LINCOLN WATER SYSTEM

Water Service Manual

Issued: February 2004

TABLE OF CONTENTS

TABLE OF CONTENTS

OVERVIEW

This manual outlines the information and details necessary to construct or reconstruct all or parts of a water service to new or existing customers of the Lincoln Water System. This manual may be updated as necessary by resolution of the City Council. This manual is intended to coompliment Title 17 of the Lincoln Municiipal Code. If any statement in this document conflicts with Title 17, Title 17 shall govern.

Users of this manual who become aware of other information they feel should be included in this manual should contact the

Superintendent of Water Distribution
Lincoln Water System
2021 N. 27th St.
Lincoln, NE 68503
(402) 441-7571

1. MATERIALS FOR WATER SERVICE PIPES

Only the following materials are approved for use in the construction of new water service pipes:

1.1 Service lines 4 inch and larger - PVC

1.1.1 Polyvinyl Chloride (PVC) pressure pipe which conforms to the American Water Works Association Standard for Polyvinyl Chloride (PVC) with a DR 14 pressure rating (AWWA C900 or latest revision) may be used on service lines 4 inch and larger. A tracer wire shall be installed to be used for locating. This wire shall be THHN 14 gauge copper, and shall be installed and tested for continuity, as required in the Lincoln Standard Specifications for Municipal Construction.

1.1.2 Polyvinyl Chloride (PVC) pressure pipe is not recommended for that part of the service pipe extending into or underneath a structure.

1.2 Service lines 3 inch and larger - DIP

Ductile Iron Pipe (DIP), Class 52 which conforms to the American Water Works Association Standard for Ductile Iron Pipe (AWWA C151 or latest revision may be used on service lines 3 inch and larger). All ductile iron supply and service pipes three (3") inch and larger shall be encased with polyethylene encasement, as required in the Lincoln Standard Specifications for Municipal Construction.

1.3 Service lines 3/4 inch to 3 inch - Copper

Type "K" seamless copper tubing which conforms to the "Specifications for Seamless Copper Water Tube", ASTM Designation B88 may be used on service lines 3/4 inch to 3 inch in size. All copper supply and service pipes connecting to a ductile iron or cast iron main shall be encased with polyethylene encasement for a minimum distance of five (5') feet, beginning at the tap and extending along the supply pipe, as required in the Lincoln Standard Specifications for Municipal Construction.

1.4 Polyethylene Encasement

All service and supply pipes three (3") and larger using copper pipe or Ductile Iron pipe shall be encased with polyethylene encasement and conform to the current Lincoln Standard Specifications for Municipal Construction.

1.5 Exceptions

Exceptions to these standards may only be made upon written request to and approval by the Director of the Department of Public Works and Utilities.

2. TAPPING WATER MAINS

2.1 Excavations

2.1.1 Applicants are responsible for ensuring that all excavations are adequately protected in accordance with the Occupational Safety & Health Administration (OSHA) Regulations for trenching and excavations.

2.1.2 Applicant shall make the excavation, clean the area of the pipe for the tap, and insure that the remainder of the service work is ready for the inspection of the tap at the time the tap is made.

2.2 Inspections

The curb stop, supply pipe, and the service pipe (1" and smaller) shall be in place and ready for inspection when the tap is scheduled. Applicant shall comply with the provisions of the City of Lincoln Standard Specifications for Municipal Construction , as it pertains to the work, and with Lincoln Standard Plans for Tapping Excavation Pit. *See appendix D.*

2.3 Backfill

2.3.1 Applicant shall properly prepare the excavation for the tap using required minimum dimensions.

2.3.2 The backfilling of the excavation in the street right-of-way shall conform to the requirements of the "Lincoln Standard Plans for Municipal Construction" and Lincoln Municipal Code Title 14.

2.3.3 Soil compaction tests may be made by the City, and any inadequately compacted soil material shall be removed and re-compacted until the compaction requirements have been satisfied.

2.4 Cancellations

In the event applicant desires to cancel a scheduled tap, the Lincoln Water System must be notified no later than 3:00 pm the working day prior to the scheduled tap. If notification by the applicant is not received by 3:00 pm the day prior to the scheduled tap, a fee will be assessed for the cancellation.

3. METER INSTALLATION AND LOCATIONS

3.1 Length of Service

When the length of a water service line from the property line to a customer's building service entrance exceeds four-hundred (400') feet, an above ground meter structure shall be installed on the customer's property as near as possible to the public right of way line, which meets the setback requirements of the Lincoln Municipal Code. *See appendix C, Meter and Backflow Prevention Assembly Installations.*

3.2 Meter Clearances

Meters must be kept readily accessible and shall be installed using the minimum clearances required for replacement, maintenance, and testing. *See appendix C for minimum dimensions for water meter installations.*

3.3 Water Meter Installation

3.3.1 All water meters shall be owned and maintained by the City of Lincoln.

3.3.2 All approved water meters 1" and smaller in size for new construction shall only be installed by the Lincoln Water System.

3.3.3 All water meters greater than 1" in size for new construction and approved by the Director shall be installed by the customers registered licensed plumber.

4. BACKFLOW PREVENTER ASSEMBLY INSTALLATION, LOCATION, AND TESTING

4.1 Backflow Preventer Clearances

4.1.1 Backflow Preventer Assemblies require a minimum of one (1) foot between the lowest portion of the assembly and grade, floor or platform.

4.1.2 Installations more than five (5) feet above the floor or grade are not allowed (measured from the floor to the center line of the backflow preventer assembly), unless a permanent platform constructed with the proper stairs, and railings is installed to provide safe access for required testing or repair by a registered Grade 6 operator.

4.1.3 *See appendix C for the required minimum dimensions for installations*.

4.2 Testing/Repair Requirements

4.2.1 All testable backflow prevention assemblies shall be tested at least annually by a Registered Grade 6 Operator as defined in LMC Title 17. Backflow prevention assemblies may be tested more frequently when required by the Director. This requirement does not apply to lawn sprinkler systems, except those that are equipped with booster pumps or chemical injection systems.

4.2.2 All backflow preventer assemblies installed on fire lines may be tested or repaired only by a Registered Grade 6 Water Operator approved by the Nebraska State Fire Marshall's office to perform work on fire lines. (State of Nebraska - Title 179)

4.2.3 All backflow prevention assembly internal components shall be inspected every five (5) years. This requirement does not apply to lawn sprinkler systems except those that are equipped with booster pumps or chemical injection systems.

4.4.4 No person shall change the design material or characteristics of any approved assembly during the repair, testing, or maintenance of approved backflow prevention assemblies.

4.4.5 All testable backflow prevention assemblies can only be tested and repaired by a Registered Grade 6 Operator.

4.5.6 Test and repair results must be reported to the Lincoln Water System within thirty (30) days of the test, installation, or repair date. Any test, installation, or repair report not received at the office of the Lincoln Water System within thirty (30) calendar days of the test, installation, or repair date will result in invalidation of the test. *See appendix B, for a copy of the Backflow Preventer Test Form.*

4.3 Gauge Calibration Requirements

Properly calibrated gauge equipment is essential to ensure accurate data acquisition. Therefore, gauging equipment must be checked for accuracy at least once each year and recalibrated when inaccuracy is greater than +/- .02 psid. A copy of all gauge calibration records must be filed with the Lincoln Water System annually.

4.4 Approval of Plumbing Plans

4.4.1 Plans for new or altered water service and supply installations shall be submitted to the Lincoln Water System for review and approval prior to construction.

4.4.2 Approval of a backflow prevention plan must be completed by Lincoln Water System prior to the issuance of Building Permits by the Building and Safety Department.

4.5 Approval of Protective Assemblies

4.5.1 Only assemblies approved by the Lincoln Water System shall be installed for the prevention of back flow and back siphonage.

4.5.2 The type of assembly, its location within the plumbing system, and the details of its installation shall be approved by the Lincoln Water System. The Lincoln Water System will perform a premise survey on all new or altered plumbing systems and notify the property owner of the requirements for cross-connection control at the time of completion of the new or altered plumbing system. When a backflow prevention assembly is required, the Lincoln Water System shall give notice to the customer to immediately install such assembly.

4.5.3 The installation, maintenance, replacement, and any required testing of the assembly shall be at the expense of the customer.

4.5.4 When the Lincoln Water System determines there is an existing or potential pollution hazard within the premises of the customer, which may not affect the public water supply, but may affect the users of the water on the premises, the customer shall install and maintain a backflow prevention assembly of the type required in Title 24, Lincoln Municipal Code.

4.5.5 *See appendix A, for a list of approved Backflow Prevention Assemblies.*

4.6 Customer Notification of Survey and Billing for Service

Each customer whose premises are known or suspected to have an actual or a potential cross connections in the plumbing system shall be notified by the Lincoln Water System that a premise survey is required. The survey shall take place within thirty (30) days of the notification date. A survey may be performed by the Lincoln Water System personnel. The survey shall include, but not be limited to, the following:

4.6.1 Review of known cross connections for proper prevention of backflow.

4.6.2 Identify new cross connections on the premises since any previous survey.

4.6.3 Test backflow prevention assembly(s) for proper functional service and repair, if necessary.

4.6.4 Authorize modification in the plumbing system to comply with these rules and regulations.

4.6.5 Bring all records concerning the backflow prevention on the premises to current status.

4.6.6 The customer may be billed a reasonable charge for services rendered by the Lincoln Water System based on a schedule of fees established and maintained by the Lincoln Water System.

4.7 Certification and Registration of Technicians

4.7.1 Persons performing inspections, tests, and repairs of backflow prevention assembly(s), and persons conducting surveys and investigations of property or properties served by the Lincoln Water System for the purpose of backflow prevention compliance, shall be Registered Grade 6 Water Operators as defined by LMC Title 17. The Lincoln Water System will maintain a current list of registered Grade 6 Water Operators.

4.7.2 Registered Grade 6 Water Operators must at all times maintain public liability insurance coverage for all claims arising out of all work in the City of Lincoln. Such insurance shall be commercial or comprehensive general liability policy, or an acceptable substitute as permitted by the City Attorney. The minimum combined single limit of $500,000.00 aggregate for any one occurrence on any job for which a permit is required under this code, provided the City of Lincoln shall be named an additional insured thereunder. The coverages required herein shall be subject to review and approval by the City Attorney for conformance with the provisions of this section.

4.7.3 Registered Grade 6 Water Operators must at all times keep on file with the Lincoln Water System a current certificate of insurance signed by a qualified agent of an insurance company licensed to do business in the State of Nebraska and approved by the City Attorney for conformance with the provisions of this section evidencing the existence of valid and effective policies of insurance naming the city as an additional insured for the coverage required by the previous subsection of this section, the limits of each policy, the policy number, the name of the insurer, the effective date and expiration date of each policy, the deductibles or self-insurance retainers of each policy, and a copy of an endorsement placed on each policy requiring thirty days notice by mail to the Lincoln Water System before the insurer may cancel the policy for any reason, and upon request of the Lincoln Water System or the City Attorney, a copy of any endorsements placed on such policies or the declarations page of such policies.

4.7.4 Termination, reduction in coverage, or lapse of required insurance shall automatically terminate a Grade 6 Water Operator's registration with the city of Lincoln under the provisions of this code, unless other insurance meeting the requirements of this section is provided and in full force and effect at the time of such expiration or cancellation.

5. CONSTRUCTION METERS

5.1 When Required

In accordance to the Lincoln Municipal Code, Section 17.10.070 it is unlawful for persons to take water from the Lincoln Water System without first obtaining a permit to do so. This applies to all withdrawals of water including for buildings or homes under construction. All connections must have a water meter and proper backflow prevention assembly at the time the tap is made.

5.2 Permits and Fees

The permitted use of a construction meter is included as part of the permit and fees for a water service connection tap and includes 16 units of water use. Additional water use over 16 units shall be charged at the current water rates in effect at the time the meter is returned.

5.3 Permitted Uses

5.3.1 Backfilling and settling soils for trenches and foundations. This will include only the following: foundation, electric, telephone and cable trench, water trench, and waste water trenches.

5.3.2 Cleanup water for washing hands and tools, cleaning sidewalks and driveways.

5.3.3 Water for flushing and pressure testing of plumbing systems.

5.4 Prohibited Uses

5.4.1 Water shall not be used for planting, establishing grass seed beds or sod, watering of shrubs, trees, or other landscape materials.

5.4.2 Water shall not be used at any location other than the permitted service address.

5.4.3 Water shall not be wasted such as unattended trench flushing which allows water to run into the street.

5.5 Failure to Comply

5.5.1 At locations where water is being used in a wasteful manner, LWS will shut water off at the stop box, and an additional shut off/turn on charge will be assessed.

5.5.2 Where water is being used to irrigate sod, seed, or landscaping materials, the permittee will be charged for use of 150 units of water at the current water use charge.

5.5.3 Where a willful disregard for this policy is demonstrated by the permittee, future permits will be withheld until the matter is resolved.

6. HYDRANT METERS

6.1 When Required

In accordance to the Lincoln Municipal Code, Section 17.10.070 it is unlawful for persons to take water from the Lincoln Water System without first obtaining a permit to do so. This applies to all withdrawals of water from fire hydrants. All connections made to fire hydrants must have a proper water meter and proper backflow prevention assembly. Only meters and backflow prevention assembly provided by the Lincoln Water System may be used.

6.2 Permits and Fees

6.2.1 A permit for use can be obtained at the LWS offices.

6.2.2 A refundable cash or check deposit is required when obtaining a permit. Deposits made by check are accepted only from customers that currently have an account in good standing with the City.

6.2.3 A daily rental rate is also charged for the use of the meter in addition to the actual charge for water use.

6.2.4 The Permittee shall be mailed a monthly invoice and shall be required to accurately record and report monthly meter readings.

6.3 Permitted Uses

6.3.1 Hydrant meters and backflow prevention assemblies shall only be permitted to be used on Lincoln Water Systems fire hydrants

6.3.2 Hydrant meters and backflow prevention assemblies shall only be used by the permittee renting the device and the device may not be loaned to or shared by others.

6.3.3 Contractors must pay any past due balances before receiving additional hydrant meters.

6.3.4 The permittee shall comply with all water use restrictions imposed by the Lincoln Water System's water conservation program.

6.4 Prohibited Uses

Hydrant meters and backflow prevention assemblies shall not be used for long term irrigation of turf or other vegetation.

6.5 Responsibilities of Permittee

6.5.1 The permittee is responsible for all costs associated with damage, theft, or vandalism to devices.

6.5.2 Permittee shall return all rented devices to the Lincoln Water System no later than January 31st of each year.

7. RELOCATING A FIRE HYDRANT

7.1 Public Water System

When an existing fire hydrant on the public water system requires relocation, a request to relocate must be made in writing to Lincoln Water System. The person(s) making such a request shall pay the entire cost of the relocation. The labor, materials, and equipment required to relocate the fire hydrant may be provided by an approved utility contractor.

7.2 Private Water System

When a private fire hydrant must be relocated, such work must be done pursuant to Title 24, of the Lincoln Municipal Code.

8. WATER SERVICE LINE RECONSTRUCTION

All new construction will require a new water service unless the existing water service (water service includes tap, supply pipe, stop box, service pipe, and inlet valve) is less than 3 years old, as indicated on water tap records maintained by Lincoln Water System.

9. FEES

The Lincoln Water System charges various services fees for permits, water shut-offs and turn-ons, cancellations, hydrant meter usage, and testing. The Lincoln Water System also charges for various materials used in water main construction. A fee schedule can be obtained by contacting the Lincoln Water System Business Office at (402) 441-7534.

APPENDICES

Appendix A - Approved Backflow Prevention Devices

Lincoln Water System Revised 01/15/2008

Double Check Valve Backflow Prevention Assemblies

Ames	2000 SS (Fire Line Only)	3" thru 12"
Ames	Colt 200	2 ½" thru 10"
Ames	Cost 200N	2 ½" thru 6"
Conbraco	4-S-100 (Model DC)	2 ½" thru 10"
Conbraco	40-100	½" thru 10"
Febco	850	½" thru 8"
Febco	850 Standard	2 ½" thru 8"
Febco	870 N or V Shape	2 ½" thru 10"
Watts	709	3" thru 10"
Watts	757	2 ½" thru 10"
Watts	757N	2 ½" thru 6"
Watts	757BFG	2 ½" thru 8"
Watts	007 M2-QT	3/4" thru 10"
Watts	007 M3-QT	3/4" thru 10"
Watts	719 QT	3/4" thru 2"
Wilkins	950	3/4" thru 10"
Wilkins	350	2 ½" thru 10"

Reduced Pressure Principle Assemblies

Ames	C-400	2 ½" thru 8"
Conbraco	40-200	½" thru 10"
Febco	825Y	3/4" thru 2"
Febco	860	½" thru 10"
Febco	880 N or V Shape	2 ½" thru 10"
Watts	909	3/4" thru 10"
Watts	919 QT	3/4" thru 2"
Watts	009 M2-QT	½" thru 3"
Watts	009 M3-QT	½" thru 3"
Watts	957	2 ½" thru 8"
Wilkins	975XL	1/4" thru 2"
Wilkins	975	3/4" thru 10"
Wilkins	375	2 ½" thru 8"

Pressure Vacuum Breakers

Conbraco	40-500	½" thru 2"
Febco	765	½" thru 2"
Watts	800 QT	½" thru 2"
Wilkins	720 A	½" thru 2"

Sanitary Yard Hydrant (Must meet ASSE # 1057 Standard)

Freeze Flow	Executive & Standard (ADA)	1"
Murdock	NP-75 & NPL-75	3/4"
Woodford	S3 & S4H	3/4"

APPENDIX B: Backflow Preventor Test Form

Lincoln Water System Backflow Preventer
MAINTENANCE TEST FORM

Business / Building _____

Service Address _____

Contact Person _____ / Phone Number _____

☐ Annual Test

☐ DC ☐ RPP _____ Size _____ Manufacturer _____ Model No. _____ Serial #

☐ New Installation ☐ Replacement

☐ DC ☐ RPP _____ Size _____ Manufacturer _____ Model No. _____ Serial #

☐ Domestic Containment ☐ Irrigation ☐ Fire Service ☐ Boiler ☐ Carbonator ☐ Other

(Desc): _____

☐ Swimming Pool ☐ Cooling Tower ☐ Water Cooled Ice Maker

Device Location _____

Check Valve #1	Check Valve #2	Pressure Relief Valve	PVB/SVB
INITIAL TEST			
Held at PSID	Held at PSID	Opened at PSID	Air Inlet
Leaked ☐ Yes ☐ No	Closed Tight ☐ Yes ☐ No	Did not open	Opened at PSID
Cleaned	Leaked ☐ Yes ☐ No	Cleaned	Did not open
Replaced	Cleaned	Replaced	Check Valve
	#2 Shut Off Closed Tight ☐ Yes ☐ No		Held at PSID
			Leaked
			Cleaned
			Replaced
FINAL TEST			
	Closed Tight ☐ Yes ☐ No		Check Valve PSID
PSID	PSID	Replaced PSID	Air Inlet PSID

I hereby certify the above backflow preventer has been tested in accordance with all rules and regulations of the State of Nebraska Health and Human Services, Department of Regulation and Licensure, Title 179, and the Lincoln Water System Title 17, and that all readings are true and accurate to the best of my ability.

Questions - call 441-5912
Please Mail Form To:
Lincoln Water System
Backflow Prevention Office
2021 North 27th Street
Lincoln, NE 68503

State Certified Technician (please print) Company Grade 6 Certificate No. Cell / Phone No.

State Certified Technician (signature) Customer Signature Date of Test

Test Gauge Manufacturer Test Gauge Serial No. Date of Calibration

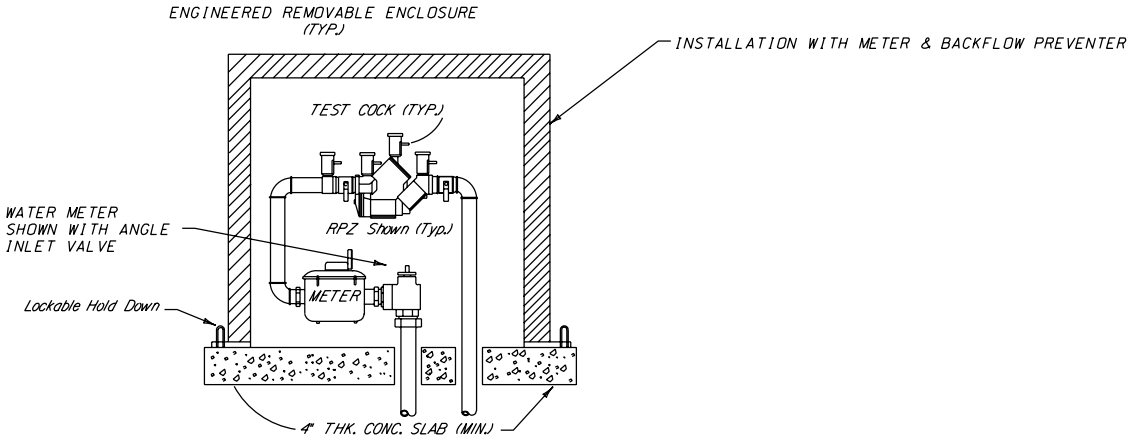
Comments: _____

PLEASE TYPE OR PRINT LEGIBLY

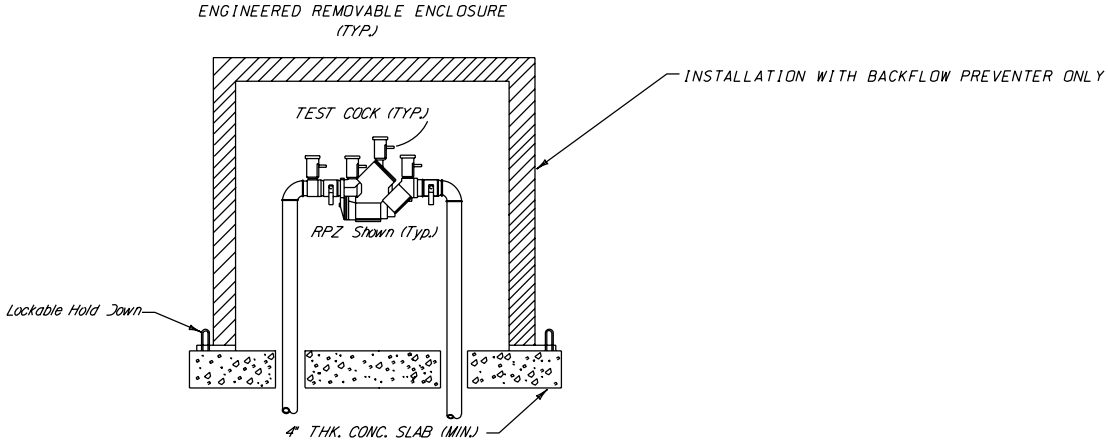
White Copy - LWS Yellow Copy - Contractor Pink Copy - Business

Clear Form Print Form

APPENDIX C-1: Meter and Backflow Installation - Drawing 1 of 5



NOTE: HEAT TO BE PROVIDED BY HEAT TRACE CABLE



NOTE: Heat to be provided by Heat Trace Cable

REVISIONS		
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1	LER	Oct02
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3		
4		
5		
6		
7		
8		
9		
10		

WATER METER / BACKFLOW ABOVE GROUND STRUCTURE

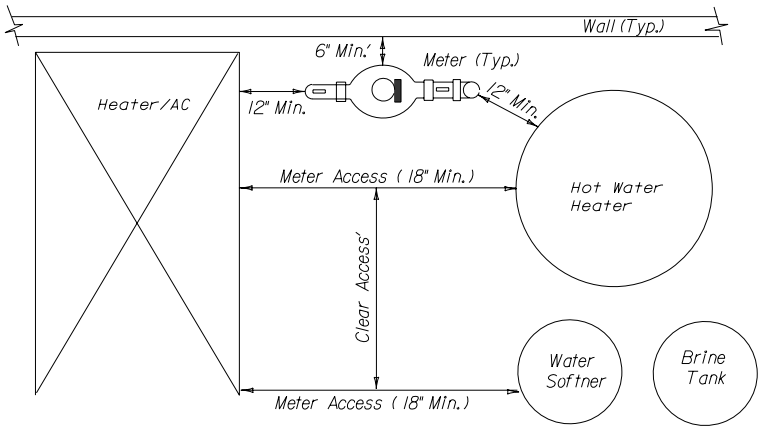
CITY OF LINCOLN, NEBRASKA
Lincoln Water System

Date: Scale: None

No. Sheets | PLAN NO. | Sheet No.

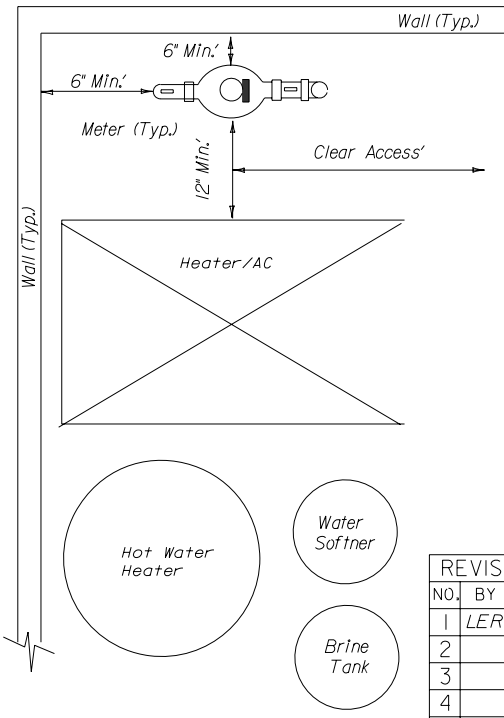
DRAWN CHECKED APPROVED

APPENDIX C-2: Meter and Backflow Installation - Drawing 2 of 5



EXAMPLE

EXAMPLE



NOTE:
Water Meter clearance from walls must be 6" Minimum.
Water Meter clearance from all other objects must be 12" Minimum
Access to the Water Meter must provide 18" Min. Clearance.

REVISIONS		
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1	LER	NOV02
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WATER METER CLEARANCE SCHEMATIC RESIDENTIAL (SMALL METERS)

CITY OF LINCOLN, NEBRASKA
Lincoln Water System

Date: 2INOV02 Scale: None

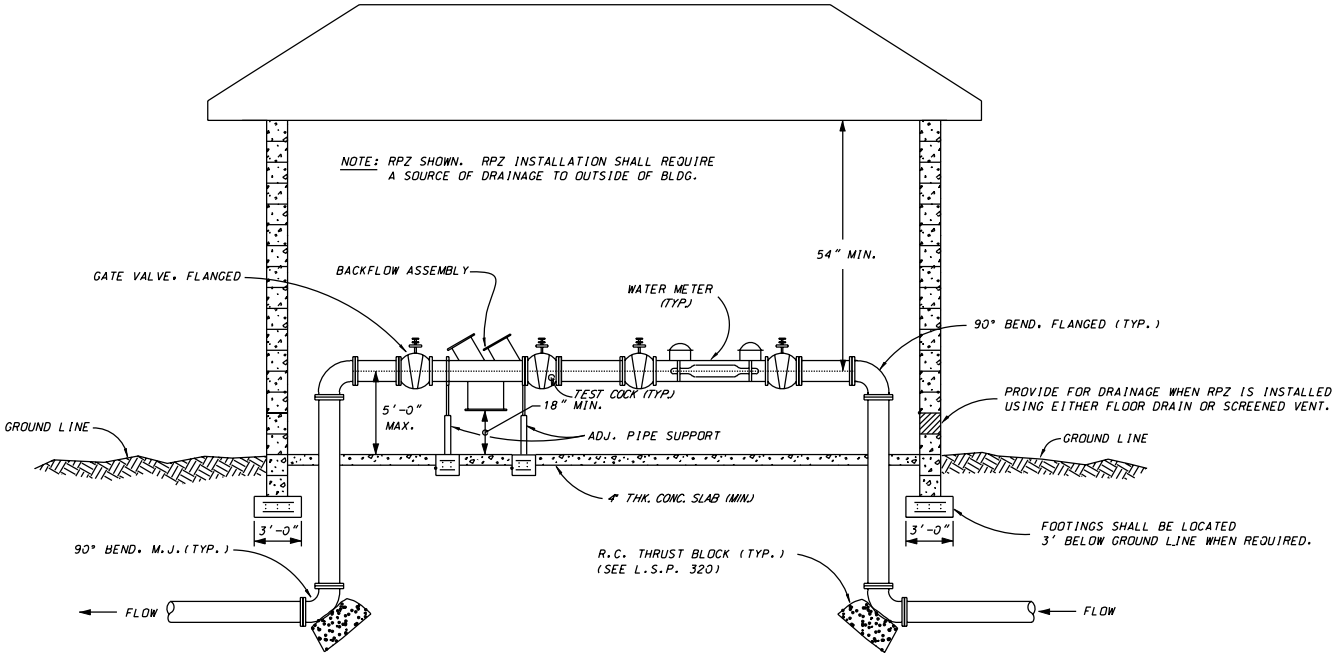
No. Sheets: 1

PLAN NO : RES_SMALL

Sheet No.: 1

DRAWN _____ CHECKED _____ APPROVED _____

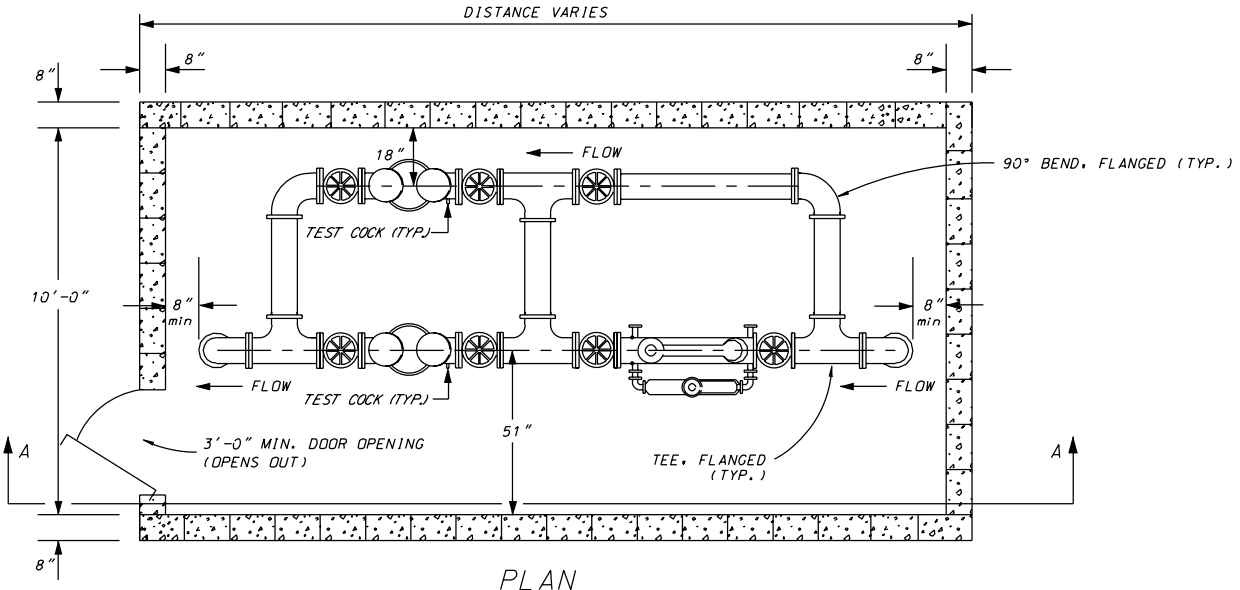
APPENDIX C-3: Meter and Backflow Installation - Drawing 3 of 5



SECTION A-A

Water Meter Structure Details

NO SCALE



PLAN

REVISIONS		
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1	JWW	7/02
2	LER	Oct02
3	LER	Jan03
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10		

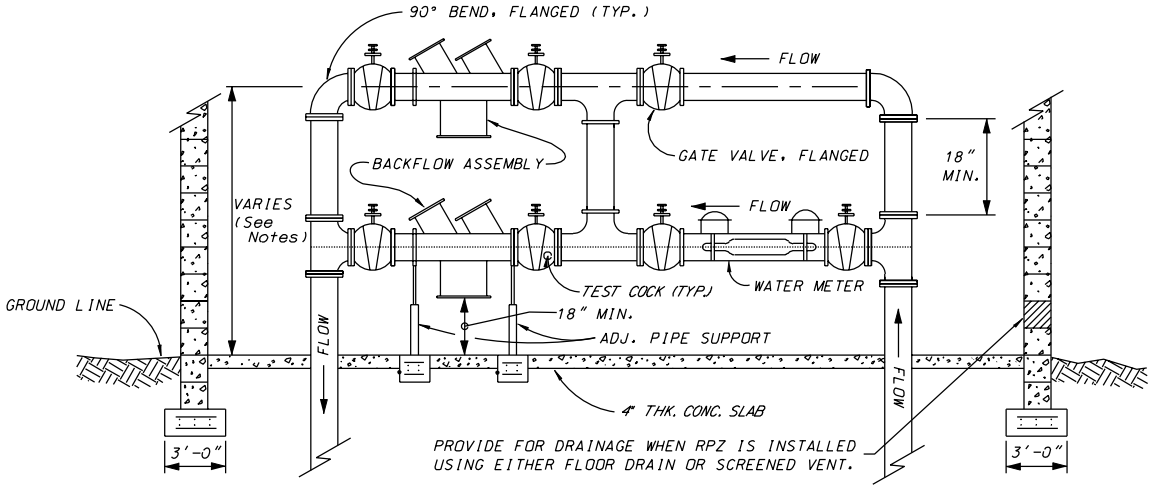
WATER METER / BACKFLOW PREVENTER STRUCTURE

RASKA
Lincoln Water System

Date:
No. Sheets
Scale: None
Sheet No.
PLAN NO.

DRAWN _____ CHECKED _____ APPROVED _____

APPENDIX C-4: Meter and Backflow Installation - Drawing 4 of 5



ALTERNATIVE VERTICAL BYPASS INSTALLATION
(SECTIONAL VIEW)

NOTES:

METER STRUCTURE SHALL MEET OR EXCEED ALL CITY OF LINCOLN BUILDING CODES. DRAWING SHOWS A "SUGGESTED" PERMANENT STRUCTURE. ALL PLANS FOR STRUCTURES MUST BE APPROVED BY LINCOLN WATER SYSTEM PRIOR TO CONSTRUCTION.

BACKFLOW PREVENTER ASSEMBLY MUST BE APPROVED BY THE LINCOLN WATER SYSTEM.

ONLY WATER METERS PROVIDED BY THE LINCOLN WATER SYSTEM MAY BE INSTALLED.

ALL PIPE JOINTS INSIDE THE STRUCTURE SHALL BE FLANGED.

CERTIFIED TESTS PERFORMED BY A REGISTERED GRADE 6 WATER OPERATOR OF THE INSTALLED BACKFLOW PREVENTER SHALL BE RECEIVED BY LINCOLN WATER SYSTEM WITHIN 30 (THIRTY) DAYS OF THE INSTALLATION.

METER STRUCTURE DIMENSIONS MAY VARY AS DETERMINED BY THE TYPES AND MODELS OF WATER METERS AND BACKFLOW PREVENTERS REQUIRED BY THE LINCOLN WATER SYSTEM. STRUCTURES THAT DO NOT HAVE REMOVABLE ROOFS WILL HAVE TO MEET THE 54" MINIMUM DISTANCE FROM THE UPPER PIPE CENTERLINE TO THE LOWEST INSIDE CEILING HEIGHT FOR FUTURE MAINTENANCE.

ALL INSTALLATIONS THAT REQUIRE A BYPASS PIPING ARANGEMENT SHALL INSTALL A BACKFLOW PREVENTION ASSEMBLY EQUAL TO THE MAIN LINE BACKFLOW PREVENTION ON THE BYPASS.

ALL REINFORCING STEEL SHALL MEET THE REQUIREMENTS OF "SPECIFICATIONS FOR BILLET STEEL CONCRETE REINFORCEMENT BARS". ASTM DESIGNATION A-615 GRADE 40 OR GRADE 60.

ALL CONCRETE SHALL BE L3500 PER CHAPTER 11 OF THE CITY OF LINCOLN STANDARD SPECIFICATIONS.

ALL REINFORCING STEEL SHALL BE EPOXY COATED.

ABOVE GROUND INSTALLATIONS MUST BE PROTECTED FROM FREEZING.

METER STRUCTURE SHALL PROVIDE INGRESS/EGRESS 3' - 0" DOOR WIDTH PER LINCOLN MUNICIPAL CODE. (DOOR MUST OPEN OUT) APPROVED PRE-MANUFACTURED STRUCTURES MUST PROVIDE ACCESS FOR MAINTENANCE AND TESTING PER LMC TITLE 17.

INSTALLATIONS THAT REQUIRE "REDUCED PRESSURE PRINCIPAL" DESIGNED ASSEMBLIES SHALL PROVIDE A MEANS OF DRAINAGE TO THE OUTSIDE OF THE STRUCTURE.

ANY ASSEMBLY CENTER LINE LOCATED MORE THAN 5' - 0" ABOVE THE STRUCTURE FLOOR SHALL PROVIDE A PERMANENT PLATFORM FOR REQUIRED TESTING AND MAINTENANCE.

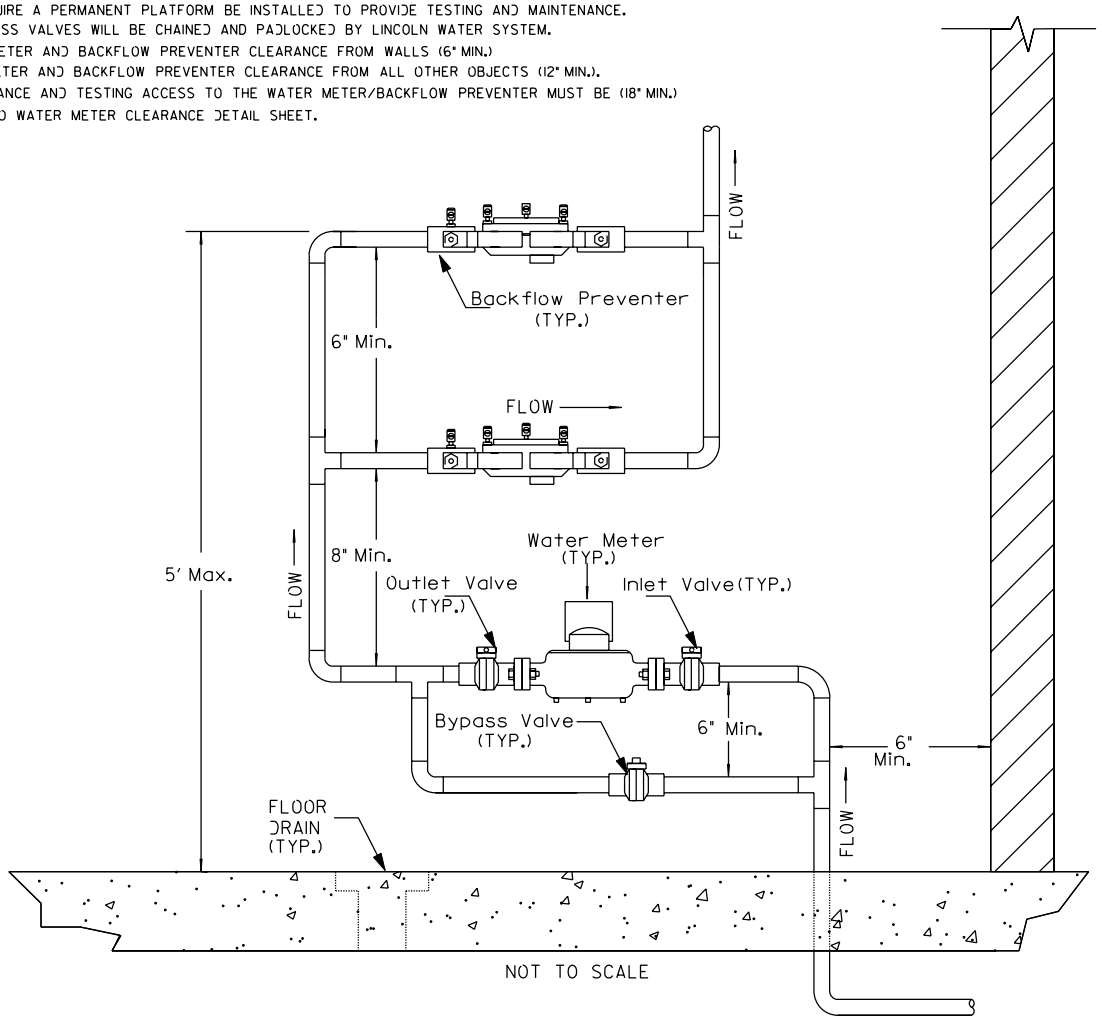
FOR DETAILS OF THRUST BLOCKS, ANCHORS AND TEE BLOCKS, SEE LINCOLN STANDARD PLAN 320.

ALL BYPASS LINE VALVES WILL BE CHAINED AND PADLOCKED BY LINCOLN WATER SYSTEM.

APPENDIX C-4: Meter and Backflow Installation - Drawing 5 of 5

NOTES:

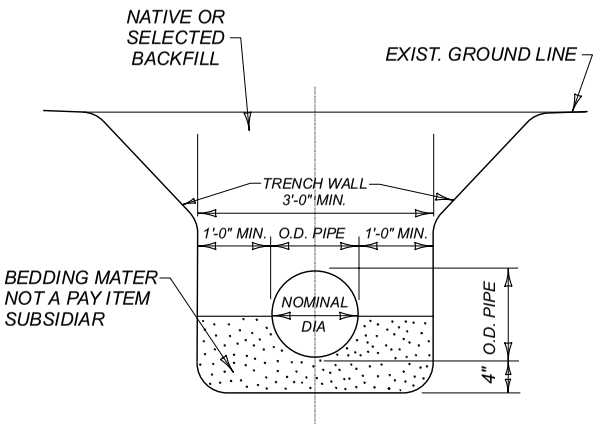
1. BACKFLOW PREVENTER ASSEMBLIES MUST BE APPROVED BY LINCOLN WATER SYSTEM.
2. ONLY WATER METERS PROVIDED BY LINCOLN WATER SYSTEM MAY BE INSTALLED.
3. A CERTIFIED TEST MUST BE PERFORMED ON THE BACKFLOW PREVENTER ASSEMBLIES BY A REGISTERED GRADE VI OPERATOR AND SUBMITTED TO LINCOLN WATER SYSTEM WITHIN 30 (THIRTY) DAYS OF INSTALLATION
4. ALL INSTALLATIONS THAT REQUIRE AN "UNINTERUPTED" SUPPLY OF WATER SHALL REQUIRE A DUAL BACKFLOW PREVENTER SETUP, AS SHOWN ON THIS DETAIL.
5. INSTALLATIONS THAT REQUIRE A BACKFLOW PREVENTER SHALL PROVIDE A MEANS OF DRAINAGE.
6. ANY BACKFLOW PREVENTER ASSEMBLY LOCATED MORE THAN 5' 0" ABOVE FLOOR WILL REQUIRE A PERMANENT PLATFORM BE INSTALLED TO PROVIDE TESTING AND MAINTENANCE.
7. ALL BYPASS VALVES WILL BE CHAINED AND PADLOCKED BY LINCOLN WATER SYSTEM.
8. WATER METER AND BACKFLOW PREVENTER CLEARANCE FROM WALLS (6" MIN.)
9. WATER METER AND BACKFLOW PREVENTER CLEARANCE FROM ALL OTHER OBJECTS (12" MIN.).
10. MAINTENANCE AND TESTING ACCESS TO THE WATER METER/BACKFLOW PREVENTER MUST BE (18" MIN.) REFER TO WATER METER CLEARANCE DETAIL SHEET.



CITY OF LINCOLN, NE. LINCOLN WATER SYSTEM		
SMALL METER/BACKFLOW PREVENTER INSTALLATION DETAIL (2"and SMALLER)		
For Information: Call 402-441-5935		
Sheet No.		No. of Sheets
1	Revised: 04/10/2003	1

APPENDIX D-1: Lincoln Standard Plans Water Tap Excavation Pit

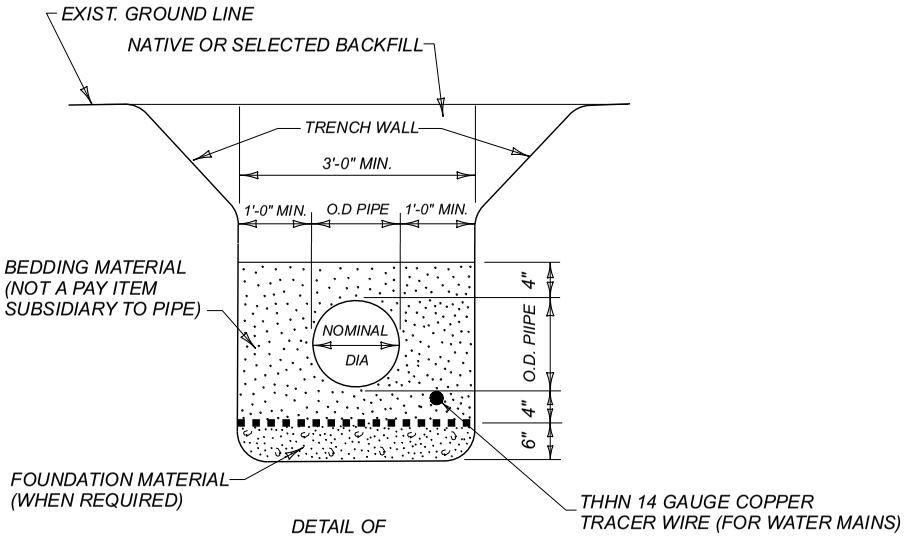
	A	B	C	D	E	F
TAPPING SLEEVE AND VALVE	12"	12"	6'-0"	10" or LESS	8' MIN.	4'-0"
			7'-0"	12" or MORE	9' MIN.	
WATER SERVICE TAP	6"	12"	3' MIN.	16" or LESS	5'-0"	3'-0"
WASTEWATER SERVICE TAP	6"	12"	3' MIN.	15" or LESS	5'-0"	3'-0"



DETAIL OF

PIPE BEDDING FOR DUCTILE IRON AND REINFORCED CONCRETE PIPE 15" DIA. AND LARGER

NO SCALE



DETAIL OF

PIPE BEDDING AND FOUNDATION MATERIAL FOR ALL PIPE EXCEPT DUCTILE IRON AND REINFORCED CONCRETE

NO SCALE