STANDARD PLAN	NUMBER
WATER CONSTRUCTION GENERAL NOTES	1400
1" COPPER WATER SERVICE	1401
2" COPPER WATER SERVICE	1402
3" WATER SERVICE (SMALLER VAULT)	1403A
4" WATER SERVICE (SMALLER VAULT)	1403B
6" WATER SERVICE (SMALLER VAULT)	1403C
3", 4", AND 6" WATER SERVICE VAULT (SMALLER VAULT)	1403D
RESIDENTIAL FIRE AND DOMESTIC COMBINATION METER AND BACKFLOW ASSEMBLY	1404
FIRE HYDRANT INSTALLATION	1405
FIRE HYDRANT WITH PROTECTIVE CURB	1407
FIRE HYDRANT WITH PROTECTIVE POSTS	1407A
TAPPING SLEEVE AND GATE VALVE	1408
CUT / CAP AND PLUG INSTALLATION TIE-IN CONNECTION INSTALLATION	1409
GATE VALVE INSTALLATION	1410
BUTTERFLY VALVE INSTALLATION	1411
THRUST BLOCK INSTALLATION	1412
WATER MAIN TYPE 1 - VERTICAL OFFSET	1413A

APPROVED: DATE: 11/24/2020

CITY OF SANTA ANA

PUBLIC WORKS AGENCY

DATE		REVISION
11/2/05	J.B.	1405, 1413A, 1413B
3/17/08	R.R.	1410B
06/4/13	J.A.	ADDED STD 1404, DELETED STD 1100 COMBINED STD 1410 & 1410A
11/2020	R.R.	UPDATED

INDEX OF STANDARD PLANS FOR WATER IMPROVEMENTS

SHEET 1 OF 3

STANDARD PLAN	NUMBER
WATER MAIN TYPE 2 - VERTICAL OFFSET	1413B
2" BLOW OFF ASSEMBLY	1414
AIR AND VACUUM RELEASE VALVE ASSEMBLY (1")	1415A
FIRE SERVICE	1417
VALVE ANCHOR	1419
VERTICAL BEND ANCHOR	1420
TYPICAL DIMENSIONS PRACTICE FOR "AS-BUILT" WATER SYSTEM MAP	1421
SEPARATION OF WATER, NON-DOMESTIC WATER MAINS, SEWERS AND STORM DRAINS	1427
WATER PIPE CASING	1429
ABANDONMENT DETAILS	1430
DOUBLE CHECK VALVE ASSEMBLY (2" AND SMALLER)	1431
REDUCED PRESSURE PRINCIPLE BACKFLOW DEVICE (2" OR SMALLER)	1432
DOUBLE CHECK ASSEMBLY (3" OR LARGER)	1433A
DOUBLE CHECK DETECTOR ASSEMBLY (3" OR LARGER)	1433B
REDUCED PRESSURE PRINCIPLE ASSEMBLY (3" OR LARGER)	1434

APPROVED: DATE: 11/24/2020

CITY OF SANTA ANA

PUBLIC WORKS AGENCY

DATE		REVISION
8/19/03	A.F.	STD. 1428
9/2/08	R.R.	ADDED STD 1414 & 1429
6/14/13	J.A.	ADDED STD 1428A
11/2020	R.R.	UPDATED

INDEX OF STANDARD PLANS FOR WATER IMPROVEMENTS

STANDARD PLAN	NUMBER
REDUCED PRESSURE DETECTOR ASSEMBLY (3" OR LARGER)	1435
COMPACT DOUBLE CHECK DETECTOR ASSEMBLY (3" OR LARGER)	1436
COMPACT REDUCED PRESSURE DETECTOR ASSEMBLY (3" OR LARGER)	1437
COMPACT REDUCED PRESSURE PRINCIPLE ASSEMBLY (3" OR LARGER)	1438
ABOVE GROUND METER WITH APPROVED BACKFLOW ASSEMBLY (3")	1439A
ABOVE GROUND METER WITH APPROVED BACKFLOW ASSEMBLY (4")	1439B
ABOVE GROUND METER WITH APPROVED BACKFLOW ASSEMBLY (6")	1439C
RPP OR DCV APPROVED BACKFLOW ASSEMBLY (3" OR LARGER)	1440
PRIVATE WATER LINES WITH PUBLIC METERS	1442
CUT-IN TEE/AC MAIN TIE-IN	1443
WELD ON TAPPING SLEEVE	1444
RETAINING WALL	1445

APPROVED: DATE: 11/24/2020

CITY OF SANTA ANA

PUBLIC WORKS AGENCY

DATE		REVISION
8/19/03	A.F.	STD. 1428
9/2/08	R.R.	ADDED STD 1414 & 1429
6/4/13	J.A.	ADDED STD 1428A
11/2020	R.R.	UPDATED

INDEX OF STANDARD PLANS FOR WATER IMPROVEMENTS

General Notes for Public Works Permitted Work on Water Distribution System

1. Construction and installation of all water mains and appurtenances shall be in accordance with the City of Santa Ana Standard Plans and Specifications. Where the standard plans are silent, construction and installation of water mains and appurtenances shall conform to the American Water Works Association (AWWA) specifications and the Standard Specifications for Public Works Construction, 2012 edition.

2. Construction of water mains and appurtenances shall only be performed by qualified contractors with a valid California Contractor A or C34 license.

3. No person, other than City of Santa Ana Water Resources Division staff certified by the State of California as a Water Distribution Operator, shall be allowed to operate the City's water system valves.

4. No person, other than City of Santa Ana Water Resources Division staff certified by the State of California as a Water Distribution Operator, shall shut water service off to any customer.

5. Prior to the start of construction, the contractor shall submit to the City for review and approval "Disinfection and Flushing Plan" per the City of Santa Ana Design Guidelines and Standard Drawings.

6. All newly constructed water mains and appurtenances shall be disinfected and tested in accordance with American Water Works Association Standard C600's, prior to connecting to the City's water distribution system. Disinfection testing results shall be submitted to the Water Resources Division for review and approval prior to connecting to the City's water distribution system.

7. Water mains will be hydrostatic tested at 200 psi for 2 hours. New water mains cannot be tested against an existing valve but can be tested using a test plate.

8. Requests to shut-down the water distribution system for tie-ins or other purposes shall be coordinated with the Water Resources Division staff at least 2 weeks in advance through the City Inspector. All customers affected by the proposed shut down shall be notified in writing 48 hours in advance by the contractor.

9. The City of Santa Ana Water Resources Division cannot guarantee a complete shutdown of existing mains. The contractor shall be responsible for dewatering and isolation of construction for testing or any other purposes.

10. All fire hydrants which are out of service or new fire hydrants which have not been accepted for service shall be covered with a sack indicating that the hydrants are not in service.

11. Maintaining water service shall be the responsibility of the contractor for any shutdown lasting longer than four (4) hours. Method of providing temporary service must be approved by the Water Resources Division. The water shall be safe for drinking in accordance with State of California Water Resources Control Board (SWRCB) Drinking Water Program (DWP).

APPROVED: DATE: 11/24/2020

CITY OF SANTA ANA

PUBLIC WORKS AGENCY

DATE		REVISION
3/1/16	R.R	NEW
11/2020	R.R	UPDATED

WATER CONSTRUCTION GENERAL NOTES

STD. PLAN NUMBER 1400

SHEET 1 OF 2

General Notes for Public Works Permitted Work on Water Distribution System

12. Water meter will not be installed nor water turned on until the backflow devices required for the building and irrigation systems have been installed, tested, approved, and certified, and approved and signed off by the City. Contact Water Resources Division at 714-647-3320.

13. All water mains shall be AWWA C-900 PVC, DR14 pipe or AWWA C-151 Ductile Iron pipe. All other pipe materials require special review and approval from the Water Resources Division.

14. Water mains shall have 36" minimum cover to finished grade. Any deviation from this requirement requires approval from the Water Resources Division.

15. Contractor to verify depth and location of all utilities and points of connection prior to trenching.

16. Private water appurtenances such as backflow preventers, fire hydrants and standpipes, and valves shall be painted as follows:

a. Domestic water:	Blue
b. Potable Irrigation:	Green
c. Recycled Irrigation:	Purple
d. Fire Protection:	OSHA Safety Red

17. Do not cut or snap cut or mill asbestos cement pipe. Where joining existing asbestos cement pipe, expose six feet in each direction, looking for the nearest joint and join to new pipe with a properly dimensioned adapter per Standard Plan Number 1443.

18. Do not tap existing mains without the presence of a certified Public Works inspector. Pressure test tapping sleeve in the presence of a certified Public Works inspector before tapping existing main.

19. Final acceptance will not occur until original record drawings on mylar and digital file are delivered to and accepted by the City's inspector. Show all field changes on record drawings.

20. Trench plates shall be flush with pavement and shall be non-skid.

21. When public water facilities are located on private property, easement documents are to be submitted to City for approval prior to a permit being issued.

22. All recycled water projects require review and approval by the Water Resources Division.

23. Remove from the field upper and lower fire hydrant dry barrel and 24" X 36" iron vault lid covers and deliver undamaged to the City Water Resources Division Yard located at 215 S. Center Street. Prior notification of the delivery is required at 714-647-3320.

24. Water main fittings shall be flange or mechanical joints only, no push-on joint fittings allowed.

25. Contractor shall not remove or dispose existing water meters. Contractor shall apply for an Abandon Water Meter Application. Contractor shall contact Water Resources Division at 714-647-3320 for existing meter removals.

26. Installation of new water meter service curb stop shall be done after installation of new curb and gutter or after contractor has established the proposed curb grade by staking of the proposed curb.

"ADD ALL NOTES TO PLANS"

APPROVED: DATE: 11/24/2020

CITY OF SANTA ANA

PUBLIC WORKS AGENCY

DATE		REVISION
3/1/16	R.R.	NEW
11/2020	R.R.	UPDATED

WATER CONSTRUCTION GENERAL NOTES

STD. PLAN NUMBER 1400

SHEET 2 OF 2

METER LAYING LENGTH

1" METER (1" THREAD)	10.75"	
3/4" METER (3/4" THREAD)	7.5"	(ALLOWS FOR TWO 3/4" TO 1" BUSHINGS)
5/8" METER (3/4" THREAD)	7.5"	(ALLOWS FOR TWO 3/4" TO 1" BUSHINGS)

CONSTRUCTION ITEMS / MATERIALS LIST

NO.	SIZE AND DESCRIPTION	MANUFACTURER	MFR. CAT. NO.
1	LEAD FREE BRASS SERVICE SADDLE WITH IP TAP	FORD, JONES, MUELLER	S-912 SERIES, J-996, H13000 SERIES
2	1 INCH LEAD FREE BRASS CORPORATION STOP	FORD, JONES	F1100-4, J-3403
3	1 INCH TYPE K SOFT COPPER TUBING	TYPE "K" SOFT	
4	PLASTIC METER BOX	DFW	DFW 486WBC4-12 BODY DFW 486C-AF4T 63D NHK - LID COLOR-GREY
5	METER	FURNISHED & INSTALLED BY CITY SEE NOTES 6 AND 8 (BELOW)	
6	1 INCH BRONZE METER COUPLING	FORD	C38-44
7	1 INCH LEAD FREE BRASS CURB STOP WITH LOCKING WING NUT	FORD, JONES	B11-444W, J-1900
8	1 INCH LEAD FREE BRASS 90° BEND COMPRESSION X M.I.P.	FORD, JONES	L84-44, J-2619
9	COMMON BRICK (TYPICAL) WITH PEA GRAVEL BASE	ONE AT EACH CORNER	
10	THIN PLYWOOD ON OUTSIDE OF BOX (ALL SIDES)	TO PREVENT CAVE-IN THROUGH NOTCHES	

NOTES:

1. CONNECTION TO WATER MAINS GREATER THAN 12 INCHES IN DIAMETER OR ANY WATER MAIN MADE OF STEEL (CML&C, CYLINDER,ETC.) REQUIRES APPROVAL FROM WATER RESOURCES DIVISION.
2. WHEN CONNECTING A 5/8" METER TO A 1" SERVICE, USE A BRONZE WATER METER BUSHING ON BOTH ENDS (FORD A-34).
3. NO SPLICES WILL BE PERMITTED BETWEEN THE CORPORATION STOP AND THE CURB STOP.
4. NO TAP TO A MAIN SHALL BE WITHIN 18" OF A COUPLING OR WITHIN 18" OF ANOTHER TAP.
5. UNDER NORMAL CONDITIONS THE WATER SERVICE SHALL EXTEND PERPENDICULAR TO THE CENTERLINE OF THE STREET FROM THE WATER MAIN TO THE METER STOP.
6. METER IS TO BE INSTALLED BY THE CITY AFTER METER BOX IS IN PLACE (SEE GENERAL NOTE 12 ON STD. PLAN NO. 1400.
7. CURB STOP IS TO BE INSTALLED PLUMB AND SQUARE WITH THE CURB.
8. METER LAYING LENGTH IS MEASURED FROM THE FACE OF THE METER COUPLINGS. THE DISTANCE BETWEEN COUPLINGS SHALL NOT DEVIATE FROM THOSE SPECIFIED IN THE METER LAYING LENGTH TABLE.
9. METER BOX IS TO BE POSITIONED SO THAT METER FACE IS HORIZONTALLY CENTERED WITHIN THE BOX. THE TOP OF THE BOX SHALL BE LEVEL AND FLUSH WITH THE TOP OF THE CURB.
10. METER BOX SHALL HAVE 5' CLEARANCE FROM ANY WALL, TREE, OTHER UTILITY OR SUB-SURFACE FACILITY, UNLESS APPROVED BY WATER RESOURCES DIVISION.

(A) HOUSE LINE PER PLUMBING CODE REQUIREMENTS.

APPROVED: DATE: 11/24/2020

CITY OF SANTA ANA

PUBLIC WORKS AGENCY

DATE		REVISION
3/17/08	R.R.	UPDATED
6/4/13	J.A.	UPDATED
3/1/16	R.R.	ADDED NOTE 1
11/2020	R.R.	UPDATED

1" COPPER WATER SERVICE

STD. PLAN NUMBER 1401

METER LAYING LENGTH

1 1/2 " METER	13"
2" METER	17"

CONSTRUCTION ITEMS / MATERIALS LIST

NO.	SIZE AND DESCRIPTION	MANUFACTURER	MFR. CAT. NO.
1	LEAD FREE BRASS SERVICE SADDLE WITH I.P. TAP	FORD, JONES, MUELLER	S-912 SERIES, J-996, H13000 SERIES
2	2 INCH LEAD FREE BRASS CORPORATION STOP	FORD	FB1100-7
3	2 INCH TYPE K SOFT COPPER TUBING	TYPE "K" SOFT	
4	PLASTIC METER BOX	DFW DFW	DFW 1640C4-12 BODY DFW 1640C-AF4T 63D NHK - LID
5	METER	FURNISHED & INSTALLED BY CITY SEE NOTES 5 AND 7 (BELOW)	
6	LEAD FREE FLANGE COUPLING WITH I.P. FEMALE THREAD	FORD	CF31-66 (1-1/2"), CF 31-77 (2")
7	LEAD FREE BRASS FLANGED CURB STOP WITH PADLOCK WING	FORD	BF13-777WK
8	SOLDERED COPPER COUPLINGS		
9	LEAD FREE BRASS 90° ELBOW - COMPRESSION CONNECTIONS	FORD	L44-77 (2")
10	LEAD FREE BRASS 90° ELBOW - COMPRESSION X M.I.P.	FORD	L84-77 (2")
11	COMMON BRICK (TYPICAL) WITH PEA GRAVEL BASE	ONE AT EACH CORNER & ONE AT MIDPOINT OF EACH LONGSIDE	
12	THIN PLYWOOD ON OUTSIDE OF BOX (ALL SIDES)	TO PREVENT CAVE-IN THROUGH NOTCHES	

NOTES:

1. CONNECTION TO WATER MAINS GREATER THAN 12 INCHES IN DIAMETER OR ANY WATER MAIN MADE OF STEEL (CML&C, CYLINDER, ETC.) REQUIRES APPROVAL FROM WATER RESOURCES DIVISION.
2. NO COUPLING WILL BE PERMITTED BETWEEN CURB STOP AND CORPORATION STOP EXCEPT WHEN THE LENGTH BETWEEN THE ELBOW AND THE CORPORATION STOP EXCEEDS 20'.
3. NO TAP TO A MAIN SHALL BE WITHIN 18" OF A COUPLING OR WITHIN 18" OF ANOTHER TAP.
4. UNDER NORMAL CONDITIONS THE WATER SERVICE SHALL EXTEND PERPENDICULAR TO THE CENTERLINE OF THE STREET FROM THE WATER MAIN TO THE METER STOP.
5. METER IS TO BE INSTALLED BY THE CITY AFTER METER BOX IS IN PLACE. (SEE GENERAL NOTE 12 ON STD. PLAN NO. 1400)
6. CURB STOP IS TO BE INSTALLED PLUMB AND SQUARE WITH THE CURB.
7. METER LAYING LENGTH IS MEASURED FROM THE FACE OF THE METER COUPLINGS. THE DISTANCE BETWEEN COUPLINGS SHALL NOT DEVIATE FROM THOSE SPECIFIED IN THE METER LAYING LENGTH TABLE.
8. METER BOX IS TO BE POSITIONED SO THAT METER FACE IS HORIZONTALLY CENTERED WITHIN THE BOX. THE TOP OF THE BOX SHALL BE LEVEL AND FLUSH WITH THE TOP OF THE CURB.
9. METER BOX SHALL HAVE 5' CLEARANCE FROM ANY WALL, TREE, OTHER UTILITY, OR SUB-SURFACE FACILITY, UNLESS APPROVED BY WATER RESOURCES DIVISION.

(A) HOUSE LINE PER PLUMBING CODE REQUIREMENTS.

APPROVED: DATE: 11/24/2020

CITY OF SANTA ANA

PUBLIC WORKS AGENCY

DATE		REVISION
3/17/08	R.R.	REMOVED 1-1/2" SERVICE
6/4/13	J.A.	UPDATED
3/1/16	R.R.	ADDED NOTE 1
11/2020	R.R.	UPDATED

2" COPPER WATER SERVICE

STD. PLAN NUMBER 1402

PLAN VIEW

NOTE:

ON EXISTING MAIN CONSTRUCT HOT TAP PER CITY STD. 1408. FOR NEW MAIN CONSTRUCT TEE PER PLAN.

NO.	CONSTRUCTION ITEMS / MATERIALS LIST	3" SERVICE LENGTH
1	4" R.W. GATE VALVE, (FLG X MJ) & VALVE BOX PER CITY STD PLAN 1410	-
2	4" DIA. DR 14, C900 P.V.C PIPE	-
3	4" DIA. 90° ELBOW, (FLG X MJ)	6.5"L
4	4" x 4" x 4" D.I. TEE (FLG x FLG x FLG)	13"L x 6.5"L
5	4" RW GATE VALVE (FLG) & VALVE BOX PER CITY STD PLAN 1410	9"L
6	D.I. REDUCER 4" x 3" (FLG x MJ)	7"L
7	4" DIA 90° ELBOW (FLG X FLG)	6.5"L
8	3" D.I. SPOOL (FLG X PE)	-
9	3" D.I. SPOOL (FLG X FLG)	28"L
10	3" D.I. BLIND FLANGE WITH 2" TAP	-
11	2" LEAD FREE BRASS CLOSE NIPPLE; 2" LEAD FREE BRASS CURB STOP WITH PADLOCK WING (F.I.P. X F.I.P.) FORD; 2" LEAD FREE BRASS PLUG	-
12	VAULT PER STD 1403D	-
13	1/2" EXPANSION JOINT MATERIAL BETWEEN VAULT AND SIDEWALK OR CURB	-
14	THRUST BLOCK PER CITY STD PLAN 1412	-
15	ALL VOIDS OR OPENING AROUND PIPES SHALL BE FILLED WITH DRY PACK	-
16	MASONRY BLOCK	-

CONSTRUCT FLOOR OF 18" OF 3/4" ROCK COMPACTED TO 90% RELATIVE COMPACTION

SIDE VIEW

NOTES:

1. ALL FITTINGS SHALL BE DUCTILE IRON UNLESS SPECIFIED OTHERWISE.
2. METER BOX SHALL HAVE 10' CLEARANCE FROM ANY WALL, TREES, OTHER UTILITIES OR SUB-SURFACE FACILITIES, UNLESS APPROVED BY THE WATER RESOURCES DIVISION.
3. ALL NUTS AND BOLTS SHALL BE STAINLESS STEEL TYPE 316.
4. METER TO BE SUPPLIED BY CITY AFTER SUBMITTAL OF METER APPLICATION, PAYMENT OF FEES AND REQUIRED APPROVALS (SEE GENERAL NOTE 12 ON STD PLAN NO. 1400).

APPROVED: DATE: 11/24/2020

CITY OF SANTA ANA

PUBLIC WORKS AGENCY

DATE		REVISION
11/2020	R.R.	UPDATED

3" WATER SERVICE (SMALLER VAULT)

STD. PLAN NUMBER 1403A

PLAN VIEW

NOTE:

ON EXISTING MAIN CONSTRUCT HOT TAP PER CITY STD. 1408. FOR NEW MAIN CONSTRUCT TEE PER PLAN.

NO.	CONSTRUCTION ITEMS / MATERIALS LIST	4" SERVICE LENGTH
1	4" R.W. GATE VALVE, (FLG X MJ) & VALVE BOX PER CITY STD PLAN 1410	-
2	4" DIA. DR 14, C900 P.V.C PIPE	-
3	4" DIA. 90° ELBOW, (FLG X MJ)	6.5"L
4	4" x 4" x 4" D.I. TEE (FLG x FLG x FLG)	13"L x 6.5"L
5	4" RW GATE VALVE (FLG) & VALVE BOX PER CITY STD PLAN 1410	9"L
6	D.I. REDUCER 4" x 3" (FLG x MJ)	7"L
7	4" DIA 90° ELBOW (FLG X FLG)	6.5"L
8	4" D.I. SPOOL (FLG X PE)	-
9	4" D.I. SPOOL (FLG X FLG)	32"L
10	3" D.I. SPOOL (FLG X PE)	-
11	3" D.I. BLIND FLANGE	-
12	VAULT PER STD 1403D	-
13	1/2" EXPANSION JOINT MATERIAL BETWEEN VAULT AND SIDEWALK OR CURB	-
14	THRUST BLOCK PER CITY STD PLAN 1412	-
15	ALL VOIDS OR OPENING AROUND PIPES SHALL BE FILLED WITH DRY PACK	-
16	MASONRY BLOCK	-

CONSTRUCT FLOOR OF 18" OF 3/4" ROCK COMPACTED TO 90% RELATIVE COMPACTION

SIDE VIEW

NOTES:

1. ALL FITTINGS SHALL BE DUCTILE IRON UNLESS SPECIFIED OTHERWISE.
2. METER BOX SHALL HAVE 10' CLEARANCE FROM ANY WALL, TREES, OTHER UTILITIES OR SUB-SURFACE FACILITIES, UNLESS APPROVED BY THE WATER RESOURCES DIVISION.
3. ALL NUTS AND BOLTS SHALL BE STAINLESS STEEL TYPE 316.
4. METER TO BE SUPPLIED BY CITY AFTER SUBMITTAL OF METER APPLICATION, PAYMENT OF FEES AND REQUIRED APPROVALS (SEE GENERAL NOTE 12 ON STD PLAN NO. 1400).

APPROVED: DATE: 11/27/2020

CITY OF SANTA ANA

PUBLIC WORKS AGENCY

DATE		REVISION
11/2020	R.R.	UPDATED

4" WATER SERVICE (SMALLER VAULT)

STD. PLAN NUMBER 1403B

PLAN VIEW

NOTE:

ON EXISTING MAIN CONSTRUCT HOT TAP PER CITY STD. 1408. FOR NEW MAIN CONSTRUCT TEE PER PLAN.

NO.	CONSTRUCTION ITEMS / MATERIALS LIST	6" SERVICE LENGTH
1	6" R.W. GATE VALVE, (FLG X MJ) & VALVE BOX PER CITY STD PLAN 1410	-
2	6" DIA. DR 14, C900 P.V.C PIPE	-
3	6" DIA. 90° ELBOW, (FLG X MJ)	8"L
4	6" x 6" x 4" D.I. TEE (FLG x FLG x FLG)	16"L x 8"L
5	4" RW GATE VALVE (FLG) & VALVE BOX PER CITY STD PLAN 1410	9"L
6	4" DIA 90° ELBOW (FLG X MJ)	6.5"L
7	6" D.I. SPOOL (FLG X PE)	-
8	6" D.I. SPOOL (FLG X FLG)	42"L
9	4" D.I. SPOOL (FLG X PE)	-
10	4" D.I. BLIND FLANGE	-
11	VAULT PER STD 1403D	-
12	1/2" EXPANSION JOINT MATERIAL BETWEEN VAULT AND SIDEWALK OR CURB	-
13	THRUST BLOCK PER CITY STD PLAN 1412	-
14	ALL VOIDS OR OPENING AROUND PIPES SHALL BE FILLED WITH DRY PACK	-
15	MASONRY BLOCK	-

CONSTRUCT FLOOR OF 18" OF 3/4" ROCK COMPACTED TO 90% RELATIVE COMPACTION

SIDE VIEW

NOTES:

1. ALL FITTINGS SHALL BE DUCTILE IRON UNLESS SPECIFIED OTHERWISE.
2. METER BOX SHALL HAVE 10' CLEARANCE FROM ANY WALL, TREES, OTHER UTILITIES OR SUB-SURFACE FACILITIES, UNLESS APPROVED BY THE WATER RESOURCES DIVISION.
3. ALL NUTS AND BOLTS SHALL BE STAINLESS STEEL TYPE 316.
4. METER TO BE SUPPLIED BY CITY AFTER SUBMITTAL OF METER APPLICATION, PAYMENT OF FEES AND REQUIRED APPROVALS (SEE GENERAL NOTE 12 ON STD PLAN NO. 1400).

APPROVED: DATE: 11/24/2020

DATE		REVISION
11/2020	R.R.	UPDATED

CITY OF SANTA ANA

PUBLIC WORKS AGENCY

6" WATER SERVICE (SMALLER VAULT)

STD. PLAN NUMBER 1403C

SERVICE SIZE	L1	L2	L3	W1	W2	W3
3"	48"	48"	63"	48"	48"	68"
4"	48"	48"	63"	48"	48"	68"
6"	60"	60"	77"	48"	48"	68"

VAULT & METER PLAN VIEW

SIDE VIEW

NOTES:

1. VAULTS SHALL BE P.C.C. CONCRETE STRUCTURES CLASS 560-C-3250 MANUFACTURED BY J & R CONCRETE PRODUCTS, INC.
2. NO FLOOR. CONSTRUCT 18" OF 3/4" ROCK BASE COMPACTED TO 90% RELATIVE COMPACTION BENEATH VAULT
3. FRAME AND COVER COMPONENTS INCLUDING BRACES, SPRINGS, NUTS, AND BOLTS SHALL BE TYPE 316 STAINLESS STEEL
4. METER VAULT SHALL HAVE 10' CLEARANCE FROM ANY WALLS, TREES, OTHER UTILITIES OR SUB-SURFACE FACILITIES, UNLESS APPROVED BY WATER DIVISION
5. TOP OF BOX COVER SHALL BE FLUSH WITH CURB AND SIDEWALK.
6. VAULT COVER DESIGN:

   A. IF INSTALLED IN PARKING LOTS OR AREAS THAT MAY RECEIVE TRAFFIC, USE U.S.F. P-AHD STEEL DIAMOND PLATE. SPRING ASSIST TRAFFIC DOOR, 316 STAINLESS STEEL HARDWARE, OPEN SPRINGS, BOLT DOWN COVER, (2) DRAIN COUPLING, GALVZANIZED. DESIGNED FOR USE IN LOCATIONS THAT RECEIVE SLOW-MOVING H-20 TRAFFIC WHEEL LOADS ON A REGULAR BASIS AND WHERE THE SPEED LIMIT DOES NOT EXCEED 15 M.P.H. INTENDED FOR CONTINUOUS OFF-STREET TRAFFIC APPLICATIONS FOR USE IN PARKING LOTS.

   B. IF INSTALLED IN PARKWAYS OR AREAS PROTECTED FROM TRAFFIC, USE U.S.F. THD ALUMINUM DIAMOND PLATE. SPRING ASSIST COVER 316 STAINLESS STEEL HARDWARE, SLAM-LOCK AND SLAVE LOCK SYSTEM, OPEN SPRINGS, (2) DRAIN COUPLING. AREA OF FRAME IN CONTACT WITH CONCRETE TO BE PAINTED WITH BITUMINOUS COATING DESIGNED FOR OFF-STREET LOCATIONS WHICH MAY OCCASIONALLY RECEIVE H-20 WHEEL LOADS.

APPROVED: DATE: 11/24/2020

CITY OF SANTA ANA

PUBLIC WORKS AGENCY

DATE		REVISION
11/2020	R.R.	UPDATED

3", 4", AND 6"
WATER SERVICE VAULT
(SMALLER VAULT)

STD. PLAN NUMBER 1403D

CONSTRUCTION ITEMS / MATERIALS LIST			
NO.	SIZE AND DESCRIPTION	MANUFACTURER	MFR. CAT. NO.
1	RESIDENTIAL FIRE METER; MINIMUM 1" FOR RESIDENTIAL FIRE SERVICE	FURNISHED & INSTALLED BY CITY	
2	DOUBLE CHECK VALVE BACK FLOW ASSEMBLY	PER CITY APPROVED LIST CONTACT WATER QUALITY COORDINATOR AT (714) 647-3320	
3	IRRIGATION SHUT OFF VALVE	PER PLUMBING CODE REQUIREMENTS	
4	IRRIGATION LINE WITH AIR VACUUM BREAKER (AVB)	PER PLUMBING CODE REQUIREMENTS	

NOTES:

1. FOR WATER SERVICE AND METER DETAILS SEE CITY STD. PLANS 1401 AND 1402.
2. 1" MIN. RESIDENTIAL FIRE METER (RFM) REQUIRED FOR ALL NEW 'R' OCCUPANCY CONSTRUCTION.

(A) REMOVE AND STORE BACK FLOW ASSEMBLY SHUT OFF VALVE HANDLES IN FIRE SPRINKLER SPARE HEAD BOX

APPROVED: DATE: 11/24/2020

DATE		REVISION
6/4/13	J.A.	NEW DETAIL
11/2020	R.R.	UPDATED

CITY OF SANTA ANA

PUBLIC WORKS AGENCY

RESIDENTIAL
FIRE AND DOMESTIC COMBINATION
METER AND BACKFLOW ASSEMBLY

STD. PLAN NUMBER 1404

CONSTRUCTION ITEMS / MATERIALS LIST

NO.	SIZE AND DESCRIPTION	MANUFACTURER	MFR. CAT. NO.
1	TAPPING SLEEVE ON EXISTING MAIN EPOXY COATED & STAINLESS STEEL BOLTS (FOR NEW WATER MAIN CONSTRUCTION USE D.I. MJ X FLG TEE)	FORD SMITH-BLAIR	FTSC 622
2	GATE VALVE, 6" FLG. x M.J., (RESILIENT WEDGE) CLASS 200	CLOW	———
3	VALVE BOX FRAME & COVER, C.I.	MARK SERIES	10" MARK V TRI LID WATER POWDER COATED - BLUE
4	P.V.C. PIPE, 8", SCHEDULE 40	———	———
5	FIRE HYDRANT, SPOOL EXTENSION AND BURY ASSEMBLY:	CLOW	MODEL 860
6	LATERAL PIPE 6"; DR 14, C900 P.V.C.	———	———
7	#12 AWG WIRE, DIRECT BURY, HIGH MOL. WEIGHT POLY.	COPPERHEAD OR EQUAL	1230-HS-500 ROADWAY BOX RB14 *TP
8	TRACER WIRE BOX	SNAKEPIT	CD14*TP
9	CHECK VALVE AND BREAK AWAY SPOOL	CLOW	CLOW MODEL LBI 400A

NOTES:

1. ALL FIRE HYDRANT NUTS SHALL BE COATED WITH TRIPAC 2000 BLUE COAT SYSTEM. ALL OTHER BURIED NUTS AND BOLTS SHALL BE TYPE 316 STAINLESS STEEL.
2. ALL FIRE HYDRANTS SHALL HAVE A CONCRETE PAD 4'x4'x4".
3. FIRE HYDRANT SPECIFICATIONS: 5-1/2" MIN. - 7" WET BARREL, 1-4" PUMPER NOZZLE; AND 2-2 1/2" HOSE NOZZLE SIX HOLE LA DRILL PATTERN W/ REMOVABLE 4" OUTLETS, DUCTILE IRON WET BARREL HYDRANT, 1 1/8" PENTAGONAL NUT ON DUCTILE IRON CAPS SECURED W/ LINKED CHAINS, POWDER COATED EPOXY POLAR WHITE, VALVE SYSTEMS INSTALLED WITH 1 1/8" DUMMY NUT
4. HEAVY HEX BOLT GRADE B8M T-316 SHALL BE USED ON FIRE HYDRANT UPPER BARREL TO CHECK VALVE, EXTENSION SPOOL AND BURY CONNECTIONS.
5. RING FLANGE - TYTE GASKETS SHALL BE USED AT ALL FLANGE CONNECTIONS.
6. BLUE DOT HYDRANT MARKER SHALL BE LOCATED IN ACCORDANCE WITH ORANGE COUNTY FIRE AUTHORITY GUIDELINE B-09.

(A) THRUST BLOCK DETAILS (SEE CITY STD. PLAN 1412, CONDITION 2).
(B) PAVEMENT BASE MATERIAL OR COMPACTED SOIL.

APPROVED: DATE: 11/24/2020

CITY OF SANTA ANA
PUBLIC WORKS AGENCY

DATE		REVISION
11/2/05	J.B.	DRAIN VALVE PLUG
6/4/13	J.A.	UPDATED
3/1/16	R.R.	CHANGE TO WET BARREL
11/2020	R.R.	UPDATED

WET BARREL FIRE HYDRANT INSTALLATION

STD. PLAN NUMBER 1405

NOTES:

1. SEE CITY STD. PLAN 1405 FOR ADDITIONAL HYDRANT DETAILS.

FOR USE IN INDUSTRIAL ZONES

APPROVED: DATE: 11/24/2020

CITY OF SANTA ANA

PUBLIC WORKS AGENCY

DATE		REVISION
9/28/01	A.F.	MODIFIED CONC. POST
6/4/13	J.A.	SEPARATED CASE 1 & 2
11/2020	R.R.	UPDATED

FIRE HYDRANT
WITH PROTECTIVE CURB

STD. PLAN
NUMBER
1407

NOTES:

1. CITY STD. PLAN 1407 IS STANDARD INSTALLATION.
2. CITY STD. PLAN 1407A IS TO BE USED ONLY WITH PRIOR WRITTEN APPROVAL OF CITY.
3. SEE CITY STD. PLAN 1405 FOR ADDITIONAL HYDRANT DETAILS.

FOR USE IN INDUSTRIAL ZONES

APPROVED: DATE: 11/24/2020

CITY OF SANTA ANA

PUBLIC WORKS AGENCY

DATE		REVISION
6/4/13	J.A.	NEW DETAIL
11/2020	R.R.	UPDATED

FIRE HYDRANT WITH PROTECTIVE POSTS

STD. PLAN NUMBER 1407A

ALL EQUALS TO BE APPROVED BY WATER RESOURCES DIVISION.

CONSTRUCTION ITEMS / MATERIALS LIST			
NO.	SIZE AND DESCRIPTION	MANUFACTURER	MFR. CAT. NO.
1	TAPPING SLEEVE (EPOXY COATED & STAINLESS STEEL BOLTS)	FORD SMITH-BLAIR	FTSC 622
2	GATE VALVE, TAPPING X MJ OR FLG X FLG (RESILIENT WEDGE) CLASS 200	CLOW OR EQUAL	_____
3	VALVE BOX FRAME & COVER, PER STD. PLAN 1410	MARK SERIES	10" MARK V TRI LID WATER POWDER COATED - BLUE
4	P.V.C. PIPE, 8", SCHEDULE 40	_____	_____

NOTES:

1. ALL BURIED NUTS AND BOLTS SHALL BE TYPE 316 STAINLESS STEEL.
2. ALL BURIED IRON SHALL BE WRAPPED WITH 1 LAYER OF 10 MIL POLYETHYLENE SHEETING TAPED IN PLACE.
3. ALL TAPPING SLEEVES MUST BE 24" (MIN.) FROM THE NEAREST JOINT OR SERVICE.
4. APPLICABLE ONLY FOR C900 PVC, CAST IRON, AND DUCTILE IRON WATER MAINS. NO TAPPING OF AC MAINS ALLOWED.

(A) THRUST BLOCK DETAILS (SEE CITY STD. PLAN 1412, CONDITION 1).

(B) PAVEMENT BASE MATERIAL OR COMPACTED SOIL.

APPROVED: DATE: 11/24/2020

CITY OF SANTA ANA

PUBLIC WORKS AGENCY

DATE		REVISION
8/12/09	R.R.	REVISE MANUFACTURER LIST
6/4/13	J.A.	UPDATED
8/31/15	J.B.	UPDATED TAPPING SLEEVE SPECS.
11/2020	R.R.	UPDATED

TAPPING SLEEVE AND GATE VALVE

STD. PLAN NUMBER 1408

OPTION 1:

OPTION 2:

(ABANDONMENT OF ACP)

OPTION 3:

NOTES:

1. DRAIN WATERLINE COMPLETELY BEFORE PLUGGING. ALL WATER DRAINED FROM PIPELINE SHALL BE DISCHARGED INTO A SEWER SYSTEM.
2. CAP, PLUG, OR BLIND FLANGE PER FIELD CONDITIONS.
3. PIPES 10" IN DIAMETER AND LARGER TO BE ABANDONED IN PLACE SHALL BE FILLED WITH SLURRY.

CUT / CAP AND PLUG

NOTE:

IF EXISTING PIPE IS ACP, INSTALL LONG BODY FLEXIBLE TRANSITION COUPLING IN LIEU OF MJ SLEEVE

TIE-IN CONNECTION

CONSTRUCTION ITEMS / MATERIALS LIST		
NO.	SIZE AND DESCRIPTION	MANUFACTURER
1	REDUCER (IF NEEDED)	SIGMA, U.S. PIPE, TYLER
2	SPOOL - PVC OR MATCH NEW MAIN MATERIAL	———
3	COUPLING	SIGMA, U.S. PIPE, TYLER
4	CAP	SIGMA, U.S. PIPE, TYLER

APPROVED: DATE: 11/24/2020

CITY OF SANTA ANA

PUBLIC WORKS AGENCY

DATE		REVISION
3/1/16	R.R.	NEW STD.
11/2020	R.R.	UPDATED

CUT/CAP AND PLUG INSTALLATION
TIE-IN CONNECTION INSTALLATION

STD. PLAN NUMBER 1409

NOTE:

TRAFFIC TO BE KEPT OFF CONCRETE COLLLAR FOR A MINIMUM OF 48 HOURS.

CONSTRUCTION ITEMS / MATERIALS LIST		
NO.	SIZE AND DESCRIPTION	MANUFACTURER
1	GATE VALVE, (FLG X FLG OR FLG X MJ OR MJ X MJ) RESILIENT WEDGE, CLASS 200	CLOW, MUELLER, OR EQUAL
2	VALVE BOX FRAME & COVER	MARK SERIES 10" MARK V TRI AND WATER POWDER COATED BLUE
3	P.V.C. PIPE, 8", SCHEDULE 40	———
4	CONCRETE COLLAR	CONCRETE CLASS (560-C-3250)

NOTES:

1. ALL BURIED NUTS AND BOLTS SHALL BE TYPE 316 STAINLESS STEEL.
2. ALL BURIED IRON SHALL BE WRAPPED WITH 1 LAYER OF 10 MIL POLYETHYLENE SHEETING TAPED IN PLACE.

(A) PAVEMENT BASE MATERIAL OR COMPACTED SOIL.

APPROVED: DATE: 11/24/22

CITY OF SANTA ANA

PUBLIC WORKS AGENCY

DATE		REVISION
9/28/01	A.F.	UPDATED
6/4/13	J.A.	ADDED REBAR
3/1/16	R.R.	REMOVED RAPID SET
11/2020	R.R.	UPDATED

GATE VALVE INSTALLATION

STD. PLAN NUMBER 1410

CONSTRUCTION ITEMS / MATERIALS LIST

NO.	SIZE AND DESCRIPTION	MANUFACTURER	MFR. CAT. NO.
1	BUTTERFLY VALVE RUBBER-SEATED, CLASS 150 (FLG X FLG OR FLG X MJ OR MJ X MJ)	PRATT OR APPROVED EQUAL	GROUND HOG (AWWA C504 SPEC.)
2	VALVE BOX FRAME & COVER	MARK SERIES	10" MARK V TRI AND WATER POWDER COATED-BLUE
3	P.V.C. PIPE, 8", SCHEDULE 40	———	———
4	CONCRETE COLLAR	CONCRETE CLASS (560-C-3250)	———

NOTES:

1. ALL BURIED NUTS AND BOLTS SHALL BE TYPE 316 STAINLESS STEEL.
2. ALL BURIED IRON SHALL BE WRAPPED WITH 1 LAYER OF 10 MIL POLYETHYLENE SHEETING TAPED IN PLACE.
3. BUTTERFLY VALVES SHALL BE USED ON ALL WATER MAINS 14-INCHES IN DIAMETER AND LARGER.

(A) PAVEMENT BASE MATERIAL OR COMPACTED SOIL.

APPROVED: DATE: 11/24/22

CITY OF SANTA ANA
PUBLIC WORKS AGENCY

DATE		REVISION
6/4/13	J.A.	ADDED REBAR TO COLLAR
8/31/15	R.R.	REMOVED RAPID SET
11/2020	R.R.	UPDATED

BUTTERFLY VALVE INSTALLATION

STD. PLAN NUMBER 1411

CONDITION I

TEE

CONDITION II

90°BEND

CONDITION III

CAP OR PLUG

CONDITION IV

TEE & PLUG

CONDITION V

45°LATERAL

CONDITION VI

(A) 22.5°OR 11.25°BEND

(B) 45° BEND

CONDITION VII

CROSS & REDUCER

NOTES:

1. PIPE FITTINGS SHALL BE WRAPPED WITH 1 LAYER OF 10 MIL POLYETHYLENE SHEETING TAPED IN PLACE. SEE SPECIFICATIONS.
2. THRUST BLOCK BEARING FACES SHALL BE POURED AGAINST UNDISTURBED SOIL, OR APPROVED COMPACTED BACKFILL. BEARING FACES SHALL BE A MINIMUM OF 6-INCHES PAST THE TRENCH WALL.
3. THRUST BLOCKS SHALL BE CLASS 560-C-3250 CONCRETE, UNLESS OTHERWISE SPECIFIED.
4. ALL BURIED NUTS AND BOLTS SHALL BE TYPE 316 STAINLESS STEEL.
5. FOR THRUST RESTRAINT ON PIPES LARGER THAN 12-INCHES IN DIAMETER, SPECIAL REVIEW AND APPROVAL IS REQUIRED FROM THE WATER RESOURCES DIVISION.

- THRUST BLOCK BEARING AREA -									
PIPE SIZE (IN INCHES)	CONDITIONS								
	I.	II.	III.	IV.	V.	(A) VI. (B)		VII.	
4	3.2	4.5	3.2	2 @ 3.2	3.2	1.2	2.4	4 @ 4.5	AREA IN SQ. FT.
6	7.1	10	7.1	2 @ 7.1	7.1	2.8	5.4	4 @ 10.0	
8	12.6	17.8	12.6	2 @ 12.6	12.6	4.9	9.6	4 @ 17.8	
10	19.6	27.7	19.6	2 @ 19.6	19.6	7.7	15.0	4 @ 27.7	
12	28.2	39.9	28.2	2 @ 28.2	28.2	11.0	21.6	4 @ 39.9	

BASED ON 100 P.S.I. PRESSURE AND ALLOWABLE BEARING PRESSURE OF 1000 P.S.F.
TEST PRESSURE OF 200 PSI.

APPROVED: DATE: 11/24/2020

CITY OF SANTA ANA

PUBLIC WORKS AGENCY

SANTA ANA 1869

DATE		REVISION
5/2/07	J.B.	UPDATED
8/12/09	R.R.	ADDED 11 1/4° BEND
6/4/13	J.A.	UPDATED INFORMATION
11/2020	R.R.	UPDATED

THRUST BLOCK INSTALLATION

STD. PLAN NUMBER 1412

TYPE 1- VERTICAL OFFSET PROFILE

ITEM	CONSTRUCTION NOTES
A	CONSTRUCT MINIMUM CLASS 350 DUCTILE IRON PIPE, SIZE AS NECESSARY TO MATCH EXISTING MAIN.
B	CONSTRUCT 45° BEND (MJ X MJ) WITH MEGALUG JOINT RESTRAINTS AT EACH END.
C	CONSTRUCT THRUST BLOCK PER CITY STD. PLAN 1412.
D	IF EXISTING MAIN IS ASBESTOS-CEMENT (A.C.) PIPE, CONNECT D.I. PIPE TO EXISTING A.C. PIPE USING AN APPROVED D.I. TO A.C. TRANSITION COUPLING, A 2 FOOT SECTION OF D.I. PIPE, AND MEGALUG RESTRAINTS. DO NOT TIE ONTO EXISTING A.C. PIPE WITH MEGALUG RESTRAINTS.

NOTES:

1. WATER MAIN CONSTRUCTION SHALL COMPLY WITH CALIFORNIA CODE OF REGULATIONS TITLE 22, CALIFORNIA WATER WORKS STANDARDS, CHAPTER 16 AND DDW SEPARATION REQUIREMENTS.
2. ALL BURIED IRON SHALL BE WRAPPED WITH 1 LAYER OF 10 MIL POLYETHYLENE SHEETING TAPED IN PLACE.
3. ALL BURIED NUTS AND BOLTS SHALL BE TYPE 316 STAINLESS STEEL.
4. NO UNRESTRAINED JOINTS BETWEEN FITTINGS.
5. THE CITY OF SANTA ANA WATER RESOURCES DIVISION CAN NOT GUARANTEE A COMPLETE SHUT DOWN OF EXISTING MAIN, THE DEPARTMENT WILL ATTEMPT TO SHUT DOWN MAINS AS COMPLETELY AS POSSIBLE; HOWEVER, THE CONTRACTOR SHALL BE RESPONSIBLE FOR DEWATERING AND ISOLATION FOR TESTING PURPOSES.
6. THIS STANDARD PLAN SHALL APPLY ONLY TO 12" AND SMALLER WATER MAINS. OFFSETS IN LARGER WATER MAINS MUST BE DESIGNED BY A REGISTERED CIVIL ENGINEER AND APPROVED BY THE CITY'S WATER RESOURCES DIVISION.

APPROVED: DATE: 11/24/2020

DATE		REVISION
6/4/13	R.R.	1' VERTICAL SEPARATION
11/2020	R.R.	UPDATED

CITY OF SANTA ANA
PUBLIC WORKS AGENCY

WATER MAIN
TYPE 1 - VERTICAL OFFSET

STD. PLAN NUMBER
1413A

TYPE 2- VERTICAL OFFSET PROFILE

ITEM	CONSTRUCTION NOTES
A	CONSTRUCT MINIMUM CLASS 350 DUCTILE IRON PIPE, SIZE AS NECESSARY TO MATCH EXISTING MAIN.
B	CONSTRUCT 45° BEND (MJ X MJ) WITH MEGALUG JOINT RESTRAINTS AT EACH END.
C	CONSTRUCT THRUST BLOCK WITH VERTICAL BEND ANCHOR PER CITY STD. PLAN 1420.
D	IF EXISTING MAIN IS ASBESTOS-CEMENT (A.C.) PIPE, CONNECT D.I. PIPE TO EXISTING A.C. PIPE USING AN APPROVED D.I. TO A.C. TRANSITION COUPLING, A 2 FOOT SECTION OF D.I. PIPE, AND MEGALUG RESTRAINTS. DO NOT TIE ONTO EXISTING A.C. PIPE WITH MEGALUG RESTRAINTS.
E	CONSTRUCT WATER PIPE CASING PER CITY STD. PLAN 1429.

NOTES:

1. WATER MAIN CONSTRUCTION SHALL COMPLY WITH CALIFORNIA CODE OF REGULATIONS TITLE 22, CALIFORNIA WATER WORKS STANDARDS, CHAPTER 16 AND DDW SEPARATION REQUIREMENTS.
2. ALL BURIED IRON SHALL BE WRAPPED WITH 1 LAYER OF 10 MIL POLYETHYLENE SHEETING TAPED IN PLACE.
3. ALL BURIED NUTS AND BOLTS SHALL BE TYPE 316 STAINLESS STEEL.
4. NO UNRESTRAINED JOINTS BETWEEN FITTINGS.
5. THE CITY OF SANTA ANA WATER RESOURCES DIVISION CAN NOT GUARANTEE A COMPLETE SHUT DOWN OF EXISTING MAIN, THE DEPARTMENT WILL ATTEMPT TO SHUT DOWN MAINS AS COMPLETELY AS POSSIBLE; HOWEVER, THE CONTRACTOR SHALL BE RESPONSIBLE FOR DEWATERING AND ISOLATION FOR TESTING PURPOSES.
6. THIS STANDARD PLAN SHALL APPLY ONLY TO 12" AND SMALLER WATER MAINS. OFFSETS IN LARGER WATER MAINS MUST BE DESIGNED BY A REGISTERED CIVIL ENGINEER AND APPROVED BY THE CITY'S WATER RESOURCES DIVISION.

APPROVED: DATE: 11/24/2020

DATE		REVISION
6/4/13	R.R.	CASING REQUIREMENT
11/2020	R.R.	UPDATED

CITY OF SANTA ANA
PUBLIC WORKS AGENCY

WATER MAIN
TYPE 2 - VERTICAL OFFSET

STD. PLAN NUMBER 1413B

CONSTRUCTION ITEMS / MATERIALS LIST			
NO.	SIZE AND DESCRIPTION	MANUFACTURER	MFR. CAT. NO.
1	PLUG, 2"- BRASS; LEAD FREE (SQUARE HEX HEAD)	FORD, JONES	
2	CAP (MJ) WITH 2" THREADED OFFSET TAP		
3	2" - COPPER TUBING	TYPE "K" SOFT	
4	POLYMER METER BOX WITH HINGED READING LID	DFW DFW	DFW486WBC4-12-BODY DFW486C-AF4C-LID COLOR - GRAY
5	COMMON BRICK (TYP.)	ONE AT EACH CORNER	
6	2" LEAD FREE BRASS CURB STOP WITH PADLOCK WING	FORD	
7	THRUST BLOCK PER CITY STANDARD PLAN 1412		
8	LEAD FREE BRASS 90° ELBOW (COMPRESSION CONNECTIONS)	FORD	L44-77 (2")
9	PEA GRAVEL BASE		
10	THIN PLYWOOD ON OUTSIDE OF BOX TO PREVENT CAVE-IN THROUGH NOTCHES		

NOTE:
BLOW OFF ASSEMBLY SHALL BE LOCATED IN PARKWAY.

APPROVED: DATE: 11/24/2021

CITY OF SANTA ANA
PUBLIC WORKS AGENCY

DATE		REVISION
3/1/16	R.R.	UPDATED
11/2020	R.R.	UPDATED

2" BLOW OFF ASSEMBLY

STD. PLAN NUMBER 1414

NOTE:
SEE BELOW AND SHEET 2 FOR LOCATION OPTIONS

NOTES:

1. ALL COPPER FITTINGS SHALL BE SOLDERED OR COMPRESSION TYPE FITTINGS.

(A) 1/2" DIA. STAINLESS STEEL ANCHOR BOLTS SET IN CONCRETE SLAB (4 REQUIRED)

(B) SADDLE AND CORPORATION STOP PER CITY STD PLAN 1401

(C) FOR R/W LESS THAN 7.5' WIDE WITH A SIDEWALK, THIS DIMENSION CAN BE REDUCED TO 30"

LOCATION PLAN
WITH SIDEWALK

LOCATION PLAN
WITH SIDEWALK

(R/W LESS THAN 7'-6" BUT NOT LESS THAN 6' 6")

APPROVED: DATE: 11/24/2020

CITY OF SANTA ANA

PUBLIC WORKS AGENCY

DATE		REVISION
9/28/01	A.F.	UPDATED
3/17/08	R.R.	UPDATED DIMENSIONS
6/4/13	J.A.	ADDED SUCTION STRAINER
11/2020	R.R.	UPDATED

AIR AND VACUUM RELEASE
VALVE ASSEMBLY (1")

STD. PLAN
NUMBER
1415A
SHEET 1 OF 2

CASE 1: LOCATION PLAN
WITH SIDEWALK

CASE 2: LOCATION PLAN
WITH SIDEWALK

CASE 3: LOCATION PLAN
WITHOUT SIDEWALK

(R/W 7'-6" OR WIDER)

CONSTRUCTION ITEMS / MATERIALS LIST

NO.	SIZE AND DESCRIPTION	MANUFACTURER	MFR. CAT. NO.
1	18" X 24" SCHEDULE 40 STEEL VENTED PIPE COVER, WELD 1/4" PLATE TO TOP, ANCHOR LUGS AT BOTTOM AND GALVANIZE; PRIMER & PAINTED DESERT SAND OR 18" DIA. X 30" (HIGH) LINEAR LOW DENSITY POLYETHYLENE COVER; COLOR SANDSTONE. INSTALL CITY OF SANTA ANA LOGO DECAL ON EXTERIOR	ARMORAST PRODUCTS PIPELINE PRODUCTS	
2	AIR AND VACUUM RELIEF VALVE: 1"	A.R.I. APCO VALMATIC	D-040 ST 140 C 200 C
3	VENT PIPING, BENDS AND STRAINER/SCREEN: 1"	SCH. 80 PVC	
4	LEAD FREE BRASS CLOSE NIPPLE: 1"		
5	LEAD FREE BRASS TEE: 1"		
6	LEAD FREE BRASS CURB STOP WITH LOCKING WING NUT	FORD	B11-444W
7	LEAD FREE BRASS PIPING (THREADED ENDS): 1"		
8	1" X 1/4" STAINLESS STEEL BUSHING		
9	1/4" DIA. X 1" LONG SS NIPPLE		
10	1/4" SS BALL VALVE W\ HANDLE		
11	LEAD FREE BRASS 90° ELBOW: 1"		
12	LEAD FREE BRASS ANGLE METER STOP: 1"		
13	LEAD FREE BRASS ADAPTOR: 1"		
14	TYPE K SOFT COPPER TUBING: 1"	TYPE "K" SOFT	
15	LEAD FREE BRASS 90° ELBOW: 1"		
16	LEAD FREE BRASS CORPORATION STOP: 1"	JAMES JONES FORD	J-3403 F-1100-4
17	LEAD FREE BRASS SERVICE SADDLE W/ IP TAP	JONES, MUELLER FORD	J-996, H 13000 SERIES S-912 SERIES
18	PLASTIC METER BOX	DFW	DFW 486WBC4-12 BODY DFW 486C-AF4C LID COLOR GREY
19	36" X 42" CONCRETE PAD (6" THICK)		
20	1/2" EXPANSION JOINT MATERIAL BETWEEN CURB/SIDEWALK AND CONCRETE PAD		
21	8" DIAMETER PVC COLLAR WITH 6 INCHES OF PEA GRAVEL		

APPROVED: DATE: 11/24/2020

CITY OF SANTA ANA
PUBLIC WORKS AGENCY

DATE		REVISION
9/28/01	A.F.	UPDATED
3/17/08	R.R.	UPDATED DIMENSIONS
6/4/13	J.A.	ADDED SUCTION STRAINER
11/2020	R.R.	UPDATED

AIR AND VACUUM RELEASE
VALVE ASSEMBLY (1")

STD. PLAN
NUMBER
1415A
SHEET 2 OF 2

CONSTRUCTION ITEMS / MATERIALS LIST

NO.	SIZE AND DESCRIPTION	MANUFACTURER	MFR. CAT. NO.
1	TAPPING SLEEVE ON EXISTING MAIN (EPOXY COATED & STAINLESS STEEL BOLTS) (FOR NEW WATER MAIN CONSTRUCTION USE D.I. TEE (MJ X FLG)	FORD SMITH-BLAIR	FTSC 622
2	TAPPING VALVE, "RESILIENT WEDGE" FLG. x M.J. CLASS 200	CLOW OR EQUAL	F-6108
3	VALVE BOX FRAME & COVER	MARK SERIES	NO. 10" MARK V TRI AND WATER POWDER COATED. BLUE
4	P.V.C. PIPE, 8" (SCHEDULE 40)	———	———
5	LATERAL PIPE; DR 14, C900 P.V.C.	———	———

NOTES:

1. ALL BURIED IRON SHALL BE WRAPPED WITH 1 LAYER OF 10 MIL POLYETHYLENE SHEETING TAPED IN PLACE. SEE SPECIFICATIONS.
2. ALL BURIED NUTS AND BOLTS SHALL BE TYPE 316 STAINLESS STEEL.
3. ALL ON-SITE PRIVATE FIRE PROTECTION SYSTEMS REQUIRE PROPER BACKFLOW DEVICE(S). DEVELOPER SHALL CALL CITY'S WATER QUALITY INSPECTOR AT (714) 647-3320 FOR BACKFLOW DEVICE REQUIREMENTS.

APPROVED: DATE: 11/24/2020

CITY OF SANTA ANA
PUBLIC WORKS AGENCY

DATE		REVISION
5/16/05	R.R.	LATERAL PIPE CLASS & TYPE
6/4/13	J.A.	UPDATED
3/1/16	R.R.	UPDATED
11/2020	R.R.	UPDATED

FIRE SERVICE

STD. PLAN NUMBER 1417

PLAN-VIEW

ELEVATION-VIEW

SECTION-VIEW

VALVE SIZE	ANCHOR ROD		NET BEARING SURFACE
	DIA.	"L"*MIN*	
8"	5/8"	18"	15 SQ. FT.
12"	5/8"	24"	34 SQ. FT.

1. NET BEARING SURFACES ARE DESIGNED AGAINST UNDISTURBED SOIL WITH A SAFE LATERAL BEARING OF 1000 LBS/S.F., AT A TEST PRESSURE OF 200 PSI, ADJUSTMENT SHALL BE MADE FOR OTHER SOILS.
2. ALL THRUST BLOCKS SHALL BE PORTLAND CEMENT CONCRETE BLOCK MIX 560-C-3250 AND PLACED AGAINST UNDISTURBED SOIL.
3. THRUST BLOCKS ON VALVES SHALL BE KEYED INTO THE TRENCH BOTTOM AS SHOWN.
4. CONCRETE SHALL NOT EXTEND ONTO FLANGE OR ADJOINING PIPE.
5. DO NOT COVER FITTING BOLTS WITH CONCRETE.
6. WHEN VALVES ARE FLANGED TO FITTINGS AVOID PLACING CONCRETE ON ANY PART OF THE VALVE BONNET OR VALVE OPERATOR.
7. ANCHOR RODS SHALL BE COATED WITH 2 COATS OF 3M CO. EC-244 OR APPROVED EQUAL.
8. MINIMUM CONCRETE COVER OVER ANCHOR ROD SHALL BE 3".
9. NO CONCRETE SHALL BE POURED ON VALVE OR PIPE JOINT.
10. MIN. YIELD STRENGTH OF STEEL BARS (36 KSI).

APPROVED: DATE: 11/24/2020

CITY OF SANTA ANA

PUBLIC WORKS AGENCY

DATE		REVISION
3/1/16	R.R.	NEW

VALVE ANCHOR

STD. PLAN NUMBER 1419

I. D. BEND	CONC. ANCHOR BLOCK			MIN. TIE BAR LENGTH
	"A" LENGTH	"B" WIDTH	"C" DEPTH	
6"	3.0'	3.0'	4.5'	8.5'
8"	4.0'	4.0'	4.5'	9.0'
10"	4.5'	4.5'	5.5'	11.5'
12"	5.0'	5.0'	6.5'	12.0'

NOTES:

1. ALL BURIED IRON SHALL BE WRAPPED WITH 1 LAYER OF 10 MIL POLYETHYLENE SHEETING TAPED IN PLACE. SEE SPECIFICATIONS.
2. ALL BURIED NUTS AND BOLTS SHALL BE TYPE 316 STAINLESS STEEL.
3. TIE BARS NOT EMBEDED IN CONCRETE SHALL BE CLEANED AND COATED WITH 3M CO. NUMBER 505 OR PREVIOUSLY APPROVED EQUAL.
4. 45° MAXIMUM BEND
5. 200 PSI TEST PRESSURE

APPROVED: DATE: 11/24/2020

CITY OF SANTA ANA
PUBLIC WORKS AGENCY

DATE		REVISION
12/7/06	A.F.	CONC. BLOCK SIZE
3/17/08	R.R.	ADDED NOTE 1 & 2
6/4/13	J.A.	UPDATED
11/2020	R.R.	UPDATED

VERTICAL BEND ANCHOR

STD. PLAN NUMBER 1420

NOTE:

CONTRACTOR SHALL NOTE ANY DEVIATION FROM CONTRACT SPECIFICATIONS AND PLANS INCLUDING DEVIATIONS IN DEPTH OF PIPE AND MATERIALS USED.

APPROVED: DATE: 11/24/2020

CITY OF SANTA ANA

PUBLIC WORKS AGENCY

DATE		REVISION
3/17/08	R.R.	UPDATED
6/4/13	J.A.	UPDATED

TYPICAL DIMENSIONS PRACTICE FOR "AS BUILT" WATER SYSTEM MAP

STD. PLAN NUMBER 1421

GENERAL NOTES:

1. ZONES IDENTICAL ON EITHER SIDE OF CENTER LINES.
2. ZONE "A" CONSTRUCTION IS ALLOWED ONLY FOR THE INDICATED CONVEYANCE; OTHERWISE SPECIAL PERMISSION. NO PIPES SHALL BE INSTALLED WITHIN THE PROHIBITED ZONE.
3. SPECIAL PERMISSION WILL BE REQUIRED TO CONSTRUCT WITHIN THE ZONE "B". WITH STATE DEPARTMENT OF PUBLIC HEALTH APPROVAL, NEWLY INSTALLED MAINS MAY BE EXEMPTED FROM THE SEPARATION DISTANCES IF THE WATER MAIN CAN BE ADEQUATELY PROTECTED AS SET FORTH IN CALIFORNIA ADMINISTRATIVE CODE (CAC), TITLE 22, SECTION 64572, SUB-SECTION (H). PROPOSED PROTECTIVE MEASURE(S) SHALL BE SUBMITTED TO THE CITY FOR CONSIDERATION BEFORE REQUESTING APPROVAL FROM THE STATE HEALTH DEPARTMENT.

FIGURE 1 - PARALLEL CONSTRUCTION

APPROVED: DATE: 11/24/2020

DATE		REVISION
9/2/08	R.R.	UPDATED
6/4/13	J.A.	UPDATED
11/2020	R.R.	NEW SEPARATION REQUIREMENT

CITY OF SANTA ANA
PUBLIC WORKS AGENCY

SEPARATION OF WATER, NON-DOMESTIC WATER MAINS, SEWERS AND STORM DRAINS

STD. PLAN NUMBER 1427

SHEET 1 OF 3

GENERAL NOTES:

1. ZONE "C" CONSTRUCTION SHALL HAVE NO JOINTS. CROSSINGS SHALL BE MADE AT AN ANGLE NO LESS THAN 45° TO EXISTING PIPELINE. NO PIPES SHALL BE INSTALLED WITHIN THE PROHIBITED ZONE.

2. SPECIAL PERMISSION WILL BE REQUIRED TO CONSTRUCT WITHIN THE ZONE "D". WITH STATE DEPARTMENT OF PUBLIC HEALTH APPROVAL, NEWLY INSTALLED MAINS MAY BE EXEMPTED FROM THE SEPARATION DISTANCES IF THE WATER MAIN CAN BE ADEQUATELY PROTECTED AS SET FORTH IN CALIFORNIA ADMINISTRATIVE CODE (CAC), TITLE 22, SECTION 64572, SUB-SECTION (H). PROPOSED PROTECTIVE MEASURE(S) SHALL BE SUBMITTED TO THE CITY FOR CONSIDERATION BEFORE REQUESTING APPROVAL FROM THE STATE HEALTH DEPARTMENT.

FIGURE 2 - CROSSINGS

APPROVED: DATE: 11/24/2020

CITY OF SANTA ANA

PUBLIC WORKS AGENCY

DATE		REVISION
11/2020	R.R.	NEW

SEPARATION OF WATER MAINS, SANITARY SEWERS AND STORM DRAINS

STD. PLAN NUMBER 1427

SHEET 2 OF 3

NOTES:

1. ALL NEW DOMESTIC WATER MAINS SHALL BE INSTALLED PER THE LATEST CALIFORNIA PUBLIC HEALTH LAWS FOR DRINKING WATER SAFETY.

2. CALIFORNIA ADMINISTRATIVE CODE, TITLE 22, SECTION 64572 (UPDATED JUNE 2015) STATES:

(A) NEW WATER MAINS AND NEW SUPPLY LINES SHALL NOT BE INSTALLED IN THE SAME TRENCH AS, AND SHALL BE AT LEAST 10 FEET HORIZONTALLY FROM AND ONE FOOT VERTICALLY ABOVE, ANY PARALLEL PIPELINE CONVEYING:

1) UNTREATED SEWAGE,
2) PRIMARY OR SECONDARY TREATED SEWAGE,
3) DISINFECTED SECONDARY-2.2 RECYCLED WATER (DEFINED IN SECTION 60301.220),
4) DISINFECTED SECONDARY-23 RECYCLED WATER (DEFINED IN SECTION 60301.225), AND
5) HAZARDOUS FLUIDS SUCH AS FUELS, INDUSTRIAL WASTES, AND WASTEWATER SLUDGE.

(B) NEW WATER MAINS AND NEW SUPPLY LINES SHALL BE INSTALLED AT LEAST 6 FEET HORIZONTALLY FROM, AND ONE FOOT VERTICALLY ABOVE, ANY PARALLEL PIPELINE CONVEYING:

1) DISINFECTED TERTIARY RECYCLED WATER (DEFINED IN SECTION 60301.230), AND
2) STORM DRAINAGE.

(C) NEW SUPPLY LINES CONVEYING RAW WATER TO BE TREATED FOR DRINKING PURPOSES SHALL BE INSTALLED AT LEAST 4 FEET HORIZONTALLY FROM, AND ONE FOOT VERTICALLY BELOW, ANY WATER MAIN.

(D) IF CROSSING A PIPELINE CONVEYING A FLUID LISTED IN SUBSECTION (A) OR (B), A NEW WATER MAIN SHALL BE CONSTRUCTED NO LESS THAN 45-DEGREES TO AND AT LEAST ONE FOOT ABOVE THAT PIPELINE. NO CONNECTION JOINTS SHALL BE MADE IN THE WATER MAIN WITHIN EIGHT HORIZONTAL FEET OF THE FLUID PIPELINE.

(E) THE VERTICAL SEPARATION SPECIFIED IN SUBSECTIONS (A), (B), AND (C) IS REQUIRED ONLY WHEN THE HORIZONTAL DISTANCE BETWEEN A WATER MAIN AND PIPELINE IS LESS THAN TEN FEET.

(F) NEW WATER MAINS SHALL NOT BE INSTALLED WITHIN 100 HORIZONTAL FEET OF THE NEAREST EDGE OF ANY SANITARY LANDFILL, WASTEWATER DISPOSAL POND, OR HAZARDOUS WASTE DISPOSAL SITE, OR WITHIN 25 HORIZONTAL FEET OF THE NEAREST EDGE OF ANY CESSPOOL, SEPTIC TANK, SEWAGE LEACH FIELD, SEEPAGE PIT, UNDERGROUND HAZARDOUS MATERIAL STORAGE TANK, OR GROUNDWATER RECHARGE PROJECT SITE.

(G) THE MINIMUM SEPARATION DISTANCES SET FORTH IN THIS SECTION SHALL BE MEASURED FROM THE NEAREST OUTSIDE EDGE OF EACH PIPE BARREL.

(H) WITH DEPARTMENT APPROVAL, NEWLY INSTALLED WATER MAINS MAY BE EXEMPT FROM THE SEPARATION DISTANCES IN THIS SECTION, EXCEPT SUBSECTION (F), IF THE NEWLY INSTALLED MAIN IS:

1) LESS THAN 1320 LINEAR FEET,
2) REPLACING AN EXISTING MAIN, INSTALLED IN THE SAME LOCATION, AND HAS A DIAMETER NO GREATER THAN SIX INCHES MORE THAN THE DIAMETER OF THE MAIN IT IS REPLACING, AND
3) INSTALLED IN A MANNER THAT MINIMIZES THE POTENTIAL FOR CONTAMINATION, INCLUDING, BUT NOT LIMITED TO:
   A. SLEEVING THE NEWLY INSTALLED MAIN, OR
   B. UTILIZING UPGRADED PIPING MATERIAL (DIP WITH HOT DIP BITUMINOUS COATING)

APPROVED: DATE: 11/24/2020

CITY OF SANTA ANA

PUBLIC WORKS AGENCY

SANTA ANA 1869

DATE		REVISION
11/2020	R.R.	NEW

SEPARATION OF WATER MAINS, SANITARY SEWERS AND STORM DRAINS

STD. PLAN NUMBER 1427

SHEET 3 OF 3

CASING DETAIL

SECTION A-A

PIPE SIZE (D.I.)	STEEL CASING PIPE	
	MIN. SIZE (I.D.)	MIN. WALL THK.
6"	16"	1/4"
8"	18"	1/4"
10"	21"	5/16"
12"	24"	5/16"

COUPLING SPACING
(PLAN VIEW)

GROUT COUPLING
(FOR ALL CASINGS 24"
IN DIA. AND LARGER)

NOTES:

1. ALL STEEL CASING PIPE JOINTS SHALL BE WELDED FULL CIRCUMFERENCE.
2. PERIPHERY OF CASING TO BE PRESSURE GROUTED FOR ALL CASINGS 24" IN DIAMETER AND LARGER.
3. UPSTREAM AND DOWNSTREAM ELEVATIONS TO BE VERIFIED.
4. SPACING BETWEEN THE CASING INSULATORS SHALL BE PER THE MANUFACTURERES RECOMMENDATIONS EXCEPT THAT THERE SHALL BE AT LEAST 3 CASING INSULATORS PER PIPE SECTION, ONE 12" FROM EACH JOINT AND ONE CENTERED ADDITIONALLY, ONE INSULATOR SHALL BE INSTALLED 12" FROM EACH END OF THE CASING.
5. BOTH ENDS OF THE CASING BETWEEN THE CASING AND CARRIER PIPE SHALL BE SEALED WATER TIGHT USING AN END SEAL. BANDS SHALL BE TYPE 304 STAINLESS STEEL.

APPROVED: DATE: 11/24/2020

CITY OF SANTA ANA
PUBLIC WORKS AGENCY

DATE		REVISION
11/2020	R.R.	UPDATED

WATER PIPE CASING

STD. PLAN NUMBER 1429

2" AND SMALLER

NOTE:
REMOVE ABANDONED WATER METER BOX (SEE NOTE NO. 3 BELOW) AND REMOVE AND DISPOSE COPPER SERVICE PIPE TO THE 90° ELBOW OR END OF SWEEP BELOW GROUND. INSTALL BRASS PLUG ON REMAINING END OF COPPER SERVICE PIPING.

4" AND LARGER

FLANGED TEE

NOTE:
WHEN EXISTING TEE BRANCH HAS A PUSH-ON OR MECHANICAL JOINT, REMOVE TEE IN ITS ENTIRETY AND REPLACE WITH PVC, DR14, C-900 PIPE AND JOIN TO EXISTING WATER MAIN WITH SMITH BLAIR FLEXIBLE COUPLINGS.

NOTES:

1. ALL EXISTING VALVES (4" AND LARGER) SHALL BE SALVAGED AND DELIVERED TO CITY'S WATER RESOURCES DIVISION AT 215 S. CENTER ST. PRIOR NOTIFICATION OF DELIVERY IS REQUIRED AT 714-647-3320.
2. PAVE AND BACKFILL PER CITY STD. PLAN 1150.
3. REMOVE METER BOX AND RESTORE HARDSCAPE/LANDSCAPE ONLY AFTER CONTACTING CITY TO REQUEST METER BE REMOVED.

APPROVED: DATE: 11/24/2020

CITY OF SANTA ANA
PUBLIC WORKS AGENCY

DATE		REVISION
3/1/16	R.R.	REVISED
11/2020	R.R.	REVISED

ABANDONMENT DETAILS

STD. PLAN NUMBER 1430

PLAN
(PAD ONLY)

ELEVATION

LEGEND OF MATERIAL:	
NO.	SIZE & DESCRIPTION
1	APPROVED BACKFLOW PREVENTION ASSEMBLY
2	SOLDER 90° ELL
3	MIP SOLDER ADAPTER
4	SOLDER UNION
5	TYPE "K" SOFT COPPER OR BRASS

GENERAL NOTES:

1. TO ENSURE APPROPRIATE FLOW PLEASE CHECK WITH THE CITY PLUMBING INSPECTOR FOR SIZING.
2. ALL BACKFLOW PREVENTION DEVICES SHALL BE TESTED BY A CERTIFIED TESTER AFTER INSTALLATION, RELOCATION OR REPAIR.
3. BACKFLOW MUST BE EASILY ACCESSIBLE TO FACILITATE TESTING AND SERVICING.
4. THE USC LIST OF APPROVED BACKFLOW PREVENTION ASSEMBLIES HAS BEEN ADOPTED BY THE CITY WATER DEPARTMENT AS THE ONLY ASSEMBLIES APPROVED FOR USE ON THE WATER LINES UNDER OUR JURISDICTION.
5. PRIVATE WATER APPURTENANCES SUCH AS BACKFLOW PREVENTERS, FIRE HYDRANTS AND STANDPIPES, AND VALVES SHALL BE PAINTED AS FOLLOWS:
   - DOMESTIC WATER (BLUE)
   - POTABLE IRRIGATION (GREEN)
   - RECYCLED IRRIGATION (PURPLE)
   - FIRE PROTECTIONS (OSHA SAFETY RED)

HEALTH HAZARD (POLLUTANT) BACKFLOW PREVENTION DEVICE

APPROVED: DATE: 11/20/2020

CITY OF SANTA ANA
PUBLIC WORKS AGENCY

DATE		REVISION
3/1/16	R.R.	NEW

DOUBLE CHECK VALVE ASSEMBLY
(2" OR SMALLER)

STD. PLAN NUMBER
1431

PLAN
(PAD ONLY)

ELEVATION

LEGEND OF MATERIAL:	
NO.	SIZE & DESCRIPTION
1	APPROVED BACKFLOW PREVENTION ASSEMBLY
2	SOLDER 90° ELL
3	MIP SOLDER ADAPTER
4	SOLDER UNION
5	TYPE "K" SOFT COPPER OR BRASS

GENERAL NOTES:

1. TO ENSURE APPROPRIATE FLOW PLEASE CHECK WITH THE CITY PLUMBING INSPECTOR FOR SIZING.
2. ALL BACKFLOW PREVENTION DEVICES SHALL BE TESTED BY A CERTIFIED TESTER AFTER INSTALLATION, RELOCATION OR REPAIR.
3. BACKFLOW MUST BE EASILY ACCESSIBLE TO FACILITATE TESTING AND SERVICING.
4. THE USC LIST OF APPROVED BACKFLOW PREVENTION ASSEMBLIES HAS BEEN ADOPTED BY CITY WATER DEPARTMENT AS THE ONLY ASSEMBLIES APPROVED FOR USE ON THE WATER LINES UNDER JURISDICTION.
5. PRIVATE WATER APPURTENANCES SUCH AS BACKFLOW PREVENTERS, FIRE HYDRANTS AND STANDPIPES, AND VALVES SHALL BE PAINTED AS FOLLOWS:
   - DOMESTIC WATER (BLUE)
   - POTABLE IRRIGATION (GREEN)
   - RECYCLED IRRIGATION (PURPLE)
   - FIRE PROTECTIONS (OSHA SAFETY RED)

HEALTH HAZARD (POLLUTANT/CONTAMINANT) BACKFLOW PREVENTION DEVICE

APPROVED: DATE: 11/24/2020

CITY OF SANTA ANA
PUBLIC WORKS AGENCY

DATE		REVISION
3/1/16	R.R.	NEW
11/2020	R.R.	UPDATED

REDUCED PRESSURE PRINCIPLE BACKFLOW DEVICE (2" OR SMALLER)

STD. PLAN NUMBER 1432

GENERAL NOTES

1. PRESSURE TEST AND CHLORINATION TO LIMITS SHOWN ABOVE
2. BACKFLOW ASSEMBLY SHALL BE A MINIMUM OF 36" FROM ANY STRUCTURE, CURB OR SIDEWALK.
3. BACKFLOW ASSEMBLY MUST BE EASILY ACCESSIBLE TO FACILITATE TESTING AND SERVICING
4. THE USC LIST OF APPROVED BACKFLOW PREVENTION ASSEMBLIES HAS BEEN ADOPTED BY CITY WATER DEPARTMENT AS THE ONLY ASSEMBLIES APPROVED FOR USE ON THE WATER LINES UNDER OUR JURISDICTION.
5. PRIVATE WATER APPURTENANCES SUCH AS BACKFLOW PREVENTERS, FIRE HYDRANTS AND STANDPIPES, AND VALVES SHALL BE PAINTED AS FOLLOWS:
   - DOMESTIC WATER (BLUE)
   - POTABLE IRRIGATION (GREEN)
   - RECYCLED IRRIGATION (PURPLE)
   - FIRE PROTECTIONS (OSHA SAFETY RED)
6. ALL BACKFLOW PREVENTION DEVICES SHALL BE TESTED BY A CERTIFIED TESTER AFTER INSTALLATION, RELOCATION OR REPAIR.

"FOR DOMESTIC USE ONLY"
HEALTH HAZARD (POLLUTANT) BACKFLOW PREVENTION DEVICE

APPROVED: DATE: 11/24/2020

CITY OF SANTA ANA
PUBLIC WORKS AGENCY

DATE		REVISION
3/1/16	R.R.	NEW
11/2020	R.R.	REVISED

DOUBLE CHECK ASSEMBLY
(3" OR LARGER)

STD. PLAN NUMBER
1433A

PLAN
(PAD ONLY)

ELEVATION

GENERAL NOTES

1. PRESSURE TEST AND CHLORINATION TO LIMITS SHOWN ABOVE
2. BACKFLOW ASSEMBLY SHALL BE A MINIMUM OF 36" FROM ANY STRUCTURE, CURB OR SIDEWALK.
3. BACKFLOW ASSEMBLY MUST BE EASILY ACCESSIBLE TO FACILITATE TESTING AND SERVICING
4. THE USC LIST OF APPROVED BACKFLOW PREVENTION ASSEMBLIES HAS BEEN ADOPTED BY CITY WATER DEPARTMENT AS THE ONLY ASSEMBLIES APPROVED FOR USE ON THE WATER LINES UNDER OUR JURISDICTION.
5. PRIVATE WATER APPURTENANCES SUCH AS BACKFLOW PREVENTERS, FIRE HYDRANTS AND STANDPIPES, AND VALVES SHALL BE PAINTED AS FOLLOWS:
   - DOMESTIC WATER (BLUE)
   - POTABLE IRRIGATION (GREEN)
   - RECYCLED IRRIGATION (PURPLE)
   - FIRE PROTECTIONS (OSHA SAFETY RED)
6. ALL BACKFLOW PREVENTION DEVICES SHALL BE TESTED BY A CERTIFIED TESTER AFTER INSTALLATION, RELOCATION OR REPAIR.

"FOR FIRE USE ONLY"
HEALTH HAZARD (POLLUTANT) BACKFLOW PREVENTION DEVICE

APPROVED: DATE: 11/24/2020

CITY OF SANTA ANA
PUBLIC WORKS AGENCY

DATE		REVISION
11/2020	R.R.	NEW

DOUBLE CHECK DETECTOR ASSEMBLY
(3" OR LARGER)

STD. PLAN NUMBER
1433B

PLAN
(PAD ONLY)

ELEVATION

GENERAL NOTES

1. PRESSURE TEST AND CHLORINATION TO LIMITS SHOWN ABOVE
2. BACKFLOW ASSEMBLY SHALL BE A MINIMUM OF 36" FROM ANY STRUCTURE, CURB OR SIDEWALK.
3. BACKFLOW ASSEMBLY MUST BE EASILY ACCESSIBLE TO FACILITATE TESTING AND SERVICING
4. THE USC LIST OF APPROVED BACKFLOW PREVENTION ASSEMBLIES HAS BEEN ADOPTED BY CITY WATER DEPARTMENT AS THE ONLY ASSEMBLIES APPROVED FOR USE ON THE WATER LINES UNDER OUR JURISDICTION.
5. PRIVATE WATER APPURTENANCES SUCH AS BACKFLOW PREVENTERS, FIRE HYDRANTS AND STANDPIPES, AND VALVES SHALL BE PAINTED AS FOLLOWS:
   - DOMESTIC WATER (BLUE)
   - POTABLE IRRIGATION (GREEN)
   - RECYCLED IRRIGATION (PURPLE)
   - FIRE PROTECTIONS (OSHA SAFETY RED)
6. ALL BACKFLOW PREVENTION DEVICES SHALL BE TESTED BY A CERTIFIED TESTER AFTER INSTALLATION, RELOCATION OR REPAIR.

"FOR DOMESTIC/IRRIGATION/INDUSTRIAL USE"
HEALTH HAZARD (POLLUTANT/CONTAMINANT) BACKFLOW PREVENTION DEVICE

APPROVED: DATE: 11/24/2020

CITY OF SANTA ANA
PUBLIC WORKS AGENCY

DATE		REVISION
3/1/16	R.R.	NEW
11/2020	R.R.	UPDATED

REDUCED PRESSURE PRINCIPLE ASSEMBLY (3" OR LARGER)

STD. PLAN NUMBER 1434

GENERAL NOTES

1. PRESSURE TEST AND CHLORINATION TO LIMITS SHOWN ABOVE
2. BACKFLOW ASSEMBLY SHALL BE A MINIMUM OF 36" FROM ANY STRUCTURE, CURB OR SIDEWALK.
3. BACKFLOW ASSEMBLY MUST BE EASILY ACCESSIBLE TO FACILITATE TESTING AND SERVICING
4. THE USC LIST OF APPROVED BACKFLOW PREVENTION ASSEMBLIES HAS BEEN ADOPTED BY CITY WATER DEPARTMENT AS THE ONLY ASSEMBLIES APPROVED FOR USE ON THE WATER LINES UNDER OUR JURISDICTION.
5. PRIVATE WATER APPURTENANCES SUCH AS BACKFLOW PREVENTERS, FIRE HYDRANTS AND STANDPIPES, AND VALVES SHALL BE PAINTED AS FOLLOWS:
   - DOMESTIC WATER (BLUE)
   - POTABLE IRRIGATION (GREEN)
   - RECYCLED IRRIGATION (PURPLE)
   - FIRE PROTECTIONS (OSHA SAFETY RED)
6. ALL BACKFLOW PREVENTION DEVICES SHALL BE TESTED BY A CERTIFIED TESTER AFTER INSTALLATION, RELOCATION OR REPAIR.

"FOR FIRE USE ONLY"
HEALTH HAZARD (CONTAMINANT) BACKFLOW PREVENTION DEVICE

APPROVED: DATE: 11/24/202

CITY OF SANTA ANA
PUBLIC WORKS AGENCY

DATE		REVISION
3/1/16	R.R.	NEW
11/2020	R.R.	UPDATED

REDUCED PRESSURE DETECTOR ASSEMBLY (3" OR LARGER)

STD. PLAN NUMBER 1435

FRONT ELEVATION VIEW

GENERAL NOTES:

1. PRESSURE TEST AND CHLORINATE TO LIMITS SHOWN ABOVE.
2. BACKFLOW ASSEMBLY SHALL BE A MINIMUM OF 36" FROM ANY STRUCTURE, CURB OR SIDEWALK.
3. BACKFLOW ASSEMBLY MUST BE EASILY ACCESSIBLE TO FACILITATE TESTING AND SERVICING.
4. THE USC LIST OF APPROVED BACKFLOW PREVENTION ASSEMBLIES HAS BEEN ADOPTED BY CITY WATER DEPARTMENT AS THE ONLY ASSEMBLIES APPROVED FOR USE ON THE WATER LINES UNDER OUR JURISDICTION.
5. PRIVATE WATER APPURTENANCES SUCH AS BACKFLOW PREVENTERS, FIRE HYDRANTS AND STANDPIPES, AND VALVES SHALL BE PAINTED AS FOLLOWS:
   - DOMESTIC WATER (BLUE)
   - POTABLE IRRIGATION (GREEN)
   - RECYCLED IRRIGATION (PURPLE)
   - FIRE PROTECTIONS (OSHA SAFETY RED)
6. ALL BACKFLOW PREVENTION DEVICES SHALL BE TESTED BY A CERTIFIED TESTER AFTER INSTALLATION, RELOCATION OR REPAIR.

"FOR FIRE USE ONLY"
HEALTH HAZARD (POLLUTANT) BACKFLOW PREVENTION DEVICE

APPROVED: DATE: 11/24/202

CITY OF SANTA ANA
PUBLIC WORKS AGENCY

DATE		REVISION
3/1/16	R.R.	NEW
11/2020	R.R.	UPDATED

COMPACT DOUBLE CHECK DETECTOR ASSEMBLY (3" OR LARGER)

STD. PLAN NUMBER 1436

FRONT ELEVATION VIEW

GENERAL NOTES:

1. PRESSURE TEST AND CHLORINATE TO LIMITS SHOWN ABOVE.
2. BACKFLOW ASSEMBLY SHALL BE A MINIMUM OF 36" FROM ANY STRUCTURE, CURB OR SIDEWALK.
3. BACKFLOW ASSEMBLY MUST BE EASILY ACCESSIBLE TO FACILITATE TESTING AND SERVICING.
4. THE USC LIST OF APPROVED BACKFLOW PREVENTION ASSEMBLIES HAS BEEN ADOPTED BY CITY WATER DEPARTMENT AS THE ONLY ASSEMBLIES APPROVED FOR USE ON THE WATER LINES UNDER OUR JURISDICTION.
5. PRIVATE WATER APPURTENANCES SUCH AS BACKFLOW PREVENTERS, FIRE HYDRANTS AND STANDPIPES, AND VALVES SHALL BE PAINTED AS FOLLOWS:
   - DOMESTIC WATER (BLUE)
   - POTABLE IRRIGATION (GREEN)
   - RECYCLED IRRIGATION (PURPLE)
   - FIRE PROTECTIONS (OSHA SAFETY RED)
6. ALL BACKFLOW PREVENTION DEVICES SHALL BE TESTED BY A CERTIFIED TESTER AFTER INSTALLATION, RELOCATION OR REPAIR.

"FOR FIRE USE ONLY"
HEALTH HAZARD (CONTAMINANT) BACKFLOW PREVENTION DEVICE

APPROVED: DATE: 11/24/2021

CITY OF SANTA ANA
PUBLIC WORKS AGENCY

DATE		REVISION
3/1/16	R.R.	NEW
11/2020	R.R.	UPDATED

COMPACT REDUCED PRESSURE DETECTOR ASSEMBLY (3" OR LARGER)

STD. PLAN NUMBER 1437

FRONT ELEVATION VIEW

GENERAL NOTES:

1. PRESSURE TEST AND CHLORINATE TO LIMITS SHOWN ABOVE.
2. BACKFLOW ASSEMBLY SHALL BE A MINIMUM OF 36" FROM ANY STRUCTURE, CURB OR SIDEWALK.
3. BACKFLOW ASSEMBLY MUST BE EASILY ACCESSIBLE TO FACILITATE TESTING AND SERVICING.
4. THE USC LIST OF APPROVED BACKFLOW PREVENTION ASSEMBLIES HAS BEEN ADOPTED BY CITY WATER DEPARTMENT AS THE ONLY ASSEMBLIES APPROVED FOR USE ON THE WATER LINES UNDER OUR JURISDICTION.
5. PRIVATE WATER APPURTENANCES SUCH AS BACKFLOW PREVENTERS, FIRE HYDRANTS AND STANDPIPES, AND VALVES SHALL BE PAINTED AS FOLLOWS:
   - DOMESTIC WATER (BLUE)
   - POTABLE IRRIGATION (GREEN)
   - RECYCLED IRRIGATION (PURPLE)
   - FIRE PROTECTIONS (OSHA SAFETY RED)
6. ALL BACKFLOW PREVENTION DEVICES SHALL BE TESTED BY A CERTIFIED TESTER AFTER INSTALLATION, RELOCATION OR REPAIR.

"FOR DOMESTIC/IRRIGATION/INDUSTRIAL USE"
HEALTH HAZARD (POLLUTANT/CONTAMINANT) BACKFLOW PREVENTION DEVICE

APPROVED: DATE: 11/24/2020

CITY OF SANTA ANA
PUBLIC WORKS AGENCY

DATE		REVISION
3/1/16	R.R.	NEW
11/2020	R.R.	UPDATED

COMPACT REDUCED PRESSURE PRINCIPLE ASSEMBLY (3" OR LARGER)

STD. PLAN NUMBER 1438

PLAN

ELEVATION

GENERAL NOTES:

1. DIMENSIONS SHOWN ARE APPROXIMATE. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO CITY FOR REVIEW PRIOR TO CONSTRUCTION.
2. ASSEMBLY MUST BE EASILY ACCESSIBLE TO FACILITATE TESTING AND SERVICING. AT A MINIMUM TWO FEET AWAY FROM ANY WALL.
3. PRIVATE WATER APPURTENANCES SUCH AS BACKFLOW PREVENTERS, FIRE HYDRANTS AND STANDPIPES, AND VALVES SHALL BE PAINTED AS FOLLOWS:
   - DOMESTIC WATER (BLUE)
   - POTABLE IRRIGATION (GREEN)
   - RECYCLED IRRIGATION (PURPLE)
   - FIRE PROTECTIONS (OSHA SAFETY RED)
4. ALL BACKFLOW PREVENTION DEVICES SHALL BE TESTED BY A CERTIFIED TESTER AFTER INSTALLATION, RELOCATION OR REPAIR.
5. CONTACT WATER QUALITY INSPECTOR FOR APPROPRIATE/REQUIRED BACKFLOW PREVENTION DEVICE.
6. AN EASEMENT MUST BE GRANTED TO THE CITY FOR ACCESS TO AND MAINTENANCE OF THE WATER METER.

LEGEND OF MATERIALS:

NO.	SIZE & DESCRIPTION	NO.	SIZE & DESCRIPTION
1	CONCRETE THRUST BLOCK PER CITY STD. 1412	10	CONCRETE PAD REINFORCEMENT W/ W.W.F. (1.6 X 1.6). 2% SLOPE. CONCRETE CLASS 560-C-3250
2	4"-90° D.I. BEND (MJ. x FLG. OR MJ. X MJ. RESTRAINED)	11	ADJUSTABLE PIPE SUPPORTS
3	4" D.I. SPOOL (FLG. x FLG.)	12	PROTECTIVE POST PER CITY STD. 1407A WHEN REQUIRED BY CITY
4	REDUCER 4" X 3" D.I. (FLG. x FLG.)	13	D.I. BLIND FLANGE W/ 2" TAP
5	3"-90° D.I. BEND (FLG. x FLG.)	14	2" LEAD FREE BRASS CLOSE NIPPLE
6	3" x 3" D.I. TEE (FLG. x FLG.)	15	2" LEAD FREE BRASS CURB STOP VALVE WITH PADLOCK WING (F.I.P. X F.I.P.) FORD
7	3" R.W. GATE VALVE, CLASS 200 (FLG. x FLG.)	16	2" LEAD FREE BRASS F.I.P. THREAD 90° ELBOW
8	3" D.I. SPOOL (FLG. x FLG.)	17	LEAD FREE BRASS PLUG
9	3" APPROVED BACKFLOW ASSEMBLY (FLG. x FLG.)		

APPROVED: DATE: 11/24/2020

DATE	REVISION
11/2020	R.R. NEW

CITY OF SANTA ANA

PUBLIC WORKS AGENCY

ABOVE GROUND METER WITH APPROVED BACKFLOW ASSEMBLY (3")

STD. PLAN NUMBER 1439A

PLAN

ELEVATION

GENERAL NOTES:

1. DIMENSIONS SHOWN ARE APPROXIMATE. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO CITY FOR REVIEW PRIOR TO CONSTRUCTION.
2. ASSEMBLY MUST BE EASILY ACCESSIBLE TO FACILITATE TESTING AND SERVICING. AT A MINIMUM TWO FEET AWAY FROM ANY WALL.
3. PRIVATE WATER APPURTENANCES SUCH AS BACKFLOW PREVENTERS, FIRE HYDRANTS AND STANDPIPES, AND VALVES SHALL BE PAINTED AS FOLLOWS:
   - DOMESTIC WATER (BLUE)
   - POTABLE IRRIGATION (GREEN)
   - RECYCLED IRRIGATION (PURPLE)
   - FIRE PROTECTIONS (OSHA SAFETY RED)
4. ALL BACKFLOW PREVENTION DEVICES SHALL BE TESTED BY A CERTIFIED TESTER AFTER INSTALLATION, RELOCATION OR REPAIR.
5. CONTACT WATER QUALITY INSPECTOR FOR APPROPRIATE/REQUIRED BACKFLOW PREVENTION DEVICE.
6. AN EASEMENT MUST BE GRANTED TO THE CITY FOR ACCESS TO AND MAINTENANCE OF THE WATER METER.

LEGEND OF MATERIALS:

NO.	SIZE & DESCRIPTION	NO.	SIZE & DESCRIPTION
1	CONCRETE THRUST BLOCK PER CITY STD. 1412	8	4" D.I. SPOOL (FLG. x FLG.)
2	3"- 90° D.I. BEND (FLG. x FLG.)	9	4" X 3" D.I. TEE (FLG. x FLG.)
3	4" - 90° D.I. BEND (MJ x FLG. OR MJ X MJ RESTRAINED)	10	CONCRETE PAD REINFORCEMENT W/ W.W.F. (1.6 X 1.6). 2% SLOPE. CONCRETE CLASS 560-C-3250
4	3" R.W. GATE VALVE, CLASS 200 (FLG. x FLG.)	11	ADJUSTABLE PIPE SUPPORTS
5	4" R.W. GATE VALVE, CLASS 200 (FLG. x FLG.)	12	PROTECTIVE POST PER CITY STD. 1407A WHEN REQUIRED BY CITY
6	4" APPROVED BACKFLOW ASSEMBLY (FLG. x FLG.)	13	3" D.I. BLIND FLANGE
7	4" - 90° D.I. BEND (FLG. X FLG.)		

APPROVED: DATE: 11/24/2020

DATE	REVISION
11/2020	R.R. NEW

CITY OF SANTA ANA
PUBLIC WORKS AGENCY

ABOVE GROUND METER WITH APPROVED BACKFLOW ASSEMBLY (4")

STD. PLAN NUMBER 1439B

PLAN

ELEVATION

GENERAL NOTES:

1. DIMENSIONS SHOWN ARE APPROXIMATE. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO CITY FOR REVIEW PRIOR TO CONSTRUCTION.
2. ASSEMBLY MUST BE EASILY ACCESSIBLE TO FACILITATE TESTING AND SERVICING, AT A MINIMUM TWO FEET AWAY FROM ANY WALL.
3. PRIVATE WATER APPURTENANCES SUCH AS BACKFLOW PREVENTERS, FIRE HYDRANTS AND STANDPIPES, AND VALVES SHALL BE PAINTED AS FOLLOWS:
   - DOMESTIC WATER (BLUE)
   - POTABLE IRRIGATION (GREEN)
   - RECYCLED IRRIGATION (PURPLE)
   - FIRE PROTECTIONS (OSHA SAFETY RED)
4. ALL BACKFLOW PREVENTION DEVICES SHALL BE TESTED BY A CERTIFIED TESTER AFTER INSTALLATION, RELOCATION OR REPAIR.
5. CONTACT WATER QUALITY INSPECTOR FOR APPROPRIATE/REQUIRED BACKFLOW PREVENTION DEVICE.
6. AN EASEMENT MUST BE GRANTED TO THE CITY FOR ACCESS TO AND MAINTENANCE OF THE WATER METER.

LEGEND OF MATERIALS:

NO.	SIZE & DESCRIPTION	NO.	SIZE & DESCRIPTION
1	CONCRETE THRUST BLOCK PER CITY STD. 1412	8	6" D.I. SPOOL (FLG. x FLG.)
2	4"-90° D.I. BEND (MJ. x FLG. OR MJ. X MJ. RESTRAINED)	9	6" X 4" D.I. TEE (FLG. x FLG.)
3	6" - 90° D.I. BEND (MJ. x FLG. OR MJ. X MJ. RESTRAINED)	10	CONCRETE PAD REINFORCEMENT W/ W.W.F. (1.6 X 1.6). 2% SLOPE. CONCRETE CLASS 560-C-3250
4	4" R.W. GATE VALVE, CLASS 200 (FLG. x FLG.)	11	ADJUSTABLE PIPE SUPPORTS
5	6" R.W. GATE VALVE, CLASS 200 (FLG. x FLG.)	12	PROTECTIVE POST PER CITY STD. 1407A WHEN REQUIRED BY CITY
6	6" APPROVED BACKFLOW ASSEMBLY (FLG. x FLG.)	13	4" D.I. BLIND FLANGE
7	6" - 90° D.I. BEND (FLG. X FLG.)		

APPROVED: DATE: 11/24/20

DATE	REVISION
11/2020	R.R. NEW

CITY OF SANTA ANA

PUBLIC WORKS AGENCY

ABOVE GROUND METER WITH APPROVED BACKFLOW ASSEMBLY (6")

STD. PLAN NUMBER 1439C

PLAN

ELEVATION

GENERAL NOTES:

1. DIMENSIONS SHOWN ARE APPROXIMATE. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO CITY FOR REVIEW PRIOR TO CONSTRUCTION.
2. R.W. VALVES IN METER ASSEMBLY TO BE LOCKED (BY CHAIN) IN THE OPEN POSITION. R.W. VALVE IN BYPASS TO BE LOCKED (BY CHAIN) IN THE CLOSED POSITION.
3. ASSEMBLY MUST BE EASILY ACCESSIBLE TO FACILITATE TESTING AND SERVICING.
4. PRIVATE WATER APPURTENANCES SUCH AS BACKFLOW PREVENTERS, FIRE HYDRANTS AND STANDPIPES, AND VALVES SHALL BE PAINTED AS FOLLOWS:
   - DOMESTIC WATER (BLUE)
   - POTABLE IRRIGATION (GREEN)
   - RECYCLED IRRIGATION (PURPLE)
   - FIRE PROTECTIONS (OSHA SAFETY RED)
5. ALL BACKFLOW PREVENTION DEVICES SHALL BE TESTED BY A CERTIFIED TESTER AFTER INSTALLATION, RELOCATION OR REPAIR.
6. CONTACT WATER QUALITY INSPECTOR FOR APPROPRIATE/REQUIRED BACKFLOW PREVENTION DEVICE.

LEGEND OF MATERIALS:

NO.	SIZE & DESCRIPTION		
1	CONCRETE THRUST BLOCK PER CITY STD. 1412	8	APPROVED REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTION ASSEMBLY OR APPROVED DOUBLE CHECK VALVE ASSEMBLY (FLG. x FLG.)
2	90° D.I. BEND (FLG. x FLG.) (4" OR 6")	9	90° D.I. BEND (FLG. x FLG.) (SAME SIZE AS METER)
3	D.I. SPOOL (FLG. x FLG.) (4" OR 6")	10	D.I. SPOOL (FLG. x FLG.) (SAME SIZE AS METER)
4	D.I. REDUCER (FLG. x FLG.) (4" X 3" FOR 3" METER ONLY)	11	D.I. TEE (FLG. x FLG.) (SAME SIZE AS METER)
5	R.W. GATE VALVE (CLASS 200) WITH HANDWHEEL (NRS) (FLG. x FLG.) (SAME SIZE AS METER)	12	CONCRETE PAD REINFORCED W/ W.W.F. 1.6 x 1.6)
6	D.I. STRAINER (FLG. x FLG.) (SAME SIZE AS METER)	13	ADJUSTABLE PIPE SUPPORTS
7	TURBO METER (FLG. x FLG.) U.L. LISTED AND FM APPROVED FOR FIRE SERVICE	14	PROTECTIVE POST PER CITY STD. 1407A

APPROVED: DATE: 11/24/2020

REVISION		DATE
NEW	R.R.	3/1/16
UPDATED	R.R.	11/2020

CITY OF SANTA ANA

PUBLIC WORKS AGENCY

RPP OR DCV APPROVED BACKFLOW ASSEMBLY (3" OR LARGER)

STD. PLAN NUMBER 1440

PRIVATE WATER LINE CONNECTION TO PUBLIC MAIN

PUBLIC METER IN PRIVATE WATER LINES

CONSTRUCTION ITEMS / MATERIALS LIST

NO.	SIZE AND DESCRIPTION	MANUFACTURER	MFR. CAT. NO.
1	TAPPING SLEEVE ON EXIST MAIN (EPOXY COATED & STAINLESS STEEL BOLTS) (FOR NEW WATER MAIN CONSTRUCTION USE D.I. TEE (MJ X FLG)).	FORD SMITH-BLAIR	FTSC 622
2	TAPPING VALVE, "RESILIENT WEDGE" CLASS 200 FLG. x M.J.	CLOW OR EQUAL	F-6108
3	LATERAL PIPE; DR 14, C900 P.V.C.	———	———
4	WATER METER SIZED PER APROVED PLANS. METER SUPPLIED, INSTALLED, AND MAINTAINED BY CITY'S WATER RESOURCES DIVISION.	SEE CITY STD. PLANS 1401 & 1402.	
5	CURB STOP VALVE SUPPLIED AND INSTALLED BY PRIVATE PROPERTY OWNER OR REPRESENTATIVE. AFTER INITIAL INSTALLATION, CURB STOP WILL BE MAINTAINED BY THE CITY'S WATER RESOURCES DIVISION.	SEE CITY STD. PLANS 1401 & 1402.	
6	METER BOX SUPPLIED AND INSTALLED BY CUSTOMER. AFTER INITIAL INSTALLATION, METER BOX WILL BE MAINTAINED BY CITY.	SEE CITY STD. PLANS 1401 & 1402.	

APPROVED: DATE: 11/24/2020

CITY OF SANTA ANA
PUBLIC WORKS AGENCY

DATE		REVISION
3/1/16	R.R.	NEW
11/2020	R.R.	UPDATED

PRIVATE WATER LINES WITH PUBLIC METERS

STD. PLAN NUMBER 1442

SHEET 1 OF 2

GENERAL NOTES:

1. PRIVATE WATER LINES MUST BE CONSTRUCTED IN CONFORMANCE WITH THE CALIFORNIA WATERWORKS STANDARDS AND THE CITY'S WATER RESOURCES DIVISION. LOOPED WATER LINES MUST ALSO BE PROTECTED AGAINST BACKFLOW AT EACH CONNECTION TO THE CITY'S PUBLIC WATER SYSTEM.

2. IT IS THE RESPONSIBILITY OF THE OWNER OF THE PRIVATE WATER LINE TO HANDLE ALL ROUTINE AND EMERGENCY REPAIRS, OPERATION, AND THE UPKEEP OF ALL ABOVE GROUND APPURTENANCES AS WELL AS UNDERGROUND VALVES, FITTINGS, PIPES, AND SERVICE CONNECTIONS UP TO THE METER CURB STOP.

3. APPROVED BACKFLOW PREVENTION DEVICE TO BE INSTALLED BY OWNER. CONTACT WATER QUALITY COORDINATOR AT 714-647-3320 FOR APPROVED LIST.

4. MODIFICATIONS TO THE PRIVATE WATER LINES OR THEIR APPURTENANCES SHALL BE PERFORMED IN ACCORDANCE WITH THE CITY'S WATER RESOURCES DIVISION'S STANDARD PLANS AND THE CALIFORNIA WATERWORKS STANDARDS. THIS INCLUDES THE RENEWAL, ADDITION, OR REMOVAL OF SERVICE CONNECTIONS. ALL WORK PERFORMED MUST BE PERMITTED BY THE PUBLIC WORKS AGENCY.

5. ALL NEW DEVELOPMENTS SERVING MULTI-FAMILY DWELLINGS SUCH AS APARTMENTS, CONDOMINIUMS, TOWNHOMES, MOBILE HOME PARKS, MULTI-TENANT INDUSTRIAL AND COMMERCIAL CENTERS, AND MIXED USE DEVELOPMENTS ARE REQUIRED TO PROVIDE SEPARATE INDIVIDUAL DOMESTIC WATER SERVICES AND METERS TO ALL UNITS WITHIN THE DEVELOPMENT. WHEN THE INSTALLATION OF SEPARATE INDIVIDUAL DOMESTIC METERS IS DETERMINED TO BE INFEASIBLE BY THE CITY'S WATER RESOURCES DIVISION, DEVELOPMENTS WILL INSTALL A MASTER METER IN ACCORDANCE WITH THE CITY STANDARD PLANS 1403A-D.

6. ALL NEW DEVELOPMENTS SHALL PAY ALL RELATED NEW WATER SERVICE FEES FOR THE INSTALLATION OF METERS.

7. CONTRACTOR SHALL INSTALL WATER SERVICE, STOP VALVES AND METER BOX. THE CITY'S WATER RESOURCES DIVISION WILL INSTALL THE METER AND ACTIVATE THE SERVICE UPON COMPLETION OF A WATER SERVICE ACCOUNT REQUEST BY THE NEW WATER CUSTOMER.

8. THE CITY RESERVES THE RIGHT TO ACCESS PRIVATE PROPERTY FOR THE PURPOSES OF READING METERS AND MAINTAINING CITY OWNED METER FACILITIES. ONCE INSTALLED AND APPROVED, THE CITY WILL RETAIN OWNERSHIP OF AND MAINTAIN THE UPSTREAM STOP VALVE, METER, METER BOX, AND COVER.

9. EASEMENTS FOR THE MAINTENANCE REPAIR AND INSTALLATION OF WATER METERS AND RELATED APPURTENANCES SHALL BE DEDICATED TO THE CITY'S WATER RESOURCES DIVISION.

10. IF METER BOXES ARE PLACED IN PARKING LOTS OR AREAS THAT MAY RECEIVE TRAFFIC, METER BOX SHALL BE TRAFFIC RATED.

11. PUBLIC METERING WILL BE REQUIRED REGARDLESS OF WHETHER THE ONSITE WATER DISTRIBUTION SYSTEM IS PUBLICLY OR PRIVATELY OWNED AND MAINTAINED.

12. THIS REQUIREMENT WILL NOT BE IMPOSED ON LOW-INCOME HOUSING, STUDENT DORMITORIES, LONG-TERM HEALTH CARE FACILITIES, TIME-SHARE PROPERTIES, HIGH-RISE BUILDINGS AND HOTELS.

APPROVED: DATE: 11/24/2020

DATE		REVISION
11/2020	R.R.	UPDATED

CITY OF SANTA ANA

PUBLIC WORKS AGENCY

SANTA ANA 1869

PRIVATE WATER LINES WITH PUBLIC METERS

STD. PLAN NUMBER 1442

SHEET 2 OF 2

CUT-IN TEE

A.C. MAIN TIE-IN

NOTE:
ACP SHALL BE REMOVED, HANDLED, AND DISPOSED OF IN A MANNER THAT KEEPS THE MATERIAL IN A NON-FRIABLE CONDITION. CONTRACTOR SHALL BE RESPONSIBLE FOR STATE AND FEDERAL REGULATIONS PERTAINING TO THE HANDLING, REMOVAL, AND DISPOSAL OF ACP. CONTRACTOR SHALL PROVIDE THE CITY INSPECTOR WITH THE MANIFEST FOR PROPER ACP DISPOSAL.

APPROVED: DATE: 11/24/2020

CITY OF SANTA ANA
PUBLIC WORKS AGENCY

DATE		REVISION
11/2020	R.R.	NEW

CUT-IN TEE/AC MAIN TIE-IN

STD. PLAN NUMBER 1443

PLAN

ORDER OF CONSTRUCTION

1. REMOVE CEMENT MORTAR COATING ON EXISTING STEEL MAIN
2. WELD WRAPPER PLATE AND TAPPING SLEEVE TO EXISTING STEEL CYLINDER
3. FILL VOID INSIDE TAPPING SLEEVE WITH CEMENT-MORTAR
4. HOT TAP PIPE - REMOVE COUPON
5. 2-HOLE FLANGE TO LEVEL VALVE
6. CEMENT-MORTAR COATING OF PIPE EXTERIOR

GENERAL NOTES:

1. HOT-TAP EXISTING MAINS UNLESS CITY WATER RESOURCES REQUIRES A COLD-TAP.
2. ALL CEMENT MORTAR LINING AND COATING SHALL BE PER CITY SPECIAL PROVISIONS
3. PERFORM WORK IN CONFORMANCE WITH THE INSTALLATION INSTRUCTIONS PROVIDED BY MANUFACTURER OF TAPPING SLEEVE.

APPROVED: DATE: 11/24/2020

CITY OF SANTA ANA

PUBLIC WORKS AGENCY

DATE		REVISION
11/2020	R.R.	NEW

WELD ON TAPPING SLEEVE

STD. PLAN NUMBER 1444

SECTION B-B

SECTION A-A

PLAN

CONSTRUCTION ITEMS

ITEM	MATERIALS
1	MASONRY BLOCK. SEE NOTE 2.
2	BLOCK CAP. MATCH BLOCK STYLE AND COLOR.

APPROVED: DATE: 11/24/2020

CITY OF SANTA ANA
PUBLIC WORKS AGENCY

DATE		REVISION
11/2020	R.R.	NEW

RETAINING WALL

STD. PLAN NUMBER 1445

SHEET 1 OF 2

NOTES:

1. RETAINING WALL TO BE CONSTRUCTED WITH ALL APPURTENANCES WHEN A SLOPE EXISTS AT THE LOCATION OF THE APPURTENANCES. EXAMPLES INCLUDE BACKFLOW DEVICES, FIRE HYDRANTS, AIR/VACS, METERS, VAULTS, VALVES AND WHEREVER REQUIRED BY THE CITY.

   A. CLEARANCE BETWEEN INSIDE WALL FACE AND APPURTENANCE SHALL BE 36-INCH MINIMUM.

   B. FOR POWERED APPURTENANCES, SUCH AS TRANSFORMERS, REFER TO THE SCE MINIMUM CLEARANCE REQUIREMENTS.

2. MASONRY BLOCK SHALL BE 8" X 8" X 16" UNITS CONFORMING TO ASTM C-90 CLASS "S" AND CONCRETE MASONRY ASSOCIATION STANDARDS. BLOCK SHALL BE "SPLIT FACE" BEIGE COLOR FINISH ON ALL EXPOSED FACES TO MATCH EXISTING. FILL ALL CELLS WITH GROUT.

3. MORTAR AND GROUT SHALL MATCH BLOCKWORK AND BE IN CONFORMANCE WITH SECTION 202-2 OF THE STD. SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (GREEN BOOK).

4. OMIT MORTAR FROM THE FIRST VERTICAL JOINT OF THE BLOCK COURSE ABOVE FINISH GRADE TO PROVIDE WEEP HOLES FOR SUB-DRAINAGE PURPOSES.

5. CONCRETE SHALL BE CLASS 560-C-3250.

6. WALL CONSTRUCTION SHALL MEET "GREEN BOOK".

7. PROVIDE RAILING ON TOP OF WALL WHEN REQUIRED BY CODE.

REINFORCEMENT TABLE					
DESIGN H	3'-4"	4'-0"	4'-8"	5'-4"	6'-0"
DESIGN W	2'-8"	3'-0"	3'-4"	3'-8"	4'-0"
A VERT REINF	#4@16"	#4@16"	#5@16"	#6@16"	#6@16"
B VERT REINF	#4@16"	#4@16"	#5@16"	#6@16"	#6@16"

DESIGN CRITERIA

1. EQUIVALENT FLUID PRESSURE = 35 pcf (TOE AND HEEL)
2. ALLOWABLE BEARING CAPACITY = 1500 psf

APPROVED: DATE: 11/24/2020

CITY OF SANTA ANA

PUBLIC WORKS AGENCY

DATE		REVISION
11/2020	R.R.	NEW

RETAINING WALL

STD. PLAN NUMBER 1445

SHEET 2 OF 2