

SECTION 02518 WATER SERVICE ASSEMBLIES

PART 1. GENERAL

The work to be performed herein shall consist of the installation of service assemblies, which include a corporation cock, service pipe, copper horn, meter, meter box, valve, and tapping saddle as required and according to the Standard Drawings herein. Contractor shall provide all materials except for the meter, which will be supplied by the OWNER.

PART 2. PRODUCTS

- 2.1 All products and materials proposed for use in the execution of the work shall require approval by OWNER before being incorporated into the work. All products and materials shall meet or exceed the specified characteristics provided herein. Approved products may be reviewed at www.kub.org/standards, Section 02080, Materials Specifications or at KUB/Procurement 4505 Middlebrook Pike.
- 2.2 Do not substitute materials, equipment, or methods unless such substitution has been specifically approved for this work by OWNER. Where the phrase "or equal" or "or approved equal" occurs in the plans or specifications, do not assume that materials, equipment, or methods will be approved as equal unless the item has been specifically approved for this work by OWNER. The decision of OWNER shall be final.
- 2.3 **CORPORATION COCK:** The corporation cock shall be made of solid bronze suitable for a compression flange on the service pipe and for tapping into the water main and shall be furnished with AWWA tapered thread inlets and compression connections for Type-K copper service pipe outlets or female pipe thread for HDPE service pipe outlet.
- 2.4 **SERVICE PIPE:** Service pipe larger than 2 inch in diameter shall be ductile iron as specified in the Materials Specifications or shall be HDPE 3408 with blue stripes or blueshell manufactured in accordance with AWWA C906 and NSF 61. Service pipe 2 inch in diameter and smaller shall be Type-K copper meeting ASTM B88 or shall be HDPE 3408 with blue stripes or blueshell manufactured in accordance with AWWA C901 and NSF 61. Pipes larger than 2 inch shall be Ductile Iron Pipe Size (DIPS) in compliance with AWWA C906 and ASTM F 714. Pipes 2 inch and less shall be Iron Pipe Size (IPS) in compliance with AWWA C901 and ASTM D3035. HDPE pipe 2 inch and larger shall be SDR 11 and pipe smaller than 2 inches shall be SDR 9.
- 2.5 **COPPER HORNS:** Copper Horns shall be equipped with one male swivel and one female swivel and shall conform to the Material Specifications and Standard Drawings.
- 2.6 **WATER METERS:** All 5/8-inch through 2-inch meters shall be magnetic drive, sealed register, disc, or piston type meters meeting or exceeding the latest revision of AWWA C700. All meters shall conform to the Materials Specifications and Standard Drawings.

- 2.7 **METER BOXES:** Meter boxes for 5/8-inch meter sets shall be polyethylene outside of roadways and cast iron in roadways or paved areas. Meter boxes for 2-inch meter assemblies shall be polymer concrete meter well with lid, and meter boxes for larger than 2-inch meter assemblies shall be block. All meter boxes shall conform to the Standard Drawings and the Materials Specifications.
- 2.8 **TAPPING SADDLES:** Tapping saddles shall be used for tapping all PVC pipe, asbestos pipe, ductile or cast iron pipe for taps larger than 1-inch, and on all air valves regardless of tap size. Tapping saddles shall be threaded to accept the corporation cock specified above. Two wraps of 3 mil Teflon tape shall be utilized. No taps larger than 1-inch shall be made in any size pipe without Owner approval. 3/4" taps on new Water lines, not under pressure, may be direct tapped and a corporation threaded into the line.
- 2.9 **BALL VALVE:** 5/8" straight ball service valve shall be designed to operate as inlet valve in a meter installation and be furnished with a 3/4" compression type inlet designed for copper tubing and 3/4" I.P. female outlet. A new ball valve must be installed on all water main installations or replacements and/or service reconnections.
- 2.10 **GATE VALVE:** Gate Valve shall be used on sizes larger than 3/4".

PART 3. EXECUTION

- 3.1 **General**
- A. Service assemblies shall be as shown on the Standard Drawings herein.
 - B. Taps shall not be made on dry lines without approval from the Owner.
 - C. The service line shall have a minimum of 24 inches of cover.
 - D. After the line is installed and yoke set, flush the service line through the yoke, and record chlorine residual prior to meter installation. If the chlorine residual is below 0.2 ppm or above 2.5 ppm, the OWNER shall be contacted before placing the meter in service.
 - E. In general, install the meter box as near to the property line as possible in the street right-of-way. Set the meter box approximately 1 inch above the existing or proposed grade and so that surface drainage will not enter in the meter well. Fill from the existing or proposed grade to the top of the meter box at a slope of 1 inch in 12 inches. When the cut or fill slopes on streets extend beyond the street right-of-way, install the meter box at the top or toe of slope, as applicable, or as directed by the Owner.
 - F. The service line shall not be under tension from corporation stop to meter cock.
 - G. Set the yoke parallel to the proposed grade.

- H. Backflow preventers shall be required in accordance with the backflow prevention specifications in Section 02519, Backflow/Cross Connection.
- I. 1" HDPE service may be used in place of 3/4" or 1" copper service.
- J. 2" HDPE service may be used in place of 1 1/2" or 2" copper service.
- K. Blue coated # 12 copper clad tracer wire shall be installed with all services. Tracer wire shall be installed 6 inches above the service line; the tracer wire shall be placed in the meter well and extend a minimum of 3 feet above the street or ground level or as approved by the OWNER.
- L. The RPR / Owner will inspect all service taps and service lines before back filling can begin, unless prior authorization is given by the RPR / Owner.
- M. The Contractor shall furnish temporary services as required and approved by the Owner to provide continuous service to customers where relaying operations are being conducted
- N. All services shall be relayed from the main to the meter, or as directed by the Owner
- O. All services to be abandoned on an active main shall be discontinued at the main, as approved by the Owner. The disposal of the meter box and service assembly shall be at the discretion of the Owner.
- P. All services encountered during construction that are not constructed of ductile iron, HDPE or copper shall be replaced. No splices shall be allowed between the main and the meter without the approval of the Owner.
- Q. Meter boxes and meter horns not meeting current standards shall be replaced at the discretion of the OWNER.

3.2 3/4" Copper and 1" HDPE Service lines with 5/8" Meters

3.2.1 Standard Installation Notes – 3/4" Copper and 1" HDPE Service lines with 5/8" Meters

- A. All fittings must be threaded. No soldered connections allowed. All HDPE to HDPE connections shall be butt fusion or electrofusion. No socket fusion connections will be allowed for service lines.
- B. No fittings or connections are allowed within 18" of the customer side of meter box. Materials inside meter well must be copper pipe and brass fittings.
- C. Tapping saddle must be used with corporation stop.
- D. Copper connections must be compression type.
- E. Corporation stop must be installed at 45 degrees from vertical.
- F. Non-metallic mains must have tapping saddle with corporation stop.
- G. Meter lid must be set to grade.
- H. Polyethylene meter well must be used in grass areas. D&R type (cast iron) meter well must be used in paved areas, potential traffic areas, or when required by Owner.
- I. HDPE Service saddle should be rotated approximately 30 to 45 degrees from vertical so that the service line crosses over the top of the main.
- J. Contractor will be required to connect to customer's existing service line in accordance with plumbing codes.
- K. The critical stress area for HDPE service lines is the first several feet beyond the service tee. This portion of pipe shall be protected using a support sleeve (even if pipe is looped). This support sleeve should be included with service tee for HDPE mains.
- L. If the support sleeve is not included, a piece of plastic pipe 12 to 18 inches long with a wall thickness equivalent to an SDR 17 may be used. For 3/4" and one inch services on HDPE mains, the sleeve should be no larger than 2". For 3/4" and one inch services on cast iron, asbestos cement, PVC, or ductile iron mains, the sleeve should be 4". The sleeve shall completely cover the area where the service pipe inserts into the service tee.
- M. IF APPROVED BY OWNER'S RESIDENT PROJECT REPRESENTATIVE, individual service lines may be looped in the trench when installation of a support sleeve is impractical. Approval shall be for each site prior to installation of looped connection. If a service connection is made by looping, then details of the connection shall be noted on the service card drawing.

3.2.2 Standard Details - Services with 5/8" meter

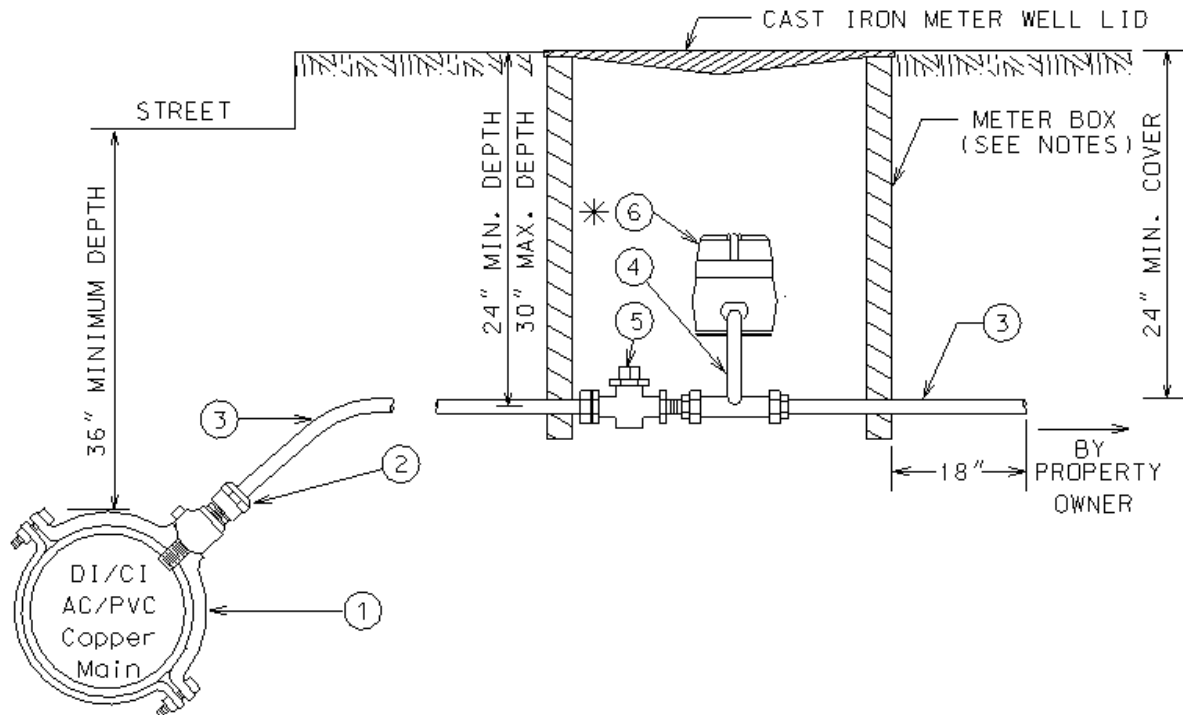


Figure 1-02518-a : 3/4" Copper Service - 5/8" Meter – Existing Main

Notes:

- I. Compact trench from main to meter including tie-ins.
- II. In general, install the meter box as near to the property line as possible in the street right-of-way. Set the meter box approximately 1 inch above the existing or proposed grade and so that surface drainage will not enter meter well. Fill from the existing or proposed grade to the top of the meter box at a slope of 1 inch in 12 inches. When the cut or fill slopes on streets extend beyond the street right-of-way, install the meter box at the top or toe of slope, as applicable, or as directed by the Owner.
- III. Polyethylene meter well must be used in grass areas. D&R type (cast iron) meter well must be used in paved areas, potential traffic areas, or when required by Owner.
- IV. Meter boxes and meter horns not meeting current standards shall be replaced at the discretion of the OWNER.
- V. Tracer wire shall be installed 6 inches above the service line; the tracer wire shall placed in the meter well and extend a minimum of 3 feet above the street or ground level or as approved by the OWNER.

Materials List for 3/4" Copper Water Service on Copper Meter Yoke with 5/8" Meter

<u>Item</u>	<u>Quantity</u>	<u>KUB Item #</u>	<u>Description</u>
1	--	299644	3/4" Service Saddle – 12" DI / CI / AC Main
	--	-----	3/4" Service Saddle – 12" PVC Main
	1	291864	3/4" Service Saddle – 8" DI / CI / AC Main
	--	299420	3/4" Service Saddle – 8" PVC Main
	--	207241	3/4" Service Saddle – 6" DI / CI / AC Main
	--	219840	3/4" Service Saddle – 6" PVC Main
	--	205294	3/4" Service Saddle – 2" PVC Main
	--	205518	3/4" Service Saddle – 2" Copper Main
2	1	-----	3/4" Corporation Stop
3		294751	3/4" Copper Pipe
4	1	204362	Copper Yoke
5	1	210732	5/8" Ball Valve
*6	1	-----	5/8" Water Meter
7	1-Lot	383448	#12 Solid Cu. Insulated Tracer Wire (not shown)

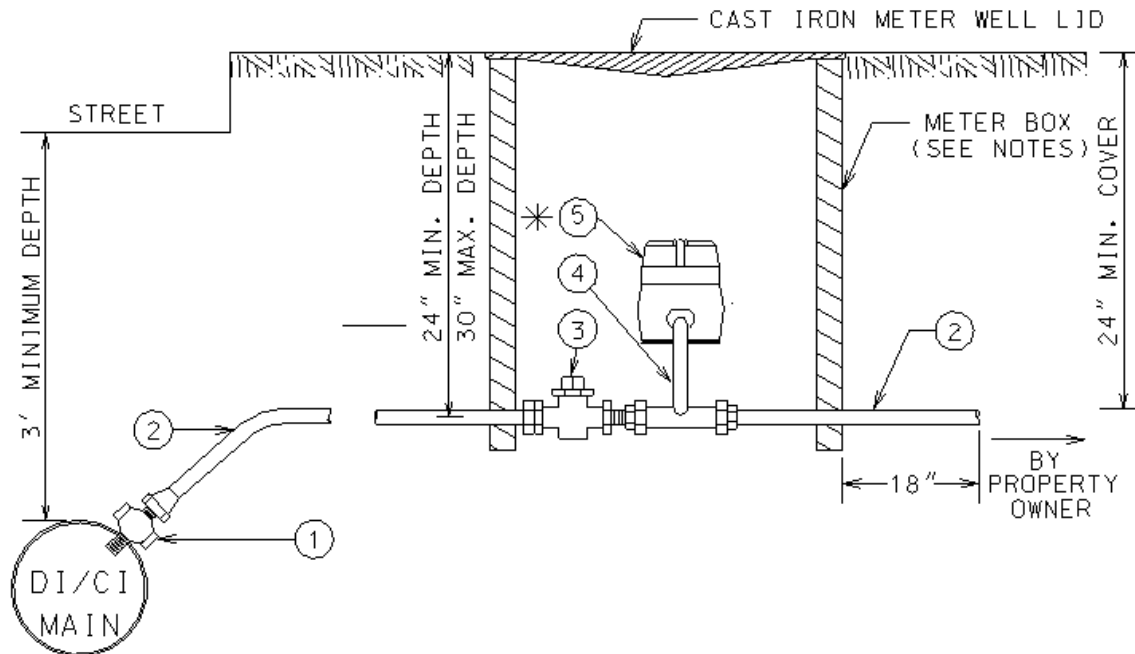


Figure 2-02518-b Typical 3/4" Copper Service - 5/8" Meter – New or Out of Service Main

Notes:

- I. Compact trench from main to meter including tie-ins.
- II. In general, install the meter box as near to the property line as possible in the street right-of-way. Set the meter box approximately 1 inch above the existing or proposed grade and so that surface drainage will not enter meter well. Fill from the existing or proposed grade to the top of the meter box at a slope of 1 inch in 12 inches. When the cut or fill

- slopes on streets extend beyond the street right-of-way, install the meter box at the top or toe of slope, as applicable, or as directed by the Owner.
- III. Polyethylene meter well must be used in grass areas. D&R type (cast iron) meter well must be used in paved areas, potential traffic areas, or when required by Owner.
 - IV. Meter boxes and meter horns not meeting current standards shall be replaced at the discretion of the OWNER.
 - V. Tracer wire shall be installed 6 inches above the service line; the tracer wire shall placed in the meter well and extend a minimum of 3 feet above the street or ground level or as approved by the OWNER.

Materials List for 3/4" Copper Water Service on Copper Meter Yoke with 5/8" Meter

<u>Item</u>	<u>Quantity</u>	<u>KUB Item #</u>	<u>Description</u>
1	1	202762	3/4" Corporation Stop
2	--	294751	3/4" Copper Pipe
3	1	210732	5/8" Ball Valve
4	1	204362	Copper Yoke
*5	1	-----	5/8" Water Meter
6	1-Lot	383448	#12 Solid Cu. Insulated Tracer Wire (not shown)

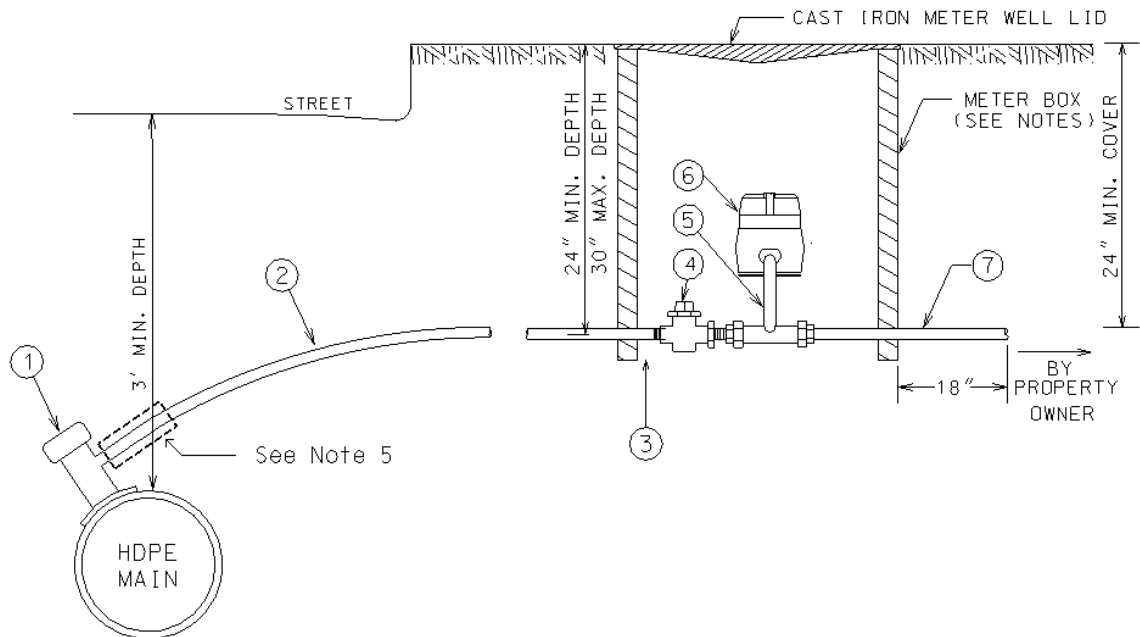


Figure 3-02518-c : 1" HDPE Water Service on HDPE Mains with 5/8" Meter

Notes:

- I. Compact trench from main to meter including tie-ins.
- II. In general, install the meter box as near to the property line as possible in the street right-of-way. Set the meter box approximately 1 inch above the existing or proposed grade

- and so that surface drainage will not enter meter well. Fill from the existing or proposed grade to the top of the meter box at a slope of 1 inch in 12 inches. When the cut or fill slopes on streets extend beyond the street right-of-way, install the meter box at the top or toe of slope, as applicable, or as directed by the Owner.
- III. Polyethylene meter well must be used in grass areas. D&R type (cast iron) meter well must be used in paved areas, potential traffic areas, or when required by Owner.
 - IV. Meter boxes and meter horns not meeting current standards shall be replaced at the discretion of the OWNER.
 - V. Service line shall be encased with a protective sleeve (next larger size HDPE pipe 12 to 18 inches in length) provided with the saddle at the connection of the service line to the service saddle.
 - VI. Tracer wire shall be installed 6 inches above the service line; the tracer wire shall be placed in the meter well and extend a minimum of 3 feet above the street or ground level or as approved by the OWNER.

Materials List for 1" HDPE Water Service on HDPE Mains with 5/8" Meter

Item	Quantity	KUB Item #	Description
1	--	-----	12" DIPS x 1" IPS HDPE
	1	200218	8" DIPS x 1" IPS HDPE Service Saddle
	--	200219	2" IPS x 1" IPS HDPE Service Saddle
2	--	200213	1" IPS Bluestriped HDPE
3	1	800744	1" HDPE Transition
4	1	200355	3/4" Ball Valve (3/4" FPT x 1" FPT)
5	1	204362	3/4" Copper Yoke
*6	1	-----	5/8" Water Meter
7	--	294751	3/4" Copper Pipe
8	1-Lot	383448	#12 Solid Cu. Insulated Tracer Wire (not shown)

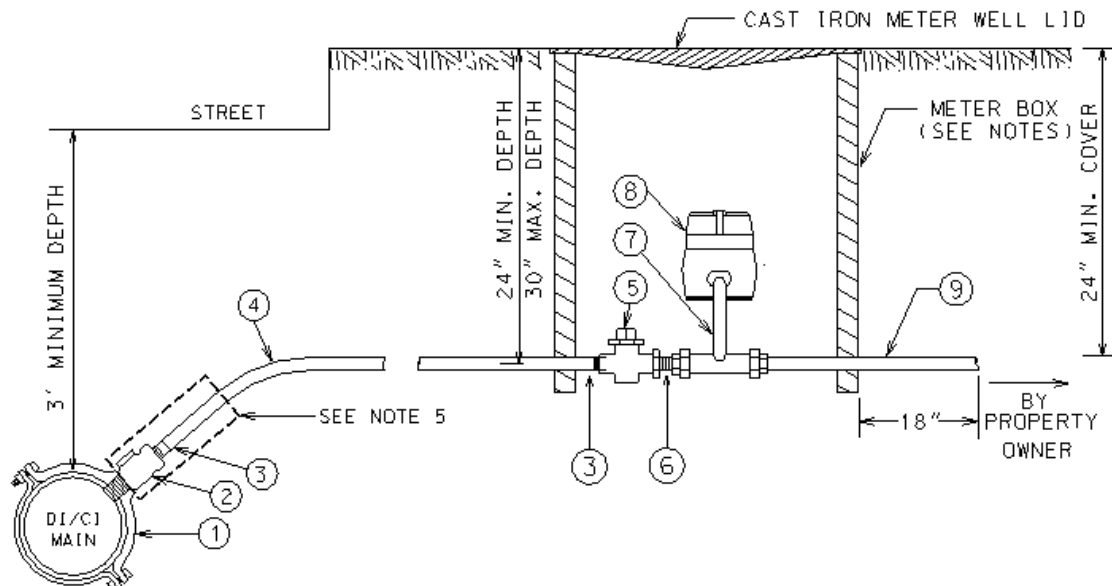


Figure 4-02518-d : 1" HDPE Water Service on 12", 8" or 6" DI/CI/AC/ PVC or 2" PVC/Copper Main with 5/8" Meter

- I. Compact trench from main to meter including tie-ins.
- II. In general, install the meter box as near to the property line as possible in the street right-of-way. Set the meter box approximately 1 inch above the existing or proposed grade and so that surface drainage will not enter meter well. Fill from the existing or proposed grade to the top of the meter box at a slope of 1 inch in 12 inches. When the cut or fill slopes on streets extend beyond the street right-of-way, install the meter box at the top or toe of slope, as applicable, or as directed by the Owner.
- III. Polyethylene meter well must be used in grass areas. D&R type (cast iron) meter well must be used in paved areas, potential traffic areas, or when required by Owner.
- IV. Meter boxes and meter horns not meeting current standards shall be replaced at the discretion of the OWNER.
- V. Service line shall be encased with a protective sleeve (next larger size HDPE pipe 12 to 18 inches in length) provided with the saddle at the connection of the service line to the service saddle.
- VI. Tracer wire shall be installed 6 inches above the service line; the tracer wire shall be placed in the meter well and extend a minimum of 3 feet above the street or ground level or as approved by the OWNER.



Materials List for 1" HDPE Water Service on 8" DI/CI Main with 5/8" Meter

Item	Quantity	KUB Item #	Description
1	--	205344	1" Service Saddle – 12" DI / CI / AC Main
	--	-----	1" Service Saddle – 12" PVC Main
	1	200218	1" Service Saddle – 8" DI / CI / AC Main
	--	206961	1" Service Saddle – 8" PVC Main
	--	207266	1" Service Saddle – 6" DI / CI / AC Main
	--	-----	1" Service Saddle – 6" PVC Main
	--	205252	1" Service Saddle – 2" PVC Main
	--	-----	1" Service Saddle – 2" Copper Main
2	1	200354	1" Corp Stop
3	2	800744	1" HDPE Transition
4	--	200213	1" IPS Bluestriped HDPE
5	1	N/A	¾" Ball Valve
6	1	203356	¾"x2" Brass Nipple
7	1	204362	Copper Yoke
* 8	1	-----	5/8" Water Meter
9	--	294751	¾" Copper Pipe
10	1-Lot	383448	#12 Solid Cu. Insulated Tracer Wire (not shown)

3.3 1" Copper & HDPE Service Lines with 1" meter

3.3.1 Standard Installation Notes – 1" Copper & HDPE Service Lines with 1" meter

- A. Items marked by an * on standard drawings and in material lists shall be furnished by OWNER when installed by others.
- B. All fittings shall be threaded. No soldered connections allowed. All HDPE to HDPE connections shall be butt fusion or electrofusion.
- C. No fittings or connections are allowed within 18" of either side of meter box.
- D. Materials inside meter box must be copper pipe and brass fittings.
- E. Tapping saddle must be used with corporation stop.
- F. Copper connections must be compression type.
- G. Corporation stop must be installed at 45°.
- H. Non-metallic mains must have tapping saddle with corporation stop.
- I. Meter lid must be set to grade.
- J. Polyethylene meter well must be used in grass areas. Brick must be used in paved areas, potential traffic areas, or when required by Owner.
- K. HDPE service saddle should be rotated approximately 30 to 45 degrees from vertical so that the service line crosses over the top of the main.
- L. Service pipe may be HDPE, PVC or copper on customer side of meter.
- M. HDPE or copper pipe required under streets, sidewalks, or any concrete or paved areas.
- N. Meter well pit shall be gravel (57 clean stone).

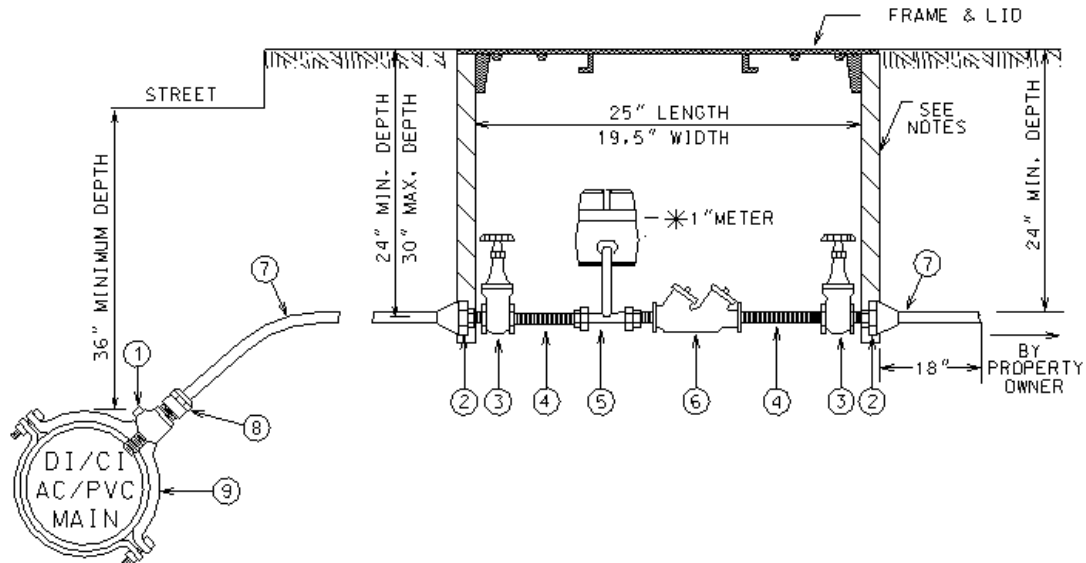


Figure 5-02518-e : 1" Copper Water Service with 1" Meter

Notes:

- I. Compact trench from main to meter including tie-ins.
- II. In general, install the meter box as near to the property line as possible in the street right-of-way. Set the meter box approximately 1 inch above the existing or proposed grade and so that surface drainage will not enter meter well. Fill from the existing or proposed grade to the top of the meter box at a slope of 1 inch in 12 inches. When the cut or fill slopes on streets extend beyond the street right-of-way, install the meter box at the top or toe of slope, as applicable, or as directed by the Owner.
- III. Polyethylene meter well must be used in grass areas. D&R type (cast iron) meter well must be used in paved areas, potential traffic areas, or when required by Owner.
- IV. Meter boxes and meter horns not meeting current standards shall be replaced at the discretion of the OWNER.
- V. Tracer wire shall be installed 6 inches above the service line; the tracer wire shall placed in the meter well and extend a minimum of 3 feet above the street or ground level or as approved by the OWNER.

Materials List for 1" Copper Water Service with 1" Meter

<u>Item</u>	<u>Quantity</u>	<u>KUB Item #</u>	<u>Description</u>
1	1	202770	1" Corporation Stop
2	2	203976	1" Copper to Steel Adapter – Compression x MPT
3	2	207167	1" Brass Gate Valve
4	2	203273	1" x 6" Full Threaded Brass Nipple
5	1	202937	1" Copper Meter Yoke
6	1	220004	1" Dual Check Valve
7		290650	1" Copper Pipe
8	1	203984	1" Copper to Steel Adapter – Compression x FPT

9	--	205344	1" Service Saddle – 12" DI / CI / AC Main
	--	-----	1" Service Saddle – 12" PVC Main
	1	206961	1" Service Saddle – 8" DI / CI / AC Main
	--	-----	1" Service Saddle – 8" PVC Main
	--	207266	1" Service Saddle – 6" DI / CI / AC Main
	--	-----	1" Service Saddle – 6" PVC Main
	--	205252	1" Service Saddle – 2" PVC Main
	--	-----	1" Service Saddle – 2" Copper Main
10	1-Lot	383448	#12 Solid Cu. Insulated Tracer Wire (not shown)

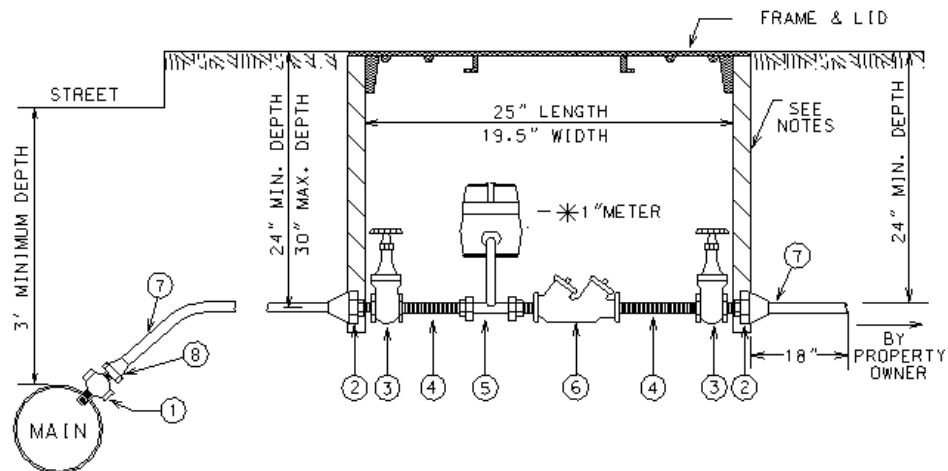


Figure 6-02518-f : 1" Copper Water Service with 1" Meter

Notes:

- I. Compact trench from main to meter including tie-ins.
- II. In general, install the meter box as near to the property line as possible in the street right-of-way. Set the meter box approximately 1 inch above the existing or proposed grade and so that surface drainage will not enter meter well. Fill from the existing or proposed grade to the top of the meter box at a slope of 1 inch in 12 inches. When the cut or fill slopes on streets extend beyond the street right-of-way, install the meter box at the top or toe of slope, as applicable, or as directed by the Owner.
- III. Polyethylene meter well must be used in grass areas. D&R type (cast iron) meter well must be used in paved areas, potential traffic areas, or when required by Owner.
- IV. Meter boxes and meter horns not meeting current standards shall be replaced at the discretion of the OWNER.
- V. Tracer wire shall be installed 6 inches above the service line; the tracer wire shall placed in the meter well and extend a minimum of 3 feet above the street or ground level or as approved by the OWNER.

Materials List for 1" Copper Water Service with 1" Meter

<u>Item</u>	<u>Quantity</u>	<u>KUB Item #</u>	<u>Description</u>
1	1	202770	1" Corporation Stop
2	2	203976	1" Copper to Steel Adapter – Compression x MPT
3	2	207167	1" Brass Gate Valve
4	2	203273	1" x 6" Full Threaded Brass Nipple
5	1	202937	1" Copper Meter Yoke
6	1	220004	1" Dual Check Valve
7	--	290650	1" Copper Pipe
8	1	203984	1" Copper to Steel Adapter – Compression x FPT
9	1-Lot	383448	#12 Solid Cu. Insulated Tracer Wire (not shown)

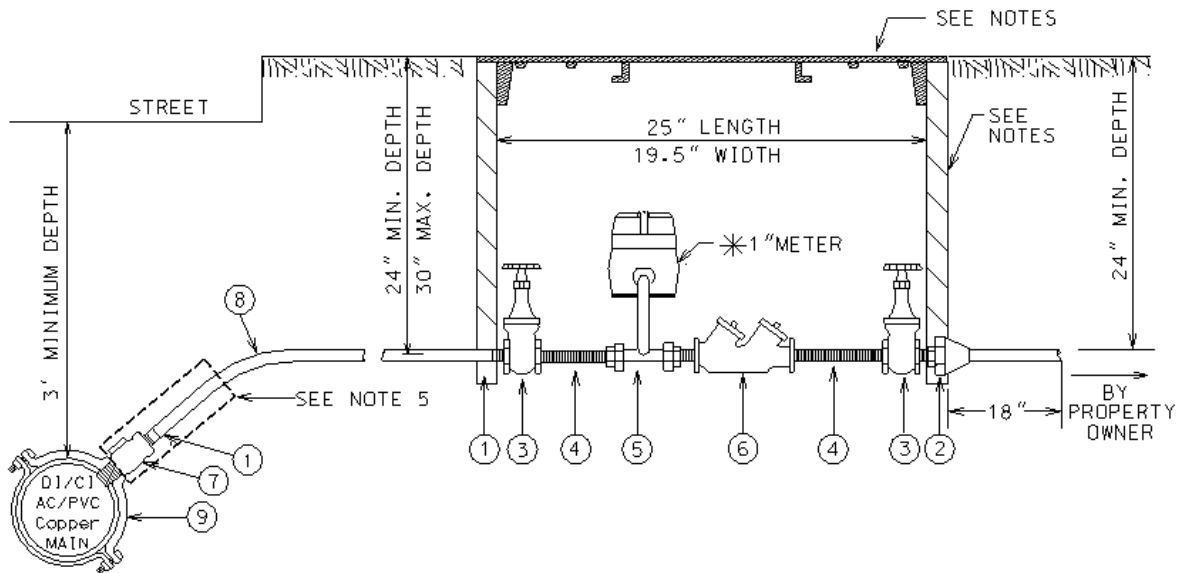


Figure 7-02518-g : 1" HDPE Water Service with 1" Meter

Notes:

- I. Compact trench from main to meter including tie-ins.
- II. In general, install the meter box as near to the property line as possible in the street right-of-way. Set the meter box approximately 1 inch above the existing or proposed grade and so that surface drainage will not enter meter well. Fill from the existing or proposed grade to the top of the meter box at a slope of 1 inch in 12 inches. When the cut or fill slopes on streets extend beyond the street right-of-way, install the meter box at the top or toe of slope, as applicable, or as directed by the Owner.
- III. Polyethylene meter well must be used in grass areas. D&R type (cast iron) meter well must be used in paved areas, potential traffic areas, or when required by Owner.



- IV. Meter boxes and meter horns not meeting current standards shall be replaced at the discretion of the OWNER.
- V. Service line shall be encased with a protective sleeve (next larger size HDPE pipe 12 to 18 inches in length) provided with the saddle at the connection of the service line to the service saddle.
- VI. Tracer wire shall be installed 6 inches above the service line; the tracer wire shall be placed in the meter well and extend a minimum of 3 feet above the street or ground level or as approved by the OWNER.

Materials List for 1" HDPE Water Service with 1" Meter

Item	Quantity	KUB Item #	Description
1	2	800744	1" HDPE Transition
2	2	203976	1" Copper to Steel Adapter – Compression x MPT
3	2	207167	1" Brass Gate Valve
4	2	203273	1" x 6" Full Threaded Brass Nipple
5	1	202937	1" Copper Meter Yoke
6	1	220004	1" Dual Check Valve
7	1	200354	1" Corp Stop
8	1	200213	1" IPS Bluestriped HDPE
9	--	205344	1" Service Saddle – 12" DI / CI / AC Main
	--	--	1" Service Saddle – 12" PVC Main
	1	206961	1" Service Saddle – 8" DI / CI / AC Main
	--	-----	1" Service Saddle – 8" PVC Main
	--	207266	1" Service Saddle – 6" DI / CI / AC Main
	--	207266	1" Service Saddle – 6" PVC Main
	--	205252	1" Service Saddle – 2" PVC Main
	--	-----	1" Service Saddle – 2" Copper Main
10	1-Lot	383448	#12 Solid Cu. Insulated Tracer Wire (not shown)

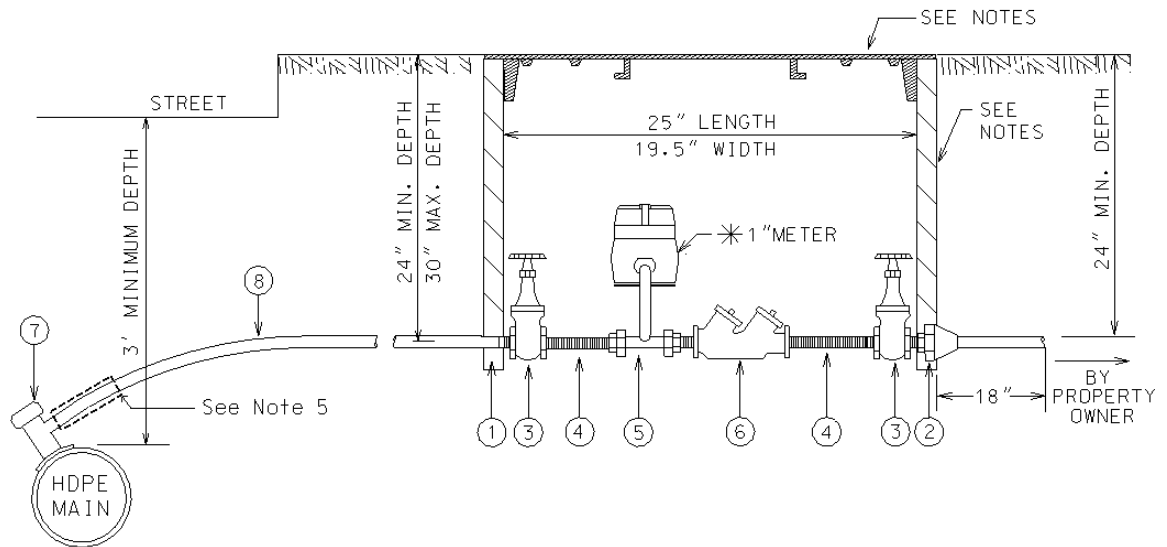


Figure 8-02518-h : 1" HDPE Water Service on HDPE Mains with 1" Meter

Notes:

- I. Compact trench from main to meter including tie-ins.
- II. In general, install the meter box as near to the property line as possible in the street right-of-way. Set the meter box approximately 1 inch above the existing or proposed grade and so that surface drainage will not enter meter well. Fill from the existing or proposed grade to the top of the meter box at a slope of 1 inch in 12 inches. When the cut or fill slopes on streets extend beyond the street right-of-way, install the meter box at the top or toe of slope, as applicable, or as directed by the Owner.
- III. Polyethylene meter well must be used in grass areas. D&R type (cast iron) meter well must be used in paved areas, potential traffic areas, or when required by Owner.
- IV. Meter boxes and meter horns not meeting current standards shall be replaced at the discretion of the OWNER.
- V. Service line shall be encased with a protective sleeve (next larger size HDPE pipe 12 to 18 inches in length) provided with the saddle at the connection of the service line to the service saddle.
- VI. Tracer wire shall be installed 6 inches above the service line; the tracer wire shall be placed in the meter well and extend a minimum of 3 feet above the street or ground level or as approved by the OWNER.

Materials List for 1" HDPE Water Service on HDPE Mains with 1" Meter

<u>Item</u>	<u>Quantity</u>	<u>KUB Item #</u>	<u>Description</u>
1	1	800744	1" HDPE Transition
2	2	203976	1" Copper to Steel Adapter – Compression x MPT
3	2	207167	1" Brass Gate Valve
4	2	203273	1" x 6" Full Threaded Brass Nipple
5	1	202937	1" Copper Meter Yoke
6	1	220004	1" Dual Check Valve

7	--	-----	12" DIPS x 1" IPS HDPE
	1	200218	8" DIPS x 1" IPS HDPE Service Saddle
	--	200219	2" IPS x 1" IPS HDPE Service Saddle
8	--	200213	1" IPS Bluestriped HDPE
9	1-Lot	383448	#12 Solid Cu. Insulated Tracer Wire (not shown)

3.4 2" Copper & HDPE Service Lines with 1½" and 2" meters

3.4.1 Standard Installation Notes – 2" Copper & HDPE Service Lines with 1½" and 2" meters

- A. Items marked by an * on standard drawings and in material lists shall be furnished by OWNER when installed by others.
- B. All fittings shall be threaded. No soldered connections allowed. All HDPE to HDPE connections shall be butt fusion or electrofusion.
- C. No fittings or connections are allowed within 18" of either side of meter box.
- D. Materials inside meter box must be copper pipe and brass fittings.
- E. Tapping saddle must be used with corporation stop.
- F. Copper connections must be compression type.
- G. Corporation stop must be installed at 45°.
- H. Non-metallic mains must have tapping saddle with corporation stop.
- I. Meter lid must be set to grade.
- J. Corrugated meter well must be used in grass areas. Brick must be used in paved areas, potential traffic areas, or when required by Owner.
- K. HDPE service saddle should be rotated approximately 30 to 45 degrees from vertical so that the service line crosses over the top of the main.
- L. Service pipe may be HDPE, PVC or copper on customer side of meter.
- M. HDPE or copper pipe required under streets, sidewalks, or any concrete or paved areas.
- N. Meter well pit shall be gravel (57 clean stone).

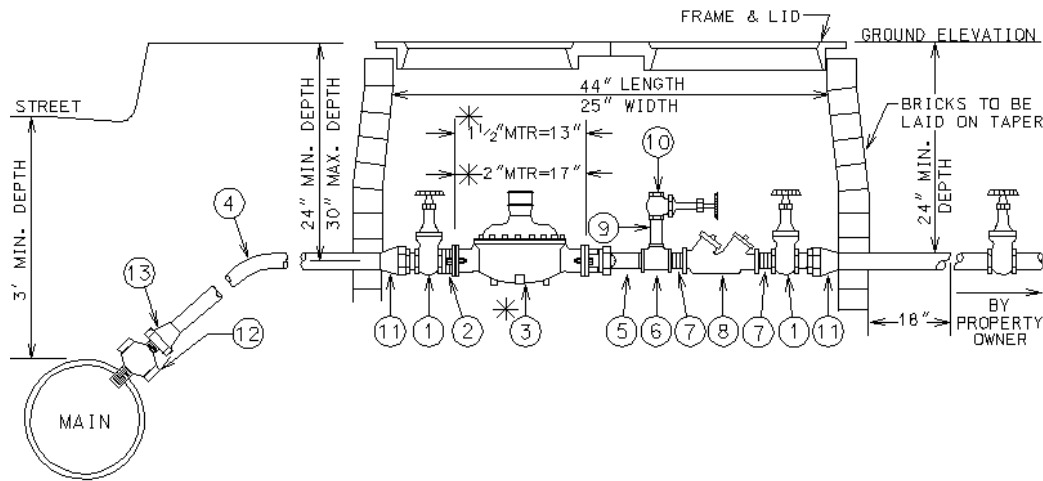


Figure 9-02518-i : Typical Installation of 1 1/2" and 2" Water Services With Lok-Pak Coupling

Notes:

- I. Compact trench from main to meter including tie-ins.
- II. In general, install the meter box as near to the property line as possible in the street right-of-way. Set the meter box approximately 1 inch above the existing or proposed grade and so that surface drainage will not enter meter well. Fill from the existing or proposed grade to the top of the meter box at a slope of 1 inch in 12 inches. When the cut or fill slopes on streets extend beyond the street right-of-way, install the meter box at the top or toe of slope, as applicable, or as directed by the Owner.
- III. Polyethylene meter well must be used in grass areas. D&R type (cast iron) meter well must be used in paved areas, potential traffic areas, or when required by Owner.
- IV. Meter boxes and meter horns not meeting current standards shall be replaced at the discretion of the OWNER.
- V. Tracer wire shall be installed 6 inches above the service line; the tracer wire shall placed in the meter well and extend a minimum of 3 feet above the street or ground level or as approved by the OWNER.

Materials List for 1 1/2" Water Service on Copper Meter Yoke

<u>Item</u>	<u>Quantity</u>	<u>KUB Item #</u>	<u>Description</u>
1	3	207506	1 1/2" Gate Valve
2	1	207084	Loc-Pac Coupling - Meter Flange (male) incl.
*3	1	-----	1 1/2" Meter
4	--	290676	1 1/2" Copper Pipe
5	1	203232	1 1/2" X 6 Nipple
6	1	203661	1 1/2" X 1 1/2 X 3/4 Tee
7	1	203265	1 1/2" X 2 all thread nipple
8	1	220012	Dual Check Valve
9	1	203331	3/4" X 4 Nipple
10	1	207183	3/4" Gate Valve
11	2	203760	Copper Fitting (Male)
12	1	202788	Corporation Stop
13	1	203752	1 1/2" Female Fitting
14	1-Lot	383448	#12 Solid Cu. Insulated Tracer Wire (not shown)

Materials List for 2" Water Service on Copper Meter Yoke

<u>Item</u>	<u>Quantity</u>	<u>KUB Item #</u>	<u>Description</u>
1	3	205625	2" Gate Valve
2	1	207100	Loc-Pac Coupling - Meter Flange (male) incl.
*3	1	-----	2" Meter
4	--	290668	2" Copper Pipe
5	1	203190	2 X 6 Nipple
6	1	203885	2 X 2 X 1 Tee
7	1	203216	2 X 2 all thread nipple
8	1	220020	2" Dual Check Valve
9	1	203281	1 X 4 Nipple
10	1	207167	1" Gate Valve
11	2	203539	Copper Fitting (Male)
12	1	202796	2" Corporation Stop
13	--	203547	2" Female Fitting
14	1-Lot	383448	#12 Solid Cu. Insulated Tracer Wire (not shown)

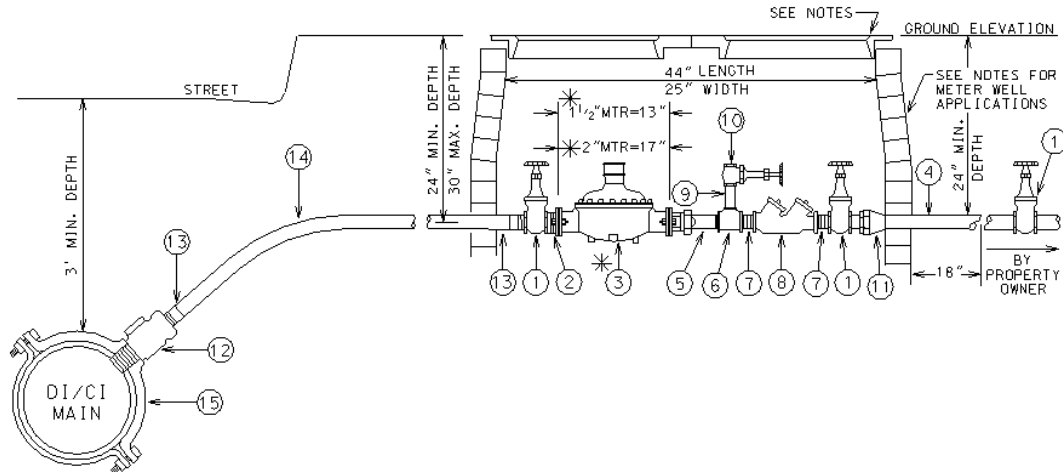


Figure 10-02518-j : 2" HDPE Service with 1 1/2" and 2" Water Meter With Lok-Pak Coupling

Notes:

- I. Compact trench from main to meter including tie-ins.
- II. In general, install the meter box as near to the property line as possible in the street right-of-way. Set the meter box approximately 1 inch above the existing or proposed grade and so that surface drainage will not enter meter well. Fill from the existing or proposed grade to the top of the meter box at a slope of 1 inch in 12 inches. When the cut or fill slopes on streets extend beyond the street right-of-way, install the meter box at the top or toe of slope, as applicable, or as directed by the Owner.
- III. Polyethylene meter well must be used in grass areas. D&R type (cast iron) meter well must be used in paved areas, potential traffic areas, or when required by Owner.



- IV. Meter boxes and meter horns not meeting current standards shall be replaced at the discretion of the OWNER.
- V. Tracer wire shall be installed 6 inches above the service line; the tracer wire shall placed in the meter well and extend a minimum of 3 feet above the street or ground level or as approved by the OWNER.

Materials List for 2" HDPE Service with 1 1/2" Water Meter

<u>Item</u>	<u>Quantity</u>	<u>KUB Item #</u>	<u>Description</u>
1	3	207506	1 1/2" Gate Valve
2	1	207084	Loc-Pac Coupling - Meter Flange (male) incl.
*3	1	-----	Meter
4	--	290676	Copper Pipe
5	1	203232	1 1/2 X 6 Nipple
6	1	203661	1 1/2 X 1 1/2 X 3/4 Tee
7	1	203265	1 1/2 X 2 all thread nipple
8	1	220012	Dual Check Valve
9	1	203331	3/4 X 4 Nipple
10	1	207183	3/4 Gate Valve
11	2	203760	Copper Fitting (Male)
12	1	202788	Corporation Stop
13	2	800731	2" HDPE Transition
14	--	200214	2" IPS Bluestriped HDPE
15	1	294165	2" Service Saddle-24" DI/CI/AC
		205351	2" Service Saddle-12" DI/CI/AC Main
		210922	2" Service Saddle-8" DI/CI/AC Main
		207043	2" Service Saddle-6" DI/CI/AC Main
16	1-Lot	383448	#12 Solid Cu. Insulated Tracer Wire (not shown)

Materials List for 2" HDPE Service with 2" Water Meter

<u>Item</u>	<u>Quantity</u>	<u>KUB Item #</u>	<u>Description</u>
1	3	205625	2" Gate Valve
2	1	207100	Loc-Pac Coupling - Meter Flange (male) incl.
*3	1	-----	Meter
4	--	290668	Copper Pipe
5	1	203190	2 X 6 Nipple
6	1	203885	2 X 2 X 1 Tee
7	1	203216	2 X 2 all thread nipple
8	1	220020	Dual Check Valve
9	1	203281	1 X 4 Nipple
10	1	207167	1 Gate Valve
11	2	203539	Copper Fitting (Male)
12	1	202796	Corporation Stop
13	2	800731	2" HDPE Transition
14	--	200214	2" IPS Bluestriped HDPE

15	1	294165	2" Service Saddle-24" DI/CI/AC
		205351	2" Service Saddle-12" DI/CI/AC Main
		210922	2" Service Saddle-8" DI/CI/AC Main
		207043	2" Service Saddle-6" DI/CI/AC Main
16	1-Lot	383448	#12 Solid Cu. Insulated Tracer Wire (not shown)

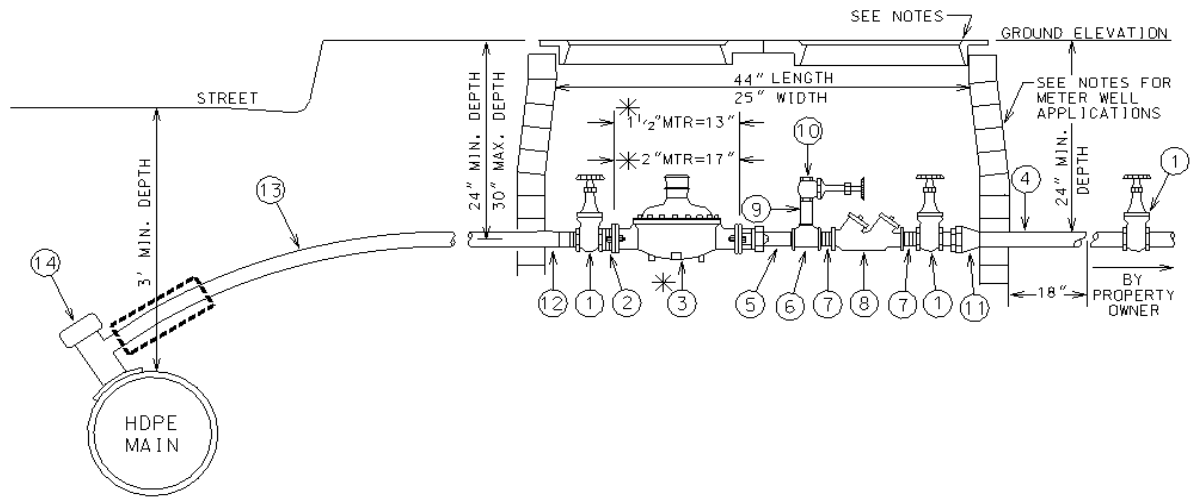


Figure 11-02518-k (2" HDPE Service with 1 1/2" and 2" Water Meter With Lok-Pak Coupling)

Notes:

- I. Compact trench from main to meter including tie-ins.
- II. In general, install the meter box as near to the property line as possible in the street right-of-way. Set the meter box approximately 1 inch above the existing or proposed grade and so that surface drainage will not enter meter well. Fill from the existing or proposed grade to the top of the meter box at a slope of 1 inch in 12 inches. When the cut or fill slopes on streets extend beyond the street right-of-way, install the meter box at the top or toe of slope, as applicable, or as directed by the Owner.
- III. Polyethylene meter well must be used in grass areas. D&R type (cast iron) meter well must be used in paved areas, potential traffic areas, or when required by Owner.
- IV. Meter boxes and meter horns not meeting current standards shall be replaced at the discretion of the OWNER.
- V. Service line shall be encased with a protective sleeve (next larger size HDPE pipe 12 to 18 inches in length) provided with the saddle at the connection of the service line to the service saddle.
- VI. Tracer wire shall be installed 6 inches above the service line; the tracer wire shall placed in the meter well and extend a minimum of 3 feet above the street or ground level or as approved by the OWNER.

Materials List for 2" HDPE Service with 1 1/2" Water Meter

Item	Quantity	KUB Item #	Description
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STANDARDS AND SPECIFICATIONS**

1	3	207506	1 1/2" Gate Valve
2	1	207084	Loc-Pac Coupling - Meter Flange (male) incl.
*3	1	-----	Meter
4	--	290676	Copper Pipe
5	1	203232	1 1/2 X 6 Nipple
6	1	203661	1 1/2 X 1 1/2 X 3/4 Tee
7	1	203265	1 1/2 X 2 all thread nipple
8	1	220012	Dual Check Valve
9	1	203331	3/4 X 4 Nipple
10	1	207183	3/4 Gate Valve
11	2	203760	Copper Fitting (Male)
12	1	800731	2" Transition Fitting
13	--	200214	2" IPS Bluestriped HDPE
14	1	200221	8" DIPSx2" IPS HDPE Service Saddle
		200210	6" DIPSx2" IPS HDPE Service Saddle
15	1-Lot	383448	#12 Solid Cu. Insulated Tracer Wire (not shown)

Materials List for 2" HDPE Service with 2" Water Meter

<u>Item</u>	<u>Quantity</u>	<u>KUB Item #</u>	<u>Description</u>
1	3	205625	2" Gate Valve
2	1	207100	Loc-Pac Coupling - Meter Flange (male) incl.
*3	1	-----	Meter
4	--	290668	Copper Pipe
5	1	203190	2 X 6 Nipple
6	1	203885	2 X 2 X 1 Tee
7	1	203216	2 X 2 all thread nipple
8	1	220020	Dual Check Valve
9	1	203281	1 X 4 Nipple
10	1	207167	1 Gate Valve
11	2	203539	Copper Fitting (Male)
12	1	800731	2" Transition Fitting
13	--	200214	2" IPS Bluestriped HDPE
14	1	200221	8" DIPSx2" IPS HDPE Service Saddle
		200210	6" DIPSx2" IPS HDPE Service Saddle
15	1-Lot	383448	#12 Solid Cu. Insulated Tracer Wire (not shown)

3.5 3", 4", 6" Services

3.5.1 Standard Installation Notes – 2" Copper & HDPE Service Lines with 1½" and 2" meters

- A Items marked by an * on standard drawings and in material lists shall be furnished by OWNER when installed by others.
- B All fittings shall be threaded. No soldered connections allowed. All HDPE to HDPE connections shall be butt fusion or electrofusion.
- C No fittings or connections are allowed within 18" of either side of meter box.
- D Materials inside meter box must be copper pipe and brass fittings.
- E Tapping saddle must be used with corporation stop.
- F Copper connections must be compression type.
- G Corporation stop must be installed at 45°.
- H Non-metallic mains must have tapping saddle with corporation stop.
- I Meter lid must be set to grade.
- J Meter vaults and lids shall be traffic bearing material when used in potential traffic areas as required by the owner (i.e. brick, block, concrete, or steel)
- K HDPE service saddle should be rotated approximately 30 to 45 degrees from vertical so that the service line crosses over the top of the main.
- L Service pipe may be HDPE, copper on customer side of meter.
- M HDPE or copper pipe required under streets, sidewalks, or any concrete or paved areas.
- N Meter well pit shall be gravel (57 clean stone).

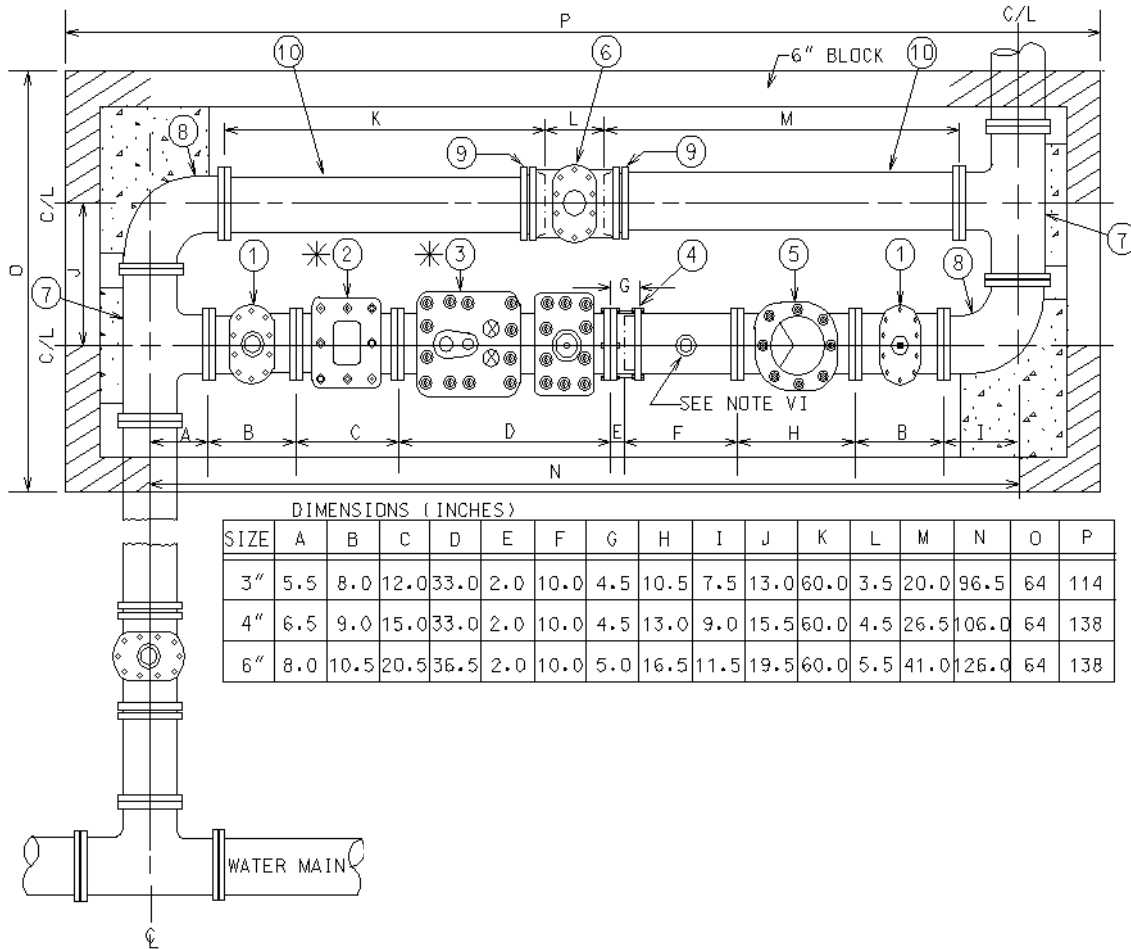


Figure 12-02518-1 : Typical Installation of 3", 4" and 6" Service With Flanged Coupling Adapter

Notes:

- I. Items marked by an * furnished by KUB when installed by others. Also included: Frame and Lid, Precast concrete top slab.
- II. Use all thread rods as directed by KUB inspector.
- III. All other material to be as directed by latest revision of standard specifications.
- IV. All fittings are flanged except where noted.
- V. Cover must be 3' minimum and 4' maximum.
- VI. 2" tap for turbine meter.
- VII. All pipe is ductile iron.
- VIII. Tracer wire shall be installed 6 inches above the service line; the tracer wire shall placed in the meter well and extend a minimum of 3 feet above the street or ground level or as approved by the OWNER.



Typical installation of 3" Service with Flanged Coupling Adapter

<u>Item</u>	<u>Quantity</u>	<u>KUB Item #</u>	<u>Description</u>
1	2	290890	Gate Valve Flanged
*2	1	-----	Strainer
*3	1	-----	Meter
4	1	204206	Coupling/Adapter
5	1	290031	Check Valve
6	1	290478	MJ Gate Valve
7	2	290023	Flange Tee
8	2	290080	Flange 90°
9	4	219691	Uniflange
10	--	295014	Ductile Iron Pipe
11	1-Lot	383448	#12 Solid Cu. Insulated Tracer Wire (not shown)

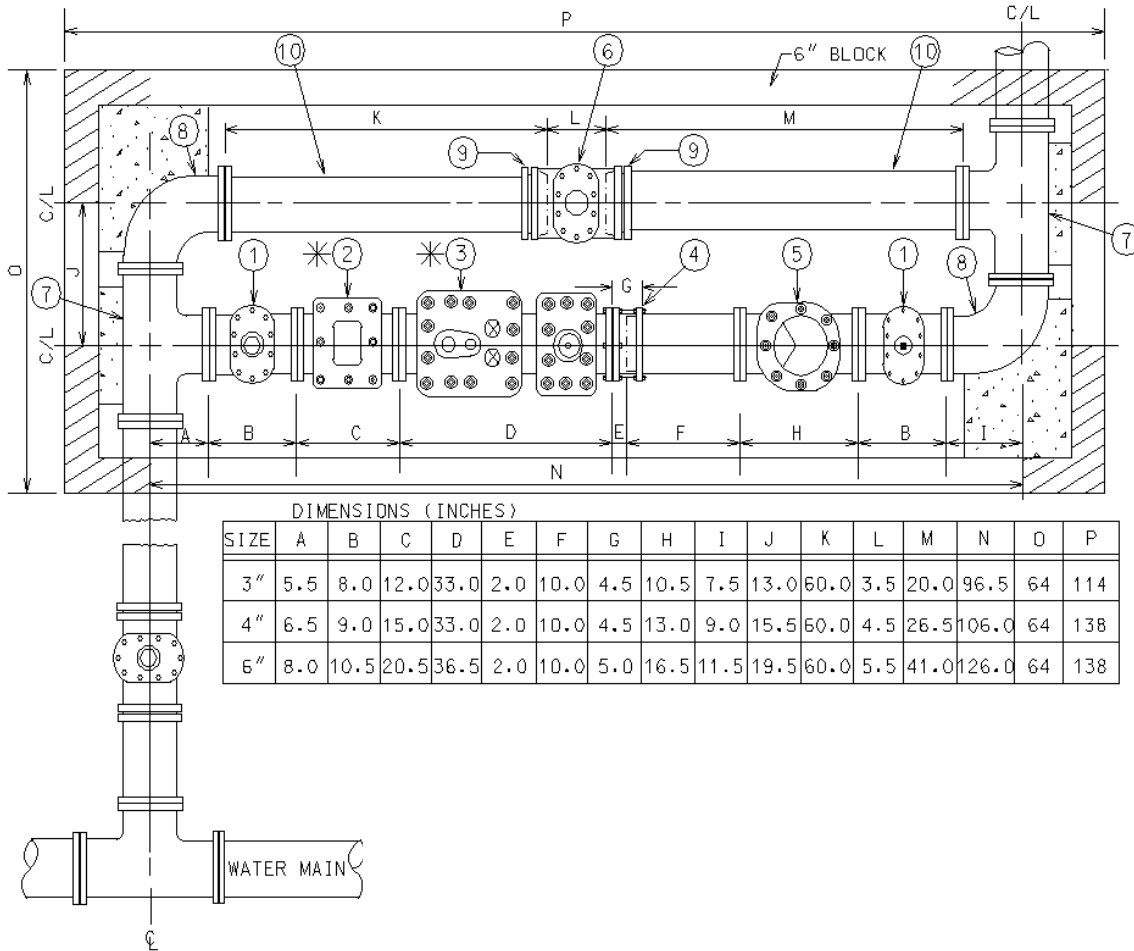
Typical installation of 4" Service with Flanged Coupling Adapter

<u>Item</u>	<u>Quantity</u>	<u>KUB Item #</u>	<u>Description</u>
1	2	290056	Gate Valve Flanged
*2	1	-----	Strainer
*3	1	-----	Meter
4	1	204313	Coupling/Adapter
5	1	290049	Check Valve
6	1	294231	MJ Gate Valve
7	2	290015	Flange Tee
8	2	290098	Flange 90°
9	4	219709	Uniflange
10	--	295006	Ductile Iron Pipe
11	1-Lot	383448	#12 Solid Cu. Insulated Tracer Wire (not shown)

Typical installation of 6" Service with Flanged Coupling Adapter

<u>Item</u>	<u>Quantity</u>	<u>KUB Item #</u>	<u>Description</u>
1	2	290759	Gate Valve Flanged
*2	1		Strainer
*3	1		Meter
4	1	204321	Coupling/Adapter
5	1	293050	Check Valve
6	1	290551	MJ Gate Valve
7	2	290767	Flange Tee
8	2	290510	Flange 90°
9	4	219725	Uniflange
10		290742	Ductile Iron Pipe

11	1-Lot	383448	#12 Solid Cu. Insulated Tracer Wire (not shown)
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DIMENSIONS (INCHES)

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
3"	5.5	8.0	12.0	33.0	2.0	10.0	4.5	10.5	7.5	13.0	60.0	3.5	20.0	96.5	64	114
4"	6.5	9.0	15.0	33.0	2.0	10.0	4.5	13.0	9.0	15.5	60.0	4.5	26.5	106.0	64	138
6"	8.0	10.5	20.5	36.5	2.0	10.0	5.0	16.5	11.5	19.5	60.0	5.5	41.0	126.0	64	138

Figure 13-02518-m : Typical Installation of 3", 4" and 6" Service With Compound Meter

Notes:

- I. Items marked by an * furnished by KUB when installed by others. Also included: Frame and Lid, Precast concrete top slab.
- II. Use all thread rods as directed by KUB inspector.
- III. All other material to be as directed by latest revision of standard specifications.
- IV. All fittings are flanged except where noted.
- V. Cover must be 3' minimum and 4' maximum.
- VI. All pipe is ductile iron.
- VII. Tracer wire shall be installed 6 inches above the service line; the tracer wire shall placed in the meter well and extend a minimum of 3 feet above the street or ground level or as approved by the OWNER.

END OF SECTION

[HOME](#)