CITY OF LINCOLN
DEPARTMENT OF PUBLIC WORKS AND UTILITIES
LINCOLN WATER SYSTEM

Water Service Manual

May 2011

This manual outlines the various policies and procedures necessary for water service from the Lincoln Water System. This manual is intended to compliment the Lincoln Municipal Code (LMC), Title 17. If any statement in this document conflicts with the LMC, the LMC shall govern. The requirements in this manual are considered enforceable in accordance to LMC 17.18.006.

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Overview

This manual outlines the various policies and procedures necessary for water service from the Lincoln Water System. This manual is intended to compliment the Lincoln Municipal Code (LMC), Title 17. If any statement in this document conflicts with the LMC, the LMC shall govern. The requirements in this manual are considered enforceable in accordance to LMC 17.18.006.

This manual may be updated as necessary by approval of the Mayor. The various forms and drawings used in this manual may be updated at the discretion of the Lincoln Water System. An updated version of this manual will be maintained on the City of Lincoln's web site at: http://lincoln.ne.gov/city/pworks/water/index.htm

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. Application for Water Service

1.1. Application for new or replacement water service is made through the Development Services Center. An application form is available at: http://lincoln.ne.gov/city/pworks/business/wtswbill/index.htm

1.2. All residential and non-residential water meters are supplied by the Lincoln Water System.

1.3. Residential Water Service

Applicants for residential water service shall provide a legal street address and pay applicable permit and tap fees.

1.4. Non-residential Water Service

1.4.1. Non-residential water service is approved on the basis of the type of property served as shown in Appendix A. Generally one water service is permitted for each lot served.

1.4.2. The size of meter shall be equal to the size of the water supply and service pipe, except where hydraulic information prepared by a registered professional engineer allows for consideration of a smaller meter size.

1.4.3. Applicants shall submit plans to the City's Development Services Center showing the following items:

1.4.3.1. Applicant name and legal street address.

1.4.3.2. Legal Description.

1.4.3.3. Name of registered master plumber.

1.4.3.4. Scaled site plan showing the water service from the point of connection with the water main to the exterior of the premises. Include all piping labeled with sizes, pipe material(s), tap size, tapping sleeve and valve size and location, service length from property line to premises, and drawing scale.

1.4.3.5. Scaled mechanical drawing showing details of meter and backflow preventers complete with clearances, meter size, backflow preventer model, type and size, and drawing scale.

1.4.3.6. Estimated peak and average flow rates when available.

1.4.4. Non-residential water services that provide water supply to private fire hydrants shall use a meter that is Factory Mutual (FM) approved for fire service use.

1.4.5. All non-residential services require containment backflow protection. The type of device is determined by the level of hazard in accordance to Nebraska Department of Health and Human services and upon review by the Lincoln Water System.

1.5. Non-residential Fire Protection Water Service

1.5.1. Applicants shall submit plans to the City's Development Services Center showing the following items:

1.5.1.1. Applicant name and legal street address.

1.5.1.2. Legal Description.

1.5.1.3. Name of registered master plumber.

1.5.1.4. Application for Service obtained from the Development Services Center.

1.5.2. All fire services require a containment backflow device.

2. Water Supply and Service Pipes

2.1. The water supply connection (tap, tapping sleeve, tap valve), water supply pipe, curb stop and box, and water service pipe is owned and maintained by the property owner.

2.2. The maximum length of a water service measured from the property line to the water meter cannot exceed four hundred (400) feet.

2.3. Allowable Materials:

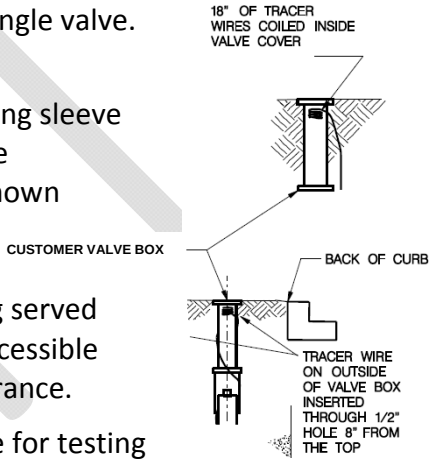
Service Size	Allowable Materials	Permitted Location	Permitted Application	Material Specification
¾" – 3"	Type "K" seamless copper tubing	Water main to meter	New and replacement construction	ASTM B88
¾" – 1"	Polyethylene (PE), SDIR 7 w/ blue exterior	Stop box to meter	• New construction only. • Not allowed for replacement construction. • Not allowed to cross public ROW. • Alternate electrical grounding required.	• ASTM 3408 • AWWA C901
3" – 10"	Ductile Iron or PVC	Water main to meter	New and replacement construction	• DI - AWWA C151, Class 52 • PVC - AWWA C900, DR 14

2.4. The tap size, water supply pipe size and water service size shall be the same except that four (4) inch PVC pipe maybe used in lieu of three (3) inch copper or ductile iron pipe for a three (3) inch tap.

2.5. Water services constructed of polyethylene (PE) or PVC pipe shall have a tracer wire installed for locating purposes as shown in Appendix B and D.

2.5.1. The wire shall be 12 gauge tracer wire with HDPE insulator approved for underground tracer wire use.

2.5.2. For ¾" – 1" polyethylene (PE) water service pipes, the tracer wire shall be attached to the curb stop terminal nut, looped through an exterior junction box mounted directly over the water service entrance to the premises and terminated on the meter angle valve. See Appendix D4.



2.5.3. For 4" – 10" PVC water services using a tapping sleeve and valve, the wire shall be terminated in the customer's valve box at the water main as shown (reference Lincoln Standard Plans for Municipal Construction). The wire shall be terminated on the exterior of the building served using a termination box that is visible and accessible mounted directly over the water service entrance.

2.5.4. All tracer wire shall be installed and available for testing at the time the tap is made.

2.5.5. The wire shall be tested for continuity. Failure to trace shall require the wire to be reinstalled or repaired.

2.6. Polyethylene (PE) water service pipes (from the stop box to the meter) shall be installed according to Appendix D4.

2.6.1. All installation methods shall be in accordance to the Polyethylene Water Service Pipe and Tube Installation Guide published by the Plastic Pipe and Fittings Association.

2.6.2. Polyethylene (PE) water service pipes shall use compression type fittings complete with stainless steel stiffeners.

2.6.3. The supply pipe and service pipe shall be continuous with no joints.

2.7. PVC pressure pipe is not recommended for installation extending into or underneath a structure. PVC pressure pipe shall not be placed directly under supporting footing of the structure, or cast in place within the footing. Ductile iron pipe shall extend a minimum of 12" from either side of the structure footing.

2.8. Ductile Iron and PVC pipe shall be constructed as shown in Appendix B.

2.9. All ductile iron pipe shall be encased with polyethylene as required in the Lincoln Standard Specifications for Municipal Construction.

2.10. All copper supply pipe connecting to a ductile iron or cast iron main shall be encased with polyethylene for a minimum length of five (5) feet from the tap as required in the Lincoln Standard Specifications for Municipal Construction.

2.11. Water services shall be installed to a minimum depth of five (5) feet below the finished grade.

2.12. Water stop boxes shall be located within the City right-of-way or utility easement on the same side of the street that the property being served is located.

3. Tapping Water Mains

3.1. The Lincoln Water System performs all taps to public water mains.

3.2. The registered plumber shall obtain all necessary permits including an excavation permit.

3.3. Taps shall be scheduled at least twenty-four (24) hours in advance by contacting the Lincoln Water System.

3.3.1. To the extent possible taps shall be made within forty eight (48) hours of notification.

3.3.2. In the event the applicant desires to cancel a scheduled tap, the Lincoln Water System must be notified no later than 9:00 a.m. on the day of the scheduled tap. If the applicant cancels the tap after 9:00 a.m. on the day of the scheduled tap, a service fee will be assessed for the cancellation.

3.3.3. A service fee shall not be charged if taps are cancelled by the applicant after 8:00 am on the day of the scheduled tap in event that inclement weather disrupts work. This determination shall be solely at the discretion of the Lincoln Water System. The Lincoln Water System also reserves the right to cancel taps in the event of inclement weather.

3.3.4. Cancelled taps shall be rescheduled for times when available and no guarantees shall be made on date or time.

3.4. All work shall be performed by a licensed plumber which includes a master plumber, journeyman plumber, or plumber's apprentice working under the direct continuous site supervision of a master plumber or a journeyman plumber.

3.5. Excavations and backfill

3.5.1. Licensed plumbers are responsible for ensuring that all excavations are constructed in accordance with the Occupational Safety & Health Administration (OSHA) Regulations for trenching and excavations and for the proper installation of all necessary safety devices required for safe access into the excavation.

3.5.2. The licensed plumber shall make the excavation, clean the area of the pipe for the tap, and insure that the service pipe is ready for inspection at the time the tap is made.

3.5.3. Excavations shall be made using the dimensions shown in Appendix C.

3.5.4. A licensed plumber shall be available at the work site to assist in the tapping of the water main and to observe for proper excavation safety while tapping is performed by LWS staff.

3.5.5. The Lincoln Water System reserves the right to cancel a tap if the service does not conform to all permit, material, and construction requirements; or the excavation is unsafe or does not meet OSHA requirements. A service fee for a cancelled tap shall be assessed to the licensed plumber.

3.5.6. Backfilling of the excavation in the street right-of-way shall conform to the requirements in the Lincoln Standard Specifications for Municipal Construction and Lincoln Municipal Code Title 14. All backfill shall be performed using suitable soil materials and mechanical compaction methods necessary to obtain the required compaction densities. Wheel rolling of backfill is not considered as a suitable compaction method.

3.5.7. Soil compaction tests may be performed by the City, and any backfill not in compliance with compaction requirements shall be removed and re-compacted until the compaction requirements have been satisfied.

3.6. Inspections

3.6.1. For 3/4 inch and one (1) inch services the curb stop, supply pipe, tracer wire (if applicable), and the service pipe shall be installed and ready for inspection when the tap is scheduled.

3.6.2. For 1-1/2" and larger services, partial Inspections of the service will be performed when requested. Services shall be inspected prior to covering any of the supply or service pipes. Any service or supply piping covered without an inspection by LWS will not be approved for installation. Piping that has not been inspected by LWS shall be required to be excavated for inspection at no cost to LWS.

4. Meter Installation and Location

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

4.2. All meters shall be installed within the premises being served or inside a separate above ground structure installed on the customer's property as near as possible to the public right-of-way.

4.3. New water meters 3/4 inch and one (1) inch in size shall be installed by the Lincoln Water System.

4.4. Water meters 1-1/2 inch and larger shall be installed by a licensed plumber.

4.5. Water meters 1-1/2 inch and larger serving non-residential properties shall have a lockable meter bypass.

4.6. When possible water meters shall be located in a room with a floor drain in close proximity in the event of leakage or rupture.

4.7. Water meters shall be located as near as possible to the entrance of the water service into the premises.

4.8. Meters must be kept readily accessible and shall be installed using the minimum clearances required for replacement, maintenance, and testing. See Appendices D1 – D6 for necessary clearances.

4.8.1. The meter shall be located above the finished floor level by a minimum of twelve (12) inches from bottom of the meter and not exceed a maximum of sixty (60) inches from the finished floor to the top of the meter.

4.8.2. The meter shall be located a minimum of six (6) inches from any wall and a minimum of twelve (12) inches from any other installed device or appliance.

4.9. It is the responsibility of the property owner to provide the required clearances needed to access the water meter for any repair, replacement, or meter reading. All costs for moving the water meter are the responsibility of the property owner. When LWS determines that the meter does not have sufficient access, LWS will notify the owner to contract a registered plumber to perform the work needed to provide the access.

5. Backflow Prevention

5.1. Backflow preventer devices shall be installed and tested in accordance to the following standards:

5.1.1. Nebraska Department of Health and Human Services, Title 179 regulation.

5.1.2. AWWA M14 Recommended Practice for Backflow Prevention and Cross-Connection Control.

5.1.3. University of Southern California, Manual of Cross-Connection Control.

5.1.4. Lincoln Municipal Code, Title 24.

5.2. The installation, maintenance, replacement, and testing of the assembly shall be at the expense of the owner.

5.3. All non-residential water services shall have a containment backflow device of the type required by applicable standards and as approved by the Lincoln Water System. A containment device is considered to be a suitable backflow preventer located at the water meter to protect the public water supply.

5.4. All non-residential water customers shall install isolation backflow devices of the type required by applicable standards and as approved by the Lincoln Water System to protect water quality within the premises.

5.5. All non-residential installations for 1-1/2 inch water services and larger shall have dual backflow preventers installed immediately adjacent to the water meter to facilitate testing and repair of devices without interruption of water service.

5.6. The type of assembly, its location within the plumbing system, and the details of its installation shall be approved by the Lincoln Water System. Approved backflow devices are shown in Appendix E.

5.7. The Lincoln Water System may perform a cross-connection survey on all new or altered plumbing systems and notify the property owner of the requirements for additional cross-connection control safeguards. When a backflow prevention assembly is required, the Lincoln Water System shall give notice to the customer to immediately install such assembly.

5.8. Backflow Preventer Installation

5.8.1. Backflow preventer assemblies require a minimum of one (1) foot clearance between the lowest portion of the assembly and the floor or platform.

5.8.2. Installations more than five (5) feet above the floor are not allowed (measured from the floor to the center line of the backflow preventer assembly) unless a permanent platform is constructed with proper and safe access and fall protection.

5.8.3. All backflow preventers shall be installed in the horizontal position on water services. Backflow preventers on fire services may be installed in a vertical position if approved by the manufacturer.

5.8.4. Reduced pressure (RP) principle backflow devices shall not be installed in pits or sumps.

5.8.5. See Appendices D1 – D6 for the required minimum dimensions for installations.

5.9. Testing, Maintenance and Repair Requirements

5.9.1. All testable backflow prevention assemblies shall be tested and repaired by a Grade 6 Water Operator registered with the Lincoln Water System.

5.9.2. All testable backflow prevention assemblies shall be tested a minimum of once each year.

5.9.2.1. Customers will be notified by mail of the required testing by the Lincoln Water System.

5.9.2.2. Failure to have the assembly tested and repaired will result in the water service to the property being turned off to protect the public water supply. The water service will not be turned back on until the results of the required testing have been verified. The cost to turn off the water service and turn on the water service will be assessed to the property.

5.9.3. Backflow devices used on lawn irrigation systems that are not equipped with booster pumps or chemical injection systems are exempt from testing by State of Nebraska regulations.

5.9.4. Backflow test results shall be reported and submitted on the approved form. See Appendix F. Forms are also available at: http://lincoln.ne.gov/city/pworks/water/contract/testrprt.htm or at the LWS Service Center located @ 2021 N. 27th St. Lincoln, NE.

5.9.5. Permanent test tags shall be affixed to the backflow device clearly indentifying the backflow testing company, the Grade 6 water operator who performed the test, all past test dates, and certification that the device is properly operating.

5.9.6. All backflow preventer assemblies installed on fire lines shall be tested or repaired only by a Grade 6 Water Operator approved by the Nebraska State Fire Marshall's office to perform work on fire lines.

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

5.9.8. 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.

5.9.9. All backflow preventer assembly installations for new construction shall be tested and results submitted the Lincoln Water System prior to the completed water service being placed into service.

5.9.10. Test gauges shall be checked for accuracy at least once each year and recalibrated when inaccuracy is greater than +/- 0.02 psid. A copy of all gauge calibration records must be submitted to the Lincoln Water System annually.

5.10. Certification and Registration of Technicians

5.10.1. Persons performing inspections, tests, and repairs of backflow prevention assembly(s) shall be registered Grade 6 Water Operators. The Lincoln Water System will maintain a current list of Grade 6 Water Operators registered to perform services within the Lincoln Water System service area.

5.10.2. 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 hereunder. The coverages required herein shall be subject to review and approval by the City Attorney for conformance with the provisions of this section.

5.10.3. 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.

5.10.4. Termination, reduction in coverage, or lapse of required insurance shall automatically terminate a certified technician's registration 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.

6. Cross-Connection Control Surveys and Inspections

6.1. The Nebraska Department of Health and Human Services requires all water utilities to have their residential and non-residential customers complete a survey of their private plumbing systems to identify any potential cross-connections to the public water supply.

6.1.1. The survey is required once every five (5) years.

6.1.2. The Lincoln Water System shall notify all customers of the requirement to perform cross-connection surveys.

6.2. Residential customers are required to perform the survey themselves and submit the results to the Lincoln Water System

6.3. Non-residential customers may perform the survey themselves or request the Lincoln Water system to conduct the survey.

6.4. Each customer whose premises has an actual or suspected cross connection in the plumbing system shall be notified by the Lincoln Water System of the necessary corrective action that is required to remain connected to the public water supply.

6.5. The Lincoln Water System reserves the right to conduct a cross connection control survey on any connection to the public water supply. A survey may include the following:

6.5.1. Access and inspection of the entire plumbing system for known cross connections.

6.5.2. Testing of backflow prevention assembly(s) for proper operation and repair, if necessary.

6.5.3. Issuance of corrective actions and a compliance schedule required to maintain water service from the Lincoln Water System.

6.5.4. Immediate discontinuance of water service if the cross-connection is deemed an immediate hazard to the public water supply.

6.5.5. Water service may be discontinued upon notice when access for a survey is denied or when LWS fails to gain access to the premises.

7. Water Use at Construction Sites

7.1. Incidental water use at construction sites shall be allowed when used solely for the purpose of constructing the premises and when such used does not include landscape watering, freeze protection or other non-essential or wasteful uses.

7.2. All water use at residential construction sites shall require backflow prevention as shown in Appendix G1 and G2.

7.3. All commercial or non-residential type construction sites shall require a reduced pressure principle backflow device.

7.4. Incidental water use shall be considered as 15 units (11,250 gallons) of water. The cost of this water shall be included as part of the tap permit fee based on current water use rates.

7.5. For all other non-essential water uses at construction sites or when incidental water use exceeds 15 units (11,250 gallons), a construction water meter and backflow preventer shall be obtained in accordance to Section 8 of this manual.

7.6. Permitted water uses at construction sites when using water without a meter.

7.6.1. Supervised water soaking of backfill for trenches and foundations on private property only and as permitted by the Building and Safety Department.

7.6.2. Water for preparing and mixing various construction materials.

7.6.3. Cleanup water for washing hands and tools.

7.6.4. Water for flushing and pressure testing of plumbing systems.

7.7. Prohibited water uses.

7.7.1. Water use for any purpose in excess of 15 units (11,250 gallons) of water, unless metered.

7.7.2. Water soaking backfill in the City right-of-way or allowing water to infiltrate from private property into backfill within the City right-of-way is prohibited in all cases.

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

7.7.4. Water shall not be used at any location other than the permitted service address unless metered.

7.7.5. Water shall not be wasted such as unsupervised backfill soaking which allows water to run into the street or off the limits of the property in all cases.

7.7.6. Water shall not be used for freezing protection of the service line or plumbing system unless metered.

7.8. At locations where prohibited water use is observed or where water is being used in a wasteful manner, LWS shall immediately shut off the water at the stop box and assess a water use charge of 150 units. Additional fees for shut off and turn on of water shall also apply.

8. Hydrant and Construction Meters

8.1. 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 and any non-incidental water used in the construction of new premises.

8.2. All connections made to fire hydrants must have a proper water meter and backflow prevention assembly as supplied by the LWS.

8.3. Construction water meters shall be attached to unmetered water services for the purpose of metering non-incidental construction water use. See Section 7

8.4. Hydrant and construction water meters are obtained from the Lincoln Water System.

8.5. Permits and Fees

8.5.1. A permit for use shall be obtained at the LWS offices.

8.5.2. A refundable cash or check deposit is required when obtaining a meter. Check deposits are accepted only from customers that currently have an account in good standing with the City.

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

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

8.6. Permitted Uses

8.6.1. Hydrant meter assemblies shall only be permitted to be used on Lincoln Water System fire hydrants.

8.6.2. Hydrant meter and construction meter assemblies shall only be used by the permittee and shall not be loaned or shared by others.

8.6.3. The permittee must pay any past due balances before receiving additional hydrant or construction meters.

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

8.7. Prohibited Uses

8.7.1. City of Lincoln fire hydrants shall not be used as permanent or semi-permanent connection to an irrigation system.

8.7.2. Hydrant meter assemblies shall not be used for long term irrigation of turf or other vegetation lasting over thirty (30) days, or other uses which cause the hydrant to remain out of service for extended periods.

8.7.3. If a permitted hydrant meter assembly is used to provide water to a permanent water system, LWS shall immediately disconnect the assembly, and the applicant shall forfeit any material and deposits placed on record with LWS.

8.8. Responsibilities of Permittee

8.8.1. Permittee shall use and operate hydrant and construction meters in accordance to the stated permit conditions.

8.8.2. Permittee is responsible for all costs associated with damage, theft, or vandalism to devices.

8.8.3. Permittee is responsible for all costs associated with damage to the City's hydrants or water distribution system caused by improper operation of fire hydrants.

8.8.4. Hydrant meters shall be removed at all times from the hydrant when not in use.

8.8.5. Permittee shall return all rented devices to the Lincoln Water System no later than January 31st of each year. At that time if the permittee wishes to extend the rental agreement and exchange the device, a device will be provided at that time.

9. Water Service Turn-on and Turn-off

9.1. Customers may request LWS to turn-on or turn-off water service by completing a request and submitting it to the Lincoln Water System. This form is available from the Lincoln Water System.

9.2. The owner of the premises served, or their designated representative, must be present during the turn-off and turn-on when performed by the Lincoln Water System, unless an emergency requires immediate shut off.

9.2.1. Premises owners should be aware that significant damage can occur to equipment or premises when water is turned off or turned on.

9.2.2. The Lincoln Water System is not responsible for damage when turning off or turning on water services.

9.2.3. Customers shall be required to sign a water turn-on form and agree to pay applicable service fees.

9.3. Turn-offs and turn-ons may be completed by the owner of the premises or their contractor upon notification to the LWS except when the account is delinquent.

9.4. Turning on water without notification or permission is a violation of LMC 17.22.120 and is subject to penalty.

10. Water Service Abandonment

10.1. Owners of premises choosing to abandon their water service (and/or sewer service) shall notify the Lincoln Water System in advance to schedule an appointment for the abandonment and inspection.

10.2. Prior to a building demolition permit being issued, all water and sewer services must be abandoned or partially abandon in accordance to this Section.

10.3. All work associated with the abandonment of the water service shall be at the sole expense of the property owner.

10.3.1. All work associated with excavation, backfilling, pavement repair, excavation safety shall be performed by a licensed plumber.

10.3.2. The Lincoln Water System shall invoice the customer for all costs associated with materials and labor required to perform the abandonment.

10.4. Owners of premises shall remove all valve boxes, stop boxes and post indicator valves to at least one (1) foot below the ground and properly restore any damaged right of way areas, sidewalks and paving.

10.5. If a partial abandonment is desired, a Utilities Abandonment Agreement shall also be completed with the application. This agreement requires the applicant to post a bond. The agreement is available at:
http://lincoln.ne.gov/city/pworks/business/wtswbill/index.htm

11. Water Service to Reconstructed Properties

11.1. Complete or partial reconstruction of a premises with an existing water service shall require a new water supply connection, water supply pipe, stop box and water service if the existing supply pipe or water service pipe is constructed of unacceptable materials such as lead or galvanized iron pipe, or serves more than one premises.

11.2. Complete reconstruction of an existing premises shall require a new supply connection, water supply pipe, and stop box if the existing supply pipe has been previously repaired, is deemed to be in poor condition, or is over 20 years old. Complete reconstruction of an existing premises shall be defined as demolition and reconstruction of footings and support walls.

12. Sewer Deduct and Add Meters

12.1. Sewer deduct/add meters shall only be permitted on non-residential services and subject to approval by LWS.

12.2. A non-residential property owner can make application for a sewer deduct or sewer add meter by completing the necessary form and providing the necessary plans. See Appendix H.

12.3. All sewer deduct/add meters shall be owned and maintained by the customer.

12.4. Sewer deduct meters shall only be permitted to measure water that does not enter the sanitary sewer system.

12.5. All discharges to the storm water system shall be in accordance to the Lincoln Municipal Code 28.02, Regulations for Illicit Discharges.

12.6. The applicant shall have a registered master plumber submit plans for the proposed sewer deduct/add meter piping to also include the required backflow prevention requirements.

12.7. The sewer deduct/add meter must be purchased from the Lincoln Water System to be compatible with the existing automated meter reading system.

12.8. LWS shall conduct an inspection of the premises to certify the meter installation properly meters water that qualifies for sewer deduction and addition.

12.9. LWS shall conduct a cross connection control survey of the entire premises as a condition of approval for a sewer deduct or add meter.

12.10. The property owner is responsible for the installation and maintenance of the sewer deduct/add water meter and approved backflow prevention assemblies. The property owner shall submit the initial backflow preventer test for the installation to the Lincoln Water System showing device is operating properly.

12.11. Any future plumbing or modifications to the piping after the sewer deduct/add meter shall require a plumbing permit and an inspection by the Lincoln Water System or Lincoln Wastewater System.

12.12. The property owner will only receive credit for water registered on the sewer deduct water meter after it is inspected and approved by the Lincoln Water System.

12.13. The sewer deduct/add water meter will be read each billing cycle by the Lincoln Water System.

12.13.1. Readings received after a billing period has been processed will be credited or debited in the next billing cycle.

12.13.2. No estimated readings will allowed for billing. In the absence of a reading, credit will not be given to the property owner.

12.14. Changes to locations or replacements of sewer deduct /add meter location shall not be allowed without prior approval from the City of Lincoln.

12.15. Sewer deduct/add meters shall be installed in accordance to Section 4 of this manual

12.16. A backflow preventer approved by Lincoln Water System must be installed immediately downstream of the sewer deduct/add meter. All initial and annual testing of the backflow device shall be in accordance to Section 5 of this manual.

12.17. Lincoln Water System or Lincoln Wastewater System shall perform a final inspection of the meter prior to the meter being read for an initial reading. The property owner must contact the Lincoln Water System for final inspection.

13. Repair of Leaks on Water Services

13.1. When it is determined that there is a leak on a customer's service pipe, water tap, water supply pipe, water stop box, or water service piping; it shall be the property owner's responsibility to have the leak repaired by a licensed plumber.

13.2. The leak must be repaired within 15 days of notification by the Lincoln Water system unless an alternate schedule is determined by the Director. If the leak is not repaired within 15 days after notification, the Lincoln Water System shall turn off the water service and it will not be turned back on until the piping has been repaired or replaced and inspection by the Lincoln Water System has been completed and approved.

13.3. When a customer does not repair the leak within the 15 days of notification, or other alternate schedule approved by the Director, the Lincoln Water System will take appropriate action to have the service turned off at the water service stop box, or water tap.

13.4. All costs associated with this turn off will be assessed to the owner's property and will cause a lien to be placed on the property. All water turn offs and water turn-ons will be assessed a service charge.

13.5. Prior to water being turned back on to any affected property, a water turn on card must be signed by the owner, or their authorized representative who must also be present during the turn on.

13.6. When it is determined that the water leak is causing damage, or is a hazard to the public, the Lincoln Water System shall turn off the service immediately by any means available. All costs associated with this service shall be assessed to the property and become a lien on the property.

14. Relocating Fire Hydrants

14.1. 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.

14.1.1. The person(s) making such a request shall pay the entire cost of the relocation.

14.1.2. The work may be performed by an approved utility contractor.

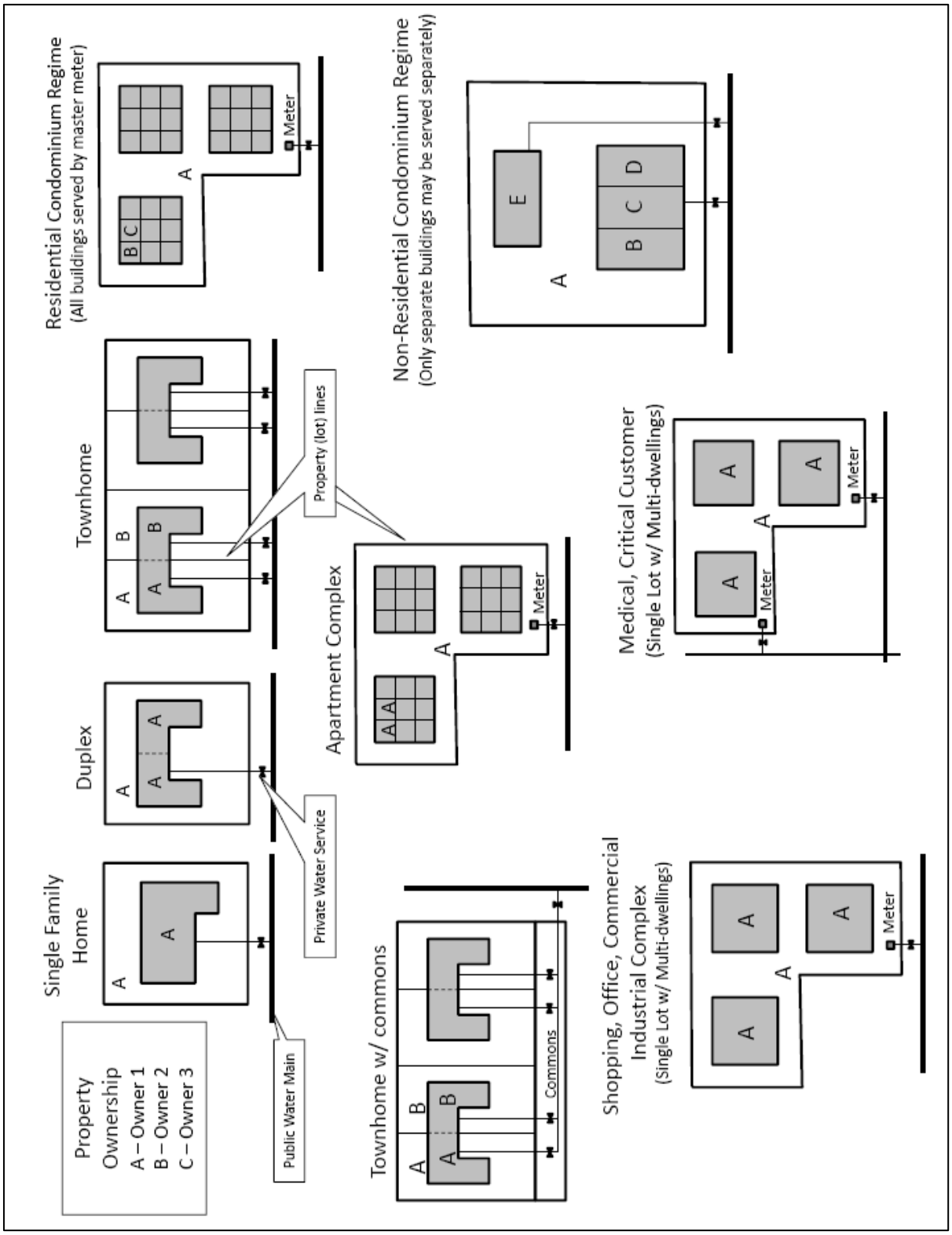
14.1.3. The Lincoln Water System reserves the right to require the work be performed by an approved utility contractor.

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

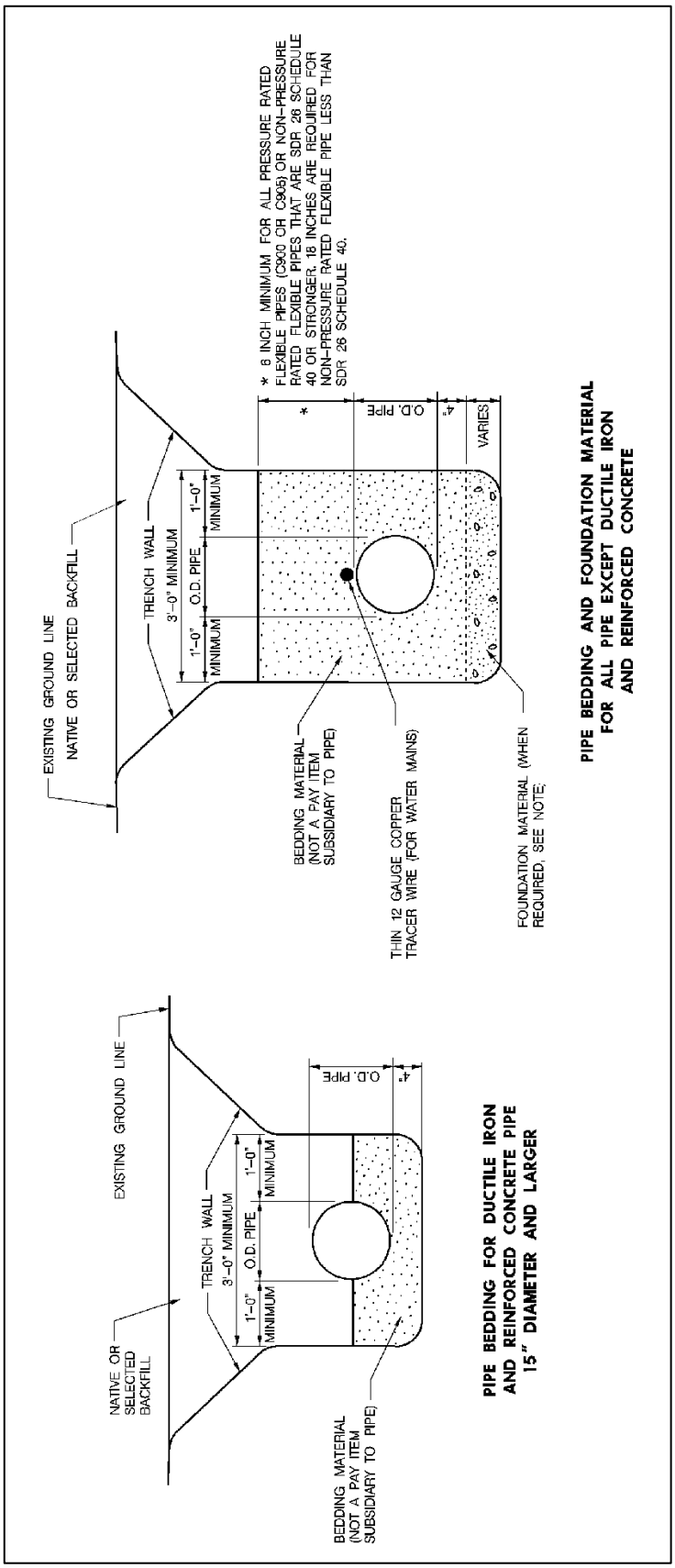
15. Fees

The Lincoln Water System charges various services fees for permits, water shut offs and turn-ons, cancellations, hydrant meter usage, abandonments, water main shut downs and testing. The Lincoln Water System also charges for various materials used in water main construction. A fee schedule is available at the City of Lincoln's web site at: http://lincoln.ne.gov/city/pworks/business/wtswbill/index.htm

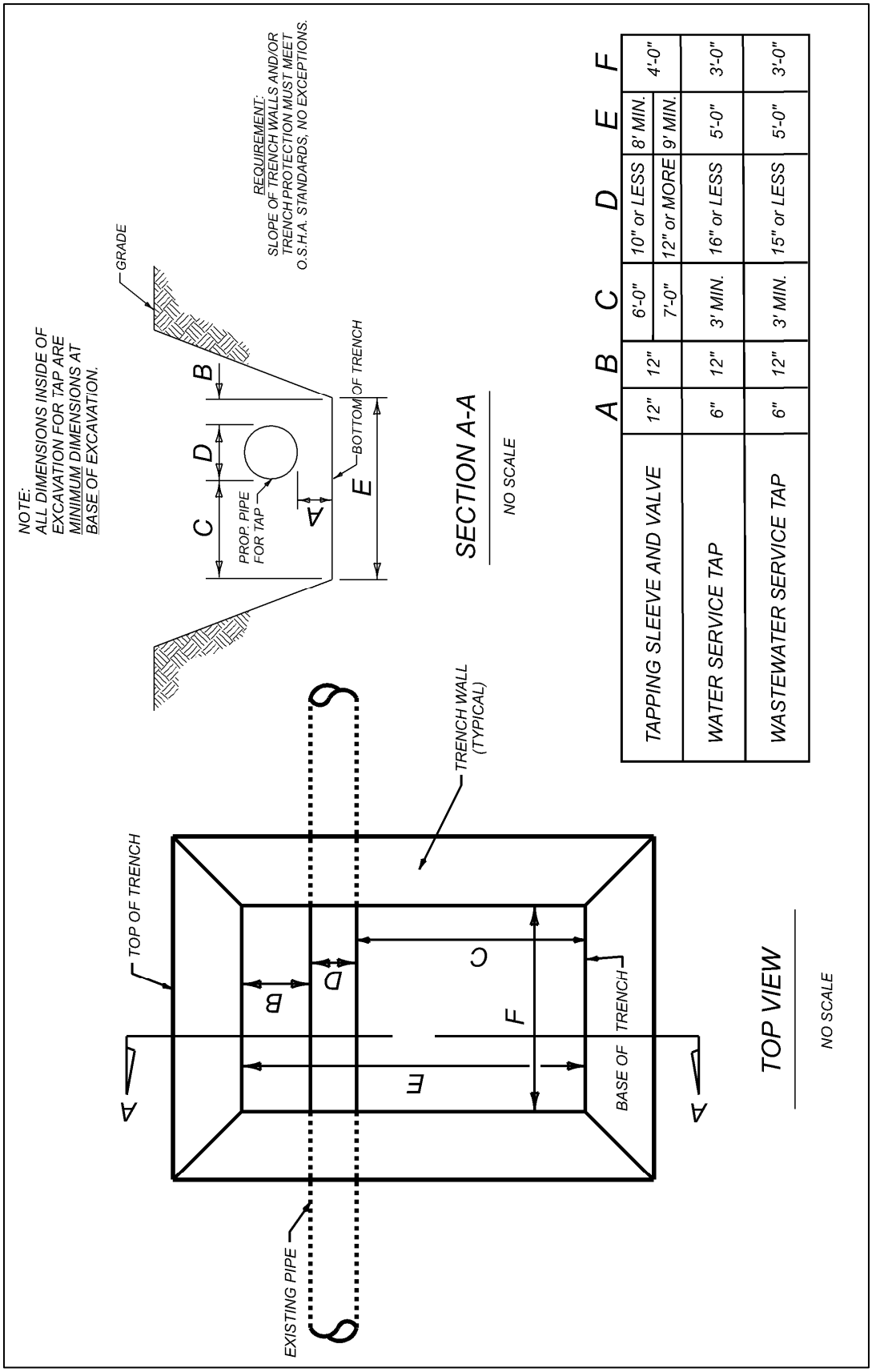
Appendix A
Typical Water Service to Properties
Lincoln Water System



Appendix B
Ductile Iron and PVC Water Service Construction
Lincoln Water System

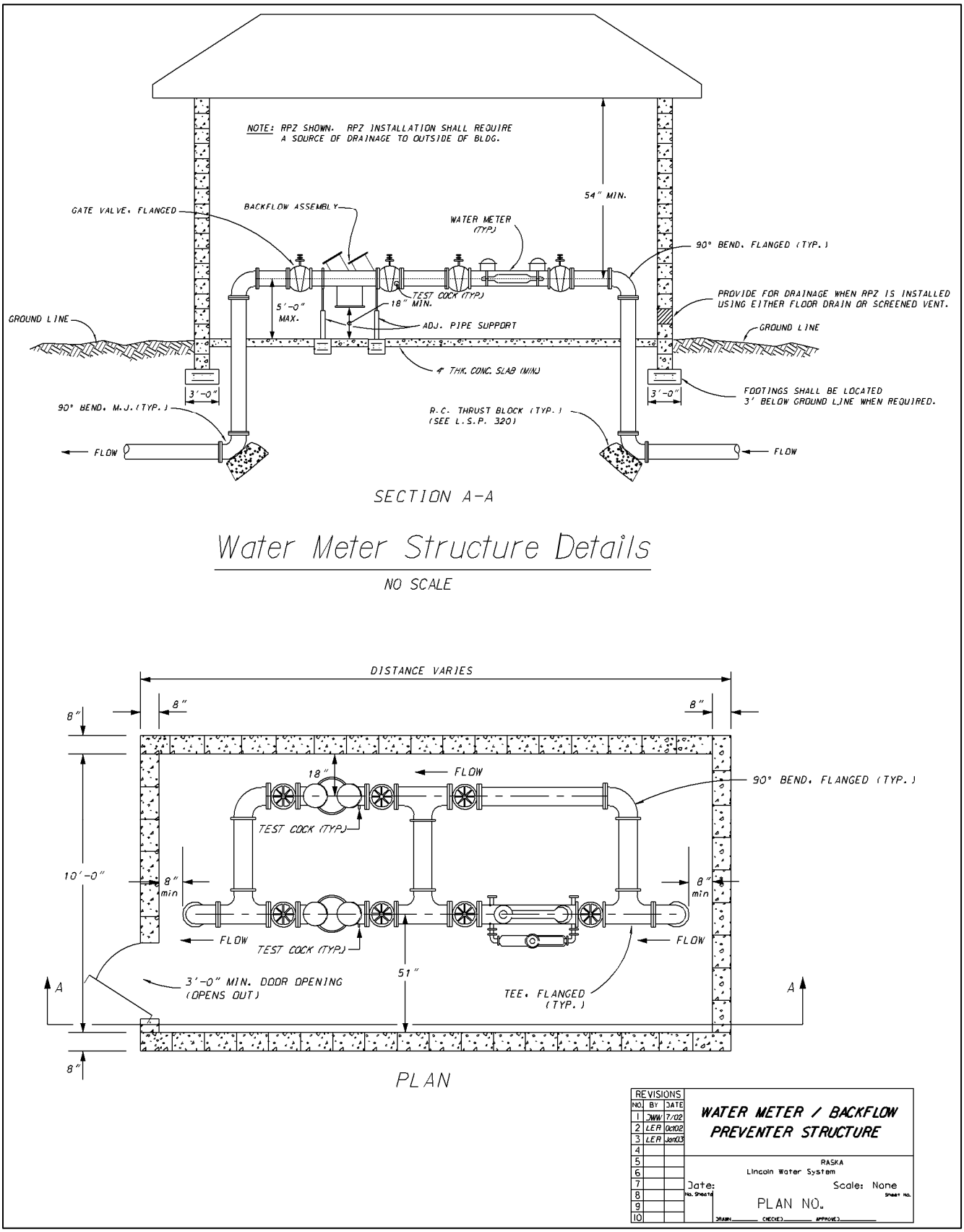


Appendix C
Tap Excavation Dimensions
Lincoln Water System



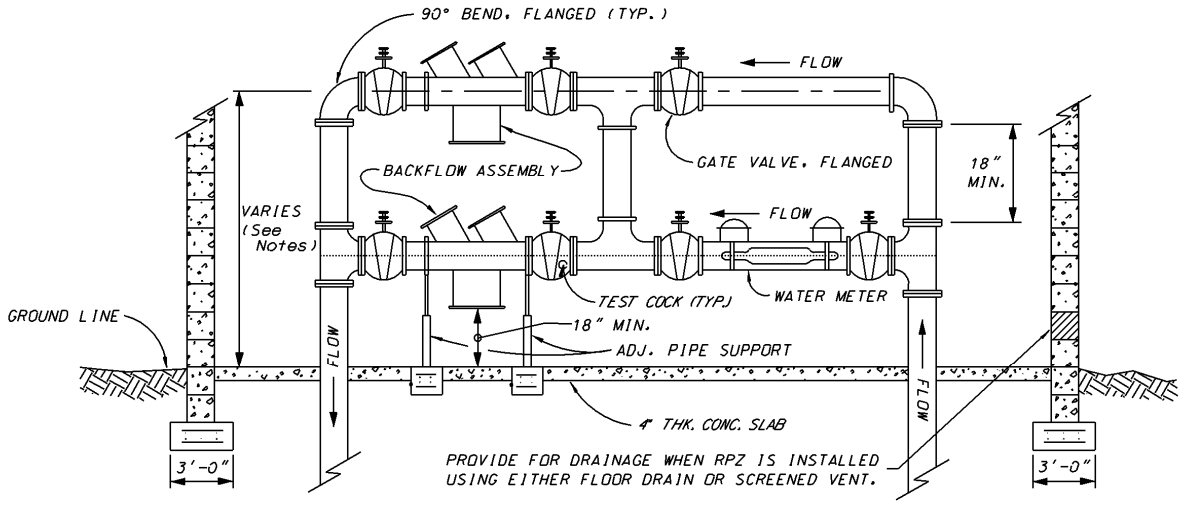
	A	B	C	D	E	F
TAPPING SLEEVE AND VALVE	12"	12"	6'-0"	10" or LESS	8' MIN.	4'-0"
			7'-0"	12" or MORE	9' MIN.	
WATER SERVICE TAP	6"	12"	3' MIN.	16" or LESS	5'-0"	3'-0"
WASTEWATER SERVICE TAP	6"	12"	3' MIN.	15" or LESS	5'-0"	3'-0"

Appendix D1
3 inch – 10 inch Water Meter and Backflow Preventer Housing
Lincoln Water System



Revised: January 2011

Appendix D2
3 inch – 10 inch Meter and Backflow Clearance and Installation
Lincoln Water System



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.

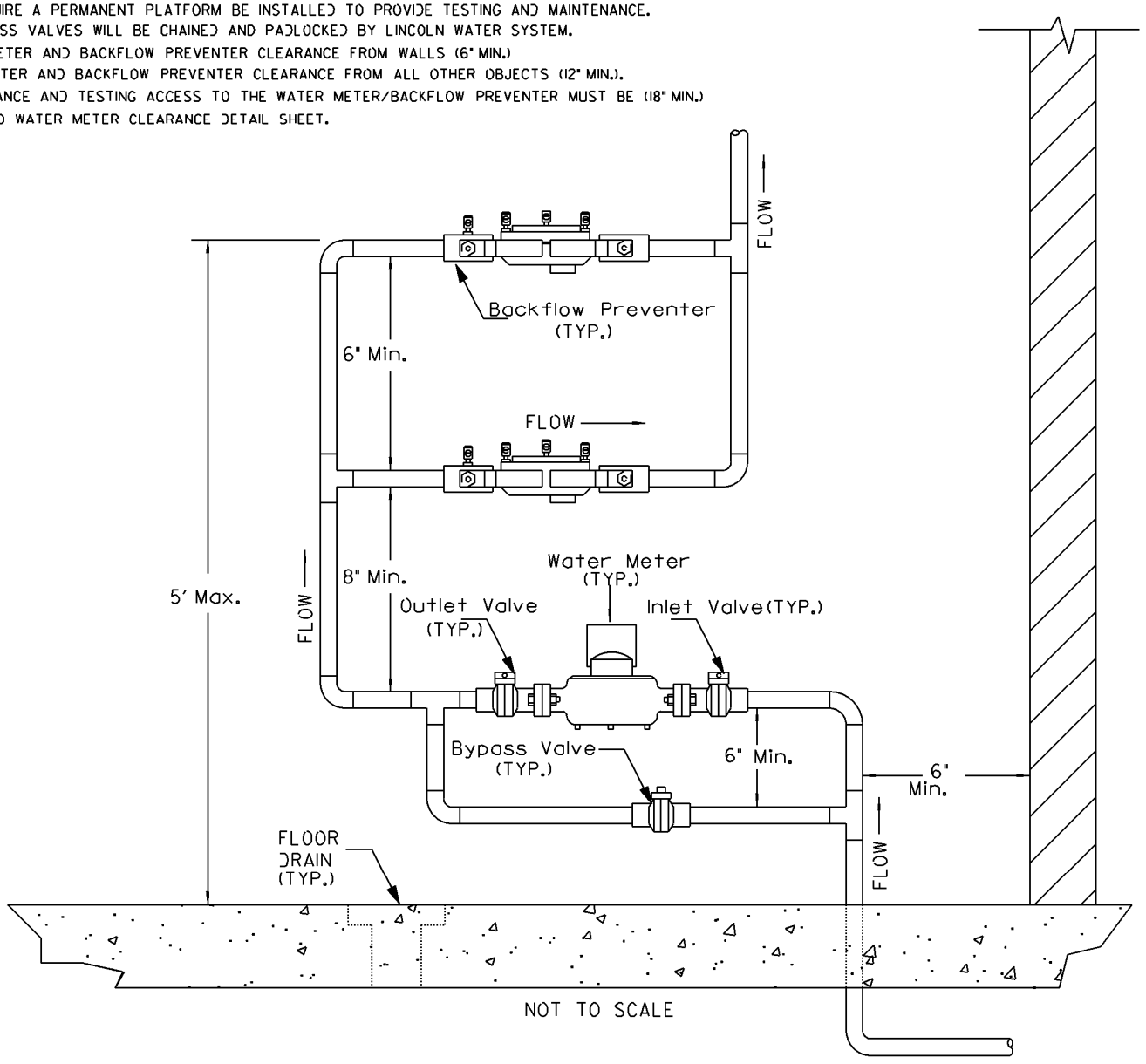
ALL BYPASS LINE VALVES WILL BE CHAINED AND PADLOCKED BY LINCOLN WATER SYSTEM.

Revised: January 2011

Appendix D3
3/4 inch – 2 inch Non-residential Meter and Backflow Installation
Lincoln Water System

NOTES:

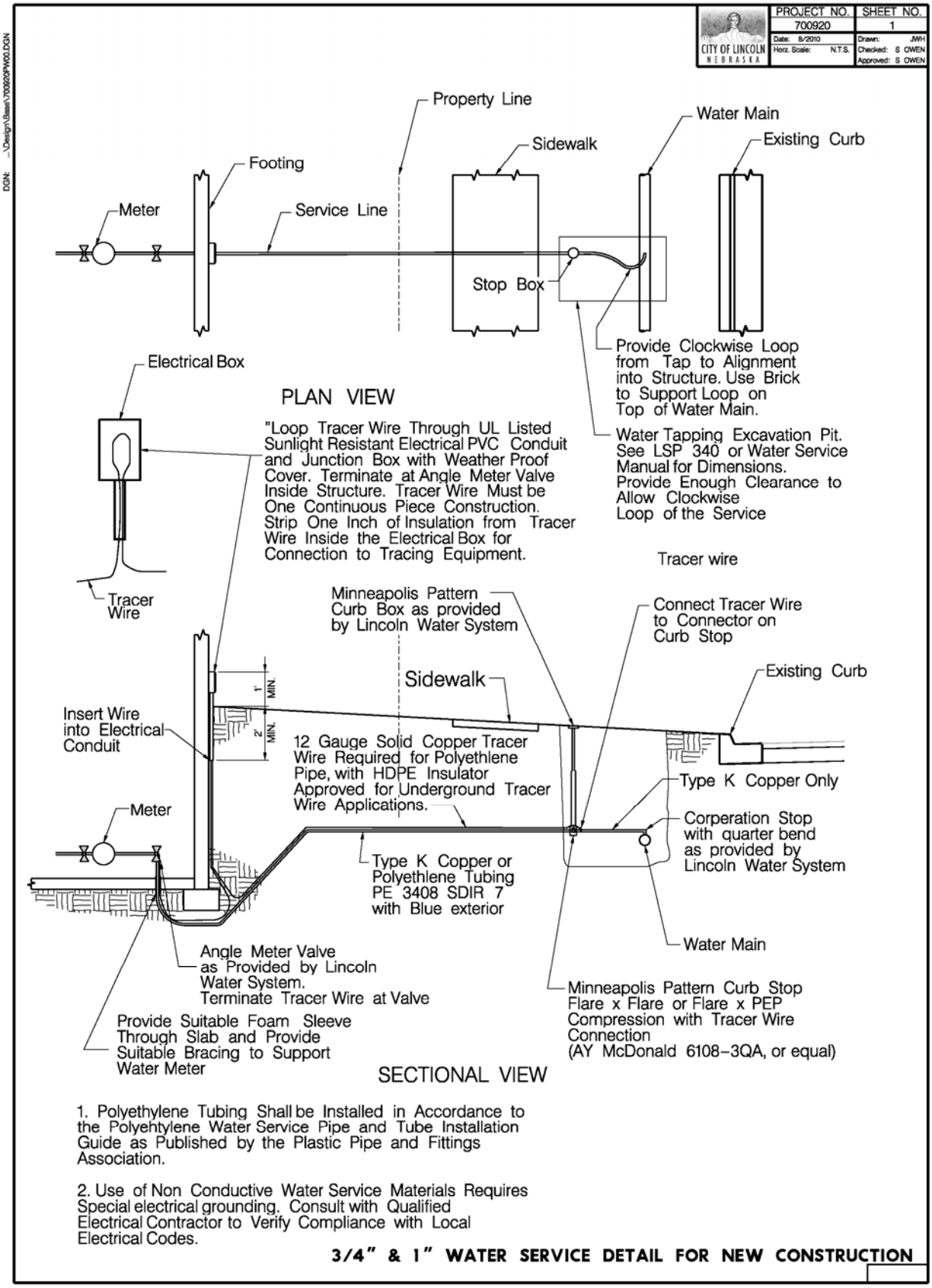
1. BACKFLOW PREVENTER ASSEMBLIES MUST BE APPROVED BY LINCOLN WATER SYSTEM.
2. ONLY WATER METERS PROVIDED BY LINCOLN WATER SYSTEM MAY BE INSTALLED.
3. A CERTIFIED TEST MUST BE PERFORMED ON THE BACKFLOW PREVENTER ASSEMBLIES BY A REGISTERED GRADE VI OPERATOR AND SUBMITTED TO LINCOLN WATER SYSTEM WITHIN 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

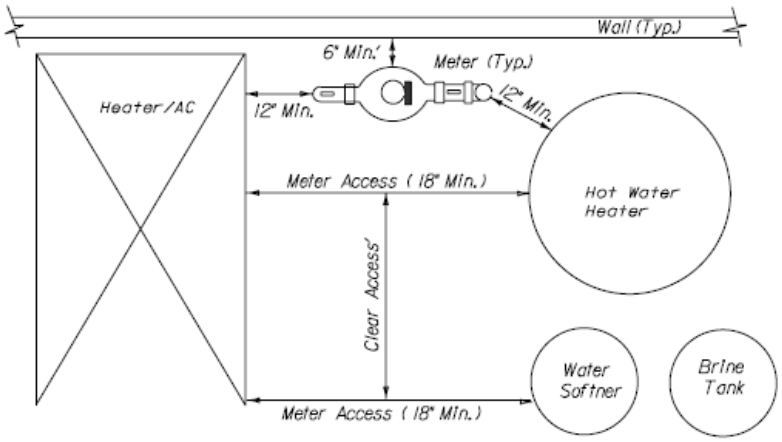
Revised: January 2011

Appendix D4
3/4 inch – 1 inch Water Service Construction
Lincoln Water System



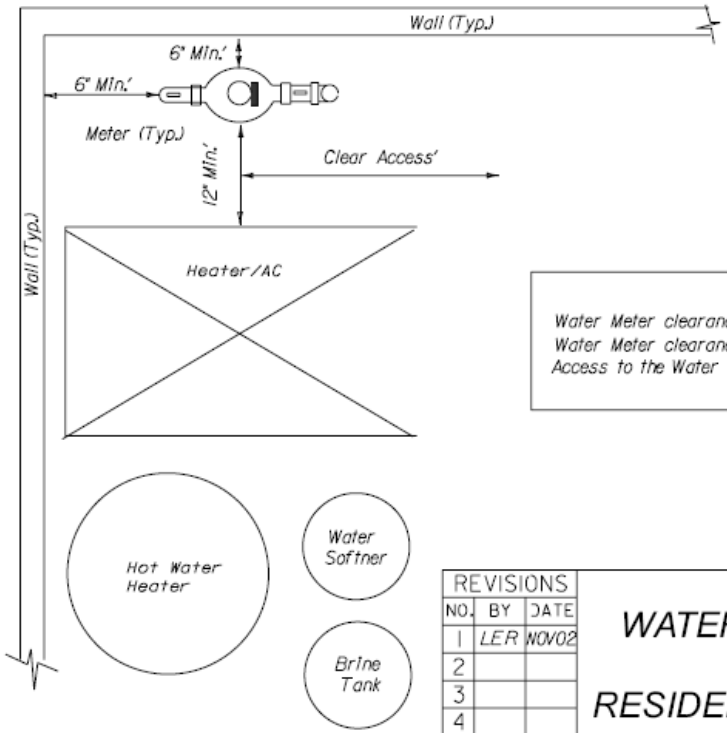
Revised: January 2011

Appendix D5
3/4 inch – 1 inch Residential Meter and Backflow Installation
Lincoln Water System



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		
NO.	BY	DATE
1	LER	NOV02
2		
3		
4		
5		
6		
7		
8		
9		
10		

WATER METER CLEARANCE SCHEMATIC
RESIDENTIAL (SMALL METERS)

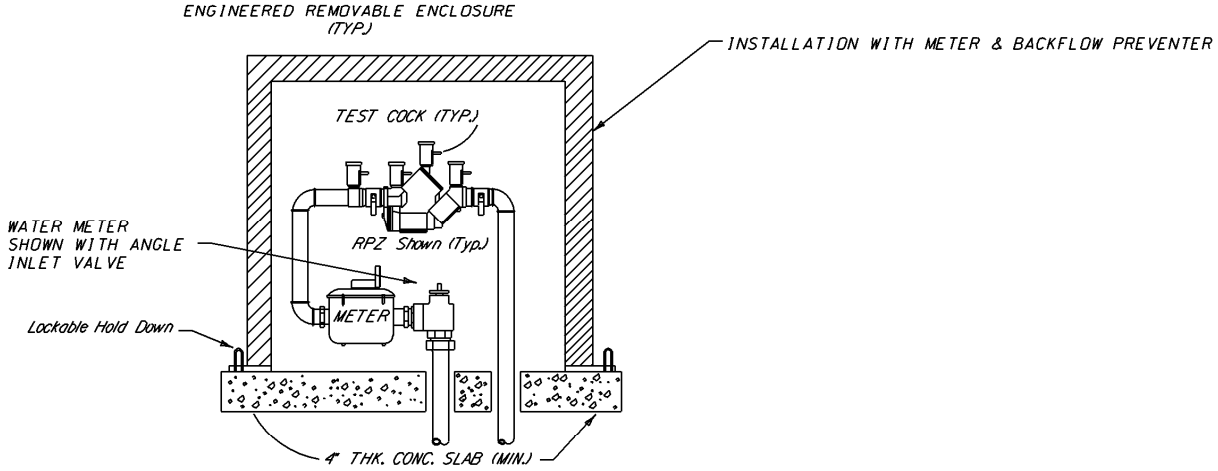
CITY OF LINCOLN, NEBRASKA
Lincoln Water System

Date: 2INOV02 Scale: None

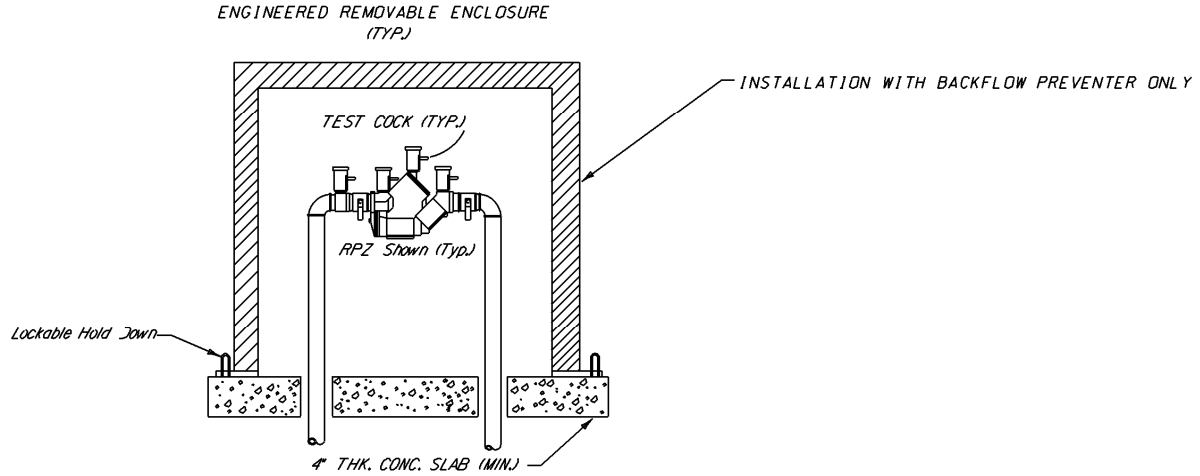
No. Sheets: 1 | PLAN NO : RES_SMALL | Sheet No.: 1

DRAWN CHECKED APPROVED

Appendix D6
3/4 inch – 1 inch Above Ground Meter and Backflow Installation
Lincoln Water System



NOTE: HEAT TO BE PROVIDED BY HEAT TRACE CABLE



NOTE: Heat to be provided by Heat Trace Cable

REVISIONS		
NO.	BY	DATE
1	LER	Oct02
2		
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 _____

Revised: January 2011

Appendix E
Approved Backflow Devices
Lincoln Water System

Only backflow preventers on this list are approved for installation by Lincoln Water System. All backflow preventers shall be installed in the horizontal position on water services. Backflow preventers on fire services may be installed in a vertical position if approved by the manufacturer. All installations must be approved by the Lincoln Water System. (2 ½" assemblies may only be used on Fire Suppression system or as an Isolation assembly.)

Double Check Valve Backflow Prevention		
Ames	2000 SS (Fire Line Only	3" thru 12"
Ames	Colt 200a	2 ½" thru 4"
Ames	Colt 200na	2 ½" thru 4"
Colt	M-200 (Wiring Not for Domestic)	6"
Colt	C-200 (Wiring Not for Domestic)	8"
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"
Hersey Beeco	Model FDC	3/4" thru 2"
Hersey Beeco	Model #2	3" thru 10"
Watts	709	3"-10"
Watts	757 BFG	8"
Watts	757a	2 ½" thru 6 "
Watts	757na	2 ½" thru 6"
Watts	0072 M2-QT	3/4" thru 10"
Wilkins	950	3/4" thru 10"
Wilkins	350	2 ½" thru 10"
Carbonated Beverage Backflow Prevention Devices		
Conbraco	4C-100	1/4" thru 3/8"
Watts	SD 3	1/4" thru 3/8"
Wilkins	740	1/4" thru 3/8"

Reduced Pressure Principle		
Conbraco	40-200	½" thru 10"
Febco	860	½" thru 10"
Febco	825Y	3/4" thru 2"
Febco	880 N or V Shape	2 ½" thru 10"
Hersey Beeco	FRP - II	3/4" thru 2"
Watts	909	3/4" thru 10"
Watts	009 M2	½" thru 3"
Wilkins	975 XL	1/4" thru 2"
Wilkins	975	3/4" thru 10"
Wilkins	375	2 1/2" thru 8"
Pressure Vacuum Breakers		
Conbraco	40-500	½" thru 2"
Febco	765	½" thru 2"
Watts	800QT	½" thru 2"
Wilkins	720A	½" thru 2"
Special Devices		
Watts	N9-CD	Used for high hazard cross connections at residential construction sites. Cannot exceed 10 feet of back pressure. No valves downstream of device.
Cash ACME	VB222	Used for hose end for water soaking backfill at residential construction sites and other low risk water uses. No back pressure. No valves downstream of device feet of back pressure.

Appendix F

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

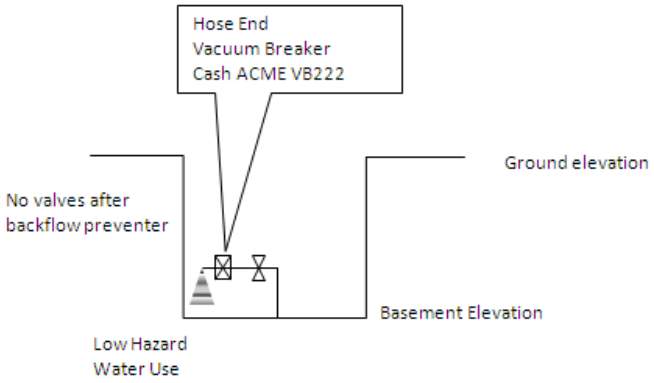
Comments: _____

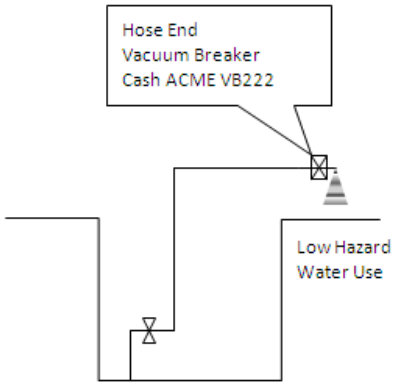
PLEASE TYPE OR PRINT LEGIBLY

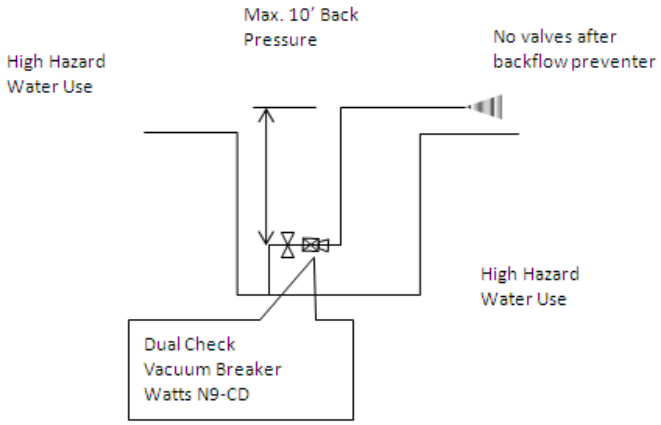
White Copy - LWS Yellow Copy - Contractor Pink Copy - Business

Revised: January 2011

Appendix G1
Minimum Backflow Protection at Residential Construction Sites
Lincoln Water System



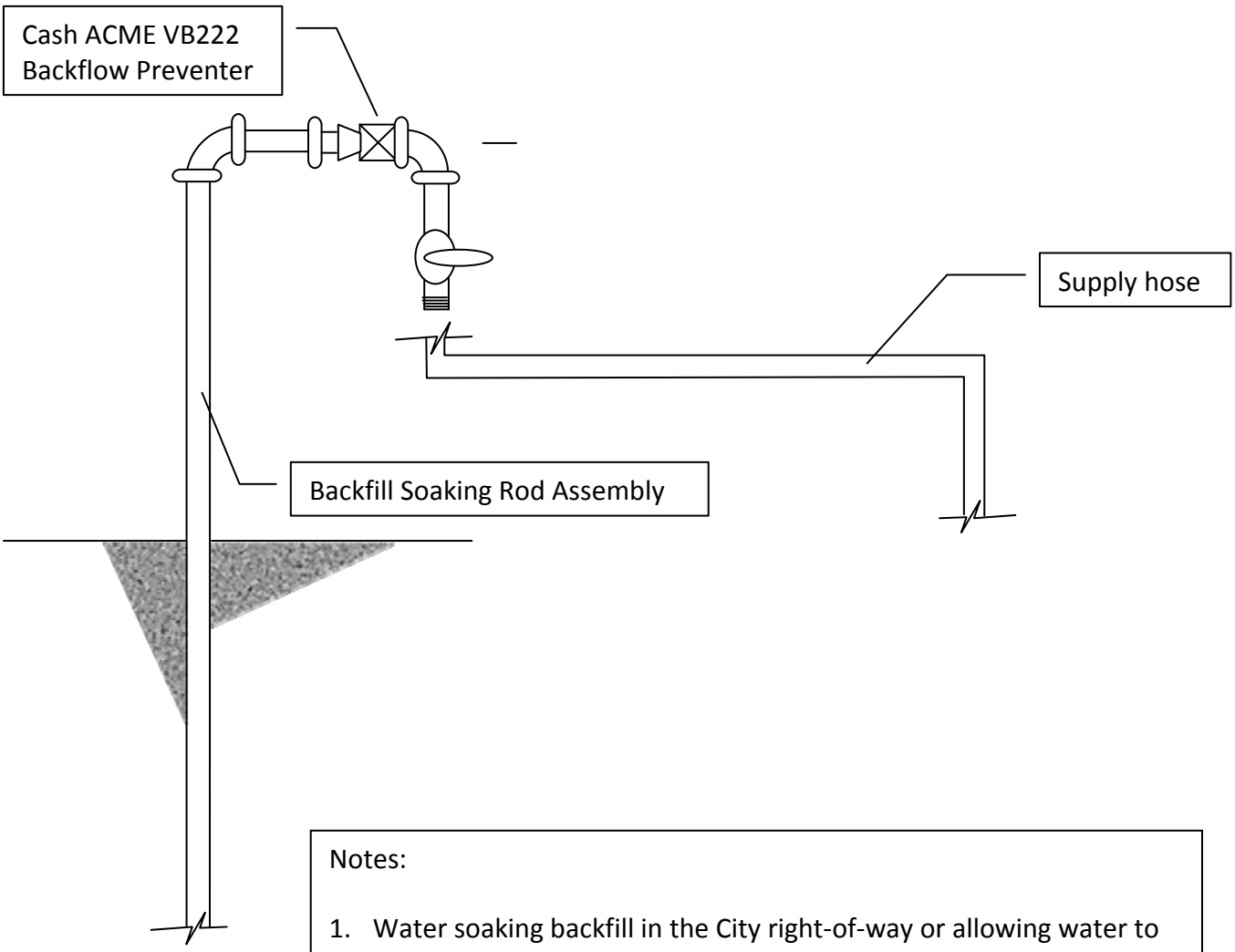




Backflow Type	Notes
Hose End Vacuum Breaker	• For low hazard applications. • No backpressure on device • Use to provide water for non-toxic applications such as backfill soaking, filling containers, mixing products, wash down, etc. • Use air gap at end of hose when possible
Dual Check Vacuum Breaker	• For use when backpressure exists • Max. 10 feet of backpressure • Use if mixing toxic chemicals or other high hazard water use • Use air gap at end of hose
Commercial construction sites shall use Reduce Pressure Principal backflow devices considering multiple hose connections and potential of high hazard cross connections.	

Revised: January 2011

Appendix G2
Minimum Backflow Protection at Residential Construction Sites
Backfill Soaking Rod and Backflow Assembly
Lincoln Water System



Notes:

1. Water soaking backfill in the City right-of-way or allowing water to infiltrate from private property into backfill within the City right-of-way is prohibited.
2. Water shall not be wasted such as unsupervised backfill soaking which allows water to run into the street or off the limits of the property in all cases.
3. At locations where prohibited water use is observed or where water is being used in a wasteful manner, LWS shall immediately shut off the water at the stop box and assess a water use charge of 150 units. Additional fees for shut off and turn on of water shall also apply.

Revised: January 2011

Appendix H

Application for Sewer Deduct or Add Meter
Lincoln Water System & Lincoln Wastewater System

Applicant Name	Address	
Business Name	Phone Number	Contact

Application for: □ Sewer Use Deduct Meter □ Sewer Use Add Meter

Meter Shall be Used for the following purposes:

□ Irrigation water sewer deduction

□ Cooling water sewer deduction

□ Process water sewer deduction

□ Restroom waste water sewer addition

□ Other waste water sewer addition (describe)

Certifications:

□ I certify that this property is not used for single family residential purposes.

□ For a sewer deduction meter, I certify that the meter to be installed will meter water that is not discharged to the City's sanitary sewer system.

□ For a sewer addition meter, I certify that no other discharges to the City's sanitary sewer system occur at this address.

Print Name	Title	Signature	Date

Official Use

□ Meter installation conforms for sewer deduction □ Meter installation conforms for Sewer Addition

Approved by	Title	Date