



Town of Paonia
214 Grand Avenue
Tuesday, May 27, 2025 6:30 PM
Town Board Agenda
<https://us02web.zoom.us/j/81844903233>
Meeting ID: 818 4490 3233

Public Participation: Please raise your hand and wait to be recognized by the Mayor, come to the podium and state your name and whether you live in town or out of town. Time limit is 3 minutes, one time per item, there are instructions at the podium for the timer light. Please direct all comments to the Mayor. No responses will be made by staff or Board during the meeting.

Please be respectful and help to maintain decorum by not engaging in derogatory and/or demeaning statements or public displays.

Roll Call

Approval of Agenda

Announcements

Arbor Day Proclamation - May 17, 2025

Public Comment

Any topic not included under Actions & Presentations; 3-minute time limit.

Consent Agenda

- 1) April 24, 2025 Special Meeting Minutes
May 13, 2025 Regular Meeting Minutes

License Renewal- Fiona's Bartique LLC

Disbursements

Staff Reports

Departmental Scorecards

Actions & Presentations

Public comments must be related to the agenda item, 3-minute time limit.

Item #1 - Consideration of Approval of an Intergovernmental Agreement with One Delta County - Greg Pope

Item #2 - Consideration of Directing Staff on Enforcing Section 16-11-20 of the Paonia Municipal Code

Item #3 - Consideration of Directing Staff to Prepare Ordinance for Special Events

Item #4 - Review of Final Draft of Water/Wastewater Construction & Design Standards

Item #5 - Consideration of Approval of an Updated IGA with Colorado Department of

Transportation for both the RMS and SRTS Grants.

Mayor & Trustee Reports

Adjournment

As Adopted by:
Town of Paonia, Colorado
Resolution No. 2017-10 – Amended May 22, 2018

I. Rules of Procedure

Section 1. Schedule of Meetings. Regular Board of Trustees meetings shall be held on the second and fourth Tuesdays of each month, except on legal holidays, or as re-scheduled or amended and posted on the agenda prior to the scheduled meeting.

Section 2. Officiating Officer. The meetings of the Board of Trustees shall be conducted by the Mayor or, in the Mayor's absence, the Mayor Pro-Tem. The Town Clerk or a designee of the Board shall record the minutes of the meetings.

Section 3. Time of Meetings. Regular meetings of the Board of Trustees shall begin at 6:30 p.m. or as scheduled and posted on the agenda. Board Members shall be called to order by the Mayor. The meetings shall open with the presiding officer leading the Board in the Pledge of Allegiance. The Town Clerk shall then proceed to call the roll, note the absences and announce whether a quorum is present. Regular Meetings are scheduled for three hours, and shall be adjourned at 9:30 p.m., unless a majority of the Board votes in the affirmative to extend the meeting, by a specific amount of time.

Section 4. Schedule of Business. If a quorum is present, the Board of Trustees shall proceed with the business before it, which shall be conducted in the following manner. Note that all provided times are estimated:

- (a) Roll Call - (5 minutes)
- (b) Approval of Agenda - (5 minutes)
- (c) Announcements (5 minutes)
- (d) Recognition of Visitors and Guests (10 minutes)
- (e) Consent Agenda including Approval of Prior Meeting Minutes (10 minutes)
- (f) Mayor's Report (10 minutes)
- (g) Staff Reports: (15 minutes)
 - (1) Town Administrator's Report
 - (2) Public Works Reports
 - (3) Police Report
 - (4) Treasurer Report
- (h) Unfinished Business (45 minutes)
- (i) New Business (45 minutes)
- (j) Disbursements (15 minutes)
- (k) Committee Reports (15 minutes)
- (l) Adjournment

* This schedule of business is subject to change and amendment.

Section 5. Priority and Order of Business. Questions relative to the priority of business and order shall be decided by the Mayor without debate, subject in all cases to an appeal to the Board of Trustees.

Section 6. Conduct of Board Members. Town Board Members shall treat other Board Members and the public in a civil and polite manner and shall comply with the Standards of Conduct for Elected Officials of the Town. Board Members shall address Town Staff and the Mayor by his/her title, other Board Members by the title of Trustee or the appropriate honorific (i.e.: Mr., Mrs. or Ms.), and members of the public by the

appropriate honorific. Subject to the Mayor's discretion, Board Members shall be limited to speaking two times when debating an item on the agenda. Making a motion, asking a question or making a suggestion are not counted as speaking in a debate.

Section 7. Presentations to the Board. Items on the agenda presented by individuals, businesses or other organizations shall be given up to 5 minutes to make a presentation. On certain issues, presenters may be given more time, as determined by the Mayor and Town Staff. After the presentation, Trustees shall be given the opportunity to ask questions.

Section 8. Public Comment. After discussion of an agenda item by the Board of Trustees has concluded, the Mayor shall open the floor for comment from members of the public, who shall be allowed the opportunity to comment or ask questions on the agenda item. Each member of the public wishing to address the Town Board shall be recognized by the presiding officer before speaking. Members of the public shall speak from the podium, stating their name, the address of their residence and any group they are representing prior to making comment or asking a question. Comments shall be directed to the Mayor or presiding officer, not to an individual Trustee or Town employee. Comments or questions should be confined to the agenda item or issue(s) under discussion. The speaker should offer factual information and refrain from obscene language and personal attacks.

Section 9. Unacceptable Behavior. Disruptive behavior shall result in expulsion from the meeting.

Section 10. Posting of Rules of Procedure for Paonia Board of Trustees Meetings. These rules of procedure shall be provided in the Town Hall meeting room for each Board of Trustees meeting so that all attendees know how the meeting will be conducted.

II. Consent Agenda

Section 1. Use of Consent Agenda. The Mayor, working with Town Staff, shall place items on the Consent Agenda. By using a Consent Agenda, the Board has consented to the consideration of certain items as a group under one motion. Should a Consent Agenda be used at a meeting, an appropriate amount of discussion time will be allowed to review any item upon request.

Section 2. General Guidelines. Items for consent are those which usually do not require discussion or explanation prior to action by the Board, are non-controversial and/or similar in content, or are those items which have already been discussed or explained and do not require further discussion or explanation. Such agenda items may include ministerial tasks such as, but not limited to, approval of previous meeting minutes, approval of staff reports, addressing routine correspondence, approval of liquor licenses renewals and approval or extension of other Town licenses. Minor changes in the minutes such as non-material Scribner errors may be made without removing the minutes from the Consent Agenda. Should any Trustee feel there is a material error in the minutes, they should request the minutes be removed from the Consent Agenda for Board discussion.

Section 3. Removal of Item from Consent Agenda. One or more items may be removed from the Consent Agenda by a timely request of any Trustee. A request is timely if made prior to the vote on the Consent Agenda. The request does not require a second

or a vote by the Board. An item removed from the Consent Agenda will then be discussed and acted on separately either immediately following the consideration of the Consent Agenda or placed later on the agenda, at the discretion of the Board.

III. Executive Session

Section 1. An executive session may only be called at a regular or special Board meeting where official action may be taken by the Board, not at a work session of the Board. To convene an executive session, the Board shall announce to the public in the open meeting the topic to be discussed in the executive session, including specific citation to the statute authorizing the Board to meet in an executive session and identifying the particular matter to be discussed "in as much detail as possible without compromising the purpose for which the executive session is authorized." In the event the Board plans to discuss more than one of the authorized topics in the executive session, each should be announced, cited and described. Following the announcement of the intent to convene an executive session, a motion must then be made and seconded. In order to go into executive session, there must be the affirmative vote of two thirds (2/3) of Members of the Board.

Section 2. During executive session, minutes or notes of the deliberations should not be taken. Since meeting minutes are subject to inspection under the Colorado Open Records Act, the keeping of minutes would defeat the private nature of executive session. In addition, the deliberations carried out during executive session should not be discussed outside of that session or with individuals not participating in the session. The contents of an executive session are to remain confidential unless a majority of the Trustees vote to disclose the contents of the executive session.

Section 3. Once the deliberations have taken place in executive session, the Board should reconvene in regular session to take any formal action decided upon during the executive session. If you have questions regarding the wording of the motion or whether any other information should be disclosed on the record, it is essential for you to consult with the Town Attorney on these matters.

IV. Subject to Amendment

Section 1. Deviations. The Board may deviate from the procedures set forth in this Resolution, if, in its sole discretion, such deviation is necessary under the circumstances.

Section 2. Amendment. The Board may amend these Rules of Procedures Policy from time to time.



TREE CITY USA
An Arbor Day Foundation Program

*** OFFICIAL PROCLAMATION ***

WHEREAS in 1872, the Nebraska Board of Agriculture established a special day to be set aside for the planting of trees, *and*

WHEREAS this holiday, called Arbor Day, was first observed with the planting of more than a million trees in Nebraska, *and*

WHEREAS Arbor Day is now observed throughout the nation and the world, *and*

WHEREAS trees can be a solution to combating climate change by reducing the erosion of our precious topsoil by wind and water, cutting heating and cooling costs, moderating the temperature, cleaning the air, producing life-giving oxygen, and providing habitat for wildlife, *and*

WHEREAS trees are a renewable resource giving us paper, wood for our homes, fuel for our fires, and countless other wood products, *and*

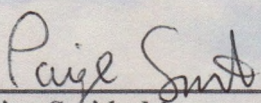
WHEREAS trees in our city increase property values, enhance the economic vitality of business areas, and beautify our community, *and*

WHEREAS trees — wherever they are planted — are a source of joy and spiritual renewal.

NOW, THEREFORE, I, Paige Smith, Mayor of the Town of Paonia, do hereby proclaim May 17, 2025 as **ARBOR DAY** in the Town of Paonia, and I urge all citizens to celebrate Arbor Day and to support efforts to protect our trees and woodlands, *and*

FURTHER, I urge all citizens to plant trees to gladden the heart and promote the well-being of this and future generations.

DATED THIS 17th day of May 2025.



Paige Smith, Mayor



**Town of Paonia;
214 Grand Avenue
Thursday, April 24, 2025 9:00 AM
Town Board Minutes**

Record of Proceedings

Mayor Smith calls the meeting to order at 9:05AM

Roll Call

PRESENT

Mayor Smith

Mayor Pro-Tem Swartz

Trustee Valentine

Trustee Czech

Approval of Agenda

Mayor Pro-Tem Swartz makes a motion to approve the agenda. Seconded by Trustee Czech. The motion carries unanimously.

Actions & Presentations

Public comments must be related to the agenda item, 3-minute time limit.

Item #1: Consideration of Approval of Ordinance 25-03 An Ordinance Approving Loans From the Colorado Water Resources and Power Development Authority (“CWRPDA”) in the Aggregate Principal Amounts Not to Exceed \$3,744,000 (the “Leveraged Loan”), \$3,000,000 (the “Direct Loan”) and \$3,000,000 (the “BIL Principal Forgiveness (PF) Loan”); Authorizing the Forms and Execution of the Loan Agreements and Governmental Agency Bonds to Evidence Such Loans; Authorizing the Construction of a Project; Prescribing Other Details in Connection Therewith; and Declaring an Emergency.

Mayor Smith reads the title of the amended ordinance.

Ian Loffert introduces himself and proceeds to explain the loan amount, interest rates and numbers that the Board of Trustees had questions about.

The Board goes through the amended ordinance and points out the actual amendments to the Ordinance and asks for page numbers to be added to the document.

Mayor Pro-Tem Swartz makes a motion to approve Ordinance 25-03. Seconded by Trustee Czech.

The motion carries unanimously.

Adjournment

Mayor Smith adjourns the meeting at 9:25AM

Samira M. Vetter, Town Clerk

Paige Smith, Mayor



Town of Paonia;
214 Grand Avenue
Tuesday, May 13, 2025 3:00 PM
Town Board Minutes
<https://us02web.zoom.us/j/82052226786>
Meeting ID: 820 5222 6786

Work Session

Agenda and Meeting Management Software Training-

This training will have Staff and potentially members of the Board of Trustees, Planning Commission, Tree Board and. Zoning Board of Adjustments.

This is staff-led training and while the public is welcome to attend due to Open Meeting Laws, no comments or questions from the public will be taken.

Samira M. Vetter, Town Clerk

Paige Smith, Mayor



**TOWN OF PAONIA
BOARD OF TRUSTEES MEETING
STAFF REPORT**

AGENDA ITEM:	Consent Agenda Fiona's Bartique LLC dba Fiona's Bartique
SUBMITTED BY:	Ruben Santiago – Deputy Clerk
DATE:	05/20/2025
BACKGROUND:	Finding of Facts: - License Renewal Paperwork is in the possession of the Town Clerk - Local fees have been paid, and the Colorado Dept. of Revenue's fees were paid online. A copy of the payment receipt is in the custody of the Town Clerk. - The Administrative Offices have no issues or concerns with the license renewal. - The Police Department has no issues or concerns with the license renewal. - The Public Works department has no issues or concerns with the renewal.
BUDGET:	\$250.00 to – 10-32-01 – Liquor Licenses.
RECOMMENDATION:	All legal requirements have been met for the renewal of this license.
ATTACHMENT:	25-110 - Fioana's Bartique - 2025 Liquor License Renewal Application_Redacted.pdf

DR 8400 (02/16/24)
COLORADO DEPARTMENT OF REVENUE
 Liquor Enforcement Division
 PO BOX 17087
 Denver CO 80217-0087
 (303) 205-2300

Submit to Local Licensing Authority

FIONA'S BARTIQUE
40386 RIVER HOLLOW
ROAD
Clark CO 80428

Fees Due	
Annual Renewal Application Fee	\$ 600-
Renewal Fee	
Storage Permit \$100 X _____	\$
Sidewalk Service Area \$75.00	\$
Additional Optional Premise Hotel & Restaurant \$100 X _____	\$
Related Facility - Campus Liquor Complex \$160.00 per facility	\$
Amount Due/Paid	\$ 600-

Make check payable to: Colorado Department of Revenue. The State may convert your check to a one- time electronic banking transaction. Your bank account may be debited as early as the same day received by the State. If converted, your check will not be returned. If your check is rejected due to insufficient or uncollected funds, the Department may collect the payment amount directly from your banking account electronically.

Retail Liquor License Renewal Application

Please verify & update all information below. Return to city or county licensing authority by due date.

Note that the Division will not accept cash.

☐ Paid by check

Uploaded to MoveIt on Date

☒ Paid Online

Licensee Name

FIONA'S BARTIQUE LLC

Doing Business As Name (DBA)

FIONA'S BARTIQUE

Liquor License Number

03-21403

License Type

Tavern (city)

Sales Tax License Number

96314166-0001

Expiration Date

06/25/2026

Due Date

05/11/2026

Business Address

Street Address

130 GRAND AVENUE

Phone Number

4156025905

City, State, ZIP Code

Paonia CO 81428

Mailing Address

Street Address

40386 RIVER HOLLOW ROAD

City, State, ZIP Code

Clark CO 80428

Email

Operating Manager

Rene Verduin

Date of Birth

Home Address

Street Address

Phone Number

City

State

ZIP Code

Paonia

CO

81428

1. Do you have legal possession of the premises at the street address?..... ☒ Yes ☐ No

Are the premises owned or rented? ☒ Owned

*If rented, expiration date of lease

☐ Rented*

2. Are you renewing a storage permit, additional optional premises, sidewalk service area, or related facility?..... ☒ Yes ☐ No

If yes, please see the table in the upper right hand corner and include all fees due.

3. Are you renewing a takeout and/or delivery permit?..... ☐ Yes ☒ No

(Note: must hold a qualifying license type and be authorized for takeout and/or delivery license privileges) If selecting 'Yes', an additional \$11.00 is required to renew the permit.

If so, which are you renewing?..... ☐ Delivery ☐ Takeout ☐ Both Takeout and Delivery

4. Since the date of filing of the last application, has the applicant, including its manager, partners, officer, directors, stockholders, members (LLC), managing members (LLC), or any other person with a 10% or greater financial interest in the applicant, been found in final order of a tax agency to be delinquent in the payment of any state or local taxes, penalties, or interest related to a business?..... ☐ Yes ☒ No

Since the date of filing of the last application, has the applicant, including its manager, partners, officer, directors, stockholders, members (LLC), managing members (LLC), or any other person with a 10% or greater financial interest in the applicant failed to pay any fees or surcharges imposed pursuant to section 44-3-503, C.R.S.?..... ☐ Yes ☒ No

5. Since the date of filing of the last application, has there been any change in financial interest (new notes, loans, owners, etc.) or organizational structure (addition or deletion of officers, directors, managing members or general partners)?..... ☐ Yes ☒ No

If yes, explain in detail and attach a listing of all liquor businesses in which these new lenders, owners (other than licensed financial institutions), officers, directors, managing members, or general partners are materially interested.

6. Since the date of filing of the last application, has the applicant or any of its agents, owners, managers, partners or lenders (other than licensed financial institutions) been convicted of a crime?..... ☐ Yes ☒ No

If yes, attach a detailed explanation.

7. Since the date of filing of the last application, has the applicant or any of its agents, owners, managers, partners or lenders (other than licensed financial institutions) been denied an alcohol beverage license, had an alcohol beverage license suspended or revoked, or had interest in any entity that had an alcohol beverage license denied, suspended or revoked?..... ☐ Yes ☒ No

If yes, attach a detailed explanation.

8. Does the applicant or any of its agents, owners, managers, partners or lenders (other than licensed financial institutions) have a direct or indirect interest in any other Colorado liquor license, including loans to or from any licensee or interest in a loan to any licensee?..... ☐ Yes ☒ No

If yes, attach a detailed explanation.

Affirmation & Consent

I declare under penalty of perjury in the second degree that this application and all attachments are true, correct and complete to the best of my knowledge.

Type or Print Name of Applicant/Authorized Agent of Business

Rene Verdoin

Title

Signature

Rene Verdoin

Date (MM/DD/YY)

5.16.25

Report & Approval of City or County Licensing Authority

The foregoing application has been examined and the premises, business conducted and character of the applicant are satisfactory, and we do hereby report that such license, if granted, will comply with the provisions of Title 44, Articles 4 and 3, C.R.S., and Liquor Rules.

Therefore this application is approved.

Local Licensing Authority For

Title

Attest

Signature

Date (MM/DD/YY)

DR 8495 (02/16/24)
COLORADO DEPARTMENT OF REVENUE
Liquor Enforcement Division
PO BOX 17087
Denver CO 80217-0087
(303) 205-2300

Tax Check Authorization, Waiver, and Request to Release Information

I, Rene Verduin

am signing this Tax Check Authorization, Waiver and Request to Release Information (hereinafter
"Waiver") on behalf of

(the "Applicant/Licensee")

Fionas Bartigue

to permit the Colorado Department of Revenue and any other state or local taxing authority to release information and documentation that may otherwise be confidential, as provided below. If I am signing this Waiver for someone other than myself, including on behalf of a business entity, I certify that I have the authority to execute this Waiver on behalf of the Applicant/Licensee.

The Executive Director of the Colorado Department of Revenue is the State Licensing Authority, and oversees the Colorado Liquor Enforcement Division as his or her agents, clerks, and employees. The information and documentation obtained pursuant to this Waiver may be used in connection with the Applicant/Licensee's liquor license application and ongoing licensure by the state and local licensing authorities. The Colorado Liquor Code, section 44-3-101. et seq. ("Liquor Code"), and the Colorado Liquor Rules, 1 CCR 203-2 ("Liquor Rules"), require compliance with certain tax obligations, and set forth the investigative, disciplinary and licensure actions the state and local licensing authorities may take for violations of the Liquor Code and Liquor Rules, including failure to meet tax reporting and payment obligations.

The Waiver is made pursuant to section 39-21-113(4), C.R.S., and any other law, regulation, resolution or ordinance concerning the confidentiality of tax information, or any document, report or return filed in connection with state or local taxes. This Waiver shall be valid until the expiration or revocation of a license, or until both the state and local licensing authorities take final action to approve or deny any application(s) for the renewal of the license, whichever is later. Applicant/Licensee agrees to execute a new waiver for each subsequent licensing period in connection with the renewal of any license, if requested.

By signing below, Applicant/Licensee requests that the Colorado Department of Revenue and any other state or local taxing authority or agency in the possession of tax documents or information, release information and documentation to the Colorado Liquor Enforcement Division, and is duly authorized employees, to act as the Applicant's/Licensee's duly authorized representative under section 39-21-113(4), C.R.S., solely to allow the state and local licensing authorities, and their duly authorized employees, to investigate compliance with the Liquor Code and Liquor Rules. Applicant/Licensee authorizes the state and local licensing authorities, their duly authorized employees, and their legal representatives, to use the information and documentation obtained using this Waiver in any administrative or judicial action regarding the application or license.

Name (Individual/Business)

Fionas Bartigue Rene Verduin

Social Security Number/Tax Identification Number

33-3746407

Home Phone Number

[REDACTED]

Business/Work Phone Number

Street Address

130 Grand Ave

City

Flordia

State

CO

ZIP Code

81428

Printed name of person signing on behalf of the Applicant/Licensee

Rene Verduin

Applicant/Licensee's Signature (Signature authorizing the disclosure of confidential tax information)

Rene Verduin

Date Signed

5.16.25

Privacy Act Statement

Providing your Social Security Number is voluntary and no right, benefit or privilege provided by law will be denied as a result of refusal to disclose it. § 7 of Privacy Act, 5 USCS § 552a (note).

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Vendor	Vendor Name	Invoice Number	Description	Invoice Date	Net Invoice Amount	Voided	GL Account and Title	GL Period Date
ADP, INC								
1352	ADP, INC	688212151	ADMIN PAYROLL	04/18/2025	36.59		10-41-20 LEGAL, ENGINEERING & PR	04/30/2025
1352	ADP, INC	688212151	WATER PAYROLL	04/18/2025	36.59		60-50-20 LEGAL, ENGINEERING & PR	04/30/2025
1352	ADP, INC	688212151	WW PAYROLL	04/18/2025	36.59		70-51-20 LEGAL, ENGINEERING & PR	04/30/2025
1352	ADP, INC	688212151	SANITATION PAYROLL	04/18/2025	36.59		80-52-20 LEGAL, ENGINEERING & PR	04/30/2025
1352	ADP, INC	688212151	PD PAYROLL	04/18/2025	36.60		10-42-20 LEGAL, ENGINEERING & PR	04/30/2025
1352	ADP, INC	688212151		04/18/2025	.00		[Does not exist]	04/30/2025
1352	ADP, INC	690632309	ADMIN PAYROLL	05/16/2025	35.80		10-41-20 LEGAL, ENGINEERING & PR	05/31/2025
1352	ADP, INC	690632309	WATER PAYROLL	05/16/2025	35.80		60-50-20 LEGAL, ENGINEERING & PR	05/31/2025
1352	ADP, INC	690632309	WW PAYROLL	05/16/2025	35.80		70-51-20 LEGAL, ENGINEERING & PR	05/31/2025
1352	ADP, INC	690632309	SANITATION PAYROLL	05/16/2025	35.80		80-52-20 LEGAL, ENGINEERING & PR	05/31/2025
1352	ADP, INC	690632309	PD PAYROLL	05/16/2025	35.80		10-42-20 LEGAL, ENGINEERING & PR	05/31/2025
Total ADP, INC:					361.98			
All Copy Products Inc								
1268	All Copy Products Inc	5034348362	Printer Services	05/12/2025	99.43		10-41-31 DUES & SUBSCRIPTIONS	05/31/2025
1268	All Copy Products Inc	5034348362	Printer Services	05/12/2025	99.43		70-51-31 DUES & SUBSCRIPTIONS	05/31/2025
1268	All Copy Products Inc	5034348362	Printer Services	05/12/2025	99.44		60-50-31 DUES & SUBSCRIPTIONS	05/31/2025
1268	All Copy Products Inc	5034348362	Printer Services	05/12/2025	99.44		80-52-31 DUES & SUBSCRIPTIONS	05/31/2025
Total All Copy Products Inc:					397.74			
AXON Enterprise Inc								
1021	AXON Enterprise Inc	INUS346869	BWC Unlimited with TAP	05/15/2025	2,710.08		10-42-42 CONTRACT SERVICES	05/31/2025
Total AXON Enterprise Inc:					2,710.08			
Baylee Cowger								
1432	Baylee Cowger	PW FOOTWEA	B. Cowger Footwear Reimbursem	05/07/2025	70.25		10-45-03 SALARIES & WAGES	05/31/2025
1432	Baylee Cowger	PW FOOTWEA	B. Cowger Footwear Reimbursem	05/07/2025	70.26		10-46-03 SALARIES & WAGES	05/31/2025
Total Baylee Cowger:					140.51			
Central States Radar								
1452	Central States Radar	DATE 05-07-20	ACI Stalker & Decatur Genesis	05/07/2025	252.00		10-42-22 REPAIRS & MAINTENANCE	05/31/2025
Total Central States Radar:					252.00			
CIRSA								
23	CIRSA	INV1001422	INSURANCE PERIOD 01/01/202	04/01/2025	2,585.81		10-41-27 INSURANCE & BONDS	05/31/2025
23	CIRSA	INV1001422	INSURANCE PERIOD 01/01/202	04/01/2025	13,454.91		10-42-27 INSURANCE & BONDS	05/31/2025
23	CIRSA	INV1001422	INSURANCE PERIOD 01/01/202	04/01/2025	4,156.83		60-50-27 INSURANCE & BONDS	05/31/2025
23	CIRSA	INV1001422	INSURANCE PERIOD 01/01/202	04/01/2025	4,156.82		70-51-27 INSURANCE & BONDS	05/31/2025

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P5

Vendor	Vendor Name	Invoice Number	Description	Invoice Date	Net Invoice Amount	Voided	GL Account and Title	GL Period Date
23	CIRSA	INV1001422	INSURANCE PERIOD 01/01/202	04/01/2025	4,005.25		80-52-27 INSURANCE & BONDS	05/31/2025
Total CIRSA:					28,359.62			
City Of Grand Junction								
673	City Of Grand Junction	100647	Persigo - Lab Testing March 2025	04/16/2025	138.00		70-51-20 LEGAL, ENGINEERING & PR	04/30/2025
Total City Of Grand Junction:					138.00			
Consolidated Electrical Distributors Inc								
1318	Consolidated Electrical Distributor	APRIL STATE	Overhang Rplcmnt	04/03/2025	4.99		10-45-25 SHOP EXPENSE	05/31/2025
1318	Consolidated Electrical Distributor	APRIL STATE	Overhang Rplcmnt	04/03/2025	5.00		10-46-25 SHOP EXPENSE	05/31/2025
1318	Consolidated Electrical Distributor	APRIL STATE	Overhang Rplcmnt	04/03/2025	5.00		80-52-25 SHOP EXPENSE	05/31/2025
1318	Consolidated Electrical Distributor	APRIL STATE	Overhang Rplcmnt	04/03/2025	5.00		60-50-25 SHOP EXPENSE	05/31/2025
1318	Consolidated Electrical Distributor	APRIL STATE	Overhang Rplcmnt	04/03/2025	5.00		70-51-25 SHOP EXPENSE	05/31/2025
Total Consolidated Electrical Distributors Inc:					24.99			
Delta County Clerk & Recorder								
286	Delta County Clerk & Recorder	APRIL 1 2025	April 1 2025 Municiple Election	04/22/2025	2,246.58		10-41-20 LEGAL, ENGINEERING & PR	04/30/2025
Total Delta County Clerk & Recorder:					2,246.58			
EAGLE WASH								
1367	EAGLE WASH	1013	Car Wash Services	05/19/2025	14.28		70-51-23 VEHICLE EXPENSE	05/31/2025
1367	EAGLE WASH	1013	Car Wash Services	05/19/2025	14.28		60-50-23 VEHICLE EXPENSE	05/31/2025
1367	EAGLE WASH	1013	Car Wash Services	05/19/2025	14.28		80-52-23 VEHICLE EXPENSE	05/31/2025
1367	EAGLE WASH	1013	Car Wash Services	05/19/2025	14.29		10-46-23 VEHICLE EXPENSE	05/31/2025
1367	EAGLE WASH	1013	Car Wash Services	05/19/2025	14.29		10-45-23 VEHICLE EXPENSE	05/31/2025
1367	EAGLE WASH	1013	Car Wash Services	05/19/2025	43.90		10-42-23 VEHICLE EXPENSE	05/31/2025
Total EAGLE WASH:					115.32			
Earthworx Excavation, LLC								
1431	Earthworx Excavation, LLC	2013-471.013	2mg Tank Rehab Payment #5	05/20/2025	14,943.03		60-50-72 CAP OUTLAY-Water Tank Reli	05/31/2025
Total Earthworx Excavation, LLC:					14,943.03			
Empower Trust Company LLC								
1190	Empower Trust Company LLC	1295169626	Retirement Plan PPE	05/16/2025	3,894.76		10-0220 RETIREMENT PLAN	05/31/2025
Total Empower Trust Company LLC:					3,894.76			

Vendor	Vendor Name	Invoice Number	Description	Invoice Date	Net Invoice Amount	Voided	GL Account and Title	GL Period Date
ENVIRO-CHEM ANALYTICAL INC								
1221	ENVIRO-CHEM ANALYTICAL IN	14171120	NO2, NO3, Se, PD	05/16/2025	65.30		70-51-20 LEGAL, ENGINEERING & PR	05/31/2025
Total ENVIRO-CHEM ANALYTICAL INC:					65.30			
Enviromental Seeds West LLC								
1449	Enviromental Seeds West LLC	05082025 STA	Parks	04/16/2025	2,050.00		10-46-22 REPAIRS & MAINTENANCE	05/31/2025
Total Enviromental Seeds West LLC:					2,050.00			
Fire & Police Pension Assn.								
63	Fire & Police Pension Assn.	04262025 TO 0	Payroll Ending	05/13/2025	4,151.54		10-0219 FPPA	05/31/2025
Total Fire & Police Pension Assn.:					4,151.54			
Mail Services, LLC.								
645	Mail Services, LLC.	1985009	Postage	05/12/2025	186.92		60-50-17 POSTAGE	05/31/2025
645	Mail Services, LLC.	1985009	Postage	05/12/2025	181.42		70-51-17 POSTAGE	05/31/2025
645	Mail Services, LLC.	1985009	Postage	05/12/2025	181.42		80-52-17 POSTAGE	05/31/2025
Total Mail Services, LLC.:					549.76			
Mesa County Public Health Regional Lab								
763	Mesa County Public Health Regio	13415	Water testing	05/07/2025	25.00		60-50-20 LEGAL, ENGINEERING & PR	05/31/2025
763	Mesa County Public Health Regio	13440	Water Testing	05/07/2025	25.00		60-50-20 LEGAL, ENGINEERING & PR	05/31/2025
Total Mesa County Public Health Regional Lab:					50.00			
North Fork High School								
237	North Fork High School	ART MURALS	Art Murals for Town Park	05/05/2025	500.00		10-46-44 HUMAN SERVICES	05/31/2025
Total North Fork High School:					500.00			
North Fork Service (Reedy's)								
141	North Fork Service (Reedy's)	04 02 2025	TPMS Stem	04/02/2025	24.75		10-42-23 VEHICLE EXPENSE	05/31/2025
141	North Fork Service (Reedy's)	APRIL 2025	WATER FUEL	04/01/2025	225.28		60-50-23 VEHICLE EXPENSE	05/31/2025
141	North Fork Service (Reedy's)	APRIL 2025	STREETS FUEL	04/01/2025	225.28		10-45-23 VEHICLE EXPENSE	05/31/2025
141	North Fork Service (Reedy's)	APRIL 2025	PARKS FUEL	04/01/2025	225.28		10-46-23 VEHICLE EXPENSE	05/31/2025
141	North Fork Service (Reedy's)	APRIL 2025	SANITATION FUEL	04/01/2025	225.28		80-52-23 VEHICLE EXPENSE	05/31/2025
141	North Fork Service (Reedy's)	APRIL 2025	WASTEWATER FUEL	04/01/2025	225.30		70-51-23 VEHICLE EXPENSE	05/31/2025
141	North Fork Service (Reedy's)	APRIL 2025 P	Fuel for PD	04/01/2025	963.46		10-42-23 VEHICLE EXPENSE	05/31/2025
141	North Fork Service (Reedy's)	MARCH 2025	March 2025	03/01/2025	786.15		10-42-23 VEHICLE EXPENSE	04/30/2025

Vendor	Vendor Name	Invoice Number	Description	Invoice Date	Net Invoice Amount	Voided	GL Account and Title	GL Period Date
Total North Fork Service (Reedy's):					2,900.78			
PHOENIX RISING RESOURCES LLC								
1297	PHOENIX RISING RESOURCES	FINAL INVOIC	Final Communications for Paonia	05/12/2025	500.00		10-41-20 LEGAL, ENGINEERING & PR	05/31/2025
Total PHOENIX RISING RESOURCES LLC:					500.00			
Pinnacle Glass Company								
1123	Pinnacle Glass Company	18767	Replace battery in auto door butto	04/29/2025	250.00		10-41-22 REPAIRS & MAINTENANCE	05/31/2025
Total Pinnacle Glass Company:					250.00			
PROTECH DIESEL REPAIR								
1381	PROTECH DIESEL REPAIR	853	Trash Truck drag link replaced, ins	04/17/2025	692.64		80-52-22 REPAIRS & MAINTENANCE	04/30/2025
1381	PROTECH DIESEL REPAIR	886	DOT Inspection	05/20/2025	221.94		10-45-22 REPAIRS & MAINTENANCE	05/31/2025
1381	PROTECH DIESEL REPAIR	887	Cylinder Leak / DOT Inspection	05/20/2025	2,821.93		80-52-23 VEHICLE EXPENSE	05/31/2025
Total PROTECH DIESEL REPAIR:					3,736.51			
RESPEC Company LLC								
1124	RESPEC Company LLC	INV03250748	Paonia Water / WW General Engi	04/17/2025	115.00		60-50-20 LEGAL, ENGINEERING & PR	04/30/2025
1124	RESPEC Company LLC	INV03250748	Paonia Water / WW General Engi	04/17/2025	200.00		60-50-72 CAP OUTLAY-Water Tank Reli	04/30/2025
1124	RESPEC Company LLC	INV03250748	Paonia Water / WW General Engi	04/17/2025	100.00		60-50-69 CAPITAL OUTLY-Raw Water M	04/30/2025
1124	RESPEC Company LLC	INV03250748	Paonia Water / WW General Engi	04/17/2025	3,852.50		70-51-20 LEGAL, ENGINEERING & PR	04/30/2025
1124	RESPEC Company LLC	INV03250749	Water CIP Phase 1 - Water Syste	04/17/2025	3,176.25		60-50-69 CAPITAL OUTLY-Raw Water M	04/30/2025
1124	RESPEC Company LLC	INV03250749	Water CIP Phase 1 - Water Syste	04/17/2025	6,793.70		60-50-73 CAP OUTLAY-West Loop Impr	04/30/2025
1124	RESPEC Company LLC	INV03250749	Water CIP Phase 1 - Water Syste	04/17/2025	450.00		60-50-72 CAP OUTLAY-Water Tank Reli	04/30/2025
1124	RESPEC Company LLC	INV03250755	W/WW Construction Standards	04/17/2025	390.00		60-50-20 LEGAL, ENGINEERING & PR	04/30/2025
1124	RESPEC Company LLC	INV03250755	W/WW Construction Standards	04/17/2025	390.00		70-51-20 LEGAL, ENGINEERING & PR	04/30/2025
1124	RESPEC Company LLC	INV03250782	Sewer PNA	04/17/2025	992.50		70-51-20 LEGAL, ENGINEERING & PR	04/30/2025
Total RESPEC Company LLC:					16,459.95			
Rhinehart Oil Co.								
1224	Rhinehart Oil Co.	127614CT	Diesel Fuel	04/30/2025	459.58		80-52-23 VEHICLE EXPENSE	05/31/2025
1224	Rhinehart Oil Co.	IN-654982-25	Bulk red fule fill	04/16/2025	117.04		10-45-23 VEHICLE EXPENSE	04/30/2025
1224	Rhinehart Oil Co.	IN-654982-25	Bulk red fule fill	04/16/2025	117.04		10-45-23 VEHICLE EXPENSE	04/30/2025
1224	Rhinehart Oil Co.	IN-654982-25	Bulk red fule fill	04/16/2025	117.05		60-50-23 VEHICLE EXPENSE	04/30/2025
1224	Rhinehart Oil Co.	IN-654982-25	Bulk red fule fill	04/16/2025	117.05		70-51-23 VEHICLE EXPENSE	04/30/2025
Total Rhinehart Oil Co.:					927.76			

Vendor	Vendor Name	Invoice Number	Description	Invoice Date	Net Invoice Amount	Voided	GL Account and Title	GL Period Date
Robert's Enterprises Inc								
145	Robert's Enterprises Inc	BILL DATE 051	Trash Services	05/10/2025	126.00		80-52-20 LEGAL, ENGINEERING & PR	05/31/2025
Total Robert's Enterprises Inc:					126.00			
Roop Excavating LLC								
931	Roop Excavating LLC	R25-068	Cold Patch for 2nd Street Repair	05/13/2025	360.00		10-45-22 REPAIRS & MAINTENANCE	05/31/2025
931	Roop Excavating LLC	R25-069	Regravel driveway to shed at Tow	05/13/2025	120.00		10-46-22 REPAIRS & MAINTENANCE	05/31/2025
Total Roop Excavating LLC:					480.00			
Shums Coda Associates								
1170	Shums Coda Associates	18983	Plan Review Services for March 2	04/21/2025	1,080.00		10-43-20 LEGAL, ENGINEERING & PR	04/30/2025
Total Shums Coda Associates:					1,080.00			
Southwestern Systems, Inc								
152	Southwestern Systems, Inc	203477	Vactor Cleaning/Mileage & Labor	05/16/2025	1,220.00		70-51-20 LEGAL, ENGINEERING & PR	05/31/2025
Total Southwestern Systems, Inc:					1,220.00			
TDS Telecom								
156	TDS Telecom	513096996052	Communication Services	05/12/2025	230.33		60-50-29 TELEPHONE & INTERNET	05/31/2025
Total TDS Telecom:					230.33			
Transwest Truck Trailer RV								
159	Transwest Truck Trailer RV	004P160174	Drag Link for Trash Truck	04/17/2025	196.99		80-52-22 REPAIRS & MAINTENANCE	04/30/2025
Total Transwest Truck Trailer RV:					196.99			
Wain, Simon								
1064	Wain, Simon	37	Trees removed from Town Park	04/24/2025	4,000.00		10-46-22 REPAIRS & MAINTENANCE	05/31/2025
Total Wain, Simon:					4,000.00			
Western Slope Conservation Center								
1337	Western Slope Conservation Cent	2595	Donation - Wildfire Ready Waters	05/14/2025	5,000.00		60-50-40 MISCELLANEOUS	05/31/2025
Total Western Slope Conservation Center:					5,000.00			
Grand Totals:					98,059.51			

Vendor	Vendor Name	Invoice Number	Description	Invoice Date	Net Invoice Amount	Voided	GL Account and Title	GL Period Date
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Board Meeting Date: _____

Town Administrator: _____

Finance Committee/Mayor: _____

Finance Committee/Trustee: _____

Trustees: _____

Date Reviewed: _____

Regarding Respec Invoices for Disbursement Approval for Board of Trustees Meeting 5-27-2025

The Disbursement Approval Report approved by the Board of Trustees at the 5-13-2025 meeting listed two invoices for Respec Company LLC. Invoice number INV03250748 for the amount of \$4,152.50 and invoice number INV03250749 in the amount of \$450. Before checks were printed and as part of the usually review process before printing checks it was discovered that the invoice totals listed on the report were incorrect due to an input error within the Town's ERP system. Invoice INV03250748 total due is \$4,267.50 and INV03250749 total due is \$10,419.95. Checks were not printed after the 5-13-2025 meeting and these two invoices, listing the correct amounts, are on the Disbursement Approval Report for approval at the meeting of the Board of Trustees on 5-27-2025.

Kaja Bowman
Deputy Treasurer
2025-5-21

**TOWN OF PAONIA
DEPARTMENTAL SCORE CARD**

ISSUE	STATUS	ESTIMATED COST	INITIAL PROJECT DATE	CURRENT STATUS DATE	ALIGNMENT WITH STRATEGIC PLAN	DATE COMPLETED
TOWN ADMINISTRATOR'S OFFICE						
CDOT Revitalizing Main Streets Grant, "Safe Pathways for Paonia," 3-Points InX Grand, 4th & 5th	SGM CO #1 Forthcoming adding scope of work for GeoTech Eng. Svcs., and MOT plan to design set & Striping Plan, and Adding Add'l. meetings to Project Admin. as req. by CDOT. (Odisea didn't include in original design). CO #1 approved at the 8.22.23 Board Meeting. CO #1 was executed and submitted to SGM on 8.28.23. CDOT approved RMS Grant, R/W acquired from School Board and design is being finalized for construction. CDOT & SGM informed the Town that construction is likely in Spring 2025 and the estimated probable cost of construction is \$2.5MM. Meeting held with affected property owners in July 2024. FOR Meeting with CDOT held on 8/7/2024, cost now \$2.9MM. RAISE grant submitted for supplemental funding on 1.21.2025	~\$2,900,000.00	7.14.23	1.24.2025	Pristine Infrastructure and Critical Facilities	
Policy Reviews: Purchasing, Internal Controls, and Personnel, Credit Card Policy	These processes and policies will be a product to be worked on during 2024. Purchasing, Internal Controls estimated completion 5/30/2024; Personnel estimated completion 12/30/2024. Credit Card policy is ready for 7.23.2024 agenda. Purchasing Policy with Internal Controls complete in Purchasing Manual ready for Board Consideration on 9/10/2024. Personnel Policy review to take place in December. Purchasing, credit card and related financial policies have been adopted and completed. Next month personnel policy updates will have its own line item.	Staff Time	7.17.23	8.23.2024	Communications and Records Management; Transparent, Secure and Accurate Financial and Administrative Systems; Organizational Excellence and Staff Development	9.17.2024
Ordinance for Consecutive Systems (Water Companies)/Agreements with Water Companies	At a minimum an agreement with water companies that describes expectations from the town, expectations from the water companies/subdivisions, indemnification, and insurance requirements should be considered to reduce liability to the town. Further discussion with the Water Attorney is necessary. Standardized IGA with Water Companies with clauses for maintenance and increasing bulk water rates for non-compliance/if Water Company chooses to have the town complete maintenance. Town Attorney working on Draft Agreement for Hidden Valley water company. Multiple Water Companies have requested formalized agreements with the Town. Hidden Valley has replied that they do not want to enter into a new agreement with the Town but would rather add a supplement to the agreement with the Town taking on additional responsibilities for meter reading and billing without fixing or repairing their system. Being Considered with Code Revision from Sustainable Futures. Collaborative Approach to Consecutive Systems TBD September - December. Creation of Paonia Water System Coalition, TBD February 2025.	Staff Time (for actual agreements there will be a fee from attorney review TBD)	7.11.23	1.24.2025	Pristine Infrastructure and Critical Facilities; Communications and Records Management	
Code Re-Write	If funded by DOLA grant, then an RFP will need to be issued to meet the competitive bid requirement. Scheduled a phone call with a separate consulting firm to get a budget figure on price for DOLA grant for 8.28.23, once budget price received, will submit to DOLA for their consideration. Received Council Approval for \$25,000 Match from DOLA Admin Grant on 9.14.23. Submission of Grant on 9.15.23. Resubmitted Grant information to DOLA on 11.22.23. RFQ will be live in 2024 after grant funding is awarded and approved. RFP will be made live on 2.5.24 RFP Consultant selection/decision being made on 4.23.2024. Work has begun on code rewrite, sustainable futures selected as consultant. Special Meeting held on 8/20/2024 for feedback from Trustees on Code Rewrite. Need to ask for extension on the project from DOLA. Consultant is awaiting completion of Comprehensive Plan to finalize code adjustments as of 1.22.2025.	\$38,000	7.11.23	1.24.2025	Transparent, Secure and Accurate Financial and Administrative Systems; Communication and Records Management	

**TOWN OF PAONIA
DEPARTMENTAL SCORE CARD**

ISSUE	STATUS	ESTIMATED COST	INITIAL PROJECT DATE	CURRENT STATUS DATE	ALIGNMENT WITH STRATEGIC PLAN	DATE COMPLETED
Chase ink Credit Account	Submitted a letter to Chase Card Services to get control of the online banking account for the Chase ink Credit Card. Would like to see if any cashback rewards have been earned, and if so, where are they. Continue to get control of Chase Bank Credit Cards - will need to travel to Telluride and visit Chase Banker in person. Form has been signed by former finance director and signed by myself and sent to Chase Bank for final approval. Awaiting Chase Banks response. Chase Bank denied the change of ownership and awaiting for further action.	Staff Time	7.28.23	7.19.2024	Transparent, Secure and Accurate Financial and Administrative Systems	
Special Event Process and Applications	Improve the process and include the recent ordinance for street closures in the application process. This also includes the process for park reservations. Request to be on agenda for 2.11.2025 for discussion of setting an ad-hoc policy committee of Trustees (who would also introduce an ordinance), staff, and special event organizers for policy development.	Staff Time	8.1.23	1.24.2025	Organizational Excellence and Staff Development; Communications and Records Management	
Creation of a Municipal Comprehensive Emergency Management Plan	Town staff have worked closely with a county-wide Hazard Mitigation Plan with Delta County Emergency Management and as approved by FEMA and state regulators. The Town needs a specific emergency management plan to the town for continuity of operations.	Staff Time	1.1.2025	1.24.2025	Organizational Excellence and Staff Development; Communications and Records Management; Safe and Resilient Community	
Personnel Policy and Handbook Updates	There is a need to update the personnel policy to include relevant federal and state requirements as well as clarify several existing policies. Updates need to be made to the handbook that reflect administrative policies that have been implemented, changed or enacted since 2018.	Staff Time	1.1.2025	1.24.2025	Organizational Excellence and Staff Development	
Creation of Neighborhood Watch Organization	Concerned Residents and business owners brought forward a request to discuss what can and can't be done about criminal activity and disturbances of peace downtown. Staff meet with the group and told them what the Town can and can't do in regards to protecting civil rights of individuals. Out of the discussion came a request to start a neighborhood watch organization and possibly a citizen's academy. Staff would like to formally create a plan with at least one Trustee, Staff and residents/business owners interested in helping form policy to serve on a committee that may result in a new ordinance.	Staff Time	1/12/1900	1.24.2025	Safe and Resilient Community; Communication and Records Management	
Sort/Dispose of Box of Outdated Bank Info		Staff Time	2/5/2025		Communication and Records Management	
FINANCE DEPARTMENT						
Add Community Development Module to Caselle	Board of Trustees approved a new module with Caselle for Community Development to track all permits issued by the town. Addresses have been mostly set up and entry of the 2025 permits has begun.	≈\$20,000 with recurring annual costs (already paid, implementation is beginning)	7.1.24	5.22.2025	Transparent, Secure and Accurate Financial and Administrative Systems	
Consider Adding Purchase Order module with Caselle	With the adoption of a Purchasing Manual in September, the new process will include a three-way match requirement for purchase orders. Current purchase orders are tracked on a spreadsheet, but with the module they'll be tracked in Caselle. Requisitions/Purchase Order package has been purchased and is in initial setup. Module has been adding, working implementing with the new year. First PO being made if process runs smoothly can consider project complete. PO did not encumber account, seeking additional training from Caselle.	≈\$3,000 with recurring annual costs (already paid, implementation is beginning)	8.1.2024	5.22.2025	Transparent, Secure and Accurate Financial and Administrative Systems	
Meter Updates in Caselle	Working with Public Works department to check meter ids, endpoints in Caselle and change as many as possible to radio read. No recent meter changes due to sever cold. Project to resume in spring.	Time and Materials, each meter installation cost is ≈\$1,400	5.27.24	1.22.2025	Pristine Infrastructure and Critical Facilities; Transparent, Secure and Accurate Financial and Administrative Systems	

**TOWN OF PAONIA
DEPARTMENTAL SCORE CARD**

ISSUE	STATUS	ESTIMATED COST	INITIAL PROJECT DATE	CURRENT STATUS DATE	ALIGNMENT WITH STRATEGIC PLAN	DATE COMPLETED
Documenting Accounting and Utility Processes	Recording processes for water meter read input, utility billing, red tags, disbursement approval, printing checks for approved disbursements and other departmental tasks. Major department duties have been documented. Checking for smaller or new processes that still might need documentation. Payroll and Permits processes identified as needing to be documented as well. Progressing on both of these.	Staff Time	7.1.24	4.2.2025	Transparent, Secure and Accurate Financial and Administrative Systems; Communication and Records Management	
Take Over Payroll Process	Was decided that fiance would be taking over payroll process from HR. Still to train on additions, edits, and contributions. Have ran March payroll. Still many minor variances to learn. Have identified 2 additional possible training sources.	Staff Time	1.14.2025	4.3.2025	Organizational Excellence and Staff Development	
Bank Access Issues	Bank access for records and current information has been inconsistent. Work with an approved bank signer and bank to resolve issues.	Staff Time	2.5.2025	2.5.2025	Transparent, Secure and Accurate Financial and Administrative Systems	
Caselle Vendor Record Clean Up	Outdated vendors need to be closed out. Make sure all current and new vendors are set up correctly and have accurate W9 information on file. Handful of vendors updated. Making slow progress around other time sensitive projects. Current vendor W9s have been updated.	Staff Time	2.5.2025	5.22.2025	Transparent, Secure and Accurate Financial and Administrative Systems; Communication and Records Management	
Caselle Implementation of Accounts Receivable Module	Working with Caselle and Town staff to set up invoices and forms. Training for staff to be scheduled with Caselle after implementation is completed. Caselle is still working on setting up our templates; have requested update on progress.	\$1,050 with recurring annual costs (already paid, implementation is beginning)	11.26.2024	5.22.2025	Transparent, Secure and Accurate Financial and Administrative Systems	
Website Updates	Work with Clerks Department and Town Administrator to clean up and standardize the Town website. Division of duties and process has been established. Making slow progress around other time sensitive projects.	Staff Time	4.9.2025	5.22.2025	Communication and Records Management	
CLERK'S DEPARTMENT						
Xpress Bill Pay / Caselle Integration	Integration changes to Caselle System to disconnect Point & Pay and update it for XBP completed on 12/16/2024. Staff training on the new system was completed on 1/7/2025. XBP is now live but currently implemented for in-person payments at the Town Hall counter to ensure all is working as promised before opening it up to the public online. With the configuration changes made in Caselle, payments post in real-time. On track for opening up to the public on 2/1/2025. XBP went live to the public 2/1, with a separate non-utilities payment gateway added as well. As of 2/10/2025: 35 Online Accounts created, with 20 opting for paperless option. Reconciliation all good. All reported issued addressed, including accepting AMEX Cards.	Monthly fees + Staff Time	12.16.2024	02.10.2025	Organizational Excellence and Staff Development; Communications and Records Management; Transparent, Secure and Accurate Financial and Administrative Systems	02.15.2025
New SQL & Access Databases	Databases: Dog Tags (Completed and Live) - Need to update for 2025 and modify web pages for easier sorting. Completed SQL queries to sort 2024 vs 2025 for easier readability. Request to have it moved to our server has to wait until new server is aquired.	Staff Time	01.01.2024	04.14.2025	Organizational Excellence and Staff Development; Communications and Records Management; Transparent, Secure and Accurate Financial and Administrative Systems	
Create checklists for Clerk Duties	Create checklists, for all permits, licensing, agenda, board meeting, record retention, new hires etc for consistency and thoroughness. Updating as we go concurrent with the training for new Deputy Clerk - Ongoing Collaborative project in Teams with Deputy Clerk; including other Deptments Heads as appropriate.	Staff Time	7.19.23	5.23.2025	Organizational Excellence and Staff Development; Communication and Records Management	
MuniDocs clean- up & catch up	Still in process as time permits, This has also become the landing place for Board Committee Agenda's and minutes. Maintaining at minimum right now and will stop completely once public portal for laserfiche is live, then Munidocs will be obsolete.		9.14.23	4.18.2025	Organizational Excellence and Staff Development; Communication and Records Management	

**TOWN OF PAONIA
DEPARTMENTAL SCORE CARD**

ISSUE	STATUS	ESTIMATED COST	INITIAL PROJECT DATE	CURRENT STATUS DATE	ALIGNMENT WITH STRATEGIC PLAN	DATE COMPLETED
CIRSA Audit	Coordinating with Dept Heads to fix deficiencies	Staff time	5.9.24	6.4.24	Organizational Excellence and Staff Development; Communication and Records Management	
Create Marketing Policy (including Social Media Policy)	<i>During the 1.14.2025 Board Meeting, Trustees asked that Staff research and recommend ways to better communicate with Residents, Businesses, Visitors and the extended Paonia Community. Staff recommended that a marketing and communications policy be created for the Board to review. Researching. Moved to VP and MT for creation and</i>	Staff Time	1.14.2025	4.6.2025	Organizational Excellence and Staff Development; Communication and Records Management	
New/Transfer Liquor License Packet	In process	Staff Time	10.10.24	3.19.2025	Organizational Excellence and Staff Development; Communication and Records Management	
Disaster Recovery Plan for Records - to be included in a Municipal Comprehensive Emergency Management Plan		Staff Time	10.10.24		Organizational Excellence and Staff Development; Communication and Records Management, Safe and Resilient Community	
Laserfiche implementation	<i>Clerk and Deputy Clerk had a troubleshooting session around security, permissions and retention programming. Continuing to upload documents and schedule Professional Service time with specialists to set up workflows. Still waiting to schedule training but Clerk's Office has begun uploading documents, setting up retention schedules and familiarizing themselves with the</i>	\$11,257.50 first year with \$7757.50 annual from 2026 on	10.11.24	05.23.2025	Organizational Excellence and Staff Development; Communication and Records Management; Transparent, Secure and Accurate Financial and Administrative Systems	
Munimeetings Migration to CivicsPlus Select	<i>Clerk and Deputy Clerk had minutes training in the new system and should soon be setting a hard transfer date soon! Tree Board Meeting on the 15th will be the maiden run of the new agenda system. Clerk and Deputy Clerk will maintain sole access for a month while working out bugs then will begin to set up staff & Board access . Implementation has been so successful that Clerk's office has already begun adding staff to new software. Clerk's Office will be setting up two trainings within next few weeks to train staff and Boards, Committees and Commissions. Training work sessions complete, scheduling individual sessions for members who have not been able to attend</i>	\$2310.00 Implementation, integration and migration fee.	10.24.24	05.23.2025	Organizational Excellence and Staff Development; Communication and Records Management	
Create and implement Safety Policy and Plan	Working together with Deputy Public Works Director to develop and coordinate Town safety plan.		1.29.2025	03.15.2025	Organizational Excellence and Staff Development, Safe and Resilient Community	
Boards and Committee's Policies and Processes	<i>First step underway, creating new applications, job description, expectations, interview process. Project was put on hold for a little bit due to other priorities but is once again active with Town Clerk and Deputy Clerk active on it. Hope to be setting up meetings with Mayor Pro-Tem and Trustee Stelter in early May and be scheduling a work session for the Board before May ends.</i>	Staff Time	10.21.24	4.18.2025	Organizational Excellence and Staff Development; Communication and Records Management; Transparent, Secure and Accurate Financial and Administrative Systems	
Outline and Implement New Hire Onboarding process	<i>Rough draft created, need review with other dept heads and administrator and fine tuning before being put into place. Researching on going and coordination with Department Heads under way for review and finalization.</i>	Staff Time	2.4.2025	4.18.2025	Organizational Excellence and Staff Development; Communication and Records Management	
Special Election for April 1, 2025	<i>Canvass Complete, Election Certified, need to upload to DOLA. Having issues with DOLA website, priority goal to finish next week.</i>	est \$3200.00	1.14.25	04.18.2025	Communication and Records Management; Transparent, Secure and Accurate Financial and Administrative Systems	
SHRM-CP Certification	Started classes with goal of taking certification test in 2026, starting with Leadership & Navigation Competency	\$900	1/31/2025	2/5/2025	Organizational Excellence and Staff Development; Communication and Records Management	

**TOWN OF PAONIA
DEPARTMENTAL SCORE CARD**

ISSUE	STATUS	ESTIMATED COST	INITIAL PROJECT DATE	CURRENT STATUS DATE	ALIGNMENT WITH STRATEGIC PLAN	DATE COMPLETED
Registered Parliamentarian Certification	Completed Class "Motions in General"	Membership dues of around \$100.00	1/31/2025	2/13/2025	Organizational Excellence and Staff Development; Communication and Records Management	
Apply for CMC	Assessment for last points taken, awaiting certificate, then will apply for CMC	\$200	1/24/2023	04.14.2025	Organizational Excellence and Staff Development;	
Sidewalk for Business Use Permit Audit	<i>Renewal letters sent out and applications taken to new sidewalk users. First compliance steps will take place June 2.</i>		3.26.2025	4.14.2025	Transparent, Secure and Accurate Financial and Administrative Systems, Organizational Excellence and Staff Development	
Personnel File Audits and Uploads	Personnel files need organizing according to best practices and to see if there is a need for corrections or updated information. This will be combined with upload into Laserfiche and updates of ADP (payroll and HR software)		4.3.2025		Organizational Excellence and Staff Development; Pristine Infrastructure and Critical Facilities, Safe and Resilient Communities	
Develop Code Enforcement Process/Policy	<i>Meeting with PD for the initial planning . Setting up meeting with Town Attorney for clarification and next steps forward to rectify identified issues.</i>		4.3.2025	4.18.2025	Organizational Excellence and Staff Development; Communication and Records Management	
RFP for IT Services	<i>Audit Services -Received and Needed. Create RFP</i>			4.18.2025	Transparent, Secure and Accurate Financial and Administrative Systems.	
Company Property Updates to ADP	Due from Department Heads by May 2, 2025				Transparent, Secure and Accurate Financial and Administrative Systems.	
Vape Disposable Initiative	<i>Coordinating Paonia's involvement with Cleaner Delta County Vape Disposal Initiative. A Vape Disposal Unit will be added to the Narcan Kiosk at the Paonia Library. Boxes recieved, awaiting installation</i>	None	4.11.2025	4.11.2025	Safe and Resilient Community	4.11.2025
PUBLIC WORKS						
ADA Transition Plan	Discussed at Department Head Meeting, will need to begin to evaluate crossings throughout intersections in Town. Will add this to fulcrum and add notes in GIS about intersections in compliance and intersections that need to be brought into compliance with ADA standards. Working with Town Administrator to accomplish a true plan. Request on agenda for 2.11.2025 to send an RFP to hire a consultant to complete a ADA transition plan for the Town.	≈\$30,000	8.1.23	1.24.2025	Organizational Excellence and Staff Development; Pristine Infrastructure and Critical Facilities	
Add cornering mirror at Pan American and Rio Grande	Initial mirror blew down in wind storm. Need to re-order a larger mirror	Staff Time	8.8.23	1.24.2025	Safe and Resilient Community	
Working on lead service line inventory	Inventory is complete. Waiting on next steps from CDPHE	Staff Time	11/6/2023	1/23/2025	Pristine Infrastrucutre and Critical Facilities;	
Mays water availability.	Conveyance agreement with Bone Mesa for raw water coming off of Gelwick through the Town's pipe to the splitter box at Mays	Staff Time (any rehabilitation will incur a cost TBD)		7.17.2024	Pristine Infrastrucutre and Critical Facilities;	
Construction standard update	Standards have been reviewed by Public Works. Waiting on final draft from respec	NTE \$21,600	2/2/2024	1/23/2025	Pristine Infrastrucutre and Critical Facilities;	

**TOWN OF PAONIA
DEPARTMENTAL SCORE CARD**

ISSUE	STATUS	ESTIMATED COST	INITIAL PROJECT DATE	CURRENT STATUS DATE	ALIGNMENT WITH STRATEGIC PLAN	DATE COMPLETED
Finish NorthWest corner of skatepark.	Looking at options to finish the unfinished portion of the skatepark.	Staff Time (any construction will incur a cost TBD)		1/23/2025	Pristine Infrastructure and Critical Facilities;	
Equipment and contract bids	Public works is currently seeking quotes for pavement milling (Samuel Wade Bridge contracted), asphalt rollers. PW is reaching out to Engineers to get a scope of work on bridge repairs as of 1.1.2025	≈\$500,000		1/23/2025	Pristine Infrastructure and Critical Facilities;	
Roof repair - Town Hall	Randy with Quality Cool Roofing Solutions inspected the job on 7/29/24. Elite Commercial Roofing will inspect the job on 8/2/24. Innovative Roofing was contacted as well with no response. Elite is the only contractor that sent a quote. It will be discussed in the 8/27/24 public meeting. Repair was put on hold until spring/summer 2025	≈\$40,000	7.29.24	1/23/2025	Pristine Infrastructure and Critical Facilities;	
F-150 Recall	Received official recall letter for the 2014 F-150 recalls for Output Speed Sensor. An unintended downshift into 1st gear. 2014 F-150's are scheduled for recall on 3/18/25	Staff Time	7/1/2024	3/14/2025	Pristine Infrastructure and Critical Facilities;	
Apple Valley Plumbing	Needs to be cameraed to see the extent of damage under the concrete flooring	≈\$2,500		1/23/2025	Pristine Infrastructure and Critical Facilities;	
WATER DEPARTMENT						
CDPHE Free Assistance Program for Lead Service Line Replacement	Applied today for the program with Cory and Stefan as PoC. Will evaluate this program in FY-2024. Sunrise Engineering has been helping us through this process.	Staff Time	8.1.23	11.24.23	Pristine Infrastructure and Critical Facilities;	12.31.2024
Mays Metering.	Raw Water at the Mays Springs is being metered. Data is being sent to Brian Mitchem. This is before the split to Bone Mesa.	Staff time	7.2023	1.24.2025	Pristine Infrastructure and Critical Facilities;	
Mays Cleanup / Spring site Cleanup	Clearing trees and brush at Mays along the springs so that tree roots don't get into the pipes. Wrightwater will need specific areas on the springs cleared and cleaned up. Awaiting drawings for their needs.	Staff Time			Pristine Infrastructure and Critical Facilities;	
Meter Audit	46 meter audits complete since Feb. 2024	Staff Time (replacements of meters TBD but ≈\$1,400/meter)	11.2023	1/24/2025	Pristine Infrastructure and Critical Facilities;	
WASTEWATER DEPARTMENT						
Utility Fee Study	Water and Sewer Rates need to be reviewed. 20-year cash flow analysis for water and upcoming restrictions on NPDES permit for wastewater necessitate increases in the rates for utilities. Proposed Rate increases on the Board agenda for December 12, 2023. RESPEC has been given a task order to complete a PNA for future funding in regards to the wastewater system, as part of the PNA a 20-year cash flow analysis will be completed which includes a utility fee study to cover the cost of debt financing repairs and improvements to the waste water collections and treatment systems	≈\$15,000 (\$10,000 grant funding secured)	7.14.23	1.24.2025	Transparent, secure and accurate financial and Administrative Systems	
Aerator at the lagoon failure and disassembled	PW was approved to upgrade surface aeration at 3/11/25 meeting	≈\$18,000	1.1.2025	3/17/2025	Pristine Infrastructure and Critical Facilities; Safe and Resilient Community	
POLICE DEPARTMENT						
Compiling possible municipal code additions, subtractions, and combinations to address shortfalls in current muni code	Additions and updated ordinances have been submitted for code rewrite.	Staff Time	5/1/2023	5/16/2025	Organizational Excellence and Staff Development; Communication and Records Management	In Progress

**TOWN OF PAONIA
DEPARTMENTAL SCORE CARD**

ISSUE	STATUS	ESTIMATED COST	INITIAL PROJECT DATE	CURRENT STATUS DATE	ALIGNMENT WITH STRATEGIC PLAN	DATE COMPLETED
Reactivation of Bicylce Patrol Unit	Equipment is being evaluated priced. Policies are being sourced for review. Officers are being polled for interest.	Donated/Repurposed Eqpt/ <\$500	8/1/2024	5/1/2025	Safe and Resilient Community	In Progress
Reviewing possible municipal code fee/fine updates to adress shortfalls in current muni code	Reaching out to other like sized or surrounding municipalipties to compile fee and fine amounts.	UNK	4/1/2023	5/1/2025	Organizational Excellence and Staff Development; Communication and Records Management	In Progress
Axon BWC and digital evidence storage contract renewal	Contract Approved - Equipment received and in use	\$36,534.40 over 5 Years	2/1/2025	5/24/2025	Safe and Resilient Community - Records Management	In Progress
Patrol Car Lettering/ Department Office Lettering	All newer patrol cars have been lettered and updated. Only the one remaining Chevy patrol vehicle is in nned of decals. Awaiting decal supplier on site quote. Office window has been completed and Badge image is present.	<\$1000	7/30/2024	5/1/2025	Organizational Excellence and Staff Development -	In Progress
ESS Security Training	Department Staff are continuing to take the ESS trainings and work towards the 630 Point minimum point threshold	Staff Time	5/1/2023	5/1/2025	Safe and Resilient Community	Continuous
Implementation of Spillman FLEX	Awaiting response from CBI. Scheduling iplementation traning with Motorola	\$25,121.24	3/1/2023	5/1/2025	Communications and Records management; Safe and Resilient Community	In Progress
Employee appraisal/review	Packets are completed and have been reviewed by Admin staff. Annual goals and projects are being finalized and scheduled.	Staff Time	1/1/2024	5/1/2025	Organizational Excellence and Staff Development	In Progress
Red Dot Sights for service weapons	Red dot sights have been purchased, but are currently backordered.	\$4,203.54	7/1/2024	5/1/2025	Safe and Resilient Community	In Progress
Updated OHV Ordinance	Ordinance is completed and will be ready for agenda addition in June	Staff Time	9/1/2024	5/1/2025	Organizational Excellence and Staff Development; Communication and Records Management; Safe and Resilient Community	In Progress
Code Enforcement for parking/inoperable vehicles/RV's/ <u>Dog registration</u>	Letters are being sent via mail and some are being delivered in-person via uniformed officer. Educational contacts have been implemented and registration compliance is increasing.	Staff Time	5/1/2024	5/1/2025	Safe and Resilient Community	Continuous
CDOT Revitalizing Main Streets Grant, "Safe Pathways for Paonia," 3-Points InX Grand, 4th & 5th						
Construction Timeline	Construction is estimated to begin in Late-Spring - Mid-Summer of FY-2025. Additional funding has been applied for from RAISE and SRTS. These additional funds will assist the Town is not completely depleting its surplus funds for the project.	≈\$2,900,000	7.17.23	1.24.2025	Pristine Infrastructure and Critical Facilities; Safe and Resilient Community	
Temporary Construction Easements	Temporary Construction Easements have been approved by CDOT and are awaiting final decisions and coordination from SGM and affected property owners.	Included in Construction Cost	1.1.2025	1.24.2025	Pristine Infrastructure and Critical Facilities; Safe and Resilient Community	
Hydrogeological Study						

**TOWN OF PAONIA
DEPARTMENTAL SCORE CARD**

ISSUE	STATUS	ESTIMATED COST	INITIAL PROJECT DATE	CURRENT STATUS DATE	ALIGNMENT WITH STRATEGIC PLAN	DATE COMPLETED
Wrightwater Engineering / Hydrogeological	Wrightwater initial site visit to the springs. Spent 3 days on the mountain gathering data. Brush Clearing is set for this Spring. WWE gave a presentation to the Board about the spring boxes and how we plan to gather more raw water. Study will be conducted Spring 2025. WWE engineering to continue the project with the loss of lead hydrogeologist	\$197,974	7.20.23	3/17/2025	Pristine Infrastructure and Critical Facilities;	
Grant for \$25,000 Colorado River Water Conservation District Grant	Contract, COI and W-9 sent and received, have received reimbursements	Staff Time	7.20.23	1.24.2025	Pristine Infrastructure and Critical Facilities;	
Grant from Roundtable	\$25,000 awarded to Paonia for completing the Hydrogeological Study	Staff Time	7.20.23	1.24.2025	Pristine Infrastructure and Critical Facilities;	
CWCB Grant	Awarded \$147,973 towards the Hydrogeological Study	Staff Time	7.20.23	1.24.2025	Pristine Infrastructure and Critical Facilities;	
HOUSING NEEDS ASSESSMENT						
DOLA IHOP Reimbursement	3rd Quarter FY-23 reimbursement request submitted and \$32,348.25 will be sent to the Town from DOLA. 4th Quarter FY-23 reimbursement will be submitted and the final reimbursement amount will be requested. Adoption of ordinance regulating short term rentals and accessory dwelling units necessary for final DOLA reimbursement	\$25,000 (reimbursement)	7.1.23	1.24.2025	Organizational Excellence and Staff Development; Communication and Records Management; Safe and Resilient Community	
COMPREHENSIVE PLAN						
Timeline	1/17 PC Meeting with Status Update; 1/22 Survey Questions from Consultant for Publication; 1/23 Status Update for BoT; 2/2 Staff Meeting with Consultant; 2/27 Status Update for BoT; 2/28 FLUM Meeting PH at PC; 3/1 Staff Meeting with Consultant; 3/13 Draft Element Presentation PH at PC Meeting for Infrastructure; 3/26 Status Update for BoT; 3/29 Staff Meeting with Consultant; 4/3 Draft Element Presentation PH at PC for Transportation, Governance & Community Participation; 4/23 Status Update for BoT; 4/26 Staff Meeting with Consultant; 5/1 Draft Element Presentation PH at PC for Growth Framework, Economic Development, Parks, Recreation & Trails; 5/28 Status Update for BoT; 6/5 Final Presentation PH for Adoption at PC; 6/18 PH Final Adoption by BoT; EXTENSIVE TIMELINE AVAILABLE ON THE TOWN WEBSITE	\$52,395.00	1.19.23	1.24.2025	Organizational Excellence and Staff Development; Communication and Records Management; Safe and Resilient Community	
DOLA Planning Grant	Reimbursement for work already completed will be submitted during week of 11.27.23, final DOLA reimbursement incomplete until the project is finished; item is tracked on budget/actuals each month on the grant reporting page	\$25,000 (reimbursement)	5.1.23	1.24.2025	Organizational Excellence and Staff Development; Communication and Records Management; Safe and Resilient Community	
PHASE 1 - WATER IMPROVEMENTS						
Proposed Alignment	Meeting held on 7.24.23 regarding Existing water line alignment & GIS Data Accuracy. Proposed alignment options to consider, avoid easements by placing the water line in road R/Ws. AC line feeding old water plant, Evaluate PRV needs. Main Line improvements are being realigned so that they follow existing rights of way along roadways in areas that they are possible to be relocated. Waiting on final draft with Trustee Hunters suggestions fixed	≈\$6,000,000.00	7.24.23	3/17/2025	Pristine Infrastructure and Critical Facilities;	
Easement Acquisition	May need to plan for two lines, potable and raw water; Town representative to negotiate easements (Town Administrator) once they're located. Land acquisition amounts have changed and are being finalized, if necessary at all. Nicki called County Clerk. No records of official easements. Surveyor and Engineering are working on getting the paperwork established	Included in cost associated with proposed alignment	8.1.23	1/24/2025	Pristine Infrastructure and Critical Facilities; Communication and Records Management	

**TOWN OF PAONIA
DEPARTMENTAL SCORE CARD**

ISSUE	STATUS	ESTIMATED COST	INITIAL PROJECT DATE	CURRENT STATUS DATE	ALIGNMENT WITH STRATEGIC PLAN	DATE COMPLETED
File for EIAF Tier II Grant	On 7.27.23, a grant application was filed for EIAF Tier II with project number 09721. DOLA Staff accepted the application for consideration on 8.3.23. Town was awarded \$965,000 for Tank Relining.	\$965,000 (reimbursement)	7.27.23	11.24.23	Pristine Infrastrucutre and Critical Facilities;	
SRF Loan Application	SRF Loan Application is being considered for FY - 2024 and is budgeted for approximately \$11MM, Application is complete and awaiting a hearing by the authority to decide whether or not the Town will be awarded funding	Staff Time	3.1.23	1.24.2025	Pristine Infrastrucutre and Critical Facilities;	



**TOWN OF PAONIA
BOARD OF TRUSTEES MEETING
STAFF REPORT**

AGENDA ITEM:	Consideration of Approval of an Intergovernmental Agreement with One Delta County- Greg Pope
SUBMITTED BY:	Samira Vetter, Town Clerk
DATE:	May 27, 2025
BACKGROUND:	Paonia first joined One Delta County in August of 2020 and that agreement had been extended by mutual agreement and dues calculated by a pre-determined percentage rate. Annual dues paid have been as follows: 2021: 1740.69 2022: 2487.19 2023: 2516.37 2024: 5976.97
BUDGET:	
RECOMMENDATION:	To approve the IGA with One Delta County
ATTACHMENT:	2025 IGA Final 2025 IGA Redline 2020 IGA

**INTERGOVERNMENTAL AGREEMENT TO
SUPPORT ECONOMIC DEVELOPMENT BETWEEN
DELTA COUNTY, CITY OF DELTA, TOWNS OF CEDAREGE, ORCHARD CITY, HOTCHKISS, PAONIA, and CRAWFORD**

THIS AGREEMENT made and entered into this 30th day of May, 2025, by and between Delta County, the City of Delta, and the Towns of Cedaredge, Orchard City, Cedaredge, Hotchkiss, Paonia and Crawford, collectively referred to as "local governments."

WHEREAS, the local governments share a collective interest in economic development in Delta County, and have shared interest in ensuring that economic development in Delta County serve the needs of all communities, residents, and business; and

WHEREAS, the local governments have been working together in partnership with businesses and other economic development interests since the creation of One Delta County: An Economic Alliance in 2020 to achieve the goal of economic development for all of Delta County; and

WHEREAS, through the course of establishing the new economic development alliance, local governments have been tasked with funding the capacity of the economic development alliance, and have agreed to provide such funding, and

WHEREAS, the local governments have agreed upon a formulaic share of anticipated costs for providing capacity, whereby the City of Delta and the Towns of Cedaredge, Orchard City, Hotchkiss, Paonia and Crawford will provide funds directly to Delta County to continue to support the salary and benefits of the Director for One Delta County.

NOW, THEREFORE, in consideration of their mutual rights and obligations as set forth below, the local governments agree as follows:

1. AUTHORITY FOR AGREEMENT.

- a. This Intergovernmental Agreement is being entered into by the local governments pursuant to the authority granted to local governments in Colorado Revised Statute 29-1-203, which allows governments to cooperate or contract with one another to provide any function, service, or facility lawfully authorized to each of the cooperating or contracting units.

2. TERM OF AGREEMENT, WITHDRAWAL OR DISSOLUTION.

- a. Subject to the provisions of Subparagraph 2.b, the term of this Agreement shall continue through December 31, 2030. This agreement may be extended by mutual agreement annually thereafter.
- b. The local governments acknowledge that their obligations under this Agreement are subject to annual appropriation by the governing body of each respective party and shall not constitute or give rise to a general obligation or other indebtedness of either party within the meaning of any constitutional or statutory provision or limitation of the State of Colorado nor a mandatory charge or requirement against any party in any ensuing fiscal year beyond the current fiscal year.
- c. If the governing body of any party shall fail to budget and appropriate funds for its share of expenses, in accordance with Paragraph 3 hereof, then the local government that does not appropriate funds shall no longer be party to this agreement, and shall no longer be a voting member of the Board of Directors of One Delta County.
- d. In the event any local government fails to appropriate funds for its share of expenses, in accordance with Section III, the remaining local governments shall adjust the formulaic share of the total anticipated annual costs between those local governments that choose to continue to participate in this agreement, or come to a mutually agreed upon split of any anticipated costs resulting from any local government ceasing to be party to this agreement.

3. APPORTIONMENT OF ECONOMIC DEVELOPMENT CAPACITY EXPENSES.

- a. All costs to cover the salary and benefits for the Director position of One Delta County shall be shared equitably by the local governments. The intent is to share the

cost of this agreement in the same manner that the County's sales tax is shared with the municipalities. The costs of salary and benefits of a full-time Director to support One Delta County shall be shared as follows:

- Delta County: 59.90%
- City of Delta: 21.00%
- Orchard City: 7.30%
- Cedaredge: 5.30%
- Paonia: 3.40%
- Hotchkiss: 2.10%
- Crawford: 1.0%

- b. It is understood and agreed that this apportionment shall be re-evaluated during the fall of 2028 and each succeeding year and may be amended as agreed upon by all parties. It is recognized that the cost of salary or benefits are subject to change.

4. Hiring, firing, management, and human resources responsibility.

- a. Delta County shall be responsible for all personnel liability for the Director, including liability insurance, FICA expenses, workers' compensation, and all other employee benefits.
- b. Delta County shall be responsible for the management and mentorship of the Director. The County Administrator may, at their discretion, choose to be the direct supervisor of the Director.
- c. If the Director position is vacated, Delta County shall convene a hiring committee with representatives from each local government and the Board of Directors of One Delta County. The committee shall assist in reviewing applications, selecting finalists, the interview process, and make recommendations to the County. The County shall consider this input in the final hiring decision.
- d. Delta County retains the rights as an employer to discipline the Director including but not limited to termination of employment for lack of performance, violations of Delta County employee policies as outlined in the Delta County Employee Handbook, state law, or federal law.
- e. Delta County shall seek input from the One Delta County Board of Directors prior to completing any performance reviews and shall take input received into consideration when completing said performance review.
- f. Delta County shall notify the local governments within two weeks should disciplinary actions result in the termination of employment of the Director. In compliance with state and federal laws, the specific details regarding termination shall not be provided given the confidentiality of personnel matters.

5. COMMITMENT TO SUPPORT ECONOMIC DEVELOPMENT ALLIANCE.

- a. The Director hired by Delta County shall serve as staff for the One Delta County Board of Directors including organizing meetings, board training and development, following up on tasks directed by the One Delta County Board of Directors, and implementing the programs and services included in the One Delta County annual work plan.
- b. The Director shall be dedicated full time to One Delta County, but shall also work in partnership with the County's Tourism Cabinet and Coordinator to ensure cohesion in marketing and promotions of Delta County; the Chambers of Commerce, Region 10, local governments, and other economic development partners.
- c. The Director shall represent Delta County and One Delta County on boards and commissions deemed appropriate by either Delta County or One Delta County such as, but not limited to, the workforce board, regional economic development councils or committees, or community economic development committees.

6. ADOPTION OF AGREEMENT BY ORDINANCE AND LEGALLY BINDING STATUS.

- a. This Agreement shall be deemed in force when the same has been adopted by all of the participating local governments.

7. AMENDMENTS.

- a. This Agreement may be amended, modified, changed, or terminated in whole or in part only by a written agreement duly authorized and executed by each local government in the same manner as this Agreement.

8. SEVERABILITY.

- a. Should any of the provisions of this Agreement be held to be invalid or unenforceable, then the balance of this Agreement shall be held to be in full force and effect as though the invalid portion was not included.

9. GOVERNING LAW.

- a. This Agreement shall be governed by, and interpreted in accordance with, the laws of the State of Colorado, and venue for any action arising out of any dispute hereunder shall be in the Delta County District Court of the State of Colorado.

IN WITNESS WHEREOF, and intending to be legally bound hereby, each of the governing bodies of the municipalities cause this instrument to be executed the day and year written above.

Delta County:

Chair

Attest:

County Clerk

Town of Cedaredge:

Mayor

Attest:

Town Clerk

Town of Crawford:

Mayor

Attest:

Town Clerk

City of Delta:

Mayor

Attest:

City Clerk

Town of Hotchkiss:

Mayor

Attest:

Town Clerk

Town of Orchard City:

Mayor

Attest:

Town Clerk

Town of Paonia:

Mayor

Attest:

Town Clerk

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- a. This Agreement shall be deemed in force when the same has been adopted by all of the participating local governments.

7. AMENDMENTS.

- a. This Agreement may be amended, modified, changed, or terminated in whole or in part only by a written agreement duly authorized and executed by each local government in the same manner as this Agreement.

8. SEVERABILITY.

- a. Should any of the provisions of this Agreement be held to be invalid or unenforceable, then the balance of this Agreement shall be held to be in full force and effect as though the invalid portion was not included.

9. GOVERNING LAW.

- a. This Agreement shall be governed by, and interpreted in accordance with, the laws of the State of Colorado, and venue for any action arising out of any dispute hereunder shall be in the Delta County District Court of the State of Colorado.

IN WITNESS WHEREOF, and intending to be legally bound hereby, ~~in accordance with proper ordinance~~ each of the governing bodies of the municipalities, ~~we have hereunto~~ caused this instrument to be executed the day and year written above.

Delta County:

Chair

Attest:

County Clerk

Town of Cedaredge:

Mayor

Attest:

Town Clerk

Town of Crawford:

Mayor

Attest:

Town Clerk

City of Delta:

Mayor

Attest:

City Clerk

Town of Hotchkiss:

Mayor

Attest:

Town Clerk

Town of Orchard City:

Mayor

Attest:

Town Clerk

Town of Paonia:

Mayor

Attest:

Town Clerk

**INTERGOVERNMENTAL AGREEMENT TO
SUPPORT ECONOMIC DEVELOPMENT BETWEEN
DELTA COUNTY, CITY OF DELTA, TOWNS OF CEDAREGE, ORCHARD CITY, HOTCHKISS, PAONIA, and CRAWFORD**

THIS AGREEMENT made and entered into this 24th day of August, 2020, by and between Delta County, the City of Delta, and the Towns of Cedaredge, Orchard City, Cedaredge, Hotchkiss, Paonia and Crawford, collectively referred to as "local governments."

WHEREAS, the local governments share a collective interest in economic development in Delta County, and have shared interest in ensuring that economic development in Delta County serve the needs of all communities, residents, and business; and

WHEREAS, the local governments have been working together in partnership with businesses and other economic development interests to create a new economic development alliance that will help achieve the goal of economic development for all of Delta County; and

WHEREAS, through the course of establishing the new economic development alliance, local governments have been tasked with funding the capacity of the new economic development alliance, and have agreed to provide such funding, and

WHEREAS, the local governments have agreed upon a formulaic share of anticipated costs for providing capacity, whereby the City of Delta and the Towns of Cedaredge, Orchard City, Hotchkiss, Paonia and Crawford will provide funds directly to Delta County with the intent that Delta County will hire a project manager to support the new economic development alliance.

NOW, THEREFORE, in consideration of their mutual rights and obligations as set forth below, the local governments agree as follows:

1. AUTHORITY FOR AGREEMENT.

- a. This Intergovernmental Agreement is being entered into by the local governments pursuant to the authority granted to local governments in Colorado Revised Statute 29-1-203, which allows governments to cooperate or contract with one another to provide any function, service, or facility lawfully authorized to each of the cooperating or contracting units.

2. TERM OF AGREEMENT, WITHDRAWAL OR DISSOLUTION.

- a. Subject to the provisions of Subparagraph 2.b, the term of this Agreement shall continue through December 31, 2022. This agreement may be extended by mutual agreement annually thereafter.
- b. The local governments acknowledge that their obligations under this Agreement are subject to annual appropriation by the governing body of each respective party and shall not constitute or give rise to a general obligation or other indebtedness of either party within the meaning of any constitutional or statutory provision or limitation of the State of Colorado nor a mandatory charge or requirement against any party in any ensuing fiscal year beyond the current fiscal year.
- c. If the governing body of any party shall fail to budget and appropriate funds for its share of expenses, in accordance with Paragraph 3 hereof, then the local government that does not appropriate funds shall no longer be party to this agreement, and shall no longer be a voting member of the Board of Directors of the new economic development alliance.
- d. In the event any local government fails to appropriate funds for its share of expenses, in accordance with Section III, the remaining local governments shall adjust the formulaic share of the total anticipated annual costs between those local governments that choose to continue to participate in this agreement, or come to a mutually agreed upon split of any anticipated costs resulting from any local government ceasing to be party to this agreement.

3. APPORTIONMENT OF ECONOMIC DEVELOPMENT CAPACITY EXPENSES.

- a. All costs to cover the salary and benefits for a project manager to support the new economic development alliance shall be shared equitably by the local governments. The intent is to share the

cost of this agreement in the same manner that the County's sales tax is shared with the municipalities. In year 2020 the County and City of Delta will commit to providing a higher percentage of the share of costs picking up a portion of each of the smaller local governments' share of expenses thereby allowing the smaller local governments to ease into the extra costs of participation. All costs and expenses for Fiscal Year 2020 for providing salary and benefits for a full-time project manager to support the new economic development alliance shall be shared as followed based on a projected expense of \$65,994, subject to change as mutually agreed upon:

- Delta County: 62% or \$40,916
- City of Delta: 28.6% or \$18,875
- Orchard City: 3.6% or \$2,375
- Cedaredge: 2.6% or \$1,716
- Paonia: 1.7% or \$1,122
- Hotchkiss: 1% or \$660
- Crawford: .5% or \$330

- b. It is understood and agreed that this apportionment shall be re-evaluated during the fall of 2020 and each succeeding year and may be amended as agreed upon by all parties. It is further recognized that the cost of salary or benefits are subject to change. The goal is to share costs based on the following:

Year 2021:

Delta County 62% of the total cost
 City of Delta: 23% of the total costs
 Orchard City: 5.46% of the total costs
 Cedaredge: 3.9% of the total costs
 Paonia: 2.54%
 Hotchkiss: 1.5% of the total costs
 Crawford: .75% of the total costs

Year 2022:

Delta County 60% of the total cost
 City of Delta: 21% of the total costs
 Orchard City: 7.3% of the total costs
 Cedaredge: 5.3% of the total costs
 Paonia: 3.4%
 Hotchkiss: 2.1% of the total costs
 Crawford: 1% of the total costs

4. Hiring, firing, management, and human resources responsibility.

- a. Delta County shall be responsible for all personnel liability for the project manager, including liability insurance, FICA expenses, workers' compensation, and all other employee benefits.
- b. Delta County shall be responsible for the management and mentorship of the project manager. The intent is for the project manager to report directly to the Community & Economic Development Director. The County Administrator may, at their discretion, choose to be the direct supervisor of the project manager.
- c. Prior to hiring the project manager, Delta County shall convene a hiring committee with representatives from each local government and the Board of Directors of the new economic development alliance. The committee shall assist in reviewing applications, selecting finalists, the interview process, and make recommendations to the County. The County shall consider this input in the final hiring decision.
- d. Delta County retains the rights as an employer to discipline the project manager including but not limited to termination of employment for lack of performance, violations of Delta County employee policies as outlined in the Delta County Employee Handbook, state law, or federal law.
- e. Delta County shall seek input from the new economic development alliance Board of Directors prior to completing any performance reviews and shall take input received into consideration when completing said performance review.
- f. Delta County shall notify the local governments within two weeks should disciplinary actions result in the termination of employment of the project manager. In compliance with state and federal laws, the specific details regarding termination shall not be provided given the confidentiality of personnel matters.

5. COMMITMENT TO SUPPORT ECONOMIC DEVELOPMENT ALLIANCE.

- a. The project manager hired by Delta County shall serve as staff for the economic development alliance Board of Directors including organizing meetings, board training and development, following up on tasks directed by the economic development alliance Board of Directors, and implementing the programs and services included in the economic development alliance annual work plan.
- b. The project manager shall be dedicated full time to One Delta County, but shall also work in partnership with the County's Tourism Cabinet and Coordinator to ensure cohesion in marketing and promotions of Delta County; the Chambers of Commerce, Region 10, local governments, and other economic development partners.
- c. The project manager shall represent Delta County and the economic development alliance on boards and commissions deemed appropriate by either Delta County or by the economic development alliance such as, but not limited to, the workforce board, regional economic development councils or committees, or community economic development committees.

6. ADOPTION OF AGREEMENT BY ORDINANCE AND LEGALLY BINDING STATUS.

- a. This Agreement shall be deemed in force when the same has been adopted by ordinance or resolution of all the participating local governments.

7. AMENDMENTS.

- a. This Agreement may be amended, modified, changed, or terminated in whole or in part only by a written agreement duly authorized and executed by each local government in the same manner as this Agreement.

8. SEVERABILITY.

- a. Should any of the provisions of this Agreement be held to be invalid or unenforceable, then the balance of this Agreement shall be held to be in full force and effect as though the invalid portion was not included.

9. GOVERNING LAW.

- a. This Agreement shall be governed by, and interpreted in accordance with, the laws of the State of Colorado, and venue for any action arising out of any dispute hereunder shall be in the Delta County District Court of the State of Colorado.

IN WITNESS WHEREOF, and intending to be legally bound hereby, in accordance with proper ordinance of each of the governing bodies of the municipalities, we have hereunto caused this instrument to be executed the day and year written above.

Delta County:

Chair

Attest:

County Clerk



Town of Cedaredge:

Raymond F. Hanson
Mayor

Attest:

Lane Odell
Town Clerk

Town of Crawford:

Wanda Goffarth
Mayor

Attest:

Calley Dallyer
Town Clerk

City of Delta:

Matthew Long
Mayor

Attest:

Karen E. Nelson
City Clerk

Town of Hotchkiss:

Sam B. Wilkins
Mayor

Attest:

Dinger R. Redden
Town Clerk

Town of Orchard City:

Ken Whyman
Mayor

Attest:

Matthew Odell
Town Clerk



**TOWN OF PAONIA
BOARD OF TRUSTEES MEETING
STAFF REPORT**

AGENDA ITEM:	Item #5 – Consideration of Directing Staff on Enforcing Section 16-11-20 of the Paonia Municipal Code
SUBMITTED BY:	Samira Vetter, Town Clerk
DATE:	April 22, 2025
BACKGROUND:	At the April 8, 2025 Regular Board Meeting the Board of Trustees had a discussion and gave directions to staff concerning ambiguities in the Paonia Municipal Code concerning rental of homes and rooms in homes for less than 30 days. Staff is now seeking direction on the enforcement of Paonia Municipal Code 16-11-20 Home Occupations.
BUDGET:	
RECOMMENDATION:	
ATTACHMENT:	Paonia Municipal Code Section 16-11-20 Memo from Town Attorney Buchner regarding PMC 16-11-20

A home occupation shall be permitted as an accessory use, provided that a home occupation permit is granted by the Town and the criteria for home occupations are met.

- (1) *Permit required.* A person desiring to establish a home occupation within the Town shall apply as follows:
 - (a) An application shall for home occupation shall be made to the Town Administrator, or its designee, in the form provided by the Town and accompanied by the appropriate fee as set by Resolution of the Board of Trustees.
 - (b) Upon the receipt of a completed application for a home occupation permit, the Town Administrator, or its designee, shall notify the applicant within ten (10) days that such application is complete.
 - (c) Thereafter the Town Administrator, or its designee, shall notify the applicant and set a date of public hearing before the Town Board of Trustees that will allow time for publication and notification of adjoining property holders.
 - (d) Upon the setting of a public hearing before the Board of Trustees the Town Clerk shall notify the property owners within two hundred (200) feet of the applicant's property by regular mail at the applicant's expense. The notification will include the nature of the application, a copy of this Article and the time and place of a public hearing.
- (2) *Revoke the permit.* A home occupation permit may be revoked by the Town Administrator if at any time the home occupation fails to meet the criteria listed below.
- (3) *Nontransferability.* Home occupation permits are issued to an individual for a specific property and use. Permits are not transferable should the property be sold or rented to other persons.
- (4) *Criteria for home occupations.* A home occupation shall be allowed as a permitted accessory use, provided that the following conditions are met:
 - (a) The use must be conducted entirely within a dwelling or accessory structure and carried on by the occupants of the dwelling and no more than one (1) non-occupant employee.
 - (b) The use must be clearly incidental and secondary to the use of the dwelling for dwelling purposes and must not change the residential character thereof.
 - (c) The total area used for such purposes may not exceed twenty-five percent (25%) of the first-floor area of the user's dwelling unit.
 - (d) There shall be no change in the outside appearance of the building or premises or other visible evidence of the conduct of such home occupation, including advertising signs or displays or advertising that solicits or directs persons to the address. A wall-mounted identification sign of not more than two (2) square feet shall be permitted.

- (e) There shall not be conducted on the premises the business of selling inventory, supplies or products, provided that incidental retail sales may be made in connection with other permitted home occupation.
- (f) There must be no exterior storage on the premises of material or equipment used as a part of the home occupation.
- (g) No equipment or process shall be used in such home occupation, which creates any glare, fumes, odors or other objectionable conditions detectable to the normal senses off the lot if the occupation is conducted in a single-family dwelling or outside the dwelling unit if conducted in other than a single-family dwelling.
- (h) No traffic shall be generated by such home occupation in greater volumes than would normally be expected in a residential neighborhood, and any need for parking generated by the conduct of the home occupation shall be met with additional off-street parking spaces that are not located in a required yard adjacent to a street.
- (i) Under no circumstances shall any of the following be considered a home occupation:
Antique shop, barber shop, a beauty parlor (with more than one [1] chair), clinic, mortuary, nursing home, restaurant, veterinarian's clinic or dance studio.

(Ord. No. 83-116, Art. XVIII, 1983; Ord. No. 2000-02, Art. XVIII, 2000; Ord. No. 2014-04, § 1, 1-13-2015; Ord. No. 2019-06, § 2, 8-13-2019)



CLAYTON M. BUCHNER
Town Attorney
Paonia, Colorado

MEMORANDUM FOR: Paonia Board of Trustees (“BOT”)

SUBJECT: Chapter 16, Article 11, Section 20 – Home Occupations

1. This memorandum is regarding Paonia Municipal Code (“Code”) Section 16-11-20 regarding requirements.
2. Within the Code, *Home Occupation* means a business or profession that is conducted within a dwelling unit, an enclosed garage or accessory building and is in conformance with the provision of Section 16-11-20 of the Code.
3. Remote Work. As an employee of a separate business remotely/teleworking out of a home office, the Code is silent on the matter of remote/telework scenarios. Looking at the Code language “business or profession that is conducted within the dwelling unit” indicates that working as an employee at a geographically dislocated business is probably not contemplated/excluded by the Code. Likewise, a consultant using a home office wherein no public transaction of business is taking place may be a stretch for the existing definition. In short, it seems an unnecessary imposition to prevent someone from working at a home office where such conduct is not meaningfully different than someone sitting at a home office doing their taxes, answering personal emails, and/or personally researching their personal hobbies and/or interests. Instead, the criteria in paragraphs (4)(a)-(i) are focused on preventing a dwelling unit or accessory structure thereof from becoming a commercial, outward-facing business. Examples would include a small manufacturer, retail store, local lawyer’s office, etc...as well as those specific exclusions delineated in paragraph (4)(i). Thus, I advise that the Town not pursue/enforce sole remote/telework scenarios as *home occupations*.
4. LLC Business Address. The specific question of listing a residential property as an LLC business address was also raised. Looking at the definition of *home occupation*, it is clear that business must actually be **conducted** to trigger the permit requirement in the Code. Thus, wherein a physical residential address is provided to the Secretary of State solely to fulfill the formation requirements of the LLC, such does not trigger the permit requirements for *home occupation* in the Code. Of course, insofar an LLC operates as an outward-facing business, the permit would be required.
5. This Memorandum does not contemplate all possible scenarios regarding *home occupations*. Ultimately, the BOT must decide how and where to enforce and fill gaps in existing legislation.

Very Respectfully,

Clayton M. Buchner, J.D.
Town Attorney
Paonia, Colorado



**TOWN OF PAONIA
BOARD OF TRUSTEES MEETING
STAFF REPORT**

AGENDA ITEM:	Consideration of Directing Staff on Enforcing Section 16-11-20 of the Paonia Municipal Code
SUBMITTED BY:	Samira Vetter, Town Clerk
DATE:	May 27, 2025
BACKGROUND:	At the April 22, 2025 meeting this item was moved so that the Town Attorney could be available to be part of the discussion
BUDGET:	n/a
RECOMMENDATION:	
ATTACHMENT:	Packet materials from April 22, 2025 Regular Board Meeting



**TOWN OF PAONIA
BOARD OF TRUSTEES MEETING
STAFF REPORT**

AGENDA ITEM:	Consideration of Directing Staff to Prepare Ordinance for Special Events
SUBMITTED BY:	Trustees Hunter and Stelter
DATE:	May 27, 2025 Regular BoT Meeting
BACKGROUND:	“Legacy” special events have become engrained into Paonia’s community and culture and add value to the quality of life we enjoy as well as bringing customers to in-Town businesses and tax revenue to the Town. These events draw crowds from outside of Paonia that put a strain on the Town Government’s resources that must be compensated. The Town Park is typically used for these events and the only revenue stream dedicated to the park aside from fees to rent spaces is the Conservation Trust Fund (CTF), which is about \$15,000. The CTF distribution is based on population and not based on the number of special events held at the park for tourism. In FY-2025 the park’s budget was \$212,000. This means that the park is heavily subsidized by other general fund revenues that are 100% contributed by the people living in Town limits. The cost for these events is significant and includes staff time to prepare the parks, upgrades to the park for electrical and facilities, utility costs, annual ditch assessments for irrigating the park, consumable products replenishment, and hauling garbage after the events (tipping fees went up \$15/ton). The Committee, made up of Staff, Trustees, and Special Event Coordinators, is recommending that the Town move away from the term “Legacy” event and instead provide a framework for “Special Events Sponsorship in Lieu of Fees”. This would include clear requirements from event coordinators and benefits to the Town and would be something that event coordinators could count on and plan for every year.
BUDGET:	N/A
RECOMMENDATION:	Approve directing Staff to prepare an Ordinance for Special Events according to the attached Notes with any additions and/or changes resulting from BoT discussion and/or Public Comment

ATTACHMENT:	Notes from May 16, 2025 Special Events Ad Hoc Committee Meeting
--------------------	---

Guidelines for Staff in Development of Special Events Code Section

Staff to prepare draft Ordinance for BoT review

Policy Goals:

- Manage risks
- Maximize benefit to community
- Minimize negative impacts to residents, businesses, infrastructure

Considerations:

- Permits
- Insurance
- Limit liability to ToP
- **Consistency in forms & code language**

Requirements for Special Event Sponsorship In Lieu of Fees

To be included in draft Ordinance for BoT review

1. Hosted by local non-profit, community-based organization
2. Promotes community engagement and economic development and supports in-Town businesses
3. Brings in sales tax revenue to ToP
4. Charitable, educational, and/or civic pursuits
5. Event sponsorship level equal to amount of fees waived

Additional Components of Special Event Sponsorship In Lieu of Fees / Changes to Resolution 21-2023

To be included in draft Ordinance for BoT review

1. Any fee waivers/reductions shall not apply to liquor licenses or additional vendor fees.
2. Maximum amount of fee waiver/reduction in exchange for Special Event Sponsorship is 50% of fees (not including liquor licenses or additional vendors) or \$500, whichever is more.
3. Park Rental Fees / Special Event Fees only to apply to actual time of event that is open to the public and shall not include set up and break down days/times (events are not making money during this time, use of ToP facilities is not as intense during this time).

4. Reoccurring events' vendor fees to be charged one time for duration of event (example: Pickin' in the Park vendors only pay one vendor fee for all four occurrences).
5. One event application per event, not per occurrence, within calendar year (example: Pickin' in the Park submits one application per year).
6. Specify tax reporting requirements for vendors - vendors pay local sales tax. The event organizer responsible to provide Town with copies of State of CO Special Event License for each vendor.
7. Specify that the event area is to be returned to pre-event conditions within 12 hours of conclusion of event, specifically trash cleanup & restroom cleaning.
8. Include requirement of one pre-event meeting and one post-event meeting. Any requests of Staff for time and/or materials must be made during pre-event meeting. Any additional (non-emergency) time and/or materials in excess of what is agreed upon during pre-event meeting will be charged to the event organizer.
9. Change definition of "Multiple Day" events from 3+ to 2+.
10. Change "Additional Vendors" fee from \$15 to \$10.



**TOWN OF PAONIA
BOARD OF TRUSTEES MEETING
STAFF REPORT**

AGENDA ITEM:	Consideration of Final Draft of Water/Wastewater Construction & Design Standards
SUBMITTED BY:	Samira Vetter, Town Clerk
DATE:	May 27, 2025
BACKGROUND:	Final draft with all edits. Staff asks for acceptance of the draft so that an ordinance can be prepared and a public hearing scheduled for adoption.
BUDGET:	n/a
RECOMMENDATION:	To accept the draft Water/Wastewater Construction and Design Standards and instruct staff to move forward in the process for adoption.
ATTACHMENT:	Paonia Standards Final Combined



**214 Grand Avenue
Paonia, CO 80428
Phone: (970) 527-4101**

Water and Wastewater System Standard Specifications

Adopted:

Revisions:



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SECTION 1.0 – GENERAL STANDARDS

1.1 Purpose

These Town of Paonia Water and Wastewater System Standard Specifications (the "Specifications"), as they may be amended from time to time, are to provide guidance to Developers, Engineers, Contractors, Builders, and other interested parties with respect to the design and construction of Water and Wastewater System improvements within the Town 's Service Area. The current edition of these Specifications is available on the Town of Paonia website. These Specifications contain technical data for the design and installation of the Water and Wastewater Systems within the Town and its Service Area.

The purpose of these Specifications is to assure consistency in the design, as well as quality and uniformity in the installation of Water Mains, Wastewater Lines, and appurtenances within the Town and its Service Area.

1.2 Revisions, Amendments, or Additions

These Specifications may be revised, amended, or added to as deemed prudent, in the sole discretion of the Town. If a vendor or Engineer wishes to submit a product or method of installation not covered by these Specifications, he/she may do so by submitting it to the Town Administrator with the backup information required.

It is the goal of the Town to review and approve water system plans and materials in the light of community values. Value engineering that can be shown to benefit the Developer, the Town, ratepayers, and future users of the system will be considered.

1.3 Effect of Specifications

These Specifications including any revisions, amendments, or additions shall be binding and in effect immediately upon adoption by the Town Board of Trustees. All parties using this document are responsible for determining that they have the most recent changes by checking the Town's website. These Specifications are made a part of and incorporated into the Town's Municipal code.

1.4 Authority

These Specifications are implemented by the Town Administrator, Town Engineer, and Public Works Director under the authority of the Town 's Board of Trustees.

1.5 Interpretation of Specifications

These Specifications are composed of criteria for engineering design, Town procedures and policies, construction and material specifications, and standard drawings. The interpretation of any section or the contradiction between sections, when applicable, shall be made by the Town. Requests for interpretation shall be submitted in writing to the Town Administrator. The interpretation issued by the Town shall be binding and controlling in its application.

1.6 Definitions

The meaning of the terms used herein shall be as follows:

- A. Conditional Acceptance – Shall occur upon recommendation by the Town Engineer and concurrence by the respective Public Works Director for conditional acceptance of the Water Mains and/or Wastewater Lines, and upon provision to the Town of all appropriate easements for the maintenance and operation of such facilities, payment of all fees and charges due

- hereunder, submission of As-Built Drawings, statement of costs, completion of an appropriate bill of sale dated subsequent to the expiration of the 24-month warranty period, and compliance with any other applicable requirements contained herein, the Town shall conditionally accept the systems.
- B. Collection Main – Shall mean an eight-inch (8") or smaller diameter pipe and appurtenances receiving wastewater being a part of the Wastewater System.
 - C. Consulting Engineer – Shall mean the Developer's authorized utility Design Engineer.
 - D. Contractor – Shall mean any person, firm, or corporation authorized by the Town to perform work and to furnish materials within the Town.
 - E. Developer – Shall mean any person, corporation, partnership, joint venture, local governmental entity, or other entity.
 - F. Distribution Main – Shall mean a eight-inch (8") or smaller diameter pipe and appurtenances receiving potable water and conveying it to individual Service Lines.
 - G. Extensions – Shall mean Town Wastewater and Water System extensions within the Service Area of the Town. Shall further be defined as "Town Mains."
 - H. Inspector – Shall mean an authorized representative of the Town and/or Town's Engineer at the site of work and the person(s) duly authorized by the Town to enforce these Specifications.
 - I. Interceptor Main – Shall mean a Wastewater Pipeline larger than eight-inch (8") and appurtenances receiving wastewater being a part of the Wastewater System. Interceptor Mains are not allowed to be tapped with individual services unless permission is granted by the Town.
 - J. Service Lines (Water) – Shall mean the pipe, line, or conduit from the Water Main to an individual house or other structure. The Town shall own and maintain the service line from the main to the meter pit or the property line, whichever is closest to the main. Customer shall be responsible for the service line after the meter pit or property line.
 - K. Service Line (Sewer) – Shall mean the Wastewater Line extending from the premises up to and including the connection to the public Wastewater Main. The Customer shall own and maintain the entire service line.
 - L. Town Engineer- Shall mean the Town Engineer or his/her authorized representative acting on behalf of the town.
 - M. Transmission Main – Shall mean a Water Pipeline larger than an eight-inch (8") diameter pipe and appurtenances receiving potable water and conveying it to Distribution Mains. Transmission Mains are not allowed to be tapped with individual services unless permission is granted by the Town.
 - N. Water Main or Main – Shall mean any water pipe, line, or portion thereof, owned, or to be transferred for ownership by the Town.
 - O. Water System – Shall mean all Mains, together with all appurtenances, materials, equipment, and property including services, taps, pump stations, meters, and valves for distributing potable water to individual consumers.
 - P. Wastewater System – Shall mean Mains, together with all appurtenances, materials, equipment, and property including manholes, services, taps, lift stations, for collecting wastewater from individual customers.

1.7 Abbreviations

- A. ANSI – American National Standards Institute
- B. ARV – Air-release vacuum breaker valve

- C. ASTM – American Society for Testing and Materials
- D. AWWA – American Water Works Association
- E. DIP – Ductile iron pipe
- F. GPM – Gallons per minute
- G. PRV – Pressure-reducing and regulating valve
- H. PSI – Pounds per square inch
- I. PSIG – Pounds per square inch gauge
- J. PVC – Polyvinyl chloride

1.8 Reference Specifications

These standard Specifications, listed below, shall be incorporated into these Specifications as it is bound herein. Should a conflict arise between these Specifications, a written request for clarification shall be made to the Town.

- A. Colorado Department of Transportation Standard Specifications for Road and Bridge Construction, Colorado Department of Transportation, 2023.
- B. Manual of Uniform Traffic Control Devices for Streets and Highways, U.S. Department of Transportation, Latest Edition and Revisions Thereto.
- C. Delta County Roadway Design and Construction Standards, Delta County, Colorado, December 12, 2005.
- D. ASTM, American Society for Testing & Materials, 1916 Race St., Philadelphia, PA 19103.
- E. AWWA, American Water Works Association, 6666 West Quincy Ave., Denver, CO 80235.
- F. ANSI, American National Standards Institute, 1899 L Street, NW, 11th Floor, Washington, DC 20036.
- G. Site Application Process, The Code of Colorado Regulations 19CR6,6-96.

1.9 Requirements to Extend, Construct, or Modify System

1.9.1 Request for Development Information

- A. Development information may be obtained at the office of the Town of Paonia, located at 214 Grand Avenue, between the hours of 8:00 a.m. and 4:30 p.m. on weekdays (holidays excluded), excluding lunch from 12:30 p.m. to 1:30 p.m. Verify current times on the website.
- B. Questions concerning these Specifications may be directed to the Town via telephone, email or through a pre-arranged meeting, or by written request directed to the Town Administrator.

1.9.2 Preliminary Review for Large Projects

The Town shall establish, and may amend from time to time, procedures to be followed by applicants for extensions of Town Mains. These procedures shall include all requirements for paperwork, submittals, engineering design, construction, and acceptance.

Where a project is large in scale, a preliminary submittal shall be made by the applicant, including an overall or master plan showing the area to be developed and any other adjoining proposed developments by the Owner/Developer. Large or difficult areas may

require extensive study and analysis. The Town will return to the applicant its requirements for the following:

- A. Points of connection to existing facilities
- B. Off-site facilities required
- C. General locations of Mains to be installed
- D. Size of Mains required

1.9.3 Request for Recovery Contract

If, in the sole opinion of the Town, an increase in line size is necessary in order to provide an acceptable level of service to the Developer parcel or other customers within the Town, the Developer may be required to provide oversized pipelines and/or facilities. The cost for the "oversizing" of such pipelines and/or facilities shall be borne solely by the Developer. The basis for such costs shall be the difference in unit prices between the maximum line size which is the Developer's responsibility and the actual size to be constructed. The cost for the design and preparation of contract documents for these "oversized" pipelines shall be the sole responsibility of the Developer. If the Town determines that it will construct the facilities, the Developer shall submit payment for the cost. The Town will not issue a notice of award until such payment has been made. The Town may collect fees or charges in the sole discretion of the Board from other customers served by the "oversized" facilities and may, in the sole discretion of the Board, reimburse the Developer for all or a portion of the oversizing costs incurred by the Developer.

A request for recovery shall include the following:

- A. Contract holder's name and address
- B. Proof of payment to contractors, engineer, attorney, construction director, etc.
- C. Easements granted
- D. Permits issued
- E. Conditional acceptance
- F. Bill of sale
- G. Map of Service Area, and
- H. Detailed cost summary

For a complete list of the required items and policy details, refer to the recovery agreement policy and the Town Rules and Regulations.

1.9.4 Plan Format, Submission, Review, and As-Built

- A. The Developer or the Consulting Engineer shall submit to the Town a PDF set of the design drawings for review. Construction of any portion of system improvements shall not begin until design drawings have been approved by the Town's Engineer. A set of approved drawings and a copy of these Specifications shall be available at the job site while system improvements are under construction. Subsequent to initial approval, any design changes shall also be submitted to the Town for review and approval.

Where any easements are required other than those being platted, legal descriptions should be submitted to the Town Engineer for review. Legal descriptions shall also include a sketch outlining the boundaries. The Developer/Owner shall provide an

updated commitment for title insurance, prepared by a title company approved by the Town, in accordance with the Town Rules and Regulations.

- B. Drawings shall be twenty-four inches by thirty-six inches (24" x 36") overall. North shall be to top or right of sheet. Scale shall be one inch equals fifty feet (1" = 50') horizontal, one inch equals five feet (1" = 5') vertical. The cover sheet shall show the location map and proposed system plan indicating street names, pipe sizes, valves, fire hydrants, manholes, and all appurtenances. System shall also indicate the development name, name and address of the Developer, and the Consulting Engineer with Colorado P.E. seal and an index of sheets. After approval by the Town, half-size reproductions may be used for general purposes or in the field.

Drawings must contain both plan and profile of all lines with the exception of water distribution lines (10" or less) where profiles are not necessary if the design includes street plans and grades. Drawings shall contain adequate design information to include all lowerings and adjacent facilities, (including but not limited to drainage facilities, grading, and other utility crossings). Drawings must include Town General Notes (included in the Appendix), Town signature blocks, manholes, crossings, and all appurtenances. A utility plan shall show the location of all services.

Other elements of drawings must include the following:

1. Proposed plat showing location and dimensions of dedicated streets, alleys, rights-of-way, and easements.
2. Lots and blocks.
3. All existing and proposed curb, gutter, and pedestrian ramps.
4. Sidewalk locations with respect to property lines.
5. All existing or proposed utilities which cross or may conflict with Town installations to include size, type, and horizontal and vertical location.
6. All existing or proposed obstructions such as vaults, catch basins, traffic islands, etc.
7. Drawings must be prepared from actual field surveys referenced to land corners or other survey control points and be of sufficient accuracy such that the facilities can be accurately staked for installation and can be readily located after installation for maintenance and operation. Plans shall reference the Delta County Local Coordinate System (DCLCS) for the horizontal coordinate system and the combined scale factor shall be recorded on the Plans. All elevations shall reference the NAVD '88 vertical coordinate system.
8. Sufficient adjacent area to give the relation of new facilities to existing facilities.
9. Proposed grading and drainage facility plans.
 - i. PDF sets of drawings and any special project conditions shall be submitted to the Town for review. Normal review time will be four (4) weeks. Drawings are reviewed by both engineering and operations. One (1) marked set of the submittals will be returned to the applicant. If desired, a review conference may be scheduled. When revisions are required, PDF sets of revised drawings shall be resubmitted to the Town for subsequent review. When acceptable, the Town Engineer will approve drawings (said approval indicating conformity with the Specifications and the Town's Rules and Regulations) and return one approved set of the submittal. After approval and signature, four (4) sets of fully signed documents must be provided to the Town. The Consulting Engineer shall also submit the design

electronically in AutoCAD (or an AutoCAD-convertible format) as well as in PDF form.

- ii. Prior to any construction, the Contractor must schedule a preconstruction meeting with the Town's Public Works Director. The preconstruction meeting must occur a minimum of seventy-two (72) hours in advance of commencing work. See Section 1.9.5 herein regarding preconstruction meetings.
- iii. Upon completion of construction and prior to acceptance, one (1) complete set of project as-builts in electronic format of the same, in AutoCAD and PDF, indicating all changes from original approval, shall be submitted to the Town. If no changes have been made during construction, the sheet shall so indicate. The as-built drawings must contain the Consulting Engineer's as-built approval signature.
- iv. Unless construction commences within twelve (12) months from the date of plan approval, approval shall become null and void.
- v. The Developer may apply for a 6 month extension, which must be approved and signed by the Town Administrator and Public Works Director within twelve (12) months of plan approval. The Developer may apply for a maximum of two extensions.

1.9.5 Preconstruction Meeting

Prior to beginning any work on the project, the Developer shall schedule a preconstruction meeting through the Public Works Director with at least seventy-two (72) hours' notice to the following:

- A. The Public Works Supervisor;
- B. The Contractor having on-site authority;
- C. A representative of the Owner or Construction Manager;
- D. The Consulting Design Engineer and Soils/Testing Engineer;
- E. All existing utilities that will be involved in the project;
- F. Delta County Department of Transportation, or the appropriate Town and/or State agency having right-of-way jurisdiction;
- G. Town Engineer;
- H. Town Inspector;
- I. Any third-party easement holder (if applicable); and
- J. Any other parties required by the Town Engineer

1.10 Construction Matters

1.10.1 Conflicts Between Plans and Specifications

When a conflict occurs between or within standards, specifications, and drawings, a final interpretation shall be made by the Town Engineer pursuant to these Specifications, subject to the following criteria:

- A. Addenda and modifications to the drawings and specifications take precedence over the original documents.
- B. Should there be a conflict within the Specifications or on the drawings, the Town Engineer shall decide which stipulation will provide the best installation and this decision shall be final.

- C. In the drawings, calculated dimensions shall take precedence over scaled dimensions and noted material over graphic indication.

1.10.2 Construction Procedure

Following final approval of the plan(s), the applicant may proceed with construction. In addition to all construction requirements contained in other portions of these Specifications, the applicant and the Contractor shall observe the following:

- A. The applicant shall secure and pay for all licenses and permits required for the system extension;
- B. Materials needed to complete work shall be on hand so that the project may proceed without delay;
- C. Adequate provisions for notification of customers who may suffer outages must be developed.
- D. Outages shall be kept to a minimum; and,
- E. Mains and Service Stubs shall be tested to the satisfaction of the Inspector.
- F. The use of hydrant meter assemblies (provided by the Town of Paonia with a deposit from the Contractor) shall be installed per detail drawing contained herein.

1.10.3 Surveying

Line and grade for Mains and appurtenances shall be established by a professional Engineer or by a land surveyor licensed to practice in the State of Colorado. All work shall be done in a professional manner using the same degree of skill and knowledge customarily employed by other professionals performing the same or similar services in the State of Colorado. Correct alignment and grade-staked alignment and elevations by the Inspector do not relieve the Design Engineer in any manner from the responsibility for field errors. Sufficient lines must be staked to ensure continual work progress. Under no circumstances shall pipe be installed without line and grade stakes set by the Developer's Engineer or surveyor and approved by the Inspector.

When a Town Main is to be installed outside of the public street right-of-way, within an easement or right-of-way dedicated for utility Main installations, the limits of the easement or right-of-way shall be marked with permanent monuments placed by a licensed surveyor, and the pipeline route shall be marked with buried pipeline markers when required. The Owner/Developer shall be responsible to provide restoration and landscaping adequate to prevent erosion caused by surface runoff. Landscaping and restoration construction shall be designed in such a manner that minimum future maintenance will be required. A landscaping and restoration design plan shall be submitted with the plan for approval and will be subject to the same guarantee, as described in these Specifications.

1.10.4 Placing Survey Lines

Hubs and stakes shall be set on an offset line to mark the location of the centerline of the Main. Centerline hubs and stakes may be used in addition to the offset hubs and stakes; however, they may not be set in place of the offset hubs and stakes. Notations on field stakes shall match approved plan and profile sheets.

Survey points shall be set a maximum distance of twenty-five feet (25') apart. All appurtenances and manholes shall be staked for location and grade. Points of curvature, points of tangency of curves, and points on the curve shall be staked. Property corner stakes or monuments shall be placed prior to construction and shall include all changes in

direction and not exceed 100 feet between on-line stakes. This will include all permanent easements as well as interior property lines. All stakes shall be flagged to increase their visibility. Survey staking may be modified with the agreement of the Design Engineer, Contractor, and the Town.

1.10.5 Inspection

- A. New installation, replacement, or relocation of existing facilities or any other work involving the Town System shall be inspected and approved by an Inspector.
- B. After receipt of plans approved by the Town, the Contractor shall give at least forty-eight (48) business hours' notice to the Town's Inspector at (970) 527-4101 prior to beginning construction. No construction shall commence sooner than forty-eight (48) hours after receipt of approved plans, nor shall construction begin prior to arrival of a Town Inspector at the project site. **All overtime work conducted before or after regular business hours or on Town holidays shall be at the expense of the Contractor and coordinated with the Inspector forty-eight (48) hours in advance.**
- C. All materials used shall be subject to the inspection and approval of the Inspector at all times. The Inspector has the right to perform any testing deemed necessary to ensure compliance of the materials with these Specifications. No materials shall be used before being inspected or approved by the Inspector. Failure or neglect on the part of the Inspector to condemn or reject inferior materials or work shall not be construed to imply their acceptance should their inferiority become evident at any time prior to completion of a twenty-four (24) month warranty period. Materials rejected by the Inspector shall be immediately removed from the project site.

1.10.6 Abandonments, Material Recovery, and Reuse of Installed Materials

- A. Abandonment/Material Recovery
 - 1. The Town owns all existing parts of the Water and Wastewater System and any removed pipe, equipment, and or other materials can be claimed as property of the Town.
 - 2. If and when materials and/or equipment must be removed from the existing system, the Inspector will determine if the Town wishes to maintain ownership.
 - 3. Generally, pipe materials are not maintained. However, valves, fittings, special equipment, manhole rings and covers will often be reclaimed by the Town. If and when so directed by the Inspector, such items removed shall be delivered to the Town shop at 401 2nd Street.
 - 4. If the Inspector elects not to claim any removed items, they may become the property of the Contractor who must remove the items from the site.
- B. Reuse of Installed Materials
 - 1. Used sewer pipe and manholes may not be reinstalled and/or reused.
 - 2. Water pipe that has been installed and used cannot generally be reused except in unusual circumstances and only by permission of the Inspector. If and when water pipe is allowed to be reused, the Inspector must review and approve each piece of pipe prior to reinstallation. Gaskets must be replaced with new gaskets.
 - 3. If an Inspector approves the reuse of any fitting, hydrant, and/or valve, that unit must be examined and approved by the Inspector as well. Again, all gaskets must be replaced with new gaskets.

4. If an Inspector approves the reuse of any sewer ring and/or cover, that unit must be examined and approved by the Inspector as well. Any and all Ram-Nek or sealants must be removed and reapplied with new material.

1.10.7 Warranty and Acceptance

The Developer, or the Contractor on behalf of the Developer, shall warrant the constructed facilities for a period of twenty-four (24) months after conditional acceptance. Conditional Acceptance will be granted by the Town when the following conditions have been met by the Developer to the satisfaction of the Town:

- A. The entire Water System improvement has been constructed, pressure tested, disinfected, flushed, and the required number of negative standard bacteriological water tests results have been received from the laboratory.
- B. The entire Wastewater System improvement has been constructed, pressure tested, vacuum tested, jet cleaned, and TV'd. The Town can perform this work at an expense to the Contractor.
- C. All necessary approvals of design on construction, contracts, and agreements have been fully executed and delivered to the Town. It should be noted that if lines are in future rights-of-ways which are not yet recorded, the Owner/Developer must grant an easement to the Town for operation and maintenance prior to either conditional acceptance or final acceptance, in accordance with the Town's Rules and Regulations. Platting can occur over said easements.
- D. The project statement and certification of costs, and bill of sale, are submitted in tabular form listing pipe sizes, footage for different sizes, and appurtenances with quantity, and are presented to the Town.
- E. Record drawings have been presented to the Town, in printed hard copy and AutoCAD and PDF files.
- F. During the warranty period, the Developer, or Contractor on behalf of the Developer, shall repair or correct all deficiencies which become known in a timely manner when notified by the Town.
- G. Final acceptance by the Town will be by letter at the end of the warranty period, provided deficiencies have been corrected or repaired in a manner satisfactory to the Town.
- H. If a cost recovery or reimbursement agreement is applicable, it should be executed prior to final acceptance.

SECTION 2.0 – WATER SYSTEM DESIGN STANDARDS

2.1 General

2.1.1 Deviation from Standard

These design criteria shall be adhered to for all Water Main facilities to be installed within the Town insofar as practical. If any deviation from these criteria is desired, a request must be submitted to the Town in writing. See attached Deviation Request in Appendices.

The request will be evaluated and the decision of the Town shall be adhered to for the design of the project.

2.1.2 Easements

All public Water Mains and appurtenances not installed in public rights-of-way shall be installed in easements, in accordance with the Town's Rules and Regulations. The minimum width of an easement shall be twenty feet (20'). The Water Main shall not be closer than five feet (5') to the edge of the easement.

Depending on depth, size, and nature of water facilities, more easement width may be required.

Easements must be conveyed to the Town pursuant to the Town's form of easement.

2.1.3 Colorado Department of Health Regulations

It is not intended that any regulations promulgated by the Colorado Department of Health pertaining to public water systems be annulled by these design criteria. When the Department of Health regulations are more stringent, they shall take precedence.

2.2 Hydraulics

2.2.1 Sizing of Water Mains

All Water Mains shall be sized in accordance with the following:

- A. Flow velocity shall not exceed five feet (5') per second on a peak demand day.
- B. Flow velocity shall not exceed ten feet (10') per second on a peak demand day during fire flow conditions. Fire flow requirements shall be determined by the Fire Protection District and submitted to the Town in writing.
- C. Minimum design pressure shall be forty (40) PSI. Maximum design pressure shall be one hundred and fifty (150) PSI for all flow and static conditions.
- D. Minimum diameter of Water Mains is eight inches (8") wherever fire hydrants are connected. Smaller lines may be accepted only where no fire hydrants are located upon approval by the Town Engineer.

2.2.2 Sizing of Services

Service Lines, taps, and meters shall be sized in accordance with AWWA manual (M22), Sizing Water Service Lines and Meters. The standard size for a single-family residence is one-inch (1") polyethylene line with a 5/8-inch meter and meter setting. One-inch (1") HDPE is comparable to a 3/4-inch copper Service Line, although only CTS HDPE Blue Service Lines will be used. Tracer wire is required for HDPE service lines.

2.3 Water Mains

2.3.1 Locations

- A. Water Mains shall generally be installed ten feet (10') east of center line in north-south streets, and ten feet (10') north of center line in east-west streets. The foregoing shall be adhered to insofar as practical on curved streets. Where curbed medians are proposed, the Water Main shall be under the pavement, no closer than five feet (5') to the edge of concrete curb and/or gutter.
- B. Any request for deviation from the above shall be noted in the design request submittal to the Town Engineer, including where public Water Mains are proposed to be installed in easements.
- C. Water Mains shall be designed for a minimum of five feet and six inches (5'-6") and a maximum of six feet and six inches (6'-6") of cover, except where another utility causes a conflict, in which case the Water Main shall be lowered as necessary. For water distribution lines, lowerings of two feet (2') or less shall be accomplished by deflection if possible. Lowerings in excess of two feet (2') shall require a formal lowering with fittings.

2.3.2 Material

All water piping shall be C900 DR18 (unless otherwise noted). Certain instances, such as higher operating pressures, may call for the use of other DR ratings or ductile iron pipe.

2.3.3 Corrosion Protection

Whenever metal pipe is proposed, the pipe shall be double bonded, poly wrapped, and cathodically protected. The drawing notes must include the required anode sizing and spacing. Where PVC pipe is used with Ductile Iron Fittings, those fittings must be individually wrapped and cathodically protected. See Wastewater Standards section 7.10 for further corrosion protection requirements.

2.3.4 Profile

All proposed Water Main drawings shall include a profile view which also shows the proposed finished surface above the Water Main, and elevations and stations of all fittings shall be noted. Elevation of the top of pipe shall be noted. Storm sewer shall be shown on all plans.

2.3.5 Looping

Dead-end Mains are discouraged. Looping shall be designed in the project proposed and a provision will be made for looping as the Mains are extended for adjacent projects. A maximum length of 100 feet is permitted on dead-end Mains where looping cannot be accomplished. A blow-off or hydrant will be required at the end of a dead-end main.

2.4 Valves

2.4.1 Location

- A. Valves shall be placed at locations so as to least disrupt service should it be necessary to close a valve.
- B. In general, five hundred feet (500') shall be the maximum spacing on Transmission and Distribution Mains. However, in distribution areas, valves should be clustered at intersections and block lengths should be taken into account. "Pup" sections from fittings to valves shall be 36 inches long, minimum. All crosses shall have four (4) valves and all tees three (3) valves.

- C. A valve shall always be provided where a Main will be extended in the future to facilitate connecting to the existing Main without disrupting service. There shall be a minimum of five-foot (5') stub past the valve or at least five-feet (5') beyond paved areas to facilitate ease of connection.
- D. Additional valves may be required at major stream or roadway crossings to isolate the crossing.
- E. Wherever a Water Main is installed in an easement, a valve may be required at each right-of-way line that intersects the Water Main.

2.5 Appurtenances

2.5.1 Blow-off Valves

Blow-off valves shall be required at all dead ends that do not have a fire hydrant at the end of the Main. Blow-off valves may also be required at low points along transmission Mains.

2.5.2 Air-Release Valves

Air-release valves in manholes shall be required at all high points along transmission and distribution Mains where services aren't present.

2.5.3 Pressure-Reducing and Regulating Valves

Pressure-reducing and regulating valves in concrete vaults shall be required as necessary to control the pressure within the allowable range. Concrete vaults shall be sized as needed for maintenance and a by-pass line shall be required.

2.5.4 Fire Hydrants

The location of fire hydrants shall be as approved by the controlling fire protection agency. Fire authority signature is required on water plans. A fire hydrant may serve as a blow-off valve on a dead-end main if said main is 8 inches or greater.

2.6 Separation from Pollution Sources

In general, Water Mains shall be laid at least ten feet (10') horizontally from any existing or proposed sources of pollution. The distance shall be measured edge to edge, in cases where it is not practical to maintain a 10 foot (10') separation the Town may allow deviation on a case by case basis.

Water Mains crossing sanitary or storm sewers shall be laid to provide a minimum vertical distance of 18 inches (18") between the outside of the Water Main and the outside of the sewer. Additionally, the Water Main shall be constructed in twenty-foot (20') sections of pipe with no joints on the sewer pipe. The twenty-foot (20') section shall be centered above the sewer pipe with ten feet (10') to each joint. This shall be the case where the Water Main is either above or below the sewer with preference for the Water Main to be located above the sewer. When the minimum vertical separation cannot be achieved, a casing may be used upon written request to the Town Engineer for consideration.

The foregoing separation provision applies to fire hydrants as well as to Water Mains.

2.7 Casing

Where required by a railroad, highway authority or private utility, casing pipe for the Water Main shall be installed for the crossing as directed by the railroad, highway authority or private utility. Valves may be required near or on each side of the casing.

2.8 Fire Lines

Private fire lines and fire sprinkler system connections shall be provided with backflow preventers and check valves to preclude reverse flow into the distribution system, which could cause contamination of the system.

Fire lines and fire sprinkler systems containing antifreeze (propylene glycol) must be equipped with an approved reduced-pressure zone (RPZ) valve for cross-connection control (CCC).

2.9 Water Main Crossings

2.9.1 Asbestos Cement Water Main

In general, regarding any new excavation under an existing asbestos cement Water Main, the asbestos cement Main in question will be replaced with the same size, poly wrapped, class 52 DIP or PVC pipe coupled at each end with a Romac coupling or approved equal. The new replacement line will be installed from undisturbed bank to undisturbed bank and properly compacted. The same size valves will be installed on both ends, at the Town's discretion. The Contractor responsible for the excavation will supply all labor and materials and shall be responsible for the disposal of the asbestos cement pipe being replaced.

2.9.2 Irrigation Ditch Crossings

In general, any excavation through an existing irrigation ditch will require written permission from the ditch owner. Clay dams and/or other designs may be required to assure against leaking or "piping" within the ditch bank.

2.9.3 Final Inspection

The crossing will be given a final inspection by the Town before backfilling. Contractors will also give the Town a two (2) year written warranty for work performed in accordance with the Town's Rules and Regulations.

SECTION 3.0 – WATER SYSTEM INSTALLATION STANDARDS

3.1 General Construction

3.1.1 Start of Construction

Contractors shall not begin construction of public Mains without an approved plan and a preconstruction meeting. Construction of water services or extension shall not proceed without obtaining approval of the Public Works Director. Backfilling of water services shall not be initiated until the installation has been inspected and approved by the Town Inspector.

3.1.2 Protection of Existing Underground Facilities

It shall be the responsibility of the Contractor to verify the existence and location of all underground facilities along the route of work. The omission or the inclusion of facility locations on the plans is not to be considered as the nonexistence of or a definite location of existing underground facilities.

Whenever, in the opinion of the Town, it is necessary to explore and excavate to determine the location of underground utilities and structures which may interfere with construction, the Contractor shall make the exploration and excavations for such purpose.

The Contractor will take the necessary precautions to protect existing facilities from damage due to his operations. All damage to the facilities will be repaired at the Contractor's expense, and all claims for disruption will be settled by the Contractor at his expense.

3.1.3 Detours – Traffic Control

Traffic control, signing, detours, and utilization of existing streets require approval by the controlling right-of-way authority. Contractors and/or Developers must obtain adequate permitting and approvals from the controlling agency.

3.2 Excavation

3.2.1 Safety

The disturbed area due to construction shall be confined within the construction limits as required in the specifications or as shown on the plan. The length of trench to be opened at one time may be limited when, in the opinion of the Inspector, such limitation is necessary. The amount of open or unfilled trench shall not exceed three hundred linear feet (300'), unless otherwise approved by the Public Works Director. Failure to comply with this requirement shall be cause for shut down of the entire project until such backfilling is accomplished.

The sides of the trench shall be sloped or braced and the trench drained so that workmen can work safely and efficiently. All work must be done in a dry trench and no water will be permitted to discharge down the pipe previously laid. The discharge from groundwater pumps shall be laid to the approved natural drainage channel(s) or storm sewer and groundwater permitting must be acquired from CDPHE. All OSHA regulations pertaining to trenching must be followed.

In all cases where the Water Main alignment is located so that space and access is very limited with respect to the safety and welfare of adjoining buildings, such as property lines between houses, the Contractor shall discontinue open trench excavation and shall jack and/or auger a liner pipe in place for an adequate length to safeguard against settlement and damage to these adjacent structures. All jacking methods and materials must be approved by the Public Works

Director. Sheeting and bracing as later described may be approved by the Inspector as an alternative.

Pits of adequate size to accommodate necessary equipment shall be excavated, braced, and drained so that workers can work safely and efficiently.

3.2.2 Construction Stakes

All work shall be constructed in accordance with lines and grades shown on the approved drawings and as established by the Engineer. These lines and grades may be modified by the Consulting Engineer only after approval by the Public Works Director and/or Town Engineer. A change in alignment or grade will need a five (5) business day review period.

The Contractor shall give the Consulting Engineer sufficient notice of his need for the establishment of line and grade so that the Consulting Engineer may have time to provide the same. The Consulting Engineer shall set all vault and manhole rim stakes at the finished-street-grade elevation. After lines and grades for any part of the work have been given by the Consulting Engineer, the Contractor will be held responsible for the proper execution of the work to such lines and grades, and all stakes or other marks given shall be protected and preserved by him until he is authorized by the Inspector to remove them. The Contractor shall, at his own expense, correct any mistakes which may be caused by their unauthorized disturbance or removal. The Inspector may require that work be suspended at any time when, for any reason, such marks cannot be properly followed.

Line and grade stakes shall be set for each fitting and grade point shown on the drawings and at intervals necessary to maintain the pipe slope when so indicated on the drawings.

The method and equipment used to establish and check line and grade of the pipe shall be approved by the Inspector prior to the start of work.

3.2.3 Trench Width

The trench width at the top of the excavation may vary depending upon the depth of the trench and the nature of material encountered. However, the maximum allowable width of trench is defined in the attached detailed drawings.

For trench widths greater than specified above, the Contractor may propose alternate strength-of-pipe to depth-of-cover relationships other than those specified. Such proposals must be submitted to the Town Engineer for approval in writing and with pertinent pipe strength and soil weight data at least five (5) days prior to the desired construction date. The trench bottom shall be brought to grade to provide a uniform and continuous bearing, as well as support for the pipe on solid and undisturbed ground at every point between bell holes.

3.2.4 Over Excavation

Care must be taken to avoid over excavation. Should any over excavation exceeding two inches (2") be encountered, the material added shall be moistened and compacted to the satisfaction of the Inspector, or granular material placed with hand tools.

If, when dry, the bottom at subgrade is soft and, in the opinion of the Inspector, cannot support the pipe, a further depth shall be excavated as directed by the Inspector and refilled to pipe bedding grade as required under the above paragraphs, or other approved methods shall be adopted to ensure a firm foundation for the pipe. The class or type of material which is to be used for refilling up to pipe grade shall be foundation material consisting of squeegee or bedding material as defined herein. In the case of rock excavation, the excavation shall be carried to a minimum depth of six inches (6") below grade. This material will be removed and the trench backfilled with granular material to give a suitable subgrade.

All excavated material shall be piled within the construction limits or in a location obtained by the Contractor in a manner which will not endanger the work and will avoid obstructing sidewalks, driveways, and fire hydrants. Gutters shall be kept clear or other satisfactory provisions made for street drainage at all times.

3.2.5 Blasting

In general, blasting will be allowed in order to expedite the work if a permit by the local authority having jurisdiction is granted and a copy presented to the Town. All explosives and appurtenances shall be transported, handled, stored, and used in accordance with the laws of the local, state, and federal governments, as applicable.

The contractor shall comply with all laws, ordinances, applicable safe code requirements, and regulations relative to the handling, storage and use of explosives and protection of life and property. The Contractor shall be responsible for all damage caused by blasting operations. Suitable methods shall be employed to confine all materials lifted by blasting within the limits of the excavation or trench.”

Owners or occupants of nearby structures or facilities, within a minimum distance of five hundred feet (500'), must be notified in writing by the Contractor at least seventy-two (72) hours in advance of blasting. The notice shall state the date, the time of blasting, and who is responsible for the blasting. The Town shall be notified a minimum of seventy-two (72) hours in advance of any blasting.

3.2.6 Blasting shall be controlled to avoid making any excavation unduly large or irregular, and so as not to shatter the rock on the bottom or sides of any excavation or surface upon or against which concrete is to be placed. If, in the opinion of the Town, blasting is liable to damage rock foundations or supports, concrete, other utilities, or structures, all blasting shall be terminated and excavation shall be continued by jack-hammering, barring, wedging, or other methods.

Sheeting and Bracing
The Contractor, to confine his work within the construction limits and to prevent the disturbing or settlement of adjacent road surfaces, foundations, structures, utility lines, or railroad tracks, shall furnish and place all sheeting and bracing necessary for safe conditions and to prevent damage and delay to the work. The Contractor shall be responsible for the strength and sufficiency of all sheeting and bracing.

Any damage to the work or to adjacent structures or property caused by settlement water or earth pressures, slides, cave-ins, or other reasons due to failure or lack of sheeting and bracing or improper bracing, or through negligence or fault of the Contractor in any manner shall be repaired by the Contractor at his expense without delay.

If, in the opinion of the Inspector, the sheeting and bracing at any point is deemed to be inadequate or improperly constructed, he may require additional sheeting and bracing be placed at the Contractor's expense. This shall not be construed to relieve the Contractor of sole responsibility of jobsite supervision.

Bracing shall be arranged so as to provide ample working space so as not to interfere with the work, and so as not place any strain on the structures being constructed, until such structures are, in the opinion of the Inspector, of sufficient strength to withstand such strain. No sheeting and bracing shall be removed until the construction has proceeded far enough to provide ample strength for its safe removal.

Sheeting or bracing may be left in place in the trench at the discretion of the Contractor. Any sheeting or bracing left in place shall lie approximately ten feet (10') from the surface and the cutoff portion removed, unless the Inspector gives permission to leave it in place.

3.3 Pipe Bedding and Laying

It is expected that the trench excavation will provide suitable bedding and backfill material. Wet, soft, or frozen material; asphalt and concrete chunks; cinder ashes, refuse, vegetable, or organic material; or boulders, rocks, or other deleterious substances shall not be used for bedding or backfill.

If the excavated material is not suitable for bedding or backfill as determined by the Inspector, suitable material shall be hauled in and utilized, and the rejected material hauled away and disposed.

If native material is not suitable for bedding, six inches (6") of squeegee sand shall be placed on the trench bottom for support under the pipe and compacted. Bell holes shall be dug deep enough to provide a minimum of two inches (2") of clearance between the bell and bedding material.

All pipe shall be installed in such a manner as to ensure full support of the pipe barrel over its entire length. After the pipe is adjusted for line and grade and the joint is made, the bedding material (squeegee sand) shall be carefully placed and tamped under the haunches of the pipe and in the previously-dug bell holes.

"Tamping" is herein defined as the act of placing approved bedding material under the haunches of pipe, paying particular attention to voids, bell holes, and sling holes. The purpose of tamping is to ensure uniform support for the pipe.

A. Pipes

Unless select bedding material is required, all pipelines shall be bedded by hand, from the bottom of the trench to the centerline of the pipe with sand, gravel, or other approved material placed in layers of three inches (3") and compacted. Bedding material shall be deposited in the trench for its full width on each side of the pipe, fittings, and appurtenances simultaneously.

The pipe shall be bedded by approved mechanical methods from the centerline of the pipe, fittings, and appurtenances to a depth of twelve inches (12") above the top of the pipe. Special care shall be used in placing this portion of bedding so as to avoid disturbing the pipe.

PVC pipe shall be installed in accordance with ASTM D2321 and the Manufacturer's recommendations, unless otherwise specified herein.

DIP pipe shall be installed in accordance with AWWA C600 and the Manufacturer's recommendations, unless otherwise specified herein.

The trench shall be backfilled by approved mechanical methods from twelve inches (12") above the pipe to the grade shown on the plans or specified herein.

All main lines (PVC and ductile iron) shall be installed with coated #12 tracer wire with test stations at intervals no greater than five hundred feet (500').

Valve boxes can be used at intersections and Service Stubs.

Install split-bolt housing to protect split-bolt wire nut and tracer wire in buried applications. Housing shall be made of high-impact polypropylene and be filled with a dielectric silicone gel.

- Max. Voltage: 50V
- Wire Range: #14-10 Steel Core Tracer Wire
- Split-bolt size not to exceed 1.0" tall by 0.8" wide by 0.7" deep
- Wrap all tracer wire split-bolt connectors or exposed wire using *linerless rubber splicing tape*, making sure to seal all ends to prevent moisture penetration.

B. Structures

Backfill and fill within three feet (3') adjacent to all structures and for full height of the walls shall be selected non-swelling material. It shall be relatively impervious, well graded, and free

from stones larger than three inches (3"). Material may be job excavated, but selectivity will be required.

No backfilling will be allowed in freezing weather except by permission of the Town. No additional backfill will be allowed over any frozen material already in the trench.

3.3.1 Select Bedding Material

When indicated on the plans or drawings or when, in the opinion of the Inspector, select bedding material is required, preparation and installation shall be as follows:

A. Installation of Bedding and Pipe

After completion of the trench excavation and proper preparation of the foundation, six inches (6") of bedding material shall be placed on the trench bottom for support under the pipe and compacted. Bell holes shall be dug deep enough to provide a minimum of two inches (2") of clearance between the bell and bedding material.

All pipe shall be installed in such a manner as to ensure full support of the pipe barrel over its entire length. After the pipe is adjusted for line and grade, and the joint is made, the bedding material shall be carefully placed and tamped under the haunches of the pipe and in the previously-dug bell holes.

If approved by the Town, fines from the trench wall and soil pile may be used to provide uniform support for the pipe. No rock or stone larger than allowed by the sieve analysis, or any other detrimental substance, shall be placed closer to the pipe than six inches (6"). The Town reserves the right to require the use of select bedding material at any time.

For ductile iron and polyvinyl chloride pipe, the limits of bedding shall be from six inches (6") below the bottom of the pipe to twelve inches (12") above the top of the pipe.

B. Bedding Material

The bedding material shall be a clean squeegee sand, free of corrosive properties, and shall conform to the following gradation limits when tested by means of laboratory sieves:

Squeegee Sand

Sieve Size	Total Percent Passing by Weight
3/8 inch	100
No. 200	0 – 5

C. Foundation Material

Foundation material shall be uniformly graded, washed rock conforming to the following sieve analysis. A minimum of twelve inches (12") of foundation material shall be placed below the pipe to the trench bottom.

Foundation Material

Sieve Size	Total Percent Passing by Weight
2 inch	95 – 100
1/2 inch	10 – 30

#4	0 – 5
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D. Flowable Fill

At the Town's option and on a case-by-case basis, utility trench backfill meeting the requirements in the table below may be used in lieu of native backfilling in any excavation regardless of width or depth. Concrete-slurry type, full-depth backfill will not be allowed within the public right-of-way. Compaction and testing of utility trench backfill will not be required if material meeting the following specification is used:

Flowable Fill

Ingredient	lbs/cubic yard
Cement	42 (0.47 sack)
Water	325 (43 gallons or as needed)
Coarse Aggregate (Size # 57)	1,700
Sand (ASTM C-33)	1,845

3.3.2 Laying of Pipe

Proper implements, tools, and facilities satisfactory to the Inspector shall be provided and used by the Contractor for the safe and convenient execution of the work.

Pipe materials shall be unloaded and distributed on the job in a manner approved by the Inspector. In no case shall materials be thrown or dumped from the truck.

Before lowering and while suspended, the pipe shall be inspected for defects to detect any cracks. Any defective, damaged, or unsound pipe shall be rejected and removed from the job site.

All foreign matter or dirt shall be removed from the inside of the pipe before it is lowered into its position in the trench, and it shall be kept clean by approved means, as determined by the Inspector, during and after laying. All openings along the line of Water Main shall be securely closed as directed, and in the suspension of work at any time, suitable plugs shall be placed to prevent earth or other substances from entering the pipe.

Pipes shall be laid to a true line and at uniform rates of grade between grade points as shown on the plans. Fine grading, to the bottom of the trench, shall proceed ahead of the pipe laying. Over excavation for a stable trench shall be six (6) inches with backfill consisting of pea gravel or select import bedding. Over excavation for a stable trench on long transmission lines shall be 12 inches with backfill consisting of pea gravel, select import bedding, or native soil if deemed acceptable by the geotechnical report. Caution tape shall be installed three (3) feet above pipe.

Bell holes shall be provided for the pipe bells. The pipe shall be supported along its bottom as required by these Specifications and throughout its length except for the minimum distance necessary at the bell holes. Bell holes shall be adequate to make the joint, but no larger than necessary so that maximum support will be provided for the pipe. The remainder of the pipe shall be surrounded as required by the appropriate bedding shovel placed and hand tamped, to fill completely all spaces under and adjacent to the pipe.

No pipe shall be laid in water or when trench conditions are unsuitable for such work.

When connecting to existing Water Mains, the Contractor shall take every precaution necessary to prevent dirt or debris from entering the existing lines. The Inspector may stop work if

adequate protection is not being provided from groundwater, or other debris which might enter the pipeline.

When the design of a waterline indicates laying the pipeline on a radius, it may be accomplished in only one of two ways.

- A. With smaller diameter PVC pipe, the line can actually be laid along a radius using the natural bending properties of the pipe, as long as the radius conforms to the Manufacturer's recommendations.
- B. When laying DIP, the deflection in any bell/spigot cannot exceed the deflections allowed herein.

MJ straight couplings may be used by the Contractor to lay a pipeline to a certain radius using the deflections allowed herein.

Bend fittings should be used only where shown on the drawings or as approved by the Inspector.

High deflection PVC couplings are not allowed.

3.3.3 Length of Pipe

The length of pipes for curvilinear Water Mains shall be determined by the radius using joint deflection not exceeding the Manufacturer's recommendations. See also "Laying of Pipe."

3.3.4 Fittings

Fittings shall be installed where shown on the plans. Pipes shall be cut as necessary to install fittings at the proper locations. Fittings shall be provided with restraint and/or thrust blocking as necessary per these Specifications. Fittings shall be supported by a minimum of six inches (6") of granular bedding (which can be native sand if deemed suitable) extending to the spring line of the pipe, and a minimum of eighteen inches (18") from the centerline of each fitting. Fittings may be supported by native sand, if suitable. Blocking is not permitted.

3.3.5 Service Connections

No Service Lines shall be installed until front property corners have been located. Service Lines for each property shall be a minimum of five feet (5') off of the property pin and on the opposite side of the driveway.

Length of Service Line from the Main to the house will be limited as follows:

1"	125'
1-1/2"	175'

Lengths greater than one hundred and seventy-five feet (175') need an Engineer's design for sizing. The design must be submitted in writing to the Town Engineer for approval.

All service connections to Mains shall be made in the top one-half (1/2) of the pipe. Tapping of Mains for service connections shall only be accomplished with the use of an approved tapping machine and tapping saddle; **Romac 202 BS Tap saddle, or approved equal.**

3.4 Backfill and Compaction

No backfilling will be allowed until the pipe installed conforms to the specified requirements.

Accepted on-site bedding or granular material shall be deposited in the trench simultaneously on both sides of the pipe for the full width of the trench to a height of six inches (6") above the crown of the pipe. Accepted on-site bedding or granular material shall be shovel placed and hand tamped to fill completely all spaces under and adjacent to the pipe.

All backfill shall be compacted to a minimum of ninety-five percent (95%) of standard proctor density at optimum moisture, ASTM D-1557, by tamping or other means approved by the Inspector. If the controlling right-of-way authority requires a greater compaction requirement, the requirement of the controlling right-of-way authority shall control. Tests shall be conducted on compacted materials as directed by the Inspector and/or right-of-way authority. Jetting, puddling, or ponding will not be used except where approved by the Town. Sufficient cover over the pipeline will be hand tamped to prevent flotation of the pipe.

Backfill for Water Main trenches shall be suitable earth, free from rocks over three inches (3") in diameter, large roots, and excessive sod or other vegetation.

Backfilling and compacting shall be done as thoroughly as possible so as to prevent settlement. Depositing of the backfill shall be done so the impact of falling material will not injure the pipe or structures. Grading over and around all parts of the work shall be done as directed by the Inspector.

Backfilling shall be done in lifts of uniform layers not to exceed the depth shown in the compaction chart and each lift shall be completely compacted over the full width of the excavated area. Compacting shall continue until the specified relative compaction has been attained. Three feet (3') of material over the top of the pipe shall be required before a vibratory or sheepsfoot roller is operated over the pipe.

Compaction Chart

<u>Compaction Type</u>	<u>Maximum Loose Soil Lift Height (ft)</u>	
	<u>Sands</u>	<u>Plastic Soil</u>
Vibratory Roller (Vibro-Plus CK-10) or approved equal	4.0	Not allowed
Sheepsfoot (150 PSI Minimum)	Not allowed	2.0
Vibratory Sheepsfoot (Essick Vf-54T) or approved equal	4.0	2.0
Button Head Pneumatic	0.5	0.5
Plate Temper	1.0	1.0
Plate Vibrator	1.0	Not allowed

Succeeding layers of backfill may contain coarse materials but shall be free from large pieces of rock, frozen material, concrete, roots, stumps, tin cans, rubbish, and other similar articles whose presence in the backfill, in the opinion of the Inspector, would cause settlement of the trench or damage to the pipe. No stone larger than six inches (6") in diameter shall be placed within three feet (3') of the pipe.

Wherever select material exists in place in the upper four feet (4') of the finished grade of the paved or traveled portions of the street or roadway, is removed by the trench excavation, the Contractor shall replace said material (or material of equal quality) as backfill in the upper four feet (4') of the finished grade. Where select material does not exist in place as described above, the material available from other excavations on the project may be used.

Special compaction shall be done around all valve boxes and vaults, manholes, curb boxes, water services, other structures, and utilities by the use of pneumatic tampers, plate tampers, or plate vibrators with lifts not to exceed those shown in the compaction chart.

Water service trenches must be compacted in the same manner as Water Main trenches. All excavation in trenches shall be backfilled to the original ground surface or to such grades as specified or shown in the plans. Backfill shall begin as soon as practical after the pipe has been placed and shall thereafter be carried on as rapidly as the protection of the balance of the work shall permit.

Compaction tests at the expense of the Contractor shall be conducted by an independent testing laboratory to a depth not greater than two feet (2') above the pipe. One test shall be conducted for each run or every four hundred feet (400'), whichever is greater, or as required by the controlling authority. Copies of each compaction test report will be given to the Inspector and the Town prior to approval.

3.5 Valve Installation

3.5.1 Valves

Valves shall be handled in such a manner as to prevent any injury or damage. All joints shall be thoroughly cleaned before installation.

Valves shall be located at the points on the Mains as indicated on standard drawings, unless specified otherwise by the Town Engineer.

Valves shall be set and joined to the pipe in the same manner as laying and joining mechanical joint pipe.

Valves shall be set in such a manner that the valve stems are plumb. Valves shall be supported by a minimum of six inches (6") of granular bedding (which can be native sand if deemed suitable) extending to the spring line of the pipe, and a minimum of eighteen inches (18") from the centerline of each fitting. Valves may be supported by native sand, if suitable. Blocking is not permitted.

3.5.2 Valve Boxes

A valve box shall be provided for every valve. Valve boxes shall be 6850 heavy-duty valve box, slip-type, or approved equal. It shall not transmit shock or stress to the valve, and shall be centered and plumb over the operating nut of the valve, with the top of the box set to the required elevation. It will be the responsibility of the Developer or his Contractor to ensure that valve boxes are plumb and brought to the proper elevation. Tracer wire shall be ran along the outside of the valve box until the uppermost section where it will be run inside the valve box.

Paving of any street requires that all existing valve boxes be located and prepared for final raising to finish street surfaces as shown on the standard drawings. Prior to paving, a final inspection is required. Inspections should be requested twenty-four (24) hours in advance.

Mud plugs must be installed in all valve boxes.

3.6 Fire Hydrant Installation

3.6.1 Installation

All hydrants shall be staked for location and grade. Final location and grade shall be in accordance with the approved drawings. All hydrants shall stand plumb and be installed as indicated on standard drawing. Each hydrant shall be connected to the Main by a six-inch (6") branch line. An independent six-inch (6") gate valve shall be installed on each fire hydrant branch. No Service Line connections shall be installed between the fire hydrant and the fire hydrant control valve. Tracer wire shall be extended from the Main to the lateral.

3.6.2 Anchorage

The bowl of each hydrant shall be well braced against the unexcavated earth at the end of the trench with a concrete thrust block. The bottom of the hydrant bowl and the hydrant valve shall be supported with an eighteen by eighteen by four-inch (18" by 18" by 4") precast concrete blocking slabs. Anchor tees shall be used on all new installations, and stainless steel tapping saddles with valves shall be used to install hydrants on existing installations.

Whenever a fire hydrant is installed at the termination point of a Main extension (such as in a cul-de-sac), tie rods and concrete reverse anchors will be required for both the fire hydrant valve (which in this case is also a line valve on the Main) and the fire hydrant lateral or branch line connected to the fire hydrant. See standard drawing. Additional concrete anchors may be required at the direction of the Inspector.

If bends are needed to bring a hydrant to a desired horizontal or vertical position, special concrete reverse anchors, anchor pipe, and/or all-thread tie-back rods (or a combination of all of these) along with a riser may be required. In any case, a riser may be required which is no longer than two feet (2').

It will be the Contractor's responsibility to set the safety flange at the proper grade.

The hydrant valve will be fitted with a "Mega Lug" or "One Bolt" fitting. Reverse anchors and all-thread will no longer be used, except in such cases as the Inspector deems necessary.

3.6.3 Drainage

Wherever a hydrant is set, drainage shall be provided at the base of the hydrant by placing rock from the bottom of the trench to at least twelve inches (12") above the barrel flange of the hydrant, and to a minimum distance of twelve inches (12") around the elbow.

The minimum distance from the bottom of the trench to the bottom of the hydrant elbow shall be six inches (6"). The minimum amount of rock placed shall be one-third (1/3) of a cubic yard, and shall be a well-graded gravel cobble or crushed rock free of dirt. The rock shall be surrounded on all sides by a permeable Mirafi fabric to prevent the migration of soil into the drain rock area.

3.6.4 Hydrant Protection in Corrosive Soils

All ductile iron branch lines and hydrants shall be protected. All pipe, rods, and fittings, from finished ground level on the hydrant barrel up to and including the tee, shall be encased in poly wrap. The type of polyethylene and manner in which it is to be installed shall conform to these Specifications. Bedding material shall be as specified in these Specifications. All fire hydrants shall be cathodically protected with a 17-lb. anode.

3.7 Blow-off Installation

All dead ends on new Mains shall be closed with cast-iron plugs or caps. Such dead ends shall be equipped with suitable concrete anchors and blow-off facilities.

The Contractor shall furnish, install, or remove temporary blow-offs at locations shown on the drawings or designated by the Town. See standard drawing. The Contractor shall install permanent blow-offs where indicated on the drawings. A permanent blow-off is defined as one which will be left in place at the completion of all proposed installations. Refer to standard drawing.

3.8 Air-Release Valve Installation

Combination air-relief-vacuum breaker valves shall be installed at all high points on twelve-inch (12") and larger Water Mains. The valves shall be installed in forty-eight-inch (48") diameter concrete

manholes with manhole rings and covers as shown in the standard drawings. The valves shall be tapped into the top of the Water Main with a one-inch (1") tap.

The pipe stem between the Water Main and the air-release valve shall contain a gate valve to isolate the air-release valve for maintenance purposes. Pipe and fittings shall be threaded galvanized iron, standard weight; gate valve shall be bronze and have hand wheel.

3.9 Pressure-Reducing Valve Installation

Pressure-reducing and regulating valves shall be installed where directed by the Town Engineer. The valve, piping, and appurtenances shall be installed in reinforced concrete vaults with access cover in the roof. The access cover shall be set to proposed final surface elevation and shall be adjusted for paving, if necessary. All piping shall be supported within the vault to permit removal of components for servicing.

3.10 Disinfection

Pipe extensions shall be chlorinated in accordance with AWWA Standard C651, "Disinfecting Water Mains", prior to being put into service. The chlorination of the finished pipeline shall be done prior to installation of any service taps. Before filling the pipe with water, the pipe shall be clean and free of debris to the satisfaction of the Inspector. Disinfection by chlorination of the pipe shall be performed prior to the Town's acceptance. The chlorinating agent and method of application shall be approved by the Town Engineer in accordance with AWWA Standard C651. The Contractor shall provide material for disinfection of Water Mains. Granular calcium hypochlorite must be used for disinfection.

After the calcium hypochlorite has been placed in the pipeline by the Contractor, disinfection must be completed within ten (10) calendar days. Should disinfection not be completed within this period, the Town will void this method of chlorination and require that the Main be disinfected by mobile gas chlorinator, or slug method, at the expense of the Contractor.

After the pipe is filled with water and chlorine at less than one foot/second (1 FPS), and unless approved otherwise by the Inspector, the chlorinated water shall be held in contact with the pipe for twenty-four (24) hours. At the end of the twenty-four (24) hour period, the water in the pipeline shall be tested by the Inspector to ensure a residual chlorine content of not less than fifty (50) mg/l. The pipeline shall then be thoroughly flushed to remove the heavily chlorinated water. Care shall be taken in flushing the pipeline to prevent property damage and danger to the public. Samples of water shall be collected for bacteriological examination and residual chlorine content testing before the pipe is put into service. Testing of bacteriological evaluation and sampling shall be performed by a Town employee.

A new Main will be released for the tapping of services when disinfection has been completed, bacteriological testing has been done, it is acceptable to the Public Works Director, and the Main has been flushed and charged.

3.11 Hydrostatic Testing

3.11.1 General

No hydrostatic tests shall be made on any portion of the pipeline until field-placed concrete has had adequate curing time.

The Inspector shall be notified twenty-four (24) hours in advance of testing. **All testing shall be made in the presence of the Inspector.**

Only the following methods are acceptable for supplying potable water for hydrostatic testing:

- a. Water may be taken from a nearby pressurized water source which has been previously chlorinated, tested, and accepted, such as a fire hydrant.
- b. Water may be delivered to the site in a chlorinated water tank having a minimum capacity of three hundred (300) gallons. The water tank shall be used exclusively for the transportation of potable water.
- c. Any previously tested, chlorinated, and accepted Water Main which is pressurized and is to serve the new Main extension may be tapped on the pressurized side of the closed valve.

In any event, the method of supplying water as well as the source of water for hydrostatic testing shall be as approved by the Inspector. Use of barrels, sanitary or otherwise, to supply water for hydrostatic testing is strictly prohibited.

All Water Mains shall be hydrostatically tested in the field to a minimum pressure of two hundred (200) PSI **for no less than two (2) hours.**

3.11.2 Procedure

The pipeline shall be properly backfilled and shall be in a state of readiness for testing. All bulkheads, pumps, taps, and appurtenances necessary to fill the pipeline and maintain the required pressure shall be in place. The pipeline shall be filled with water and the test pressure shall be applied to the pipeline by means of a continuously-operating pump equipped with a bypass valve for regulating pressure. When filling the pipeline, it shall be filled at a rate which will not cause any surges, nor will it exceed the rate at which the air can be released.

All air in the line shall be properly purged. Fire hydrants are preferred for purging air in lines. Where blow-offs or hydrants are not available or are not effective in purging air from the line, the Inspector shall require a tap (at the Contractor's expense) to purge the line. The location and size of tap shall be at the Inspector's discretion.

Upon achieving test pressure, the pressurizing pump shall be turned off and disconnected from the pipeline.

While the test pressure is maintained, an examination shall be made of the pipeline in general, and any leaks shall be repaired. Any pipe or fitting found to be faulty shall be removed and replaced. No leakage is allowed through the bonnet of the line valve. Any valve leaking through the bonnet shall be repaired in place or removed and replaced. Cutting and replacing pavement, excavating, and backfilling may all be necessary parts of locating and repairing leaks discovered by pressure testing of pipe.

Tests shall be conducted with fire hydrant valves open and the hydrants shut off. After all visible leaks have been stopped, the full test pressure shall be maintained for two (2) continuous hours.

3.11.3 Allowable Leakage

At completion of the test, the pipeline shall be returned to exactly 200 PSI internal pressure and the amount of water metered into the pipeline. At the discretion of the Inspector, a leakage test is not required for water pipe sections less than twelve inches (12") or less than 200 feet in length. The method of metering shall be a volumetric measurement taken from a tank no greater than fifty-five (55) gallons. Under no conditions shall an excess of five (5) PSI be lost during the two-hour test. Allowable leakage (that amount used to refill the pipeline) in gallons per hour per one thousand feet (1,000') of pipe for each section between line valves for mechanical joint or push-on joint pipe shall not exceed the following rates:

Avg. Test Pressure	Pipe Size – inches (Gallons)
--------------------	------------------------------

PSI	4	6	8	12	16	20	24
250	0.47	0.71	0.95	1.42	1.90	2.37	2.85
225	0.45	0.68	0.90	1.35	1.80	2.25	2.70
200	0.43	0.64	0.85	1.28	1.70	2.12	2.55
175	0.40	0.59	0.80	1.19	1.59	1.98	2.38
150	0.37	0.55	0.74	1.10	1.47	1.84	2.21

If testing indicates a leakage rate in excess of the rates above, the pipeline will not be accepted. The pipeline shall be repaired, re-chlorinated, and retested as described in this section until all test requirements are met.

3.12 Water Meter Installation

3.12.1 General

- A. The acceptable location for five-eighths-of-an-inch (5/8") through one-inch (1") water meters shall be limited to outdoor meter pits for all residential applications. Commercial water meters may be located either inside of a building or outside of the building in a meter pit or vault. Locations for one-and-one-half inch (1-1/2") or larger water meters shall be approved by the Town prior to installation of the water meter.
- B. Water meter locations selected shall provide adequate protection against freezing.

3.12.2 Residential Water Meter Installations

- A. Residential water meter locations must be located outside and comply with detail W40. Meter pits and vaults should not be installed within any parking area or parking stall, driveway, or sidewalk area. The Town will evaluate meter pits/vault installed within these areas provided appropriate easements, access, and traffic loads are adequately accommodated on a case by case bases.
- B. The only pit acceptable to the Town for five-eighths-of-an-inch (5/8") or three-quarters-of-an-inch (3/4") meters is a PVC pit, or approved equal, twenty-four inches (24") inside diameter by a minimum of thirty-six inches (36") in height, with a composite lid, frost-proof cover. See standard drawing and the accompanying notes. For one-inch (1") meters, the acceptable pits are the standard size, except twenty-four inches (24") in diameter, thirty-six inches (36") in height, with a frost-proof cover. See standard drawings and accompanying notes. Regulators or sprinkling system devices are not acceptable in either the twenty-inch (20") or the twenty-four-inch (24") pit.
- C. In no case shall water meter pits/vaults be installed in within a public street or road. Landscape and structures (e.g. trees and shrubs (upon maturity), boulders, retaining walls, drainage facilities, utility vaults, poles, etc.) shall not be within 5 feet of any outside edge of a meter pit or vault. Five-eighths-of-an-inch (5/8") thru one-inch (1") water meter loop installations shall include an inlet and outlet valve, as shown on standard drawings. Inlet and outlet valves shall be full port, handle-operated ball valves which shall be installed to close in the clockwise direction.
- D. Plans for inside water meter loop (to include support) installations for one-and-one-half inch (1-1/2") and larger water meters shall be submitted to the Town for approval prior to installation of the meter loop, and should be similar in design to the meter loop piping and support shown on standard drawings.

3.12.3 Water Meter Pit Installations (Other than Residential)

- A. The location of the meter pit for three-quarters-of-an-inch (3/4") and one-inch (1") water meters will be located within an easement near the property line. If a problem arises on the location, the decision will be determined by the Town.
- B. The only pit acceptable to the Town for three-quarters-of-an-inch (3/4") meters is a PVC pit, or approved equal, twenty-four inches (24") inside diameter by a minimum of thirty-six inches (36") in height, with a composite lid, frost-proof cover. See standard drawing and the accompanying notes. For one-inch (1") meters, the acceptable pits are the standard size, except twenty-four inches (24") in diameter, a minimum thirty-six inches (36") in height, with a frost-proof cover. See standard drawings and accompanying notes. Regulators or sprinkling system devices are not acceptable in either the twenty-inch (20") or the twenty-four-inch (24") pit.
- C. The meter loop in the pit (one-inch (1") water meters) must be with a copper setter with an inlet valve only; Ford Series V-82. The copper setter will be installed so that the loop is seventeen inches (17") below the top of the meter pit lid. See standard drawings and accompanying general notes.
- D. The location of the meter pit for one-and-one-half inch (1-1/2") or larger water meters shall be approved in the field by the Inspector.
- E. Meter pits for water meters one-and-one-half inch (1-1/2") or larger must be enough to accommodate meter, meter bypass, all valves, and piping. See standard drawings and accompanying general notes.
- F. All pits housing a meter one-and-one-half inch (1-1/2") or larger will have a twelve-inch (12") wide metal ladder installed in the pit. Wooden ladders will not be accepted.
- G. Meter pits must have an approved ring and cover of sufficient size (twenty-five-and-one-half inches (25-1/2") minimum) opening for installation and removal of the meter.
- H. Meter loop (one-and-one-half inch (1-1/2") and two inches (2")) must sit on the floor of the pit, not on the riser. The maximum depth of the meter pit shall be five feet and six inches (5'-6"). The minimum depth of the pit shall be four feet and six inches (4'-6"). See standard drawings and accompanying general notes.
- I. Water meter loops one-and-one-half inch (1-1/2") and larger must have both inlet and outlet valves.
- J. Plastic pipe between the Water Main and the curb stop shall be one-inch (1") Crestline CE Blue HDPE, SDR 9, two hundred (200) PSI with stainless steel stiffeners.

3.12.4 Combined Domestic and Fire Line Water Meters

- A. Only meters approved by the National Board of Fire Underwriters shall be installed in water lines providing both domestic and fire demands. Requests to install a fire line and/or meter in a water line are handled in the same manner as a water line extension.
- B. Unless otherwise approved by the Town, combined domestic and fire line meters must be installed in a pit large enough to accommodate the meter, meter bypass, and all valves and piping, all in accordance with standard drawings and accompanying general notes.
- C. The location of the meter pit must be approved by the Town in advance of construction.
- D. Meter pits must have an approved aluminum frame and aluminum locking lid of sufficient size (twenty-five-and-one-half inches (25-1/2") minimum) opening for installation and removal of the meter.
- E. The meter loop (three inches (3") through six inches (6")) must sit on the floor of the pit, not on the riser. The maximum depth of the meter pit (inside dimension) shall be eight feet (8'). The minimum depth of the meter pit (inside dimension) shall be seven feet (7'). See

standard drawing and accompanying general notes. For meter loops eight inches (8") through ten inches (10"), refer to standard drawing.

- F. Water meter loops for combined domestic and fire line water meters must have both inlet and outlet valves.
- G. Water meters must have a bypass around the meter of sufficient size to supply the property while the meter is being serviced. See standard drawings.

SECTION 4.0 – WATER SYSTEM MATERIAL STANDARDS

4.1 Material Specifications – General

All materials incorporated into the construction of the Water System shall be new and of first-class quality. Used, damaged, sunburned, or imperfect materials will not be permitted and shall be removed from the job site by the Contractor when so directed by the Public Works Director, Town Engineer, or Inspector.

The Contractor shall be responsible for storing material at the job site in a manner to prevent damage or contamination of the material. Security is the Contractor's responsibility. The Town is not responsible for loss of material from the job site.

4.2 Pipe

4.2.1 Polyvinyl Chloride (PVC) Pipe

- A. All Water Mains shall be either C-900 PVC, DR18, DR14, ductile iron pipe, or HDPE 4710 DR-13.5, DR-11, through DR-9. Material for pipelines in excess of twenty-four inches (24") in diameter must be approved by the Town Engineer.
- B. Coated #12 tracer wire must be used.

4.2.2 Ductile Iron Pipe

- A. DIP may be used for waterline through thirty inches (30").
- B. Shall meet requirements of AWWA Standard C151.
- C. Pipe class shall be a minimum of CI 350 for all sizes, unless otherwise specified on the approved drawings.
- D. Joints shall be "push-on single gasket" type meeting requirements of AWWA Standard C111.
- E. Cement-mortar lining shall be provided meeting the requirements of AWWA Standard C104.
- F. If not delineated on the approved plans, all ductile iron pipe shall have cathodic protection using double No. 6 wire bonding with seventeen pound (17 lb.) anodes every four hundred feet (400') and nine pound (9 lb.) anodes on each fitting.
- G. Pipe shall be poly wrapped with V-Bio Polyethylene Encasement or approved equal.

4.3 Fittings

Fittings for all pipe shall be cement-mortar-lined ductile meeting the requirements of AWWA Standards C104 and C110 and C153 for short body ductile iron and shall have nine pound (9 lb.) anodes on each fitting. **PVC fittings are not allowed.**

All fittings shall be restrained mechanical joint.

4.4 Valves

4.4.1 12-inch Diameter and Smaller – Gate Valves

- A. Valves shall conform to the latest revision of AWWA Standard C509/C515 covering resilient seated gate valves for water supply service.

- B. The sealing rubber shall be permanently bonded to the wedge per ASTM D429.
- C. Valves shall be supplied with O-ring seals at all pressure-retaining joints. No flat gaskets shall be allowed.
- D. The valves shall be non-rising stem (NRS) opening by turning left (counterclockwise) provided with a 2" square operating nut or handwheel with the word "open" and an arrow to indicate the direction to open.
- E. Stems shall be cast copper alloy with integral collars in full compliance with AWWA. All stems shall operate with copper alloy stem nuts independent of wedge and of stem (in NRS valves).
- F. Stems shall have two (2) O-rings located above the thrust collar and one O-ring below. Stem O-rings shall be replaceable with valve fully opened and subjected to full pressure. The stems shall also have two (2) low torque Delrin bearings located above and below the stem collar to reduce friction during operation.
- G. Valves 4" and larger shall accept a full-size tapping cutter.
- H. The body, bonnet and O-ring plate shall be fusion-bond epoxy coated, both interior and exterior on body and bonnet. Epoxy shall be applied in accordance with AWWA C550 and be NSF 61 Certified.
- I. Each valve shall have Manufacturer's name, pressure rating, and year in which it was manufactured cast in the body.
- J. Valve bonnet to body retaining bolts will be hexagonal head and nut conforming to ANSI B18.2.1. Metric size and/or socket head cap screws or bolts will not be allowed.
- K. Plastic disc or wedge guides will not be allowed.
- L. Upper bolt holes on MJ connection valves 4"-12" shall incorporate closed elliptical design, no open slots.
- M. 100% coated wedge with encapsulation of wedge completed by the Manufacturer.
- N. End connections shall conform to AWWA Standard C111.
- O. All valves shall be installed with a cast-iron valve box of the three (3) piece type to the finished grade. Tyler Slip-Type, six-inch (6") cast-iron valve box assembly series 6855, or approved equal.
- P. Valves shall open counterclockwise (Open Left) on potable and raw water lines.
- Q. If the dimension from final grade to the operating nut exceeds six (6) feet, a valve extension shall be installed.

4.4.2 16-inch Diameter and Larger – Butterfly Valves

- A. All butterfly valves shall be of the rubber-seated, tight-closing type. They shall meet or exceed AWWA Standard C504, latest edition, Class 150 or Class 250. All valves shall be M&H 4500/1450 butterfly valves.
- B. Both ends shall be AWWA C111 mechanical joint or per flanged ASME B16.1 (or as otherwise noted on plans and specs).
- C. Valve shafts shall be ASTM A276 Type 304 stainless steel for CI150 or ASTM A564 Type 630 stainless steel for CI250. Each valve shaft shall be of a one-piece design for valves 12 inches and smaller and a two-piece design for valves 14 inches and larger. Valve shafts shall have a minimum diameter extending through the valve bearings and into the valve disc as specified in AWWA C504. All valve shafts must meet or exceed the minimum connection torque requirement set forth in AWWA C504.

- D. Valve body and vane shall be high-strength Ductile Iron to ASTM A536 with ASTM A276 Type 316 stainless steel body seats.
- E. Rubber valve seats shall be a full-circle, 360-degree seat not penetrated by the valve shaft. Valve seat shall be EPDM.
- F. The valve seat will be attached to the valve vane by Type 304 stainless steel self-locking fasteners. The valve seat must be easily field adjustable and replaceable without any special tools or lengthy curing time.
- G. Valve shaft seals shall be of the chevron-type for 3"–24" and O-ring type for 30 inches and larger utilizing the same elastomer as specified for the valve seats and the intended service. All valve shaft seals must be easily field replaceable.
- H. Valve actuator shall be of the traveling nut type, sealed and lubricated for underground or in-plant service. Operator shall be capable of withstanding an overload input torque of 450 ft-lbs. at full-open or full closed position without damage to the valve operator. Operators for valves 14 inches and larger must have a 304 stainless steel external stop limiting device and travel adjustment. The travel adjustments must be able to be operated without removing the valve from the line. All valve actuators must be sized per AWWA C504. Certification of proof of design and torque requirements shall be submitted to the Owner upon request.
- I. Hand crank, hand wheel or chain wheel – All manual operators for service other than underground shall have a position indicator and shall be totally enclosed and permanently lubricated. Actuators shall be designed to produce the required operating torque with a maximum rim pull of 80 lb. on hand wheel or chain wheel and a maximum input of 150 ft. lb. on operating nuts.
- J. Cylinder – Cylinder operator shall be of the base mounted configuration. Cylinder barrel shall be of molybdenum disulfide-lined glass fiber reinforced epoxy tubing, to provide a corrosion-free, self-lubricated high-strength barrel. Rod seal shall be of urethane, molybdenum disulfide filled to provide a self-lubricated, long life seal.
- K. The valve interior and exterior surfaces shall be coated in accordance with the latest revisions of AWWA C504 and must be NSF 61 Certified.

4.5 Fire Hydrants

4.5.1 General

All fire hydrants shall be designed and manufactured in strict compliance with AWWA Standard C502 (latest edition) for *Dry Barrel Fire Hydrants*. All references made in this specification are to the above standard unless otherwise noted.

Fire hydrants shall be UL listed and FM approved.

Fire hydrants shall be tested in accordance with AWWA C – 502 and UL/FM requirements.

Fire hydrants shall be manufactured (cast, machined, assembled and tested) in the United States and in full compliance of the American Iron and Steel requirement.

4.5.2 Acceptable Brands

Kennedy Guardian (K81D, K81A and K81AM), AVK, or approved equal.

4.5.3 Size of Hydrant

Hydrants shall have a Main valve opening size of five-and-one-quarter inches (4-1/2") and shall have a five-and-one-half-foot (5-1/2') bury depth unless otherwise approved by the Town Engineer.

4.5.4 Type of Hydrant

All hydrants shall be the traffic model type. Hydrants shall be the three-way type with one (1) pumper nozzle and two (2) hose nozzles, all located on the same horizontal plane.

Fire hydrants shall be of the traffic model breakaway type, designed with the breaking rings mounted on the top of the lower barrel flange for ease of inspection and replacement and to include two (2) breaking ring straps for alignment.

Breakable stem coupling shall be designed to break cleanly, leaving the lower portion of the coupling in place to accept a short disassembly wrench. Pins for the coupling shall be stainless steel and of the one-piece spring-loaded design with no need for clevis pins, nuts or other retainers for ease of maintenance.

Fire hydrants must be compatible with existing pressure and temperature monitoring system.

4.5.5 Inlet Connection

Hydrant base shall be provided with a mechanical joint inlet to accommodate six-inch (6") diameter pipe, all in accordance with AWWA Standards. Incorporated into the base shall be two (2) lugs for rodding or strapping of pipe. Fire hydrant laterals shall be of the same material as the Main line.

4.5.6 Main Valve Assembly

Main valve of the hydrant shall be four-and-one-half-inch (4-1/2") diameter compression type which closes with water pressure.

Main valve shall be synthetic rubber reinforced with a steel insert and retained on the lower stem by a bottom plate utilizing a nylon lock design to eliminate the need for a lock washer.

The valve assembly shall include one (1) or more drain valves which work automatically with the Main valve and drain the barrel when the Main valve is in the closed position.

O-ring seal shall be provided between upper and lower barrels and provide full 360° adjustment of upper barrel and O-ring grooves shall be of a dove-tail design.

Fire hydrant shoe shall have two (2) bronze lined external drain holes located below the elbow nuts and bolts.

The seat shall be a bronze ring threaded to a bronze insert in the hydrant shoe, with O-ring seals.

Pressure activated drain valve assembly shall be aluminum bronze with a single drain valve facing which is retained by a pin for ease of replacement and automatically compensates for wear due to use.

All parts of the Main valve assembly shall be so designed that removal of the assembly from the barrel is accomplished without excavation.

4.5.7 Operating Shaft Nut

Operating nut shall be of a one-piece bronze construction, with a top loading method of introducing grease to the hydrant by way of a recessed zerk or grease fitting in the top of the operating nut. The operating nut shall have two (2) channels through the threads to provide lubrication between the threads of the stem and the operating nut. There shall be two (2) ports on the upper portion to provide lubrication for the thrust washer.

A thrust washer shall be supplied between the operating nut and the stem lock nut to facilitate operation.

The hydrant shall open by turning the operating nut to the left direction and shall have an arrow on top of the bonnet to designate the direction of opening.

4.5.8 Pumper Nozzle and Cap

The pumper nozzle shall be four-and-one-half-inch (4-1/2") nominal diameter with six (6) threads per inch. Threads shall be right hand. See standard drawing.

Nozzle caps shall be furnished with security chains with one end of each securely attached to the upper barrel section of the hydrant.

Hydrant cap/bonnet shall be of a one-piece design creating a water tight cavity without the use of gaskets.

A dirt shield shall be provided to protect the operating mechanism from dirt and moisture buildup.

Nozzles shall be of the tamper resistant type, insertion with O-ring seals and stainless steel retaining screws (clockwise 1/4-turn for removal).

4.5.9 Hose Nozzles and Caps

The two (2) hose nozzles shall be two-and-one-half-inch (2-1/2") nominal diameter with seven-and-one-half (7-1/2) threads per inch. Threads shall be right hand. See standard drawing.

Each hose nozzle shall include a nozzle cap with nut and security chain, and shall be removed by turning counterclockwise as described in Sections 4.5.7 and 4.5.8 above.

4.5.10 Color

Top of hydrant is color coded to a standard flow chart, per a flow test. The upper exposed section of the hydrant above ground shall be painted Rustoleum red (hexadecimal color code: #633a34) or approved equal. The buried portion of the hydrant shall be given a bituminous coating in accordance with Section 10-8.1 of AWWA Standard CI 10.

4.5.11 Location

Where possible, fire hydrants shall be located in the northeast quadrant of the intersection. See standard drawing for typical installation. The location of all fire hydrants shall have the written approval of the appropriate Fire Protection District.

4.5.12 Hydrant Pressure and Temperature Monitoring Specifications

Pressure and monitoring system shall be installed on at least one hydrant for each pressure zone, every 150 homes, 2,500 ft. of Water Main, or every twenty (20) hydrants - whichever comes first.

Device must include the following:

- Must have water resistant and hardwired information access point internally within the fire hydrant.
- Fire Hydrant must be completely, and fully operational once unit is installed and not require the need to shut water supply off, make modifications and then recharge to obtain normal operation.
- Dry Barrel Hydrant Version - Must receive electronic reading through the Main valve assembly utilizing a waterproof conduit (Poly Tubing) and compression fittings from which the wiring is run from sensors to the motherboard, battery and cellular antenna just beneath the hydrant bonnet which is above ground approximately 2'6" above grade.

- Must utilize an OEM spool piece to accomplish OEM installation requirements and maintain the robust integrity of the hydrant as required to meet UL and ULFM approval.
- Device and all components must meet UL and ULFM requirements and have proper documentation to prove such.
- Must be able to accept multiple layers of paint and maintain the OEM level of communication success.
- All power must be supplied to the motherboard from within the same housing as the motherboard via a Lithium-Ion battery utilizing an integrated Male x Female wire harness.
- Battery must have a minimum 5-year battery life when used with the factory default settings/parameters.
- Battery must be field replaceable utilizing the same connection as OEM without requiring any modifications.
- Must not require power supply below grade.
- Must not require WiFi or Bluetooth for communication or operation.
- Must have communication capability to allow for remote firmware upgrades and data uploads using cellular technology.
- Must have functionality across all platforms, desktop, laptop, tablet, mobile device or smart phone.
- Must have hosted software, which is user friendly and allows end user/client to migrate files directly from host to their water management software via CSV or Flat File to use with SCADA or similar utility infrastructure management software.
- Must be able to recognize and alert end user client via email or text utilizing cellular signal of thresholds (events) within the clients set parameters within one (1) minute. Time is based on adequate cellular reception.
- Must have minimum capabilities of reading every 5-seconds, 15-min averages and 12-hour uploads.
- Other capabilities: alarm threshold violation reads of 40 reads per second for 30 seconds for three (3) consecutive cycles before returning to its normal read cycle of 5 seconds, 15-minute averages, and 12-hour uploads.
- Must have the capability for future expansion within the device housing (2 shell components once assembled on hydrant) for future additional technologies currently in R&D for release.
- Must not interfere or utilize the nozzles or ports in any way.
- Must be available in both OEM preinstalled NEW hydrants and as retrofit kits utilizing ONLY OEM components for the hydrants listed herein.
- Must allow for normal operation of hydrant in hot or cold climate without flow restrictions or any other byproduct that would prohibit full operation. Hydrant must be fully functional in below freezing conditions.
- Must have water contacting the sensors under pressure while being utilized at the same time for fire or other utility applications.
- Manufacturer must have been in business for over 5-years, and manufacturing and marketing hydrant device for a minimum of 3-years.

4.6 Pressure-Reducing Valves

Pressure-reducing and regulating valves shall be of a type capable of maintaining pre-adjusted downstream pressures, varying rates of flow, and upstream pressure without causing water hammer or cavitation. Valves shall be installed in concrete valve vaults of sufficient size so as to provide adequate maintenance and operation. Valves shall have gate valves and pressure gauges on both upstream and downstream sides and shall have bypasses with smaller pressure-reducing and regulating valves to handle minimum flows as determined by the Town Engineer. Cla-Val 90-01BYKC or approved equal are acceptable.

4.7 Air-Release Valves

Valves shall be combination air-release and vacuum valves. These shall be installed at each high point on all eight-inch (8") and larger Water Mains and at all other locations as directed by the Town Engineer.

Air-release and vacuum breaker valves shall be located in precast concrete manholes in accordance with the standard drawings, and shall automatically release air from the lines when the 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 American made and have an iron body with bronze trim. Floats shall be stainless steel. One and a half-inch (1.5") to two-inch (2") valves shall be installed. Oil the stem between the pipe and release valve, or as shown in the standard drawing.

Pipe and fittings used in the release valve system shall be galvanized steel, standard weight, and connections shall be threaded. Gate valves shall be bronze, threaded, and shall have hand wheels.

Acceptable manufacturers are Apco, Crispin, and Clow.

Four-inch (4") vents are required for ARVs less than two inches (2"), and six-inch (6") vents are required for two-inch (2") ARVs.

4.8 Thrust Blocks

Concrete thrust blocks may be installed on a case-by-case basis (in lieu of or in addition to pipe restraining per these Specifications) at all tees, plugs, bends, and fire hydrants in accordance with the standard drawings.

Where thrust blocks are used in conjunction with eight (8) mil thick polyethylene as a bond breaker, care shall be taken not to block weephole outlets, cover bolts, nuts, clamps, or other fittings or to make them inaccessible. Size of thrust block, type of concrete, and dimensions shall be in accordance with the details in standard drawings. Concrete shall be three thousand (3,000) PSI strength at twenty-eight (28) days.

4.9 Precast Concrete Vaults and Manholes

All butterfly valve and ARV manholes, pressure-reducing valve vaults, meter vaults, and other vaults shall be precast or poured-in-place concrete. Design of manholes and vaults shall be for H-20 traffic loading and shall include aluminum rungs, cast-iron rings, and covers of a pattern approved by the Town Engineer, with the word "WATER" cast thereon, and shall be in accordance with the details in standard drawings. Floors in concrete vaults shall have a minimum two percent (2%) slope toward the sump pit.

4.10 Services

4.10.1 General

Hydrostatic testing, approved bacteriological testing, and conditional acceptance of the Water Mains must be made prior to the installation of any water taps.

Water Service Line locations shall be shown on the utility plans submitted to the Town, and shall be located ten feet (10') up from the downhill lot line. Service Lines shall be installed in a continuous straight line. Service Lines shall be as close to ninety degrees (90°) from Main line as possible. Taps shall be performed by the Town or by the Town's subcontractor under the Town's supervision. Tap saddles will be required. Service Lines in driveways are not permitted. HDPE Service Lines shall be installed horizontally in a "snake-like" configuration to allow for both expansion and contraction of the line in the trench.

4.10.2 Service Lines

- A. All residential Service Lines shall consist of a corporation stop at the Main, continuous plastic pipe to a curb stop at the property line, continuous plastic pipe to the meter pit, and continuous plastic pipe up through the slab or floor of the structure in compliance with the latest building code. Residential Service Lines shall be a minimum of one-inch (1") diameter. Plastic pipe will be Crestline CE Blue HDPE pipe DR9, two hundred (200) PSI with stainless steel stiffeners. One-inch (1") HDPE is comparable to a three-quarter-inch (3/4") copper Service Line, although only HDPE Service Lines will be used.
- B. HDPE Service Lines shall be the same size from the corporation stop to the curb stop. Then, if necessary, the size of the Service Line may be increased or reduced only after the curb stop to the meter by one size. HDPE Service Lines shall be installed horizontally in a "snake-like" laying configuration, to allow for both expansion/contraction movement of the pipe in the trench. The HDPE Service Line shall consist of one (1) piece of continuous pipe from the corporation stop to the curb stop, no fittings or connections are allowed. The curb stop may not be placed under concrete or paved driveway areas. If the Service Line needs to be extended to accommodate moving the curb stop out of a concrete or paved area, only butt fusion may be used on HDPE pipe to extend the Service Line pipe to the new location of the curb stop.
- C. Water and sewer Service Lines may be installed as depicted in the drawings.
- D. Tracer wire, as specified herein, shall be extended from the Main to the foundation of the house/structure. Tracer wire shall be extended up the curb stop box per 4.10.2.L below.
- E. Service Lines other than residential shall have meters installed inside while new buildings shall have outside meter pits. They shall consist of a corporation stop at the Main, polyethylene to a curb stop, and polyethylene pipe to a point outside the foundation of the structure, in compliance with the latest building code. Meters in building are discouraged but may be approved on a case-by-case basis.
- F. The meter fitting and water meter are part of the service. Service Lines larger than two inches (2") shall be ductile iron or polyvinyl chloride and shall have a gate valve at the Water Main.
- G. No portion of the building electrical system and/or ground may be attached to the Service Line or internal plumbing such that current may be induced into or from the piping system.
- H. Meter vaults shall be concrete and shall have aluminum covers and rings. Meter shall sit in center of vault with same size gaskets with five-eighths-of-an-inch by (5/8") two-inch (2") stainless steel bolts and nuts. All lines shall have a minimum of five-and-one-half feet (5-1/2 ft) of cover, and shall be bedded and backfilled in accordance with these Specifications. Water Service Lines shall be a minimum of one-inch (1") diameter.

- I. No flares will be allowed on one-and-one-half-inch (1-1/2") to two-inch (2") installations. Ford pack joint fittings are permitted. Compression fittings either "Q" style or "-22" are acceptable. "Ay" compression fittings are allowed.
- J. Meter pits shall have MS 2024308 meter cans. Standard will be 30" although 36" and 48" are acceptable when situation permits. Meter domes shall be 20" standard aluminum with inner lid, and cast-iron top with two-inch (2") hole in center. All meters in a pit shall be placed twelve inches (12") from the bottom of the inner lid for frost protection.
- K. All water and sewer service locations shall be clearly stamped in the curb with an "S" for sewer and a "W" for water.
- L. Only 3/4" and 1" curb stop boxes shall have a one-and-one-half-inch (1-1/2") Schd. 40 PVC pipe telescoped inside with a bell end to fit over the top of the curb stop valve. Tracer wire shall be extended up the inside of curb stop box but outside the one-and-one-half-inch (1-1/2") Schd. 40 PVC pipe. Service Lines greater than 1" in diameter shall not incorporate 1-1/2" Schd. 40 PVC pipe inside of valve box.

4.10.3 Corporation Stops and Curb Stops (or Valves)

Corporation stops and curb stops shall meet the requirements of AWWA Standard C800. Curb stops shall include a curb box installed at the right-of-way line.

Corporation stops shall be Ford FB-1001 or Macdonald 4701B.

Curb stops shall be:

Ford	A.Y. McDonald
B46-333 – 3/4"	MCD 76100-(22 or Q) 3/4"
B46-444 – 1"	MCD 76100-(22 or Q) 1"
B46-666 – 1-1/2"	MCD 76100-(22 or Q) 1-1/2"
B46-777 – 2"	MCD 76100-(22 or Q) 2"

For lines larger than two inches (2"), curb stop valves shall be resilient seated and epoxy coated inside and out.

4.10.4 Meters

A. General

- 1. All water supplied by the Town to a property must be metered. The only exceptions are fire lines.
- 2. All water meters shall be installed and furnished by the Town at the expense of the property owner and shall become the property of the Town.
- 3. Water meters will be serviced and maintained by the Town.
- 4. One-and-one-quarter-inch (1-1/4") meters are not permitted.

B. Meters up to one-and-one-half inch (1-1/2"):

- 1. Shall be 2" Badger M170.
- 2. Shall be 3/4" Badger RCDL Model 25.
- 3. Shall be 1" Badger RCDL 70.

C. Meters two inches (2") and larger:

- 1. Shall be compound meters in cast-iron housing with a disc meter to record small flows and a turbine to record large flows.

2. Shall be calibrated and furnished to indicate gallons.

4.10.5 Backflow Preventers

All backflow prevention devices and installations will be per the Town's standard details (attached) and the Town's Rules and Regulations.

All commercial building shall have a testable backflow device. The devices shall be tested annually and results submitted to the Town.

SECTION 5.0 – WASTEWATER SYSTEM DESIGN STANDARDS

5.1 Quality of the Collection System

The purpose of these Specifications is to ensure that only proven, high-quality materials are installed using first-class workmanship. Determination of the best materials and construction methods are based upon lowest life-cycle costs. Sizing and layout of the system are parts of the total consideration of design, operation, and maintenance of a Wastewater Collection System that yields optimum quality service at the lowest total cost to the Customer.

5.2 Sizing of Collection Mains

The Town reserves the right to size Mains to provide service for projected future needs. All Mains shall be sized large enough to provide for sanitary sewer service for the entire basin area requesting service and shall meet the following requirements:

- A. No public sewer shall be less than eight inches (8") in diameter with the exception of small service areas of less than 5 residential taps where six-inch (6") sewers may be used with the approval of the Town.
- B. All sewer lines shall be sized to flow at seventy-five percent (75%) of the end area of the pipe or less during peak wet weather flow periods.
- C. No Service Line shall be less than four inches (4") in diameter.
- D. Residential service pumps will be reviewed and approved by the town on a case by case basis.

5.3 Layout of the Collection System

Width Requirements for Town Main Installations

All Town Mains shall be installed in dedicated public street rights-of-way. When the Town determines it is not possible or feasible for an installation to be made in a dedicated street, the installation shall be made in a right-of-way or easement. The conditions under which such an exception will be allowed will be determined for each individual case, and only rights-of-way and easements which conform to the requirements of the Town will be accepted. The minimum width right-of-way or easement which will be accepted by the Town is twenty feet (20'). Depending on size of Main and depth, additional width may be required.

Dedicated Streets

Pipe alignment shall be parallel to property lines. Normal practice is to lay the pipe on the center line of the street. In any case, pipe alignment shall always be within an established roadway, between the limits of the curb and gutter.

Installation of curvilinear pipelines in sizes eight inches (8") through eighteen inches (18") is acceptable and necessary to obtain the standard location of Sewer Mains. Curvilinear sewers must be designed and constructed using a uniform slope between manholes and shall have a center line radius of one hundred feet (100') or greater. The necessary curvature shall be attained by deflection at joints not to exceed the Manufacturer's recommendations or three-degree (3°) preformed joints or couplings. Field bending of pipe shall not be permitted.

When streets and subdivisions fall in hillside overlay zones or areas with unique characteristics as identified by the Developer and the Town, the Developer and his/her Engineer shall meet with the Town to address concerns of pipeline materials, pipe alignment, pipeline access, landscape restoration, and surface monumentation.

Sewer Main Alignments

Three-degree (3°) pre-manufactured fittings may be used to accomplish the curvature without exceeding individual deflections specified. The maximum deflection at any joint shall not exceed the Manufacturer's recommendation.

Molded three-degree (3°) fittings shall meet the pipe Manufacturer's recommendations and be composed of the same material and meet the same PVC standard as forth for the pipe material. Bends shall be plain end by bell and be laid in the same direction as the pipe-laying operation.

Sewer Collection Lines (sizes 8" thru 12") (Full laying length 13.5 feet)	8-inch Laying Radius (feet)	10-inch Laying Radius (feet)	12-inch Laying Radius (feet)
Without Fittings	875 min.	985 min.	1,150 min.
With 3-degree bend at every fourth joint	N/A	N/A	1,000 to 1,150
With 3-degree bend at every third joint	750 to 875	750 to 875	750 to 875
With 3-degree bend at every second joint	450 to 750	450 to 750	450 to 750

Sewer Service Lines shall be a minimum of four inches (4") in diameter and shall be placed approximately in the middle of the lot and extended into the lot per Detail WW-19. A minimum of one service line shall be installed per roofed structure.

5.4 Manholes

Manholes shall be installed at the end of each line, at all pipeline intersections, changes in grade, changes in size, alignment (except curvilinear sewers) and at distances of not greater than four hundred feet (400'). The town may authorize five hundred feet (500') of pipeline between manholes on a case by case basis. Manholes must also be located to allow unassisted access by Town maintenance vehicles. Lines and manholes located in areas where access (in the opinion of the Town) is not possible will be reviewed on a case-by-case basis.

Curvilinear sections with a reverse curve (i.e. an "S" curve) shall have a manhole located at the point of reverse curvature. If a straight section of pipe is located between curvilinear sections with a reverse curve, a manhole shall be located at some point along the straight section of pipe. A manhole is needed if a curvilinear section, or combination of curvilinear sections, changes the alignment of a Wastewater Main more than 90°.

5.4.1 Manhole Sizes

The inside diameter (I.D.) of the manhole shall not be less than the following:

<u>PIPE SIZE (in)</u>	<u>MANHOLE DEPTH (ft)</u>	<u>MANHOLE SIZE (I.D.)</u>
8" and 10"	0' to 12'	60"
12" to 18"	13' to 19'	60"
24" and larger	20' to 25'	72"

5.4.2 Changing Pipe Size

When sewers are changed in size at a manhole with no intersecting sewers, the manhole invert shall be designed with a one-tenth of one foot (0.1') drop through the manhole.

5.4.3 Intersections

Pipelines deflecting thirty degrees (30°) or less shall have one-tenth of one foot (0.1') drop in the invert through the manhole. Pipe deflections greater than (30°) and less than (90°) shall

have three-tenths of one foot (0.3') drop in the invert through the manhole. Changes in direction at intersections shall not be greater than ninety degrees (90°). Ninety-degree (90°) manholes are generally discouraged and should only be implemented when no other options are available. The slope of the invert through the manhole shall not be less than the shallowest pipe slope entering or exiting the manhole. Intersecting pipelines at manholes with greater than one (1) pipe size difference shall be designed to match crown elevations.

5.4.4 Manhole Channels

The flow channel shall be made to conform its slope and shape to that of the sewer pipe and wherever possible shall use the lower one-half (1/2) of the sewer pipe of the invert of the open channel. The completed channel shall be U-shaped, coming up as high as the top of the largest pipe. At intersections with other lines, channels shall be formed with a curve to minimize turbulence.

5.4.5 Manhole Rings and Covers

Manhole rings and covers shall conform to the attached detail sheets for ring and cover designs. All manholes located outside of dedicated street or alley rights-of-way will be designed and constructed with a locking-type cover and the ring bolted to the concrete cone. Depending on the manhole location, the Town may require "self-sealing" bolt-down lids.

Grade adjustment rings between the ring, cover, and the concrete cone cap shall not exceed eight inches (8") and shall be sealed with conceal mastic between each ring.

Manhole lids shall have hole inside the lid for removal. All manholes shall have an inflow protector insert (IPI) per Section 9.7.

5.4.6 Drop Manholes

Drop manholes with a minimum of five-feet (5') diameter will be permitted only in special conditions where Town approval has been granted.

5.5 Minimum Sewer Depth

In general, Main line sewers should be designed deep enough to drain basements and to prevent freezing. No public Mains shall be less than five-and-one-half feet (5-1/2') deep measured from the top of the pipe. Sewer lines less than five-and-one-half feet (5-1/2') and greater than fourteen feet (14') shall be given special consideration and reviewed by the Town on a case-by-case basis concerning pipe material and bedding requirements.

5.6 Slopes

All sewers should be designed to transport sewage flows at mean velocities of two feet per second (2 FPS) at seventy-five percent (75%) of the pipe end area based on a roughness coefficient of thirteen one-thousandths (0.013).

The slope between manholes shall be uniform. Due to practical constructability and construction tolerances, the minimum slope of a Wastewater Main shall be 1%. Slopes less than 1.04 % are not recommended and will be reviewed on a case-by-case basis with consideration given to topography, existing outfall elevation, velocity, and capacity.

Slopes less than 1.04% shall be built with DIP or SDR 26 PVC. SDR 26 PVC installed with slopes between 0.5% and 1.04% require select bedding and are subject to additional construction requirements.

The Town may require the use of restrained joint pipe on sections where the Wastewater Main is located outside of paved areas and slope stability is a concern.

Minimum allowable slopes per pipe size are as follows:

8"	0.50%
10"	0.35%
12"	0.29%
15"	0.23%
18"	0.17%
24"	0.13%
30"	0.11%
36"	0.10%

5.7 Construction Tolerances

Vertical construction tolerances for pipe installation shall be one-tenth of a foot (0.10') per one hundred feet (100') of pipe or per manhole run, whichever horizontal distance is greater. Vertical construction tolerances for pipe installation shall be such that no reduction of required flow rate below ultimate peak flow results, and that the pipe slope does not fall below the minimum slope for the size of pipe used.

In circumstances where it may not be feasible or practical to place pipe at the minimum slope, the Contractor may increase the pipe size to the nearest pipe size that will provide an equal flow quantity at an acceptable slope or have continuous on-site surveying for the setting of each joint of pipe. This option must be approved by the Town prior to start of construction.

Horizontal construction tolerances shall be one foot (1.0'), plus or minus, from the design centerline of the pipe.

5.8 High-Velocity Protection

In the case of sewers where the slopes are such that over seven percent (7%) grades are attained, special provisions shall be made to prevent displacement by erosion and shock per detail WW-21. Such high-velocity protection shall be shown on the detail drawings and approved by the Town Engineer.

5.9 Relation to Water Mains

Sewers shall be located a minimum of ten feet (10') horizontally from existing or proposed Water Mains, and the sewer pipe shall be a minimum of eighteen inches (18") clear distance vertically below the Water Main. If this clear distance is not feasible, the crossing must be designed and constructed so as to protect the Water Main. Such crossings shall meet Colorado Department of Public Health and Environment (CDPHE) requirements and shall be approved by the Town.

Minimum protection shall consist of the installation of an impervious and structural sewer as follows:

- A. One length of pipe at least fourteen feet (14') long centered over or under the Water Main. For repairs, joints between the existing sewer pipe and the new sewer pipe shall be made with a manufactured adapter approved by the Town and made specifically for such joining.
- B. Existing concrete or vitrified clay pipe shall be protected with a fully-reinforced concrete encasement. Encasement shall be at least six inches (6") thick and extend a distance of ten feet (10') on either side of the Water Main.
- C. Deviations from standards require specific Town approval of the crossing. If an approved waiver includes less than an eighteen inch (18") vertical separation, an annular space shall be provided between the two (2) pipelines.

In all cases, suitable backfill or other structural protection shall be provided to preclude settling or failure of the higher pipe. Depending on pipe material, pier supports may be used.

5.10 Stub-outs from Manholes

Stub-outs from manholes are currently not allowed. However, they may be considered on a case by case basis.

5.11 Inverted Siphons

Inverted siphons are typically not allowed and will be evaluated on a case by case basis.

5.12 Stream and Drainage Channel Crossings

All stream and drainage channel crossings shall be ductile iron pipe encased in reinforced concrete. Crossings of proposed channel bottoms shall be supported by reinforced concrete caissons drilled a minimum of five feet (5') into impervious soil or twenty feet (20'), whichever is less per detail WW-22. In the absence of impervious soils, caissons shall extend twenty feet (20') below the invert of the sewer Main. A fifteen-foot (15') splash pan consisting of eighteen-inch (18") to twenty-four-inch (24") grouted rip-rap shall be placed downstream tapering from six feet (6') deep at the crossing to three feet (3') deep at the end to prevent erosion per detail WW-23. All stream and channel crossings shall be reviewed and approved by the Town Engineer.

5.13 Crossings Under Railways and Highways

Crossings under railways and highways shall be permitted through the appropriate regulatory agency/agencies and shall meet the most restrictive criteria for each. At a minimum, crossings under railways and highways will consist of pipe laid inside steel pipe conduits, which are jacked or placed by an approved method underneath the track or roadway. The steel conduit pipe shall be placed horizontally through the ground at substantially the grade of the sewer, with due allowance for the bells of the carrier pipe. As the pipe is moved along, the earth shall be excavated from the face and removed so that it will not be necessary to force the pipe through solid ground. The conduit shall be of the sizes shown on the plans. In any case, the conduit diameter shall be a minimum of twelve inches (12") larger than the carrier pipe. After the conduit has been completed, the carrier pipe shall be placed inside and blocked in exact position and grade with approved insulating skids. Each end of the conduit shall then be plugged tight around the ductile iron or steel carrier pipe and the conduit pipe.

5.14 Aerial Crossings

All aerial crossings are not typically allowed and will be evaluated on a case by case basis.

5.15 Metering Vaults

Metering vaults for the purpose of metering wastewater flows shall be prepared and submitted to the Town Engineer for review and approval. All metering vaults shall include, but not necessarily be limited to, the following:

- A. The Parshall Flume shall be installed as per the flume's Manufacturer's recommendations with the following criteria and standard detail as minimum guidelines to ensure the proper functioning of the flume:
 - Upstream pipe sections equal to a minimum of twenty-five (25) pipe diameters shall have a slope not less than that required by Section 5.6 of the Specifications without bends, drops, or flow junctions to ensure subcritical flow.

- The downstream pipe sections shall have slope greater than the upstream pipe to ensure supercritical flow.
 - The flume itself shall be grouted into the block out at zero percent (0.0%) slope, as shown on the standard detail.
 - The flume shall be made of corrosion-resistant materials and supplied with a Manufacturer's rate curve. Shop drawings shall be submitted to the Town Engineer for review and approval prior to installation.
- B. Concrete vault is typically required. A minimum six feet (6') I.D. manhole will be considered on a case by case basis.
- C. Flow measurement, totalizing, and recording devices.
- D. The metering vault shall have a suitable and safe means of access.
- E. Flow level sensor and transmitter if required. The flow sensor shall be of a non-intrusive type and shop drawings for the level sensor and transmitter shall be submitted to the Town Engineer for review and approval prior to installation.
- F. Manhole ventilation: The Town Engineer may require that the control manhole be vented if it is determined that it is needed to protect the monitoring equipment and ensure proper function of said equipment.

5.16 Pumping Facilities

Pumping facilities may be allowed on Mains in the Town Collection System only where specifically authorized by the Town. The Town will prohibit the installation of pumping facilities where, in its opinion, such installations would be injurious to the operation, or future operation of the Town's Wastewater Collection System.

All proposed pumping facilities shall be considered as a special feature and will be dealt with on an individual case basis. All proposed pumping stations and force Mains shall be approved by the State of Colorado.

A basis for design for all wastewater pumping stations shall have the following features:

- A. Wastewater pumping stations shall not be subject to damage by flooding. A suitable superstructure, located off the right-of-way of streets and alleys shall be provided and be readily accessible.
- B. Wastewater pump stations shall be of the dry well type.
- C. Wet and dry wells, including their superstructure, shall be completely separated.
- D. At least two (2) pumps must be provided. If only two (2) pumps are provided, they shall have the same capacity. Each shall be able to handle flows in excess of the expected maximum flow.
- E. Adequate ventilation shall be provided for all pump stations to mechanically ventilate the dry well. Wet well vents shall be provided. There shall be no interconnection between the dry well and the wet well ventilating systems.
- F. Liquid level controllers shall be located so as not to be affected by flows entering the station. In small stations with duplicate units, provisions shall be made to alternate the pumps in use.
- G. Pumping stations shall be equipped with suitable devices for measuring, recording, and totalizing sewage flow and power consumption.
- H. Power supply shall be available from at least two (2) independent generating sources, or emergency power equipment shall be provided. Automatic starting of emergency power equipment shall be provided.

- I. Alarm systems shall be provided for all pumping stations. The alarm shall activate in cases of pump station malfunction.
- J. On-site retention for all wastewater pumping stations shall be provided. The size and capacity of on-site retention will be determined by pump station size, distance from Wastewater Treatment Plant, and location of pump station site, etc.

5.17 Force Mains

All proposed pumping stations and force Mains shall be approved by the State of Colorado. Force Mains and all their appurtenances shall be designed and tested to conform to potable water line criteria and the following minimum requirements:

- A. *Velocity.* A design average flow velocity of at least two feet per second (2 FPS) shall be maintained.
- B. *Air-relief valves.* An automatic air-relief valve shall be placed at high points in the force Main to prevent air locking.
- C. *Termination.* The force Main should enter the gravity sewer system at a point not more than two feet (2') above the flow line of the receiving manhole.
- D. *Design pressure.* The force Main and fittings, including reaction blocking, shall be designed to withstand normal pressure and pressure surges (water hammer).
- E. *Design Friction Losses.* Friction losses through force Mains shall be based on the Hazen-Williams formula or other acceptable method. When initially installed, force Mains will have a significantly higher "c" factor. The higher "c" factor should be considered.
- F. *Separation from Water Mains.* The separation from Water Mains shall be the same as gravity sanitary sewer lines.
- G. *Identification.* Where force Mains are constructed of material which might cause the force Main to be confused with potable Water Mains, the force Main shall be appropriately identified.

5.18 Underdrain System

The Town does not allow for the installation of any underdrains.

SECTION 6.0 – WASTEWATER SYSTEM EXCAVATION & SITE STANDARDS

6.1 Earthwork Defined

Earthwork shall include all clearing, grubbing, grading, excavation, fill, backfill, excess excavation, bedding material, on-site material, and surface restoration as may be required to complete the work.

6.2 Traffic Control

Traffic control, signing, detours, and utilization of existing streets require approval by the controlling right-of-way authority, and conforming to the Manual on Uniform Traffic Control Devices standards. Contractors and/or Developers must obtain adequate permitting and approvals from the controlling agency.

6.3 Caution in Excavation

The Contractor shall proceed with caution in the excavation and preparation of the trench so that the exact location of underground utilities and structures, both known and unknown, may be determined. Contractor shall be held responsible for the repair of such structures when broken or otherwise damaged because of carelessness on contractor's part.

The Town cannot guarantee the accuracy of underground utilities and structures as shown on plans and will not be responsible for any damage that may occur during construction.

Whenever, in the opinion of the Town, it is necessary to explore and excavate to determine the location of underground utilities and structures that may interfere with construction, the Contractor shall make the explorations and excavations for such purposes.

6.4 Excavation to Line and Grade

All excavations shall be made to the lines and grades as established by the approved drawings and these Specifications. Pipe trenches shall be excavated to the depth required to provide a uniform and continuous bearing and support for the pipe on solid undisturbed ground at every point between bell holes. Bell holes shall be provided at each pipe joint to permit the joint to be made properly. Any part of the bottom of the trench excavated below the specified grade shall be corrected with approved material and thoroughly compacted as directed by the Town. The finished grade of the trench shall be prepared accurately by means of hand tools. Deviation from line and grade may be allowed when approved by the Town Engineer, in accordance with these Specifications.

6.5 Trenching and Excavation Operations

The trench shall be excavated in a manner which will allow the pipe to be installed to the alignment and depth required. The trench shall be excavated only so far in advance of the pipe laying as is necessary to expedite the work.

- A. *Trench width.* All existing asphalt or concrete surfacing shall be cut vertically in a straight line and removed from the job site prior to starting the trench excavation. This material shall not be used in any fill or backfill.

The trench shall be excavated so that a minimum clearance of six inches (6") shall be maintained on each side of the pipe for proper placement and densification of the bedding or backfill material. Ledge rock, boulders, and large stones shall be removed to provide a clearance of at least six inches (6") below and on each side of all pipe and fittings. The specified minimum clearances are the minimum clear distances that will be permitted between any part of the pipe and appurtenances being installed and any part, projection, or point of such rock, boulder, or stone.

The maximum bottom of trench width, measured at the top of the pipe, shall at a minimum conform with the wastewater standard trench detail regardless of the type of pipe, type of soil, depth of excavation, or the method of densifying the bedding and backfill.

Trenches may be of such extra width, when required, to permit necessary supports, sheeting or bracing, and handling of specials.

- B. *Trench support.* The trench shall be adequately supported and the safety of workers provided for, as required by the most recent standards adopted by OSHA Standards Board. Sheeting and shoring shall be utilized where required to prevent any excessive widening or sloughing of the trench, which may be detrimental to human safety, the pipe, appurtenances being installed, existing utilities, existing structures, or to any other existing facility or item.

Trench support is the sole responsibility of the Contractor. The Town Inspector's presence in no way implies approval of trench support methods being utilized. However, Town staff is required to report OSHA violations and/or injuries that take place on Town projects.

- C. *Excavated material.* Excavated material shall not be placed closer than two feet (2') from the top edge of the trench. Heavy equipment should not be used or placed near the sides of the trench unless the trench is adequately braced.

All excavated material shall be piled in a manner that will not endanger the work and that will avoid obstructing traffic. Hydrants under pressure, valve lid covers, valve boxes, or other utility controls shall be left unobstructed and accessible until the work is completed.

- D. *Excavation for structures.* Except as otherwise dictated by construction conditions, the excavation shall be of such dimensions as to allow for the proper installation and removal of concrete forms or precast structures, and to permit the construction of the necessary pipe connections. Care shall be taken to ensure that the excavation does not extend below established grades. If excavation is made below such grades, the resulting excess shall be filled in with approved material deposited in horizontal layers not more than six inches (6") in thickness after being compacted, as directed by the Town.
- E. *Excavation in poor soil.* If the bottom of the excavation at subgrade is found to be soft or unstable, or to include ashes, cinders, refuse, vegetable or other organic material, or large pieces or fragments of inorganic material that, in the opinion of the Inspector, cannot satisfactorily support the pipe or structure, then the Contractor shall further excavate and remove such unsuitable material to the width and depth specified by the Inspector.
- F. *Protection of existing structures and utilities.* Adequate protection, temporary support, and maintenance of all underground and surface structures, utilities, and other obstructions encountered in the progress of the work shall be furnished by the Contractor at his expense and under the direction of the Town. All structures, utilities, or obstructions disturbed or damaged shall be restored or replaced by the Contractor immediately unless the Town Engineer gives approval for delays in repairs or replacements. If delays are approved, all repairs and/or replacements must be completed prior to the completion of the project.

6.6 Blasting

In general, blasting will be allowed in order to expedite the work if a permit by the local authority having jurisdiction is granted and a copy presented to the Town. All explosives and appurtenances shall be transported, handled, stored, and used in accordance with the laws of the local, state, and federal governments, as applicable.

The contractor shall comply with all laws, ordinances, applicable safe code requirements, and regulations relative to the handling, storage and use of explosives and protection of life and property. The Contractor shall be responsible for all damage caused by blasting operations. Suitable methods

shall be employed to confine all materials lifted by blasting within the limits of the excavation or trench.”

Owners or occupants of nearby structures or facilities, within a minimum distance of five hundred feet (500'), must be notified in writing by the Contractor at least seventy-two (72) hours in advance of blasting. The notice shall state the date, the time of blasting, and who is responsible for the blasting. The Town shall be notified a minimum of seventy-two (72) hours in advance of any blasting.

Blasting shall be controlled to avoid making any excavation unduly large or irregular, and so as not to shatter the rock on the bottom or sides of any excavation or surface upon or against which concrete is to be placed. If, in the opinion of the Town, blasting is liable to damage rock foundations or supports, concrete, other utilities, or structures, all blasting shall be terminated and excavation shall be continued by jack-hammering, barring, wedging, or other methods.

6.7 Dewatering

All pipe trenches or structure excavation shall be kept free from water during pipe laying and other related work. The method of dewatering shall provide for a completely dry foundation at the final lines and grades of the excavation.

Dewatering shall require a construction dewatering permit from the CDPHE.

Dewatering shall be accomplished by the use of well points, sump pumps, rock or gravel drains placed below subgrade foundations, or subsurface pipe drains. All water shall be disposed of in a suitable manner without being a menace to public health or causing public inconvenience. The dewatering operation shall continue until such time as it is safe to allow the water table to rise in the excavations. Pipe trenches shall contain enough backfill to prevent pipe flotation. When pipe is installed in a casing or tunnel longer than thirty (30) pipe diameters, the pipe inside and casing or tunnel shall be secured so flotation does not occur when the pipe is empty.

Water shall not be allowed to rise until any concrete has set and the forms have been removed. Water shall not be allowed to rise unequally against unsupported structural walls.

6.8 Pipe Bedding

It is expected that the trench excavation will provide suitable bedding and backfill material. Wet, soft, or frozen material, asphalt and concrete chunks, cinder ashes, refuse, vegetable or organic material, boulders, rocks, or other deleterious substances shall not be used for bedding or backfill.

If the excavated material is not suitable for bedding or backfill as determined by the Inspector, suitable material shall be hauled in and utilized, and the rejected material hauled away and disposed.

Six inches (6") of squeegee or ¾" crushed rock shall be placed on the trench bottom for support under the pipe and compacted. Squeegee or ¾" crushed rock are the only materials to be used for pipe bedding, no native is allowed for pipe bedding.

Bell holes shall be dug deep enough to provide a minimum of two inches (2") of clearance between bell and bedding material. All pipe shall be installed in such a manner as to ensure full support of the pipe barrel over its entire length. After the pipe is adjusted for line and grade and the joint is made, bedding material (squeegee sand) shall be carefully placed and tamped under the haunches of the pipe and in the previously-dug bell holes.

"Tamping" is herein defined as the act of placing approved bedding material under the haunches of pipe, paying particular attention to voids, bell holes, and sling holes. The purpose of tamping is to ensure uniform support for the pipe.

- A. *Pipes.* Unless select bedding material is required, all pipelines shall be bedded by hand, from the bottom of the trench to the centerline of the pipe, with sand, gravel, or other approved material

placed in layers of three inches (3") and compacted. Bedding material shall be deposited in the trench for its full width on each side of the pipe, fittings, and appurtenances simultaneously.

The pipe shall be bedded by approved mechanical methods from the centerline of the pipe, fittings, and appurtenances to a depth of twelve inches (12") above the top of the pipe. Special care shall be used in placing this portion of bedding so as to avoid disturbing the pipe.

PVC pipe shall be installed in accordance with ASTM D2321 and the Manufacturer's recommendations, unless otherwise specified herein.

DIP pipe shall be installed in accordance with AWWA C600-23 and the Manufacturer's recommendations, unless otherwise specified herein.

The trench shall be backfilled by approved mechanical methods from twelve inches (12") above the pipe to the grade shown on the plans or specified herein.

- B. *Structures.* Backfill and fill within three feet (3') adjacent to all structures and for full height of the walls shall be selected, non-swelling material. It shall be relatively impervious, well graded, and free from stones larger than one and one half inches (1 1/2"). Material may be job excavated, but selectivity will be required. No backfilling will be allowed in freezing weather except by permission of the Town. No additional backfill will be allowed over any frozen material already in the trench.

6.9 Select Bedding Material

When indicated on the plans or drawings or when, in the opinion of the Inspector, select bedding material is required, preparation and installation shall be as follows:

- A. *Installation of bedding and pipe.* After completion of the trench excavation and proper preparation of the foundation, six inches (6") of bedding material shall be placed on the trench bottom for support under the pipe and compacted. Bell holes shall be dug deep enough to provide a minimum of two inches (2") of clearance between the bell and bedding material.

All pipe shall be installed in such a manner as to ensure full support of the pipe barrel over its entire length. After the pipe is adjusted for line and grade, and the joint is made, the bedding material shall be carefully placed and tamped under the haunches of the pipe and in the previously-dug bell holes.

If approved by the Town, fines from the trench wall and soil pile may be used to provide uniform support for the pipe. No rock or stone larger than allowed by the sieve analysis, or any other detrimental substance, shall be placed closer to the pipe than six inches (6"). The Town reserves the right to require the use of select bedding material at any time.

For ductile iron and polyvinyl chloride pipe, the limits of bedding shall be from six inches (6") below the bottom of the pipe to twelve inches (12") above the top of the pipe.

- B. *Bedding material.* Bedding material shall be a clean squeegee sand, free of corrosive properties, and shall conform to the following gradation limits when tested by means of laboratory sieves:

Squeegee Sand

Sieve Size	Total Percent Passing by Weight
3/8 inch	100
No. 200	– 5

- C. *Foundation material.* Foundation material shall be uniformly graded, washed rock conforming to the sieve analysis below. A minimum of twelve inches (12") of foundation material shall be placed below the pipe to the trench bottom.

Foundation Material

Sieve Size	Total Percent Passing by Weight
2 inch	95 – 100
1/2 inch	10 – 30
#4	0 – 5

- D. *Flowable fill*. On a case-by-case basis and at the Town's option, utility trench backfill meeting the requirements in the table below may be used in lieu of native backfilling in any excavation, regardless of width or depth. Concrete-slurry type, full-depth backfill will not be allowed within the public right-of-way. Compaction and testing of utility trench backfill will not be required if material meeting the following specification is used:

Flowable Fill

Ingredient	lb./cubic yard
Cement	42 (0.47 sack)
Water	325 (43 gallons or as needed)
Coarse Aggregate (Size # 57)	1,700
Sand (ASTM C-33)	1,845

6.10 Backfill and Compaction

No section of Wastewater Main, Wastewater Main appurtenance, or Wastewater Main structure shall be backfilled until the Inspector has examined and approved that section of the installation. Backfill is defined as the material placed from twelve inches (12") above the pipe to grade. **All backfill and compaction within the public right-of-way shall be in conformance with the excavation permit granted by the Town Engineer or the controlling authority. All backfill and compaction must also be in compliance with the geotechnical report.**

Satisfactory compaction reports shall be submitted to the controlling authority prior to the completion of the project. The controlling authority (city, county, state) shall specify the exact number and locations of tests required. Railroad, airport, and other private or special situations will require investigation and research to determine exact requirements and regulations.

All water required for backfill and compaction operations can be furnished from a designated fire hydrant near the project. The Contractor will be charged in accordance with the current cost for construction water. However, the Contractor will be responsible for furnishing all required personnel, valving, hose and other equipment needed to deliver the water to the desired location on the project. The Town will designate the fire hydrant to be used and must be notified when water is required.

6.11 Cleanup

Upon completion of the work, all rubbish, unused materials, concrete forms, and other like materials shall be removed from the job site. All excess excavation shall be disposed of as specified and the areas shall be left in a state of order and cleanliness. Contractor shall be responsible for cleaning the streets after equipment is moved out of the job site.

6.12 Surface Restoration and Maintenance

- A. *Surfaced areas.* The Contractor shall obtain the necessary permits and remove pavement and road surfaces as part of the trench excavation. As a minimum, cuts in a public right-of-way shall be required to be restored per the conditions of the excavation permit issued by the Town Engineer or the controlling authority. The Contractor shall restore all pavement, sidewalks, curbing, gutters, or other surface structures removed or disturbed as part of the work to a condition meeting the standards of the governing authority, and shall furnish all incidental labor and materials.
- B. *Unsurfaced areas.* All surface areas' cuts shall be restored to a condition equal to that prior to construction.
- C. *Damaged surfaces and property.* If any pavement, street, shrubbery, sod, rock, fences, poles, or other property and surface structures have been damaged, removed, or disturbed by the Contractor (whether deliberately or through failure to carry out the requirements of the controlling agency or the specific directions of the Town, or through failure to employ usual and reasonable safeguards), such property and surface structures shall be replaced or repaired, to the original condition, at the expense of the Contractor.

SECTION 7.0 – WASTEWATER SYSTEM PIPE-LAYING STANDARDS

7.1 Handling of Materials

Pipe and fittings shall be loaded and unloaded by lifting so as to avoid shock or damage. Under no circumstances shall such material be dropped. If, however, any part of the coating or lining is damaged, the replacement or repair of the damaged pipe shall be done to the satisfaction of the Town at the expense of the Contractor. Any pipe or fittings that are not acceptable to the Town shall be removed from the job site immediately. All pipe-handling equipment and pipe-handling methods shall be approved by the Town in conjunction with the methods and equipment recommended by the Manufacturer.

7.2 Inspection and Preparation of Pipe and Fittings

Before placing pipe in the trench, each pipe or fitting shall be thoroughly cleaned of all foreign material, kept clean at all times thereafter, and carefully examined for cracks and other defects before installation. Bell ends and spigot ends are to be examined with particular care. Defective pipe or fittings shall be laid aside for inspection by the Inspector who will prescribe corrective repairs or rejection.

All lumps, blisters, and excess coatings shall be removed from the bell-and-spigot end of each pipe and fitting, and the outside of the spigot and the inside of the bell shall be wire brushed and wiped clean, dry, and free from oil and grease before the pipe or fitting is installed. Dirt and any other material must be removed from the barrel of the pipe before installation.

7.3 Cutting and Fitting of Pipe

Pipe shall be cut, whenever necessary, to conform to location of fittings, line, or grade. All cuts shall be straight and true, and in a workmanlike manner so as to leave a smooth end without damaging the pipe or its cement lining. All burrs shall be removed from the ends of cut pipe, and the end lightly rasped or filed. All tools used in cutting pipe shall be approved by the Town.

7.3.1 Pipe Joint Lubrication

Joint lubricant shall be supplied by the pipe Manufacturer and approved by the Town. Joint lubricant shall be non-toxic and water soluble.

7.3.2 Pipe Alignment and Grade

In laying pipe, the intent is to lay to set line and grade. Fittings and manholes shall be installed at staked locations and elevations.

When laying pipe on curves, the intent is to lay to the staked alignment. The pipe shall be kept in alignment by placing all deflecting joints or bends on the curve. Short lengths shall be used as necessary to accomplish the curvature without exceeding individual deflections specified. The maximum deflection at any joint shall not exceed one-half (1/2) of the Manufacturer's recommendation.

The Engineer may use eleven-and-one-fourth-degree (11.25°) bends on a case-by-case basis as approved by the Town. These bends shall be shown on the design plans and staked in the field. At no time shall eleven-and-one-fourth-degree (11.25°) bends be used to reduce the radius below the minimum of one hundred feet (100').

Any changes in alignment and grade must be authorized by the Inspector and shall be approved by the Town. Pipe shall be laid up grade with the bell ends facing in the direction of laying, unless directed otherwise by the Town. Where pipe is to be installed on a grade of ten percent

(10%) or greater, the laying shall start at the bottom and shall proceed upward with the bell ends of the pipe up grade.

7.3.3 Temporary Bulkheads

Whenever the pipe is left unattended, temporary plugs shall be installed at all openings to isolate existing pipelines from new construction until accepted by the Town. Temporary plugs shall be of such design as to prevent water, debris, children, and animals from entering the pipe. All temporary plugs shall be provided by the Contractor and approved by the Inspector.

7.3.4 Frost

No pipe or appurtenant structure shall be installed upon a foundation into which frost has penetrated, or at any time when the Inspector deems there is danger of ice formation or frost penetration at the bottom of the excavation. No pipe or appurtenant structure shall be installed unless backfilling can be completed before the formation of ice and frost.

7.3.5 Lowering of Material into the Trench

Proper implements, tools, and facilities satisfactory to the Town shall be provided and used by the Contractor for the safe and convenient performance of the work. All pipe, fittings, and manholes shall be carefully lowered into the trench piece by piece, by means of a derrick, ropes, or other suitable tools or equipment, in such a manner as to prevent damage to Wastewater Main materials and their protective coatings and linings. Under no circumstances shall Wastewater Main materials be dropped or dumped into the trench.

If damage occurs to any pipe, fitting, manhole, or Wastewater Main accessories in handling, the damage shall be immediately brought to the attention of the Inspector. The Inspector shall prescribe corrective repairs or rejection of the damaged items at the Contractor's expense.

7.4 Laying of Pipe

All pipe-laying methods shall conform to the Manufacturer's recommendations for laying pipe. Every precaution shall be taken to prevent foreign material from entering the pipe while it is being placed in the line. If the pipe-laying crew cannot put the pipe into the trench and in place without getting earth into it, the Inspector may require that, before lowering the pipe into the trench, the pipe be sealed on both ends to prevent dirt and debris from entering. .

As each length of pipe is placed in the trench, the spigot end shall be centered in the bell and the pipe forced home with a slow, steady pressure, without jerking or jolting movements, and brought to correct line and grade. The pipe shall be secured in place with approved backfill material tamped under it except at the bells. Precautions shall be taken to prevent dirt from entering the joint space. No wooden blocking shall be left at any point under the pipeline.

No pipe shall be laid when, in the opinion of the Town, trench conditions are unsuitable.

7.5 Ductile Iron Pipe

- A. DIP may be used for wastewater lines through thirty inches (30").
- B. Shall meet requirements of AWWA Standard C151.
- C. Pipe class shall be a minimum of CI 350 for all sizes, unless otherwise specified on the approved drawings.
- D. Joints shall be "push-on single gasket" type meeting requirements of AWWA Standard C111.

- E. Cement-mortar lining shall be provided meeting the requirements of AWWA Standard C104.
- F. If not delineated on the approved plans, all ductile iron pipe shall have cathodic protection using double No. 6 wire bonding with seventeen pound (17 lb.) anodes every four hundred feet (400') and nine pound (9 lb.) anodes on each fitting.
- G. Pipe shall be poly wrapped with V-Bio Polyethylene Encasement or approved equal.

Push-on joint. Immediately before two (2) lengths of ductile iron pipe, the inside of the bell, outside of the spigot end, and the rubber gasket shall be thoroughly cleaned to remove oil, grit, excess coating, and other foreign mater. The rubber shall be flexed inward and inserted in the gasket recess of the bell socket. Since different manufactured brands of pipe require different types of gaskets, the Contractor shall exercise caution to ensure that the correct type of gasket is used.

A thin film of approved gasket lubricant shall be applied to either the inside face of the gasket, the spigot end of the pipe, or both.

The spigot end of the pipe shall be placed in the bell end with care to prevent the joint from contacting the ground. Pipe furnished without a depth mark on the spigot end shall be marked before assembly to ensure insertion to fill depth of the joint. The pipe shall be kept in straight alignment and the joint shall be completed by pushing the pipe home with slow, steady pressure without jerking or jolting movements, by using a forked tool, jack-type tool, or other device approved by the Town Engineer. If pipe is pushed home with a backhoe bucket, a wooden shield must be placed between the backhoe bucket and the end of the pipe. The spigot end of field-cut pipe lengths shall be filed or ground to resemble the spigot end of such pipe as manufactured.

<u>Bolt Size</u>	<u>Ft. Lbs.</u>
5/8"	40-60
3/4"	75-90
1"	85-100
1-1/4"	105-120

Nuts spaced one hundred and eighty degrees (180°) apart shall be tightened alternately in order to produce equal pressure on all parts of the gland.

7.6 Polyvinyl Chloride Pipe

Upon completion of joining push-on joint pipe, an inspection shall be made to assure that the gasket is correctly aligned in the gasket recess of the bell socket and not twisted or turned.

When laying pipe on curves, the intent is to lay to the staked alignment. The pipe shall be kept in alignment by placing all deflecting joints or bends on the curve. Short lengths shall be used as necessary to accomplish the curvature without exceeding individual deflections specified. The maximum deflection at any joint shall not exceed one-half (1/2) of the Manufacturer's recommendation.

- A. *Elastomeric gasket joint.* Immediately before joining two (2) lengths of PVC pipe, the inside of the bell or coupling, the outside of the spigot, and the elastomeric gasket shall be thoroughly cleaned to remove all foreign material.

Lubrication of the joint and rubber gasket shall be done in accordance with the pipe Manufacturer's specifications.

Care shall be taken that only the correct elastomeric gasket, compatible with the annular groove of the bell, is used. Insertion of the elastomeric gasket in the annular groove of the bell or coupling must be in accordance with the Manufacturer's recommendations. Pipe that is not furnished with a depth mark shall be marked before assembly to ensure that the spigot end is inserted to the full depth of the joint.

The spigot and bell or coupling shall be aligned and pushed until the reference line of the spigot is flush with the end of the bell or coupling. Pushing shall be done in a smooth, steady motion. Upon completion of joining the pipe, an inspection shall be made to ensure that the gasket is correctly aligned in the gasket recess of the bell socket and not twisted or turned.

- B. *Pipe storage.* Pipe stored outside and exposed to sunlight for more than thirty (30) days shall be covered with an opaque material such as canvas. Clear plastic sheets shall not be used to cover pipe. Air circulation shall be provided under the covering.
- C. *Handling of pipe in cold weather.* PVC pipe has reduced flexibility and impact resistance as temperatures approach and drop below freezing. Extra care should be used in handling and installing PVC pipe during cold weather.

7.7 Manholes

Manholes shall be precast and shall be constructed in accordance with these Specifications. Precast manholes shall be made **watertight** after installation or construction by use of approved methods. All manholes are to be eccentric. Manhole steps shall PFS-1-DF double face straight leg, and meet OSHA ratings for clear width, rung spacing, toe clearance. All dimensions, locations, and elevations shall be determined by the Engineer or the Developer's Engineer and meet the requirements of the Town.

All manholes shall be constructed to meet H.S. 20-44 traffic loading conditions and three hundred pounds per square foot (300 PSF) surcharge load.

Tracer wire coming into manholes shall have a two-foot (2') hanging length inside the manhole.

The Town may require installation of a precast manhole base when weather or field conditions warrant.

For cast-in-place manhole bases on existing pipe, a gasket must be installed on all existing pipe penetrations within the outside extents of the cast-in-place base.

The base shall be placed on compacted or undisturbed earth.

Eight-inch (8") adjustment rings are to be set on top of eccentric cone as required to reach final grade and shall be grouted.

All joints, manhole rings, adjustment rings, and cones shall be made watertight by installation of Ram-Nek or approved equal material in the joint. Grouting shall be applied to any voids or gaps prior to placing manhole into service.

Barrels shall be wrapped with RU116 - RUBR-NEK External Joint Wrap (or approved equal) and coated.

The manhole ring shall be set on the cone on a full ring of Ram-Nek.

7.8 Bridging and Encasement of Pipe

Under certain conditions, when the Wastewater Main is to be installed over or under an existing or proposed utility or structure, the Town may require bridging or encasement of the proposed wastewater pipe.

If, in the opinion of the Town Engineer, there exists the possibility of settlement of the pipe being installed over an existing utility or structure, then bridging of the pipe shall become necessary. This condition shall also apply to other underground utilities or structures being installed over existing Wastewater Mains. The Town Engineer shall determine the size and location of the concrete bridging.

Under certain conditions, the Town may require complete encasement of Wastewater Mains with concrete. The Town Engineer shall determine the size, length, and location of these encasements.

7.9 Encasement or Sleeve Pipe

Wherever it is necessary to provide an encasement or sleeve for the Wastewater Main, the Wastewater Main shall not be inserted into the encasement or sleeve pipe without providing insulating skids for each joint of the Wastewater Main. Insulating skids shall be of a type such as the "PSI custom pull on (Model C)" or approved equal. Skids shall ensure that the pipe does not move in high groundwater conditions due to buoyancy.

Encasement pipes shall be protected both inside and out with corrosion-resistant materials having a bituminous base and/or shall include cathodic protection. Encasement or sleeve pipe size, length, type, and sidewall thickness will be determined by the Town.

7.10 Corrosion Protection Systems

The determination of the corrosiveness of the soil through which a Wastewater Main passes and the need for protection will be made and determined by the Town. If metal pipe is required to be used, it must be protected against corrosion. All required corrosion protection shall be provided by the Contractor and the material shall be made up of all or part of the following:

- A. *Polyethylene encasement material.* The pipe, fittings, and appurtenances shall be wrapped in polyethylene, in accordance with Standard Drawing WW-12 Polyethylene material, and shall conform to page MS-04 of the materials specifications.
- B. *Coatings.* Metal pipe and other appurtenances may require protective, corrosion-resistant coating. The following are approved for exterior use only:
 - Roskote A-51 Mastic
 - American Blackline Product #101 – Non-Fibrous Roof Coat
 - Asphaltic Base Roofing Tar

Coatings must be of a consistency that is applicable by brush and cannot contain asbestos fiber. In all cases, the Contractor must provide the Inspector an MSDS on the product to be used prior to application.

- C. *Bonding joints.* All pipelines that require protection will be bonded at every joint and/or coupling. Bonding shall be accomplished by thermo-welding straps or wire across each joint or coupling. The Contractor shall furnish all material required for bonding.
- D. *Anodes.* Installation of seventeen pound (17 lb) magnesium anodes may be required for additional protection to the pipeline. All anodes shall be furnished and installed by the Contractor in conformance with these Specifications.
- E. *Test stations.* Required electrolysis test stations will be provided and it shall be the Contractor's responsibility to install the test station.
- F. *Dissimilar materials.* Cathodic protection and insulation shall be installed as required by the Town. Particular care shall be taken to insulate between dissimilar materials.

- G. *Insulating joints.* Whenever it is necessary to join pipe of dissimilar metal, or when designated by the Town, a method of insulating against the passage of electrical current, approved by the Town Engineer, shall be provided. Special care shall be exercised during the installation of these joints to prevent electrical conductivity across the joints.
- H. *Polyethylene encasement material.* Whenever designated by the Town, the metallic pipe and all appurtenances shall be wrapped in polyethylene. The polyethylene encasement shall prevent contact between the pipe and bedding material, but is not intended to be a completely air-tight and watertight enclosure.

Prolonged exposure to sunlight will eventually deteriorate polyethylene film. Exposure to sunlight shall be kept to a minimum.

The polyethylene shall have a minimum thickness of eight (8) mils and conform to the Materials Specification in MS-13 from AWWA C105.

A two-inch (2") wide, ten (10) mil thickness polyethylene pressure-sensitive tape shall be used to close seams, secure to pipe, or hold overlaps.

Damage to polyethylene-wrapped pipe in the trench prior to and during backfill shall be repaired to the satisfaction of the Town.

- I. *Insulating from concrete.* Areas of metal pipe and appurtenances which are to be in contact with concrete-bridging blocks or encasement shall be protected against corrosion prior to installing concrete. The following types of protection systems are acceptable:

1. Application of a cold-applied coating.
2. Application of a cold-applied primer and corrosion-resistant pipe wrap with a minimum fifty percent (50%) overlap similar to the primer and pipe wrap manufactured by the Protecto Wrap Company (or approved equal).

Other proposed protection systems may be accepted following review and approval of the Town and the Town Engineer.

7.11 Cleaning

Prior to acceptance of each section of sewer Main (from manhole to manhole), the Contractor shall, at Contractor's expense, jet rod and/or vac each section. Larger sewers shall be cleaned by other appropriate methods approved by the Inspector. All dirt and debris shall be prevented from entering the active sewer system by means of watertight plugs or other methods approved by the Inspector. Each section of sewer Main shall be video inspected prior to acceptance by the Town.

7.12 Compaction Tests

Compaction tests at the expense of the Contractor shall be conducted by an independent testing laboratory, see Section 5 of these Specifications. One test shall be conducted for each manhole run, each manhole or structure, or every four hundred feet (400'), whichever is greater, or as required by the controlling agency. Copies of each compaction test report will be given to the Inspector prior to approval.

7.13 Infiltration and Exfiltration Tests

Infiltration and exfiltration tests conducted by and at the expense of the Contractor shall be performed on 100% of the project.

The allowable infiltration or exfiltration rate shall not exceed fifty (50) gallons per inch of diameter per mile of pipe, per day **to include manholes.**

Air Tests. The Contractor shall perform these tests with suitable equipment specifically designed for air testing sewers. A suitable gauge shall be used for readings not to exceed 15 PSI maximum reading. The gauge shall be located at the surface.

The air test shall be made when the sewer is clean. The pipe, or section of pipe to be tested, may be wetted before the air test. The line shall be plugged at each manhole with pneumatic balls. Low-pressure air shall be introduced into the plugged line until the internal air pressure reaches four (2.0) PSIG greater than the average back pressure of any ground water pressure that may submerge the pipe. At least two (2) minutes shall be allowed for the air temperature to stabilize before readings are taken and the tuning is started.

The portion of Main (including stubs) being tested shall pass if it does not lose air at a rate to cause the pressure to drop from three and six-tenths (3.6) to three (3.0) PSIG (greater than the average back pressure of ground water that may submerge the pipe) in less time than listed below:

PIPE DIAMETER (inches)	MINIMUM ALLOWABLE TIME
	(Minutes & Seconds) 3.6 – 3.0 PSIG Pressure
4	0-50
6	1-10
8	1-40
10	2-00
12	2-20
15	3-00
18	3-40
21	4-10
24	4-50

If the installation fails this test, the testing equipment shall be used to determine the location of the pipe leak. All service plugs shall be secured in place to prevent displacement during testing operations.

If results of these tests are not satisfactory, the Contractor, at his expense, will make the necessary repairs or pipe replacement until the Inspector is satisfied that the leakage requirements are being met.

7.14 Deflection Test

Flexible conduits shall be tested by the Inspector. Representative samples will be tested to ensure initial deflection does not exceed pipe manufacturer's recommendations.

Failure of representative sections to pass the deflection limits will result in additional sections being tested at the discretion of the Inspector.

If the results of this test are not satisfactory, the Contractor at his expense will make the necessary repairs or pipe replacement until the Inspector is satisfied that the deflection requirements are being met.

7.15 TV Inspection

At the expense of the Contractor, the Town Inspector shall inspect by closed circuit television, all new public Mains for deficiencies prior to any service connections being made.

The Town Inspector may require that the Contractor add water to the pipeline prior to TV inspection to help identify deficiencies.

All deficiencies found during the TV inspection shall be promptly corrected by the Contractor in accordance with these rules.

An electronic copy of the CCTV inspection shall be made available to the Town upon completion.

7.16 Vacuum Testing for Concrete Sewer Manholes

All manholes shall be vacuum tested, at the expense of the contractor, with Town staff present prior to CCTV inspection.

This test method covers procedures for testing precast concrete manhole sections (and other manholes, existing or in-situ) when using the vacuum test method to demonstrate the integrity of the installed materials and the construction procedures.

This test method is used for testing concrete manhole sections utilizing mortar, mastic, or gasketed joints. This test method is intended to be used as a preliminary test to enable the installer to demonstrate the condition of the concrete manhole.

Contractor must follow OSHA requirements for confined spaces.

Contractor must use his own equipment, or subcontract, for vacuum testing.

Each manhole shall be vacuum tested after backfilling.

- A. All lift holes and any pipes entering the manhole are to be plugged and sealed. A vacuum will be drawn and the vacuum drop over a specified time period is used to determine the acceptability of the manhole (reference D and E below).
- B. The values recorded are applicable only to the manhole being tested and at the time of testing, and the recorded information, reported on the *Vacuum Testing Result* form, at the end of this section.
- C. Preparation of the Manhole
 - 1. Care shall be taken to affect a seal between the vacuum base and the manhole rim. Pipe plugs shall be secured to prevent movement while the vacuum is drawn.
 - 2. All pipes entering the manhole shall be temporally plugged, taking care to securely brace the pipes and plugs to prevent them from being drawn into the manhole.
- D. Typical Field Test Procedure
 - 1. The test head gauge shall be placed at the top of the manhole or in accordance with the Manufacturer's recommendations.
 - 2. A vacuum of ten (10) in. of mercury shall be drawn on the manhole, the valve on the vacuum line of the test head closed, and the vacuum pump shut off. The time shall be measured for the vacuum to drop to nine (9) in. of mercury.
 - 3. The manhole shall pass if the time for the vacuum reading to drop from ten (10) in. of mercury to nine (9) in. of mercury meets or exceeds the values indicated in the table below.
 - 4. If the manhole fails the initial test, necessary repairs shall be made by a submitted, approved method to the Town Inspector. The manhole shall then be retested until a satisfactory test is obtained.

Town of Paonia
Manhole Vacuum Test Log 2025

Inspected By: _____ Location: _____
Date: _____ Contractor: _____

5-Foot I.D.	➤ 75 Seconds
-------------	--------------

6-Foot I.D.	➤ 90 Seconds
7-Foot I.D.	➤ 105 Seconds
8-Foot I.D.	➤ 120 Seconds
10-Foot I.D.	➤ 150 Seconds

- E. Minimum test time for all manholes is 60 seconds. Greater lengths of time shall be at the discretion of the Inspector.

7.17 Manhole Rim Elevations

All manholes constructed shall have rim elevations set at final street, trail, or sidewalk grades, except in non-traffic areas where the rims shall be set at six inches (6") above the existing ground. Following the construction of curb and gutter in new streets or completion of manholes in streets with existing curb and gutter, the Engineer will measure and certify all manhole rim elevations for proper grade. At no time shall the total of grade adjustment rings exceed eight inches (8"). Any manhole rims that do not meet the following policy for manhole adjustment will be promptly adjusted, except within state and federal jurisdiction or rights-of-way.

- A. *Responsibility.* The applicant requesting approval for extension of Wastewater Collection Lines shall be responsible for assuring sanitary sewer manholes are adjusted to final paving grade and are cleaned of dirt and construction debris. The applicant shall also ensure that:
 1. Such work is completed within the time periods noted below.
 2. All work is completed in compliance with these Specifications and all Town requirements.
 3. Such work has been inspected by the Town.
 4. Such work will be free of mechanics liens, judgment liens, or other valid and enforceable liens.
- B. *Required adjustments.* Manhole adjustments and cleaning must be completed within sixty (60) days following placement of paving. If street paving is not completed or manholes are not adjusted within one (1) year of the preliminary acceptance date, the Town will extend the warranty period for one (1) additional year during which manhole adjustments must be completed as indicated above.
- C. *Location of manholes to be adjusted.* The Town will attempt to provide surface location of manholes requiring adjustment within two (2) working days of request for location.
- D. *Opening and entry permit and inspection.* The person, contractor, or corporation performing the adjustment work must apply for a manhole opening and entry permit two (2) working days prior to beginning work and must notify the Inspector designated on the permit when the work is ready for inspection. The designated Inspector will perform the inspection within two (2) working days of the request for inspection and will provide the permittee a notice of acceptance or rejection of the work. Correction of rejected terms must be completed within the time frame noted by the Inspector.
- E. *Failure to perform adjustments.* Failure of the applicant for Wastewater Collection extension to adjust the manholes in accordance with the requirements of this policy will result in the Town exercising any combination of the following rights:
 - i. Withholding approval of additional connection permits within the project area
 - ii. Extension of the warranty period until adjustments are completed
 - iii. Performing the necessary manhole adjustments and cleaning work by contract or with Town personnel and billing the expense plus administration, legal, overhead and other applicable expenses to the applicant

7.18 Service Line Inspection

Service stubs and building sewer lines shall not be backfilled until approval is given by the Town Inspector. Any deficiencies noted by the Inspector shall be corrected by the Contractor prior to calling for reinspection. The Contractor and builder or Developer will be notified in writing by the Inspector of all deficiencies requiring correction.

After approval is given for Service Stubs or building sewers, the Contractor shall commence backfilling in accordance with these Specifications, as soon as practical.

SECTION 8.0 – WASTEWATER SERVICE STANDARDS

8.1 Wastewater Taps

Single saddle tap allowed on existing Mains. Multiple saddle taps on existing Mains are discouraged and must be reviewed and approved by the Town on a case by case basis. No wastewater taps shall be made unless property corners are clearly marked so measurements of taps can be made at the time of tapping. All four-inch (4") Wastewater Service Lines must be connected to Main and are not allowed to tie into manholes. Taps shall enter the existing main at the 12 O'clock position. Services larger than four inches (4") must be reviewed and approved by the Town's Engineer.

8.2 Excavations

Excavation of the tapping hole is the responsibility of the plumber or pipeline Contractor. Installations and excavations must be performed by the Town or supervised or approved by Town staff.

8.3 Abandoning Existing Connections

Where an existing Wastewater Service is to be abandoned, the owner of the property shall be totally responsible for expenses. The Contractor shall expose the connection to be abandoned two feet (2') inside the property line unless otherwise specified by the Town. Services found to be unacceptable shall be capped at the public Main. The Town shall inspect the work prior to backfilling of the excavation. If a service stub-out is over five (5) years old, the Town can elect to have it removed and abandoned in place at the expense of the landowner.

8.4 Individual Service Pumps

Where conditions require external installation of individual pumps to service a structure, the Contractor shall submit a set of shop drawings detailing the installation for review and approval by the Town, and shall include:

- A. A site map showing the location of all the facilities to be installed including the location of the tap to the public Wastewater Main.
- B. Equipment to be installed, including the number and type of pumps, controls, alarms, and valves.

8.5 Wastewater Service Line Ditches

Wastewater Service Line ditches must enter lots as close to ninety degrees (90°) to the street as is practical and not at an extreme angle unless otherwise approved. Standard location for the Service Line is center of lot unless in a hillside overlay zone and/or approved by the Town.

8.6 Inline Wye

Wastewater Service Lines shall be constructed with an approved Wastewater Service inline wye.

8.7 Installation Method

All Wastewater Service Lines shall be installed using the same methods as the public Main.

8.8 Slope

Wastewater Service Lines shall be installed at the following minimum slopes:

4" PVC	2.08% or 1/4" per foot
4" Ductile Iron	1.04% or 1/8" per foot
6" Pipe	1.04% or 1/8" per foot

8.9 Alignment

Changes in alignment for Service Lines shall be accomplished with preformed bends not to exceed forty-five degrees (45°). When changes in direction exceed forty-five degrees (45°), a two-foot (2') section of pipe shall separate the fittings necessary to make the needed change of direction. All services shall be extended ten feet (10') inside the property line or easement line, and be marked with a two-by-four (2 x 4) post.

8.10 Cleanouts

All Wastewater Service Lines shall have dual cleanouts at each bend, five feet (5') away from the foundation and every one hundred feet (100'). All cleanouts shall be constructed with standard fittings and have a screw cap located at the ground or paving surface.

8.11 Connecting Clamps

All Wastewater Service Line-connecting clamps shall have the "UPC" designation and be made for the pipeline materials used.

8.12 Repair and Replacement of Existing Service Lines

8.12.1 Responsibility

The property owner is responsible for the repair and maintenance of the Wastewater Service Line from the house or other building to the public main.

Plumbing or pipeline Contractor's responsibility. The plumbing or pipeline Contractor shall make the necessary excavations, barricade all excavations in accordance with the barricading instructions of the governing body, make the necessary repairs, and contact the Town for inspection.

8.12.2 Surface Restoration and Maintenance

- A. *Surfaced areas.* The Contractor shall obtain the necessary permits and remove pavement and road surfaces as part of the trench excavation. **At a minimum, cuts in a public right-of-way shall be required to be restored per the conditions of the excavation permit issued by the controlling authority.**

The Contractor shall restore all pavement, sidewalks, curbing, gutters, or other surface structures removed or disturbed as part of the work to a condition meeting the standards of the governing authority, and shall furnish all incidental labor and materials.

- B. *Unsurfaced areas.* All surface cuts shall be restored to a condition equal to that prior to construction and meet vegetation requirements per the Stormwater Management Plan.
- C. *Damaged surfaces and property.* If any pavement, street, shrubbery, sod, rock, fences, poles, or other property and surface structures have been damaged, removed, or disturbed by the Contractor (whether deliberately or through failure to carry out the requirements of the controlling agency or the specific directions of the Town, or through failure to employ usual and reasonable safeguards), such property and surface structures shall be replaced or repaired to the original condition, at the expense of the Contractor.

SECTION 9.0 – WASTEWATER SYSTEM MATERIALS STANDARDS

9.1 Polyvinyl Chloride Pipe and HDPE Pipe – 4-inch Through 24-inch Diameter

General. All polyvinyl pipe shall be manufactured in accordance with ASTM Standard D3034, *Polyvinyl Chloride (PVC) Sewer Pipe and Fittings*, and ASTM Standard F679 *Polyvinyl Chloride (PVC) Large-Diameter Plastic Gravity Sewer Pipe and Fittings* with the following additional requirements or exceptions:

- A. *Size of pipe.* This specification shall cover polyvinyl chloride pipe in four-inch (4"), six-inch (6"), eight-inch (8"), ten-inch (10"), twelve-inch (12"), fifteen-inch (15"), and eighteen-inch (18") nominal diameters. Pipe larger than eighteen-inch (18") diameter shall be reviewed and approved on a case-by-case basis.
- B. *Joint type.* Pipe joints shall be made using an integral bell with an elastomeric gasket push-on type joint or using machined couplings of a sleeve type with rubber ring gaskets and machined pipe ends to form a push-on type joint.
- C. *Class and type.* All sizes of pipe shall be SDR35 or PS 46.
- D. *Pipe length.* Each length of pipe will be a standard laying length of twelve-and-one-half feet (12.5').
- E. PVC materials shall be made from class I2364C, 12454C, or 12454B virgin compounds as defined in ASTM F679 or ASTM D3034.
- F. Elastomeric gaskets shall conform to ASTM D32 or ASTM F477.
- G. Force Main pipe shall be either C-900 PVC, DR14, ductile iron pipe, or HDPE 4710 DR-11 through DR-9.

9.2 Ductile Iron Pipe

General. All ductile iron pipe shall be manufactured in accordance with AWWA Standard C151, *Ductile Iron Pipe, Centrifugally Cast in Metal Molds or Sand-Line Molds, for Water or Other Liquids*, with the following additional requirements or exceptions:

- A. *Size of Pipe.* This specification shall cover ductile iron pipe in four-inch (4"), six-inch (6"), eight-inch (8"), twelve-inch (12"), sixteen-inch (16"), twenty-inch (20"), twenty-four inch (24"), thirty-inch (30"), and thirty-six-inch (36") nominal diameters.
- B. *Joint Type.* "Push-on Single Gasket" type conforming with applicable requirements of AWWA Standard C111 *Rubber-Gasket Joints for Cast-Iron and Ductile Iron Pressure Pipe and Fittings*.
- C. *Class and Type.* Pipe furnished under this specification shall conform to the following pressure classes as shown in AWWA Standard C-150, at a minimum:

Size	Pressure Class (PSI)	Equivalent Thickness (In.)
4" Diameter	Class 350	0.25
6" Diameter	Class 350	0.25
8" Diameter	Class 350	0.25
12" Diameter	Class 350	0.28
26" Diameter	Class 330	0.34
20" Diameter	Class 300	0.36
24" Diameter	Class 250	0.37
30" Diameter	Class 200	0.38
36" Diameter	Class 200	0.42

Higher pressure class pipe will be required when the Town determines that excessive dead-load or other conditions warrant increased wall thickness.

- D. *Pipe Length.* Pipe furnished under this specification will have normal laying lengths of either eighteen feet (18') or twenty feet (20').
- E. *Material Strength.* Iron used in the manufacture of pipe furnished under this specification shall have 60/42/10 physicals.
- F. *Cement-Mortar Lining.* Pipe furnished under this specification shall have standard thickness cement-mortar linings in accordance with AWWA Standard C 104/A21/4, *Cement-Mortar Lining for Ductile Iron and Gray Iron Pipe and Fittings for Water.*

9.3 Polyethylene Encasement Material

General. A polyethylene encasement material shall be manufactured in accordance with AWWA Standard C105, *Polyethylene Encasement for Gray and Ductile Case Iron Piping for Water and Other Liquids*, with the following additional requirements or exceptions:

- A. *Materials.* The raw material used to manufacture polyethylene film shall be Type 1, Class A Grade E-I, in accordance with ASTM Standard Designation D-1248.
- B. *Physicals.* The polyethylene film shall meet the following test requirements:

Tensile Strength	1200 PSI minimum
Elongation	300% minimum
Dielectric Strength	800 V/Mil Thickness minimum
Thickness 0.008" (Nominal with minus tolerance. Not exceeding ten percent (10%) of nominal.)	(8) mils minimum
Melt Index	0.4 maximum

9.4 Concrete

- A. *Materials.* Cement. All cement used shall be Portland Cement acceptable under the "Standard Specifications and Tests for Portland Cement," ASTM Designation C-150 of the ASTM and conform to the latest ACI 318 building code requirements. Cement used shall be Type II.
- B. *Aggregates.* All the fine and coarse aggregates shall meet soundness requirements, deleterious substance limits, and grading limits as set forth in the latest edition of "Standard Specifications for Concrete Aggregates," ASTM Designation C-33. The limits for deleterious substances and physical property requirements of the coarse aggregates shall be selected for the applicable class designation from those listed under severe weathering regions, Table 3, ASTM Designation C-33. The maximum size aggregate that is practical for the structure design and placing conditions shall be used in the concrete.
- C. *Water.* The water used in all concrete shall be free from objectionable quantities of silt, organic matter, alkali, salts, and other impurities.
- D. *Admixtures.* An air-entraining agent shall be used in all concrete. The agent used shall conform to "Standard Specification for Air-Entraining Admixtures for Concrete," ASTM Designation C-260. The amount of air-entraining agent shall be such as will affect the entrainment of five percent (5%) plus or minus one percent (+ or – 1%) of volume of the concrete.

A water reducing admixture (WRA) may be used unless otherwise noted by the Town. The admixture shall conform to ASTM Designation C-494 for Type A, or Type D chemical

admixture, shall contain no calcium chloride, and shall be compatible with the cement being used.

- E. The Contractor shall be responsible for any difficulties arising or damages occurring as a result of the selection and use of any admixture such as a delay, difficulty in concrete placing, or damage to concrete during form removal.
- F. *Concrete quality.*
 - 1. All cast-in-place concrete shall have a minimum twenty-eight (28) day compressive strength of three thousand (3,000) PSI and maximum slump of four inches (4").
 - 2. All precast concrete shall have a minimum compressive strength of four thousand (4,000) PSI.
 - 3. Unless otherwise directed, the concrete shall be consolidated with suitable mechanical vibrators operating within the concrete. Vibrators shall be so manipulated as to work the concrete thoroughly around the reinforcement and imbedded fixtures, and into corners and angles of the forms. The vibration at any point shall be sufficient to accomplish consolidation, but not prolonged to the point where segregation occurs.
 - 4. Testing. When determined necessary by the Town, field control tests consisting of aggregate gradation tests, slump tests, air content tests, and making compression test cylinders shall be performed by qualified personnel in the presence of the Inspector.

9.5 Concrete Reinforcement

- A. *General.* Reinforcements shall be accurately formed and shall be free from loose rust, scale, and contaminants which reduce bond.

Unless otherwise shown on the drawings or specified herein, all requirements shall conform to the latest ACI Standard 318 and the Uniform Plumbing Code.

Reinforcements shall be accurately positioned on supports, spacers, hangers, or other reinforcements and shall be secured in place with wire ties or suitable clips.

- B. *Material.* All deformed reinforcing bars shall conform to ASTM Standard A-615, minimum grade 60.

9.6 Precast Reinforced Concrete Manhole Sections

General. All precast, reinforced manhole sections shall be manufactured in accordance with ASTM Standard C478, *Precast Reinforced Concrete Manhole Sections*, with the following additional requirements or exceptions:

- A. *Size.* This specification shall cover precast, reinforced manhole sections in five-foot (5') and six-foot (6') nominal inside diameters.
- B. *Joint type.* Manhole joints shall be made using male and female ends so that, when assembled, they make a continuous and uniform manhole.
- C. *Joint sealant.* Manhole joints shall be watertight using "Ram-Nek," or approved equal, and installed on each 'bench' of grooved joint, resulting in two (2) parallel layers of sealant.
- D. *Manhole Base.* Manhole base shall be 8" thick concrete for 5' and 6' diameter manholes. Manhole base is to be pre-cast or cast in place and shall conform to standard detail WW-2.

9.7 24-inch Diameter Manhole Ring and Cover

- A. *General.* All twenty-four-inch (24") manhole ring and covers shall be manufactured to meet H-20 traffic load conditions and have a minimum inside ring clearance of twenty-two-and-one-eighths inches (22-1/8").
- B. *Material.* All rings and covers shall be cast-iron, manufactured in accordance to ASTM Designation A48, Class 30, or better.
- C. The manhole lid shall be drilled with a one-half-inch (1/2") hole, six inches (6") off center to the right of the word "SEWER."
- D. Depending on the location of the manhole, the Town will require "self-sealing" lids or "self-sealing," bolt-down lids. Deater Foundry 1257B or approved equal.
- E. *Manufacturer.* All manhole assemblies shall be stamped with the name and model identification of the approved Manufacturer.
- F. The *IPI* when and where requested by the Town and components shall be manufactured from corrosion-proof material suitable for atmospheres containing hydrogen sulfide and dilute sulfuric acid, as well as other gases associated with wastewater collection systems.

The insert body shall be manufactured to the dimensions as shown on the contract drawings to allow easy installation in the manhole frame.

Relief Valve. The gas relief valve shall be designed to relieve at a pressure of one (1) PSI or less. The venting tube shall be capable of sealing out dirt and small debris. The valve shall be recessed into the bottom center of the insert so that it is protected and will not be broken by any movement of the cover over the valve. This valve configuration will allow the shallowest practicable insert design, eliminating unnecessary water retention or weight accumulation. The valve shall be easily removed for water drainage should inspection be required immediately after or during rainstorm.

Lift Strap. The insert shall have a lift strap attached to the body. Attachment of the lift strap to the insert body shall be in a recess to prevent contact with manhole cover during removal and replacement of the manhole cover.

Sizing. The IPI shall be manufactured to fit the manhole frame rim from which it hangs. Specific field measurements may be required prior to production of the insert.

Installation. The manhole frame rim shall be cleaned of all dirt or debris before placing the insert upon the rim. The insert shall be fully seated around the manhole frame rim to retard water from seeping between the insert and the manhole frame rim.

Appendix A

**REQUEST FOR DEVIATION
WATER AND WASTEWATER SYSTEM STANDARD SPECIFICATIONS**

PRODUCT NAME: _____

PRODUCT DESCRIPTION: _____

DISTRIBUTOR'S NAME: _____

DISTRIBUTOR'S ADDRESS: _____

DISTRIBUTOR'S PHONE NUMBER: _____

MANUFACTURER'S NAME: _____

MANUFACTURER'S ADDRESS: _____

MANUFACTURER'S PHONE NUMBER: _____

- Give current standard that this product complies with (ASTM, AWWA, etc.).
- Attach any product information that the manufacturer wishes considered.
- Attach list of current users of this product that we can contact.
- Review of this product by the Town does not guarantee its acceptance or use in the water or wastewater system. A test section or project maybe required prior to general acceptance or use.

Appendix B

WATER AND SEWER MAIN EXTENSIONS

Any changes or alterations affecting the grade, alignment, elevation, and/or depth of cover of any water or sewer mains or other appurtenance shown on this drawing shall be the responsibility of the Owner/Developer. The Owner/Developer shall be responsible for all operational damages and defects in installation and material for mains and services from the date of approval until final acceptance is issued.

Signed _____ Date _____
Owner/Developer

Print Name _____

DBA _____

Address _____

FIRE AUTHORITY APPROVAL

The number of fire hydrants and hydrant locations shown on this water installation plan are correct and adequate to satisfy the fire protection requirements as specified by the Fire District serving the property noted on the plans.

Fire Protection District _____

Signed _____ Date _____
Fire Protection District

TOWN APPROVALS

The Town of Paonia recognizes the Design Engineer as having responsibility for the design and has limited its scope of review accordingly.

TOWN OF PAONIA WATER DESIGN APPROVAL

Date: _____ **By:** _____

PROJECT NO. _____

In case of errors or omissions with the water design as shown on this document, the standards as defined in the "Town of Paonia Water and Wastewater System Standard Specifications" shall rule.

Approval expires 180 days from Design Approval.

The Town of Paonia recognizes the design engineer as having responsibility for the design and has limited its scope of review accordingly.

TOWN OF PAONIA WASTEWATER DESIGN APPROVAL

Date: _____ **By:** _____

PROJECT NO. _____

In case of errors or omissions with the wastewater design as shown on this document the standards as defined in the “Town of Paonia Water and Wastewater System Standard Specifications” shall rule.

Approval expires 180 days from Design Approval.

Appendix C

TOWN OF PAONIA GENERAL NOTES

General

1. All utility construction to be conducted in conformance with the current Town of Paonia (the Town) Specifications.
2. All plans on the job site shall be signed by the Town and the Town's Engineer. Any revision to the plans shall be so noted with the old drawing marked 'not valid.'
3. All stationing is centerline unless otherwise noted. All elevations are pipe invert unless otherwise noted.
4. All materials and workmanship shall be subject to inspection by the Town. The Town reserves the right to accept or reject any such materials and workmanship that does not conform to its standards and specifications.
5. All over-lot grading must be completed to within one (1) foot of final grade prior to installation of water and wastewater infrastructure.
6. All water and sewer service locations shall be clearly marked on either the curb head or the face of the curb, with an "S" for sewer and a "W" for water.
7. Ductile iron pipes, including fittings, valves, and fire hydrants, shall be wrapped with polyethylene tubing, double bonded at each joint, and electrically isolated. Bonding and anode connections shall be thoroughly coated with bituminous coatings.
8. All ductile iron pipe less than twelve inches (12") and fittings shall have cathodic protection using two (2) no. 6 wires with 17 lb. magnesium anodes every 400 feet and 9 lb. magnesium anodes at each fitting. All ductile iron pipe twelve inches (12") and greater and fittings shall have cathodic protection using two (2) no. 6 wires with 17 lb. magnesium anodes every 300 feet and 9 lb. magnesium anodes at each fitting.
9. All pipe material, backfill, and installation shall conform to the applicable specifications of the Town, Colorado Department of Transportation, Delta County Department of Secure Transportation Services, Town of Paonia Utilities, and the geotechnical engineer.
10. Compaction tests shall be 95% standard proctor as determined by ASTM D698, unless otherwise approved by the Town or higher standard as imposed by another agencies having right-of-way jurisdiction. This shall include all valves, fire hydrant runs, water & sewer service lines, and manholes. All reports shall be submitted to the Town for review and approval.
11. The location of all existing utilities shown on the drawings are approximate only. The location of all utilities shall be field verified prior to commencing construction activities. The Town shall be notified of any deviations to the line and/or grade as depicted on the plans. Contractor shall submit to the Town and the engineer of record a report of the field-verified information prior to the start of construction.
12. All bends shall be field staked prior to the start of construction.
13. Bends, deflection, and cut pipe lengths shall be used to hold horizontal alignment of sewer and water lines to no more than 0.5' from the designed alignment. Construction stakes to be at twenty-five feet (25') intervals along curves to ensure location of pipeline construction.
14. At all locations where cap and stub is noted on drawings, provide a plug at the end of the pipe joint nearest the specified station. Provide a reverse anchor at all water line plugs.

15. All unused, salvaged water utility material shall be returned to the Town as requested.
16. At the contractor's expense, all utility mains shall be supported and protected such that they shall function continuously during construction operations. Should a utility main fail as a result of the contractor's operation, it shall be replaced immediately by the contractor or by the Town at full cost of labor and materials to the contractor/developer.
17. Pumping or bypass operations shall be reviewed and approved by both the Town and the Town engineer prior to execution.
18. The contractor shall replace or repair damage to all surface improvements, including but not limited to fences, landscaping, curb and gutter, and/or asphalt that may be caused during construction.
19. All contractors working on or near a water or sewer facility (to include service lines) shall have liability insurance naming the Town as an additional insured and shall provide a current copy of workers compensation insurance on file with the Town. No work can proceed without current certificates on file at the Town's office.
20. The contractor shall notify the Town and all affected utility companies adjacent to the proposed utility construction a minimum of 48 hours and a maximum of 96 hours prior to the start of construction. A weekly construction meeting shall be required with the contractor, Town engineer and all other parties as deemed necessary by the Town.
21. Commencement of construction of water/sewer systems within the Town:
 - a) Prior to the start of construction, a preconstruction meeting is required a minimum of 48 hours in advance of commencement of work. A representative of the owner or developer, a representative of the contractor, and Design Engineer are required to attend. Contact the Town to schedule the preconstruction meeting. No preconstruction meeting can be scheduled before four (4) signed/approved plan sets are received by the Town.
 - b) The contractor is required to notify the Town a minimum of 48 hours and a maximum of 2 weeks prior to the start of construction. The contractor shall also notify affected utility companies at least 48 hours prior to the start of construction adjacent to the known utility lines.
22. Testing of facilities:
 - a) The contractor shall notify the Town a minimum of 48 hours and a maximum of 96 hours prior to the start of any testing.
 - b) All sections of water line are to meet the following pressure testing requirements
 - Test 100% of all lines.
 - Must pass pressure test to 200 PSI for two hours (unless otherwise approved on the plans).
 - c) All sanitary sewer facilities are to meet the following testing requirements:
 - All lines shall be jet cleaned prior to vacuum or pressure testing.
 - All manholes shall be vacuum tested with Town staff present prior to CCTV inspection.
 - Sewer mains to be pressure tested prior to CCTV inspection.
 - All lines shall be CCTV inspected and video shall to be submitted to the Town for review and approval.

23. Preliminary acceptance shall be defined as the point in time that the Town accepts the facility for use. All surface improvements and restoration shall be completed within 30 days of commencement. Should the Contractor fail to complete all surface improvements and restoration within 30 days of commencement of service, the Town, at their discretion, may elect to complete the improvements at the Contractor's cost.
24. Final acceptance by the Town of any line or system shall not occur until completion of final asphalt layers and/or final completion and/or restoration of all surface improvements. The warranty period for all facilities prior to final acceptance shall be **24 months** commencing after preliminary acceptance.
25. Acceptance
- a) The Town may give preliminary acceptance once all of the tests on all the lines have been completed and a walk-through has occurred.
 - b) A second acceptance may occur once the first lift of asphalt goes down and a second walk-through of the system occurs. If all facilities are clean and accessible, a final acceptance may occur (the Town may require cleaning and re-video of the system, depending on the severity of the contamination).
26. All water and sewer mains, including service lines, shall have "as-built" drawings prepared and approved prior to preliminary acceptance by the Town.
27. All commercial/business developments shall have an eight inch (min.) water main looped through the proposed property with gate valves located where the main enters the property line. An eight-inch sewer main shall be installed for service to commercial/business developments, and a manhole shall be located where the main enters the property. The end of the mains shall be marked with the appropriate colored carsonite marker along with tracer wire.
28. After review and approval of plans for the extension of lines, facilities, and/or services, construction must have commenced within 18 months for residential subdivisions and 12 months for any commercial installations.
29. Inspection fees: Call the Town (970-527-4102) for fee schedule.

Water System Installation Notes

30. All water and force main pipe shall be AWWA C900 PVC, or approved equal, pressure class 200. All water and force main fittings shall have mechanical restraints and thrust blocks. All water and force main pipe shall have a minimum cover depth of five-and-one-half (5.5) feet.
31. All water valves associated with the potable water system shall be open clockwise. All valves installed in landscaped areas and/or not within paved streets shall be marked with carsonite markers. All valves associated with the raw water system shall be open counterclockwise and marked with carsonite markers as applicable.
32. The Developer or his engineer shall locate all fire hydrants and service stub-outs for future development. Any required realignment, horizontal or vertical, shall be at the expense of the developer. Fire hydrant location shall be reviewed and approved by the applicable Fire Authority.
33. Fire hydrants shall be open right with 7/8" x 7/8" square tapered along with service caps. Lubrication type: Grease. Acceptable brand is Kennedy Guardian (K81D, K81A, and K81AM). Each fire hydrant location shall also be used as test station.
34. All main lines (PVC & ductile iron) shall be installed with coated #12 tracer wire with test stations at intervals no greater than five hundred feet (500') (valve boxes can be used at intersections and service stubs).

35. Contractor shall make connections to existing water line without shutdown, or else notify the Town of any service shutdowns necessary to connect to existing lines.
36. Irrigation services shall have a stop-and-waste curb stop valve installed along with tracer wire extending back to the main line.
37. Commencement of use of water lines and/or systems:
 - a) No water facility shall be placed in service until after the completion of all pressure testing, flushing, Bac-T testing, and compaction testing, and as-built drawings are submitted and approved by the Town.
 - b) No water facility shall be placed in service until all service lines are completed and the first lift of asphalt is completed over the line. In the case where no asphalt is to be placed over the line, surface improvements shall be completed prior to use of the facility.
 - c) No water facility shall be placed in service until all easements (platted or deeded) are dedicated, executed by the Town, and recorded.

Wastewater System Installation Notes

38. Sanitary sewer lengths are MH center to MH center. All sanitary sewer pipes shall be SDR 35 PVC or approved equal. Sewer lines may not exceed 7% grade for any size without prior approval of the Town. All newly constructed residential sanitary sewer taps shall use pre-manufactured, inline PVC push-on wyes. Single saddle tap allowed on existing mains. Multiple saddle taps on existing mains must be approved by the Town on a case by case basis
39. All sanitary sewer manholes shall be wrapped with RU116 - RUBR-NEK joint wrap, or approved equal, and coated.
40. All sewer lines must be bedded with squeegee or ¾" crushed rock.
41. Commencement of use of sewer lines and/or systems:
 - a) No sanitary sewer facility shall be placed in service until the completion of all jet cleaning, pressure testing, vacuum testing, CCTV inspection, and compaction testing, and as-built drawings are submitted and approved by the Town.
 - b) No sanitary sewer facility shall be placed in service until all service lines are completed and the first lift of asphalt is completed over the line. In the case where no asphalt is to be placed over the line, any required surface improvements shall be completed prior to use of the facility.
 - c) No sanitary sewer facility shall be placed in service until all necessary easements (platted or deeded) are dedicated, executed by the Town, and recorded.
 - d) Downstream plug can be removed once the first lift of asphalt is down and the above requirements are met.

The above guidelines are subject to change at any time.

Appendix D

Grease Interceptor Standards

A. General

A grease interceptor shall be installed when, in the judgment of the Town Administrator, it is necessary for the proper handling of liquid wastes containing grease or solids, which may be harmful to or cause obstruction of the publicly-owned treatment works, or interfere with the operation of the treatment works and its mains.

All food preparation establishments shall install a grease interceptor to all drains from the kitchen, food preparation, and dishwashing areas. Fixtures to be connected include, but are not limited to, scullery sinks, pot and pan sinks, dishwashing machines, soup kettles, and floor drains located in areas where grease-containing materials may exist. When deemed necessary by the Town, garbage disposals may be required to be connected to an approved interceptor.

Toilets, urinals, and similar fixtures shall not waste through the interceptor. All waste shall enter the interceptor through the inlet pipe only.

Installation of an interceptor will not be required of facilities that do not cook the food that is served and/or do not wash equipment or utensils associated with preparation or service of cooked foods.

B. Approval

The size, type, and location of each interceptor shall be approved and inspected by the Town, in accordance with Town standards regarding interceptors. Except where otherwise specifically permitted, no wastes other than those requiring separation shall be discharged into any interceptor. One (1) set of plans, including complete mechanical and plumbing sections shall be submitted to the Town for approval prior to construction. Such plans shall include the size, type, and location of each interceptor.

C. Design

All interceptors for grease and heavy solids shall be so designed and located as to be readily accessible for cleaning and shall have a water seal of not less than six inches (6"). Interceptors shall be constructed in accordance with the design specifications contained herein, shall be approved by the Town Administrator, and shall have a minimum of two (2) compartments with fittings designed for grease retention. There shall be a minimum of two manholes to provide access for cleaning and inspection of all fixtures and compartments of the interceptor; a minimum of one (1) per ten feet (10') of interceptor length. In the case of smaller or circular interceptors, where it is not practical to install two (2) manholes, a single manhole shall be located so as to permit entrance to the first compartment and inspection to the second. All areas of the second compartment shall be accessible for cleaning.

D. Location

All interceptors shall be readily accessible for inspection, servicing, and maintaining in proper working condition. The use of ladders or the removal of bulky equipment in order to inspect or service interceptors shall constitute a violation of accessibility. Where feasible, all interceptors shall be located outside of the facility served. Interceptors may not be installed in any part of a building where food is handled. Location of all interceptors shall be approved by the Town Administrator and shall be shown on the approved building plan.

E. Maintenance

Interceptors shall be maintained by regularly-scheduled removal of the accumulated grease and solids. This maintenance shall be performed before the retention capacity of twenty-five percent (25%) of the

interceptor. Failure to clean the interceptor at twenty-five percent (25%) or more of capacity shall incur a \$500.00 penalty for discharging grease into the sanitary sewer system. Records of maintenance shall be maintained on site and be available for inspection during regular business hours.

F. Sizing Criteria

When determining the minimum size of the interceptor required, the following shall be considered:

The minimum acceptable volume shall not be less than seven hundred fifty (750) gallons. With a dishwasher, it shall not be less than one thousand (1,000) gallons.

The size of the interceptor shall be based on maximum number of meals served at the maximum periods of the day (either breakfast, lunch, or dinner). Volume, in gallons, of the interceptor shall be two-and-one-half ($2\frac{1}{2}$) gallons multiplied by the maximum number of meals served during the busiest period of the day.

An alternate method of determining the size of the grease interceptor is to multiply seating capacity times a turnover constant of one and six tenths (1.6) times two-and-one-half ($2\frac{1}{2}$) gallons. Seating capacity can be approximated, using ten (10) square feet of dining area per person (volume = seating capacity x 1.6 x $2\frac{1}{2}$ gallons).

When the above methods are not feasible, an appropriate volume may be determined by multiplying the total rate of flow, in gallons per minute, from each fixture required to be connected to the interceptor times a minimum retention time of not less than fifteen (15) minutes, with the resulting volume expressed in gallons.

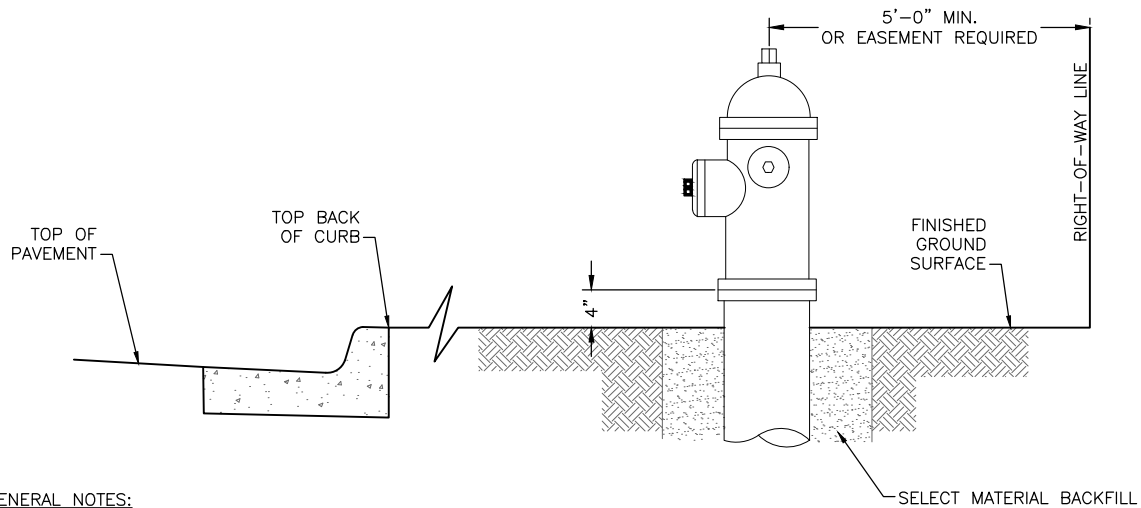
<u>TYPE OF FIXTURE</u>	<u>RATE OF FLOW (GPM)</u>
Floor drain/sink	10
Restaurant kitchen sink	15
Single-compartment scullery sink	20
Three-compartment sink	35
2 single-compartment sinks	25
2 double-compartment sinks	35
Restaurant dishwasher	
Up to 30-gallon capacity	15
30- to 50-gallon capacity	25
50- to 100-gallon capacity	40
Garbage disposal/grinder	35

G. Waivers

Waivers to the above standards and criteria shall be valid only when the discharge from the user is in compliance with the Town's regulations.

In the event that a waiver of the minimum size requirement is granted, in no case shall the retention capacity of the trap be less than one hundred pounds (100 lb.). The minimum inspection/cleaning frequency of any indoor trap shall be monthly, and a written record of all inspections or maintenance shall be maintained on site.

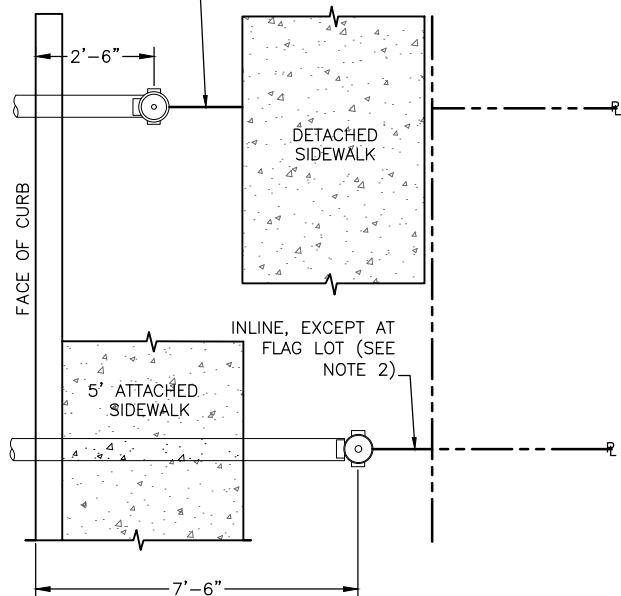
Standard Drawings – Water



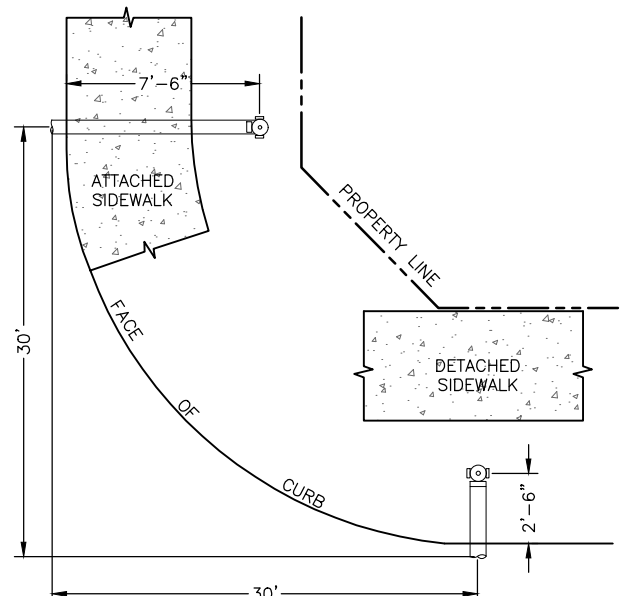
GENERAL NOTES:

1. HYDRANT NOZZLE SHALL BE POSITIONED AT RIGHT ANGLES TO THE CURB. IF NO CURB OR SIDEWALK EXISTS, NOZZLE SHALL BE PLACED AT RIGHT ANGLES TO STREET OR ALLEY.
2. HYDRANTS INSTALLED AT FLAG LOT LINES SHALL BE OFFSET 3 FEET FROM THE LOT LINE (AWAY FROM STEM).
3. HYDRANTS WILL BE PLACED A MINIMUM OF 5 FEET FROM ANY UTILITY OR DRAINAGE STRUCTURE.
4. EASEMENTS MUST BE PROVIDED FOR ANY PUBLIC HYDRANT WHICH IS CLOSER THAN 5 FEET TO THE RIGHT-OF-WAY LINE.
5. ANY HYDRANTS BEING INSTALLED WITH CONDITIONS OTHER THAN THOSE MENTIONED AND/OR DETAILED BELOW WILL REQUIRE SIGNED APPROVAL FROM THE TOWN AND THE FIRE DEPARTMENT.

INLINE, EXCEPT AT FLAG LOT (SEE NOTE 2)



LOT LINE LOCATIONS



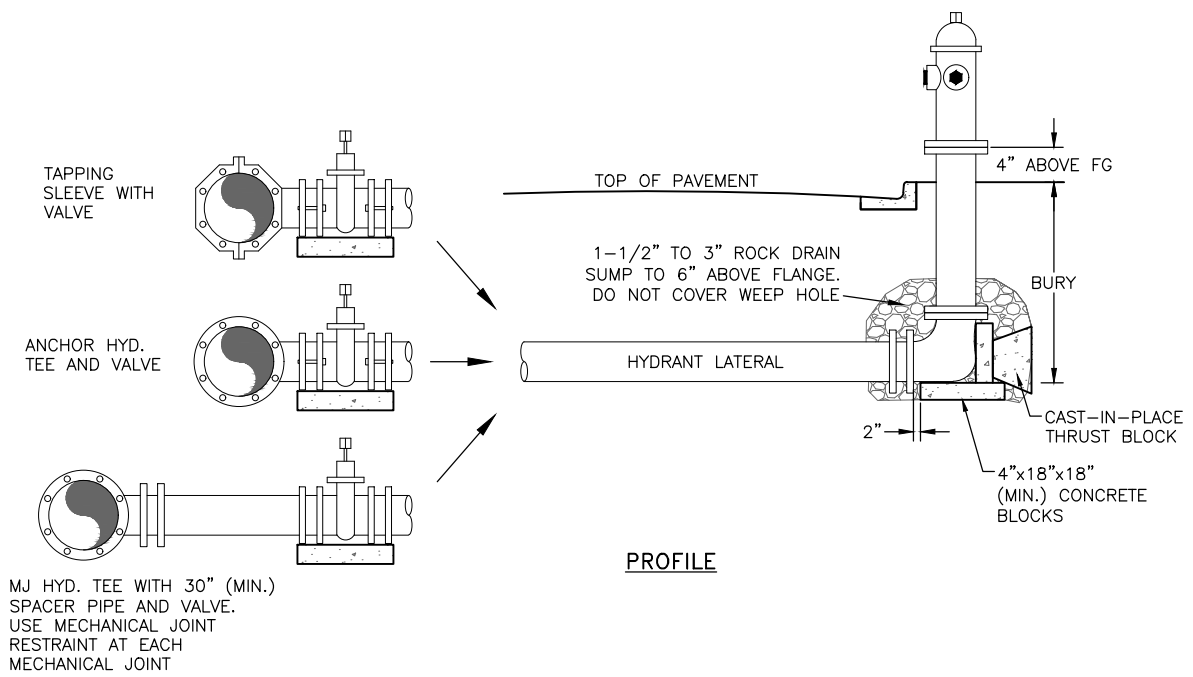
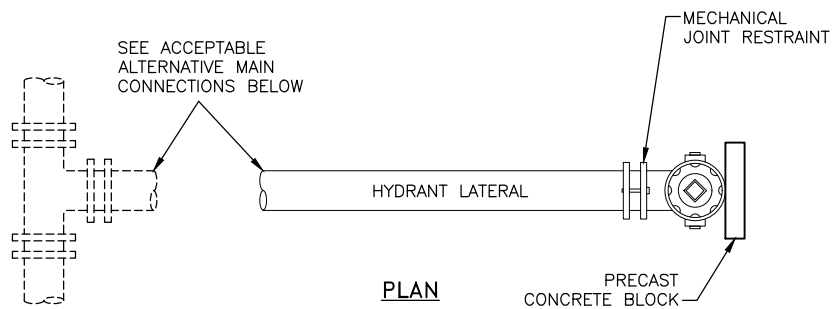
CORNER LOCATIONS

FIRE HYDRANT LOCATIONS

Drawn: IGL	Revised:
Date: JUNE 2024	Revised:
Scale: N.T.S.	Revised:



W-1



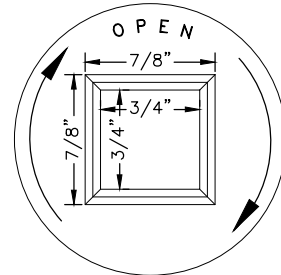
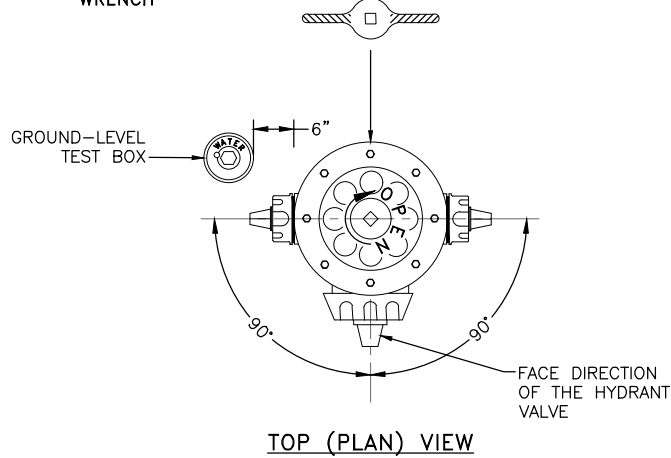
FIRE HYDRANT INSTALLATION

Drawn: IGL	Revised:
Date: JUNE 2024	Revised:
Scale: N.T.S.	Revised:

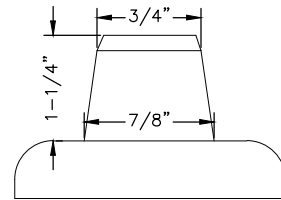


W-2

TAPERED SQUARE NUT, USE ONLY DEFINITE PURPOSE HYDRANT WRENCH THAT EXACTLY FITS THE NUT. DO NOT USE A GENERIC HYDRANT WRENCH WITH ADJUSTABLE CORNER BOLT. DO NOT USE A CRESCENT WRENCH OR PIPE WRENCH

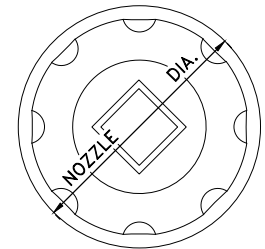
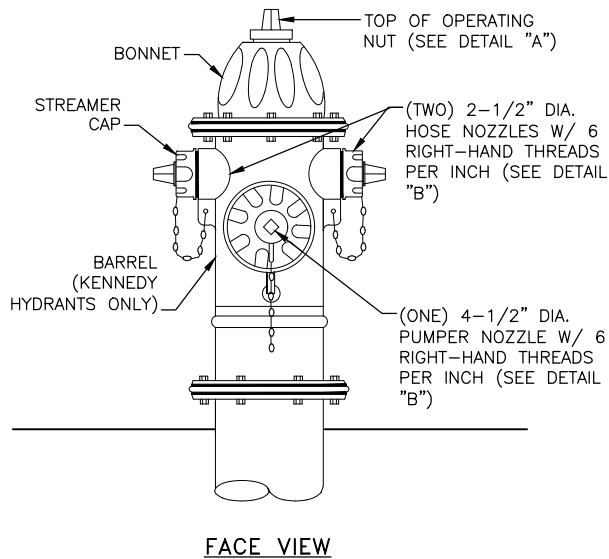


FACE (PLAN) VIEW

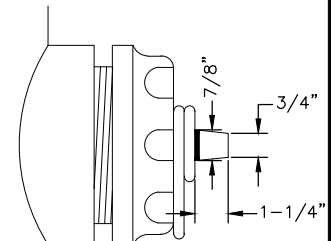


PROFILE

DETAIL "A" - OPERATING NUT



FACE VIEW



PROFILE

DETAIL "B" - NOZZLE DETAIL

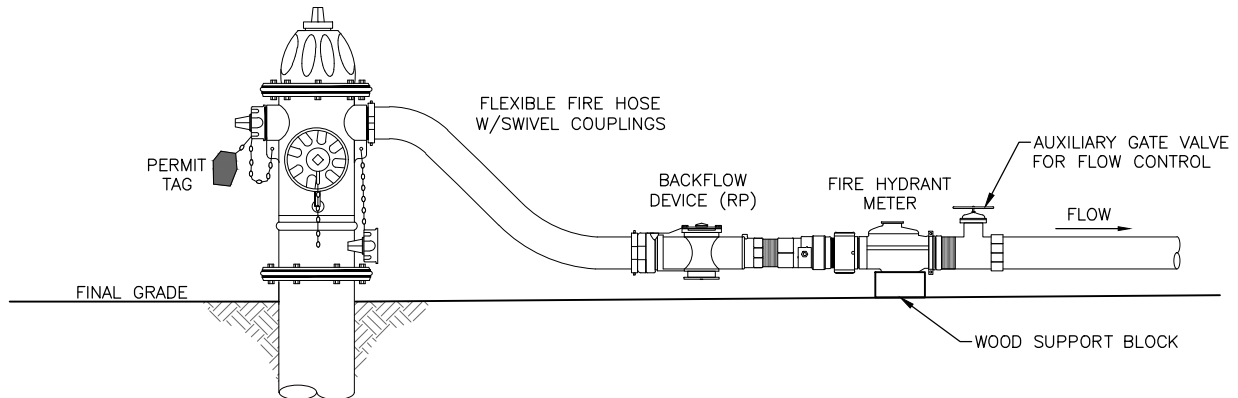
FIRE HYDRANT SPECIFICATIONS

Drawn: IGL	Revised:
Date: JUNE 2024	Revised:
Scale: N.T.S.	Revised:



W-3

TAPERED SQUARE NUT WRENCH



ASSEMBLY SEQUENCE

SCALE: N.T.S.

NOTES:

1. FLUSH HYDRANT BEFORE CONNECTING BACKFLOW AND METER CONFIGURATION.
2. HYDRANTS SHALL BE FULLY OPENED WHEN IN USE; DO NOT THROTTLE HYDRANT FLOW WITH THE HYDRANT STEM VALVE. FLOW SHALL BE CONTROLLED WITH THE OUTLET GATE VALVE ONLY.
3. WHERE BALL VALVES ARE PROVIDED FOR ISOLATION AND TESTING OF THE RP, THE HANDLE SHALL BE REMOVED FROM THE VALVES. THESE VALVES ARE ONLY TO BE USED IN SERVICING AND TESTING RP AND SHALL NOT BE USED TO CONTROL HYDRANT FLOWS, AND SHALL BE IN THE FULL OPEN POSITION AT ALL TIMES DURING HYDRANT FLOWS.
4. USE OF HYDRANT REQUIRES A PERMIT AND ADHERENCE TO ALL TERMS AND CONDITIONS OF THE PERMIT AND ASSOCIATED REQUIREMENTS. CONTACT THE TOWN, SEE WEBSITE FOR CONTACT INFORMATION.
5. USE OF A HYDRANT WITHOUT A BACKFLOW PREVENTION DEVICE IS IN VIOLATION OF THE TOWN'S CODE FOR CROSS-CONNECTION CONTROL. ALL HYDRANT CONNECTIONS REQUIRE A REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTER (RP) TYPE PER COLORADO PRIMARY DRINKING WATER REGULATION. KEEP THE RP CENTER DISCHARGE OUTLET AT LEAST 12 INCHES ABOVE GRADE.
6. CONTRACTOR SHALL USE A HYDRANT WRENCH WITH TAPERED, SQUARE BOX DESIGNED SPECIFICALLY FOR TOWN FIRE HYDRANTS TO OPERATE THE FIRE HYDRANT. NO OTHER TYPE OF WRENCH SHALL BE USED.
7. THE HYDRANT SHALL BE TESTABLE AND PROVIDED BY THE CONTRACTOR.

FIRE HYDRANT BACKFLOW AND METER CONFIGURATION

Drawn: IGL

Date: JUNE 2024

Scale: N.T.S.

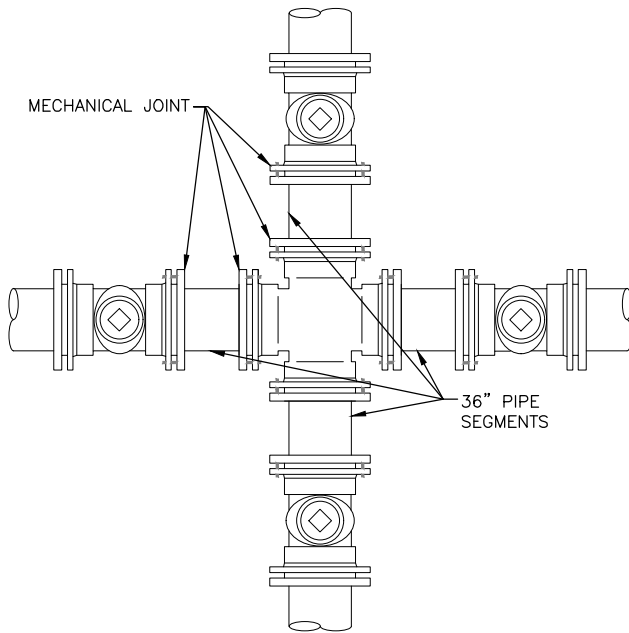
Revised:

Revised:

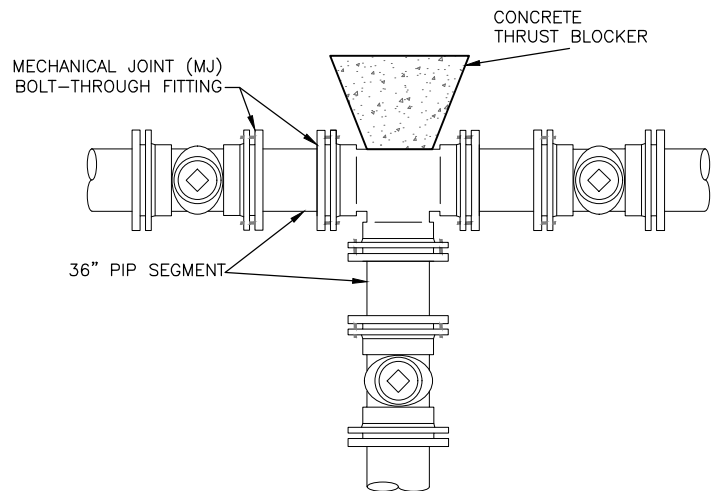
Revised:



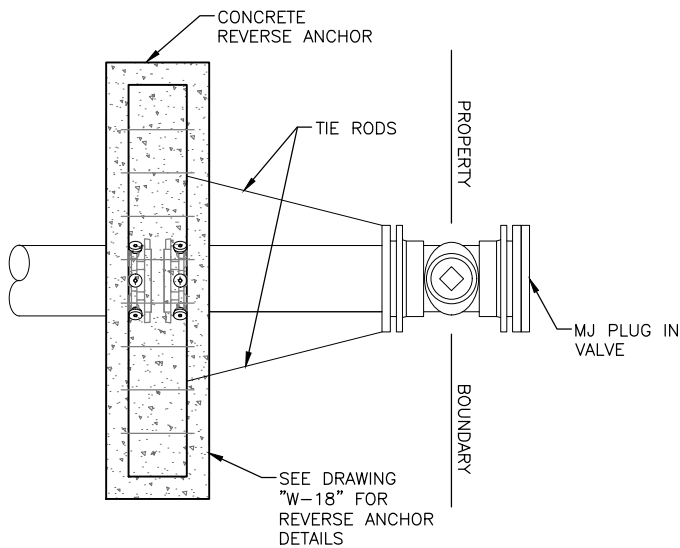
W-4



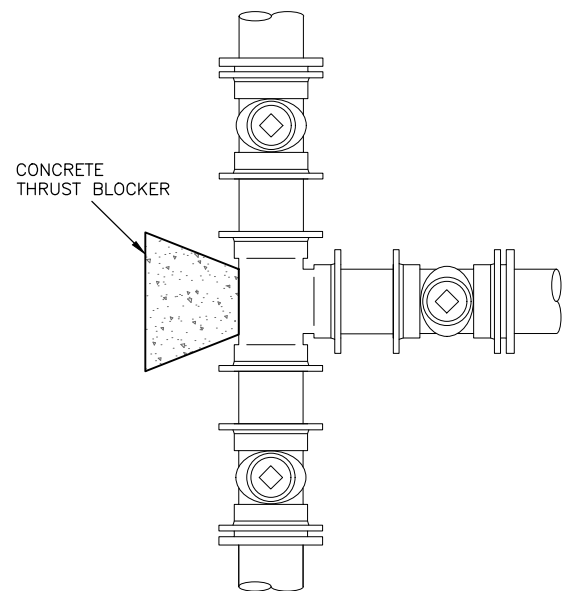
CROSS OR TEE W/
ANCHOR PIPES



CROSS OR TEE W/ MJ
Bolt-Through Fittings



AT END-OF-LINE USE
REVERSE ANCHOR WITH
TIE BACK RODS



WITH MJ ANCHOR TEE

GENERAL NOTES:

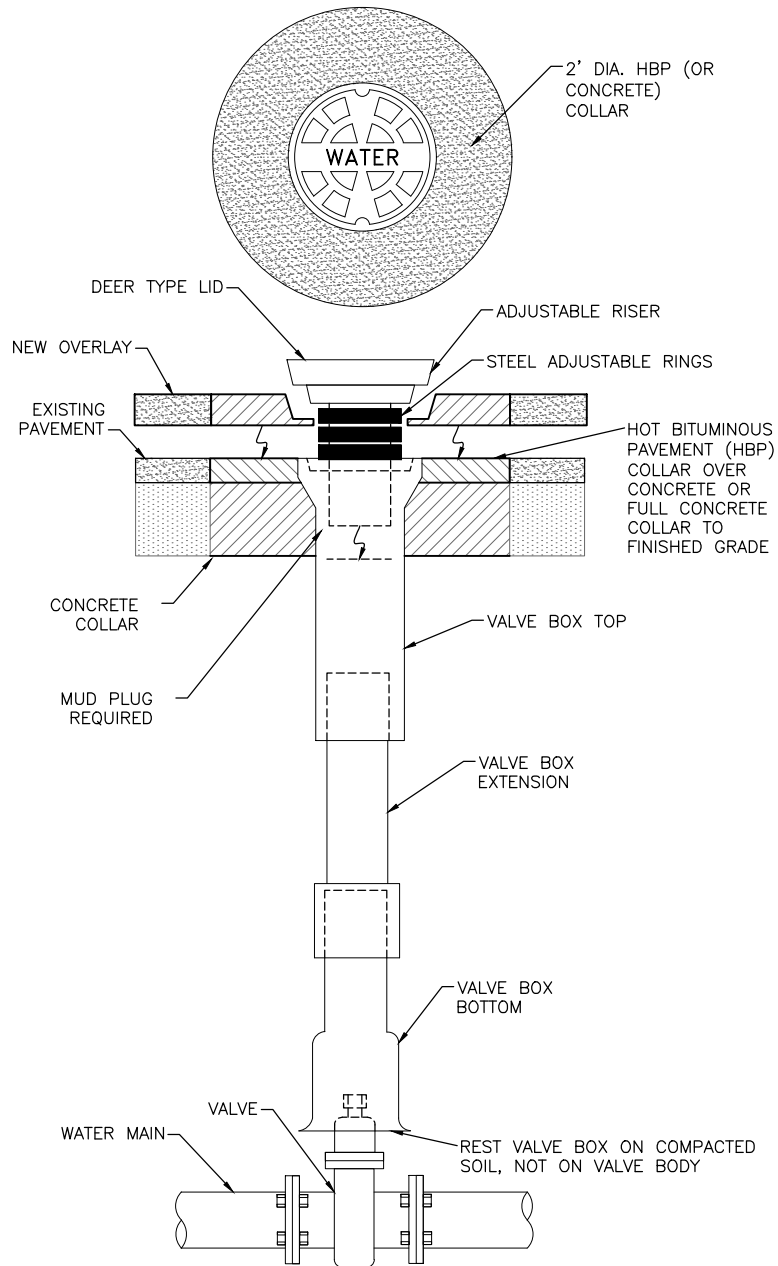
1. ON ANY VALVE INSTALLATION NEAR A FITTING, THE VALVE SHALL BE ANCHORED BY RODS, REVERSE ANCHOR, AND MECHANICAL JOINT RESTRAINTS. 3/4" ALL-THREAD RODS SHALL BE USED WITH FIG. 7 BOLTS OR APPROVED DUCTILE TIE LUGS FOR DEAD-END VALVES AND/OR PLUGS. ALL METALLIC COMPONENTS SHALL BE WRAPPED IN POLYETHYLENE TUBING.
2. ANCHOR PIPE OR FOSTER COUPLINGS MAY BE SUBSTITUTED FOR SPACER PIPE AND RODS.
3. THE CONCRETE REVERSE ANCHORS USED SHALL BE SIZED AS INDICATED ON DRAWING "W-18".
4. SEE DRAWINGS "W-13" AND "W-28" FOR APPLICATION OF MECHANICAL JOINT RESTRAINTS.
5. SEE DRAWING "W-6" FOR VALVE BOX INSTALLATION.

VALVE INSTALLATION & LOCATION

Drawn: IGL	Revised:
Date: JUNE 2024	Revised:
Scale: N.T.S.	Revised:



W-5



NOTES:

1. SLIP-TYPE 5-1/4" I.D. SHAFT TYLER PIPE SERIES 664-A OR EQUIVALENT, APPROVED BY THE TOWN.
2. MAIN AND FIRE HYDRANT VALVES AND VALVE BOXES SHALL BE LOCATED IN AND UNDER THE DRIVING SURFACE OF THE STREET, NOT IN THE CURB PAN, CURB, OR BEHIND THE CURB.
3. SEE DRAWING "W-10" FOR TRACER WIRE INSTALLATION AT VALVE BOXES.

VALVE BOX INSTALLATION

Drawn: IGL	Revised:
Date: JUNE 2024	Revised:
Scale: N.T.S.	Revised:

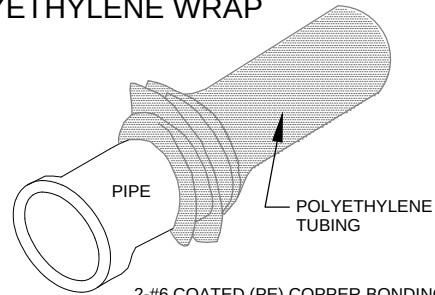


W-6

FIELD INSTALLATION OF POLYETHYLENE WRAP

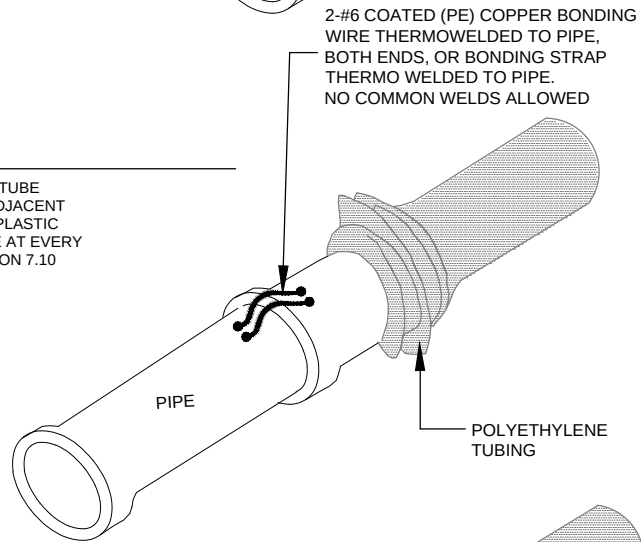
STEP 1:

PLACE TUBE OF POLYETHYLENE MATERIAL ON PIPE PRIOR TO LOWERING IT INTO TRENCH.



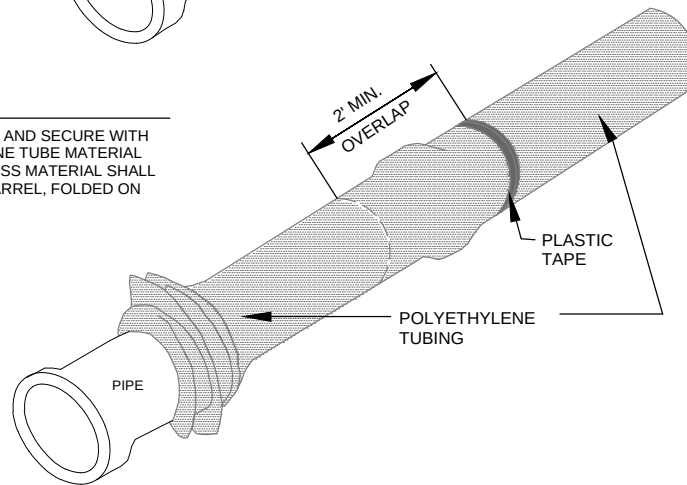
STEP 2:

PULL TUBE OVER THE LENGTH OF THE PIPE. TAPE TUBE TO END AT JOINT. FOLD MATERIAL AROUND THE ADJACENT SPIGOT END AND WRAP WITH TAPE TO HOLD THE PLASTIC TUBE IN PLACE. INSTALL BONDING STRAP OR WIRE AT EVERY JOINT OF PIPE PRIOR TO WRAPPING AS PER SECTION 7.10 OF THE STANDARD SPECIFICATIONS.



STEP 3:

OVERLAP FIRST TUBE WITH ADJACENT TUBE AND SECURE WITH PLASTIC ADHESIVE TAPE. THE POLYETHYLENE TUBE MATERIAL COVERING THE PIPE SHALL BE LOOSE. EXCESS MATERIAL SHALL BE NEATLY DRAWN UP AROUND THE PIPE BARREL, FOLDED ON TOP OF PIPE, AND TAPED IN PLACE.



POLYETHYLENE WRAP

Drawn: IGL

Date: JUNE 2024

Scale: N.T.S.

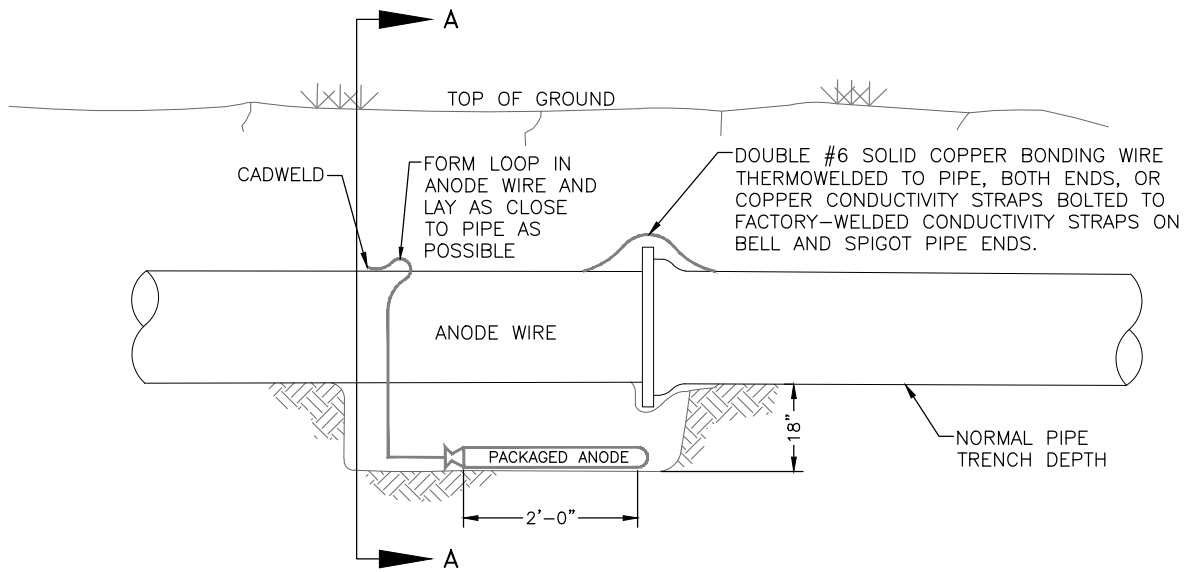
Revised:

Revised:

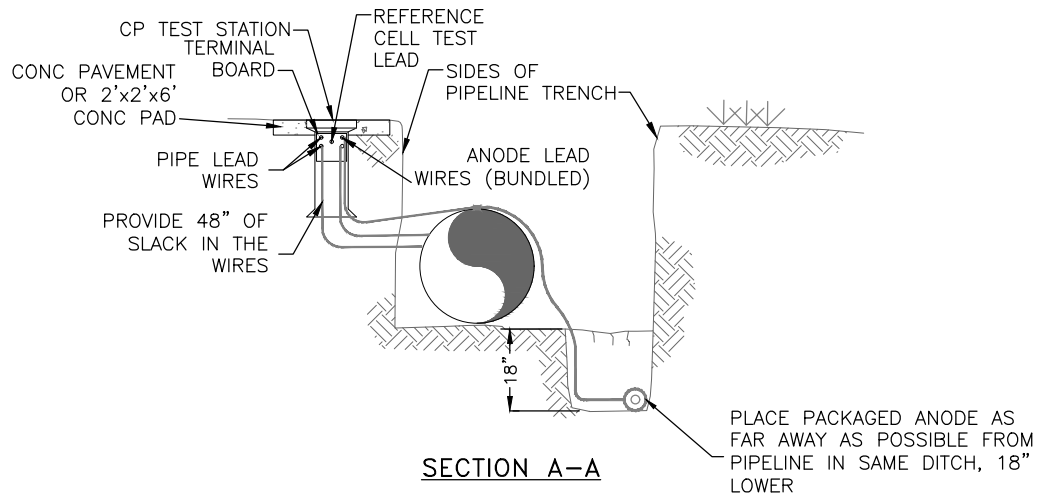
Revised:



W-7



ELEVATION



SECTION A-A

NOTES:

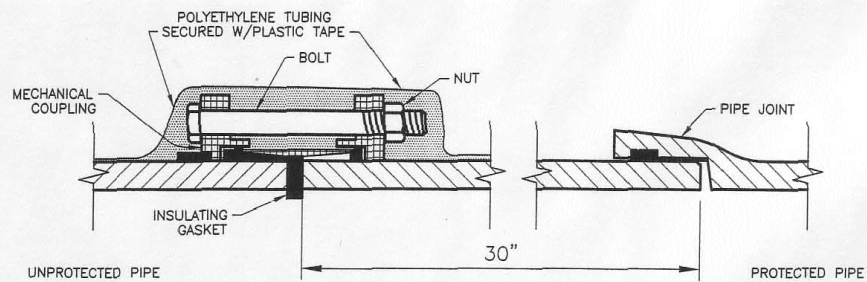
1. CADWELD CONNECTION TO BE PRIMED AND COATED CAREFULLY. PACKAGED ANODE SHOULD BE COVERED WITH FINE SOIL CONTAINING NO ROCKS OR DIRT CLUMPS, TAMPED.
2. WHEN ANODES ARE REQUIRED WITH METAL FITTINGS AND APPURTENANCES TOGETHER WITH PVC PIPE INSTALLATION, THE ANODES SHALL BE PLACED AND ATTACHED TO THE METAL IN SAME MANNER AS SHOWN ON THIS DRAWING. 9LB. ANODES CAN BE USED ON METAL FITTINGS 12" AND LESS IN DIAMETER AND 17LB. ANODES FOR METAL FITTINGS GREATER THAN 12" DIAMETER WHEN USING PVC PIPE.
3. PACKAGED ANODE TO BE WETTED AND COVERED WITH SOIL PRIOR TO BACKFILLING.

BONDING JOINT & ANODE INSTALLATION

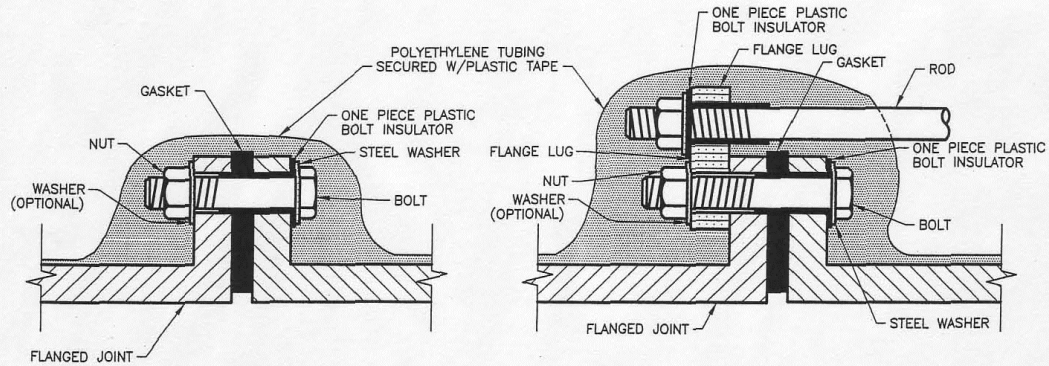
Drawn: IGL	Revised:
Date: JUNE 2024	Revised:
Scale: N.T.S.	Revised:



W-8



INSULATED MECHANICAL COUPLING



INSULATED FLANGE JOINT

INSULATED TIE BACK ROD

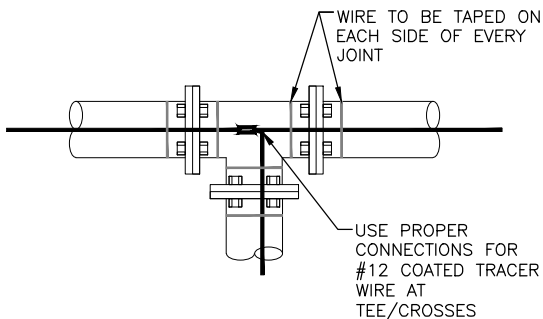
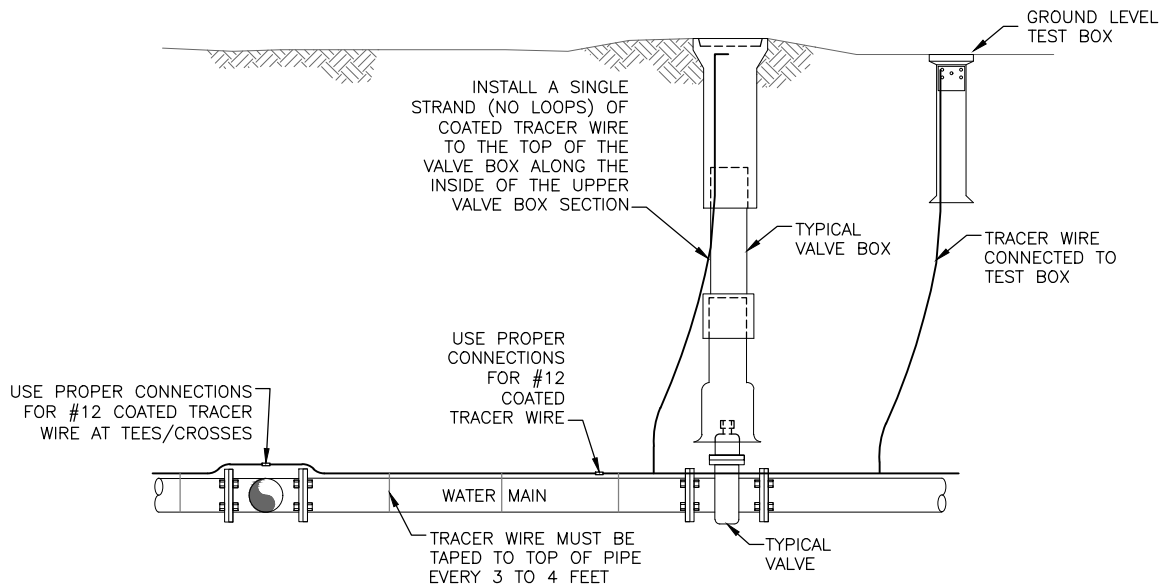
NOTE:
TEST WIRES TO BE USED WHEN REQUIRED.

INSULATOR INSTALLATION

Drawn: IGL	Revised:
Date: JUNE 2024	Revised:
Scale: N.T.S.	Revised:



W-9



GENERAL: HOUSING IS TO PROTECT SPLIT BOLT WIRE NUT AND TRACER WIRE IN BURIED APPLICATIONS.

SPECIFICATIONS: HOUSING SHALL BE MADE OF HIGH IMPACT POLYPROPYLENE AND BE FILLED WITH A DIELECTRIC SILICONE GEL.

AQUA HOUSING 69105:

MAX VOLTAGE: 50V

HOUSING: HIGH IMPACT POLYPROPYLENE

SEALANT: DIELECTRIC SILICONE GEL

WIRE RANGE: #14-10 SOLID COPPER;

#14-10 STEEL CORE TRACER WIRE

SPLIT BOLT SIZE NOT TO EXCEED 1.0" TALL

BY 0.8" WIDE BY 0.7" DEEP

VISILOCK HOUSING 98010

MAX VOLTAGE: 100V

TEMPERATURE RATING: -40°C -90°C (194°F)

MEASUREMENTS: SEE SPECIFICATION SHEET

FOR COMPLETE PRODUCT MEASUREMENTS

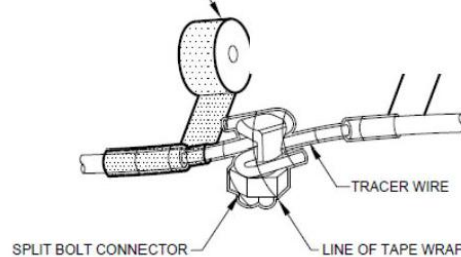
WIRE RANGE:

#8-1/0 (.363"-.625" O.D.)

#12-#4 (.305"-.443 O.D.)

AMPERAGE NOT TO EXCEED MAXIMUM TEMPERATURE OF THE CONDUCTOR

3/4" 3M SCOTCH 33 TAPE OVER RUBBER SPLICING TAPE



SPLIT BOLT TAPING

1. Wrap all Tracer Wire split bolt connectors or exposed wire using 1" 3M Scotch 130C Linerless Rubber Splicing Tape making sure to seal all ends to prevent moisture penetration.

TRACER WIRE INSTALLATION DETAILS

Drawn: IGL

Date: JUNE 2024

Scale: N.T.S.

Revised:

Revised:

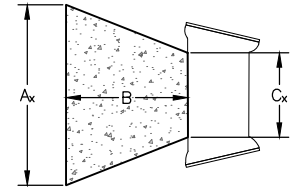
Revised:



W-10

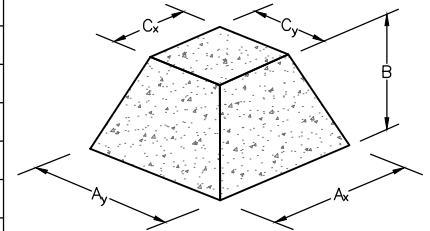
THRUST BLOCK DIMENSIONS & VOLUMES – PVC & DIP 250 psi

MAIN SIZE (IN.)	TYPE OF FITTING	MINIMUM BEARING SURFACE AREA (ft ²)	MINIMUM A _x (ft)	MINIMUM A _y (ft)	MINIMUM C _x (ft)	MINIMUM C _y (ft)	MINIMUM B	APPROXIMATE VOLUME (yd ³)
4	11.25° BEND	1.00	1.00	1.00	0.25	0.33	2.00	0.25
4	22.5° BEND	2.00	2.00	1.41	0.21	0.33	22.00	0.25
4	45° BEND	3.50	3.50	1.87	0.42	0.33	2.00	0.25
4	TEE & DEAD END	4.75	4.75	2.18	0.67	0.33	4.75	0.25
6	11.25° BEND	2.00	2.00	1.41	0.25	0.50	2.00	0.25
6	22.5° BEND	3.75	3.75	1.94	0.38	0.50	2.00	0.25
6	45° BEND	7.25	7.25	2.69	0.58	0.50	2.00	0.25
6	TEE & DEAD END	9.50	9.50	3.08	0.83	0.50	2.00	0.50
8	11.25° BEND	3.25	3.25	1.80	0.34	0.67	2.00	0.25
8	22.5° BEND	6.50	6.50	2.55	0.48	0.67	2.00	0.25
8	45° BEND	12.50	12.50	3.57	0.67	0.67	2.00	0.50
8	TEE & DEAD END	16.25	16.25	4.64	1.08	0.67	2.00	0.75



THRUST BLOCK DIMENSIONS & VOLUMES – DIP (Maximum Static Pressure = 250 psi)

MAIN SIZE (IN.)	TYPE OF FITTING	MINIMUM BEARING SURFACE AREA (ft ²)	MINIMUM A _x (ft)	MINIMUM A _y (ft)	MINIMUM C _x (ft)	MINIMUM C _y (ft)	MINIMUM B	APPROXIMATE VOLUME (yd ³)
12	11.25° BEND	6.75	2.60	2.60	0.43	1.00	2.00	0.50
12	22.5° BEND	13.50	3.69	3.66	0.64	1.00	2.00	0.50
12	45° BEND	26.25	7.17	3.66	1.00	1.00	3.09	1.50
12	TEE & DEAD END	34.25	9.36	3.66	1.46	1.00	3.95	2.25
16	11.25° BEND	11.75	3.43	3.43	0.44	1.33	2.00	0.50
16	22.5° BEND	23.25	6.20	3.75	0.66	1.33	2.77	1.00
16	45° BEND	45.50	12.13	3.75	1.00	1.33	5.57	4.00
16	TEE & DEAD END	59.50	15.87	3.75	1.92	1.33	6.98	6.50



NOTES:

1. THE MINIMUM BEARING SURFACE AREAS SHOWN ARE BASED ON A MAX STATIC PIPE PRESSURE OF 250 POUNDS PER SQUARE INCH PLUS A SAFETY FACTOR OF 1.5 AND AN ALLOWABLE SOIL BEARING CAPACITY OF 1,500 POUNDS PER SQUARE FOOT. BEARING SURFACE AREA IS ROUNDED UP TO THE NEAREST 0.25 SQUARE FEET. REFERENCE AWWA M-23 AND M-41.
2. THE DESIGN ENGINEER IS RESPONSIBLE FOR VERIFYING ASSUMPTIONS BASED ON ACTUAL SITE CONDITIONS. IF SITE CONDITIONS VARY FROM THE ASSUMPTIONS, THE DESIGN ENGINEER SHALL PROVIDE A SITE-SPECIFIC DESIGN IN ACCORDANCE WITH AWWA M-23, PVC PIPE – DESIGN AND INSTALLATION AND AWWA M-41, DUCTILE-IRON PIPE AND FITTINGS. SITE-SPECIFIC DESIGNS INCLUDING GEOTECHNICAL INFORMATION SHALL BE SUBMITTED TO THE TOWN FOR REVIEW.
3. THE MINIMUM BEARING SURFACE AREA AND APPROXIMATE VOLUME OF CONCRETE SHALL BE SHOWN ON THE CONSTRUCTION PLANS FOR ALL CONCRETE THRUST BLOCKS. SEE SECTION 9.4 FOR CONCRETE REQUIREMENTS. SEE SECTION 4.8 FOR THRUST BLOCK REQUIREMENTS.
4. THE APPROXIMATE VOLUMES SHOWN ARE BASED ON THE MINIMUM BEARING SURFACE AREA AND THE MINIMUM TRENCH DIMENSIONS. THE APPROXIMATE VOLUME IS ROUNDED UP TO THE NEAREST 0.25 CUBIC YARDS.
5. THESE CHARTS MAY ONLY BE USED IF THE BLOCK HEIGHT (Ay) IS EQUAL TO OR LESS THAN ONE-HALF THE TOTAL DEPTH (Ht) FROM THE FINISHED GRADE TO THE BOTTOM OF THE BLOCK. THE MINIMUM DIMENSIONS SHOWN ARE BASED ON A PIPE DEPTH OF 5.5 FEET.
6. A SITE-SPECIFIC DESIGN SHALL BE REQUIRED FOR PIPES LARGER THAN 16 INCHES OR MAX STATIC PIPE PRESSURES GREATER THAN 250 POUNDS PER SQUARE INCH. THE DESIGN ENGINEER HAS THE OPTION OF PROVIDING A SITE-SPECIFIC DESIGN FOR PIPES SMALLER THAN 16 INCHES OR MAX STATIC PRESSURES LESS THAN 250 POUNDS PER SQUARE INCH.
7. ALL CALCULATIONS SHALL BE PROVIDED TO THE TOWN FOR REVIEW.

THRUST BLOCK DATA

Drawn: IGL	Revised:
Date: JUNE 2024	Revised:
Scale: N.T.S.	Revised:



W-11

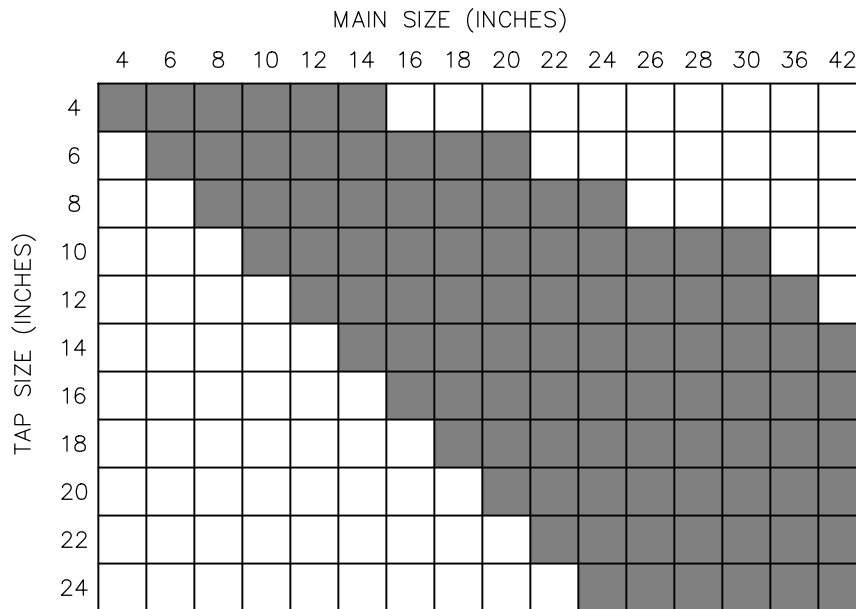
CONCRETE THRUST BLOCKS

WATER MAIN AND TAP SIZE COMBINATIONS WHICH REQUIRE A
CONCRETE THRUST REACTION BLOCK BEHIND THE MAIN AT THE
TAPPING SLEEVE OR SADDLE.

ALL WATER MAINS



INDICATES CONCRETE THRUST BLOCK REQUIRED



ANY THRUST REACTION BLOCK REQUIREMENTS FOR WATER MAIN AND
TAP SIZE COMBINATIONS OTHER THAN THOSE SHOWN ABOVE WILL
REQUIRE SPECIAL DESIGN APPROVAL BY THE TOWN.

THRUST BLOCKS REQUIRED FOR TAPS

Drawn: IGL

Date: JUNE 2024

Scale: N.T.S.

Revised:

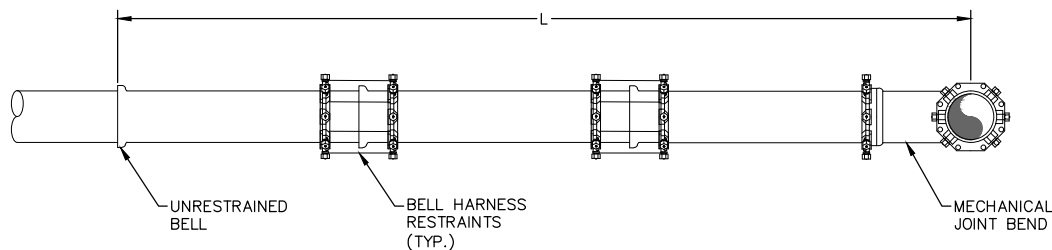
Revised:

Revised:



W-12

L = MINIMUM RESTRAINED PIPE LENGTH												
PIPE DIAMETER	45° BEND			22-1/2° BEND			11-1/4° BEND			DEAD-END VALVE OR PLUG, TO INCLUDE INLINE VALVES (SEE NOTE 7)		
MAX. STATIC PRESSURE (PSI)	<100	100-150	150-200	<100	100-150	150-200	<100	100-150	150-200	<100	100-150	150-200
6-INCH DUCTILE IRON AND PVC	6	9	12	3	5	6	2	3	3	49	73	97
8-INCH DUCTILE IRON AND PVC	8	12	16	4	6	8	2	3	4	63	94	125
12-INCH DUCTILE IRON AND PVC	12	17	23	6	8	11	3	4	6	89	133	177
16-INCH DUCTILE IRON AND PVC	15	22	29	7	11	14	4	5	7	USE CONCRETE REVERSE ANCHOR	USE CONCRETE REVERSE ANCHOR	USE CONCRETE REVERSE ANCHOR
20-INCH DUCTILE IRON AND PVC	18	26	35	9	13	17	4	6	8			
24-INCH DUCTILE IRON AND PVC	20	30	40	10	15	20	5	7	10			
30-INCH DUCTILE IRON AND PVC	24	36	48	12	18	24	6	9	12			
36-INCH DUCTILE IRON AND PVC	28	42	56	14	20	27	7	10	14			



NOTES:

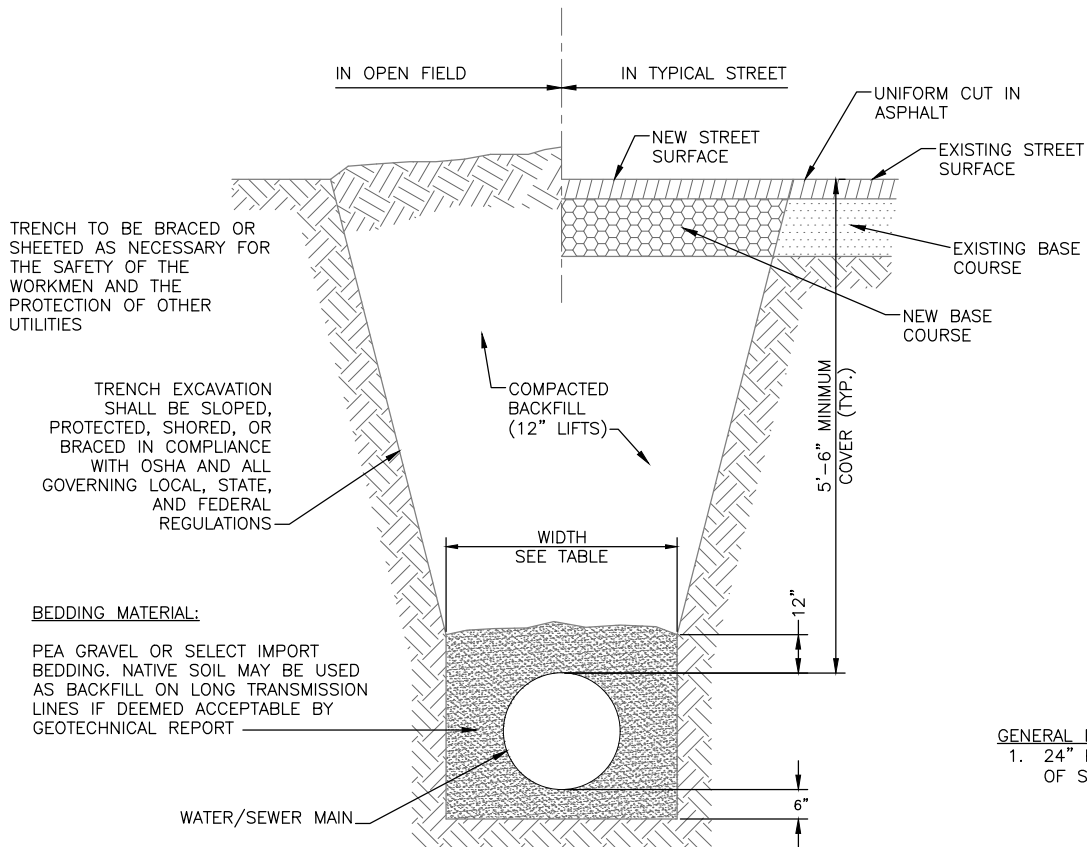
1. PRESSURE GREATER THAN 200 PSI REQUIRES SPECIAL DESIGN APPROVED BY THE TOWN.
2. LENGTH IS BASED ON MINIMUM 5 FEET OF GROUND COVER AND COMPACTED SOIL. IF THE DEPTH IS LESS THAN 5 FEET, RESTRAINED LENGTH MUST BE DESIGNED BY THE DESIGN ENGINEER.
3. RESTRAINED PIPE LENGTH APPLIES TO CONDITION WHERE NO CONCRETE THRUST REACTION BLOCK IS PRESENT.
4. CALCULATIONS ARE BASED ON POORLY-GRADED SANDS, GRAVEL, AND GRAVEL-SAND MIXTURE, LITTLE OR NO FINES, TYPE 4 BEDDING CONDITIONS - "PIPE BEDDED IN SAND, GRAVEL, OR CRUSHED STONE TO A DEPTH OF 1/8 PIPE DIAMETER (4" MIN.)." FACTOR OF SAFETY 2:1.
5. FIGURES ARE BASED ON DIP WRAPPED IN POLYETHYLENE MATERIAL.
6. USE CRA FOR DOWN-TURNING BENDS.
7. RESTRAINED LENGTH FOR DEAD END MAY BE USED AT THE DISCRETION OF THE TOWN.

RESTRAINED PIPE LENGTH (FT) W/ MECHANICAL JOINT RESTRAINTS

Drawn: IGL	Revised:
Date: JUNE 2024	Revised:
Scale: N.T.S.	Revised:



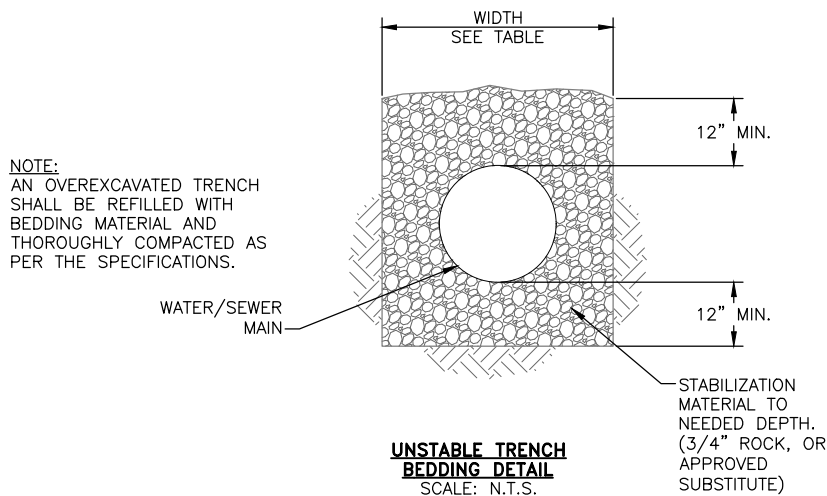
W-13



GENERAL NOTE:
1. 24" PIPES NEED 8" TO 10" OF STABILIZATION

TYPICAL TRENCH SECTION
SCALE: N.T.S.

PIPE DIAMETER	MINIMUM WIDTH	MAXIMUM WIDTH
4"	2'-2"	3'-0"
6"	2'-2"	3'-0"
8"	2'-2"	3'-0"
10"	2'-4"	3'-0"
12"	2'-6"	3'-6"
18"	2'-10"	3'-9"
24"	3'-2"	4'-3"

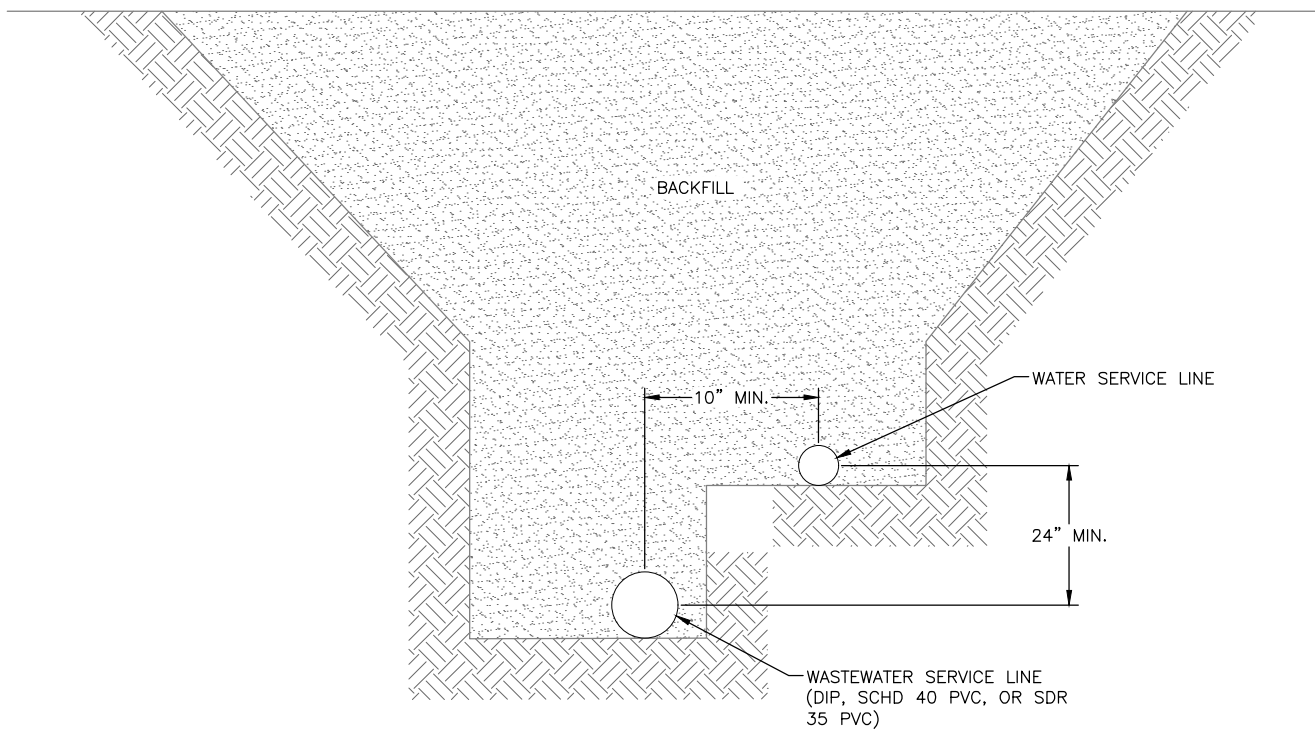


TYPICAL TRENCH CROSS-SECTION

Drawn: IGL	Revised:
Date: JUNE 2024	Revised:
Scale: N.T.S.	Revised:



W-14



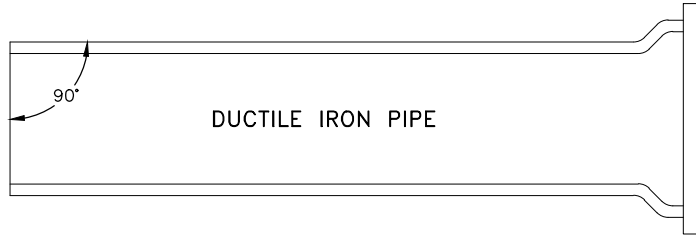
TYPICAL COMMON SERVICE TRENCH SECTION

Drawn: IGL	Revised:
Date: JUNE 2024	Revised:
Scale: N.T.S.	Revised:



W-15

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FOR SHEET W-16



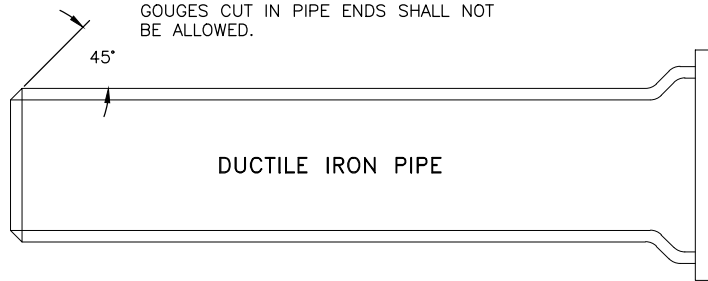
MECHANICAL JOINT CONNECTION

PIPE MUST BE CUT AT RIGHT ANGLES TO LONGITUDINAL CENTERLINE IN ALL CASES.

PIPE ENDS SHALL BE FREE OF BURRS.

MORTAR LINING SHALL BE FLUSH WITH PIPE END.

GOUGES CUT IN PIPE ENDS SHALL NOT BE ALLOWED.



SLIP JOINT CONNECTION

PIPE CUT IN STRAIGHT LINE AND BEVELED AT 45° ANGLE ON END.

GENERAL NOTES:

1. ALL PIPE CUTTING EQUIPMENT AND PIPE CUTS MUST BE APPROVED BY THE TOWN INSPECTOR.
2. ALL PIPE ENDS TO BE USED IN INSTALLATION SHALL BE DRESSED SMOOTH TO THE SATISFACTION OF THE INSPECTOR PRIOR TO INSTALLATION.
3. AT THE REQUEST OF THE CONTRACTOR MAKING THE INSTALLATION, THE TOWN WILL MAKE PIPE CUTS, PROVIDED THE CURRENT FEE PER CUT IS PAID AND 24-HOUR NOTICE IS GIVEN (THE CURRENT FEE IS SUBJECT TO CHANGE.)
4. ALL DIP DELIVERED TO JOB SITE MUST BE NEW MATERIAL.

PIPE CUTTING

Drawn: IGL

Date: JUNE 2024

Scale: N.T.S.

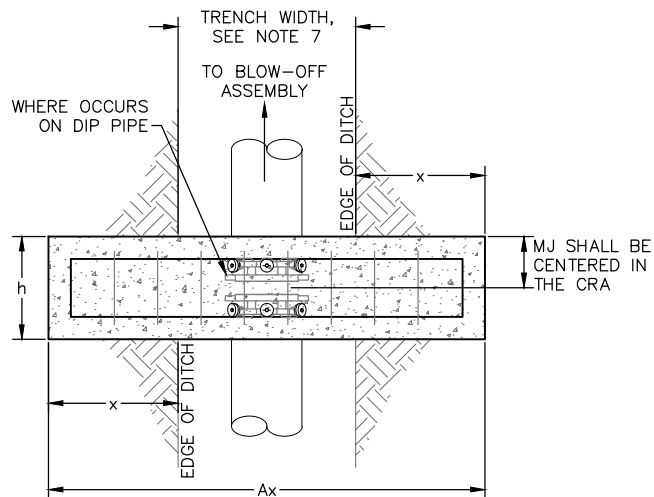
Revised:

Revised:

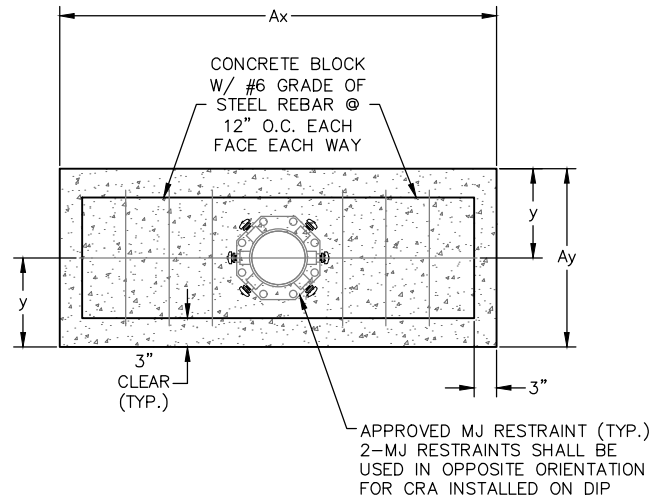
Revised:



W-17



PLAN
DEAD-END OR
REVERSE ANCHOR



ELEVATION
DEAD-END OR
REVERSE ANCHOR

DIAMETER (in)	PRESSURE (psi)	x (in)	Ax (in)	y (in)	Ay (in)	Ab (sf)	h (in)	Vol (cy)
4	250	12	72	12	28.80	6.80	18	1.0
6	250	18	84	12	30.90	9.73	18	1.0
8	250	36	120	12	33.05	18.53	18	1.5
12	170	36	120	15	43.20	24.60	18	2.0
12	250	48	144	18	49.20	36.80	24	3.75
16	170	54	156	18	53.40	44.05	24	4.25
16	250	60	168	24	65.40	60.50	36	8.5

NOTES:

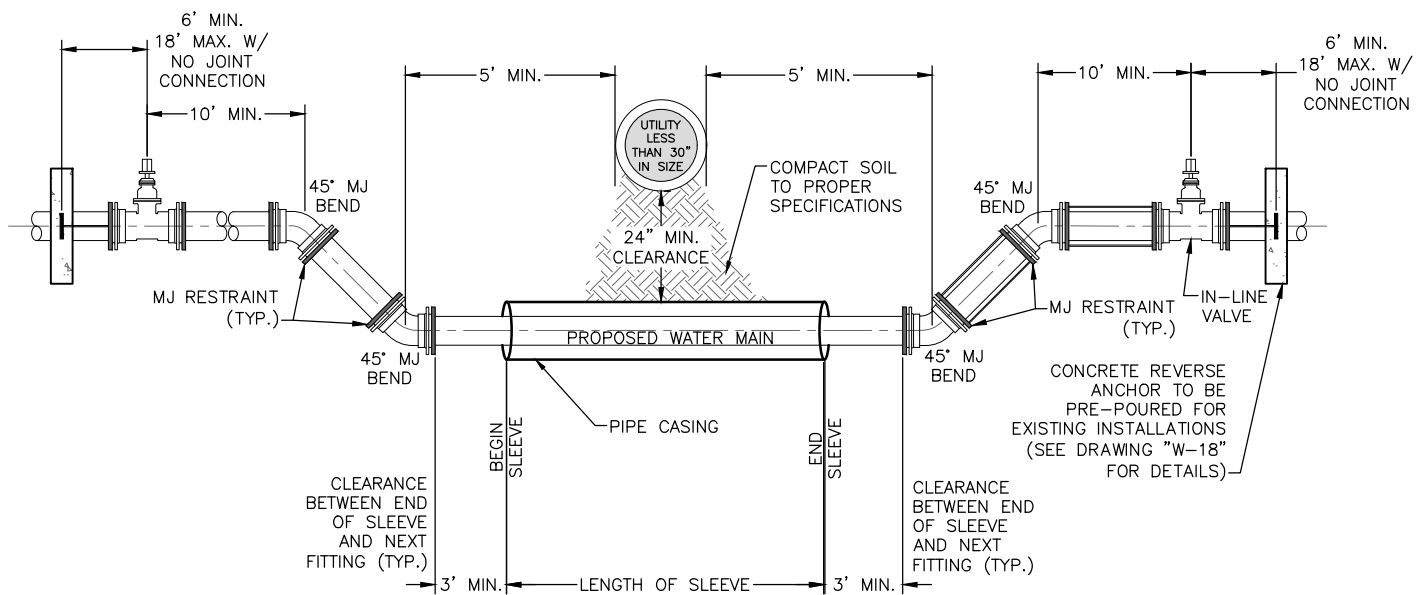
1. THE MINIMUM BEARING SURFACE AREAS SHOWN ARE BASED ON A MAX. STATIC PIPE PRESSURE OF 170/250 POUNDS PER SQUARE INCH PLUS A SAFETY FACTOR OF 1.5, AND AN ALLOWABLE SOIL BEARING CAPACITY OF 1,500 POUNDS PER SQUARE FOOT. FOR HDPE, ADDITIONAL ASSUMPTIONS INCLUDE A MAX 50°F TEMPERATURE CHANGE AND A POISSON RATIO OF 0.45. REFERENCE AWWA M-23, M-41, AND M-55.
2. THE DESIGN ENGINEER IS RESPONSIBLE FOR VERIFYING ASSUMPTIONS BASED ON ACTUAL SITE CONDITIONS. IF SITE VARIES FROM THE ASSUMPTIONS, THE DESIGN ENGINEER SHALL PROVIDE A SITE-SPECIFIC DESIGN THAT SHALL BE IN ACCORDANCE WITH AWWA M-23, PVC PIPE DESIGN AND INSTALLATION, AND AWWA M-41, DUCTILE IRON PIPE, AND FITTINGS. SITE-SPECIFIC DESIGNS USING GEOTECHNICAL INFORMATION SHALL BE SUBMITTED TO THE TOWN FOR APPROVAL.
3. THE MINIMUM LATERAL BEARING SURFACE AREA (Ab) AND APPROXIMATE VOLUME OF CONCRETE (Vol) SHALL BE SHOWN ON THE CONSTRUCTION PLANS FOR ALL CONCRETE REVERSE ANCHORS.
4. THE APPROXIMATE VOLUMES SHOWN ARE BASED ON THE MINIMUM DIMENSIONS IN THE TABLE. THE APPROXIMATE VOLUME IS ROUNDED UP TO THE NEAREST 0.25 CUBIC YARDS.
5. A SITE-SPECIFIC DESIGN SHALL BE REQUIRED FOR PIPES LARGER THAN 16 INCHES OR MAX. STATIC PIPE PRESSURES GREATER THAN 250 POUNDS PER SQUARE INCH. THE DESIGN ENGINEER HAS THE OPTION OF PROVIDING A SITE-SPECIFIC DESIGN FOR PIPES SMALLER THAN 16 INCHES OR MAX. STATIC PRESSURES LESS THAN THE PRESSURE LISTED IN THE TABLE.
6. COAT RODS WITH EPOXY POLYAMIDE COATING, 10 MILS THICK, MIN.
7. A TRENCH WIDTH OF 4 FEET AND 6" BEDDING UNDER THE PIPE ARE ASSUMED FOR BEARING CALCULATIONS, (Ax, Ay, AND y).
8. THE DESIGN ENGINEER SHALL ENSURE THE CONSTRUCTION OF THE CONCRETE REVERSE ANCHOR SHALL NOT CONFLICT WITH OTHER UTILITIES.
9. DUCTILE IRON FITTINGS AND PIPE SHALL BE WRAPPED IN POLYETHYLENE TUBING WHERE ADJACENT TO CONCRETE.

CONCRETE REVERSE ANCHOR FOR MECHANICAL JOINT RESTRAINTS

Drawn: IGL	Revised:
Date: JUNE 2024	Revised:
Scale: N.T.S.	Revised:



W-18



NOTES:

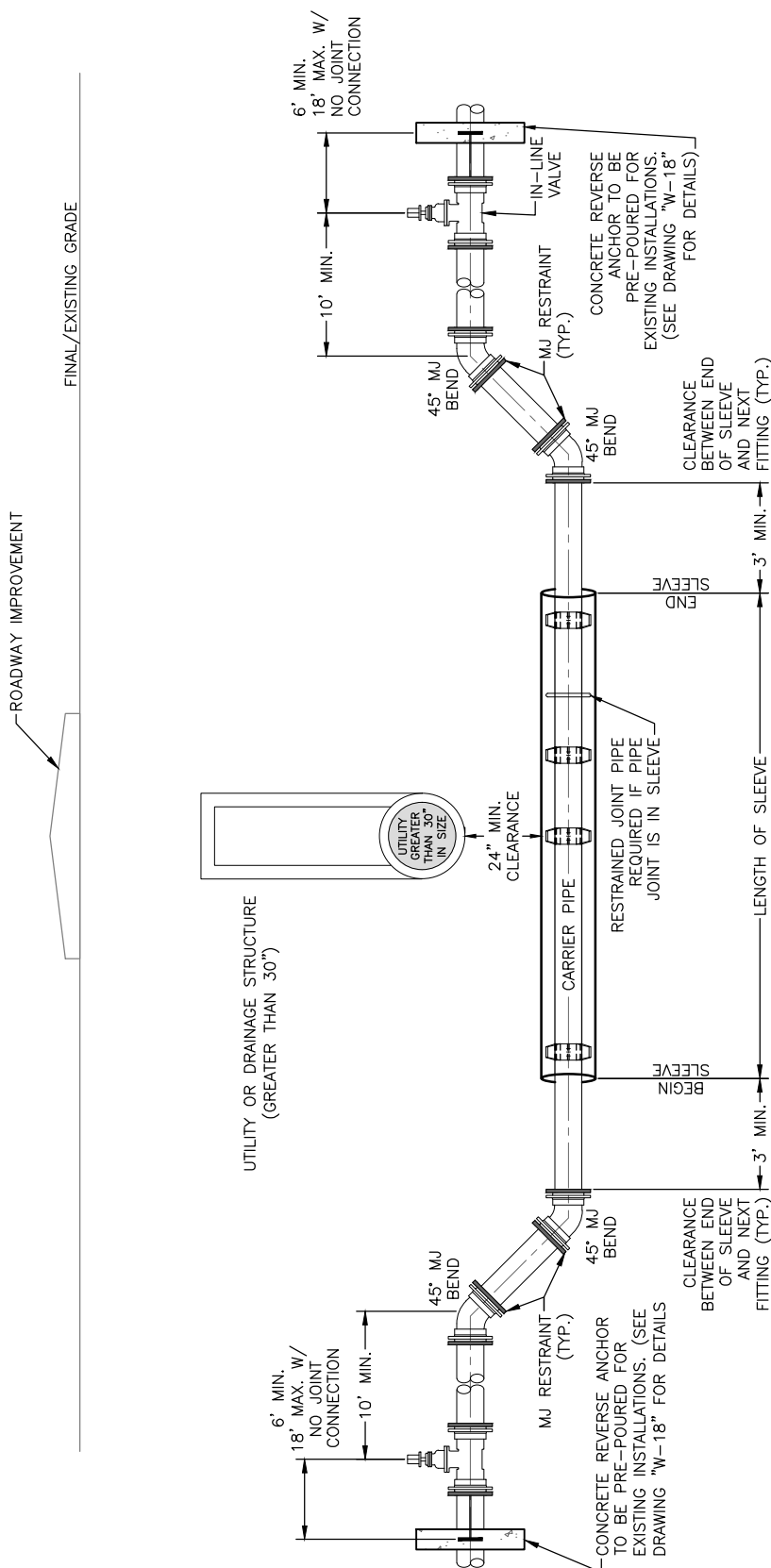
1. ALL DUCTILE IRON FITTINGS AND PIPE SHALL BE CATHODICALLY PROTECTED.
2. ALL FITTINGS SHALL HAVE MJ RESTRAINTS.
3. EXAMPLE CAN VARY DUE TO SITE CONDITIONS AND DISTRICT INSPECTOR'S DIRECTION.
4. RESTRAINED JOINTS ARE REQUIRED WITHIN LOWERING.
5. NO TAPS OR TEES ARE ALLOWED WITHIN THE LOWERING.

LOWERING DETAIL – UTILITY CROSSING 30" & SMALLER

Drawn: IGL	Revised:
Date: JUNE 2024	Revised:
Scale: N.T.S.	Revised:



W-19



NOTES:

1. 3/4" ALL-THREAD TO BE USED FROM VALVE TO REVERSE ANCHOR AND FROM UPPER BEND TO VALVE.
2. IF A JOINT IS LOCATED BETWEEN ANY FITTINGS INCORPORATED INTO THE LOWERING, BELL/JOINT RESTRAINTS MUST BE USED.
3. CASING PIPE MUST BE CLEAN AND FREE OF ALL DIRT AND DEBRIS BEFORE INSTALLING CARRIER PIPE AND BEFORE INSTALLING END SEALS.
4. CARRIER PIPE SHALL BE DIP, UNLESS OTHERWISE APPROVED.
5. FURNISH AND INSTALL JOINT BONDING, POLYETHYLENE TUBING, AND 17 LB. MAGNESIUM ANODE ON DIP LOWERING PER STANDARD SPECIFICATIONS.
6. FURNISH AND INSTALL ONE 17 LB. MAGNESIUM ANODE PER 20 FEET OR LESS OF CASING PIPE.
7. ENTIRE LENGTH OF LOWERING (FROM VERTICAL BEND TO LOWER VERTICAL BEND) SHALL REST ON 18" MINIMUM OF 3/4" ROCK BELOW CASING AND UP TO SPRINGLINE OF CASING AND CARRIER PIPE.

LOWERING DETAIL W/CASING UTILITY CROSSING GREATER THAN 30"

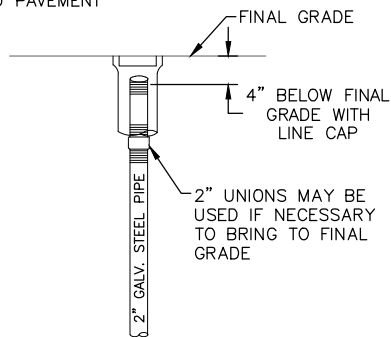
Drawn: IGL	Revised:
Date: JUNE 2024	Revised:
Scale: N.T.S.	Revised:



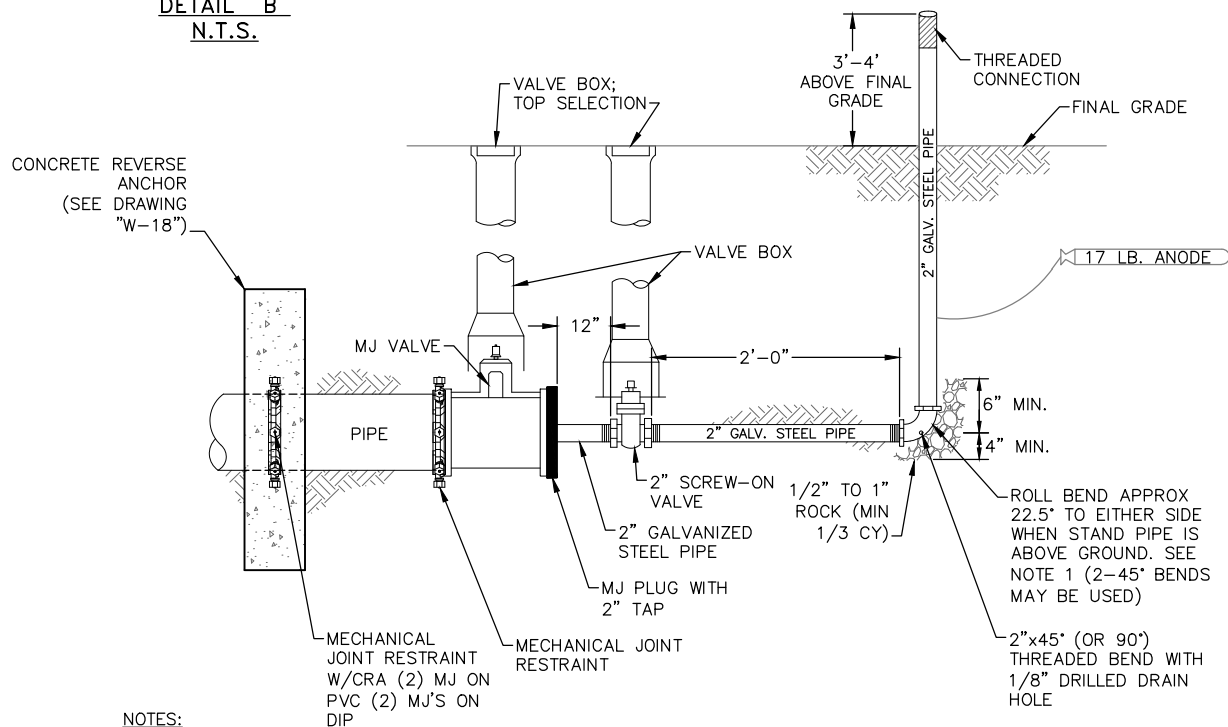
W-20

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NOTE:
USE DETAIL "B" WHEN
INSTALLING TO PAVEMENT
ELEVATION



DETAIL "B"
N.T.S.



NOTES:

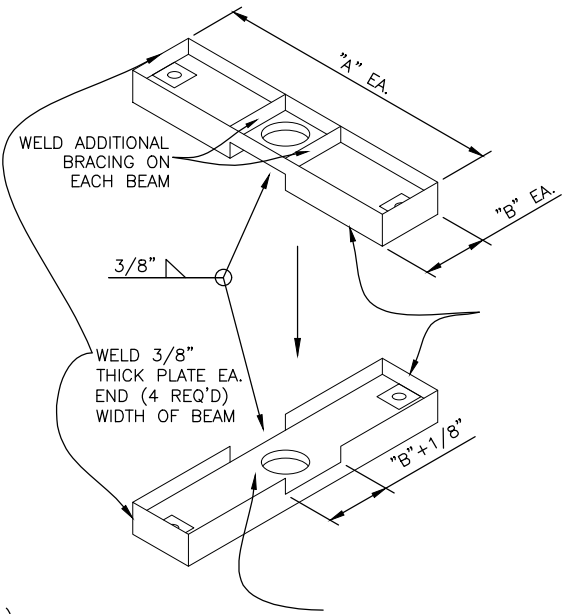
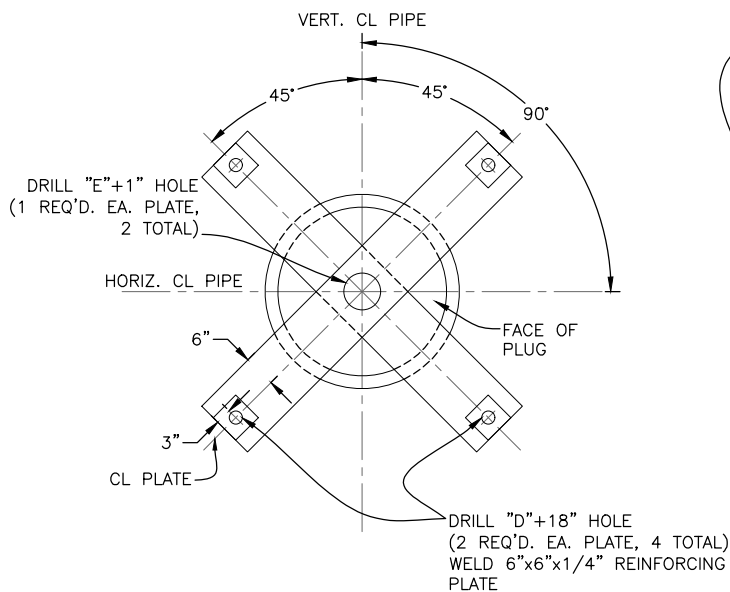
1. IF APPROPRIATE LOCATION FOR DISCHARGED WATER CANNOT BE REACHED BY ROLLING THE BEND, ADDITIONAL BENDS MAY BE REQUIRED BY THE TOWN INSPECTOR.
2. COAT TIE RODS, BEAM, AND GALVANIZED STEEL PIPE WITH EPOXY POLYAMIDE COATING, 10 MILS THICK, MIN.
3. ENTIRE BLOW-OFF ASSEMBLY MUST BE ADEQUATELY SUPPORTED, CONCRETE PAVER STONES MAY BE REQUIRED.
4. PIPE DOPE APPROVED FOR USE IN POTABLE WATER SYSTEMS MUST BE USED ON ALL THREADED FITTINGS.
5. TEMPORARY BLOW-OFF VALVE ASSEMBLIES SHALL BE INSPECTED BY THE TOWN INSPECTOR PRIOR TO BACKFILL. BACKFILL COMPACTION TO BE SAME AS PIPE COMPACTION SPECIFICATIONS.
6. 2" GALVANIZED PIPE MUST BE RATED TO 250 PSI AND CONFORM TO NSF-61 SPECIFICATIONS.
7. THE TOWN INSPECTOR MAY REQUIRE TIE-BACK RODS IN ADDITION TO THE MJ RESTRAINTS DEPENDING ON FIELD CONDITIONS AND SYSTEM PRESSURES.

TEMP BLOW-OFF ASSEMBLIES - 4", 6", & 8" MAINS W/MJ PLUG

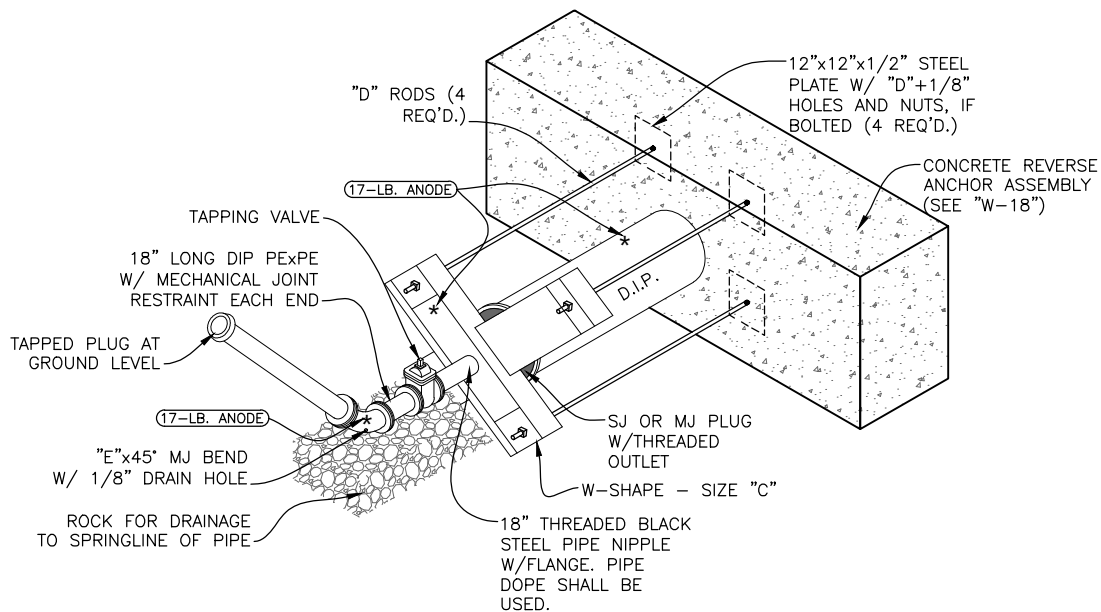
Drawn: IGL	Revised:
Date: JUNE 2024	Revised:
Scale: N.T.S.	Revised:



W-22



REFER TO W-24 FOR ALL DIMENSIONS & SIZES
 "E"=SIZE OF BLOW-OFF ASSEMBLY
 (WHERE "E"=2", USE STANDARD BLOW-OFF ASSEMBLY, W-22)



NOTES:

1. PIPE DOPE APPROVED FOR USE IN POTABLE WATER SYSTEMS MUST BE USED ON ALL THREADED JOINTS.
2. ENTIRE BLOW-OFF ASSEMBLY MUST BE FULLY SUPPORTED SO NO LOAD BEARS ON BLOW-OFF PIPING.
3. IF APPROPRIATE LOCATION FOR DISCHARGED WATER CANNOT BE REACHED BY ROLLING THE BEND, ADDITIONAL BENDS MAY BE REQUIRED.
4. COAT TIE-RODS, BEAMS, AND BLACK IRON PIPE WITH EPOXY POLYAMIDE COATING, 10 MILS THICK, MIN.

TEMP & PERMANENT BLOW-OFF ASSEMBLIES FOR MAINS 12"+

Drawn: IGL	Revised:
Date: JUNE 2024	Revised:
Scale: N.T.S.	Revised:



W-23

BLOW-OFF ASSEMBLY SIZING

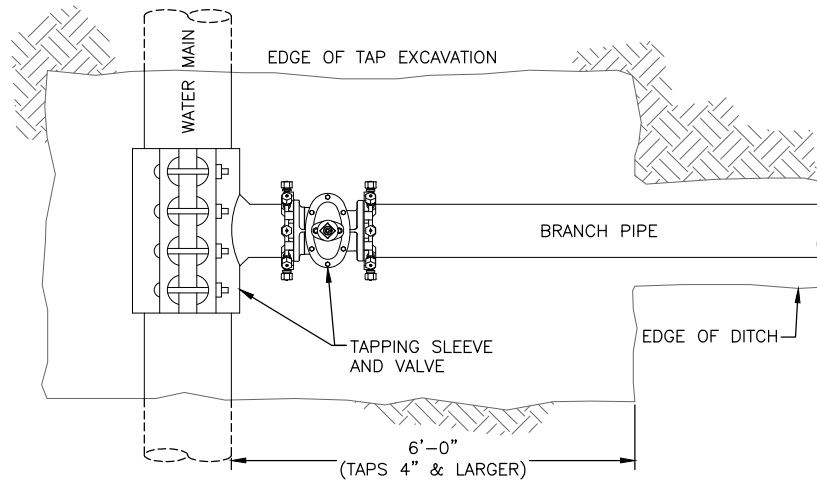
MAIN PIPE DIA. (IN.)	STATIC PRESSURE RANGE (P.S.I.)	DIMENSIONS FROM DRAWING "W-23"				
		"A" (IN)	"B" (IN)	"C" (W-SHAPE)	"D" ROD SIZE (IN)	"E" BLOW-OFF PIPE SIZE (IN)
12	<100 101-150 151-200 201-250	36	10	W10 x 15	5/8	2
		36	10 1/4	W10 x 19	3/4	2
		36	10 1/8	W10 x 22	7/8	2
		36	10 1/8	W10 x 22	1	2
16	<100 101-150 151-200 201-250	40	12 1/4	W12 x 26	7/8	4
		40	12 1/4	W12 x 26	1	4
		40	12 1/4	W12 x 26	1 1/8	4
		40	12 1/2	W12 x 35	1 1/4	4
18	<100 101-150 151-200 201-250	42	12 1/4	W12 x 26	1	4
		42	12 1/2	W12 x 35	1 1/4	4
		42	12	W12 x 40	1 3/8	4
		42	12	W12 x 45	1 1/2	4
20	<100 101-150 151-200 201-250	44	12 1/4	W12 x 26	1	4
		44	12 1/2	W12 x 35	1 1/4	4
		44	12	W12 x 40	1 3/8	4
		44	12	W12 x 45	1 1/2	4
24	<100 101-150 151-200 201-250	48	12 1/2	W12 x 35	1 1/4	6
		48	12	W12 x 40	1 1/2	6
		48	12	W12 x 53	1 1/4*	6
		48	12	W12 x 53	1 1/8*	6
30	<100 101-150 151-200 201-250	54	12 1/4	W12 x 50	1 1/8*	6
		54	12 1/4	W12 x 58	1 3/8*	6
		54	12 1/8	W12 x 65	1 1/2*	6
		54	12 1/4	W12 x 72	1 5/8*	6
36	<100 101-150 151-200	60	12 1/4	W12 x 58	1 1/4*	8
		60	12 1/4	W12 x 72	1 1/2*	8
		60	12 3/4	W12 x 96	1 3/4*	8

NOTES:

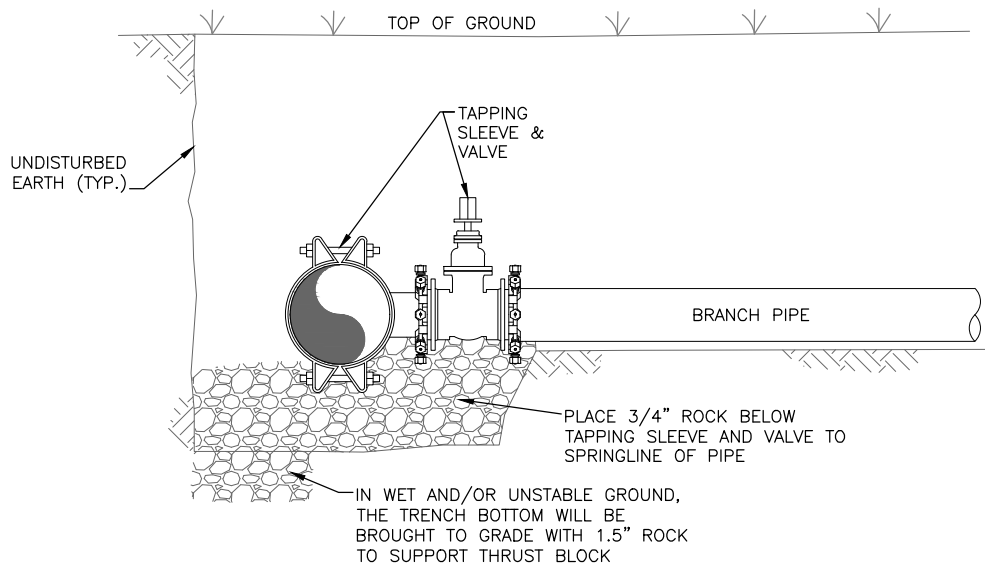
1. ALL W-SHAPES FABRICATED FROM A36 STEEL.
2. ALL RODS SHALL BE MIN. GRADE A307 EXCEPT WHERE NOTED AS *. THESE SHALL BE MINIMUM STRENGTH EQUAL TO ASTM A325 RODS.
3. A 50% SURGE FACTOR HAS BEEN INCLUDED IN DESIGN.
4. FOR SIZES AND PRESSURES GREATER THAN THOSE SHOWN, SPECIAL DESIGN IS REQUIRED, APPROVED BY THE TOWN.

BLOW-OFF ASSEMBLY DIMENSION DATA FOR MAINS 12" +

Drawn: IGL	Revised:		W-24
Date: JUNE 2024	Revised:		
Scale: N.T.S.	Revised:		



PLAN VIEW
N.T.S.



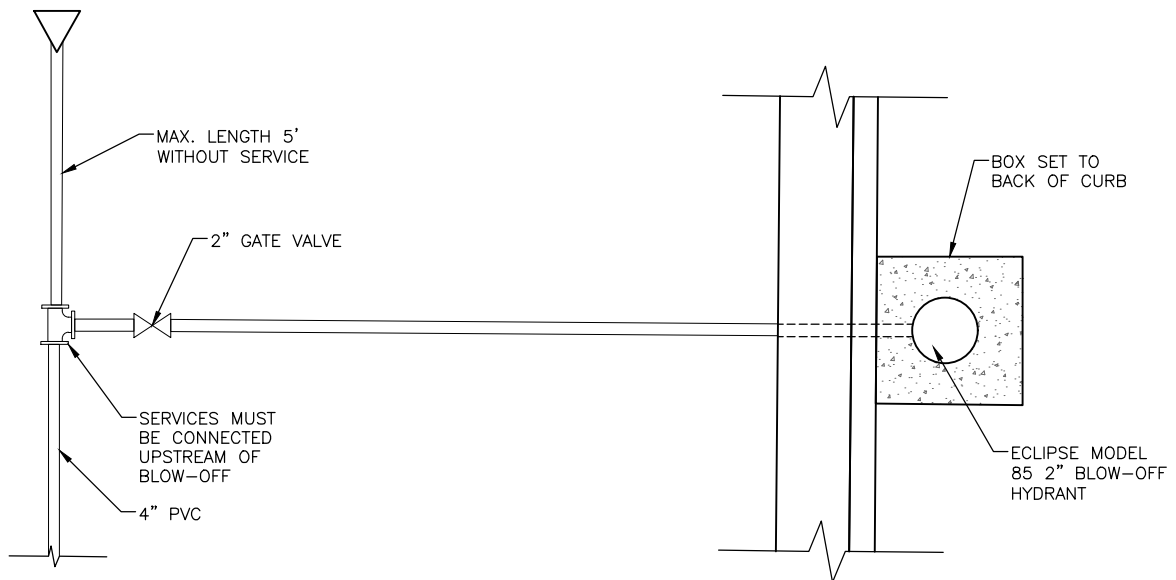
PROFILE VIEW
N.T.S.

PIPE TAPPING DETAIL

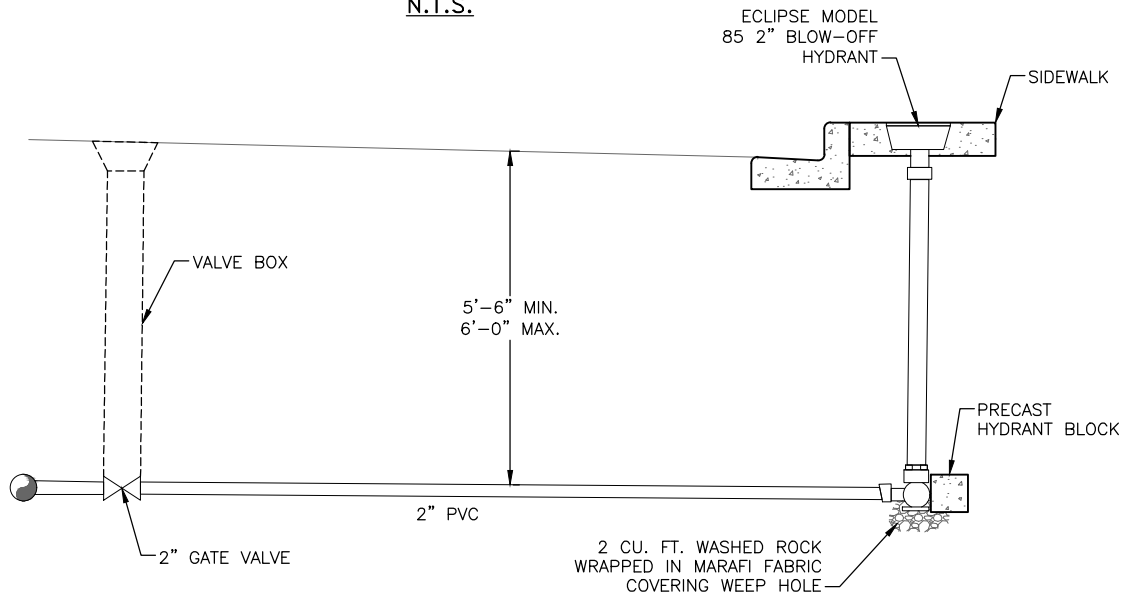
Drawn: IGL	Revised:
Date: JUNE 2024	Revised:
Scale: N.T.S.	Revised:



W-25



PLAN VIEW
N.T.S.



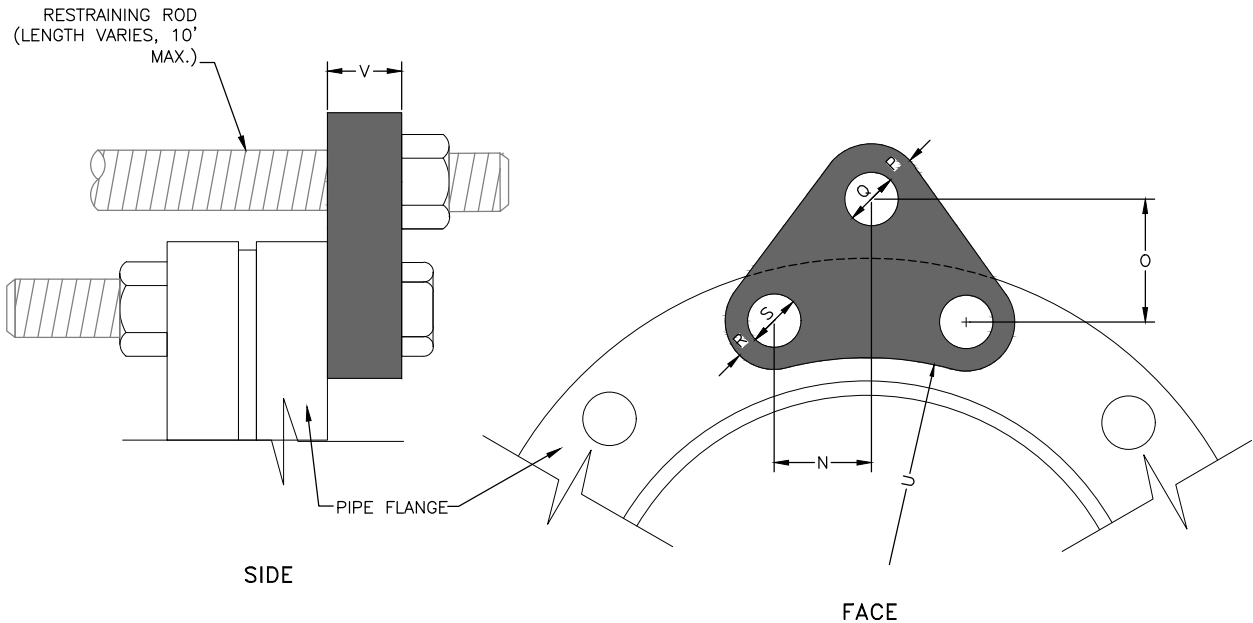
PROFILE VIEW
N.T.S.

CUL-DE-SAC BLOW-OFF DETAIL

Drawn: IGL	Revised:
Date: JUNE 2024	Revised:
Scale: N.T.S.	Revised:



W-26



PIPE DIA. (IN.)	PRESS. CLASS (PSI)	"N" (IN.)	"O" (IN.)	H.S. ROD			M.S. ROD			"R" (IN.)	"S" (IN.)	"U" (IN.)	"V" (IN.)	NO REQ'D (EA)
				"P" (IN.)	"Q" (IN.)	ROD DIA. (IN.)	"P" (IN.)	"Q" (IN.)	ROD DIA. (IN.)					
6	150	1-15/16	2-1/4	1	7/8	3/4	1	7/8	3/4	7/8	7/8	3-3/4	3/4	2
	300	1-3/8	2-3/4	1	1	7/8	1	1	7/8	7/8	7/8	4-7/16	1	
8	150	2-1/4	2-3/4	1	7/8	3/4	1	7/8	3/4	1	7/8	4-7/8	3/4	2
	300	1-11/16	2-7/8	1	1	7/8	1	1	7/8	1	1	5-1/2	1	
12	150	2-3/16	2-3/4	1-1/4	1-1/8	1	1-1/4	1-1/8	1	1-1/8	1	7-1/4	7/8	2
	300	1-3/4	3-3/4	1-3/8	1-1/4	1-1/2	1-3/8	1-3/8	1-1/4	1-1/4	1-1/8	7-5/8	1-1/4	
16	150	2-1/16	2-3/4	1-1/2	1-3/8	1-1/4	1-1/2	1-3/8	1-1/4	1-1/4	1-1/8	9-3/8	1-1/8	3
	300	1-3/4	4-1/4	1-1/2	1-1/2	1-3/8	1-1/2	1-1/2	1-3/8	1-1/2	1-3/8	9-7/8	1-1/2	
18	150	2-1/4	2-1/2		1-1/8	1		1-1/8	1		1-1/8	10	1-1/8	4
	300	1-7/8	3-3/4	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-3/8	10-3/16	2	4
20	150	2-5/8	1-15/16		1-1/8	1		1-1/8	1		1-1/4	11-1/8	1-1/4	4
	300	2	3-1/16	1-3/8	1-9/16	1-1/2	1-3/8	1-9/16	1-1/2	1-3/8	1-3/8	10-1/2	2-1/2	4
24	150	2-5/16	2-5/8		1-1/8	1		1-1/8	1		1-3/8	13-1/4	1-1/4	6
	300	2-5/16	3-1/8	1-1/2	1-9/16	1-1/2	1-1/2	1-9/16	1-1/2	1-1/2	1-5/8	12-1/2	2-1/4	6

NOTES:

1. M.S. MEANS MILD STEEL ROD, ASTM STANDARD DESIGNATION A-36. NUTS SHALL BE ASTM STANDARD DESIGNATION A-307
2. H.S. MEANS HIGH STRENGTH STEEL ROD, ASTM STANDARD DESIGNATION A-193 GRADE B-7. NUTS SHALL BE ASTM STANDARD DESIGNATION A-193 GRADE 2-H.

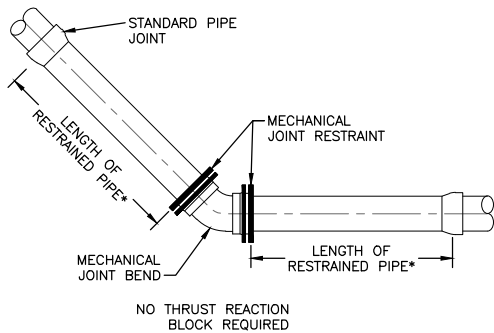
FLANGE – LUG DETAIL

Drawn: IGL
Date: JUNE 2024
Scale: N.T.S.

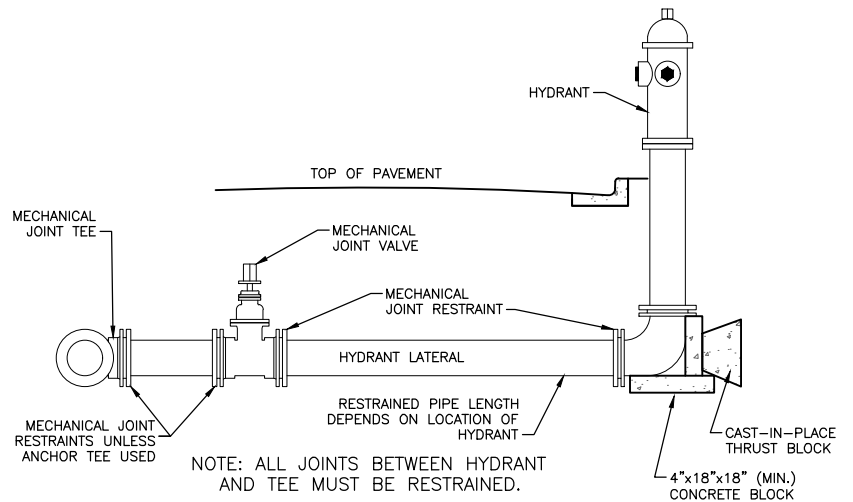
Revised:
Revised:
Revised:



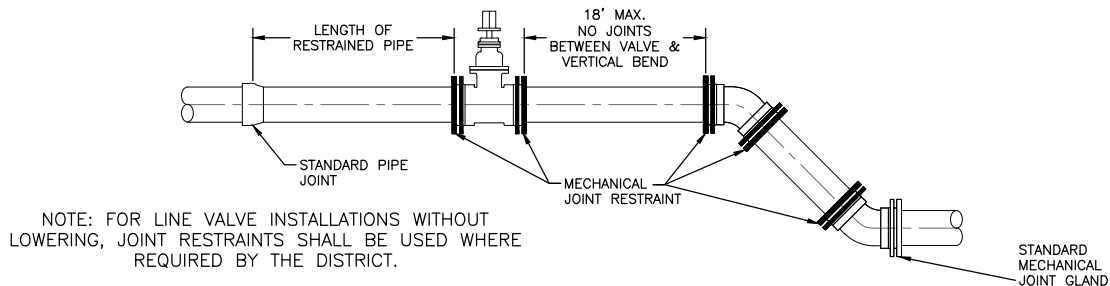
W-27



INSTALLATION FOR BENDS



INSTALLATION FOR BENDS



INSTALLATION FOR LINE VALVE & LOWERING

NOTES:

1. MECHANICAL JOINTS SHALL BE APPROVED ACCORDING TO MATERIAL SPECIFICATION FOR DIP AND PVC PIPE.
2. LENGTH OF PIPE REQUIRING JOINT RESTRAINT SHALL BE DETERMINED FROM CHART ON DRAWING W-13.
3. RESTRAINED JOINT PVC PIPE SHALL NOT BE USED FOR LOWERINGS.
4. IF A JOINT IS LOCATED BETWEEN ANY FITTINGS INCORPORATED INTO THE ASSEMBLY, BELL/JOINT RESTRAINTS MUST BE USED.

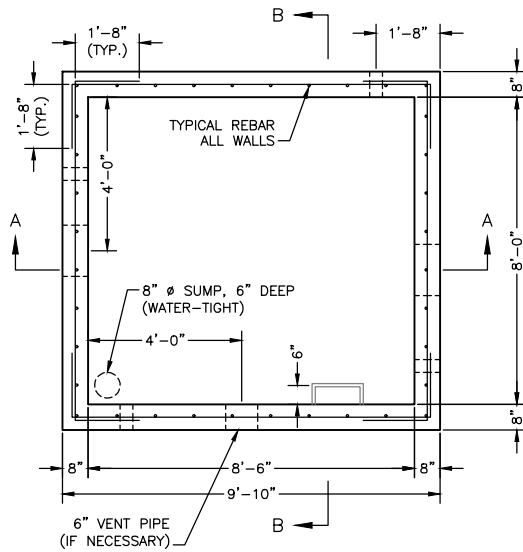
APPLICATIONS FOR MECHANICAL JOINT RESTRAINTS

Drawn: IGL	Revised:
Date: JUNE 2024	Revised:
Scale: N.T.S.	Revised:

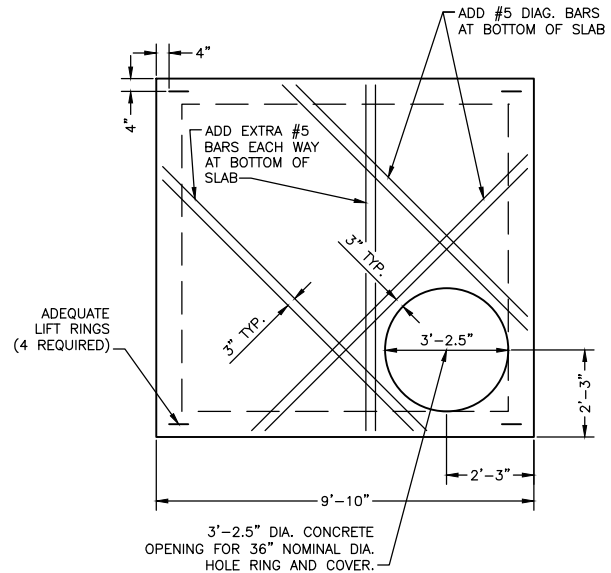


W-28

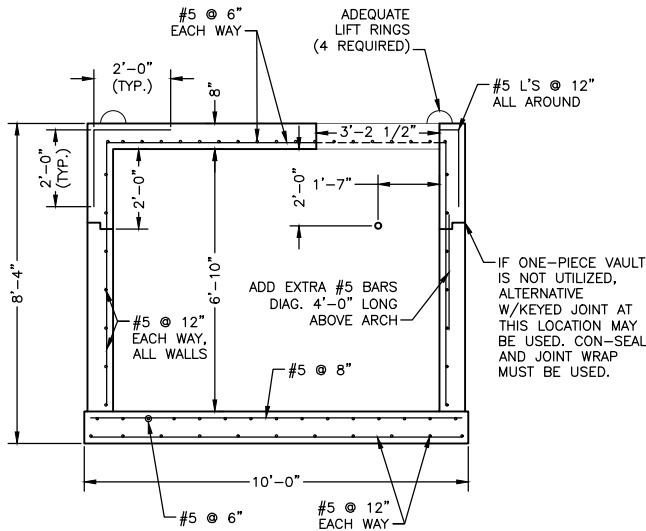
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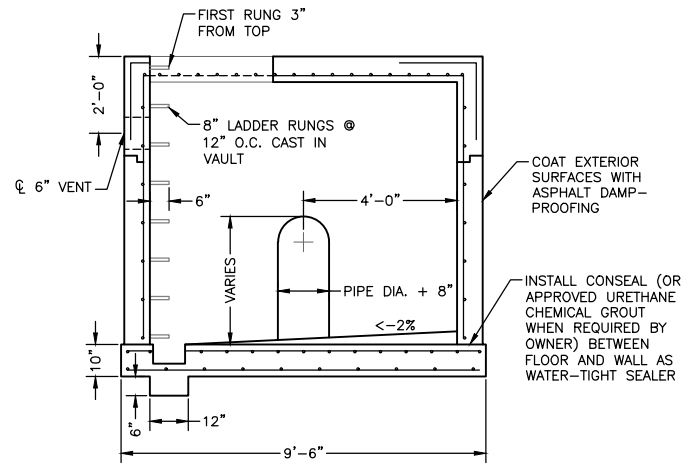
PLAN VIEW
N.T.S.



ROOF PLAN
N.T.S.



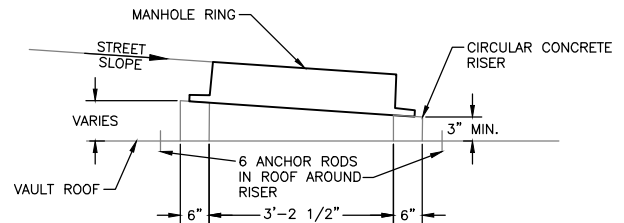
SECTION A-A
N.T.S.



SECTION B-B
N.T.S.

NOTES:

- ALL CONCRETE WORK SHALL COMPLY WITH TOWN STANDARD SPECIFICATIONS AND LATEST A.C.I.-318 CODE.
- MINIMUM CONCRETE CLEARANCES FOR REBAR:
 - 3" WHERE POURED AGAINST EARTH
 - 2" WHERE FORMED AND THEN EXPOSED TO GROUND OR WEATHER FOR #6 OR LARGER. 1.5" FOR #5 AND SMALLER.
 - 1" WHERE EXPOSED TO INTERIOR SURFACES
- ALL VAULTS SHALL BE CONSTRUCTED TO MEET HS20-44 TRAFFIC LOADING CONDITIONS AND 300 PSF SURCHARGE LOAD.



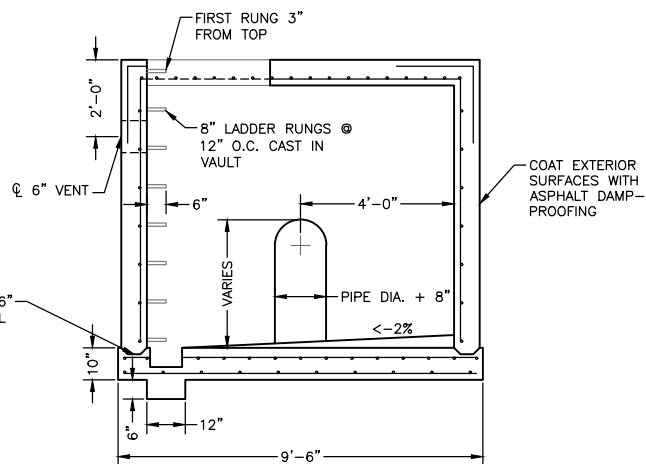
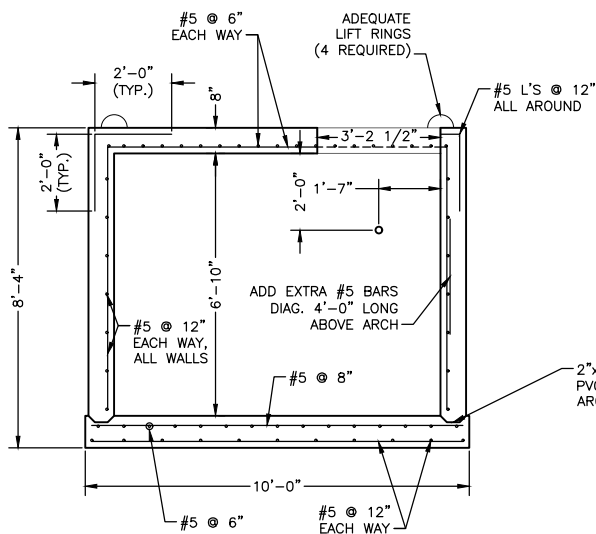
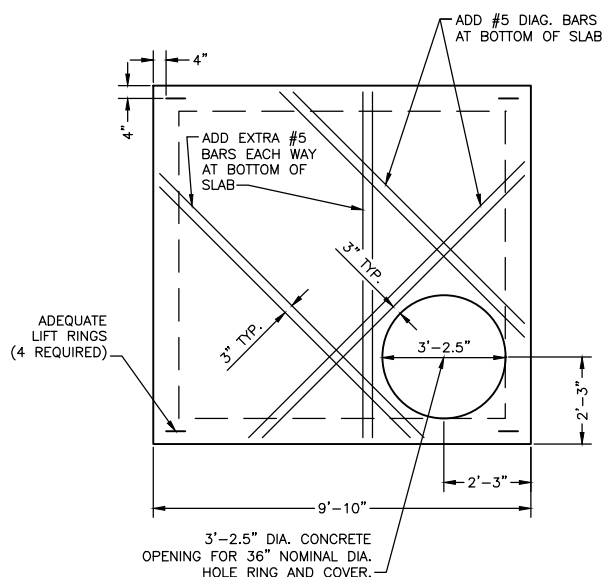
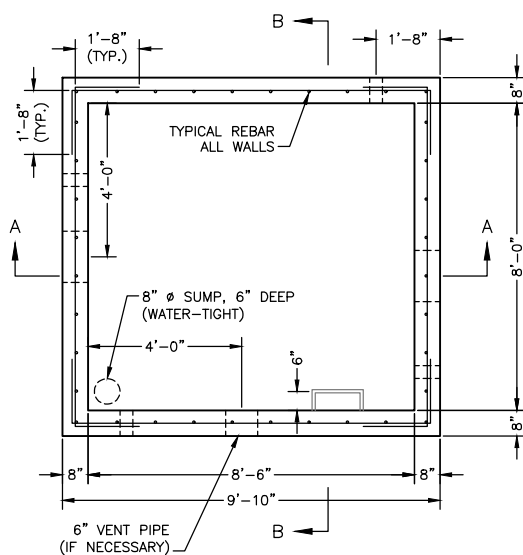
DETAIL A
CONCRETE RISER FOR MANHOLE
N.T.S.

STAND. CONC. VAULT FOR VALVE INSTALLATION (PRECAST)

Drawn: IGL	Revised:
Date: JUNE 2024	Revised:
Scale: N.T.S.	Revised:



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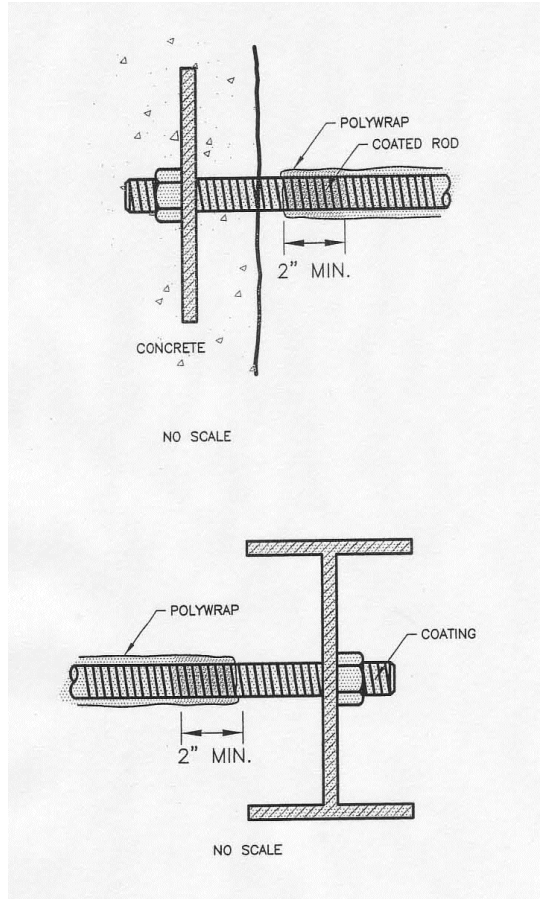
SECTION A-A
N.T.S.

SECTION B-B
N.T.S.

DETAIL A
CONCRETE RISER FOR MANHOLE
N.T.S.

- NOTES:

1. ALL CONCRETE WORK SHALL COMPLY WITH TOWN STANDARD SPECIFICATIONS AND LATEST A.C.I.-318 CODE.
2. MINIMUM CONCRETE CLEARANCES FOR REBAR:
 - 3" WHERE POURED AGAINST EARTH
 - 2" WHERE FORMED AND THEN EXPOSED TO GROUND OR WEATHER FOR #6 OR LARGER. 1.5" FOR #5 AND SMALLER.
 - 1" WHERE EXPOSED TO INTERIOR SURFACES
3. ALL VAULTS SHALL BE CONSTRUCTED TO MEET HS20-44 TRAFFIC LOADING CONDITIONS AND 300 PSF SURCHARGE LOAD.

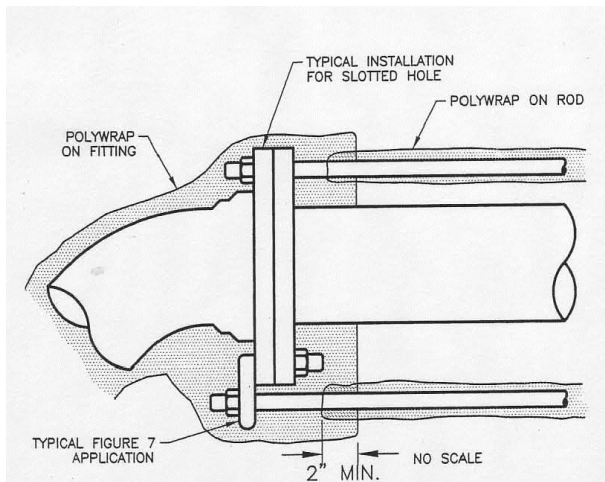


METAL IN CONCRETE:

1. COAT METAL PARTS WHERE IN CONTACT WITH CONCRETE, EXTENDING COATING SEVERAL INCHES BEYOND THE CONCRETE.
2. POLYWRAP THE ROD, OVERLAPPING THE POLYWRAP AND THE COATING A MINIMUM OF 2".
3. SECURE POLYWRAP TO THE ROD USING 2" WIDE, 10-MIL POLYETHYLENE PRESSURE-SENSITIVE TAPE.

ROD THROUGH I-BEAM:

1. COAT ENTIRE I-BEAM,
2. COAT NUT AND ROD, EXTENDING COATING SEVERAL INCHES BEYOND THE BEAM.
3. POLYWRAP THE ROD, OVERLAPPING THE COATING A MINIMUM OF 2".
4. SECURE POLYWRAP WITH TAPE.



RODS IN MJ FITTING:

1. POLYWRAP THE ROD AND SECURE WITH TAPE.
2. POLYWRAP THE FITTING OVERLAPPING THE POLYWRAP ON THE ROD A MINIMUM OF 2" AND SECURE WITH TAPE.

PROTECTING TIE RODS

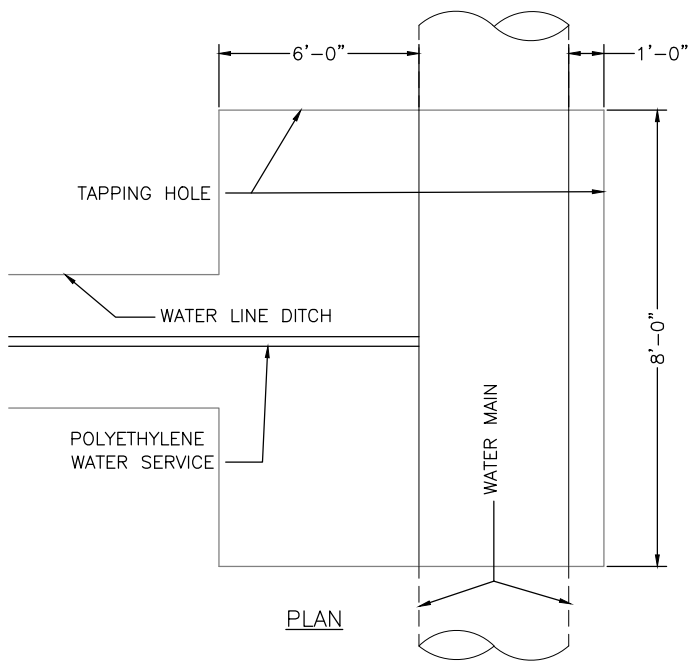
Drawn: IGL
 Date: JUNE 2024
 Scale: N.T.S.

Revised:
 Revised:
 Revised:

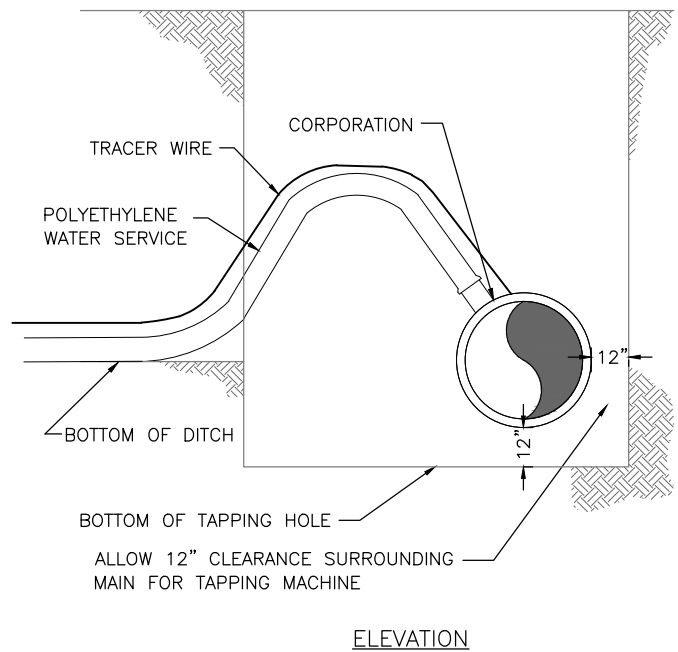
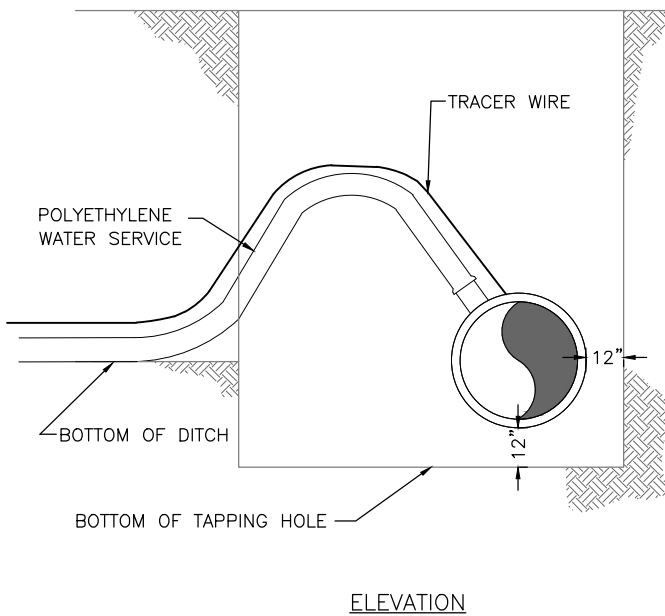
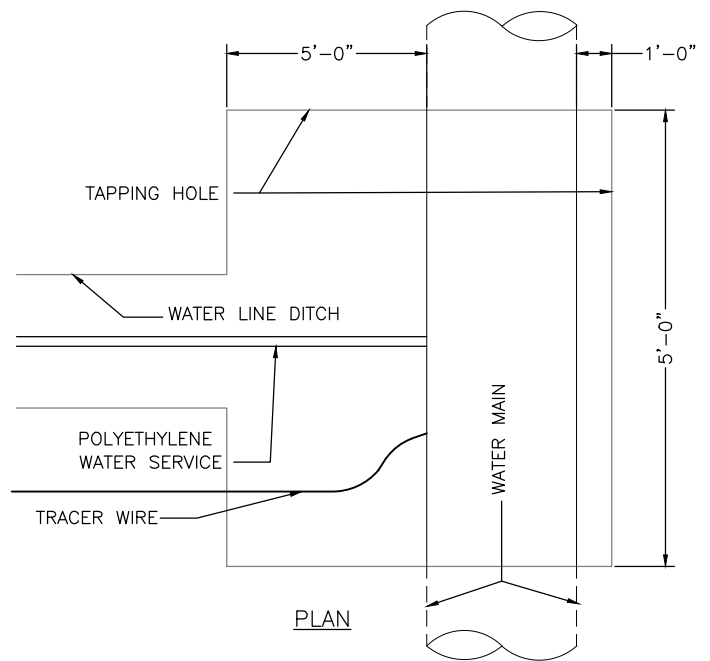


W-34

SERVICE TAPS 1-1/2"
& 2" TAPPING SADDLE



SERVICE TAPS 3/4" &
1" CORPORATION ONLY



NOTES:

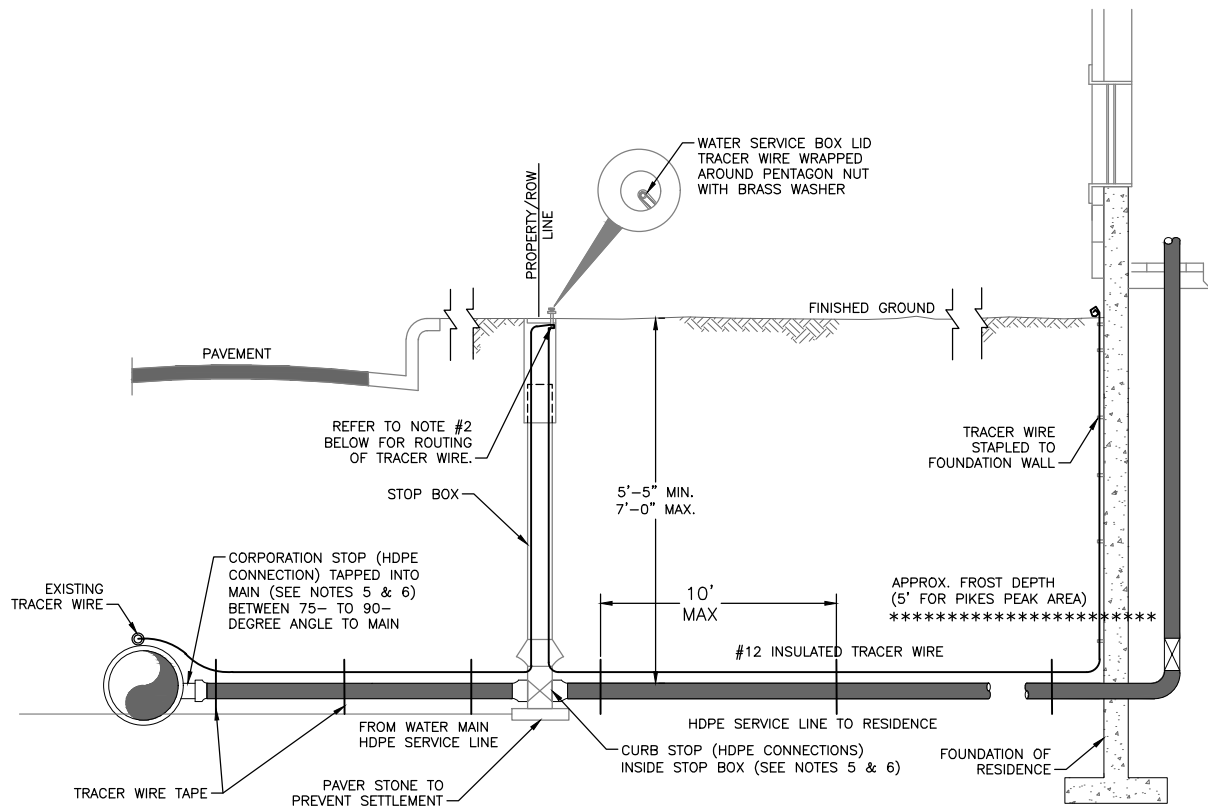
1. TOWN TAPS TO THE WATER MAIN SHALL BE MADE ONLY WHEN APPROVED BY THE DISTRICT. ALL TAPS SHALL USE TAPPING SADDLES. TAPPING SADDLES SHALL HAVE TWO BRASS BANDS AND A BRASS CORPORATION CONNECTION.
2. POLYETHYLENE SERVICE LINE SHALL BE INSTALLED IN A SNAKE-LIKE FASHION FROM MAIN LINE TO WATER METER.

TAPPING DETAIL – 3/4" THROUGH 2"

Drawn: IGL	Revised:
Date: JUNE 2024	Revised:
Scale: N.T.S.	Revised:



W-35



WATER SERVICE LINE NOTES:

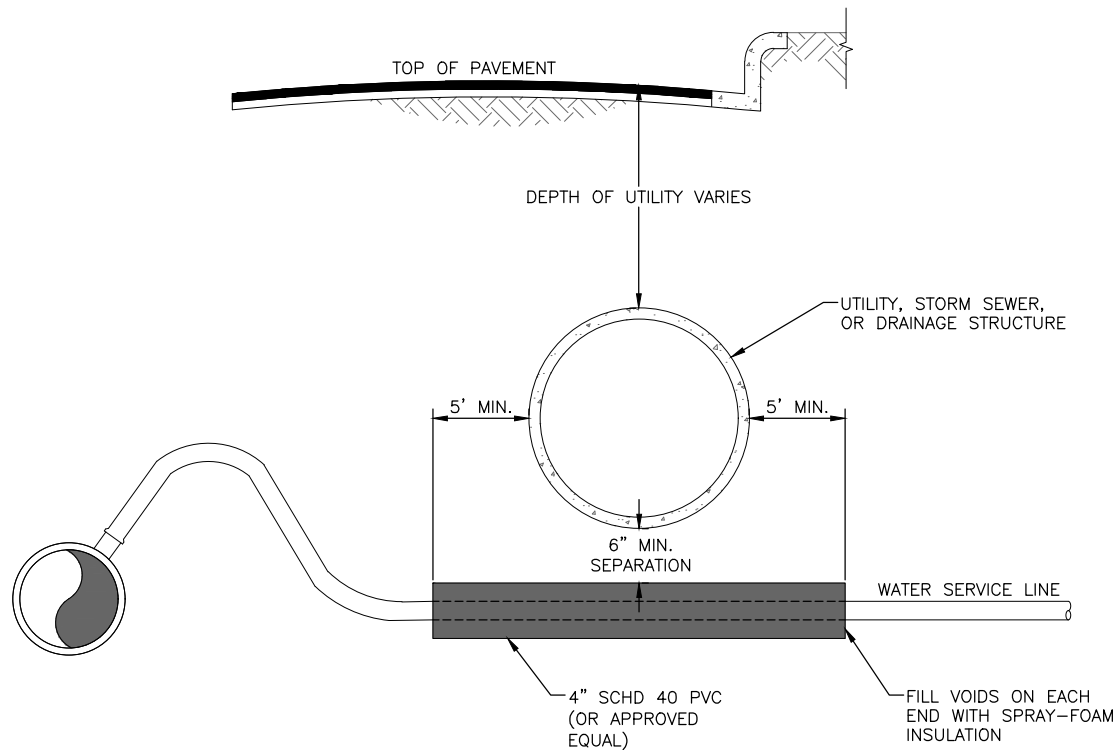
1. NO. 12 INSULATED TRACER WIRE SHALL BE PLACED ALONG SERVICE LINE AND SHALL BE A CONTINUOUS (WITHOUT SPLICES) LENGTH.
2. WHEN A NEW PLASTIC SERVICE IS CONNECTED TO A PVC MAIN, THE SERVICE LINE TRACER WIRE SHALL BE CONNECTED TO THE MAIN'S TRACER WIRE WITH A SPLIT-BOLT CONNECTOR. THE TRACER WIRE IS THEN TAPED ALONG THE SERVICE LINE IN AT LEAST 3 LOCATIONS NOT TO EXCEED 10'. ALL CURB STOP BOXES SHALL HAVE A 1-1/2" DIAMETER SCHD 40 PVC PIPE TELESKOPEDED INSIDE WITH A BELL END TO FIT OVER THE TOP OF THE CURB STOP VALVE. TRACER WIRE SHALL BE EXTENDED UP THE INSIDE OF CURB STOP BOX BUT OUTSIDE THE 1-1/2" SCHD 40 PVC PIPE. TRACER WIRE SHALL BE WRAPPED AROUND CURB STOP BOLT UNDER A BRASS WASHER. THE WIRE WILL THEN BE ROUTED BACK DOWN INSIDE THE CURB BOX AND OUTSIDE THE SCHD 40 PVC, AND TAPED AGAIN TO THE SERVICE LINE UNTIL IT REACHES THE POINT WHERE THE SERVICE LINE ENTERS THE BUILDING. AT THIS POINT, THE TRACER WIRE WILL BE STAPLED TO THE FOUNDATION WALL THEN TURNED BACK TO FORM A ONE-INCH-LONG HOOK AND WRAPPED WITH 4" FILLER TAPE AND THEN 3/4" ELECTRICAL TAPE FOR PROTECTION AT THE SURFACE.
3. TO ASSIST IN PE PIPE LOCATING, A 9-LB. ANODE SHOULD BE CONNECTED TO THE END OF THE TRACER WIRE AND THE WATER MAIN TRACER WIRE EVERY 1,000 FEET ALONG THE LENGTH OF THE WATER MAIN. THE NEW ANODE WILL BE ATTACHED TO THE WATER SERVICE/WATER MAIN TRACER WIRE WITH A SPLIT-BOLT CONNECTOR. THE CONNECTOR IS TO BE WRAPPED FIRST WITH A 4" FILLER TAPE AND THEN 3/4" ELECTRICAL TAPE FOR PROTECTION AGAINST CORROSION.
4. THE APPROPRIATE CLEARANCES BETWEEN ANODES AND STEEL PIPES OR OTHER STRUCTURES MUST BE MAINTAINED PER WATER LINE EXTENSION & SERVICE STANDARDS.
5. BRASS FITTINGS, CORP. STOP, AND CURB STOP SHALL BE WRAPPED WITH WAX TAP FOR PROTECTION PER THE WATER LINE EXTENSION & SERVICE STANDARDS.
6. STIFFENERS SHALL BE INSTALLED WITHIN THE HDPE SERVICE LINE AT THE CONNECTION POINTS OF THE FITTINGS.

TYPICAL INSTALLATION FOR SERVICE LINE & STOP BOX

Drawn: IGL	Revised:
Date: JUNE 2024	Revised:
Scale: N.T.S.	Revised:



W-36



NOTES:

1. SHOULD ANY SITUATION BE ENCOUNTERED THAT DOES NOT MEET STANDARDS, NOTIFY TOWN INSPECTOR.
2. REFERENCE SECTION 2 OF THESE STANDARDS FOR CROSSING DESIGN INFORMATION.
3. A SLEEVE IS REQUIRED WHERE SEPARATION IS LESS THAN 18" FROM BOTTOM OF UTILITY TO TOP OF WATER SERVICE OR WHERE THE UTILITY IS 30" OR GREATER IN SIZE.
4. PROVIDE WATERTIGHT SEAL ON BOTH ENDS OF SLEEVE.
5. IF THE SERVICE IS LOCATED WITHIN STORM SEWER BEDDING, IT SHALL BE SLEEVED THROUGH THE BEDDING A MINIMUM OF 5' EITHER SIDE REGARDLESS OF DEPTH.
6. WHERE COMPACTION CANNOT BE ACHIEVED, FLOWFILL SHALL BE USED.

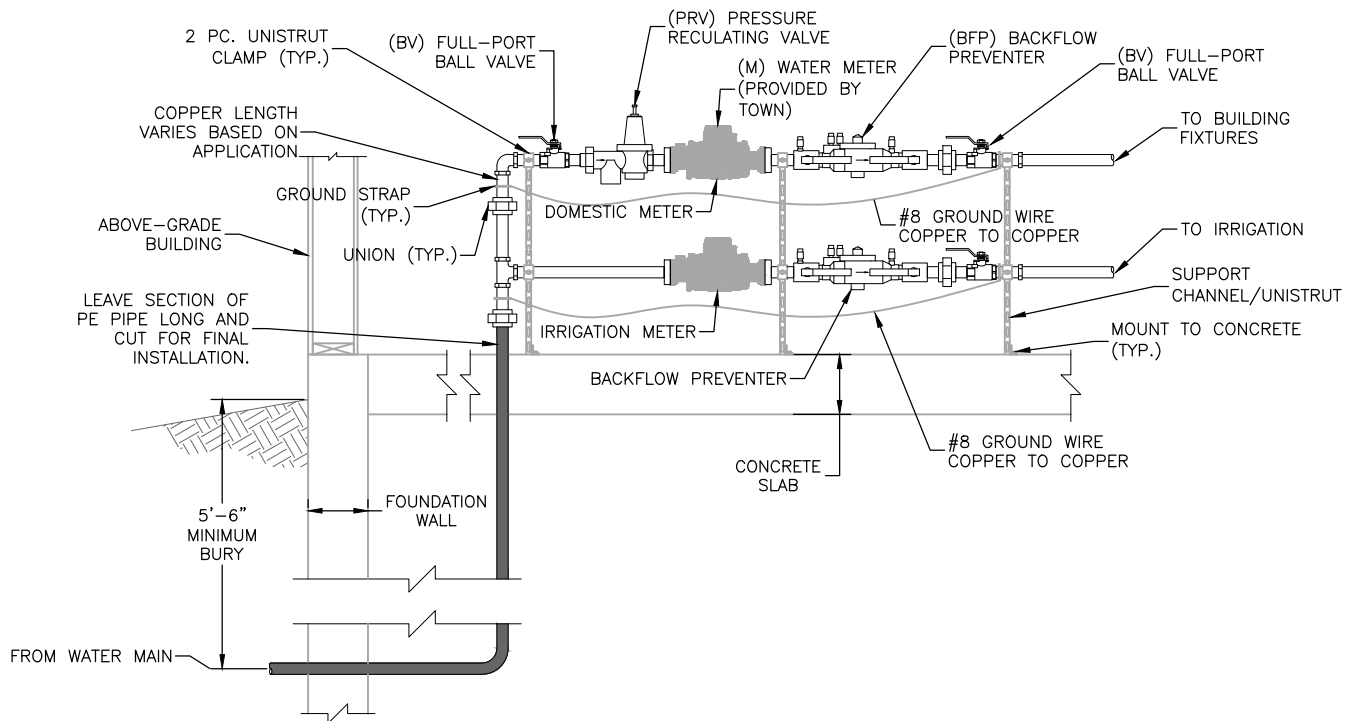
INSTALLATION FOR SERVICE LINE W/ SLEEVE UNDER A UTILITY

Drawn: IGL	Revised:
Date: JUNE 2024	Revised:
Scale: N.T.S.	Revised:



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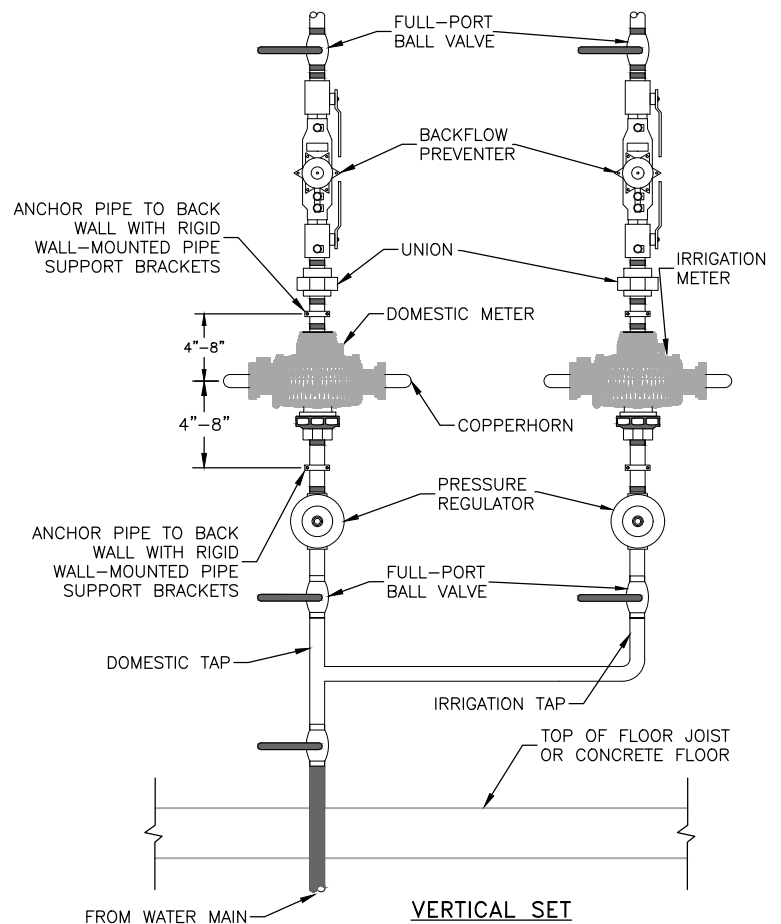


METER SIZE	METER LENGTH*	WITH TAIL PIECE
5/8" (3/4" SHORT) METER	7.5"	12"
3/4" METER	9"	13-1/2"
1" METER	10-3/4"	15"
1-1/2" METER	12-5/8"	
2" METER	15-1/4"	

* CHECK METER LENGTH BEFORE INSTALLATION

NOTES:

- IN THE INTEREST OF SPACE CONSERVATION IT IS PERMISSIBLE TO INSTALL PIPING VERTICALLY DOWNSTREAM OF THE METER INCLUDING THE CHECK VALVE. THE PRESSURE REGULATOR ON THE INLET SIDE OF THE METER MAY BE INSTALLED IN A HORIZONTAL OR VERTICAL POSITION.
- A SECOND PRESSURE REGULATOR MAY BE INSTALLED ON THE DEMAND SIDE OF THE METER DOWNSTREAM FROM A BRANCH SUPPLYING AN IRRIGATION SYSTEM IF REQUIRED. THE IRRIGATION SYSTEM BRANCH MUST BE DOWNSTREAM OF THE METER, CHECK VALVE, AND BALL VALVE.
- ONLY MINIMAL SEPARATION IS ALLOWED BETWEEN FITTINGS UPSTREAM OF THE METER TO ALLOW PROPER INSTALLATION OF THE REQUIRED FITTINGS AS DEPICTED IN THESE DRAWINGS AND SPECIFICATIONS. IN NO CASE SHALL SEPARATION BE GREATER THAN NECESSARY WHICH COULD ALLOW A BRANCH, TEE, OR OTHER FITTING UPSTREAM OF THE METER THAN WHAT IS DEPICTED AND SPECIFIED HEREIN.
- THE METER PIPE MUST BE SECURED BEFORE AND AFTER THE INLET AND OUTLET VALVES TO A SOLID UPRIGHT SUCH AS THE UNISTRUT OR 1/2" ALL-THREAD (OR MOUNTED BI-LATERALLY) AND ANCHORED TO THE FLOOR AND CLAMPED TO THE HORIZONTAL PIPING.
- BANDING OR GROUND STRAPS MUST BE INSTALLED AROUND METER LOOP ON COPPER LINES (COPPER TO COPPER).
- IF HDPE ENTERS STRUCTURE THROUGH SLAB, IT MUST BE ANCHORED AFTER THE TRANSITION FITTING ON THE COPPER TUBING.
- MINIMUM SIZE = 1" HDPE CTS PIPE PER TOWN SPECIFICATIONS.

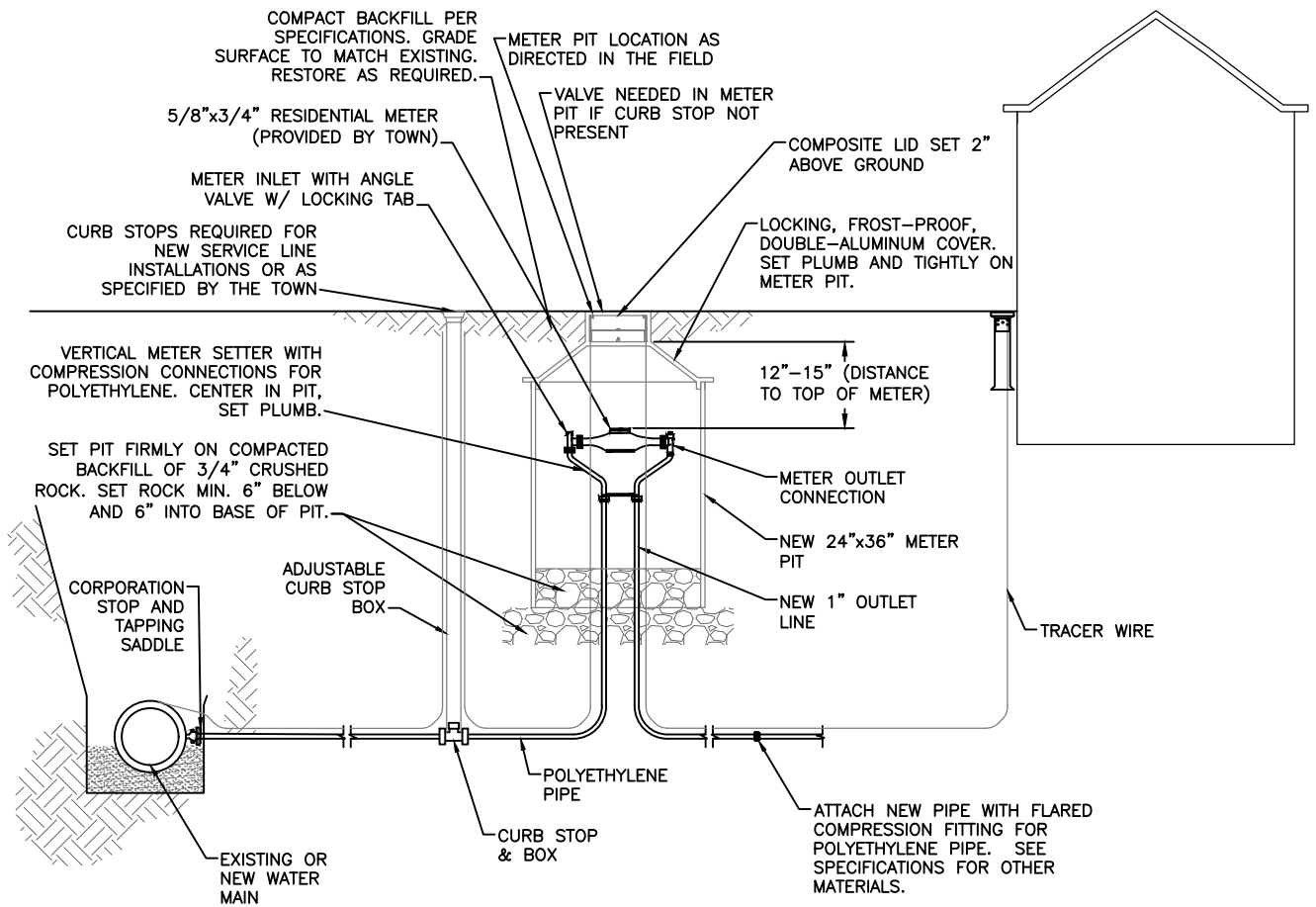


WATER METER LOOP FOR 3/4" THROUGH 2" METERS

Drawn: IGL	Revised:
Date: JUNE 2024	Revised:
Scale: N.T.S.	Revised:



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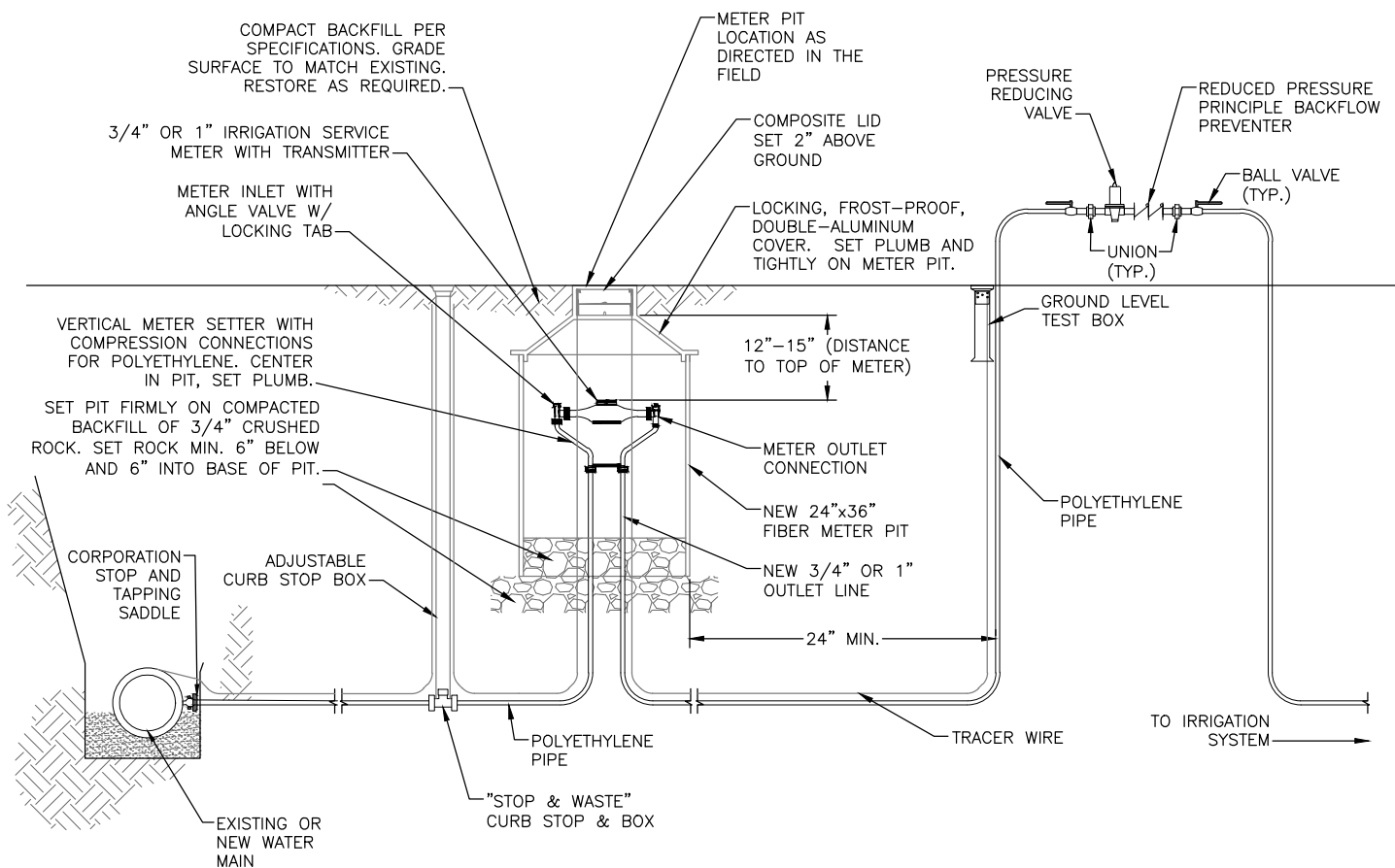
METER PIT SETUP
N.T.S.

3/4"–1" SERVICE LINE/METER PIT INSTALLATION

Drawn: IGL	Revised:
Date: JUNE 2024	Revised:
Scale: N.T.S.	Revised:



W-40



METER PIT SETUP
N.T.S.

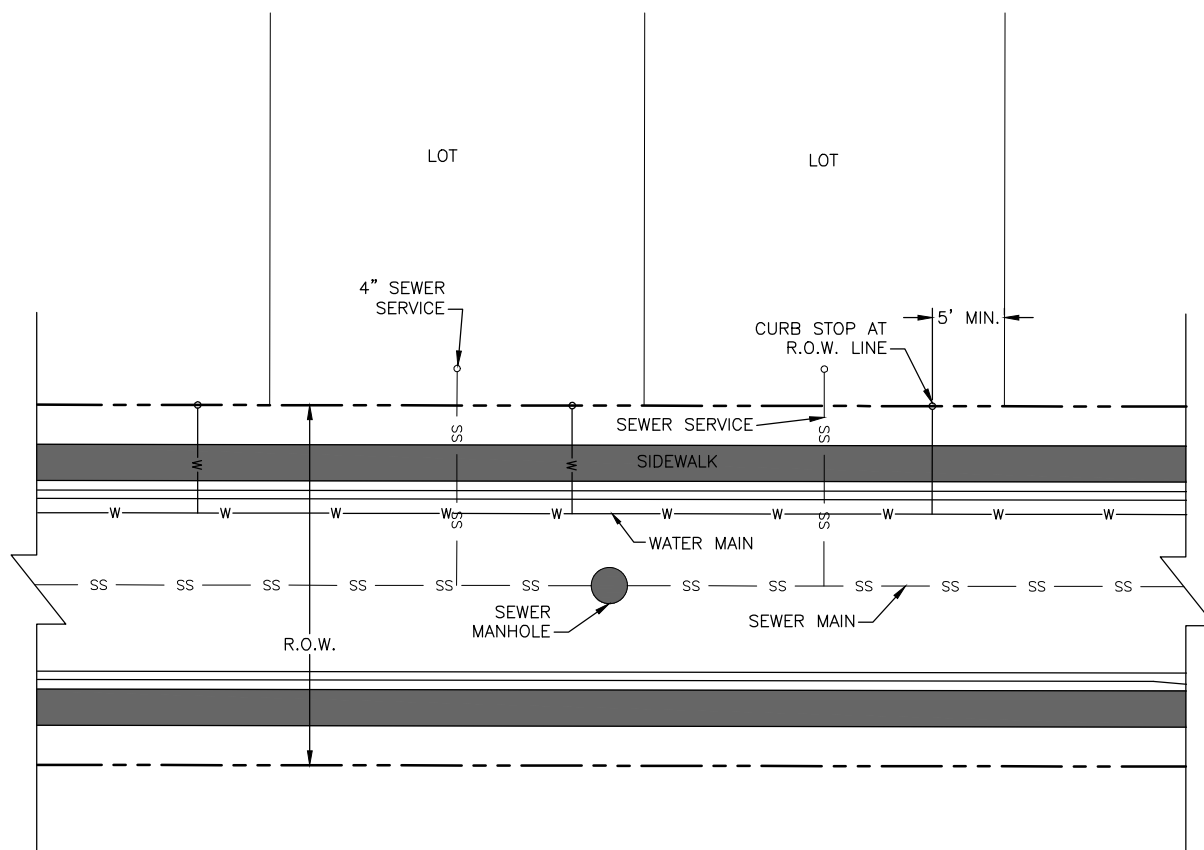
IRRIGATION SERVICE 3/4" & 1" METER INSTALLATION

Drawn: IGL	Revised:
Date: JUNE 2024	Revised:
Scale: N.T.S.	Revised:



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NOTES:

1. SEWER SERVICE TO BE PLACED APPROXIMATELY IN THE MIDDLE OF THE LOT AND EXTENDED 10 FEET PAST R.O.W.
2. SERVICES SHALL BE MARKED WITH 2"x4" POST AT TERMINATION POINT FOR LOCATION DURING CONNECTION TO RESIDENCE. POSTS SHALL BE SPRAY PAINTED BLUE FOR WATER AND GREEN FOR SEWER.

UTILITY SERVICE LOCATIONS

Drawn: GGM/SKG

Revised: DECEMBER 2021

Date: MARCH 2011

Revised:

Scale: N.T.S.

Revised:

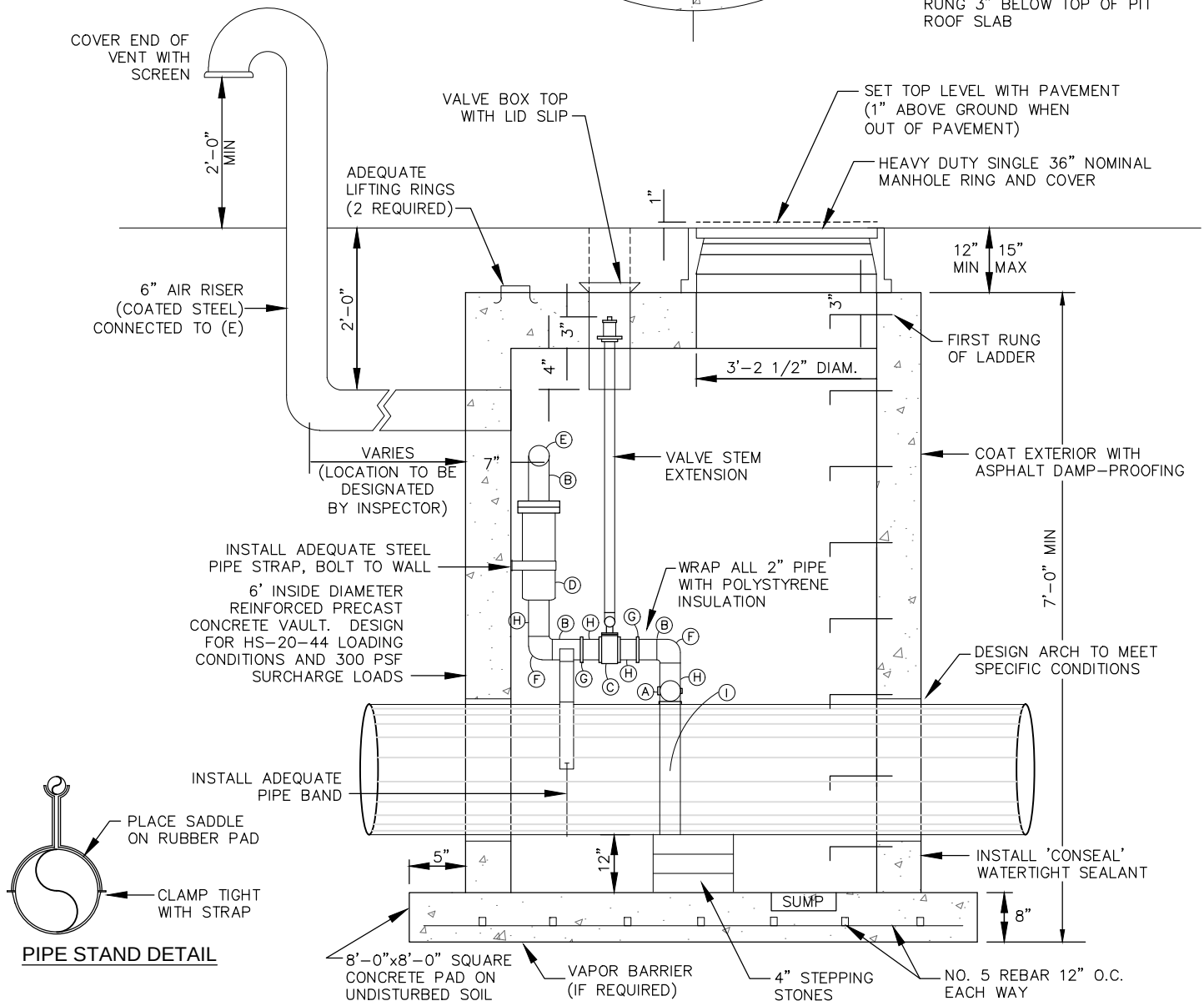
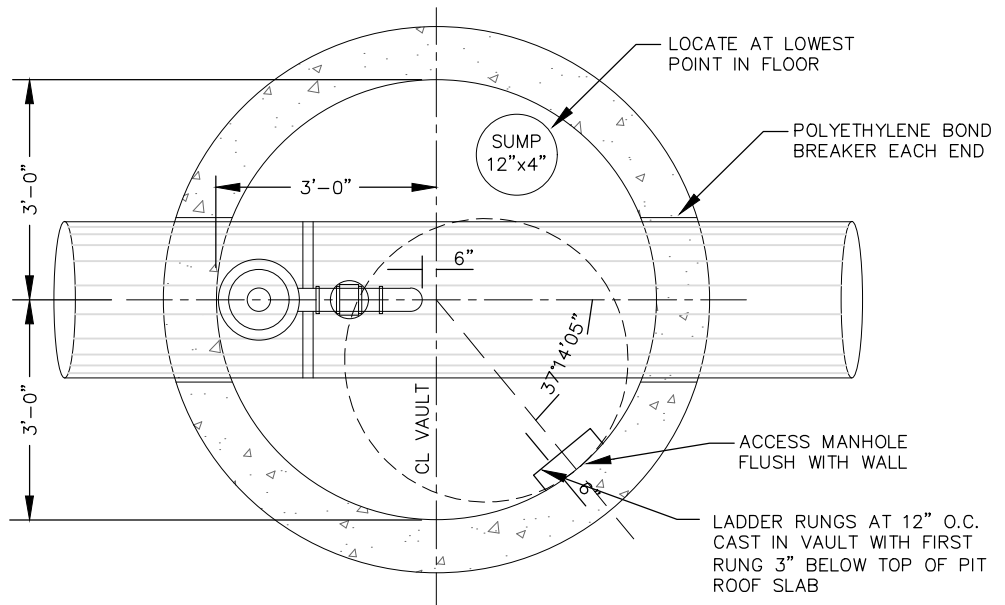


W-43

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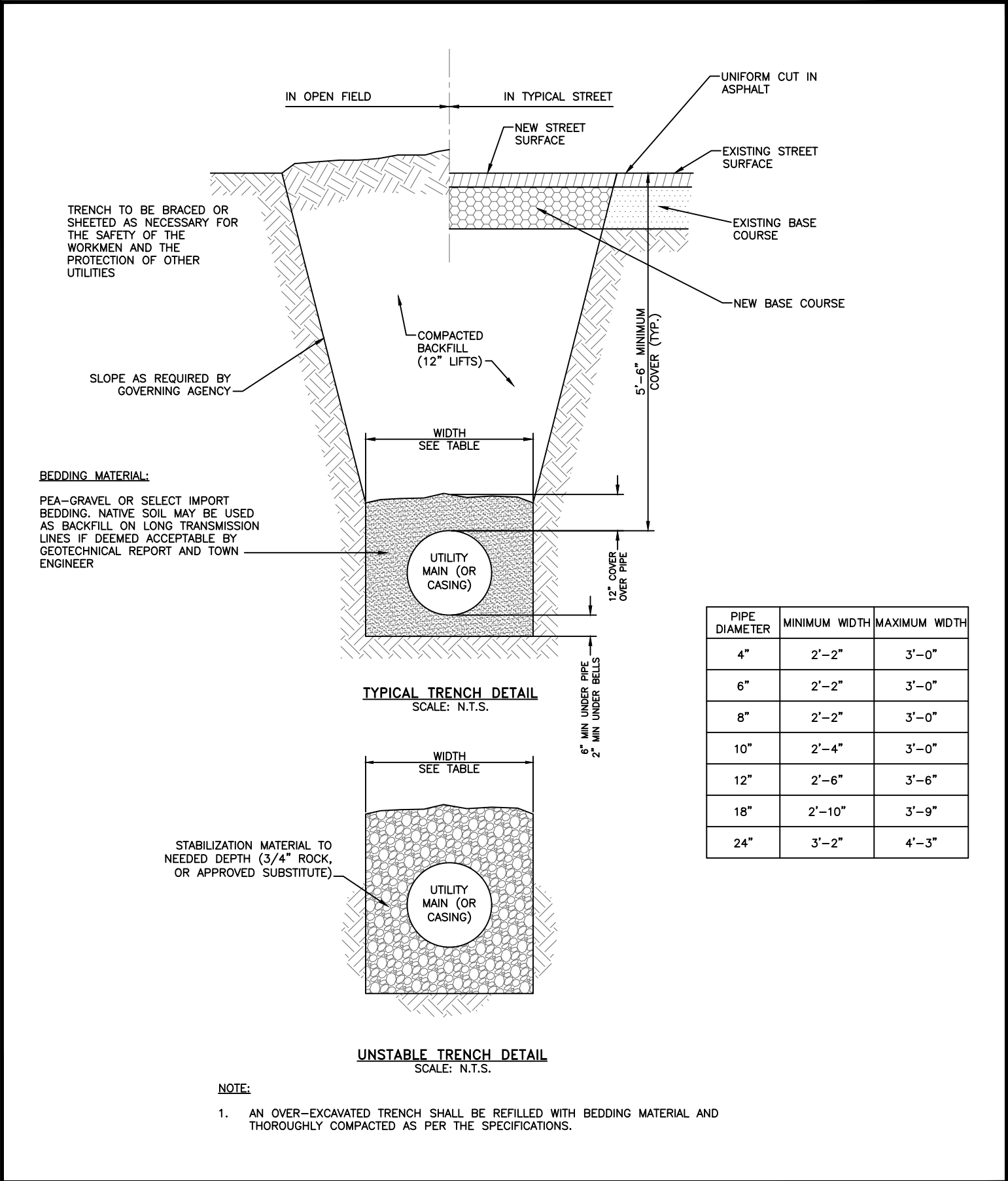
LEGEND

- (A) 2" CORPORATION-TAPERED
THREADS INLET WITH
2" FEMALE IRON PIPE OUTLET
(MUELLER OR FORD)
- (B) 2" CLOSE-THREADED BRASS
NIPPLE
- (C) 2" THREADED GATE VALVE WITH
STANDARD
OPENING NUT
- (D) 2" THREADED INLET VAL-MATIC
AIR/VACUUM COMBINATION AIR
VALVE, MODEL 202C
- 2"x90° PLASTIC ELBOW
- (E) 2"x90° BRASS THREADED ELBOW
- (F) 2" QUICK COUPLER
- (G) 2" THREADED BRASS NIPPLE
- (H) 2" ROMAC MODEL 202BS
TAPPING SADDLE
- (I) 2" ROMAC MODEL 202BS
TAPPING SADDLE



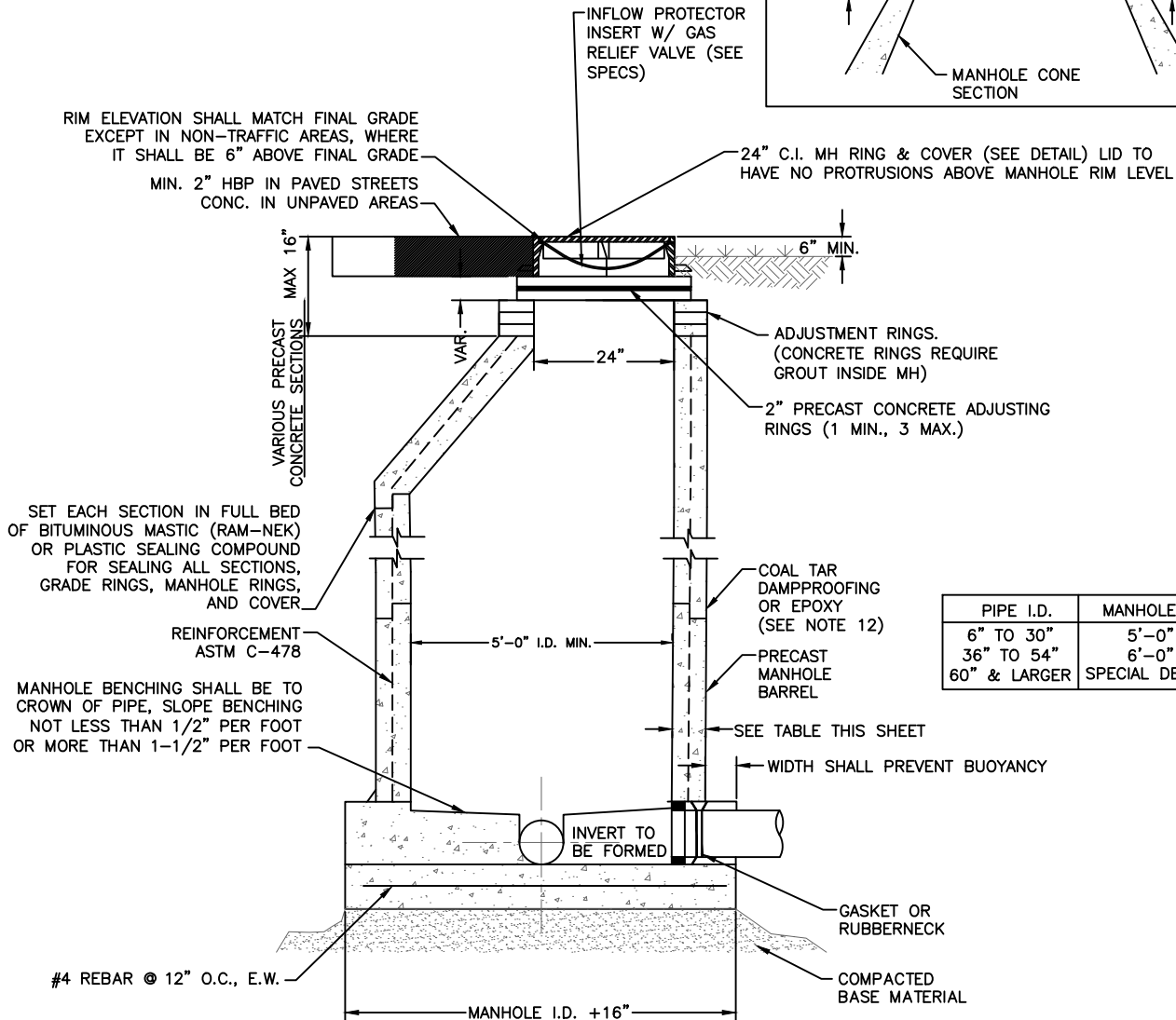
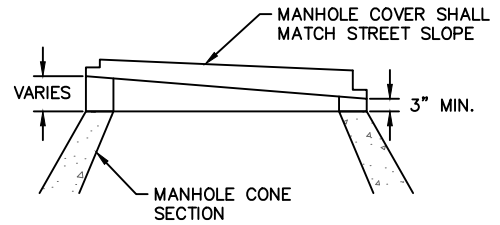
AIR/VAC PRESSURE VALVE PIT

Standard Drawings – Wastewater



TYPICAL TRENCH CROSS SECTION

CONCRETE RISER FOR MANHOLE



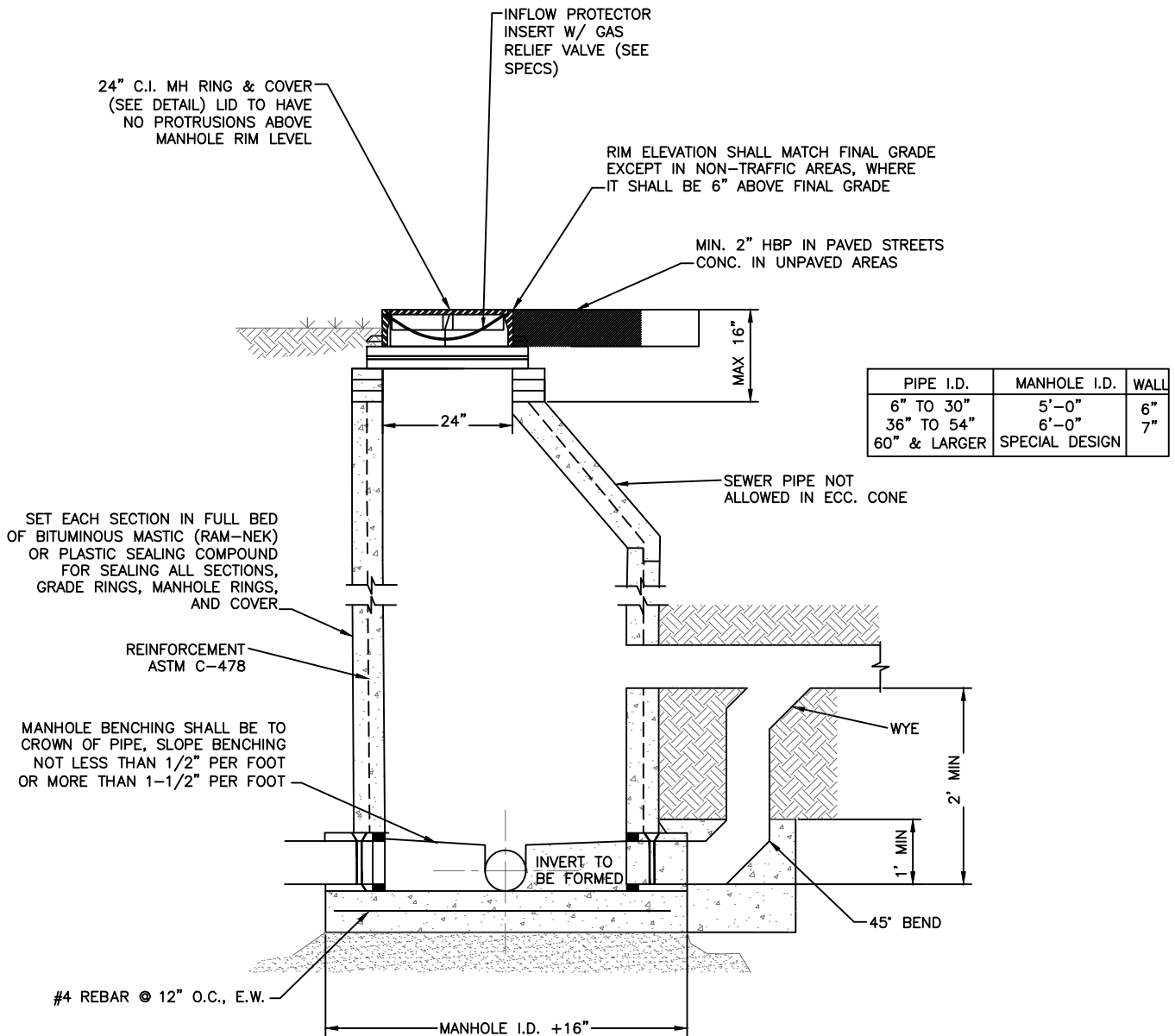
PIPE I.D.	MANHOLE I.D.	WALL
6" TO 30"	5'-0"	6"
36" TO 54"	6'-0"	7"
60" & LARGER	SPECIAL DESIGN	

NOTES:

- ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF NOT LESS THAN 4,000 PSI @ 28 DAYS AND DESIGNED FOR HS-20 LOADING CONDITIONS.
- ALL CONCRETE SHALL BE MECHANICALLY VIBRATED.
- FOR CAST-IN-PLACE MANHOLES, DO NOT DROP CONCRETE A DISTANCE OF MORE THAN 5' UNLESS APPROVED BY THE DISTRICT.
- 3/4" CRUSHED ROCK REQUIRED UNDER BASE TO A DEPTH OF 6" UP TO SPRINGLINE OF PIPE, 2'-3' RADIUS AROUND BASE.
- ALL STEPS SHALL BE REMOVED FOLLOWING CONSTRUCTION.
- STRUCTURAL REINFORCEMENT SHALL COMPLY TO ASTM C-478 AND SHALL BE STAMPED ON THE OUTSIDE OF THE MANHOLE.
- SHAPING FOR SMOOTH MANHOLE INVERTS MUST BE DONE BY FORMING/SHAPING CONCRETE BASE.
- PRECAST SECTIONS TO CONFORM TO ASTM C-478.
- STUB-OUTS SHALL EXTEND A MINIMUM OF 6' PAST MANHOLE O.D. AND BE SATISFACTORILY PLUGGED.
- CONCRETE MANHOLES MAY BE POURED IN PLACE ONLY WITH PRIOR DESIGN AND INSPECTION APPROVAL.
- ALL MORTAR GROUT SHALL BE MIXED WITH TYPE V CEMENT.
- APPLY COAL TAR EPOXY DAMP-PROOFING TO ALL EXTERIOR CONCRETE SURFACES.
- CENTER REINF. IN BASE. POUR BELOW PIPE O.D. AT FL.
- ALL EXTERIOR JOINTS SHALL RECEIVE BUTYL RUBBER JOINT WRAP. REFER TO SPECIFICATIONS.
- MANHOLE RIMS SHALL HAVE A HOLE IN LIEU OF A NOTCH FOR REMOVAL.

PRECAST MANHOLE

Drawn: TMM	Revised:		WW-2
Date: NOVEMBER 2024	Revised:		
Scale: N.T.S.	Revised:		



NOTES:

1. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF NOT LESS THAN 4,000 PSI @ 28 DAYS AND DESIGNED FOR HS-20 LOADING CONDITIONS.
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9. STUB-OUTS SHALL EXTEND A MINIMUM OF 6' PAST MANHOLE O.D. AND BE SATISFACTORILY PLUGGED.
10. CONCRETE MANHOLES MAY BE POURED IN PLACE ONLY WITH PRIOR DESIGN AND INSPECTION APPROVAL.
11. ALL MORTAR GROUT SHALL BE MIXED WITH TYPE V CEMENT.
12. APPLY COAL TAR EPOXY DAMP-PROOFING TO ALL EXTERIOR CONCRETE SURFACES.
13. CENTER REINF. IN BASE. POUR BELOW PIPE O.D. AT FL.
14. ALL EXTERIOR JOINTS SHALL RECEIVE BUTYL RUBBER JOINT WRAP. REFER TO SPECIFICATIONS.
15. MANHOLE RIMS SHALL HAVE A HOLE IN LIEU OF A NOTCH FOR REMOVAL.

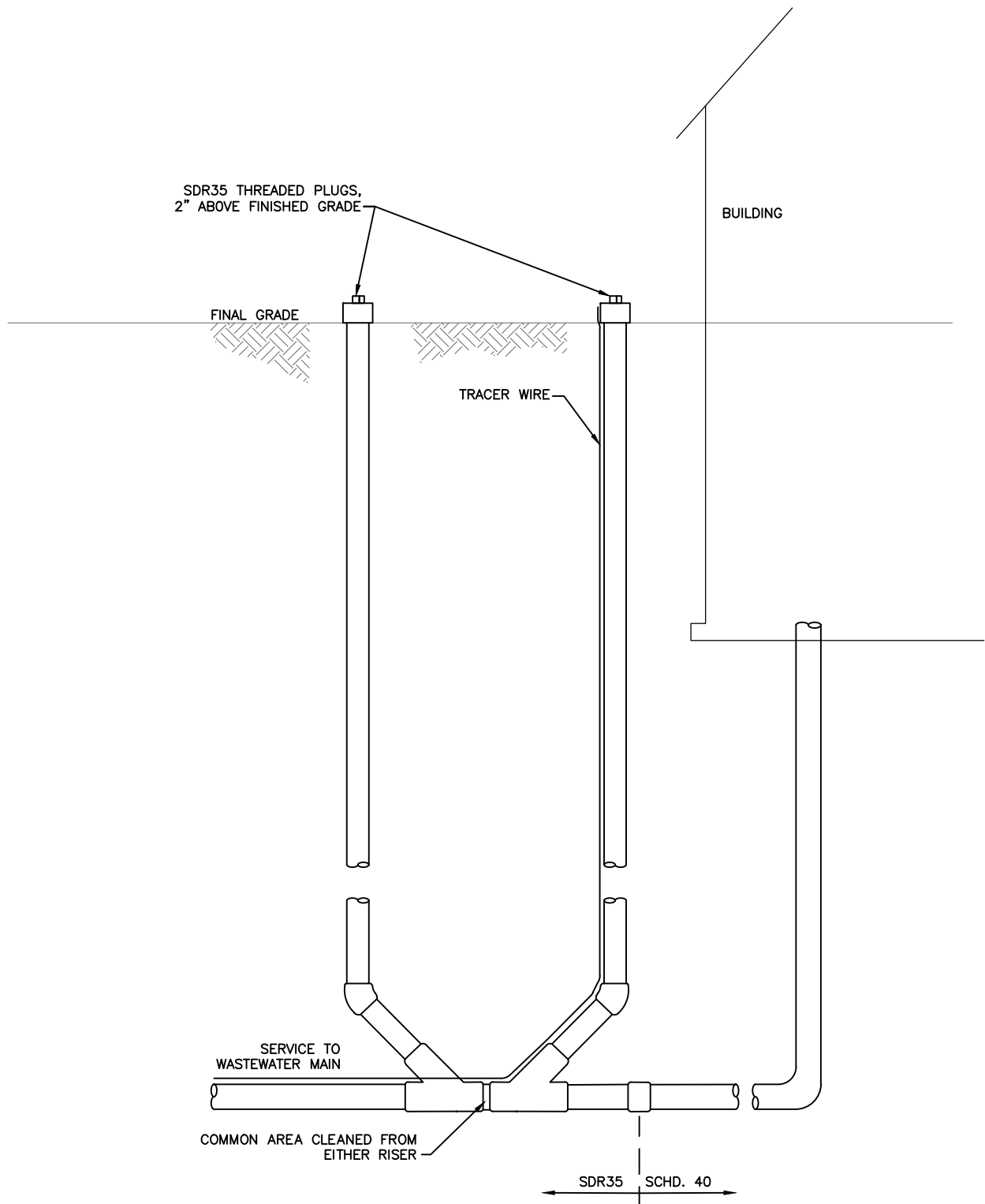
OUTSIDE DROP MANHOLE

Drawn: TMM
Date: OCTOBER 2024
Scale: N.T.S.

Revised:
Revised:
Revised:



WW-3

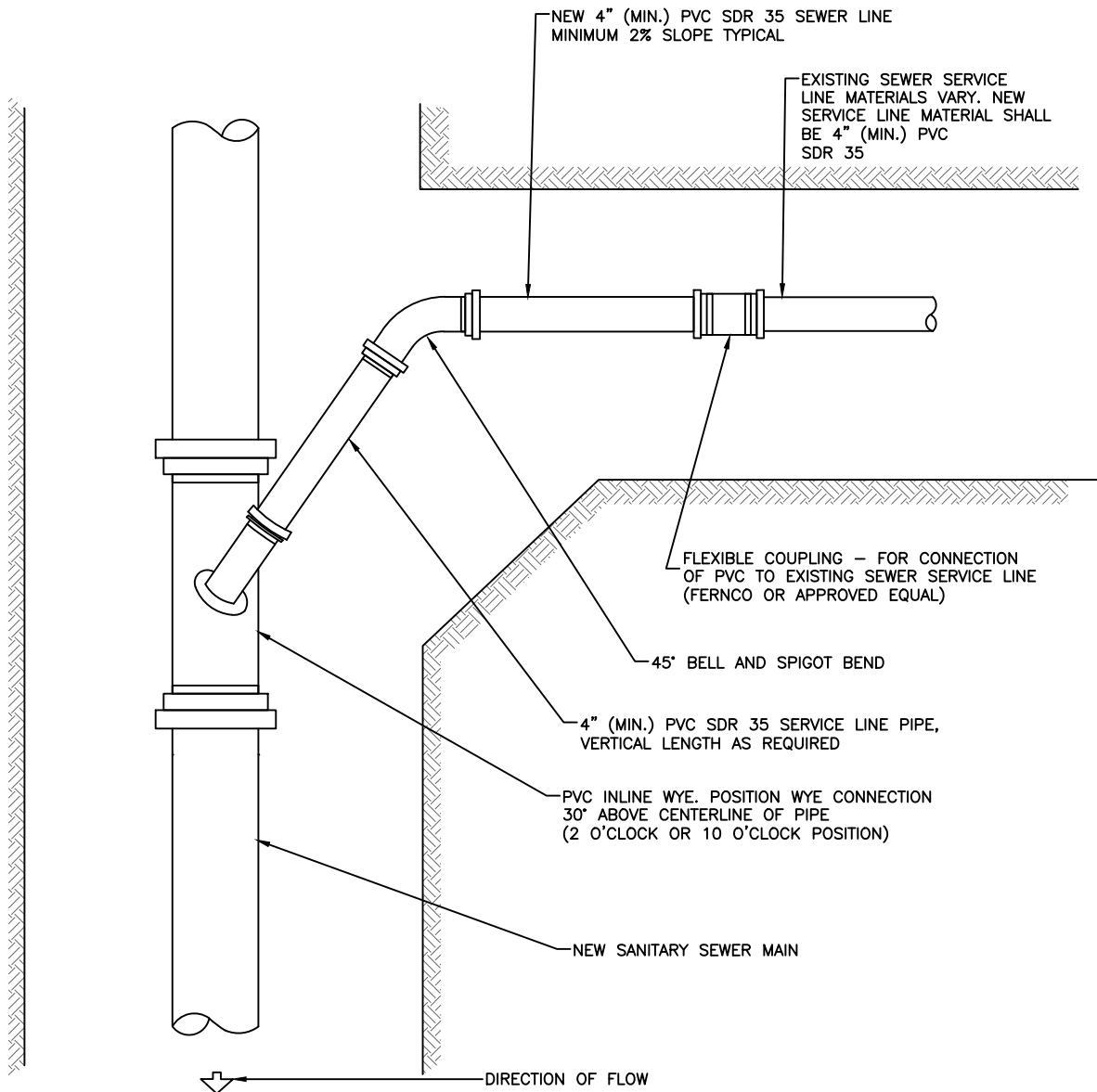


NOTES:

1. THE DIAMETER OF THE WASTEWATER SERVICE LINE SHALL NOT BE GREATER THAN 8 INCHES.
2. THE MAXIMUM DEPTH OF THE WASTEWATER SERVICE LINE SHALL NOT BE GREATER THAN 14 FEET MEASURED FROM FINAL GRADE TO THE WASTEWATER PIPE INVERT.

RESIDENTIAL SEWER TWO-WAY CLEANOUT

Drawn: SKG	Revised: DECEMBER 2021		WW-4
Date: MARCH 2011	Revised:		
Scale: N.T.S.	Revised:		

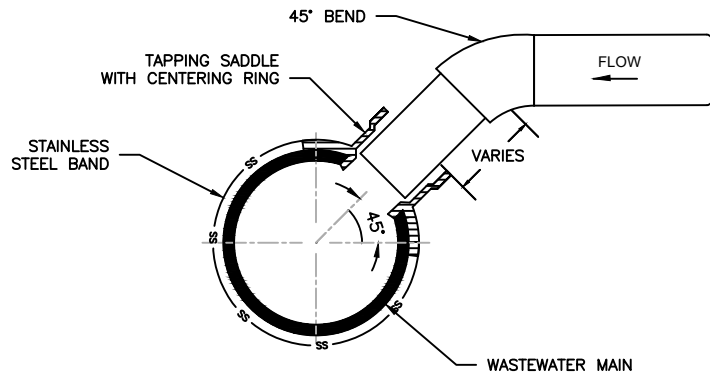


SANITARY SEWER SERVICE CONNECTION

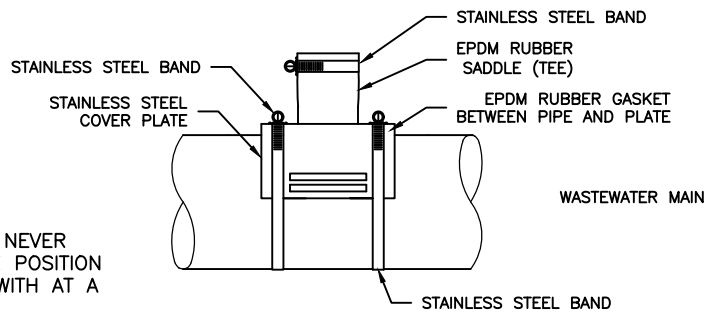
Drawn: GGM	Revised: DECEMBER 2021
Date: MARCH 2011	Revised:
Scale: N.T.S.	Revised:



WW-5



TYPICAL WASTEWATER SERVICE TAPPING SADDLE



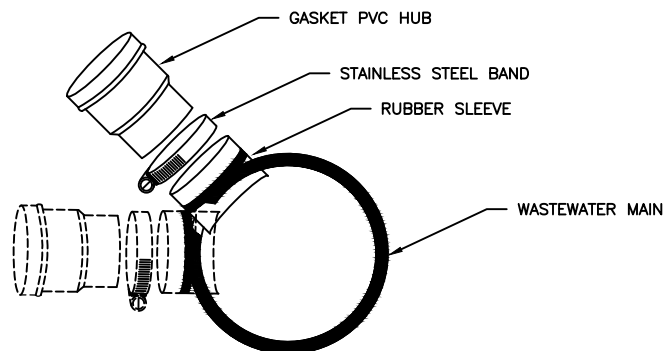
RUBBER GASKET SADDLE - 4" & 6"

TAPPING SADDLE NOTES:

1. WASTEWATER MAIN TAPS SHOULD NEVER ENTER THE MAIN AT THE 12 O'CLOCK POSITION ON THE PIPE. TAPS MUST BE MADE WITH AT A MINIMUM ANGLE OF 30°.

RUBBER GASKET NOTE:

1. ALL ELASTOMERIC SEALS (RUBBER GASKETS) SHALL COMPLY WITH ASTM F477.
2. PIPE WILL BE CUT WITH AN O.D. HOLE SAW OR TAPPING MACHINE. A 4-1/2" O.D. HOLE SAW SHALL BE USED FOR 4" TAPS AND A 6-1/2" O.D. HOLE SAW SHALL BE USED FOR 6" TAPS.

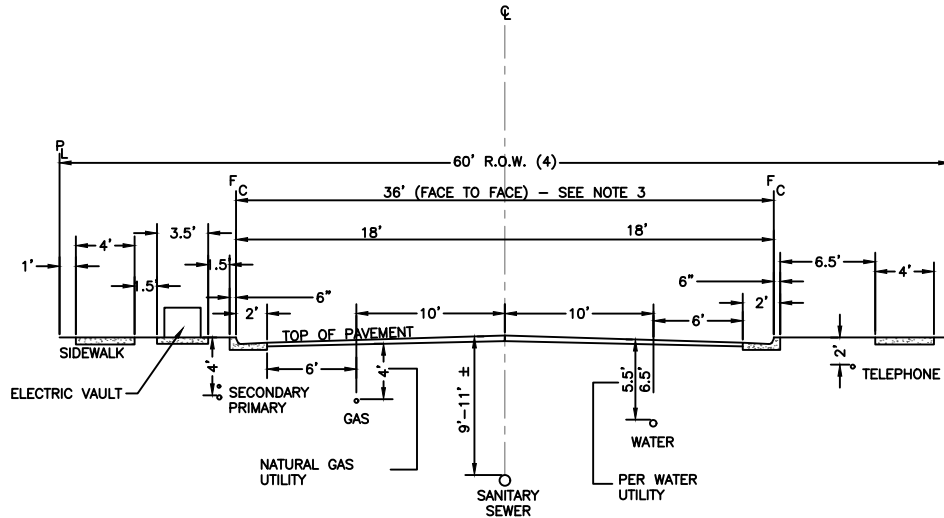


3 PIECE TAP NOTES:

1. 3 PIECE TAPS MAY BE ALLOWED ON WASTEWATER MAINS WITH APPROVAL FROM TOWN ENGINEER. 3 PIECE TAPS SHOULD ONLY BE USED FOR WASTEWATER MAINS GREATER THAN 12".
2. THE CONTRACTOR SHALL ENSURE THAT THE CORRECT 3 PIECE TAP HAS BEEN ORDERED TO FIT THE MATERIAL AND DIAMETER OF THE MAIN AND THE MATERIAL AND DIAMETER OF THE TAP. THE 3 PIECE TAP SHALL BE PROVIDED TO THE INSPECTOR FOR APPROVAL PRIOR TO INSTALLATION.
3. 3 PIECE TAPS FOR WASTEWATER MAINS 12" AND LESS WILL REQUIRE THAT THE SERVICE BE CCTV'D AFTER BACKFILL OF THE SERVICE LINE. IF THE INSERT PROTRUDES INTO THE WASTEWATER MAIN GREATER THAN 1/4", THEN THE TAP WILL BE REJECTED AND WILL NEED TO BE REMOVED, REINSTALLED AND RE-CCTV'D.

SANITARY SEWER SERVICE CONNECTION TO EXISTING MAIN DETAIL

Drawn: TMM	Revised:		WW-6
Date: OCTOBER 2024	Revised:		
Scale: N.T.S.	Revised:		



**TYPICAL CROSS SECTION
UTILITIES LOCATION**

GENERAL NOTES

1. STORM SEWERS SHALL MAINTAIN A 10' CLEAR SEPARATION FROM WATER.
2. ELECTRIC CONDUITS SHALL BE ON THE OPPOSITE SIDE OF THE STREET FROM WATER.
3. FOR 40'-WIDE STREET SECTIONS, MAINTAIN WATER 10 FEET FROM SANITARY SEWER AT STREET CENTERLINE.
4. FOR 50'-WIDE RIGHT-OF-WAY (ROW), A 5'-WIDE SIDEWALK AND UTILITY EASEMENTS ARE REQUIRED ADJACENT TO THE STREET ROW. FIVE FOOT (5') WIDE ATTACHED SIDEWALK IS USED WITH ELECTRIC UTILITIES BEHIND WALK-IN EASEMENT.

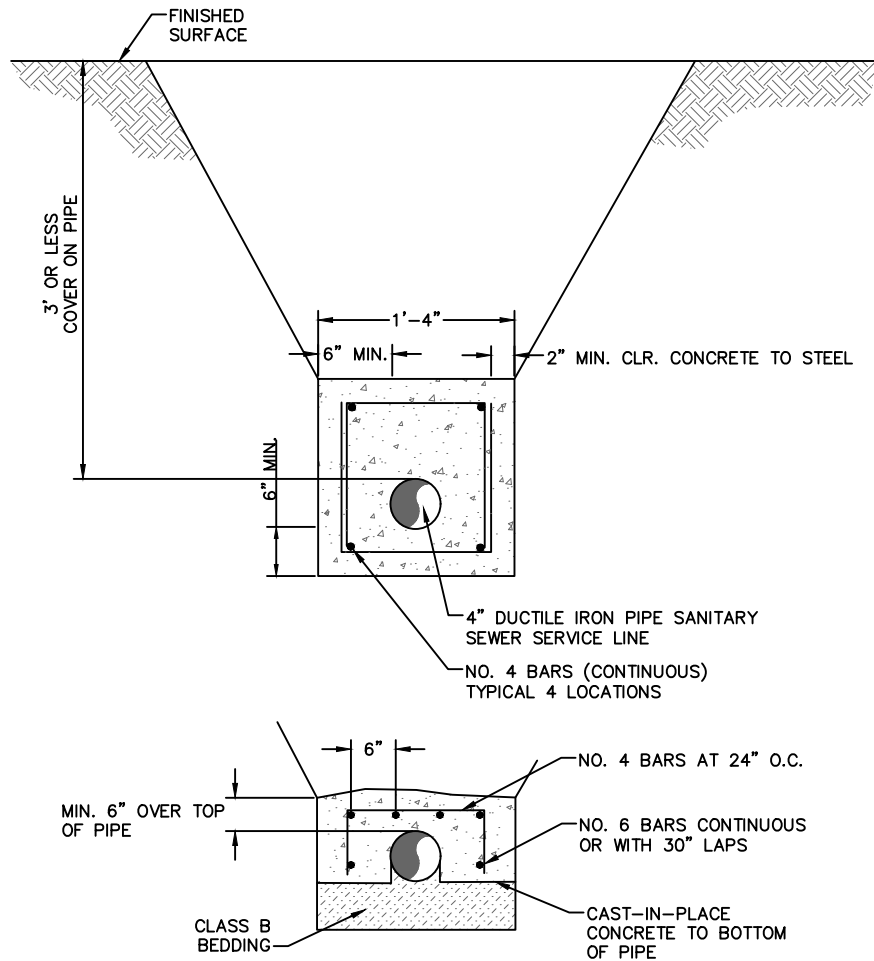
TYPICAL UTILITY LOCATIONS

Drawn: GGM	Revised: DECEMBER 2021		WW-7
Date: MARCH 2011	Revised:		
Scale: N.T.S.	Revised:		

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PIPE BRIDGING DETAIL

Drawn: TMM	Revised: DECEMBER 2021		WW-8
Date: OCTOBER 2024	Revised:		
Scale: N.T.S.	Revised:		



REINFORCED CONCRETE PIPE CAP

NOTES:

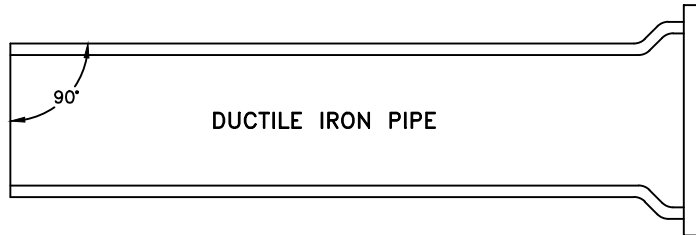
1. DUCTILE IRON PIPE WITHOUT CONCRETE ENCASEMENT MAY BE PERMITTED BY THE DISTRICT IF FINAL PIPE COVER IS MORE THAN 3 FEET.
2. CONCRETE ENCASEMENT PER THIS DRAWING IS REQUIRED WITH DUCTILE IRON PIPE WHERE FINAL PIPE COVER IS 3 FEET OR LESS.
3. IF THE CONCRETE ENCASEMENT IS REQUIRED ON A SANITARY SEWER SERVICE LINE, THE PROPERTY OWNER/CUSTOMER IS COMPLETELY RESPONSIBLE FOR OPERATION, MAINTENANCE, AND REPLACEMENT OF ANY SEWER SERVICE LINE FROM THE DISTRICT'S SEWER MAIN TO THE STRUCTURE SERVED.
4. THE TOWN MAY ACCEPT CONCRETE CAP FOR PIPE PROTECTION IN SPECIAL CONDITIONS.
5. WRAP PIPE WITH PIPE INSULATION TO A THICKNESS OF ONE (1) INCH.

SHALLOW SANITARY SEWER LINE PROTECTION/ENCASEMENT

Drawn: GGM	Revised: DECEMBER 2021
Date: MARCH 2011	Revised:
Scale: N.T.S.	Revised:



WW-9



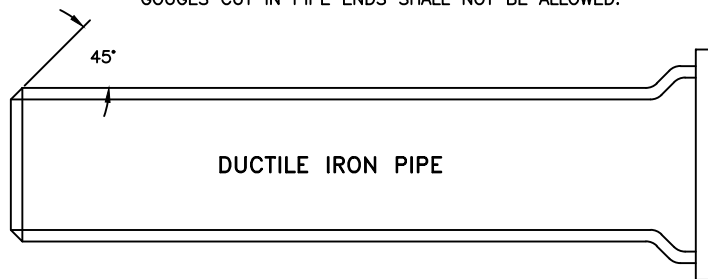
MECHANICAL JOINT CONNECTION

PIPE MUST BE CUT AT RIGHT ANGLES TO LONGITUDINAL CENTERLINE IN ALL CASES.

PIPE ENDS SHALL BE FREE OF BURRS.

MORTAR LINING SHALL BE FLUSH WITH PIPE END.

GOUGES CUT IN PIPE ENDS SHALL NOT BE ALLOWED.



SLIP JOINT CONNECTION

PIPE CUT IN STRAIGHT LINE AND BEVELED AT 45° ANGLE ON END.

GENERAL NOTES:

1. ALL PIPE-CUTTING EQUIPMENT AND PIPE CUTS MUST BE APPROVED BY THE WATER AND SANITATION DISTRICT INSPECTOR.
2. ALL PIPE ENDS TO BE USED IN INSTALLATION SHALL BE DRESSED SMOOTH TO THE SATISFACTION OF THE INSPECTOR PRIOR TO INSTALLATION.
3. AT THE REQUEST OF THE CONTRACTOR MAKING THE INSTALLATION, THE DISTRICT WILL MAKE PIPE CUTS, PROVIDING THE CURRENT FEE PER CUT IS PAID AND 24-HOUR NOTICE IS GIVEN (THE CURRENT FEE IS SUBJECT TO CHANGE).
4. ALL DIP DELIVERED TO JOB SITE MUST BE NEW MATERIAL.

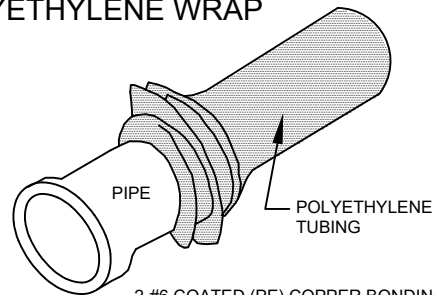
PIPE CUTTING

Drawn: GGM	Revised: DECEMBER 2021		WW-10
Date: MARCH 2011	Revised:		
Scale: N.T.S.	Revised:		

FIELD INSTALLATION OF POLYETHYLENE WRAP

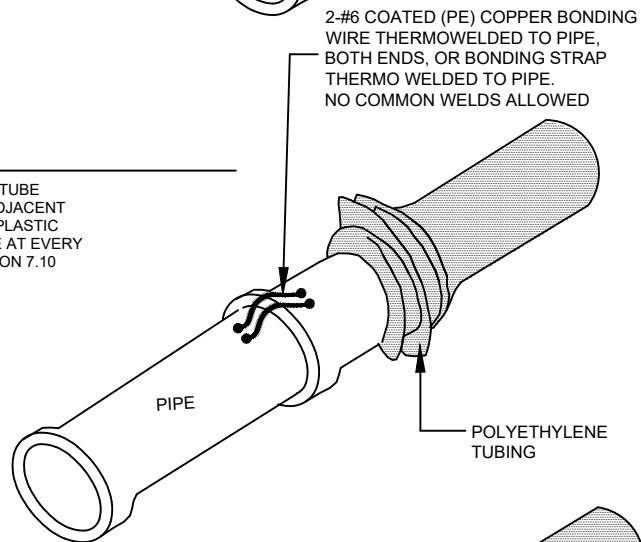
STEP 1:

PLACE TUBE OF POLYETHYLENE MATERIAL ON PIPE PRIOR TO LOWERING IT INTO TRENCH.



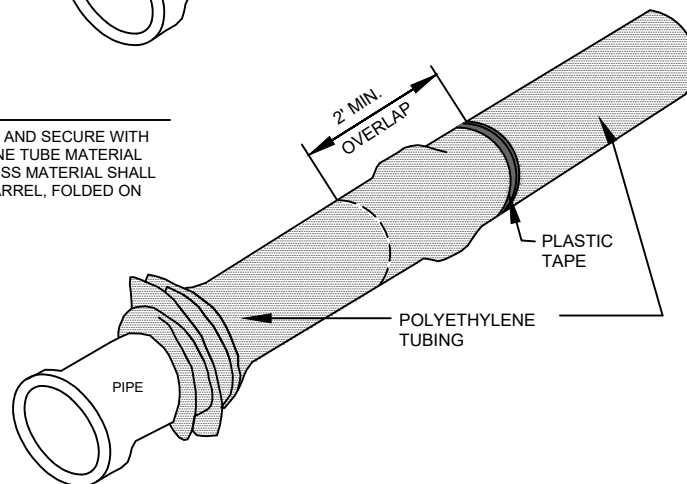
STEP 2:

PULL TUBE OVER THE LENGTH OF THE PIPE. TAPE TUBE TO END AT JOINT. FOLD MATERIAL AROUND THE ADJACENT SPIGOT END AND WRAP WITH TAPE TO HOLD THE PLASTIC TUBE IN PLACE. INSTALL BONDING STRAP OR WIRE AT EVERY JOINT OF PIPE PRIOR TO WRAPPING AS PER SECTION 7.10 OF THE STANDARD SPECIFICATIONS.



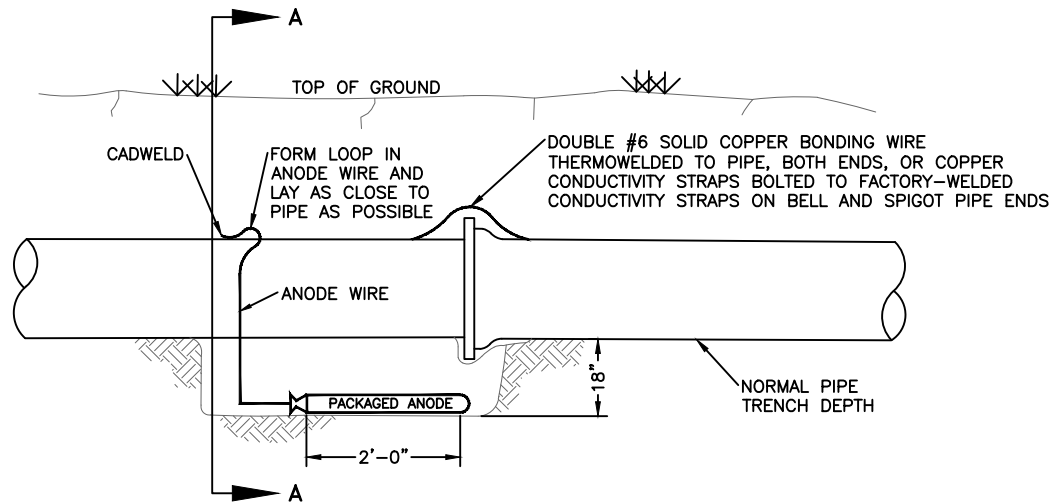
STEP 3:

OVERLAP FIRST TUBE WITH ADJACENT TUBE AND SECURE WITH PLASTIC ADHESIVE TAPE. THE POLYETHYLENE TUBE MATERIAL COVERING THE PIPE SHALL BE LOOSE. EXCESS MATERIAL SHALL BE NEATLY DRAWN UP AROUND THE PIPE BARREL, FOLDED ON TOP OF PIPE, AND TAPED IN PLACE.

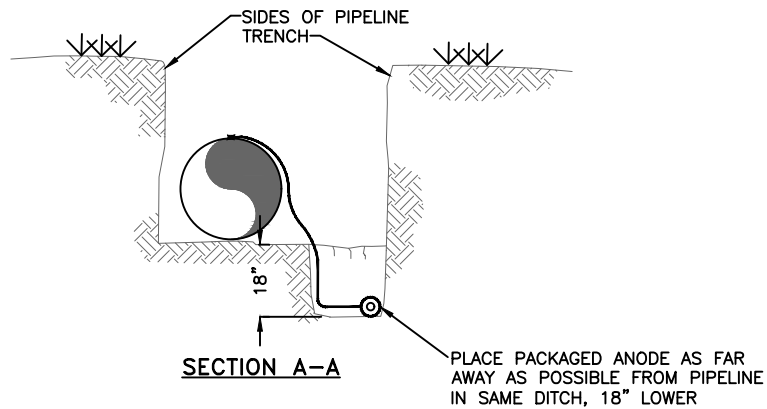


POLYETHYLENE PIPE WRAP

Drawn: GGM	Revised: DECEMBER 2021		WW-11
Date: MARCH 2011	Revised:		
Scale: N.T.S.	Revised:		



ELEVATION



NOTES:

1. CADWELD CONNECTION TO BE PRIMED AND COATED CAREFULLY. PACKAGED ANODE SHOULD BE COVERED WITH FINE SOIL CONTAINING NO ROCKS OR DIRT CLUMPS, TAMPED.
2. WHEN ANODES ARE REQUIRED WITH METAL FITTINGS AND APPURTENANCES TOGETHER WITH PVC PIPE INSTALLATION, THE ANODES SHALL BE PLACED AND ATTACHED TO THE METAL IN SAME MANNER AS SHOWN ON THIS DRAWING. 9 LB. ANODES CAN BE USED ON METAL FITTINGS 12" AND LESS IN DIAMETER AND 17 LB. ANODES FOR METAL FITTINGS GREATER THAN 12" DIAMETER WHEN USING PVC PIPE.
3. PACKAGED ANODE TO BE WETTED AND COVERED WITH SOIL PRIOR TO BACKFILLING.

BONDING JOINT & ANODE INSTALLATION

Drawn: GGM	Revised: DECEMBER 2021
Date: MARCH 2011	Revised:
Scale: N.T.S.	Revised:



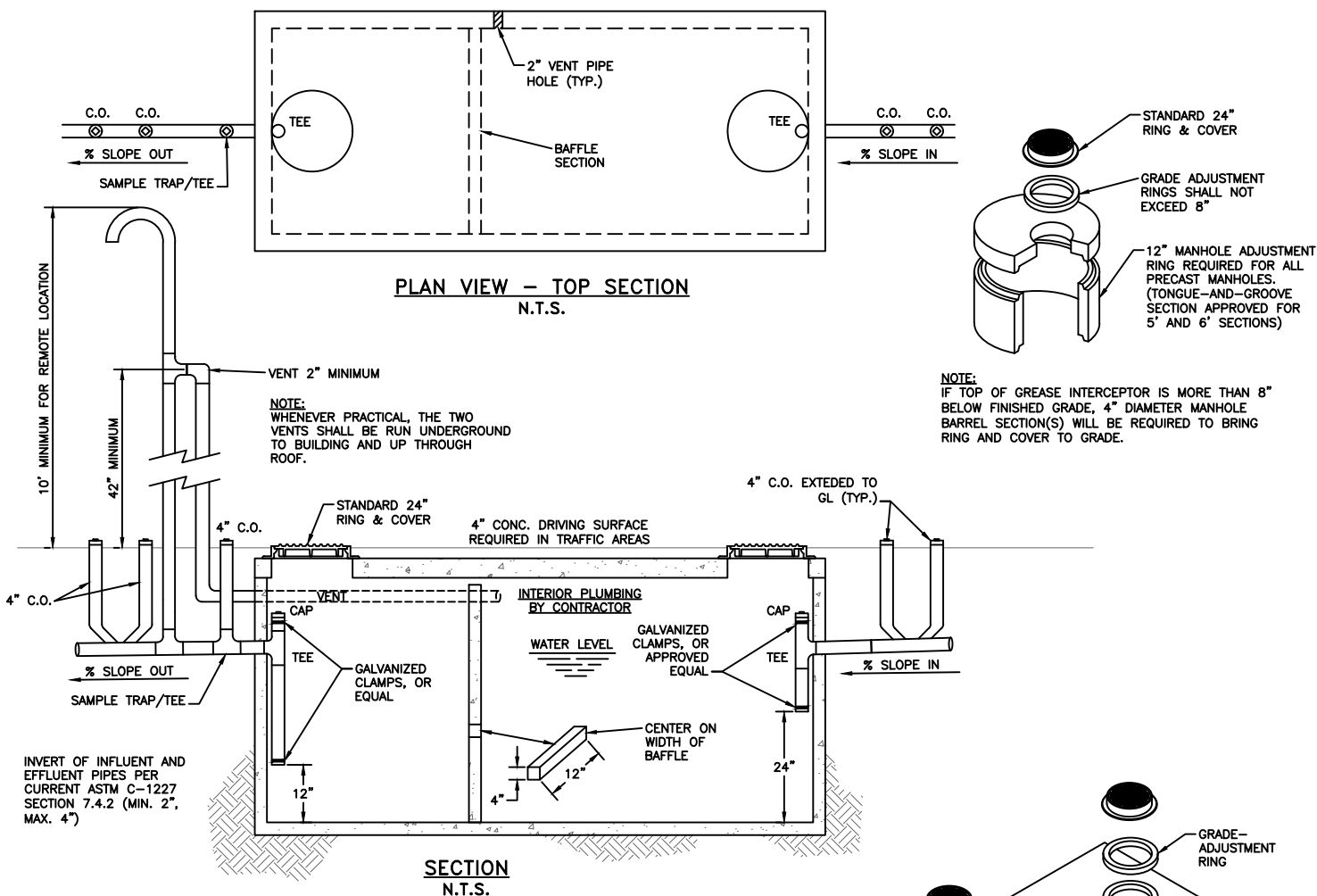
WW-12

MAXIMUM DEFLECTION
PER SLIP JOINT OF D.I.P.

PIPE DIAMETER			MFRS. DEFL.	DESIGN DEFLECTION (80% MAX.)			APPROX. RADIUS FOR DEFLECTING CURVES WITHOUT BENDS	
I.D. (IN)	O.D. (IN)	O.D. (FT)		MAX. DEFL. DIST.		20'L	18'L	
				(1)	(2)			
4"	4.80"	.400'	5'00"00"	4'00"00"	16"	15"	286'	258'
6"	6.90"	.575'	5'00"00"	4'00"00"	16"	15"	286'	258'
8"	9.05"	.754'	5'00"00"	4'00"00"	16"	15"	286'	258'
10"	11.10"	.925'	5'00"00"	4'00"00"	16"	15"	286'	258'
12"	13.20"	1.100'	5'00"00"	4'00"00"	16"	15"	286'	258'
14"	15.30"	1.275'	3'00"00"	2'24'00"	10"	9"	477'	430'
16"	17.40"	1.450'	3'00"00"	2'24'00"	10"	9"	477'	430'
18"	19.50"	1.625'	3'00"00"	2'24'00"	10"	9"	477'	430'
20"	21.60"	1.800'	3'00"00"	2'24'00"	10"	9"	477'	430'
24"	25.80"	2.150'	3'00"00"	2'24'00"	10"	9"	477'	430'
30"	32.00"	2.666'	2'30"00"	2'00"00"	8"	7"	573'	516'
36"	38.30"	3.192'	2'00"00"	1'36'00"	6"	6"	716'	645'
42"	44.50"	3.708'	2'00"00"	1'36'00"	6"	6"	716'	645'

- (1) 20'L = NORMAL 20-FOOT JOINT LAYING LENGTH
(2) 18'L = NORMAL 18-FOOT JOINT LAYING LENGTH

MAXIMUM PIPELINE DEFLECTION DATA



TYPICAL GREASE INTERCEPTORS

SIZE (GAL.)	USE	LENGTH	WIDTH	HEIGHT
800	NON-TRAFFIC	96"	48"	73"
1000	NON-TRAFFIC	102"	58"	73"
1000	TRAFFIC	96"	72"	87.5"
1500	NON-TRAFFIC	126"	68"	73"
1500	TRAFFIC	162"	84"	65"
2250	NON-TRAFFIC	144"	78"	79"
2500	TRAFFIC	162"	84"	103"
3500	TRAFFIC	162"	84"	103"
5000	TRAFFIC	162"	84"	147"

APPROX. SIZE OF GREASE INTERCEPTORS
CHECK WITH MANUFACTURER FOR CORRECT DIMENSIONS AND INVERTS

NOTES:

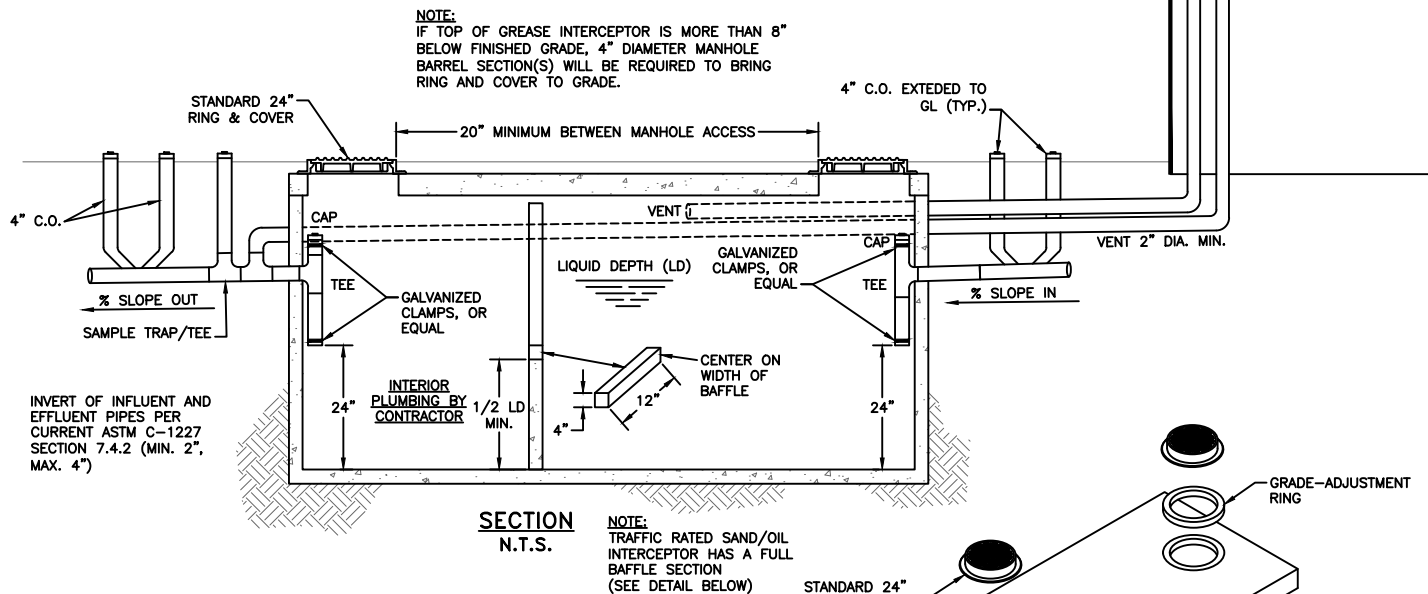
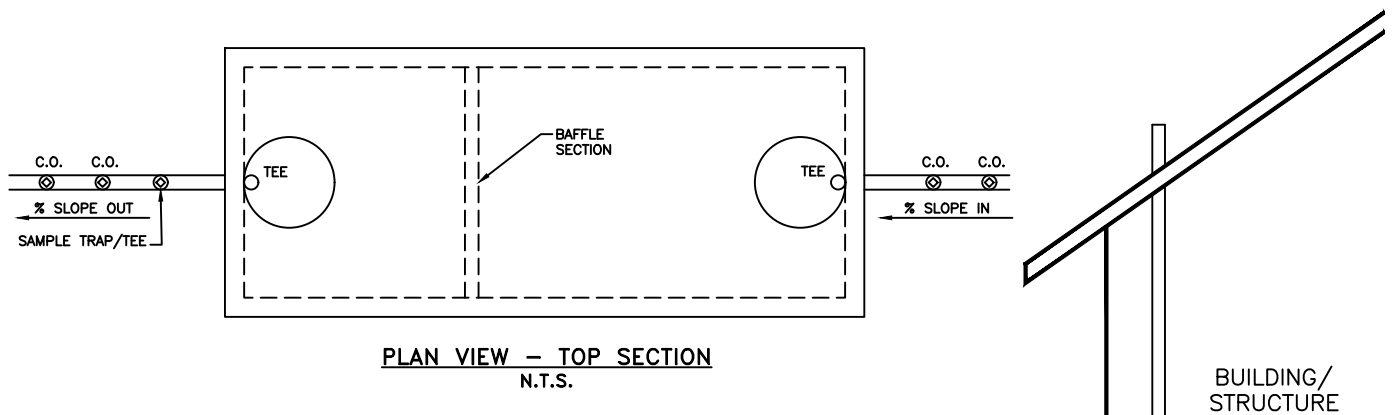
1. TO BE READ IN CONJUNCTION WITH DISTRICT WASTEWATER SPECIFICATIONS AND INTERNATIONAL PLUMBING CODE.
2. SPECIFIC SIZE APPLICATION OF THE GREASE INTERCEPTOR TO BE DETERMINED BY DISTRICT.

GREASE INTERCEPTOR

Drawn: JTS	Revised:
Date: MARCH 2011	Revised:
Scale: N.T.S.	Revised:



WW-14



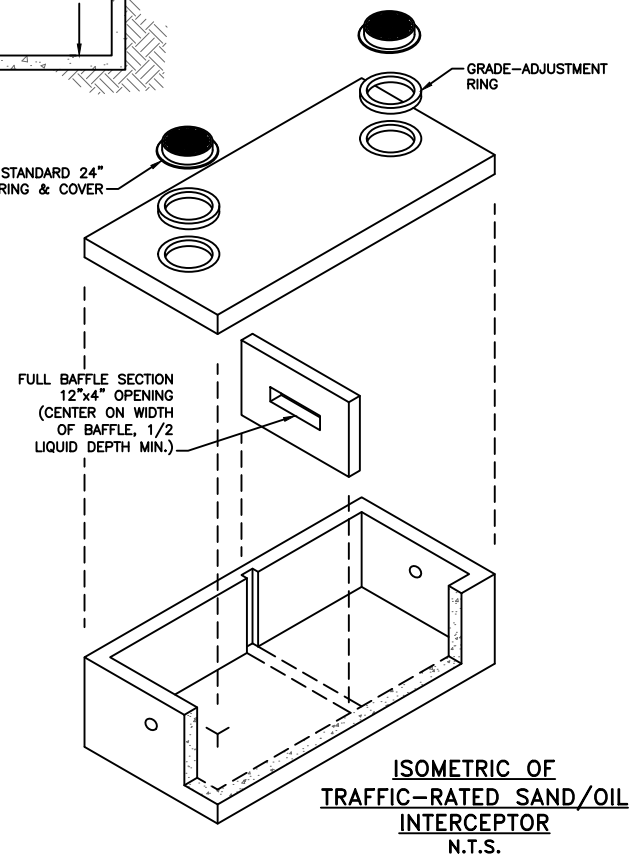
TYPICAL SAND/OIL INTERCEPTORS

SIZE (GAL.)	USE	LENGTH	WIDTH	HEIGHT
500	TRAFFIC	72" OD x 74" (ID=60")		
1000	NON-TRAFFIC	102"	58"	77"
1000	TRAFFIC	96"	72"	86"
1500	NON-TRAFFIC	126"	68"	77"
1500	TRAFFIC	162"	84"	64"
2250	NON-TRAFFIC	144"	78"	82"
2500	TRAFFIC	162"	84"	102"

APPROX. SIZE OF SAND/OIL INTERCEPTORS
CHECK WITH MANUFACTURER FOR CORRECT DIMENSIONS AND INVERTS

NOTES:

1. TO BE READ IN CONJUNCTION WITH DISTRICT WASTEWATER SPECIFICATIONS AND INTERNATIONAL PLUMBING CODE.
2. SPECIFIC SIZE APPLICATION OF THE GREASE INTERCEPTOR TO BE DETERMINED BY DISTRICT.
3. INTERIOR PIPING TO BE STRAPPED AT BOTTOM WITH GALVANIZED CLAMPS, UNISTRUT, OR EQUAL.
4. VENTS SHALL BE CONSTRUCTED ON THE OUTSIDE OF THE TANK.

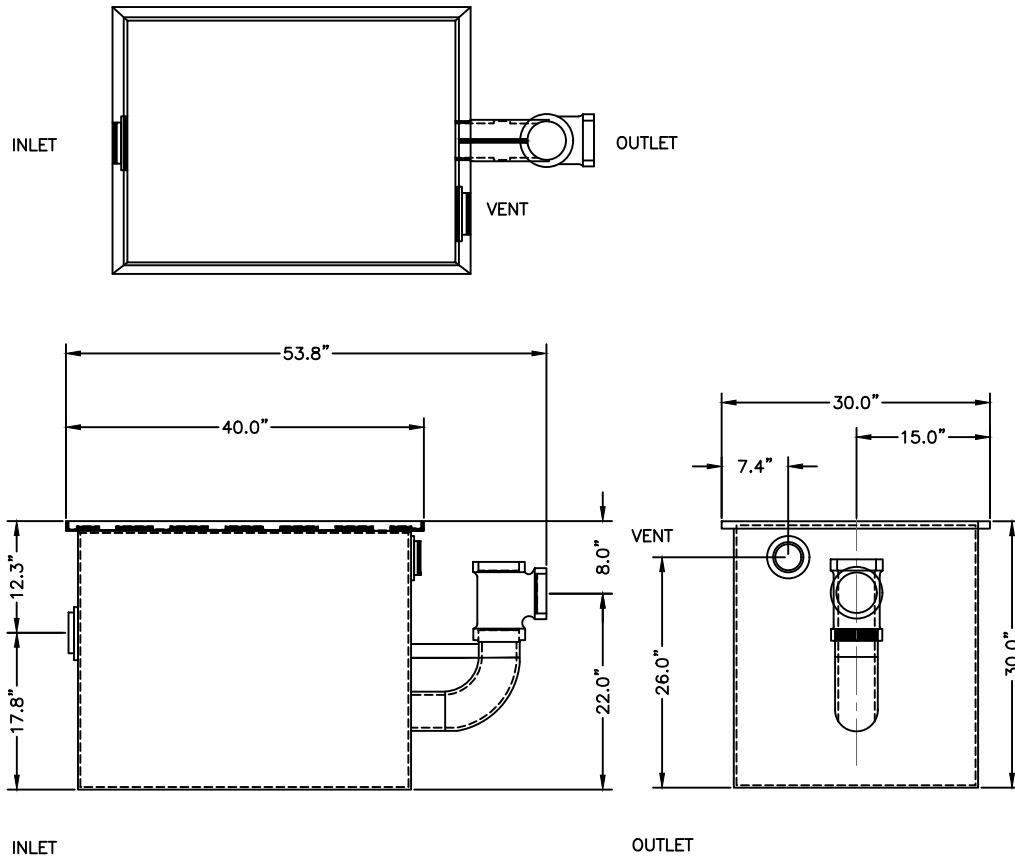


SAND/OIL INTERCEPTOR

Drawn: JTS	Revised:
Date: NOVEMBER 2024	Revised:
Scale: N.T.S.	Revised:



WW-15

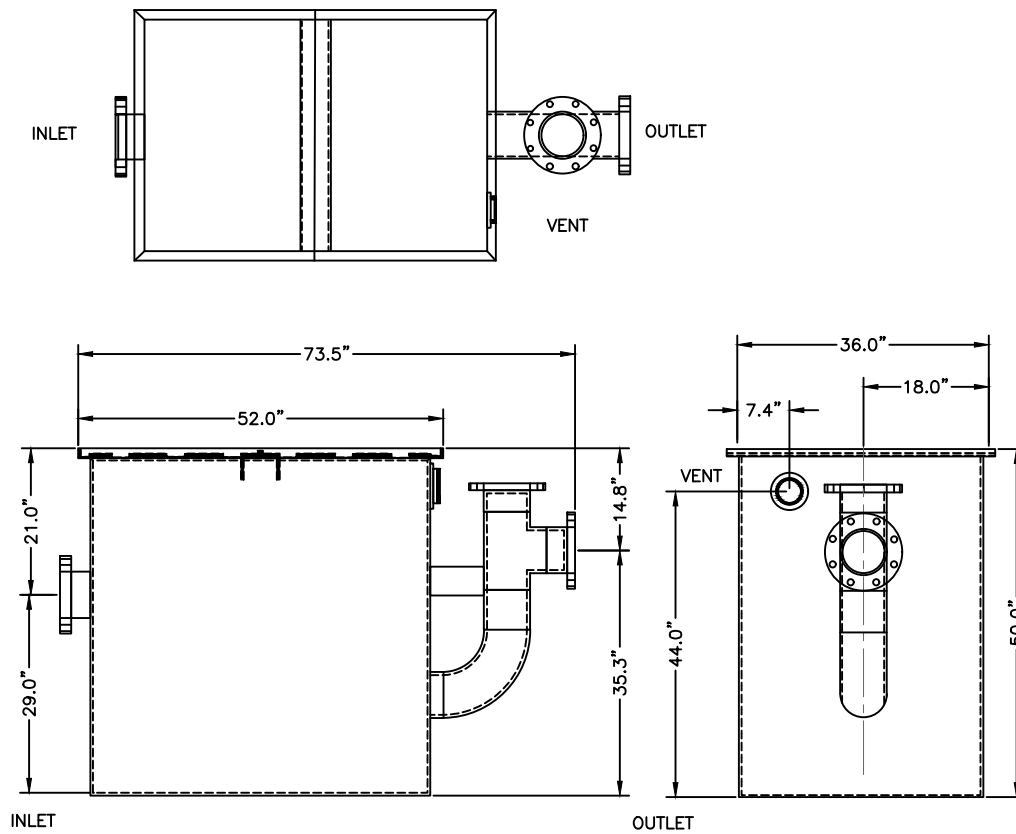


SPECIFICATIONS:

ALL WELDED $\frac{1}{4}$ " STEEL SEPARATOR, 85-GALLON STATIC CAPACITY, 4.0" TAPPED INLET/OUTLET WITH 3.0" TAPPED INTERNAL VENT CONNECTION, 250 LBS GREASY SLUDGE CAPACITY, VISIBLE DOUBLE-WALL OUTSIDE TRAP SEAL, SEPARATOR PLATE AND REMOVABLE FILTER SCREEN, REMOVABLE $\frac{3}{8}$ " NONSKID DIAMOND TREADPLATE COVERS FOR FLUSH-WITH-FLOOR INSTALLATION SUITABLE FOR PEDESTRIAN TRAFFIC SECURED WITH STAINLESS FLAT HEAD SCREWS, HEAVY DUTY LEAK-PROOF GASKET, OPEX SHOP COAT COATING INSIDE AND BITUMINOUS COATING OUTSIDE. ROCKFORD MODEL GIS-50 OR APPROVED EQUIVALENT.

GREASE SEPARATOR = 250 LBS

Drawn: GGM	Revised: DECEMBER 2021		WW-16
Date: MARCH 2011	Revised:		
Scale: N.T.S.	Revised:		



SPECIFICATIONS:

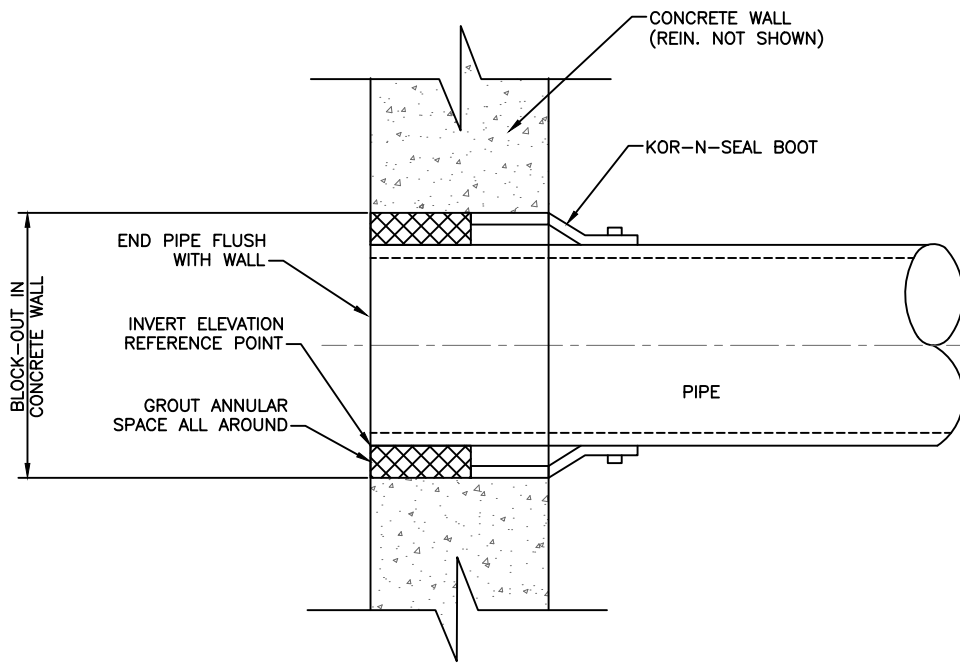
ALL WELDED $\frac{1}{4}$ " STEEL SEPARATOR, 225-GALLON STATIC CAPACITY, 6.0" COMPANION FLANGE INLET/OUTLET WITH 3.0" TAPPED INTERNAL VENT CONNECTION, 500 LBS GREASY SLUDGE CAPACITY, VISIBLE DOUBLE-WALL OUTSIDE TRAP SEAL, SEPARATOR PLATE AND REMOVABLE FILTER SCREEN, REMOVABLE $\frac{3}{5}$ " NONSKID DIAMOND TREADPLATE COVERS FOR FLUSH-WITH-FLOOR INSTALLATION SUITABLE FOR PEDESTRIAN TRAFFIC SECURED WITH STAINLESS FLAT HEAD SCREWS, HEAVY DUTY LEAK-PROOF GASKET, OPEX SHOP COAT COATING INSIDE AND BITUMINOUS COATING OUTSIDE. ROCKFORD MODEL GIS-70 OR APPROVED EQUIVALENT.

GREASE SEPARATOR = 500 LBS

Drawn: GGM	Revised: DECEMBER 2021
Date: MARCH 2011	Revised:
Scale: N.T.S.	Revised:

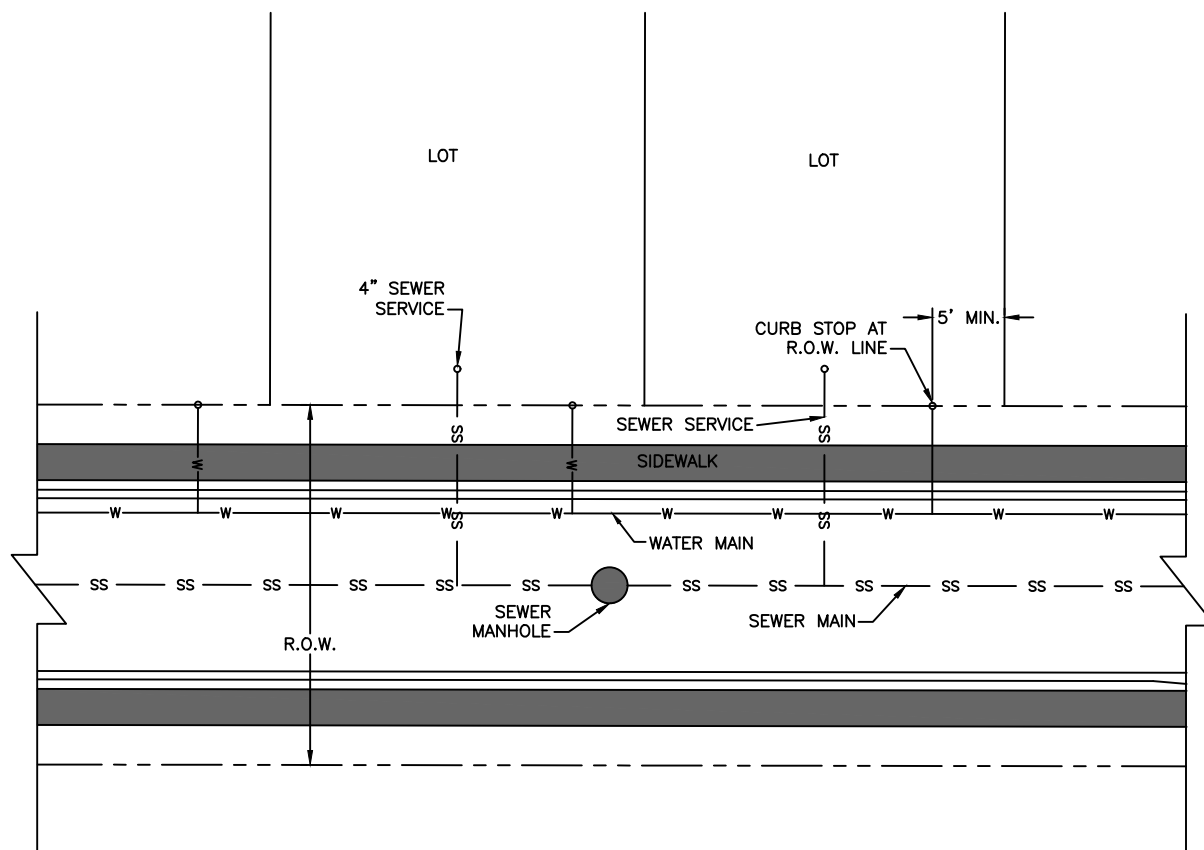


WW-17



KOR-N-SEAL BOOT DETAIL

Drawn: GGM	Revised: DECEMBER 2021		WW-18
Date: MARCH 2011	Revised:		
Scale: N.T.S.	Revised:		



NOTES:

1. SEWER SERVICE TO BE PLACED APPROXIMATELY IN THE MIDDLE OF THE LOT AND EXTENDED 10 FEET PAST R.O.W.
2. SERVICES SHALL BE MARKED WITH 2"x4" POST AT TERMINATION POINT FOR LOCATION DURING CONNECTION TO RESIDENCE. POSTS SHALL BE SPRAY PAINTED BLUE FOR WATER AND GREEN FOR SEWER.

UTILITY SERVICE LOCATIONS

Drawn: GGM/SKG

Revised: DECEMBER 2021

Date: MARCH 2011

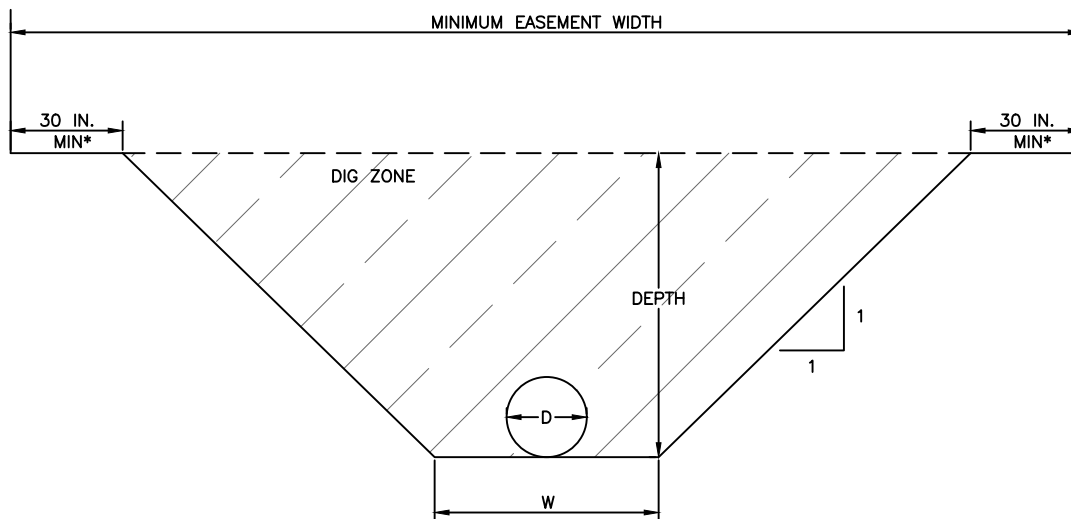
Revised:

Scale: N.T.S.

Revised:



WW-19



PIPE DIAMETER D	MINIMUM W
≤ 12 IN.	3 FT.
≤ 18 IN.	4 FT.
≤ 24 IN.	5 FT.
≤ 30 IN.	6 FT.

NOTES:

1. MINIMUM EASEMENT = 20 FT.
2. TYPICAL WATER ≤12 IN. WITH 5 FT COVER = 20 FT.
3. NO OTHER UTILITY IN DIG ZONE.
4. POTABLE WATER TO SEWER 10 FT MINIMUM HORIZONTAL.
5. MINIMUM CLEAR DISTANCE BETWEEN WH LINE = 30".
6. MINIMUM CLEAR DISTANCE BETWEEN WH LINE AND OTHER = 5 FT.
7. *SIDE SETBACK OF 30" MAY BE APPLIED EACH SIDE OR 5' ON SINGLE SIDE AS LONG AS DIG ZONE IS WITHIN EASEMENT.

EASEMENT & SEPARATION STANDARDS – WATER/SEWER MAINS

Drawn: GGM	Revised: DECEMBER 2021		WW-20
Date: MARCH 2011	Revised:		
Scale: N.T.S.	Revised:		



**TOWN OF PAONIA
BOARD OF TRUSTEES MEETING
STAFF REPORT**

AGENDA ITEM:	Consideration of Approval of an updated IGA with Colorado Department of Transportation for both the RMS and SRTS Grants
SUBMITTED BY:	Samira Vetter, Town Clerk
DATE:	May 27, 2025
BACKGROUND:	
BUDGET:	n/a
RECOMMENDATION:	
ATTACHMENT:	Email Draft AM1 25364 Paonia 331003105 16May2025

FW: Local Agency review of Draft AM1 25364 Paonia 331003105, Project Number: RMS M035-003

From Stefen Wynn <StefenW@townofpaonia.com>

Date Mon 5/19/2025 10:18 AM

To Paige S <paiges@townofpaonia.com>; Samira V <SamiraV@townofpaonia.com>; Paonia Legal <PTownLegal@townofpaonia.com>

Cc Paonia <paonia@townofpaonia.com>; Ruben Santiago <RubenS@townofpaonia.com>

 1 attachment (123 KB)

Draft AM1 25364 Paonia 331003105 16May2025.pdf;

Hi Sam,

Please make sure that this gets on the agenda for 5/27, it's very important since it's an updated IGA with CDOT for BOTH the RMS and SRTS grants.

SW

From: Hughston - CDOT, William <william.hughston@state.co.us>

Sent: Monday, May 19, 2025 10:06 AM

To: Stefen Wynn <StefenW@townofpaonia.com>; Jessi Spencer - CDOT <jessi.spencer@state.co.us>; Michael Konn - CDOT <michael.konn@state.co.us>

Subject: Local Agency review of Draft AM1 25364 Paonia 331003105, Project Number: RMS M035-003

Dear Stefen Wynn,

Please acknowledge receipt of this email within two business days.

Attached for your review is Draft AM1 25364 Paonia 331003105, Project Number: RMS M035-003.

If no edits are needed, please respond that this contract is "Good to go, no changes needed" or similarly. If this needs to be approved by your legal department, city council, etc. please let us know the anticipated date of review/approval. Also, please indicate if you will be sending a copy of your Local Agency Resolution to include in the contract.

We cannot accept wet signatures or PDFs of agreements signed by hand.

We will utilize our current OnBase for DocuSign Electronic Signature process.

Please confirm with regard to the following:

-The Name(s), Title(s), and email address(es) of all Contract Signatories (and if we should CC you).

-The order in which they will sign. {Example: 1) Attorney, 2) Mayor 3) Clerk}

If you have any questions, please let me know.

Sincerely,
Billy Hughston

--

Billy Hughston
Contract Administrator IV
Engineering Contracts



P 303.512.4110

2829 West Howard Place, 3rd Floor, Denver, CO 80204

william.hughston@state.co.us | www.codot.gov | www.cotrip.org

STATE OF COLORADO AMENDMENT

Amendment #: 1

Project #: RMS M035-003 (25364)

SIGNATURE AND COVER PAGE

State Agency Department of Transportation		Amendment Routing Number 23-HA3-XC-00150-M0001
Local Agency TOWN OF PAONIA		Original Agreement Routing Number 23-HA3-XC-00150
Agreement Maximum Amount	\$1,913,599.00	Agreement Performance Beginning Date October 20, 2023
		Initial Agreement expiration date August 27, 2023

THE PARTIES HERETO HAVE EXECUTED THIS AMENDMENT

Each person signing this Amendment represents and warrants that he or she is duly authorized to execute this Amendment and to bind the Party authorizing his or her signature.

STATE OF COLORADO
Jared S. Polis, Governor
Department of Transportation
Shoshana M. Lew, Executive Director

Keith Stefanik, P.E., Chief Engineer

Date: _____

LOCAL AGENCY
TOWN OF PAONIA

By: _____
*Signature

Name: _____
(Print Name)

Title: _____
(Print Title)

Date: _____

SECOND LOCAL AGENCY SIGNATURE,
IF NEEDED
TOWN OF PAONIA

By: _____
*Signature

Name: _____
(Print Name)

Title: _____
(Print Title)

Date: _____

In accordance with §24-30-202 C.R.S., this Amendment is not valid until signed and dated below by the State Controller or an authorized delegate.

STATE CONTROLLER
Robert Jaros, CPA, MBA, JD

By: _____
Department of Transportation

Amendment Effective Date: _____

1) PARTIES

This Amendment (the "Amendment") to the Original Agreement shown on the Signature and Cover Page for this Amendment (the "Agreement") is entered into by and between the Local Agency and the State.

2) TERMINOLOGY

Except as specifically modified by this Amendment, all terms used in this Amendment that are defined in the Agreement shall be construed and interpreted in accordance with the Agreement.

3) EFFECTIVE DATE AND ENFORCEABILITY

A. Amendment Effective Date

This Amendment shall not be valid or enforceable until the Amendment Effective Date shown on the Signature and Cover Page for this Amendment. The State shall not be bound by any provision of this Amendment before that Amendment Effective Date, and shall have no obligation to pay the Local Agency for any Work performed or expense incurred under this Amendment either before or after the Amendment term shown in **\$3.B** of this Amendment

B. Amendment Term

The Parties' respective performances under this Amendment and the changes to the Agreement contained herein shall commence on the Amendment Effective Date shown on the Signature and Cover Page for this Amendment and shall terminate on the termination of the Agreement.

4) PURPOSE

The Agreement provides funds for the Town of Paonia to reconstruct the intersection at 5th St and Grand Ave. from 4th Street. The Parties now wish to increase the maximum amount of funds of this Agreement.

5) MODIFICATIONS

A. This Amendment increases the total maximum amount of this Agreement from \$1,040,774.00 by \$872,825.00 to \$1,913,599.00.

B. A new Exhibit C-1 is made part of the original Agreement and replaces Exhibit C.

6) LIMITS OF EFFECT

This Amendment is incorporated by reference into the Agreement, and the Agreement and all prior amendments or other modifications to the Agreement, if any, remain in full force and effect except as specifically modified in this Amendment. Except for the Special Provisions contained in the Agreement, in the event of any conflict, inconsistency, variance, or contradiction between the provisions of this Amendment and any of the provisions of the Agreement or any prior modification to the Agreement, the provisions of this Amendment shall in all respects supersede, govern, and control. The provisions of this Amendment shall only supersede, govern, and control over the Special Provisions contained in the Agreement to the extent that this Amendment specifically modifies those Special Provisions.

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EXHIBIT C-1 - FUNDING PROVISIONS**Town of Paonia – RMS M035-003 (25364)****A. Cost of Work Estimate**

The Local Agency has estimated the total cost of the Work to be \$1,913,599.00, which is to be funded as follows:

1. a. State Funds (97.1% RMS Award)		\$1,010,592.00
b. Local Agency Funds (2.9% RMS Award)		\$30,182.00
c. State Funds (100% SRTS Award)		\$872,825.00
TOTAL BUDGETED FUNDS		\$1,913,599.00
2. ESTIMATED PAYMENT TO LOCAL AGENCY		
a. State Funds Budgeted		\$1,883,417.00
TOTAL ESTIMATED PAYMENT TO LOCAL AGENCY	98.4%	\$1,883,417.00
TOTAL ESTIMATED FUNDING BY LOCAL AGENCY	1.6%	\$30,182.00
TOTAL PROJECT ESTIMATED FUNDING	100.00%	\$1,913,599.00
4. FOR CDOT ENCUMBRANCE PURPOSES		
a. Total Encumbrance Amount (Only State funds are encumbered)		\$1,883,417.00
b. Less ROW Acquisition 3111 and/or ROW Relocation 3109		\$0.00
NET TO BE ENCUMBERED BY CDOT IS AS FOLLOWS		\$1,883,417.00

Note: No funds are currently available. Additional funds will become available after execution of an Option letter (Exhibit D) or formal Amendment.

Design 3020		
WBS Element 25364.10.30	Performance Period Start*/End Date	\$0.00
	N/A	
Const. 3301		
WBS Element 25364.20.10	Performance Period Start*/End Date	\$0.00
	N/A	

*The Local Agency should not begin work until both of the following are in place: 1) the execution of the document encumbering funds for the respective phase; and 2) Local Agency receipt of the official Notice to Proceed. Any work performed before these two (2) milestones are achieved will not be reimbursable.

B. Funding Ratio

The funding ratio for the State funds for this Work is 98.4% State funds to 1.6% Local Agency funds, and this ratio applies only to the \$1,913,599.00 that is eligible for State funds. All other costs are borne by the Local Agency at 100%. If the total cost of performance of the Work exceeds \$1,913,599.00, and additional State funds are not available, the Local Agency shall pay all such excess costs. If the total cost of performance of the Work is less than \$1,913,599.00 then the amounts of Local Agency and State funds will be decreased in accordance with the funding ratio described herein.

This applies to the entire scope of Work.

C. Maximum Amount Payable

The maximum amount payable to the Local Agency under this Agreement shall be

\$1,883,417.00. For CDOT accounting purposes, the State funds of \$1,883,417.00 will be encumbered, but the Local Agency funds of \$30,182.00 will NOT be encumbered. The total budget of this project is \$1,913,599.00, unless this amount is increased by an executed amendment before any increased cost is incurred. The total cost of the Work is the best estimate available, based on the design data as approved at the time of execution of this Agreement, and any cost is subject to revisions agreed to by the parties prior to bid and award. **This applies to the entire scope of Work.**