



Building a Better World
for All of Us®

MEMORANDUM

TO: Emma Heth, Planner II

FROM: Chris McGinnis, PE

DATE: September 4, 2026 (Revised September 10, 2026)

RE: 207 Granite Street (MAJ-26-0003) Engineering 3rd Review

The revised MAJ-26-0003 Major Site Plan submittals, dated 08.14.26, were reviewed for general conformance with Town Code, standards, and general engineering principles. Comments have been added to the attached plans and also summarized below. Comments shall be addressed by Applicant prior to engineering approval.

Driveway Access

The current submittal represents an improvement over previous submittals, as it significantly reduces the number of driveway connections to Town streets and number of waivers that would be needed. However, the proposed access configuration still does not comply with several provisions of the Town Code and Frisco Street Design Standards:

- **Access from 2nd Avenue.** A driveway connection is proposed to 2nd Avenue. Section IV-D-j of the Frisco Street Design Standards states, *“No driveways will be allowed onto collector or major arterial streets unless no other access to the lot exists”*. Because an alley is located adjacent to the site and provides an alternative means of access, the proposed driveway does not comply with this requirement.
- **Separate Dumpster Access:** A second driveway is proposed to serve the trash dumpster enclosure. Section IV-D-m of the Frisco Street Design Standards states, *“Dumpster enclosures shall be accessed through the same driveway allowed for access to the property.”* The proposed separate access does not meet this standard.
- **Dumpster Driveway Alignment:** The proposed dumpster access does not intersect the alley at a ninety-degree angle. Section IV-D-g of the Frisco Street Design Standards states, *“All driveways shall intersect the access street at ninety (90) degrees.”* As proposed, this requirement is not satisfied.
- **Internal Driveway Classification:** The internal access drive does not meet the Town's roadway standards. Pursuant to Section 180-9.3 of the Town Code, *“If an access way serves more than four residences, it shall be classified as a roadway rather than a driveway and must meet the Town's standards and requirements for road construction.”* Based on the proposed development, the access appears to meet the definition of a roadway and would therefore be required to comply with applicable Town roadway standards.

If the applicant intends to move forward with the proposed site plan, waiver requests for the items identified above should be submitted as soon as possible to allow for review. Each waiver request must include a justification explaining why compliance with the applicable code provision cannot be achieved on the site.

Submission of a waiver request does not imply staff support or Town approval. As shown in the redlines below, staff has identified a potential alternative access configuration from the alley that appears to be feasible. Because alley access is generally preferred as a means of preserving on-street parking capacity along public streets and improving pedestrian and vehicular safety by reducing driveway conflicts, the Town may not support or approve waiver requests associated with the proposed access from 2nd Avenue, the separate dumpster access, or the noncompliant dumpster driveway alignment when a feasible alley-access alternative exists. The applicant is strongly encouraged to evaluate modifications to the site plan that utilize the alley and otherwise achieve compliance with these standards prior to pursuing waiver requests.

Complete Streets – Granite Street

The Town has designed and planned construction of future roadway improvements, including a new sidewalk in Granite Street near the proposed development.

- The site plan proposes sidewalk connections to Granite Street. These connections will lead pedestrians to the roadway (safety concerns), reduce snow storage, and require demolition of the concrete during the future project. Instead, a parallel sidewalk leading to 2nd Avenue should be added close to the property line, within the Granite Street right-of-way to address the concerns above (see redlines).
- The proposed fire hydrant in Granite Street will need to be reviewed for conflicts with proposed Granite Street changes and the location may need to be modified after further review.

Landscaping

- Trees are proposed in many of the snow storage areas. Per Section 180-9.3, “snow storage areas may be combined with required landscaping if the landscaping is designed to be compatible with large amounts of snow”. Many of the trees shown do not appear compatible with large amounts of snow.
- Many of the proposed tree trunks are located in the right-of-way and need to move outside the right-of-way

Grading, Drainage, and Other

The following items are noted on the plans:

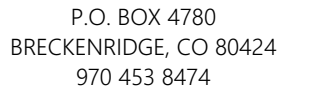
- The architectural site plan is not consistent with the civil site plan and needs to be updated to match.
- Water standards require 10' of separation between water and sewer. An existing water stub is within 10' of a proposed sewer line and a water and sewer service in the alley are within 10'.
- Section 180-6.17 of Town code states that “dumpster locations shall not be located within any utility easement”. The proposed dumpster location is located above several sewer lines and appears to not meet this code section.
- Four parallel sewer services are proposed into the Town alley. It is preferred to combine into a single main to minimize impacts and encroachment in the Town ROW.
- Town code requires detention of the 25-year storm to historic flows. Two drywells are proposed, but the north portion of the site flows undetained. A drainage report or memo will be required to confirm that offsite flows are not increasing above historic and the concentrated outflow near the alley will need to be analyzed.
- The contours on the north sidewalk exceed ADA standards.

- The proposed contours near the dumpster enclosure exceed IRC standards of 2:1 max slope. Grades shall be revised below 2:1, and it is recommended to grade below 3:1. Grades exceeding 3:1 require erosion blankets.
- Positive drainage required away from dumpster enclosure.
- The east guest parking space might not meet a turning movement for an AASHTO passenger vehicle. Turning movement to be analyzed and confirmed.
- Previous discussions included option of stubbing utilities at end of internal drive for future development of lot to the east. While not required by code, a reciprocal access and utility easement on the internal driveway may be beneficial to this and the future development by providing improved vehicle access and utility access to both developments, and should be considered by applicant.
- Three series of steps are shown on the east sidewalk. While not required by code, applicant should consider consolidating stairs together.

Review and approval of these plans does not imply responsibility of the reviewing entity for the accuracy, completeness, or correctness of the design, nor does it relieve the design professional of responsibility of the plans.

The Town and SEH reserves the right to add or modify comments based on new or revised information provided by the Applicant(s).

Chris McGinnis, PE
SEH, Inc.



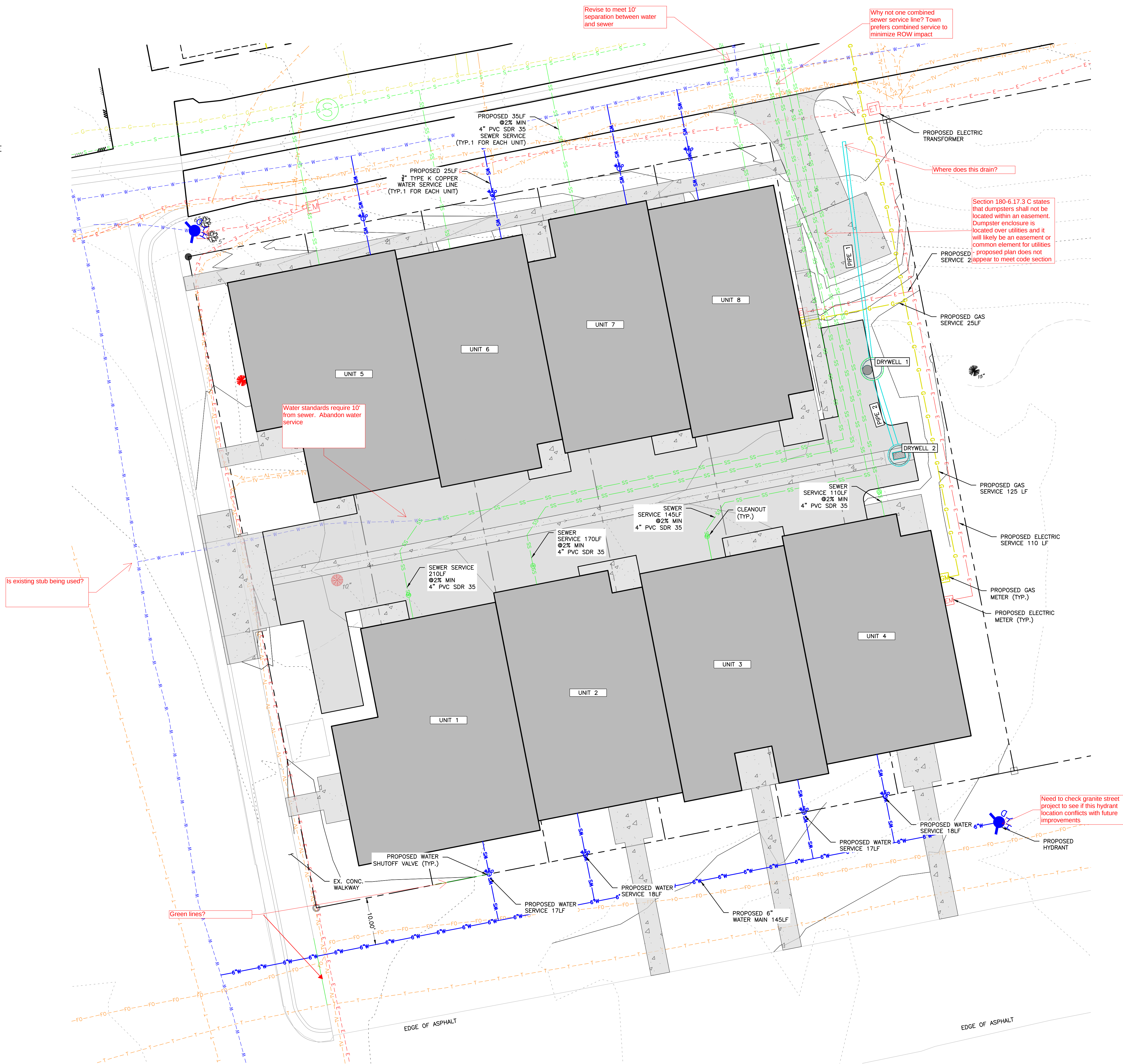
GRANITE STREET HOMES

LOTS 13 - 18, BLOCK 8
207 GRANITE STREET
FRISCO, COLORADO

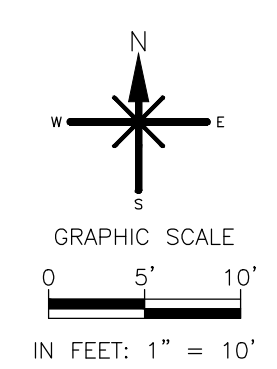
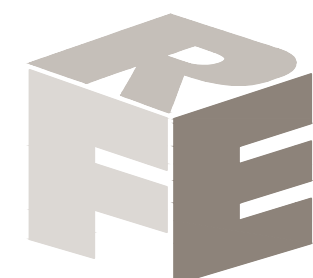
2619
BY NJ/GP
14/26 - SKETCH PLAN

A-2





KEY
= PROPOSED ASPHALT
= PROPOSED CONCRETE



ROARING FORK ENGINEERING
592 HIGHWAY 133
CARBONDALE, CO 81623
RFEENG.BIZ | (970) 340-4130

DRAFT

CHECKED BY: AWA
DRAWN BY: MAC

DRAWN BY:
MAC

DATE
07.29.26

DESCRIPTION
SKETCH PLAN

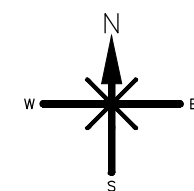
1

JOB #: 2026-51
NOT FOR CONSTRUCTION

GRANITE STREET HOMES
LOTS 13-18 BLOCK 8
FRISCO, COLORADO

PRELIMINARY UTILITIES

C3
OF 4



GRAPHIC SCALE
0 5 10'
IN FEET: 1" = 10'

ROARING FORK ENGINEERING

592 HIGHWAY 133
CARBONDALE, CO 81623
RFEENG.BIZ | (970) 340-4130

DRAFT

CHECKED BY: AWA
DRAWN BY: MAC

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MAC

DATE:
07/29/26

DESCRIPTION:
SKETCH PLAN

1

JOB #: 2026-51
NOT FOR CONSTRUCTION

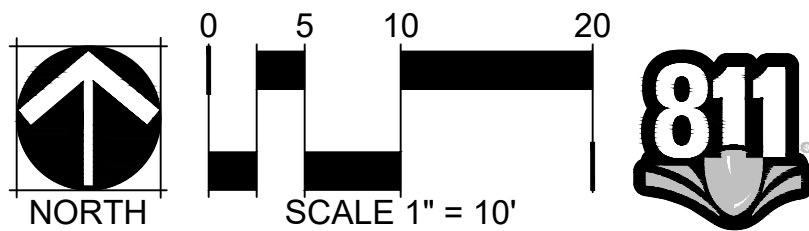
GRANITE STREET HOMES
LOTS 13-18 BLOCK 8
FRISCO, COLORADO

GRADING & DRAINAGE

C4
OF 4



CHECKED BY: MT_LN
DRAWN BY: NP_CH



LEGEND	
	SNOW STORAGE
SITE SF: 6,905 SF	
REQUIRED: 1,975 SF	
PROVIDED: 2,200 SF	

GRANITE STREET HOUSING
LOTS 13 - 18, BLOCK 8, 207 GRANITE STREET
FRISCO, COLORADO

OWNER:
PALISADE PARTNERS
2700 S. BROADWAY ST, SUITE 200
ENGLEWOOD, CO 80113
(970) 471-0963
CSHAMLIN@PALISADEPARTNERS.COM

NOT FOR
CONSTRUCTION

DATE:
07/30/26 SKETCH PLAN

SHEET TITLE:
SNOW STORAGE
PLAN

LS-003

Heth, Emma

From: Christopher McGinnis <cmcginnis@sehinc.com>
Sent: Tuesday, September 8, 2026 4:14 PM
To: Heth, Emma; Southworth, Josh
Cc: Kent, Katie
Subject: Re: 207 Granite St Sketch Plan Comments
Attachments: Granite Street Plan.pdf; 207 Granite Street_Steep Slope Analysis.pdf

Follow Up Flag: Follow up
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Hi Emma,

I attached a site plan showing the Granite Street plan in this area (detached sidewalk and head-in parking). I have recommended they modify the sidewalk connections to connect into 2nd Ave and to be in accordance with the Granite plan - sidewalks leading into Granite, as currently proposed, is not great for pedestrians.

I also included a steep slope analysis. It appears they are proposing disturbance of approx 3,340 SF of steep slopes (15-30%). They're not meeting code currently as they are proposing 100% of the steep slope disturbance. However, I think they may qualify for the exception below as this grade is likely manmade and isolated. Additionally, the area has little vegetation currently and prone to erosion - so the development may not be negatively impacting this slope.

F. Exceptions for Minor Changes in Slopes. Development may disturb steep sloped area the slope is due to a minor natural or manmade change in the gradient of a slope and continuous with or integral to any other slope or other features.

Thanks,

Chris McGinnis, PE (CO, AZ)
Sr. Engineer & Client Manager
Short Elliott Hendrickson Inc. (SEH®)
970.216.9659 mobile | 720.540.6800 main

From: Heth, Emma <emmah@townoffrisco.com>
Sent: Tuesday, September 8, 2026 10:02 AM
To: Christopher McGinnis <cmcginnis@sehinc.com>; Southworth, Josh <joshs@townoffrisco.com>
Cc: Kent, Katie <katiek@townoffrisco.com>
Subject: RE: 207 Granite St Sketch Plan Comments

Thanks Chris! I just have two clarifying questions:

- Could you share a screenshot of what the Granite St improvements are supposed to look like in this area? Planning Commission usually asks.
- Does the proposed grading on the north side of the site meet the steep slopes standards? I didn't measure much but wanted to double check whether we need more analysis from them about that.

Thanks,
Emma

Emma Heth ([she/her](#)) | **Planner II | Community Development**



Email: EmmaH@TownofFrisco.com
Office: 970-668-4581

From: Christopher McGinnis <cmcginnis@sehinc.com>
Sent: Friday, September 4, 2026 4:47 PM
To: Southworth, Josh <joshs@townoffrisco.com>; Heth, Emma <emmah@townoffrisco.com>
Cc: Kent, Katie <katiek@townoffrisco.com>
Subject: Re: 207 Granite St Sketch Plan Comments

Hi Emma,

Attached is a memo and redlines for 207 Granite Street. The main issues are several driveway code items not being met - I tried to document this well in the redlines and memo. Reach out if you have any questions. Have a great weekend.

Thanks,

Chris McGinnis, PE (CO, AZ)
Sr. Engineer & Client Manager
Short Elliott Hendrickson Inc. (SEH®)
970.216.9659 mobile | 720.540.6800 main

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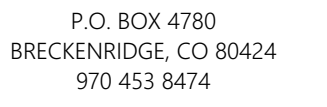
From: Southworth, Josh <joshs@townoffrisco.com>
Sent: Thursday, September 3, 2026 11:26 AM

TOWN OF FRISCO

GRANITE STREET

DOWNTOWN COMPLETE STREETS DESIGN

GRADING AND DRAINAGE PLAN



GRANITE STREET HOMES

2619
BY NJ/GP
14/26 - SKETCH PLAN

A-2





INFORMATION SYSTEMS DEPARTMENT

970-668-4200
Post Office Box 5660
County Commons
0037 County Road 1005
Frisco, Colorado, 80443

TO: Town of Frisco Planning Department
FROM: Chandler Morehardt, GIS Analyst
SUBJECT: Project Review
DATE: August 18, 2026

Property Location: 207 Granite St, Frisco Colorado 80443

Property Description: LOT 13,14,15,16,17,18 BLOCK 8 FRISCO TOWN SUB

Project Description: Major Site Plan Application for 8 new townhomes

Comments: Please assign a project name for review that doesn't include a physical address.

With shared access being off S 2nd Ave, proposed addresses for these units shall be:

160 S 2nd Ave Unit 1

160 S 2nd Ave Unit 2

160 S 2nd Ave Unit 3

160 S 2nd Ave Unit 4

160 S 2nd Ave Unit 5

160 S 2nd Ave Unit 6

160 S 2nd Ave Unit 7

160 S 2nd Ave Unit 8

Sincerely,

Chandler Morehardt
Information Systems
Summit County Government
GIS Analyst
Chandler.Morehardt@summitcountyco.gov
970-668-4219
PO Box 5660
Frisco, CO 80443

Heth, Emma

From: msmith.fsd@gmail.com
Sent: Wednesday, September 2, 2026 9:47 AM
To: Heth, Emma
Subject: RE: 207 Granite St Sketch Plan Comments

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Emma,

I met separately with the applicant so I have no further comments.

~matt

From: Heth, Emma <emmah@townoffrisco.com>
Sent: Wednesday, September 2, 2026 9:45 AM
To: Amy Lagace <amy.lagace@xcelenergy.com>; Suzanne Kenney <suzanne.kenney@summitcountyco.gov>; Sally Bickel <sally.bickel@summitcountyco.gov>; Chandler Morehardt <chandler.morehardt@summitcountyco.gov>; Aaron Myers <amyers@summitfire.org>; Matt Smith <msmith.fsd@gmail.com>; Chris McGinnis <cmcginnis@sehinc.com>; Southworth, Josh <joshs@townoffrisco.com>; Thompson, Ryan <RyanT@townoffrisco.com>; John Schumacher <john@cbcscod.com>
Subject: RE: 207 Granite St Sketch Plan Comments

Hello all,

Friendly reminder to please review the informal plans for 8 new townhomes at 207 Granite St. this week if you want to provide comments (given that Monday 9/7 is a holiday, please review **by Friday 9/4**). Plans are available online at [Planning Projects Under Review - Frisco Town Government \(friscogov.com\)](https://www.frisco.gov/planning-projects-under-review).

You can send any comments or concerns my way.

Thanks!

From: Thompson, Ryan
Sent: Thursday, September 3, 2026 2:06 PM
To: Heth, Emma
Subject: Re: 207 Granite St Sketch Plan Comments
Attachments: [171 - Water Construction Standards 2024.pdf](#)

Emma,

Water utility comments are as follows;

- Review TOF Water Construction Standards (attached) to see expectations regarding approved materials and methods
<https://www.frisco.gov/departments/water/#docaccess-38b035d2323372aa3284bc5bc82876fef73dd7782805e5a21e4ecbd487a493eb>
- K copper water service lines look good, and curb stop valves need to be located inside property line
- HOA covenant should identify all common buried utilities
- Water service lines shall be buried at a minimum depth of 8.5'
- Existing water service line needs to be abandoned at water main connection
- Refer to TOF Water Construction Standards, section 3, for expectations and approved materials and methods regarding water main & hydrant installation
- Potentially move the 6" water main on 2nd Ave further north closer to the property line so ROW is less obstructed
- 207 Granite St currently has 8 water taps with the property, no more are required

Ryan Thompson | Water Superintendent | Frisco Public Works



Mailing: PO Box 4100 Frisco, CO 80443

Physical: 0102 School Rd Frisco, CO 80443

Office: 970-668-9156

Mobile: 970-418-5544

RyanT@TownofFrisco.com

FriscoWater.com

TownofFrisco.com

From: Heth, Emma <emmah@townoffrisco.com>

Sent: Wednesday, September 2, 2026 9:45 AM

To: Amy Lagace <amy.lagace@xcelenergy.com>; Suzanne Kenney <suzanne.kenney@summitcountyco.gov>; Sally Bickel <sally.bickel@summitcountyco.gov>; Chandler Morehardt <chandler.morehardt@summitcountyco.gov>; Aaron Myers <amyers@summitfire.org>; Matt Smith <msmith.fsd@gmail.com>; Chris McGinnis <cmcginnis@sehinc.com>; Southworth, Josh <josh@townoffrisco.com>; Thompson, Ryan <RyanT@townoffrisco.com>; John Schumacher

TOWN OF FRISCO WATER CONSTRUCTION STANDARDS

[Added 04-16-96. Amended 04-14-09, Res. 98-18; 04-02-02, Res. 02-10; 02-19-03,
Res. 03-14; 04-26-11, Res. 11-06; 02-26-19, Res. 19-10;
2-13-2024, Res. 24-12]

The Frisco Water is a Division of the Frisco Public Works Department, located at
0102 School Road, Frisco, Colorado.

Mailings are accepted at P.O.B. 4100, Frisco, Colorado, 80443.

Local (970) 668-0836

Fax (970) 668-1327

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1. General Statement:

This regulation is adopted pursuant to Article IV of the Water Ordinance for the Town of Frisco, Colorado (Chapter 171 of the Town Code of Ordinances).

Additions to the Town of Frisco water distribution system may only be installed between April 15th and October 31. No exceptions.

No excavation for any water system work shall begin after 9:00am Monday - Thursday. No new excavations for water system work will be allowed on Fridays unless the work is determined to be an emergency by the Water Superintendent or their designee.

This document is not intended to be a complete list of every requirement for construction in the Town of Frisco, Colorado, but is designed as a guide to the requirements for materials to be used, and for the installation of water lines (main and service), water meter assemblies, and backflow prevention devices.

This document in no way releases the owner, builder, contractor, or their agents from the responsibility to be familiar with the provisions of the water ordinance or other referenced documents and/or to meet the requirements of those documents.

It is hereby declared that the rules and regulations contained here are necessary to insure and protect the health, safety, prosperity, security, and general welfare of the residents of the Town of Frisco, Colorado.

Any area not specifically addressed will be determined by the Water Superintendent or the authorized agent inspecting the project identified.

At the time of application for any class of project, the owner or developer will be required to submit the following to the Water Department for approval:

- 1) Copy of a site plan showing proposed route of water service and sewer service.
- 2) Copy of mechanical drawings showing building service connection(s).
- 3) Copy of a floor plan showing proposed location of water meter assembly and proposed location of remote read-out (MXU) on building exterior.

Any addition to the distribution system, mechanical change to the water supply of any existing structure, or modification of site use shall be inspected by the Water Department to ensure compliance with the following standards.

Inspections will require any water installation to meet the highest standard applicable to preserve the integrity of Frisco's water supply.

Inspections require a 24-hour notice to the Frisco Public Works Office Manager for proper scheduling. 970-668-0836

Follow-up inspections also require 24-hour notice.

Initial inspection – no additional charge; second inspection fee - \$25.00; additional inspection fees - \$35.00/inspection Fees for re-inspections shall be paid in full prior to issuance of a Certificate of Occupancy.

INSPECTIONS ARE MADE BETWEEN THE HOURS OF 9:00 AM TO 4:00 PM M-F, HOLIDAYS EXCEPTED

2. WATER MAIN EXTENSIONS:

All installations must be approved by the Town of Frisco Water Department and constructed as shown on the approved plan.

All water main extensions must be designed and stamped by a Professional Engineer licensed in the State of Colorado.

Additions to the Town of Frisco Water Department distribution system shall typically follow standards set forth by the American Water Works Association, except when more stringent requirements are set forth in these standards. Updates and revisions to the American Water Works Association standards may not necessarily be shown in this document, but will apply as such updates and revisions are adopted by such Association.

AWWA C500 series, C600 series, and C111 are the compliance standard adopted by the Town of Frisco for the installation of water mains.

3. WATER MAIN INSTALLATION:

No excavation for any water system work shall begin after 9:00am Monday - Thursday. No new excavations for water system work will be allowed on Fridays unless the work is determined to be an emergency by the Water Superintendent or their designee.

- Ductile Iron Pipe (DIP) class CL-52, push on joint, cement lined is the accepted material for water mains and large (2" and greater) service lines. DIP service lines shall conform to service line standards. All pipe joints must be copper strapped or cad-welded to maintain conductivity. Where cad- welding is the method chosen, heavy gauge single strand wire (minimum 6 gauge) shall be used. A continuous 10 AWG stranded locating wire shall be installed between the shading material and insulation board.
- AWWA C-900 Pipe (PVC), push on joint, with continuous 10 AWG stranded locating wire may be approved by the Water Superintendent on a case by case basis in areas where continuous high ground water conditions are known to exist.
- Minimum depth of bury shall be 8 ½' to the top of the pipe from finished grade. Minimum depth of bury shall be met notwithstanding the depth of existing mains.
- Water mains shall be located a minimum of 10' horizontally from existing or proposed sewer mains. Whenever a sewer main or sewer service line crosses above or crosses within 18" below the water main, the sewer line shall be made impervious to a minimum distance of 10' to both sides of the water main either through utilization of SDR26 or AWWA C-900 spec pipe. The Frisco Sanitation District shall be notified and shall approve any methods pertaining to the installation of sewer pipes prior to backfill of the pipe.

- All trenches shall conform to and be consistent with OSHA regulations. Any Town of Frisco inspector observing unsafe conditions will not enter the trench for inspection.
- Water mains and their appurtenances must be properly bedded. Bedding material requirements call for $\frac{3}{4}$ " clean gravel as the maximum size material accepted, $\frac{3}{8}$ " clean gravel or similar is preferred. Bedding material must be crushed and cleaned stone to be accepted. There shall be a minimum 6" layer of bedding below the pipe and a minimum 12" layer of bedding above the pipe.
- Wet taps shall be performed in locations where new mains are connected to the Town's water distribution system. All wet taps are the responsibility of the Developer/Contractor.
- Service taps shall be separated by at least 18" and be placed no closer than 24" to the end of a pipe section. Tapping saddles are required for all service line taps. An abandoned service line must be terminated at the corporation stop. When abandoning a service tap the excavator must expose the tap and section of main line for safe inspection. It is the responsibility of the property owner to properly abandon all unused service taps.
- Valves shall be resilient seat NRS gate valves and shall open left. (Mueller resilient wedge and Waterous F-2500 valves only.) Isolation valves shall be located at all tees and spaced no more than 800' apart on a straight run.
- Valve boxes shall be set plumb and true and centered over the valve operating nut. Valve box installations shall be supported to prevent settling. Valve stem extensions are required on all valve installations. The required valve stem extensions will be sized so that the top of the valve stem extension is within 12" of the valve box lid. Valve boxes located in asphalt or concrete will have an additional 2 $\frac{1}{2}$ " paving grade ring installed to allow for future grade adjustments. Valve boxes located in asphalt or concrete will be installed so that the top of the valve box lid is $\frac{1}{2}$ " – $\frac{3}{4}$ " below grade. Valve boxes located in a non-paved right of way will be installed so that the top of the valve box lid is 6" below finish grade.
- Hydrants shall be a dry barrel, Waterous Pacer model or Mueller Centurian model. Hydrants shall be painted red. A "mountain spec" hydrant is the only type of hydrant accepted in the Town of Frisco. (Mountain spec = 42" from finish grade to center of streamer connection.) Mountain spec hydrants shall not be fabricated on site with additional barrel and stem extension kits. Hydrants shall have only one breakaway traffic flange set 3" above grade. Hydrants shall be set over a minimum of $\frac{1}{3}$ cubic yard of crushed stone to allow for barrel drainage through the weep holes. Hydrant installations shall conform to AWWA standard C502 and have as a minimum a 6" hydrant lateral line. All hydrants within 30 feet of a paved, concrete, pedestrian, or vehicular surface shall have 2 bollards facing said surface. If said surface is within 30 feet on multiple sides of hydrant, 4 bollards must be installed on each corner.
- Joint Restraint. Joint restraint shall be provided with mega-lug assemblies only. Concrete thrust blocks are not permitted unless approved in writing by the Water Superintendent.

- Disinfection. Tabular calcium hypochlorite, conforming to ANSI/AWWA B300, attached to the inside of the pipe with food grade adhesive is the required method of disinfection for new water mains.
- Inspection. Water mains, water service lines and water service appurtenances tied into and served by the Frisco Water Department must be inspected during installation. Any ductile iron pipe entering a building to be utilized as a service line shall also adhere to subsequent service line installation requirements as well as any other plumbing codes in effect at the time of installation.

4. WATER MAIN TESTING:

All procedures shall be carried out with a representative of the Frisco Water Department present.

- All new water main installations shall provide a $\frac{3}{4}$ inch testing tap and line, where possible. Pressure testing, chlorine testing and bacteriological testing can be performed through a fire hydrant with written permission from the Water Superintendent. .
- Main will be filled slowly with water to dissolve tabular-calcium hypochlorite.
- Main will then remain static for 48 hours.
- Representative sampling for chlorine residual will then be drawn. (a minimum chlorine concentration of 25 mg/L is required, 50 mg/L is the desired chlorine concentration per AWWA C651).
- Main must be thoroughly flushed at maximum velocity from a fire hydrant to remove any and all potential debris left from the installation process.
- A minimum 2-hour hydrostatic pressure test in accordance with American Water Works Standards SEC. 4 of C600. Hydrostatic pressure in the line shall not be less than 150 PSI for the test. The Contractor will supply a metered pump with lock-off mechanism and a working pressure gauge (min. 250 psi).
- After the final line flush and the chlorine concentration has dropped to background levels (< 2.0 mg/L), the line must remain static for a minimum of 24 hours prior to a sample being drawn to check for bacteria. This will be collected by the contractor in the presence of a Water Department representative. The results will be communicated to the contractor ASAP, after the initial 24-hour test is complete.
- The main will be inspected to determine electrical conductivity.

When the approved plans have been completed:

- An engineer licensed by the State of Colorado must stamp and validate the as-built drawings before consideration for final acceptance by the Town of Frisco.
- From the date of formal acceptance, all work shall be warranted completely for a minimum of two years per Ordinance 171-5C(3).

5. WATER SERVICE LINE MATERIAL REQUIREMENTS:

All residential water service lines installed in the Town of Frisco, Colorado shall meet as minimum standard the following requirements:

- **Water service materials** shall be new, undamaged material of the highest quality meeting standards approved by the American Water Works Association (ref. C-800).
- All property owners / contractors are required to furnish all taps and service line material and labor.
- **Water service lines** shall be appropriately sized Type K copper, meeting AWWA 75-CR, or CL 52 DIP, or NSF/AWWA approved high-density polyethylene (HDPE), with a continuous 10AWG stranded locating wire and with written permission from the Water Superintendent will be allowed only in areas with known continuous high ground water levels. Only one service line and one curb stop and valve box shall service each unit of a multi-family dwelling. The exception being a multi-family unit where, after written approval, a single line of appropriate size may be installed. (Frisco Town Code 171-7 B)
- **Direct water taps** for service lines are not allowed. Direct water taps may not be re-used for water service. Direct taps must be properly abandoned. Tapping saddles are required for all water service taps. Tapping saddles may be ductile iron or bronze, must be double strap, CC thread, and have an O-ring gasket seal.
- **Corporation stops** - shall be ball corps (no inverted key) of brass or bronze in the same size as the copper service line. They shall be AWWA standard inlet thread, compression type outlet (Ford Quick-Joint or Mueller C-110 only). No flared fittings are allowed.
- **Curb stop** - shall be a cast bronze body ball valve design with resilient seals, standard T-head operator and 90-degree rotation, with compression type outlets (Ford Quick-Joint or Mueller C-110 only). No stop and waste valves are allowed. No flared fittings are allowed. All curb stops will be treated as system valves and accessed through a curb box. Where possible, curb stops are to be located 5' inside property line. It is the property owner's responsibility to ensure the curb stop is operable at all times.
- **Curb box** - shall be an arch pattern box with 1 inch diameter upper section and 2- hole Erie pattern lid, or equivalent for up to 1 inch size service line, 1 1/2" service lines require an enlarged base. All boxes require an 80" extension with an extended shut off rod and must be properly supported to prevent settling on the valve. Curb boxes must be set at final grade. In the event a curb box is located in a driveway, a "monument box" shall be permanently installed to protect the box lid from damage. The top of the valve box ring must be 1/2" – 3/4" below finish grade. It is the property owners responsibility to ensure the curb box is accessible.
- **Coupling** - No buried couplings are permitted. When a service line exceeds the length of rolled K-copper, underground grade HDPE poly pipe may be used. The service line must be pressurized, and all fittings must be inspected prior to any backfill.
- **Size reductions** shall be made with a compression piggyback or by using compression by I.P.T. adapter on the inlet and outlet and a brass or bronze bell reducer to change size.

Multiple branch connections to a single service line will only be allowed in a previously accepted stub-out and shall be made with a connector such as a Mueller 110 compression style, MacDonald 3700 series branch connector or equivalent.

6. WATER SERVICE LINE INSTALLATION REQUIREMENTS:

Prior to acceptance by the Town:

Inspection of a service line by Water Department personnel is MANDATORY.

No excavation for any water system work shall begin after 9:00am Monday -Thursday. No new excavations for water system work will be allowed on Fridays unless the work is determined to be an emergency by the Water Superintendent or their designee. Inspections are made between the hours of 9:00 a.m. and 4:00 p.m., Monday through Friday, holidays excepted. Inspections must be scheduled in advance, with a minimum 24-hour notice, through the Public Works Department Office Manager. Follow-up inspections shall also require 24-hour notice. 970-668-0836

Initial inspection – no additional charge; 2nd re-inspection - \$25.00; thereafter - \$35.00/re-inspection. Fees for re-inspections shall be paid in full prior to the issuance of a Certificate of Occupancy.

No inspections will be performed on any excavation that the inspector feels are unsafe to enter.

In any situation where there is disagreement concerning the safety of an excavation, an OSHA Representative will be summoned to make a determination on the existing conditions.

All connections, bedding, insulation, and backfill lifts must be approved before a service line is accepted.

- **The water service line shall be buried to a minimum depth of 8.5’.** This measurement is from the top of pipe, notwithstanding depth of the main or service line connection. No service line will be accepted without meeting this condition. Water service lines shall not encroach within 15 ‘of a property line without a dedicated easement agreement involving the associated property owners, unless absolutely necessary as determined by the Water Superintendent. It is the owner’s responsibility to identify property lines. The Water Department recommends avoiding water lines installed under or across driveways. Water lines shall not be laid over consolidated rock outcroppings unless over-excavated a minimum of 12 inches (to 9.5’), and properly bedded. In areas where blasting is required, over- excavation to a minimum of 12” greater than the final grade is required with removal of the blasted material and replacement with granular bedding material.
- **The water service line shall be protected** from ground water contamination while being installed and shall be flushed full discharge upon completed installation to ensure that any obstructions in the pipe are removed before approval will be issued.
- **Service lines** exceeding 1 1/2” in diameter are considered to be mains for testing purposes and must be disinfected in accordance with AWWA C-600 prior to acceptance by the Water Department. See Line Testing section.

- **Corporation stops** shall be located in the top 1/3 of the main and the service line connection made thereto shall be installed in such a manner so that an expansion loop (goose neck) is established to prevent damage to the main.
- **Service lines** shall be inspected to ensure that there are no leaks at all connections this will be a visual inspection at static pressure . Connections to previously approved stub-outs will be pressure tested back to the approved valve.
- **Frost protection** is required. Frost protection material shall be as a minimum, 2" Dow Board insulation or its equivalent. Sections shall be a minimum, 24" wide, centered over the pipe, with a 6" overlap between sections. The frost protection material shall be installed 6" above top of pipe on level bedding material, with an additional 6" of bedding material on top of the frost protection material.
- **All water service lines** installed in the Town of Frisco shall be bedded with clean granular bedding material to a minimum 6" above the top of the freeze protection board, 6" between the bottom of the freeze protection board and the top of the pipe, 6" below the bottom of the pipe and 24" inside the building foundation wall. Any rock greater than 6" in diameter that is imbedded in the trench bottom shall be removed and the resulting void filled with the specified bedding material.
- **Granular bedding material** shall be ¾" minus cleaned rock, 3/8" minus cleaned rock, or other material previously agreed to and authorized in writing by the Water Superintendent or his authorized representative. Except that any area showing signs of ground water infiltration shall have ¾" washed rock or a fill as specified by a licensed soils geologist or professional engineer of the State of Colorado.
- **Trenches** constructed in the Town of Frisco shall conform to Occupational Safety and Health Standards in the protection of workers and the public. There shall be a designated competent person on site at the time that any water installation is to be inspected. If necessary, the excavation work shall be protected with an OSHA approved trench box or other shoring system. Trenches shall be dug so that the pipe and appurtenances can be laid to the alignment and depth required and have continuous support when placed. The trench shall be dewatered prior to and at all times that work is being done in the trench.
- **Spoil material** unsuitable for backfill shall be disposed of offsite.
- **Backfill**, including pipe bedding, shall be installed properly and hand tamped under the haunches of the pipe, followed by suitable native material or other materials as specified, installed in maximum 12 inch lifts and mechanically tamped. Native backfill material shall not be placed by dozing or dumping over the sides of the trench but shall be installed by forming a gentle slope proceeding upgrade in the trench. Frozen backfill material is not acceptable. Backfill lifts not exceeding 12 inches, and compacted to 95% standard proctor density, are required in any proposed or existing road right-of-way, or driveway.
- **Sewer line crossings** – Water service lines shall be located a minimum of 10' horizontally from existing or proposed sewer lines. In the event that a sewer main or sewer service line crosses above or crosses within 18" below the water service line, the sewer line shall be made impervious to a minimum distance of 10' to both sides of the water service line either through AWWA C-900 spec pipe or flow fill encasement.

The Frisco Sanitation District shall be notified and approve prior to backfill any methods pertaining to the installation of sewer pipes.

- **Water service lines shall not be installed** in the same trench with gas pipes, electrical conduits, sewer pipes or other utilities except with written approval of the Town of Frisco Water Department. In instances where sewer pipes in a joint trench are approved, the sewer pipe shall be SDR26 or C900 pipe.
- **No soldered connections** shall be allowed underground or before the meter assembly.
- **It is the responsibility of the owner/developer**, or their designated representative, to have all valves accessible and operable prior to inspection by the Water Department.

7. WATER METERS:

Any person who desires to build in the Town of Frisco, Colorado or who does any work which requires a building permit, shall, if they have not previously done so, install a water meter and associated equipment before a Certificate of Occupancy will be issued.

Connections, (tees, wyes, bleeders, spigots), are not allowed prior to the water meter.

The associated equipment required is a meter yoke, backflow prevention device, and service valves on each end of the equipment run. Since this equipment must be ordered in advance, anyone desiring to build in Frisco should contact the Water Department so that a determination can be made as to the type and quantity of equipment necessary. It is the intention of the Water Department to have material in stock so projects are not held up waiting on equipment. The entire meter assembly will be purchased from the Public Works Office Manager (970-668-0836) prior to pick-up/delivery.

- The Water Superintendent or his authorized representative will approve the meter assembly location prior to installation and will have access for inspecting, servicing, and reading the meter.
- All meter installations shall be inspected by Water Department personnel prior to acceptance. The building owner will provide an accessible, lighted and heated location for the meter assembly ahead of any water usage. Meter assemblies must be installed in a location that protects the device from freezing. Repairs to a water meter assembly necessitated by damage due to freezing or abuse will be charged to the building owner.
- Meters – shall be Sensus, model SR/ECR with remote read out. The water meter assembly shall be the same size as the service line that enters the building except where the service line also provides fire service. The meter transceiver unit (MXU) shall be installed on the exterior of the building in a location protected from ice and snow, at a height of 4' -5' above the final grade. This location shall be approved during the water plan review process.
- Meter Installation - There shall be a compression valve as the first fitting on the service line immediately upstream of the meter installation. These valves shall be ball valves meeting A.S.T.M. B62-76 standards. The meter shall be installed with a yoke in such a manner that there is no mechanical strain on the meter and the piping will not restrict

meter removal. The meter will only be installed in the horizontal position. Electrical continuity will be maintained across the entire water meter assembly with a minimum 6-gauge bonding wire secured at each end of the water meter assembly with water pipe grounding clamps.

- Bypass Piping - Bypass piping around a water meter will be allowed only on approval of the Water Superintendent. Service lines 1 ½" and larger will have an emergency bypass installed. Bypasses will have a shut off valve and this valve will be closed and sealed during normal operation.
- For all new construction, curb stops must be operable and accessible prior to the arrival of the inspector.
- The Water Superintendent shall have the right to periodically inspect and/or test each water meter assembly.
- Violations and penalties. Any person, firm or corporation violating this Article shall, upon conviction, be punishable as provided in Chapter 1, General Provisions, Article 1. A separate offense shall be deemed committed, on each day during or on which a violation occurs or continues. [Amended 4-16-96, Ord. 96-8]

Inspections and follow-up inspections are scheduled through the Frisco Public Works Office Manager. 24-hour notice is required; inspections are performed M-F, 9:00 a.m. - 4:00 p.m. holidays excepted. 970-668-0836

8. Cross Connection Control:

The degree of hazard for backflow prevention will be determined by the Town of Frisco Water Department as part of the Town's Cross Connection Control Program. The authority to implement and maintain this program on cross connection control is contained in the following legislative actions:

- Colorado Revised Statutes (CRS) 1973, as amended, Sections 25-2-207, 25-1-108 and Section 251-114
- Colorado Primary Drinking Water Regulations (CPDWR) Article 12
- Cross-Connection Control Manual 5th edition, Colorado Department of Public Health and Environment

Reference manuals adopted for guidelines on cross connection control:

- Cross-Connection Control Manual, Colorado Department of Public Health and Environment, latest edition
- Definitions of terms used in this regulation are those contained in Cross-Connection Control Manual, Colorado Department of Public Health and Environment, latest edition.

GENERAL REQUIREMENTS

- 1) A Guideline for backflow prevention assemblies:
 - a) Single family residences shall have at a minimum, an approved dual check valve.
 - b) Commercial and multi-family residential buildings having a single water service line shall have an approved reduced pressure zone assembly.
 - c) Fire lines shall have an approved reduced pressure zone assembly.
- 2) Backflow prevention assemblies are to be installed in an accessible location to facilitate maintenance, testing and repair. Drawings must show various installations.
- 3) All backflow prevention assemblies shall be installed immediately downstream of the water meter.
- 4) Before installing a backflow prevention assembly, pipelines shall be thoroughly flushed to remove foreign material.
- 5) In no case will it be permissible to have connections or tees between the meter and service line backflow prevention assembly.
- 6) Backflow prevention valves shall not be used as the inlet or outlet valve of the water meter. Test cocks shall not be used as supply connections. (Not applied to residential dual check installations.)
- 7) In order to ensure that backflow prevention assembly continues to operate satisfactorily; they shall be tested at the time of installation and on an annual schedule thereafter. Such a test shall be conducted in accordance with A.S.S.E. and/or U.S.C.-C.C.C. and H.R. performance standards and field test procedures as directed by the Colorado Department of Public Health and Environment. (Not applied to residential dual check installations. Dual checks shall be tested at intervals set by the Colorado Department of Public Health and Environment.)
- 8) The Town of Frisco Water Department will require inspection of all containment installations at the time of the meter inspection.
- 9) All costs for design, installation, maintenance, repair, and testing shall be borne by the customer.
- 10) No grandfather clause exists. All laws and regulations apply regardless of the age of the facility.
- 11) All fire sprinkler systems shall conform to the applicable Sections in the current edition of pamphlets Thirteen, Twenty Four and Twenty-five of the National Fire Protection Association and local fire district policy.

STANDARDS FOR BACKFLOW PREVENTION ASSEMBLYS

Any backflow prevention assembly required herein shall be a model and size approved by the Town of Frisco Water Department. The term "approved backflow prevention assembly" shall mean an assembly that has been manufactured in full conformance with the standards established by the latest version of the Colorado Department of Public Health and Environment Cross Connection Control Manual and by the Town of Frisco Water Department. Final approval shall be evidenced by a "Certificate of Approval" issued by an

approved testing laboratory certifying full compliance with Colorado Department of Public Health and Environment standards and A.S.S.E. and/or U.S.C. F.C.C.C. & H.R. specifications. The following testing laboratory is qualified to test and certify backflow prevention assemblies and being listed on their periodic approved list shall meet all of above requirements:

A.S.S.E. American Society of Sanitary Engineering, 28901 Clemens Road Suite 100, Westlake, Ohio 44145

U.S.C. Foundation for Cross-Connection Control and Hydraulic Research, University of Southern California, OHE 430-D University Park-MC, 1453 Los Angeles, California 90089-14534.2

Only approved backflow prevention assemblies shall be used.

INSTALLATIONS

- 1) Backflow prevention assemblies shall be installed in accordance with the Town of Frisco Water Department requirements. Backflow prevention assemblies and meters shall not be installed in confined spaces.
- 2) Backflow prevention assembly installations shall be inspected and approved for use by the Town of Frisco Water Department.
- 3) All backflow assemblies shall be installed in the horizontal position. Vertical installation shall be acceptable when approved by A.S.S.E. and/or U.S.C. F.C.C.C. & H.R. specifications. Variance may be granted by review.
- 4) The single check valve is not considered to be a backflow prevention assembly.
- 5) Reduced pressure backflow prevention devices shall be installed above ground. The unit shall be placed at least twelve inches (12") above the finish grade to allow clearance for the repair work. A concrete slab at finish grade is recommended. Proper drainage shall be provided for the relief valve and may be piped away from the location provided it is readily visible from above grade and provided the relief valve is separated from the drain line by a minimum dimension of double the diameter of the supply line. A modified vault installation may be used if constructed with ample side clearances. Freezing is a major concern in this area. Precautions shall be taken to protect above ground installations.

TESTING AND MAINTENANCE

- 1) At least once per year, it is the duty of the customer/user at any premise(s) where any testable backflow prevention assembly(s) are installed to have a certified test made of those assemblies. In those specific instances where the Town of Frisco Water Department deems the hazard to be great enough, certified inspections and tests at more frequent intervals may be required. These tests shall be at the expense of the water user and shall be performed by a certified technician approved by the Colorado Department of Public Health and Environment and the Town of Frisco Water Department. An inspection of the assembly may be performed at any time complying with the Right of Entry portion of this document. (Not applicable to dual check installations.)

- 2) As necessary, the assembly shall be repaired or replaced at the expense of the customer/user whenever the assembly(s) is found to be defective. Records of all such tests, repairs or replacement shall be kept by the customer/user and Town of Frisco Water Department.
- 3) Existing assemblies shall be sealed by the technician performing the test at the completion of the test.
- 4) All testing equipment used in testing of backflow prevention assemblies shall be checked for accuracy yearly, or more often, and the proof of compliance shall be submitted to the Town of Frisco Water Department upon request.
- 5) The Town of Frisco Water Department retains the right to test or otherwise check the installation and operation of any containment assembly at anytime to assure proper operation.

RIGHT OF ENTRY

A representative of the Town of Frisco Water Department will carry proper credentials of his/her office. By previously arranged appointment and upon presentation of proper credentials, the Town of Frisco Water Department representative shall have the right of entry to inspect any and all buildings and premises for cross-connections relative to possible hazards. This right of entry shall be a condition of water service in order to protect the health, safety and welfare of the people throughout the Town of Frisco Water Department's distribution system. Where building security is required, the backflow assembly(s) should be located in an area not subject to security. Questions regarding proper credentials should be directed to the Town of Frisco Water Department. (per Frisco Town Code 171-H)

VIOLATIONS

- 1) Failure of the customer to cooperate in the installation, maintenance, testing or inspection of backflow prevention assemblies required by these standards shall be grounds for the discontinuance of water service to the premises or the requirement of installation of an air-gap separation from the public potable water system.
- 2) Service of water to any premises may be discontinued by the Town of Frisco Water Department if unprotected cross-connections exist on the premises. When any defect is found in an installed backflow prevention assembly, or if backflow prevention assembly has been removed or bypassed, the service may be discontinued. Service shall not be restored until such conditions or defects are corrected.
- 3) Discontinuance of service may be summary, immediate, and without written notice whenever, in the judgment of the Town of Frisco Water Department, such action is necessary to protect the purity of the public potable water supply or the safety of the water system.

9. Repairs:

Water Department personnel will inspect all repairs prior to backfill.

Repairs to the Town of Frisco water distribution system must comply with all existing new construction standards.

No excavation for any water system work shall begin after 9:00am Monday - Thursday. No new excavations for water system work will be allowed on Fridays unless the work is determined to be an emergency by the Water Superintendent or their designee.

Details of any proposed system repair must be approved by the Water Department.

It shall be the intent of the Water Department to preserve the integrity of all existing pipe and appurtenances when repairs are necessary.

Isolation of pressurized services and mains within the distribution system shall be the sole responsibility of Water Department personnel.

Repairs must, as a minimum, uphold the highest standards applicable to materials and installation procedures to ensure a quality finished product.

This document specifies many procedures and materials to be used for construction of water lines, valves, valve boxes, meters, backflow preventers, and other associated procedures allowed in the Town of Frisco, Colorado, per the Federal Safe Drinking Water Act, AWWA Standards, ANSI, ASTM, the Colorado Department of Health, The Colorado Department of Health Cross Connection Control Manual and Federal Register 29 CFR part 1926

END OF DOCUMENT