W-01.0 FIRE HYDRANT INSTALLATION - NOTES
W-01.1 FIRE HYDRANT INSTALLATION
W-02.0 SIDEWALK MODIFICATION AT FIRE HYDRANT
W-03.0 FIRE HYDRANT GUARD POST
W-04.0 VALVE BOX
W-05.0 SERVICE CONNECTION - NOTES 2" AND SMALLER
W-05.1 SERVICE CONNECTION 2" AND SMALLER
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W-05.5 APPROVED METHODS FOR CONNECTING PRIVATE FIRELINES
W-05.6 PRIVATE WATER MAIN
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W-07.0 SERVICE CONNECTION - NOTES 4" AND LARGER
W-07.1 SERVICE CONNECTION 4" AND LARGER
W-07.2 METER VAULT PIPING DETAIL
W-07.3 METER VAULT DETAIL
W-08.0 AIR/VACUUM VALVE 1-INCH AND 2-INCH
W-09.0 2-INCH BLOW OFF
W-10.0 CONCRETE THRUST COLLAR
W-11.0 CONCRETE THRUST BLOCK
W-12.0 REDUCED PRESSURE PRINCIPLE ASSEMBLY BACKFLOW PREVENTION ASSEMBLY - TYPE 1 - NOTES
W-12.1 REDUCED PRESSURE PRINCIPLE ASSEMBLY BACKFLOW PREVENTION ASSEMBLY - TYPE 1
W-13.0 DOUBLE DETECTOR CHECK ASSEMBLY BACKFLOW PREVENTION ASSEMBLY - TYPE 2 - NOTES
W-13.1 DOUBLE DETECTOR CHECK ASSEMBLY BACKFLOW PREVENTION ASSEMBLY - TYPE 2
W-13.2 DOUBLE DETECTOR CHECK ASSEMBLY - VERTICAL INSTALLATION
W-14.0 MODIFICATION OF SEWER LATERAL OVER WATER MAIN
W-15.0 RECYCLED WATER FILL STATION
W-15.1 ABOVE GROUND RECYCLED WATER FILL STATION
W-16.0 PRESSURE TYPE VACUUM BREAKER
W-17.0 ATMOSPHERIC TYPE VACUUM BREAKER
W-18.0 AIR GAP SEPARATION

GENERAL LEGEND:
- C.I.P. = CAST IRON PIPE
- D.I.P. = DUCTILE IRON PIPE
- C.R. = CURB RETURN
- F.L.G. = FLANGE JOINT
- M.J. = MECHANICAL JOINT
- L.R.G. = LOCKING RETAINER GLAND
- P.E. = PLAIN END

WATER
TABLE OF CONTENTS
FIRE HYDRANT INSTALLATION NOTES:

1. Fire hydrant for residential installation shall be J. Jones No. 3700 with plastic hose cap J-669.
2. Fire hydrant for commercial installation shall be J. Jones No. J-3765 with 6 hole pattern. Use commercial installation at apartments and condominiums, motels, commercial and manufacturing developed or zoned areas.
3. Fire hydrant assembly breakaway spool shall be used to adjust lower fire hydrant stem within required distance from finish grade. Cadmium plated breakaway bolts shall be installed on fire hydrant and extension. Bolts to be installed heads up. Only one gasketed flange shall be allowed below the surface. Bury, control valve, tee and breakaway spool shall be epoxy coated inside and out, Scotchkote 206N or 134.
4. Fire hydrants shall not be epoxy lined. Before installation, Bronze fire hydrant exterior shall be washed thoroughly with XIM cleaner, and painted with one coat of white XIM primer-sealer 400 and two coats of AERO-PLATE #462 gloss bright yellow (safety yellow). Fire hydrants to be purchased factory painted already.
5. Four inch outlets shall be positioned perpendicular to curb line or center line of roadway, facing into the roadway.
6. All buried bolts shall be coated with an approved corrosion control coating and wrapped with a 8 mil. thick polyethylene sheet and taped, as specified in A.W.W.A. C-105/A21.5-99-PRINTED.
7. Concrete thrust blocks shall be constructed in conformance with Standard Detail W-011.0.
8. The installation of fire hydrants in concrete sidewalk area shall be per Standard Detail W-02.0.
9. Fire hydrant valve shall be 6-inch, approved resilient wedge gate valve. The gate valve shall be installed so that the bonnet and operating nut do not encroach into any part of the street structural section.
10. All pipe shall be ductile iron with mechanical joints and Megalug retainer glands or approved equal.
11. Fire hydrant spacing shall be according to Fire Department requirements.
12. All ductile iron pipe, including valves and fittings shall be encased with an 8 mil. thick black polyethylene sheet and taped as specified in A.W.W.A. C-105/A21.5-99-PRINTED.
13. Any deviation from this Standard Detail shall be approved by Water Distribution.
14. Hot tapping saddle installation shall be pre-approved by Water Distribution.
NOTES:

1. Fire hydrant installation shall be in accordance with Std. Details W-01.0 and W-01.1.

2. Concrete sidewalk construction shall conform to Std. Details H-06.0 and H-06.1.

3. Any variance to the sidewalk modification to conform to conditions other than shown requires approval of the Engineer.

*P.R.C. - Point of Reverse Curve

BACK OF SIDEWALK OFFSET AT ONE-FOOT INTERVALS

SIDEWALK MODIFICATION AT FIRE HYDRANT
NOTES:

1. Guard posts shall be installed plumb. Concrete for setting guard posts shall be Class 520-C-2500.

2. Concrete shall be placed against firm undisturbed native soil and shall be thoroughly consolidated.

3. Any variance to the guard post layout to conform to conditions other than shown must be approved by the Engineer.
CONCRETE
PAVEMENT
SOUTHBAY FOUNDRY
VALVE COVER, B5220

A.C. PAVEMENT
AGGREGATE BASE
3" MIN.
OVERLAP

SOUTHBAY FOUNDRY
B5221, TOP, BUFFALO TYPE
CAST IRON ADJUSTABLE
VALVE BOX, CENTERED
OVER VALVE NUT.

SOUTHBAY FOUNDRY
B5222 BOTTOM SECTION
BUTTERFLY VALVE
ONLY IF
INSUFFICIENT
COVERAGE FOR
GATE VALVE

GATE VALVE
MJ PREFERRED

A.C. OVERLAY
FINISH GRADE
A.C. BACKFILL

EXIST. STRUCT. SECTION

SOUTHBAY FOUNDRY
B5223 BOX EXTENSION

AGGREGATE BACKFILL

3" MIN.
HAND TAMP BACKFILL TO
THIS LEVEL BEFORE PLACING
VALVE BOX. (VALVE CAN
SHALL NOT TOUCH VALVE)

CONCRETE
AGGREGATE BASE

3" MIN. OVERLAP

SOUTHBAY FOUNDRY
B5222 BOTTOM SECTION

BUTTERFLY VALVE
ONLY IF
INSUFFICIENT
COVERAGE FOR
GATE VALVE

ADJUSTMENT TO GRADE

TYPICAL NEW INSTALLATION

NOTES:

1. Nut shaft extension, fitted with self-centering device and adaptor by Pratt, or approved equal, shall be provided
when cover over valve nut exceeds 4.0 feet.

2. If existing valve box is not a standard box, a box will be provided by the City and installed by the Contractor.

3. At no time shall the valve box rest directly on the valve body.

VALVE BOX
SERVICE CONNECTION NOTES:

1. For capital projects, Contractor shall furnish all material, except meter. For private development, City will furnish and install all materials including the meter.

2. All fittings per note on W-05.1.

3. Install J-969 saddle with gaskets & Corporation Stop (CC) thread when connecting services to all P.V.C. pipe. Use J-979 when connecting services to D.I.P. pipe.

4. Tap all pipes through saddle or welded coupling or approved equal.

5. Minimum distance between services and pipe fittings/joints shall be 18-inch. Multiple taps shall be spaced 18-inch apart at 10 o'clock or 2 o'clock angle.

6. Service lines shall be installed perpendicular to the main unless approved by Water Distribution.

7. Meter boxes shall not be permitted in driveways. All meter box lids shall be skid resistant.

8. Contractor shall leave an appropriate "meter space" for meter installation by the City (see City Standard Detail W-05.1).

9. All new service installations and all services to be replaced shall be of 1-inch or 2-inch Type "K" copper tubing, using the material specified.

10. Private fire service/private water main distinction:
   
   A. Private Fire Service: A privately owned and maintained connection from the City distribution system that serves only private fire hydrant(s), fire sprinkler system(s), or other fire protection systems, and does not serve any City water service connections.

   B. Private Water Main: A privately owned and maintained connection from the City distribution system that serves one or more City water service connections, and which may also serve private fire hydrants, fire sprinkler systems, or other fire protection systems.
CUSTOMER'S BALL VALVE

METER SPACE

1" METER BUSHING WITH ADAPTER TO FIT 5/8" METER

ANGLE METER STOP (ELONGATED HOLES TO ACCEPT 1-1/2" OR 2" METER)

INSTALL 90° WROUGHT COPPER ELL WITH 2" SERVICE

INSTALL J-1529 BRONZE COUPLING OR WROUGHT COPPER COUPLING WITH 15% SILVER SOLDER WHEN NECESSARY TO SPLICE TUBING

INSTALL 90° WROUGHT COPPER TUBING BALL VALVE (2" ONLY)

BRASS NIPPLE

2" BRASS 45° BEND

45° TAP

WATER MAIN

HORIZONTAL TAP

BALL VALVE (2" ONLY)

SADDLE TAP

NOTE:
ALL FITTINGS (e.g. SADDLE TAPS, CORP STOPS, ANGLE STOPS, CURB STOPS, BALL VALVES, etc.) SHALL BE MANUFACTURED BY MUELLER, JONES, OR FORD. THE FITTINGS SHALL UTILIZE THE FLARED COPPER COMPRESSION STYLE OF CONNECTING TO COPPER PIPE. SEE DTL. W-05.3 OR FITTING APPROVED BY WATER DISTRIBUTION.
NOTES:

1. Maximum of eight (8) 5/8-inch meters per manifold. Maximum of two (2) 1-inch meters per manifold. All meter boxes per City Standard Details W-06.0 and W-06.1.

2. All piping to be type "K" copper tubing.

3. All brass service connection fittings to be flared type.

4. Contractors shall meet with Water Resources Distribution personnel prior to installation of property service line to confirm that proposed connections will be sequenced in a manner approved by Water Resources Division and in conformance with approved addresses assigned to the property by the City.

5. Meter boxes shall be placed a minimum of 3" apart.

6. All meter box lids shall be skid resistant.

(PLAN VIEW) DETAIL
NOTES:

2. Install backflow assembly as close to property line as possible, on private property.
3. Double check detector assembly may be replaced by a reduced pressure principle detector assembly depending on degree of hazard and approval by the City's Cross-Connection Specialist. See Standard Details W-12 and W-13 as applicable.
4. Line is privately owned and maintained from the City valve to the building.
5. Inspection and approval by the City's Cross-Connection Specialist is required.
6. Install J-1529 bronze coupling or wrought copper coupling with 15% silver solder when necessary to splice tubing.
7. All fittings to conform with Standard Details W-05.0 and W-05.1.
NOTES:
1. All pipe in the street right-of-way shall be D.I.P. with mechanical joints and "MEGALUG" retainer glands or approved equal.
2. All ductile iron pipe, including valves and fittings shall be encased with a 8-mil. thick black polyethylene sheet and taped as specified in A.W.W.A. C-105/A21.5-99-PRINTED.
3. All fittings shall be epoxy lined.
4. Fireline beyond the valve to the building is the responsibility of the property owner.
5. Install backflow assembly as close to property line as possible, on private property.
7. Double check valve assembly may be replaced by a reduced pressure principle assembly with meter depending on degree of hazard and approval by the City's Cross-Connection Specialist. See Standard Details W-12 and W-13 as applicable.
8. Inspection and approval of the fireline by a City Public Works Inspector is required.

4-INCH AND LARGER FIRELINE
13 = COMMERCIAL
13D = FIRELINE FOR DOMESTIC DUPLEX - 1/2 FAMILY RESIDENTIAL
13R = HOTEL/MOTEL/3 OR MORE UNITS IN A SINGLE BUILDING
DCDA = DOUBLE CHECK DETECTOR ASSEMBLY

APPROVED METHODS FOR CONNECTING PRIVATE FIRELINES
NOTES

1. Master meter shall be approved by Water Distribution and purchased by customer.
2. 3-inch meters shall have a 4-inch service connection and all 4-inch and larger piping shall be of the same size as the meter.
3. All pipe in the street right-of-way shall be D.I.P. with mechanical joints and "MEGALUG" retainer glands or approved equal.
4. All ductile iron pipe, including valves and fittings shall be encased with a 8-mil. thick black polyethylene sheet and taped as specified in A.W.W.A. C-105/A21.5-99-PRINTED.
5. All fittings shall be epoxy coated inside and out.
6. Service line beyond the City valve at the water main in the street is the responsibility of the property owner. The master meter is owned and maintained by the City.
7. Backflow assembly shall be sized to match the meter size.
8. Install backflow assembly as close to property line as possible, on private property.
9. Inspection and approval by the City's Cross-Connection Specialist is required.
NOTES:
1. THE CONTRACTOR MAY SUBSTITUTE PIPE SECTIONS BETWEEN FITTINGS THAT ARE LESS THAN 2.0 LF WITH A FOSTER ADAPTER BY INFECT, INC. OR APPROVED EQUAL.

2. LOCKING WEDGE–TYPE RETAINER GLANDS SHALL BE SPECIFICALLY MANUFACTURED FOR USE WITH PVC OR DUCTILE IRON PIPE, AS APPLICABLE.

3. TEE AND VALVE FOR FIRE HYDRANT ASSEMBLY SHALL FOLLOW CITY DETAIL W–01.1.

4. ALL DUCTILE IRON PIPE, INCLUDING VALVES AND FITTINGS SHALL BE ENCASED WITH AN 8–MIL. THICK BLACK POLYETHYLENE SHEET AND TAPED AS SPECIFIED IN AWWA c–105/A21.99–PRINTED.

LOCKING WEDGE–TYPE RETAINER GLAND, MEGALUG, BY EBAA, OR APPROVED EQUAL. SEE PROJECT SPECIFICATIONS, TYP.
NOTES:

1. LOCKING WEDGE–TYPE RETAINER GLANDS SHALL BE SPECIFICALLY MANUFACTURED FOR USE WITH PVC OR DUCTILE IRON PIPE, AS APPLICABLE.
2. SADDLE TAPS SHALL BE AT LEAST ONE NOMINAL SIZE SMALLER THAN THE WATER MAIN.
3. ALL DUCTILE IRON PIPE, INCLUDING VALVES AND FITTINGS SHALL BE ENCASED WITH AN 8–MIL THICK BLACK POLYETHYLENE SHEET AND TAPED AS SPECIFIED IN AWWA c–105/A21.99–PRINTED
NOTES:
1. THE CONTRACTOR MAY SUBSTITUTE PIPE SECTIONS BETWEEN FITTINGS THAT ARE LESS THAN 2.0 LF WITH A FOSTER ADAPTER BY INFECT, INC. OR APPROVED EQUAL.
2. LOCKING WEDGE-TYPE RETAINER GLANDS SHALL BE SPECIFICALLY MANUFACTURED FOR USE WITH PVC OR DUCTILE IRON PIPE, AS APPLICABLE.
3. TEE AND VALVE FOR FIRE HYDRANT ASSEMBLY SHALL FOLLOW CITY DETAIL W-01.1.
4. ALL DUCTILE IRON PIPE, INCLUDING VALVES AND FITTINGS SHALL BE ENCASED WITH AN 8-MIL THICK BLACK POLYETHYLENE SHEET AND TAPED AS SPECIFIED IN AWWA C-105/A21.99-PRINTED.

LOCKING WEDGE-TYPE RETAINER GLAND, MEGALUG, BY EBAA, OR APPROVED EQUAL. SEE PROJECT SPECIFICATIONS, TYP.

D.I. PIPE SPOOL (PE X PE), SIZE PER PLAN OR FOSTER ADAPTER

EXISTING WATER MAIN
SOLID SLEEVE COUPLING WITH LOCKING RETAINER GLANDS*

D.I. TEE (MJ X MJ X MJ) PER PLAN

1.5 ± LF D.I. PIPE SPOOL (PE X PE), SIZE PER PLAN

+1.5 LF MIN. DI PIPE SPOOL

CUT EXISTING WATER MAIN MIN. 2.5 LF FROM TEE FOR 12" AND SMALLER MIN. 5 LF FOR 16" AND LARGER

CONC. THRUST BLOCK PER CITY STANDARD DETAIL W-11.0

NON-RISING STEAM GATE WATER VALVE (MJ X MJ) PER PLAN, TYP.

FOSTER ADAPTER

SOLID SLEEVE COUPLING WITH LOCKING RETAINER GLANDS*

WATER MAIN, PER PLAN

LOCKING WEDGE-TYPE RETAINER GLAND, MEGALUG, BY EBAA, OR APPROVED EQUAL. SEE PROJECT SPECIFICATIONS, TYP.

NON-RISING STEM GATE WATER VALVE (MJ X MJ) PER PLAN, TYP.

FOSTER ADAPTER

1.5 ± LF

EXISTING WATER MAIN
NON-RISING STEAM GATE WATER VALVE (MJ X MJ) PER PLAN, TYP.

FOSTER ADAPTER

WITH NEW VALVE PER PLAN

STREETS:
REV. DATE: 5/22
DETAIL: W-05.9

TRANS OPS:
APPROVED:

FACILITIES:
CITY ENGINEER:

WATER RESOURCES:
Hammerste: Dagen
PUBLIC WORKS DIRECTOR:
NOTES:

1. Meter box shall be non skid Polymer Concrete as Manufactured by:
   Armorcast Products Company,
   13230 Saticoy Street,
   North Hollywood, CA 91605,
   (818) 982-3600

2. Bottom of meter box shall rest firmly on a 12 inch thick bed of 1 inch crushed rock extending 6 inches beyond the outside walls of the meter box.

METER BOX

5/8-INCH AND 1-INCH METERS
NOTES:

1. Meter box shall be non skid Polymer Concrete as Manufactured by:
   Armorcast Products Company,
   13230 Saticoy Street,
   North Hollywood, CA 91605,
   (818) 982-3600

2. Bottom of meter box shall rest firmly on a 12 inch thick bed of 1 inch crushed rock extending 6 inches beyond the outside walls of the meter box.

METER BOX

1 1/2-INCH AND 2-INCH METERS
SERVICE CONNECTION NOTES:

1. For capital projects, Contractor shall furnish all material, except meter.

2. Water meter shall be approved by Water Distribution and purchased by customer.

3. All pipe in the street right-of-way shall be D.I.P. with mechanical joints and "MEGALUG" retainer glands or approved equal.

4. All ductile iron pipe, including valves and fittings shall be encased with a 8-mil. thick black polyethylene sheet and taped as specified in A.W.W.A. C-105/A21.5-99-PRINTED.

5. All fittings shall be epoxy coated inside and out.

6. Service line beyond the meter to the building is the responsibility of the property owner.

7. Tap all pipes through saddle or welded coupling or approved equal.

8. Private fire service/private water main distinction:
   A. Private Fire Service: A privately owned and maintained connection from the City distribution system that serves only private fire hydrant(s), fire sprinkler system(s), or other fire protection systems, and does not serve any City water service connections.
   B. Private Water Main: A privately owned and maintained connection from the City distribution system that serves one or more City water service connections, and which may also serve private fire hydrants, fire sprinkler systems, or other fire protection systems.
VALVE BOX
SEE STD.
DET. W-04.0

TAPPING SLEEVE OR
M.J. TEE AND VALVE
AS REQUIRED BY CITY
WATER DISTRIBUTION

PUBLIC (CITY)

THRU T BLOCK PER
STD. DET. W-11.0, TYP.

M.J. D.I.P.
AS REQ.

APPROVED FLANGED
COUPLING ADAPT.

M.J. D.I.P. BENDS AS REQ.
WITH MEGALUG RETAINERS
OR APPROVED EQUAL, TYP.

12" DEEP ¾" GRAVEL
BENEATH METER BOX
FLANGED OR M.J. VALVE WITH U.G. OPERATOR
AS REQ. TO ADAPT TO ON SITE WATER LINE

NON RISING STEM
GATE ISOLATION
VALVE TO MATCH
SUPPLY LINE

METER

MIN. SERVICE
LINE DIAM

3"
4"

4"
4"

6"
6"

8"
8"

18" MIN. CLEARANCE
36" MAX. CLEARANCE

18" CLEAR TO BACK OF CURB

FOR 3" METER INSTALLATION
PROVIDE 4" X 3" FLANGED
REDUCER WITH STRAIGHT PIPE
MINIMUM PER MANUFACTURER'S
RECOMMENDATION

3" CLEAR TO BACK OF CURB

SHALL BE METER VAULT
PER STD DTL. W-07.1

CITY OWNED
WATER METER

LINE SIZED TO MATCH
WATER METER

LINE SIZE BY
CUSTOMER

12" WATER
MAIN

36" MAX. CLEARANCE
18" MIN. CLEARANCE

3¾" GRAVEL
BENEATH METER BOX

3" DEEP

N RISING STEM
GATE ISOLATION
VALVE TO MATCH
SUPPLY LINE

M.J. D.I.P. BENDS AS REQ.
WITH MEGALUG RETAINERS
OR APPROVED EQUAL, TYP.

3" CLEAR TO BACK OF CURB

VALVE BOX
SEE STD.
DET. W-04.0

TAPPING SLEEVE OR
M.J. TEE AND VALVE
AS REQUIRED BY CITY
WATER DISTRIBUTION

PUBLIC (CITY)

THRU T BLOCK PER
STD. DET. W-11.0, TYP.

M.J. D.I.P.
AS REQ.

APPROVED FLANGED
COUPLING ADAPT.

M.J. D.I.P. BENDS AS REQ.
WITH MEGALUG RETAINERS
OR APPROVED EQUAL, TYP.

12" DEEP ¾" GRAVEL
BENEATH METER BOX
FLANGED OR M.J. VALVE WITH U.G. OPERATOR
AS REQ. TO ADAPT TO ON SITE WATER LINE

NON RISING STEM
GATE ISOLATION
VALVE TO MATCH
SUPPLY LINE

METER

MIN. SERVICE
LINE DIAM

3"
4"

4"
4"

6"
6"

8"
8"

18" MIN. CLEARANCE
36" MAX. CLEARANCE

18" CLEAR TO BACK OF CURB

FOR 3" METER INSTALLATION
PROVIDE 4" X 3" FLANGED
REDUCER WITH STRAIGHT PIPE
MINIMUM PER MANUFACTURER'S
RECOMMENDATION

3" CLEAR TO BACK OF CURB

SHALL BE METER VAULT
PER STD DTL. W-07.1

CITY OWNED
WATER METER

LINE SIZED TO MATCH
WATER METER

LINE SIZE BY
CUSTOMER

12" WATER
MAIN

36" MAX. CLEARANCE
18" MIN. CLEARANCE

3¾" GRAVEL
BENEATH METER BOX

3" DEEP

N RISING STEM
GATE ISOLATION
VALVE TO MATCH
SUPPLY LINE

M.J. D.I.P. BENDS AS REQ.
WITH MEGALUG RETAINERS
OR APPROVED EQUAL, TYP.
METER VAULT PIPING DETAIL
3" METER AND LARGER

METER SIZE  MIN. PIPE SIZE  A  B  C
3"  4"  10"  17"  10"
4"  4"  10"  20"  10"
6"  6"  15"  24"  15"
8"  8"  20"  30½"  20"
MAX 18" -- -- --

PLAN

CITY MAINTAINED
PRIVATELY MAINTAINED
RIGHT OF WAY

SEE W-07.2 METER VAULT DETAIL

GROUT OPENING
(TYPICAL)

SECTION

1

18" MIN.

A MIN.

B

C MIN.

12" DEEP
3/4" GRAVEL

17"

30½"

18"

20"

24"

30½"

20"

24"

17"

10"

15"

20"
VAULT DIMENSIONS

<table>
<thead>
<tr>
<th>METER SIZE</th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>3&quot; - 4&quot;</td>
<td>30&quot;</td>
<td>48&quot;</td>
<td>36&quot;</td>
</tr>
<tr>
<td>6&quot; - 8&quot;</td>
<td>36&quot;</td>
<td>60&quot;</td>
<td>36&quot;</td>
</tr>
</tbody>
</table>

NOTE: MAINTAIN SEPARATION FROM OBSTRUCTIONS, STRUCTURES, TREES AND DRIVEWAYS.

USE ARMORCAST, POLYMER CONCRETE, VAULT ASSEMBLY WITH TORSION ASSIST HATCH. A6001833MT OR APPROVED EQUAL.

LOAD RATING 20K

METER VAULT DETAIL

PLAN & SECTION VIEW

STREETS: [Signature]
TRANS OPS: [Signature]
FACILITIES: [Signature]
WATER RESOURCES: [Signature]
PUBLIC WORKS DIRECTOR: [Signature]
ARMORCAST COVER IN FOREST GREEN OR SANDSTONE AS INDICATED ON PLAN.
FOR 1": ARMORCAST P6002003 (36" x 12"Ø)
FOR 2": ARMORCAST P6002002 (36" x 20"Ø)

(2) 2" STREET ELLS AND FITTINGS AS REQUIRED TO CLEAR AIR VALVE. INSTALL SCREENED OUTLET.

MULTIPLEX CRISPEN UNIVERSAL AIR VALVE, OR COMBINATION AIR VALVE AND VAC 1" AND 2" THREADED, EPOXY LINED.

BRASS NIPPLE

COPPER TUBING, TYPE "K", SAME SIZE AS AIR VALVE. 2' MIN. COVER.
PROVIDE PROTECTIVE TAPE.

WRAP 10 MIL TAPE AROUND COPPER
INSTALL BALL VALVE SIZED TO MATCH SERVICE
BOLTDOWN DETAIL

NOTE: ALL FITTINGS TO BE USED SHALL CONFORM TO W-05.1 STANDARD DETAIL

WATER MAIN

1-INCH AND 2-INCH

AIR/VACUUM VALVE
NOTES:

1. Meter box per Standard Detail W-06.1 without bottom. Meter box lid shall be skid resistant.
2. Use silver solder for all sweat joints.
3. All fittings shall conform with Standard Detail W-05.1
**NOTES:**

1. Concrete thrust collar shall be placed solidly against firm undisturbed native soil with a soil bearing pressure not less than 1500 psf.

2. Concrete mix shall be CLASS 520-C-2500.

3. All reinforcing bars shall be No. 4.

4. Thrust collars in non-native soil shall be approved by the City Engineer before installation.

*NOTE: THRUST COLLAR NOT TO BE INSTALLED ON P.V.C.*
CONCRETE THRUST BLOCK NOTES:

1. Concrete mix shall be Class 520-C-2500.
2. Concrete placed against the pipe fitting shall not extend beyond the joints.
3. Concrete thrust blocks shall be installed to the dimensions and configurations as shown. Thrust Block Requirements table is designed for a test water pressure of 150psi and a soil bearing pressure of 2000 psf with a safety factor of 1.5. Thrust blocks for all other values for water pressure and soil bearing must use multiplier tables accordingly, see example below.
4. Concrete thrust blocks shall be placed solidly against firm undisturbed native soil. Soil bearing pressure of undisturbed native soil must be considered in design, see multiplier table below.
5. For configurations with multiple thrust blocks, required bearing area square footage values represent the cumulative total of all thrust block bearing areas.
6. The ratio of thrust block height (H) to length (L) shall be at minimum 1:2 and at maximum 1:1 (square), with preference toward 1:1.
7. All thrust blocks shall extend a minimum of 24" outward from the pipe. Exceptions for small sized thrust blocks may be made at Engineer's discretion.
8. In locations where the water table is higher than the thrust block, special design is required.

THRUST BLOCK REQUIREMENTS (at 150psi water pressure and 2000psi soil bearing capacity):

<table>
<thead>
<tr>
<th>Pipe inner diameter (in.)</th>
<th>Tees, crosses, &amp; plugs</th>
<th>90°</th>
<th>45°</th>
<th>22.5°</th>
<th>11.25°</th>
<th>45°</th>
<th>22.5°</th>
<th>11.25°</th>
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</thead>
<tbody>
<tr>
<td>4</td>
<td>2.0</td>
<td>2.9</td>
<td>1.6</td>
<td>0.8</td>
<td>0.4</td>
<td>0.8</td>
<td>0.4</td>
<td>0.2</td>
</tr>
<tr>
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<td>4.2</td>
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SOIL MULTIPLIERS: WATER MULTIPLIERS:

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<tr>
<th>Actual Soil Bearing (psf)</th>
<th>Multiplier</th>
<th>Actual Test Water Pressure (psi)</th>
<th>Multiplier</th>
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<td>150</td>
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<td>2000</td>
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<tr>
<td>2500</td>
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<td>3500</td>
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EXAMPLE:

10" pipe, 90° bend, 250psi test water pressure, 1500psi soil bearing capacity:

From Thrust Block Requirements table, 10" pipe on a 90° bend requires 15.4 S.F. bearing area.

Adjust values using multiplier tables:

Required S.F. = (Table value)(Multiplier, 1500psi soil)(Multiplier, 250psi water)

Required S.F. = (15.4 S.F.)(1.33)(1.67)

Required S.F. = 34.2 S.F., required thrust block bearing area
RP BACKFLOW PREVENTION ASSEMBLY NOTES:

1. The reduced Pressure Principal Backflow Assembly (RP) must be installed where it is accessible for periodic testing and maintenance.

2. Prior to installation, thoroughly flush the supply line of all foreign material. Failure to flush the lines completely may cause the Backflow to fail.

3. The Backflow shall be installed per Manufacturer Specifications/USC guidelines.

4. The Backflow must be tested upon installation. Water Service shall remain off until a passing test report has been received and reviewed by the Cross-Connection Specialist.

5. The Backflow shall be protected from freezing in a manner that promotes ease of access.

6. Any Backflow Assembly installed over 5 feet from finished grade to centerline of pipe must have a permanent platform for accessibility.

7. Refer to Uniform Plumbing Code (UPC) Chapter 6, section 603 for more details.

ADEQUATE AND SAFE CLEARANCE MUST BE PROVIDED TO PERMIT TESTING AND REPAIR WORK

<table>
<thead>
<tr>
<th>SIZE</th>
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<th>B</th>
<th>C</th>
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</thead>
<tbody>
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<td>3/4&quot; THRU 2&quot;</td>
<td>18&quot;</td>
<td>18&quot;</td>
<td>12&quot;</td>
</tr>
</tbody>
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PLANTS AT MATURE GROWTH

SIDE WITH TEST PORT

REDUCED PRESSURE PRINCIPLE ASSEMBLY BACKFLOW PREVENTION ASSEMBLY (NOTES)
AIR GAP DRAIN SHALL BE A MINIMUM OF 2 TIMES THE PIPE DIAMETER (1" MIN.)

18" MIN. CLEARANCE

18" MIN. CLEARANCE

INDOOR/OUTDOOR INSTALLATION WITH DETECTOR

TOP VIEW

 Indoors Installation

INDOOR INSTALLATION

SIDE VIEW

OUTDOOR INSTALLATION WITH DETECTOR

SIDE VIEW

FLOW

12" MIN. FROM LOWEST POINT

SUPPORT 3" AND LARGER

AIR GAP DRAIN SHALL BE A MINIMUM OF 2 TIMES THE PIPE DIAMETER (1" MIN.)

SUPPORT 3" AND LARGER

MAINTAIN APPROVED 12" MIN. DISTANCE

REDUCED PRESSURE PRINCIPLE ASSEMBLY
BACKFLOW PREVENTION ASSEMBLY (TYPE 1)
NOTES:

1. The Double Check Valve Assembly must be installed where it is accessible for periodic testing and maintenance.
2. PRIOR TO INSTALLING IN LINE, FLUSH SUPPLY LINE OF ALL FOREIGN MATERIAL. Failure to flush the lines completely may cause the checks to become fouled and require disassembly and cleaning.
3. The device shall only be installed per manufacturer's specifications.
4. When threading the device in line, place wrench only on ball valve hex ends. Keep pipe dope off interior surfaces of valve. On 2-1/2-inch and larger devices, DO NOT LIFT THE DEVICE WITH GATE VALVE HANDWHEELS OR STEMS. ALSO DO NOT SUPPORT DEVICE FROM ONLY ONE END.
5. After installation, fill device and bleed air from unit. Test to ensure proper operation. If either check fails to hold 1.0 PSI, it is most likely due to fouling. The cap must be removed and the seat and/or seat disc cleaned.
6. The device must be protected from freezing. Thermal water expansion and/or water hammer downstream of the backflow preventer can cause excessive pressure increases. Excessive pressure situations should be eliminated to avoid possible damage to the system and device.
7. All potable dedicated fire lines will be required to have double check detector check.
8. Any backflow prevention assembly installed overhead (5' or more) must have a permanent platform built for accessibility.
9. Refer to Uniform Plumbing Code (UPC) chapter 6, sections 603.00 thru 603.4.20 for more information.
DOUBLE DETECTOR CHECK ASSEMBLY
BACKFLOW PREVENTION ASSEMBLY (TYPE 2)
NOTES:

1. Assembly and installation shall conform to Standard Detail W-13.0.
2. Double check detector required on all potable dedicated firelines.
3. Side clearance shall be 12" minimum from back of backflow device to any wall or other obstruction.
4. Clearance from detector side of backflow assembly shall be a minimum of 24" from all obstructions.
5. Assembly must be installed as a unit.
6. Distance from grade to centerline of the #2 shut off valve shall be a maximum of 5 feet.
7. Minimum of 18" from grade to first flange of #1 shut off valve.
8. Assembly must be an approved assembly from USC list or equivalent.
NOTES:

1. Any variation from that shown must be approved by the City Public Works Inspector.

2. Sewer laterals shall maintain original slope.

3. PVC pipe shall be Class 200 P.V.C. pipe per AWWA C900.

4. Backfill shall be Class I as defined in Standard Detail 7-001.0 and shall be placed in accordance with ASTM D 2321.

5. Mechanical compression coupling shall be a band seal type repair with an outside stainless steel shear ring, "strong back" or approved equal by the Engineer.

MODIFICATION OF SEWER LATERAL OVER WATER MAIN

STREETS:  REV. DATE: 11/12  DETAIL: W-14.0
TRANS OPS:  APPROVED: Jt. Kell
FACILITIES:  CITY ENGINEER
WATER RESOURCES:  PUBLIC WORKS DIRECTOR
BACKFILL UNDER BOX WITH PEA GRAVEL

3" CLOSE NIPPLE
3" x 45° BEND
2" x 3" BUSHING
2" CLOSE NIPPLE
2" STAINLESS STEEL BALL VALVE
2" ANGLE BALL VALVE

3" FEMALE KAMLOC
3" CLEAR

(2) #6 METER BOXES,
STACKED

BACKFILL UNDER BOX
WITH PEA GRAVEL

18" MIN. COVER

3" FEMALE KAMLOC

RECLAIMED WATER MAIN

DETECTABLE TAPE TO BE
PLACED A MINIMUM OF 6" TO
A MAXIMUM OF 12" BELOW
THE STRUCTURAL ROAD SECTION

BACKFILL PER U-02.1

TRIANGULAR RECYCLED WATER
VALVE COVER, PART # B4TTBody,
4TT VLV BOX ONLY TRFC
SP-B4TTTRWCover, 4-TT CI VLV
BX CVR ONLY RECYCLED WATER.

2" x 5" NIPPLE

2" WROUGHT COPPER 90°

2" DIA. TYPE 'K'
COPPER TUBING

2" BALL VALVE
BRASS NIPPLE
RECLAIMED WATER MAIN
SADDLE TAP

2" x 3" BUSHING

2" STRAIGHT COPPER 90°

2" BRASS 45° BEND

45° TAP
2" CORP. STOP

SECTION VIEW

STREETS: 
TRANS OPS: 
FACILITIES: 
WATER RESOURCES:

REV. DATE: 5/22 DETAIL: W–15.0

CITY ENGINEER
PUBLIC WORKS DIRECTOR

RECYCLED WATER FILL STATION
ABOVE GROUND
RECYCLED WATER FILL STATION

STREETS: [Redacted]
TRANS OPS: [Redacted]
FACILITIES: [Redacted]
CITY ENGINEER: [Redacted]
PUBLIC WORKS DIRECTOR: [Redacted]

REV. DATE: 5/22
DETAIL: W-15.1

WATER MAIN
SADDLE TAP
BRASS NIPPLE
CONNECTING VALVE / BEND
TRIANGULAR RECYCLED WATER VALVE COVER, PART # B4TTBody, 4TT VLV BOX ONLY TRFC SP-B4TTRW COVER, 4-TT CI VLV BX CVR ONLY RECYCLED WATER
FOR DEPTHS >4FT INSTALL A 2-INCH BRASS OR STAINLESS NUT ADAPTOR B-20299 OR APPROVED EQUAL

HASP FOR PADLOCK
W/ 5/8" HOLE
INCLUDE GUARD POST PER STD DETAIL W-03.0
DETECTABLE TAPE TO BE PLACED A MINIMUM OF 6" TO A MAXIMUM OF 12" BELOW THE STRUCTURAL ROAD SECTION

RECYCLED WATER SIGN SUPPLIED BY CITY
SIGN MOUNTED ON 2" GROUT-FILLED GALV STEEL PIPE
2" X 2.5" DIXON VALVE DBC62-200 OR APPROVED EQUIVALENT
HINGE
2" SCH 80 RED BRASS PIPE W/ THREADED ENDS, TYP
2" STAINLESS STEEL BALL VALVE
SLOPE TO DRAIN
2" TYPE "K" COPPER

20" X 36" ENCLOSURE
2" MIN

INSTALL 2" BALL VALVE ON 2" SERVICE
BRASS NIPPLE
W/ 5/8" HOLE

3-1/4" MIN.

CONCRETE PAD AND BOLTDOWN DETAIL PER 2-INCH AIR VALVE DETAIL
30 MIL PVC TAPE WRAP
1" BEYOND CONCRETE
2" SCH 80 RED BRASS PIPE W/ THREADED ENDS, TYP
2" SOLDERED COPPER 90° (COPPER TO BRASS TRANSITION)

NOTE: ALL FITTINGS TO BE USED SHALL CONFORM TO W-05.1 STANDARD DETAIL

FOR DEPTHS >4FT INSTALL A 2-INCH BRASS OR STAINLESS NUT ADAPTOR B-20299 OR APPROVED EQUAL

HASP FOR PADLOCK
W/ 5/8" HOLE
INCLUDE GUARD POST PER STD DETAIL W-03.0
DETECTABLE TAPE TO BE PLACED A MINIMUM OF 6" TO A MAXIMUM OF 12" BELOW THE STRUCTURAL ROAD SECTION

TRIANGULAR RECYCLED WATER VALVE COVER, PART # B4TTBody, 4TT VLV BOX ONLY TRFC SP-B4TTRW COVER, 4-TT CI VLV BX CVR ONLY RECYCLED WATER
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HINGE
2" SCH 80 RED BRASS PIPE W/ THREADED ENDS, TYP
2" STAINLESS STEEL BALL VALVE
SLOPE TO DRAIN
2" TYPE "K" COPPER
NOTES:

1. Downstream side of pressure type vacuum breaker may be maintained under pressure by a valve, but any backpressure by pump or other means is strictly prohibited.
2. PVB's (Pressure Vacuum Breakers) and SVB's (Spill-Resistant Vacuum Breakers) are designed to protect against back siphonage only; not backpressure.
3. PVB's and SVB's shall be installed where occasional water discharge caused by pressure fluctuations is acceptable.
4. PVB's and SVB's shall be installed a minimum of 12 inches above the highest downstream piping and/or outlets.
5. PVB's and SVB's shall always be installed above the 100 year flood level unless otherwise approved by Engineer or designee.
6. Provide minimum clearances for testing and repair.
NOTES:

1. Downstream side of atmospheric type vacuum breaker (AVB) shall not contain any means of shut off.
2. AVB's shall not be subject to any backpressure.
3. AVB's are for intermittent use only and shall not be pressurized for more than 12 hours in any 24 hour period.
4. AVB's shall not be installed where occasional dusty or corrosive conditions occur.
5. AVB's shall be installed a minimum of 6 inches above the highest downstream piping and/or outlets.
6. AVB's shall always be installed above the 100 year flood level unless otherwise approved by Engineer or designee.
POTABLE WATER SUPPLY

FLOAT CONTROL VALVE

SCREENED OUTLET DIAMETER = "D"

AIR GAP SHALL BE A MINIMUM OF 2 TIMES THE PIPE DIAMETER (1" MIN.)

OVERFLOW RIM

FLOAT

TO NON-POTABLE WATER SYSTEM

PUMP AND MOTOR

AIR GAP SEPARATION

REV. DATE: 11/12  DETAIL: W-18.0

STREETS:

TRANS OPS:

FACILITIES:

WATER RESOURCES:

CITY ENGINEER

PUBLIC WORKS DIRECTOR