb stop box shall be installed exactly center over the curb stop valve and in a vertical position. The top lid of the curb stop box shall be installed a maximum of one (1) inch above the final grade.

(d) Water meters and appurtenances.

(1) Water meters shall be new, first line quality and of the positive displacement type for cold water service, with provision for frost protection, and shall be either nutating-disc or oscillating-piston type. Capacity shall be sized for thirty (30) GPM flow, be equipped with magnetic drive, hermetically sealed registers; be readily adaptable to remote cable communication, read-out assemblies design and manufactured for the brand of meter being supplied.

(2) The body cases of the water meter shall be all bronze construction with manufacturer's serial number appearing thereon and shall have raised markings to indicate the direction of flow and the size. All cases shall have a minimum wall thickness capable of withstanding any hydrostatic test pressure of four hundred fifty (450) psig. The outer case shall be separable from and allow removal of measuring chambers. The cases shall be of two-piece construction sealed by a tamperproof seal wire.

(3) The measuring chamber of the water meter shall be separate from the outer casing and so secured in the main case that the accuracy of the meter will not be affected by any distortion of the case that might occur when operating under a pressure of one hundred fifty (150) psig.

(4) All water meters shall be provided with strainer screens installed in the meter. Strainer screens shall be rigid and of nonferrous material, fit snugly, be easy to remove and have an effective straining area of at least double that of the main-case inlet.

(5) Pistons and discs in the water meters shall be smoothly finished. Disc plates, whether flat or conical, shall be either reinforced or equipped with thrust rollers. The piston and disc spindle shall be securely fastened. Pistons and discs shall be made of vulcanized hard rubber, or a suitable synthetic polymer with specific gravity approximately equal to that of water. The pistons and discs shall have sufficient dimensional stability to retain operating clearances at working temperatures of up to eight hundred (800) degrees Fahrenheit and not warp or deform when exposed to operating temperatures of one thousand (1,000) degrees Fahrenheit. Piston oscillations or disc mutations shall be within five percent (5%) of the figure recommended in AWWA Standard C-700-77 for the size of meter being supplied.

(6) The remote register of the water meter shall be enclosed in a freeze-proof, tamper-resistant enclosure, permit setting or resetting of the register, display a minimum register indication of one hundred (100) U.S. gallons on the first wheel and a minimum allowable capacity register of ten million (10,000,000) gallons, display the manufacturer's serial number on the dial plate or register enclosure cover, have odometer register numerals not less than three-sixteenths (3/16) inch in height, register not less than ninety-eight and one-half percent (98.5%) and not more than one hundred one and one-half percent (101.5%) of the water actually passed through the meter at any flow rate.

(7) The water meter shall produce a low voltage current impulse transmitted via conductor to a remote totalizing register without any source of external power, and activate an electromechanical totalizing register at any location not to exceed five hundred (500) feet from the meter via No. 19 copper wire or larger. (Ord. 435 §1, 1996)

Secs. 13-156—13-170. Reserved.

Division 5
Standards and Specifications for Sanitary Sewer Construction

Sec. 13-171. General.

Furnishing and installation of all sanitary sewer lines, manholes, sanitary sewer services and all other related appurtenances or work within the Town or for future connection to the Town sanitary sewer system shall be performed according to these specifications and those specifications detailed in Section 13-113 of this Article. Excavation, bedding and backfill of trenches of sanitary sewers shall comply with the requirements detailed in the general specifications for both water main and sanitary sewer construction section. Work covered by this specification shall not be accepted until specified testing and backfilling connected with the work has been satisfactorily completed. Any section of sanitary sewer that is found to be defective in tests, materials, alignment, grade or jointing prior to final acceptance shall be corrected to the satisfaction of the Director. (Ord. 435 §1, 1996)

Sec. 13-172. Materials.

(a) General. Materials to be incorporated in the construction of sanitary sewers shall conform to the requirements specified in Section 13-113 of this Article.

(b) Materials handling and storage. All pipeline, fittings and accessories shall be loaded and unloaded or otherwise handled in such a manner to minimize the possibility of damage. All materials shall be stored at the construction site in such a way as to prevent damage and to assure cleanliness.

(c) PVC pipe. Refer to Section 13-113 of these specifications for ASTM designation for PVC pipe and appurtenances.

(1) Tests. All PVC pipe shall be subject to all tests conducted in accordance with Standard Method of Test for External Loading Properties of Plastic Pipe by Parallel-Plate Loading, ASTM Designation D2412, as amended.

(2) Straightness. Maximum allowable ordinate as measured from the concave side of the pipe shall not exceed one-sixteenth ($1/16$) inch per foot of length. Pipe lengths shall be limited to twenty-foot maximum to insure compliance with this requirement.

(3) Internal diameter. Pipe shall be so constructed that the initial internal vertical diameter does not decrease by more than five percent (5%) in order to provide the complete hydraulic carrying capacity conceived by the consultant.

(4) Field testing. In addition to the construction and testing procedures outlined in other sections of these specifications, the contractor shall be required to install the pipe in such a manner so that the maximum ring deflection of the pipeline under load shall be limited to five percent (5%) (plus manufacturing tolerances) of the vertical internal pipe diameter. The contractor shall be required to pull a five-percent go no go gage through the pipe after completion of backfill operations, for all sections of pipe designated by the Director. The Director shall determine the footage to be tested, but in no case shall the test section be less than four hundred (400) feet or between manholes, whichever is less. Testing shall be performed at the expense of the contractor. All pipe exceeding the five-percent deflection shall be considered to have reached the limit of its serviceability and shall be relaid or replaced prior to final acceptance at the expense of the contractor.

(5) Connection to manholes. Rubber gasket-type manhole water stops with integral steel tightening band shall be used on all PVC pipe at entrances and exits to manholes when precast manhole bases are used.

(d) Ductile iron pipe. Ductile iron pipe and appurtenances shall conform to the specifications contained in Section 13-113.

(e) Underdrain pipe (if required). The following materials may be used for underdrain pipe, if required:

(1) Extra-strength nonreinforced concrete conforming with ASTM C-14, nonperforated, with rubber joint construction conforming with ASTM C443 rubber gasket joint construction and installed without the gasket.

(2) Perforated PVC conforming to the requirements of ASTM D-3034-73a, as amended.

(3) Perforated PVC conforming to the requirements of ASTM 2729, as amended.

(f) Manholes.

(1) General. Manhole materials shall conform to the specifications contained in Section 13-113 and the manhole standard details. Concrete used in precast manhole sections and cast-in-place bases shall have a twenty-eight-day compressive strength of three thousand (3,000) psi.

(2) Manhole steps. Manhole steps shall be aluminum or copolymer polypropylene coated steel and shall be cast into the concrete manhole wall at the same time the manhole section is cast. Manhole steps shall be no more than eighteen (18) inches from the rim elevation of the manhole

nor more than eighteen (18) inches from the bench of the manhole. Aluminum steps shall be drop-front design with a minimum tread width of nine (9) inches.

(3) Manhole frame and cover. Manhole covers shall have the word sewer clearly cast in its surface.

(g) Connection fittings between dissimilar sanitary sewer pipe. All connections between dissimilar sewer main or sewer service pipe shall be acceptable to the Director. In general, such connection shall be made only with compression-gasketed slip joint adaptors made specifically for joining the two dissimilar types of pipe together. External-type rubber couplings with external clamps shall only be used in special conditions with the acceptance of the Director. The external clamps shall be stainless steel. All compression joints for existing vitrified clay pipe shall meet ASTM C-425, as amended. (Ord. 435 §1, 1996)

Sec. 13-173. Installation.

(a) General. Sanitary sewer pipeline shall be laid in trenches prepared in accordance with the general specifications for both water main and sanitary sewer construction section. The laying of sanitary sewer pipe shall commence at the lowest point and proceed upgrade so that the pipe is laid with the bell ends facing in the direction of laying. The pipe shall be placed in such a manner that the specified bedding provides a solid, unyielding, uniform bearing surface for the full length of the barrel. The laying of pipe shall terminate at manholes except for single-length stubouts from manholes. Bell holes shall be provided at all joints. Equipment used in handling and jointing the pipe shall have adequate capacity to handle the proper closure of joints. All pipes shall be carefully centered, so that when joined together they shall form a conduit with a smooth, uniform invert. The pipe shall be laid accurately to the grade and alignment specified on the accepted construction drawings. Blocking or wedging of the pipe to achieve proper positioning in grade shall not be permitted, except where required for the proper construction of concrete cradles or encasement. At times when pipe laying is not in progress, the open ends of the pipeline shall be closed by a watertight plug or cap. If water is encountered in the trench, the plug shall remain in place until the trench is pumped completely dry. The grade shall be accurately established for each joint by laser beam. The laser beam shall be checked with a level each time it is moved, each day before construction proceeds, and thereafter as required to assure that the laser beam is set to the correct alignment. All pipe shall be protected during handling against impact shocks and free fall. No pipe section shall be placed in the sewer line if it has been damaged while lowering into the trench.

(b) Joints. The method of joining ductile iron or PVC sanitary sewer pipe in the trench shall be in accordance with specifications of the pipe manufacturer and to the satisfaction of the Director.

(c) Manhole construction.

(1) Manholes shall be constructed at the locations and to the elevations indicated on the accepted construction drawings. Manholes shall be constructed to vertical plumb so as to form a circle in a horizontal plane. The internal diameter of four-foot manhole barrels shall be maintained to a distance of not more than four (4) feet below finished grade. From that point, the manhole barrel shall be tapered to the twenty-four-inch internal diameter for four-foot diameter manholes as shown on the standard manhole drawing. The manhole barrel shall be watertight at all joints. Precast concrete adjustment rings shall be used on top of the cone to support and adjust

the manhole frame to the required final grade. The cone section shall not extend closer than eight (8) inches to, nor more than sixteen (16) inches from, the top of the manhole ring. Maximum depth of adjustment rings shall be such that there are no more than eighteen (18) inches between steps.

(2) The horizontal joints between precast concrete manhole sections shall be plastered and troweled smooth, inside and outside, with Portland cement mortar. The mortar shall not be less than five-eighths ($\frac{5}{8}$) inch in thickness over the joint and shall extend at least four (4) inches either side of the joint. The joint between the manhole base and the lowest precast section shall be grouted, inside and outside.

(3) Sealants. The contractor shall have the option of using preformed flexible plastic joint sealing compound in lieu of mortar for the horizontal joints between precast concrete manhole sections. The flexible plastic joint sealing gaskets shall be an acceptable equal to RAM-NEK or RUB-R-NEK as manufactured by K.T. Schneider Company, Inc., of Houston, Texas.

(4) The bottom of all manholes shall be smoothly shaped to conform to the pipe, as shown on the Standard Detail so as to allow a free, uninterrupted flow of sanitary sewage. Changes in direction of flow through the manhole shall be made with a smooth curve channel having as large a radius as possible. The change in size of channel shall be made gradually and evenly and shall be formed directly in the concrete. The flow channel through the manhole base shall be made to conform in shape, slope and smoothness to maintain the same velocity as that in the sewers. The floor of the manhole outside of the channel shall be finished to brush surface and shall slope to the channel. The top elevation of the manhole base shall not be less than eight (8) inches under the lowest pipe invert entering the manhole.

(5) The sanitary sewer pipe shall be laid continuously through manholes wherever grade and alignment permit. After the manholes are constructed, the upper half of the pipe shall be cut out and bottom finished.

(6) All manhole concrete work shall be protected from freezing.

(7) Manhole exteriors shall be supplemented by a waterproof coal-tar epoxy coating where the Director determines unfavorable groundwater conditions prevail.

(8) All PVC piping shall have a manhole water stop gasket firmly attached to the pipe prior to grouting into the manhole. The opening in the manhole wall where a pipe enters or leaves shall be mortared shut and patched both inside and out with nonshrink mortar.

(d) Connections to existing manholes. Sanitary sewer pipe connections to existing manholes, where there is no existing pipe stubbed out, shall be performed in such a manner that the finished work shall conform as nearly as practicable to the requirements specified for new manholes. The contractor shall break out as small an opening in the existing manhole as necessary to insert the new sewer pipe. The existing concrete foundation bench shall be chipped to the cross-section of the new pipe in order to form a smooth continuous invert similar to what would be formed in a new concrete base. Cement grout shall be used as necessary to smoothly finish the new invert and to seal the new line to insure that the junction is water tight.

(e) Drop manholes. Construction of outside drop manholes shall be in accordance with the design criteria for sanitary sewers and with the standard detail for drop manholes. (Ord. 435 §1, 1996)

Sec. 13-174. Testing of sanitary sewer construction.

(a) Compaction testing. Testing of backfill compaction for sanitary sewer line and manhole installation shall be in accordance with the specifications for backfilling and compaction of backfill as specified in the general specifications for both water main and sanitary sewer construction.

(b) Sanitary sewer pipeline leakage and infiltration testing.

(1) General. At the option of the Director, each section of sanitary sewer between two (2) successive manholes shall be tested for leakage and/or infiltration. These tests shall be performed subsequent to acceptance of backfill compaction test results by the Director. Even though a section of sanitary sewer may have previously passed the leakage or infiltration test, each section of sewer may be tested subsequent to the last backfill compaction operation in connection therewith, wherein the opinion of the Director, heavy compaction equipment or any of the operations of the contractor or others may have damaged or affected the required watertight integrity of the pipe, structure or appurtenances. The contractor shall furnish all materials required for the tests. Tests shall be made in the presence of the leakage and infiltration Director. If the leakage and/or infiltration rate as shown by the tests specified herein is greater than the amount specified within this section, the pipe joints shall be repaired, or if necessary, the pipe shall be removed and relaid by the contractor. The sanitary sewer shall not be considered acceptable until the leakage and/or infiltration rate, as determined by testing, is less than that allowable. The contractor may at his or her option air-test or water-test for leakage except where:

a. In the opinion of the Director, excessive groundwater is encountered, then the infiltration test shall be performed; or

b. Where the difference in elevation between the invert of the upper manhole and the invert of the lower manhole is more than ten (10) feet, then the air test shall be made.

(2) Leakage testing.

a. Water test. Each section of sanitary sewer between two (2) successive manholes shall be tested by closing the lower end of the sewer to be tested and the inlet sewer of the upper manhole with plugs or stoppers and filling the pipe and manhole with water to a point four (4) feet above the invert of the open sewer in the upper manhole or to a height of ten (10) feet above the invert of the sewer in the lower manhole, whichever gives the least hydrostatic pressure on the lower manhole. The total leakage shall be the decrease in volume in water in the upper manhole. The leakage shall not exceed twenty-three hundredths (0.23) gallon per hour per inch of nominal diameter of sanitary sewer pipe per one hundred (100) feet of sewer pipe being tested. The length of service connections shall not be used when computing the length of sewer main being tested. The leakage limits shall exclude exfiltration of manholes. If the leakage is shown by the water leakage test as greater than allowed, the pipe shall be overhauled and, if necessary, replaced and relaid until joints and pipes shall hold satisfactorily under this test. All tests shall be completed before street or trench is resurfaced. The

contractor shall furnish all labor and materials for making the tests required. If components of the existing sanitary sewer system are used for these tests, the Town shall not be responsible for problems encountered in testing of these components. The contractor assumes all risks and shall be responsible for repair of damages incurred to such existing components.

b. Air test procedure. Each section of sanitary sewer between two successive manholes shall be tested by plugging all pipe outlets with suitable test plugs. Air shall be slowly added until the internal pressure is raised to four (4) psig. The compressor used to add air to the pipe shall have a blow-off valve set at five (5) psig to assure that at no time the internal pressure in the pipe exceeds five (5) psig. The internal pressure of four (4) psig shall be maintained for at least two (2) minutes to allow the earth temperature to stabilize, after which the air supply shall be disconnected and the pressure allowed to decrease to three and one-half (3.5) psig. The time in minutes that is required for the internal air pressure to drop from three and one-half (3.5) psig to two and one-half (2.5) psig shall be measured and the results compared with the values listed in the following table:

<i>Pipe Diameter (inches)</i>	<i>Test Time (minutes)</i>	<i>Minimum Distance Between Manholes (feet)</i>
8	4	340
10	5	260
12	6	230
15	7	170
18	9	150

The above tabulated value shall be used for the respective diameter pipes except where the distance between successive manholes is less than the above tabulated values, in which case the following formula shall be used to determine the test time:

$$T = 0.000183 d^2 L$$

T = test time, in minutes;

d = inside diameter of pipe, in inches;

L = distance between successive manholes in feet.

If the pressure drop from three and one-half (3.5) psig to two and one-half (2.5) psig occurs in less time than the above tabulated or calculated values, the pipe shall be overhauled and, if necessary, replaced and relaid until the joints and pipe shall hold satisfactorily under this test.

An air pressure correction is necessary when the prevailing groundwater is above the sewer line being tested. Under this condition, the air test pressure shall be increased four hundred thirty-three thousandths (0.433) psig for each foot the groundwater level is above the invert of the pipe. If the prevailing groundwater is more than two (2) feet above the invert of the pipe, the infiltration test shall be used. Thus, internal air pressure should never exceed five (5) psig. If components of the existing sanitary sewer system are used for the test, the Town is not responsible for problems encountered in testing of these components. The contractor assumes all risks and shall be responsible for repair of damages incurred to such existing components.

(3) Infiltration testing. If, in the construction of a section of the sanitary sewer between manholes, excessive groundwater is encountered, the test for leakage shall not be used, but instead, the end of the sewer at the upper manhole shall be closed sufficiently to prevent the entrance of water and pumping of groundwater shall be discontinued for at least three (3) days, after which the section of sanitary sewer lines shall be tested for infiltration. The infiltration shall not exceed sixteen-hundredths (0.16) gallons per hour, per inch of diameter, per one hundred (100) feet of sanitary sewer line being tested or as indicated in the following table, where the computed length does not include the length of sewer service laterals entering that section of line. Where any infiltration in excess of this amount is discovered before completion and acceptance of the sewer, the sewer shall be immediately uncovered and repair or modifications shall be made as required to reduce the amount of infiltration to a quantity within the specified amount of infiltration before the sewer is accepted, at the expense of the contractor. Should, however, the infiltration be less than the specified amount, the contractor shall stop any individual leaks that may be observed when directed to do so by the Director. The contractor shall furnish all labor and materials for making the tests required. All tests shall be completed before the street or trench is resurfaced. If components of the existing sanitary sewer system are used for these tests, the Town is not responsible for problems encountered in testing of these components. The contractor assumes all risks and shall be responsible for repair of damages incurred to such existing components.

Allowable Limits of Infiltration

(200 gallon/inch diameter/mile/day or 0.16 gallon/inch diameter/100 feet/hour)

<i>Diameter of Sewer (inches)</i>	<i>Infiltration Gallons/ Hour/100 Feet (gallons)</i>
8	1.3
10	1.6
12	1.9
15	2.4
18	2.8

(c) Manhole leakage test. Manholes shall be tested for leakage separately from the sanitary sewer pipe. The sewer pipes entering the manhole shall be plugged. If the groundwater table is below the invert of the manhole, the manhole shall be filled with water to a depth of five (5) feet above the invert. If the groundwater table is above the invert of the manhole, the manhole shall be filled to a level at least three (3) feet above the groundwater table or to the top of the uppermost precast manhole section, whichever is less, but not less than five (5) feet above the manhole invert. After soaking for one (1) hour, the manhole shall be filled to the original level. It shall then be tested for two (2) hours. The allowable drop of water shall be one-fourth (1/4) inch. No manhole shall be accepted that has any visible infiltration when empty. At least twenty percent (20%) of all manholes shall be tested. Based upon these tests and visual inspection of all manholes, additional tests may be required for other manholes. Any manhole testing unsatisfactorily shall be repaired and retested until satisfactory results are obtained.

(d) Tests for alignment and grade, and damaged or defective pipe in place. After the sanitary sewer pipe has been installed, tested for leakage, backfilled and manhole raised to grade, the Director will lamp or television (TV) inspect all lines. All defective portions of the new sanitary sewer

facilities will be noted to the contractor after the lamping or TV operation is complete. All lines shall be flushed and manholes cleaned by the contractor prior to the lamping or TV procedure. At the request of the Director, the line shall be balled to remove dirt, rocks or other foreign matter not removed during the flushing operation. No flushed water or material shall be discharged to existing sewer lines. In case there is still some question as to the condition of the sanitary sewer line, the Director may require that pictures be taken of the interior of that portion of the sewer line under question. After pictures have been interpreted by the Director, should the sewer line be interpreted to be defective, the cost of taking the pictures shall be borne by the contractor. Should the sewer line be interpreted as being acceptable, the cost of taking the pictures shall be borne by the Town. All pictures shall become the property of the Town after interpretation. Final acceptance of the sanitary sewer lines and related facilities shall not be granted until all tests are successful and all items listed for correction by the Director have been accomplished by the contractor. (Ord. 435 §1, 1996)

Sec. 13-175. Sanitary sewer service lines.

(a) Location and connections. Sanitary sewer service lines shall be constructed in accordance with the specifications contained in Section 13-113 of this Article. Sanitary sewer lines which are designed for residential subdivisions shall have tees included in the main for service lines. The tees are to be located at approximately the middle of the lot to be served. The service lines are to be constructed in conjunction with the sanitary sewer mains and are to be installed to a point six (6) feet inside the property line and plugged. The sanitary sewer service line shall be laid not less than the minimum grade as required by the International Plumbing Code. Service lines shall enter the main at an angle of ninety (90) degrees or less to the main upstream of the connection, as shown in the Service Wye Detail. No sewer service line shall enter the main against the flow in the main. In the event that there is a need for additional service line connections once the sewer main has been installed, or a need to tap into an existing main, such service line connections shall be performed by the Town and the cost billed to the contractor. The contractor shall coordinate said connections with the Director.

(b) Separation. Sanitary sewer service lines shall be located at least ten (10) feet measured horizontally from all water service lines.

(c) Staking of location. The consultant or contractor shall place a grade stake locating each sewer service before it is installed. Both the tee and the end of the service shall be so staked. Where all taps are made, the contractor shall keep accurate records of service connections including location, elevation of the service at the property line and type of connection provided. Service connections shall be located with respect to the survey line stationing and/or house corners or lot corners, where services lines are not being connected immediately after installation of the tap to the main. The contractor shall furnish and set two (2) marker posts. One (1) marker post shall be buried a minimum of three (3) feet, shall extend a minimum of two (2) feet above the ground surface and shall have a piece of green flagging at the top or be painted green. The second marker shall extend from the end of the stubbed service line to eighteen (18) inches below the existing surface. The marker posts shall be wood 2 x 4's, 4 x 4's or No. 4 rebar.

(d) Notification. If the sanitary sewer service of any existing customer may be affected by a service connection or reconnection to a new or existing sewer, the existing customer shall be given a twenty-four-hour notice by the contractor stating when and for how long service may be interrupted. (Ord. 435 §1, 1996)

Secs. 13-176—13-190. Reserved.

ARTICLE V

Cross-Connection and Backflow Prevention Control

Sec. 13-191. Scope.

Where, in any specific case, different requirements are specified by the International Building Code, other codes or regulations adopted by the Town or the provisions of this Article, the more restrictive shall govern. (Ord. 597 §1, 2003; Ord. 648 §1, 2008)

Sec. 13-192. Definitions.

Unless the context specifically indicates otherwise, the following terms, as used in this Article, shall have the meanings hereinafter designated:

Approved backflow prevention device means a device accepted and approved by the Director of Public Works as suitable for protection against cross-connections as contained in this Article.

Auxiliary water supply means any water supply on or available to a customer or user's premises other than the utilities' water supply system.

Backflow means the flow of water or other liquids, fluids, mixtures, gases or any other substance into the distribution main, water supply system, any user's potable water system or any service line from any source other than its intended source.

Backflow prevention device means any approved backflow prevention device or any device intended to prevent backflow or protect against cross-connections.

Certified cross-connection control technician means a person who has received training in the testing, operation and maintenance of cross-connection containment devices. Such person must be certified by the Colorado Department of Public Health and Environment and approved by the Director of Public Works.

Colorado Cross-Connection Control Manual means the most current edition of the Colorado Cross-Connection Control Manual published by the Colorado Department of Public Health and Environment.

Colorado Primary Drinking Water Regulations means any regulations promulgated by the State or any agency thereof to assure the safety of public drinking water supplies and to enable the State to assume responsibility for enforcing the standards established by the Federal Safe Drinking Water Act (Public Law 93-523), as amended.

Cross-connection means any unprotected actual or potential connection or structural arrangement between the water supply system or a user's potable water system or service line and any other source or system through which it is possible to introduce into any part of the potable system any used water, industrial fluid, gas or substance not meeting the current Colorado Primary Drinking Water Regulations, as such regulations exist now or may hereafter be amended. Bypass

arrangements, jumper connections, removable sections, swivel or changeover devices and other temporary or permanent devices through which or because of which backflow can or may occur are considered to be cross-connections.

Cross-connection control service standards and specifications means The Colorado Cross-Connection Control Manual, as amended by the Director of Public Works.

User's potable water system means any water supply located on the user's premises, whether supplied by the utilities' water supply system or an auxiliary water supply. (Ord. 597 §1, 2003; Ord. 648 §1, 2008)

Sec. 13-193. Unlawful acts.

(a) It shall be unlawful for any person to pollute or contaminate any service line, user's potable water system or the water supply system with any water or other liquids, fluids, mixtures, gases or any other substance not meeting the Colorado Primary Drinking Water Regulations.

(b) It shall be unlawful for any person to make, install, maintain or permit to exist any cross-connection, unless it is protected by an approved backflow prevention device meeting the requirements of the cross-connection control service standards and specifications. (Ord. 597 §1, 2003; Ord. 648 §1, 2008)

Sec. 13-194. Plan approval.

All drawings, plans, specifications and other documents required by Section 13-51 of this Chapter shall be submitted to and approved by the Director of Public Works prior to connecting a service line to the water supply system. Such information must include, but may not be limited to, the following:

- (1) Water service type, size, location and related appurtenances;
- (2) Meter type, size and location;
- (3) Backflow prevention assembly type, size and location; and
- (4) Fire sprinkler systems service line, type, size and location of backflow prevention assembly. (Ord. 597 §1, 2003; Ord. 648 §1, 2008)

Sec. 13-195. Installation.

All approved backflow prevention devices shall be installed at the user's expense in accordance with the cross-connection control service standards and specifications. (Ord. 597 §1, 2003; Ord. 648 §1, 2008)

Sec. 13-196. Inspection.

All backflow prevention device installations shall be inspected for compliance with this Article and approved by the Director of Public Works prior to the furnishing of water service. The Town shall not be subjected to any liability for any deficiency or defect which is not discovered by inspection, nor shall the owner, developer, customer or user of such premises be absolved from any

liability for such deficiency or defect and any responsibility to correct such deficiency or defect. (Ord. 597 §1, 2003; Ord. 648 §1, 2008)

Sec. 13-197. Admission to property.

Whenever it shall be necessary for the purposes of this Article, the Director of Public Works has the power, upon the presentation of proper credentials, to enter and inspect at any reasonable time and in any reasonable manner any property, premises or place for the purpose of investigating any actual, suspected or potential cross-connection, ascertaining noncompliance with this Article or assuring proper installation and operation of any backflow prevention device. Any such entry shall be at reasonable times unless an emergency situation exists. The occupant of such property or premises shall render all proper assistance in such activities. If entry or inspection to any property is denied or not promptly consented to, or at any other time to investigate sources of contamination impacting the water supply system, the Director of Public Works is empowered to obtain, from any court with jurisdiction, a warrant to enter and inspect any such property, premises or place. (Ord. 597 §1, 2003; Ord. 648 §1, 2008)

Sec. 13-198. Requirements.

(a) Without limitation, and in addition to the general requirements of this Article, any commercial user desiring to connect a service line to the water supply system after April 1, 2005, shall install an approved backflow prevention device on each service line, at the user's expense, within a user's potable water system, immediately following the meter and, in all cases, before the first branch line leading off the service line.

(b) Without limitation, and in addition to the general requirements of this Article, any new or existing commercial or residential user connected to or desiring to connect a service line to the water supply system after April 1, 2005, shall install an approved backflow prevention device on each service line, at the user's expense, within a user's potable water system, immediately following the meter and, in all cases, before the first branch line leading off the service line wherever the following conditions exist:

(1) In the case of a premises with an auxiliary water supply, such as a well or independent water tank, which presents cross-connection hazards, the water supply system shall be protected by installing an approved backflow prevention device in the service line appropriate to the degree of hazard found within the user's premises.

(2) In the case of premises on which any industrial fluids or any other objectionable substance is handled in such a fashion as to create a cross-connection, the water supply system and the user's potable water system shall be protected by installing an approved backflow prevention device in the service line appropriate to the degree of hazard found within the user's premises.

(3) In the case of premises having internal cross-connections that cannot be permanently corrected and controlled or having intricate plumbing and piping arrangements, or where entry to all portions of the premises is not readily accessible for inspection purposes, making it impractical or impossible to ascertain whether or not cross-connections exist, the water supply system shall be protected by installing an approved backflow prevention device in the service line appropriate to the degree of hazard found within the user's premises.

(4) In the case of premises where there is a fire protection system that is connected to the Town's water supply, an approved backflow prevention device shall be installed in accordance with the cross-connection control service standards and specifications. (Ord. 597 §1, 2003; Ord. 648 §1, 2008)

Sec. 13-199. Management plan.

The Director of Public Works may require any user to submit a cross-connection control management plan. The management plan shall be approved by the Director of Public Works and must include, but shall not be limited to, information on all backflow prevention devices, testing frequencies and a hazard assessment and identification. (Ord. 597 §1, 2003; Ord. 648 §1, 2008)

Sec. 13-200. Testing.

Any user at any premises where a backflow prevention device is required by this Article shall have operational tests made upon installation and at least annually after installation. Such tests shall be performed, at the user's expense, by a certified cross-connection control technician and shall be performed in accordance with the procedures identified in the cross-connection control service standards and specifications. In those instances where the Director of Public Works deems a hazard to be great enough, such tests may be required at more frequent intervals. (Ord. 597 §1, 2003; Ord. 648 §1, 2008)

Sec. 13-201. Maintenance and replacement of backflow prevention devices.

All backflow prevention devices shall be repaired or replaced at the expense of the user whenever the device is found to be defective by the user, a certified cross-connection control technician or the Director of Public Works. All backflow prevention devices not meeting the requirements of this Article shall be replaced at the user's expense. Any such backflow prevention device shall be repaired or replaced within ten (10) days of discovery by the user, a certified cross-connection control technician or the Director of Public Works, unless arrangements satisfactory to the Director of Public Works are made. (Ord. 597 §1, 2003; Ord. 648 §1, 2008)

Sec. 13-202. Recordkeeping.

Records of all test, inspections, repairs and replacements of backflow prevention devices shall be kept by the user, the certified cross-connection control technician and the Director of Public Works for a period of three (3) years after such tests, inspections, repairs and replacements. The certified cross-connection control technician shall submit to the Director of Public Works a copy of all such tests, inspections, repairs and replacements on forms provided by the Director of Public Works. If requested by the Director of Public Works, the user or certified cross-connection control technician shall immediately provide copies of such tests, inspections, repairs and replacements. (Ord. 597 §1, 2003; Ord. 648 §1, 2008)

Sec. 13-203. Hazard identification.

The Director of Public Works may conduct surveys of water supply system users to identify potentially hazardous service connections or cross-connections. Surveys may consist of written instruments, verbal interviews or physical inspections. Water supply system users shall complete

such survey and otherwise cooperate in the identification of potentially hazardous service connections or cross-connections according to terms and conditions prescribed by the Director of Public Works. Whenever a user fails to complete a hazard identification survey in accordance with this Section, the water supply system shall be protected, at the user's expense, by the most protective approved backflow prevention device provided for in the cross-connection control service standards and specifications, regardless of the actual hazard present. (Ord. 597 §1, 2003; Ord. 648 §1, 2008)

Sec. 13-204. Enforcement; remedies.

It is the purpose of this Section to provide additional and cumulative remedies. The Director of Public Works may use the following remedies either individually, sequentially or in any order:

(1) Whenever the Director of Public Works finds that any user has violated or is violating this Article, the Director of Public Works may take any action authorized in this Article or elsewhere in this Chapter.

(2) Any person who has violated or is violating this Article may be subject to the penalties provided for in this Article or elsewhere in this Chapter. No person shall be subjected to such penalties until and unless that person fails to comply with an emergency suspension order.

(3) Imminent hazard order. The Director of Public Works may issue an imminent hazard order when he or she reasonably concludes that any of the following circumstances exist:

a. Any use of or connection to the Town's water supply system has been made, or appears imminent to be made, in violation of the provisions of this Article;

b. Violation of any provision of this Article has occurred or appears imminent to occur;

c. Any discharge of wastewater, industrial wastes or other wastes into the wastewater treatment system contrary to the provisions of this Article; or

d. Any other act or condition which damages, injures or threatens to damage or injure the Town's water system or wastewater systems.

An imminent hazard order may contain administrative fines and/or extra cost charges. Failure to comply with an imminent hazard order may be deemed an emergency circumstance justifying issuance of an emergency suspension order under Paragraph (4) below.

(4) Emergency suspension order. The Director of Public Works may order the emergency suspension of any user's water service when such suspension is necessary in the opinion of the Director of Public Works to protect any person or the water supply system. The time at which the water service will be terminated must be specified. An emergency suspension order may contain administrative fines and/or extra-costs charges. Water service may be suspended if:

a. Unprotected cross-connections exist on the user's premises;

b. A defect is found in an installed backflow prevention device; or

c. A backflow prevention device has been removed or bypassed.

(5) Extra-costs charges. The Director of Public Works may assess a charge to recover costs incurred by the utilities for monitoring, investigation and/or any quantifiable damages to the water supply system attributable to any person who is found to have violated this Article. Extra-costs charges may be assessed as part of an imminent hazard order or an emergency suspension order.

(6) Administrative fines. Not as a criminal penalty and only as an administrative measure (civil penalty), administrative fines encourage compliance and offset unquantifiable damage to the public water supply from noncompliance, any user who is found to have violated any provision of this Article or orders issued hereunder may be assessed an amount not to exceed one thousand dollars (\$1,000.00) per violation per day. Each day on which noncompliance shall occur or continue may be deemed a separate and distinct violation. Notwithstanding the foregoing, no person shall be liable for any administrative fines for violations occurring before receipt of that person's first imminent hazard order regarding the violation. (Ord. 597 §1, 2003; Ord. 648 §1, 2008)

Sec. 13-205. Rights of appeal.

(a) Administrative review. Any person aggrieved by an imminent hazard order of the Director of Public Works may appeal said order to the Board of Trustees, if a timely request for hearing is made within ten (10) days. The decision of the Board of Trustees shall be a final order.

(b) Judicial review.

(1) Any party adversely affected by the decision of the Board of Trustees may appeal it to the District Court in and for Boulder County, Colorado, pursuant to Rule 106(a)(4) of the Colorado Rules of Civil Procedure. If the alleged violator fails to submit a timely written request for a hearing, the alleged violator has failed to exhaust administrative remedies and may not appeal to the District Court.

(2) Emergency suspension order. An emergency suspension order shall constitute final agency action for all purposes under this Article and applicable state statutes, rules and regulations. (Ord. 597 §1, 2003; Ord. 648 §1, 2008)

Secs. 13-206—13-220. Reserved.