WATER

GENERAL LEGEND:

CIP = CAST IRON PIPE
DIP = DUCTILE IRON PIPE
CR = CURB RETURN
FLG = FLANGE JOINT
MJ = MECHANICAL JOINT
LRG = LOCKING RETAINER GLAND
PE = PLAIN END

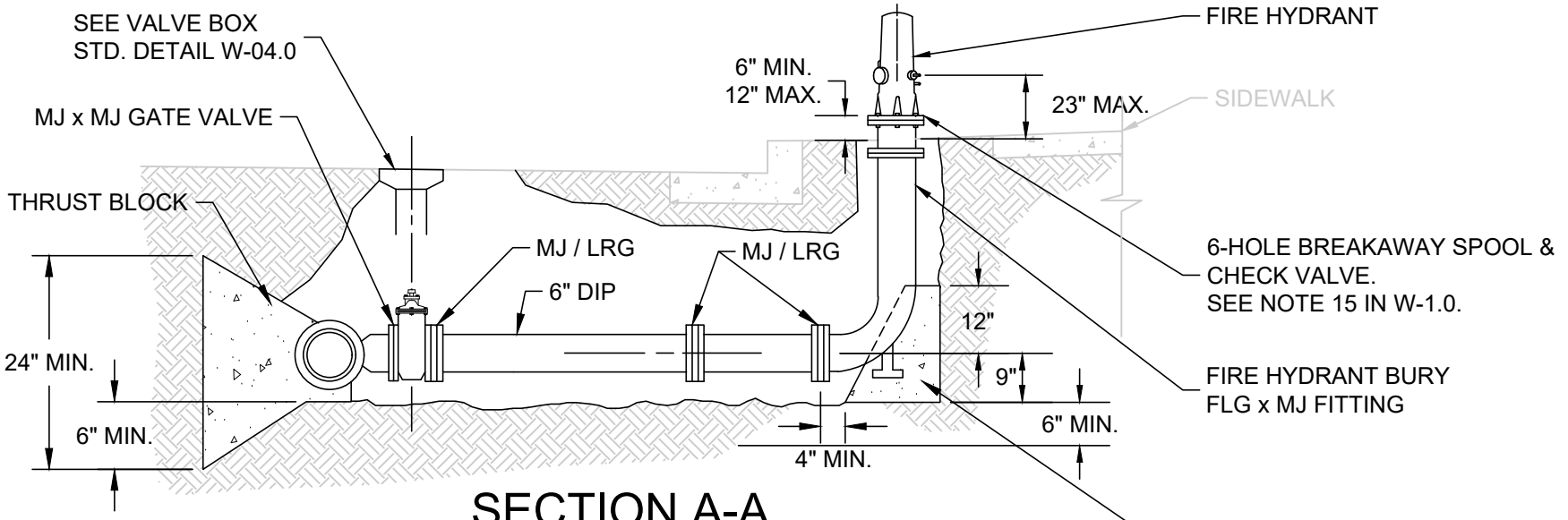
WATER
TABLE OF CONTENTS

STREETS:	REV. DATE: 5/25	DETAIL: W-00.0
TRANS OPS:	APPROVED:	
FACILITIES:	CITY ENGINEER	
WATER RESOURCES: Hammurabi Days	6/18/25 DATE	

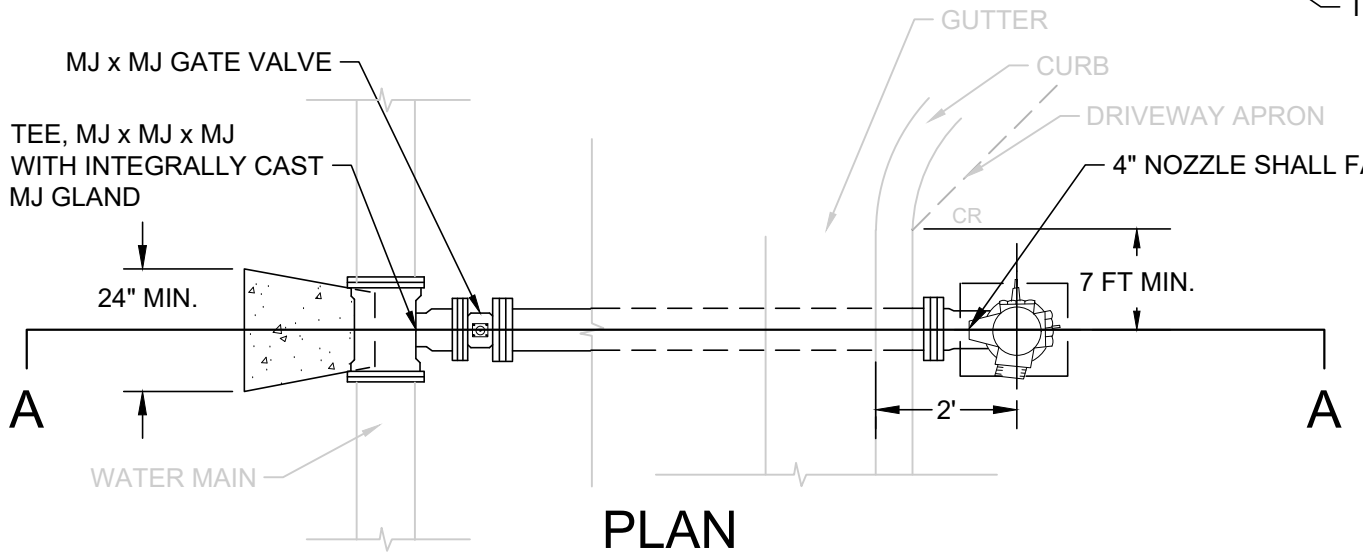
FIRE HYDRANT INSTALLATION NOTES:

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 commericial 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 with epoxy coated fittings 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.
15. A break away check valve between spool and hydrant is required at the at-risk locations determined by Water Distribution.

SEAL OF THE CITY OF SANTA BARBARA CALIFORNIA	FIRE HYDRANT INSTALLATION NOTES	STREETS:	REV. DATE: 4/25 DETAIL: W-01.0
		TRANS OPS:	APPROVED: Ashleigh Stzoo
		FACILITIES:	CITY ENGINEER
		WATER RESOURCES: Hammurabi Days	6/18/25 DATE



SECTION A-A



PLAN

NOT TO SCALE

LEGEND

CIP = CAST IRON PIPE
DIP = DUCTILE IRON PIPE
CR = CURB RETURN
FLG = FLANGE JOINT
MJ = MECHANICAL JOINT
LRG = LOCKING RETAINER GLAND
PE = PLAIN END

ALL FITTINGS TO BE EPOXY COATED.

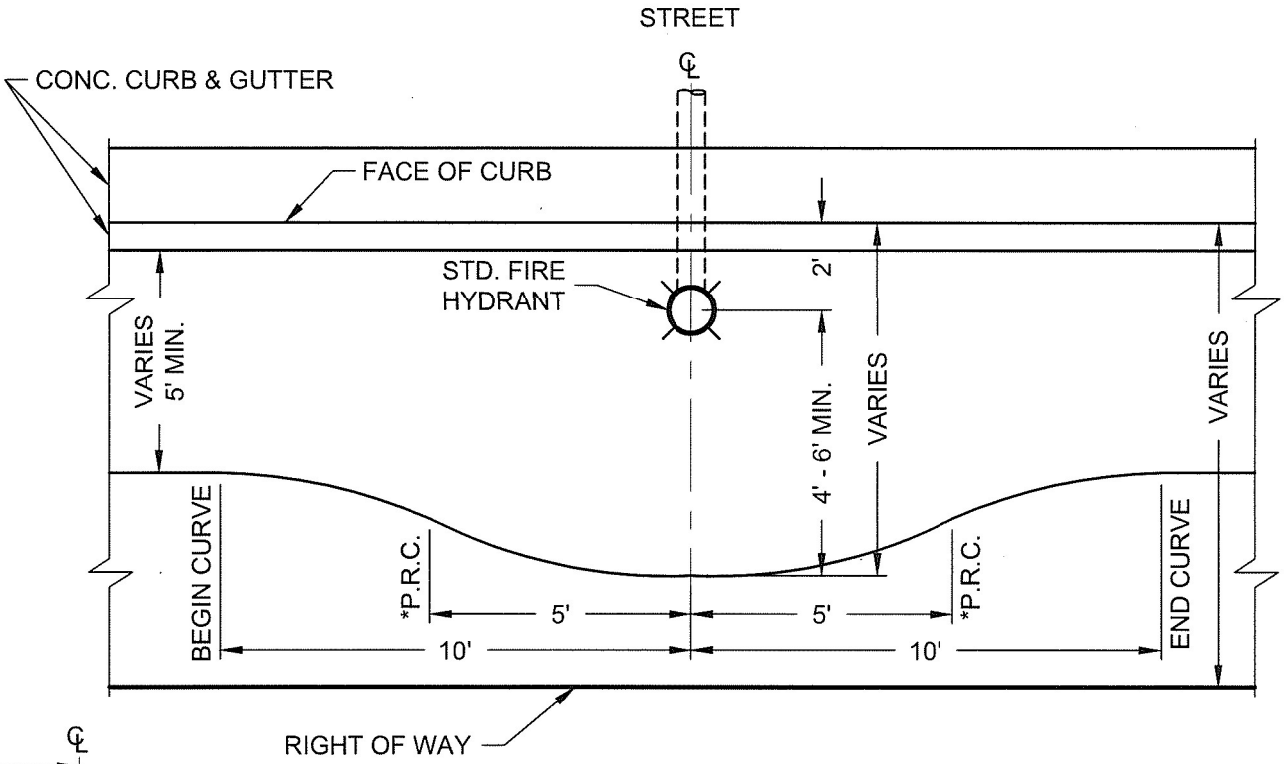
FIRE HYDRANT INSTALLATION

STREETS:	REV. DATE: 4/25	DETAIL: W-01.1
TRANS OPS:	APPROVED:	
FACILITIES:	CITY ENGINEER	
WATER RESOURCES: Hammurabi Days	6/18/25 DATE	

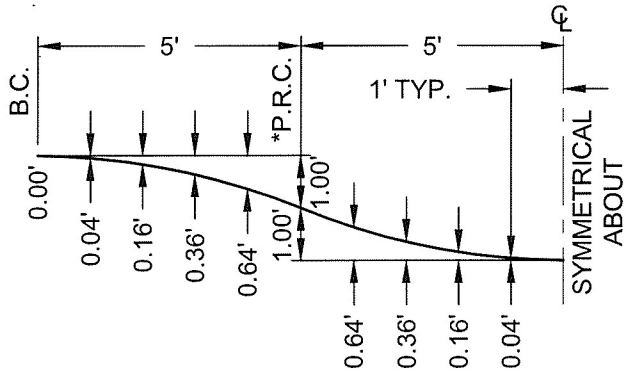
NOTES:

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



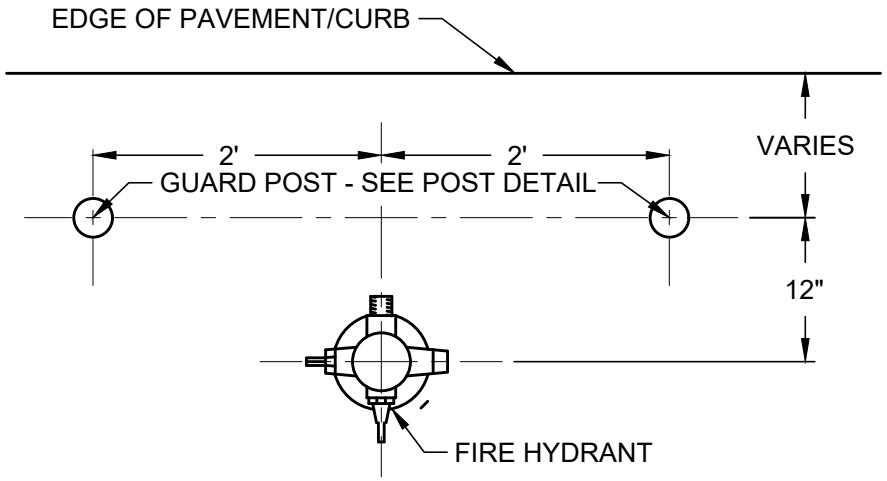
PLAN



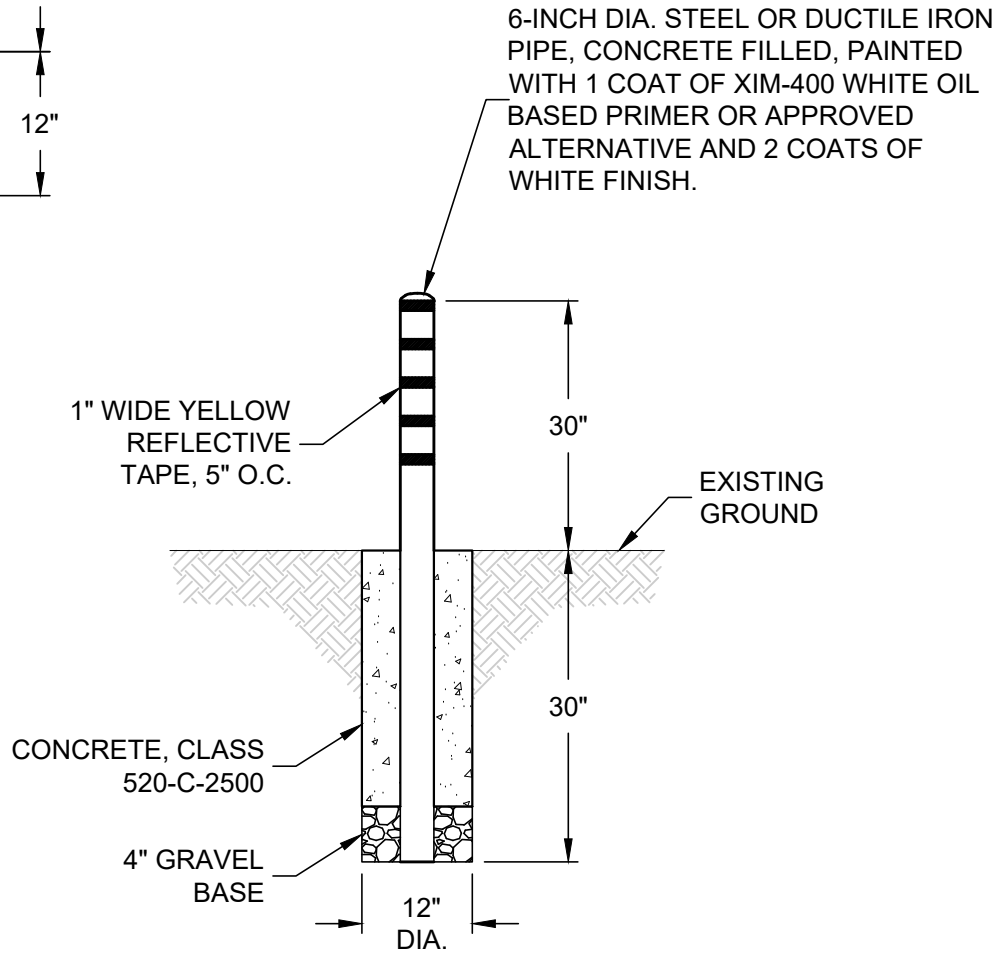
BACK OF SIDEWALK OFFSET AT ONE-FOOT INTERVALS

SIDEWALK MODIFICATION
AT FIRE HYDRANT

STREETS:	REV. DATE: 11/12	DETAIL: W-02.0
TRANS OPS:	APPROVED:	
FACILITIES:	CITY ENGINEER	
WATER RESOURCES:	PUBLIC WORKS DIRECTOR	



PLAN



POST DETAIL

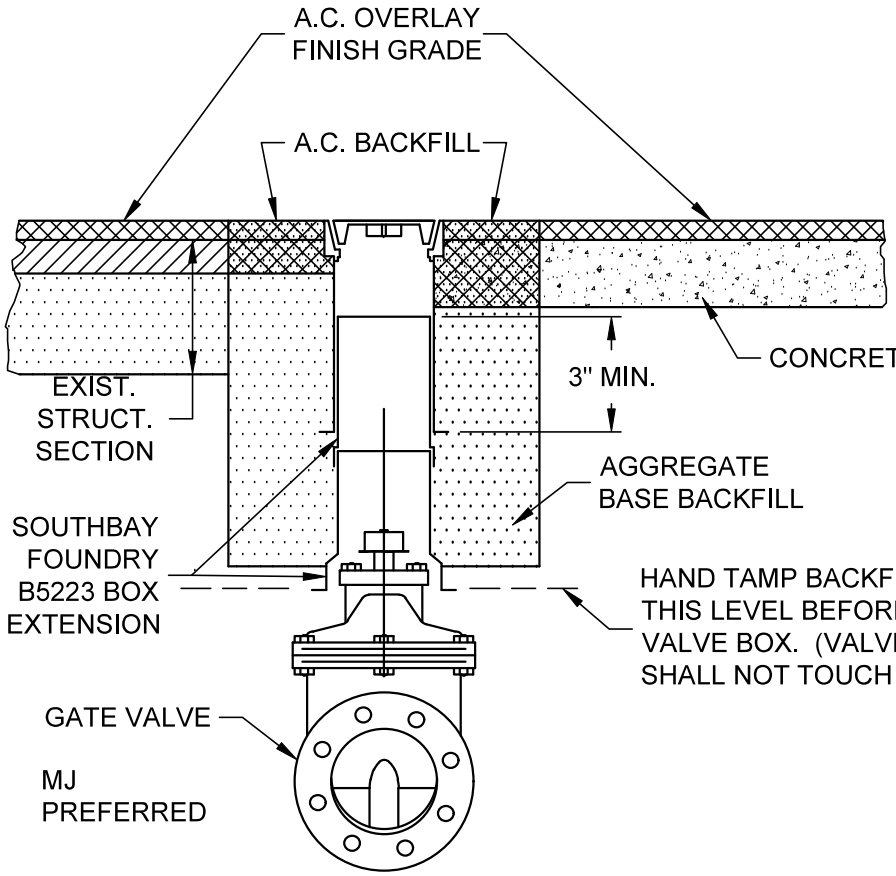
NOTES:

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.

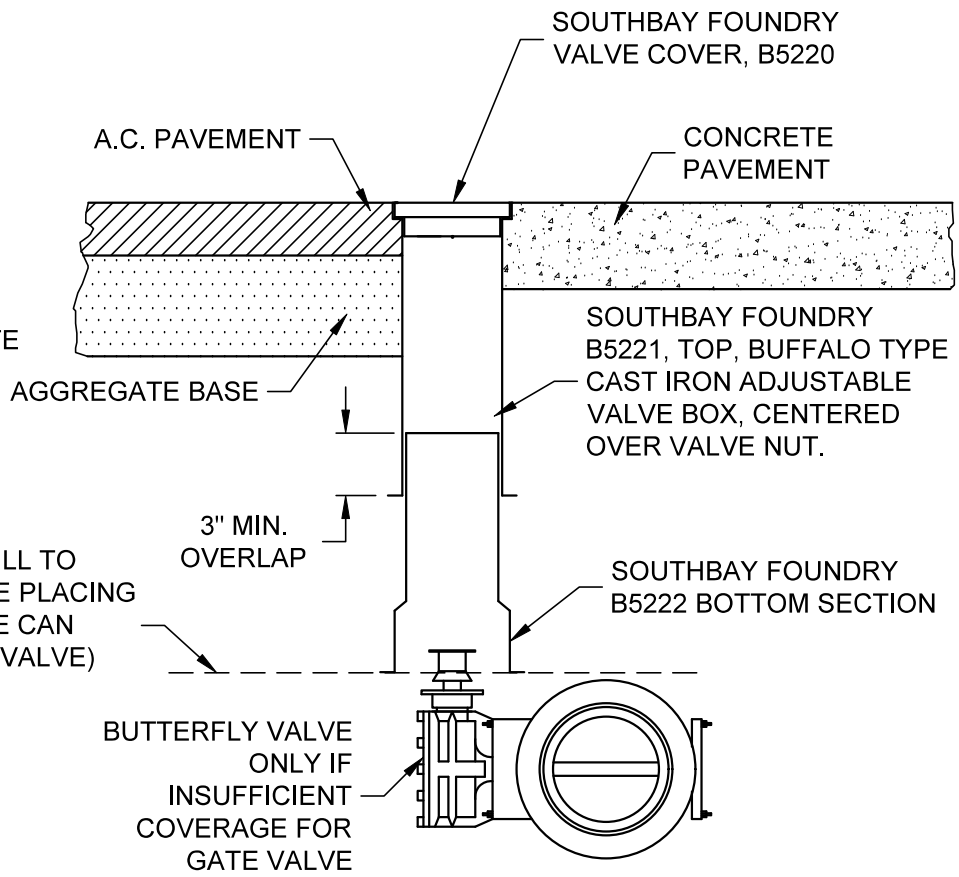
FIRE HYDRANT

GUARD POST

STREETS:	REV. DATE: 4/25	DETAIL: W-03.0
TRANS OPS:	APPROVED: Ashleigh Stzoo	
FACILITIES:	CITY ENGINEER	
WATER RESOURCES: Hammurabi Days	6/18/25 DATE	



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

STREETS:	REV. DATE: 5/22 — DETAIL: W-04.0
TRANS OPS:	APPROVED:
FACILITIES:	CITY ENGINEER
WATER RESOURCES: Hammurabi Days	PUBLIC WORKS DIRECTOR

SERVICE CONNECTION NOTES:

1. For capital projects, Contractor shall furnish all material, except meter. For private development, City will furnish all materials.
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.
11. Water Distribution has the authority to adjust the service location if field conditions reveal a conflict after excavation for new installations due to existing utilities, obstructions, or other discrepancies.

SERVICE CONNECTION

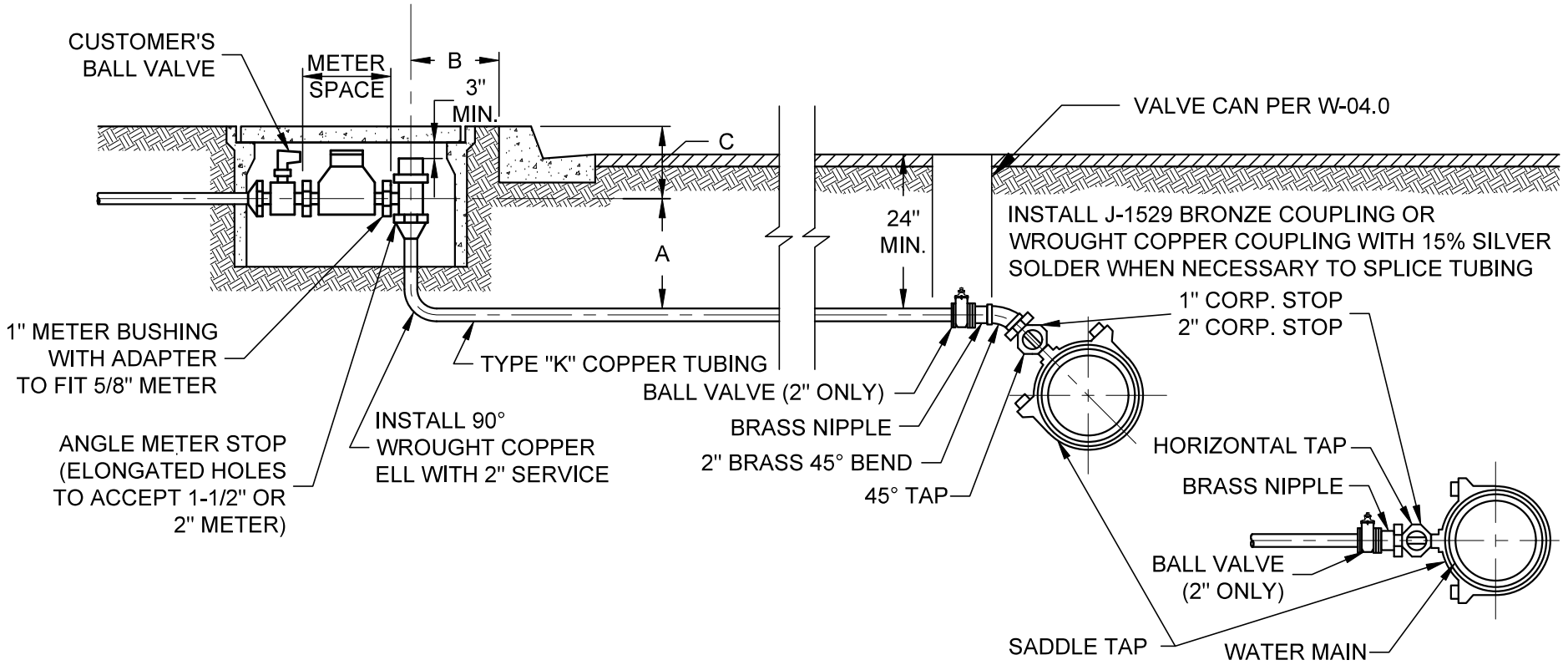
2" AND SMALLER (NOTES)

STREETS:
TRANS OPS:
FACILITIES:
WATER RESOURCES: Hammurabi Days

REV. DATE: 4/25 | DETAIL: W-05.0

APPROVED: Ashleigh Stokes
CITY ENGINEER

6/18/25
DATE



METER DIMENSIONS

METER SIZE	METER SPACE	A	B	C
5/8"	7-3/4"	21"	8"	9"
3/4"	9-1/4"	21"	8"	9"
1"	11"	21"	8"	9"
1-1/2"	13-1/4"	18"	12"	12"
2"	17-1/4"	18"	12"	12"

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 COMPRESSIVE STYLE OF CONNECTING TO COPPER PIPE.
SEE DTL. W-05.3 OR FITTING APPROVED BY WATER DISTRIBUTION.

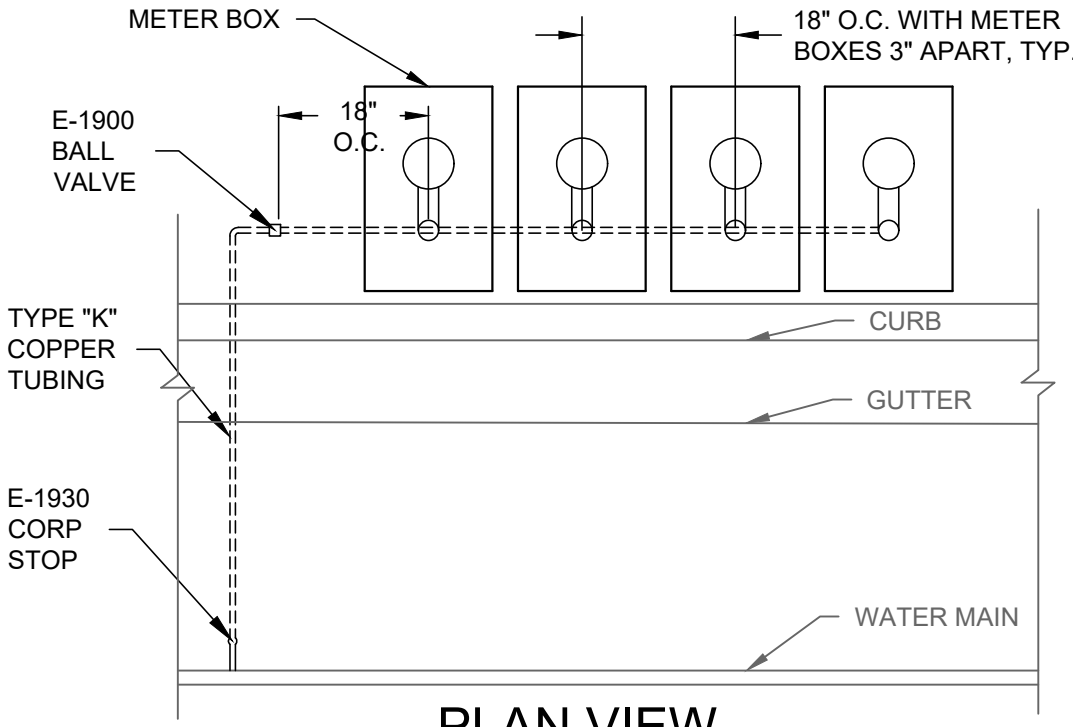
SERVICE CONNECTION

2" AND SMALLER

STREETS:
TRANS OPS:
FACILITIES:
WATER RESOURCES: Hammurabi Days

REV. DATE: 5/22
DETAIL: W-05.1

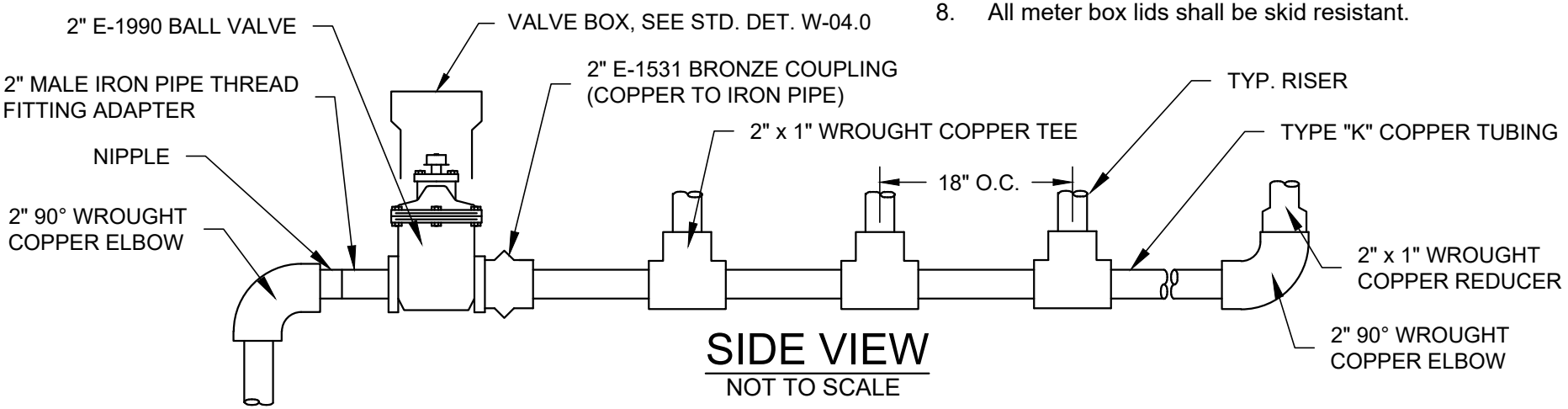
APPROVED:
CITY ENGINEER
PUBLIC WORKS DIRECTOR



PLAN VIEW

NOTES:

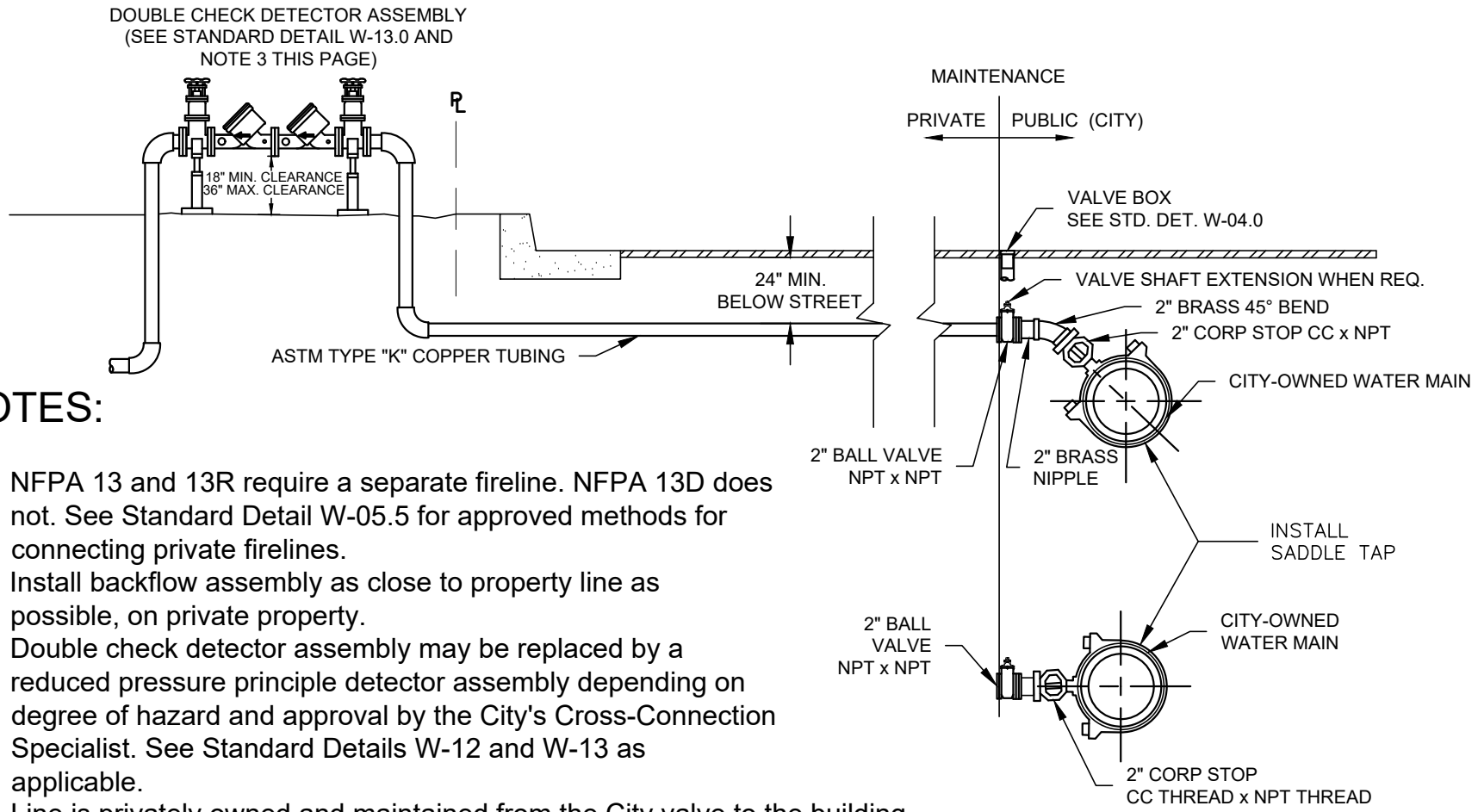
1. Maximum of eight (8) 5/8-inch meters per manifold. Maximum of two (2) 1-inch meters per manifold. All meter boxes per City Standard Details W-06.0 and W-06.1.
2. Alternative layout to be approved in writing by Water Distribution.
3. E-1900 ball valve may be relocated next to E-1930 corp stop at the discretion by Water Distribution.
4. All piping to be type "K" copper tubing.
5. All brass service connection fittings to be flared type. Alternative fittings to be approved in writing by Water Distribution.
6. 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.
7. Meter boxes shall be placed a minimum of 3" apart.
8. All meter box lids shall be skid resistant.



SIDE VIEW
NOT TO SCALE

2-INCH
SERVICE CONNECTION MANIFOLD

STREETS:	REV. DATE: 4/25
TRANS OPS:	DETAIL: W-05.2
FACILITIES:	APPROVED: Ashleigh Stzoo
WATER RESOURCES: Hammurabi Days	CITY ENGINEER
	6/18/25 DATE

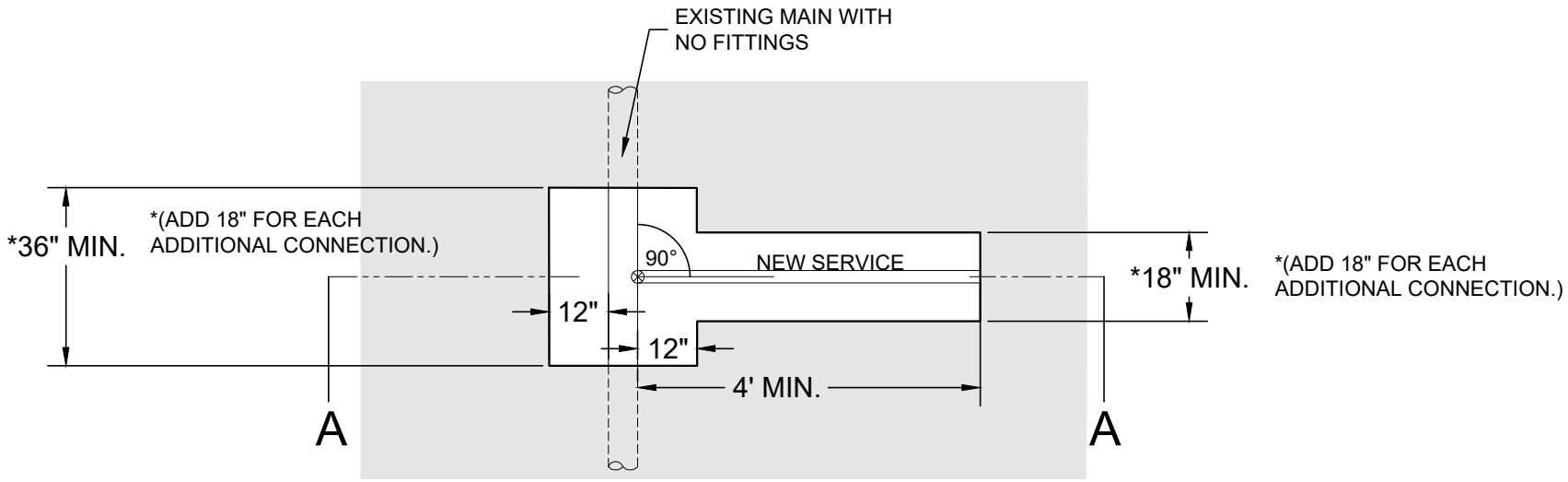


NOTES:

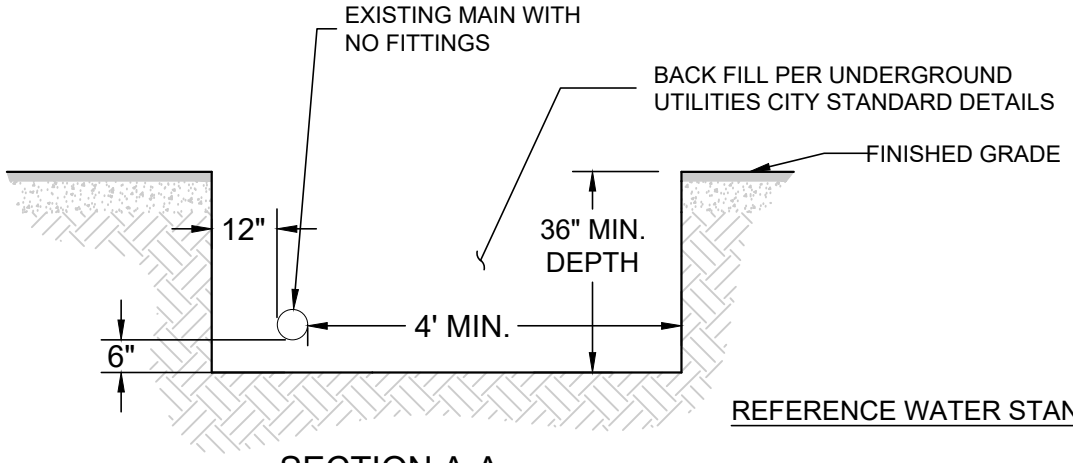
1. NFPA 13 and 13R require a separate fireline. NFPA 13D does not. See Standard Detail W-05.5 for approved methods for connecting private firelines.
2. Install backflow assembly as close to property line as possible, on private property.
3. Double check detector assembly may be replaced by a reduced 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.
8. Water Distribution has the authority to adjust the service location if field conditions reveal a conflict after excavation for new installations due to existing utilities, obstructions, or other discrepancies.

2-INCH
FIRELINE

STREETS:	REV. DATE: 4/25 DETAIL: W-05.3
TRANS OPS:	APPROVED: Ashleigh Stokes
FACILITIES:	CITY ENGINEER
WATER RESOURCES: Hammurabi Days	6/18/25 DATE



PLAN



SECTION A-A

NOT TO SCALE

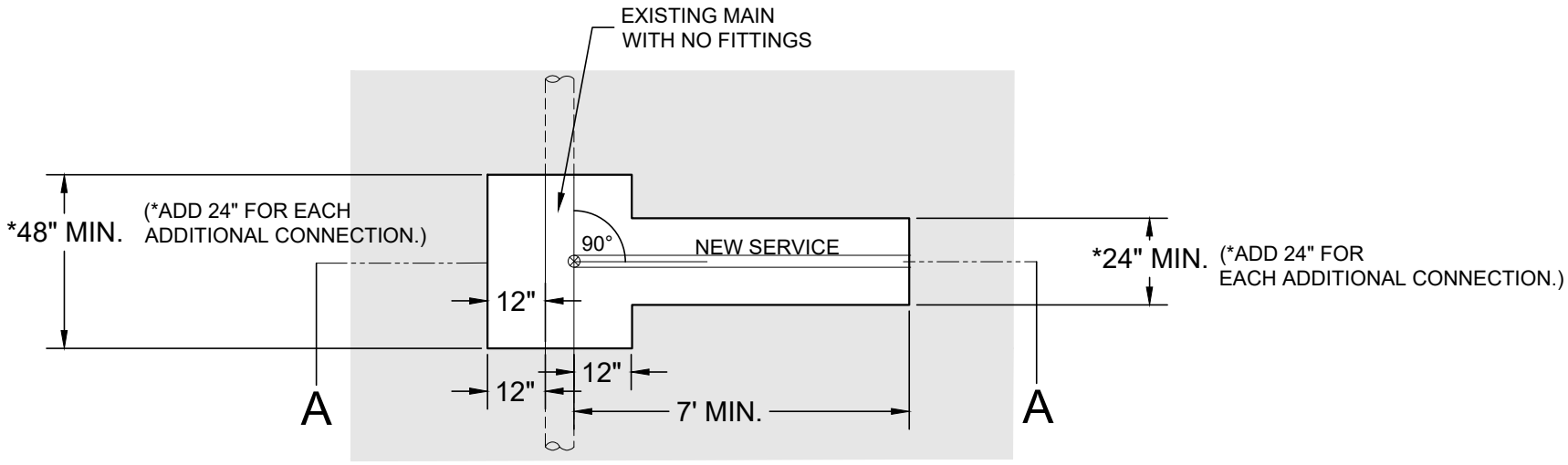
REFERENCE WATER STANDARD DETAILS

W-05.1 SERVICE CONNECTION 2" AND SMALLER
W-05.2 2-INCH SERVICE CONNECTION MANIFOLD
W-05.3 2-INCH FIRELINE

TRENCH DETAILS

1" or 2" CONNECTION

STREETS:	REV. DATE: 4/25	DETAIL: W-05.3.1
TRANS OPS:	APPROVED: Ashleigh Stzoo	
FACILITIES:	CITY ENGINEER	
WATER RESOURCES: Hammurabi Days	6/18/25 DATE	



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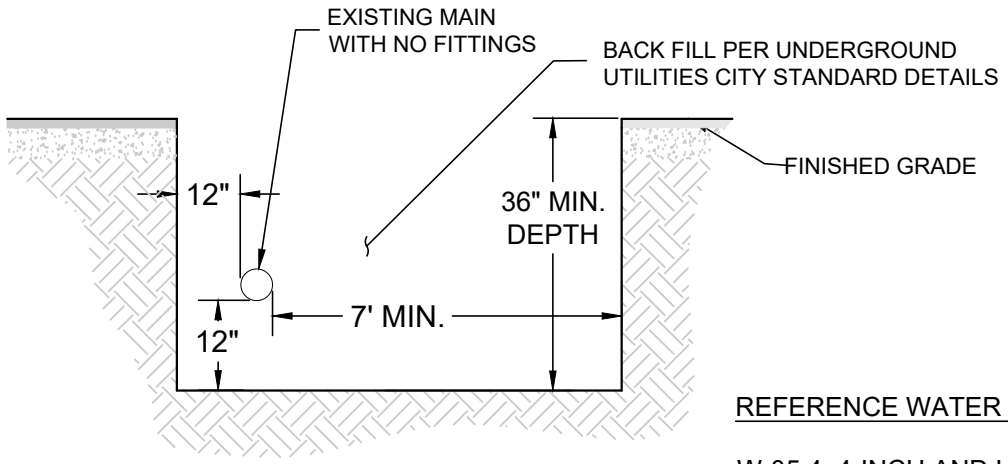


SECTION A-A
NOT TO SCALE

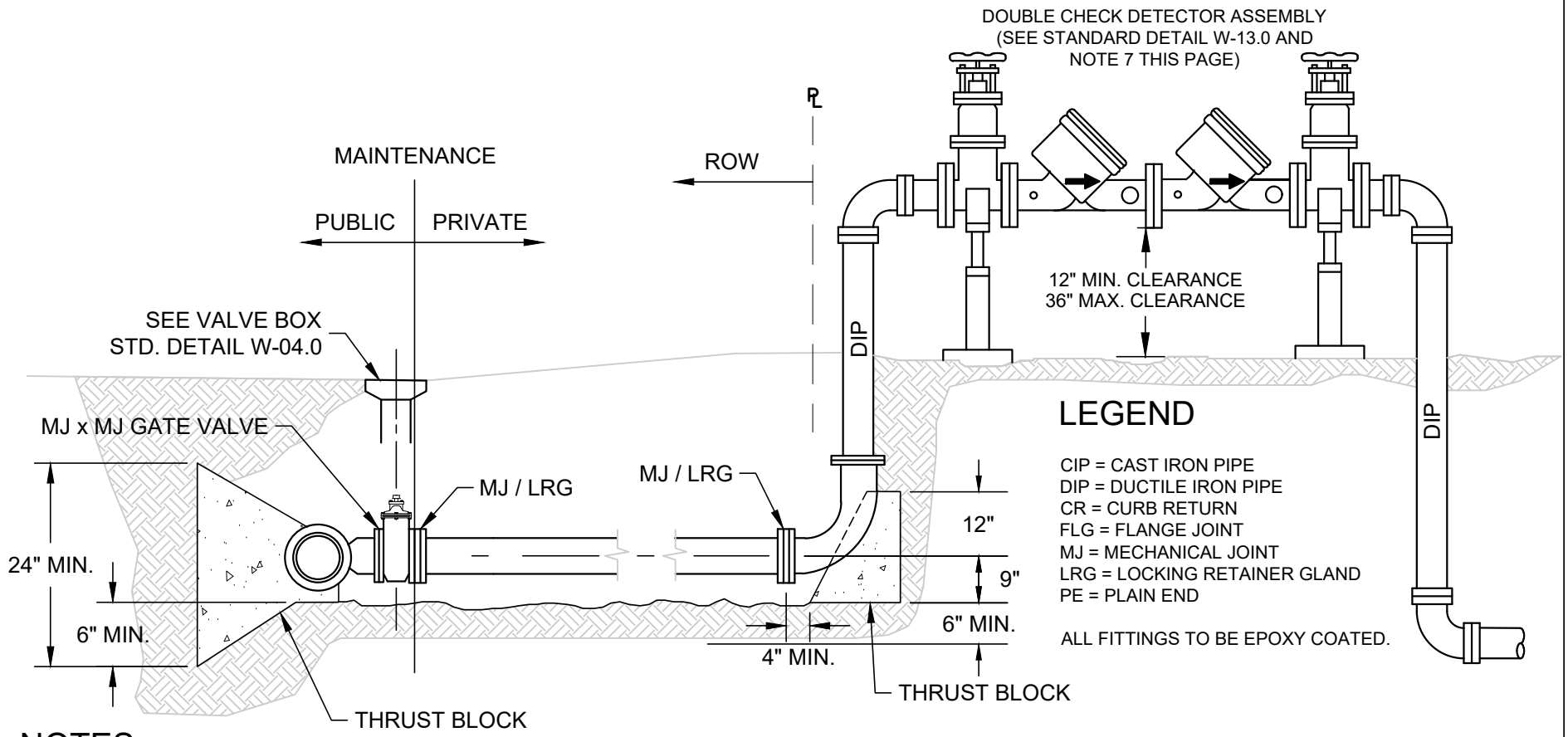
REFERENCE WATER STANDARD DETAILS

W-05.4 4-INCH AND LARGER FIRELINE
W-05.6 PRIVATE WATER MAIN
W-07.0 SERVICE CONNECTION - NOTES 4" AND LARGER
W-07.1 SERVICE CONNECTION 4" AND LARGER
W-07.2 METER VAULT PIPING DETAIL

TRENCH DETAILS

4" OR LARGER CONNECTION

STREETS:	REV. DATE: 4/25	DETAIL: W-05.4.1
TRANS OPS:	APPROVED:	
FACILITIES:	CITY ENGINEER	
WATER RESOURCES: Hammurabi Days	6/18/25 DATE	



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 epoxy coated 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. Prior to installation of backflow prevention assembly thoroughly flush the supply line.
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.
6. NFPA 13 and 13R require a separate fireline. NFPA 13D does not. See Standard Detail W-05.5 for approved methods for connecting private firelines.
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

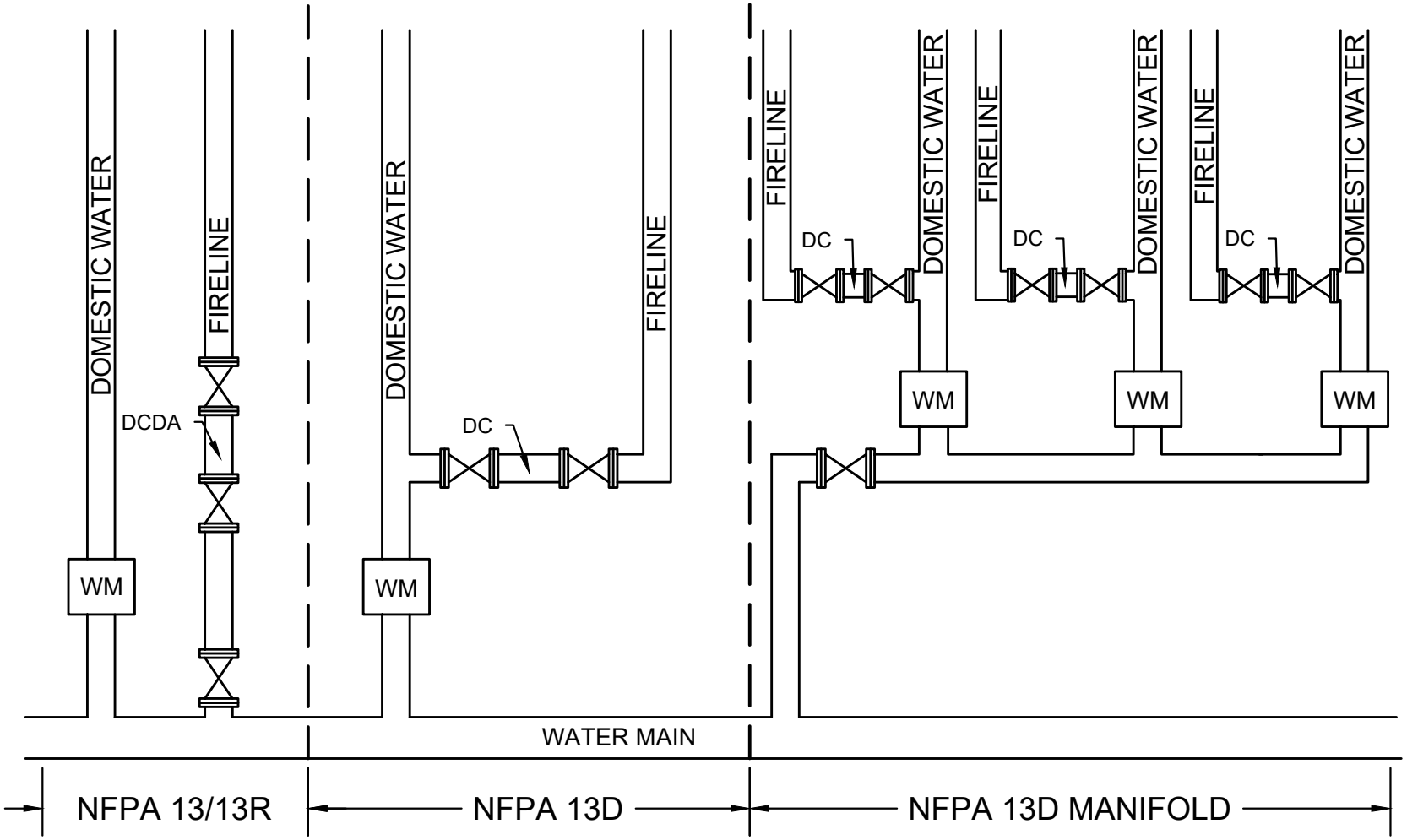
FIRELINE

STREETS:
TRANS OPS:
FACILITIES:
WATER RESOURCES: Hammurabi Days

REV. DATE: 4/25 | DETAIL: W-05.4

APPROVED: Ashleigh Stzoo
CITY ENGINEER

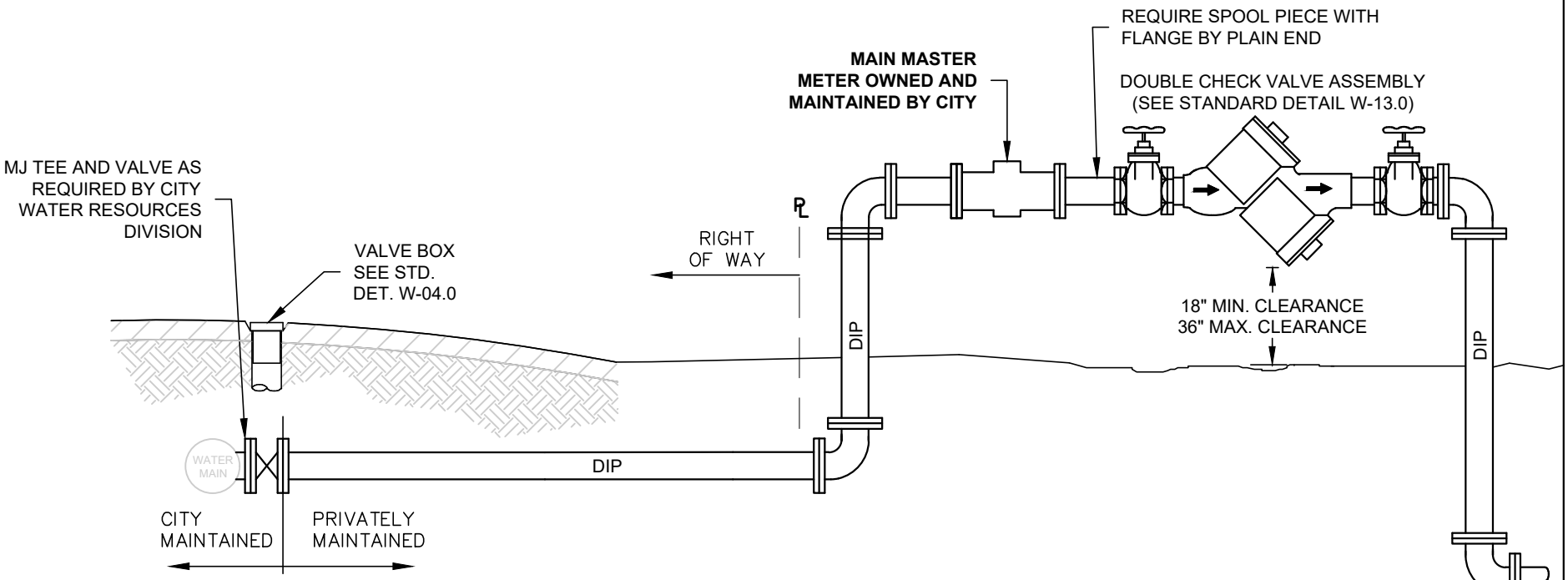
6/18/25
PUBLIC WORKS DIRECTOR



NFPA 13 = COMMERCIAL
NFPA 13D = FIRELINE FOR DOMESTIC DUPLEX - 1/2 FAMILY RESIDENTIAL
NFPA 13R = HOTEL/MOTEL/3 OR MORE UNITS IN A SINGLE BUILDING
NFPA = NATIONAL FIRE PROTECTION ASSOCIATION (FIRE SPRINKLER SYSTEM)
DCDA = DOUBLE CHECK DETECTOR ASSEMBLY
DC = DOUBLE CHECK ASSEMBLY

APPROVED METHODS FOR CONNECTING PRIVATE FIRELINES

STREETS:	REV. DATE: 4/25
TRANS OPS:	DETAIL: W-05.5
FACILITIES:	APPROVED: Ashleigh Stokes
WATER RESOURCES: Hammurabi Days	CITY ENGINEER
	6/18/25 DATE



NOTES

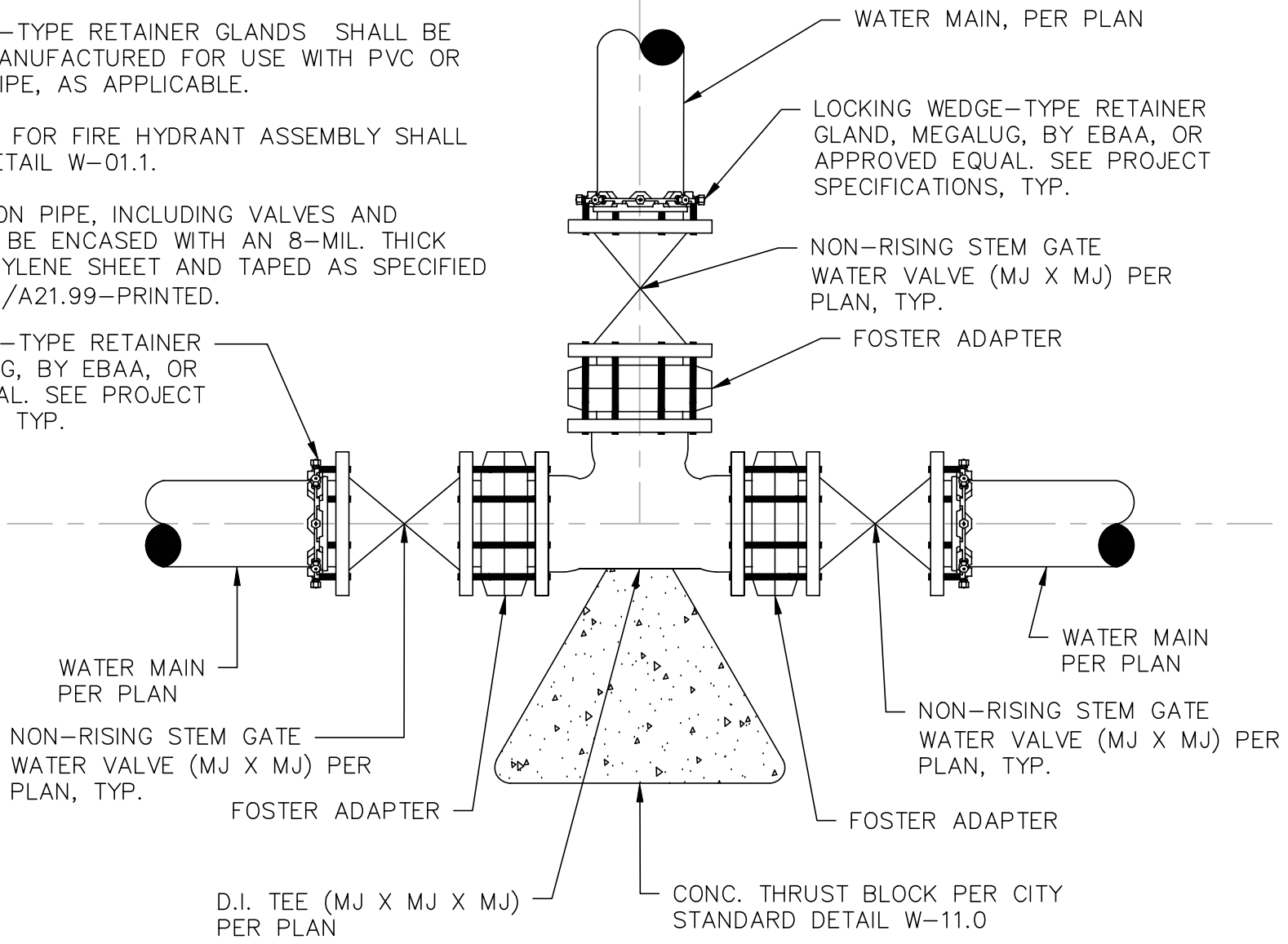
1. Master meter shall be approved by Water Distribution and purchased by customer.
2. 3-inch meters shall have a 4-inch service connection and all 4-inch and larger piping shall be of the same size as the meter.
3. All pipe in the street right-of-way shall be D.I.P. with mechanical joints and "MEGALUG" retainer glands or approved equal.
4. All ductile iron pipe, including valves and epoxy coated 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. Prior to installation of the backflow prevention assembly, thoroughly flush the supply line.
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.

PRIVATE WATER MAIN

STREETS:	REV. DATE: 4/25	DETAIL: W-05.6
TRANS OPS:	APPROVED: Ashleigh Stzoo	
FACILITIES:	CITY ENGINEER	
WATER RESOURCES: Hammurabi Days	6/18/25 DATE	

NOTES:

1. THE CONTRACTOR MAY SUBSTITUTE PIPE SECTIONS BETWEEN FITTINGS THAT ARE LESS THAN 2.0 LF WITH A FOSTER ADAPTER BY INFACT, 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.

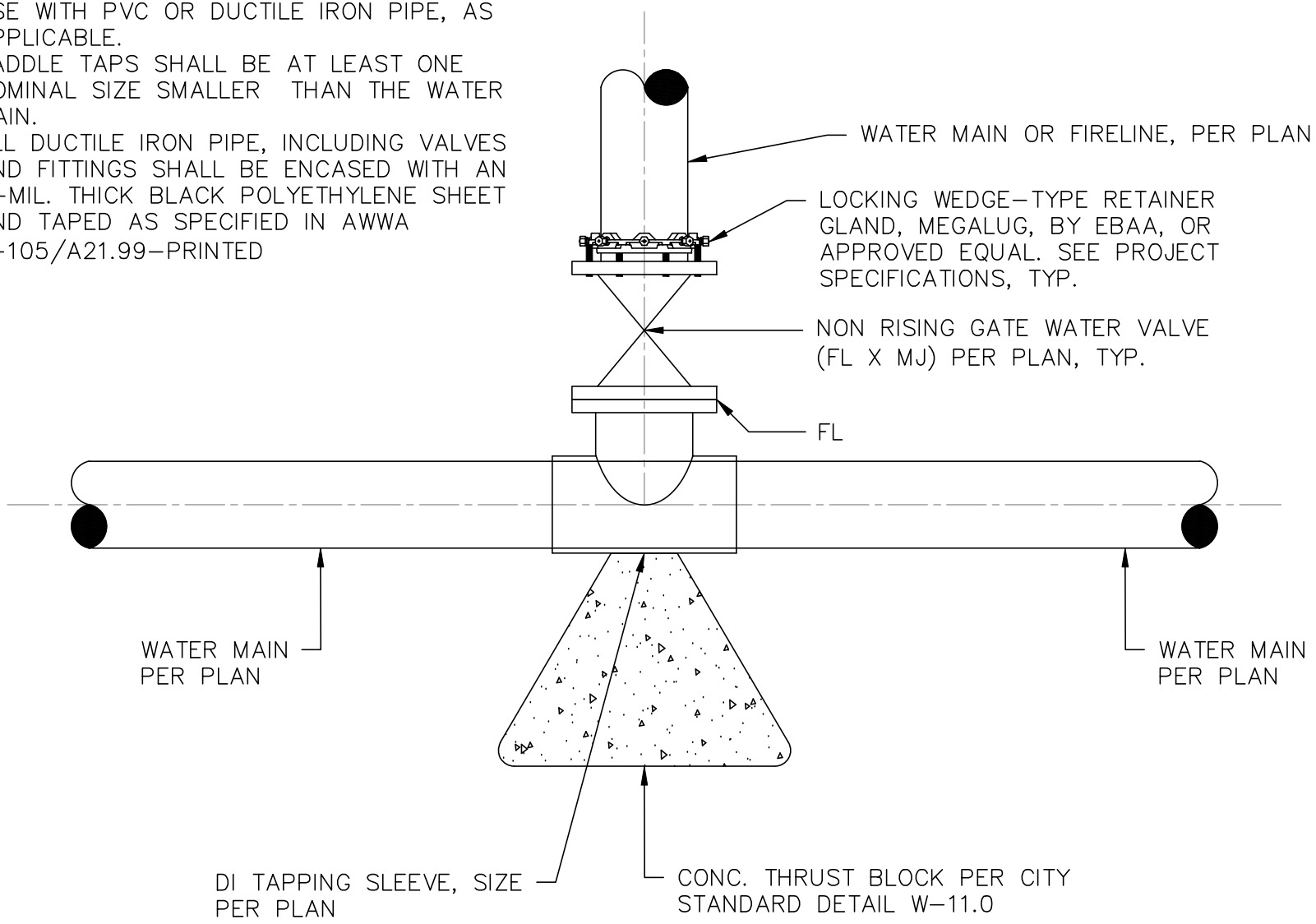


TYPICAL TEE CONSTRUCTION DETAIL

STREETS:	REV. DATE: 5/22	DETAIL: W–05.7
TRANS OPS:	APPROVED:	
FACILITIES:	CITY ENGINEER	
WATER RESOURCES: Hammurabi Days	PUBLIC WORKS DIRECTOR	

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

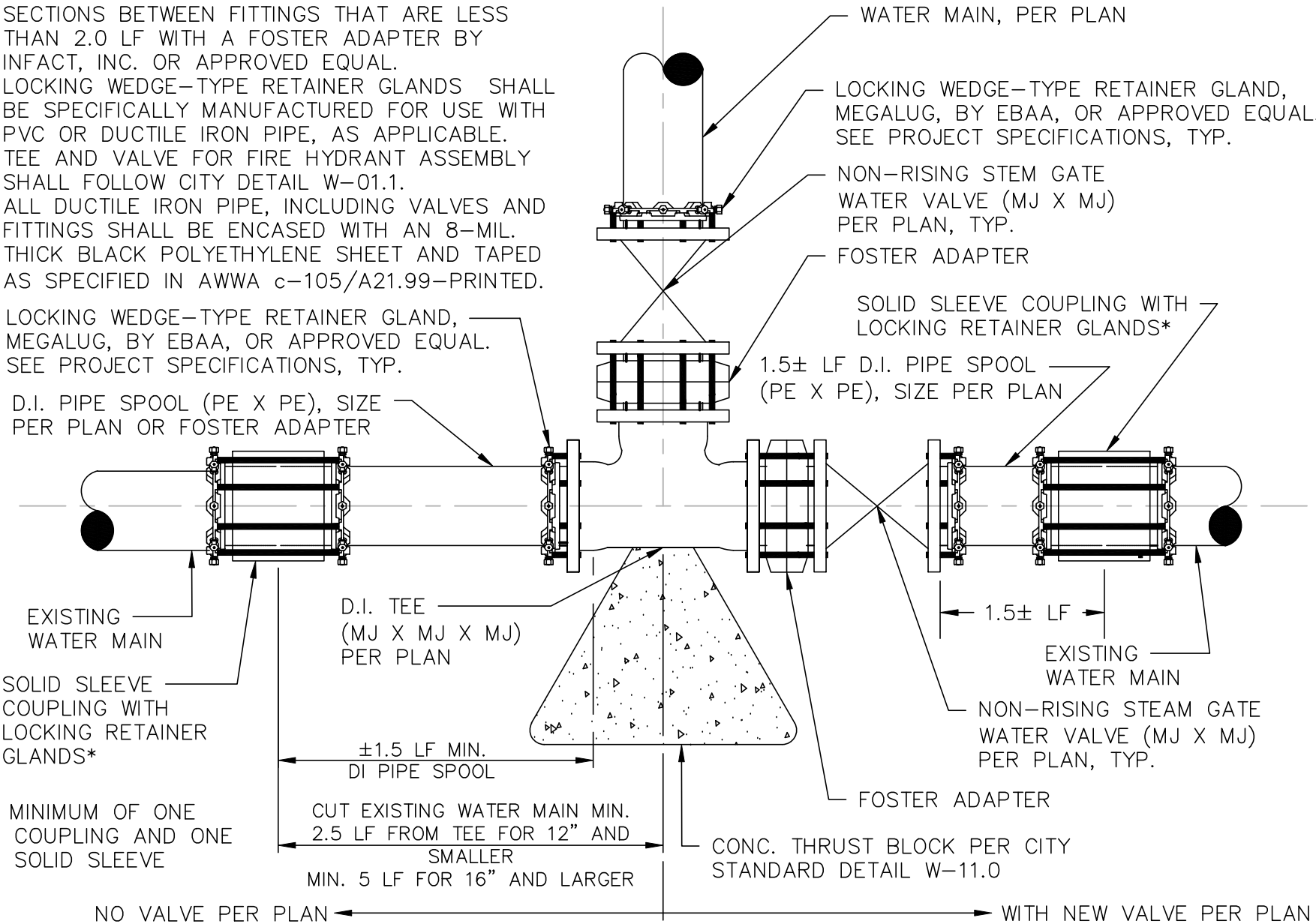


TAPPING SLEEVE
CONSTRUCTION DETAIL

STREETS:	REV. DATE: 5/22	DETAIL: W–05.8
TRANS OPS:	APPROVED:	
FACILITIES:	CITY ENGINEER	
WATER RESOURCES: Hammurabi Days	PUBLIC WORKS DIRECTOR	

NOTES:

1. THE CONTRACTOR MAY SUBSTITUTE PIPE SECTIONS BETWEEN FITTINGS THAT ARE LESS THAN 2.0 LF WITH A FOSTER ADAPTER BY INFACT, 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.

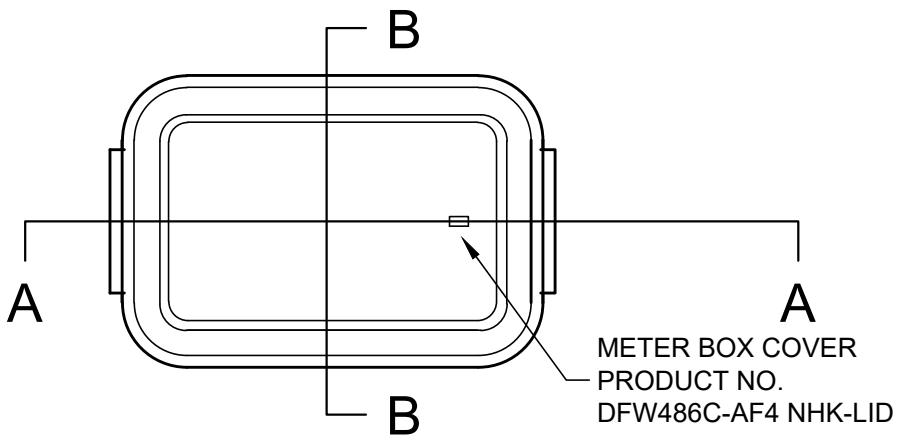


* MINIMUM OF ONE COUPLING AND ONE SOLID SLEEVE

CUT-IN TEE

CONSTRUCTION DETAIL

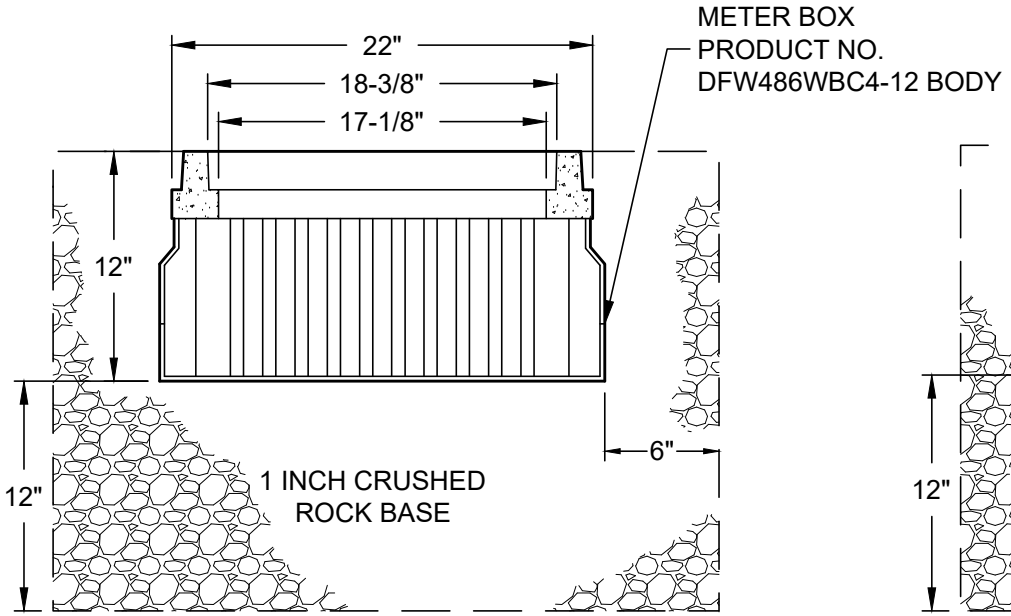
STREETS:	REV. DATE: 5/22	DETAIL: W-05.9
TRANS OPS:	APPROVED:	
FACILITIES:	CITY ENGINEER	
WATER RESOURCES: Hammurabi Daya	PUBLIC WORKS DIRECTOR	



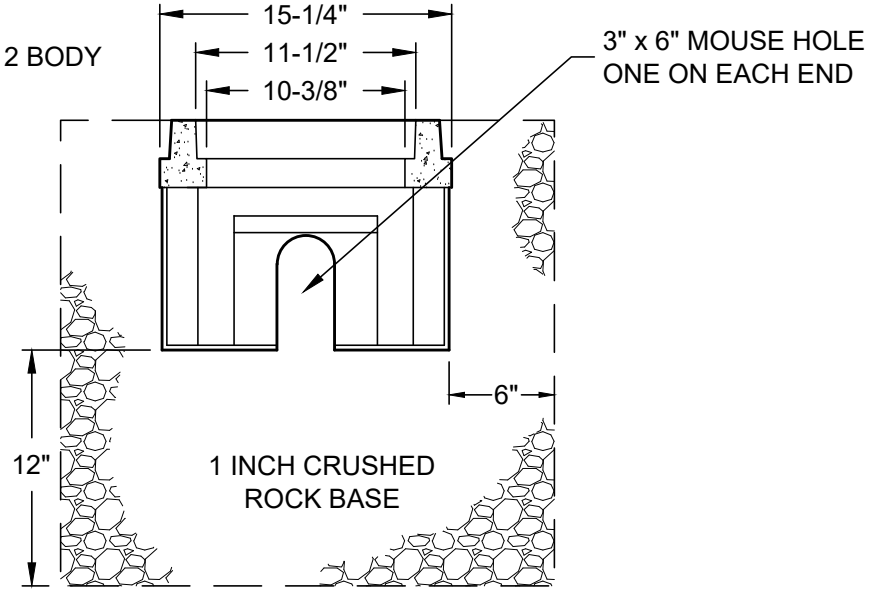
PLAN VIEW

NOTES:

1. Meter box shall be LLDPE material with non-skid HDPE lid as Manufactured by:
   DFW Plastics Inc.
   P.O. Box 648
   Bedford, TX 76095
   (817) 439-3600
   www.dfwplasticsinc.com
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.



SIDE VIEW
SECTION A-A

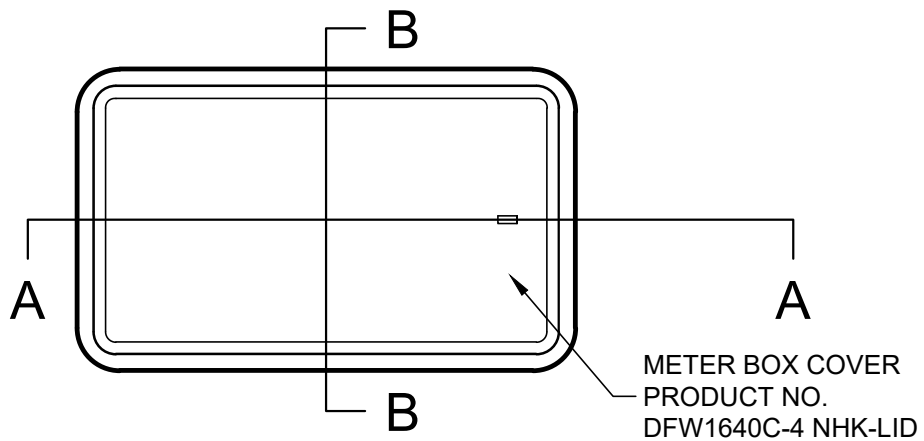


END VIEW
SECTION B-B

METER BOX

5/8-INCH AND 1-INCH METERS

STREETS:	REV. DATE: 4/25 DETAIL: W-06.0
TRANS OPS:	APPROVED:
FACILITIES:	CITY ENGINEER
WATER RESOURCES: Gerald Lajoie	6/18/25 DATE



PLAN VIEW

NOTES:

1. Meter box shall be LLDPE material with non-skid HDPE lid as Manufactured by:
   DFW Plastics Inc.
   P.O. Box 648
   Bedford, TX 76095
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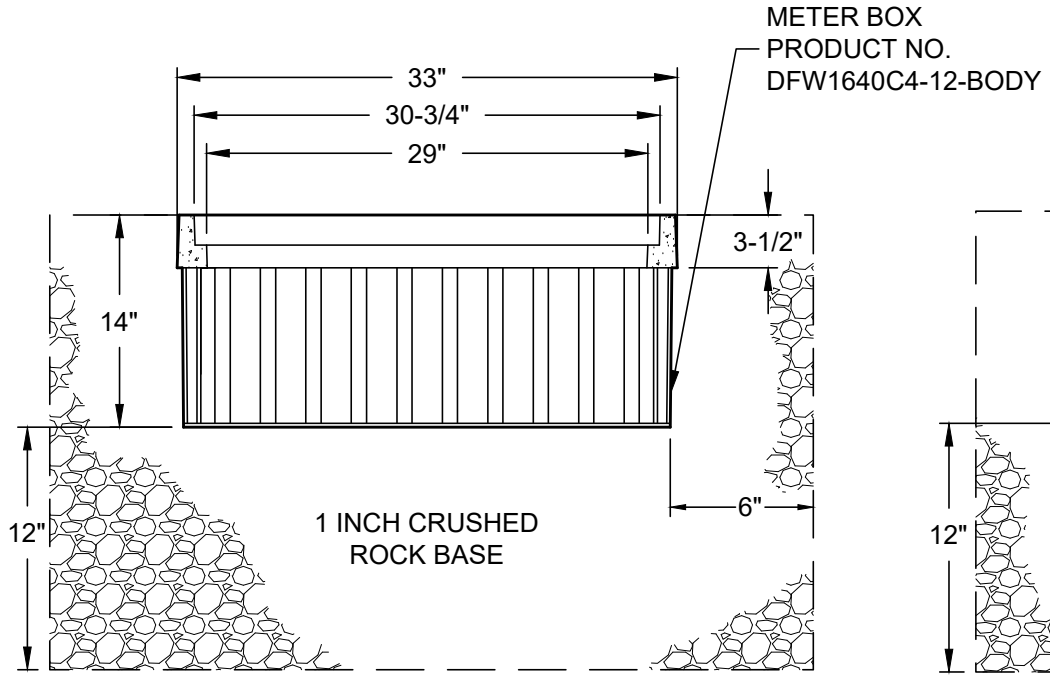
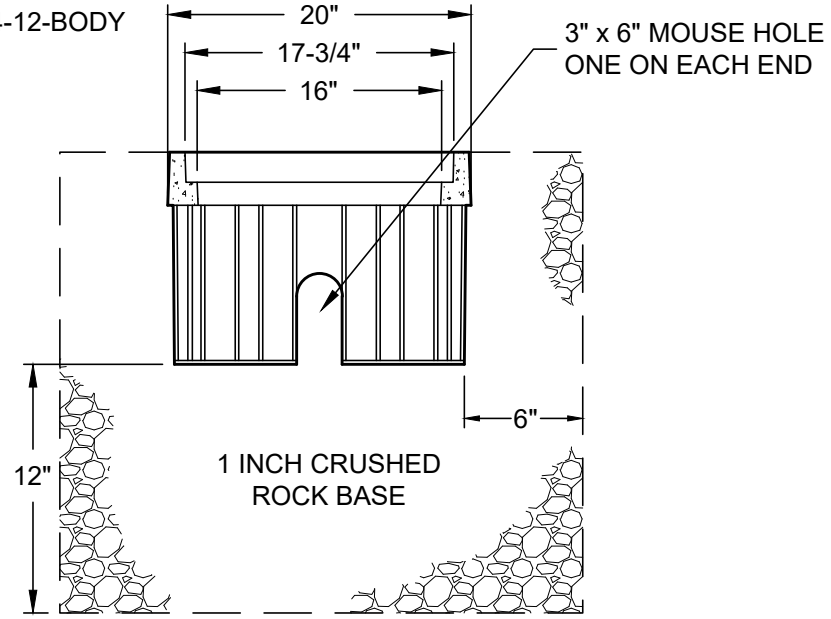


SIDE VIEW
SECTION A-A

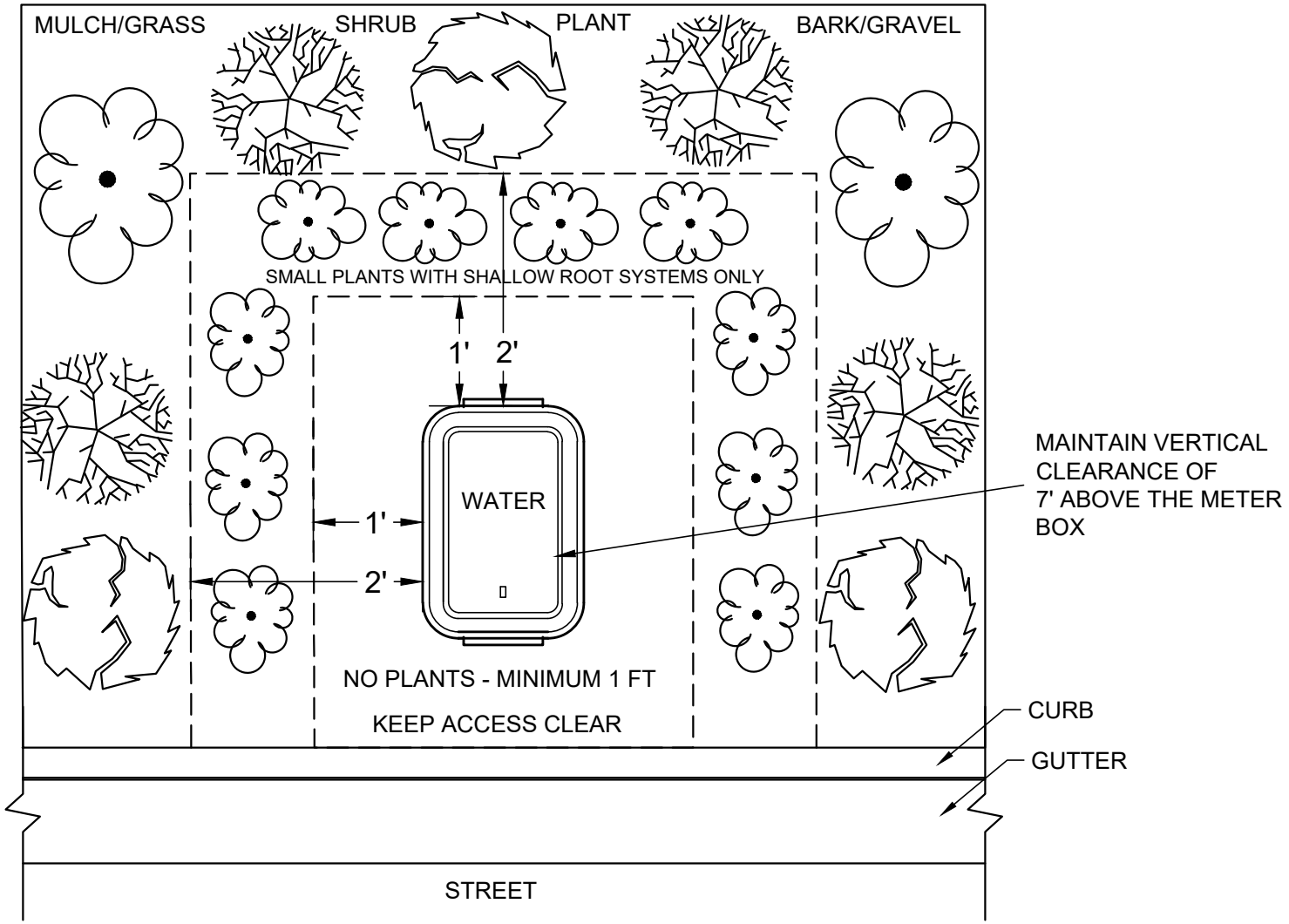


END VIEW
SECTION B-B

METER BOX

1 1/2-INCH AND 2-INCH METERS

STREETS:	REV. DATE: 4/25 DETAIL: W-06.1
TRANS OPS:	APPROVED:
FACILITIES:	CITY ENGINEER
WATER RESOURCES: Gerald Lajoie	6/18/25 DATE



METER BOX CLEARANCE REQUIREMENT

STREETS:		REV. DATE: 5/25	DETAIL: W-06.2
TRANS OPS:		APPROVED:	
FACILITIES:		CITY ENGINEER	
WATER RESOURCES:	Gerald Lajoie	6/18/25	
		DATE	

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.

SERVICE CONNECTION
4" AND LARGER (NOTES)

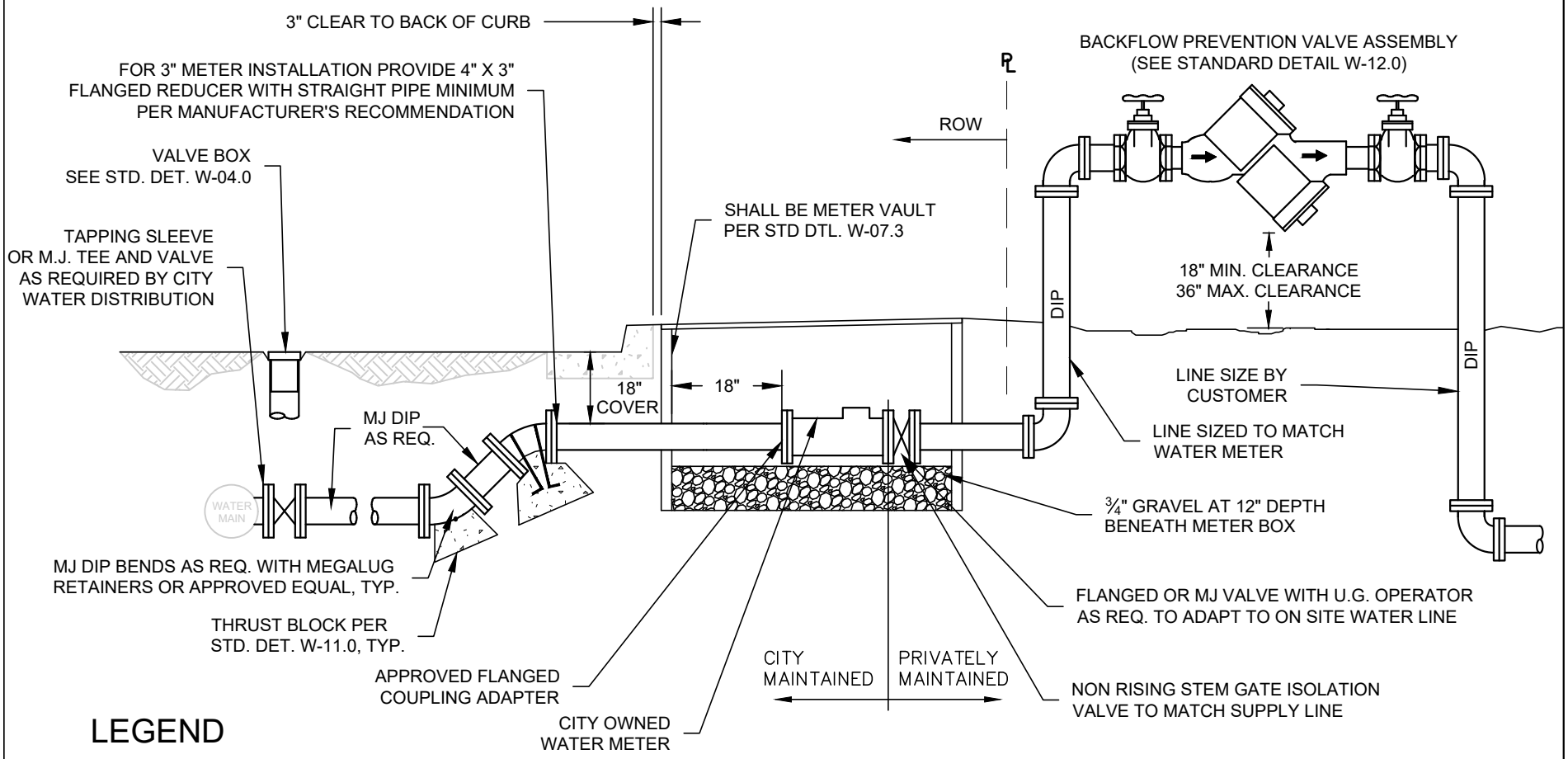
STREETS:
TRANS OPS:
FACILITIES:
WATER RESOURCES: Hammurabi Days

REV. DATE: 5/22 | DETAIL: W-07.0

APPROVED:

CITY ENGINEER

PUBLIC WORKS DIRECTOR



LEGEND

CIP = CAST IRON PIPE
DIP = DUCTILE IRON PIPE
CR = CURB RETURN
FLG = FLANGE JOINT
MJ = MECHANICAL JOINT
LRG = LOCKING RETAINER GLAND
PE = PLAIN END

ALL FITTINGS TO BE EPOXY COATED.

METER	MIN. SERVICE LINE DIAM
3"	4"
4"	4"
6"	6"
8"	8"

4-INCH AND LARGER

SERVICE CONNECTION

STREETS:
TRANS OPS:
FACILITIES:
WATER RESOURCES: Hammurabi Days

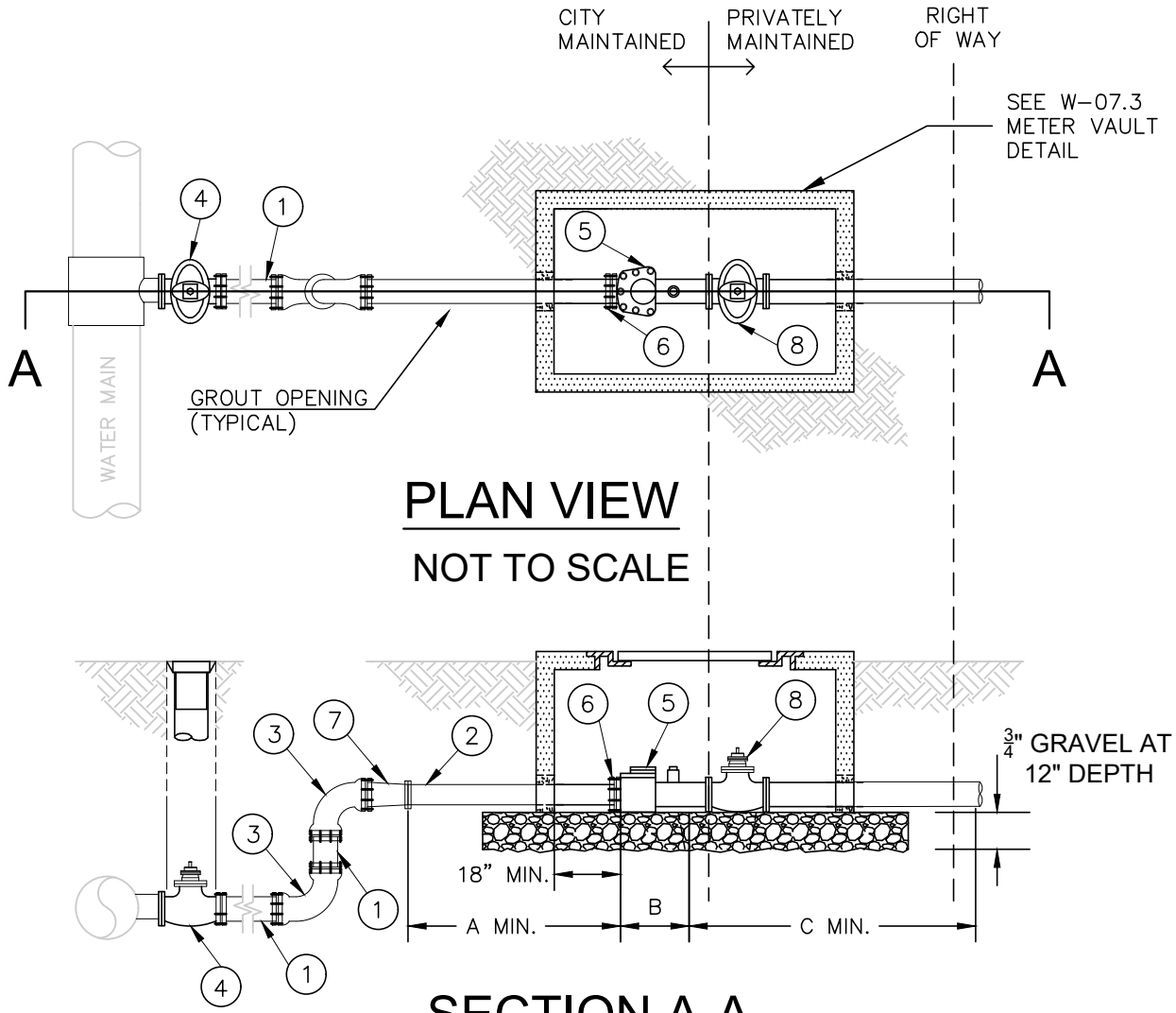
REV. DATE: 4/25 DETAIL: W-07.1

APPROVED:

CITY ENGINEER

6/18/25

DATE



ITEM	DESCRIPTION
1	4" OR LARGER DIP PIPE, AWWA C150/151
2	3" OR LARGER DIP PIPE, AWWA C150/151 (LENGTH AS REQUIRED)
3	4" OR LARGER DIP ELBOW, MJ X MJ WITH RETAINER GLANDS. ALL BENDS REQUIRE THRUST BLOCKS
4	4" OR LARGER GATE VALVE, NRS, VALVE NUT AND VALVE CAN OUTSIDE VAULT
5	CITY OWNED 3" OR LARGER METER IN HCF READING
6	3", 4" OR 6" FLANGE COUPLING ADAPTER
7	4" X 3" REDUCER DI IF NEEDED
8	NON RISING STEM GATE ISOLATION VALVE TO MATCH METER SIZE

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"	30 1/8"	20"
MAX	18"	--	--	--

LEGEND

CIP = CAST IRON PIPE
DIP = DUCTILE IRON PIPE
CR = CURB RETURN
FLG = FLANGE JOINT
MJ = MECHANICAL JOINT
LRG = LOCKING RETAINER GLAND
PE = PLAIN END

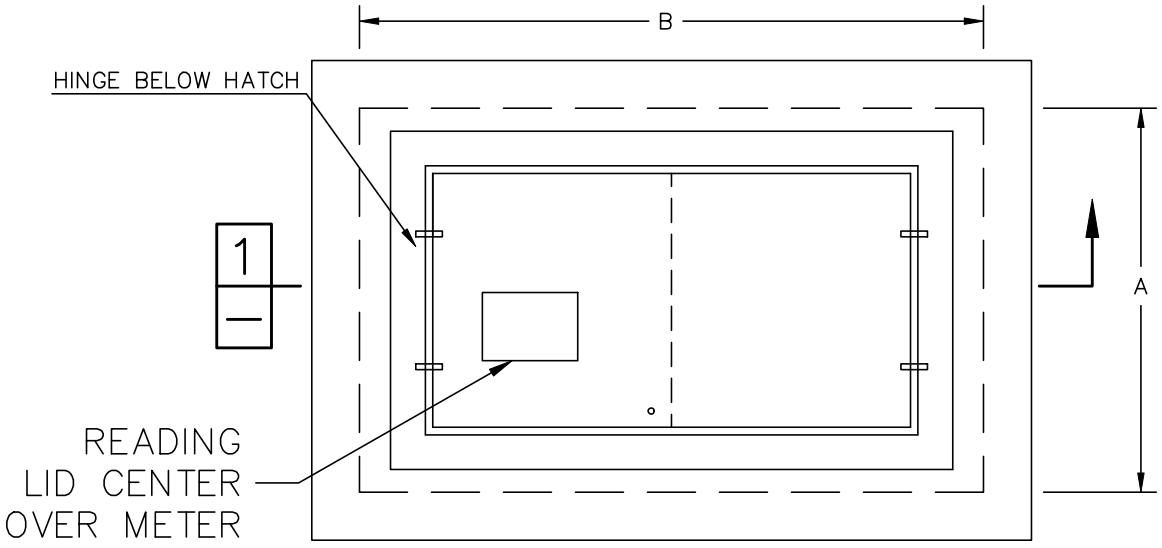
ALL FITTINGS TO BE EPOXY COATED.

METER VAULT PIPING DETAIL

3" METER AND LARGER

STREETS:
TRANS OPS:
FACILITIES:
WATER RESOURCES: Gerald Lajoie

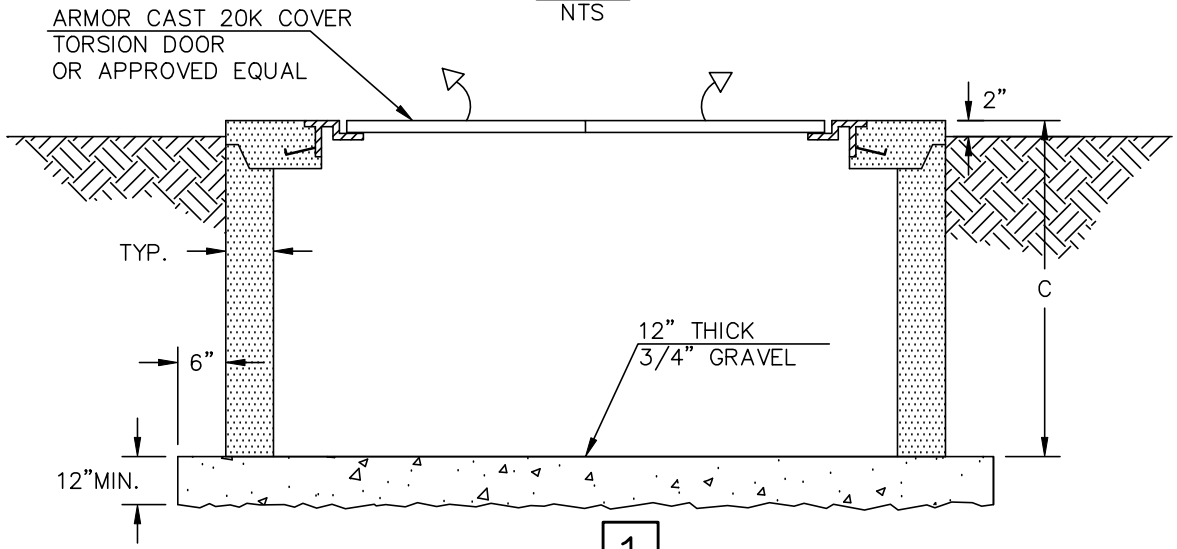
REV. DATE: 4/25
DETAIL: W-07.2
APPROVED:
CITY ENGINEER
6/18/25
DATE



PLAN
NTS

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

LOAD RATING
20K



SECTION 1
NTS

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

VAULT DIMENSIONS			
METER SIZE	A	B	C
3" - 4"	30"	48"	36"
6" - 8"	36"	60"	36"

METER VAULT DETAIL

PLAN & SECTION VIEW

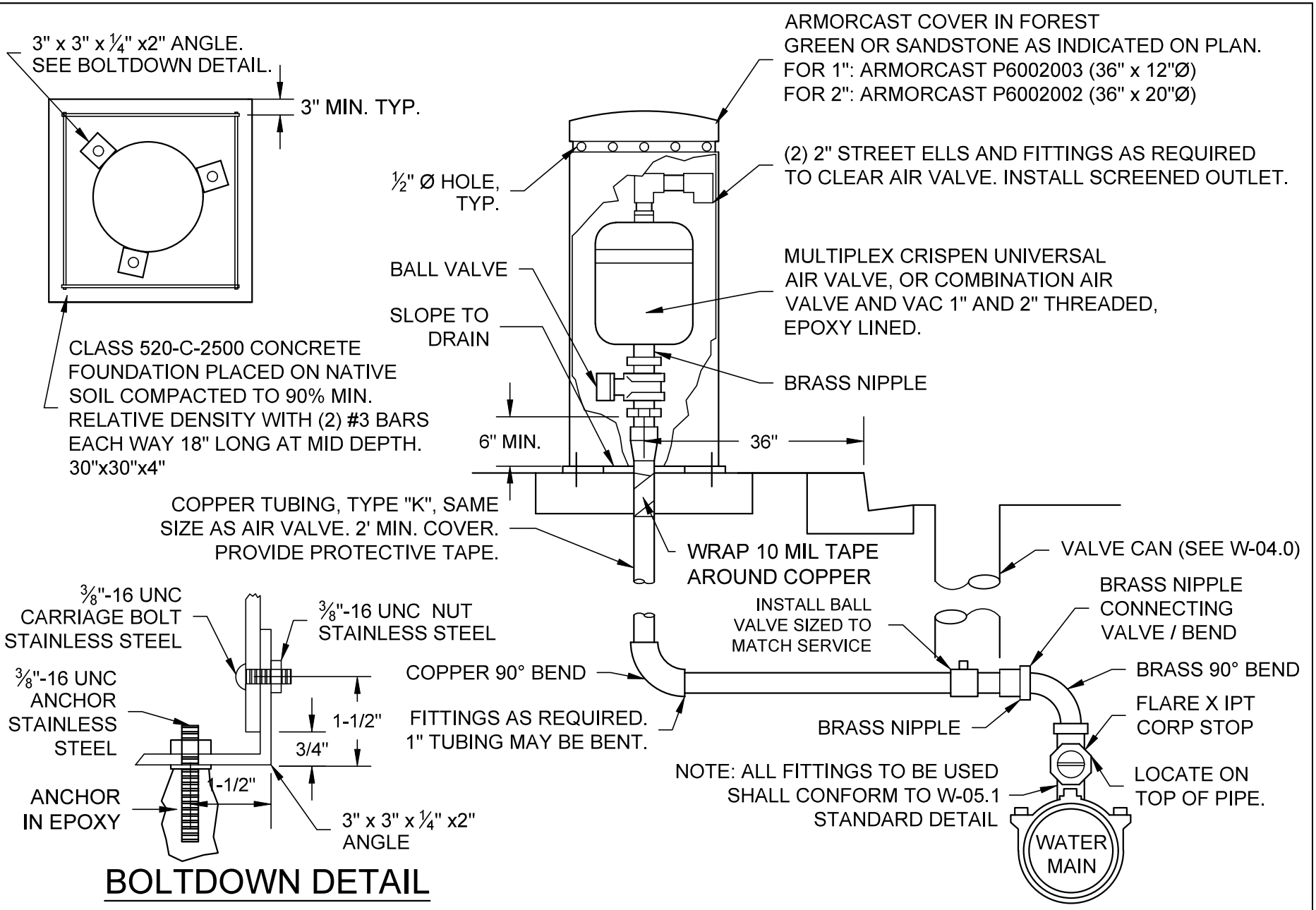
STREETS:
TRANS OPS:
FACILITIES:
WATER RESOURCES: Hammurabi Days

REV. DATE: 5/22 | DETAIL: W-07.3

APPROVED:

CITY ENGINEER

PUBLIC WORKS DIRECTOR



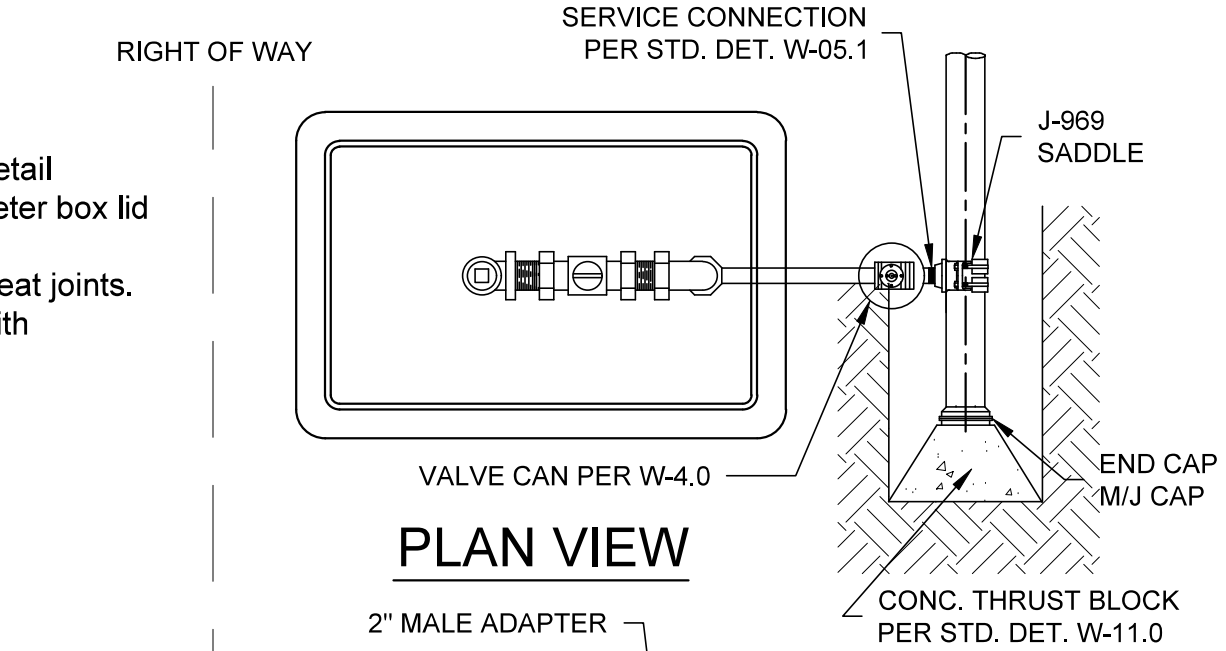
AIR/VACUUM VALVE

1-INCH AND 2-INCH

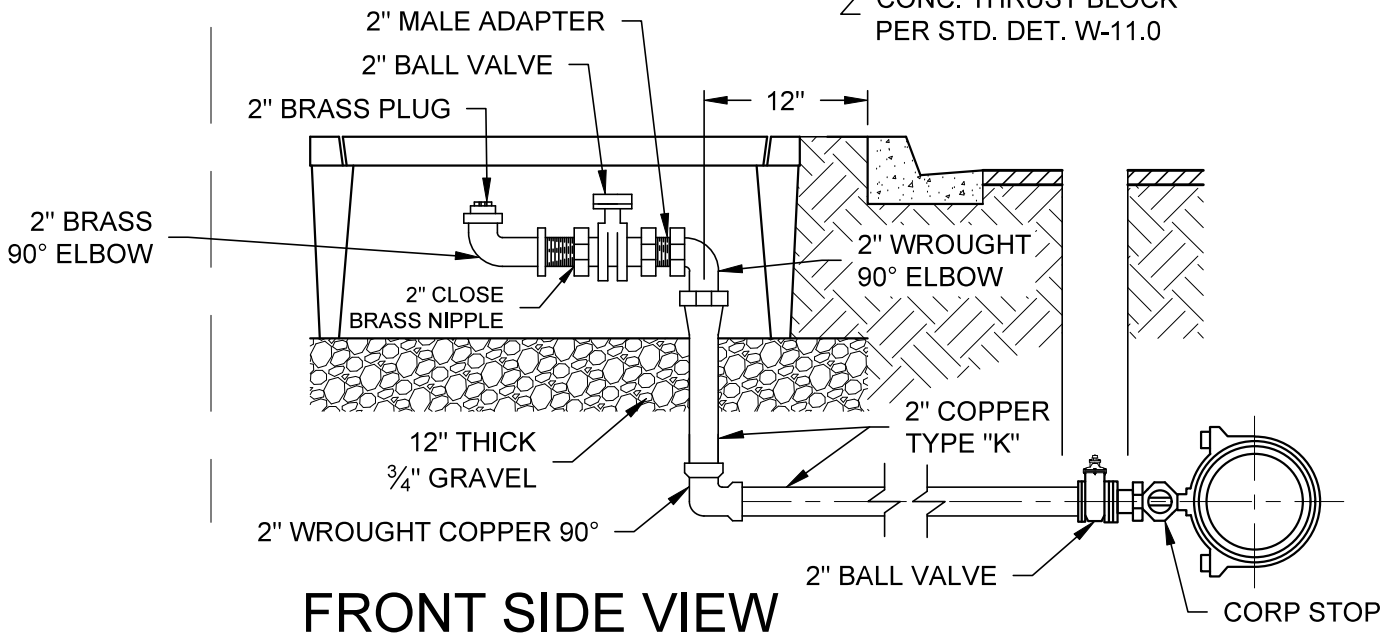
STREETS:	REV. DATE: 5/22	DETAIL: W-08.0
TRANS OPS:	APPROVED:	
FACILITIES:	CITY ENGINEER	
WATER RESOURCES: Hammurabi Days	PUBLIC WORKS DIRECTOR	

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



PLAN VIEW



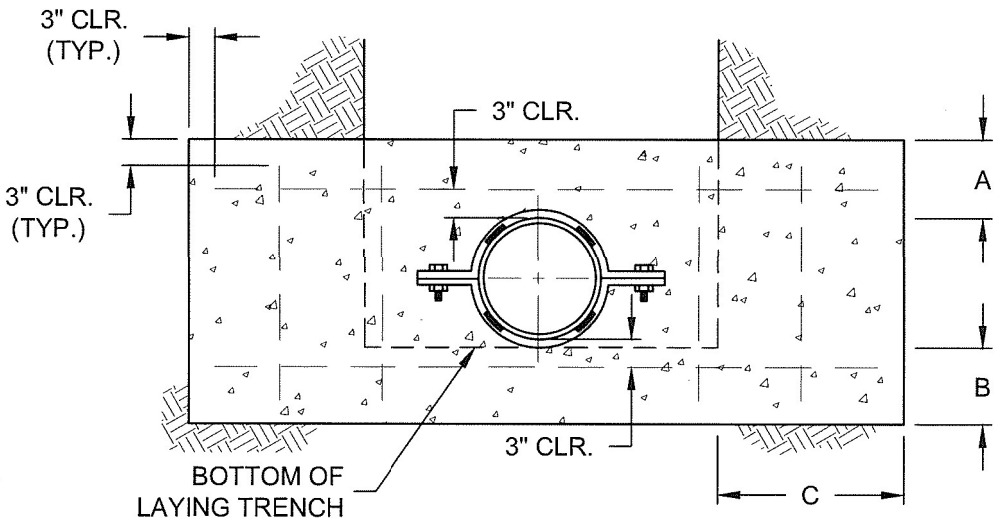
FRONT SIDE VIEW

2-INCH BLOW OFF

STREETS:	REV. DATE: 5/22	DETAIL: W-09.0
TRANS OPS:	APPROVED:	
FACILITIES:	CITY ENGINEER	
WATER RESOURCES: Hammurabi Days	PUBLIC WORKS DIRECTOR	

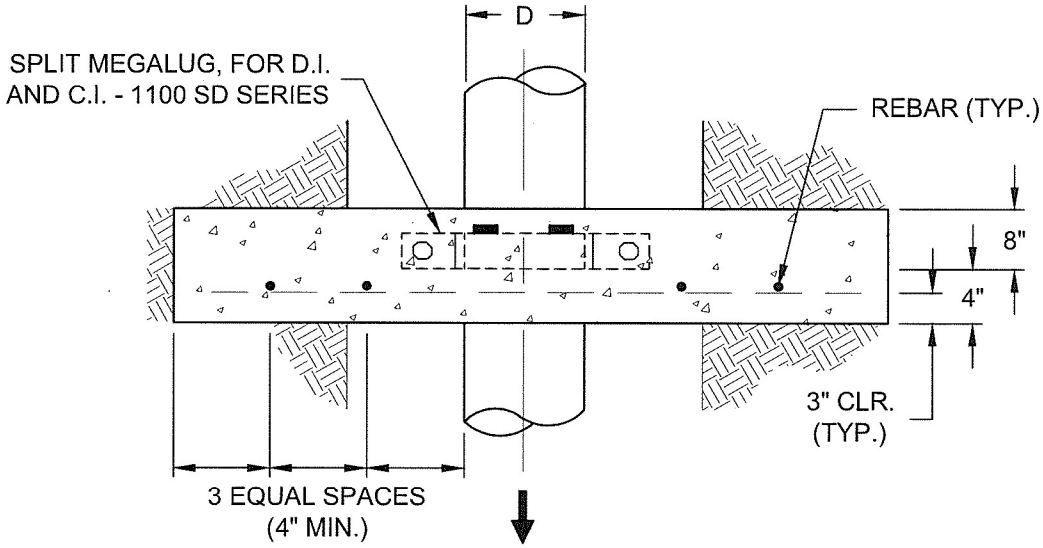
MAIN SIZE	PRESSURE (PSI)	A	B	C
8" OR LESS	0-300	6"	6"	12"
10"	0-150	6"	6"	12"
10"	150-300	6"	8"	15"
12"	0-150	6"	6"	12"
12"	150-300	6"	10"	18"

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



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.



CONCRETE THRUST COLLAR

STREETS:	REV. DATE: 11/12	DETAIL: W-10.0
TRANS OPS:	APPROVED:	
FACILITIES:	CITY ENGINEER	
WATER RESOURCES:	PUBLIC WORKS DIRECTOR	

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 2000psf soil bearing capacity):

	Horizontal Bends (required S.F. bearing area)					Vertical bends (required C.Y.)		
Pipe inner diameter (in.)	Tees, crosses, & plugs	90°	45°	22.5°	11.25°	45°	22.5°	11.25°
4	2.0	2.9	1.6	0.8	0.4	0.8	0.4	0.2
6	4.2	5.9	3.2	1.6	0.8	1.7	0.9	0.4
8	7.2	10.2	5.5	2.8	1.4	2.9	1.5	0.8
10	10.9	15.4	8.3	4.2	2.1	4.4	2.2	1.1
12	15.4	21.8	11.8	6.0	3.0	6.2	3.2	1.6
14	20.7	29.3	15.8	8.1	4.1	8.4	4.3	2.1
16	26.8	37.8	20.5	10.4	5.2	10.8	5.5	2.8

SOIL MULTIPLIERS:

Actual Soil Bearing (psf)	Multiplier
1000	2.00
1500	1.33
2000	1.00
2500	0.80
3000	0.67
3500	0.57

WATER MULTIPLIERS:

Actual Test Water Pressure (psi)	Multiplier
100	0.67
150	1.00
200	1.33
250	1.67
300	2.00
350	2.33

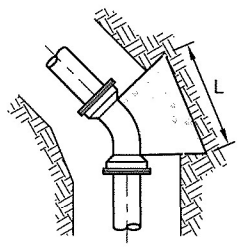
EXAMPLE:

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

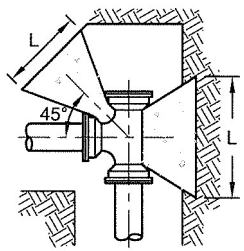
From Thrust Block Requirements table, 10" pipe on a 90° bend requires 15.4 S.F. bearing area.

Adjust values using multiplier tables:

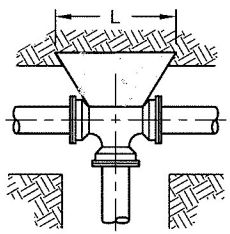
Required S.F. = (Table value)(Multiplier, 1500psf soil)(Multiplier, 250psi water)
= (15.4 S.F.)(1.33)(1.67)
= 34.2 S.F. required thrust block bearing area



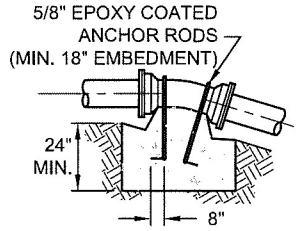
HORIZONTAL BEND



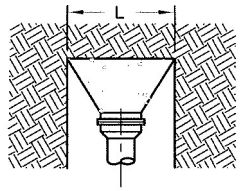
TEE (ONE END PLUGGED)



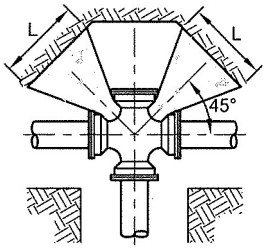
TEE



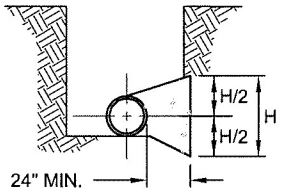
VERTICAL BEND



END CAP



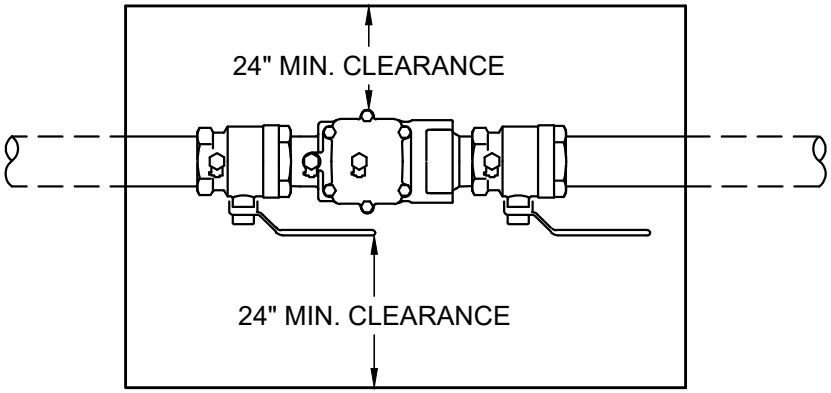
CROSS (ONE END PLUGGED)



TYPICAL SECTION

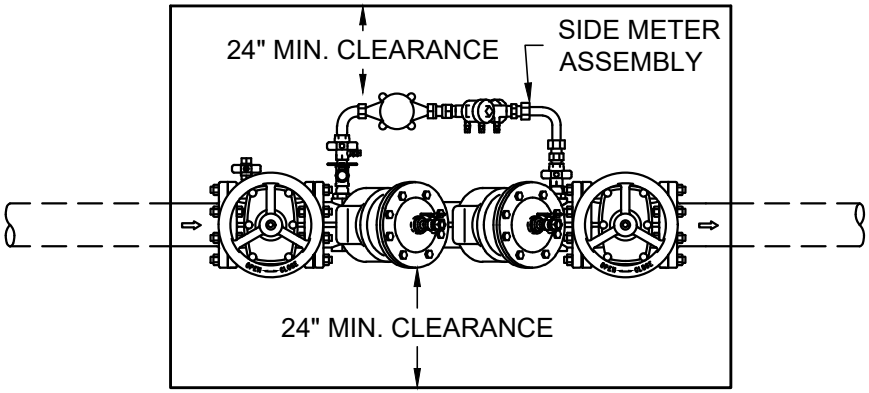
CONCRETE THRUST BLOCK

STREETS:	REV. DATE: 11/12 DETAIL: W-11.0
TRANS OPS:	APPROVED:
FACILITIES:	CITY ENGINEER
WATER RESOURCES:	PUBLIC WORKS DIRECTOR



TOP VIEW

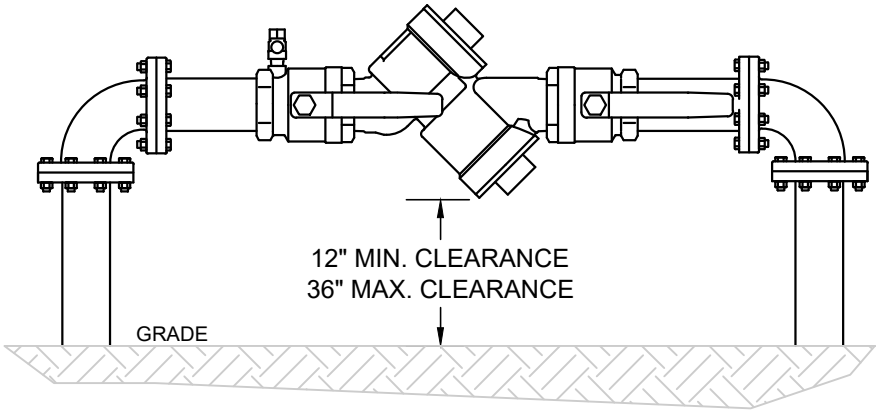
(SIZES 3/4" THROUGH 2")



TOP VIEW

(SIZES 2-1/2" AND LARGER)

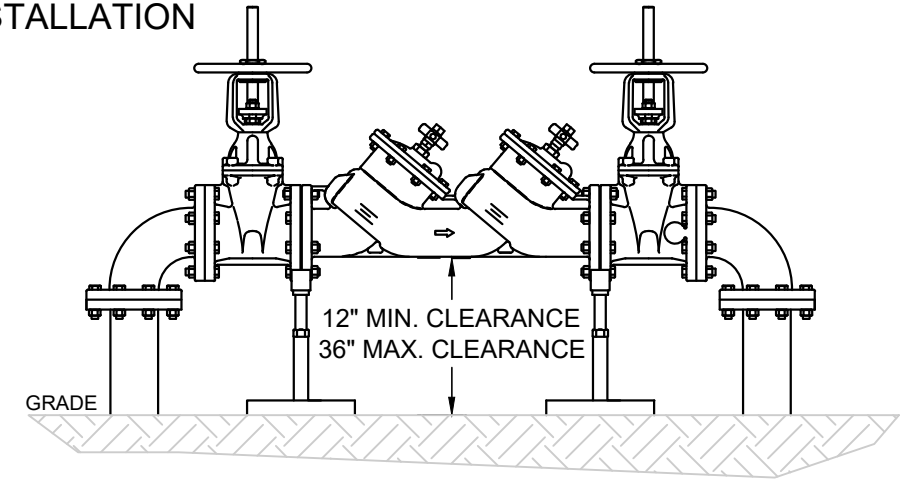
OUTSIDE INSTALLATION



DOUBLE CHECK VALVE

SIDE VIEW

(SIZES 3/4" THROUGH 2")



DOUBLE CHECK DETECTOR CHECK

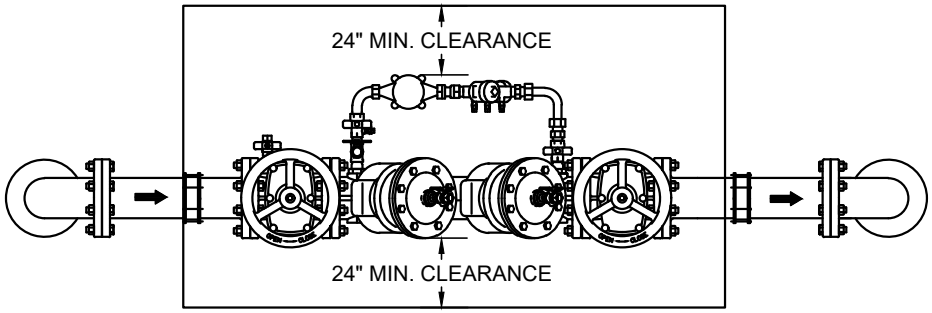
SIDE VIEW

(SIZES 2-1/2" AND LARGER)

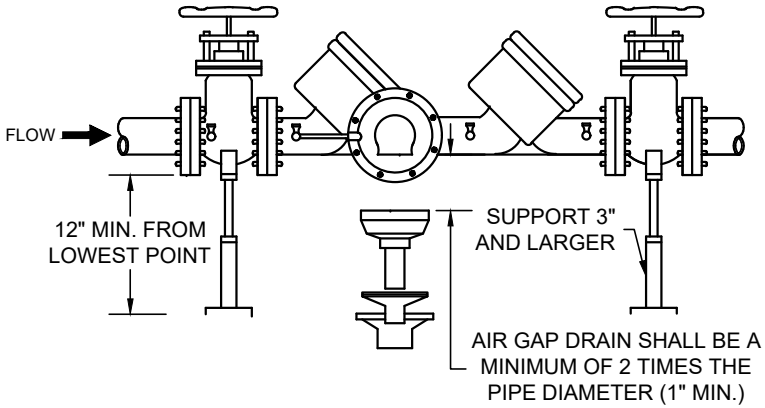
DOUBLE CHECK

BACKFLOW PREVENTION ASSEMBLY

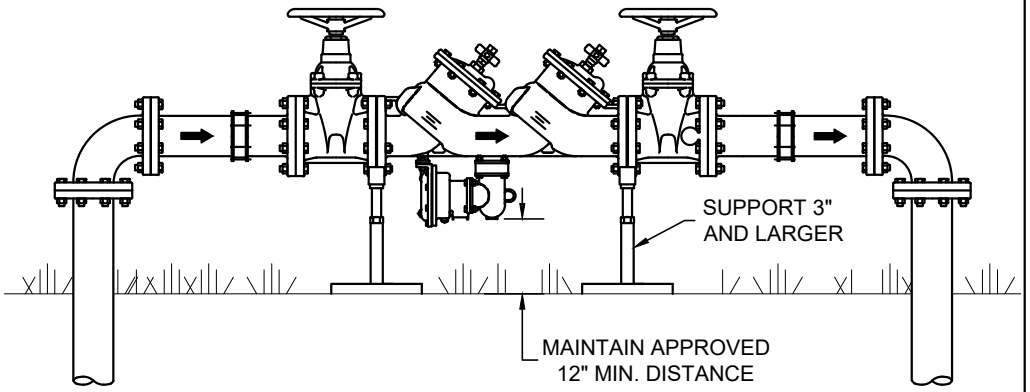
STREETS:	REV. DATE: 4/25 DETAIL: W-12.0
TRANS OPS:	APPROVED: Ashleigh Stzoo
FACILITIES:	CITY ENGINEER
WATER RESOURCES: Hammurabi Days	6/18/25 DATE



INDOOR/OUTDOOR INSTALLATION WITH DETECTOR
TOP VIEW



INDOOR INSTALLATION
SIDE VIEW

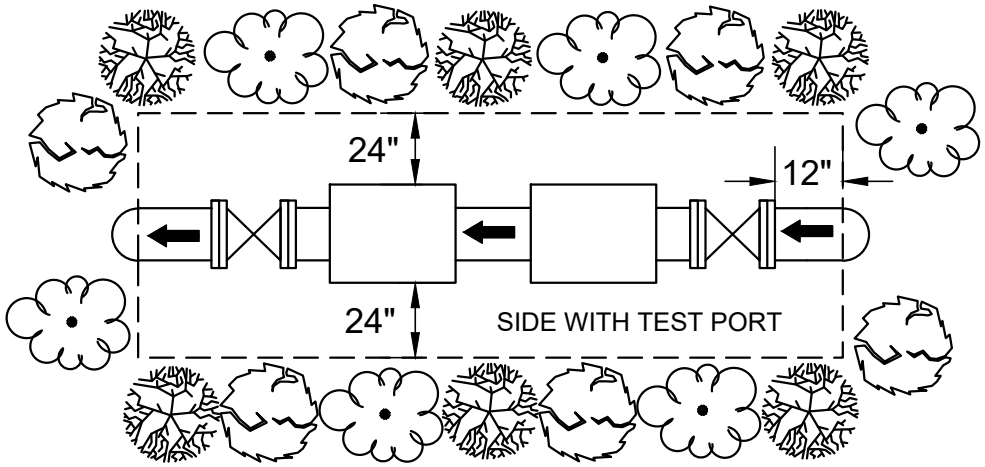


OUTDOOR INSTALLATION WITH DETECTOR
SIDE VIEW

REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTION ASSEMBLY	STREETS: TRANS OPS: FACILITIES: WATER RESOURCES: Hammurabi Days	REV. DATE: 4/25 DETAIL: W-12.1 APPROVED: Ashleigh Stokes CITY ENGINEER 6/18/25 DATE

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

PLANTS AT MATURE GROWTH



1. The Backflow assembly 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/Cross-Connection Control Policy Handbook.

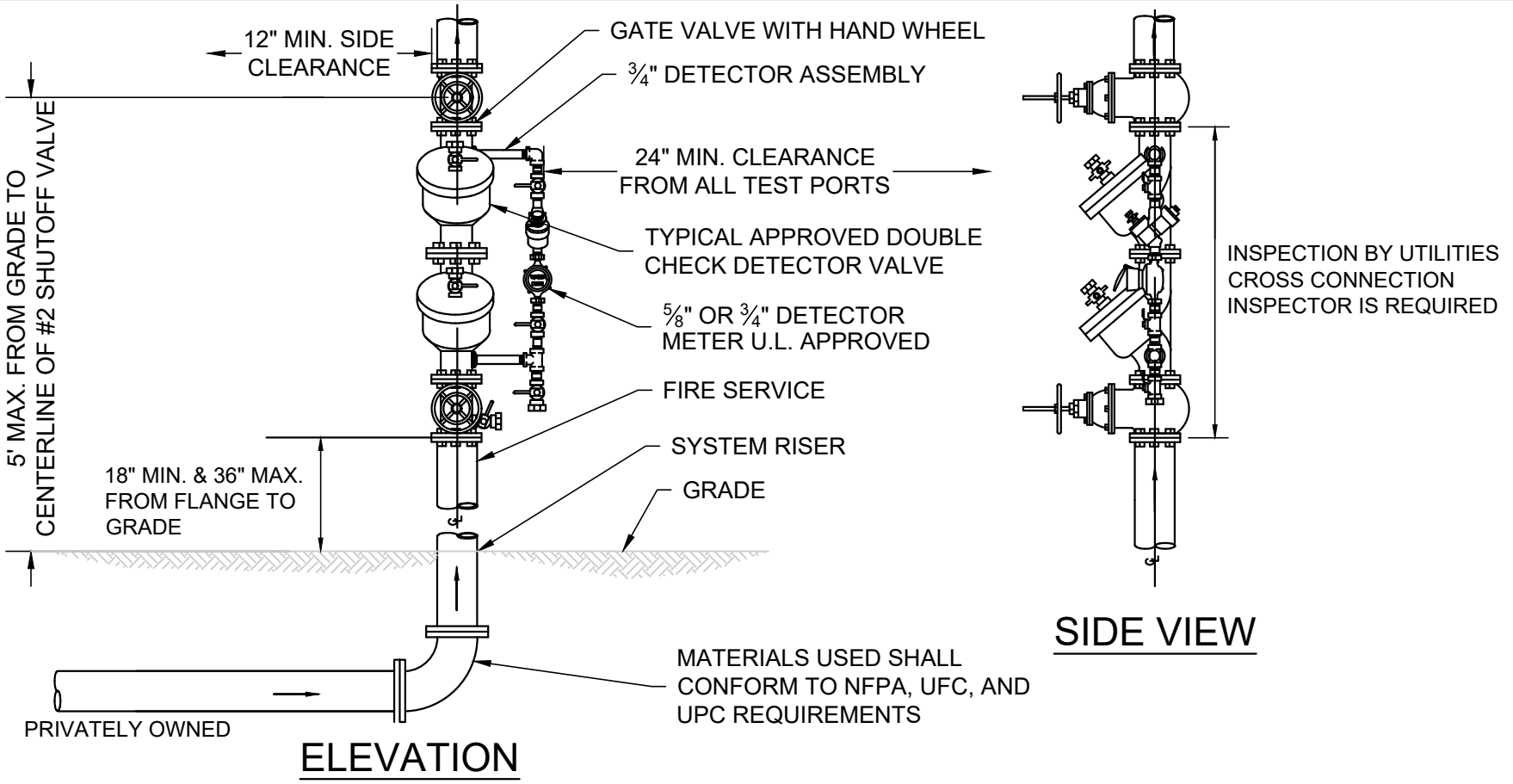
4. The Backflow must be tested upon installation. Water Service shall remain off until a passing test report has been received and reviewed by the Cross-Connection Specialist.

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.

SEAL OF THE CITY OF SANTA BARBARA CALIFORNIA	BACKFLOW PREVENTION ASSEMBLY INSTALLATION NOTES	STREETS: TRANS OPS: FACILITIES: WATER RESOURCES: Hammurabi Days	REV. DATE: 4/25 DETAIL: W-12.2 APPROVED: Ashleigh Stzoo CITY ENGINEER 6/18/25 DATE



ELEVATION

SIDE VIEW

NOTES:

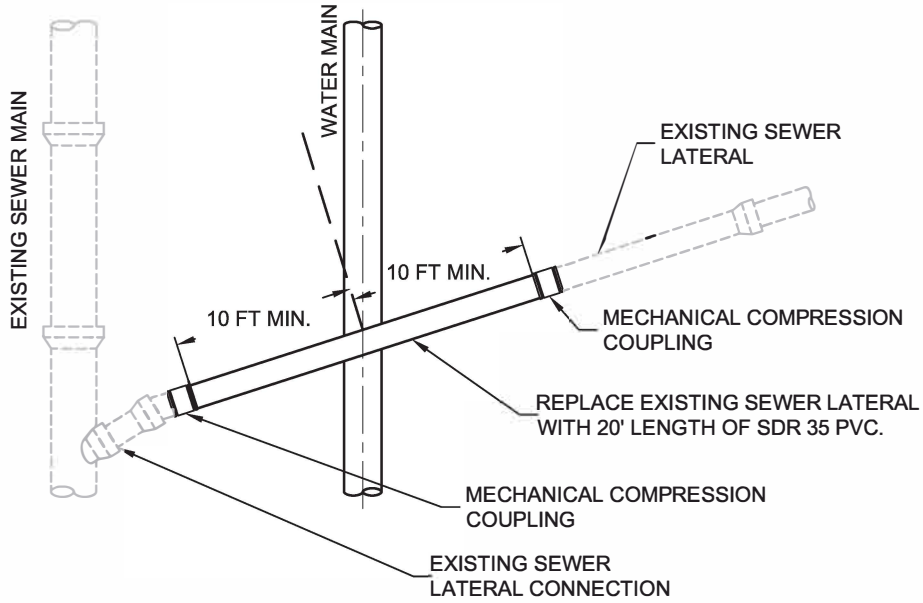
1. Assembly and installation shall conform to Standard Detail W-13.0.
2. Double check detector required on all potable dedicated firelines.
3. Minimum clearance on any side of backflow with a test port shall be 24 inches.
4. Clearance from detector side of backflow assembly shall be a minimum of 24" 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.

DOUBLE DETECTOR CHECK ASSEMBLY VERTICAL INSTALLATION

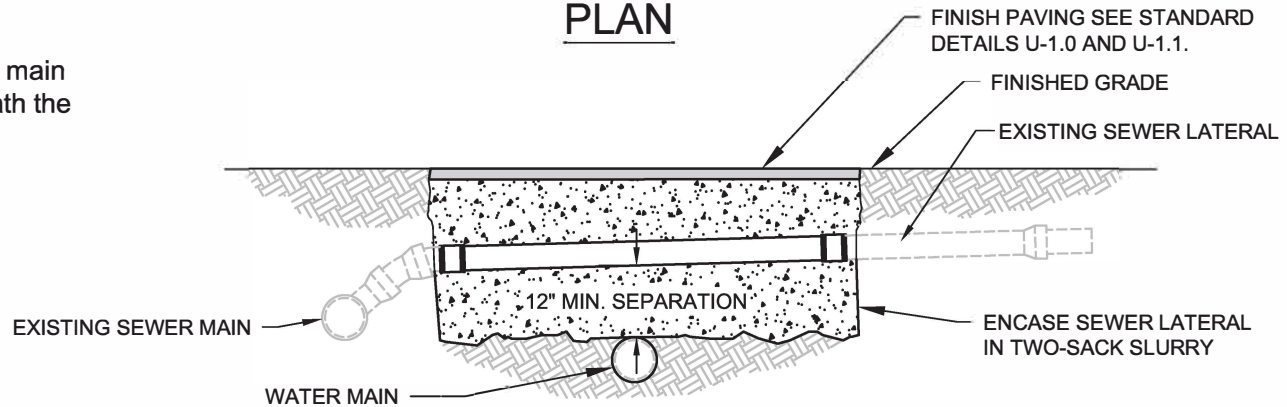
STREETS:	
TRANS OPS:	
FACILITIES:	
WATER RESOURCES: Hammurabi Days	
REV. DATE: 4/25	DETAIL: W-13.0
APPROVED: Ashleigh Stone	
CITY ENGINEER	
6/18/25	
DATE	

NOTES:

1. Any variation from that shown must be approved in writing by the City Public Works Inspector.
2. Sewer laterals shall maintain original slope.
3. PVC pipe shall be SDR 35 PVC.
4. Finish paving and backfill shall be defined in Standard Detail U-1.0 and U-1.1.
5. Mechanical compression coupling ends shall be secured with 316 stainless steel compression bands and sheer rings as manufactures by Mission Products, Fernco Joints Inc, or approved equal. Coupling to be a minimum of 6" wide.
6. Two-sack slurry sewer lateral encasement is required if a water main and/or service line crosses beneath the sewer lateral.



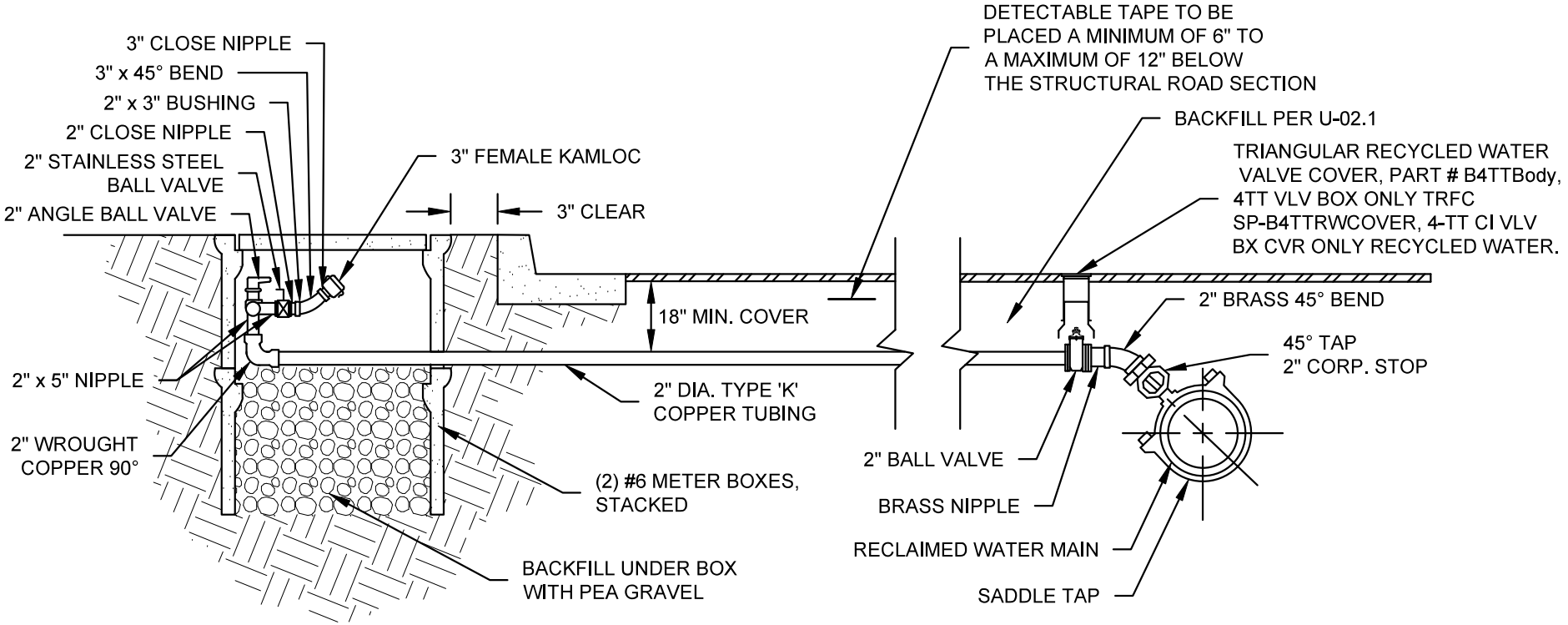
PLAN



PROFILE

WATER MAIN INSTALLATION UNDER EXISTING SEWER LATERAL

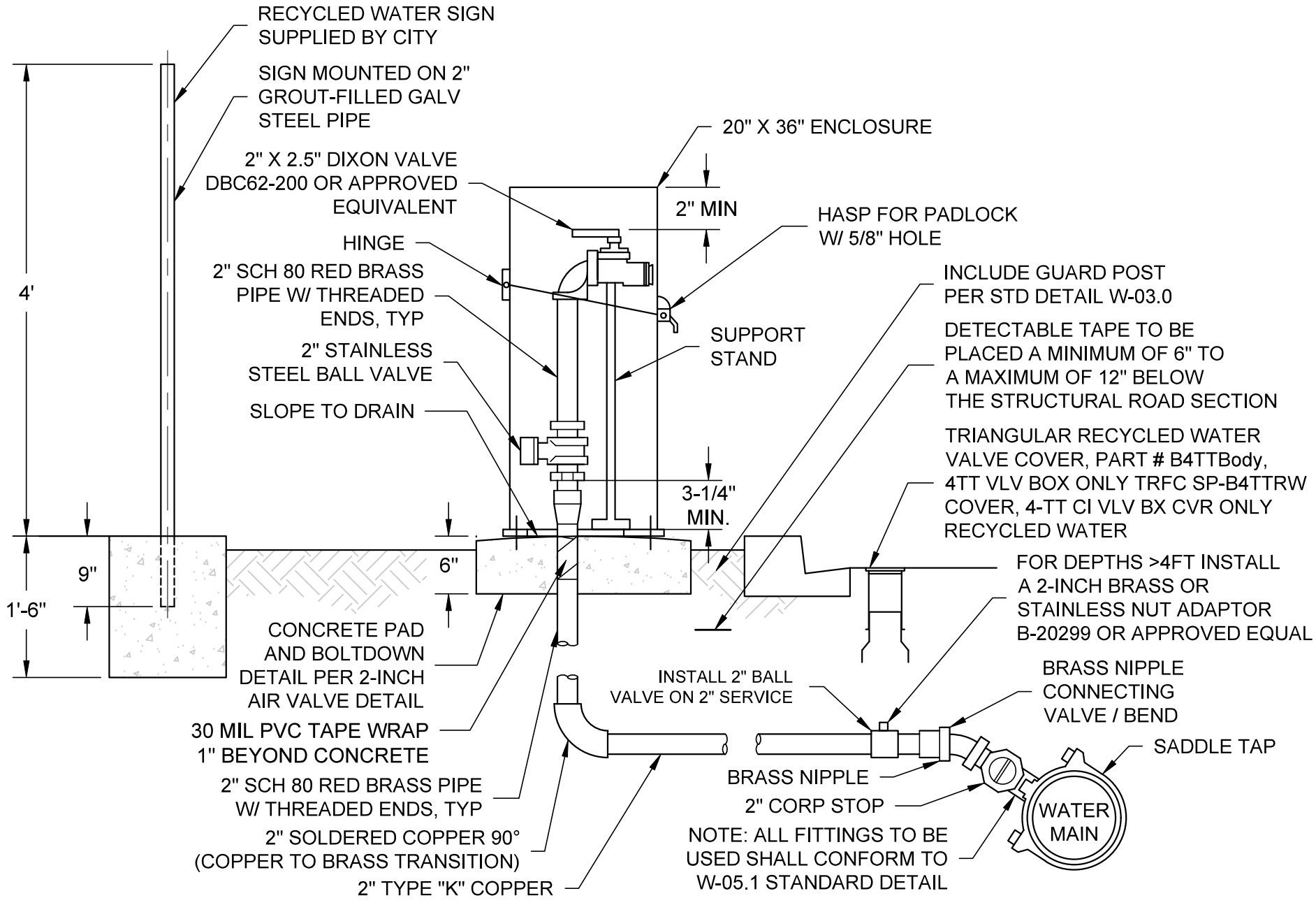
STREETS:	REV. DATE: 6/25	DETAIL: W-14.0
TRANS OPS:	APPROVED:	
FACILITIES:	CITY ENGINEER	
WATER RESOURCES: Hammurabi Days	6/18/25 DATE	



SECTION VIEW

RECYCLED WATER FILL STATION

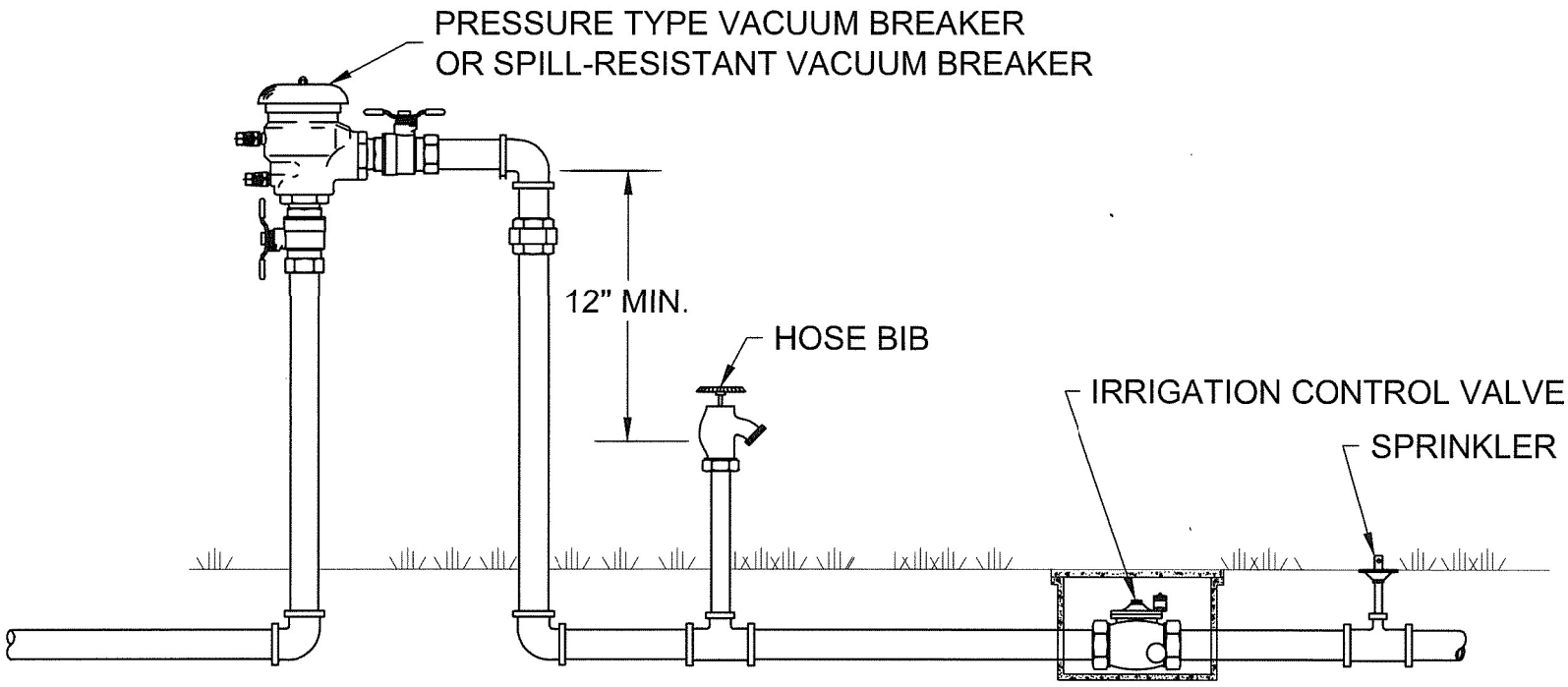
STREETS:	REV. DATE: 5/22	DETAIL: W-15.0
TRANS OPS:	APPROVED:	
FACILITIES:	CITY ENGINEER	
WATER RESOURCES: Hammurabi Daya	PUBLIC WORKS DIRECTOR	



ABOVE GROUND

RECYCLED WATER FILL STATION

STREETS:	REV. DATE: 5/22
TRANS OPS:	DETAIL: W–15.1
FACILITIES:	APPROVED:
WATER RESOURCES: Hammurabi Days	CITY ENGINEER
	PUBLIC WORKS DIRECTOR



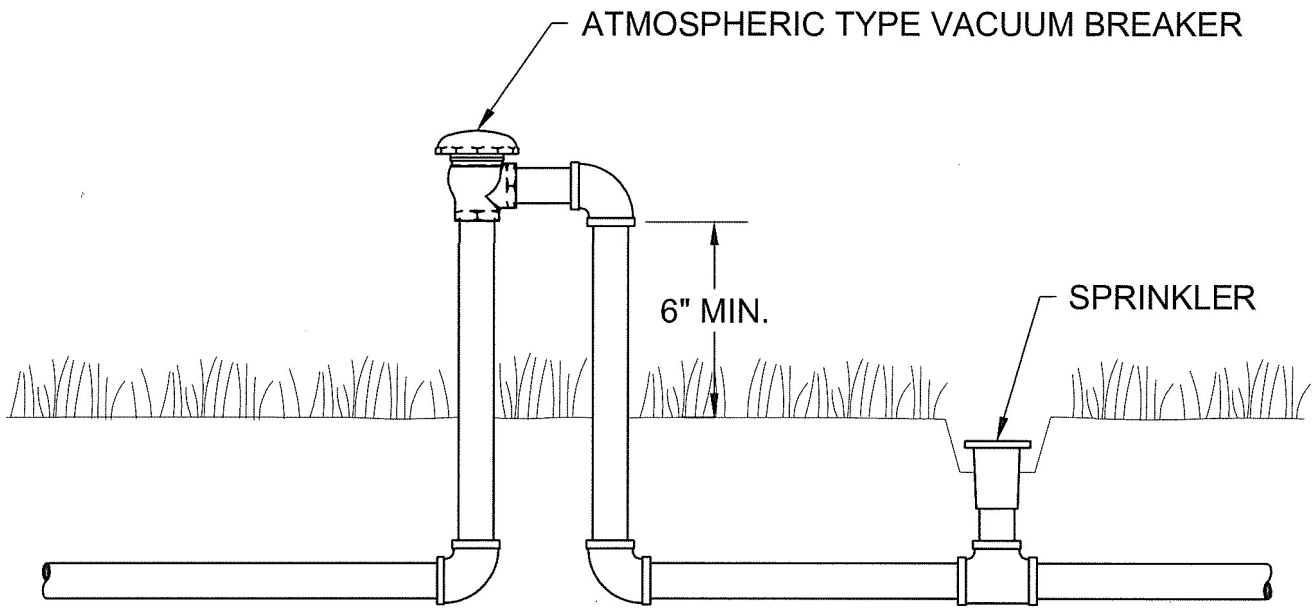
PLAN VIEW

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.

PRESSURE TYPE VACUUM BREAKER

STREETS:	REV. DATE: 11/12	DETAIL: W-16.0
TRANS OPS:	APPROVED:	
FACILITIES:	CITY ENGINEER	
WATER RESOURCES:	PUBLIC WORKS DIRECTOR	



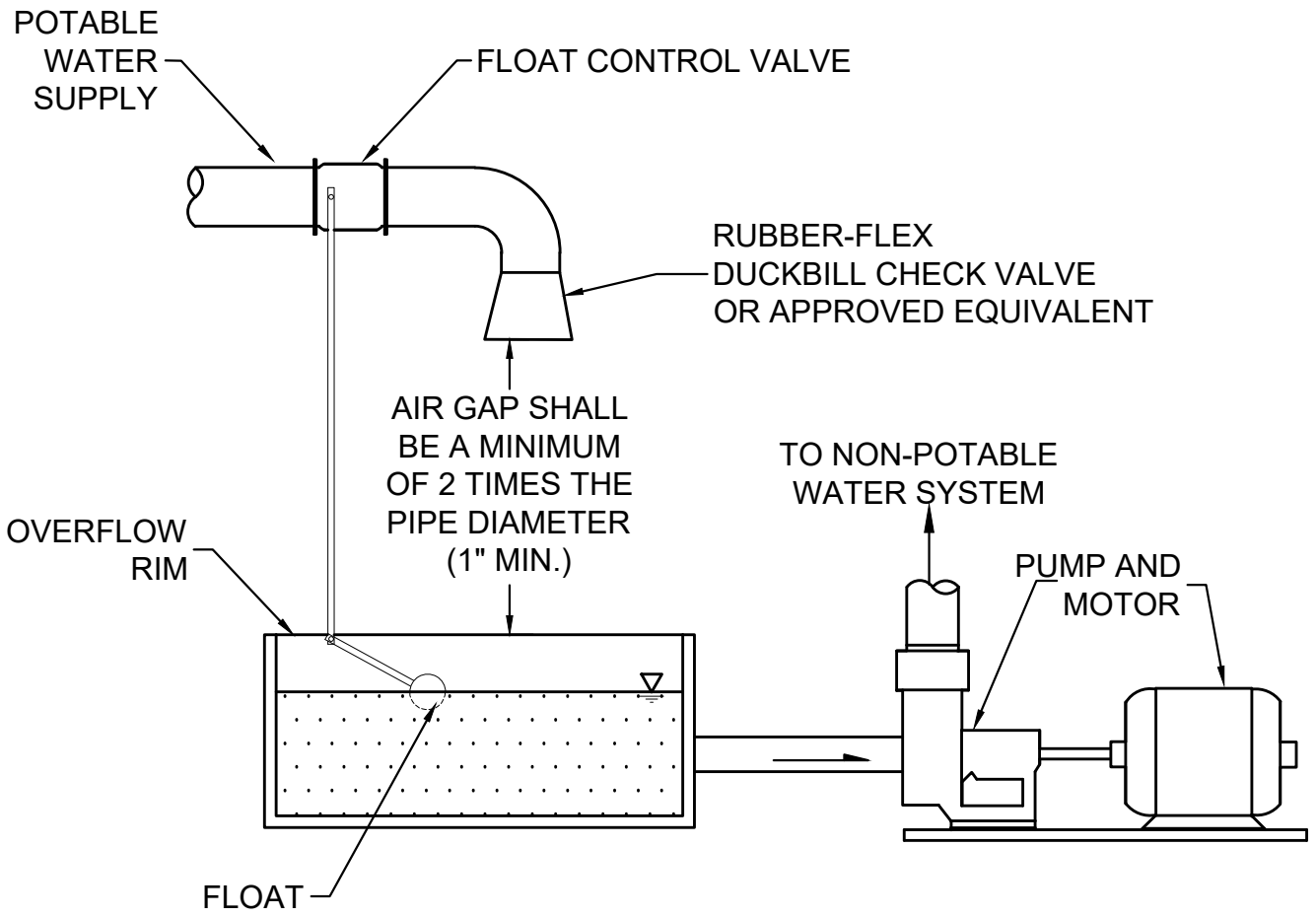
PLAN VIEW

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 intermittant 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.

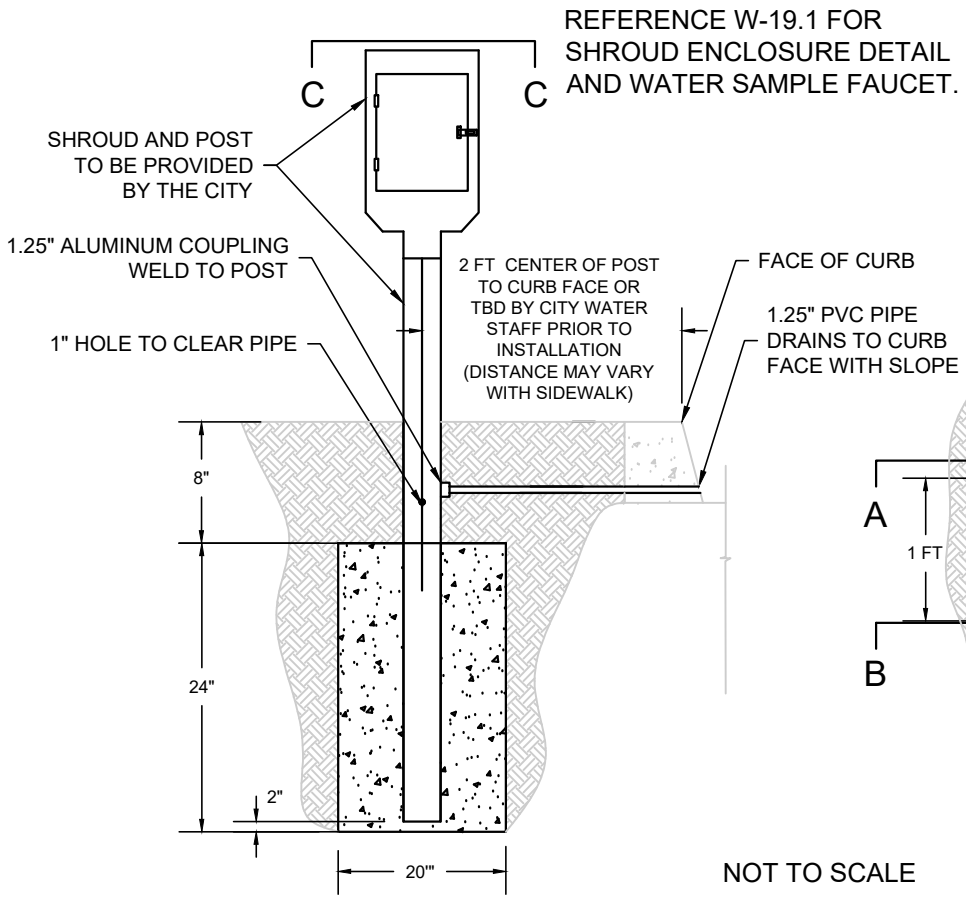
ATMOSPHERIC TYPE VACUUM BREAKER

STREETS:	REV. DATE: 11/12	DETAIL: W-17.0
TRANS OPS:	APPROVED:	
FACILITIES:	CITY ENGINEER	
WATER RESOURCES:	PUBLIC WORKS DIRECTOR	

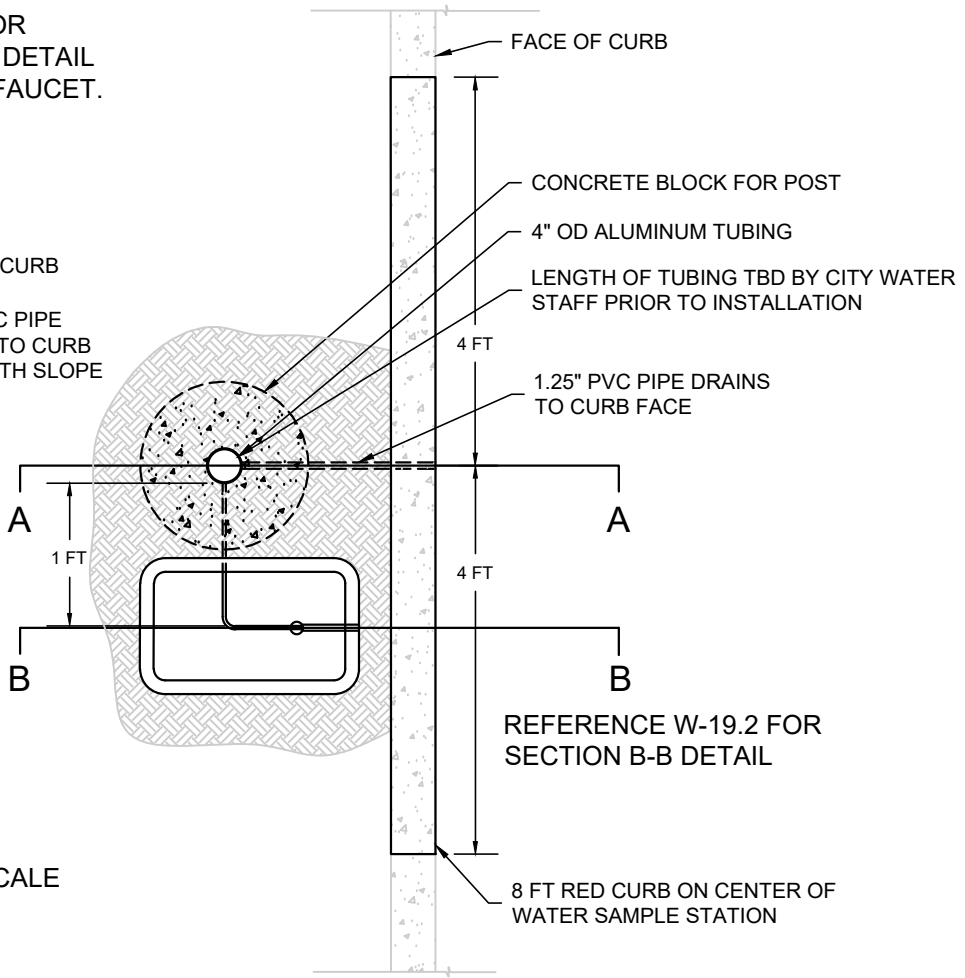


AIR GAP SEPARATION

STREETS:	REV. DATE: 4/25	DETAIL: W-18.0
TRANS OPS:	APPROVED:	
FACILITIES:	CITY ENGINEER	
WATER RESOURCES: Hammurabi Days	6/18/25 DATE	



NOT TO SCALE



SHROUD CONCRETE BLOCK
SECTION A-A

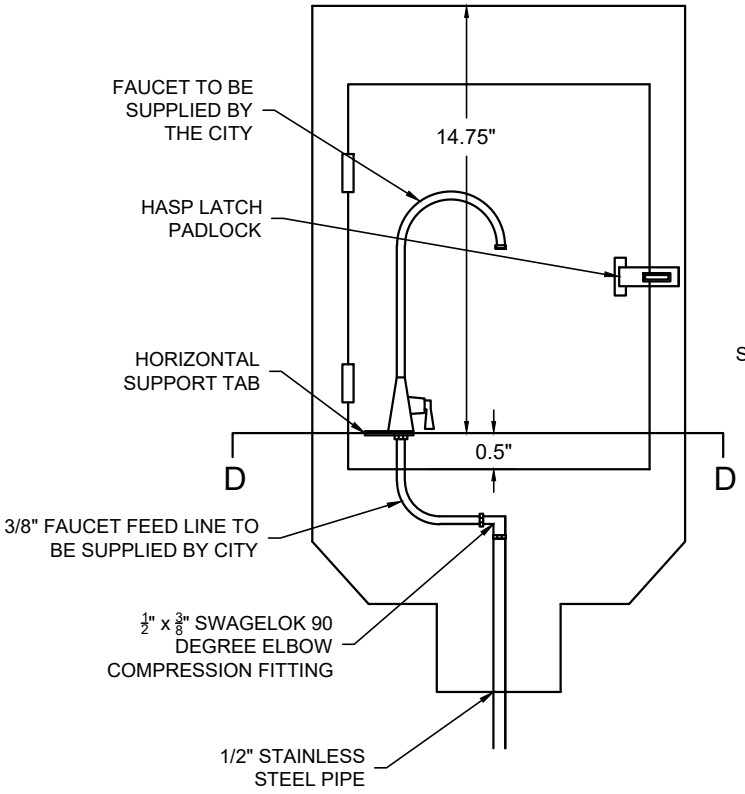
WATER METER BOX
PLAN VIEW

WATER SAMPLE STATION LAYOUT AND ELEVATION

STREETS:	REV. DATE: 4/25	DETAIL: W–19.0
TRANS OPS:	APPROVED:	
FACILITIES:	CITY ENGINEER	
WATER RESOURCES: Hammurabi Days	6/18/25 DATE	

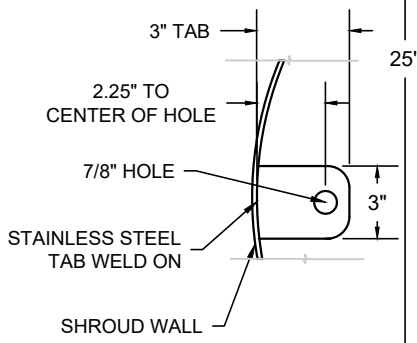
NOTE:
COMPRESSION FITTINGS FOR STAINLESS TUBING SHALL BE SWAGELOK MANUFACTURED OR APPROVED EQUAL.

ANY ALTERNATIVE FITTINGS TO BE APPROVED IN WRITTING BY THE CITY (WATER DISTRIBUTION)



WATER FAUCET

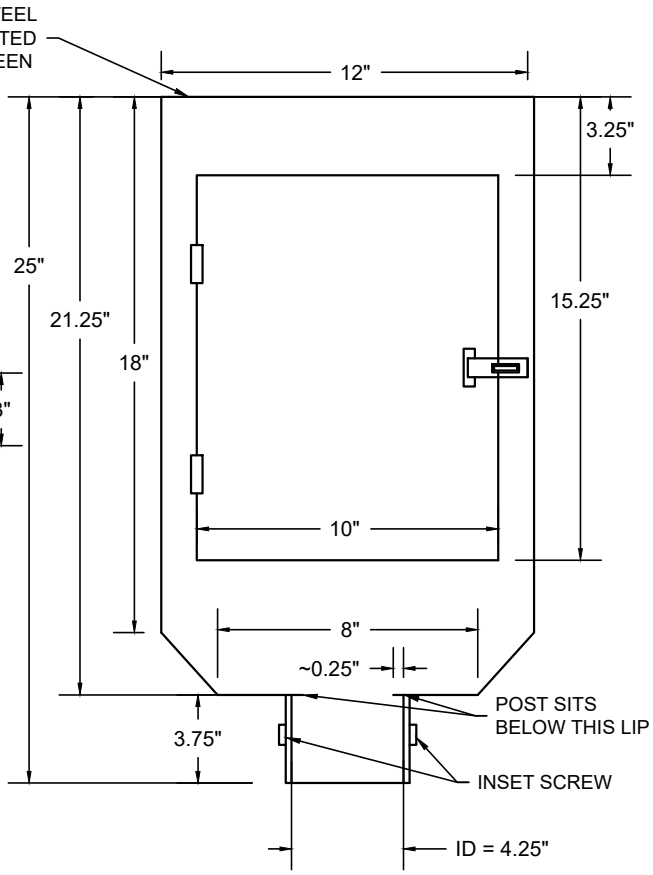
SECTION C-C



SUPPORT TAB

SECTION D-D

NOT TO SCALE

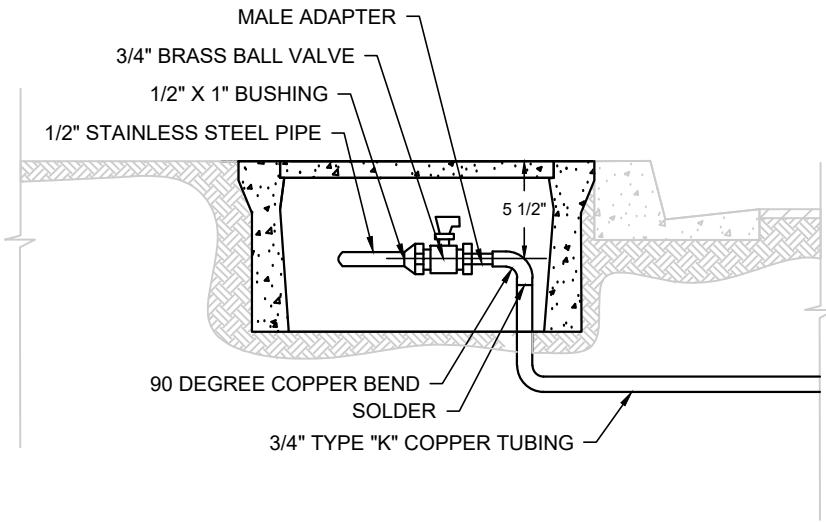


SHROUD ENCLOSURE

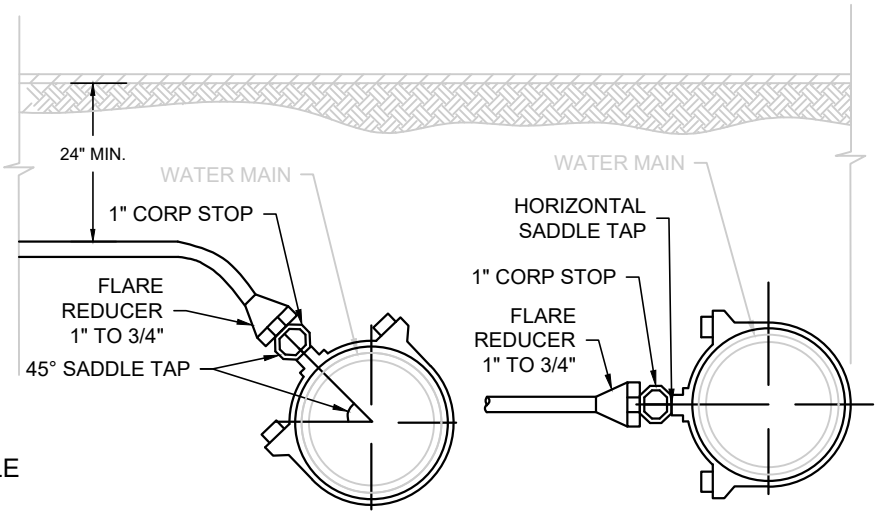
DIMENSIONS

WATER SAMPLE STATION DISPENSING UNIT

STREETS:	REV. DATE: 4/25	DETAIL: W-19.1
TRANS OPS:	APPROVED:	
FACILITIES:	CITY ENGINEER	
WATER RESOURCES: Hammurabi Days	6/18/25 DATE	



INSTALL BRONZE COUPLING OR WROUGHT COPPER COUPLING WITH 15% SILVER SOLDER WHEN NECESSARY TO SLICE TUBING



NOT TO SCALE

WATER BOX & VALVE CONNECTION
SECTION B-B

45° SADDLE TAP
SECTION

HORIZONTALSADDLE TAP
SECTION

NOTE:
WHEN TYING OVER 3/4 INCH COPPER SERVICE, USE A BRASS REDUCER CORPORATION STOP THREAD BY FLARE COPPER PIPE WITH COPPER RING OR WROUGHT COPPER COUPLING WITH 15% SILVER SOLDER.

WATER SAMPLE STATION
SERVICE LINE CONNECTION

STREETS:	REV. DATE: 4/25	DETAIL: W-19.2
TRANS OPS:	APPROVED: Ashleigh Stzoo	
FACILITIES:	CITY ENGINEER	
WATER RESOURCES: Hammurabi Days	6/18/25 DATE	