



CITY OF LA HABRA

WATER

STANDARD DETAILS

JUNE 2012

STANDARD DETAILS

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DATE	REV.	DESCRIPTION

CITY OF LA HABRA
INDEX OF STANDARD DETAILS
FOR WATER IMPROVEMENTS



APPROVED: *Christopher S. Johnson* DATE: 7/23/12

STANDARD DETAILS

NUMBER

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**STANDARD SPECIFICATIONS FOR WATER IMPROVEMENTS
SECTION**

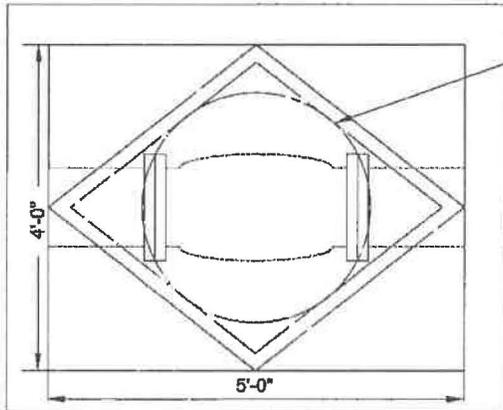
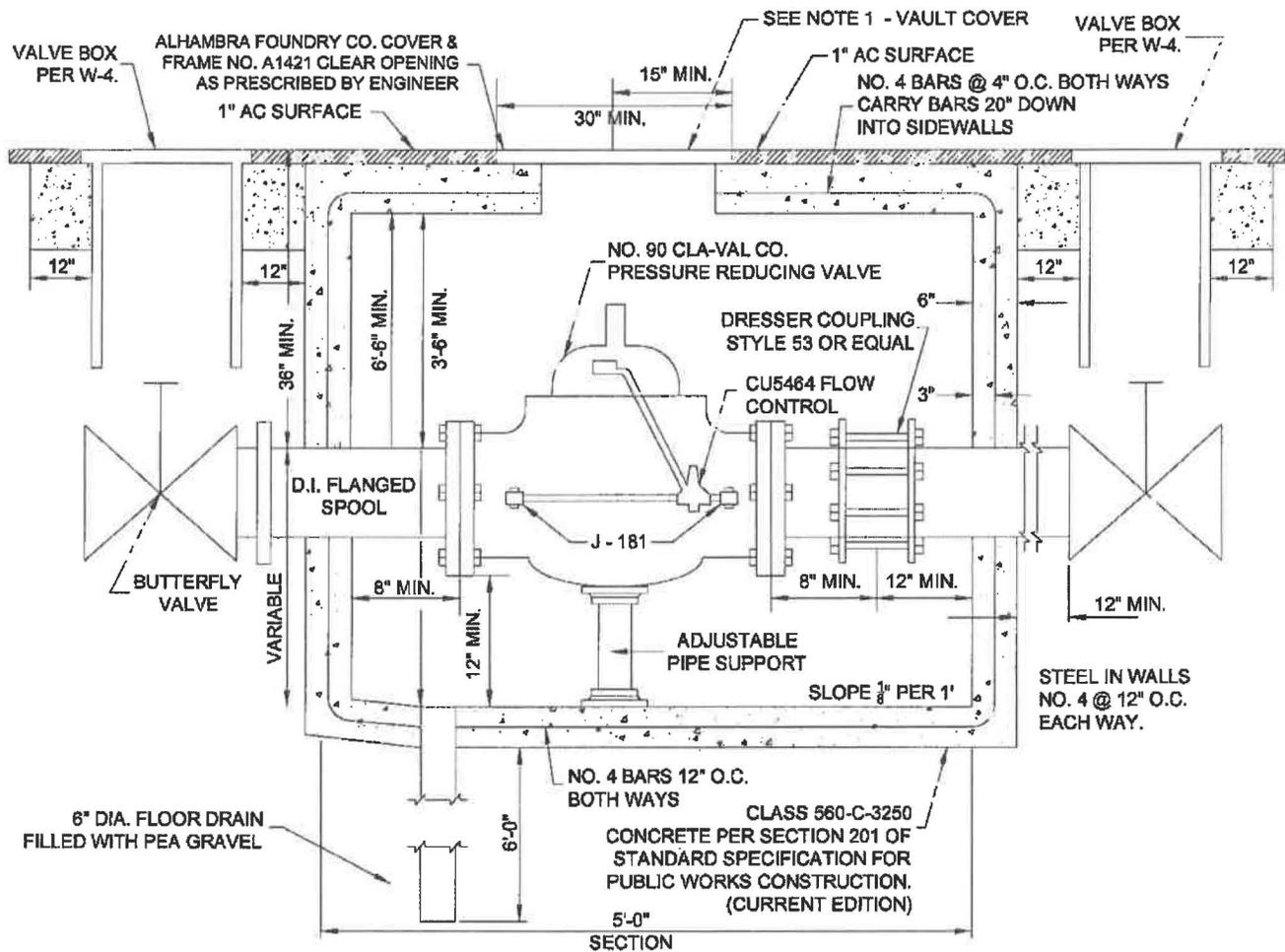
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DATE	REV.	DESCRIPTION

CITY OF LA HABRA
INDEX OF STANDARD DETAILS
FOR WATER IMPROVEMENTS



APPROVED: *Christopher J. Johnson* DATE: 7/23/12



NOTE 1:
ALL VAULT COVERS TO BE
VENTED BY METHOD
APPROVED BY ENGINEER

DATE	REV.	DESCRIPTION

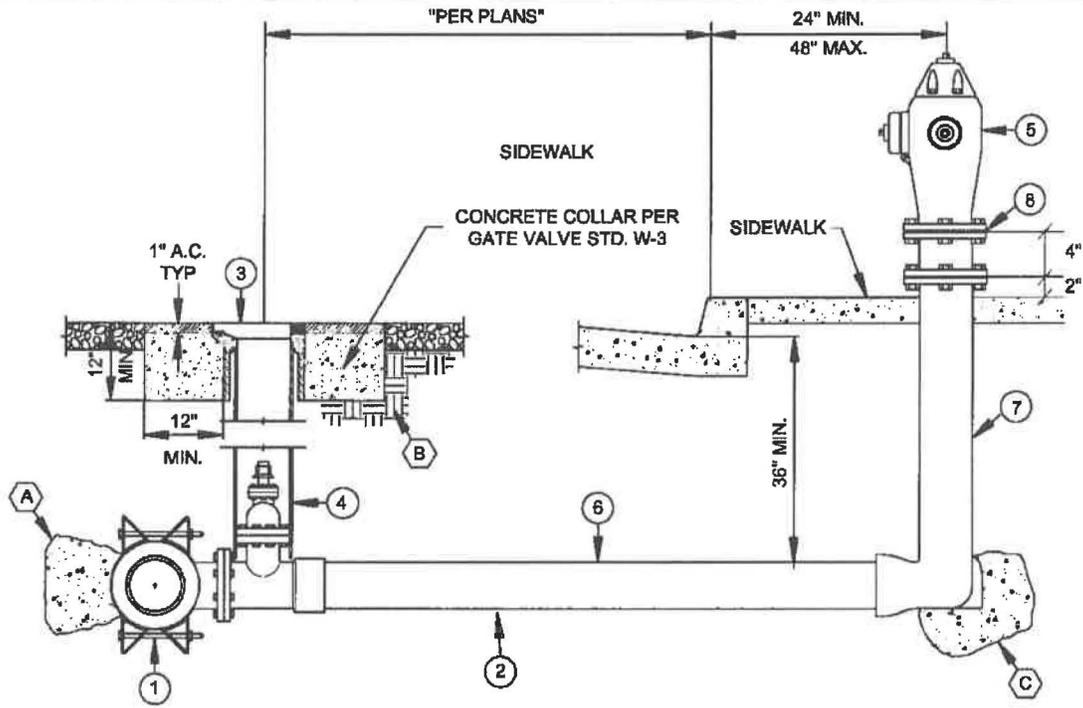
CITY OF LA HABRA

STANDARD PRESSURE REDUCING VAULT



APPROVED *Christophe J. Plouffe* DATE: 7/23/12

STANDARD DETAIL W-1



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)	FORD, J.C.M., SMITH-BLAIR	FTSC 412ESS 622
②	GATE VALVE, 6" FLG. x M.J., (RESILIENT WEDGE)	MUELLER, KENNEDY OR EQUAL	SS TRIM
③	VALVE BOX FRAME & COVER, C.I.	BROOKS	NO. 4TT FIG.920 / FIG. 921 FOR TRAFFIC USE OR EQUAL
④	P.V.C. PIPE, 8", SCHEDULE 40	_____	_____
⑤	FIRE HYDRANT, BRONZE OR FUSION BONDED EPOXY COATED (INTERIOR/EXTERIOR) DUCTILE IRON, W/ BREAKABLE HYDRANT FLG. SPOOL & BREAK-AWAY B&N:	AFV JONES CLOW	2472 J3700R OR J3710R 2050
⑥	LATERAL PIPE 6"; CLASS 150, C900 P.V.C.	_____	_____
⑦	DUCTILE IRON HYDRANT BURY, 6", MJ X FL, 8 HOLE	_____	_____
⑧	BREAK OFF SPOOL, 6" X VARIABLE LENGTH, (AS NEEDED)	_____	_____

NOTES:

- PUBLIC FIRE HYDRANTS SHALL BE PAINTED WITH 2 COATS OF HIGH VISIBILITY SAFETY YELLOW & PAINT HYDS. OIL BASE PRIMER
- ALL BURIED IRON SHALL BE WRAPPED WITH 1 LAYER OF 10 MIL POLYETHYLENE SHEETING TAPED IN PLACE.
- ALL BURIED BOLTS SHALL BE COATED WITH 2 COATS OF MASTIC SUCH AS "3M" BRAND EC 244, NO-OX-ID COATING OPTION.
- CONSTRUCTION METERS TO BE INSTALLED BY CITY FORCES. AT NO TIME SHALL ANY PORTION OF THE CONSTRUCTION METER ENCOACH INTO STREETS OR WALKWAYS. CITY FORCES SHALL TAKE NECESSARY STEPS TO PREVENT SUCH OCCURRENCES. PERMITTEE SHALL BE RESPONSIBLE FOR SUBSEQUENT ATTACHMENTS TO THE CONSTRUCTION METER I.E. HOSES AND/OR HARD PIPING. PERMITTEE SHALL TAKE ALL NECESSARY STEPS TO PROTECT THE PUBLIC THROUGH THE USE OF CONES, DELINEATORS, RAMPS, CAUTIONARY RIBBON AND OTHER MEANS AS APPROVED BY THE CITY ENGINEER.

- (A) THRUST BLOCK DETAILS (SEE STANDARD W-16, CONDITION I).
- (B) PAVEMENT BASE MATERIAL OR COMPACTED SOIL.
- (C) THRUST BLOCK DETAILS (SEE STANDARD W-15, CONDITION II).

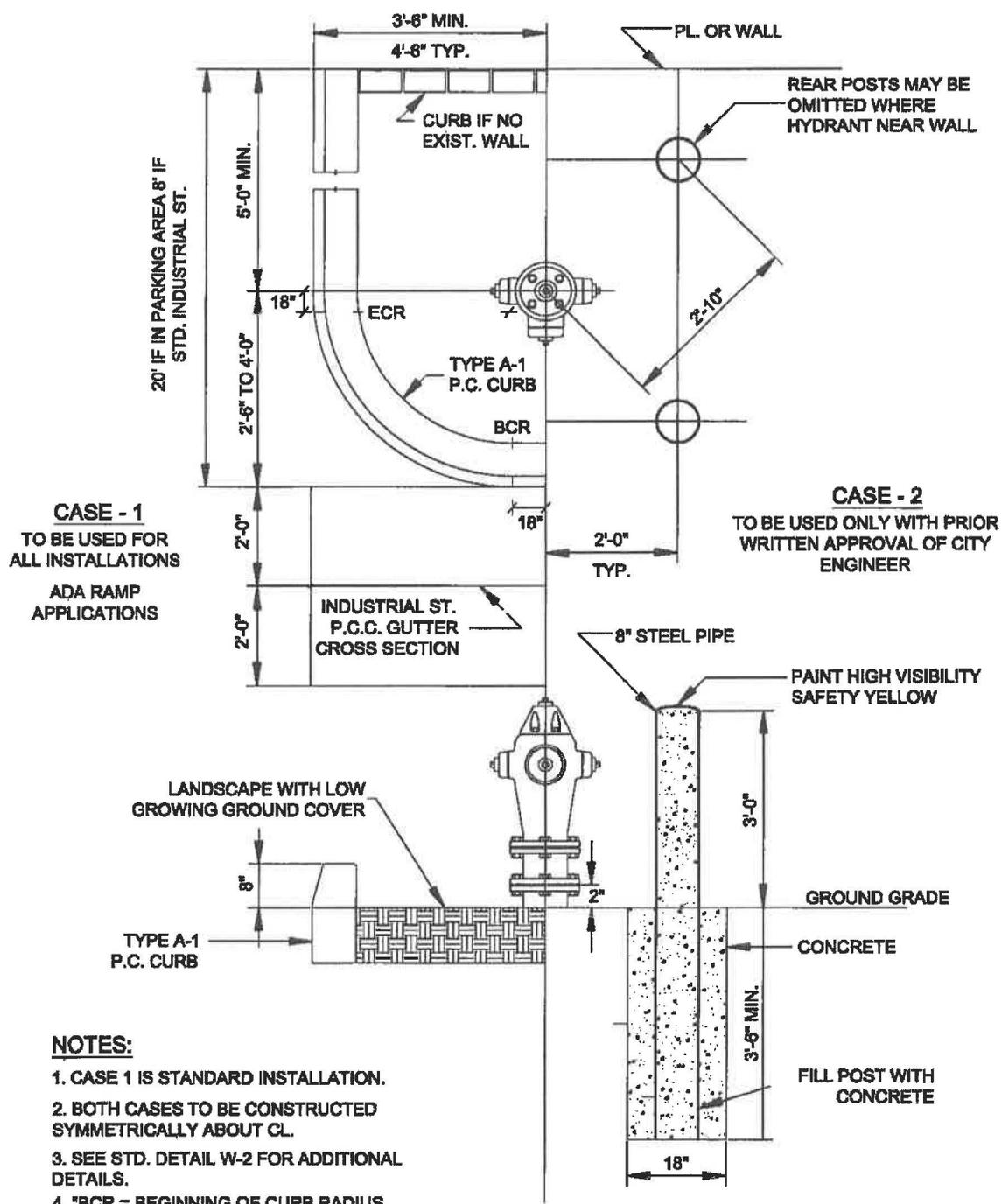
DATE	REV.	DESCRIPTION

CITY OF LA HABRA
FIRE HYDRANT RESIDENTIAL
STREET WET BARREL



APPROVED: *Christopher J. Johnson* DATE: 7/23/12

STANDARD DETAIL W-2



CASE - 1
 TO BE USED FOR
 ALL INSTALLATIONS
 ADA RAMP
 APPLICATIONS

CASE - 2
 TO BE USED ONLY WITH PRIOR
 WRITTEN APPROVAL OF CITY
 ENGINEER

- NOTES:**
1. CASE 1 IS STANDARD INSTALLATION.
 2. BOTH CASES TO BE CONSTRUCTED SYMMETRICALLY ABOUT CL.
 3. SEE STD. DETAIL W-2 FOR ADDITIONAL DETAILS.
 4. "BCR" = BEGINNING OF CURB RADIUS, "ECR" = END OF CURB RADIUS

DATE	REV.	DESCRIPTION

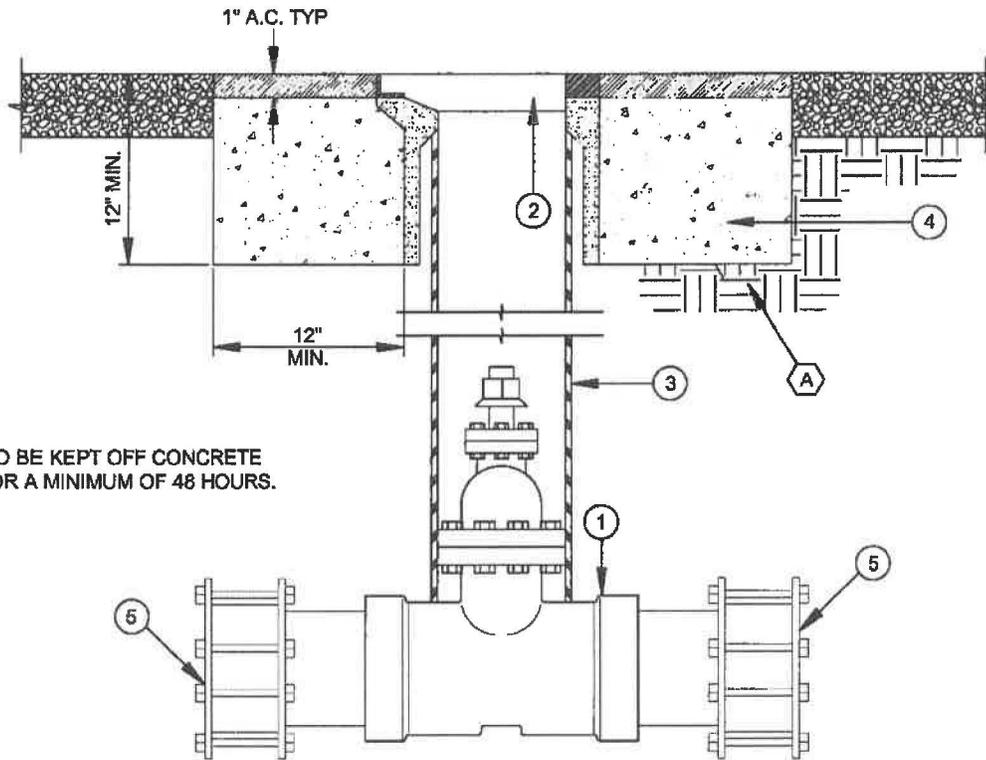
CITY OF LA HABRA

FIRE HYDRANT WITH PROTECTIVE CURB



APPROVED: *Christopher L. Gonzalez* DATE: 7/23/12

STANDARD DETAIL W-2A



NOTE:

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

CONSTRUCTION ITEMS / MATERIALS LIST		
NO.	SIZE AND DESCRIPTION	MANUFACTURER
①	GATE VALVE, RESILIENT WEDGE, S.S. TRIM, MJ OR FLG-OPTION	M&H, KENNEDY OR APPROVED EQUAL
②	VALVE BOX FRAME & COVER, C.I.	BROOKS 4TT FOR TRAFFIC USE OR EQUAL
③	P.V.C. PIPE, 8", SCHEDULE 40	
④	CONCRETE COLLAR	CONCRETE CLASS (560-C-3250) TYP.
⑤	DRESSER COUPLING	STYLE 53 OR EQUAL

NOTES:

- ALL BURIED BOLTS SHALL BE COATED WITH 2 COATS OF MASTIC SUCH AS "3M" BRAND EC 244 NO-OX-ID GREAS COATING OPTION OR EQUAL.
- ALL BURIED IRON SHALL BE WRAPPED WITH 1 LAYER OF 10 MIL POLYETHYLENE SHEETING TAPED IN PLACE.

(A) PAVEMENT BASE MATERIAL OR COMPACTED SOIL.

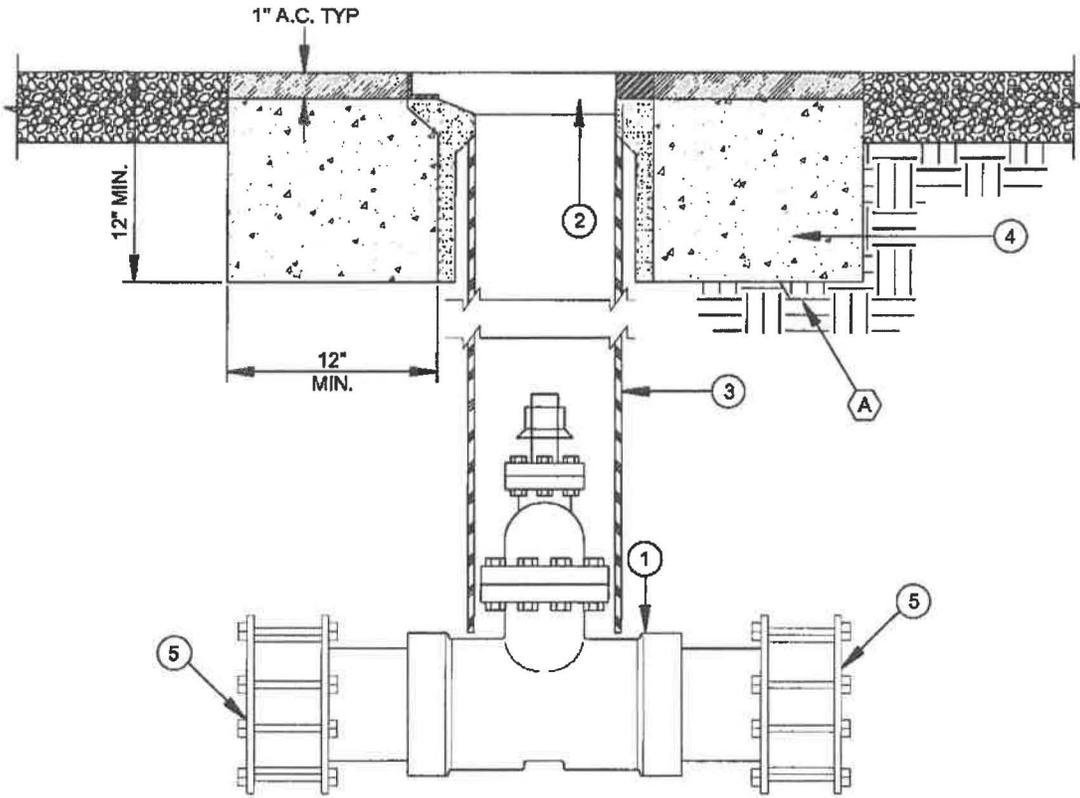
DATE	REV.	DESCRIPTION

CITY OF LA HABRA
GATE VALVE INSTALLATION
RESIDENTIAL STREETS



APPROVED: *Christopher J. Johnson* DATE: 7/23/12

STANDARD DETAIL W-3



CONSTRUCTION ITEMS / MATERIALS LIST		
NO.	SIZE AND DESCRIPTION	MANUFACTURER
①	GATE VALVE, RESILIENT WEDGE, S.S. TRIM, MJ OR FLG-OPTION	M&H, KENNEDY OR APPROVED EQUAL
②	VALVE BOX FRAME & COVER, C.I.	BROOKS 4TT FOR TRAFFIC USE OR EQUAL
③	P.V.C. PIPE, 8", SCHEDULE 40	_____
④	CONCRETE COLLAR	CONCRETE CLASS (560-C-3250) TYP.
⑤	DRESSER COUPLING	STYLE 53 OR EQUAL

NOTES:

1. ALL BURIED BOLTS SHALL BE COATED WITH 2 COATS OF MASTIC SUCH AS "3M" BRAND EC 244 NO-OX-ID GREASE COATING OPTION OR EQUAL.
2. ALL BURIED IRON SHALL BE WRAPPED WITH 1 LAYER OF 10 MIL POLYETHYLENE SHEETING TAPED IN PLACE.
3. NO TRAFFIC LOADS ON CONCRETE COLLAR FOR A MINIMUM OF ONE (1) HOUR OR UNTIL MINIMUM COMPRESSIVE STRENGTH OF 2,000 PSI IS ATTAINED.

Ⓐ PAVEMENT BASE MATERIAL OR COMPACTED SOIL.

DATE	REV.	DESCRIPTION

CITY OF LA HABRA

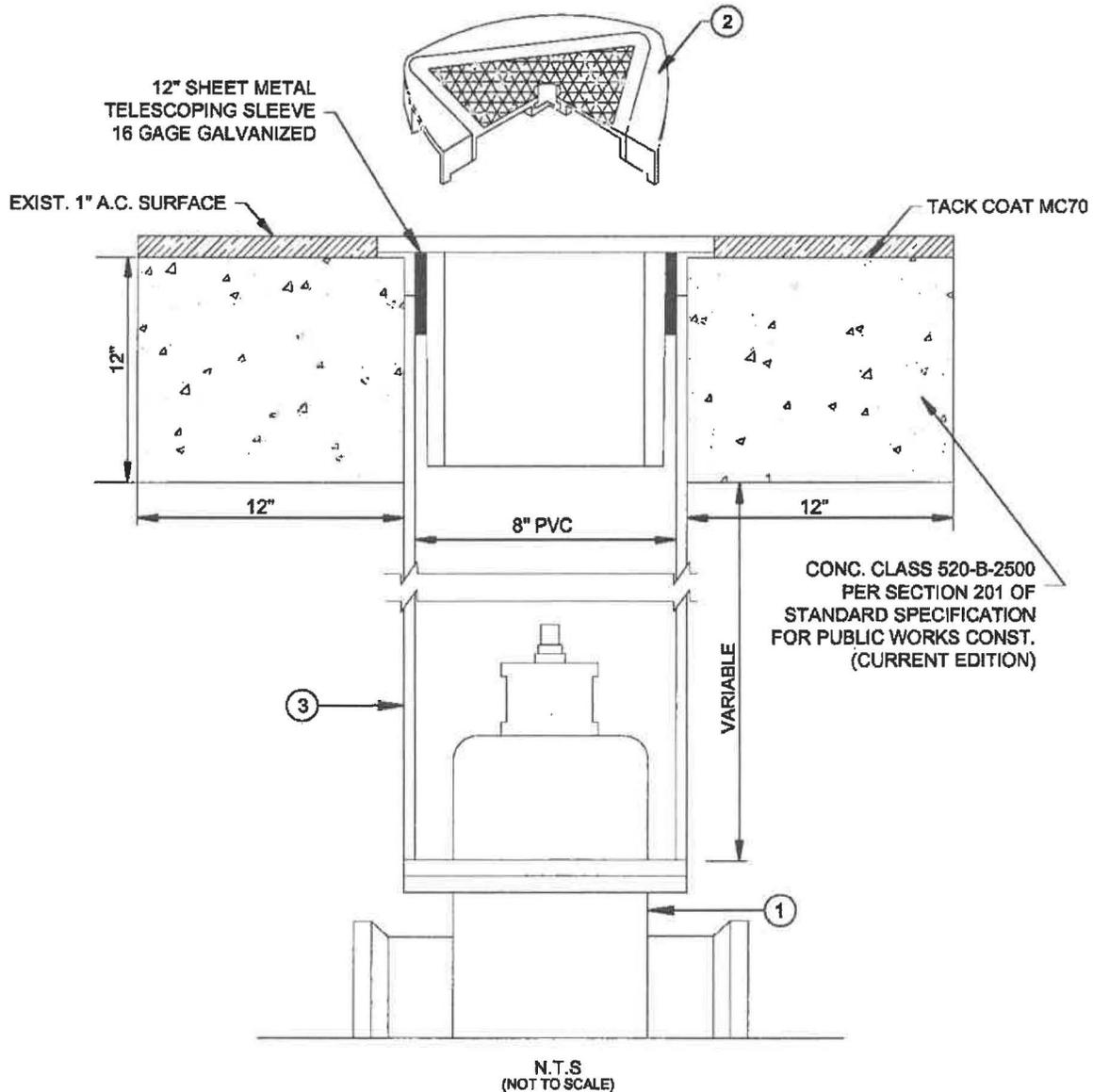
GATE VALVE INSTALLATION

FOR ARTERIAL AND COLLECTOR STREETS



APPROVED: Christopher J. Polkman DATE: 7/23/12

STANDARD DETAIL W-3A



CONSTRUCTION ITEMS / MATERIALS LIST		
NO.	SIZE AND DESCRIPTION	MANUFACTURER
①	GATE VALVE, RESILIENT WEDGE, S.S. TRIM, MJ OR FLG-OPTION	M&H, KENNEDY OR APPROVED EQUAL
②	VALVE BOX FRAME & COVER, C.I.	BROOKS 4TT FOR TRAFFIC USE OR EQUAL
③	PVC PIPE, 8", SCHEDULE 40	

DATE	REV.	DESCRIPTION

CITY OF LA HABRA

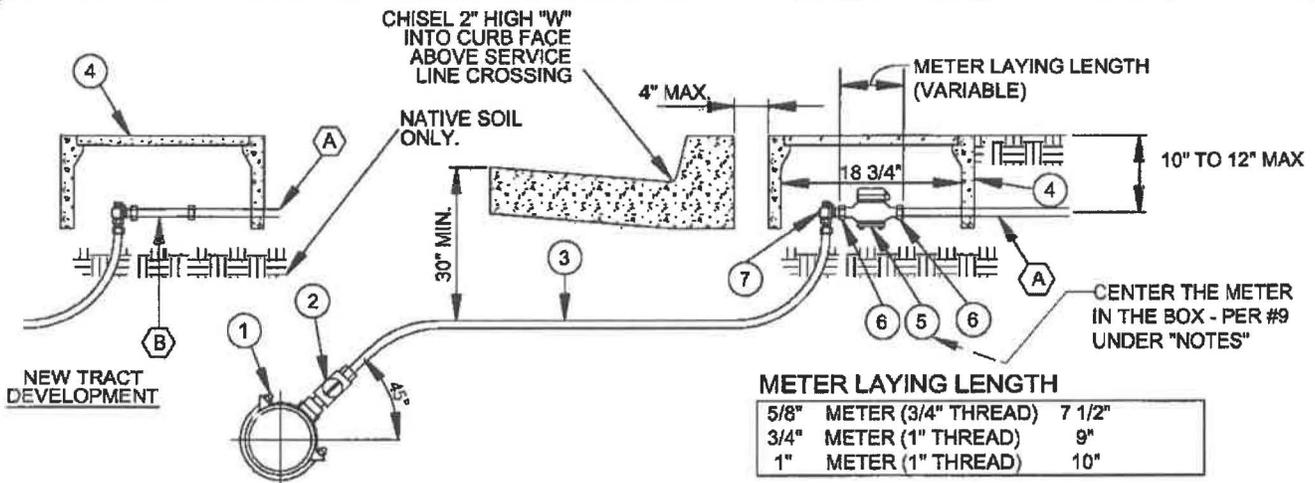
STANDARD VALVE BOX INSTALLATION



APPROVED:

Christopher J. Johnson DATE: 7/23/12

STANDARD DETAIL W-4



CONSTRUCTION ITEMS / MATERIALS LIST

NO	SIZE AND DESCRIPTION	MANUFACTURER	MFR. CAT. NO.
①	SERVICE SADDLE, BRONZE, IP TAP, DOUBLE STRAP	JONES, MUELLER, FORD	J-996, BR2B, 202B
②	CORPORATION STOP; BRONZE, 1", MIP X PJ CTS	FORD, JONES	J3403, FB1100-4-G-NL, E1935SG, B-25028
③	COPPER TUBING; 1", TYPE "K" SOFT		
④	CONCRETE METER BOX WITH HINGED C.I. READING LID. 1"	H&C, BROOKS, EISEL	437 3T(BOX) 437CIHL, 37 CIHL (COVER)
⑤	METER	FURNISHED & INSTALLED BY CONTRACTOR SEE NOTES 1 AND 5 (BELOW)	
⑥	METER COUPLING, BRONZE, 1"	FORD	C38-44
⑦	ANGLE VALVE, BRONZE, 1", WITH LOCKING WING	FORD, JONES	KV43444WG, E1963WSGL/S

NOTES:

- WHEN CONNECTING A 5/8" METER TO A 1" SERVICE, USE A BRONZE WATER METER BUSHING ON ONE OR BOTH ENDS (FORD A-34 OR APPROVED EQUAL).
- NO SPLICES WILL BE PERMITTED BETWEEN THE CORPORATION STOP AND THE ANGLE VALVE.
- NO TAP TO A MAIN SHALL BE WITHIN 18" OF A COUPLING OR WITHIN 18" OF ANOTHER TAP.
- UNDER NORMAL CONDITIONS THE WATER SERVICE SHALL EXTEND PERPENDICULAR TO THE CENTERLINE OF THE STREET FROM THE WATER MAIN TO THE ANGLE VALVE.
- METER IS TO BE INSTALLED BY THE CONTRACTOR AFTER METER BOX IS IN PLACE.
- ANGLE VALVE IS TO BE INSTALLED PLUMB AND SQUARE WITH THE CURB.
- IN NO CASE SHALL THE O.D. OF THE TUBE BE DISTORTED TO EXCEED 1.125 TIMES ORIGINAL DIAMETER.
- 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.
- METER BOX IS TO BE POSITIONED SO THAT METER FACE IS HORIZONTALLY CENTERED WITHIN THE BOX.

(A) THE TOP OF THE BOX SHALL BE LEVEL AND FLUSH WITH THE TOP OF THE CURB. HOUSE LINE PLUMBING CODE REQUIREMENTS.

(B) JUMPER (AS NECESSARY) FOR TEMPORARY USE IN NEW TRACT DEVELOPMENT. THE LENGTH MUST CORRESPOND TO THE APPROPRIATE LENGTH OF THE METER TO BE INSTALLED BY CONTRACTOR AS SPECIFIED IN THE METER LAYING LENGTH TABLE ABOVE.

DATE	REV.	DESCRIPTION

NOTE: SEE STANDARD DETAIL W-21 FOR BEDDING, BACKFILL AND PAVING REQUIREMENTS.

CITY OF LA HABRA

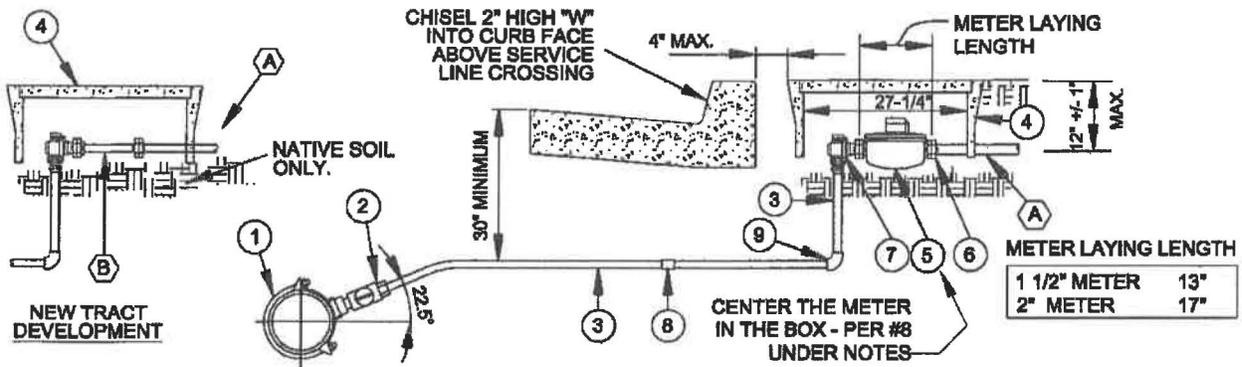
1" DOMESTIC WATER SERVICE



APPROVED: *Christopher J. Johnson*

DATE: 7/23/12

STANDARD DETAIL W-6



METER LAYING LENGTH	
1 1/2" METER	13"
2" METER	17"

CONSTRUCTION ITEMS / MATERIALS LIST			
NO.	SIZE AND DESCRIPTION	MANUFACTURER	MFR. CAT. NO.
①	SERVICE SADDLE, BRONZE, DOUBLE STRAP, 2", IP	JONES, MUELLER, FORD	J979, BR2B, 202B
②	CORPORATION STOP; BRONZE, 2", MIP X PJ CTS	FORD, JONES, MUELLER	FB1100-7-G-NL, E1935SG, B-25028
③	COPPER TUBING; 2", TYPE "K" SOFT		
④	CONCRETE METER BOX W/HINGED CI READ LID, #855 1/2	EISEL, H&C, BROOKS	#855 1/2 (BOX) W855HL (COVER)
⑤	METER	FURNISHED & INSTALLED BY CONTRACTOR SEE NOTE 4 (BELOW)	
⑥	FLANGE BRONZE COUPLING WITH I.P. FEMALE THREAD.	FORD, MUELLER	CF31-88 (1"), CF31-77 (2"), E1935SG, EFA-43-777WR-G-NG, B-24276-3
⑦	ANGLE VALVE, BRONZE 2" W/LOCKING WING, DOUBLE DRILLED	FORD, JONES	BFA43-77SFLWLS FV43-777W
⑧	COPPER COUPLINGS; (SOLDERED CONNECTIONS)		
⑨	COPPER 90° ELBOW; (SOLDERED CONNECTIONS)		
⑩	BOLTS, 5/8" X 3", HOT DIPPED GALVANIZED		
⑪	GASKET, FULL FACE, 1 PLY, RUBBER		

NOTES:

1. NO COUPLING WILL BE PERMITTED BETWEEN ANGLE VALVE AND CORPORATION STOP EXCEPT WHEN THE LENGTH BETWEEN THE ELBOW AND THE CORPORATION STOP EXCEEDS 20'.
 2. NO TAP TO A MAIN SHALL BE WITHIN 18" OF A COUPLING OR WITHIN 18" OF ANOTHER TAP.
 3. UNDER NORMAL CONDITIONS THE WATER SERVICE SHALL EXTEND PERPENDICULAR TO THE CENTERLINE OF THE STREET FROM THE WATER MAIN TO THE ANGLE VALVE.
 4. METER IS TO BE INSTALLED BY THE CONTRACTOR AFTER METER BOX IS IN PLACE.
 5. ANGLE VALVE IS TO BE INSTALLED PLUMB AND SQUARE WITH THE CURB.
 6. IN NO CASE SHALL THE TUBE BE DISTORTED BEYOND ITS ELASTIC LIMIT.
 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 10' CLEARANCE FROM ANY WALL, OTHER UTILITIES OR SUB-SURFACE FACILITIES, UNLESS APPROVED BY WATER DIVISION.
- (A) HOUSE LINE PLUMBING CODE REQUIREMENTS.
- (B) JUMPER (AS NECESSARY) FOR TEMPORARY USE IN NEW TRACT DEVELOPMENT. THE LENGTH MUST CORRESPOND TO THE APPROPRIATE LENGTH OF THE METER TO BE INSTALLED BY CONTRACTOR AS SPECIFIED IN THE METER LAYING LENGTH TABLE ABOVE.

DATE	REV.	DESCRIPTION

NOTE: SEE STANDARD DETAIL W-21 FOR BEDDING, BACKFILL AND PAVING REQUIREMENTS.

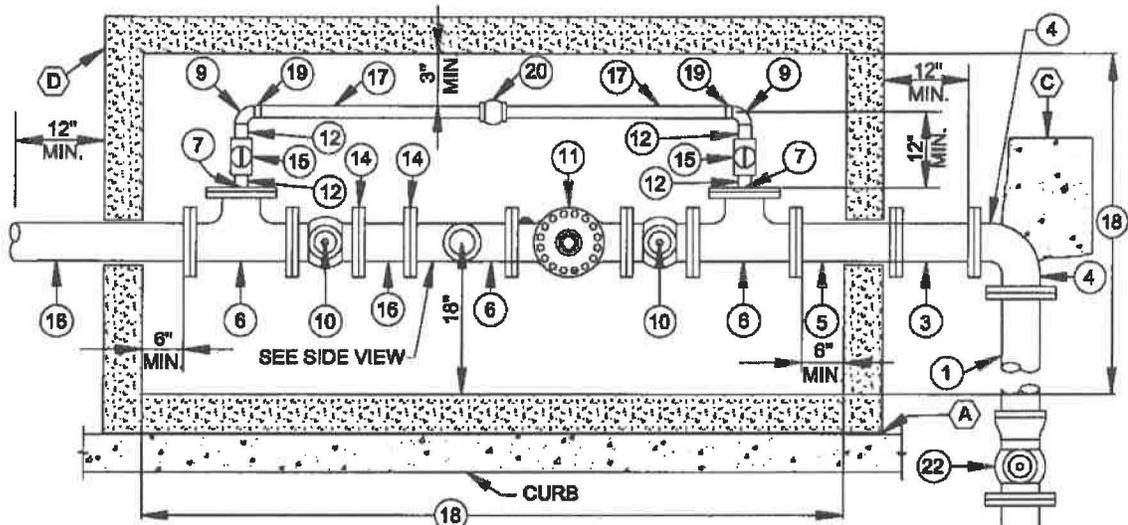
CITY OF LA HABRA

2" DOMESTIC WATER SERVICE



APPROVED: Christopher J. Johnson DATE: 7/23/12

STANDARD DETAIL W-6A

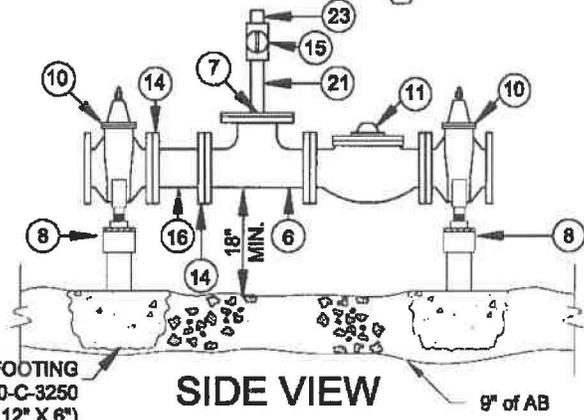


PLAN VIEW

NO	CONSTRUCTION ITEMS / MATERIALS LIST	3" SERVICE LENGTH
1	4" DIA. CLASS 150, C900 P.V.C. PIPE TO MAIN	
3	REDUCER, 4" X 3" - FLANGED	7"L
4	4" DIA. 90° ELBOW - MJ X FL	5.5"L
5	3" DIA. DUCTILE IRON SPOOL - FLANGED	VARIABLE
6	3" X 3" X 3" TEE - FLANGED D.I.P.	11"L x 5.5"L
7	BLIND FLANGE WITH 2" TAP	-
8	ADJUSTABLE PIPE SUPPORT	-
9	2" BRASS 90° ELBOW, F.I.P.	-
10	3" R.W. GATE VALVE - FLANGED	8"L
11	WATER METER, HERSEY 3" MVR 350 OR 3" MS ACTARIS METER	12"L
12	2" BRASS CLOSE NIPPLE	-
14	3" DIA. UNI FLANGE	-
15	2" BALL VALVE CURB STOP, F.I.P. X F.I.P. WITH LOCKING WING FORD B11-777 WB-WL	-
16	3" DIA. DUCTILE IRON SPOOL, PE	6"L
17	2" COPPER TUBING - TYPE "K"	-
18	INSIDE DIMENSION OF METER VAULT	96" x 48"
19	ADAPTER, 2", MIP X PJ CTS	-
20	BRONZE COUPLING (COMPRESSION CONNECTIONS)	-
21	2" BRASS NIPPLE	8" L
22	4" GATE VALVE - FLANGED X MECHANICAL JOINT	-
23	2" PLUG, BRASS	-

NOTE:

ON EXISTING MAIN CONSTRUCT HOT TAP PER CITY STD. W-8 FOR NEW MAIN CONSTRUCT TEE (MJ X FLG).



SIDE VIEW

CONC FOOTING TYP. 560-C-3250 (12" X 12" X 6")

- (A) 1/2" EXPANSION JOINT MATERIAL BETWEEN VAULT AND SIDEWALK OR CURB.
- (B) THRUST BLOCK PER STD. W-15, CONDITION I.
- (C) THRUST BLOCK PER STD. W-15, CONDITION II.
- (D) VAULT PER STD. W-6E

NOTE: ALL FITTINGS SHALL BE DUCTILE IRON UNLESS SPECIFIED OTHERWISE. METER BOX SHALL HAVE 10' CLEARANCE FROM ANY WALL, OTHER UTILITIES OR SUB-SURFACE FACILITIES, UNLESS APPROVED BY WATER DIVISION.

DATE	REV.	DESCRIPTION

NOTE: SEE STANDARD DETAIL W-21 FOR BEDDING, BACKFILL AND PAVING REQUIREMENTS

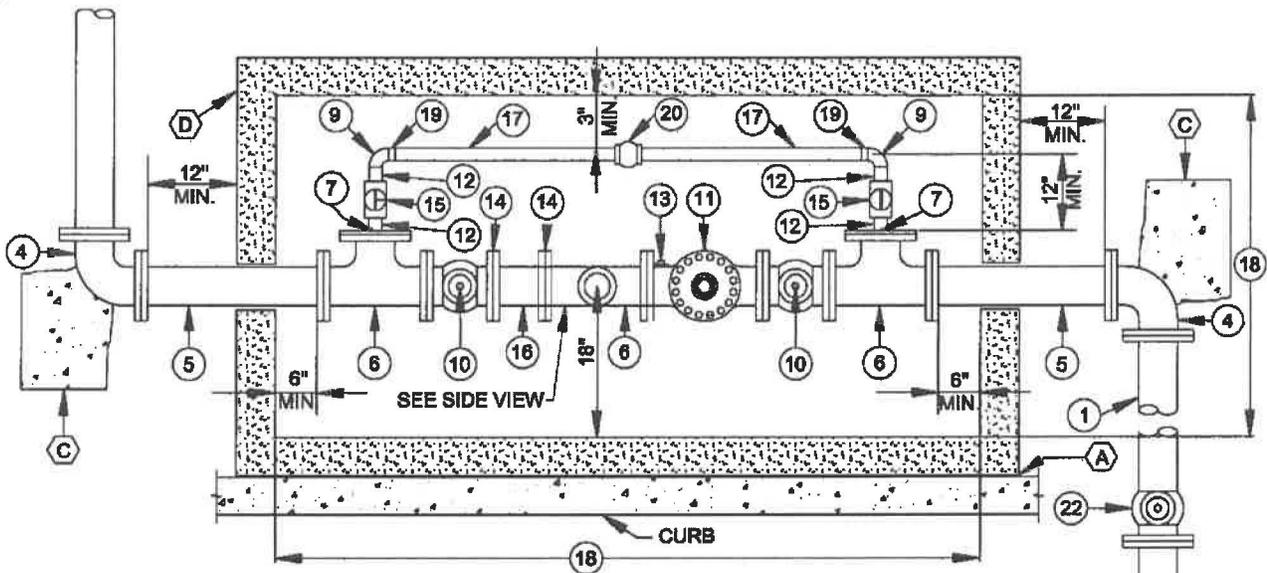
CITY OF LA HABRA

3" DOMESTIC WATER SERVICE



APPROVED: *Christopher J. Tolson* DATE: 7/23/12

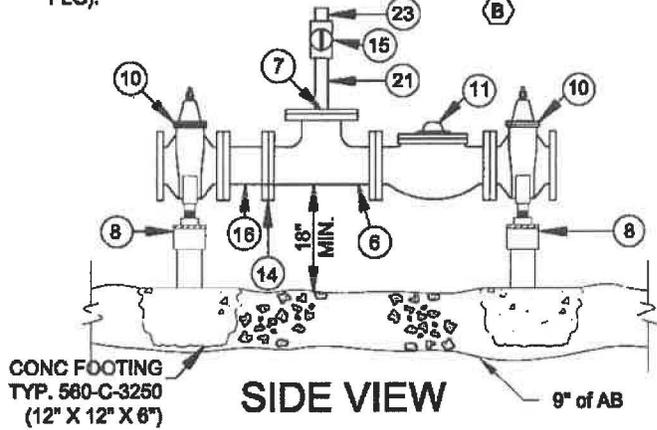
STANDARD DETAIL W-6B



PLAN VIEW

NO.	CONSTRUCTION ITEMS / MATERIALS LIST	4" SERVICE LENGTH
1	4" DIA. CLASS 200, C900 P.V.C. PIPE TO MAIN	
2	N/A	
3	N/A	N.A.
4	4" DIA. 90° ELBOW - FL X MJ	8.5"L
5	4" DIA. DUCTILE IRON SPOOL - FLANGED	24"L
6	4" X 4" X 4" TEE - FLANGED D.I.P.	13"L x 5.5"L
7	COMPANION FLANGE 4" X 2"	-
8	ADJUSTABLE PIPE SUPPORT	-
9	2" BRASS 90° ELBOW, F.I.P.	-
10	4" R.W. GATE VALVE - FLANGED	9"L
11	HERSEY 4" MVR 850 W/ TEST PORTS	14"L
12	2" BRASS CLOSE NIPPLE	-
13	2" TEST OUTLET WITH 2" PLUG	-
14	4" DIA. UNI-FLANGE	-
15	2" BALL VALVE CURB STOP, F.I.P. X F.I.P. WITH LOCK WING FORD B11-777-NL	-
16	4" DIA. DUCTILE IRON SPOOL, PLAIN END	10"L
17	2" COPPER TUBING - TYPE "K"	-
18	INSIDE DIMENSION OF METER VAULT	96" x 48"
19	ADAPTER, 2", MIP X PJ CTS	-
20	BRONZE COUPLING (COMPRESSION CONNECTIONS)	-
21	2" BRASS NIPPLE	8" L
22	4" GATE VALVE - FLANGED X MJ	MJ
23	2" PLUG, BRASS	-

NOTE:
ON EXISTING MAIN CONSTRUCT HOT TAP PER CITY STD. W-8. FOR NEW MAIN CONSTRUCT TEE (MJ X FLG).



SIDE VIEW

- (A) 1/2" EXPANSION JOINT MATERIAL BETWEEN VAULT AND SIDEWALK OR CURB.
- (B) THRUST BLOCK PER STD. W-15, CONDITION I.
- (C) THRUST BLOCK PER STD. W-15, CONDITION II.
- (D) VAULT PER STD. W-6E

NOTE: ALL FITTINGS SHALL BE DUCTILE IRON UNLESS SPECIFIED OTHERWISE. METER BOX SHALL HAVE 10' CLEARANCE FROM ANY WALL, OTHER UTILITIES OR SUB-SURFACE FACILITIES, UNLESS APPROVED BY WATER DIVISION.

DATE	REV.	DESCRIPTION

NOTE: SEE STANDARD DETAIL W-21 FOR BEDDING, BACKFILL AND PAVING REQUIREMENTS

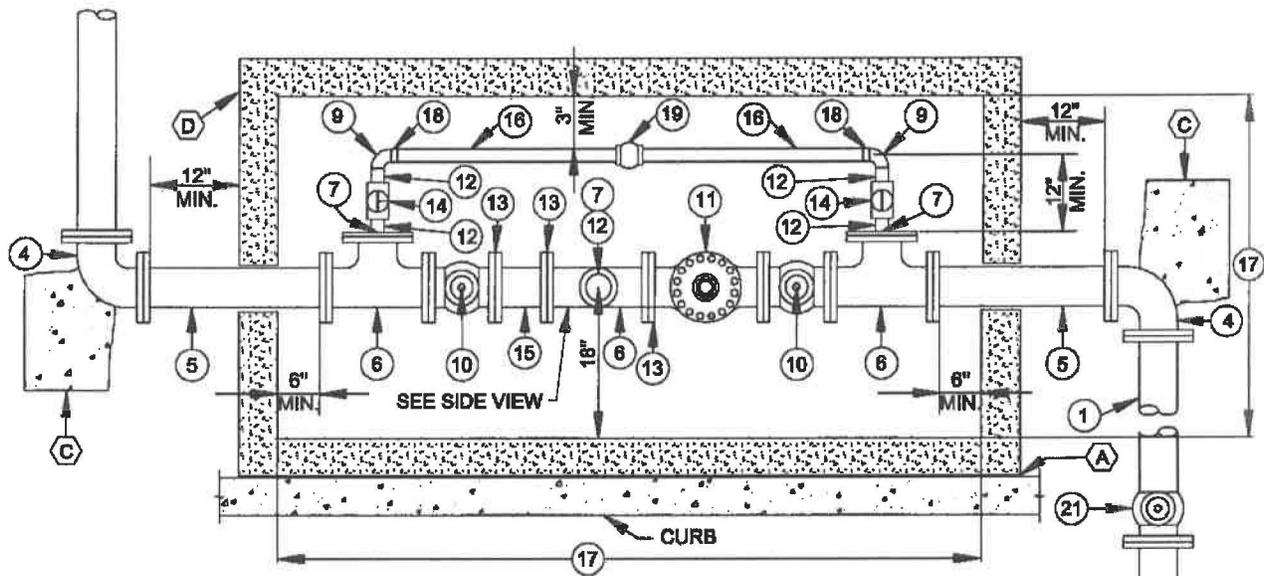
CITY OF LA HABRA

4" DOMESTIC WATER SERVICE



APPROVED: *Christopher J. Johnson* DATE: 7/23/12

STANDARD DETAIL W-6C

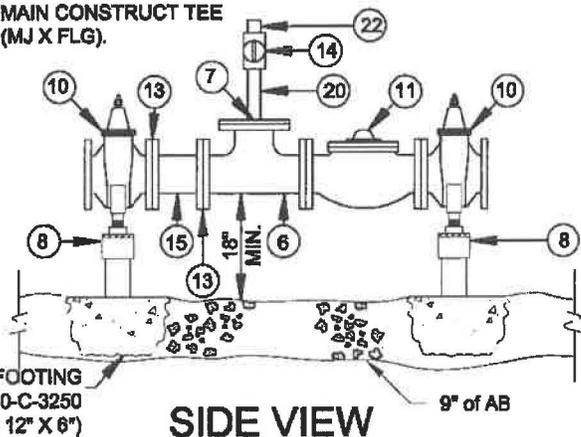


PLAN VIEW

NO.	CONSTRUCTION ITEMS / MATERIALS LIST	6" SERVICE LENGTH
1	6" DIA. CLASS 200, C900 P.V.C. PIPE TO MAIN	
2	N/A	
3	N/A	N.A.
4	6" DIA. 90° ELBOW - MJ X FL	8"L
5	6" DIA. DUCTILE IRON SPOOL - FLANGED	24"L
6	6" X 6" X 6" TEE - FLANGED D.I.P.	18"L x 8"L
7	COMPANION FLANGE 6" X 2"	-
8	ADJUSTABLE PIPE SUPPORTS	-
9	2" BRASS 90° ELBOW, F.I.P.	-
10	6" R.W. GATE VALVE - FLANGED	10.5"L
11	HERSEY 6" MVR 1300 W/ TEST PORTS	18"L
12	2" BRASS CLOSED NIPPLE	-
13	6" DIA. UNI FLANGE	-
14	2" BALL VALVE CURB STOP, F.I.P. X F.I.P. WITH LOCKING WING FORD B11-777 WR-NL	-
15	6" DIA. DUCTILE IRON SPOOL, PLAIN END	6"L
16	2" COPPER TUBING - TYPE "K"	-
17	INSIDE DIMENSION OF METER VAULT	96" x 48"
18	ADAPTER, 2", MIP X PJ CTS	-
19	BRONZE COUPLING (COMPRESSION CONNECTIONS)	-
20	2" BRASS NIPPLE	8"L
21	6" GATE VALVE - FLANGED X MJ	MJ
22	2" PLUG, BRASS	-

NOTE:

ON EXISTING MAIN
CONSTRUCT HOT TAP PER
CITY STD. W-8 FOR NEW
MAIN CONSTRUCT TEE
(MJ X FLG).



SIDE VIEW

- (A) 1/2" EXPANSION JOINT MATERIAL BETWEEN VAULT AND SIDEWALK OR CURB.
- (B) THRUST BLOCK PER STD. W-15, CONDITION I.
- (C) THRUST BLOCK PER STD. W-15, CONDITION II.
- (D) VAULT PER STD. W-6E.

NOTE: ALL FITTINGS SHALL BE DUCTILE IRON UNLESS SPECIFIED OTHERWISE.
METER BOX SHALL HAVE 10' CLEARANCE FROM ANY WALL, OTHER UTILITIES
OR SUB-SURFACE FACILITIES, UNLESS APPROVED BY WATER DIVISION.

DATE	REV.	DESCRIPTION

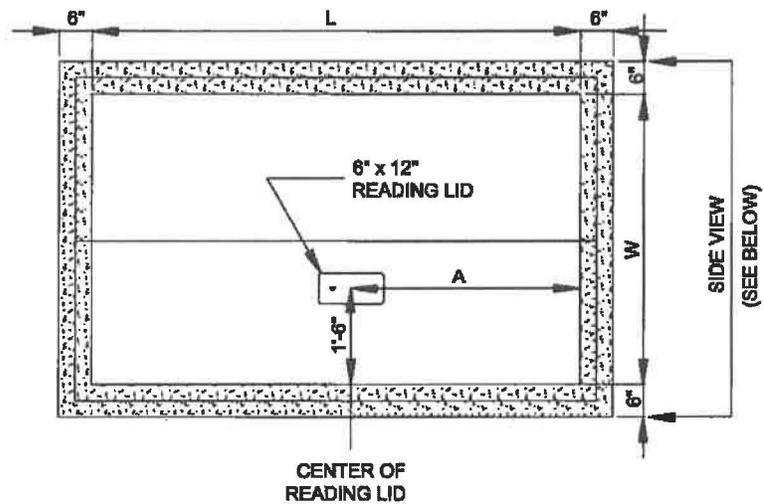
CITY OF LA HABRA

6" DOMESTIC WATER SERVICE



APPROVED: Christopher J. Johansen DATE: 7/23/12

STANDARD DETAIL W-6D

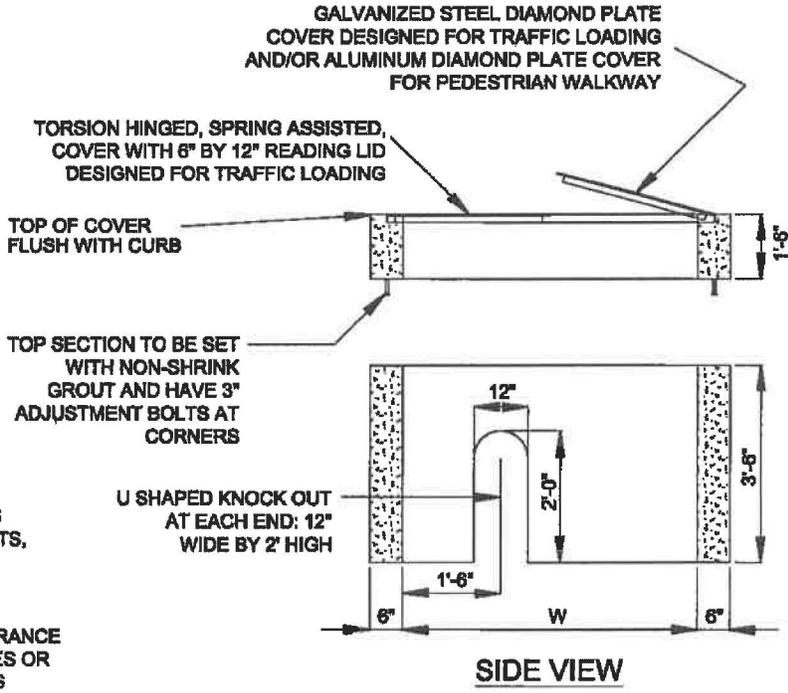


PLAN VIEW

SERVICE SIZE	W	L	A
3"	4'-0"	8'-0"	3'-1"
4"	4'-0"	8'-0"	3'-4"
6"	4'-0"	8'-0"	3'-10"

NOTES:

- ① VAULTS SHALL BE PRECAST CONCRETE STRUCTURES CLASS 580-C-3250 PER STANDARD SPECIFICATIONS (CURRENT EDITION)
- ② NO FLOOR. CONSTRUCT 9" OF ROCK BASE BENEATH VAULT.
- ③ FRAME AND COVER COMPONENTS INCLUDING BRACES, SPRINGS, NUTS, AND BOLTS SHALL BE TYPE 316 STAINLESS STEEL.
- ④ METER BOX SHALL HAVE 10' CLEARANCE FROM ANY WALLS, OTHER UTILITIES OR SUB-SURFACE FACILITIES, UNLESS APPROVED BY CITY ENGINEER.



SIDE VIEW

DATE	REV.	DESCRIPTION

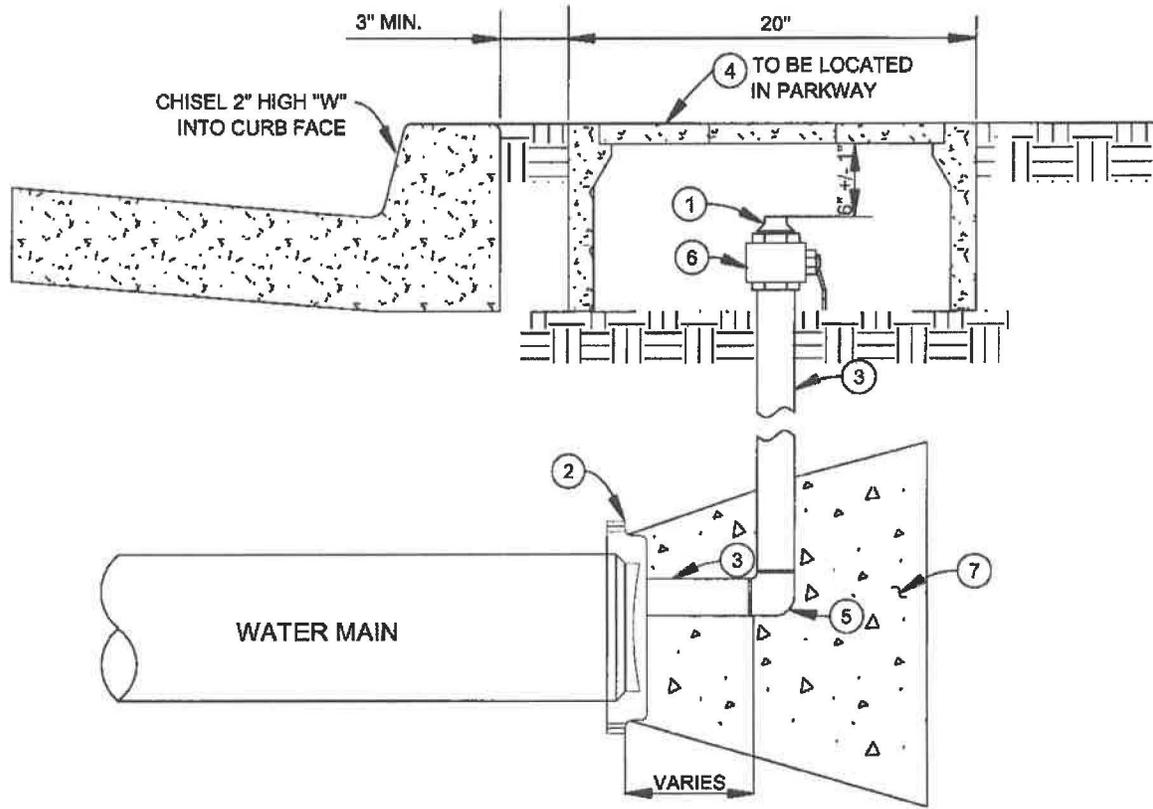
CITY OF LA HABRA

3", 4" AND 6" WATER SERVICE VAULT



APPROVED: *Christopher J. Johnson* DATE: 7/23/12

STANDARD DETAIL W-6E



CONSTRUCTION ITEMS / MATERIALS LIST

NO.	SIZE AND DESCRIPTION	MANUFACTURER	MFR. CAT. NO.
①	PLUG, 2"- BRASS		
②	CAP (MJ) WITH 2" THREADED OFFSET TAP		
③	2" BRASS PIPE		
④	CONCRETE METER BOX, 1"	ARMORCAST W/ H&C, EISEL	437, 37, 437CIHL, 37CIHL (COVER)
⑤	BRONZE 90°, 2"		
⑥	2" CURB STOP, FIP X FIP	JAMES JONES, FORD, MUELLER	BFA43-777WR-G-NL, B-24276-3, E1975SGLSLW
⑦	THRUST BLOCK PER STANDARD DETAIL W-15, CONDITION III		

NOTE:

BLOW OFF ASSEMBLY SHALL BE LOCATED IN PARKWAY.

DATE	REV.	DESCRIPTION

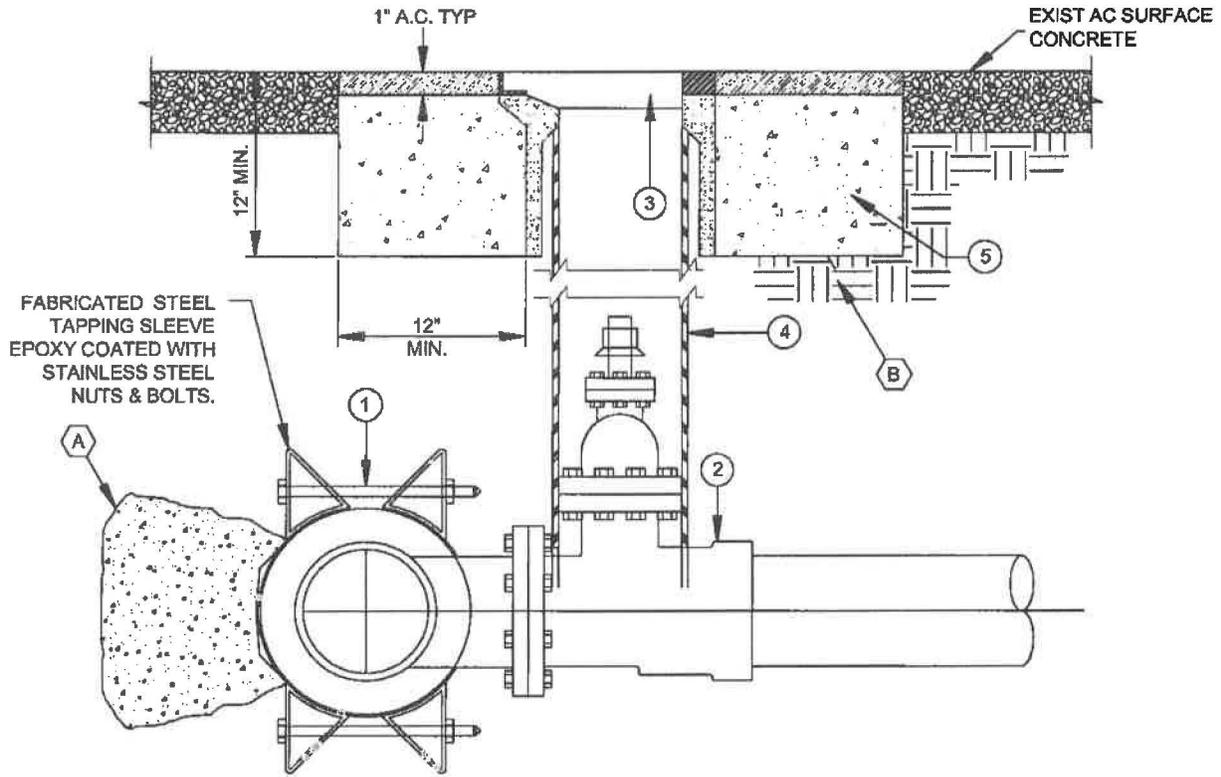
CITY OF LA HABRA

2" FLUSHING RISER



APPROVED: Christophe J. Johnson DATE: 7/23/12

STANDARD DETAIL W-7



ALL EQUALS TO BE APPROVED BY WATER ENGINEERING STAFF.

CONSTRUCTION ITEMS / MATERIALS LIST			
NO.	SIZE AND DESCRIPTION	MANUFACTURER	MFR. CAT. NO.
①	TAPPING SLEEVE (EPOXY COATED & STAINLESS STEEL BOLTS)	FORD SMITH-BLAIR	FTSC 412ESS 622
②	GATE VALVE, FLG. x M.J., & S.S. TRIM (RESILIENT WEDGE)	MUELLER, KENNEDY OR APPROVED EQUAL	_____
③	VALVE BOX FRAME & COVER, C.I.	BROOKS	NO. 411 FOR TRAFFIC USE OR EQUAL
④	P.V.C. PIPE, 8", SCHEDULE 40	_____	_____
⑤	CONCRETE COLLAR	_____	CLASS 560-C-3250 PER GREENBOOK, SECTION 201

NOTES:

1. ALL BURIED BOLTS SHALL BE COATED WITH 2 COATS OF MASTIC SUCH AS "3M" BRAND EC 244 NO-OX-ID GREASE COATING OPTION OR EQUAL.
 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. "COUPON" SHALL BE REMOVED AND PROVIDED TO INSPECTOR.
 5. NO "SIZE ON SIZE" TAPS SHALL BE PERMITTED.
- Ⓐ THRUST BLOCK DETAILS (SEE STANDARD W-15, CONDITION I).
- Ⓑ PAVEMENT BASE MATERIAL OR COMPACTED SOIL.

DATE	REV.	DESCRIPTION

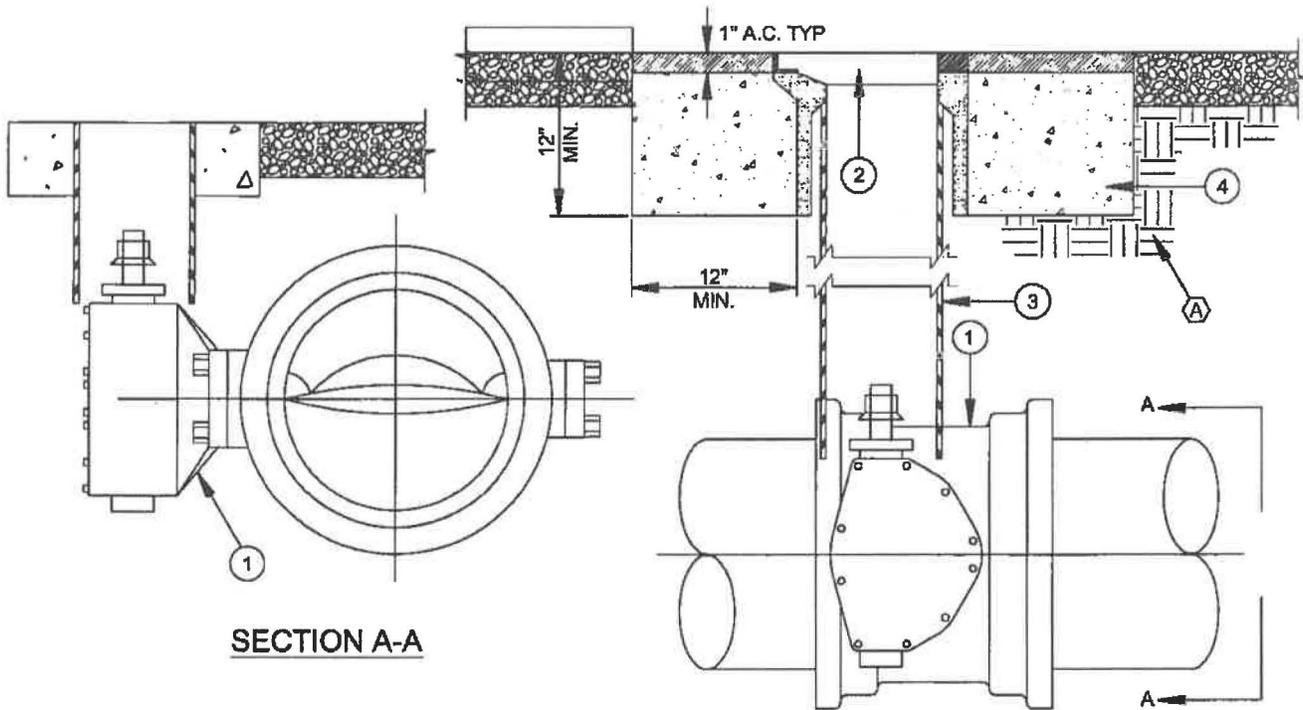
CITY OF LA HABRA

TAPPING SLEEVE AND GATE VALVE



APPROVED: *Christopher J. [Signature]* DATE: 7/23/12

STANDARD DETAIL W-8



SECTION A-A

CONSTRUCTION ITEMS / MATERIALS LIST

NO.	SIZE AND DISCRIPTION	MANUFACTURER	MFR. CAT. NO.
①	BUTTERFLY VALVE RUBBER-SEATED	PRATT OR APPROVED EQUAL	GROUND HOG (AWWA C504 SPEC.)
②	VALVE BOX FRAME & COVER, C.I.	BROOKS	NO. 4TT FOR TRAFFIC USE OR EQUAL
③	P.V.C. PIPE, 8", SCHEDULE 40	_____	_____
④	CONCRETE COLLAR: RESIDENTIAL STREETS	CONCRETE CLASS (560-C-3250) PER GREENBOOK, SECTION 201	_____

NOTES:

1. ALL BURIED BOLTS SHALL BE COATED WITH TWO COATS OF MASTIC SUCH A "3M" BRAND EC 244 OR EQUAL.
 2. ALL BURIED IRON SHALL BE WRAPPED WITH 1 LAYER OF 10 MIL POLYETHYLEN SHEETING TAPED IN PLACE.
 3. RESIDENTIAL STREETS - TRAFFIC TO BE KEPT OFF CONCRETE COLLAR FOR A MINIMUM OF 48 HRS.
 4. ARTERIAL STREETS - NO TRAFFIC LOADS ON CONCRETE COLLAR FOR A MINIMUM OF ONE (1) HOUR OR UNTIL MINIMUM COMPRESSIVE STRENGTH OF 2,000 PSI IS ATTAINED.
- ⓐ PAVEMENT BASE MATERIAL OR COMPACTED SOIL.

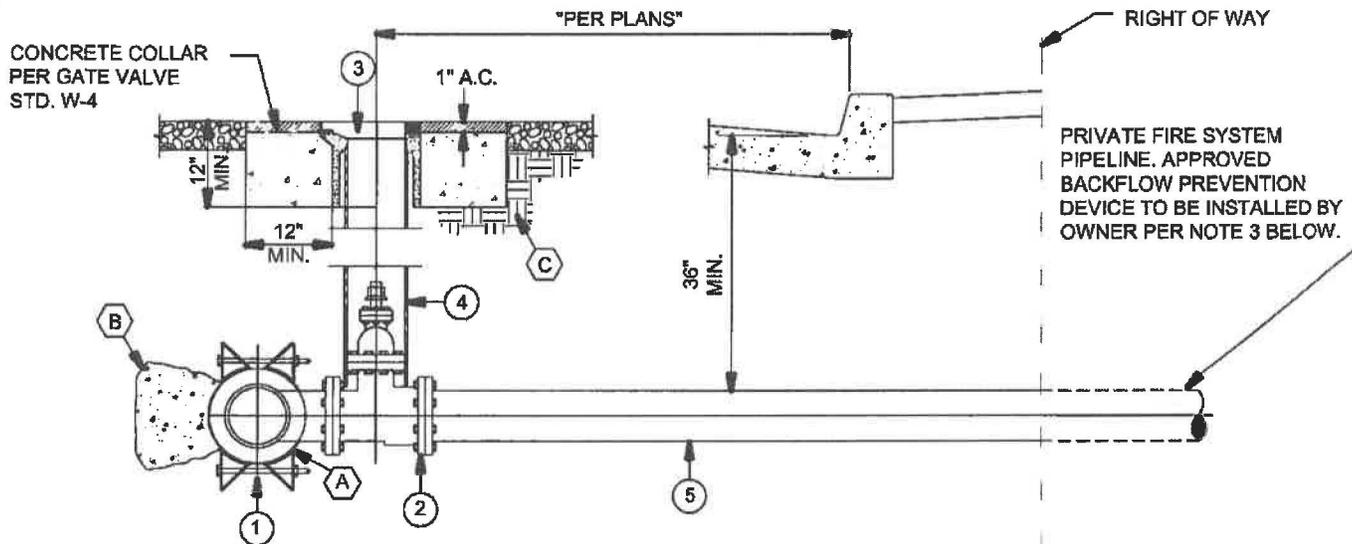
DATE	REV.	DESCRIPTION

CITY OF LA HABRA
BUTTERFLY VALVE
INSTALLATION



APPROVED: *Christopher J. Hansen* DATE: 7/23/12

STANDARD DETAIL W-9



CONSTRUCTION ITEMS / MATERIALS LIST

NO	SIZE AND DESCRIPTION	MANUFACTURER	MFR. CAT. NO.
①	TAPPING SLEEVE (EPOXY COATED & STAINLESS STEEL BOLTS)	FORD J.C.M. SMITH-BLAIR	FTSC 412ESS 622
②	TAPPING VALVE, "RESILIENT WEDGE" FLG. x M.J. W/ S.S. TRIM	CLOW, MUELLER, M&H OR EQUAL	
③	VALVE BOX FRAME & COVER, C.I.	BROOKS, H&C	NO. 4TT FOR TRAFFIC USE OR EQUAL
④	P.V.C. PIPE, 8" (SCHEDULE 40)	_____	_____
⑤	LATERAL PIPE; CLASS 200, C900 P.V.C.	_____	_____

NOTES:

- ALL BURIED IRON SHALL BE WRAPPED WITH 1 LAYER OF 10 MIL POLYETHYLENE SHEETING TAPED IN PLACE.
- ALL BURIED NUTS AND BOLTS SHALL BE COATED WITH 2 COATS MASTIC SUCH AS "3M" BRAND EC 244 NO-OX-ID GREASE COATING OPTION OR EQUAL.
- ALL ON-SITE PRIVATE FIRE PROTECTION SYSTEMS REQUIRE PROPER BACKFLOW DEVICE(S). DEVELOPER SHALL CALL CITY'S WATER QUALITY SUPERVISOR AT (562) 905-9792 FOR BACKFLOW DEVICE REQUIREMENTS.

- (A) FOR TAPPING AN EXISTING MAIN. (SEE STANDARD W-8)
- (B) THRUST BLOCK DETAILS (SEE STANDARD W-15, CONDITION I).
- (C) PAVEMENT BASE MATERIAL OR COMPACTED SOIL.

DATE	REV.	DESCRIPTION

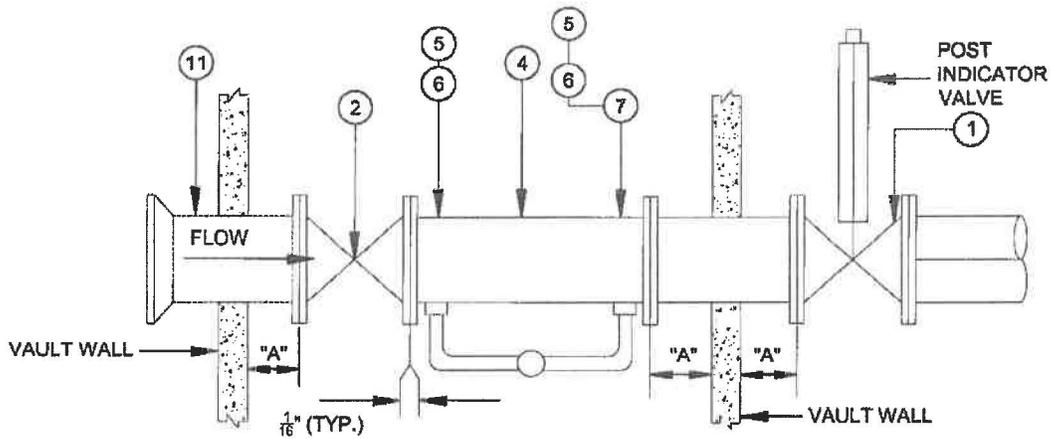
CITY OF LA HABRA

FIRE SERVICE



APPROVED: *Christopher J. Planteau* DATE: 7/23/12

STANDARD DETAIL W-11



DETECTOR CHECK SIZE	4"	6"	8"	10"
DIMENSION OF "A"	6 1/2"	7 3/4"	9 1/4"	10 1/2"

DETECTOR CHECK ASSEMBLY SHALL BE INSTALLED WITH A MIN. DISTANCE OF 2 FT FROM PROPERTY LINES.

CONSTRUCTION ITEMS/LIST OF MATERIALS													
ITEM	DESCRIPTION	DETECTOR CHECK SIZE											
		4"			6"			8"			10"		
		QTY	SIZE	L	QTY	SIZE	L	QTY	SIZE	L	QTY	SIZE	L
①	VALVE, GATE - FL X FL	1	4"	9"	1	6"	10 1/2"	1	8"	11 1/2"	1	10"	13"
②	VALVE, GATE - O.S. & Y, FL X FL W/ 3/4" TAP	1	4"	9"	1	6"	10 1/2"	1	8"	11 1/2"	1	10"	13"
④	DETECTOR CHECK W/ BYPASS METER ASSY.	1	4"	16 1/4"	1	6"	22 1/2"	1	8"	28 1/2"	1	10"	36"
⑤	TEST COCK, JONES J-180 OR EQUAL	3	3/4"	-	3	3/4"	-	3	3/4"	-	3	3/4"	-
⑥	NIPPLE, BRASS	2	3/4"	2"	2	3/4"	2"	2	3/4"	2"	2	3/4"	2"
⑦	BUSHING, TEST COCK, BRASS	2	3/4" X 1"	-	2	3/4" X 1 1/2"	-	2	3/4" X 2"	-	2	3/4" X 2"	-
⑪	ADAPTER, MJ X FL - USE W/ VAULT ONLY	2	4"	24"	2	6"	24"	2	8"	24"	2	10"	24"

O.S. & Y = OUTSIDE SCREW AND YOKE

NOTES:

- APPROVED DETECTOR CHECK MANUFACTURERS: DETECTOR CHECK SHALL MEET NATIONALLY RECOGNIZED STANDARDS. METER TO BE INSTALLED 12" BELOW VAULT COVER. METER TO REGISTER IN CUBIC FEET.

DATE	REV.	DESCRIPTION

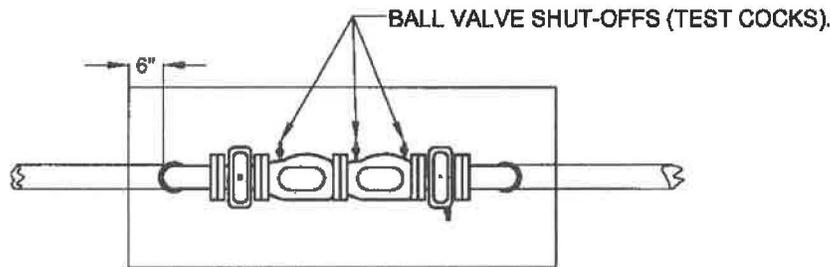
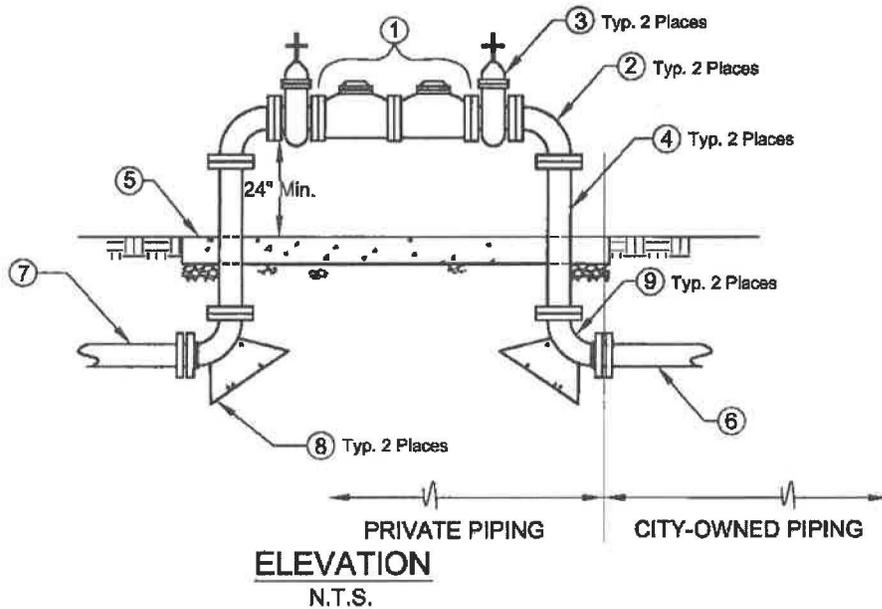
CITY OF LA HABRA

FIRE SERVICE DETECTOR CHECK ASSEMBLY (BELOW GRADE)



APPROVED: Quintana J. Placencia DATE: 7/23/12

STANDARD DETAIL W-12



CONSTRUCTION NOTES:

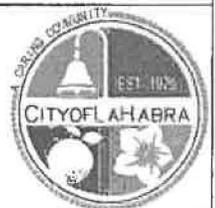
- ① APPROVED DOUBLE CHECK VALVE ASSEMBLY.
- ② LONG RADIUS 90° BEND FL x FL - CEMENT LINED
- ③ RESILIENT WEDGE GATE VALVE - FL x FL
- ④ DIP MORTAR LINED SPOOL PIECE - FL x FL
- ⑤ 6" THICK CONCRETE SLAB. REINFORCED WITH W 1.4 x W1.4 WELD WIRE MESH. CONCRETE SHALL BE 560-C-3250
- ⑥ CITY SUPPLY PIPE. CLASS 52 MORTAR LINED PIPE W/ POLYETHYLENE ENCASEMENT.
- ⑦ CONSUMER PIPING.
- ⑧ THRUST BLOCKS PER STANDARD DETAIL W-15
- ⑨ LONG RADIUS 90° BEND FL x MJ - CEMENT LINED

GENERAL NOTES:

- 1. ALL ABOVE GROUND FITTINGS SHALL BE PAINTED WITH 2 COATS OF PRIMER AND 2 COATS OF 2 MIL HIGH GLOSS ENAMEL PAINT.
- 2. ALL BELOW GRADE DIP FITTINGS SHALL BE ENCASED IN AN 8 MIL POLYETHYLENE WRAP,
- 3. ALL FLANGE BOLTS SHALL BE TYPE 318 STAINLESS STEEL.
- 4. CITY OWNED PIPING SHALL BE INSTALLED IN AN EASEMENT GRANTED TO THE CITY.

DATE	REV.	DESCRIPTION

CITY OF LA HABRA
STANDARD DOUBLE DETECTOR CHECK
BACKFLOW PREVENTION ASSEMBLY

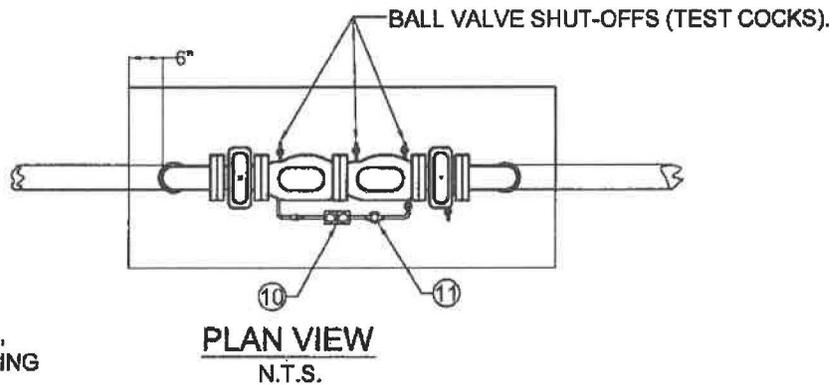
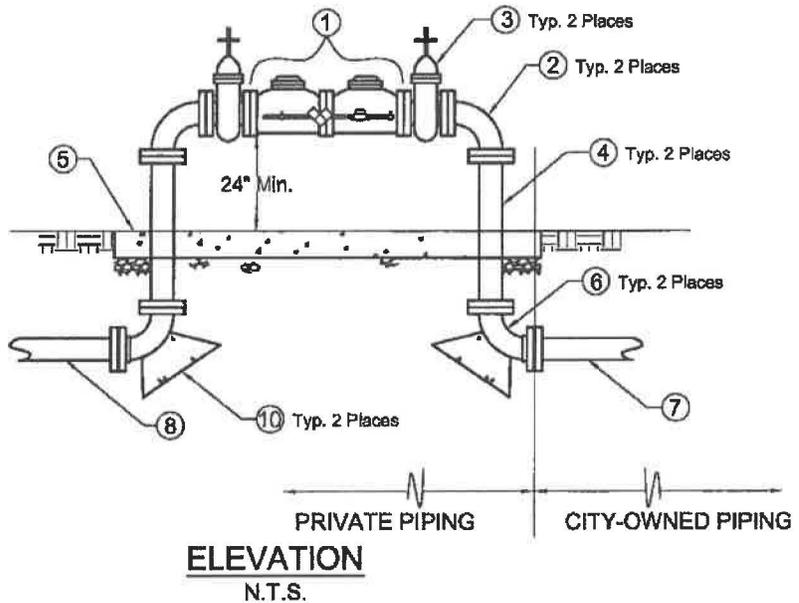


APPROVED: *Christopher J. Johnson* DATE: *7/23/12*

STANDARD DETAIL W-12A

CONSTRUCTION NOTES:

- ① APPROVED DOUBLE CHECK VALVE ASSEMBLY.
- ② LONG RADIUS 90° BEND FL x FL CEMENT LINED
- ③ RESILIENT WEDGE GATE VALVE FL x FL
- ④ DIP MORTAR LINED SPOOL FL x FL
- ⑤ 6" THICK CONCRETE SLAB. REINFORCED WITH W 1.4 x W1.4 WELD WIRE MESH. CONCRETE SHALL BE 560-C-3250
- ⑥ LONG RADIUS 90° BEND FL x MJ CEMENT LINED
- ⑦ CITY SUPPLY PIPE. CLASS 52 MORTAR LINED PIPE W/ POLYETHYLENE ENCASEMENT.
- ⑧ CONSUMER PIPING.
- ⑨ THRUST BLOCKS PER STANDARD DETAIL W-15
- ⑩ BYPASS DOUBLE, SPRING LOADED, POPET CHECK VALVE ASSEMBLY WITH MULTIPLE TEST COCKS
- ⑪ MAGNETIC DRIVE, LOW HEAD LOSS, BYPASS METER CAPABLE OF READING FLOWS FROM 1/4 TO 20 GPM.



GENERAL NOTES:

- 1. ALL ABOVE GROUND FITTINGS SHALL BE PAINTED WITH 2 COATS OF PRIMER AND 2 COATS OF 2 MIL. HIGH GLOSS ENAMEL PAINT.
- 2. ALL BELOW GRADE D.I.P. FITTINGS SHALL BE ENCASED IN AN 8 MIL. POLYEHTYLENE WRAP.
- 3. ALL FLANGE BOLTS SHALL BE TYPE 318 STAINLESS STEEL.
- 4. CITY OWNED PIPING SHALL BE INSTALLED IN AN EASEMENT GRANTED TO THE CITY.

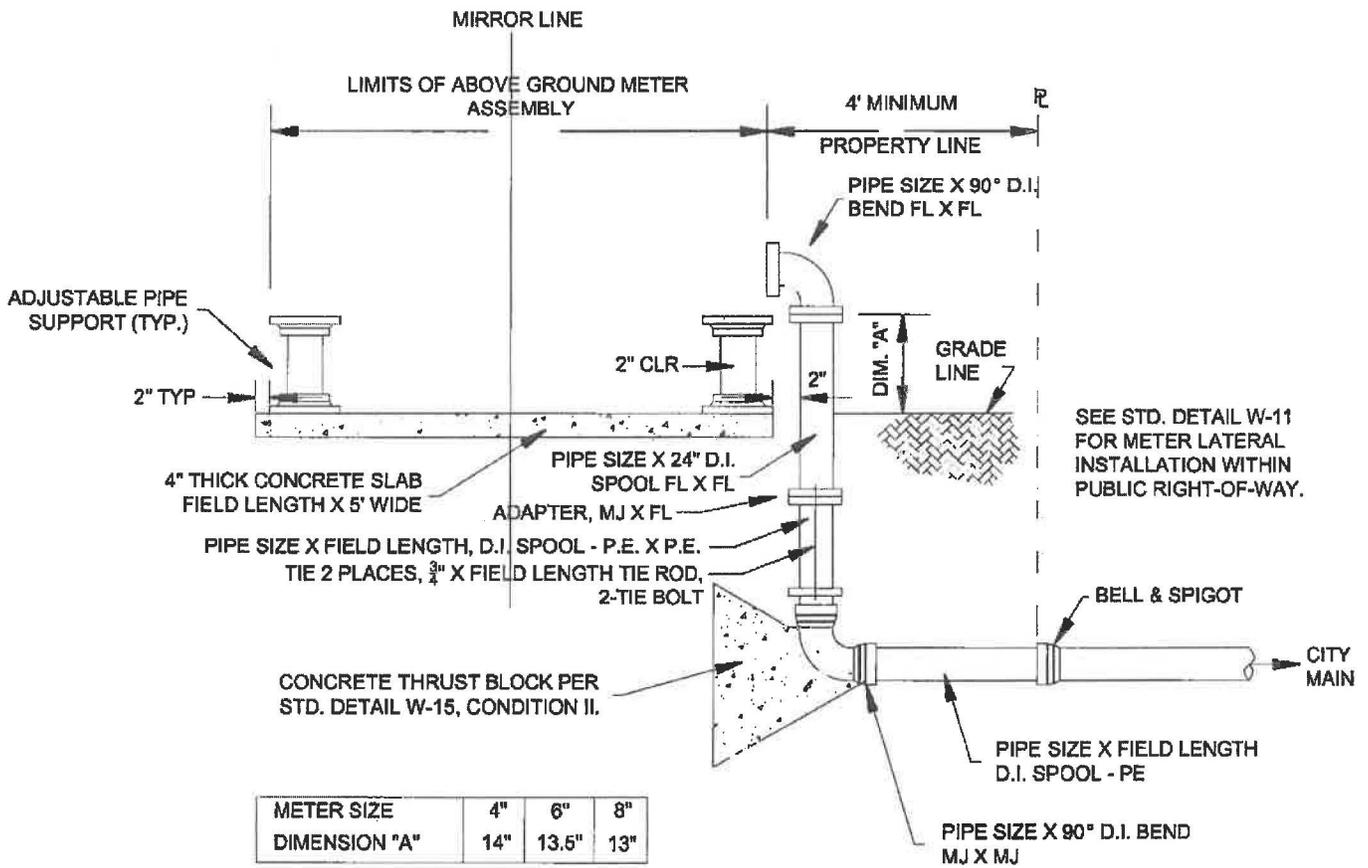
DATE	REV.	DESCRIPTION

CITY OF LA HABRA
STANDARD DOUBLE DETECTOR CHECK
BACKFLOW PREVENTION ASSEMBLY
WITH BYPASS METER



APPROVED: *Montez J. Johnson* DATE: 7/23/12

STANDARD DETAIL W-12B



DATE	REV.	DESCRIPTION

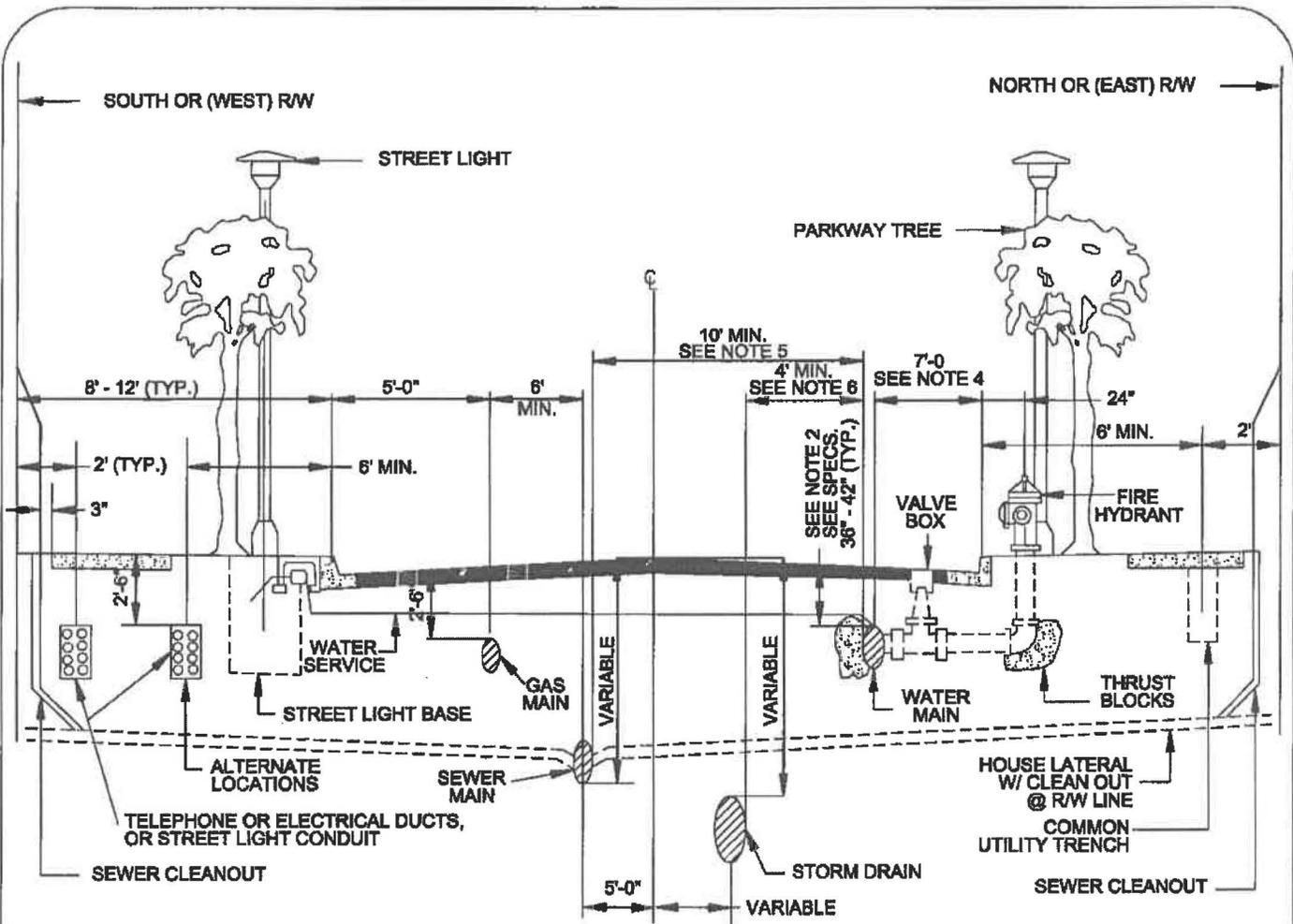
CITY OF LA HABRA

ABOVE GROUND METER INSTALLATION



APPROVED: *Christopher J. Johnson* DATE: *7/23/12*

STANDARD DETAIL W-13



NOTES:

1. LOCATION OF WATER MAIN WILL GOVERN LOCATION OF UTILITIES, NORMALLY THE WATER MAIN WILL BE LOCATE ON THE NORTH OR EAST SIDE OF STREETS.
2. USE 36"-42" OF COVER FOR 12" & SMALLER MAINS. MAINS OVER 12" & MAINS IN ARTERIAL STREETS REQUIRE SPECIAL DESIGN AND COMPLY WITH CALIFORNIA CODE OF REGULATIONS TITLE 22, CALIFORNIA WATER WORKS STANDARDS, CHAPTER 16.
3. TELEPHONE OR ELECTRICAL DUCTS OR COMMON UTILITY TRENCHES MAY GO ON EITHER OR BOTH SIDES OF STREET.
4. USE 10' - 0" ON 80' OR WIDER ARTERIALS.
5. NEW WATER MAINS SHALL BE AT LEAST 10' HORIZONTALLY FROM ANY PARALLEL PIPELINE CONVEYING SEWAGE. IF 10' HORIZONTAL SEPARATION IS NOT POSSIBLE, A MINIMUM OF 6' HORIZONTAL AND 1' VERTICAL SEPARATION IS PERMISSABLE WITH THE USE OF C900 PVC CLASS 200 PIPE PER CALIFORNIA CODE OF REGULATIONS TITLE 22, CALIFORNIA WATER WORKS STANDARDS, CHAPTER 16.
6. NEW WATER MAINS SHALL BE AT LEAST 4' HORIZONTALLY FROM ANY PARALLEL PIPELIN CONVEYING STORM DRAINAGE OR RECYCLED WATER.

DATE	REV.	DESCRIPTION

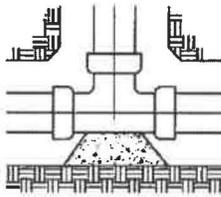
CITY OF LA HABRA

STANDARD LOCATION OF UNDERGROUND UTILITIES



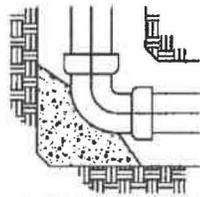
APPROVED: Christopher J. Johnson DATE: 7/23/12

STANDARD DETAIL W-14



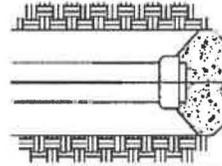
CONDITION I

TEE



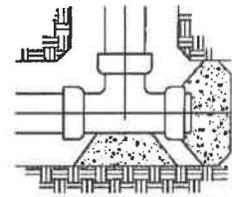
CONDITION II

90° BEND



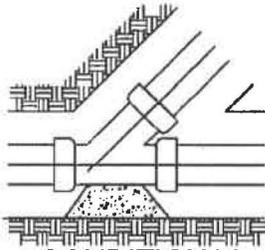
CONDITION III

CAP OR PLUG



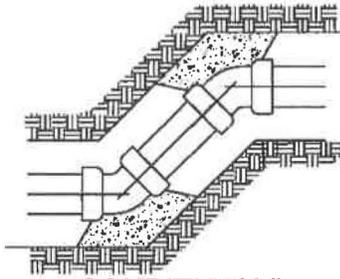
CONDITION IV

TEE & PLUG



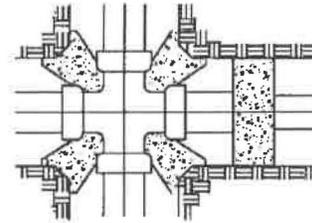
CONDITION V

45° LATERAL



CONDITION VI

**(A) 22.5° OR 11.25° BEND
(B) 45° BEND**



CONDITION VII

**CROSS & REDUCER
(D1)-(D2) = NET BLOCK**

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.
3. THRUST BLOCKS SHALL BE CLASS 560-C-3250 CONCRETE, UNLESS OTHERWISE SPECIFIED.
4. ALL BURIED BOLTS SHALL BE COATED WITH 2 COATS OF 3M CO. EC-244 OR PREVIOUSLY APPROVED EQUAL.

- THRUST BLOCK BEARING AREA - SQ. FT.								
PIPE SIZE (IN INCHES)	CONDITIONS							
	I.	II.	III.	IV.	V.	(A) VI. (B)	VII.	
4	2.0	2.9	2.0	2 @ 2.0	2.0	1.0	1.6	4 @ 1.6
6	4.3	6.0	4.3	2 @ 4.3	4.3	1.5	3.3	4 @ 3.3
8	7.4	10.5	7.4	2 @ 7.4	7.4	3.0	5.7	4 @ 5.7
10	12.1	17.1	12.1	2 @ 12.1	12.1	4.5	9.3	4 @ 9.3
12	17.2	24.3	17.2	2 @ 17.2	17.2	6.0	13.2	4 @ 13.2
14	20.7	30.1	20.7	2 @ 20.7	20.7	8.0	15.8	4 @ 15.8
16	26.7	38.0	26.7	2 @ 26.7	26.7	10.0	20.5	4 @ 20.5
18	35.0	49.0	35.0	2 @ 35.0	35.0	14.0	27.0	4 @ 27.0
20	43.0	60.0	43.0	2 @ 43.0	43.0	17.0	33.0	4 @ 33.0
24	62.0	87.0	62.0	2 @ 62.0	62.0	24.0	48.0	4 @ 48.0

UNIT MEASURE:
AREA IN SQ. FT.

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

DATE	REV.	DESCRIPTION

CITY OF LA HABRA

THRUST BLOCK INSTALLATION



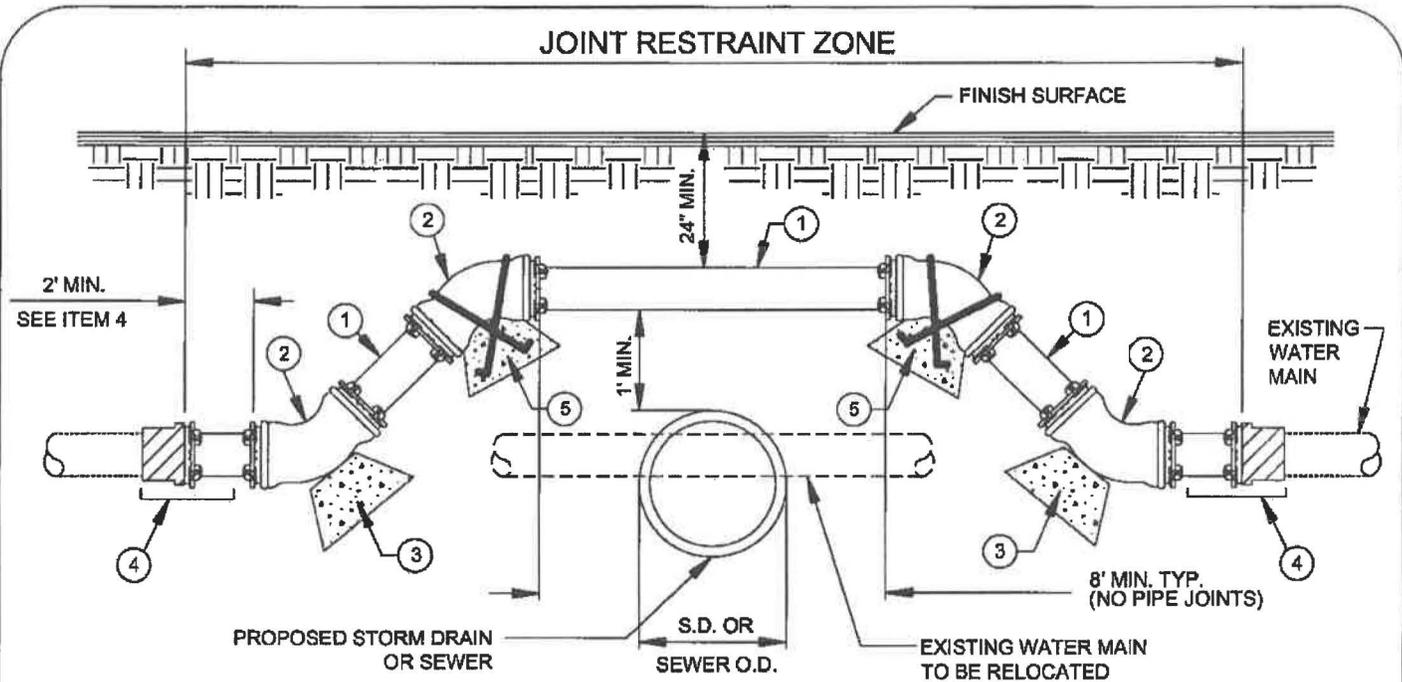
APPROVED:

Christopher J. Johnson

DATE:

7/23/12

STANDARD DETAIL W-15



TYPE 1- VERTICAL OFFSET PROFILE

ITEM	CONSTRUCTION NOTES
①	CONSTRUCT MINIMUM CLASS 250 DUCTILE IRON PIPE, SIZE AS NECESSARY TO MATCH EXISTING MAIN.
②	CONSTRUCT 45° BEND (MJ X MJ) WITH MEGALUG JOINT RESTRAINTS AT EACH END.
③	CONSTRUCT THRUST BLOCK PER CITY STD. DETAIL W-15, CONDITION VI.
④	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.
⑤	CONSTRUCT THRUST BLOCK WITH VERTICAL BEND ANCHOR PER CITY STD. DETAIL W-17.

NOTES:

1. WATER MAIN CONSTRUCTION SHALL COMPLY WITH CALIFORNIA CODE OF REGULATIONS TITLE 22, CALIFORNIA WATER WORKS STANDARDS, CHAPTER 16.
2. ALL BURIED IRON SHALL BE WRAPPED WITH 1 LAYER OF 10 MIL POLYETHYLENE SHEETING TAPED IN PLACE.
3. ALL BURIED BOLTS SHALL BE COATED WITH 2 COATS OF MASTIC SUCH AS "3M" BRAND EC 244 NO-OX-ID GREAS COATING OPTION OR EQUAL.
4. ALL D.I. PIPE, FITTINGS, AND MORTAR LINING SHALL BE MANUFACTURED IN ACCORDANCE WITH AWWA STANDARDS C150, C110, & C104.
5. NO UNRESTRAINED JOINTS BETWEEN FITTINGS.
6. CONTRACTOR IS NOT PERMITTED TO TURN (OR EXERCISE) WATER VALVES. THE CONTRACTOR SHALL CONTACT THE CITY OF LA HABRA P.W. INSPECTOR A MINIMUM OF FOUR (4) WORKING DAYS PRIOR TO REQUIRING VALVE SHUT DOWN AT EACH LOCATION.
7. THE CITY OF LA HABRA WATER DEPARTMENT 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.
8. THIS STANDARD DETAIL SHALL APPLY ONLY TO 12" AND SMALLER WATER MAINS. OFFSETS IN LARGE WATER MAINS MUST BE DESIGNED BY A REGISTERED CIVIL ENGINEER AND APPROVED BY THE CIT ENGINEER.
9. PROPER HANDLING AND DISPOSAL OF A.C. PIPE ARE THE RESPONSIBILITY OF THE CONTRACTOR.

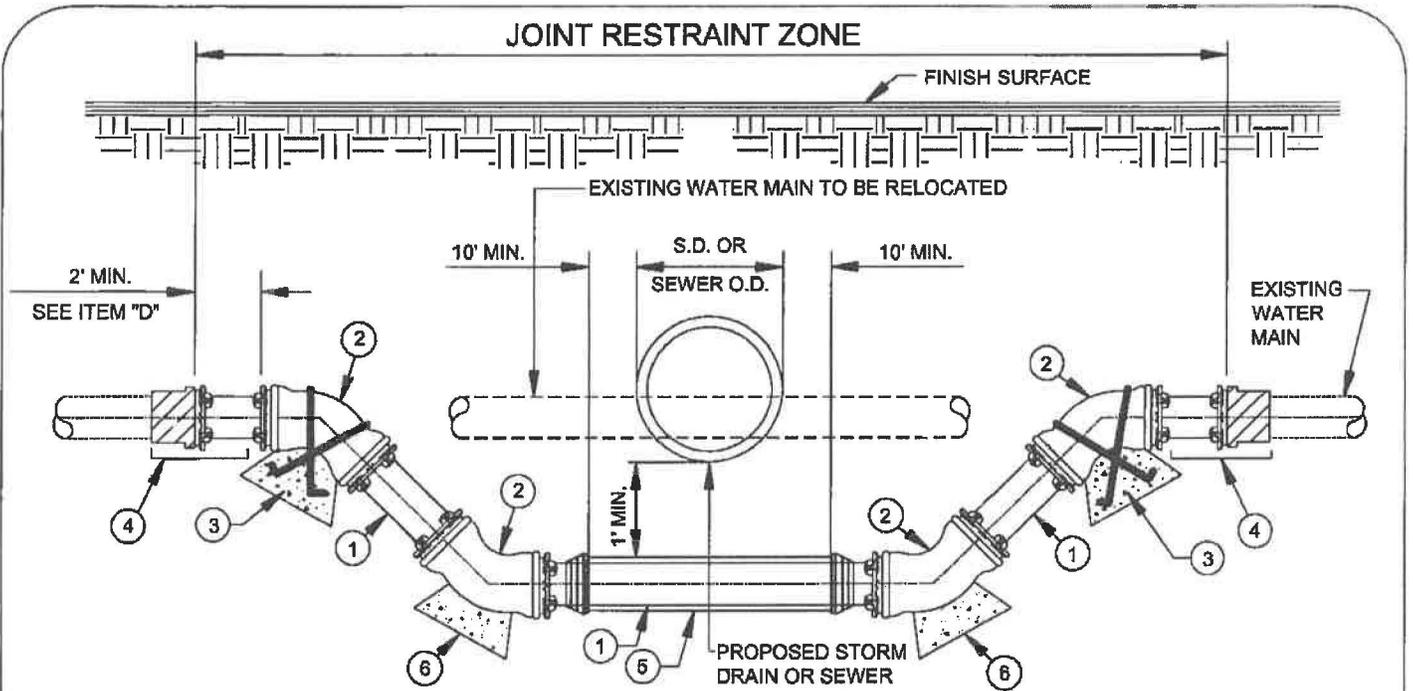
DATE	REV.	DESCRIPTION

CITY OF LA HABRA
WATER MAIN
TYPE 1 - VERTICAL OFFSET



APPROVED: *Christopher J. Johnson* DATE: *7/23/12*

STANDARD DETAIL W-16



TYPE 2- VERTICAL OFFSET PROFILE

ITEM	CONSTRUCTION NOTES
1	CONSTRUCT MINIMUM CLASS 250 DUCTILE IRON PIPE, SIZE AS NECESSARY TO MATCH EXISTING MAIN.
2	CONSTRUCT 45° BEND (MJ X MJ) WITH MEGALUG JOINT RESTRAINTS AT EACH END.
3	CONSTRUCT THRUST BLOCK WITH VERTICAL BEND ANCHOR PER CITY STD. DETAIL W-17.
4	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.
5	CONSTRUCT WATER PIPE CASING PER CITY OF LA HABRA STD. DETAIL W-22.
6	CONSTRUCT THRUST BLOCK PER CITY STD. DETAIL W-15, CONDITION VI.

NOTES:

1. WATER MAIN CONSTRUCTION SHALL COMPLY WITH CALIFORNIA CODE OF REGULATIONS TITLE 22, CALIFORNIA WATER WORKS STANDARDS, CHAPTER 16.
2. ALL BURIED IRON SHALL BE WRAPPED WITH 1 LAYER OF 10 MIL POLYETHYLENE SHEETING TAPED IN PLACE.
3. ALL BURIED BOLTS SHALL BE COATED WITH 2 COATS OF MASTIC SUCH AS "3M" BRAND EC 244 NO-OX-ID GREAS COATING OPTION OR EQUAL.
4. ALL D.I. PIPE, FITTINGS, AND MORTAR LINING SHALL BE MANUFACTURED IN ACCORDANCE WITH AWWA STANDARDS C150, C110, & C104.
5. NO UNRESTRAINED JOINTS BETWEEN FITTINGS.
6. CONTRACTOR IS NOT PERMITTED TO TURN (OR EXERCISE) WATER VALVES. THE CONTRACTOR SHALL CONTACT THE CITY OF LA HABRA P.W. INSPECTOR A MINIMUM OF FOUR (4) WORKING DAYS PRIOR TO REQUIRING VALVE SHUT DOWN AT EACH LOCATION.
7. THE CITY OF LA HABRA WATER DEPARTMENT 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.
8. THIS STANDARD DETAIL 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 ENGINEER.
9. PROPER HANDLING AND DISPOSAL OF A.C. PIPE ARE THE RESPONSIBILITY OF THE CONTRACTOR.

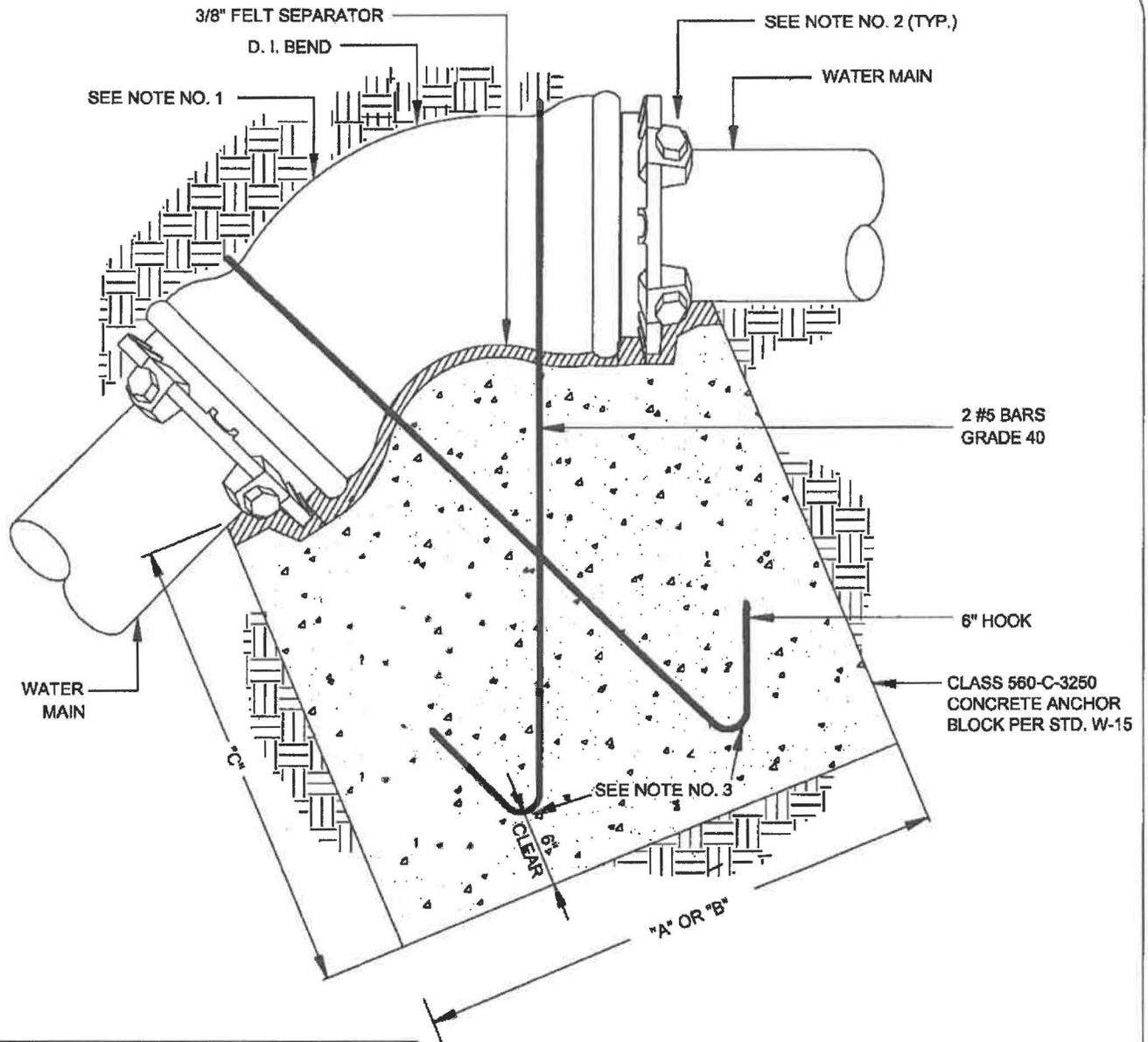
DATE	REV.	DESCRIPTION

CITY OF LA HABRA
WATER MAIN
TYPE 2 - VERTICAL OFFSET



APPROVED: *Christopher L. Johnson* DATE: 7/23/12

STANDARD DETAIL W-16A



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.
2. ALL BURIED NUTS AND BOLTS SHALL BE COATED WITH COATS MASTIC SUCH AS "3M" BRAND EC 244 NP-OX-1 GREASE COATING OPTION OR EQUAL
3. 45° MAXIMUM BEND - 90° + 45°
4. 200 PSI MAXIMUM PRESSURE

DATE	REV.	DESCRIPTION

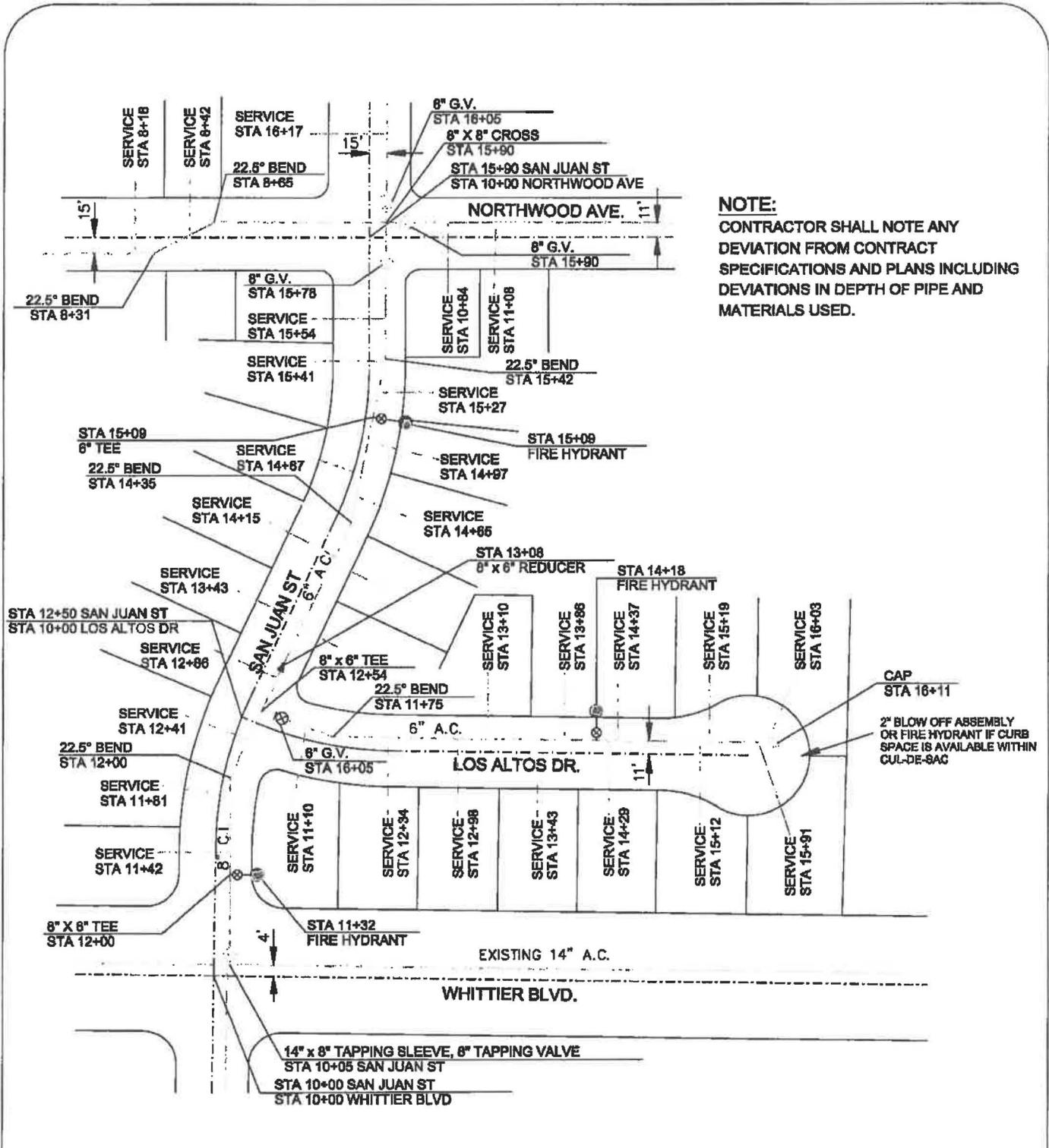
CITY OF LA HABRA

VERTICAL BEND ANCHOR



APPROVED: *Christopher J. Deamon* DATE: 7/23/12

STANDARD DETAIL W-17



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

DATE	REV.	DESCRIPTION

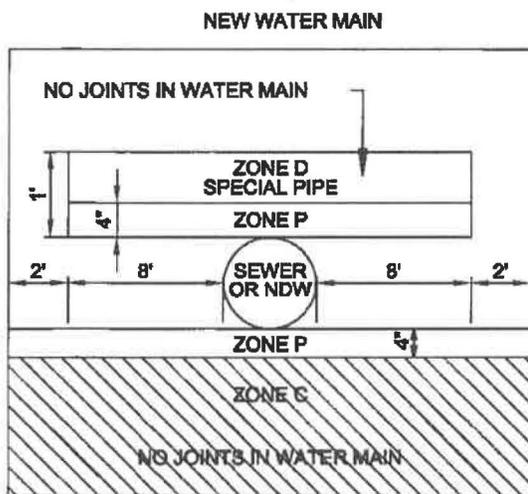
CITY OF LA HABRA
 TYPICAL DIMENSIONS PRACTICE
 FOR "AS BUILTS" WATER SYSTEM MAP



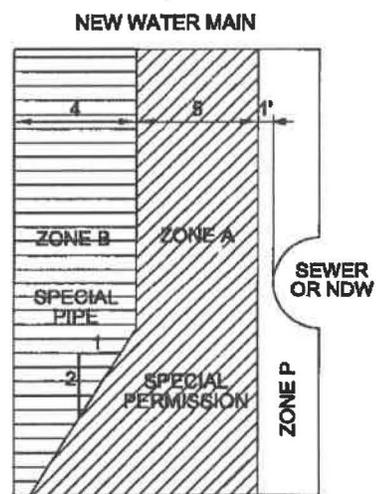
APPROVED: *Christopher J. ...* DATE: 7/23/12

STANDARD DETAIL W-18

CASE 1



CROSSINGS



PARALLEL CONSTRUCTION

ZONES IDENTICAL ON EITHER SIDE OF CENTERLINES SHOWN

NOTES:

1. THE DESIGN AND INSTALLATION OF SEWER FORCE MAINS REQUIRE SPECIAL CITY REVIEW AND APPROVAL.
2. THE DESIGN OF ALL WATER, SEWER AND NON-DOMESTIC WATER (NDW) MAINS 24-INCH IN DIAMETER AND LARGER SHALL BE REVIEWED AND APPROVED BY THE STATE HEALTH DEPARTMENT PRIOR TO CONSTRUCTION.

REF. SOURCE: CALIFORNIA CODE OF REGULATIONS TITLE 22, CALIFORNIA WATER WORKS STANDARDS, CHAPTER 16.

CONSTRUCTION REQUIREMENTS FOR DOMESTIC WATER MAINS

ZONE

- A** — SPECIAL PERMISSION REQUIRED. DO NOT LOCATE ANY PARALLEL WATER MAIN IN THIS AREA WITHOUT CITY ENGINEER AND STATE HEALTH DEPARTMENT APPROVAL.
- B** — IF THE SEWER OR NON-DOMESTIC WATER MAIN DOES NOT MEET THE REQUIREMENTS OF CASE 1, ZONE B ON STD. W-20, THE WATER MAIN SHALL BE DIP, C900 PVC PIPE CLASS 200 WITH PUSH-ON TYPE RUBBER RING JOINTS OR MORTAR-LINED AND COATED STEEL PIPE (1/4" THICK MINIMUM WALL) WITH FULLY WELDED JOINTS.
- C** — IF THE SEWER OR NON-DOMESTIC WATER MAIN DOES NOT MEET THE REQUIREMENTS OF CASE 1, ZONE C ON STD. W-20, THE WATER MAIN SHALL BE CONSTRUCTED AS DESCRIBED FOR ZONE B ABOVE, WITH THE EXCEPTION THAT THE WATER MAIN SHALL CONTAIN NO JOINTS IN ZONE C.
- D** — IF THE SEWER OR NON-DOMESTIC WATER MAIN DOES NOT MEET THE REQUIREMENTS OF CASE 1, ZONE D ON STD. W-20, THE WATER MAIN SHALL BE CONSTRUCTED AS DESCRIBED FOR ZONE B ABOVE, WITH THE EXCEPTION THAT THE WATER MAIN SHALL CONTAIN NO JOINTS IN ZONE D.
- P** — PROHIBITED ZONE: NON-DOMESTIC WATER MAINS, CALIFORNIA CODE OF REGULATIONS TITLE 22, CALIFORNIA WATER WORKS STANDARDS, CHAPTER 16.

DATE	REV.	DESCRIPTION

CITY OF LA HABRA

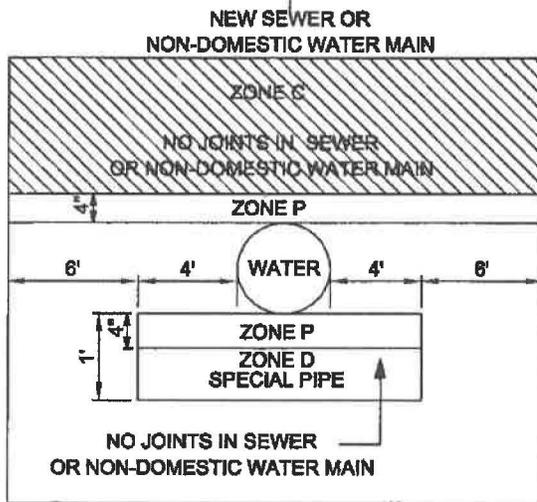
CASE 1: SEPARATION OF DOMESTIC WATER MAINS FROM SANITARY SEWERS AND NON-DOMESTIC WATER MAINS



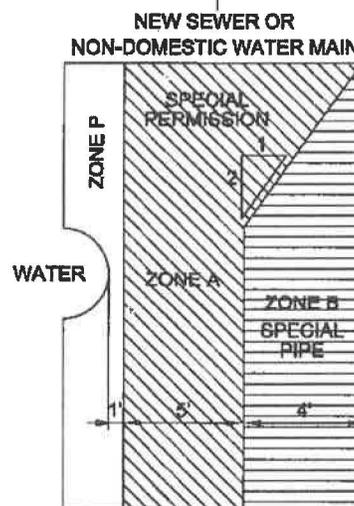
APPROVED: *Christopher J. Johnson* DATE: *7/23/12*

STANDARD DETAIL W-19

CASE 2



CROSSINGS



PARALLEL CONSTRUCTION

ZONES IDENTICAL ON EITHER SIDE OF CENTERLINES SHOWN

NOTES:

1. THE DESIGN AND INSTALLATION OF SEWER FORCE MAINS REQUIRE SPECIAL CITY REVIEW AND APPROVAL
2. THE DESIGN OF ALL WATER, SEWER AND NON DOMESTIC WATER (NDW) MAINS 24-INCH IN DIAMETER AND LARGER SHALL BE REVIEWED AND APPROVED BY THE STATE HEALTH DEPARTMENT PRIOR TO CONSTRUCTION.

REF. SOURCE: CALIFORNIA CODE OF REGULATIONS TITLE 22, CALIFORNIA WATER WORKS STANDARDS, CHAPTER 16.

CONSTRUCTION REQUIREMENTS FOR SEWERS AND NON-DOMESTIC WATER MAINS

ZONE

- A — SPECIAL PERMISSION REQUIRED. DO NOT LOCATE ANY PARALLEL SEWER MAIN OR NON DOMESTIC WATER MAIN IN THIS AREA WITHOUT CITY ENGINEER AND STATE HEALTH DEPARTMENT APPROVAL.
- B — EXTRA STRENGTH VCP WITH COMPRESSION JOINTS, DIP POLYETHYLENE LINED OR PVC SEWER PIPE WITH PUSH-ON TYPE RUBBER RING JOINTS FOR SEWER LINES; DIP CLASS 200 OR C900 PVC PIPE CLASS 200 OR DIP PUSH-ON TYPE RUBBER RING JOINTS FOR NON-DOMESTIC WATER MAINS.
- C — DIP POLYETHYLENE LINED WITH MECHANICAL JOINTS, A CONTINUOUS SECTION OF C900 PVC PIPE CLASS 200 CENTERED OVER THE PIPE BEING CROSSED, OR ANY SEWER PIPE IN A 1/4" THICK CONTINUOUS STEEL CASING WITH ANNULAR SPACE PRESSURE GROUTED FOR SEWER LINES; FOR NON-DOMESTIC WATER MAINS USE ANY OF THE ABOVE WITH THE EXCEPTION THAT POLYETHYLENE LINING OF DIP IS NOT REQUIRED.
- D — A CONTINUOUS SECTION OF DIP POLYETHYLENE LINED WITH PUSH-ON TYPE RUBBER RING JOINTS, A CONTINUOUS SECTION OF C900 PVC PIPE CLASS 200 CENTERED ON THE PIPE BEING CROSSED, ANY SEWER PIPE IN A 1/4" THICK CONTINUOUS STEEL CASING WITH ANNULAR SPACE PRESSURE GROUTED OR ANY SEWER PIPE SEPARATED BY A 10'X10'X4" THICK REINFORCED CONCRETE SLAB; FOR NON-DOMESTIC WATER MAINS USE ANY OF THE ABOVE WITH THE EXCEPTION THAT POLYETHYLENE LINING OF DIP IS NOT REQUIRED.
- P — PROHIBITED ZONE: NO SEWER MAINS OR NON-DOMESTIC WATER MAINS, CALIFORNIA CODE OF REGULATIONS TITLE 22, CALIFORNIA WATER WORKS STANDARDS, CHAPTER 16.

DATE	REV.	DESCRIPTION

CITY OF LA HABRA
CASE 2: SEPARATION OF SANITARY SEWERS AND NON-DOMESTIC WATER MAINS FROM WATER MAINS



APPROVED: *Christopher J. Johnson* DATE: 7/23/12

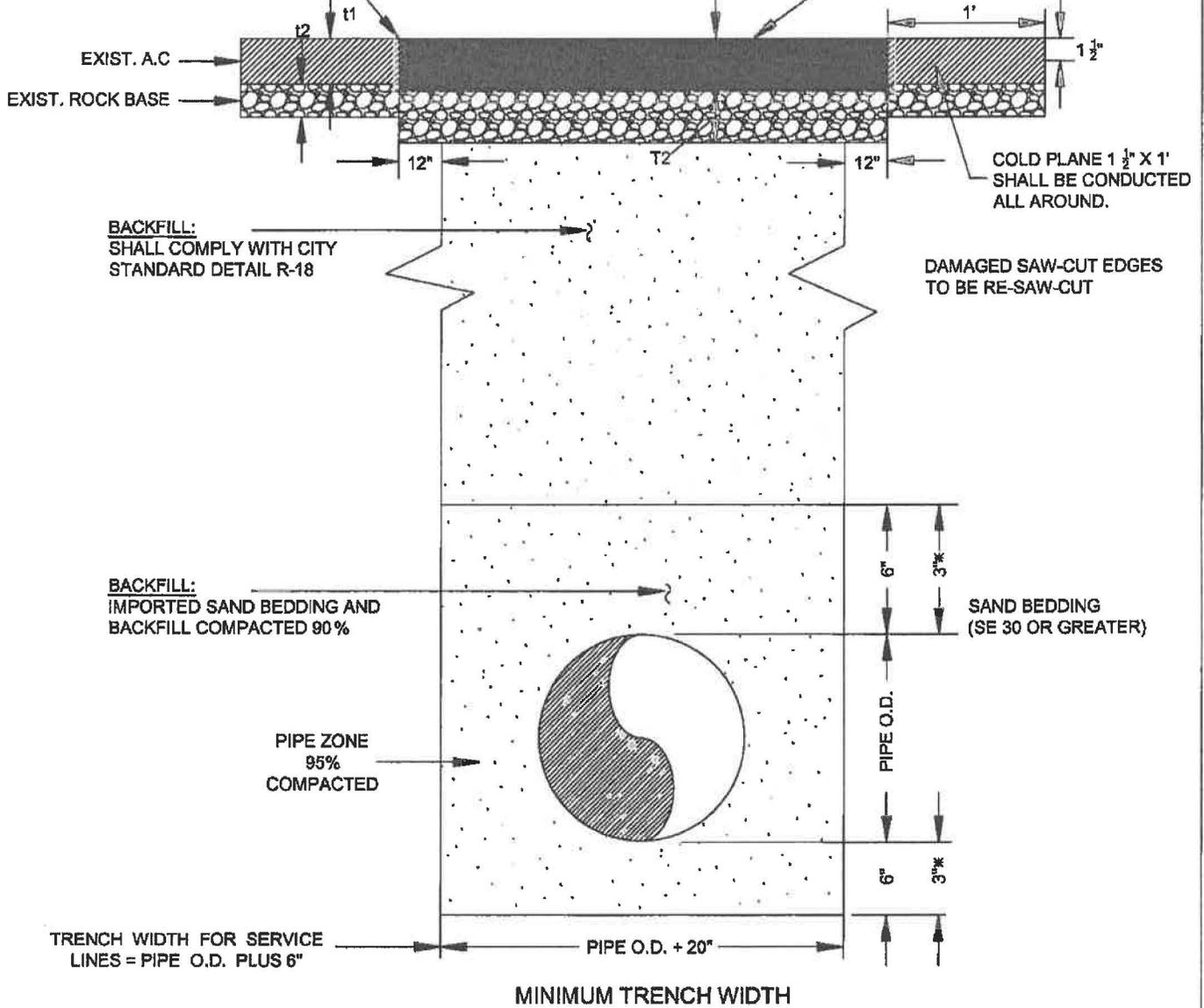
STANDARD DETAIL W-20

NOTE:

FOR P.C.C. STREETS PAVEMENT REPLACEMENT SHALL BE 1" THICKER THAN EXISTING (6" MINIMUM)

EXIST. PAVING TO BE SAWCUT PRIOR TO TRENCHING OPERATIONS

$T1 = t1 + 1"$ (MIN. 3")
 $T2 = t2 + 1"$ (MIN. 6")



WATER MAIN TRENCH DETAIL N.T.S.

NOTE: SPECIAL REQUIREMENTS FOR ARTERIAL STREETS

FOR ALL TRENCH PAVING ON ARTERIAL STREETS, THE A.C. BASE COURSE SHALL BE INITIALLY CONSTRUCTED FLUSH WITH ADJACENT PAVEMENT. FOLLOWING 1-2 WEEKS OF TRAFFIC LOADING, THE CONTRACTOR SHALL GRIND THE TOP 1 1/2" OFF THE TRENCH BASE COURSE AND INSTALL THE SURFACE COURSE

DATE	REV.	DESCRIPTION

NOTE: * = BEDDING AND SHADING FOR DOMESTIC WATER SERVICE/LATERAL LINES

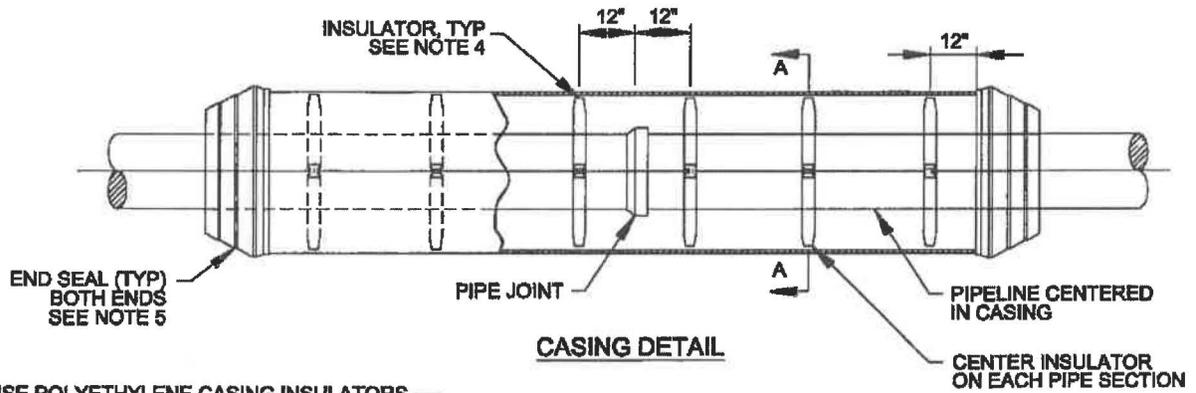
CITY OF LA HABRA

WATER MAIN TRENCH

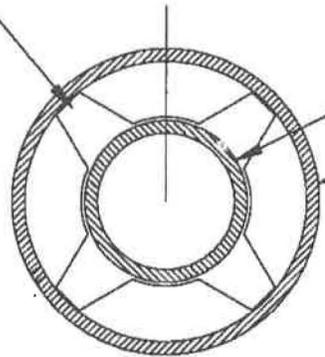


APPROVED: *Christopher J. Plummer* DATE: 7/23/12

STANDARD DETAIL W-21



USE POLYETHYLENE CASING INSULATORS WITH POLYETHYLENE SKIDS. ALL BOLTS AND BANDS SHALL BE TYPE 304 STAINLESS STEEL



SECTION A-A

PIPE SIZE (D.I.)	STEEL CASING PIPE		
	MIN. SIZE (I.D.)		MIN. WALL THK.
	DIP & PVC	CML & C	
6"	16"	14"	1/4"
8"	18"	14"	1/4"
10"	21"	18"	5/16"
12"	24"	18"	5/16"

NOTES:

1. ALL STEEL CASING PIPE JOINTS SHALL BE WELDED FULL CIRCUMFERENCE.
2. PERIPHERY OF CASING TO BE BLOWN-IN SAND.
3. UPSTREAM AND DOWNSTREAM ELEVATIONS TO BE VERIFIED.
4. SPACING BETWEEN THE CASING INSULATORS SHALL BE PER THE MANUFACTURER RECOMMENDATIONS EXCEPT THAT THERE SHALL BE AT LEAST 3 CASING INSULATORS PER PIPE SECTION, ONE 12" FROM EACH JOINT AND ON CENTER. 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.

DATE	REV.	DESCRIPTION

CITY OF LA HABRA

WATER PIPE JACKED



APPROVED: *Christopher J. Johnson* DATE: 7/23/12

STANDARD DETAIL W-22