



WATER SERVICE AND METERING SPECIFICATIONS

WEST DES MOINES WATER WORKS
WEST DES MOINES, IOWA

Effective date: February 16, 2016
Amended January 30, 2017
West Des Moines Water Works
West Des Moines, Iowa

PART 1 - GENERAL CONDITIONS

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1. FORM

- A. These Standard Specifications are in outline form and contain incomplete sentences. Omission of words or phrases is intentional. Supply omitted words or phrases by inference.

2. DEFINITION OF TERMS

- A. "City" shall mean the City of West Des Moines, Iowa, acting through the City Council or an authorized representative of the City Council.
- B. "Contractor" shall mean any person, firm, partnership, association or corporation installing water mains, water service connections, fire protection connections and appurtenances for the subdivider or developer.
- C. "Developer" shall mean any person, firm, partnership, corporation, association, estate, trust or any group or a combination acting as a unit, or any agent thereof, developing or proposing to develop land as a commercial or industrial site, including multifamily residential sites, all as defined by the zoning ordinances of the City of West Des Moines.
- D. "Fire protection connection" shall mean the pipe and appurtenances extending from a public or private water main to a building and conveying water for fire protection purposes.
- E. "General Supplemental Specifications" shall mean the most recent version of the SUDAS Standard Specification as modified by the WDMWW General Supplemental Specifications to SUDAS.

- F. "Standard Drawings" shall mean the drawings bound with these specifications.
- G. "Subdivider" shall mean any person, firm, partnership, corporation, association, estate, trust or any group or combination acting as a unit, or any agent thereof, dividing or proposing to divide land so as to constitute a subdivision as defined by subdivision ordinances of the City of West Des Moines or Chapter 354, Code of Iowa.
- H. "Water service connections" shall mean the pipe and appurtenances extending from a public or private water main, or a fire protection connections, to a building and conveying water for all uses, except fire protection.
- I. "Water Works" shall mean the West Des Moines Water Works, acting through its Board of Trustees or an authorized representative of the Board of Trustees.

3. INTENT

- A. To set forth requirements of performance, type of structure desired and standards of materials and construction for installation of water and fire service connections and water metering arrangements and appurtenances to be connected to the West Des Moines Water Works water distribution system.
- B. To assist in implementing portions of subdivision ordinances of the City of West Des Moines.
- C. To assist in implementing rules of the Board of Trustees of the West Des Moines Water Works .
- D. To supplement the SUDAS Standard Specifications as modified by the West Des Moines Water Works General Supplemental Specifications to the SUDAS Specification
- E. To supplement the provisions of "Standard Construction Specifications for Subdivisions" of the City of West Des Moines.

- F. To insure that water service connections, fire protection connections and water metering arrangements and appurtenances meet requirements of the City of West Des Moines, West Des Moines Water Works and Iowa Department of Natural Resources (IDNR).
- G. To supersede all previous water metering and service specifications of the Water Works.

4. APPLICABILITY OF SPECIFICATIONS

- A. These specifications shall apply to the following:
 - 1. Water service connections and appurtenances to be installed, upgraded or replaced in any type of subdivision.
 - 2. Water service connections, fire protection connections and appurtenances to be installed, upgraded or replaced in a commercial or industrial site.
 - 3. These specifications shall apply to any of the above types of work on which construction is started on or after January 26, 2016.
- B. These specifications shall not apply to repair or abandonment work of existing water service connections or fire protection connections.
- C. In the event of a conflict between these specifications and an applicable building code, the provisions of the more restrictive document shall apply.

5. INTERPRETATION

- A. Water Works will answer questions regarding interpretation of intended meaning of specifications; its interpretation shall be accepted as final.

6. STANDARDS AND CODES

- A. Do work in accordance with best present-day installation and construction practices.

- B. Conform with standards and codes of the State of Iowa, rules of the Iowa Department of Natural Resources, the Iowa Department of Labor, ordinances of the City of West Des Moines and rules of the West Des Moines Water Works.

7. GENERAL REQUIREMENTS

- A. Design water services and appurtenances in accordance with the following standards:
 - 1. Iowa Department of Natural Resources Standards and Requirements.
 - 2. Recommended Standards for Water Works in the Statewide Urban Design and Specifications (SUDAS).
 - 3. West Des Moines Building Code
 - 4. Water Service and Meter Specifications for West Des Moines Water Works
 - 5. SUDAS Standard Specifications as modified by the West Des Moines Water Works General Supplemental Specifications to the SUDAS Specification

8. NON-COMPLIANCE

- 1. Owners of water service pipes, fire service pipes and water metering arrangements not in compliance with water service and meter specifications shall make such changes as may be required by the Water Works within 30 days of being notified in writing of said non-compliance.
- 2. After the end of the 30 day non-compliance period, water service may be discontinued to a non-complying premise following the same procedures outlined in the Resolution outlining Billing and Collection Procedures for Maintenance Requests.

PART 2 – MATERIALS

INDEX

1. GENERAL
 2. PIPE FITTINGS AND APPURTENANCES
-
1. GENERAL
 - A. Pipe and fittings: conform to requirements of American National Standards Institute (ANSI), American Water Works Association (AWWA) and American Society for Testing and Materials (ASTM).
 - B. Use only new materials for water mains and all appurtenances.
 - C. Materials shall be subject to acceptance or rejection by Water Works at job site or storage location.
 2. PIPE, FITTINGS AND APPURTENANCES
 - A. Pipe, fittings and appurtenances installed for water services shall conform to the West Des Moines Water Works General Supplemental Specification to SUDAS.

PART 3 – CONNECTIONS TO WATER MAINS

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| 2. | MATERIALS | 5. | INSPECTION OF WORK
BY OTHERS |
| 3. | WORK BY WATER WORKS | 6. | DISCONTINUANCE AND
SEVERANCE |

1. GENERAL

- A. This part of the specifications sets out Water Works requirements for water service connections and fire protection connections conveying unmetered water.
- B. Water Works standard tap diameters: 1 inch, 1-1/2 inch, 2 inch, 4 inch, 6 inch, 8 inch, 10 inch and 12 inch.
 - 1. Make own arrangements for taps larger than 12 inch diameter; obtain Water Works approval of method prior to beginning work.
- C. Water service connection saddles, as specified herein, are required for all taps, regardless of water main diameter.
- D. Install residential curb valve and curb valve box 7'-0" inside public right-of-way line, 12'-0" when a recreational trail is located in the right-of-way, when public water main is located in street right-of-way; ensure curb valve will not be located in a sidewalk/trail.
 - 1. Install curb valves for commercial buildings a minimum 5' outside of building.
 - 2. Install curb valves for all residential settings a minimum of 10' from the exterior building foundation.
 - 3. Curb valves must be located within a public right-of-way or public water/utility easement.
 - 4. Curb valves locations which differ from the standard details enclosed may be considered by Water Works and must be approved in writing prior to construction.

- E. Cross connection control may be required; conform to City of West Des Moines Ordinance 8-2G. Determination of cross connections controls will be the sole determination of West Des Moines Water Works.
- F. Depth of cover for fire protection connections: as specified for water mains.
- G. Depth of cover for water service connections: 5'-0", minimum, except for short "gooseneck" section next to water main, where depth of cover shall not be less than 4'-6".
- H. Install connections to water mains after water main pressure and disinfection testing have been passed. Dry tapping is not allowed without prior written approval from West Des Moines Water Works.

2. MATERIALS

- A. Material for water services and appurtenances to be per the West Des Moines Water Works General Supplemental Specification to SUDAS.

3. WORK BY WATER WORKS

- A. Water Works will tap a public or private water main or fire protection connection and will furnish and install a corporation valve for water service connections up to and including 2 inch diameter.
 - 1. Water Works will furnish, for installation by others, a curb valve and curb valve box for water service connections up to and including 2 inch diameter.
- B. Water Works will tap a public or private water main or fire protection connection, through a tapping valve installed by others, for 4 inch, 6 inch, 8 inch, 10 inch or 12 inch diameter connections.
 - 1. Use tapping valves and sleeves specified in West Des Moines Water Works General Supplemental Specification to SUDAS.

- C. Water Works will work in excavations made by others provided said excavations are large enough for the intended purpose, meet OSHA regulations with respect to shoring or sloping sides and Contractor has a competent person on the site at the time the work is being done.
 - 1. If timber shoring is used, a copy of OSHA Part 1926, Subpart P – Excavations must be available on the site.
 - 2. If manufactured shoring is used, a copy of the manufacturer's tabulated data on the shoring must be available on the site.
 - D. Water Works will furnish, for installation by others, a suitable steel fence post to mark location of curb valve or end of pipe.
 - E. Water Works will inspect work by others when such work is being done on private fire protection connections and water service connections larger than 2 inch or on public and private water mains, regardless of location.
 - 1. Inspection of other work in private property will be done by West Des Moines Building Inspection Department.
 - F. Water Works installs water meters and will inspect water meter settings unless otherwise approved by Water Works prior to initiating water service. Water Service may be delayed if installations are not in accordance with Water Works Specifications.
4. WORK BY OTHERS
- A. All excavation, pipe installation, backfill and miscellaneous associated work required for complete construction of water service connection or fire protection connection, except the specific items of work set out herein as "Work by Water Works".
5. INSPECTION OF WORK BY OTHERS
- A. Water Works inspections of work by others as set out in "Work by Water Works".

- B. Water Works will supply water to completed construction which has been inspected and approved by Water Works and the West Des Moines Building Inspection Department.

6. DISCONTINUANCE AND SEVERANCE

- 1. Water service pipes and fire service pipes no longer needed shall be physically severed from their water supply source at no cost to the Water Works. Water meters and remote reading devices will be removed by the Water Works at its cost.
- 2. Discontinuance and severance of pipes will be accomplished so that (1) no dead-ended, buried piping remain connected to the water supply source and (2) no theft of water service can occur through clandestine reconnections to a water service pipe or fire service pipe.
- 3. Contact the Water Works for specific requirements when a water service pipes or fire service pipes become unneeded.
- 4. Water service may be discontinued without notice in the event of an emergency.
- 5. Water service may be discontinued without notice in the event of tampering with the equipment furnished and owned by Water Works and when water is obtained by fraudulent means.

PART 4. SPECIFICATIONS FOR WATER METERING

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| 2. WATER METERS AND APPURTENANCES | 5. WATER METER SETTINGS |
| 3. WORK BY WATER WORKS | 6. INSPECTION OF WORK BY OTHERS |

1. GENERAL

- A. These specifications set out Water Works requirements for water metering at the customer's premises.
- B. All water delivered to a customer's premises shall be metered, except water to be used for firefighting purposes.
- C. One water meter shall be installed on each water service connection.
 - 1. Additional water meters may be installed, if deemed necessary by Water Works, to meet customer's requirements.
 - 2. Water Works will determine the size and type of water meters to be installed. See 5.H. for additional information.
 - 3. Deduct meters are not allowed in single family residential construction.
 - 4. Deduct meters may be allowed in non-single family construction only with prior written approval from West Des Moines Water Works.
- D. These specifications are a part of the rules and regulations of the West Des Moines Water Works.

2. WATER METERS AND APPURTENANCES

- A. Electromagnetic type water meter: Sensus Metering Systems (Sensus) IPERL:
 - 1. Standard water meter sizes: 3/4 inch, 1 inch
 - 2. End connections for 3/4 inch and 1 inch water meters shall be externally threaded spuds.
- B. Sensus OMNI water meters: Specific models determined by Water Works

Water Metering

1. Standard water meter sizes: 1-1/2 inch, 2 inch, 3 inch, 4 inch, 6 inch, 8 inch and 10 inch.
2. End connections for 1-1/2 inch and 2 inch water meters shall be 2 bolt oval meter flanges.
3. End connections for 3 inch, 4 inch, 6 inch, 8 inch and 10 inch meters shall be bolted, ANSI 125 lb. flanges.
4. Do not install elbows, bends, nonconcentric reducers, check valves, back flow preventers and/or pressure reducing devices within ten (10) pipe diameters upstream or five (5) pipe diameters downstream of the meter.
5. Operating ranges can vary by model. In some cases, compound water meters may be required. Contact West Des Moines Water Works for details.

C. Remote reading capability: Sensus SmartPoint.

1. Cable for interior use (not in plenum spaces): Three 22 gauge solid copper conductors with PVC jacket: Belden 8794, or approved equal. Conduit installed as specified in 4.A.
2. Cable for interior use (in plenum spaces only): Three 18 gauge stranded copper conductors with Teflon insulation and Hiflex-plus jacket; must meet or exceed UL 910; NEK Cable, Inc. Type CL2P FT6, or approved equal.
3. Cable for direct burial: Three 18 gauge solid copper conductors with high dielectric PVC insulation and black PVC jacket; type TNNH/THWN/TFFN, designed for direct burial; Anixter Brothers, 2A-1803, or approved equal.

D. Water meter connections:

1. Threaded meter couplings: bronze, with seal holes on nuts; washers.
2. Companion flanges: bronze, with plated steel bolts and nut; reinforced rubber gaskets.
3. Flexible couplings: bronze, pack joint to water meter flange adaptors with reinforced rubber gaskets; Ford Meter Box Company Type FC or approved equal.

3. WORK BY WATER WORKS

- A. Water Works will furnish and install the water meter, water meter connections, remote reading device, cable and caulking, as required. Water Works must be notified during appropriate construction phases so proper installations can

be complete. Failure to properly notify Water Works may require the contractor to properly install cable for remote reading device.

4. WORK BY OTHERS

- A. Construction of all pipe and fittings; installation of electrical bonding jumper; installation of empty 1/2 inch or larger conduit for remote reading device cable where required.
 - 1. Unless otherwise directed by Water Works, empty conduit is required on all construction except single family residential buildings.
 - 2. Install conduit from meter to exterior wall of building; set exterior wall end of conduit to facilitate installation and use of remote meter reading device. Obtain Water Works approval of such location prior to construction.
- B. For 1-1/2 inch and larger water meters, Water Works can furnish the water meter for installation by others, if desired, to facilitate construction of water meter setting and adjacent piping. All work is subject to inspection and approval by West Des Moines Water Works.

5. WATER METER SETTINGS

- A. Water Works will install water meters in water meter settings which conform with the following standards:
 - 1. The water meter shall be located inside the building and as close as possible to the point at which the water service pipe enters the building.
 - 2. The water meter shall be installed in a horizontal run of pipe with a ball valve with a graspable handle on both sides of the meter, a suitable reducer and a pipe support on each side of the water meter; the horizontal run of pipe shall be at least 1 foot, but not more than 3 feet from the floor.
 - a. If backflow prevention devices are required they must be installed downstream of water meter. No connections are allowed between the meter and the backflow preventer.
 - 3. The pipe adjacent to the water meter setting shall be arranged so the water meter is, and will remain, accessible for installation, reading, inspecting and changing the water meter. The meter and adjacent valves shall not be obstructed as to prevent meter installation or replacement. Enough working room, typically two feet in front of the meter, must be cleared by the property owner as to allow for meter replacement, as well as a clear path to the water meter. Property owners are responsible to maintain accessibility to the water meter.
- B. The contractor and/or customer are responsible for protecting the water

Water Metering

meter from freezing; heat tapes and building insulation are not recommended for this purpose; the water meter must be located in an area which is heated by the building's heating system.

- C. If two or more water meters are to be installed, the piping shall be arranged to prevent the water meters from operating in series.
 - 1. Water meters may be installed in parallel piping arrangements for redundancy, or to increase water flow capability while not sacrificing low flow registration capability provided a swing check valve is installed in the outlet piping of both meters.
- D. It is recommended that a floor drain be located near the water meter setting.
- E. A water meter bypass may be installed with Water Works approval. If installed, a lockable valve shall be installed by the contractor with a lock provided by Water Works.
- F. Water meter installations in water meter pits may be permitted in limited situations. Backflow prevention devices are installed above finish grade. A remote reading device must be able to be installed on the pit access cover of the meter pit. Written approval of Water Works must be obtained prior to construction of a meter pit.
- G. Water meter pit specifications:
 - 1. For meter pits not located in parking or traffic areas:

<u>Meter Size</u>	<u>Approved Materials List</u>
5/8 inch x 3/4 inch	Mueller/Hunt 15" Diameter Coil
1 inch	Mueller/Hunt 18" Diameter Coil
1 1/2	Ford Plastic Pit Setters
2 inch or larger	Ford Plastic Pit Setters
 - 2. Meter pits in vehicular traffic areas are not permitted unless special permission is granted under exceptional circumstances by West Des Moines Water Works.
 - 3. All manhole or pit lids must accommodate an electronic remote reading devices with a 2 inch hole.
 - 4. Granular pipe bedding: as specified in SUDAS
- H. Tabulated below is the usual relationship between water meter sizes and numbers of residential or commercial occupancy units served by the water meter.

Water Meter Size

Number of Units

Water Metering

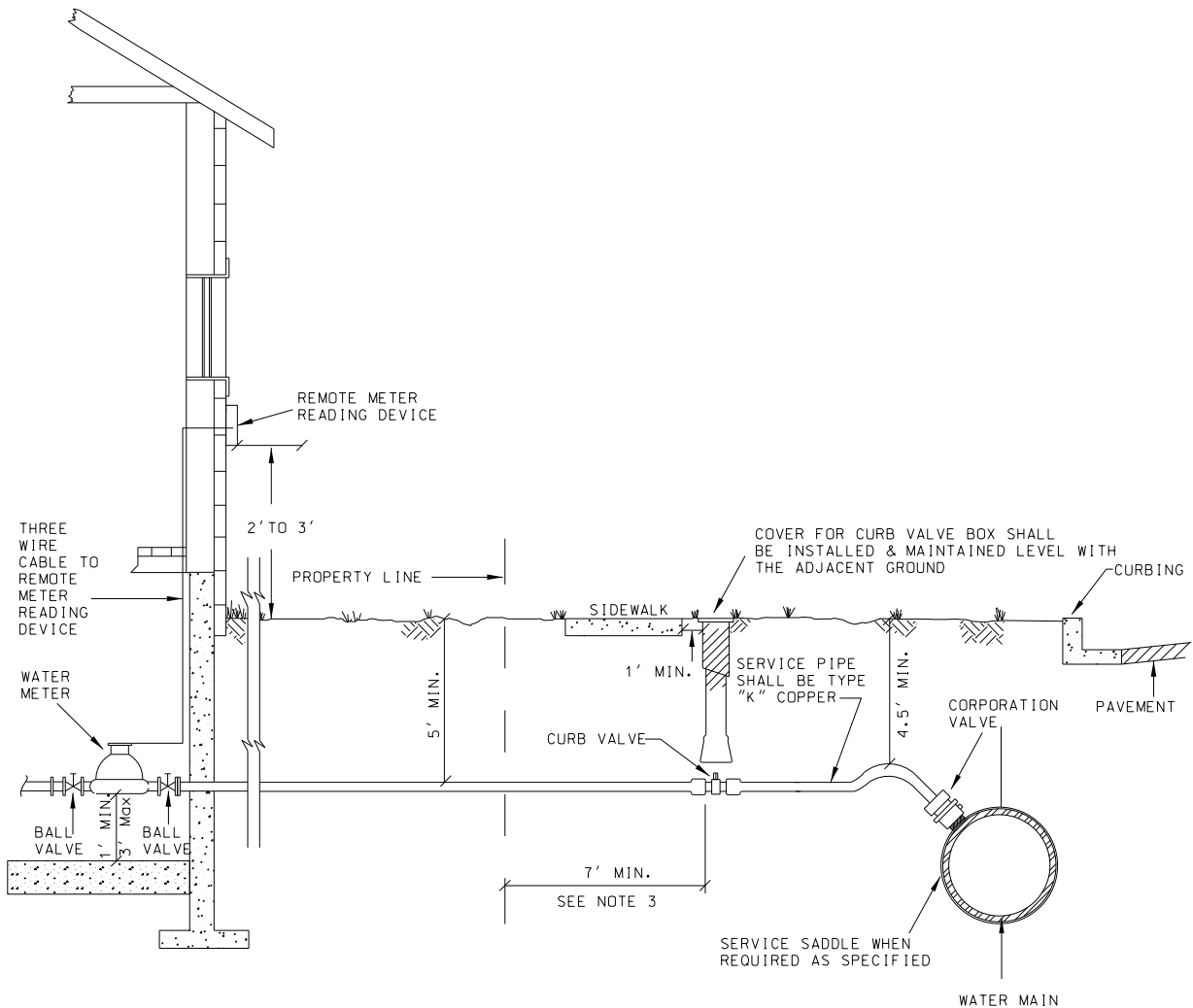
3/4 inch	1
1 inch	2 to 12
1-1/2 inch	13 to 24
2 inch	25 to 30

Irrigation meters will be sized according to the required gallons per minute of the designed system.

- 1. Water Works will analyze each building’s water requirements to ensure adequate water meter size. Meter sizing decisions are at the sole discretion of West Des Moines Water Works.
 - I. Locations containing multiple water meters for more than one unit or tenant must provide Water Works with keys for unrestricted 24 hours a day access. All meters must be clearly labeled with a unit number.

6. INSPECTION OF WORK BY OTHERS

- A. Water Works will inspect work by others to determine compliance with these specifications; the water meter will be installed when specification requirements are met. When work is completed by others, service may be disconnected if Water Works requirements have not been met.



NOTES:

1. AVOID INSTALLING THE CURB VALVE IN SIDEWALKS AND DRIVEWAYS WHEN POSSIBLE.
2. SERVICE LINE MAY ENTER THROUGH BASEMENT FLOOR OR THE WALL. FOR MULTI-TENANT HOUSING: IF ENTERING THROUGH THE FLOOR, SERVICE LINE CANNOT EXTEND UNDER ANOTHER RESIDENTIAL UNIT.
3. PLACE CURB STOP BOX 12' INSIDE OF THE RIGHT-OF-WAY IF A TRAIL IS LOCATED ON THE SAME SIDE OF THE ROADWAY.



**WATER SERVICE AND
METERING
SPECIFICATIONS**

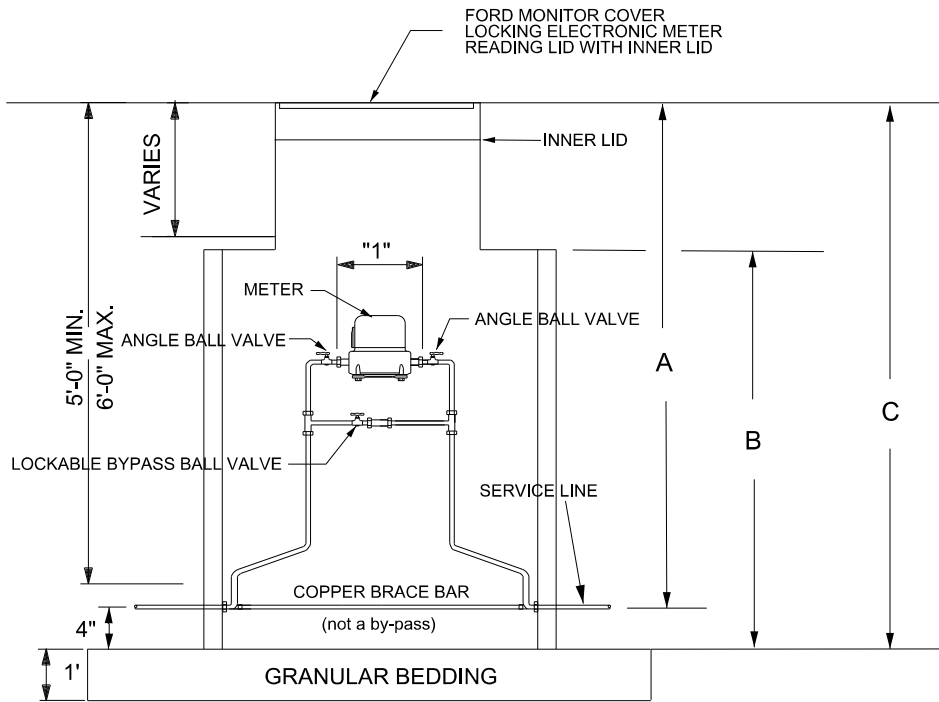
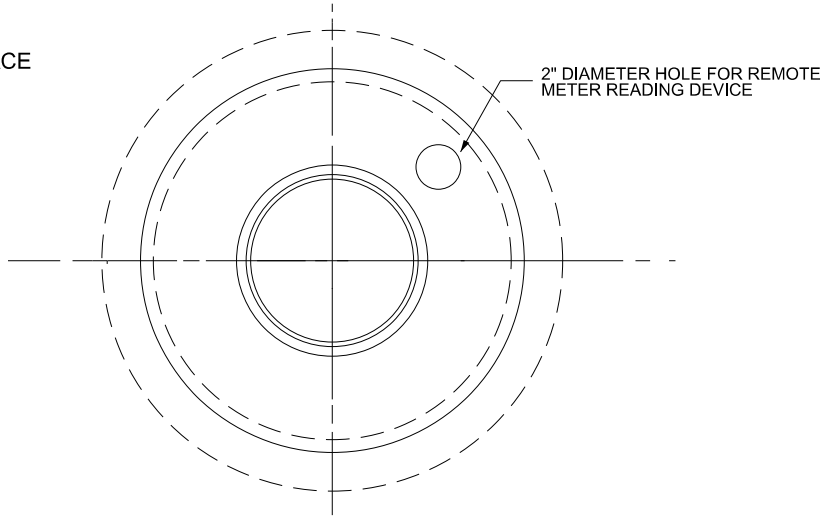
**TWO INCH AND SMALLER
SINGLE FAMILY RESIDENTIAL SERVICE**

DRAWING NO.

1

NOTE:

1. FORD PLASTIC PIT SETTERS
2. DIMENSION "A" IS FACE TO FACE OF VALVES



Approximate Vertical Measurements

(Pit Diameter is 36")

Service Line Depth	PVC Cylinder Length	Total Pit Depth
"A"	"B"	"C"
36"	32"	40"
42"	38"	46"
48"	44"	52"
54"	50"	58"
60"	56"	64"
66"	62"	70"
72"	68"	76"
78"	74"	82"

METER SPACING	
SIZE OF METER	"1" - FACE TO FACE OF VALVES
1 1/2"	13"
2"	17"

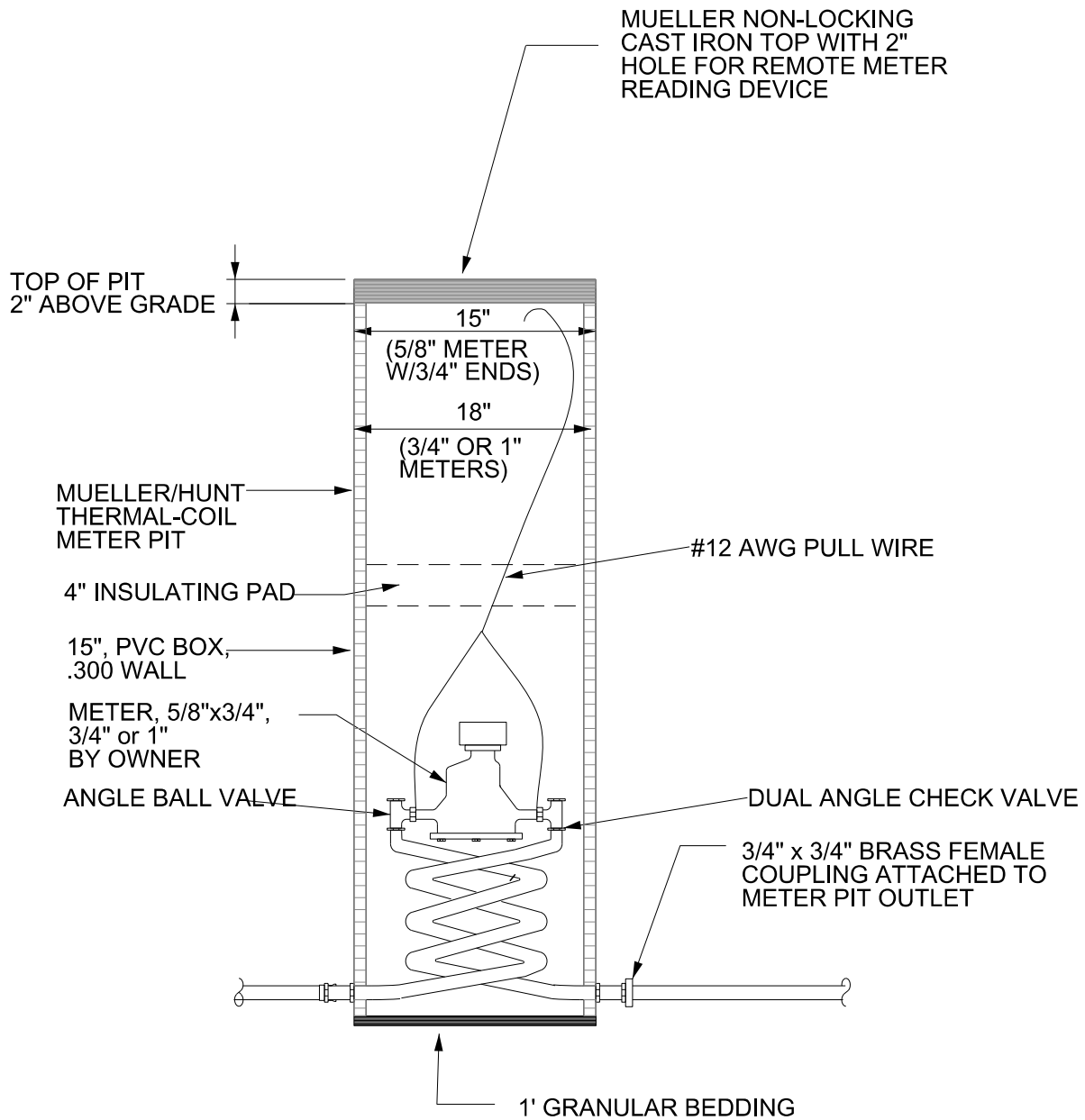


WATER SERVICE AND
METERING
SPECIFICATIONS

WATER METER PIT FOR 1 1/2" , 2" AND
LARGER WATER METERS

DRAWING NO.

2



NOTE:
 METER PITS SHALL BE
 66" IN LENGTH (MIN.)

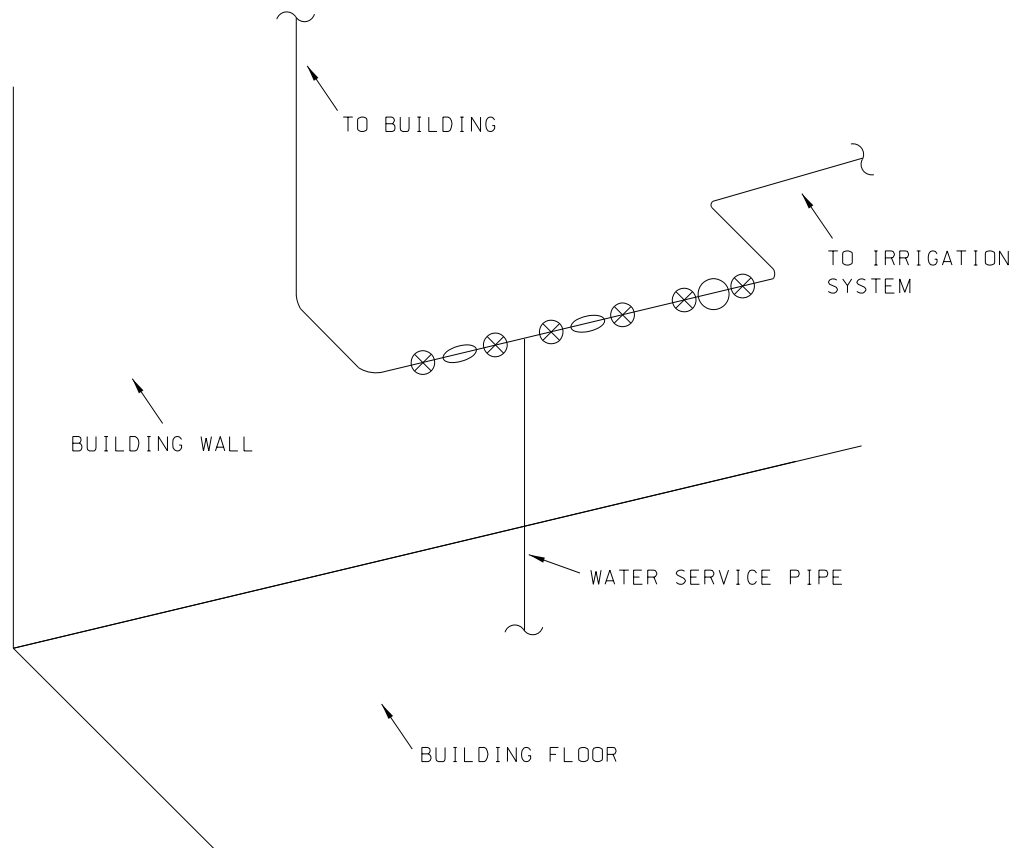


WATER SERVICE AND
 METERING
 SPECIFICATIONS

3/4" AND 1" METER PIT

DRAWING NO.

3



NOTES:

1. THIS STANDARD DRAWING SHOWS GENERAL ARRANGEMENT OF PIPE, WATER METER, BACKFLOW PREVENTER AND FITTINGS. ACTUAL PIPING MAY VARY. PROVIDED THAT ALL WATER IS METERED ONLY ONCE. DEDUCT-TYPE WATER METERING IS NOT PERMITTED.

LEGEND

- ⊗ VALVE
- WATER METER
- BACKFLOW PREVENTER

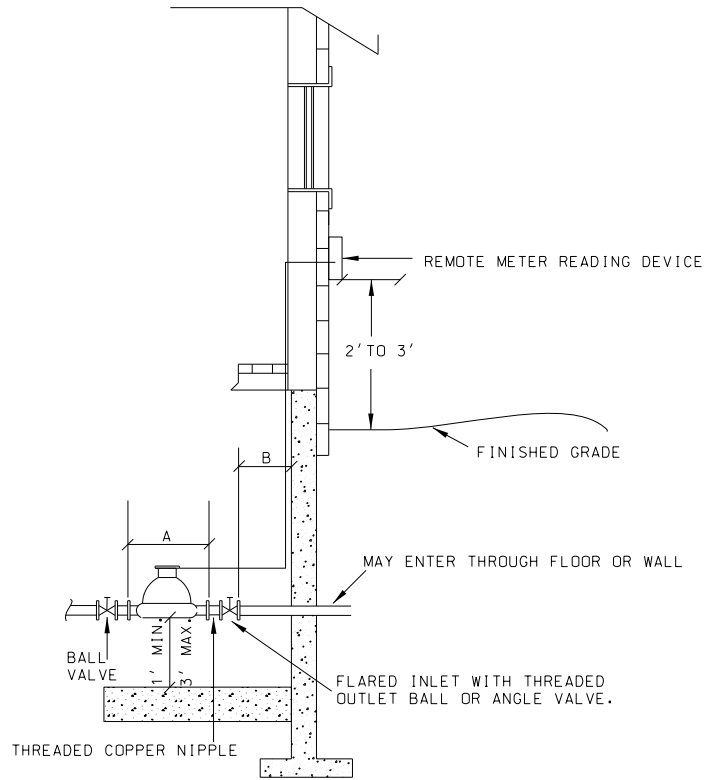


WATER SERVICE AND
METERING
SPECIFICATIONS

GENERAL ARRANGEMENT OF
BUILDING AND IRRIGATION WATER METERS
AND BACKFLOW DEVICES

DRAWING NO.

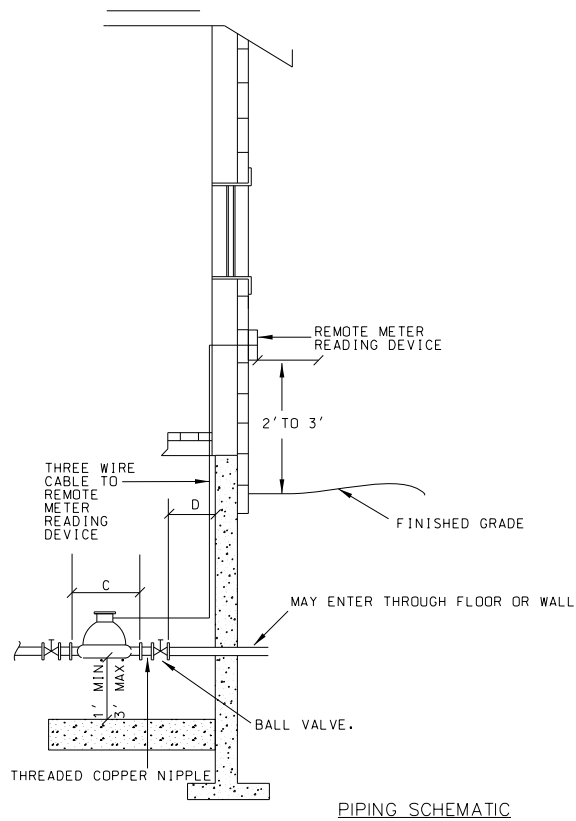
4



WATER METER SIZE	FACE TO FACE OF FLANGES, VALVES OR REDUCERS (A)	MINIMUM CLEARANCE AROUND METER (B)
3/4"	13"	6"
1"	16"	6"

1. WATER WORKS WILL FURNISH WATER METER AND TWO COUPLINGS..
2. INSTALL REDUCERS, IF USED, BETWEEN VALVES AND WATER METERS.
3. PROVIDE PROPERLY SUPPORTED HORIZONTAL PIPE FOR METER SETTING.
4. REFER TO SPECIFICATIONS FOR OTHER WATER METER SETTING REQUIREMENTS .
5. A GROUND WIRE SHALL BE INSTALLED IN ACCORDANCE WITH THE CITY OF WEST DES MOINES BUILDING CODE.





WATER METER SIZE	(C) FACE TO FACE OF FLANGES	(D) CLEARANCE TO WALL (Min)
1 1/2"	13 1/4"	4"
2"	17 1/4"	4"
3"	19 1/4"	4.5"
4"	23 1/4"	6"
6"	27 1/4"	9"

NOTES:

1. INSTALL REDUCERS BETWEEN VALVES AND WATER METERS.
2. PROVIDE PROPERLY SUPPORTED HORIZONTAL PIPE FOR METER SETTING.
3. WATER WORKS WILL FURNISH WATER METER AND TWO METER FLANGES FOR 1 1/2" AND 2" METERS.
4. CUSTOMER SHALL PROVIDE THREADED BRONZE OR COPPER NIPPLES.
5. FOR TURBINE METER INSTALLATION, PROVIDE 5 PIPE DIAMETERS OF STRAIGHT PIPE UPSTREAM FROM METER AND 3 PIPE DIAMETERS OF SLIGHT PIPE DOWNSTREAM FROM METER. NO FITTINGS OR VALVES ARE PERMITTED IN THESE SECTIONS OF PIPE OTHER THAN FULL OPEN GATE VALVES.
6. REFER TO SPECIFICATIONS FOR OTHER REQUIREMENTS FOR WATER METER SETTING.
7. A GROUND WIRE SHALL BE INSTALLED IN ACCORDANCE WITH THE CITY OF WEST DES MOINES BUILDING CODE.

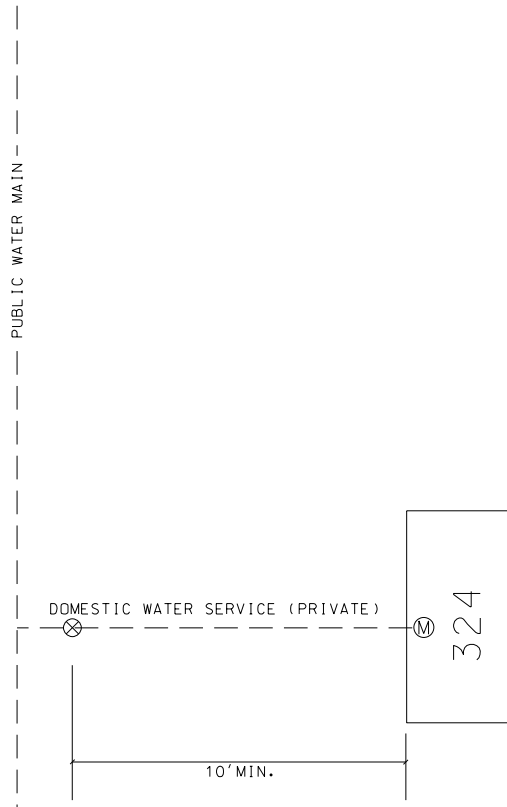


WATER SERVICE AND
METERING
SPECIFICATIONS

WATER METER SETTING
1 1/2 INCH AND LARGER METERS

DRAWING NO.

6



LEGEND

⊗ CURB VALVE

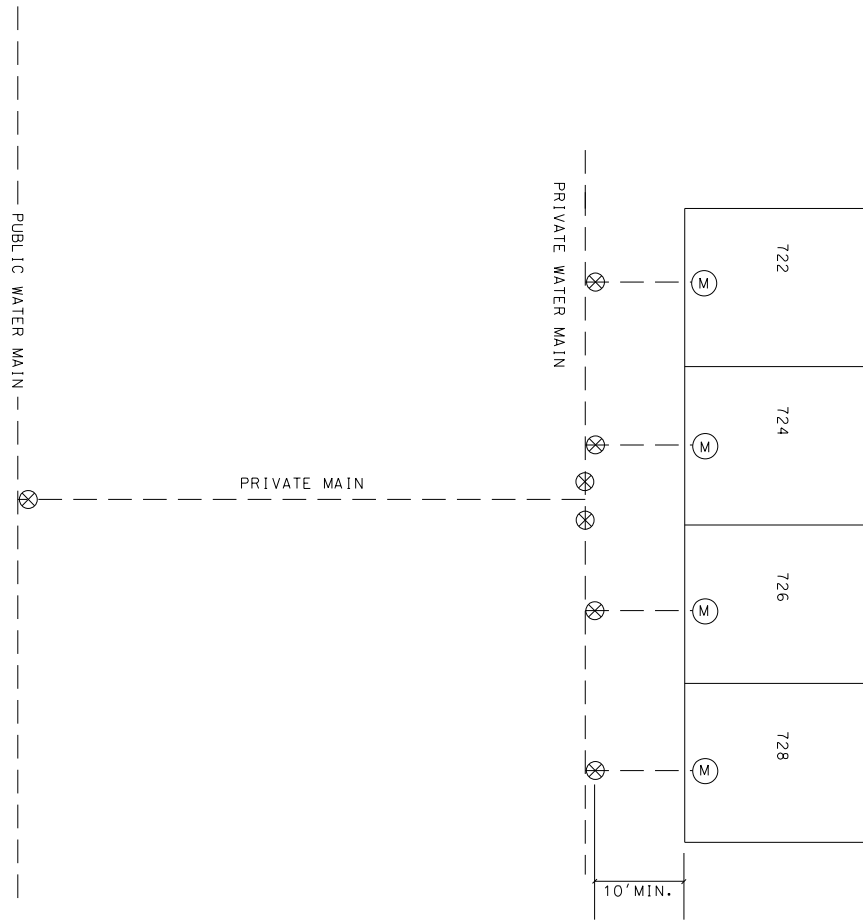


WATER SERVICE AND
METERING
SPECIFICATIONS

SERVICE CONFIGURATION
SINGLE FAMILY RESIDENCE

DRAWING NO.

7



LEGEND

- ⊗ CURB VALVE
- Ⓜ WATER METER

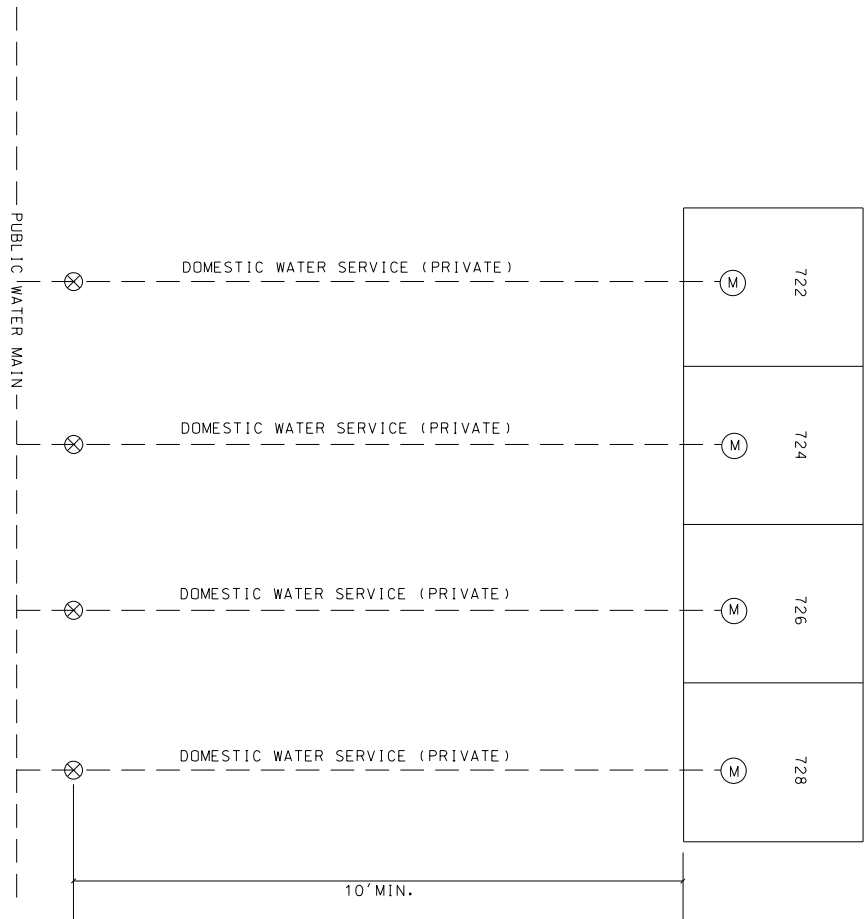


WATER SERVICE AND
METERING
SPECIFICATIONS

SERVICE CONFIGURATION
TOWNHOUSE OR MULTI-OCCUPANCY COMMERCIAL
OPTION #1

DRAWING NO.

8



LEGEND

- ⊗ CURB VALVE
- Ⓜ WATER METER



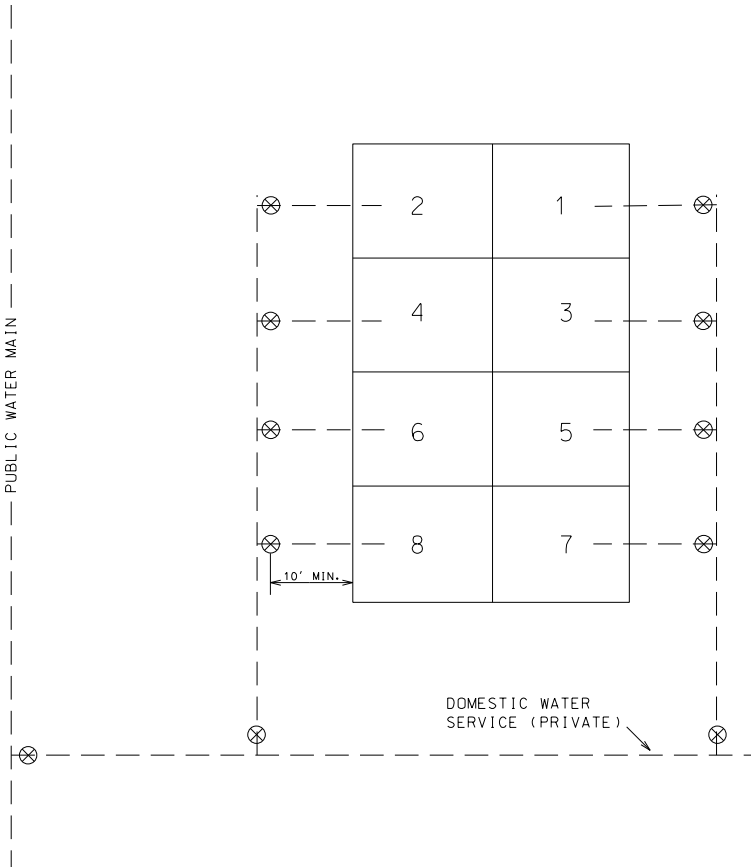
WEST DES MOINES
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 WATER WORKS

WATER SERVICE AND
 METERING
 SPECIFICATIONS

SERVICE CONFIGURATION
 TOWNHOUSE OR MULTI-OCCUPANCY COMMERCIAL
 OPTION #2

DRAWING NO.

9



LEGEND

⊗ CURB VALVE

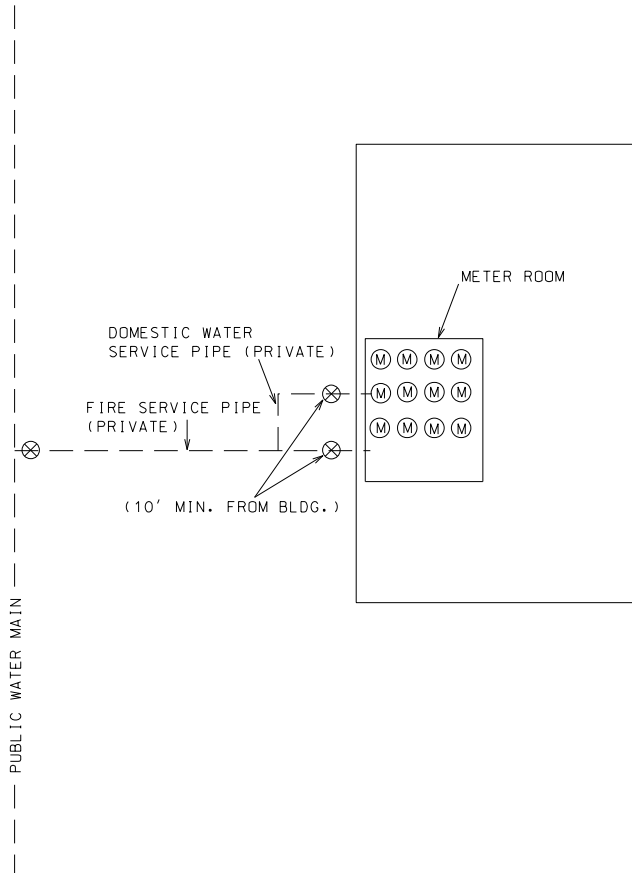


WATER SERVICE AND
METERING
SPECIFICATIONS

SERVICE CONFIGURATION
TOWNHOUSE OR MULTI-OCCUPANCY COMMERCIAL
OPTION #3

DRAWING NO.

10



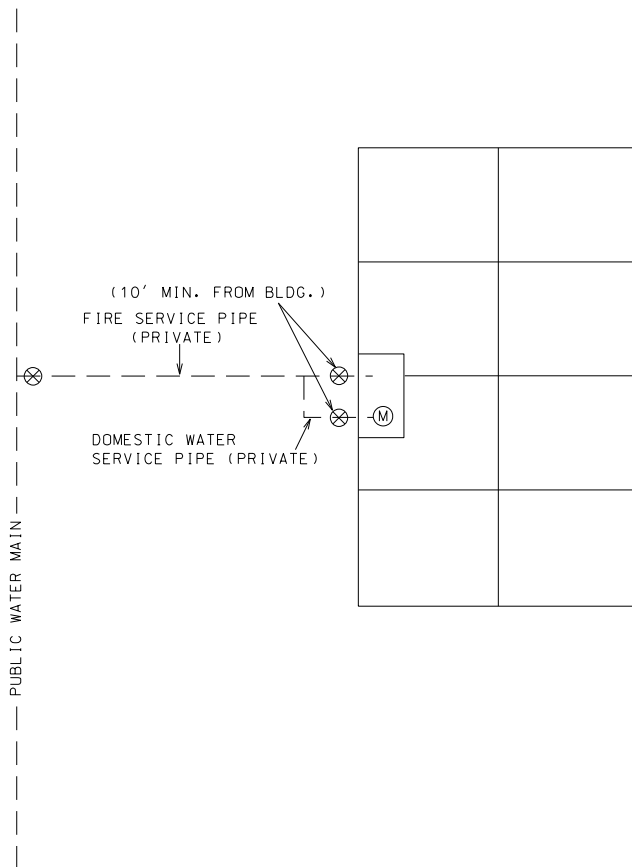
NOTES:

1. EACH OCCUPANCY UNIT MUST HAVE ITS OWN WATER METER OR ABILITY TO HAVE INDIVIDUAL METERS.
2. METERS MAY BE GROUPED IN ONE OR MORE LOCATIONS.
3. WATER WORKS MUST BE PROVIDED WITH CONTINUOUS ACCESS TO THE METER THROUGH A COMMON AREA OR SEPERATE OUTDOOR ENTRANCE.
4. PIPE AND METERS TO BE LOGICALLY ARRANGED AND PERMANENTLY LABELED WITH UNIT ID AS SHOWN IN DRAWING 14.
5. LOCKABLE VALVES TO BE PROVIDED ON THE PUBLIC SIDE OF ALL METERS.

LEGEND

- ⊗ CURB VALVE
- Ⓜ WATER METER





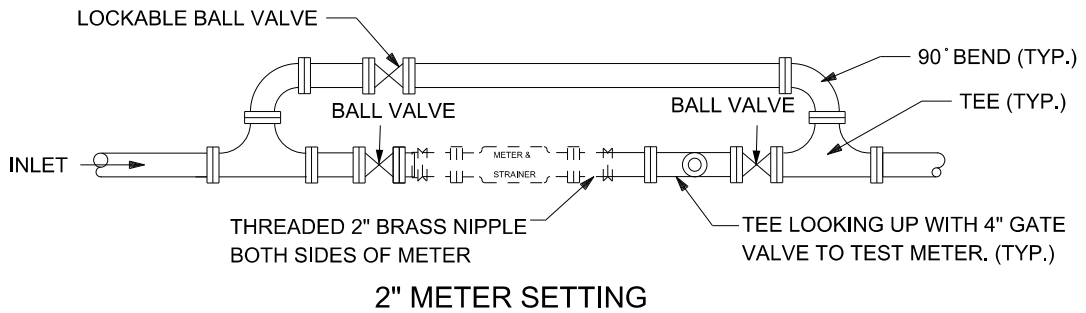
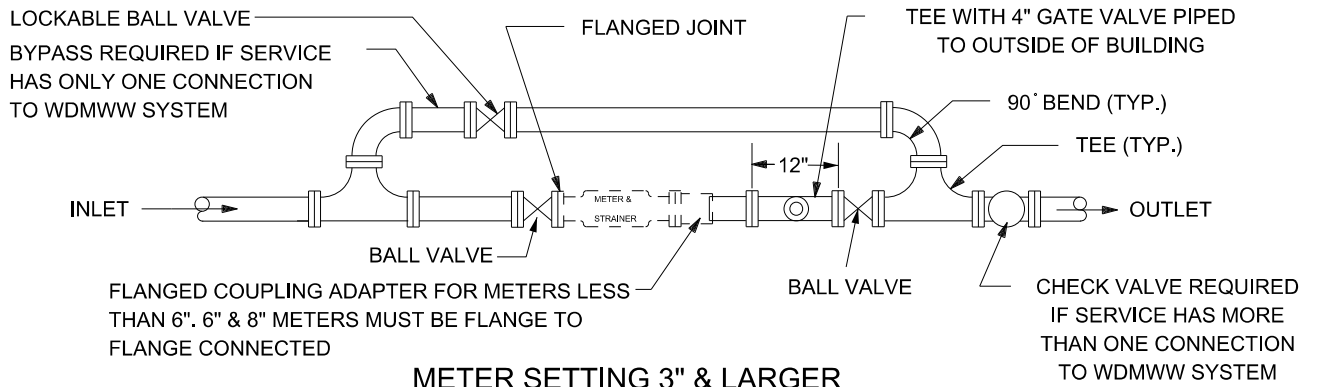
NOTES:

1. EACH BUILDING WILL HAVE A MASTER METER.
2. SUB-METERING OF INDIVIDUAL UNITS IS AT THE OWNERS DISCRETION.
3. WATER WORKS MUST BE PROVIDED WITH CONTINUOUS ACCESS TO THE METER THROUGH A COMMON AREA OR SEPERATE OUTDOOR ENTRANCE.

LEGEND

- ⊗ CURB VALVE
- Ⓜ WATER METER

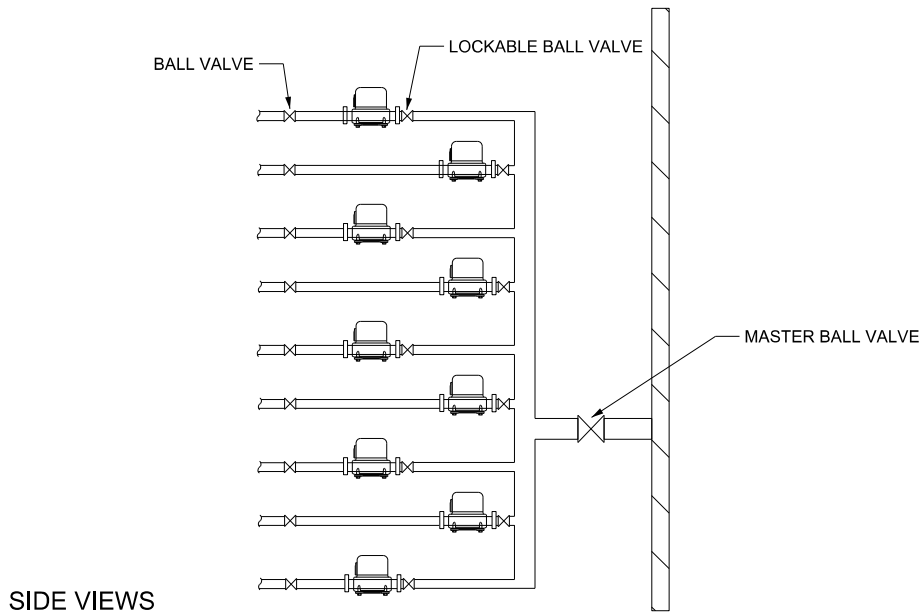




NOTES:

1. INSTALL 1/2" CONDUIT FROM METER TO AN ACCEPTABLE LOCATION FOR MOUNTING METER READING EQUIPMENT.
2. PIPE MATERIALS SHALL BE IN ACCORDANCE WITH CITY OF WEST DES MOINES PLUMBING CODE.
3. IF THE METER SETTING IS INSIDE A BLDG. 4" PIPE MUST BE INSTALLED FROM THE TEST TEE VALVE TO AN APPROVED LOCATION ON THE OUTSIDE WALL OF THE BUILDING.
4. THRUST RESTRAINTS MUST BE PROVIDED AT FLEXIBLE COUPLINGS AND FLANGED COUPLING ADAPTERS WHEN NECESSARY TO PREVENT LEAKAGE AND OVERSTRESSING OF THE PIPE.
5. METER SHALL BE NO MORE THAN 3' OFF THE FLOOR. PROVIDE PIPE SUPPORTS AT TEES OR AS REQUIRED IN METER PITS.
6. MINIMUM HORIZONTAL CLEARANCE FROM CENTER LINE OF METER TO WALL OR OTHER OBSTRUCTION SHALL BE 30" UNLESS OTHERWISE APPROVED BY WEST DES MOINES WATER WORKS.



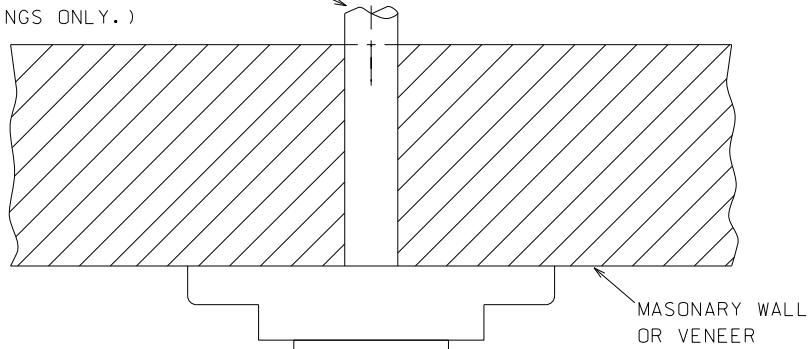


NOTES:

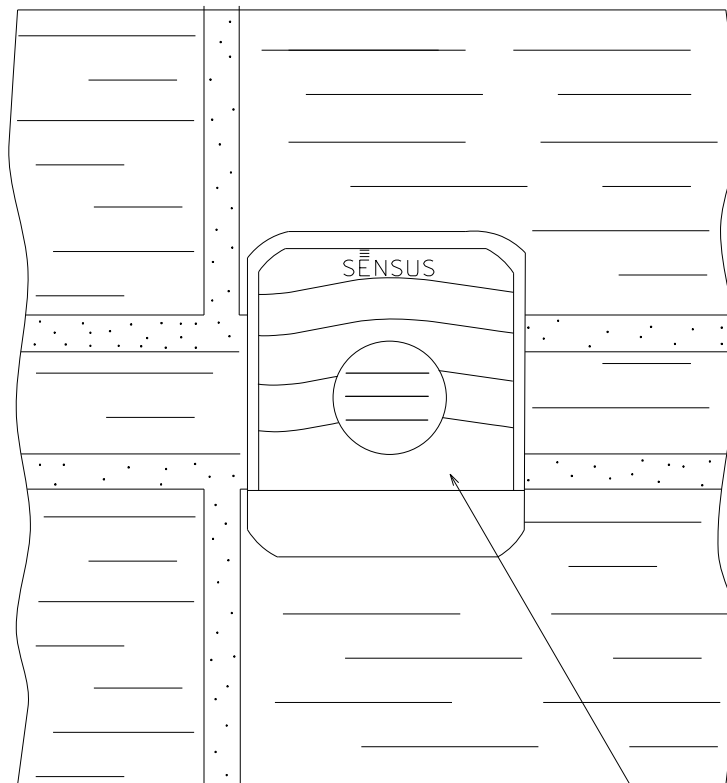
1. MUST HAVE EXTERIOR OR COMMON ENTRANCE WITH LOCKED DOOR AND ACCESS PROVIDED TO WDMWW.
2. MUST HAVE A HEATED ROOM.
3. ALL METERS MUST BE PERMANENTLY LABELED WITH UNIT IDENTIFICATION NUMBER.
4. ALL METERS MUST HAVE LOCKABLE BALL VALVES BEFORE THE METER, ON INLET SIDE.
5. THE BOTTOM METER SHALL BE A MINIMUM OF 1' FROM FLOOR AND A MAXIMUM HEIGHT OF 5' TO THE TOP METER.
6. THERE SHALL BE A 6" MINIMUM SEPARATION BETWEEN METERS IN ALL DIRECTIONS.



1/2" ELECTRICAL CONDUIT TO
WATER METER LOCATION
(COMMERCIAL AND INDUSTRIAL
BUILDINGS ONLY.)



SECTION



ELEVATION

REMOTE METER
READING DEVICE

NOTES:

1. LOCATE CONDUIT ON WALL ADJACENT TO AREA WHICH IS NOT LIKELY TO BE FENCED.
2. LOCATE REMOTE METER READING DEVICE 2' TO 3' ABOVE FINISH GRADE.



WATER SERVICE AND
METERING
SPECIFICATIONS

REMOTE METER READING DEVICE

DRAWING NO.

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