

**THE CONSOLIDATED MUTUAL WATER COMPANY 12700 WEST 27TH AVENUE,
LAKEWOOD, COLORADO 80215 (303) 238-0451**

SPECIFICATIONS for 1½-INCH WATER SERVICE

INSPECTION MUST BE SCHEDULED FORTY-EIGHT HOURS IN ADVANCE

1. TAPS:

- All 1½ -inch taps shall be connected to Company mains by means of a double strap bronze tapping saddle.
- The corporation stop shall be a ball valve with CC (AWWA taper thread) inlet and a compression copper outlet connection (Mueller or CMWCo approved equal).
- When installing “Stub-in” connections the curb stop location must be marked with a notched “V” on the curb for each service.

NOTE: A 1 ½ -inch tap will not be allowed on 4-inch or smaller main and must be installed as a tee connection.

2. CURB STOP AND STOP BOX:

- The curb stop box shall be a “Roadway Box”.
- The roadway box will be capable of extending to at least 60-inches in height, and have a lid marked “WATER”.
- The curb stop shall be set at a minimum distance of 12-inches and a maximum distance of 36-inches from the edge of the meter vault.
- The curb stop shall be a full port, quarter turn ball valve with compression copper connections and inverted key head (Mueller or CMWCo approved equal).

THE STOP BOX SHALL BE SET 2-INCHES ABOVE FINAL GRADE

3. METER VAULT:

The meter vault shall be a 72-inch (inside diameter) “water-tight” vault manufactured with a H-20 load rating in accordance with AASHTO Specifications. The roof shall be flat having a 24-inch eccentric opening and the total inside height of the meter vault shall be 72-inches minimum. The meter vault shall have a ladder or steps installed under the 24-inch opening in the roof. The steps shall be set 12-inches apart with the top step set 12 to 18-inches below final grade, and the bottom step set 12-inches above the floor of the vault. The meter vault shall have a 6-inch floor with a 12” diameter by 3” deep sump hole. The meter vault shall be bedded on 8-inches of 1½ -inch crushed rock bedding material.

The meter vault rings, extension rings, steel ring, roof and cover, shall be jointed with a mastic sealant. The holes for piping shall be sealed both inside and outside the meter vault with a non-shrinking hydraulic cement (WaterPlug).

4. LOCATION OF METER VAULT:

- The center of the meter vault shall be set 18-inches inside the Public Right-of-Way or CMWCo easement and a minimum of 5' from side lot lines.
- Meters may be installed on private property within 5' of the property line as a result of site limitations.
- The location of the meter vault must be approved by the Company prior to installation, and property corners must be in place to assure proper placement.
- The meter vault ring and cover shall be 2-inches above final grade for new construction or as specified by CMWCo inspector/representative.
- Meter vaults shall be located such that a CMWCo representative can access the meter at all times.
- In no circumstance shall a meter vault lid be located in a paved area, a parking space, a driveway, or inside a fence.
- If a meter vault is located such that vehicles are prone to park near or on the meter and obstruct access, CMWCo will require the property owner, at their expense, to protect the meter with multiple 6-inch ductile iron bollards filled with concrete.

ANY ADJUSTMENT OF THE METER VAULT TO MEET FINAL GRADE WILL BE DONE WITH A SOLID CONCRETE RISER RING ONLY (NO BRICKS).

5. SERVICE LINE PIPING:

- The service line from the main to the structure shall be 1½ -inch TYPE K soft copper pipe.
- The service line from the water main to the structure, including the curb stop and meter vault, shall be installed in-line and perpendicular to the water main.
- A minimum horizontal distance of 10-feet shall separate the water service and any sanitary sewer line.
- A minimum vertical clearance of 18-inches shall be provided for all perpendicular utility crossings.
- Pipe will be bedded in sand or squeegee, 6-inches above and below.
- NO couplings shall be allowed between the corporation stop and the curb stop, or between the curb stop and the meter yoke assembly within the meter vault.
- Subject to Company review and approval, the service line from the meter to the structure may be larger than 1½ -inch. In that event, the transition from 1½ -inch to the larger line shall be made five feet outside of, and on the "house" side of the meter vault.
- A minimum cover of 4½ feet below final grade shall be maintained.

- The service piping through the meter vault shall be installed so that the piping is between 18-inches and 30-inches above the vault floor.

ONLY CMWCo APPROVED COMPRESSION CONNECTIONS ARE ALLOWED ON THE SERVICE LINE BETWEEN THE WATER MAIN AND THE METER VAULT, AND FROM THE METER PIT TO THE STRUCTURE - SOLDERED OR BRAZED JOINTS ARE NOT ALLOWED.

6. METER SETTING: (See attached drawing for specifications).

- The meter yoke shall be supported by three adjustable pipe stands (as shown in the attached drawing)
- The yoke must be installed so that the by-pass is on the opposite side of the 24-inch opening in the roof.
- The meter yoke shall be installed 18 to 30-inches above the floor of the vault.

ONLY COMPRESSION AND THREADED JOINTS ARE ALLOWED INSIDE THE METER VAULT - SOLDERED OR BRAZED JOINTS ARE NOT ALLOWED.

7. BACKFLOW PREVENTION:

Title 25 of the Colorado Revised Statutes Articles 1-114 & 1-114.1 does not allow anyone to install, maintain, or permit an uncontrolled cross-connection that is connected to a drinking water system that supplies water to the public. Per Colorado Primary Drinking Water Regulations, 5 CCR 1002-11 (Regulation 11), Section 11.39, a Backflow Prevention Assembly is required to be installed in accordance with the Company's Backflow Prevention Policy.

Backflow Prevention Assemblies protect the public water supply against potential backflow and the possibility of contamination to the public water supply. All commercial, industrial, agricultural, and multi-family residential service accounts must have approved Backflow Prevention Assemblies properly installed and tested by a certified backflow tester, which is tracked and enforced by the Company's Backflow Prevention Department. Per state regulation, the Company also reserves the right to require approved backflow protection for single-family residential service accounts whenever a known hazardous cross connection exists.

The domestic containment Backflow Prevention Assembly shall be a Reduced Pressure Principle Assembly (RP), which must be lead-free and approved by the University of Southern California Foundation for Cross Connection Control and Hydraulic Research (USC) (approved model lists available upon request) unless otherwise approved by the Company's Backflow Prevention Department. The domestic containment Backflow Prevention Assembly shall be installed before all branches or tees in the water service's plumbing system. Irrigation systems also require a USC approved lead-free RP assembly if the system is connected to the potable water supply upstream from a domestic containment RP. Irrigation systems that are

connected to a potable water supply downstream from an approved domestic containment RP are not *required* to have approved backflow protection by the Company, though it is still highly advised since isolation backflow prevention will ensure the occupants of the property will also continue to have access to safe drinking water.

Existing and properly installed USC approved Backflow Prevention Assemblies may receive temporary variances until the existing assembly needs extensive repair or replacement, at which time the Company would require the new backflow protection to be in accordance with the current Backflow Prevention Policy and specifications. The Company's Backflow Prevention Department reserves the right to approve or deny, in its sole discretion, any and all variance requests for the type of Backflow Prevention Assembly required.

Existing Pressure Vacuum Breakers (PVBs) must be installed no less than 12inches from the critical level (C/L) or bottom of the assembly to the highest outlet (i.e. highest elevated sprinkler head). RPs must be installed no less than 12inches from the surrounding ground/floor to the C/L or bottom of the assembly. RP assemblies must also have adequate drainage and maintain a proper air gap between the relief valve outlet at the bottom of the assembly and the flood level rim of any drainage.

After the flushing of the service line and installation of the required backflow preventer(s), the backflow preventer(s) must have the initial assembly testing completed by a Certified ABPA (American Backflow Prevention Association) or ASSE (American Society of Sanitary Engineering) Backflow Tester with an authorized CMWC representative present. The CDPHE and Company Policy requires the owner to have the backflow preventer(s) tested upon installation, after any repair/maintenance, and at least once a year by a Certified Backflow Tester. All required backflow testing results must be properly submitted by the testing company through the Company's online portal (cmwc.tokaytest.com) within 5 days. The Company's Backflow Prevention Department will not accept any backflow testing results that have not been properly submitted through the online portal. Lists of approved Backflow Prevention Assembly models and backflow tester references are available upon request through the Backflow Prevention Department via phone (303-274-7433) or email (Backflow@cmwc.net). The Consolidated Mutual Water Company is in no way liable for any damages caused by the installation, repair/maintenance, or testing of a Backflow Prevention Assembly.

****Please reference the Company's Backflow Prevention Policy for more details, or contact the Backflow Prevention Department directly with any additional questions or concerns****

CAUTION NOTICE TO OWNER/PLUMBER

IN ACCORDANCE WITH APPLICABLE LAWS AND REGULATIONS, THE WATER SERVICE TO THIS STRUCTURE IS EQUIPPED WITH A CHECK VALVE AND, WHICH CREATES A CLOSED PLUMBING SYSTEM. EXCESS PRESSURE WILL NOT BE ABLE TO ESCAPE PAST THE WATER METER AND/OR A BACKFLOW PREVENTION ASSEMBLY, WHICH COULD CAUSE DAMAGES TO THE PLUMBING SYSTEM. THE OWNER/PLUMBER IS ADVISED TO INSTALL A PRESSURE RELIEF VALVE AND/OR EXPANSION TANK ON THE HOUSE SIDE OF THE SERVICE LINE AND TO CHECK THE OPERATION OF THE HOT WATER HEATER T/P RELIEF VALVE AT LEAST EVERY THREE (3) MONTHS TO ENSURE ITS PROPER OPERATION.

8. **IRRIGATION SYSTEMS:**

IRRIGATION SYSTEM CONNECTIONS SHALL NOT BE CONNECTED WITHIN THE METER PIT

Irrigation connections shall be installed a minimum of 5-feet outside of the meter pit wall on the "house" side of the meter pit. The irrigation system shall have a leadfree USC approved RP backflow preventer installed before any branches or tees if the system is connected to the potable water supply upstream from a domestic containment backflow preventer. Irrigation systems that are connected to the potable water supply downstream from an approved domestic containment RP are not *required* to have approved backflow prevention by the Company, though it is still highly advised since isolation backflow prevention will ensure the occupants of the property will also continue to have access to safe drinking water.

9. **INSPECTIONS:**

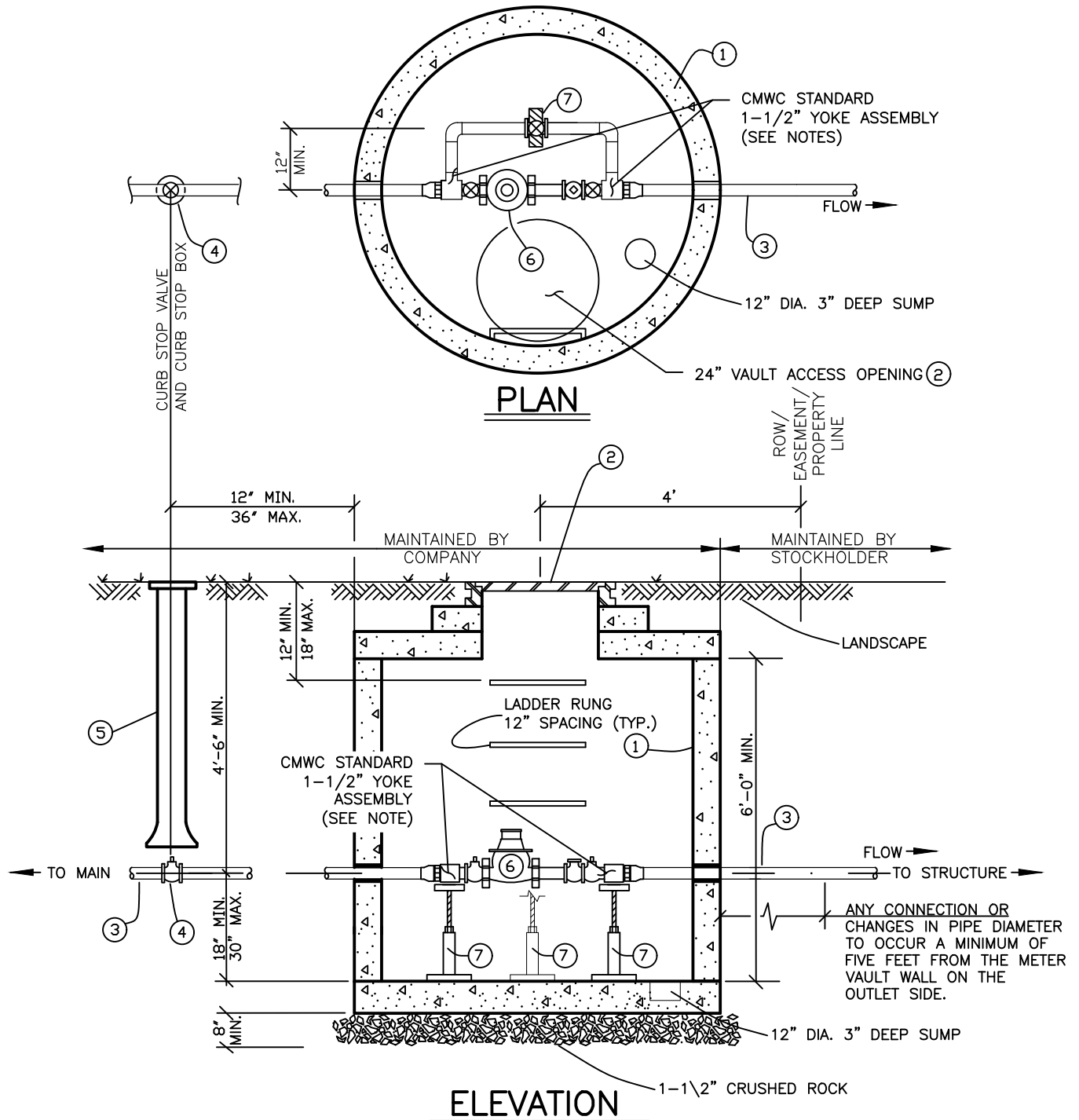
ALL INSPECTIONS SHALL BE ARRANGED 48 HOURS IN ADVANCE. All water service installations from the water main to the structure shall be inspected and approved by an **AUTHORIZED COMPANY REPRESENTATIVE BEFORE BACKFILLING.**

SOIL AMENDMENT: Soil amendment requirements may be obtained at our website (www.cmwc.net).

Safety fence and T-posts must be installed per specs (attached) before the meter will be unlocked.

Water service will not be considered complete for Certificate of Occupancy until the entire installation from the water main to the structure has passed final inspection and soil amendment has been completed, if applicable. Final landscaping must be installed around the meter pit/vault lid to allow verification of grade.

The Company reserves the right to modify these specifications without notice. Any deviation from these specifications must be approved by Consolidated, in writing, prior to installation.



① - 72" MIN. I.D. PRE CAST CONCRETE VAULT (H2O LOADING & CONCRETE PER DENVER WATER MATERIAL SPECIFICATION MS-20)

② - MANHOLE RING & COVER SHALL BE EAST JORDAN ASSEMBLY
 EAST JORDAN PART
 24" STEEL RING No. 00243011
 24" LID No. 00240539

③ - TYPE "K" SOFT COPPER TUBING

④ - 1-1/2" CURB STOP:
 MUELLER PART NO. B-25209N

⑤ - CURB STOP BOX (TYLER 6870 SERIES "ROADWAY BOX"
 TOP #3780-18, BTN 6780-27B, EXTENSION 6870-49,
 LID 6870 4-1/4" F/145R OR CMWC_o APPROVED EQUAL)

⑥ - METER (PROVIDED BY CMWC_o)

⑦ - ADJUSTABLE PIPE STANDS (3 REQ'D)
 (PER DENVER WATER DETAILS, SHEET 24)

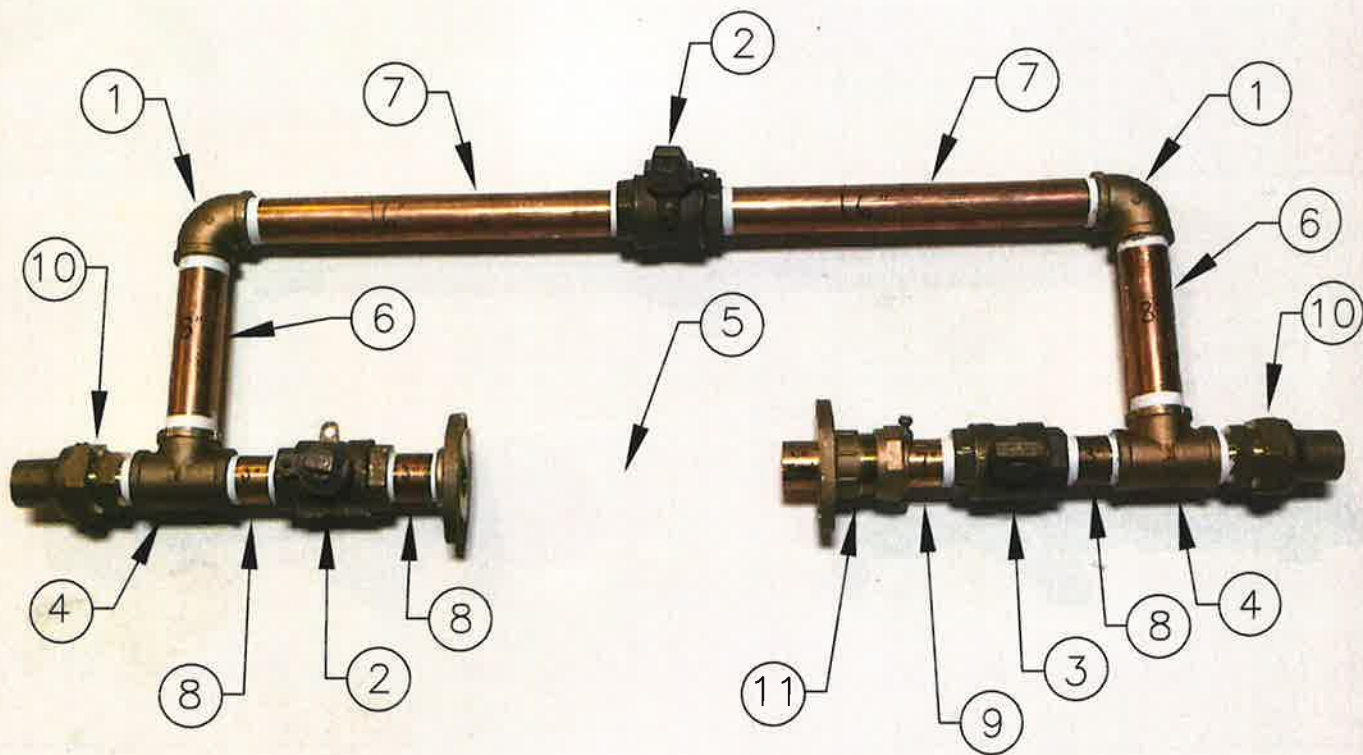
NOTE:

THE YOKE ASSEMBLY SHALL BE PRE-BUILT PER THE "1-1/2" YOKE ASSEMBLY" DETAIL.

EDGE OF VAULT MUST BE MINIMUM 5' FROM ALL BENDS, BUILDINGS, VALVES, AND BACKFLOW PREVENTERS ON STRUCTURE SIDE OF METER

THE CONSOLIDATED MUTUAL WATER COMPANY		
1-1/2" METER DETAIL		
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FLOW 



SECTION A-A

- ① - 90° RED BRASS ELBOW FNTP (CLASS 125, LOW LEAD) (ANY MANUFACTURE)
- ② - BALL VALVE WITH LOCKWING (MUELLER #B20200N)
- ③ - BALL VALVE FNTP (MUELLER #B20283N)
- ④ - THREADED RED BRASS TEE (CLASS 125, LOW LEAD) (ANY MANUFACTURE)
- ⑤ - METER (PROVIDED BY CMWCO)
- ⑥ - (8")-BRASS PIPING (SCHEDULE 40, C230 RED BRASS)
- ⑦ - (16")-BRASS PIPING (SCHEDULE 40, C230 RED BRASS)
- ⑧ - (3")-BRASS PIPING (SCHEDULE 40, C230 RED BRASS)
- ⑨ - (7")-BRASS PIPING (SCHEDULE 40, C230 RED BRASS)
- ⑩ - COPPER X MIP COMPRESSION ADAPTER (MUELLER #H15425N)
- ⑪ - METER FLANGE LOK PAK (FORD #CF35-66NL)

NOTE:
NO "PIPE DOPE", "PLUMBERS PUTTY", OR
SIMILAR PRODUCT ALLOWED.
ALL JOINTS TO BE SEALED WITH TEFLON TAPE
ONLY.

THE CONSOLIDATED MUTUAL WATER COMPANY

1-1/2" YOKE ASSEMBLY

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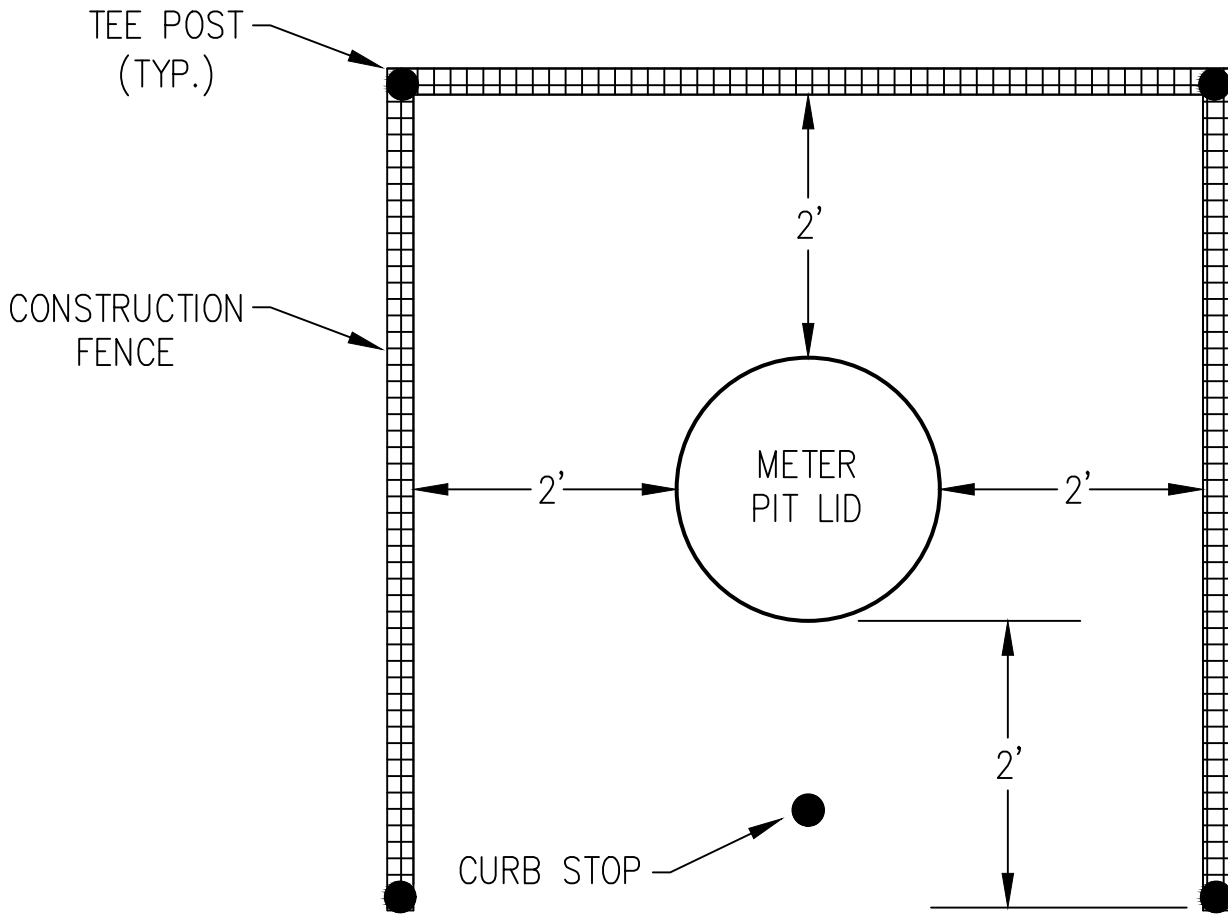
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HOUSE
SIDE



NOTES:

THE CONTRACTOR SHALL MAINTAIN PROTECTION AROUND THE NEWLY INSTALLED METER PIT.
EXAMPLE: 4-TEE POSTS W/ORANGE CONSTRUCTION FENCING.

STREET SIDE MUST BE LEFT OPEN TO PROVIDE 24 HOUR ACCESS TO CMWCO.

NO DUMPSTERS, CONSTRUCTION MATERIAL,
VEHICLES OR EQUIPMENT WITHIN 5 FEET.

STREET
SIDE

T-POSTS AND SAFETY FENCE MUST
BE INSTALLED PER SPECS BEFORE
THE METER WILL BE UNLOCKED.

THE CONSOLIDATED MUTUAL WATER COMPANY

METER PIT INSTALLATION SPEC

DRAWN BY: SH

DATE: 10-12-10

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REVISED: 7-2012

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